Forest Farm, Chippenham

LIGHTING IMPACT ASSESSMENT

DATE: 03.07.26

PROJECT No. 1523

PREPARED FOR:

Gleeson Land Ltd

Forest Farm, Chippenham

LIGHTING IMPACT ASSESSMENT

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Calculations and predictions of internal and external light spill to ecological dark zones rely on the accuracy of the lighting software, the modelling assumptions, and the implementation of the mitigation measures detailed in this report. The results should be viewed as predictions only, as they are subject to numerous variables. Therefore, although every effort has been taken to ensure the results are reliable, it cannot be guaranteed that the results calculated will be the same as in the real world. It is recommended that post monitoring is undertaken where dark zones are required to be maintained at certain levels of illuminance, and that allowance is made for further remedial action by the developer/ Client if required.

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1 Introduction

1.1 General

This Lighting Assessment is provided by The Lighting Bee Ltd, a specialist lighting design consultancy with experience and knowledge in lighting impact assessments, mitigation and lighting design in relation to light sensitive ecological receptors.

The author of this report is a fully qualified Lighting Designer and Chartered Electrical Engineer, with full membership of the Institute of Lighting Professionals, Society of Light and Lighting, and Chartered Institute of Building Services Engineers.

The Lighting Bee Ltd have been commissioned by Gleeson Land Ltd to undertake a Lighting Impact Assessment for the proposed development, at Forest Farm located in Chippenham.

1.2 Scope of the Report

This lighting assessment covers the lighting proposals for the *Outline planning application with all matters reserved except access from the A4/London Road for up to 600 dwellings, together with land for a local centre (Use Classes E and F), areas of open space and landscaping, and associated infrastructure*. Refer to the Illustrative Masterplan prepared for the site.

Wiltshire Council submitted a draft Local Plan for examination in November 2024. Following examination hearings in 2025, the Inspectors raised fundamental concerns regarding the soundness of the plan, including in relation to insufficient housing allocations, uncertainty over the deliverability of the plan's major housing proposals, and the risk that the plan would become out of date shortly after adoption.

Following further discussions, the draft Local Plan was withdrawn at Full Council on 19 May 2026.

Notwithstanding its withdrawal, the draft plan previously identified the Application Site as forming part of the South Chippenham allocation (Policy 7), which proposed a mixed-use development comprising approximately 2,520 dwellings, approximately 15ha of employment land, a district and local centre, education provision, and a transport corridor linking the A4 and the A350 (the Southern Distributor Road).

The withdrawal of the draft Local Plan was not attributable to any specific concerns relating to Policy 7 but instead reflected wider issues concerning the overall soundness and deliverability of the plan as a whole. The initial feasibility and technical work undertaken by the Council and the landowners confirm both the need, availability, and general acceptability of development at Forest Farm and the wider site for a mixed-use development.

This outline planning application has been prepared to bring forward development on this part of the site, previously identified and assessed by Wiltshire Council in the withdrawn Local Plan Review as suitable for housing-led development.

Land has been safeguarded within the Application Site to accommodate a section of the potential Southern Distributor Road. The safeguarded corridor has been retained to ensure that the proposed development would not prejudice its future provision.

The aim of this Lighting Impact Assessment is to provide an assessment of the impact of the external lighting from the proposed development in terms of obtrusive light, and onto sensitive ecological receptors.

An outline external lighting strategy has been prepared for the planning application stage of the development which details the types of lighting proposed in each area, with details of the parameters of the proposed luminaires. This strategy forms the basis of the assessment. A detailed design has not been prepared at this stage but will be prepared in accordance with this strategy and the parameters outlined.

An indicative street lighting strategy has been prepared for the access from the A4/London Road, and the S278 works required for the strategic cycle/ foot paths.

The lighting assessment will also identify potential impacts on light sensitive species identified in the Ecological Reports and will outline the proposed parameters and mitigation measures to limit and mitigate any potential negative effects from external lighting.

Within this report the proposed land take area will be referred to as the 'site'.

