

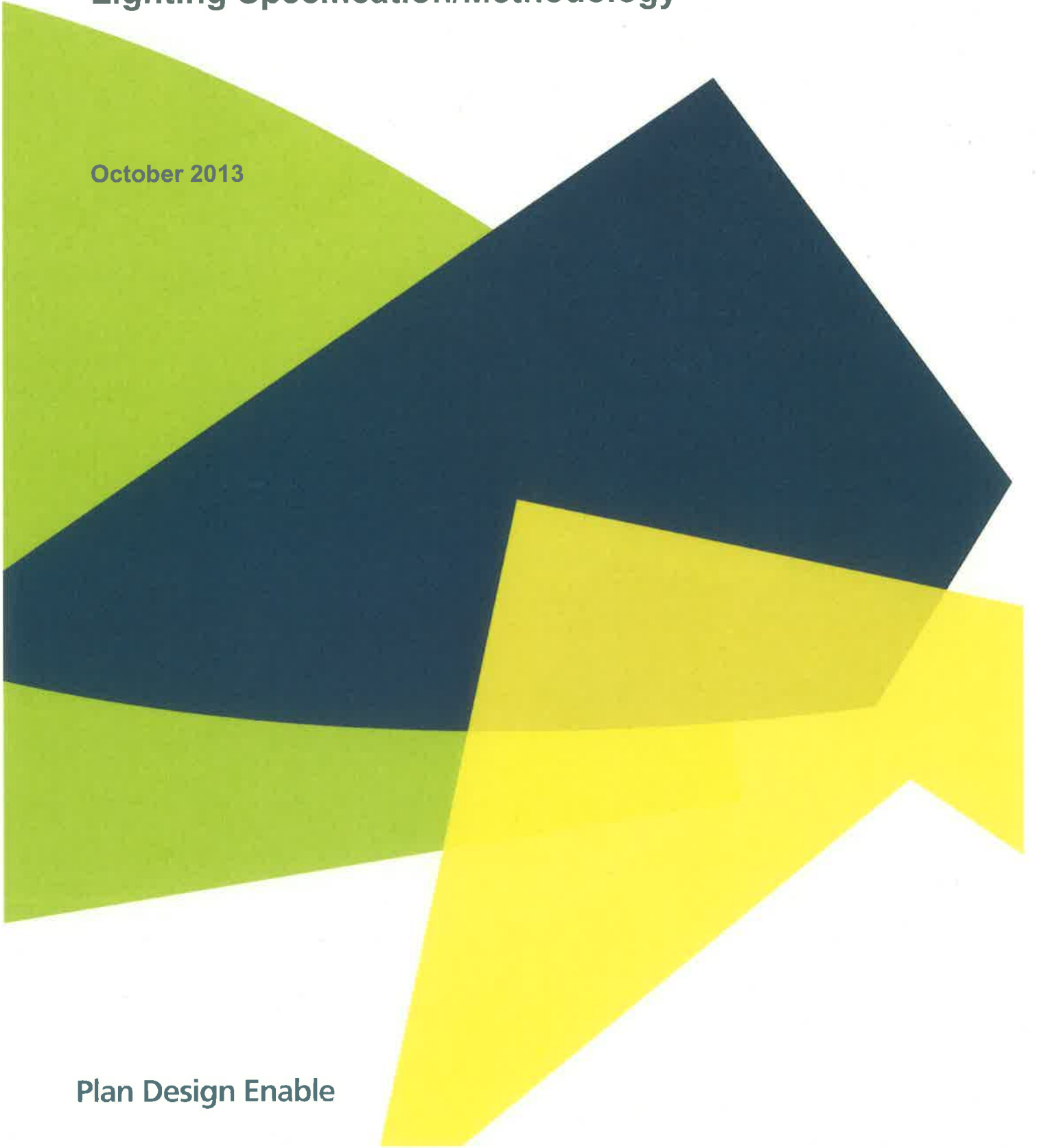
Construction of Park & Ride Facility, Land to the North-West of the A41, Bicester, Oxfordshire

ATKINS

Lighting Specification/Methodology

October 2013

Plan Design Enable



Notice

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This document has 5 pages including the cover.

