

ANSTY FARM - ANSTY

Lighting Impact Assessment

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Lighting Impact Assessment
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LIGHTING ASSESSMENT REPORT

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1 INTRODUCTION

- 1.1 Outline planning is being sought for a housing development on a 95-acre site on Land off Cuckfield Road (A272), Ansty. The proposal is to provide 1,400 new residential units and supporting infrastructure with all matters reserved. The land borders, but is outside of, the High Weald area of outstanding natural beauty.
- 1.2 This report assesses, in terms of artificial lighting, the likely effects of the proposed development. It incorporates a summary of the impacts which are detailed in Table 10.2.
- 1.3 An assessment is also made of existing lighting, particularly from the existing farm which may impact on development proposals.
- 1.4 The report describes the:
- assessment methodology;
 - baseline conditions at the Application Site and surroundings;
 - likely environmental effects;
 - mitigation measures required to prevent, reduce or offset any adverse effects;
 - likely residual effects after these measures have been employed.

2 PLANNING POLICY CONTEXT

2.1 National Legislation

European Union (EU) legislation forms the basis for defining light pollution in the UK. The EU Environmental Impact Assessment (EIA) Directive 85/337/EEC came into force in 1985 and applies to a wide range of public and private projects, specifically concerns the use of artificial lighting and its effects upon the environment.

The Environmental Protection Act 1990 is an Act of UK Parliament that defines, as of 2008, within England and Wales and Scotland, the fundamental structure and authority for waste management and control of emissions into the environment, including that of artificial lighting. The Environmental Protection Act, Part III, Section 79 - Statutory Nuisances states that artificial light emitted from premises may be interpreted as having adverse effects towards health and may lead to nuisances.

British Standards Institution, BS EN 12464-2 – Lighting of Work Places – Part 2, Outdoor Work Places outlines the specific lighting requirements to enable people to perform outdoor visual tasks efficiently and accurately, especially during the hours of darkness. The degree of visibility and comfort required in a wide range of outdoor places is governed by the type and duration of activity. This standard specifies requirements for lighting of tasks in most outdoor places and their associated areas in terms of quantity and quality of illumination.

Other national legislation includes:

- British Standards Institution, BS EN 13201-2 – Road lighting – Part 2, Performance requirements. This national legislation outlines the standards for the lighting of roadways.
- The Chartered Institute of Building Services Engineers (CIBSE) Lighting Guide. This national legislation outlines outdoor lighting design considerations. The document provides valuable assistance for lighting designers to make decisions about how the health and safety of the environment is enhanced, whilst considering the visual pleasantness of artificial lighting in urban and rural areas.

2.2 National Planning Policy Framework (NPPF) (July 2021)

Section 15 of the NPPF, titled “Conserving and enhancing the natural environment”, paragraph 185, discusses the approach to minimising the impact of light pollution.

“185(c) 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 limit the

impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

2.3 Planning Practice Guidance (PPG) Natural Environment

This Guidance details key issues in implementing policy to regulate artificial light and light pollution. The guidance identifies that artificial light offers valuable benefits to society. It also identifies artificial light is not always necessary and has the potential to create ‘light pollution’ or ‘obtrusive light’. It can be a source of annoyance to people, harmful to wildlife, undermine enjoyment of the countryside or detract from enjoyment of the night sky.

PPG outlines the possibility of when light pollution may arise. This can be defined as below:

- Does the new development proposal, materially alter light levels outside the development and/or have the potential to adversely affect the use or enjoyment of nearby buildings or open spaces?
- Does an existing lighting installation make the proposed location for a development unsuitable, for example, this might be because:
 - the artificial light has a significant effect on the locality;
 - users of the proposed development (e.g. a hospital) may be particularly sensitive to light intrusion from the existing light source.
- Does the proposal have a significant impact on a protected site or species e.g. located on, or adjacent to, a designated European site or where there are designated European protected species that may be affected?
- Is the proposed development in or near to a protected area of dark sky or an intrinsically dark landscape where it may be desirable to minimise new light sources?
- Are forms of artificial light with a potentially high impact on wildlife (e.g. white or ultraviolet light) being proposed close to sensitive wildlife receptors or areas, including where the light shines on water?
- Does the proposed development include smooth, reflective building materials, including large horizontal expanses of glass, particularly near water bodies because it may change natural light, creating polarised light pollution that can affect wildlife behaviour)?

