

Hinckley CDC & Endoscopy. External Lighting Strategy.

Site Location & Description

The proposed site is in Hinckley, Leicestershire and is bounded by Hinckley Leisure Centre, Hinckley & District Hospital, local residences across Mount Road and local park land accessed by the footpath running alongside Argent Mead, past the proposed site.

External Lighting Environmental and the Local Ecology

It is proposed that the ILP Guidance Notes for the Reduction of Obtrusive Light is to be used in order to provide a suitable assessment of the criteria against which to assess the potential effects of artificial lighting.

The guidance levels for light nuisance into windows have been used as the principal criteria for assessing the potential effects associated with the scheme, consideration has also been given to the presence of horizontal light trespass and whether sky glow can be viewed.

This is especially important when assigning Environmental Zones. Furthermore, given the subjective nature of sky glow and glare, it is difficult to quantify the potential effects due to a number of variables, including the fact that sky glow is measured as a percentage change and glare from a light source is dependent on the type and distance from the light source.

Table 1 – Environmental Zones

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically Dark	National Parks, Areas of Outstanding Natural Beauty etc.
E2	Rural	Low District Brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium District Brightness	Small Town Centre or suburban locations
E4	Urban	High District Brightness	Town/City Centre with high level of night-time activity.

Table 2 Obtrusive Light Limitations for Exterior Lighting Installations – General Observers

Environmental zone	Sky glow ULR [Max. %] (1)	Light into windows EV (2)		Source intensity I [cd] (3)		Building Luminance Pre-Curfew (4)
		Pre- Curfew	Post-Curfew	Pre -Curfew	Post- Curfew	Average L[cd/m ²]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

For the purpose of this report, it has been assumed that Hinckley CDC & Endoscopy falls into Environmental Zone 3, as it lies within Hinckley, a sub-urban location. When considering the lighting Strategy, cognisance has been given to the adjacency of the local residences.

Objectives

The general objective of this statement is to show the considerations driving the lighting strategy for the Hinckley CDC & Endoscopy site, to minimise the impact on the surrounding area and environment.

The specific objectives of the fully designed lighting scheme will include:

- Limiting light pollution and sky glow (direct upward light)

- Limiting spill light, light trespass and glare to neighbouring land and properties.
- To provide a lighting scheme with adequate levels of illuminance that aids site security, provide a welcoming environment and allow the safe movement of vehicles and pedestrians around the site.
- To control and limit the operation of pre-determined elements of the lighting installation during certain hours of darkness.

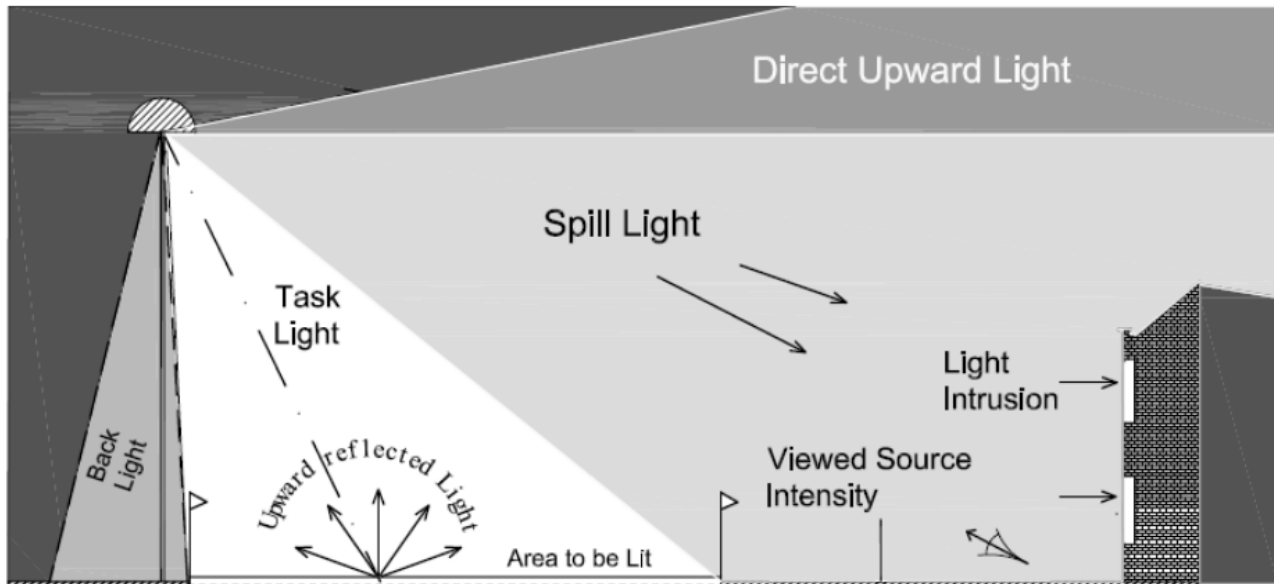


Figure 1 - Types of Obtrusive Light

The external lighting will be supplied from a local internally mounted distribution board. Luminaires will be wired on multiple circuits / phases to give resilience to the external lighting should a phase fail at any time. The distribution board will be individually metered and monitored from the BMS system.

