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# TREGARTHEN'S HOTEL

## TECHNICAL REPORT

### DFL-UK

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Designs for Lighting (DFL) are a business built on the 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.



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## 1. INTRODUCTION

### 1.1. Executive Summary

1.1.1. This Lighting Strategy 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 Strategy proposes good practice and address the concerns outlined within condition C4 implemented by the Council of the Isle of Scilly.

*“C4 Notwithstanding the information submitted with the application submission, no additional artificial external lighting shall be installed within the application site. Reason: In the interests of the character and appearance of the landscape and local amenity, and in the interests of the tranquillity and dark sky experience of the Islands in accordance with Policies 1 and 2 of the adopted Isles of Scilly Islands Local Plan 2005 and emerging draft Policy OE4 of the emerging Isles of Scilly Local Plan 2015-2030.”*

1.1.3. A suitable approach for the proposed lighting will be presented with an aim to set out a minimally obtrusive approach to the lighting, whilst ensuring it is necessary and considers the sensitivity of nearby human, environmental and ecological receptors.

1.1.4. Lighting associated with the Proposed Development will comply with relevant British Standards and Institution of Lighting Professionals (ILP) guidance to ensure obtrusive light is minimised in accordance with best practice.

1.1.5. This report outlines the following:

- Relevant obtrusive light policies in direct relation to the Proposed Development.
- Relevant National and Local Policies.
- Why the Proposed Development requires artificial lighting; and
- Technical Assessment of the Application Site.
- Details as to how lighting will be implemented for the Proposed Development.

1.1.6. This Technical Report will demonstrate how the removal and replacement of several existing light fittings with new Dark Skies Approved luminaires, will improve the tranquillity and experience of the islands in accordance with policies, whilst providing a more useful level of light to its users.

1.1.7. Through careful design and mitigation, this Lighting Strategy ensures the lighting installation at the proposed development will be in accordance with British Standards, Guidance and Local Policy.

## 2. LEGISLATIVE FRAMEWORKS AND LOCAL POLICIES

### 2.1. National Policies

#### **Environmental Protection Act 1990 / Clean Neighbourhoods and Environment Act 2005**

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

*“Artificial light emitted from premises so as to be prejudicial to health and nuisance constitutes a ‘Statutory Nuisance’ and it shall be the duty of every local authority to cause its area to be inspected from time to time to detect any statutory nuisances which ought to be dealt with under section 80 and, where a complaint of a statutory nuisance is made to it by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint”*

#### **National Planning Policy Framework 2023**

- 2.1.2. The National Planning Policy Framework (NPPF) sets out the government’s planning policies for England and how they are expected to be applied and provides a framework for local plans. With regard to light pollution, the NPPF was updated in July 2021 and states that the following elements are to be considered:

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

- *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”*

#### **Planning Practice Guidance**

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

*“Does an existing lighting installation make the proposed location for a development unsuitable, or suitable only with appropriate mitigation? For example, this might be because:*

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

*Where necessary, development proposed in the vicinity of existing activities may need to put suitable mitigation measures in place to avoid those activities having a significant adverse effect on residents or users of the proposed scheme, reflecting the agent of change principle. Additional guidance on applying this principle is set out in the planning practice guidance on noise.*

- › Will a new development, or a proposed change to an existing site, be likely to materially alter light levels in the environment around the site and/or have the potential to adversely affect the use or enjoyment of nearby buildings or open spaces?*
- › Will the impact of new lighting conflict with the needs of specialist facilities requiring low levels of surrounding light (such as observatories, airports and general aviation facilities)? Impacts on other activities that rely on low levels of light such as astronomy may also be a consideration but will need to be considered in terms of both their severity and alongside the wider benefits of the development.*
- › Is the development in or near a protected area of dark sky or an intrinsically dark landscape where new lighting would be conspicuously out of keeping with local nocturnal light levels, making it desirable to minimise or avoid new lighting?*
- › Would new lighting have any safety impacts, for example in creating a hazard for road users?*
- › Is a proposal likely to have a significant impact on a protected site or species? This could be a particular concern where forms of artificial light with a potentially high impact on wildlife and ecosystems (e.g. white or ultraviolet light) are being proposed close to protected sites, sensitive wildlife receptors or areas, including where the light is likely to shine on water where bats feed.*
- › Does the Proposed Development include smooth, reflective building materials, including large horizontal expanses of glass, particularly near water bodies? (As it may change natural light, creating polarised light pollution that can affect wildlife behaviour.)”*

## **2.2. Relevant Local policies**

- 2.2.1. The relevant Local Planning Authority (LPA) for the Proposed Development is the Council of the Isle of Scilly, with policies detailed within the Condition C4 applying to the lighting associated with the Proposed Development.

The Condition C4 States the following.