3 ASSESSMENT METHODOLOGY

- 3.1 Guidance Notes for the Reduction of Obtrusive Light 2021 (GN01-21), published by the Institute of Lighting Professionals (ILP) and Town and Country Planning (Environmental Impact Assessment) Regulations 2017 provide the basis for the methodology of this assessment.
- 3.2 The site was visited, during both daytime and night-time conditions, to assess the general ambience from the site itself and from each of the viewpoints discussed in Section 4 and which are detailed in Appendix A. To maintain consistency across the reports submitted with the application, the viewpoints are a selection of those used for the Landscape and Visual Impact Assessment. From the visit an assessment of magnitude and significance was made. This was based upon the criteria and gradings provided in the significance matrix as follows:-

Table 3.1 : Significance Matrix

Sensitivity / Value of Receptor	Magnitude of Effect		
	High	Medium	Low
High (England/UK/International)	Major	Major/ Moderate	Moderate
Medium (County/Region)	Major/ Moderate	Moderate	Moderate/ Minor
Low (Local/Unitary Authority)	Moderate	Moderate/ Minor	Minor

- 3.3 It is important to consider the effects of lighting on different potential receptors of landscape. These receptors include:
 - specific areas or features of historical or wildlife interest such as conservation areas, listed buildings, nature reserves or known populations of rare species;
 - dark landscapes and other relevant countryside designations that may be included in structure or local plans;
 - the appearance of the landscape by day, including the effects of lighting apparatus on skylines, key views, and landscape character generally;

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- local residents, especially where bedrooms may be affected by increased light levels at night;
- astronomers, including local observers and astronomical societies, as well as any scientific observatories; and
- motorists, cyclists and pedestrians, together with any traffic lights, junctions or transport signalling systems in the locality.

The aim is to identify and predict, in an appropriate level of detail, the effects of the proposed lighting on built heritage, local wildlife resources, the landscape and local communities during the construction phase and, finally, at occupancy of the development.

4 BASELINE CONDITIONS

- 4.1 The assessment site for the proposed development currently comprises arable farmland. There are some dwellings located within the development area which will remain.
- 4.2 To the north of the site is the A272 and, beyond that, farmland.
- 4.3 To the south of the site is farmland.
- 4.4 To the west of the site is the A272 and Ansty Village.
- 4.5 To the east of the site is farmland.
- 4.6 Weather conditions during the survey were bright and sunny with little cloud cover.
- 4.7 The table below lists the potential receptors at the viewpoints used for the assessment which are graphically detailed in Appendix A.
- 4.8 Viewpoint references below are taken from the Landscape and Visual Impact assessment LVIA. Ten of the viewpoints listed in the LVIA have been used for the lighting assessment.

Table 4.1: Receptor Locations

Viewpoint	Location	Visual Receptor(s)
VP 1 (LVIA VP39)	PRoW Woodcroft	PRoW users
VP 2 (LVIA VP38)	PRoW off Bishopstone Lane	PRoW users
VP 3 (LVIA VP01)	Junction of Deaks Lane and Bolney Road	Road users
VP 4 (LVIA VP03)	A272	Road users
VP 5 (LVIA VP13)	Holy Trinity Church Cemetery	PRoW users
VP 6 (LVIA VP 15)	A272 adjacent Broad Street roundabout.	Road users
VP 7 (LVIA VP16)	Copyhold Lane	Road users
VP 8 (LVIA VP33)	Harvest Hill at West Riddens Farm	Road users

Viewpoint	Location	Visual Receptor(s)
VP 9 (LVIA VP31)	Harvest Hill PRow	PRow users
VP 10 (LVIA VP 29)	Harvest Hill PRow	PRow users

4.9 Day / night photographs from the viewpoints above are recorded in Appendix B.

5 LIKELY EFFECTS

5.1 Environmental Zone

In order to provide a guide with regard to the acceptable level of brightness within a site, the Environmental Zone in which the site is situated needs to be identified in accordance with the Institute of Lighting Professionals (ILP) Guidance Note for the Reduction of Obtrusive Light 2021, (GN01-21). From table 5.1, RPS would classify the Environmental Zone of the site as being E2.