1.3 Structure of the Report

This report has been broken down into the following sections:

Section 2 – Outlines the relevant legislation, planning policy and guidance

Section 3 – Summarises the guidance for environmental zone classification and limiting parameters

Section 4 – Describes the assessment methodology and significance criteria

Section 5 – Contains the baseline lighting appraisal

Section 6 – Outlines the proposed external lighting for the proposed development

Section 7 - Provides an assessment of the potential night time effects of the site lighting on the sensitive receptors

Section 8 - Considers further mitigation proposals for the site

Section 9 - Considers the residual effects

Section 10 - Concludes the lighting impact assessment

1.4 Site Location

The site is located within the administrative boundaries of Wiltshire Council.

The application site extends to approximately 38.9 hectares and lies on the south eastern edge of Chippenham, to the south west of the A4 London Road. It comprises seven grassland fields associated with Forest Farm. The farm buildings centrally located on the site are excluded from the planning application boundary and will remain in agricultural use. An

access track to the farm buildings runs across the site from the A4 London Road. Hedgerows run along the site boundaries and between the fields. A small watercourse and several ditches run alongside the hedgerows. The site slopes gently from approximately 65 m above the Ordnance datum (AOD) in the north to around 55 m AOD in the south.

The site is bordered to the north by several dwellings and to the north east by the A4 London Road, beyond which lie Wedmore Farm, Stanley Park sports ground and more fields. An area of grassland and trees lie to the north west of the site, beyond which is the A4 Pewsham Way and the residential area of Pewsham. An area of woodland lies to the west of the site, while to the south and south east there are more fields.

2 Legislation, Planning and Policy Guidance

2.1 Legislative Background

Light pollution was introduced within the Clean Neighbourhoods and Environment Act (2005) as a form of statutory nuisance under the Environmental Protection Act (the 'EPA', 1990), which was amended in 2006 to include the following nuisance definition:

"(fb) artificial light emitted from premises so as to be prejudicial to health or nuisance."

Although light was described as having the potential to cause statutory nuisance, no prescriptive limits or rules are stated for impact assessment purposes. Guidance Notes for the Reduction of Obtrusive Light produced by the Institute of Lighting Professionals (ILP) has, therefore, been referred to for the purposes of this assessment.

Guidance produced by Defra, Statutory Nuisance from Insects & Artificial Light (2006) on s101to s103 of the Clean Neighbourhoods and Environment Act (2005) has also been referred to which places a duty on local authorities to ensure that their areas are checked periodically for existing and potential sources of statutory nuisances - including nuisances arising from artificial lighting. Local authorities must take reasonable steps to investigate complaints of such nuisances from artificial light. Once satisfied that a statutory nuisance exists or may occur or recur, local authorities must issue an abatement notice (in accordance with s80(2) of the EPA 1990), requiring that the nuisance cease or be abated within a set timescale.

2.2 Planning Policy Context

The National Planning Policy Framework (NPPF) 2024 states that the purpose of the planning system is to contribute to the achievement of sustainable development and constitute the Government's view on what sustainable development in England means in practice for the planning system. Paragraph 198(C) states that with regard to artificial lighting, planning policies and decisions should:

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

2.3 Local Policy

The site is located within the administrative boundary of Wiltshire Council. Although the Wiltshire Local Plan Review was withdrawn in May 2026, the Wiltshire Core Strategy (2015) remains part of the adopted Development Plan and the following policies continue to be relevant to the determination of planning applications.

Wiltshire Council Adopted Core Strategy (2015)

The site is located within the administrative boundary of Wiltshire Council. The Wiltshire Council Adopted Core Strategy (2015) contains Policy 51, which refers to the landscape character and the need to protect against intrusion from light pollution. See extracts below:

Policy 51 (Landscape) – Proposals 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:

Vii: Tranquillity and the need to protect against intrusion from light pollution, noise and motion.

Policy 57 refers to high quality design and placemaking, with reference to ensuring consideration is given to impacts from light pollution onto existing occupants, for example considering light intrusion. See extracts below.

Policy 57 (Ensuring high quality design and place shaping) – Applications for new development must be accompanied by appropriate information to demonstrate how the proposal will make a positive contribution of Wiltshire through:

Having a 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 consideration of privacy, overshadowing, vibration, and pollution (e.g. light intrusion, noise, smoke, fumes, effluent, waste or litter)

Chippenham Made Neighbourhood Plan (2024)

The Chippenham Made Neighbourhood Plan (2024) contains Policy G14, which refers to green corridors and states that:

All development located within, or adjacent to, the Green Corridors identified on Figure 6.3 must be designed to protect and enhance these Corridors by:

v) Avoiding the installation of new lighting where possible. Where it is deemed necessary to install new lighting it should comply with the Institute of Lighting Professionals minimum standards for Environmental Zone E2.