*“C4 Notwithstanding the information submitted with the application submission, no additional artificial external lighting shall be installed within the application site. Reason: In the interests of the character and appearance of the landscape and local amenity, and in the interests of the tranquillity and dark sky experience of the Islands in accordance with Policies 1 and 2 of the adopted Isles of Scilly Islands Local Plan 2005 and emerging draft Policy OE4 of the emerging Isles of Scilly Local Plan 2015-2030.”*

The applicable policies are:

### **Isles of Scilly Islands Local Plan 2005**

#### Policy 1: Environmental Protection

This policy covers the overall protection of the local environment and landscape, however, does not directly address the impacts of lighting.

#### Policy 2: Sustainable Development

This Policy covers the future sustainability of proposed developments for construction, however, does not directly address the impacts of lighting.

### **Isles of Scilly Local Plan 2015-2030**

#### Policy OE4: Protecting Scilly's Dark Skies

*“ 1) Development proposals that include external lighting will only be permitted where it can be demonstrated that the lights are essential for safety, security or community reasons, and where details are provided of attempts to minimise light pollution, including:*

*a) costs to the environment (including the unnecessary use of electricity);*

*b) skyglow (visible glow caused by scattering and reflection from clouds and the atmosphere);*

*c) light nuisance (creating amenity nuisance, highway hazards and restricted views of the night sky); and*

*d) glare (over-bright and poorly directed lights that dazzle or discomfort those who need to see, by concealing rather than revealing).”*

## 3. BRITISH STANDARDS AND GUIDANCE

### 3.1. British Standards

3.1.1. The most applicable British Standards for lighting that relate to the development are:

**BS 5489-1:2020** – Lighting of Roads and Public Amenity Areas - Code of practice.

**BS EN 13201-2:2015** - Road lighting. Performance requirements.

### 3.2. Guidance

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

The Lighting Strategy is informed by industry guidance notes which aim to reduce the potential for obtrusive light to occur, which is typically caused by poorly designed and installed exterior artificial lighting. The Lighting Strategy is informed by the most relevant sections of GN01/21 that has recently been published to reduce the potential for obtrusive light from a wide range of exterior lighting applications.

#### 3.2.2. **IDA Outdoor Lighting Basics**

IDA-UK recognizes that need for good outdoor lighting at night, but any required lighting should be used and install in a thoughtfully fashion. To minimize the harmful effects of light pollution the IDA-UK Website outlines the following best practise.

*“Only be on when needed; Only light the area that needs it; Be no brighter than necessary, Minimize blue light emissions; Eliminate upward-directed light”<sup>1</sup>*

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<sup>1</sup> <https://darksky.uk/outdoor-lighting-basics/>



## 4. DESKTOP STUDY

### 4.1. Site Description and Context

- 4.1.1. The Application Site is Tregarthen Hotel in Hugh town on the Isle of Scilly. The Application Site is looking for permission to apply lighting to the area surrounding the construction of 5 additional structures to the already existing development. An indicative boundary of the site and proposed layout can be seen in **Figure 1**. The Site Layout Plan is shown in **Figure 2**.
- 4.1.2. A desktop assessment was completed to understand its position within the current lit environment.
- 4.1.3. The Isles of Scilly comprise over 200 granite islands scattered across 200 km<sup>2</sup>, namely the islands of St Mary's, St Agnes, St Martin's, Tresco and Bryher. The occupied islands cover a total area of just over 14 km<sup>2</sup>. The Application Site is located on St Mary's Island. The islands contain 26 Sites of Special Scientific Interest and one Special Area of Conservation (SAC), designated for a range of geological and biological features.