Document history

Job number: 5124607.001			Document Ref: 5124607: Lighting Assessment			
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date
1	Draft for Client Review	Keith Stewart	A Leung	Keith Stewart	L Thorne	30/10/13
2	Final for Submission	Keith Stewart	-	Keith Stewart	L Thorne	31/10/13

1.0 Lighting Specification/Methodology

1.1 This specification/methodology provides information in respect of the lighting design for the proposed Bicester Park and Ride scheme and should be read in conjunction with the following feasibility drawings:

- 5124607-ATK-XX-DR-E-001: Proposed Lighting Installation; and
- 5124607-ATK-XX-DR-E-002: Illuminance Contour Plan.

1.2 The lighting scheme has been designed in accordance with:

- BS5489-1:2013 - Code of Practice for the Design of Road Lighting. Part 1: Lighting of Roads and Public Amenity Areas;
- BS EN13201-2:2003 – Road Lighting; and
- The requirements of Oxfordshire County Council Street Lighting Engineer.

1.3 Table 5 of BS5489-1:2013 categorises outdoor car parks as follows:

Maintained lighting levels for outdoor car parks		
Type of area and usage	\bar{E} lx	U_o
Light traffic, e.g. parking areas of shops, terraced and apartment houses; cycle parks	5	0.25
Medium traffic, e.g. parking areas of department stores, office buildings, plants, sports and multipurpose building complexes	10	0.25
Heavy traffic, e.g. parking areas of schools, churches, major sports and multipurpose sports and building complexes	20	0.25

1.4 The park and ride car park was initially assessed as 'medium traffic'. Consultation was undertaken with the County Council's Street Lighting Engineer (OCCSLE) who advised that previous Park and Ride car parks have been categorised as 'Heavy Traffic' but it was agreed that due the location of this car park a 'medium traffic' categorisation is acceptable.

1.5 The car park has therefore been designed to a target average lighting level of 10 Lux, with a target overall uniformity of 0.25 minimum.

1.6 The design has achieved:

- 10.97 Lux average; and
- 0.33 overall uniformity.

1.7 In consultation with the OCCSLE, the lighting has been designed for the car park access road and bus stop area as a conflict area and with a lighting class of CE3 selected.

1.8 In accordance with Table 2 of BSEN 13201-2:2003 the target average lighting level is 15 Lux and with an overall uniformity of 0.40 minimum.

- 1.9 The design has achieved:
- 16.03 Lux average; and
 - 0.40 overall uniformity.
- 1.10 The County Council's Street Lighting Engineer advised that the lighting would not be connected to a Central Management System (CMS) and that there are currently no plans to provide a CMS in the future.
- 1.11 Subsequent to paragraph 1.10 above, it is proposed that Luminaires would be controlled by individual luminaire mounted photoelectric cells. The luminaires would have electronic dimmable drivers and part night dimming would be provided in order to lower the lighting levels when the car park peak usage period ends. Alternatively the luminaires could be group time-switched controlled so that the lighting could be set to switch on and off at different times during the week.
- 1.12 The design incorporates Philips (WRTL) LED Luma 1 luminaires mounted on 8m lighting columns. The luminaires are approved for use by the OCCSLE. The luminaires would be mounted at zero degrees inclination in order to control and reduce unwanted light spill. Details of the lighting levels achieved in the design can be seen on Drawing 5124607-ATK-XX-DR-E-002: Illuminance Contour Plan.
- 1.13 The luminaires would have cool white LEDs and a luminous intensity class G4 minimum, to minimise obtrusive light, light spill and sky glow.
- 1.14 The luminaires would be provided with the constant light output facility. This compensates for the over lighting that normally occurs at the beginning of a new lighting installation and would ensure that the designed light output is maintained throughout the life of the light source. This would reduce carbon emission and would reduce energy costs.
- 1.15 The lighting design does not take into account any lighting requirements in respect of CCTV as no information was known at the time of carrying the design.
- 1.16 In terms of electrical design, it is anticipated that all lighting units would be connected to a private underground cable network fed from a feeder pillar(s) which would have a Distribution Network Operator metered electrical supply. Cables would be run in underground ducts and a looped cable system would be used.
- 1.17 It has been assumed that the luminaires would switch on at dusk and switch off at dawn, however the lighting levels could be reduced during the night for a predetermined period, for example from 10pm to 5am the lighting could be reduced to around 5 Lux average. The actual period of operation and any reduction in lighting levels would be agreed with OCC as part of the Management Plan for the Site.

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