



• LIGHTING DESIGN • ELECTRICAL • SMART CITIES •
ENERGY REDUCTION • LIGHTING IMPACT

CHEMRING, HIGH POST

LIGHTING STRATEGY

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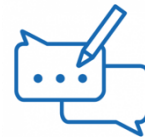
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EXECUTIVE SUMMARY

The Lighting Strategy proposes good practice and outlines a suitable approach for the proposed lighting at Chemring Countermeasures, High Post, for the purpose of safety, security, wayfinding and amenity

It has been identified that the Application Site is set within a sparsely inhabited rural area (E2).

The Lighting Strategy addresses objections raised by both Historic England and the Stonehenge, Avebury and Associated Sites World Heritage Site about the requirement of a lighting plan to properly assess the Proposed Development's impact on scheduled monuments and sites in the surrounding area. The Lighting Strategy provides technical specifications of lighting equipment, their locations and details such as mounting heights and outputs to allow an assessment of the Proposed Development's impact on the wider environment.

The lighting design and Light Spill Diagram address concerns around the impact on Potential Heritage Receptors (PHR), demonstrating the effect on these sites will be barely noticeable, due to various factors including the lighting design itself, blocking elements such as buildings, and other existing lighting.

The Application Site borders an area of woodland on the northern boundary that has been identified as potentially sensitive for bats. The Lighting Strategy protects this area by ensuring it is kept dark, safeguarding dark corridors around this section of the perimeter to maintain the interconnectivity of habitat for foraging and commuting bats. The Lighting Strategy also guarantees the residential amenity of dwellings near the Application Site.

The proposed lighting has been developed in accordance with the relevant British Standards and complies with relevant industry standard guidance relating to obtrusive light and light sensitive ecology and Local Policy. This is achieved by directing light down, allowing no upward light and limiting mounting heights to minimise light spill into areas identified as ecologically sensitive and limit the impact on the surrounding environment.

1. INTRODUCTION

1.1. General

- 1.1.1. This Lighting Strategy has been written by DFL (Designs for Lighting Ltd¹), a lighting design consultancy specialising in Lighting Impact Assessments, obtrusive light mitigation, and detailed lighting design.
- 1.1.2. The Lighting Strategy is intended to set out a minimally obtrusive approach to the lighting, whilst ensuring it is necessary and considers the sensitivity of nearby human, environmental and ecological receptors.
- 1.1.3. Lighting associated with the Proposed Development will comply with relevant British Standards and Institution of Lighting Professionals (ILP) guidance to ensure obtrusive light is minimised in accordance with best practice.
- 1.1.4. This report outlines the following:
- > Relevant obtrusive light policies in direct relation to the Proposed Development;
 - > Relevant National and Local Policies;
 - > Why the Proposed Development requires artificial lighting; and
 - > Details as to how lighting will be implemented for the Proposed Development.
- 1.1.5. Through careful design and mitigation, this Lighting Strategy ensures the lighting installation at the Proposed Development will be in accordance with British Standards, Guidance and Local Policy.

¹ <https://www.dfl-uk.com/about/>

2. LEGISLATIVE FRAMEWORKS AND NATIONAL POLICIES

2.1. Environmental Protection Act 1990 / Clean Neighbourhoods and Environment Act 2005

- 2.1.1. Since 2005, artificial light has been incorporated as a potential statutory nuisance. An amendment to section 79 of the Environmental Protection Act 1990, contained within the Clean Neighbourhoods and Environment Act 2005 states: ²

“The following matters constitute “statutory nuisances” for the purposes of this Part, that is to say— [...]

[...] artificial light emitted from premises so as to be prejudicial to health or a nuisance;

[...]and it shall be the duty of every local authority to cause its area to be inspected from time to time to detect any statutory nuisances which ought to be dealt with under section 80 and, where a complaint of a statutory nuisance is made to it by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint”.

2.2. National Planning Policy Framework 2024 (Amended 2025)

- 2.2.1. The National Planning Policy Framework (NPPF) sets out the government’s planning policies for England and how they are expected to be applied and provides a framework for local plans. With regard to light pollution, the NPPF was updated in February 2025 and states that the following elements are to be considered⁴:

“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:

- *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life,*
- *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”*

² <https://www.legislation.gov.uk/ukpga/1990/43/part/III/crossheading/statutory-nuisances-england-and-wales> Section 79, paragraph 1,

³ 2005 Section 102 relating to section 79, Indent reference (fb)

⁴ Paragraph 198 NPPF 2024 page 57

2.3. Planning Practice Guidance

2.3.1. Guidance for assessing the effects of proposed artificial lighting is outlined in the planning practice guidance (PPG). The guidance states:⁵

“Does an existing lighting installation make the proposed location for a development unsuitable, or suitable only with appropriate mitigation? For example, this might be because:

- *the artificial light has a significant effect on the locality; and/or*
- *users of the Proposed Development (e.g., a hospital) may be particularly sensitive to light intrusion from the existing light source.*

Where necessary, development proposed in the vicinity of existing activities may need to put suitable mitigation measures in place to avoid those activities having a significant adverse effect on residents or users of the proposed scheme, reflecting the agent of change principle. Additional guidance on applying this principle is set out in the planning practice guidance on noise.

- *Will a new development, or a proposed change to an existing site, be likely to materially alter light levels in the environment around the site and/or have the potential to adversely affect the use or enjoyment of nearby buildings or open spaces?*
- *Will the impact of new lighting conflict with the needs of specialist facilities requiring low levels of surrounding light (such as observatories, airports and general aviation facilities)? Impacts on other activities that rely on low levels of light such as astronomy may also be a consideration but will need to be considered in terms of both their severity and alongside the wider benefits of the development.*
- *Is the development in or near a protected area of dark sky or an intrinsically dark landscape where new lighting would be conspicuously out of keeping with local nocturnal light levels, making it desirable to minimise or avoid new lighting?*
- *Would new lighting have any safety impacts, for example in creating a hazard for road users?*
- *Is a proposal likely to have a significant impact on a protected site or species? This could be a particular concern where forms of artificial light with a potentially high impact on wildlife and ecosystems (e.g. white or ultraviolet light) are being proposed close to protected sites, sensitive wildlife receptors or areas, including where the light is likely to shine on water where bats feed.*
- *Does the Proposed Development include smooth, reflective building materials, including large horizontal expanses of glass, particularly near water bodies? (As it may change natural light, creating polarised light pollution that can affect wildlife behaviour.)”*

⁵ <https://www.gov.uk/guidance/light-pollution>, Paragraph 002 Ref ID: 31-002-20191101 revision 01 11 2019

2.4. CAP 738 (6)Safeguarding of Aerodromes

- 2.4.1. The UK Civil Aviation Authority (CAA) publication outlines the need and approach to the safeguarding of Aerodromes, along with the concerns and guidance on how to ensure elements outside of the Aerodrome does not impair the use of the facilities.
- 2.4.2. CAP 738 states the following relevant to safeguarding in relation to lighting.

"What is Aerodrome Safeguarding

1.1 Safeguarding is the process by which the Aerodrome Operator can, in consultation with the Local Planning Authority (LPA) and within their capability, protect the environment surrounding the Aerodrome from developments and activities that have the potential to impact on the aerodrome's safe operation.

Aerodrome safeguarding covers several aspects. Its purpose is to protect:

a) the airspace around an aerodrome to ensure no buildings or structures may cause danger to aircraft either in the air or on the ground. This is achieved through both the 'Obstacle Limitation Surfaces' (OLS) and the 'Instrument Flight Procedure' (IFP).

b) the integrity of radar and other electronic aids to navigation by preventing reflections and diffractions of the radio signals.

c) aeronautical lighting, such as approach and runway lighting, by ensuring that they are not obscured by any proposed development and that any proposed lighting, either temporary or permanent, could not be confused for aeronautical ground lighting."

