



Chaldicott Barns Northern Expansion

External Lighting Strategy

18 September 2026

Project: 1942

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Chaldicott Barns Northern Expansion

External Lighting Strategy Report

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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 Institution of Lighting Professionals, Society of Light and Lighting, and Chartered Institution of Building Services Engineers.

1.2 Scope of the Report

The Lighting Bee Ltd have been commissioned by Chaldicotts Ltd to provide an External Lighting Strategy for the proposed development, at Chaldicott Barns Northern Expansion, Semley.

This lighting strategy covers the lighting proposals for the planning application to erect a general industrial building (Use Class B2) and provide associated access, parking, and security infrastructure.

The aim of the External Lighting Strategy is to outline relevant policy and guidance, the intended parameters for the proposed lighting within the site, mitigation measures proposed to reduce the impacts in terms of obtrusive light, visual impacts, dark skies and ecological receptors.

Within this report the proposed land take area will be referred to as the 'site'.

1.3 Structure of the Report

This report contains the following sections:

Section 2 – Outlines the relevant legislation, planning policy and guidance

Section 3 – Summarises the guidance for environmental zone classification and limiting parameters

Section 4 – Outlines the baseline lighting conditions for the site

Section 5 – Outlines the proposed external lighting for the proposed development

Section 6 – Concludes / Summarises the Lighting Strategy

1.4 Site Location

The site is located on Land at Chaldicotts Farm, in the village of Semley in Wiltshire. (Approximate grid reference to the centre of the site is ST 88046 27528.)

2 Legislation, Planning and Policy Guidance

2.1 Legislative Background

Light pollution was introduced within the Clean Neighbourhoods and Environment Act (2005) as a form of statutory nuisance under the Environmental Protection Act (the 'EPA', 1990), which was amended in 2006 to include the following nuisance definition:

“(fb) artificial light emitted from premises so as to be prejudicial to health or nuisance.”

Although light was described as having the potential to cause statutory nuisance, no prescriptive limits or rules were set for impact assessment purposes. Guidance Notes for the Reduction of Obtrusive Light produced by the Institution of Lighting Professionals (ILP) has, therefore, been referred to for the purposes of this assessment.

Guidance produced by Defra, Statutory Nuisance from Insects & Artificial Light (2006) on s101 to s103 of the Clean Neighbourhoods and Environment Act (2005) has also been referred to which places a duty on local authorities to ensure that their areas are checked periodically for existing and potential sources of statutory nuisances - including nuisances arising from artificial lighting. Local authorities must take reasonable steps to investigate complaints of such nuisances from artificial light. Once satisfied that a statutory nuisance exists or may occur or recur, local authorities must issue an abatement notice (in accordance with s80(2) of the EPA 1990), requiring that the nuisance cease or be abated within a set timescale.

2.2 Planning Policy Context

The National Planning Policy Framework (NPPF) 2026 sets out the government's policies for plan-making and for making decisions on development proposals in England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, by managing the use and development of land in the long-term public interest. The following references are made to artificial lighting.

Policy DP3: Key principles for well-designed places, refers to the need for public spaces to be *'safe, secure, inclusive, and accessible for all ages and abilities'* with examples of ways this may be achieved such as integrating lighting and considering window positions for natural surveillance.

Policy P3: Living conditions and pollution, highlights the requirement to *'provide healthy living conditions for occupiers and users in terms of adequate access to light and avoiding exposure to levels of air, noise, artificial light or other sources of pollution which could have an unacceptable adverse effect on health and the quality of life. Where necessary suitable mitigation measures should be incorporated to secure acceptable living conditions'*.

It states that development proposals should not give rise to unacceptable levels of artificial light, and that *'adverse impacts of this nature should be avoided where possible, or else mitigated to an acceptable degree'*, and that they should *'limit any adverse impact from artificial light on local amenity, intrinsically dark landscapes (those areas entirely, or largely, uninterrupted by artificial light) and nature.'*

2.3 Local Policy

2.3.1 Wiltshire Core Strategy 2015

The site is located within the administrative boundary of Wiltshire Council. The Wiltshire Core Strategy contains the following policies that refer to artificial lighting and light pollution.

Core Policy 50 Biodiversity and geodiversity highlights that lighting should be considered in relation to ecology.

Core Policy 51 Landscape highlights the need to protect against intrusion from light pollution.

2.3.2 Wiltshire Local Plan (Withdrawn)

The withdrawn Wiltshire Local Plan included a proposed policy, Policy 92: Conserving and enhancing dark skies, specifically addressing the conservation and enhancement of dark skies. Although the policy no longer forms part of an emerging statutory development plan, its supporting text identified the Cranborne Chase International Dark Sky Reserve predominantly as Environmental Zone E0, with an E1 buffer toward the outer edge of the designation, with reference to ILP GN01.

It states that for the purposes of policy implementation, applicants should refer to the Institution of Lighting Professionals (ILP) Guidance Note for 'The Reduction of Obtrusive Light [ILP GN 01/2021]', or future revisions, that contains design and installation guidance and recommendations in different Environmental Zones.

It also states that in practice, all outdoor lighting should meet the requirements of ILP GN 01/2021 (or its current updates), alongside the current requirements for an International Dark-Sky Reserve as specified by the International Dark-Sky Association with regards the Cranborne Chase IDSR.

2.3.3 Cranborne Chase National Landscape Partnership Plan 2025–2030

The Cranborne Chase National Landscape Partnership Plan 2025–2030 is the statutory management plan for the National Landscape. It establishes the shared objectives and policies intended to conserve and enhance its special qualities. The Plan identifies dark night skies, tranquillity and the area's predominantly rural character as important components of the National Landscape.

Cranborne Chase was designated an International Dark Sky Reserve in 2019 and is identified as having some of the darkest night skies in central southern England. The Plan's ambition is to retain this status and continue reducing light pollution, benefiting landscape character, wildlife and human health while reducing unnecessary energy use and carbon emissions.

Policy DNS1 seeks continued improvements to new and existing lighting, with lighting kept to the minimum necessary and only installed where there is an identified need.

Policy DNS2 states that proposals likely to affect the dark skies or tranquillity of the National Landscape should conserve and enhance these qualities by avoiding lighting where possible and otherwise minimising it. Proposals should have regard to the National Landscape's lighting guidance and relevant guidance produced by the Institution of Lighting Professionals and Bat Conservation Trust. The Plan also encourages local planning authorities to require substantial lighting schemes to be competently designed to satisfy dark-sky and other environmental criteria.

Accordingly, the proposed lighting should be limited to that demonstrably required and designed to minimise upward light, glare and spill beyond the intended area. Particular consideration should be given to the quantity of lighting, its output, spectral characteristics, orientation, shielding and method of control.

2.4 International Guidance

2.4.1 Commission Internationale de l'Éclairage (CIE) 150: Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations (the 'CIE 150', 2017)

The purpose of CIE 150 is to aid in formulating guidelines for assessing the environmental effects of exterior lighting and to provide limits for relevant lighting parameters to control the obtrusive effects of exterior lighting to tolerable levels. CIE 150 also refers to the potentially adverse effects of exterior lighting on both natural and man-made environments.

2.4.2 CIE 126: Guidelines for Minimising Sky Glow (1997)

This document gives general guidance for lighting designers and policy makers on the reduction of sky glow. The report gives recommendations about maximum permissible values for exterior lighting installations. These values are regarded as limiting values. Lighting designers should strive to meet the lowest criteria for the design. Practical implementation of the general guidance is left to national regulations.

2.5 National Guidance

2.5.1 ILP Guidance Note for the Reduction of Obtrusive Light (GN 01/26)

The ILP has proposed lighting guidance and criteria for local authorities with a recommendation that these are incorporated at the local plan level. The ILP Guidance Notes define various forms of light pollution and describe a series of environmental zones. The ILP Guidance Notes provide suitable criteria against which the effects of artificial lighting can be assessed.

2.5.2 Institution of Lighting Professionals (ILP) (2013) PLG 04 Guidance on Undertaking Environmental Lighting Impact Assessments

The aim of this guidance is to outline good practice in lighting design and provide practical guidance on the production and assessment of lighting impacts within new developments.

2.5.3 Institution 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.

2.6 Local Guidance

2.6.1 Cranborne Chase National Landscape

The external-lighting guidance published by Cranborne Chase National Landscape has been reviewed. This includes its Dark Night Sky Charter, associated fact sheets and good-practice notes, and *Lighting Types, Qualities and Impacts* prepared by Bob Mizon of the Commission for Dark Skies.

The guidance promotes the avoidance of unnecessary lighting and, where lighting is required, the use of appropriately specified, controlled and fully shielded luminaires. Lighting should be directed downwards and limited in output and duration to minimise glare, upward light and light spill beyond the area requiring illumination. These principles have been considered in the assessment of the proposed industrial development.

3 Environmental Zone Classification and Parameters

All standards consulted in section 2 are nationally recognised documents, (some internationally, also) which deal with all design issues associated with external lighting.

3.1 Environmental Zoning

The CIE Standards, the CIBSE and the Society of Light & Lighting guidance documents all apply a common Environmental Zoning system, which is summarised in Table 3.1 below.

Table 3.1 Environmental Zones – extracted from ILP Guidance Note 01/26

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Intrinsically dark	Astronomical Observable dark sky, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark	Relatively uninhabited rural areas. National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness	Sparsely inhabited rural areas. Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural or urban settlements. Small town centres or suburban locations
E4	Urban	High district brightness	Town/City centres and other commercial areas with high levels of night-time activity

Notes:

1. The environmental zone can be defined by using the relevant guidance however the designation of the environmental zone is ultimately the decision of the local authority in conjunction with a competent lighting professional.
2. Where an area to be lit lies close to the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone (see adjacent zone considerations).
3. Rural zones under protected designations should use a higher standard of policy.
4. Zone E0 must always be surrounded by an E1 Zone.
5. 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.
6. The previous edition of GN01 included the consideration of SQM (Sky Quality Meter) assessments, this has been removed in the update due to the rigorous assessment periods involved to determine a detailed assessment which can extend to over a year.

3.2 Obtrusive Light Limitation for Exterior Lighting Installations

The ILP Guidance Note for the Reduction of Obtrusive Light (GN 01/26) provides guidelines and threshold values applicable to each Environmental Zone, which are reproduced in Tables 3.2 – 3.7 with associated notes.

Table 3.2 aims to address light intrusion by providing maximum values of vertical illuminance on properties. Limits apply to nearby dwellings, or potential dwellings, more specifically to their relevant surfaces or parts of surfaces, especially where windows are located. This parameter can also be considered for the management of spill light.

Table 3.3 aims to limit the luminous intensity of bright luminaires. It shows the maximum values for the luminous intensity of luminaires in designated directions where views of bright surfaces of luminaires are likely to be a nuisance to occupants of premises or from positions where such views are likely to be maintained, that is, not momentary or short-term.

Table 3.4 aims to limit the effects on transport systems, applying limits where users of road networks are subject to a reduction in the ability to see essential information.

Table 3.5 and 3.6 aim to limit the effects of sky glow. The limits in Table 3.5 represent the primary approach. The limits in Table 3.6 should only be considered in certain scenarios as described.

Table 3.7 aims to limit the effect of over-lit building facades and signs. For illuminated advertising signs the aim should be to achieve the limits advised in PLG05.

Table 3.2 Maximum values of vertical illuminance on properties

Light technical parameter	Application conditions	Environmental Zones				
		E0	E1	E2	E3	E4
Illuminance in vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Notes * Curfew:

The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. Depending upon application curfew times often commence between 21:00 to 23:00 and may run until 07:00. However, exact curfew hours should be carefully applied to ensure the reduction of obtrusive light is prioritised within the immediate environment and towards sensitive human as well as fauna and flora receptors.

Table 3.3 Limits of the luminous intensity of luminaires in designated directions

Light technical parameter	Application conditions	Luminaire group (projected area A_p in m^2)					
		$0 < A_p \leq 0.002$	$0.002 < A_p \leq 0.01$	$0.01 < A_p \leq 0.03$	$0.03 < A_p \leq 0.13$	$0.13 < A_p \leq 0.50$	$A_p > 0.5$
Maximum luminous intensity emitted by luminaire (I in cd)	E0						
	Pre-curfew	0	0	0	0	0	0
	Post-curfew	0	0	0	0	0	0
	E1						
	Pre-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	2,500
	Post-curfew	0	0	0	0	0	0
	E2						
	Pre-curfew	0.57 d	1.3 d	2.5 d	5.0 d	10 d	7,500
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	500
	E3						
	Pre-curfew	0.86 d	1.9 d	3.8 d	7.5 d	15 d	10,000
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	1,000
	E4						
	Pre-curfew	1.4 d	3.1 d	6.3 d	13 d	26 d	25,000
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	2,500

Notes:

1. *d* is the distance between the observer and the glare source in metres.
2. A luminous intensity of 0 cd can only be realised by a luminaire with a complete cutoff in the designated directions.
3. A_p is the apparent surface of the light source seen from the observer position.
4. For further information refer to Annex C of CIE 150.
5. Upper limits for each zone shall be taken as those with column $A_p > 0.5$.

