EDP ENVIRONMENTAL

Building Services & Low Carbon Energy Consultants

External Lighting Report

Belonging and Inclusion hub
Carn Gwarvel, St Mary's

Document Issues

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1.0 Introduction

1.1 - Overview

This report details the proposed external lighting scheme for the proposed extension

The proposed design incorporates wall mounted fittings around the perimeter off the existing building and the extension.

1.2 - Site Location

The site is Carn Gwarval, St Marys, Isles of Scilly.

2.0 Proposed Lighting Solution

2.1 – General

The external lighting system will consist of building-mounted wall lights, positioned to provide the required illuminance across the site area.

2.2 – Design Parameters

The design of the external lighting system adheres to the following industry standards and guidance notes:

- Institution of Lighting Professionals (ILP) Guidance Note 8 (GN08/23): Bats and Artificial Lighting At Night.
- ILP Guidance Note 1 (GN1): Reduction of Obtrusive Light.
- Chartered Institution of Building Services Engineers (CIBSE) Lighting Guide 6 (LG6): The External Environment.

Based on the findings of the site and surroundings, the site is classified as a rural site. The following table, extracted from ILP GN1, defines the relevant environmental zones.

Table 2: Environmental zones

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

Given that the area is primarily the building perimeter, the required average illuminance level is determined to be 5 Lux, however along southern edge of the existing building the required average luminance level would be 10 lux due to the car park and the slow-moving vehicular car park. This specification aligns with the SLL Code for Lighting 2022, specifically Table 4.5.1 and table 4.5.2

Table 4.5 *General circulation areas at outdoor workplaces*

Ref	Type of area, task or activity	$\bar{E}_m$ (lux)	U_o	R_{GL}	R_a	Remarks
4.5.1	*Walkways exclusively for pedestrians*	*5*	*0.25*	*50*	*20*	Where there are other hazards present higher values of $\bar{E}_m$ are required. For example, in water and sewerage treatment works 20 lx, on building sites 20–50 lx and in petroleum and chemical works 50 lx
4.5.2	*Traffic areas for slowly moving vehicles (max. 10 km/h), e.g. bicycles, trucks and excavators*	*10*	*0.40*	*50*	*20*	
4.5.3	*Regular vehicle traffic (max. 40 km/h)*	*20*	*0.40*	*45*	*20*	*At shipyards and in docks, R_{GL} may be 50*
4.5.4	*Pedestrian passages, vehicle turning, loading and unloading points*	*50*	*0.40*	*50*	*20*	For reading labels and signs: $\bar{E}_m$ 50 lx
4.5.5	*Cleaning and servicing*	*50*	*0.25*	*50*	*20*	*All relevant surfaces*

2.3 – Light Spill

In accordance with ILP Guidance Note 1 (GN1), and based on the E2 environmental classification, the maximum permitted vertical illuminance (light spill) at the site boundary is 5 Lux.

2.4 – Proposed Luminaires

The proposed luminaires are wall-mounted bulkheads, which have been selected to effectively prevent obtrusive light spill and ensure that illumination is confined strictly to the site.

2.5 – Results from Lighting Calculation.

The analysis, as indicated on the External Lighting Layout drawing, demonstrates the following performance metrics:

Average Illuminance : The average horizontal illuminance achieved around the building walkways is South Centre (6 lux), North Side (7 lux), South East (8 lux)
(Note: This does follow the requirement of 5 Lux, which is BS EN 12464-2.)

The average horizontal illuminance achieved around the car park area of the building is 10 lux.
(Note: This does follow the requirement of 10 Lux, which is BS EN 12464-2.)

Light Spill at Boundary : The vertical illuminance (light spill) measured to a 3 meter high at the site boundary averages below 0.5 lux
Note: these figures are well below the maximum permitted spill of 5 lux for a E2 environmental zone.

2.6 – Proposed Control Strategy

The external lighting system will incorporate controls allowing for scheduled nighttime shut-off. This measure will further mitigate the potential for obtrusive light and reduce energy consumption during hours when the facility is unoccupied.

3.0 Appendix

Please see the drawing below detailing the proposed external lighting installation.

- 2638-EDP-XX-XX-DR-E-8100- External lighting Plan

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