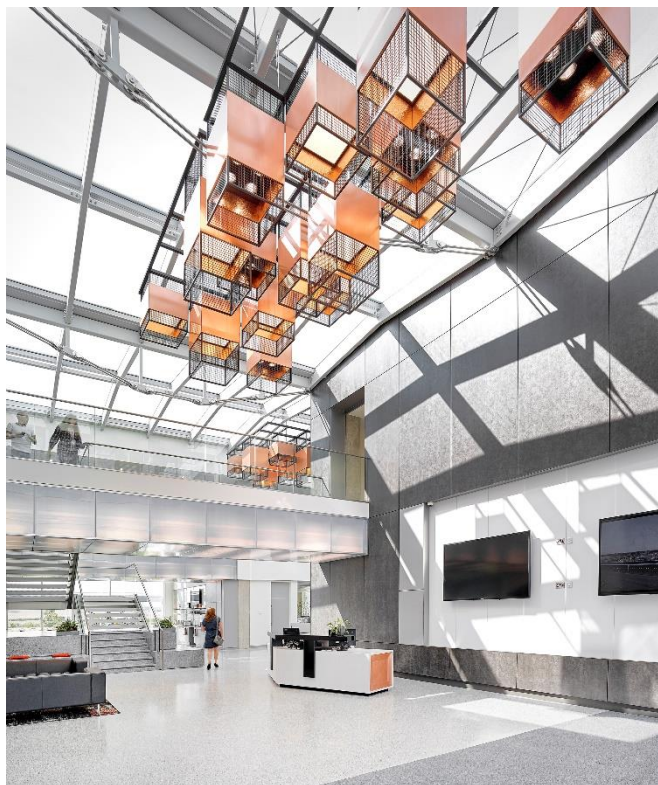


Cascades Leisure Centre

External Lighting Strategy Report



Issue No. 02

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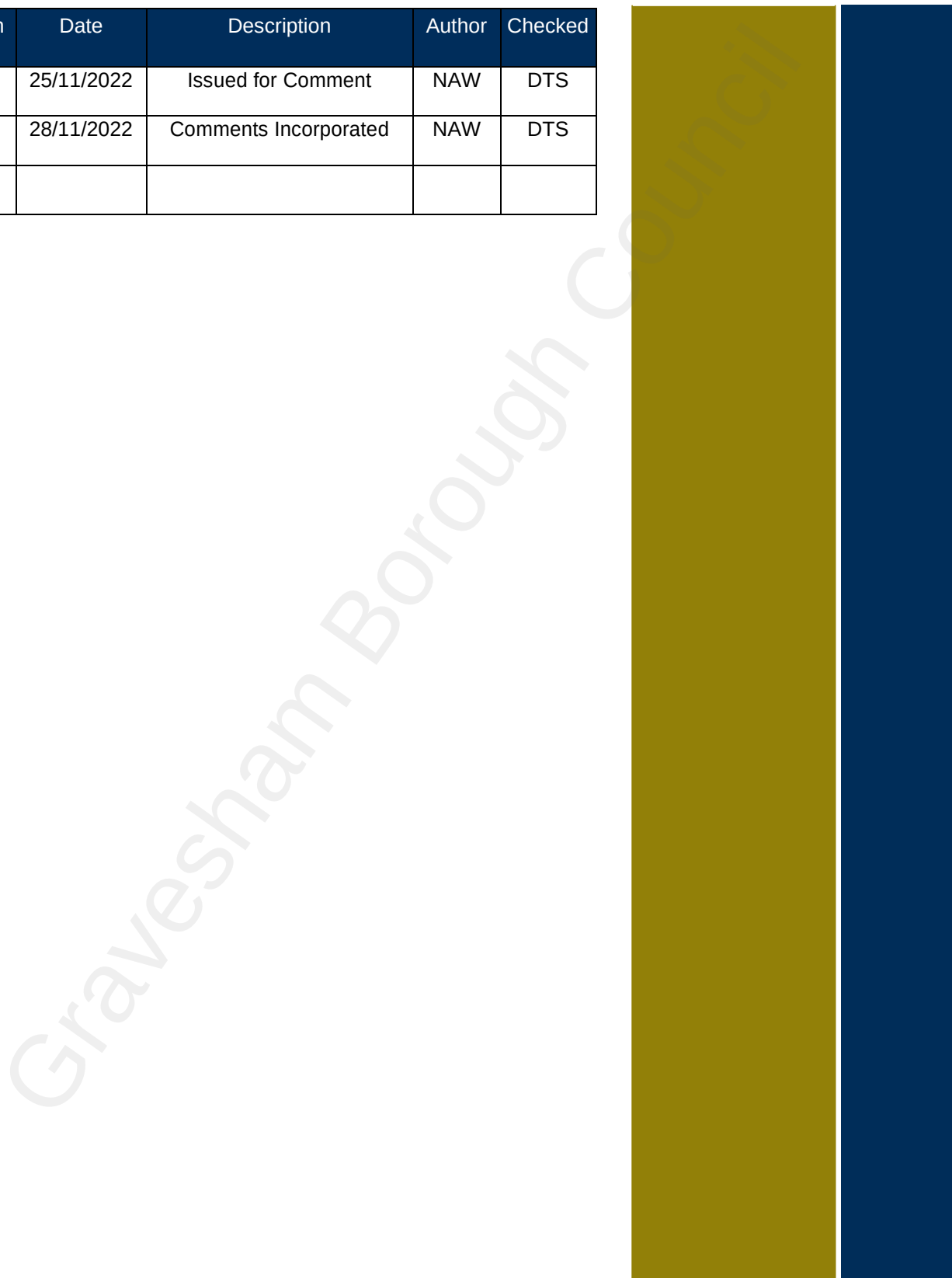
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1. EXECUTIVE SUMMARY

