

LAND AT WHITE HORSE BUSINESS PARK, NORTH BRADLEY, TROWBRIDGE

LIGHTING STRATEGY

CASTLEWOOD PROPERTIES VENTURES LTD

20 APRIL 2020

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1.0 Introduction

Context

- 1.1. This report has been prepared by Abley Letchford Partnership Ltd, on behalf of Castlewood Properties Ventures Ltd, in support of their outline planning application to Wiltshire Council for a proposed residential development on land located to the south of A363 Bradley Road, North Bradley, Trowbridge, Wiltshire (The Development).
- 1.2. The site is located approximately 2.2km south of Trowbridge town centre, with Woodmarsh to the west and A363 Bradley Road to the north (The Site).
- 1.3. The Site covers an area of circa 8.37 hectares (Ha), approximately centred on OS grid reference 385687E, 155814N. The Site in its local context is provided at **Appendix 1**.
- 1.4. The site is open agricultural fields used primarily for grazing, with established hedge and tree lined boundaries.

Development Proposals

- 1.5. The development proposals comprise the erection of up to 100 residential units as well as a 64 bed care home facility, associated infrastructure and open space on land located to the south of A363 Bradley Road, North Bradley, Trowbridge, Wiltshire.
- 1.6. Vehicular access to the site will primarily be provided from the A363 Bradley Road, with the primary access being a new priority junction with right turn lane arrangement. An access is shown to the south to a land parcel to be developed in the future.
- 1.7. The Illustrative Masterplan, Parameter Plan, and Proposed Site Access drawings are provided at **Appendix 1**.
- 1.8. The development proposals will require a system of artificial lighting for safety, security and amenity during the hours of darkness and low light levels. The lighting strategy shall be applied to ensure the potential for obtrusive light is suitably minimised in accordance with the predetermined obtrusive light limits within the Environmental Zone in which the Site is located, and with reference to the guidance within the Trowbridge Bats Mitigation Strategy. This can be achieved through the implementation of a carefully planned and implemented lighting design in accordance with the guidance from Bat Conservation Trust and Institution of Lighting Professionals.

2.0 Standards and Policy

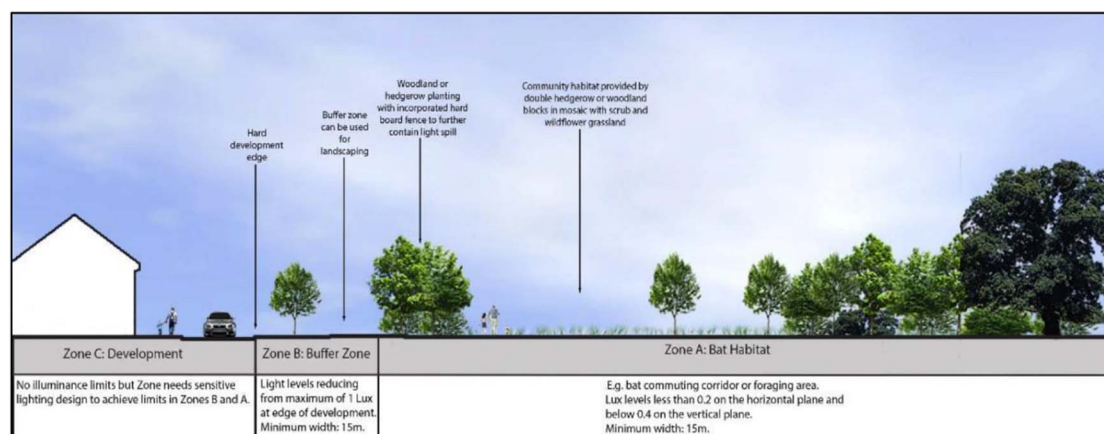
2.1. This chapter provides a review of policy relevant to the assessment and sources of information.