Table 3.4 Maximum values of threshold increment and viewing direction in the path of travel

Light technical parameter	Road classification*			
	No road lighting	M6/M5	M4/M3	M2/M1
Veiling luminance ² (L_v)	0.037 cd/m ²	0.23 cd/m ²	0.40 cd/m ²	0.84 cd/m ²
Threshold increment	15% based on adaption luminance of 0.1 cd/m ²	15% based on adaption luminance of 1.0 cd/m ²	15% based on adaption luminance of 2.0 cd/m ²	15% based on adaption luminance of 5 cd/m ²

Notes:

1. Road classifications as given in CIE 115:2010.
2. The veiling luminance values specified in this table are based upon on a permissible TI value of 15%.

Definitions:

TI The measure of disability glare expressed as the percentage increase in contrast required between an object and its background for it to be seen equally well with a source of glare present. Note: Higher values of TI correspond to greater disability glare, the reduction in visibility caused by intense light sources in the field of view.

L_v The luminance that would need to be superimposed on a scene in object space to reduce the scene's contrast by an amount equal to the added retinal illuminance from scattered light on the scene's retinal image. It is most commonly used to describe the contrast-reducing effect of a glare source in the field of view.

Table 3.5 Maximum values of upward light ratio (ULR) of luminaires

Light technical parameter	Environmental Zones				
	E0	E1	E2	E3	E4
Upward light ratio (ULR)/%	0	0	2.5	5	15

Notes:

1. This is the primary approach to limit skyglow and is suitable to compare different single luminaires and mitigate the contribution of each luminaire within an installation.
2. This does not take into account the effect of light reflected upwards from ground that also contributes to sky glow.
3. Research indicates that light sources with a high colour temperature / blue light emission spectrum can contribute to skyglow to a greater degree than those with a lower colour temperature.
4. Some lighting schemes will require the deliberate and careful use of upward light, e.g. ground recessed luminaires, ground mounted floodlights, festive lighting, to which these limits cannot apply. However, care should always be taken to minimise any cumulative upward waste light by the proper application of suitably directional luminaires and light controlling attachments.
5. Protected and dark sky places may require zero ULR which may include E2 zones.

Table 3.6 Maximum values of upward flux ratio of installation (of four or more luminaires)

Light technical parameter	Type of installation	Environmental Zones				
		E0	E1	E2	E3	E4
Upward flux ratio (UFR)/%	Road	0	2	5	8	12
	Amenity	0 ⁵	0	6	12	35
	Sports	0 ⁵	0 ⁵	2	6	15

Notes:

The table allows the effect of both direct and reflected upward components of a whole installation to be considered. The factor being the upward flux ratio (UFR).

This should only be considered where an installation consists of four or more luminaires that form an installation with a defined performance requirement or specialised fauna growth lighting systems (such as those use to promote grass growth in sports stadia) and is in proximity to:

- Optical observatories
 - Lies within dark (E1) zones which abuts a protected (E0) dark sky zone
1. *The effect of distance must be considered which is a factor of the artificial lighting installation size, a small lighting installation will have an effect on an optical observatory 30km away whereas a large lighting installation of many luminaires will have an effect from a greater distance up to 100km. Specific guidance is given in CIE 126 and CIE 150.*
 2. *All external surfaces will have varying reflectances depending upon their condition and climatic conditions (wet, dry, frost etc.) as well as their varying angles so the level of uncertainty in any assessment may be considerable.*
 3. *In urban areas such light is more likely to be obstructed by buildings, trees and topography.*
 4. *Reflected light is dependent upon climatic conditions and the nature of the many surfaces involved, their angle, reflectivity and surface moisture levels and is therefore very difficult to assess.*
 5. *Such installations would not be expected within these lighting environmental zones.*

Table 3.7 Maximum permitted values of average surface luminance (cd/m²)

Light technical parameter	Application conditions	Environmental Zones				
		E0	E1	E2	E3	E4
Building façade luminance (L_b)	Taken as the product of the design average illuminance and reflectance divided by π	< 0.1	< 0.1	5	10	25
Sign luminance (L_s)	Taken as the product of the design average illuminance and reflectance divided by π , or for self-luminous signs, its average luminance	< 0.1	50	400	800	1000

Notes:

The values apply to both pre- and post-curfew, except that in zones 0 and 1 the values shall be zero post curfew. The values for signs do not apply to signs for traffic control purposes.

For illuminated advertising signs and digital media displays the requirements advised in PLG05 tables 10.4 Recommended maximum night-time permitted values of display luminance and 10.5 recommended maximum daytime permitted values of sign luminance shall be applied.

4 Environmental Baseline

4.1 Location and Environmental Zone

An assessment has been made of the existing Environmental Zone for the site by considering its location and available area-mapping information. This is based on desk-based research only, as a lighting baseline survey of the site and surrounding area has not been undertaken at this stage. Accordingly, the lighting strategy has been developed to meet the relevant limiting values for the identified Environmental Zone but does not quantify any change from the existing night-time lighting conditions.

Semley and the site are located within the Cranborne Chase National Landscape, and within Cranborne Chase International Dark Sky Reserve Periphery, and therefore the site is considered to be within Environmental Zone E1, with the core of the International Dark Sky Reserve considered to be Environmental Zone E0.

Figure 4.1 shows the Cranborne Chase International Dark Sky Reserve mapping with Semley indicated by a red dot, within the yellow periphery or buffer zone.

A review of the Light Pollution and Dark Skies (Night Blight) sky brightness mapping provided by CPRE, shows that the Application Site lies within the darkest and second darkest bands of the mapping. Refer to Figure 4.2.

External lighting for the proposed development should therefore be designed in accordance with the relevant obtrusive light limitations for Environmental Zone E1, with dark-sky lighting principles applied to minimise lighting impacts.

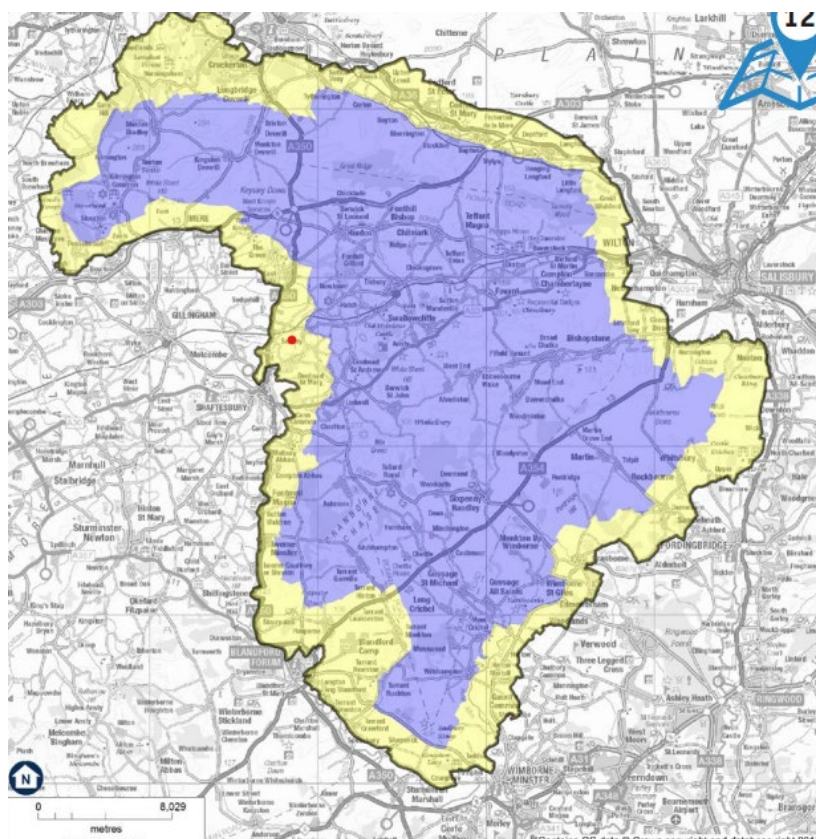
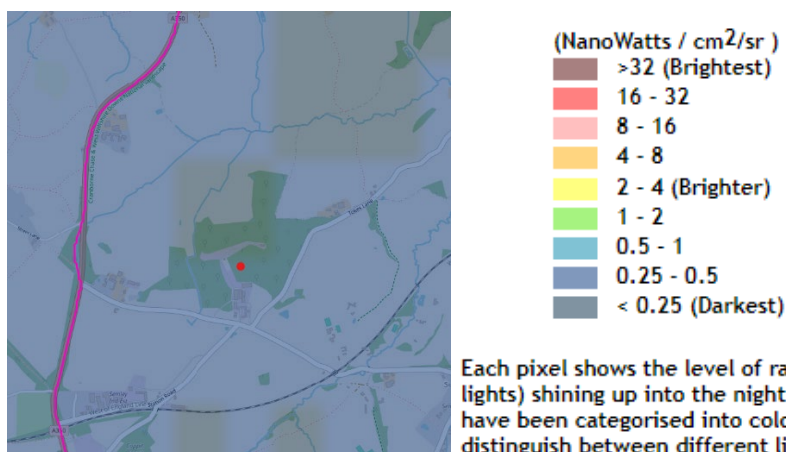
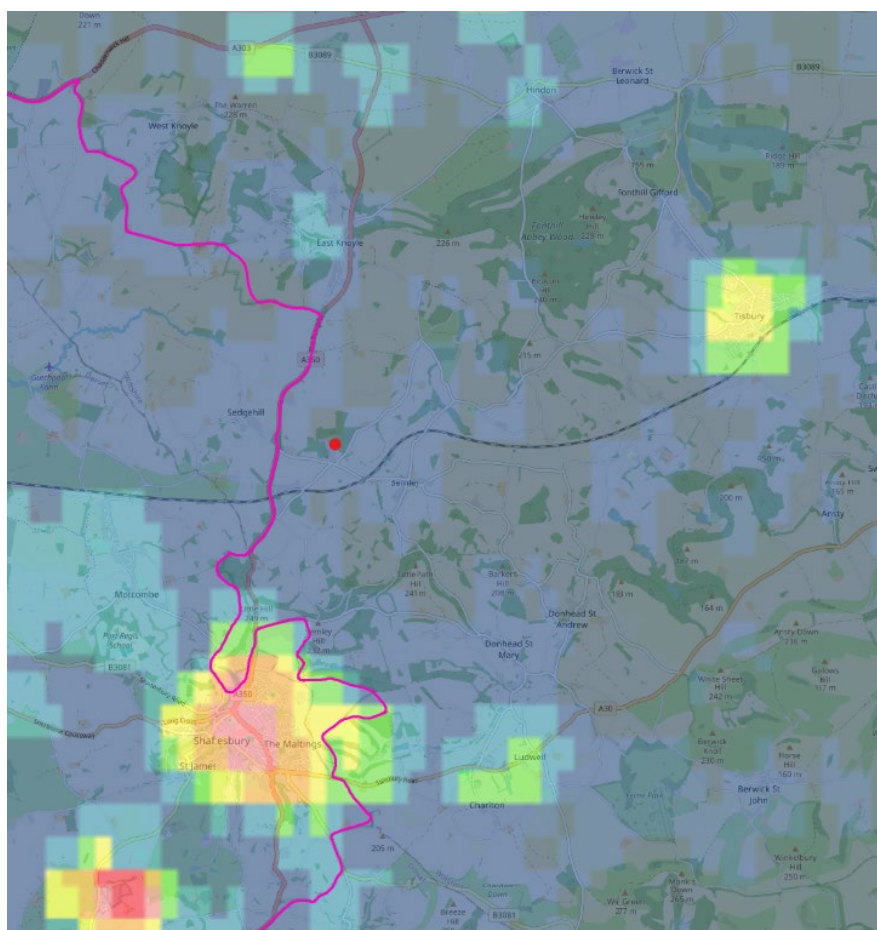


Figure 4.1- Cranborne Chase International Dark Sky Reserve mapping



Each pixel shows the level of radiance (night lights) shining up into the night sky. These have been categorised into colour bands to distinguish between different light levels.

Figure 4.2: shows an extract from the CPRE Light Pollution and Dark Skies mapping for the Application Site (marked approximately by a red dot) and surrounding area. (Reference: <https://www.nightblight.cpre.org.uk/maps/>). The boundary of Cranborne Chase National Landscape is marked by a pink line.