**Figure 1: The Application Site location and indicative boundary (extent outlined in red)**

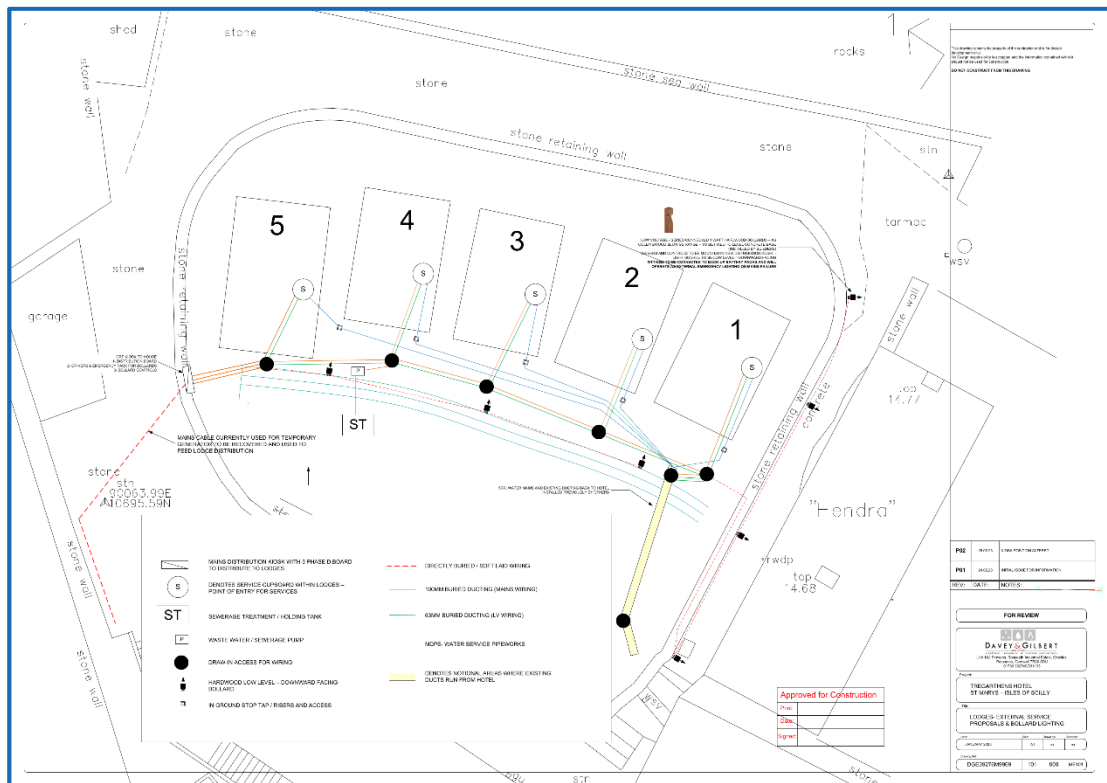


Figure 2: Proposed Development Site layout plan

## 4.2. Environmental Zone Classification

4.2.1. The Environmental Zone criteria detailed within **Table 1** and **Table 2** informs the basis of the Lighting Strategy. The Application Site is considered to be located on the border of an E1 and E2 Environmental Zone based on the description outlined within **Table 1**. However, as the location is bounding an astronomically observable dark sky, the area becomes a E0 protected environmental zone.

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

**Table 1 – Environmental Zone Descriptions**

*Notes:*

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

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

**Table 2 - Obtrusive Light Criteria**

- > ULR (Upward Light Ratio) is the maximum permitted percentage of luminaire flux that goes directly into the sky.
- >  $E_v$  is Vertical Illuminance in Lux.
- > L is Luminance in Candelas per square metre; and
- > Curfew refers to a time when the local planning authority has agreed that the lighting installation should be switched off; this typically refers to 23h00 – 07h00.
- > (\*) Permitted only from public road lighting installations up to a maximum of 1.0 lux.

### 4.3. CPRE Night Blight Mapping

4.3.1. To further confirm the Environmental Zone classification, the CPRE Night Blight Mapping confirms the skyward radiance within the vicinity of the Application Site is between 1 - 2 Nano Watts/cm<sup>2</sup>/sr. As shown in **Figure 3**, the likely levels of skyglow within the vicinity of the Application Site are similar to those expected within an E2 zone. However, The Council within the jurisdiction of the Isle of Scilly is pushing towards a darker sky environment, as such the environment will be treated as an E0 environment.

The area surrounding the Application Site is a sparsely inhabited environment. further afield to the west and southwest of the Application Site is a relatively uninhabited environment consisting of mainly Greenland. To the north and northeast of the Application Site is predominantly sand and pebble beach.

