

## **Colerne Industrial and Storage Park**

### **Qualitative Obtrusive Light Statement**

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## 1.0 Summary

1. This report provides a qualitative obtrusive light statement for operational obtrusive light effects (preliminary) as a result of the Proposed Development.
2. Prepared by Light Planning and Design Ltd, this statement supports the outline planning application for the proposed redevelopment of Colerne Industrial and Storage Park, Colerne and in tandem with the Cotswold National Landscape (CNL) position statements provides an overview of existing lighting conditions, environmental sensitivities, direct sky glow, preliminary lighting parameters, and mitigation measures and a qualitative assessment on the potential effects as a result of potential future external lighting to the development proposals.
3. The Site currently includes artificial lighting associated with existing former hangars, high-level floodlights, and column-mounted luminaires, with additional operational and security lighting at Azimghur Barracks contributing to increased night sky brightness. In contrast, surrounding Colerne village features roadway LED lighting and private property illumination, while the rural landscape and farmland beyond the Site remain sparsely lit, preserving the dark, character typical of the National Landscape. These existing conditions form the baseline for assessing potential obtrusive light effects.
4. Sky glow and environmental zone analysis indicate that the Site and Colerne fall within an E2 Zone (Low District Brightness), Rudloe and Azimghur Barracks are E2/E3 (Low/Medium District Brightness), and surrounding farmland is E1 (Dark District Brightness). For precautionary planning, the Site is proposed to be managed according to E1 thresholds, ensuring minimal direct vertical and horizontal external light spill toward sensitive receptors.
5. Residential properties, particularly the rear elevations of Round Barrow Close, are expected to remain compliant with the Institute of Lighting Professionals (ILP) threshold values, with distance and careful design ensuring that further mitigation is not required.
6. Ecological sensitivities, especially bat habitats, are addressed through the establishment of perimeter buffer zones along treelines and hedgerows. Western, Southern, and Eastern boundaries incorporate 10 m vegetated buffers, with 7.5 m maintained under strict low-light 'dark' conditions, while the Northern boundary may include a wider 15 m habitat corridor. These buffers, combined with part-night lighting operation and narrow-beam distribution, maintain 'dark' conditions critical for roosting, foraging, and commuting bats in accordance with BCT / ILP Guidance Note 08/23. Operational lighting parameters has been proposed to replicate existing light levels in sensitive areas, with mitigation ensuring that residual effects are minimised.
7. Preliminary external lighting parameters have been established for the site access from Bath Road, primary and secondary routes, lighting from the improvements to Quarry Lane junction (as part of S278 works) and private house access. Proposed luminaires include flat glass, zero-

tilt fittings, warm white 2700K colour temperatures and PIR activation, and Dark Sky approval, with mounting heights limited to 6m to reduce spill and glare. Lighting controls, part-night operation, and energy-efficient equipment minimise energy use and carbon emissions, while luminaire positioning and orientation focus illumination only where required. Blue-light emissions are reduced to further minimize sky glow, preserve landscape character, and maintain night-time tranquillity.

8. Landscape impacts have been carefully considered. The Site's elevated location on the southern edge of the Cotswolds plateau provides occasional long-distance views, though these are generally filtered by hedgerows, woodlands, and tree belts. Mitigation measures—including controlled luminaire placement, part-night operation, low blue-light emission, limited mounting heights, and Dark Sky approved luminaires—reduce the visual prominence of lighting and protect the perception of dark skies across the National Landscape.
9. In addition, it is considered reasonable to expect an improvement of the dark sky character (due to reduced direct sky glow emissions). As a consequence, the potential impacts of direct skyglow are considered to be more in keeping with a National Landscape environment.
10. Overall, this qualitative assessment demonstrates that the proposed external lighting strategy can effectively balance operational requirements with the protection of residential amenity, ecological integrity, and landscape character. Through careful design, operational controls, and adherence to best-practice guidance, potential adverse effects of obtrusive light—including light spill, glare, and sky glow—can be mitigated. Further stages, including measured baseline surveys, detailed lighting design, and quantitative assessment of obtrusive light, will ensure compliance with ILP and BCT standards and refine mitigation measures where necessary, providing confidence that the redevelopment will be sympathetic to its sensitive rural and ecological context.

## 2.0 Introduction

11. This qualitative obtrusive light statement has been prepared by Light Planning and Design Ltd to accompany an application for outline planning permission for the proposed redevelopment of Colerne Industrial and Storage Park.
12. The statement provides an overview of potential operational obtrusive light qualitative effects towards sensitivities in support of the relevant disciplines. Also, in tandem with the Cotswold National Landscape (CNL) position statements it aims to inform the future design stages in terms of preliminary external lighting parameters and associated obtrusive light control mitigation measures.
13. Where, through Applicant team consultation in relation to constraints, considered design measures, operation and internal site allocations (external lighting, building and landscape developments) the future design is intended to minimise potential obtrusive light adverse effects from the outset.
14. The term 'Obtrusive Light' is defined as being:
  - Light Spill: The spilling of light beyond the boundary of a property which may cause nuisance to others - Horizontal (ground level) and Vertical (residential windows and ecology zones);
  - Glare: The uncomfortable and potentially dazzling brightness of the light source against a dark background where such views are likely to be maintained, i.e. not where momentary or short-term viewing is involved; and
  - Sky Glow: The direct upwards spill of light into the sky which can cause a glowing effect and is often seen above cities when viewed from a dark area.
15. In tandem with other specialist discipline reports, this statement relates to sensitivities within the National Landscape location and the local environment, including:
  - Occupied Residential elevations facing the Site;
  - Treelines and Ecology Habitat;
  - Landscape; and
  - Direct Sky Glow.
16. Preliminary External Lighting Parameters, established in accordance with precautionary principles, have been prepared to inform this statement. In addition, and where relevant, indicative distances to ecological buffer zones are presented to reflect potential external light spill conditions.
17. Finally, conclusion provides an overview of the judged operational obtrusive light effects towards the sensitivities and the mitigation measures (not exhaustive) that should be considered within future design stages to minimise potential adverse effects.

### 3.0 Policy and Guidance

#### Legislation

*Clean Neighbourhoods and Environment Act (CNEA) 2005*<sup>1</sup>

18. The Clean Neighbourhoods and Environment Act (CNEA) 2005 gives Local Authorities additional powers to deal with artificial lighting by classifying artificial light emitted from defined premises as a statutory nuisance (from April 2006). Guidance produced on Sections 101 to 103 of the CNEA 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.