4.2 Sensitive Ecological Receptors

The hedgerows and woodland edge adjacent to the site, notably to the east, form part of a connected network of commuting and foraging habitat. Bat activity surveys recorded 11 species using these features, including low numbers of the Annex II species barbastelle, greater horseshoe and lesser horseshoe bat — all European Protected Species known to be highly light-averse and reliant on dark, unlit corridors for commuting. Barbastelle bats have a strong association with woodland, and static detector results recorded higher activity levels at

the location adjacent to the woodland edge, consistent with its use as a preferred commuting and foraging feature for this species. Activity of other light-sensitive bat species was also recorded to be higher at the east boundary location, including long-eared bat species and other *Myotis* species, all recognised as light-sensitive foraging bats favouring edge habitats and dependent on continuous dark linear features.

Refer to the Ecological Impact Assessment, Ethos Environmental Planning, 2026, for further detail.

5 Proposed External Lighting

The external lighting scheme is intended to be as minimalistic and sensitive as possible, to provide lighting for safe access and egress, and wayfinding, whilst minimising lighting impacts, particularly in relation to ecological receptors and dark skies.

The lighting for the site has also been designed to minimise obtrusive light, over-lighting and energy consumption.

The proposed lighting for the site will be provided in accordance with the Clients Risk Assessment for the site, with the provision of external lighting primarily for wayfinding purposes only, with the exception of the perimeter pathways for pedestrian access, and the loading bays when they are in use, which will be lit in accordance with industry standards.

Careful consideration has been given to the External Lighting Strategy, in order to balance the need for lighting to facilitate the safety and security of persons using the site, whilst minimising the impact from the scheme, with consideration of the site being located within the Cranborne Chase International Dark Sky Reserve and the Cranborne Chase National Landscape.

The impacts in terms of obtrusive light, visual impacts, impacts to light-sensitive ecological receptors, and dark skies will be minimised by the strategy outlined in this section.

Refer to the External Lighting Strategy drawings with lux contours in Appendix A and B. Appendix A shows the calculations with all the lights switched on, to represent the worst-case scenario, and Appendix B shows the calculations with the loading bay lights switched off, as these are not intended to operate unless needed for set periods during loading. The calculations for these drawings are based on a maintenance factor of 1, representing the day 1 output for assessment purposes.

Appendix C contains the lighting calculation summaries showing the design illuminance that will be achieved by the proposals.

5.1 Recommended and Proposed Lighting Levels

Typically, recommended lighting levels for this proposal would be derived from BS EN 12464-2:2024 – Lighting of Work Places – Outdoor Work Places in order to provide an adequate level of illuminance for security, safety and amenity throughout the site. However, the intention is to minimise lighting impacts as far as possible, with lighting provided to primarily aid in wayfinding only, with levels for task illuminance to BS EN 12464 only provided to the agreed perimeter paths and loading areas, with the following levels provided. (CCTV for security will operate via infrared, and therefore not require certain light levels to operate.)

- Pedestrian Routes / Walkways to the perimeter (5 lux average & 0.25 uniformity)
- Loading Areas (50 lux average & 0.40 uniformity)
- Car parking, and all other areas lit for wayfinding only

No lighting is proposed to the eastern car parking areas due to proximity to the sensitive ecological boundaries.

5.2 Strategy for Luminaire Type and Light Source

The following luminaire types are proposed.

- Dark Sky Compliant, 0% upward light output, downward directional building mounted luminaires to the perimeter pedestrian routes and access points
- Dark sky complaint, 0% upward light output, bollard lighting (1.3m height) in strategic locations to the parking areas, pathways, access and disabled parking bays
- Solar powered ground mounted way markers with top shields, as SolarEye Bat Hat, to delineate the parking spaces on the western side of the site
- Dark sky complaint, 0% upward light output, fixed functional luminaire to each loading bay area

The luminaires selected have good light control and cut off angles to reduce light spillage, control glare and limit sky glow. The bollards have a 360-degree symmetrical option and a 180-degree shielded option, which have both been utilised.

All luminaires will be LED with warm white light sources, with the proposed colour temperatures of 2700K for the building mounted lighting, and 1750K and 1900K amber for the car park lighting.

LED luminaires with warmer colour temperatures and no UV component have been shown to have less impact on bats and the environment. The downward directional style of the luminaires with 0% upward light output will minimise upward light, limiting the impact on bats, and on the environment and dark skies when considering sky glow. Limiting the lit areas, and limiting the levels of illuminance targeted also reduces the upward light reflected component.

LED lighting will provide good colour rendering, greater than 60 Ra, to improve visibility and provide a safer environment in line with a 'Secured by Design' approach (colour rendering values from CIBSE SLL Code for Lighting). A colour rendering of greater than 60 Ra allows lower levels of illuminance to be specified and promotes a feeling of safety for pedestrians. Utilising this light source will provide an energy efficient solution with better options for control, as LEDs can be dimmed and switched instantaneously, unlike traditional and discharge lamps.

All luminaires, with the exception of the solar ground mounted luminaires, proposed will be Dark Sky Compliant, with 0% upward light output. The upward light output of the solar ground mounted luminaire has not been verified, however the SolarEye Bat Hat is proposed, which has a shield over the top to limit upward light output, and has been developed to be used in sensitive areas to delineate and waymark areas, rather than provide task illuminance. (The photometric data provided by SolarEye for the Bat Hat version does not appear to show any measurable lumen output, so the normal version has been modelled in the calculations to represent the worst case scenario.) The overall upward light component of the scheme is therefore calculated to be 0%.

Careful consideration has been given to the mounting heights proposed for the building mounted lighting to balance the desire to minimise mounting heights as far as possible, whilst selecting a height that allows the paths to be uniformly lit, directs light where needed, minimises the number of lighting points required, and avoids any shadowing from doors. Therefore the building mounted lights are proposed to be mounted at 3.0m above finished floor level, with the exception of the loading bay luminaires which are proposed to be mounted at 5.0m high.

Refer to Figures 5.1 to 5.4 for images of the luminaires proposed, and Appendix D for manufacturers data sheets.

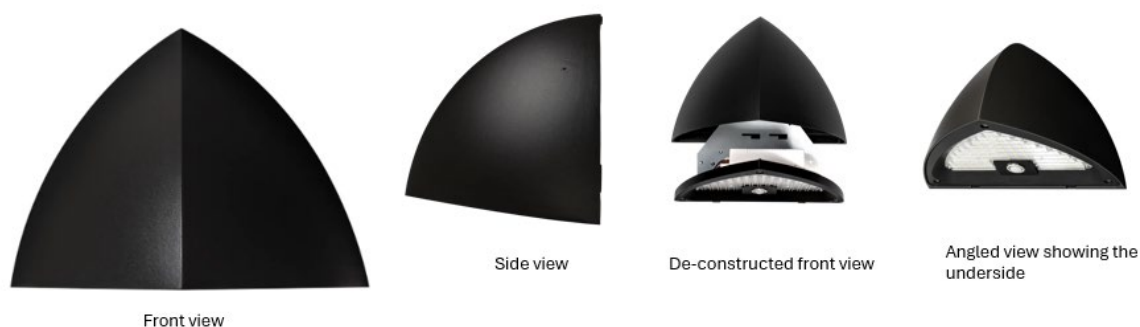


Figure 5.1: Proposed Building Mounted Luminaire with 0% Upward Light Output



Figure 5.2: Proposed Dark Sky Approved Bollard Luminaire



Figure 5.3: Proposed in ground SolarEye Bat Hat Waymarker luminaire

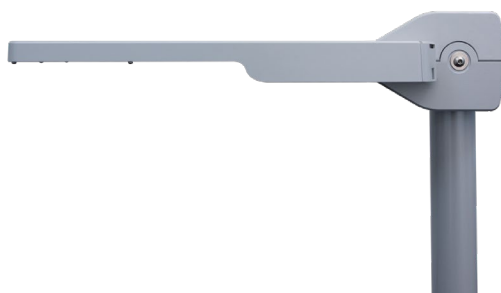


Figure 5.4: Proposed Dark Sky Approved Functional Luminaire for loading bays to be building mounted on an arm bracket

5.3 External Luminaire Control Strategy

All building mounted (X1 & X2) luminaires are proposed to operate via standalone PIR motion or microwave sensors (and photocells), via suitable groups, activated on short 1-minute timers.

Building mounted (X3) luminaires to the loading areas are proposed to operate via standalone PIR motion sensors (and photocells) for each luminaire activated on a short 1-minute timer, with a manual override off switch for when the loading areas are not in use.

All bollard (X4 & X5) luminaires are proposed to operate dusk till dawn via a photocell. A 7-day programmable time switch to be provided to allow the timings of operation to be reduced if required.

The solar powered ground mounted way markers (X6) will operate dusk till dawn, as they have integral photocell sensors and solar chargers.

6 Conclusion / Summary

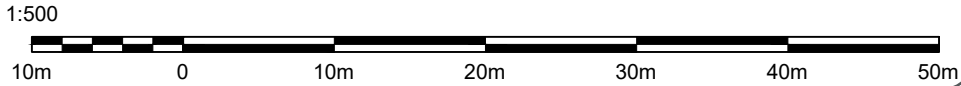
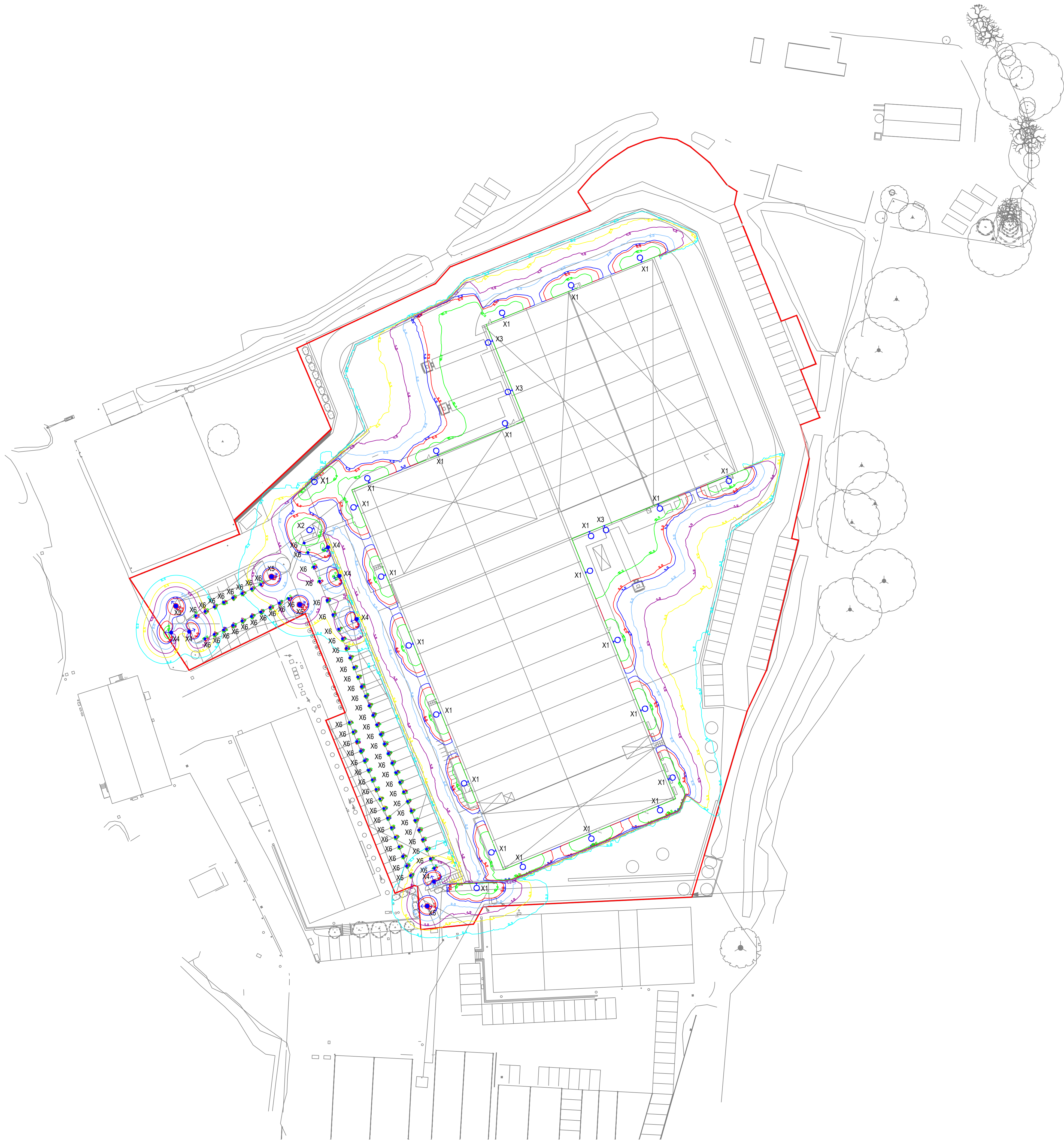
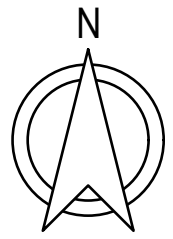
The site is located within the Cranborne Chase National Landscape, and within Cranborne Chase International Dark Sky Reserve Periphery, and therefore the site is considered to be within Environmental Zone E1, with the core of the International Dark Sky Reserve considered to be Environmental Zone E0.