"Insufficient Information

3.4 Outline planning applications do not normally provide sufficient information to assess the impact a development may have on an aerodrome. They have to include an address, location and site plan. This information will only confirm whether the proposed development is located within the safeguarded area. If, at outline planning stage, you decide certain conditions may be appropriate (e.g. CAP 738 Chapter 3: The Safeguarding Process landscaping or lighting or height restriction) you should respond in a way that requests that these conditions are attached to any permission. It is important to remember that outline planning details can be changed without further consultation. In some cases, when it is clear that a proposed development would be unacceptable in principle at that location, you should respond accordingly. For example, if the proposed development falls within the area where the Take-off Climb, Approach or Transitional Surface prevails and the ground height almost meets it, then a structure in that position could present an unacceptable safety risk.

3.5 Planning conditions provide an opportunity to carefully monitor/manage certain aspects of the proposed development.

⁶ UK Civil Aviation Authority (CAA), Safety and Airspace Regulation Group, Civil Aviation Publication (CAP) 738, Third Edition Published October 2020,

3.6 When the safeguarding assessment identifies the need for 'planning conditions', the aerodrome operator should explicitly request such conditions in their response to the LPA; this is particularly important where landscaping features have the potential to introduce an increased birdstrike risk, or where lighting could present a hazard to aviation safety. Where such conditions have been requested, aerodrome operators should work collaboratively with developers and the LPA to ensure those conditions are discharged by the LPA, where possible, to the satisfaction of the aerodrome.

"3.17 Lighting elements of developments have the potential to distract or confuse pilots, particularly in the immediate vicinity of an aerodrome.

3.18 Aerodrome operators, LPAs and developers should pay attention to the intensity and alignment of road lighting, which is a matter of concern over much more than the areas close to the ends of a runway. The intensity of lighting can cause confusion to pilots by creating glare when viewed from the air; a road lighting scheme may give an illusion similar to an approach or runway lighting pattern which may confuse pilots who use such visual cues when landing at night or in low visibility conditions.

3.19 Where floodlighting is proposed, the aerodrome operator should request that the lighting scheme provides full cut-off with no light spill above the horizontal.

3.20 Article 224 of the Air Navigation Order 2016 (as amended) is explicit regarding lights liable to endanger aircraft, including the directions to be taken to extinguish any such light deemed as endangering aircraft."

2.5. Combine Aerodrome Safeguarding Team (CAST) Advice Note 2(7)

2.5.1. The CAST Aerodrome safeguarding advice note (Advice Note 2), introduces an overview of the information in CAP738 and other related documents some of which are not relevant to the application. The following bullet points are stated within this guidance.

"Various types of lighting have the potential to cause issues for example:

- *Temporary lighting, e.g. construction lighting, light shows, temporary installations*
- *Advertisements*
- *Lighting of buildings and other structures*
- *Street and car park lighting*
- *Flood lighting at sporting venues or similar including special events in temporary locations No lighting should be displayed which could distract pilots or confuse them by being mistaken for aeronautical ground lights."*

⁷ Combine Aerodrome Safeguarding Team (CAST), Reference: Advice Note 2, Subject: Lighting Near Aerodromes, dated April 2024.

3. LOCAL POLICIES

3.1. Wiltshire Council, Wiltshire Core Strategy

- 3.1.1. The relevant Local Planning Authority (LPA) for the Proposed Development is Wiltshire Council, with policies detailed within the Wiltshire Core Strategy adopted January 2015 applying to the lighting associated with the Proposed Development.

The applicable policies are:

CP50 – Biodiversity and geodiversity

“Protection

All development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development.

Local sites

Sustainable development will avoid direct and indirect impacts upon local sites through sensitive site location and layout, and by maintaining sufficient buffers and ecological connectivity with the wider environment. Damage or disturbance to local sites will generally be unacceptable, other than in exceptional circumstances where it has been demonstrated that such impacts:

- i. cannot reasonably be avoided*
- ii. are reduced as far as possible*
- iii. are outweighed by other planning considerations in the public interest*
- iv. where appropriate compensation measures can be secured through planning obligations or agreements.*

Development proposals affecting local sites must make a reasonable contribution to their favourable management in the long-term.”

CP51 – Landscape

“Development should protect, conserve and where possible enhance landscape character and must not have a harmful impact upon landscape character, while any negative impacts must be mitigated as far as possible through sensitive design and landscape measures. Proposals should be informed by and sympathetic to the distinctive character areas identified in the relevant Landscape Character Assessment(s) and any other relevant assessments and studies. In particular, proposals will need to demonstrate that the following aspects of landscape character have been conserved and where possible enhanced through sensitive design, landscape mitigation and enhancement measures:

- vi. Important views and visual amenity.*
- vii. Tranquillity and the need to protect against intrusion from light pollution, noise, and motion.”*

CP57 – Ensuring high quality design and place shaping

“A high standard of design is required in all new developments, including extensions, alterations, and changes of use of existing buildings. Development is expected to create a strong sense of place through drawing on the local context and being complementary to the locality. Applications for new development must be accompanied by appropriate information to demonstrate how the proposal will make a positive contribution to the character of Wiltshire through:

(...) vii. 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)”+

4. BRITISH STANDARDS

4.1. BS EN 12464-2:2024 - Light and Lighting – Lighting of workplaces

- 4.1.1. This British and European standard specifies lighting requirements for outdoor workplaces which meet the needs for visual and performance. All visual tasks are considered with the exclusion of lighting specified for the use of lighting required in an emergency.

5. GUIDANCE

5.1. Guidance Notes for the Reduction of Obtrusive Light (Institution of Lighting Professionals GN01:2021)

5.1.1. The Lighting Strategy has been developed in accordance with industry guidance aimed at minimising the risk of obtrusive light, which often results from poorly designed or installed external lighting. It draws specifically on the most relevant sections of GN01:2021, which provides best practice recommendations for reducing obtrusive light across a wide range of outdoor lighting applications.

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA Dark Sky Parks.
E1	Natural	Intrinsically dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, 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 or suburban locations.
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity.

Table 1: Environmental Zone Descriptions

Environmental Zones	Sky Glow ULR ⁹ (Max %)	Light Trespass (Into Windows) E _v (lux)		Building Luminance Average, Pre-curfew
		Pre-Curfew	Post-Curfew ¹⁰	Average L (cd/m ²)
E0	0	0	0	0
E1	0	2	0.1 (1 ¹¹)	0
E2	2.5	5	1	5
E3	5	10	2	10
E4	15	25	5	25

Table 2: Obtrusive Light Criteria

8 Areas of Outstanding Natural Beauty (AONBs) have been redefined as National Landscapes. References within ILP GN01:2021 to AONBs should therefore be interpreted accordingly. This documentation will be updated in line with this change in future ILP guidance revisions as they are published.

9 ULR (Upward Light Ratio) is the maximum permitted percentage of luminaire flux that goes directly into the sky.

10 Curfew refers to a time when the local planning authority has agreed that the lighting installation should be switched off; this typically refers to 23h00 – 07h00

11 If the installation is for public (road) lighting, then this may be up to 1 lx

5.2. GN08:2023 Bats and Artificial Lighting in the UK – Bat Conservation Trust and Institution of Lighting Professionals.

5.2.1. 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. However, it is not meant to replace site-specific ecological and lighting assessments.

5.2.2. Based on the information provided the following limitations are recommended:

- Horizontal light levels are not exceeding 0.2 lux¹²
- Vertical light levels are not achieved greater than 0.4 lux between 1.5mtrs and 6.5 mtrs above ground level¹³
- Correlated Colour Temperature (CCT) will be equal to or less than 2700K¹⁴

5.2.3. Where standardised mitigation is to be used, the Bat Conservation Trust Guidance (BCT), Landscape and urban design for bats and biodiversity¹⁵ is consulted using the following methods in conjunction with ILP guidance (GN08).

