



Manor Road / Richmond

Lighting Strategy

**Manor Road.
Richmond.**
Avanton Richmond Development Ltd.

LIGHTING DESIGN

DOC_1616154_181005_MC_STAGE 2 LIGHTING DESIGN_04
LIGHTING DESIGN MASTERPLAN - DRAFT
16 JANUARY 2019



STAGE 2

Audit sheet.

Rev	Date	Description	Prepared	Verified
01	20/08/2018	Preliminary Issue	MC	CF
02	14/12/2018	Draft Issue	JB	CF
03	04/01/2018	Updated draft for final comment	BJ	JF
04	16/01/2019	Final issue for planning	BJ	JF

This document has been prepared for Avanton from our appointment only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.





1.0 Executive summary

Demolition of existing buildings and structures and comprehensive residential-led redevelopment of four buildings of between four and nine storeys to provide 385 residential units (Class C3), flexible retail / community / office uses (Classes A1, A2, A3, D2, B1), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works.






2.0 Site overview.

Key Areas:

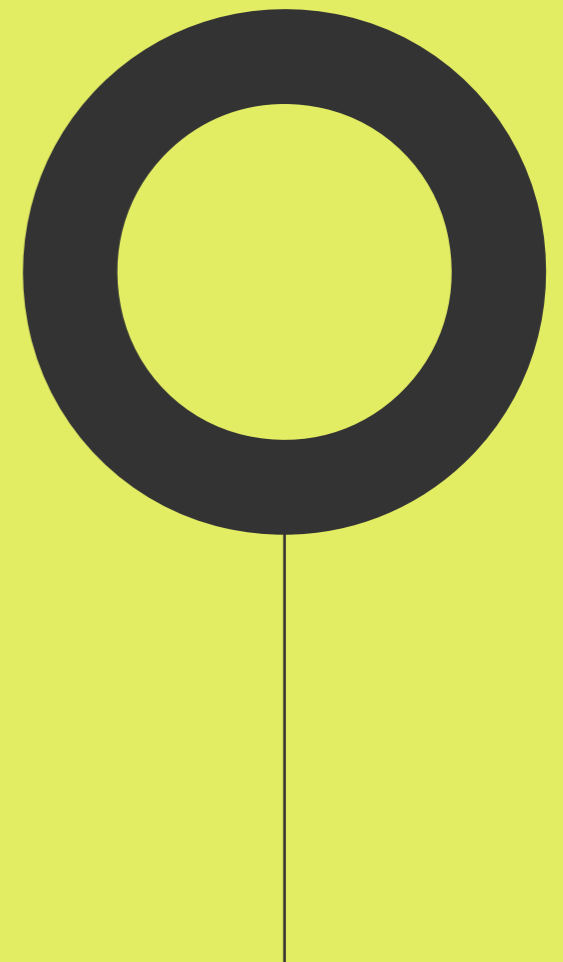
-  Main site entrance.
-  Public squares.
-  Building entrances.
-  Resident courtyards.

Site interaction:

-  Vehicular movement.
-  Primary pedestrian movement.
-  Secondary pedestrian movement.



Lighting design considerations.



3. Lighting design considerations.

3.1 External lighting.

The first question people ask regarding exterior lighting is “why light at all?”. Excluding street lighting, most unplanned exterior lighting installations appear as a decorative indulgence which consume valuable energy resources and result in potential glare and light pollution.

By contrast, good exterior lighting can play a positive role in the way people feel about their environment; it can reveal and enhance our buildings aesthetically, improve our sense of local identity, safety and civic pride and make people more willing to use the streets, squares and parks after dark. Used correctly exterior lighting can thus boost an area’s night-time use and commercial viability. For all these reasons it is generally accepted that effective, varied lighting of buildings and townscapes, both public and private, is a sound investment, that well justifies the relatively small capital and energy costs involved.

A badly-designed lighting scheme distributes light where it is not wanted, causing light pollution, while wasting energy unnecessarily and creating poor visual environments. Designed lighting solutions create better exterior schemes and give a new dimension to the urban environment at night rather than, the all too often, so called ‘functional’ lighting approach which adds little to the night scene.