*Empowerment to Light Roads - The Highways Act 1980*<sup>2</sup>

19. Section 97 empowers a Highway Authority to provide lighting for any highway or proposed highway for which they are or will be the Highway Authority. District Councils and many Parish or Town Councils also have the power to provide lighting as local lighting authorities.

#### National Planning Policy

*National Planning Policy Framework – Plan-making and national decision-making policies, August 2026*<sup>3</sup>

20. The National Planning Policy Framework provides the overarching planning policy framework for England.
  - Policy P3 – Living conditions and pollution requires development proposals to consider the likely effects, including cumulative effects, of pollution on health, living conditions and the natural environment, including effects arising from pre-existing conditions;
  - Policy P3(2)(a) requires development to avoid exposure to artificial light which could have an unacceptable adverse effect on health and quality of life, with mitigation provided where necessary;
  - Policy P3(2)(b) states that development should not give rise to, or contribute to, unacceptable levels of artificial light on or beyond the Site.
  - Policy P3(2)(e) requires development proposals to:

*“Limit any adverse impact from artificial light on local amenity, intrinsically dark landscapes ... and nature.”*

21. The following National Planning Practice Guidance (NPPG) further details the factors relevant to the control of obtrusive light.

*NPPG 2019 – Light pollution* <sup>4</sup>

The NPPG advises on how to consider light within the planning system, specifically focusing on:

- 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?

*National Model Design Code – Part 2 Guidance Notes (Ministry of Housing, Communities and Local Government 2021* <sup>5</sup>

22. This guidance note sets out possible contents for a design code, modelled on the ten characteristics of well-designed places set out in the National Design Guide. Where:

- P.3 Security and Public Space; P.3.i Secured by Design; Lighting – “Ensuring appropriate and non-obtrusive lighting levels are achieved”
- N.1.iii Open space Design; 20. Open Space Design; 8. Lighting: “...should avoid light spillage that causes nuisance and harms wildlife”

### **Local Planning Policy**

*Wiltshire Core Strategy (Adopted 2015)* <sup>6</sup>

23. The current Core Strategy produced by Wiltshire Council provides up-to-date strategic planning policy for Wiltshire and covers the period up to 2026. It includes a variety of overarching spatial policies to guide future development and land use.

*Cotswolds Conservation Board Position Statement Dark Skies & Artificial Light* <sup>7</sup>

24. The core purpose of this Position Statement is to establish the practical parameters by which local policy and proactive engagement will seek to match National and International Goals for Dark Skies conservation and enhancement in a consistent manner across the National Landscape. This position statement provides some background to the importance of dark skies to those who live or work in the National Landscape, or who visit the area to enjoy its

natural beauty. It provides broad guidance to local planning authorities, highway authorities, architects, developers and other decision makers such as householders, farmers and land managers on proactive measures to maintain and enhance the Area's dark skies. The Statement is also intended to be used to help secure appropriate policies on this issue in the Local Development Frameworks of the local authorities whose areas include parts of the AONB.

*Cotswolds Area of Outstanding Natural Beauty Management Plan 2018-2023 (Adopted 20th September 2018)* <sup>8</sup>

25. The Cotswolds AONB Management Plan is a statutory plan, which sets out the vision, outcomes and policies for the management of the National Landscape for the period 2018-2023.

– *Policy CE5: Dark Skies*

1. Proposals that are likely to impact on the dark skies of the Cotswolds AONB should have regard to these dark skies, by seeking to (i) avoid and (ii) minimise light pollution.
2. Measures should be taken to increase the area of dark skies in the Cotswolds AONB by (i) removing and (ii) reducing existing sources of light pollution.
3. Consideration will be given to seeking a formal dark sky designation for those parts of the Cotswolds AONB that are least affected by light pollution.

– *Cotswolds AONB Night Lights – Appendix A - Night Blight Map for the Cotswolds AONB CPRE*

This is a published extract from Night Blight data (2017) which gives a broad-brush indication of upwards light (sky glow) experienced within the UK.

– *Dark Skies & Artificial Light Appendix B ILP Guidance Notes For the reduction of Obtrusive Light – Appendix B*

This references the following published guidance:

*Institute of Lighting Professionals – Guidance Note for the Reduction of Obtrusive Light GN01:2021* <sup>9</sup>

26. This Guidance provides measurable design guidance limits and recommendations to ascertain acceptability of obtrusive light levels at night.

*Commission for Dark Skies (CfDS) Good Lighting Guide* <sup>10</sup>

27. This guidance provides summary advice relating to the control, design, light characteristics, installation and specification of external lighting fixtures to minimise running costs and the amount of light pollution produced.

### **Obtrusive Light and Lighting Design Guidance**

*CIE – 150:2017 - Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations*<sup>11</sup>

28. The purpose of this Guide is to help formulate guidelines for assessing the environmental effects of outdoor lighting and to give recommended limits for relevant lighting parameters to contain the obtrusive effects of outdoor lighting within tolerable levels. As the obtrusive effects of outdoor lighting are best controlled initially by appropriate design, the guidance given is primarily applicable to new installations; however, some advice is also provided on remedial measures which may be taken for existing installations. This Guide refers to the potentially adverse effects of outdoor lighting on both natural and man-made environments for people in most aspects of daily life, from residents, sightseers, transport users to environmentalists and astronomers.

*BS5489-1: 2020 – Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity area*<sup>12</sup>

29. This part of BS 5489 gives recommendations on the general principles of road lighting, and its aesthetic and technical aspects, and advises on operation and maintenance.

*BS EN 13201-2: 2015 – Road lighting – Part 2: Performance requirements*<sup>13</sup>

30. This part of this European Standard defines, according to photometric requirements, lighting classes for road lighting aiming at the visual needs of road users, and it considers environmental aspects of road lighting.

*BS EN 12464-2: 2024 – Lighting of Work Places – Part 2: Outdoor Work Places*<sup>14</sup>

### **Bats and Lighting Guidance**

*BCT / ILP – Guidance Note 08/23 – Bats and Artificial Lighting in the UK*<sup>14</sup>

31. This document is aimed at lighting professionals, lighting designers, planning officers, developers, bat workers/ecologists and anyone specifying lighting. It is intended to raise awareness of the impacts of artificial lighting on bats, and mitigation is suggested for various scenarios.