National Policies

- Clean Neighbourhoods and Environment Act 2005 gives local authorities and the Environment Agency additional powers to deal with a wide range of issues by classifying artificial light emitted from defined premises as a statutory nuisance.
- The CNEA 2005 amended paragraph 79(1)(fb) of the Environmental Protection Act 1990 to extend the statutory nuisance regime to include light nuisance stating the following: *'artificial light emitted from premises so as to be prejudicial to health or a nuisance'*.
- Guidance produced on Sections 101 to 103 of the CNEA 2005 by DEFRA (DEFRA, April 2006) extends the duty on local authorities to ensure their areas are checked periodically for existing and potential sources of statutory nuisances including nuisances arising from artificial lighting. Local authorities must take reasonable steps to investigate complaints of such nuisances from artificial light. Once satisfied that a statutory nuisance exists or may occur or recur, local authorities must issue an abatement notice (in accordance with section 80(2) of the Environmental Protection Act 1990), requiring that the nuisance cease or be abated within a set timescale.
- National Planning Policy Framework 2019 encourages good design with planning policies and decisions limiting the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation; and
- Planning Practice Guidance 2019 – Light Pollution, gives advice on how to consider light within the planning system:
 - What light pollution considerations does planning need to address?
 - What factors can be considered when assessing whether a development proposal might have implications for light pollution?
 - What factors are relevant when considering where light shines?
 - What factors are relevant when considering when light shines?
 - What factors are relevant when considering how much the light shines?
 - What factors are relevant when considering possible ecological impacts of lighting?
 - What other information is available that could inform approaches to lighting and help reduce light pollution?

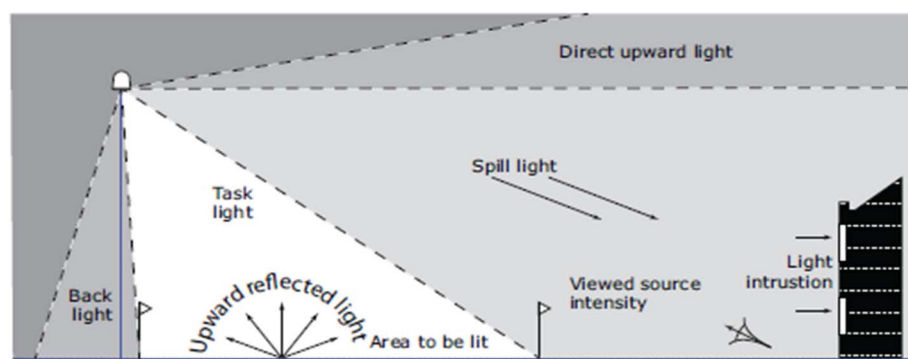
Local policies

- 2.2. The most relevant Local Authority policy that should be considered in relation to the Proposed Development is outlined within Wiltshire Council's Core Strategy (Adopted January 2015) - Policy CP57: Ensuring High Quality Design and Place Shaping:
- 2.3. Policy CP57 states the following in relation to lighting:
- ...“having regard to the compatibility of adjoining buildings and uses, the impact on the amenities of existing occupants, and ensuring that appropriate levels of amenity are achievable within the development itself, including the consideration of privacy, overshadowing, vibration, and pollution (e.g. light intrusion, noise, smoke, fumes, effluent, waste or litter)”...
- ...” the sensitive design of advertisements and signage, which are appropriate and sympathetic to their local setting by means of scale, design, lighting and materials” ...
- 2.4. In addition to Wiltshire Council's Core Strategy, the Trowbridge Bat Mitigation Strategy SPD (February 2020), will inform this lighting strategy. The extract below, illustrates the core bat habitat and associated buffer zones.



ILP Guidance Notes for the Reduction of Obtrusive Light - GN01:2020

- 2.5. The lighting strategy shall be prepared utilising the above guidance note which aims to limit the potential for obtrusive light to arise. The extract below, illustrates the types of obtrusive light to be considered.



- 2.6. It is recommended local planning authorities specify the environmental zones given in the table below for exterior lighting control within their development plan.

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

- 2.7. It is recommended the Installation of luminaires to keep glare to a minimum, the main beam angle of all luminaires directed towards any potential observer is no greater than 70 degrees.