THE PROPOSED LIGHTING STRATEGY

General

The external lighting installation will provide pedestrians and vehicles with good visual guidance around the site.

The lighting will be designed to create a safe environment with clearly illuminated pathways, welcoming entrances and the avoidance of dark areas around the perimeter of the building. Consideration will be given to enhance the lighting requirements for security systems e.g., CCTV as necessary.

Recommended Lighting Values

The External lighting has been designed to the following guidance documents and standards as detailed below and will cover pedestrian areas, footpaths, car parks, canopies and other external areas.

- CIBSE SLL Lighting Guide 6 - The Outdoor Environment.
- CIBSE SLL Commissioning code L – Lighting
- BS 5489 Code of Practice for the design of road lighting - Lighting of Roads & Public Amenity Areas
- BS 5649 Lighting columns
- BS 7671 Requirement for Electrical Installations IET Wiring Regulations.
- BS EN 12464 Part 2 - Lighting of Workplaces – Outdoor Workplaces
- BS EN 13201 Part 2 - Road Lighting
- BS EN 13201 Part 3 - Road Lighting
- BS EN 13201 Part 4 - Road Lighting
- The Building Regulations Part L – The Conservation of Fuel and Power
- ILP Guidance notes for reduction of obtrusive light

- National Planning Policy Framework
- The Good Design Guide

The design will work to minimise light pollution, whether it be sky glow, glare or spill light which could be a statutory nuisance or adversely impact on biodiversity in the environment surrounding the site.

Due consideration will also be given to ensure the quality of the lighting including the use of energy efficient lighting.

The lighting design for the external areas will follow the guidance set out within BS EN 5489 and SLL Lighting Guides as summarised in the tables below the design.

Area	Maintained average illuminance / lux	Maintained minimum illuminance / lux	Overall uniformity (not less than stated figure)
Building perimeter	10	-	0.40
Pathways	5	-	0.25
Car Park	10	-	0.25

Proposed Luminaire Types

Luminaires will be selected to direct light downwards, generally with a zero up-light component to minimise light pollution. All luminaires will have an LED light source enabling more precise control of lighting distribution and providing an energy efficient lighting solution.

Internally illuminated bollards will be chosen to provide a directional, rather than uni-directional, light distribution pattern.

All external areas will be illuminated by use of energy efficient luminaires, column, bollard and wall mounted to achieve the required illumination level.

Where luminaires are to be mounted on lighting columns, the columns will be steel and will have a painted finish.

Consideration will be given to light pollution, vandalism, security and energy efficiency in selecting suitable luminaires.

Car Park

Car Park lighting will be provided by luminaires with area and asymmetric distribution optics, as appropriate, mounted on five-metre columns to provide a uniform lighting level across the car park and minimise light spill beyond the car park boundary.

Pathways

The external lighting will ensure pathways will be adequately lit to illuminate areas of shadow, highlighting steps and ramps. Lighting to pathways will provide external lighting for safety and security purposes and will consist of column mounted luminaires, wall mounted luminaires or illuminated bollards as appropriate to the location.

Building Perimeter

External lighting will be provided around the perimeter of the building for the purposes of security and in particular to highlight the main entrance to the facility, to assist in wayfinding.

Lighting Control Strategy

External lighting will be controlled by photocells and local time switch units to provide time scheduling where required to ensure optimum operation.

External lighting will be supplied from the external lighting distribution board located within the building. The facility will be provided to override the external lighting controls and switch on the external lighting, if so required, in the event of an emergency.

Other elements of the external lighting will be dimmed or switched to maintain a minimum-security level of lighting across the site between the hours of 23.00hrs to 5.00 hrs.

Lighting on the thoroughfares through the site will be provided with presence detection to energise or raise lighting levels in the event that they are used between the hours of 23.00hrs and 5.00hrs.

The external luminaires will be controlled by a system that will minimise light pollution but primarily ensure that the site remains secure. The system will provide:

- Photo-cell units
- Time switches
- Presence Detectors