

Lightable

CODA STUDIOS

LAND OFF BEN BANK ROAD

BARNSELY

LIGHTING STRATEGY

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DOCUMENT ISSUE RECORD

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EXECUTIVE SUMMARY

This Lighting Strategy has been prepared for Coda Studios ("the Client") by Dan Alasfar of Lightable Projects Ltd ("Lightable"), an Incorporated Engineer and Registered Member of the Institute of Lighting Professionals ("ILP") with more than ten years' experience in technical input for environmental lighting.

The Lighting Strategy is for the Erection of 2no. dwellings and associated works at Land off Ben Bank Road (to the rear of Nos. 94, 96 and 98), Silkstone Common, Barnsley ("the Site"). The strategy evaluates compliance with relevant lighting standards and guidelines, balancing the need for lighting with potential adverse light impacts (light pollution).

Key Findings

- This Lighting Strategy has been produced in collaboration with the project ecologist and in accordance with all relevant local and national policy and guidance.
- Lux modelling has been undertaken to illustrate how artificial lighting is predicted to be distributed across the site and to demonstrate that it will be contained within the site boundary and away from the identified sensitive receptors.
- If external lighting is installed in accordance with this assessment the overall adverse lighting impact is anticipated to be negligible.

Recommendations

- Utilise high quality LED luminaires.
- Adopt a site-wide warm white (3000K) colour temperature.
- Control external lighting using PIR detectors to minimise unnecessary operation.

1.0 INTRODUCTION

- 1.1 This Lighting Strategy has been prepared to support the discharge of the following Planning Condition:

“Condition 5

Prior to first occupation of the dwellings, details of external lighting shall be submitted to and approved in writing by the local planning authority. The scheme will aim to reduce adverse impacts on bats using key corridors, foraging and commuting features and roosting sites. The details shall include, but are not limited to, the following:

- *Identification of areas/features on site that are particularly sensitive e.g. breeding, resting, foraging and commuting sites;*
- *A drawing showing dark corridors and buffer areas.*
- *Details showing how and where external lighting will be installed will be agreed in order to minimise impacts on bats. The lighting plan will be prepared with reference to the current Bat Conservation Trust guidance on lighting and bats and with reference to the baseline lighting levels around the site.*

Reason: in the interests of Biodiversity and in accordance with Local Plan Policy BIO 1 and SPD Biodiversity and Geodiversity.”

- 1.2 This Lighting Strategy sets out to achieve the following:

- Review relevant policy and guidance.
- Provide mitigation measures to remove potentially adverse impacts.
- Propose luminaire types.
- Undertake detailed external lighting modelling, designed to provide a high-quality, low impact proposal for lighting.

2.0 POLICY AND GUIDANCE

Barnsley Local Plan (2019)

“The Local Plan sets out the key elements of the planning framework for Barnsley, and the approach to its long term physical development to achieve the Council’s vision of what sort of place Barnsley wants to become.”

Policy Poll1 Pollution Control and Protection

“Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air, surface water and groundwater, noise, smell, dust, vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people.

We will not allow development of new housing or other environmentally sensitive development where existing air pollution, noise, smell, dust, vibration, light or other pollution levels are unacceptable and there is no reasonable prospect that these can be mitigated against.

Developers will be expected to minimise the effects of any possible pollution and provide mitigation measures where appropriate.”

Policy E6 Rural Economy

“We will encourage a viable rural economy by allowing development in rural areas if it:

- *Supports the sustainable diversification and development of the rural economy;*
- *Results in the growth of existing businesses;*
- *Is related to tourism or recreation; or*
- *Improves the range and quality of local services in existing settlements.*

Development in rural areas will be expected to:

- *Be of a scale proportionate to the size and role of the settlement;*
- *Be directly related, where appropriate, to the needs of the settlement;*
- *Not have a harmful impact on the countryside, biodiversity, Green Belt, landscape or local character of the area;*
- *Consider the re-use of existing rural buildings in the first instance; and*
- *Protect the best quality agricultural land, areas of lower quality agricultural land should be used for development in preference to the best and most versatile land.”*

National Planning Policy Framework (2024)

- 2.1 The Revised National Planning Policy Framework (NPPF) provides guidance relating to planning and pollution control for new development in England. The purpose of the planning system is to contribute to the achievement of sustainable development. In relation to lighting, Paragraph 198 states:

“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: c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”

Clean Neighbourhoods and Environment Act (2005)

- 2.2 The CNEA 2005 amended section 79(1) of the Environmental Protection Act 1990, extending the statutory nuisance regime to include light nuisance stating the following:

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

- 2.3 This Act provides the statutory framework for addressing artificial light as a potential statutory nuisance. This Act does not set prescriptive light pollution limits but instead allows local authorities to act where lighting is judged to cause harm to health or a material interference. In practice, ILP GN01/21 is commonly adopted as the benchmark guidance to demonstrate compliance and to assist in the assessment of lighting impacts.