ILP Bats and Artificial Lighting in the UK – GN08:2018

- 2.8. The lighting strategy shall be prepared utilising the above guidance notes which is intended to raise awareness of the impacts of artificial lighting on bats, and mitigation is suggested for various scenarios.
- 2.9. The guidance notes suggest when selecting luminaires, the following should be considered:
- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent source should not be used.
 - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
 - A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.
 - Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
 - The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.
 - Column height should be carefully considered to minimise light spill.
 - Only luminaires with an upward light ratio of 0% and with good optical control should be used (Refer to Guidance for the Reduction of Obtrusive Light).
 - Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
 - Any external security lighting should be set on motion-sensors and short (1 minute) timers.

- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

British Standards

- 2.10. BS 5489-1:2013 – Code of Practice for the Design of Road Lighting – Lighting of Roads and Public Amenity Areas, gives recommendations for the design of lighting for all types of highway and public thoroughfare, including those specifically for pedestrians and cyclists.
- 2.11. This standard provides a solid point of reference for lighting designs, but is often supplemented by local highway authority criteria.

Wiltshire Council – Residential Lighting Specification (30/01/2019 – Rev I)

- 2.12. Places a requirement to design all adoptable area (vehicular or non-motorised) to – BS 5489-1:2013.
- 2.13. Relevant Lighting Class shall be chosen based on the location of the site under consideration, namely

Urban Areas E3 Zone

- Normal – Access / Spine Roads = Class P3
- Quiet – Residential Roads = Class P4

Rural Areas E2 Zone

- Normal – Access / Spine Roads = Class P4
 - Quiet – Residential Roads = Class P5
- 2.14. All lantern units to be LED Urbis Axia, the S/P ratio for equipment shall be applied as per the manufacturers photometric data.
- 2.15. Indicative dimming levels for residential areas are currently as follows:
- 100% output – Dusk to 8pm
 - 75% output - 8pm to 11pm
 - 50% output 11pm to 6am
 - 100% output 6am to Dawn

3.0 Sensitivity Receptors

- 3.1. Professional judgement and ecologist input have advised the following sensitive receptors which could be at risk of 'impact' from the lighting parameters of the proposed Development. Identified receptors for assessment are highlighted on the extract below:



- 3.2. At this stage a baseline illumination survey has not been undertaken. To inform the detailed design, a baseline illumination survey shall be commissioned to demonstrate the current pre-development illumination levels.
- 3.3. The principal of the lighting design shall be sympathetic to the sensitivity receptors identified; the lighting design will accord with the criteria set out below as well as other relevant guidance. Therefore, the existing illumination levels will not be affected.
- 3.4. **Wildlife Corridor** – The Trowbridge Bat Mitigation SPD sets out the core bat habitat and associated buffer zones.
- Zone A: Bat Habitat – Bat commuting corridor or foraging area. Lux levels less than 0.2 on the horizontal plane and below 0.4 on the vertical plane. Minimum width: 15m.
 - Zone B: Buffer Zone – Light levels reducing from maximum of 1 Lux at edge of development. Minimum width: 15m.

- Zone C: Development – No illuminance limits but zone needs sensitive lighting design to achieve limits in Zones B and A.
- 3.5. **Occupied Residential** – The Environmental Zone for the site and immediate surrounding is considered to be E2: Rural, Low district brightness – Sparsely inhabited rural area, village or relatively dark outer suburban locations. (ILP Guidance Notes for the Reduction of Obtrusive Light - GN01:2020)
- 3.6. Given the considered Environmental Zone E2. Tables 3 (Maximum value of vertical illuminance on properties) and Table 4 (Maximum luminous intensity emitted by luminaires) of the ILP Guidance Notes for the Reduction of Obtrusive Light, identifies the recommended maximum values which are summarised below:
- **Pre Curfew**
 - Maximum value of vertical illuminance on properties – 5 Lux
 - Maximum luminous intensity emitted by luminaires – 7,500cd
 - **Post Curfew**
 - Maximum value of vertical illuminance on properties – 1 Lux
 - Maximum luminous intensity emitted by luminaires – 500cd

4.0 Lighting Strategy

- 4.1. This section defines the requirements for a lighting design to ensure it is fit for purpose and adheres to the sensitivity receptors attributed to the site.
- 4.2. The lighting strategy has been prepared to ensure the lighting design associated with the development site is compliant with relevant British Standards, Local Authority Specification, ILP Lighting guidance and The Trowbridge Bat Mitigation Strategy SPD.
- 4.3. Main areas requiring lighting as follows:
- Proposed development access junction on to Bradley Road and estate roads are to be built to an adoptable standard and offer to Wiltshire Council for adoption. Where possible, these roads shall be lit to Wiltshire Council's adoptable specification.
 - Shared use private drives shall be sensitively lit in accordance with the recommendations set out in the ILP guidance and Trowbridge Bat Mitigation Strategy.
 - Car park which serves the care home, shall be lit in accordance with the British Standard. However, sensitive receptors are to be accommodated within the design.