#### 4.0 The Application Site

32. The Site lies within National Landscape, a nationally designated landscape recognised for its scenic quality, limestone geology, and historic rural character. The site comprises three hangars adjacent to a large airfield, with other hangars in the surrounding area and a village to the south. The wider setting includes open farmland, woodland blocks, and small rural settlements typical of the Cotswold fringe, and development within the National Landscape is expected to respond sensitively to the established landscape character, settlement pattern, and key views
33. The land around Colerne occupies elevated ground along the southern edge of the Cotswolds plateau, sloping southwards towards the Box Valley, forming a distinct landscape structure of plateau farmland and steep valley sides, with occasional long-distance views often filtered by hedgerows and woodland characteristic of the area.
34. To the south lies Colerne village, a historic rural settlement with traditional stone buildings and narrow lanes, while to the north is the former RAF Colerne, now partially used by the British military as Azimghur Barracks.



*View from East boundary location (Google Earth)*

## 5.0 Existing Artificial Lighting Profile

35. The following provides a desktop overview of the existing lighting environment at the Site and its surrounding area. This informs the regional Environmental Zone classification, which is used to establish the relevant obtrusive light threshold criteria:
- The Site currently contains artificial lighting associated with the operation of existing buildings (hangars), including high-level floodlights and column-mounted luminaires (*photographs 1 and 2*).
  - The use of floodlights, as well as security and operational lighting, is notable within Azimghur Barracks. This lighting is considered to be the primary reason for increased brightness in the night sky in the location, likely to contribute to a noticeable glow above the barracks (**Figure 1.0**).
  - The main sources of lighting in the surrounding area are associated with the built form of Colerne village, along with occasional farmsteads and isolated properties in the countryside.
  - The lighting in the village includes column-mounted LED luminaires along roadways and private lighting associated with residential and commercial properties (*photographs 3 and 4*).
  - Outside of these locations, artificial lighting is generally sparse, consistent with the rural character of the landscape and the Site's location within the National Landscape.



*1 - High level floodlighting to the existing Hangar locations*



*2 - High level floodlighting and column mounted lanterns within the existing Site*



*3 - Column mounted LED lanterns to roadways entering Colerne Village (Google Earth)*



*4 - Column mounted LED lanterns and private lighting within Colerne Village (Google Earth)*

### Current Sky Glow Condition

36. The upward spill of light into the sky, which can cause a glowing effect and is often seen above artificially lit areas when viewed from a darker area.
37. Sky Glow cannot be accurately measured. Therefore, the baseline is professionally judged relative to CPRE – Night Blight data (*Cotswolds AONB Night Lights – Appendix A - Night Blight Map*) (Figure 1.0)

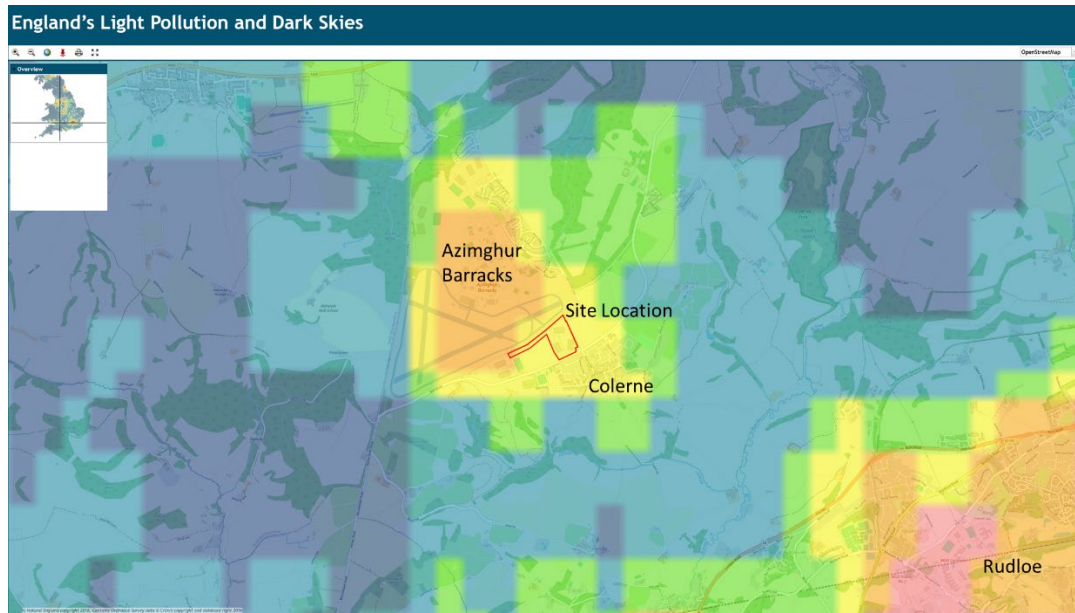
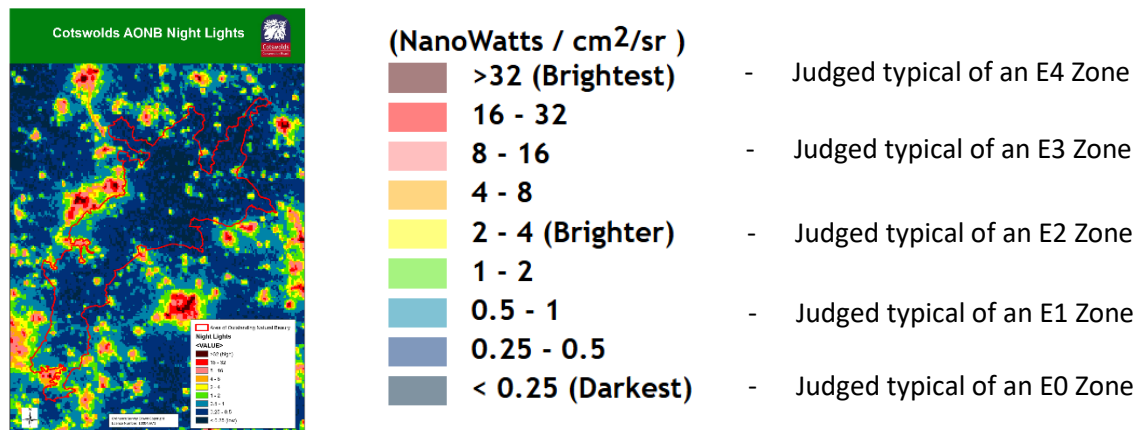


Figure 1.0 – Sky Glow Data – CPRE Night Blight

38. The following outlines the current interpreted sky glow classifications for the Site and its surroundings:

- Application Site and Colerne – Typical skyglow condition of an E2 Zone – Low District Brightness
- Rudloe and Azimghur Barracks – Typical skyglow condition of an E2 / E3 – Low / Medium District Brightness
- Farmland surroundings – Typical skyglow conditions of a E1 Zone – Dark District Brightness

#### **Environmental Zone Classification**

39. Assessment of the designation, use, habitat and external lighting condition dictates the classification of Environmental Zones across the Site and surrounding areas. The Environmental Zones relate to limiting guidance published by the Institute of Lighting Professionals ILP for obtrusive light (residential and highway) - ILP Guidance Notes for the Reduction of Obtrusive Light (2021).