This external lighting strategy outlines a Dark Sky Compliant scheme and parameters that will comply with the limiting criteria for that zone, to limit obtrusive light and light pollution to an acceptable level, with dark sky lighting principles and guidance applied to minimise lighting impacts as far as possible.



Proposed Site Plan Showing Levels
of Illuminance – for all lights switched on

APPENDIX A



Notes

- This drawing is provided for planning purposes to show the external lighting strategy, and should be developed at the technical design stage.
- Luminaire positions are indicative and will be subject to final site layout.
- Levels of illuminance are calculated and shown at ground level. Calculations are based on luminaires at full output/ maintenance factor = 1 to represent the worst case scenario for assessment purposes.
- The model is based on calculations on a flat ground plane. No topography or proposed levels have been built into the calculation model. The proposed retaining walls, 3m high, are included in the lighting calculation model.
- All existing external lighting (if applicable) is to be removed.
- Isoline contours represent values of illuminance calculated in lux. Lux contours are shown down to a value of 0.2 Lux.
- The lighting design has been provided in accordance with the Clients requirements, instruction and risk assessment. The lighting provided is intended to primarily aid in wayfinding only, with levels for task illuminance to BS EN 12464-2:2024 light and lighting - lighting of outdoor work places, only provided to the agreed perimeter paths and loading areas. See below:
 - Pedestrian Routes / Walkways to the perimeter (5 lux average & 0.25 uniformity)
 - Loading Areas (50 lux average & 0.40 uniformity)
 - Car parking, and all other vehicular and pedestrian routes lit for wayfinding only
- Emergency lighting design to be provided at the technical design stage, if required.
- Lighting has been specified in accordance with the recommendations within the Institution of Lighting Professionals (ILP) and Bat Conservation Trust (BCT) (2023) Guidance Note 08/ 23 Bats and Artificial Lighting in the UK.
- All luminaires have been specified in 2700K warm white to the perimeter, and 1900K and 1750K amber to the car park areas, to minimise the impact on bats and dark skies.
- All lighting proposed will be downward directional with 0% upward light output/ dark sky compliant, with the exception of the solar ground mounted luminaire, which is the SolarEye Bat Hat, which has a shield over the top to limit upward light.
- All building mounted (X1 & X2) luminaires to operate via standalone PIR motion or microwave sensors, via suitable groups, activated on a short 1 minute timers.
- Building mounted (X3) luminaires to the loading areas to operate via a standalone PIR motion sensors for each luminaire activated on a short 1 minute timer, with a manual override off switch for when the loading areas are not in use.
- All bollard (X4 & X5) luminaires are proposed to operate dusk till dawn via a photocell. A 7-day programmable time switch to be provided to allow the timings of operation to be reduced if required.
- The solar powered ground mounted way markers (X6) will operate dusk till dawn.
- Wiring schematics and full details of equipment locations to be provided at the technical design stage.
- No obstruction or planting shall hinder access to the bollard or the light distribution from any luminaires/ lantern.
- This drawing should be read in conjunction with the Calculation Summary and all relevant architectural, structural, mechanical and electrical services information.
- This design is based on a desktop study, on the information provided by others, with no site visit having been undertaken. The use of this drawing does not absolve the client from his responsibilities under the Health and Safety: The Construction Design and Management Regulations 2015. The Contractor should undertake a thorough Risk Assessment prior to undertaking any installation works.
- Refer to accompanying Designers Risk Assessment for details of design risks identified.
- Scaled for planning purposes only.
- All measurements are in millimetres unless stated otherwise
- All symbols used are generic and should not be considered as true representations of size or dimensions of actual luminaires.

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Luminaire Legend

- X1 IP66 & IK10 rated, 2700K LED downward directional wall mounted luminaire, mounted at 3.0m AFFL, complete with wide optic. As TRT Lighting Facet Zero, LED, (1300lm / 10W) wide optic or equal and approved.
- X2 IP66 & IK10 rated, 2700K LED downward directional wall mounted luminaire, mounted at 3.0m AFFL, complete with area optic. As TRT Lighting Facet Zero, LED, (1430lm / 10W) area optic or equal and approved.
- X3 IP66 & IK08 rated, 2700K LED luminaire, building mounted at 5.0m with 0.3m outreach bracket with 0° tilt, complete with GA2 optic. As TRT Lighting Aspect Gen 2, 16 LED, (9716m / 72W) GA2 optic or equal and approved.
- X4 IP66 & IK10 rated, 1750K downward directional bollard luminaire, 1.13 high, complete with asymmetric 180° optic. As TRT Lighting Via Bollard Dark Sky, LED, 510mA (296lm) asymmetric 180° optic or equal and approved.
- X5 IP66 & IK10 rated, 1750K downward directional bollard luminaire, 1.13 high, complete with symmetric 360° optic. As TRT Lighting Via Bollard Dark Sky, LED, 510mA (312lm) symmetric 360° optic or equal and approved.
- X6 IP68 & IK10 rated, Amber 1900K LED solar ground mounted luminaire. As Solareye 80 Bat Hat LED or equal and approved.

Legend

Application Boundary

Isolume Legend

- 10 Lux
- 5 Lux
- 4 Lux
- 2 Lux
- 1 Lux
- 0.5 Lux
- 0.2 Lux

P04	Minor Update	TB / BB	18.09.26
P03	Updated Site Plan	TB / BB	15.09.26
P02	Updated Site Plan	TB / BB	08.09.26
P01	Preliminary Issue	TB / BB	07.09.26
Rev	Details:	By / Reviewed	Date



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Tel +44 (0)1840 054601 | www.thelightingbee.co.uk

CLIENT
Chaldicotts Limited

PROJECT TITLE
Chaldicott Barns Northern Expansion
Semley
SP7 9AW

DRAWING TITLE
External Lighting Strategy - All On
Levels of Horizontal Illuminance Shown at
Ground Level from External Lighting Only
Full Output Shown (MF=1)

SCALE AT A1
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1942-LB-EX-XX-DR-E-7080-21

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

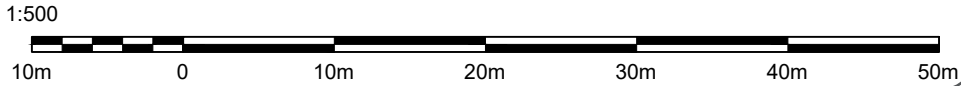
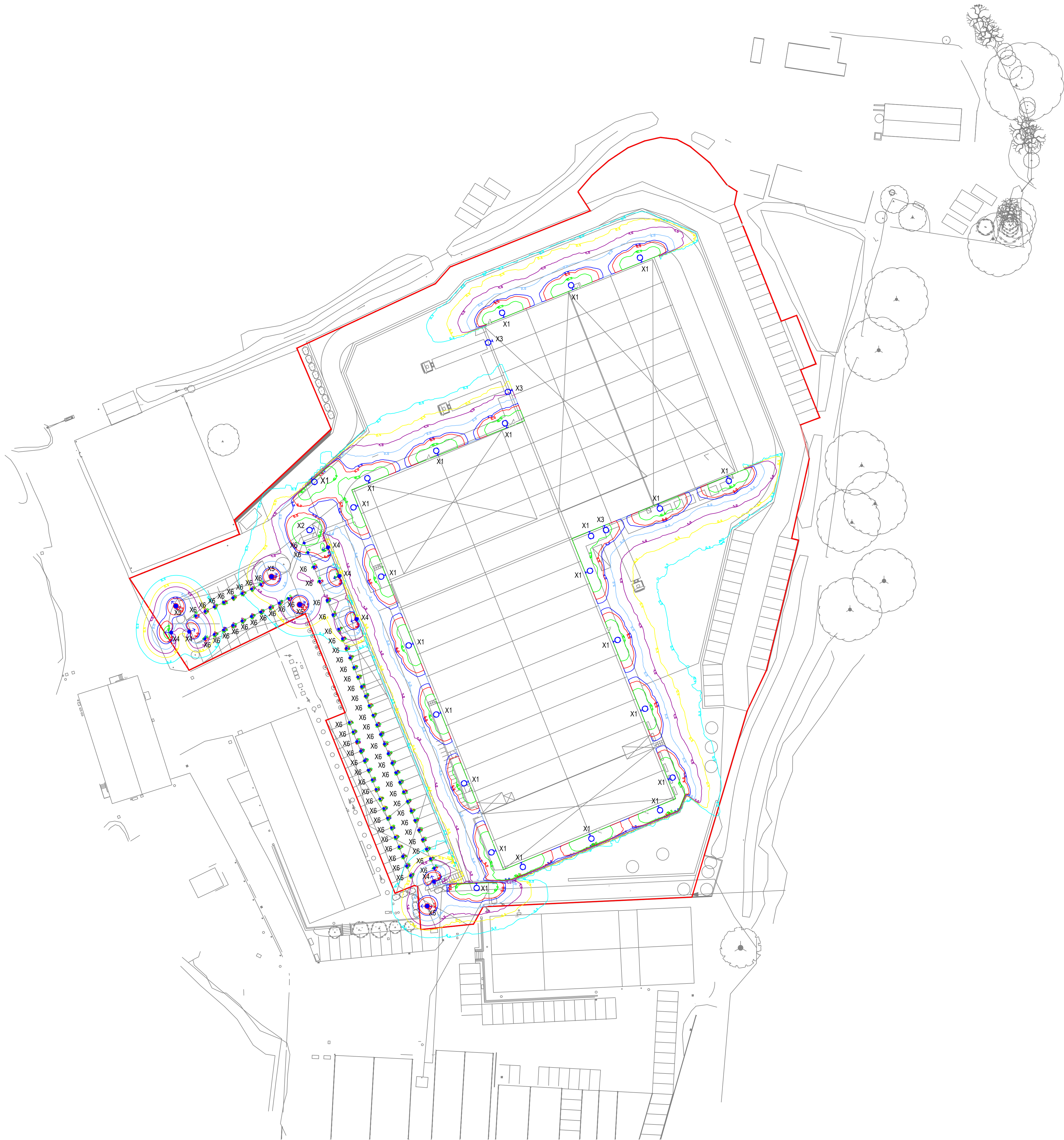
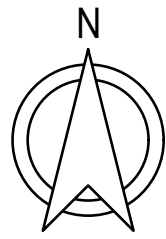
STATUS
Planning

ISSUE
P04



Proposed Site Plan Showing Levels
of Illuminance – with loading bay
lighting switched off

APPENDIX B



Notes

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Legend

Application Boundary

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- 5 Lux
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P04	Minor Update	TB / BB	18.09.26
P03	Updated Site Plan	TB / BB	15.09.26
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Rev	Details:	By / Reviewed	Date



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CLIENT
Chaldicotts Limited

PROJECT TITLE
Chaldicott Barns Northern Expansion
Semley
SP7 9AW

DRAWING TITLE
External Lighting Strategy - X3 Switched Off
Levels of Horizontal Illuminance Shown at
Ground Level from External Lighting Only
Full Output Shown (MF=1)

SCALE AT A1
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1942-LB-EX-XX-DR-E-7080-22