Estate Road - Lighting Principles

	Description
Light Source	LED
Luminaire Type	Urbis Axix 3 luminaires (in accordance with Wiltshire Council Specification)
CCT of Light Source (Kelvin)	3000K (Max.) (in accordance with Wiltshire Council Specification)
Luminous Intensity	Class G1 (Min.) (in accordance with Wiltshire Council Specification)
Luminaire Tilt	0 degree (in accordance with Wiltshire Council Specification)
Mounting Arrangement	Post top at 5m.
Dimming regime	In accordance with Wiltshire Council Specification
Lighting Standard	BS 5489-1:2013 – Code of practice for the design of road lighting
Lighting Class	P5 (Average:3.0Lux; Minimum 0.6Lux) (S/P ratio for equipment shall be applied as per the manufacturers photometric data)
Constraints/Restrictions	The development estate road crosses an existing bat corridor. The lighting design in proximity to the corridor to be in accordance with the guidance within the Trowbridge Bat Mitigation Strategy SPD. i.e. lighting to be directed away from hedgerows, mounting height minimised to reduce the distance light can spill, etc...

Shared Use Private Drives - Lighting Principles

	Description
Light Source	LED
Luminaire Type	DW Windsor Polar Warm White LED or similar approved.
CCT of Light Source (Kelvin)	3000K (Max.) (in accordance with Wiltshire Council Specification)
Luminous Intensity	Class G1 (Min.) (in accordance with Wiltshire Council Specification)
Luminaire Tilt	0 degree (in accordance with Wiltshire Council Specification)
Mounting Arrangement	Bollard height 1m
Dimming regime	In accordance with Wiltshire Council Specification
Lighting Standard	BS 5489-1:2013 – Code of practice for the design of road lighting
Lighting Class	P6 (Average:2.0Lux; Minimum 0.4Lux) (S/P ratio for equipment shall be applied as per the manufacturers photometric data)
Constraints/Restrictions	The lighting design in proximity to the corridor to be in accordance with the guidance within the Trowbridge Bat Mitigation Strategy SPD. i.e. bollard lighting to be located and directed away from hedgerows where practical, mounting height minimised to reduce the distance light can spill. Maximum illumination of 1 lux within buffer zone.

Car Park - Lighting Principles

	Description
Light Source	LED
Luminaire Type	DW Windsor Polar Warm White LED or similar approved.
CCT of Light Source (Kelvin)	3000K (Max.) (in accordance with Wiltshire Council Specification)
Luminous Intensity	Class G1 (Min.) (in accordance with Wiltshire Council Specification)
Luminaire Tilt	0 degree (in accordance with Wiltshire Council Specification)
Mounting Arrangement	Bollard height 1m
Dimming regime	In accordance with Wiltshire Council Specification
Lighting Standard	BS 5489-1:2013 – Code of practice for the design of road lighting
Lighting Class	Maintained lighting levels for outdoor car parks – Light Traffic - Average:5.0Lux with 25% uniformity. (S/P ratio for equipment shall be applied as per the manufacturers photometric data)
Constraints/Restrictions	Car park area may conflict with existing bat corridors. The lighting design in proximity to the corridor to be in accordance with the guidance within the Trowbridge Bat Mitigation Strategy SPD. i.e. lighting to be directed away from hedgerows, mounting height minimised to reduce the distance light can spill, control management systems, etc...

- 4.4. A copy of the Lighting Strategy Plan is contained within **Appendix 2**.