Table 5.1: Environmental Zones

Sensitivity	Definition
E0	Dark: UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Intrinsically dark: National Parks, Areas of outstanding natural beauty
E2	Low district brightness: Village or relatively dark outer suburban locations
E3	Medium district brightness: Small town centres or sub urban locations
E4	High district brightness: Town/city centres with high levels of night-time activity

5.2 Receptor Sensitivity

The receptor groups are defined in order to identify their sensitivity in relation to the proposed development. This is dependent upon:

- the duration of the view of the proposed works or site;
- their interest in the visual environment; and
- their juxtaposition in relation to the site and resulting sightlines.

The sensitivity of the receptor groups is broadly defined as:-

Table 5.2: Receptor Sensitivity

Sensitivity	Definition
Critical	The duration of their view is continuous, dusk till dawn, <ul style="list-style-type: none"> • or their interest in the visual environment is critical. • or their activity requires excellent viewing conditions (For example train drivers). • or their juxtaposition to the site provides excellent sightlines.
High	The duration of their view is prolonged; dusk till dawn, <ul style="list-style-type: none"> • or their interest in the visual environment is high. • or their juxtaposition to the site provides good sightlines.
Moderate	The duration of their view is moderate; day and evening, <ul style="list-style-type: none"> • or their interest in the visual environment is low. • or their juxtaposition to the site provides moderate sightlines.
Low	The duration of their view is low; transient, <ul style="list-style-type: none"> • or their interest in the visual environment is low. • or their juxtaposition to the site provides poor sightlines.

5.3 Viewpoints

Each of the following viewpoints has been assessed in relation to the potential effects of lighting on the receptors. The potential effects identified generally take the form of sky glow, light presence and glare. Different receptor groups are affected to a greater or lesser extent dependent on their sensitivity. The table below summarises the receptor sensitivity at each of the viewpoints.

Table 5.3: Receptor at Viewpoint

Viewpoint	Visual Receptor(s)	Sensitivity at night
VP 1	PRoW users	N/A
VP 2	PRoW users	N/A
VP 3	Road users	Low
VP 4	Road users	Low
VP 5	PRoW users	N/A
VP 6	Road users	Low
VP 7	Road users	Low
VP 8	Road users	Low
VP 9	PRoW users	N/A
VP 10	PRoW users	N/A

5.4 Summary

Based on an environmental zone classification of E2, the likely effects of the proposals are as follows:

- A slight increase in sky glow, site aura and light presence during construction may be perceived by the local population and may result in the alteration of wildlife patterns in the area.
- A possible increase in light ‘glare’, during both construction and occupation, which may have an effect on the visual comfort of local residents.
- Temporary visual intrusion of the construction processes upon the surrounding landscape.

The above effects can be mitigated as detailed in the following section.

6 MITIGATION MEASURES

6.1 The final lighting scheme to the proposed development will need to be calculated and designed to meet the following criteria, regulations, standards and guidelines:

Regulations

- Health & Safety at Work etc, 1974
- Health & Safety Commission, Approved Code of Practice 1992
- Regulations 8 of the Workplace (Health, Safety and Welfare) Regulations 1992 (Lighting)

Good Practice Guidance

- International Commission on Illumination (CIE).
- CIE 115 - Recommendations for the lighting of roads for motor and pedestrian traffic Second Edition (2010)
- CIE 136-2000 Guide to the Lighting of Urban Areas (2000)
- Society of Light and Lighting (SLL) – Code of Lighting
- Society of Light and Lighting – Lighting Guides
- Society of Light and Lighting – Fact Files

British Standards Institution (BSI)

- BS EN 13201-2 Road Lighting
- BS5489-1: Code of practice for the design of road lighting Part 1 : Lighting of Roads and public amenity areas.

The Institution of Lighting Professionals (ILP)

- Lighting the Environment: A Guide to Good Urban Lighting, 1995 (ILP);

Bat Conservation Trust

- Artificial Lighting and Wildlife

6.2 Lighting solutions will be selected to avoid over-lighting thus reducing light pollution. Luminaires will be selected to minimise the upward spread of light near to, or above, the horizon. Luminaire controllers will reduce spill light and glare.