3. Lighting design considerations.

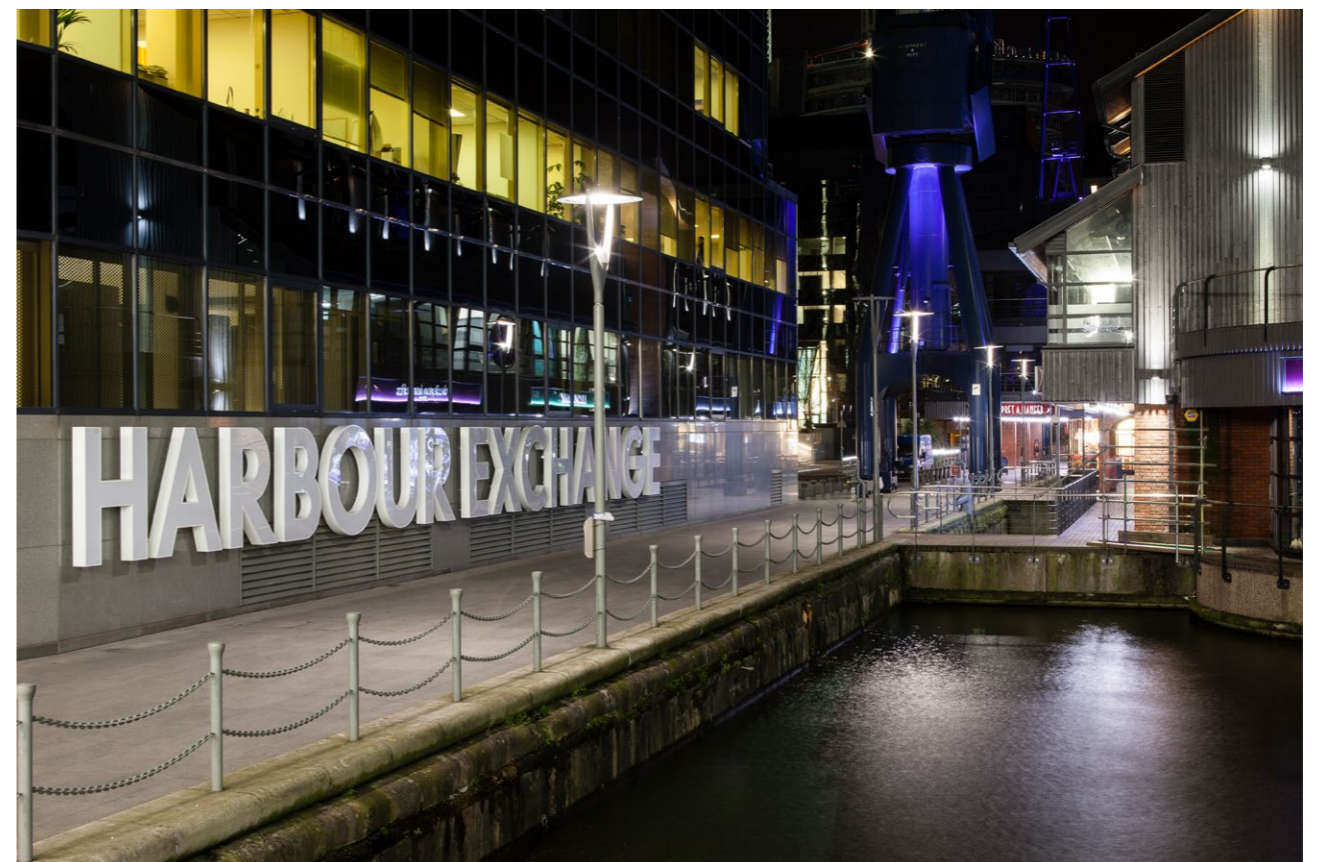
3.2 Safety & orientation.

The amount of lighting required for obstacle avoidance and visual orientation is minimal. For example, emergency lighting standards suggest a value of between 0.5 and 1 lux for a person, in a high stress situation, to safely negotiate a safe passage. Often these low levels of illumination are provided by existing light spill and moonlight alone.

In reality the purpose of urban realm pedestrian lighting is not one of obstacle avoidance, but of human subjectivity. Research has shown that the ability to read a persons facial features in external realm environments is a key function in reducing "fear of crime".

Appropriately illuminated pedestrian areas can reduce fear of crime, which is known to encourage footfall – this in turn can increase natural and community surveillance and further deter criminal acts.

A pleasing and visually interesting exterior environment can be further enhanced by creating spaces and zones of interaction which encourage residence to utilise spaces in the evening.