This report has been produced to review the potential implications of the external lighting within the confines of the development site and specific areas of the site which have been identified as having the need to be mitigated.

This report is based on the information produced to support the Planning Application.

An illustrative site plan is included indicating a strategy in which the site could be developed in line with the current planning application.

The principles of the existing lighting to the site will be maintained and updated utilising high efficiency LED lighting to the appropriate recommended lighting standards and good practice.

Character zones and lighting methodologies appropriate for each area are highlighted and suggested for the development.

The primary ecological concern relevant to this report is use of the site by pipistrelle bats for foraging routes. Please refer to developments Bat survey report provided by the ecology team of Lloyd Bore Ltd for further detailed information. It is understood that external lighting, in some cases, can be detrimental to bats and this report contains a lighting strategy, recommended by the Bat Conservation Trust which is aimed at minimising this impact.

The key guidelines suggested by this report aim to minimise the impact of the lighting on the existing ecology and reducing obtrusive lighting are as follows:

- Design lighting that has low illumination levels as guidelines permit.
- Ensure all columns and luminaires are as low to the ground as reasonably possible.
- Try to ensure all luminaires are directed downwards and away from areas which are attractive to bats.
- Provide lighting control that will allow some darker periods.
- Only use luminaires/lanterns which can be fitted with UV and directional shields.

2. INTRODUCTION

The purpose of this Report is to establish guidelines for the proposed roadway access, car park and amenity lighting installation to support the development for the new leisure centre; this will inform the formulation of lighting schemes for the proposed development when the final details of the development are known. In this context it is not intended to be prescriptive, but to establish parameters within which the resultant lighting scheme can be designed, and the identified constraints mitigated.

2.1. EXISTING SITE

The building shown in the background of the image below is the existing leisure centre, which was constructed in the 1960s & 70s. The proposal is for the existing building to be demolished and a new leisure centre to be built on the same site close-by, bringing the building & services up to modern efficiency standards. The new building is proposed to be built approximately where the existing carpark & treeline are in the foreground of the above image.



Figure 1: Existing Site

2.2. THE PROPOSED DEVELOPMENT

The proposed development replaces the existing Cascades leisure centre with a new single building with up-to-date leisure facilities and provides additional vehicle parking and an external dual use games area.