40. This guidance then provides limiting obtrusive light thresholds for the respective zone. The zone definitions are as follows:

- E0: Protected surroundings, dark landscapes – UNESCO Starlight reserves, IDA Dark Sky Parks;
- E1: Intrinsically dark landscapes - National Parks, Areas of Outstanding Natural Beauty etc.;
- E2: Low district brightness areas – Village or relatively dark outer suburban locations;
- E3: Moderate district brightness – Small town centres or suburban locations; and
- E4: High district brightness – Town/city centres with high levels of night-time activity.

41. Taking account of the existing artificial light profile and noted sky glow conditions, the following is considered to be a fair representation of the existing Environmental Zone classification:

- **Application Site – E2– Low District Brightness;**

42. On a precautionary basis, and to enhance the existing conditions, the Environmental Zone—taking into account the Site’s constraints—is proposed to be established based on limiting thresholds for **E1: Dark District Brightness Areas – AONB.**

## 6.0 Obtrusive Light Sensitivities, Methodology and Limiting Threshold Limits

43. In tandem with other specialist discipline reports, this qualitative statement relates to sensitivities within the proposed development Site and the local environment, including:

- Occupied Residential elevations facing the Site;
- Treelines and Ecology Habitat;
- Landscape; and
- Direct Sky Glow.

### **Occupied Residential elevations facing the Site**

44. The residential sensitivities are typically the facing rear elevations of premises to Round Barrow Close (south of the Site).
45. For occupied residential premises, light spill limits towards the vertical plane (window locations) are defined within the Institute of Lighting Professionals (ILP) – Guidance Notes for the Reduction of Obtrusive Light.
46. The ILP threshold limiting values for vertical light spill towards occupied and existing residential properties for an E1 Zone (precautionary) are: 2 Lux (pre curfew), 0.1 Lux (if the installation is for public (road) lighting then this may be up to 1 Lux) (post curfew. )
47. Therefore, the potential pre and post curfew lighting effects are judged, in the context of this limiting guidance.
48. Obtrusive light effects can also be related to glare (luminaire source intensity) from the observer location. However, the topography at identified residential observer locations is generally equal in elevation and owing to future proposed lighting equipment being associated with access and roadways (inherently glare controlled) glare is excluded.

### **Treelines and Ecology Habitat (Figure 2.0)**

49. The ecological sensitivities of the Site are primarily associated with potential bat habitats, including roosting, foraging, and commuting areas, which may be adversely affected by artificial and obtrusive lighting.
50. *BCT / ILP – Guidance Note 08/23: Bats and Artificial Lighting in the UK* is the recognised guidance on this matter. It provides recommendations for mitigating the impacts of artificial lighting on bats across various scenarios, including considerations of light colour temperature and intensity.

51. In line with this guidance, and as a precautionary measure, a threshold of 0.4 Lux (vertical) and 0.2 Lux (horizontal) has been adopted to define 'dark' conditions, as specified in BCT / ILP Guidance Note 08/23. Operational lighting, both pre- and post-curfew, should closely replicate existing light levels in areas critical to bat activity on the Site prior to development. Appropriate mitigation measures should be applied where necessary to maintain these conditions.
52. It is recommended that these measures be applied to ecologically sensitive buffer zones and along perimeter lines of trees and hedgerows at the northern, eastern, southern, and western boundaries of the Site, including:
- A minimum 10 m vegetated buffer shall be provided along the western, southern, and eastern boundaries of the site, noting that a break will occur along the southern boundary. It is recommended that at least 7.5 m of this buffer maintains lighting conditions of less than 0.2 lux (horizontal) and 0.4 lux (vertical);
  - Along the northern boundary, there is potential to create a wider 15 m buffer incorporating a new habitat corridor, which would also help mitigate impacts on the southern corridor. Within this buffer, the entirety of the 'dark' zone should not exceed 0.2 Lux (horizontal) and 0.4 Lux (vertical), with a further 7.5 m area permitted a maximum light spill of 1.0 Lux.