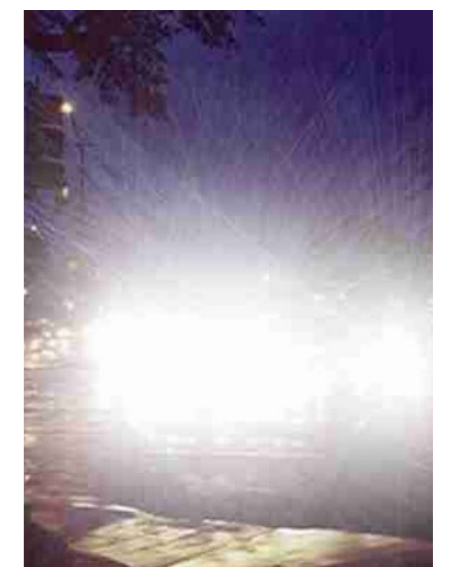
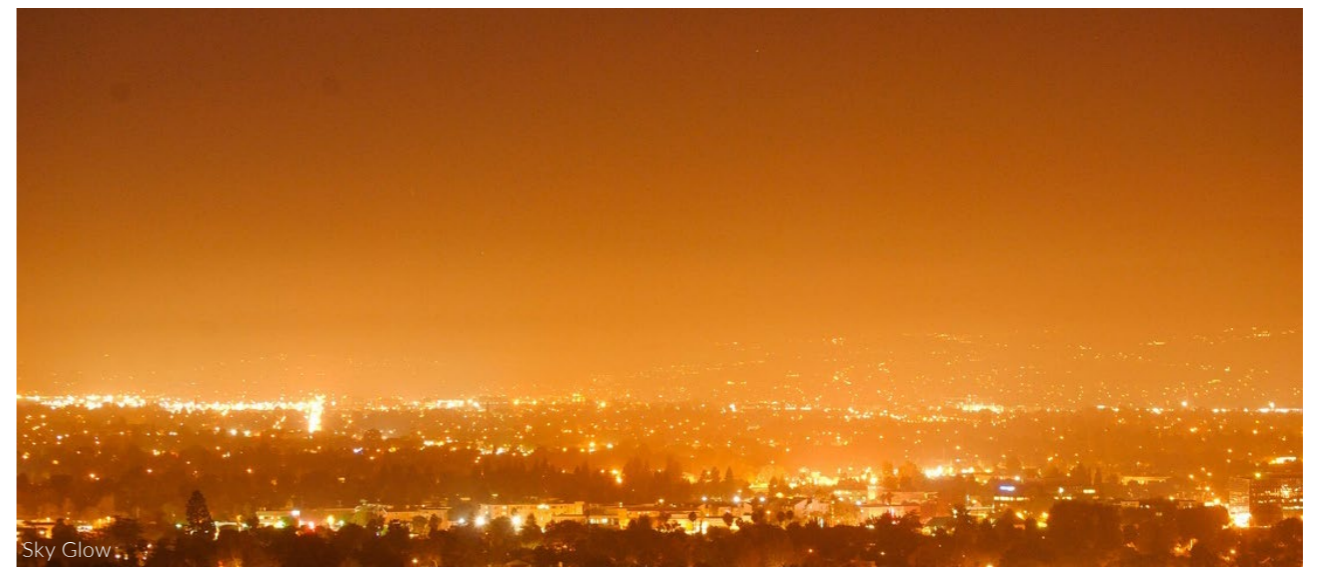
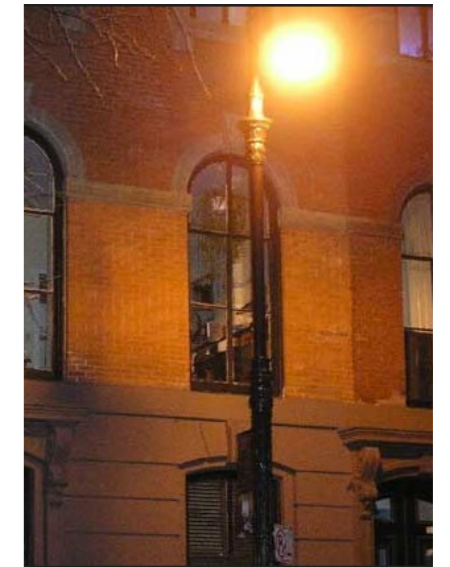
3. Lighting design considerations.