- Minimum light for safety is to be used (as per British Standards or relevant guidance documents)
- Flat cut-off lanterns are to be proposed
- The most appropriate narrow spectrum light will be used avoiding blue wavelengths (less than 2700K)
- Pedestrian lighting in close proximity will be targeted below 3 Lux
- Increased lantern spacing
- Lighting of only high risk stretches of roads allowing headlights to provide necessary illumination at other times
- Limiting the times of use to provide dark periods
- Use of temporary close-boarded fencing until vegetation matures shielding sensitive areas from lighting
- Deployment of hop-over at crown height, hop over vegetation, hop over vegetation and walls and viaduct bridges

5.2.4. Whilst lighting will be designed to comply with the GN08:2023 criteria for creation of a dark corridor (horizontal of 0.2 lux and vertical of 0.4 lux) any break in a foraging route will either be reconnected, diverted or mitigated where possible.

12 GN08:2023 Paragraph 4.54 page38.

13 GN08:2023 paragraph 4.56 page 39 for 1.5m height, 6.5m height based on the underside of an established tree canopy.

14 GN08:2023 paragraph 4.29 page 29, BCT Bats and Lighting, Overview of current evidence and Mitigation paragraph 3.1.1 page 22.

15 BCT Landscape and Urban design for bats and biodiversity page 28 and page 29.

6. DESKTOP STUDY

6.1. Site Description and Context

- 6.1.1. A desktop assessment was completed to understand its position within the current lit environment.
- 6.1.2. The Application Site is part of the larger Chemring Countermeasures Site, which is located around 6 km north of Salisbury. The main body of the Application Site is situated to the east of the Chemring complex and is currently occupied by modified grassland with areas of concrete and hardstanding access roads. The Application Site is bordered to the north by a woodland belt and to the south and west by further working sections of the Chemring Countermeasures complex. The eastern boundary lies adjacent to arable farmland, but a planning application has been submitted to develop this land. An indicative boundary of the site can be seen in **Figure 1**.



Figure 1: The Application Site Location and Boundary

6.1.3. The Proposed Development is for the;-

"erection of a 900 sqm (Gross External Area) warehouse, with associated yard areas and improved internal access following demolition of an existing building."

The Site Layout Plan is shown in **Figure 2**.

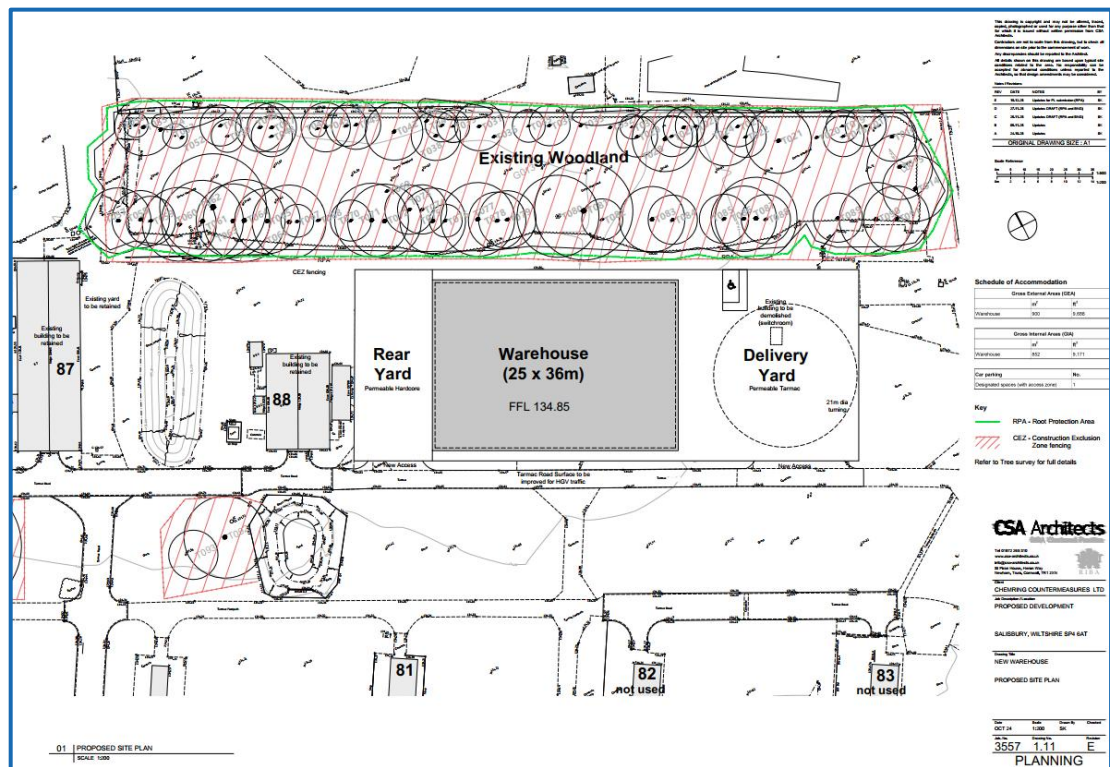


Figure 2: Proposed Development Site Layout Plan

6.2. Designated Sensitive Site

6.2.1. The area is within 2 km¹⁶ proximity of a designated Special Area of Conservation (SAC) and Sites of Special Scientific Interest (SSSI). These are shown in **Figure 3** and referred to as:

- River Avon SAC – within 1.2 km to the west
- River Avon System SSSI – within 1.2 km to the west

6.2.2. Stonehenge, Avebury and Associated Sites Unesco World Heritage Site is also located within 1.5 km to the northwest.

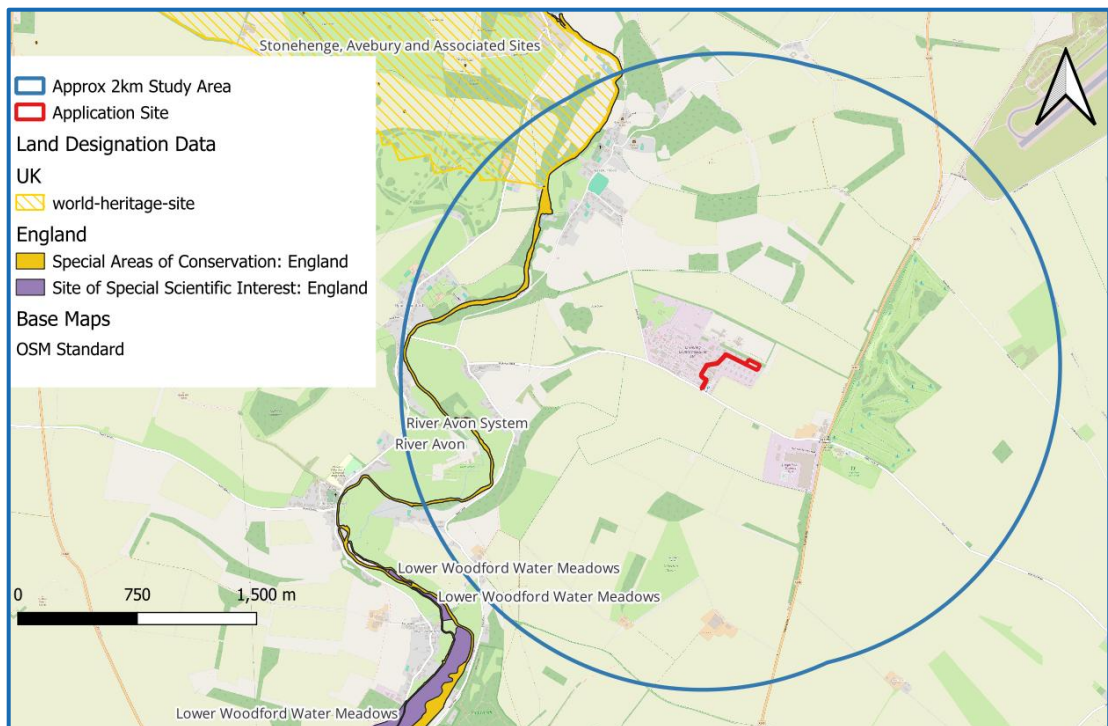


Figure 3: Site Designation

¹⁶ Based on empirical thresholds from visual impact studies, tall slender structures in open landscapes are typically prominent up to about 2 km, still relatively prominent between 2 and 5 km, and beyond this distance their prominence declines significantly, based on statements within Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes study (U.S.BLM-sponsored)

6.3. Existing lighting

- 6.3.1. The Chemring Countermeasures site has existing lighting of various types throughout the complex. The main concentration of lighting is found at the site entrance where the offices and staff car park are located. This area is extensively lit by column mounted luminaires supplemented by wall mounted floodlights, as shown in **Figure 4**.