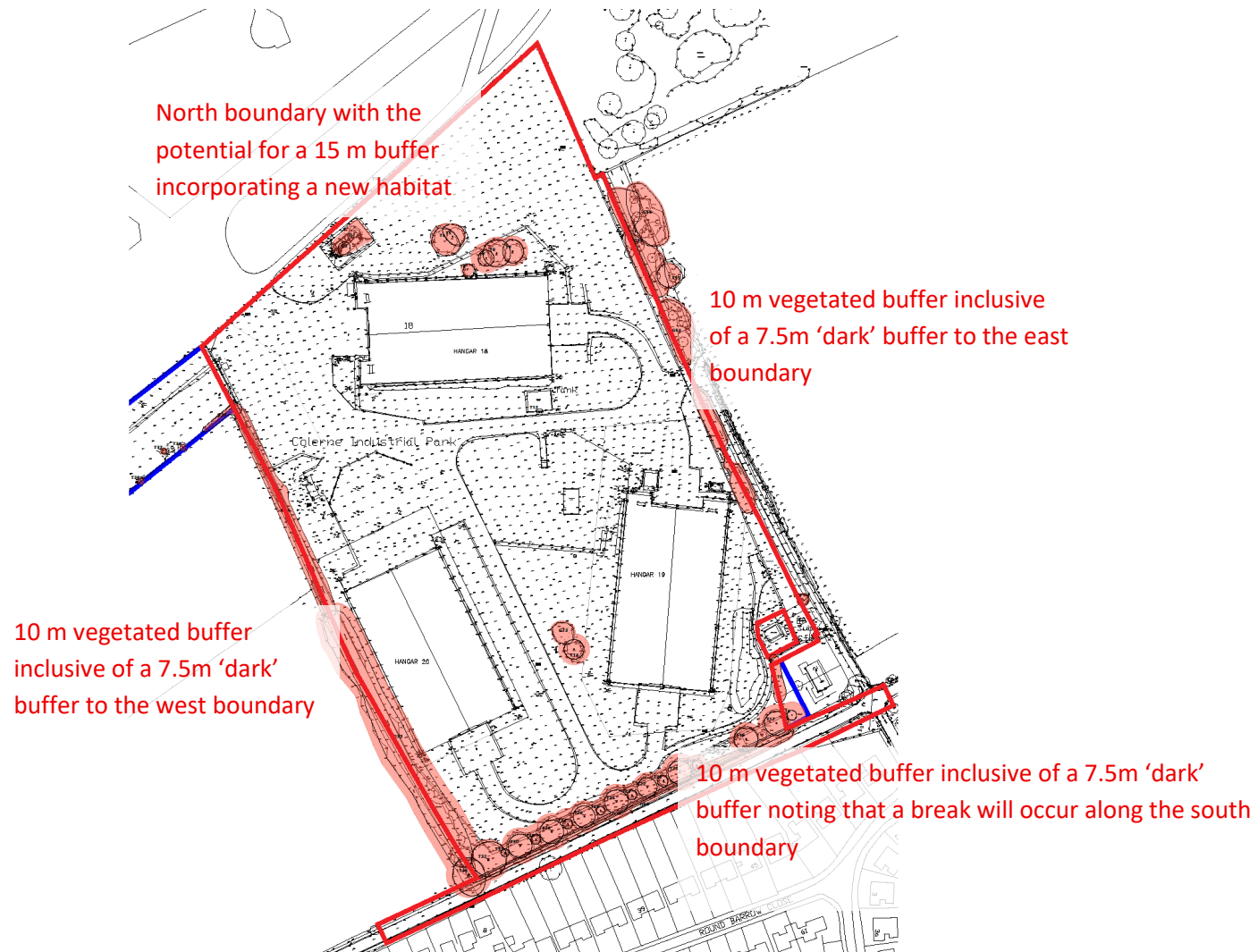
## **Landscape**

53. The land surrounding Colerne is situated on elevated terrain along the southern edge of the Cotswolds plateau, within the broader National Landscape.
54. Land levels generally descend southwards toward the Box Valley, creating a pronounced landscape structure composed of plateau farmland and steep valley slopes. This topography occasionally allows for long-distance views across the surrounding countryside, although many views are filtered or enclosed by hedgerows, woodlands, and tree belts, which are characteristic features of the Cotswold landscape.
55. While this statement does not provide a detailed assessment, it outlines proposed mitigation measures aimed at minimising potential adverse effects, specifically with regard to:
- The baseline conditions of existing onsite lighting and the surrounding context, including the Environmental Zone classification.
  - The parameters of proposed external lighting and their alignment with relevant policies and the Cotswold National Landscape (CNL) position statements concerning Direct Sky Glow.

### **Direct Sky Glow**

56. The upward spill of light into the sky, which can cause a glowing effect which can be seen above artificially lit areas when viewed from a darker area.
57. Given that the Proposed Site is not in close proximity to optical observatories and is not positioned within an E1 Zone adjacent to a protected (E0) dark sky zone, the main approach taken by the industry to limit sky glow involves limiting the potential direct (upwards) contribution of each luminaire type present in an installation.
58. The CIE150 and ILP Guidance Notes for the Reduction of Obtrusive Light provides the limiting Upwards Light Ratio (ULR%) relative to the Environmental Zone. As a precautionary measure the limits for an E1 Zone are considered, being 0% direct ULR.
59. For the purposes of this statement, potential direct sky glow is professionally judged with respect to typical luminaire types, light characteristics and inherent photometric control.

**Figure 2.0 – Treelines and Ecology Habitat**



## 7.0 Preliminary External Artificial Lighting Parameters and Proposed Mitigation

60. For the purposes of this statement, it has been necessary to make a number of assumptions regarding the road types, classifications, the precautionary operational external lighting and design criteria relative to the future proposed uses of the Site.
61. Subject to Masterplan developments (**Figure 3.0**) the potential artificial external lighting parameters are considered as being:
- 1 - Site Access from Bath Road (Adopted);
  - 2 - Primary Route - Spine (Adopted);
  - 3 - Secondary Routes (Adopted);
  - 4 - Secondary Routes Adjacent to Ecology Buffer Zones (Adopted);
  - 5 - Potential lighting for improvements to Quarry Lane junction (as part of S278 works) with the new access and potential speed reducing measures need lighting from the site access junction to Quarry Lane, reduced to 30 mph (Adopted).
  - 6 - Private House Type Access



**Figure 3.0 – Proposed Illustrative Masterplan**

62. Based on the above, **Data Sheets 1.0 to 6.0** outline the preliminary operational parameters for external artificial lighting. These data sheets demonstrate a potential approach by which artificial lighting proposals could be developed and brought forward through the Reserved Matters stage of the planning process.
63. In addition, and in relation to ecological buffer zones (**Figure 2.0**), indicative and approximate distances are provided to demonstrate the following:
- **Data Sheet 1.0** – Site Access from Bath Road: the potential extent of hedgerow that may be adversely affected by the proposed site access lighting (South).
  - **Data Sheet 4.0** – Secondary Routes Adjacent to Ecology Buffer Zones (Adopted): Direct light spill levels at the Site perimeter 'dark zone' buffer locations (East and West):
64. **Table 1.0**, provides an overview of the preliminary operational mitigation measures that have been initially considered and subject to future design development

## Datasheet 1.0 – Preliminary Lighting Parameters for Site Access from Bath Road

(Where applicable and subject to detailed design stages and approval processes)