3.3 Light pollution

The general heading for the negative effects of light at night is Light Pollution but this heading actually covers four key factors. These are:

- Glare occurs when the site user sees light directly from the fixture (or lamp) and contrast ratios are high.
- Light Trespass/Encroachment: Poor outdoor lighting shines onto neighbourhood properties and into bedroom windows, reducing privacy and hindering sleep.
- Sky Glow: A large fraction of poor lighting shines directly upwards, creating the adverse sky glow above towns and cities that washes out views of the dark night sky, taking away an important natural resource.
- Energy Waste: Much outdoor lighting wastes energy because it is not well-designed with light not directed where it is required.

There is new legislation as part of the 'Clean Neighbourhoods and Environment Bill' which will cover lighting as a social nuisance, although there are many exclusions, it does start to highlight the importance of well designed external lighting as an integral part of the modern urban landscape.



3. Lighting design considerations.

3.4 Colour temperature and colour rendering

When one considers colour in light it is important to consider the colour of white lighting. Like daylight and sunlight, the range of colours available within the white spectrum.

Changes in white colour temperature are often an intuitive experience for people, as it relates to the natural rhythms of daylight.

Different colours of white light will provide different impressions and have differing properties when it comes to rendering surface finish.

Impressions of character and impact can be expressed through the appropriate use of colour.

The visual impact of coloured light changes in relation to illumination levels, be that through daylight or artificial light sources.

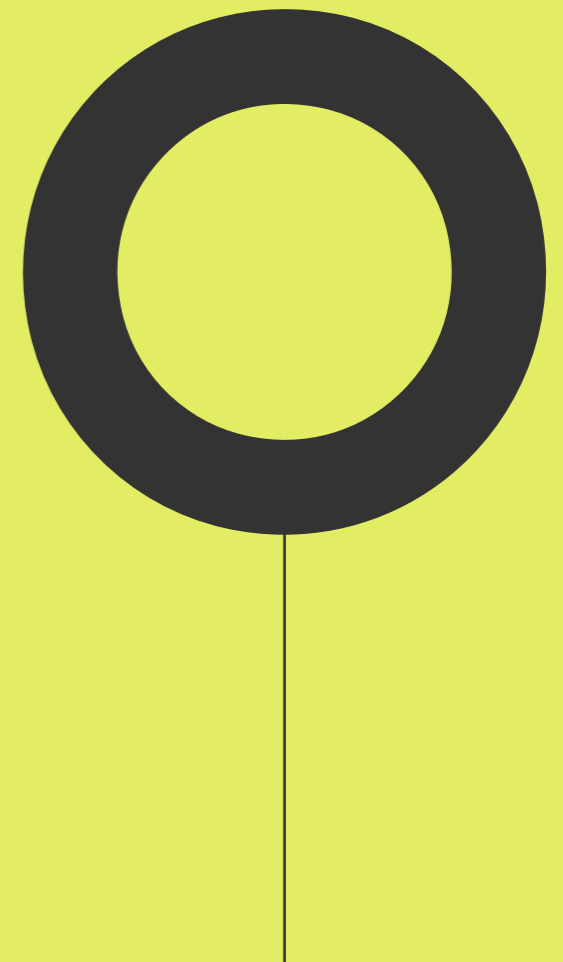
By understanding the eye's sensitivity to colour one can utilise coloured light to create a strong visual impression that would have required a greater amount of energy to achieve in white light.

The use of warm white light of 2700K or 3000K is becoming more and more widely used across the industry. There is vast amounts of research ongoing by the industry findings, exploring the environmental impacts of cool coloured LEDs in street lighting and its effects on peoples well being and on nature. Aesthetically, the use of warm white LEDs is bridging the gap in the relationship between visual aesthetics of roadways when metal halide was used in the past.

Hoare Lea recommend using a warmer white light colour temperature of 3000K. This is to add warmth and enhance the materiality of the building. There is evidence to reflect that the future of LED street lighting will use the warmer spectrum.



Lighting criteria.