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

STATUS
Planning

ISSUE
P04

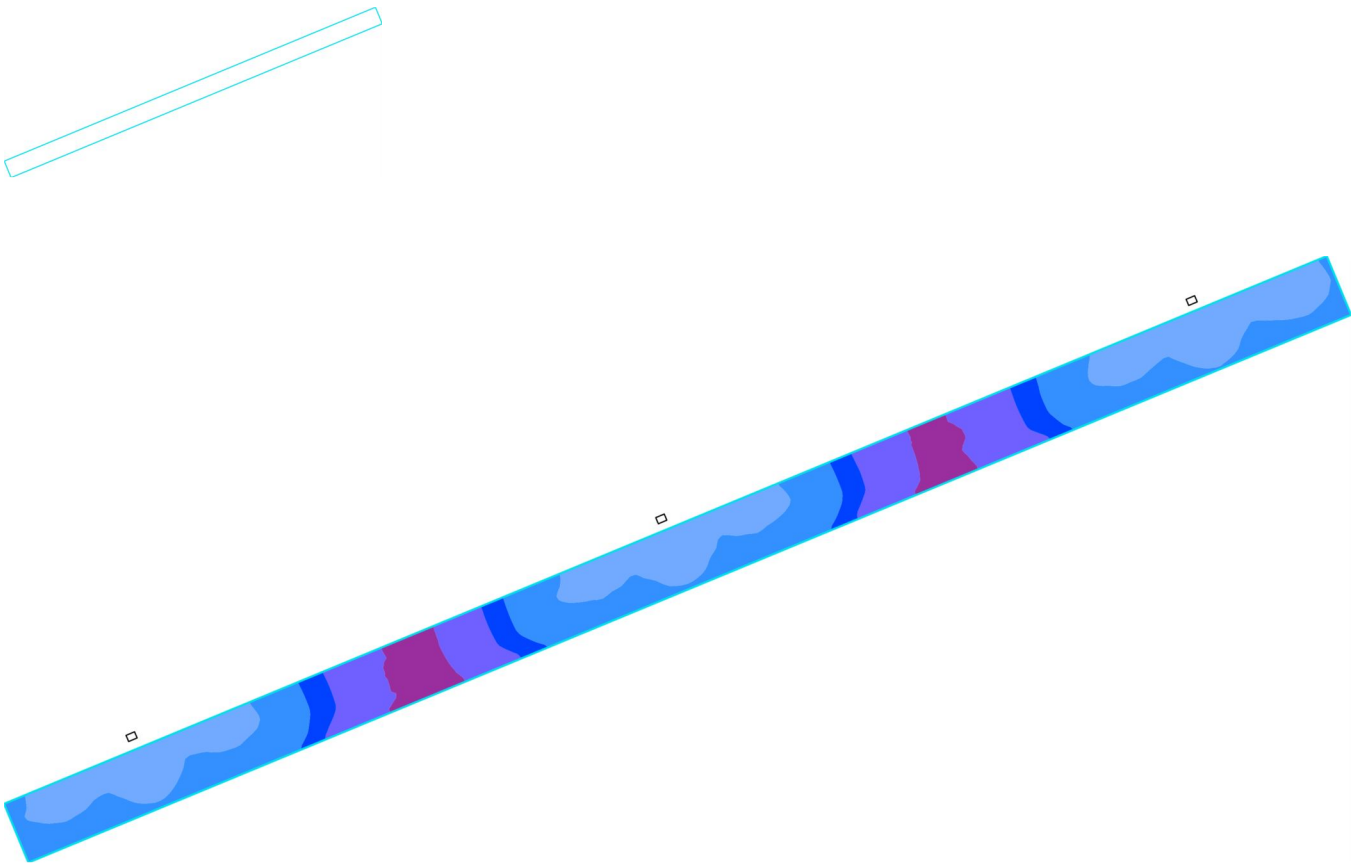


Calculation Summary

APPENDIX C

(Light scene 1)

Access path 1

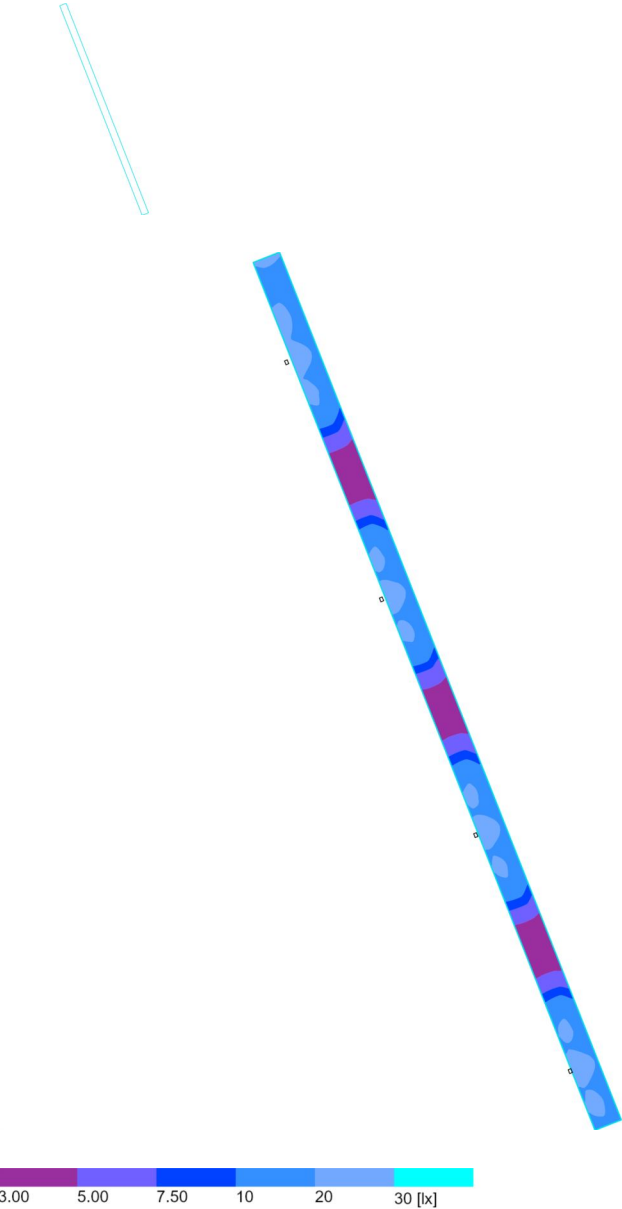


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Access path 1	15.2 lx	4.68 lx	28.3 lx	0.31	0.17
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

(Light scene 1)

Access path 2

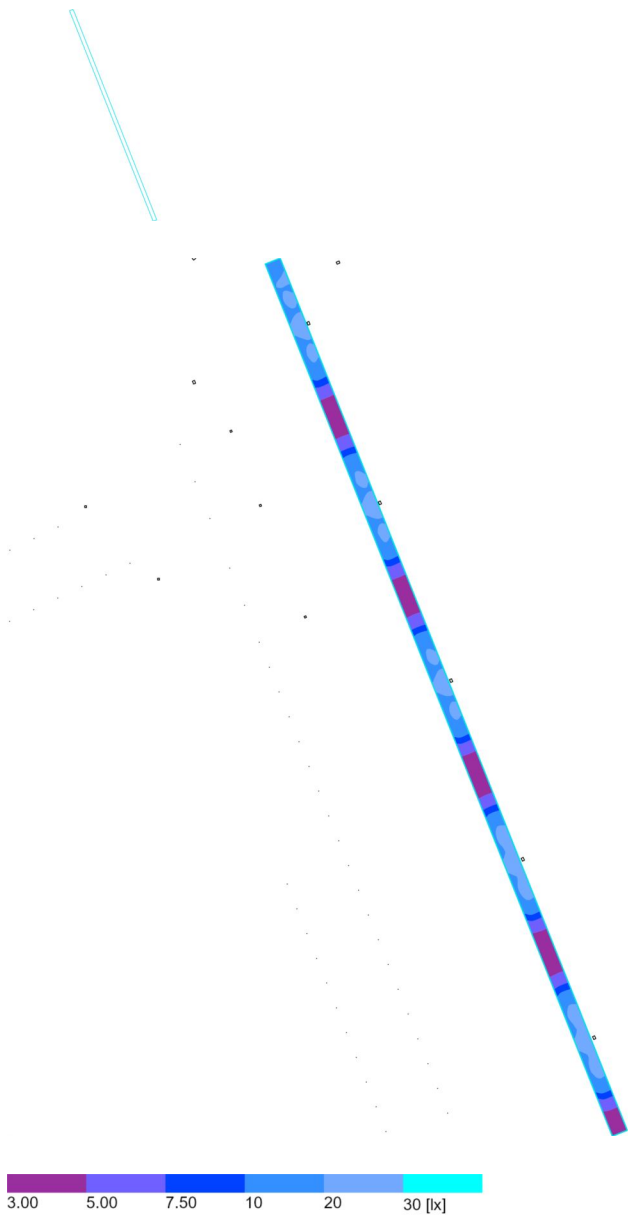


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Access path 2	13.3 lx	3.65 lx	25.9 lx	0.27	0.14
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

(Light scene 1)

Access path 3

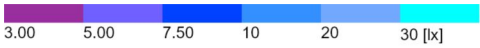
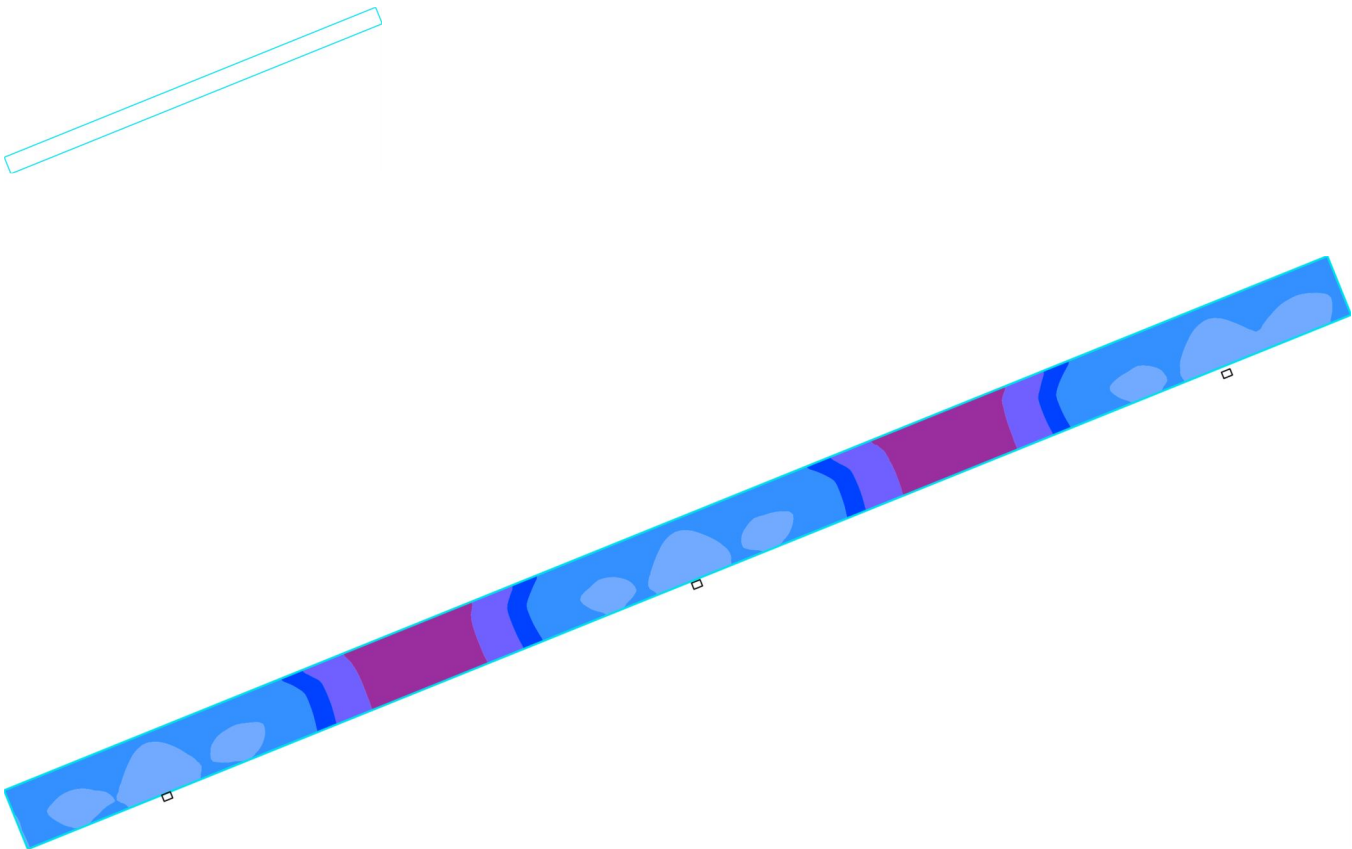


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Access path 3	13.7 lx	3.49 lx	29.1 lx	0.25	0.12
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

(Light scene 1)