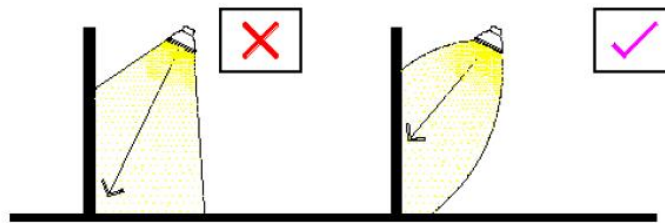
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6.3 Glare will be kept to a minimum by ensuring the main beam angle of luminaires directed towards any potential observer is kept below 70°. Higher mounting heights will allow for lower beam angles to be installed, which will assist in reducing glare.

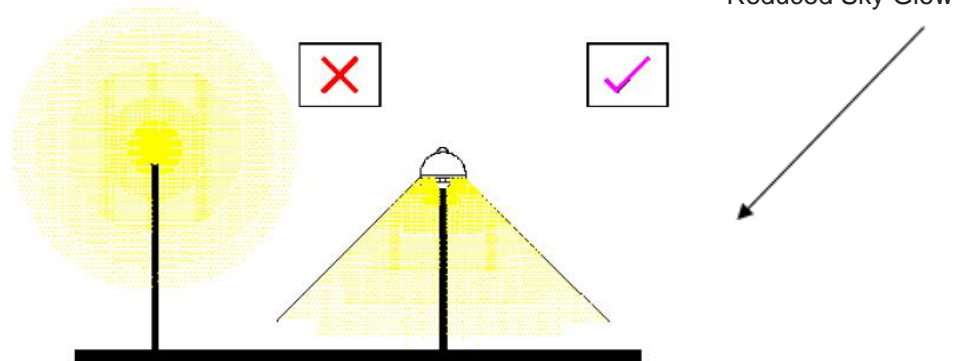
6.4 Solutions which will comply with the mitigation measures detailed above are set out below:-

- Lighting will be provided in the form of column mounted lanterns. Where possible, lanterns will be pointed into the development and away from the adjacent sites. The optics in the lanterns will control the distribution of light avoiding overspill, sky glow and glare.
- Glare will be kept to a minimum by ensuring the main beam angle of luminaires directed towards any potential observer is kept below 70°. Higher mounting heights allow for the provision of lower beam angles, which assists in reducing glare.

Spill Light evident in Example 1 may be reduced.



Obtrusive Sky Glow evident in Example 2 may be reduced.



6.5 In order to comply with recommendations made by the Bat Conservation Trust, the following measures will be implemented in the technology used to deliver the lighting installation:-

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- Use of narrow spectrum light sources to lower the range of species affected by lighting.
- Use of light sources that emit minimal ultra-violet light.
- Lights that peak higher than 550 nm.
- Avoidance of white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are installed in order to manage the blue short wavelength content they will be of a warm / neutral colour temperature >3,000 Kelvin.

7 DESIGN PROPOSALS

7.1 Proposed Development

Street lighting will be provided in the form of column mounted LED lanterns similar to those detailed below. Lanterns will be pointed into the development and away from the adjacent sites. Lantern optics will control the distribution of light avoiding overspill, sky glow and glare. If required, street lighting will be provided with timeclock controls enabling switching off of fittings which will reduce the night time effect of the lighting installation on the surrounding environment.



Figure 7.1 Typical Dark Sky Compliant Lanterns

8 RESIDUAL EFFECTS

- 8.1 The assessment has identified that the application site is in a residential area and for safety reasons, artificial light will be installed. The proposed lighting solution for the new development will be based on BS5489 with lighting installed to suit the appropriate class of road / public areas.

Construction Effects

- 8.2 During the construction phase, there will be occasions when work extends into the hours of darkness, with the consequent need for vehicular lighting and task lighting for particular operations.
- 8.3 In order that the effect from lighting associated with the construction phase activities is minimised, measures will need to be incorporated to minimise light spill.
- 8.4 Additional measures, such as anti-glare barriers could also be provided, where deemed appropriate.
- 8.5 Any new sources of lighting would be temporary and short term during this phase. On this basis the effect of lighting during the construction phase is considered to be Minor Adverse.