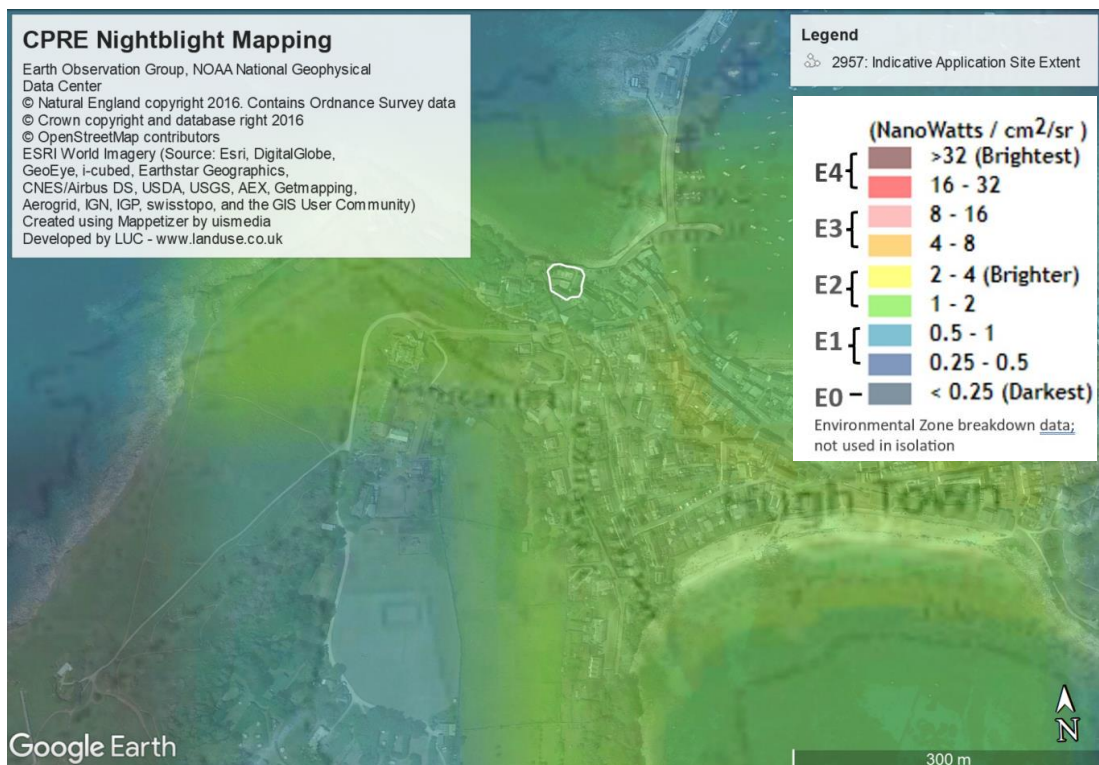


Figure 3: Surrounding areas/roads CPRE Data

Notes for Figure 3

- The CPRE Mapping data is satellite-based information and indicates upward light spill based on sky glow.
- The NightBlight Map is a visual representation of light pollution as a view from above the earth's atmosphere.
- CPRE Mapping data is **not** used in isolation and is only used to assist in concluding the environmental zone.

## 5. IDENTIFIED RECEPTORS

### 5.1. Landscape and Dark skies

5.1.1. As outlined within the planning condition, the key receptor in focus for this technical report is the outlook on the landscape and the dark skies environment. As such these areas have been identified and reviewed as the applicable sensitive receptors.

Receptor Type	Description	Sensitivity
<b>Landscape</b>	The outlook of the landscape within post code TR21	High
<b>Dark skies</b>	The Skies above the Application Site	High

*Table 3 - Potentially Sensitive Receptors*



## 6. LIGHTING STRATEGY

### 6.1. Summary


- 6.1.1. The Proposed Lighting will consist of 5 of the luminaries outlined in equipment specification below at a mounting height no greater than 1.2 meters and 5 luminaires mounted at no greater than 1.8 metres in height, facing inward to the Application Site, mounted to the Proposed Developments.
- 6.1.2. The Proposed Development will require lighting for safety at limited times during the hours of darkness. Lighting will be fit for purpose.
- 6.1.3. Lighting will be of an appropriate specification and designed in accordance with British Standards.
- 6.1.4. Lighting for the Proposed Development will be applied sensitively to account for the receptors identified bounding the Application Site and within the Proposed Development.
- 6.1.5. Luminaires will be used with integral LED's and only where the luminaire photometry is available from the manufacturer. This is to ensure the photometric footprint of the luminaires can be modelled to ensure the potential effects of light spill are minimised or mitigated.
- 6.1.6. The following criteria seeks to ensure that the lighting is not outside of the obtrusive light limits for the Environmental Zone in which the Application Site is located, is sensitive to the area, and provides a recognised standard level of lighting for all adoptable areas requiring illumination. Luminaires will distribute light downwards only to reduce the potential for light spill onto the boundaries surrounding the buildings and upwards towards the sky.
- 6.1.7. All lighting unless otherwise stated is to emit a warm white colour temperature light (3000 Kelvin or less) to reduce the potential for adverse effects onto potentially sensitive receptors (outlined in **Section 5**).
- 6.1.8. All Proposed Luminaires will have Dark Sky Approval<sup>2</sup>.
- 6.1.9. Lighting in unadopted areas will be required in the following task areas:
  - > Wayfinding pathways
  - > Proposed Development frontages

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<sup>2</sup> <https://darksky.org/>

## 6.2. Wayfinding pathways -

- 6.2.1. The wayfinding paths within the Application Site will be illuminated in accordance with BS 5489-1:2020 for amenity and safety purposes. The lowest possible lighting levels are proposed within this Lighting Strategy.
- 6.2.2. Lighting will be applied for wayfinding purposes only to highlight changes in ground levels and any potential hazards.
- 6.2.3. The purpose of the wayfinding lighting outlined within the strategy will be to highlight areas for the safe usage of the Application Site during the hours of darkness and will only be active between dusk and midnight.
- 6.2.4. Lighting will be mounted to the pathway wall predominantly inward to the Application Site.
- 6.2.5. Performance requirements are outlined in **Table 4**.