Access path 4

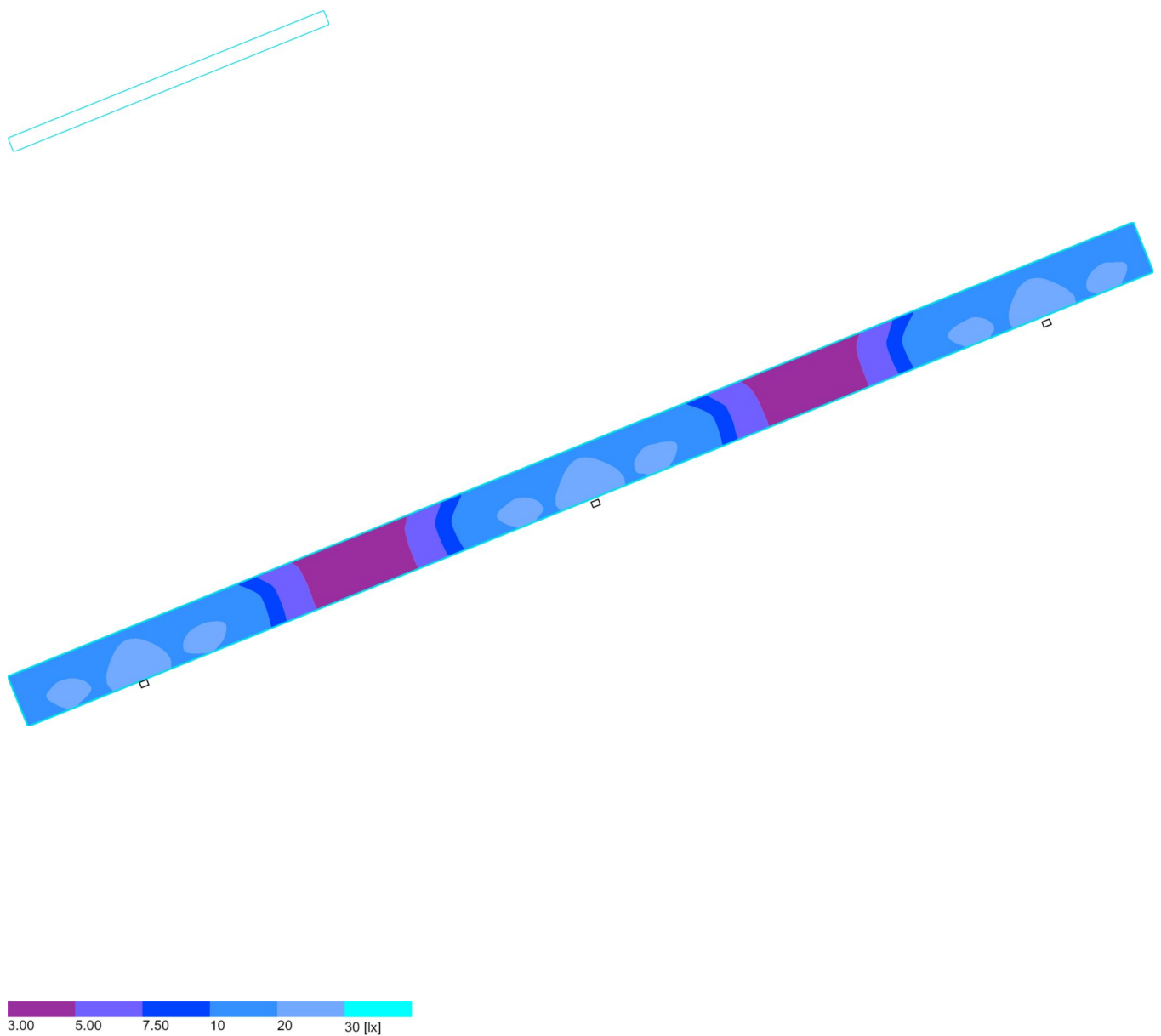


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Access path 4	13.7 lx	3.76 lx	25.5 lx	0.27	0.15
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

(Light scene 1)

Access path 5

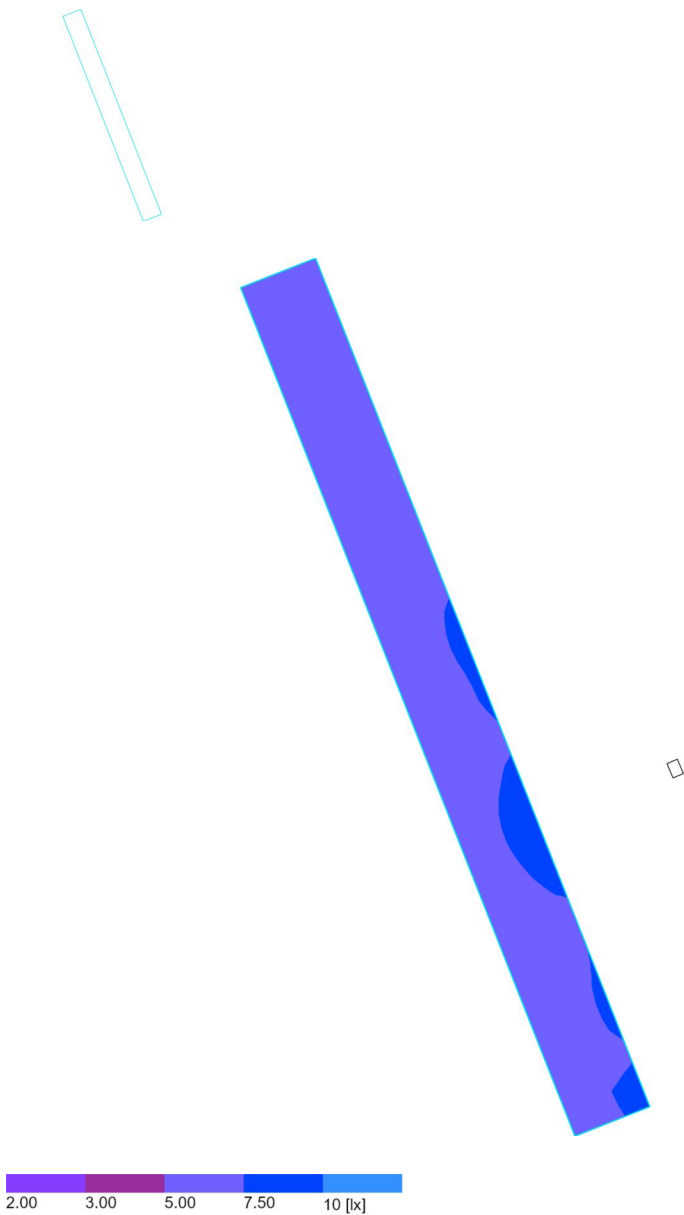


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Access path 5	13.3 lx	3.69 lx	25.2 lx	0.28	0.15
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

(Light scene 1)

Access path 6

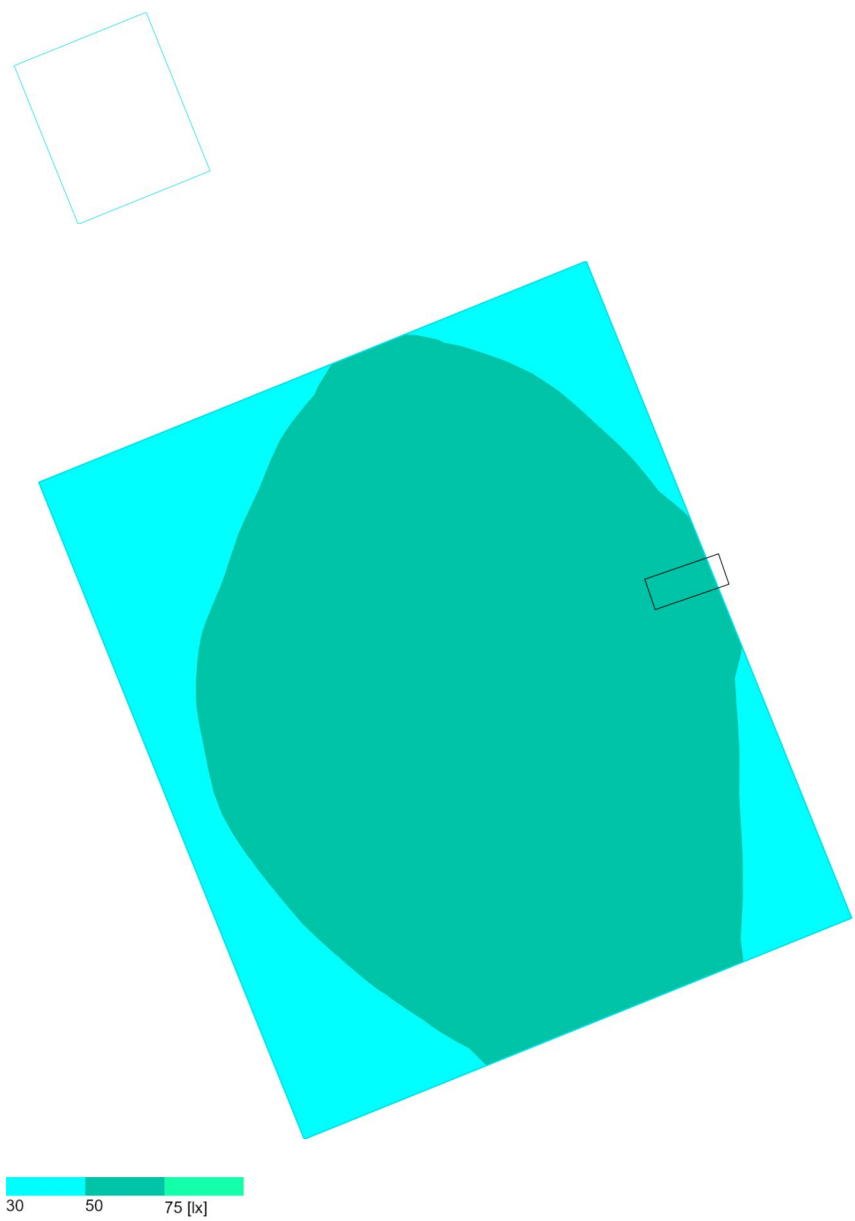


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Access path 6	5.04 lx	2.35 lx	9.71 lx	0.47	0.24
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

(Light scene 1)

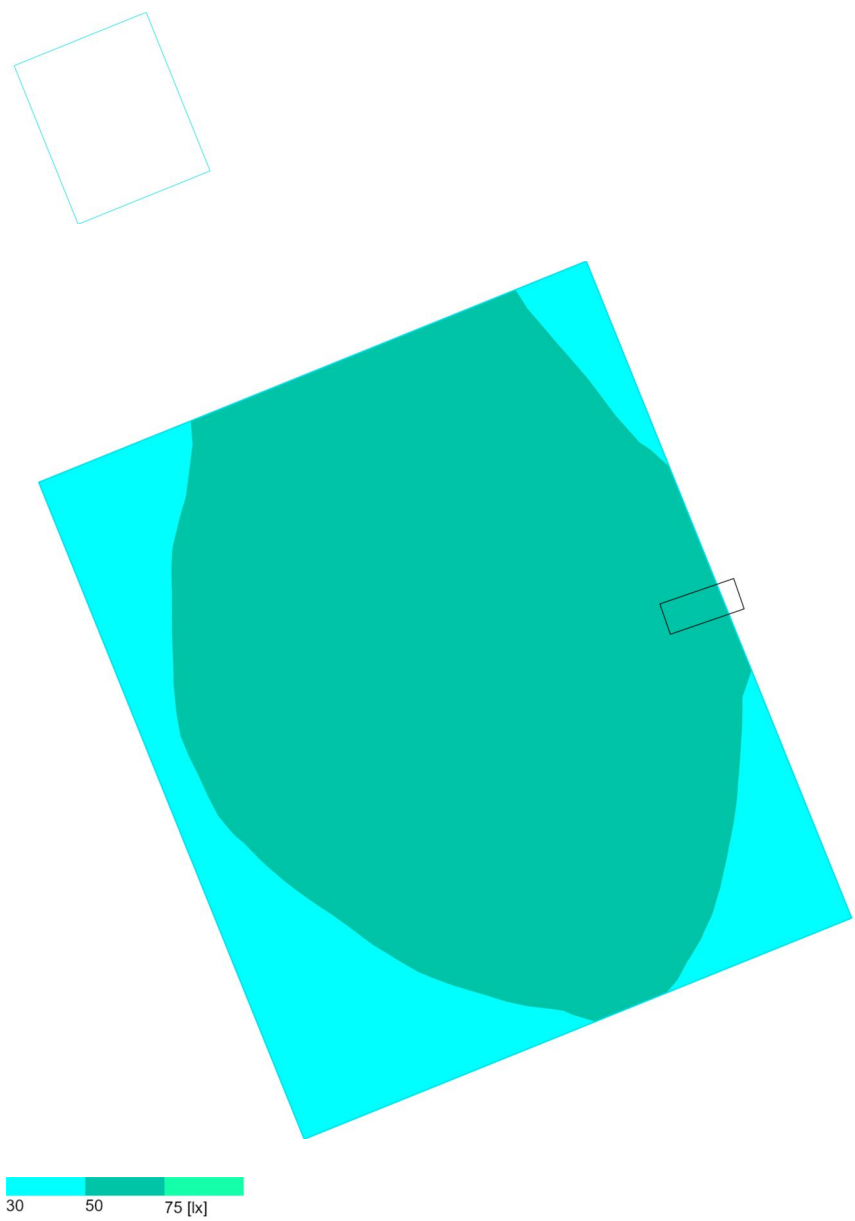
Loading Area 3



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Loading Area 3	55.4 lx	36.0 lx	70.4 lx	0.65	0.51
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