5.0 Conclusion

- 5.1. The lighting strategy outlines the criteria for the lighting design of the Proposed Development to ensure that the lighting is fit for purpose, whilst maintaining sensitivity towards the environment through compliance with relevant British Standards and Guidance.
- 5.2. Specific attention has been paid to the recommendations contained within the Trowbridge Bat Mitigation Strategy SPD.
- 5.3. To ensure that the potential for obtrusive light is minimised, it is necessary to restrict the mounting heights of the luminaires, tilt angle, colour temperature and lumen output of exterior light sources to those specified in **Section 4**.
- 5.4. The exterior lighting outlined in the lighting strategy shall comply with the requirements for an E2 Environmental Zone as per **BS 5489-1:2013**.
- 5.5. Compliance with the lighting strategy will allow a safe and sensitive level of light for way finding and guidance at night, whilst limiting obtrusive light to a negligible level and in compliance with ILP GN01:2011 and GN08/18, which seeks to reduce light spill onto sensitive boundaries.
- 5.6. It is anticipated that monitoring of the modelled light levels would be completed post installation to verify that the light levels and technical parameters are compliant with the lighting strategy, British Standards and Guidance.

Appendices

Appendix 1 - Planning Drawings

Red Line Plan

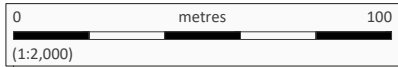
Illustrative Masterplan

Parameter Plan

Proposed Site Access junction



Key Site Plan



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- Site boundary
- Residential land (Up to 2.5 storey)
- Residential land (Up to 3 storey)
- Green infrastructure
- Highways
- Indicative attenuation features
- Indicative primary highways route
- Proposed access points
- Future access points to adjacent development

CLIENT
Castlewood Properties Limited

PROJECT
Land off the A363 White Horse Business Park

DRAWING
Parameter Plan

PROJECT NUMBER
CASR3002

DRAWING NUMBER 5000 **CHECKED BY** MR

REVISION D **STATUS** DRAFT

DATE March 2020 **SCALE** 1:2000 @ A3

emapsite™

Turley

1:500

1:250

A	Highway Boundary added	AD	AKD	26.02.20
Rev	Description	Drn	Chk	Date

REVISIONS

Badingham

Concept | Consult | Construct
Transport & Infrastructure Consultants
www.badinghamuk.com

Project

Bradley Road, South
Trowbridge

Castlewood Commercial Properties
Ltd

Title

Proposed Right Turn Lane
Access

Status

FOR DISCUSSION

Scale As Shown @ A1	Date 14.05.18	Drawn AD	Checked AKD
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Job No	Drawing No	Revision
-	002	A

Appendix 2 - Drawings

Lighting Strategy Plan



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GENERAL NOTES:
1. Do not scale.
2. This drawing is to be read in conjunction with and checked against all other drawings, Engineering details, Specification and any structural, Geotechnical or other specialist document provided.
3. Any anomaly or contradiction between any of the above is to be reported to the Engineer.
4. All proposals shown are indicative pending confirmation of site layout proposals.

KEY

- Proposed 5m Lighting Column with Rear Louvre in accordance with WCC Specification
- Proposed 5m Lighting Column with Front Louvre in accordance with WCC Specification
- Indicative Existing Lighting Column Positions - Based on Asset information provided by WCC.
- 1.0 Lighting Lux Contour
- 0.2 Lighting Lux Contour
- 15m dark corridors to be implemented for bat mitigation (Based on Turley Constraints Plan, Drawing No. 2000, Dated Nov 2019).
- 15m buffer to dark corridors (Based on Turley Constraints Plan, Drawing No. 2000, Dated Nov 2019).

P1	02.20	First Issue		AJM	LPA
Rev	Date	Description	Drawn	Checked	

AL

P

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Client:
CASTLEWOOD PROPERTIES VENTURES LTD

Project:
LAND AT WHITE HORSE BUSINESS PARK NORTH BRADLEY

Title:
LIGHTING STRATEGY PLAN

Status:

Scale	Date	Drawn	Checked
1:500 @ A1	FEB 2020	AJM	LPA

Drawing No.	Revision
A201-006	P1

development planning
infrastructure design
transport HIGHWAYS
drainage
CIVIL ENGINEERING
site appraisal
flood risk assessment
travel plans
masterplanning