Effects on Completion and Occupation

- 8.6 On completion and occupation, artificial lighting will be present. By use of dark sky compliant lanterns and the avoidance of over lighting, light spill will be minimised. Luminaires will be installed facing into the site.
- 8.7 For passing motorists, there will be transient glare observed from residential lighting to bedrooms and living areas.
- 8.8 The development site is in a rural setting but already accommodates residential properties. Overall, although the introduction of artificial lighting at the site will have an effect, the mitigation measures incorporated into the design will mean that the significance of the impact is considered to be Minor Adverse.

9 CUMULATIVE EFFECTS

- 9.1 The likely cumulative effect of artificial lighting may be a slight increase in sky glow when viewed locally to the site. This may particularly affect the dwellings around which the development is being proposed.

10 SUMMARY

- 10.1 The existing site currently consists of farmland. The proposed lighting solution will be sympathetic to the local surroundings to avoid over lighting, sky glow and glare.
- 10.2 The lighting solution may need to provide higher levels of light than the baseline conditions, to comply with current standards and to provide a safe and secure environment for residents.
- 10.3 The proposed lighting solution for the new development will be based on BS5489 with lighting installed to suit the appropriate class of road / concourse area.
- 10.4 By careful selection and location of luminaires the development will be successfully lit with minor adverse effects to the adjacent areas.
- 10.5 The potential effects will be managed such that the potential increase in the general ambience of the area will be balanced against the overall existing illuminance in order to minimise sky glow.
- 10.6 The overall impact of the lighting to the site will be Minor Adverse based on **Table 10.1: Residual Effects** taken from Professional Lighting Guide – PLG 04 – Guidance on Undertaking Environmental Lighting Impact Assessments – Institute of Lighting Professionals).

Nature	Ref	Level	Descriptions	Remedial needs
Positive	1	Major/substantial beneficial effects	Significant improvement in night environment and/or reductions in glare, spill light and sky glow etc	
	2	Moderate beneficial effects	Noticeable improvement in night environment and/or reductions in glare, spill light and sky glow etc	
	3	Minor beneficial effects	Slight improvement in night environment and/or reductions in glare, spill light and sky glow	
Neutral	4	None/negligible	No significant effect or overall effects balancing out	None
Negative	5	Minor adverse effects	Slight increase in visibility of site, glare, and sky glow etc	Develop appropriate levels and type of mitigation
	6	Moderate adverse effects	Noticeable increase in visibility of site, glare, and sky glow etc	
	7	Major adverse effects	Significant problems with increase in visibility of site, glare, and sky glow etc	

10.7 **Table 10.2** contains a summary of the likely effects of the proposed development.

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Table 10.2: Level of Effect – Lighting

Potential Effect	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)
				I	UK	E	R	C	B	L	
Construction											
Increase in sky glow, site aura and light presence to local residences.	Temporary	Major	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Increase in light 'glare' to local residences.	Temporary	Moderate	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Increase in light 'glare' to drivers on local roads	Temporary	Minor	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Temporary visual intrusion of the construction processes to local residence	Temporary	Moderate	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Completed Development											
Possible decrease in sky glow, site aura and light presence (reduced level of lighting from public to private car park).	Permanent	Major	Specification of dark sky compliant luminaires and avoid over lighting. Timeclock controlled circuits will reduce the overall night time impact of the artificial lighting installation.							√	Minor Adverse
Increase in light 'glare' to local residences	Permanent (windows)	Moderate	Specification of dark sky compliant luminaires and avoid over lighting.							√	Minor Adverse
Increase in light 'glare' to drivers on local roads	Permanent (windows)	Minor	Specification of dark sky compliant luminaires and avoid over lighting.							√	Minor Adverse
Cumulative Effects to site											
Possible decrease in sky glow, site aura, light presence and glare.	Permanent	Moderate	Specification of dark sky compliant luminaires and avoid over lighting.							√	Minor Adverse

*** Geographical Level of Importance**

I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local

Appendix A

Viewpoints

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Appendix B

Viewpoint Photographs

LIGHTING ASSESSMENT REPORT

	Day	Night
VP 1		
VP 2		
VP 3		

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VP 4		
VP 5		
VP 6		
VP 7		

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VP 8		
VP 9		
VP 10		



Appendix C

Site Layout

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