Equipment Specification	Description
<b>Correlated Colour Temperature (Kelvin)</b>	≤ 3000K
<b>Luminaire Manufacturer</b>	Ligman Lighting
<b>Luminaire Model</b>	Leeds
<b>Light Source</b>	LED
<b>Height</b>	≤1.2 meters
<b>Mounting Arrangement</b>	Wall mounted
<b>Luminaire Tilt</b>	0 Degrees from the horizontal
<b>Upward Light Output Ratio</b>	Achieved ULOR <b>0%</b>
<b>Example Luminaire Image</b>	
<b>Controls</b>	Photocell On at dusk and timeclock (off at midnight)

*Table 4 - Equipment specification*



### 6.3. Proposed Development frontages

- 6.3.1. The Frontages to the five proposed micro lodges within the Application Site extent will be sensitively illuminated, this will be predominantly for safety, security and amenity purposes. The lowest possible lighting levels are proposed within this Lighting Strategy.
- 6.3.2. Luminaires are to be mounted to the side of the entrance to the Proposed Micro Lodges.
- 6.3.3. Performance requirements are outlined in **Table 5**.

Equipment Specification	Description
<b>Correlated Colour Temperature (Kelvin)</b>	≤ 3000K
<b>Luminaire Manufacturer</b>	Ligman Lighting
<b>Luminaire Model</b>	Leeds
<b>Light Source</b>	LED
<b>Height</b>	≤1.8 meters
<b>Mounting Arrangement</b>	Wall mounted
<b>Luminaire Tilt</b>	0 Degrees from the horizontal
<b>Upward Light Output Ratio E0 &lt; 0%</b>	Achieved ULOR <b>0%</b>
<b>Example Luminaire Image</b>	
<b>Controls</b>	PIR on when movement is detected for 5 minutes (internally controlled manual override switch in the assigned lodge)

*Table 5 - Equipment specification*

## 7. TECHNICAL ASSESSMENT

### 7.1. Brief

7.1.1. Based on a desktop survey the local environment is predominantly unlit, with surrounding roads to the Application Site having limited street lighting. Where it has been applied, it is mounted at low levels and appears to have a tilt at 0% from the horizontal.



Figure 4: View of Tregarthen's Hotel including streetlight (outlined in red).



Figure 5: View north of The Atlantic Inn including streetlight (outlined in red).



- 7.1.2. The proprietors of the Tregarthen's Hotel (hereafter referred to as the Applicant) undertook a survey of the existing lighting on site (June 2023) which outlines the condition of the lighting and any alterations made to the lighting as of this date. The results of this survey can be seen in **Appendix 2**.
- 7.1.3. The Applicant has identified several luminaires that may be currently having a negative effect on the local surrounding (see figures 6 - 14). These are being removed and replaced by the proposed lighting with the intent to improve the look on the landscape.