ILP Guidance Note 01 for the Reduction of Obtrusive Light (GN01/21)

- 2.4 The ILP has proposed lighting guidance and criteria for local authorities with a recommendation that they are incorporated at the local plan level. The guidance supports planning policy by promoting well-targeted, controlled lighting that meets functional needs while safeguarding sensitive receptors from adverse effects.
- 2.5 ILP GN01/21 recommends that the immediate environment is classified into an environmental zone based on ambient lighting levels in the surrounding area. For each Environmental Zone, the ILP provide recommended obtrusive light limits for exterior lighting installations.

ILP Guidance Note 08 for Bats and artificial lighting in the UK (GN08/23)

- 2.6 This document is aimed at lighting professionals, lighting designers, planning officers, developers, bat workers/ecologists and anyone specifying lighting. It is intended to raise awareness of the impacts of artificial lighting on bats, and mitigation is suggested for various scenarios.

SLL Lighting Guide 06 The Exterior Environment

- 2.7 This document provides detailed guidance on the design and assessment of outdoor lighting in public and private spaces. It covers functional requirements for visibility and safety, while also addressing environmental considerations such as obtrusive light, energy efficiency, and the character of the built environment. The document is widely recognised by practitioners and complements ILP GN01/21 by offering practical design advice aligned with planning and environmental objectives.

SLL Lighting Guide 21 Protecting the Night-time Environment

- 2.8 This document focuses on limiting obtrusive light and safeguarding dark skies. It provides practical guidance on reducing glare, sky glow, and spill light, with a strong emphasis on sensitive design in areas with ecological or amenity value. LG21 is frequently cited alongside ILP GN01/21 as complementary guidance to help demonstrate good practice in planning and environmental assessments.

3.0 ECOLOGY

Introduction

- 3.1 This section describes the existing ecological context of the site and its surrounding area, in order to identify any sensitive receptors and confirm any recommendations for lighting.
- 3.2 A Preliminary Ecology Appraisal (PEA) has been undertaken by the project ecologist, Weddles Ecology, to inform the proposals.
- 3.3 The PEA identifies relevant ecological receptors, assesses the potential impacts associated with the development, and outlines any mitigation, avoidance or enhancement measures required to ensure that local wildlife is appropriately safeguarded.
- 3.4 The lighting strategy will then be developed in accordance with the findings and recommended mitigation measures set out within the PEA.
- 3.5 The following light sensitive species were considered for assessment.

- Bats

Ecological Constraints and Opportunities

- 3.6 The application site was considered to support 'Low' suitability to support foraging and commuting bats due to the onsite mature vegetation and surrounding environmental context. The development will see the retention of trees and hedgerows, therefore retaining the long-term suitability for the site to support foraging and commuting bats.
- 3.7 Artificial lighting during the construction phase of the development and in-use may result in short-term impacts to foraging and commuting individuals.
- 3.8 A sensitive low-level lighting scheme will be prepared by a lighting engineer to ensure no mature vegetation is impacted by the development. The lighting strategy should follow best practice as dictated by the Bat Conservation Trust:
 - Consider employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.
 - Minimise the spread of light to at, or near horizontal and ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required.
 - Consider the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light spill or require more columns.
 - Column height should be carefully considered to balance task and mitigation measures.
 - Use temporary close-boarded fencing to shield sensitive areas from lighting.
 - Limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23.00hrs and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.
- 3.9 In addition, apply technical specifications:

- Use narrow spectrum light sources to lower the range of species affected by lighting.
- Use light sources that emit minimal ultra-violet light
- Lights should peak higher than 550 nm
- Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue short wavelength content they should be of a warm / neutral colour temperature <4,200 kelvin

Identification of areas/features on site that are particularly sensitive

- 3.10 Weddles Ecology has been consulted as part of this lighting strategy, in particular to help identify areas/features on site that are particularly sensitive e.g. breeding, resting, foraging and commuting sites. Figure 3.1 has been provided by Weddles.