Figure 4: View of the Lighting in the Surrounding Environment

- 6.3.2. The Chemring Countermeasures site is populated by a variety of structures together with various lighting solutions. There are wall mounted floodlights and bulkheads as well as lighting bollards, these are distributed across the site, examples can be seen in **Figure 5**.



Figure 5: View of various forms of lighting on Chemring Countermeasures site

- 6.3.3. The immediate area around the Chemring Countermeasures site is largely dark as the site is surrounded by agricultural fields. Similarly, the roads that run adjacent to the western, eastern and southern boundaries of the site do not have street lighting, which is in keeping with other roads in the vicinity.
- 6.3.4. In the wider environment there is evidence of external artificial lighting. High Post Business Park is located around 450 m to the southeast of the Chemring Countermeasures site. The business park has various commercial businesses operating from warehouses and office buildings, there is also a Petrol Station, Salt Store and Hotel. These businesses each have their own lighting of various forms, with wall mounted floodlights being prevalent, as shown in **Figure 6**.



Figure 6: View of lighting at High Post Business Park

- 6.3.5. The Stones Hotel located on the A345 has a mixture of wall up/downlighters and bollard lights in the car park, as shown in **Figure 7**. These will create a low-level ambient light during the night-time environment.



Figure 7: View of the lighting (highlighted in red) at the Stones Hotel

6.4. Environmental Zone Classification

- 6.4.1. Based on the evidence of the existing lighting (seen in **Section 6.3**) and the description of the surrounding environment (seen in **Section 6.1**) are similar to those expected within an E2 zone.
- 6.4.2. The Environmental Zone criteria detailed within **Table 1** and **Table 2** informs the basis of the Lighting Strategy. The Application Site is considered to be located within an E2 Environmental Zone.

Zone	Surrounding	Examples	Limitations		Sky Glow ULR (Max)
			Pre-curfew	Post-curfew	
E2	Rural	Sparsely inhabited rural areas, Village or relatively dark outer suburban locations	5	1	2.5%

Table 3: Limitations of Identified Environmental Zone

7. IDENTIFIED RECEPTORS

7.1. Ecological

7.1.1. The northern boundary of the Application Site has been identified in the Preliminary Ecological Appraisal by Ecosupport Ltd issued December 2025 as an area where potentially sensitive ecological receptors maybe present, as shown in **Appendix 3 – Sensitive Receptors**. Therefore, this Lighting Strategy has been written in accordance with GN08:2023.

7.1.2. A description of the potential ecological receptors can be seen in Table 4.

Receptor Type	Receptor No. (Appendix 3 – Sensitive Receptors)	Description
Ecology	PSER 001	Woodland belt adjacent to the northern boundary

Table 4: Potentially Sensitive Ecological Receptors (PSER)

7.2. Human Amenity

7.2.1. To the southeast of the site, Potential Human Amenity Receptors (PHAR) have been identified as shown in **Appendix 3 – Sensitive Receptors**. Therefore, this Lighting Strategy has been written in accordance with GN01:2021 (Table 2 - Obtrusive Light Criteria).

7.2.2. A description of the potential human receptors can be seen in **Table 5**.

Receptor Type	Receptor No. (Appendix 3 – Sensitive Receptors)	Description
Human Amenity	PHAR 001	The Stones Hotel on the A345 around 500 m to the southeast

Table 5: Potential Human Amenity Receptors (PHAR)

7.3. Heritage Receptors

- 7.3.1. Concerns around the impact the proposed lighting may have on historic monuments surrounding the Application Site have been highlighted by Historic England. The historic monuments identified by Historic England are detailed in **Table 6**.

Receptor Type	Receptor No. (Appendix 3 – Sensitive Receptors)	Description
Heritage	PHR 001	Stonehenge Ancient Monument approx. 5.5 km to the north
Heritage	PHR 002	Old Sarum Ancient Monument approx. 3.9 km to the south
Heritage	PHR 003	Bowl Barrow approx. 1.9 km to the northwest
Heritage	PHR 004	Ogbury Camp Scheduled Monument approx. 1.07 km to the north
Heritage	PHR 005	Enclosure northwest of Downbarn West approx. 1.5 km to the southeast

Table 6: Potential Heritage Receptors (PHR)

- 7.3.2. The locations of the Potential Heritage Receptors (PHR) and the World Heritage Site in relation to the Application Site are detailed in **Figure 8**.