*Figure 6: fitting marked for removal.*



*Figure 7: fitting marked for removal.*





*Figure 8: fitting marked for removal.*



*Figure 9: fitting marked for removal.*





*Figure 10: fitting marked for removal.*



*Figure 11: fitting marked for removal.*

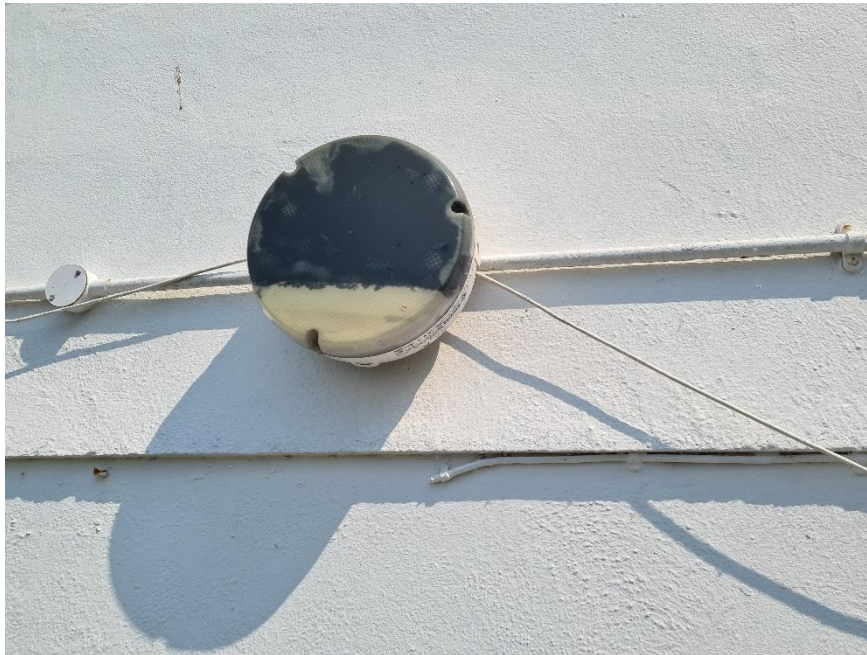




*Figure 12: fitting marked for removal.*



*Figure 13: fitting marked for removal.*



*Figure 14: fitting marked for removal.*

- 7.1.4. The newly proposed luminaires will be IDA approved Turtle friendly luminaires with an asymmetrical optic, strictly controlling the light source from providing any light spill.
- 7.1.5. Multiple fittings mounted to the development have been altered to try to reduce some of the negative effects of lighting to the landscape and dark skies to the Isle of Scilly. However, this method does not offer the best results for safety of the users or the most efficient/effective solution to the areas of concern.
- 7.1.6. The mitigation undertaken to date to reduce the negative effects of lighting on the environment, whilst offering improvement on the upward light at night, will not effectively mitigate the issue due to degradation of the paint from UV light and the negative effect on the landscape during the day.

## 8. SUMMARY OF RESULTS

### 8.1. Overview

- 8.1.1. The Light Spill Diagram shown in **Appendix 1** demonstrates that the Light Spill Levels associated with the proposed lighting would comply with British Standards, local policies and guidance and staying within the boundaries of the Application Site.
- 8.1.2. To ensure the worst-case scenario has been modelled, the highest potential light levels have been modelled / presented in the light spill diagram, with the project maintenance factors set at MF = 1.0. This demonstrates the light levels at their highest (initial light levels at the start of luminaire life).

### 8.2. Summary of Results

- 8.2.1. The proposed lighting within the task areas would only highlight areas of potential hazard.
- 8.2.2. The Proposed lighting both vertically and horizontally will not achieve light levels greater than 0.02 Lux outside of the boundaries of the Application Site on initial installation, with no blocking factors in place.
- 8.2.3. The proposed lighting within the task area(s) is compliant to the relevant environmental zone classification outlined within GN01.

### 8.3. Mitigation

- 8.3.1. Careful design ensures the lighting has been minimised onto sensitive receptors in accordance with standards and guidance.
- 8.3.2. Specific luminaires have been chosen for the purpose of ensuring light is thrown downwards and away from the sensitive receptors.
- 8.3.3. Motion detection PIR sensors, where applicable, will ensure the lights are only operational at the time it is needed keeping the area predominantly dark when not in use.
- 8.3.4. Where lighting is required throughout the night for safety purposes a remotely mounted photocell<sup>3</sup> is to be used, this is to ensure the light is only on during the required hours of use, thus limiting the impact to the visuals of the landscape.

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<sup>3</sup> <https://www.lucyzodion.com/product/ss4-series-photocell-kits/>



## 9. CONCLUSION

### 9.1. General

- 9.1.1. Lighting associated with the Proposed Development shall be designed in accordance with the Lighting Strategy for the Application Site outlined in **Section 6**.
- 9.1.2. Due to the location, height, and direction of the proposed light sources the impact of lighting on the landscape, directly caused by the proposed lighting, is greatly limited.
- 9.1.3. In removing some of the current light sources identified as luminaires with high amounts of upward light, the installation of the Proposed Lighting will result in a safer environment with a reduction in skyward radiance due to the downward direction of the optic beam.
- 9.1.4. Due to the reduction in fittings as outlined in **Appendix 2** and the proposed luminaires in **Section 6**, the negative effects on the landscape and dark skies above the Isle of Scilly will be drastically reduced.
- 9.1.5. Lighting proposed is to compensate for the removal of the luminaires identified as contributors to negative effects on the surround environment.
- 9.1.6. The lighting already installed at the Application Site has not been modelled in **Appendix 1** (document 2957-DLG-ELG-XX-LD-EO-13001), however, it has been taken into consideration during the technical and non-technical assessment, as well as the modelling and lighting proposal within this Technical Report.
- 9.1.7. The installation of the Proposed Lighting in accordance with the Lighting Strategy outlined in **Section 6**, and the removal of the luminaires identified in **Section 7** will result in a positive effect on the surrounding environment, reducing the upward skyward radiance, and impact on the view of the landscape.
- 9.1.8. Through careful design and mitigation, this Lighting Strategy ensures the lighting installation at the proposed development will be in accordance with British Standards, Guidance and Local Policy.
- 9.1.9. The removal of the fittings previously mentioned, the mounting heights significantly lower than that of the lights surrounding the Application Site, and the installation of IDA approved luminaires will result in a positive effect on the surround environment, comparatively to the current baseline levels of light.