4.0 Lighting criteria.

4.1 External realm lighting

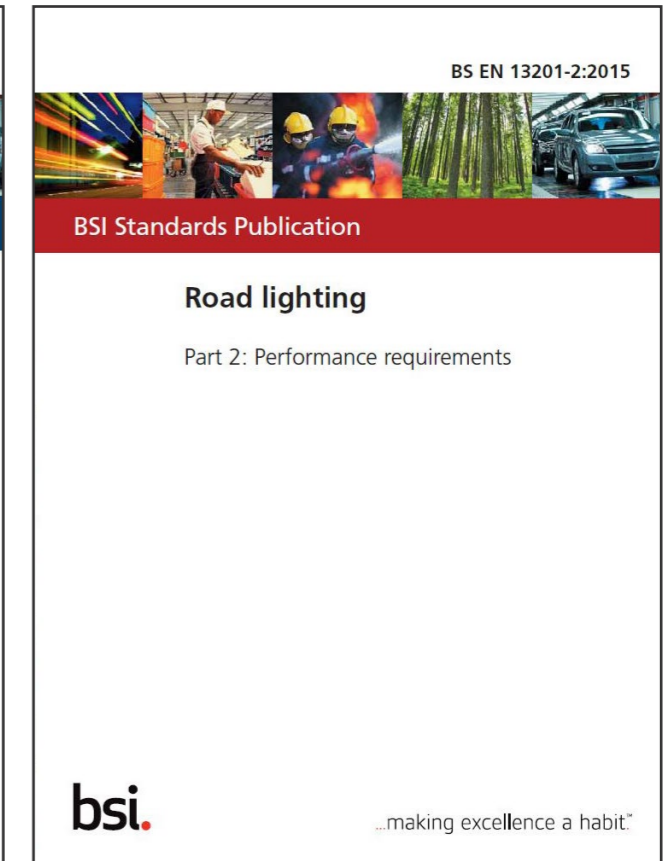
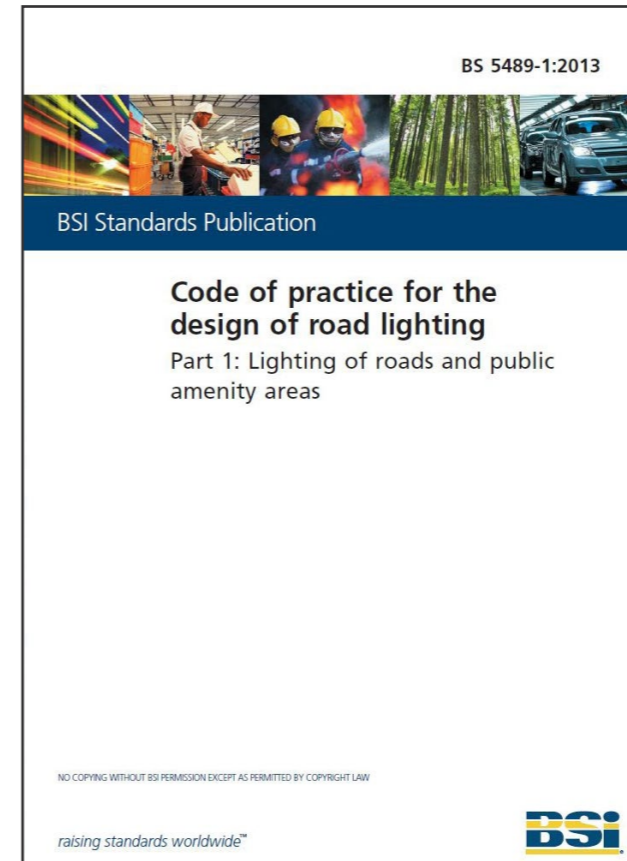
A number of documents lay down the best practise and guidance on providing sufficient and appropriate lighting for vehicular thoroughfares, pedestrians passage and visual interest.

These are:

- BS 5489-1:2013
- BS EN 13201-2:2015
- CIE 136:2000

And if appropriate:

- CIBSE Lighting Guide 6: The Outdoor Environment 1992
- CIBSE Lighting the Environment: A guide to good urban design