(Light scene 1)

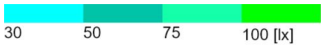
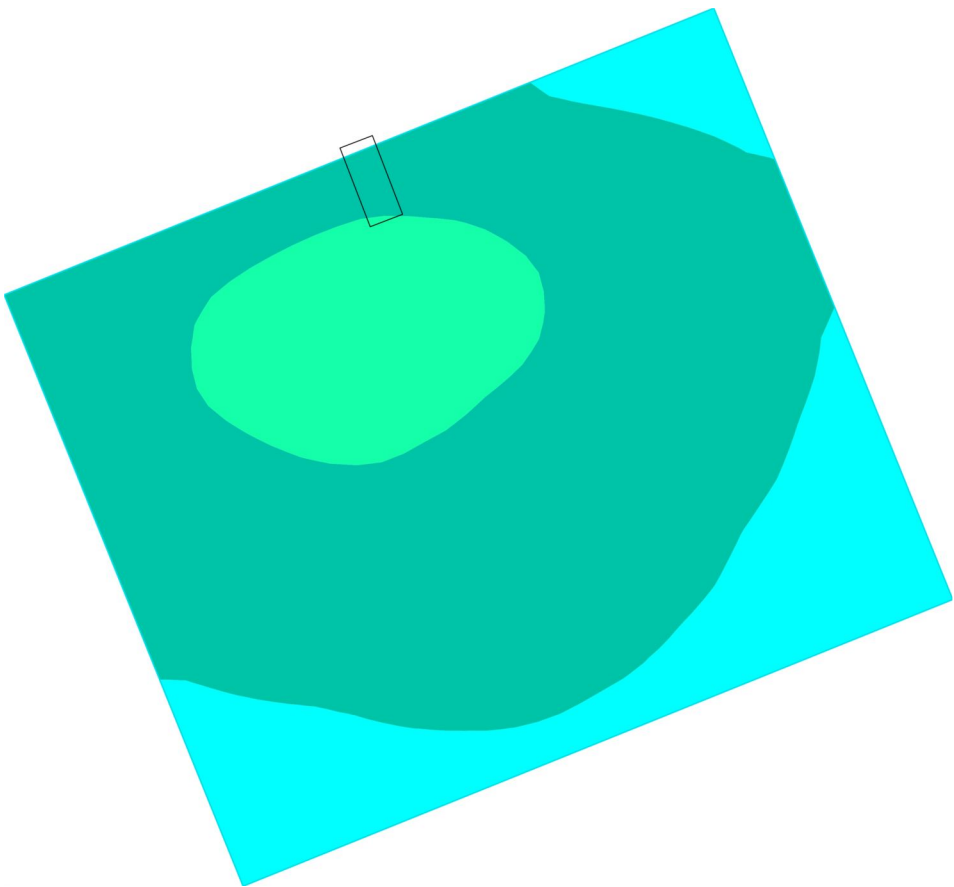
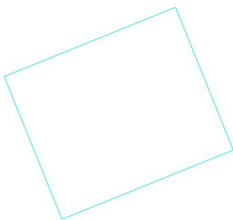
Loading Area 2



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Loading Area 2	56.2 lx	34.8 lx	71.2 lx	0.62	0.49
Perpendicular illuminance (adaptive)					
Height: 0.000 m					

(Light scene 1)

Loading Area 1



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2
Loading Area 1	60.5 lx	37.6 lx	85.2 lx	0.62	0.44
Perpendicular illuminance (adaptive)					
Height: 0.000 m					



Luminaire Data Sheets and
Manufacturer Data

APPENDIX D



FACET ZERO



IP66
Ingress Protection



IK10
Impact Resistance



1.9kg
Weight



Class I
Electrical Class



-20C
Minimum Ambient



30C
Maximum Ambient

SPECIFICATION

- ✓ Excellent product circularity TM66 score of 2.8
- ✓ LED colour temperature 2700K or 4000K
- ✓ Colour rendering index >80
- ✓ Projected L90 after 100,000 hours
- ✓ Power factor >0.93 at full load
- ✓ Up to 162.8 LL/CW
- ✓ Polyester powder coat finish in dark grey or a bespoke colour
- ✓ High pressure die cast LM6 aluminium body
- ✓ Tamperproof fixings as standard
- ✓ Innovative one-piece LED lens and cover system
- ✓ Replaceable internal control gear
- ✓ Plug-in mains connector
- ✓ Lux Guard (patent granted) - Innovative LED current sharing PCB design that maintains light output in the event of LED failure(s) (wide distribution only)
- ✓ Lumi-LinQ option (with or without wireless emergency feature)
- ✓ Optional photocell control
- ✓ Integral 3-hour emergency option
- ✓ Zero upward light
- ✓ Anti-ligature when anti-pick mastic sealant is applied (not supplied by TRT)

RANGE OVERVIEW

Type	System Power	Lumen Output	CCT	CRI
Wide Distribution	10W	Up to 1,470lm	2700K or 4000K	>80
Area Distribution	20W	Up to 3,255lm		

ELECTRICAL CHARACTERISTICS

	Wide Distribution	Area Distribution
System Power	10W	20W
LED CCT	2700K or 4000K	
LED CRI	>80	
Lumen Output	Up to 1,470lm	Up to 3,255lm
Lumen Maintenance	Projected L90/B10 after 100,000 hours	
Power Factor (Full Load)	>0.93	
Operational Voltage	220-240VAC rms	
Operating Frequency	50/60Hz	
Inrush Current (Apk/50%-µS)	10A/200µS	30A/200µS
Running Current (Max)	40mA	80mA
Surge Protection (COM/DIF)	2kV/1kV	
Lighting Controls Options	Photocell and Lumi-LinQ (with or without wireless emergency)	

MECHANICAL CHARACTERISTICS

Housing Material	High pressure die cast LM6 aluminium
Cover Material	One-piece polycarbonate lens and cover
Housing Finish	Full polyester powder coat, dark grey (RAL7022) or bespoke colours on request
Ingress Protection Rating	IP66
Weight	1.9kg
Impact Resistance Rating	IK10
Mounting Methods	Surface mounted (side cable gland or conduit back box)



Lumi-LinQ is an innovative wireless lighting control system that allows users to monitor their energy performance data and complete operational status information for all Lumi-LinQ standard and emergency luminaires. Information is displayed on the Lumi-LinQ website which can be accessed from anywhere using a computer, laptop, tablet or smart-phone.

The clear graphical user interface provides an overview of the whole site, through to the performance and operation of an individual luminaire.

All information detailed within this datasheet is accurate at the date of issue.
The information provided is subject to change at our discretion. If any questions arise or extra information is required, please contact TRT Lighting directly. Facet Zero issue March 2026.



FOR MORE INFORMATION

 +44 (0) 1527 521 162
www.trtlighting.co.uk

VIA DARK-SKY

Bollard LED



IP66
Ingress Protection



IK10
Impact Resistance



10.5kg Weight



Electrical Class I



-20 to 45°C Ambient



LED Light Source

SPECIFICATION

- ✓ LED colour temp. PC-Amber*, 2700K or 3000K
- ✓ Colour rendering index >70 (*>55)
- ✓ Projected L85 after 100,000 hours
- ✓ Power factor 0.95 at full load
- ✓ Polyester powder coat finish in light grey, dark grey, black or a bespoke colour
- ✓ High pressure die cast LM6 aluminium and high quality extruded 6063T6 aluminium housing
- ✓ UV stabilised polycarbonate lens
- ✓ In-built ventilation (breather) plug for pressure equalisation
- ✓ CLO available
- ✓ Optional Miniature Photocell available
- ✓ Part Night Dimming (PND)
- ✓ DALI compatible for use with CMS
- ✓ Optional surge protection 10kV/10kA
- ✓ Optional non-fused or fused isolators available
- ✓ Feeder pillar version available
- ✓ Root, socket or flange mount
- ✓ Anti-tamper door fixing as standard
- ✓ EN40 compliant door location, size and cable entry slots
- ✓ UMSUG codes available for full product range



International Dark-Sky Association approved Via Dark-Sky bollard. Compliant when using a colour temperature of 3000K or below.



RANGE OVERVIEW

Type	System Power	CCT	Lumen Output	CRI
Via Asymmetric	5-14W	PC-Amber*, 2700K or 3000K	Up to 700lm	>70 (*>55)

ELECTRICAL CHARACTERISTICS

	Via Asymmetric
System Power	5-14W
LED CCT	PC-Amber*, 2700K or 3000K
LED CRI	>70 (*>55)
Lumen Output	Up to 700lm
Lumen Maintenance	Projected L85 after 100,000 hours
Drive Current	160-510mA
Driver Output	Constant current output with AM dimming
Power Factor (Full Load/Half Load)	0.95/0.90
Operational Voltage	220-240VAC rms
Operating Frequency	50/60Hz
Inrush Current (Apk/50%-µS)	25A/150µS
Running Current (max)	60mA
Surge Protection (COM/DIF)	10kV/6kV
Additional Surge Protection (on request)	10kV/10kA
Lighting Controls Options	Miniature Photocell, PND and CMS compatible
Dimming Protocols	DALI

MECHANICAL CHARACTERISTICS

Housing Material	High pressure die cast LM6 aluminium and high quality extruded 6063T6 aluminium
Housing Finish	Chromate free pre-treatment, polyester powder coat, light grey (RAL9006), dark grey (RAL7022), black (RAL9005) or bespoke colours on request
Lens Material	UV stabilised polycarbonate
Ingress Protection Rating	IP66
Weight	10.5kg
Impact Resistance Rating	IK10
Mounting Methods	Root, socket or flange

SHIELD OPTIONS

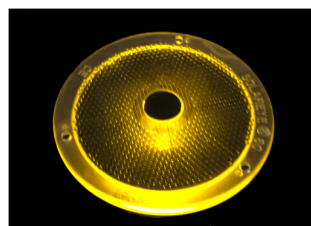
240° Shield	04GSK71899
180° Shield	04GSK71725



FOR MORE INFORMATION

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www.trtlighting.co.uk

Product information and test conditions

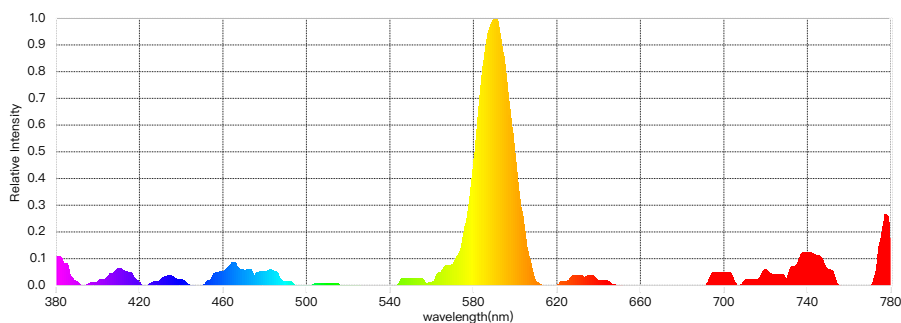


Name	SolarEye 80 Amber 1900K Bat Hat				
Time	2022-02-16 17:53:34(Time-zone GMT+8)				
Manufacturer	Lumeneye Ltd				
User	Dark Sky Lighting (paul@darkskylighting.co.uk)				
Temperature(°C)	15	Humidity(%)	5	Distance(m)	0

Parameters

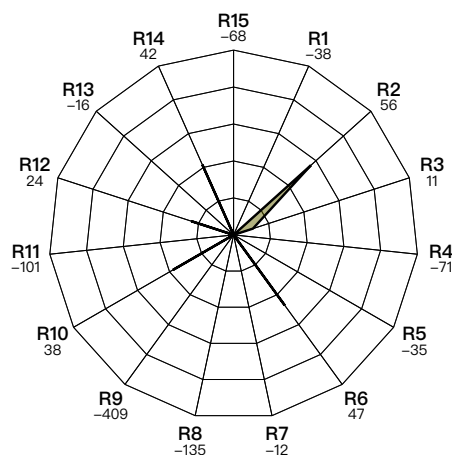
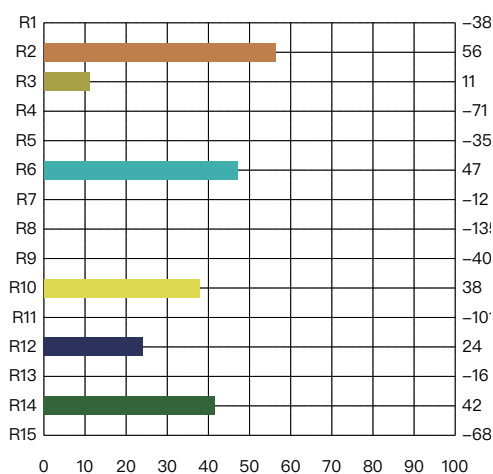
CIE_x	0.5208
CIE_y	0.3980
CIE_u'	0.3093
CIE_v'	0.5319
CCT	1919 K
Duv	-0.0048
CRI (Ra)(R1~R8)	-22
CRI (Re) (R1~R15)	-45
CQS	11
TLCI(Qa)	3
GAI	7
TM-30-20 Rf	11
TM-30-20 Rg	27
Illuminance	1 lux
Foot Candle	0.1 fc
PPFD (400~700nm)	0.01 $\mu\text{mol}/\text{m}^2\text{s}$
λ_p	590 nm
λ_D	591 nm
Purity (Pe)	80 %
SP Ratio	0.5
Circadian Stimulus	0.00
Circadian Light	0