## APPENDIX 1 – LIGHT SPILL DIAGRAM

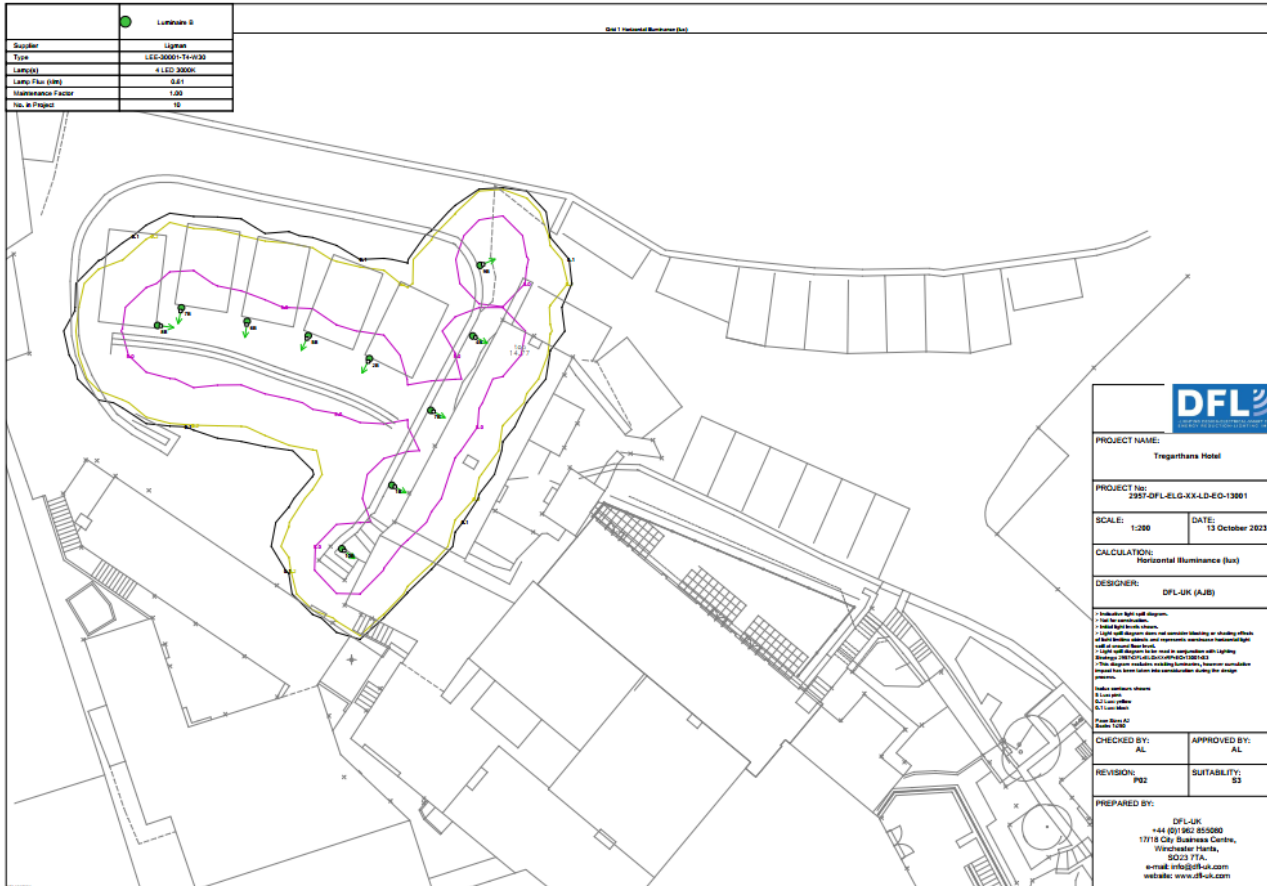










Figure 4 - Lighting Spill Diagram, light levels shown are at point of installation.



## APPENDIX 2 – LIGHTING SURVEY INFORMATION







Figure 11 – Fittings Location Map

Luminaire reference	Description of installed luminaire	Working	Notes		To be removed
32	Light over Hendra front door, PIR	Yes			No
33	Light over Gibson front door, PIR	Yes			No
34	Bulkhead light on path behind Hendra, PIR	Yes	Partially blacked out to minimise light pollution		Yes
35	Bulkhead light on path behind Hendra, PIR	Yes	Partially blacked out to minimise light pollution		Yes

36	Solar light on path behind Hendra	No			Yes
37	Solar light on path behind Hendra	No			Yes
38	Solar light on path behind Hendra	No			Yes
39	Solar light on path behind Hendra	No			Yes


40	Solar light on path behind Hendra	No			Yes
41	Solar light on path behind Hendra	No			Yes
42	Bulkhead light on path behind Hendra, PIR	Yes	Partially blacked out to minimise light pollution		Yes
43	Light over Gweal front door, PIR	Yes			No