### Example Generic Luminaire

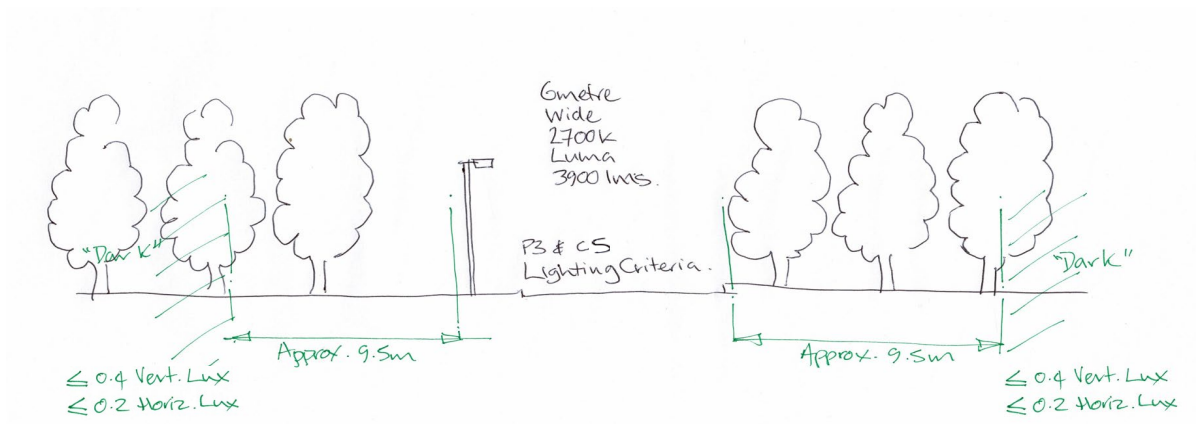
- Signify / WRTL Luma Range
- Flat glass, zero tilt and zero uplight
- 5 and 6m mounting height
- Minimum UV / Blue Light
- Dimming option for class selection
- CCT 2700K (ILP BCT guidance 08/23)
- Dusk till dawn operation – Full Night Light Operation
- Central Management System (CMS).
- Light shield options
- Dark Sky Approved

### Preliminary Criteria

- Assumed P3 Road Class
- BS EN 13201-2, Table 3
- 7.5 to 10 Lux min ave., 1.5 Lux Min.
- Assumed Conflict area C5 (Typical junction etc)
- BS EN 13201-2, Table 2
- 7.5 Lux (average maintained), 40% uniformity



- The potential extent of hedgerow that may be adversely affected by the proposed site access lighting (southern boundary).



## **Datasheet 2.0 – Preliminary Lighting Parameters for Primary Route - Spine (Adopted);**

(Where applicable and subject to detailed design stages and approval processes)

### **Example Generic Luminaire**

- Signify / WRTL Luma Range
- Flat glass, zero tilt and zero uplight
- 6m mounting height
- Minimum UV / Blue Light
- Dimming option for class selection
- CCT 2700K (ILP BCT guidance 08/23)
- Part night operation – Dusk to midnight, off until 05:30
- Central Management System (CMS).
- Light shield options
- Dark Sky Approved

### **Preliminary Criteria**

- Assumed P4 Road Class
- BS EN 13201-2, Table 3
- 5.0 to 7.5 Lux min ave., 1.0 Lux Min.



### **Datasheet 3.0 – Preliminary Lighting Parameters for Secondary Routes (Adopted);**

(Where applicable and subject to detailed design stages and approval processes)

#### **Example Generic Luminaire**

- Signify / WRTL Luma Range
- Flat glass, zero tilt and zero uplight
- 6m mounting height
- Minimum UV / Blue Light
- Dimming option for class selection
- CCT 2700K (ILP BCT guidance 08/23)
- Part night operation – Dusk to midnight, off until 05:30
- Central Management System (CMS).
- Light shield options
- Dark Sky Approved

#### **Preliminary Criteria**

- Assumed P5 Road Class
- BS EN 13201-2, Table 3
- 3.0 to 4.5 Lux min ave., 0.6 Lux Min.



## Datasheet 4.0 – Preliminary Lighting Parameters for Secondary Routes Adjacent to Ecology Buffer Zones (Adopted);

(Where applicable and subject to detailed design stages and approval processes)

### Example Generic Luminaire

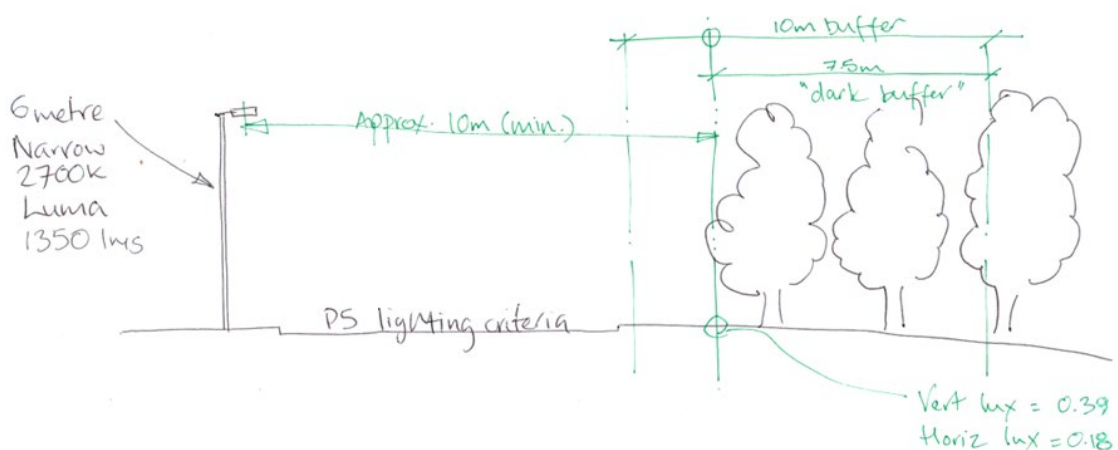
- Signify / WRTL Luma Range
- Flat glass, zero tilt and zero uplight
- 6m mounting height
- Minimum UV / Blue Light
- Dimming option for class selection
- CCT 2700K (ILP BCT guidance 08/23)
- Part night operation – Dusk to midnight, off until 05:30
- Central Management System (CMS).
- Light shield options
- Dark Sky Approved

### Preliminary Criteria

- Assumed P5 Road Class
- BS EN 13201-2, Table 3
- 3.0 to 4.5 Lux min ave., 0.6 Lux Min.