Refer to extracted image below.

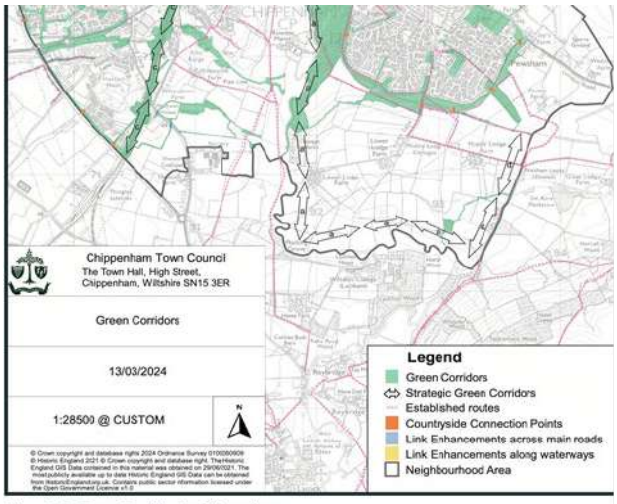


Figure 6.3: Green Corridors in Chippenham

2.4 International Guidance

Commission Internationale De L'Eclairage (CIE) 150: Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations (the 'CIE 150', 2017)

The purpose of CIE 150 is to aid in formulating guidelines for assessing the environmental effects of exterior lighting and to provide limits for relevant lighting parameters to control the obtrusive effects of exterior lighting to tolerable levels. CIE 150 also refers to the potentially adverse effects of exterior lighting on both natural and man-made environments.

CIE 126: Guidelines for Minimising Sky Glow (1997)

This document gives general guidance for lighting designers and policy makers on the reduction of sky glow. The report gives recommendations about maximum permissible values for exterior lighting installations. These values are regarded as limiting values. Lighting designers should strive to meet the lowest criteria for the design. Practical implementation of the general guidance is left to national regulations.

2.5 National Guidance

ILP Guidance Note for the Reduction of Obtrusive Light (GN 01/21)

The ILP has proposed lighting guidance and criteria for local authorities with a recommendation that these are incorporated at the local plan level. The ILP Guidance Notes define various forms of light pollution and describe a series of environmental zones. The ILP Guidance Notes provide suitable criteria against which the effects of artificial lighting can be assessed. This assessment has been based upon these criteria.

Institute of Lighting Professionals (ILP) (2013) PLG 04 Guidance on Undertaking Environmental Lighting Impact Assessments

The aim of this guidance is to outline good practice in lighting design and provide practical guidance on the production and assessment of lighting impacts from new developments.

Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT) (2023) Guidance Note 08/ 23 Bats and Artificial Lighting At Night

This guidance document was jointly published in 2018 by the ILP and BCT, and subsequently updated in 2023. It is intended to raise awareness of the impacts of artificial lighting on bats, and mitigation is suggested for various scenarios.

3 Environmental Zone Classification and Parameters

All standards consulted in section 2 are nationally recognised documents, (some internationally, also) which deal with all design issues associated with external lighting.

3.1 Environmental Zoning

The CIE Standards, the ILP, CIBSE and the Society of Light & Lighting guidance documents all apply a common Environmental Zoning system, which is summarised in Table 3.1 below.

TABLE 3.1: ENVIRONMENTAL ZONES

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO Starlight Reserves, IDA Dark Sky Parks/ Places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhibited rural areas. National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low District brightness (SQM 15 to 20)	Sparsely inhabited rural areas. Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural or urban settlements. Small town centres or suburban locations
E4	Urban	High district brightness	Town/City centres and other commercial areas with high levels of night-time activity

3.2 Obtrusive Light Limitation for Exterior Lighting Installations

The ILP Guidance Note for the Reduction of Obtrusive Light (GN 01/21) provide guidelines and threshold values applicable to each Environmental Zone, which are reproduced in tables 3.2 – 3.7 with associated notes.