44	Light over Gerwick front door, PIR	Yes			No
45	Light over Restaurant fire exit, PIR	Yes			No
46	Light over Restaurant fire exit	Yes	New fitting 2023		No
47	Emergency light back of house (new staff studios)	Yes			No



48	Bulkhead light, PIR, outside freezer room	Yes			No
49	Bulkhead light, PIR, bottom of steps behind Gerwick	Yes			No
50	Bulkhead light, PIR, top of steps behind Gerwick	Yes			No
51	Bulkhead light, PIR, yard behind Gweal	Yes			No



52	Bulkhead light, PIR, on garage wall	Yes			No
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**Table 6: External lighting survey information**

## APPENDIX 3 – LIGHTING EQUIPMENT DATASHEET

**LIGMAN**

Outdoor | Surface facade luminaires | LEEDS

LEEDS 2 (LEE-30001)



### Product description

Down - Square



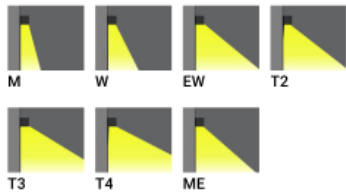
### Luminaire Structure

- Die-cast aluminium housing and frame
- Pre-treated before powder coating ensuring high corrosion resistance
- Single cable entry
- Stainless steel fasteners in grade 304 with zinc flake coating (ZFC)

- Durable silicone rubber gasket
- Clear toughened glass
- High-efficiency PMMA lens
- Integral control gear

- Optional surface mounting box for easy wiring or conduit connection when wiring from behind is not possible

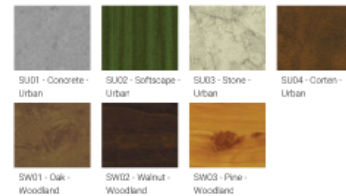
### Optic



### Product colour



### Special finishes upon request



## LIGMAN

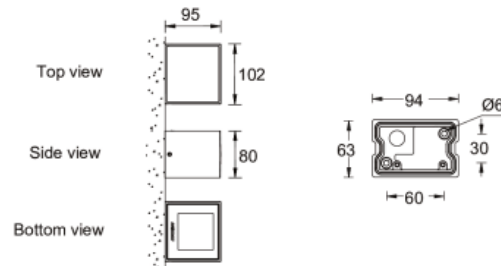
Outdoor | Surface facade luminaires | LEEDS

### LEEDS 2 (LEE-30001)

#### Technical information

<b>Material</b>	Aluminium	<b>Optic value</b>	30°, 56°, 99°x102°, 129°x49°, 112°x80°, 89°x60°, 122°x50°	<b>Operating temperature</b>	-20 °C to 50 °C
<b>Light source</b>	4 LED	<b>CCT / CRI</b>	3000K CRI80, 4000K CRI80	<b>Through wiring</b>	Single cable entry
<b>Power (Luminaire)</b>	8 W	<b>Bug</b>	B0-U0-G0, B1-U0-G0	<b>Lens / Reflector / Optic</b>	Clear toughened glass, High-efficiency PMMA lens
<b>Lumen (Luminaire)</b>	576 - 795 lm	<b>ULR</b>	0%	<b>MacAdam Ellipse</b>	3 SDCM
<b>Luminaire luminous efficacy</b>	72 - 99 lm/W	<b>ULOR</b>	0%	<b>Lifetime L90B10 (hours)</b>	> 90,000
<b>Driver option</b>	Integral control gear	<b>CIE flux code n°3</b>	100, 99	<b>Lifetime L80B10 (hours)</b>	> 90,000
<b>Driver</b>	Constant current (CC)	<b>Dimming type</b>	On/Off	<b>Lifetime L80B50 (hours)</b>	> 90,000
<b>Input voltage</b>	220-240 V 50/60 Hz	<b>Product colours</b>	Black, Dark Grey, White, Matt Silver, Bronze, Concrete - Urban, Softscape - Urban, Stone - Urban, Corten - Urban, Oak - Woodland, Walnut - Woodland, Pine - Woodland	<b>Variants (On/Off)</b>	Compatible with EN/ IEC 60598-2-22: Suitable for emergency installations as central supply, non-maintained (Z0)
<b>Optic</b>	M, W, EW, T2, T3, T4, ME	<b>Weight</b>	0.8 kg		

#### LEE-30001



#### Accessories



Surface mounting box for easy cabling (LEEDS 2)  
**SCE-LEEDS-2**

We reserve the right to make technical and design changes.

09.08.08-10-2023

<https://www.ligman.com/leeds-2-lee-30001/>

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This isn't the end...

We don't just have the solution for what you need today. We also have the solutions you might need for the future. We have dedicated teams that deliver.

- **Lighting Impact and Planning** teams that focus on delivering the most effective and sensitive lighting solutions to support planning.
- **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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Lighting Engineer

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