Figure 3.1 Sensitive areas on site



Zone A to be free from artificial illumination includes the eastern hedgerow and associated trees, and the northern woodland edge habitats.

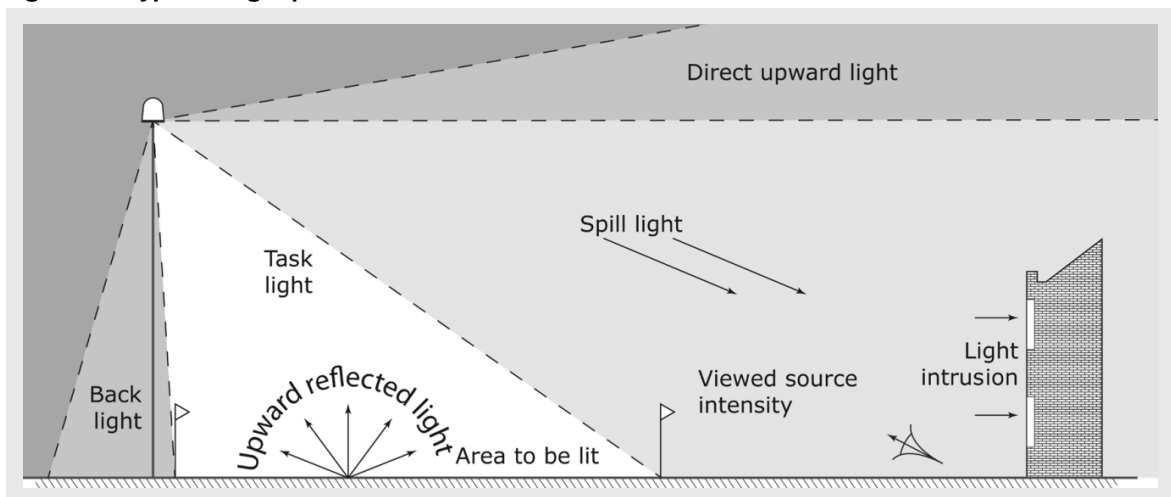
Zone B comprises the southern and western garden areas, where illuminance limits are imposed but lighting can be used nearby. Lighting should not be directed at the trees.

4.0 LIGHT POLLUTION

4.1 Light pollution describes the unintended or excessive effects of artificial lighting beyond its functional purpose. The main types are below.

- **Sky glow** : the brightening of the night sky caused by upwardly directed or reflected light scattering in the atmosphere. It reduces visibility of stars and undermines the character of dark landscapes.
- **Light intrusion** : unwanted light entering windows or private spaces, which can disturb sleep, affect health and wellbeing, and impact residential amenity.
- **Glare** : excessive brightness or contrast that causes discomfort or impairs vision. Glare can reduce safety for road users and pedestrians by making it difficult to see beyond the light source.
- **Clutter** : the over-concentration or poor arrangement of lights in an area, often seen along busy roads or commercial frontages. This creates visual confusion, can distract drivers, and detracts from the night-time environment.

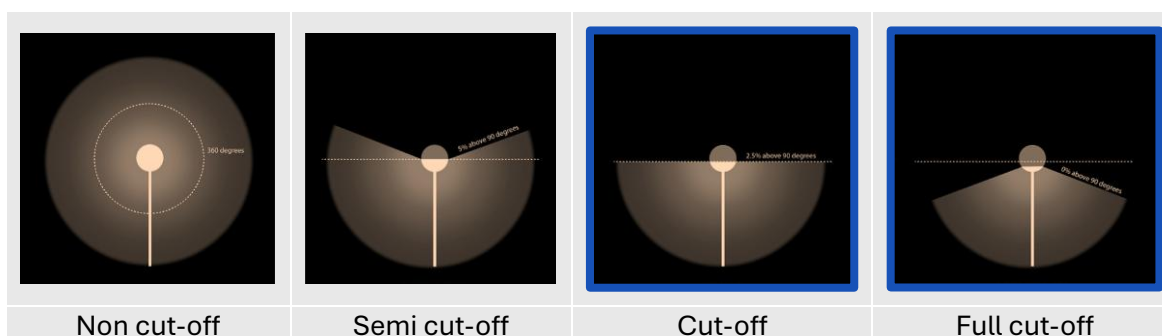
Figure 4.1 Types of light pollution



4.2 In practice, light pollution commonly occurs due to poorly specified or installed luminaires, incorrect aiming or tilt, excessive light levels beyond what is required, and the absence of effective controls. It may also arise where lighting has been introduced without consideration of its wider context, including proximity to sensitive ecological habitats, neighbouring properties, or transport systems.