- Indicative direct light spill levels at the Site perimeter 'dark zone' buffer locations (East and West):



**Datasheet 5.0 – Potential lighting for improvements to Quarry Lane junction (as part of S278 works) with the new access and potential speed reducing measures need lighting from the site access junction to Quarry Lane, reduced to 30 mph (Adopted).**

(Where applicable and subject to detailed design stages and approval processes)

**Example Generic Luminaire**

(Where applicable and subject to detailed design stages and approval processes)

- Signify / WRTL Luma Range
- Flat glass, zero tilt and zero uplight
- 6m mounting height
- Minimum UV / Blue Light
- Dimming option for class selection
- CCT 2700K (ILP BCT guidance 08/23)
- Dusk till dawn operation – Full Night Light Operation, Dimmable
- Central Management System (CMS).
- Light shield options
- Dark Sky Approved

**Preliminary Criteria**

- Assumed P3 / M5 Class
- BS EN 13201-2, Table 3
- 7.5 to 10 Lux min ave., 1.5 Lux Min.
- Assumed Conflict area C5 (Typical junction etc)
- BS EN 13201-2, Table 2
- 7.5 Lux (average maintained), 40% uniformity



## Datasheet 6.0 – Preliminary Lighting Parameters for Private House Type Access

### Example Generic Luminaire

(Where applicable and subject to detailed design stages)

- Wall mounted downlights, **zero uplight**
- PIR occupancy sensed
- Controlled beam distribution
- Minimum intensity
- Minimum UV / Blue Light
- CCT 2700K (BCT guidance 08/23)
- PIR activated with 10 minute timers (duration to be confirmed).

### Preliminary Design Criteria

- Not Applicable – Localised wayfinding



### Mitigation Measures

65. In support of **Data Sheets 1.0 to 6.0, Table 1.0** provides an overview of the preliminary operational mitigation measures that have been considered and subject to future design development.

**Table 1.0 – Preliminary Operational Mitigation Measures**

| Mitigation Measure                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Applied to                                                                                      | Justification                                                                                                                                        |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 - Operational lighting control measures                                          | As per Wiltshire Council Street lighting operations, the intended use for selected luminaires is limited to operational from dusk till midnight and from 05:30 till dawn                                                                                                                                                                                                                                                                                         | Relevant roadway types;<br>e.g. Primary Route - Spine (Adopted);<br>Secondary Routes (Adopted); | Lighting controls can reduce energy use, associated carbon emissions and potentially reduce the magnitude, duration and frequency of obtrusive light |
| 2 - Consideration of appropriate lighting standards and associated lighting levels | <p>Selection of appropriate lighting standard from relevant lighting standards to ensure lighting is appropriate to the task being undertaken, the area being lit, and that areas are not over lit.</p> <p>Dimming capabilities allow for class roadway classification amendments, should the approval process require.</p> <p>Ensuring sensitivities and areas are considered during the lighting design process with a view to minimising obtrusive light.</p> | Development of future Lighting designs for operational phases                                   | Over lighting can increase energy use and potentially increase levels of obtrusive light                                                             |

| Mitigation Measure                                              | Description                                                                                                                                                                                                                                               | Applied to                                                    | Justification                                                                                                                                                                                            |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3a - Use of best practice guidance to inform design development | ILP GN01 – The Reduction of Obtrusive Light (ILP, 2021) is to be utilised to inform the detailed design ess.                                                                                                                                              | Development of future Lighting designs for operational phases | Minimising potential adverse effects of obtrusive light by ensuring sensitivities and areas are considered during the lighting design process with a view to minimising obtrusive light.                 |
| 3b - Use of best practice guidance to inform design development | ILP and Bat Conservation Trust Guidance Note 08/23 Bats and Artificial Lighting in the UK is to be utilised to inform the detailed design process in collaboration with suitable biodiversity specialists                                                 | Development of future Lighting designs for operational phases | Minimising potential adverse effects of obtrusive light on Bats.                                                                                                                                         |
| 4 - Energy Efficiency                                           | Wherever possible, lighting installation components (lamps, control gear, luminaires, control systems etc.) are suggested as being classed as being energy efficient typically falling within the top 25% of energy-efficient equipment in the UK market. | Specification of lighting equipment for operational phases    | Reduction in energy use and associated carbon emissions.                                                                                                                                                 |
| 5 - White Light                                                 | Using a white light (warm) improves visual acuity and results in lower light level requirements.                                                                                                                                                          | Specification of lighting equipment for operational phases    | Improves visual acuity and results in lower light level requirements. The consistency of light source colour also supports identification of the Site and does not interfere with rail lighting systems. |
| 6 - Considered Luminaire Positioning and Orientation            | Wherever possible, aiming luminaires towards the central operations of the Site minimises the potential for unnecessary light spill and glare to surrounding sensitivities.                                                                               | Development of future Lighting designs for operational phases | Minimisation of light spill and glare                                                                                                                                                                    |
| 7 - Reduction of Upward Light                                   | Only luminaires with an upward light ratio of 0% shall be used.<br>Zero angle tilt of the luminaire minimises the potential of light source visibility (glare) and the potential for direct upwards light. Dark Sky approved.                             | Specification of lighting equipment for operational phases    | Avoidance of direct skyglow                                                                                                                                                                              |

| Mitigation Measure                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                       | Applied to                                                                                     | Justification                                                                                                                                                            |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8 - Reduction of blue light spectrum                                                           | <p>Selection of lower colour temperatures for light sources in rural areas, <math>\leq 2700\text{K}</math>.</p> <p>Lower colour temperatures have less blue spectrum light and therefore less of an effect in terms of sky glow (blue light scatter).</p>                                                                                                                                                                         | Specification of lighting equipment for operational phases                                     | Minimisation of direct skyglow                                                                                                                                           |
| 9 - Reduce mounting heights of lighting where practicable, legally compliant and safe to do so | Light columns are suggested as being a maximum of 6m in height                                                                                                                                                                                                                                                                                                                                                                    | Design and specification of lighting equipment for operational phases                          | Limited light spill footprint and visibility of lighting installation                                                                                                    |
| 10 - Operational hours and enhanced lighting control                                           | Private access lighting is suggested to be PIR activated with 10 minute timers (duration to be confirmed).                                                                                                                                                                                                                                                                                                                        | Design and specification of lighting equipment for private access lighting operational phases; | Reduced duration for visibility of lighting, reduction of potential risk of adverse effects of obtrusive light, reduction of energy use and associated carbon emissions. |
| 11 - Selection of lower colour temperatures for light sources $\leq 2700\text{K}$ .            | <p>The warmer white colour temperature has a lower relative attractiveness to insects, resulting in a greater number of insects in dark areas, which in turn increases the availability of the main food source of multiple types of bats.</p> <p>Selection of warmer colour temperatures with peak wavelengths greater than 550 nanometres cause less of an impact on bats.</p> <p>(Bat Conservation Trust &amp; ILP, 2023).</p> | Design and specification of lighting equipment for operational phases                          | Reduction of potential adverse effects of lighting towards nocturnal wildlife                                                                                            |

## 8.0 Qualitative Obtrusive Light Conclusion

66. In tandem with other specialist discipline reports, this qualitative statement relates to sensitivities within the proposed development Site and the local environment, including:

- Occupied Residential elevations facing the Site;
- Treelines and Ecology Habitat;
- Landscape; and
- Direct Sky Glow.