Table 3.2 aims to address light intrusion by providing maximum values of vertical illuminance on properties. Limits apply to nearby dwellings, or potential dwellings, more specifically to their relevant surfaces or parts of surfaces, especially where windows are located. This parameter can also be considered for the management of spill light.

Table 3.3 aims to limit the luminous intensity of bright luminaires. It shows the maximum values for the luminous intensity of luminaires in designated directions where views of bright surfaces of luminaires are likely to be a nuisance to occupants of premises or from positions where such views are likely to be maintained, that is, not momentary or short-term.

Table 3.4 aims to limit the effects on transport systems, applying limits where users of road networks are subject to a reduction in the ability to see essential information.

Tables 3.5 and 3.6 aim to limit the effects of sky glow. The limits in table 3.5 represent the primary approach. The limits in table 3.6 should only be considered in certain scenarios as described.

Table 3.7 aims to limit the effect of over-lit building facades and signs. For illuminated advertising signs the aim should be to achieve the limits advised in PLG05.

TABLE 3.2: Maximum values of vertical illuminance on properties

Light technical parameter	Application conditions	Environmental Zones				
		E0	E1	E2	E3	E4
Illuminance in vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Note: * If the installation is for public (road) lighting then this may be up to 1 lx.

TABLE 3.3: Limits of the luminous intensity of luminaires in designated directions							
Light technical parameter	Application conditions	Luminaire group (projected area A_p in m^2)					
		$0<A_P \leq 0.002$	$0.002<A_P \leq 0.01$	$0.01<A_P \leq 0.03$	$0.03<A_P \leq 0.13$	$0.13<A_P \leq 0.50$	$A_P>0.5$
Maximum luminous intensity emitted by luminaire (I in cd)	**E0**						
	Pre-curfew	0	0	0	0	0	0
	Post-curfew	0	0	0	0	0	0
	E1						
	Pre-curfew	0.29 *d*	0.63 *d*	1.3 *d*	2.5 *d*	5.1 *d*	2,500
	Post-curfew	0	0	0	0	0	0
	E2						
	Pre-curfew	0.57 *d*	1.3 *d*	2.5 *d*	5.0 *d*	10 *d*	7,500
	Post-curfew	0.29 *d*	0.63 *d*	1.3 *d*	2.5 *d*	5.1 *d*	500
	E3						
	Pre-curfew	0.86 *d*	1.9 *d*	3.8 *d*	7.5 *d*	15 *d*	10,000
	Post-curfew	0.29 *d*	0.63 *d*	1.3 *d*	2.5 *d*	5.1 *d*	1,000
	E4						
	Pre-curfew	1.4 *d*	3.1 *d*	6.3 *d*	13 *d*	26 *d*	25,000
	Post-curfew	0.29 *d*	0.63 *d*	1.3 *d*	2.5 *d*	5.1 *d*	2,500
Aid to gauging A_P		2 to 5cm	5 to 10cm	10 to 20cm	20 to 40cm	40 to 80cm	>80cm
Geometric mean of diameter (cm)		3.2	7.1	14.1	26.3	56.6	>80
Corresponding A_P representative area (m^2)		0.0008	0.004	0.016	0.063	0.251	>0.5

Notes:

1. *d is the distance between the observer and the glare source in metres;*
2. *A luminous intensity of 0 cd can only be realised by a luminaire with a complete cutoff in the designated directions;*
3. *A_P is the apparent surface of the light source seen from the observer position*
4. *For further information refer to Annex C of CIE 150*
5. *Upper limits for each zone shall be taken as those with column Ap>0.5*

TABLE 3.4: Maximum values of threshold increment and viewing direction in the path of travel				
Light technical parameter	Road classification*			
	No road lighting	M6/M5	M4/M3	M2/M1
Veiling luminance† (L_v)	0.037 cd/m²	0.23 cd/m²	0.40 cd/m²	0.84 cd/m²
Threshold increment	15% based on adaption luminance of 0.1 cd/m²	15% based on adaption luminance of 1.0 cd/m²	15% based on adaption luminance of 2.0 cd/m²	15% based on adaption luminance of 5 cd/m²

Notes:
** Road classifications as given in CIE 115:2010*
† The veiling luminance values specified in this table are based upon on a permissible TI value of 15%