Figure 2: Proposed Development

The site plan sketch layout in appendix 1 indicates a suggested strategy for this layout.

3. LIGHTING STANDARDS AND GUIDELINES

This section of the report identifies the standards and guidelines proposed for the lighting design.

3.1. STATUTORY DOCUMENTS

Statutory provision for prohibiting nuisance caused by lighting exists through The Clean Neighbourhoods and Environment Act 2005, amending the Environmental protection Act 1990. 'Artificial light emitted from premises so as to be prejudicial to health or a nuisance'.

3.2. APPLICABLE STANDARDS

The following standards are identified as the appropriate documentation for the various elements of the lighting design;

- BS 12464- 2:2014 Lighting of workplaces, outdoor workplaces
- BS 5489 - 1:2020 Design of road lighting. Lighting of roads and public amenity areas
- BS EN 13201:2 Road Lighting – Performance requirements
- BS8300:2018: Design of an accessible and inclusive built environment
- CIBSE Lighting Guide 4: Sports Lighting
- Sport England Design Guidance Note 2012
- The Clean Neighbourhoods and Environment Act 2005
- GN01:2021 Guidance Notes for the Reduction of Obtrusive Light, Institution of Lighting Professionals
- Environmental considerations for exterior lighting – Chartered institute of Building Services Engineers (CIBSE)
- Outdoor Environment Lighting Guide 6 – CIBSE

3.3. NATIONAL PLANNING POLICY

The National Planning Policy Framework (NPPF) latest update published in March 2021 sets out the Governments core policies with respect to land use planning including lighting. This document highlights the following relevant considerations:

'By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

The National Planning Practice Guidance describes light pollution in the terms of the principles outlined in GN01 - Guidance Notes for the Reduction of Obtrusive Light. This document is considered the most appropriate guidance to meet the local authority policy requirements.

3.4. LOCAL REQUIREMENTS

Core Strategy (as amended by the Core Strategy Selective Review 2019), Gravesham Local Plan

The current local plan for this development was amended in 2019. The key elements of that plan with regards to lighting are outlined and responded to below.

Policy CS19: Development and Design Principles – Section 5.14.14

5.15.14 New development will be visually attractive, fit for purpose and locally distinctive. It will conserve and enhance the character of the local built, historic and natural environment, integrate well with the surrounding local area and meet anti-crime standards. The design and construction of new development will incorporate sustainable construction standards and techniques, be adaptable to reflect changing lifestyles, and be resilient to the effects of climate change. This will be achieved through the criteria set out below:

- New development will be located, designed and constructed to:
 - safeguard the amenity, including privacy, daylight and sunlight, of its occupants and those of neighbouring properties and land;
 - avoid adverse environmental impacts from pollution, including noise, air, odour and light pollution, and land contamination; and
 - not pose an unacceptable risk or harm to the water environment, including the quality and/or quantity of ground waters, surface waters, wetlands and coastal water systems;
- The design and layout of new residential development, including conversions,

- (i) *'New development will be located, designed and constructed to: avoid adverse environmental impacts from pollution, including noise, air, odour and light pollution, and land contamination'*

3.5. OBTRUSIVE LIGHT / LIGHT POLLUTION

Obtrusive light, also termed light pollution needs to be controlled in order to safeguard and enhance the night time environment. Should this not be adequately controlled it can present physiological and ecological problems to surroundings and people.

The Guidance Notes for the Reduction of Obtrusive Light document details Environmental Zone Classification to be identified at design stage.

The guidance note also lists the obtrusive light limitations and associated curfew times. This will be evaluated at design stage by the production and examination of lighting calculations and plots of the levels to record the points at which the limitations are reached.

3.6. ECOLOGY

The bat emergence survey report for the existing site notes the use of the site by common pipistrelle, soprano pipistrelle and noctule bats, with common pipistrelle noted foraging around or near to the existing building.

The Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended) afford legal protection to bats. Whilst no bats were recorded emerging from the building the legal protection extends to the foraging routes and resting places for bats.