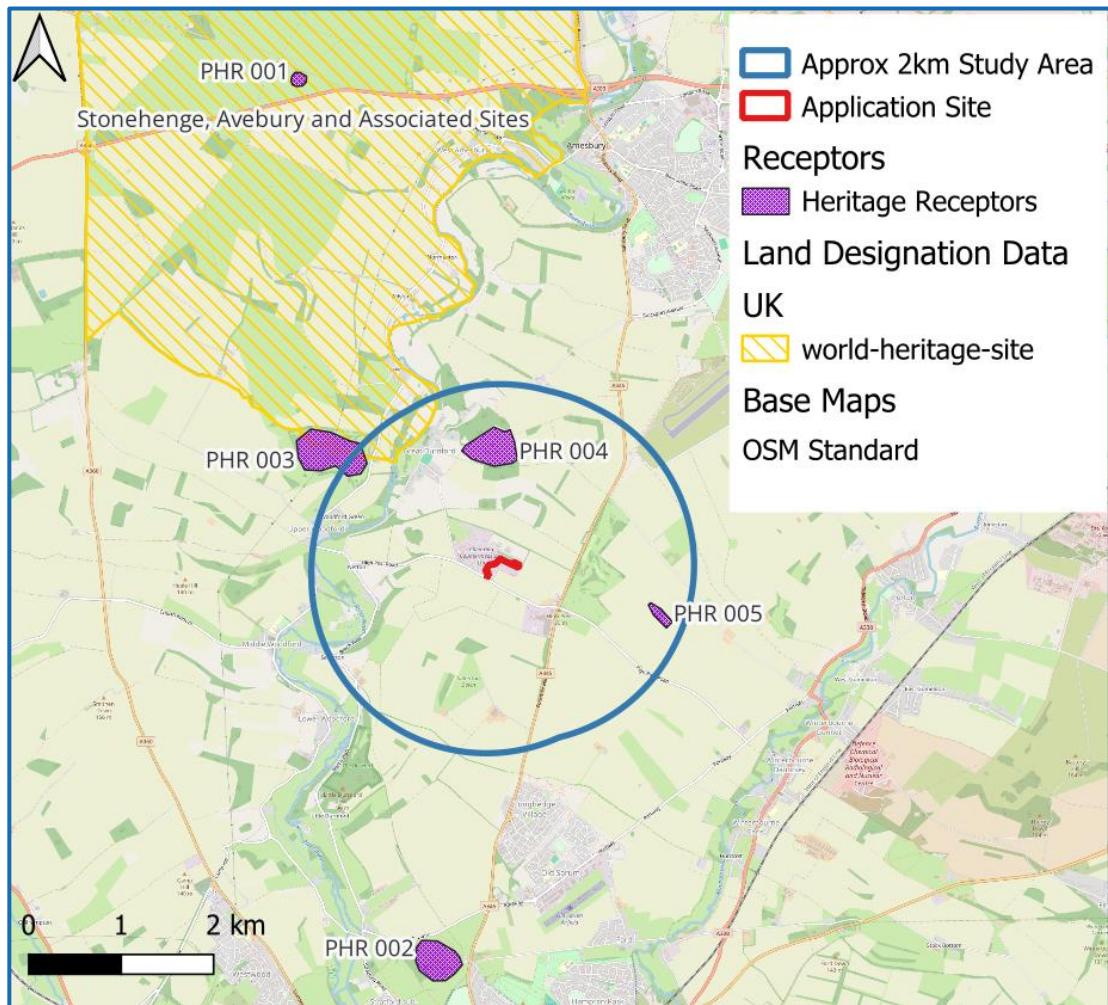


Figure 8: Potential Heritage Receptor (PHR) locations

- 7.3.3. Based on the distances from the Application Site to Potential Heritage Receptors, as identified in **Figure 8**, there will be no effects of obtrusive light or glare on these locations. The proposed lighting could possibly be visible from certain positions within a heritage site; however, the closest heritage receptor is Ogbury Camp which is approximately 1.07 km north of the Application Site. The lighting calculations demonstrate a light level of 0.31 lux at the woodland belt to the north of the Application Site. This is around 25 m from the nearest light source, Ogbury Camp is more than 1000 m from the light source. As per the Inverse Square Law (See **Figure 9**), the brightness of light (or intensity) reduces over distance, light decreases by the square route of the distance covered. Therefore, a location a 1000 m away from the light source would not be affected by obtrusive light.

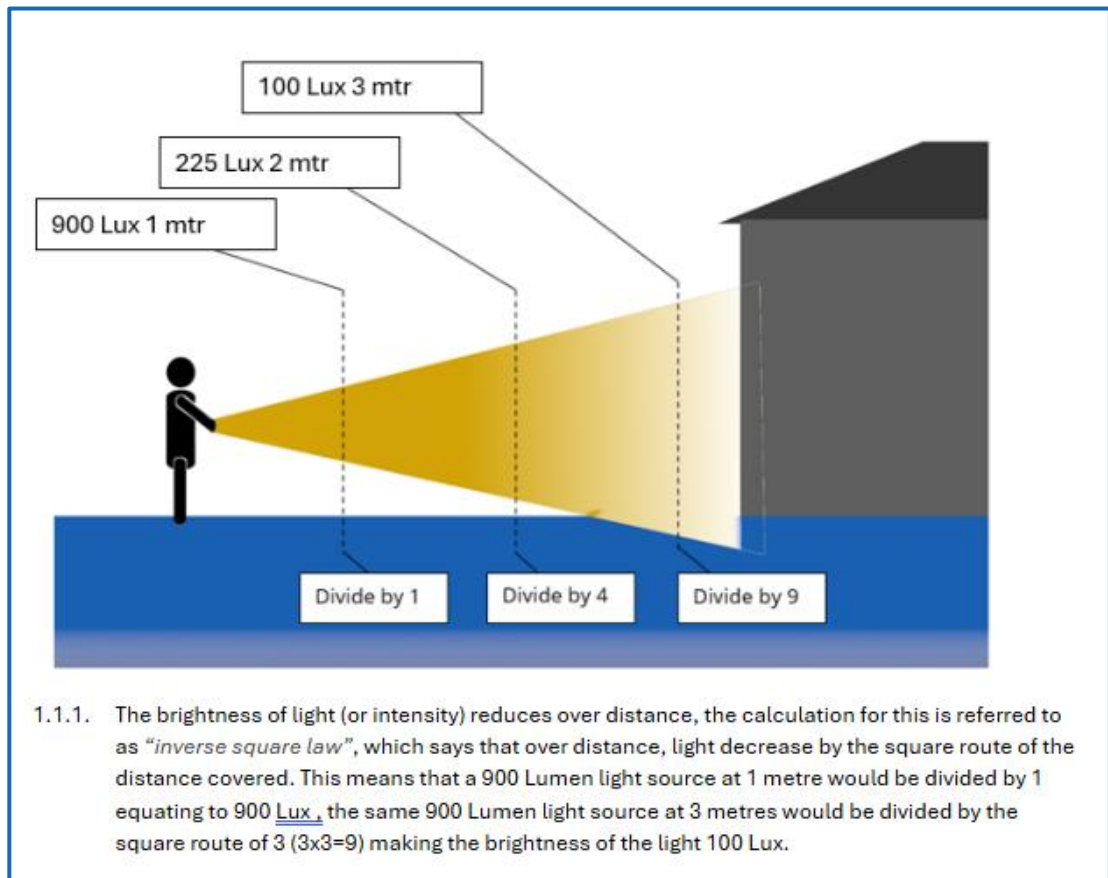


Figure 9: Inverse Square Law

- 7.3.4. Additionally, due to the low mounting heights (6 m), blocking factors such as buildings, woodland and the undulating landscape, and existing lighting (both on the Chemring Countermeasures site, High Post Business Park and other surrounding commercial and domestic sites) the cumulative effect of the proposed lighting will be barely noticeable in the wider environment. Consequently, the heritage receptors will not be assessed further in the remainder of the Lighting Strategy.

- 7.3.5. It should also be noted that there are two airfields in the vicinity of the Proposed Development, MOD Boscombe Down approximately 1.75 km to the northwest and Old Sarum Airfield approximately 3.4 km to the south, as shown in **Figure 10**.
- 7.3.6. Whilst MOD Boscombe Down Airfield and Old Sarum Airfield have been acknowledged as Potential Safety Receptors, they will not be assessed in this document, but CAP 738 Safeguarding of Aerodromes published by the UK Civil Aviation Authority should be considered,
- Any design considerations relating to lighting can be dealt with at the detailed design stage, if;
- “the safeguarding assessment identifies the need for planning conditions, the aerodrome operator should explicitly request such conditions in their response to the LPA”*
- 7.3.7. The Proposed Development is unlikely to cause any lighting-related issues due to its distance from both airfields. This is attributed to the low mounting height of 6 m and the fact that no obtrusive light will be emitted upwards, as confirmed by the luminaire specifications.