5.0 MITIGATION

- 5.1 Poorly thought-out lighting has the potential to cause unacceptable impacts on sensitive receptors. The following mitigation steps have been applied in an effort to reduce adverse impacts to negligible levels.
- 5.2 **Low mounting heights** : Mounting heights shall be restricted to below first floor height, designed to reduce light spill and the overall size and scale of lighting.
- 5.3 **Lighting controls** : External lighting shall generally be switched off. External lighting shall be controlled using switches and PIR detectors to minimise unnecessary operation.
- 5.4 **Directional light** : All luminaires shall be directional, cut-off or full cut-off type, emitting all their light below the horizontal plane. No tilt angles shall be applied to the lights.



- 5.5 **Avoiding over lighting** : Illumination levels across the site shall be designed to provide the minimum illumination for safe access and wayfinding.
- 5.6 **Warm colour temperature** : Luminaires shall be 3000K warm white colour temperature with reduced blue light component. Warmer whites are known to be less disruptive to ecological systems and less prone to disrupt natural sleep-wake cycles. Warm white also causes less light “scatter” which contributes to sky glow.

Figure 5.1 Selected colour temperature



6.0 LUMINAIRE SELECTION

- 6.1 The following luminaires have been used for this assessment. The selected luminaires are low intensity, high quality LED type, designed to minimise obtrusive light.

Table 6.1 Luminaire Type A1

Type A1	
Specification	Description
Correlated Colour Temperature (CCT)	Warm white (3000K)
Mounting	Façade mount @ 1.8m
Manufacturer	Litecraft
Product	Kenn Outdoor Wall Light
Lamp	Integral LED GU10 lamp
Lamp Output	370 lumens
Controls	Standalone presence detector (grouped)
Luminaire image	

Table 6.2 Luminaire Type A2

Type A2	
Specification	Description
Correlated Colour Temperature (CCT)	Warm white (3000K)
Mounting	Façade mount @ 1.8m
Manufacturer	Litecraft
Product	Kenn Outdoor Wall Light
Lamp	Integral LED GU10 lamp
Lamp Output	370 lumens
Controls	Integrated presence detector
Luminaire image	

Table 6.3 Luminaire Type B

Type B	
Specification	Description
Correlated Colour Temperature (CCT)	Warm white (3000K)
Mounting	Soffit recessed
Manufacturer	Collingwood
Product	FL01 installed at 0° tilt
Lamp	Integrated
Lamp Output	1100 lumens
Controls	Integrated presence detector
Luminaire image	

7.0 MODELLING

- 7.1 Detailed lighting modelling has been undertaken using RELUX Desktop, an industry standard software package capable of raytraced scene rendering.
- 7.2 The Site and surroundings have been modelled based on the latest available Architectural Drawings.
- 7.3 Blocking effects caused by external buildings, walls, fences, or vegetation have been excluded from the model, and all lights have been set to operate at maximum output, to represent a worst-case scenario.
- 7.4 A false colour extract from the lighting model is provided in Figure 7.1 to aid principals in visualising the predicted light distribution.

Figure 7.1 Lighting model false colour view - measurements in lux



- 7.5 An external lighting layout drawing has been prepared indicating proposed luminaire types, heights, and directions. This drawing is included in Appendix 1.

- 7.6 An external lighting lux plot layout drawing has been prepared to illustrate the proposed on and off-site illumination distribution, presented as lux contour lines with an overlaid calculation grid. This drawing is included in Appendix 2.
- 7.7 As demonstrated by Figure 7.1, light spill is predicted to be effectively contained and kept away from the identified sensitive areas. The anticipated impact is therefore concluded to be negligible.