Definitions:
TI *The measure of disability glare (the reduction in visibility caused by intense light sources in the field of view) expressed as the percentage increase in contrast required between an object and its background for it to be seen equally well with a source of glare present. Note: Higher values of TI correspond to greater disability glare.*
L_v *The luminance that would need to be superimposed on a scene in object space to reduce the scene's contrast by an amount equal to the added retinal illuminance from scattered light on the scene's retinal image. It is most commonly used to describe the contrast-reducing effect of a glare source in the field of view.*

TABLE 3.5: Maximum values of upward light ratio (ULR) of luminaires					
Light technical parameter	Environmental Zones				
	E0	E1	E2	E3	E4
Upward light ratio (ULR)/%	0	0	2.5	5	15

Note:
1. *This is the primary approach to limit skyglow and is suitable to compare different single luminaires and mitigate the contribution of each luminaire within an installation.*
2. *This does not take into account the effect of light reflected upwards from ground that also contributes to sky glow.*
3. *Some lighting schemes will require the deliberate and careful use of upward light, e.g. ground recessed luminaires, ground mounted floodlights and festive lighting, to which these limits cannot apply. However, care should always be taken to minimise any upward waste light by the proper application of suitably directional luminaires and light controlling attachments*

TABLE 3.6: Maximum values of upward flux ratio of installation (of four or more luminaires).						
Light technical parameter	Type of installation	Environmental Zones				
		E0	E1	E2	E3	E4
Upward flux ratio (UFR)/%	Road	n/a	2	5	8	12
	Amenity	n/a	n/a	6	12	35
	Sports	n/a	n/a	2	6	15

Notes:

- *The table allows the effect of both direct and reflected upward components of a whole installation to be considered. The factor being the upward flux ratio (UFR).*
- *n/a within the table denotes that lighting of this type is not usually expected within these zones*
- *This should only be considered where an installation consists of four or more luminaires that form an installation with a defined performance requirement or specialised fauna growth lighting systems (such as those use to promote grass growth in sports stadia) and is in proximity to:*
    - *Optical observatories*
    - *Lies within dark (E1) zones which abuts a protected (E0) dark sky zone*
- *The effect of distance must be considered which is a factor of the artificial lighting installation size. A small lighting installation will have an effect on an optical observatory 30km away whereas a large lighting installation of many luminaires will have an effect from a greater distance up to 100km. Specific guidance is given in CIE126 and CIE150.*
- *All external surfaces will have varying reflectances depending upon their condition and climatic conditions (wet, dry, frost etc,) as well as their varying angles, therefore the level of uncertainty in any assessment may be considerable.*
- *Clauses 6.4.2 and 6.4.3 of CIE 150:2017 describe the calculation methods for both ULP and UFR.*
- *Light emitted just above the horizontal in a zone between 90° and 110° is extra critical for sky glow in large open areas around observatories. An additional measure in these areas limits the luminous intensities ($I_{90} – I_{110}$) as follows:*
    - *between 90° and 100° < 0.5 cd/1000lm;*
    - *between 100° and 110° 0 cd.*
- *All proposed luminaires must have been photometrically measured so that results can be verified for Gamma angles 0 to 180°.*

TABLE 3.7: Maximum permitted values of average surface luminance (cd/m^2)						
Light technical parameter	Application conditions	Environmental Zones				
		E0	E1	E2	E3	E4
Building façade luminance (L_b)	Taken as the product of the design average illuminance and reflectance divided by π	< 0.1	< 0.1	5	10	25
Sign luminance (L_s)	Taken as the product of the design average illuminance and reflectance divided by π, or for self-luminous signs, its average luminance	< 0.1	50	400	800	1000

Note:
The values apply to both pre- and post-curfew, except that in zones 0 and 1 the values shall be zero post curfew. The values for signs do not apply to signs for traffic control purposes. For illuminated advertising signs the aim should be to achieve the limits advised in PLG05.

4 Assessment Methodology and Significance Criteria

4.1 Scope of Assessment

The existing baseline conditions on site and in the surrounding area have been surveyed and assessed.

The extent of the study area for this assessment includes the Site and its immediate surroundings and the key sensitive receptors which may be subject to a change in the existing lighting conditions. Sensitive receptors may include local residents, ecological receptors, the night-time amenity, and road users.