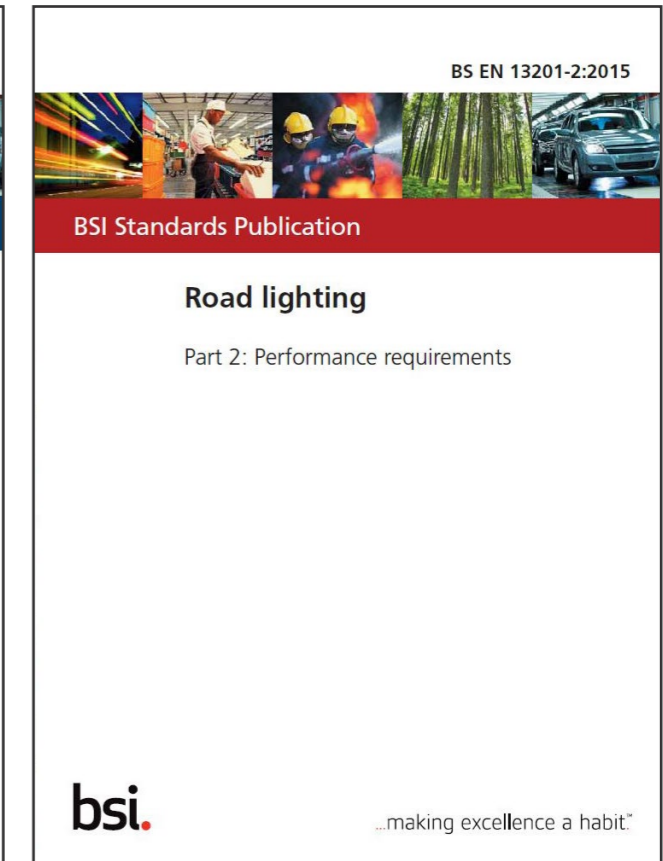
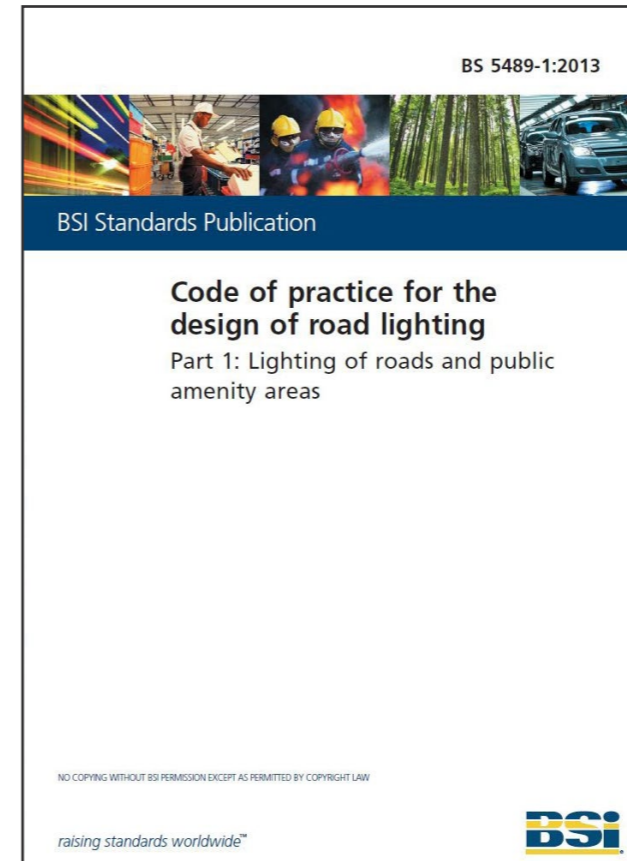


4.0 Lighting criteria.

4.2 Wildlife

Section 7.8 of BS 5489-1:2013 also gives a brief insight to lighting areas around aerodromes, railways, coastal waters, harbours and inland waterways. Areas which are in the vicinity of bat roosting or foraging corridors require consideration to minimise the impact to the bats natural behaviour and maintain clear access to their roosting, mating and feeding grounds. Some useful awareness and mitigation strategies are highlighted within "Bats and Lighting in the UK" by the Bat Conservation Trust".

- Lighting levels; should be "as low as guidelines permit"
- Light colour temperature; Reduce UV light emission by using warmer colour temperature lighting.
- Lighting column height; should be as "short as possible" to reduce ecological impact.
- Pedestrian zones; should "take the form of low level lighting" where possible



4. Lighting criteria.

4.3 Light pollution

A number of documents lay down the best practise and guidance on reducing the visual and environmental impact of external lighting in relation to light pollution.

These are:

- CIE Technical Report - CIE 150: 2003
- ILE Guidance Notes for the Reduction of Obtrusive Light

The implementation of these standards is vital because of "The Clean Neighbourhoods and Environmental Act, 2005" which makes light a statutory nuisance.