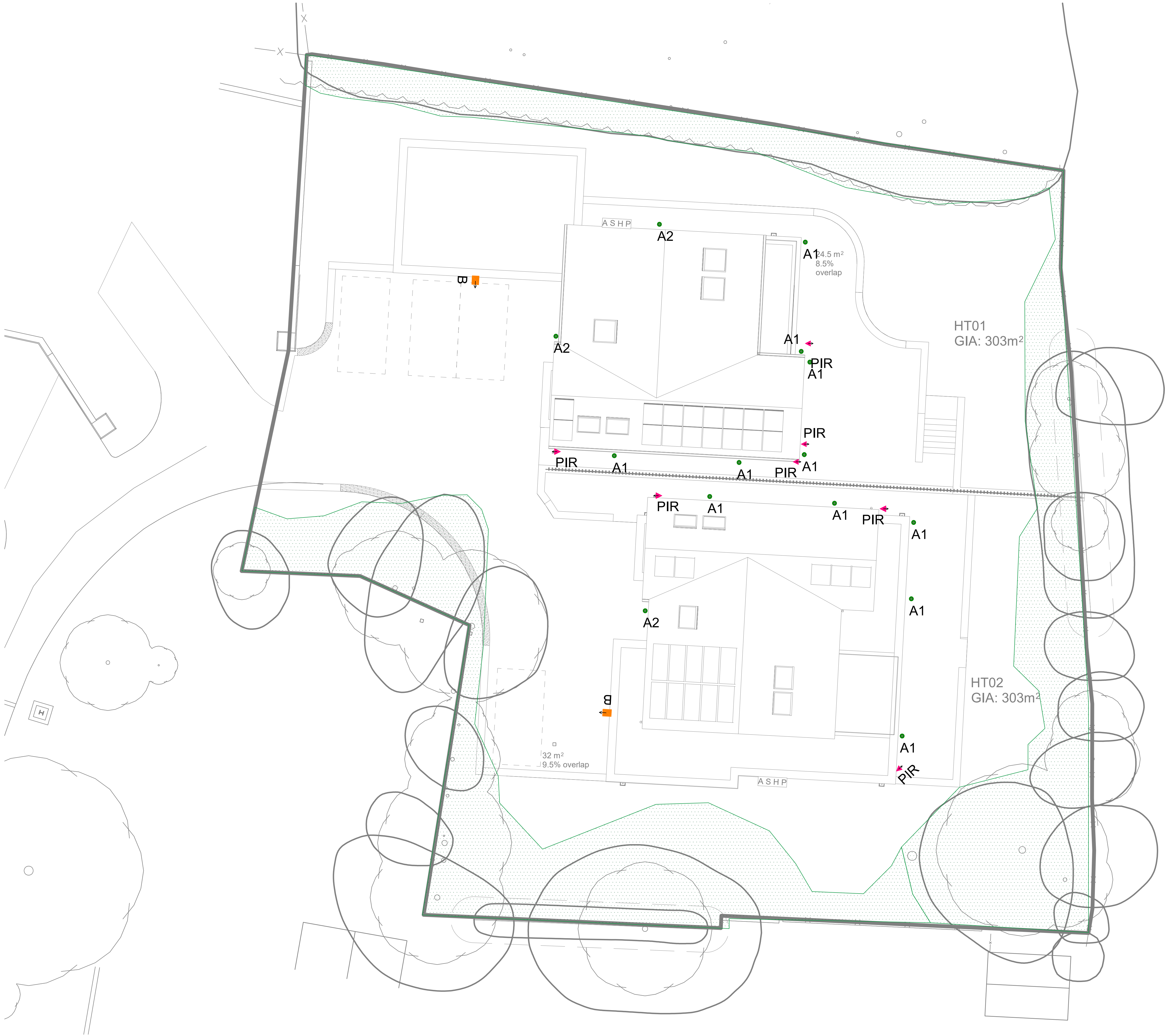
8.0 CONSTRUCTION PHASE LIGHTING

8.1 While construction phase lighting is expected to be short term and reversible it is important to minimise disruption as far as practicable. To reduce the effects of lighting during the construction phase the following measures should be put in place:

- Lighting will operate in all external areas used by construction workers after dark in order to provide a safe and secure working environment without over lighting. High quality LED light sources with high colour rendering index (CRI) shall be utilised to maximise visibility with efficient light output;
- Lighting shall be provided to meet the target lux level as set out in BS 12464-2 Lighting of outdoor workplaces without over lighting. Luminaires shall be mounted at the lowest practical mounting height, providing lighting only where lighting is required;
- The Contractor shall specify working hours, uses of lighting, location of temporary floodlights and construction compound and agreeing these with the local council to reduce duration of impact;
- Lighting controls should be employed to dim or switch off any lighting that is not needed;
- Lighting that needs to be sited close to the perimeter or sensitive areas should be fitted with shielding or be switched off or dimmed when not in use;
- Lighting should be controlled in such a way to illuminate high activity, hazardous or high security areas while reducing lighting levels at less pertinent areas; and
- The Contractor should act responsibly to adjust any temporary lighting reported as causing nuisance.

APPENDICES

Appendix 1 : External Lighting Layout



- NOTES
- THIS IS NOT A CONSTRUCTION DRAWING.
 - DO NOT SCALE FROM THIS DRAWING.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER PROJECT DOCUMENTS.
 - THIS LUX PLOT IS UNDER WORST CASE CONDITIONS, I.E., FREE FROM OBSTRUCTIONS, WHEN ALL LIGHTS ARE OPERATING AT MAXIMUM OUTPUT.

KEY

LUMINAIRE SCHEDULE		
SYMBOL	DESCRIPTION	IMAGE
A1	LITECRAFT KENN OUTDOOR WALL LIGHT C/W PHILIPS LEDSPOT GU10 LAMP 370 LUMENS 3000K WARM WHITE FACADE MOUNT @ 1.8M	
A2	LITECRAFT KENN OUTDOOR WALL LIGHT C/W PIR C/W PHILIPS LEDSPOT GU10 LAMP 370 LUMENS 3000K WARM WHITE FACADE MOUNT @ 1.8M	
B	COLLINGWOOD FL01 OUTDOOR FLOOD LIGHT C/W PIR 0° TILT 1100 LUMENS 3000K WARM WHITE FACADE MOUNT @ 2.6M	
PIR	ML ACCESSORIES MINI PIR SENSOR	

SENSITIVE AREAS ON SITE

P1	25.02.26	FOR INFORMATION
REV	DATE	DESCRIPTION

Lightable

PROJECT
LAND OFF BEN BANK ROAD
BARNSELEY

DRAWING TITLE
EXTERNAL LIGHTING
LAYOUT

DRAWING NUMBER
L0178-LTBL-DWG-001

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Appendix 2 : External Lighting Lux Plot Layout



- NOTES
- THIS IS NOT A CONSTRUCTION DRAWING.
 - DO NOT SCALE FROM THIS DRAWING.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER PROJECT DOCUMENTS.
 - THIS LUX PLOT IS UNDER WORST CASE CONDITIONS, I.E., FREE FROM OBSTRUCTIONS, WHEN ALL LIGHTS ARE OPERATING AT MAXIMUM OUTPUT.

KEY

LUMINAIRE SCHEDULE		
SYMBOL	DESCRIPTION	IMAGE
A1	LITECRAFT KENN OUTDOOR WALL LIGHT C/W PHILIPS LEDSPOT GU10 LAMP 370 LUMENS 3000K WARM WHITE FACADE MOUNT @ 1.8M	
A2	LITECRAFT KENN OUTDOOR WALL LIGHT C/W PIR C/W PHILIPS LEDSPOT GU10 LAMP 370 LUMENS 3000K WARM WHITE FACADE MOUNT @ 1.8M	
B	COLLINGWOOD FL01 OUTDOOR FLOOD LIGHT C/W PIR 0° TILT 1100 LUMENS 3000K WARM WHITE FACADE MOUNT @ 2.6M	
PIR	ML ACCESSORIES MINI PIR SENSOR	
SENSITIVE AREAS ON SITE		

HORIZONTAL ILLUMINANCE (LUX)			
ISOLUX CONTOURS		ISOLUX GRID	
	10	0	0
	5	0	1
	2	0	1
	1	0	1
	0.5	0	1

P1	25.02.26	FOR INFORMATION
REV	DATE	DESCRIPTION

PROJECT
LAND OFF BEN BANK ROAD
BARNLEY

DRAWING TITLE
EXTERNAL LIGHTING
LUX PLOT LAYOUT

DRAWING NUMBER
L0178-LTBL-DWG-002

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