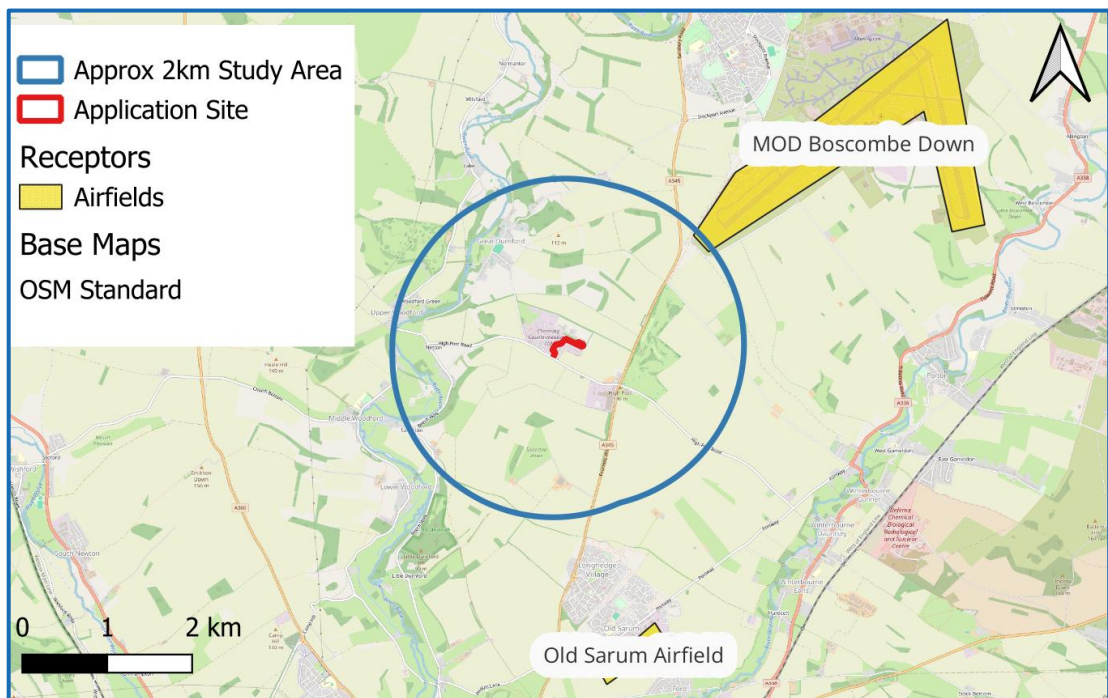


Figure 10: Airfield locations

8. LIGHTING STRATEGY

8.1. Summary

- 8.1.1. The Proposed Development will require lighting for safety and amenity at limited times during the hours of darkness. Lighting will be fit for purpose and sensitive to nearby human and ecological receptors.
- 8.1.2. Lighting will be of an appropriate specification and designed in accordance with British Standards.
- 8.1.3. Amenity lighting for the Proposed Development will be applied sensitively to account for the receptors identified bounding the Application Site and within the Proposed Development.
- 8.1.4. Luminaires will be used with integral LEDs and only where the luminaire photometry is available from the manufacturer. This is to ensure the photometric footprint of the luminaires can be modelled to ensure the potential effects of light spill are minimised or mitigated.
- 8.1.5. After an initial assessment it was decided it was not appropriate use the ASD Highway Diamond luminaire as specified in planning conditions relating to a previous planning application for land north of the Application Site (PL/2023/10638). The Highway Diamond is not suitable for illuminating a yard area in a sensitive fashion, it is mostly used for motorway lighting.
- 8.1.6. The following criteria seek to ensure that the lighting is not outside of the obtrusive light limits for the Environmental Zone in which the Application Site is located: is sensitive to the area and provides a recognised standard level of lighting for all adoptable areas requiring illumination. Luminaires will distribute light downwards only to reduce the potential for light spill onto the boundaries surrounding the buildings and upwards towards the sky.
- 8.1.7. All lighting, unless otherwise stated, is to emit a warm white colour temperature light (2700 Kelvin or less) to reduce the potential for adverse effects onto potentially sensitive receptors.
- 8.1.8. Lighting will be required in the following application areas:
 - > Rear and Delivery Yards
 - > Access Doors

8.2. Rear and Delivery Yards

- 8.2.1. The Rear and Delivery Yards will be illuminated in accordance with BS EN 12464-2:2024 for amenity and safety purposes. The lowest possible lighting levels are proposed within this Lighting Strategy.
- 8.2.2. A strip of around 6 m in length at the northern most part of each yard will not be lit to a British Standard lighting level, due to ecological concerns relating to the woodland beyond the northern boundary. However, these areas are well away from the warehouse roller shutter doors where most activity will be concentrated. They will likely be used for storage and accessed less frequently. Although, light levels will not comply with British Standards, they will be sufficient for safe functioning of these peripheral areas. Light levels in these northern yard strips, will range between 22 – 0.5 lux for the Rear Yard and 17 – 5 lux in the Delivery Yard.
- 8.2.3. Performance requirements for the Rear and Delivery Yards are outlined in **Figure 11**.
- 8.2.4. Following a risk assessment, the lighting class will remain as recommended in BS 5489-1:2020.

Table 17 — Industrial sites						
Ref. no.	Type of area, task or activity	$\bar{E}_m$ lx		U_o	R_{GL}	R_a
		required ^a	modified ^b			
17.1	Short-term handling of large units and raw materials, loading and unloading of solid bulk goods	20	—	0,25	55	70
17.2	Continuous handling of large units and raw materials, loading and unloading of freight, lifting and descending location for cranes, open loading platforms	50	—	0,40	50	70
17.3	Reading of addresses, covered loading platforms, use of tools, ordinary reinforcement and casting tasks in concrete plants	100	—	0,50	45	70
17.4	Demanding electrical, machine and piping installations, inspection	200	—	0,50	45	70
^a Required: minimum value.						
^b Modified: considers common context modifiers in 5.3.3.						

Figure 11: Performance Requirements

BS EN 12464-2:2024					
Area	Section	Requirements		MF used	Note
		Eav Lux	U_o		
Rear and Delivery Yards	17.1	20	0.25	0.81	Pass

Table 7: Design Parameters BS EN 12464-2:2024

Equipment Specification	
Application Area	Rear and Delivery Yards
Correlated Colour Temperature (Kelvin)	≤ 2700
Lumen Output (lm)	≤ 8910
Height (m)	≤ 6
Mounting Arrangement	Wall and column mounted
Luminaire Tilt (°)	0
Upward Light Output Ratio (%) E2 < 2.5%	0
Luminaire Manufacturer	Urbis Schreder (Or Similar Approved)
Luminaire family	Axia 3.2 5293 (Or Similar Approved)
Example Luminaire Image	
Light Spill Diagram reference	Type H & J
Controls ¹⁷	Solar time switch, on at dusk, off at the end of operational hours each day

Table 8: Luminaire Performance Requirements

¹⁷ Dimming: when dimming is applied it is announced as a percentage still in use of the total percentage output (dimmed too, not dimmed by).

8.3. Access Doors

- 8.3.1. The Access Doors for pedestrian entry into the warehouse will be illuminated for safety, security and amenity purposes only and not in accordance with any British Standard. Light output has been controlled by restricting the mounting heights and the use of motion sensor controls as detailed **Table 9**. The lowest practicable lighting levels are proposed within this Lighting Strategy.
- 8.3.2. Only the Access Doors on the southern elevation of the warehouse building will be illuminated. The access on the northern elevation will be left unlit due to ecological concerns linked to the woodland adjacent to the northern boundary.
- 8.3.3. Luminaires will distribute light downwards only, to reduce the potential for light spill onto the boundaries surrounding the buildings and upwards towards the sky.
- 8.3.4. Luminaire performance requirements are outlined in **Table 9**.

Equipment Specification	
Application Area	Access Doors (southern elevation only)
Correlated Colour Temperature (Kelvin)	≤ 2700
Lumen Output (lm)	≤ 2560
Height (m)	≤ 2.5
Mounting Arrangement	Wall mounted
Luminaire Tilt (°)	0
Upward Light Output Ratio (%) E2 < 2.5%	0
Luminaire Manufacturer	DW Windsor (Or Similar Approved)
Luminaire family	Kirium Wall Bulkhead
Example Luminaire Image	
Light Spill Diagram reference	Type I
Controls ¹⁸	Motion sensors, on for two minutes when presence is detected

Table 9: Luminaire Performance Requirements

¹⁸ Dimming: when dimming is applied it is announced as a percentage still in use of the total percentage output (dimmed too, not dimmed by).