### **Occupied Residential elevations facing the Site**

67. The residential sensitivities are typically the facing rear elevations of premises to Round Barrow Close (south of the Site).
68. Subject to the final design and layout, it is judged that (due to distance) vertical light spill is compliant to ILP threshold limiting pre and post curfew values and further mitigation will not be required.

### **Treelines and Ecology Habitat**

69. The ecological sensitivities of the Site are primarily associated with potential bat habitats, including roosting, foraging, and commuting areas, which may be adversely affected by artificial and obtrusive lighting if not appropriately managed.
70. Ecologically sensitive buffer zones are proposed along the perimeter boundaries of the Site, particularly along tree lines and hedgerows. The recommended measures include:
- **Northern Boundary:** There is potential to create a wider 15 m buffer incorporating a new habitat corridor. Within this buffer, the entirety of the 'dark' zone should not exceed 0.2 lux (horizontal) and 0.4 lux (vertical), with a further 7.5 m area permitted a maximum light spill of 1.0 lux.
  - **Western, Southern, and Eastern Boundaries:** A minimum 10 m vegetated buffer is proposed, noting that a break will occur along the southern boundary. Within this buffer, it is recommended that at least 7.5 m maintains lighting conditions of less than 0.2 lux (horizontal) and 0.4 lux (vertical).

### External Lighting Impact Assessment and Mitigation

71. Based on preliminary external lighting parameters and proposed mitigation measures, it is professionally judged that external light spill can be effectively managed, as follows:
72. **Northern Boundary and 15 m Habitat Corridor:** Due to its location and distance from primary external light sources, obtrusive light spill is expected to be sufficiently attenuated, ensuring that adverse effects on bat habitats will be avoided.
73. **Western, Southern, and Eastern Boundaries:** The implementation of narrow-beam light distribution is anticipated to ensure that direct light spill into the 7.5 m 'dark' buffer remains within the guidance limits set out in BCT 08/23. Furthermore, the use of part-night switching will limit any residual effects in both magnitude and duration.
74. Overall, the proposed external lighting strategy demonstrates that ecological sensitivities, particularly in relation to bat habitats, can be effectively mitigated through careful design and operational control.

### Landscape

75. It is considered that views from surrounding landscapes can be impeded by potential visual prominence of lighting at night, which includes luminaire heights, light characteristics and uncontrolled uplight (particularly from darker landscape areas).
76. Based on future design developments and the implementation of the following mitigation measures, it is professionally judged that potential negative impacts towards landscape can be minimised.
77. As follows:
- Part night lighting operation modes potentially reduce the magnitude, duration and frequency of potential obtrusive light and potential visibility
  - Minimising the potential visibility of lighting through only lighting where necessary to the proposed operations of the Site
  - Considered luminaire positioning and orientations
  - Light colour temperature (2700K CCT) will have less blue spectrum light and therefore less of an effect in terms of direct sky glow (blue light scatter).
  - Dark sky approved luminaires to minimise direct skyglow potentially visible from darker environments

- Limiting the tilt angle of the luminaire minimises the potential of light source visibility (glare) and the potential for direct upwards light.
- Limiting luminaire mounting heights to a maximum of 6m

### **Direct Sky Glow**

78. The Application Site is judged as having skyglow conditions typical of an E2 / E3 Zone – Low to Medium District Brightness. Considering that the future proposed lighting equipment is currently classified as Dark Sky Approved, it is considered reasonable to expect that there may be an improvement due to reduced direct sky glow emissions. As a consequence, the potential impacts of direct skyglow are considered to be more in keeping with an National Landscape environment.

### **Scope Limitation and Anticipated Effects of Off-Site Lighting (S278 Works)**

79. As part of the environmental and infrastructure assessment process, consideration has been given to the possible effects arising from potential lighting for improvements to Quarry Lane junction (as part of S278 works) located beyond the defined Site boundary (currently predominately unlit).
80. At the current stage of project development, these off-site works remain subject to further design progression and necessary approvals. Consequently, any detailed assessment of their lighting impacts has been excluded from the present evaluation.
81. Notwithstanding this exclusion, it is anticipated that the nature and scale of external lighting associated with these works could be limited and controlled through the implementation of established mitigation measures consistent with those outlined for on-site lighting proposals. Such measures typically include directional luminaires, shielding to minimise light spill, and adherence to relevant lighting standards and guidance.
82. On this basis, any residual effects are expected to be spatially constrained, and localised primarily to the immediate vicinity of the installed lighting infrastructure. Further assessment may be undertaken at a later stage should detailed design information for the S278 works become available.

### **Next Steps to Towards Compliance with Obtrusive Light Standards**

83. Following the preparation of this Qualitative Obtrusive Light Statement, a series of further actions are expected to be required at the Reserved Matters stage to ensure that the final design achieves compliance with relevant obtrusive light control standards. These actions may include undertaking a measured baseline survey to establish existing lighting conditions, developing a comprehensive external lighting design strategy, and carrying out a detailed

quantitative assessment of obtrusive light. This assessment will identify potential impacts and confirm the appropriate mitigation measures to be incorporated within the final design

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| <i>B</i>        | <i>Amended to comments</i>                               | <i>LG</i>        | <i>27/05/2026</i> | <i>Team</i>       |
| <i>C</i>        | <i>Amended Illustrative Masterplan, paragraphs 82-85</i> | <i>LG</i>        | <i>06/07/2026</i> | <i>Team</i>       |
| <i>D</i>        | <i>Amended to comments for NPPF 2026</i>                 | <i>LG</i>        | <i>18/08/2026</i> | <i>Team</i>       |
|                 |                                                          |                  |                   |                   |
|                 |                                                          |                  |                   |                   |

*This report is based on qualitative analysis, including desktop site analysis, the development proposals, advised constraints and professional judgement. The findings are interpretive and reflect conditions at the time of review. While care has been taken to ensure accuracy, the results are indicative only and may not represent all conditions or future changes. This document does not constitute detailed design. Any decisions should be supported by further quantitative technical studies and consultation where required. No liability is accepted for actions taken solely on the basis of this report.*

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