Night-time visual impacts are not included in the scope of this report.

4.2 Methodology for Baseline Lighting Survey

Day and night-time site visits were undertaken on 5th and 6th February 2025 to ascertain the current baseline lighting conditions. A record was made of the types of lighting installations present or light sources visible, within the Site and the surrounding area.

The weather conditions were dry with partial cloud, with a First Quarter/ Waxing Gibbous Moon (52%/ 63%). Night-time measurements were taken between 6pm and midnight.

Natural ambient light from moon light will have an additive effect to the lighting levels measured during the survey depending on the phase of the moon and sky conditions. The typical level of illuminance at ground level from a full moon on a clear night in the UK is 0.35 lux.

The viewpoint and survey locations were selected to establish the current lighting conditions within the site and surrounding area.

30 survey locations were selected along the boundary of the site to provide an understanding of the lighting levels within the site. These locations are denoted by the prefix L, and are listed in Table 4.1.

TABLE 4:1: SURVEY LOCATIONS

Survey Location Reference	Survey Location GPS Coordinates
L01	ST 93761 71353
L02	ST 93630 71381
L03	ST 93682 71465
L04	ST 93602 71618
L05	ST 93495 71754
L06	ST 93603 71847
L07	ST 93569 71904
L08	ST 93618 71958

TABLE 4:1: SURVEY LOCATIONS	
Survey Location Reference	Survey Location GPS Coordinates
L09	ST 93687 72002
L10	ST 93719 71986
L11	ST 93769 72047
L12	ST 93857 71982
L13	ST 93887 72027
L14	ST 93961 71973
L15	ST 94057 71901
L16	ST 94190 71805
L17	ST 94196 71797
L18	ST 94283 71774
L19	ST 94304 71770
L20	ST 94425 71729
L21	ST 94357 71605
L22	ST 94376 71579
L23	ST 94259 71522
L24	ST 94133 71473
L25	ST 94144 71356
L26	ST 94292 71332
L27	ST 94315 71275
L28	ST 94131 71289
L29	ST 93944 71323
L30	ST 94010 71929

16 viewpoint locations were chosen that correspond to the Landscape and Visual Impact Assessment (LVIA) as these have been identified to represent sensitive receptors. These are denoted by the prefix VP, and are listed in Table 4.2.

TABLE 4.2: VIEWPOINT SURVEY LOCATIONS	
Survey Location Reference	Survey Location Description
VP01	ST 93467 71771
VP02	ST 93601 71845
VP03	ST 93916 71329
VP04	ST 93727 71177
VP05	ST 93712 71180

VP06	ST 94447 71075
VP07	ST 93780 72120
VP08	ST 94101 71884
VP09	ST 94560 71686
VP10	ST 96323 72927
VP11	ST 94411 70169
VP12	ST 94743 69947
VP13	ST 94763 70506
VP14	TS 94220 70015
VP15	ST 94090 69447
VP16	ST 94447 71075

Refer to drawing 1523-LB-EX-XX-SU-E-7080-01 in Appendix B for Lighting Baseline Survey Location Plan. Refer to the Photoviewpoints Location Plan provided by EDP within the LVIA.

Measurements of point illuminance were recorded at each of the survey locations. These were recorded horizontally on the ground at each location, and at 1.5m in the vertical plane in the four compass directions, North, South, East and West. Measurements were taken using a calibrated Konica Minolta T-10A Illuminance Meter (Serial no: 30018095/20016053).

4.3 Method for Assessing Proposed Lighting

A lighting strategy is outlined in Section 6, which forms the basis of the assessment.

For the outline element, it is not possible to provide modelling, calculations or lux contour plans for the site at this stage, as sufficient detail of the development is not available to enable this.

The only lighting calculations undertaken are an indicative street lighting strategy for the S278 works, including the site access, and changes to Pewsham Way to accommodate the new cycle/ foot paths.

A review of the site proposals has been undertaken, taking into consideration the lighting requirements, Illustrative Masterplan, Illustrative Landscape Strategy, and Parameter Plans.