9. SUMMARY OF RESULTS

9.1. Overview

- 9.1.1. The Light Spill Diagram shown in **Appendix 1 – Light Spill Diagram** and **Appendix 2 – Vertical Light Spill Diagram**, demonstrates that the Light Spill Levels associated with the proposed lighting would comply with the obtrusive light guidance set out in ILP GN01:2021, at sensitive receptors.
- 9.1.2. To ensure the worst-case scenario has been modelled, the highest potential light levels have been modelled / presented in the light spill diagram, with the project maintenance factors set at MF = 1.0¹⁹. This demonstrates the light levels at their highest (initial light levels at the start of luminaire life).

9.2. Summary of Results

- 9.2.1. The proposed lighting within the task area(s) is compliant to the relevant policies, standards and guidance.
- 9.2.2. Where ecological receptors are potentially sensitive to vertical light spill, a vertical illumination grid has been modelled, as shown in **Appendix 2 – Vertical Light Spill Diagram**. The light levels based on the modelling do not exceed 0.4 Lux, keeping the light levels within the guidance given within GN08:2023.
- 9.2.3. In line with section 4.56 of GN08:2023, the vertical grids will be mounted at a height of 1.5 metres above the ground level to simulate the likely flight path of a light sensitive bat.

Receptor No	GN08:2023 requirements	Maximum vertical Illuminance (Lux)	Notes
PSER 001	0.40 Lux	0.31	Compliant with GN08:2023 guidance

Table 10: PSER Results Table, Maximum Illuminance

¹⁹ <https://www.dfl-uk.com/knowledge-hub/faqs/>

9.2.4. Where human receptors are potentially sensitive to vertical light spill, a vertical illumination grid has been modelled, as shown in **Appendix 2 – Vertical Light Spill Diagram**. The light levels based on the modelling do not exceed 1 Lux, keeping the light levels within the guidance given within GN01:2021 for an area identified as an E2 environment.

Receptor No	GN01/2021 requirements		Maximum vertical Illuminance (Lux)	Notes
	Pre-curfew	Post-curfew		
PHAR 001	5 Lux	1 Lux	0.00	Compliant with GN01:2021 guidance

Table 11: PHAR Results Table, Maximum Illuminance

9.3. Mitigation and Enhancements

- 9.3.1. Careful design ensures the lighting has been minimised onto sensitive receptors in accordance with standards and guidance.
- 9.3.2. Where applicable, shields are proposed in particularly sensitive areas to further minimise spill.
- 9.3.3. Through the use of the control methods detailed in **Section 8**, the amount of light in the affected Application Area is to be restricted to the amount of time required for amenity and safety purposes only.
- 9.3.4. The detailed design is to be completed by a competent person or persons in accordance with the details within this Lighting Strategy.
- 9.3.5. Additional mitigation and enhancement are detailed in **Table 12**.

Mitigation/Enhancement	Method
Restricting the Upward Light Output Ratio	All luminaires will have an Upward Light Output Ratio (ULOR) of 0%
Restricting Luminaire Tilt	All luminaires will be installed with 0° tilt as standard
Restricting Correlated Colour Temperature (CCT) to 2700K	Colour temperature of all luminaires to be no greater than 2700K. This complies with GN08:2023 guidance safeguarding habitat for light sensitive species, protecting bats from negative effects of artificial lighting
Using Appropriate Optics for the areas being illuminated	The luminaire optic will be specific to the area being lit. This will ensure the task and area is lit to a standard level of light, while allowing lux contours to be shaped to specific areas
Only Using Luminaires where Photometry is available from the manufacturer	Luminaires will be used with integral LEDs and only where the luminaire photometry is available from the manufacturer. This is to ensure the photometric footprint of the luminaires can be modelled to ensure the potential effects of light spill are minimised or mitigated
Motion sensors	Bulkhead wall lights for pedestrian access to southern elevation of warehouse to be controlled by PIR. To operate for two minutes when presence detected

Table 12: Mitigation and Enhancements

10. CONCLUSION

10.1. General

10.1.1. Lighting associated with the Proposed Development shall be designed in accordance with the Lighting Strategy for the Application Site outlined in **Section 8**.

10.1.2. This Lighting Strategy has been written in accordance with the relevant British Standards, industry guidance and local policies to ensure it is unlikely to give rise to obtrusive light with the potential to affect human, environmental and ecological receptors.

10.1.3. Through the application of this Lighting Strategy sensitive receptors will not be adversely affected by obtrusive light, as shown in **Appendix 1 – Light Spill Diagram** and **Appendix 2 – Vertical Light Spill Diagram**.

10.1.4. The Lighting Strategy addresses objections raised by both Historic England and the Stonehenge, Avebury and Associated Sites World Heritage Site about the requirement of a lighting plan to properly assess the Proposed Development's impact on scheduled monuments and sites in the surrounding area. The heritage sites will not be adversely affected by obtrusive light or glare due to their distance from the Proposed Development as demonstrated by the Inverse Square Law (See Paragraph 7.3.3).

10.1.5. The Lighting Strategy provides technical specifications of lighting equipment, their locations and details such as mounting heights, outputs and tilts to allow an assessment of the Proposed Development's impact on the wider environment.

10.1.6. The Lighting Strategy (Section 8) and Appendix 1 – Light Spill Diagram address concerns regarding the impact on Potential Heritage Receptors (PHR), demonstrating that the effect on these sites is likely to be limited in impact. This outcome is attributed to various design considerations, including:

- Restricting mounting heights to a maximum of 6 m;
- Allowing no upward light to be emitted from the proposed lanterns: and
- Utilising a warm colour temperature of 2700K.

10.1.7. The presence of blocking factors such as buildings, woodland, and the undulating landscape also serves to obscure views of the lighting and mitigate its effect. The Application Site borders an area of woodland on the northern boundary that has been identified as potentially sensitive for bats. The Lighting Strategy protects this area of woodland by ensuring it is kept dark, safeguarding dark corridors around this section of the perimeter to maintain the interconnectivity of habitat for foraging and commuting bats in line with GN08:2023 guidance. The Lighting Strategy also guarantees the residential amenity of dwellings near the Application Site, meeting all requirements of GN01:2021 for an E2 Environmental Zone.

10.1.8. Through careful design and mitigation, this Lighting Strategy ensures the lighting installation at the proposed development will be in accordance with British Standards (BS EN 12464-2:2024), Industry Guidance (GN01:2021 and GN08:2023) and Local Policy (Policies 50, 51 and 57 of the Wiltshire Core Strategy).