Spectrum



CRI (Re) (R1~R15)

Ra = -22 Re = -45



Measured by Lighting Passport

1/2

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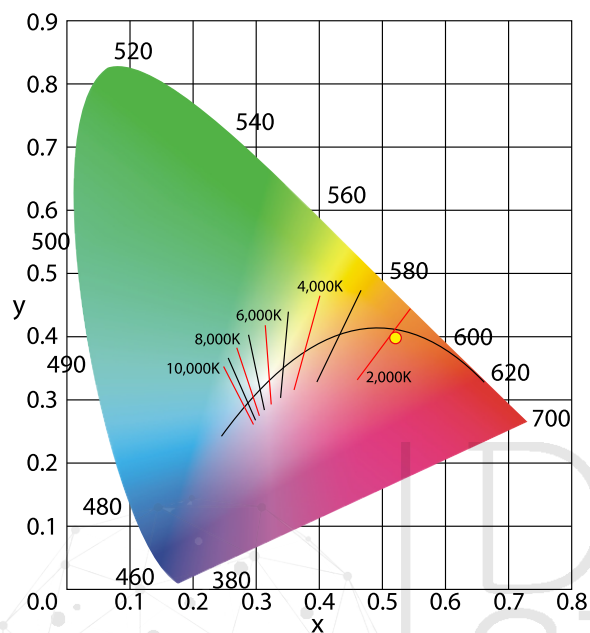


Lighting Parameter Analysis Report



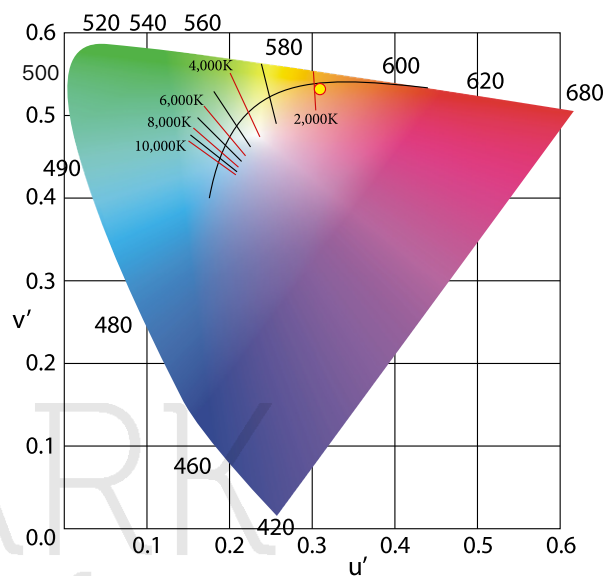
CIE 1931

$x = 0.5208$, $y = 0.3980$ CCT = 1919K

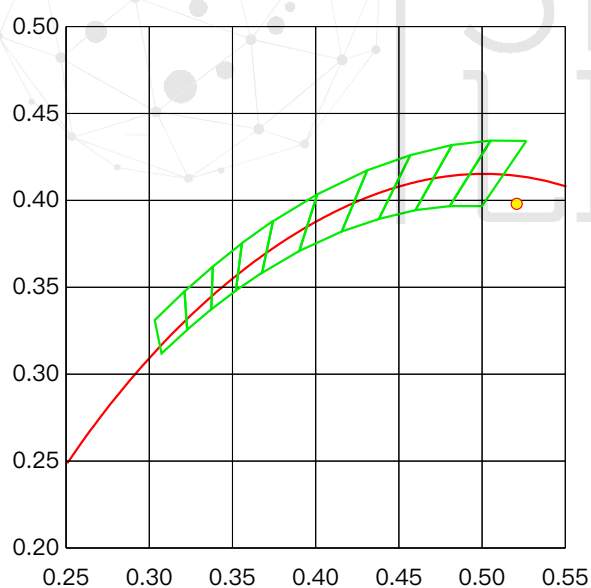


CIE 1976

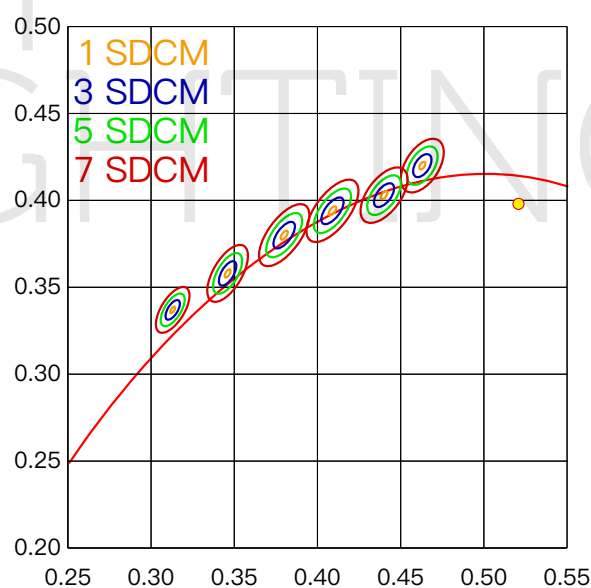
$x = 0.3093$, $y = 0.5319$ CCT = 1919K



C78.377 – 2017

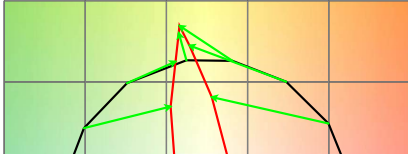


IEC-SDCM

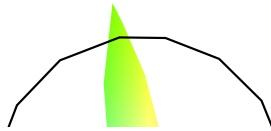
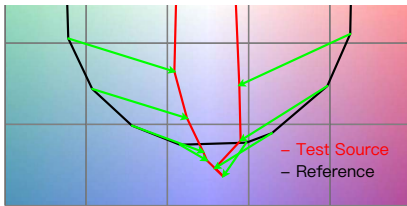


TM-30-20

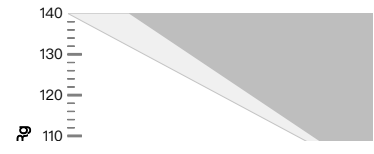
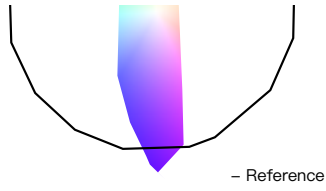
Rf = 11 Rg = 27



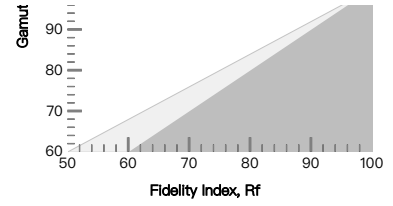
Measured by Lighting Passport



2/2



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ASPECT GEN2

48 LED



IP66
Ingress Protection



IK08
Impact Resistance



9.4kg Weight



Electrical Class I



0.0467m² Wind Area



-20 to 30°C Ambient
(50°C with derated lumen output)



LED Light Source



TM66 Score
2.7 (Excellent)



Certified by DarkSky.org

DarkSky International approved Aspect Gen2 48 LED. Compliant when using a colour temperature of 3000K or below and at zero degree tilt.

SPECIFICATION

- ✓ LED colour temperature PC-Amber*, 2200K, 2700K, 3000K, 4000K (or 5700K Zebra only)
- ✓ Colour rendering index >70 (*>48)
- ✓ Projected L90 after 100,000 hours
- ✓ Power factor >0.95 at full load
- ✓ 1000 hour salt spray compliant, polyester powder coat finish in light grey, dark grey, black or a bespoke colour
- ✓ Marine grade high pressure die cast LM6 aluminium components
- ✓ Stainless steel fixing screws with stainless steel inserts in pivot
- ✓ Toughened ultra efficient safety glass cover
- ✓ Quick release canopy for ease of upgrade
- ✓ Lumi-LinQ wireless exterior lighting control system (optional)
- ✓ Controls - NEMA 7, Zhaga Book 18 (SR) socket (top and/or bottom) and Photocell
- ✓ CLO available
- ✓ PowerSet NFC for external programming of power output, CLO and dimming regimes (manual version available)
- ✓ Part Night Dimming (PND) with manual dimming override option
- ✓ Dim level 10-100%
- ✓ DALI compatible for use with CMS
- ✓ Optional surge protection 10kV/10kA
- ✓ Patented MountSet: Universal system providing post top 60mm or 76mm / side entry 34mm, 42mm, 60mm or 76mm mounting
- ✓ Post top inclination of 0°, +5° and +10°
- ✓ Side entry inclination of -10°, -5°, 0°, +5° and +10°
- ✓ Tool-less access (vandal-proof fixings optional)
- ✓ UMSUG codes available for full product range



PowerSet NFC is an innovative luminaire configuration solution that puts complete control in your hands. Using a simple remote control, end users can effortlessly program power levels, lumen output, Constant Light Output (CLO), and Part Night Dimming regimes, all without opening the luminaire.

Designed exclusively for TRT Lighting products, PowerSet NFC (and its manual counterpart, PowerSet) streamlines commissioning, reduces stock holding, and delivers ultimate flexibility in lighting performance.

RANGE OVERVIEW

Type	System Power	Road Optics	Area Optics	CCT	Lumen Output	CRI
A48	46-104W	✓	✓	LED colour temperature PC-Amber*, 2200K, 2700K, 3000K, 4000K (or 5700K Zebra only)	Up to 16,697lm	>70 (*>48)

ELECTRICAL CHARACTERISTICS

System Power	46-104W
LED CCT	PC-Amber*, 2200K, 2700K, 3000K or 4000K
LED CRI	>70 (*>48)
Lumen Output	Up to 16,697lm
Lumen Maintenance	Projected L90 after 100,000 hours
Driver Current	700mA
Driver Output	Constant current output with AM dimming
Power Factor (Full Load/Half Load)	0.95/0.90
Operational Voltage	220-240VAC rms
Operating Frequency	50/60Hz
Inrush Current (Apk/50%-µS)	80A/250µS
Running Current (Max)	579mA
Surge Protection (COM/DIF)	10kV/6kV
Additional Surge Protection (on request)	10kV/10kA
Lighting Controls Options	NEMA 7, Zhaga Book 18 (SR) socket (top and/or bottom), Photocell, Lumi-LinQ, PND and CMS compatible
Controls Protocols	DALI-2 (parts 251 & 253), D4i (optional)

MECHANICAL CHARACTERISTICS

Housing Material	Marine grade high pressure die cast LM6 aluminium components
Cover Material	Toughened ultra efficient safety glass cover
Lens Material	PMMA and polycarbonate options
Housing Finish	Chromate free pre-treatment, polyester powder coat light grey (RAL9006), dark grey (RAL7022), black (RAL9005) or bespoke colours on request
Ingress Protection Rating	IP66
Weight	9.4kg
Wind Area	0.0467m ²
Impact Resistance Rating	IK08
Mounting Methods	Post top 60mm or 76mm/side entry 34mm, 42mm, 60mm or 76mm
Mounting Inclination	-10°, -5°, 0°, +5° and +10
Photometric Centre	449.3mm (to centre of PCB)

SHIELD OPTIONS

Front	83KIT73648
Rear	83KIT73649
Side	83KIT73651

ACCESSORY

PowerSet NFC Remote Control	03INT1907
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HIGHWAY SAFETY TETHER KIT OPTIONS

76mm Post Ø	83KIT73829
60mm Post Ø	83KIT73830
42mm Post Ø	83KIT73831
34mm Post Ø	83KIT73832



FOR MORE INFORMATION

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Lighting Terminology and Abbreviations

APPENDIX E

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://eilv.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 Institution of Building Services Engineers
CIE	International Commission on Illumination
CNEA	Clean Neighbourhoods and Environment Act
ILP	Institution of Lighting Professionals
SLL	Society of Light and Lighting



The Lighting Bee Ltd

Lighting Design | Impact Assessment | Daylight Analysis

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