The Bat Conservation Trust – Landscape and urban design for bats and biodiversity is considered the most appropriate document for guidance to be followed for the design where possible.

The Bat Conservation Trust suggests a lighting level of 3 lux or below on the ground is a suitable compromise between bat habitation, flying requirements and pedestrian movement. This is 2 lux below the average requirement of 5 lux but 2 lux above the minimum requirement of BS EN 13201-2: for Street Lighting.

4. LIGHTING STRATEGY

4.1. LIGHTING CHARACTER ZONES

Lighting character zones and suggested illumination levels are identified for the development for separate consideration as the sketch layout in appendix 1.

The principles of the existing lighting to the site will be maintained, updated utilising high efficiency LED lighting to the appropriate recommended lighting standard and good practice.

All luminaires will incorporate UV filters and tight optical control to follow to guidance from the Bat Trust and to minimise obtrusive light.

4.2. CAR PARK

The car parking area is seen as primarily an area of mixed vehicle and pedestrian traffic with including temporary, permanent and blue badge parking spaces.

The car park area will also need to receive sufficient illumination to permit the correct operation of the CCTV installation and the use of electric vehicle charging points.

It is suggested that this is achieved using standard column mounted LED luminaires at heights purposefully considered for reduction of spill light. Dusk to dawn lighting control with photocells and timeclocks will confine operation to agreed curfew times.

4.3. PEDESTRIAN ROUTES

These areas are seen as primarily mixed vehicles and pedestrian traffic and will need to achieve minimum maintained horizontal illuminance for safety and along routes from the blue badge parking spaces to meet the slightly higher illumination levels required along accessible routes.

It is suggested that this is achieved using standard complimentary column mounted LED luminaires to the car park at heights purposefully considered for reduction of spill light.

Dusk to dawn lighting control with photocells and timeclocks will confine operation to agreed curfew times.

4.4. BUILDING AND WALKWAY

The perimeter walkway will be lit with wall mounted LED luminaires that have only a downward light output.

Dusk to dawn lighting control with photocells and timeclocks will confine operation to agreed curfew times.

4.5. EXTERNAL GAMES AREA

The external games area lighting and controls will follow the guidelines set out in the Sport England Design Guidance Note 2012.

Club and Community lighting for tennis, netball, 5-a-side, basketball, rush hockey						
			Club		Community	
		Horizontal Illuminance (Lux)	Uniformity (Emin / Eave)	Horizontal Illuminance (Lux)	Uniformity (Emin / Eave)	
Netball		400	0.7	400	0.7	
Tennis (recommended)	PPA	500	0.7	500	0.7	
	TPA	400	0.6	400	0.6	
5-a-side football		120	0.6	120	0.6	
Basketball		200	0.6	75	0.5	
Rush hockey		350	0.7	200	0.7	

5. SUMMARY

The external lighting for the development details a lighting strategy which is efficient in use, sensitive to planning considerations and does not impact adversely on the site ecology. This will be achieved through the careful selection of all elements of the lighting installation, including light sources, luminaire types, optical attachment and control strategy.

To achieve an efficient installation, light pollution in the form of upward lighting should be avoided, as should light trespass. Excessive glare in particular from the car park and games area will be minimised by the choice of source and luminaire optics, and the design will conform to set uniformity criteria.

The external lighting design throughout the development will be based on the appropriate British Standards and other guidance and also be appropriate to the local authority for road adoption purposes.

The areas of development that are particularly sensitive in terms of visual; and ecological impacts will be lit to a lower level of illumination than that of the roadways and low level lighting would be the preferred means. Luminaires should be equipped with optical attachments to efficiently control the light and reduce light spillage.

It is intended that the development will not be a significant source of light pollution when measured against the parameters defined within the ILE Guidance Notes for the Reduction of Obtrusive Light. The use of computer aided design tools will demonstrate that specified lighting parameters will be met.

APPENDIX 1 – EXTERNAL LIGHTING SKETCH LAYOUT

Gravesham Borough Council