APPENDIX 1 – LIGHT SPILL DIAGRAM

See accompanying document 4720-DFL-ELG-XX-LD-EO-13001-S3

APPENDIX 2 – VERTICAL LIGHT SPILL DIAGRAM

See accompanying document 4720-DFL-ELG-XX-CA-EO-13001-S3

APPENDIX 3 – SENSITIVE RECEPTORS

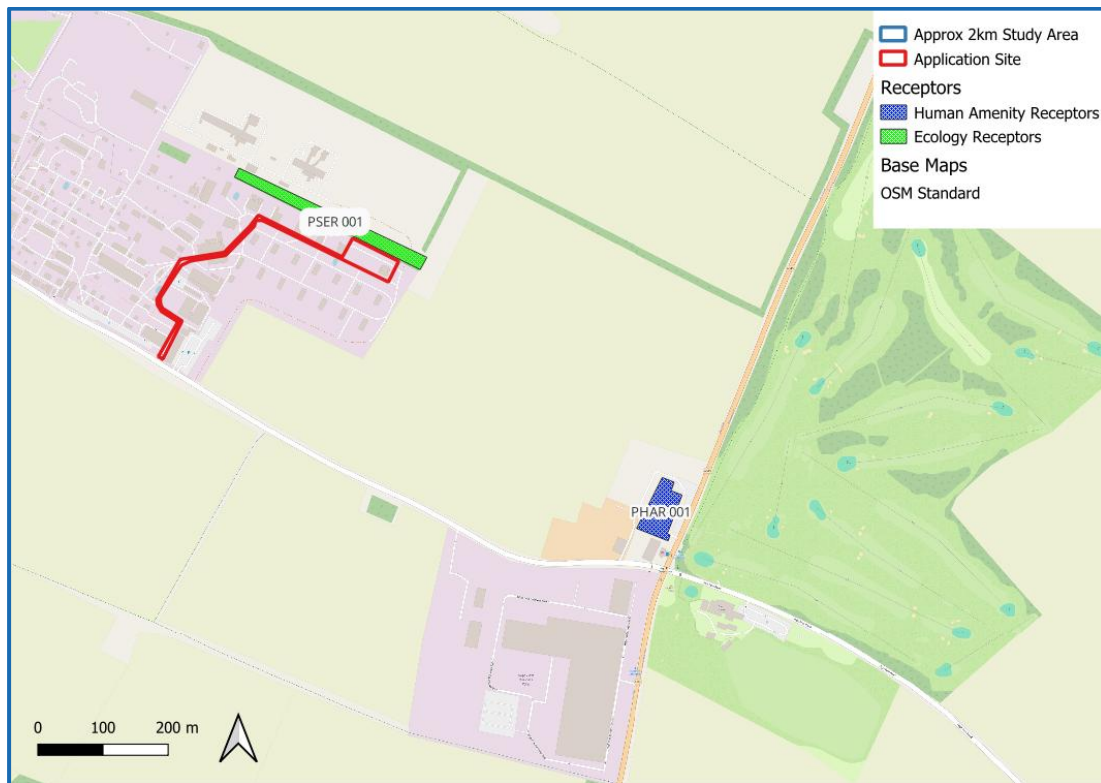


Figure 12: Sensitive Receptors

TECHNICAL DESCRIPTIONS, DEFINITIONS AND ABBREVIATIONS

PHAR: is an abbreviation for a potential human amenity receptor, a location where an observer could have the potential to be affected by the proposed lighting to be installed [Abbreviation used by DFL LI and P.](#)

PSER: is an abbreviation for an area identified as or treated as a location that may host a potentially sensitive ecological receptor. This is generally used where light sensitive bats have the potential to live, forage or use as a flight path, other ecologically sensitive receptors such as (but not limited to) the Great Crested Newt may also be identified by this term. [Abbreviation used by DFL LI and P.](#)

PSR: is an abbreviation for an area where an individual maybe susceptible to light brightness (Light intensity) which may have the potential to cause a hazardous situation. [Abbreviation used by DFL LI and P.](#)

Obtrusive Light: refers to excessive or bothersome artificial light that goes where it shouldn't, causing discomfort and disruption. *Spill light which because of quantitative, directional or spectral attributes in a given context gives rise to annoyance, discomfort, distraction or reduction in the ability to see essential information.* [CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.](#)

Sky glow: When lights are directed upwards or light is scattered by particles in the air, like dust or water droplets, it creates a glow that makes it hard to see stars. *The increase in diffuse illuminance of the night sky above that produced by natural sources such as the moon and visible star.* [CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.](#)

Vertical Illuminance: is how much light lands on upright surfaces like walls. It's measured in lux or footcandles and matters for places where the view from a vertical angle is important. *Lighting of vertical surfaces such as walls, windows, statues, sculptures and people's faces.* [CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.](#)

Correlated colour temperature (CCT): the appearance of light emitted by a light source measured in Kelvin (K), Lower CCT values such as 2700K represent warmer, more yellowish light, *similar to the light from older incandescent lamps. (Tcp)The temperature of the Planckian radiator whose perceived colour most closely resembles that of a given stimulus at the same brightness and under specified viewing conditions, measured in absolute temperature on the kelvin (K) scale.* [CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.](#)

Lux: measures the brightness of light as perceived by the human eye at a specific point on a surface. *The SI derived unit of illuminance, measuring luminous flux per unit area (1 lux = 1 lumen/m²).* [CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.](#)

Lumens: measure how bright a light appears to our eyes. The SI derived unit of luminous flux; a measure of the total quantity of visible light emitted by a source or received by a surface (unit: lumen). [CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.](#)

Glare: refers to an excess of bright light that makes you uncomfortable or hinders your vision. It happens when there's a big difference between a bright light and the rest of the surroundings. *Glare: condition of vision in which there is discomfort or a reduction in the ability to see details or objects, caused by an unsuitable distribution or range of luminance, or by extreme contrasts.* [BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.1.8](#)

Luminous intensity: is light brightness or how intense the light source is. light intensity is how intense a light source is emitted or received in a particular direction, this is measured candelas and is termed as luminous intensity *I_v <of a source, in a given direction> quotient of the luminous flux, $d\Phi_v$, leaving the source and propagated in the element of solid angle $d\Omega$ containing the given direction, by the element of solid angle (unit: $cd = lm \cdot sr^{-1}$.* [BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.2.](#)

Candela: is a measurement for the brightness of a light source, taking into account the direction in which the light is emitted. *Base unit of luminous intensity in the International System of Units (SI); the luminous power per unit solid angle emitted by a point light source in a particular direction.* [CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.](#)

Uniformity (Uo): is an explanation for the even distribution of light across an area or surface. The overall uniformity shall be calculated as the ratio of the lowest luminance, occurring at any grid point in the field of calculation, to the average luminance. [BS EN 13201-3-2015, Calculation of Performance Section 8.3.](#)

Luminance: is how bright a surface appears to our eyes. It considers the light coming from or reflected by an object. L_v <in a given direction, at a given point of a real or imaginary surface> quantity defined by the formula (unit: $\text{cd} \cdot \text{m}^{-2} = \text{lm} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$) [BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.3.](#)

Illuminance is how much light lands on a surface per square meter. It's measured in lux. More lux means a brighter area. E_v (unit: $\text{lx} = \text{lm} \cdot \text{m}^{-2}$) 1. <at a point of a surface> quotient of the luminous flux $d\Phi_v$ incident on an element of the surface containing the point, by the area dA of that element 2. <at a point of a surface> equivalent definition: integral, taken over the hemisphere visible from the given point, of the expression. [BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.10.](#)

Luminaire: a light fixture, this is also sometimes referred to as a lantern or a light fitting, is a product that produces artificial light. *apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply* [BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.3.3](#)

ULOR: upward light output ratio or ULOR refers to the amount of light the light fixture will produce upwards as a percentage of its total light output. *RULO <of a luminaire> ratio of the upward luminous flux of the luminaire, measured under specified practical conditions with its own lamp(s) and equipment, to the sum of the individual luminous fluxes of the same lamp(s) when operated outside the luminaire with the same equipment, under specified conditions* [BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.3.12.](#)

Maintenance factor (MF): is an allowance for how well the lights keep working overtime. It considers things like dirt on the light fittings and "wear and tear". *DEPRECATED: light loss factor ratio of illuminance produced by the lighting installation after a certain period to the illuminance produced by the installation when new* Note 1 to entry: The term depreciation factor has been formerly used to designate the reciprocal of the above ratio. Note 2 to entry: The maintenance factor takes into account light losses caused by dirt accumulation on luminaires and room surfaces (in interiors) or other relevant surfaces (in exteriors, where appropriate), and the decrease of the luminous flux of lamps. [BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.5.18.](#)

Tilt: is how much the luminaire is lifted based on the fitting facing flat to the ground.

Outreach: how far away the fitting is from the column/wall its mounted on to the light source.

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- **Public Realm** teams that are experts in enhancing night-time public spaces to create inviting spaces and opportunity for local economies to thrive during the hours of darkness.
- **Electrical** teams – we don't just put a light in the ground, we can help you get power to it as well! Additionally, we also offer design services for EV charging. As this market rapidly expands, make sure you have the experts managing the load, otherwise your EV charging solutions might not live up to expectations.
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