4.4 Impact Assessment and Significance Criteria

The effect attributed to each impact has been based on the magnitude of change as a result of the Proposed Development. The criteria used to assess the effects of artificial lighting has been derived from the Institute of Lighting Professionals (ILP) (2021) Guidance Notes for the Reduction of Obtrusive Light and PL04 Guidance on Undertaking Environmental Lighting Impact Assessments and is shown in Tables 4.3 - 4.6.

This methodology assesses potential impacts on receptors sensitive to light associated with the Proposed Development in comparison with the existing baseline conditions. The approach to this impact assessment is outlined below:

- The nature of a receptor (receptor/ resource sensitivity) was classified as either high, medium, or low based on the criteria shown in Table 4.3;
- The potential magnitude of impact is described as high, medium, low or negligible based on the criteria shown in Table 4.4;
- The classification of effects associated with the Proposed Development are then assessed as major, moderate, minor, or negligible, in accordance with the matrix shown in Table 4.5 ; and
- These effects are then described as significant or not significant according to the definitions set out in Table 4.6.

4.4.1 Sensitivity of a Receptor

There is currently no specific guidance on determining the sensitivity of a receptor in terms of lighting impact. Therefore, for the purpose of this assessment it has been based on the descriptions shown in Table 4.3. When considering natural resources/ receptors such as the effect on an area in terms of sky glow, it is deemed appropriate to assign sensitivity based on the current baseline conditions and Environmental Zone, with the highest sensitivity being applied to an E0 intrinsically dark zone, and the least to an E4 urban zone. The Environmental Zones are defined in section 5.1 and the classification of sensitivity of natural resources / receptor will correspond to each Environmental zone as shown in Table 4.3 below. For other receptors such as residential receptors the description will be used to determine sensitivity.

TABLE 4.3: SENSITIVITY CRITERIA	
Sensitivity	Description of Criteria
High	The receptor/ environment is fragile, and has limited capability to accommodate change in artificial light conditions without fundamentally altering its present state or character, or is of international or national importance. Recovery would be difficult or impossible. Human (Amenity) – receptors which are sensitive to a change in lighting such that the quality of life would be affected (i.e. lighting is designated a statutory nuisance) Human (Safety) - receptors where a change in the lighting has the potential to either dramatically improve or reduce safety (for pedestrians, drivers or workers). Natural Receptors i.e., Artificial Sky Glow – Sensitivity of receptor based on assigned Environmental Zone – E0 or E1 Ecological – where a change in the lighting affects the habitats, breeding or feeding of fauna (e.g. protected habitats or other special areas) or growth patterns of fauna / crops.
Medium	The receptor/ environment has moderate ability to accommodate change in artificial light conditions without significantly altering its present state/ character. The receptor/ environment has a degree of adaptability and resilience and is likely to accommodate the changes caused by an impact, although there may still be some residual modification as a result. Human (Amenity) – receptors which are sensitive to a change in lighting however not such that the quality of life would be affected. Human (Safety) - receptors where a change in the lighting has the potential to either improve or reduce safety (for pedestrians, drivers or workers). Natural Receptors i.e., Artificial Sky Glow – Sensitivity of receptor based on assigned Environmental Zone – E2 Ecological – where a change in the lighting affects the movement or feeding patterns of fauna but the receptor can adapt.
Low	The receptor/ environment is tolerant of and can accommodate change in artificial light conditions without detriment to its character, or is of low or local importance. The receptor/ environment is adaptable and is resilient to change. Nearly all impacts can be absorbed within it without modifying the baseline conditions. Human (Amenity) – receptors which would not noticeably be aware of a change in lighting. (i.e. in areas of medium to high luminance) Human (Safety) - receptors where a change in the lighting has limited potential to affect safety (for pedestrians, drivers or workers). Natural Receptors i.e., Artificial Sky Glow – Sensitivity of receptor based on assigned Environmental Zone – E3 or E4 Ecological – area with limited wildlife.

4.4.2 Magnitude of Impact

The impact magnitude is considered to be a function of extent, duration, frequency and reversibility, and these aspects have been considered in the criteria. The criteria described in Table 4.4 have been used.

TABLE 4.4: MAGNITUDE OF CHANGE CRITERIA	
Magnitude of Change	Description
High	Significant deterioration/ improvement in local conditions or circumstances. A large change compared to the natural variations in background levels. A clear breach of limits and standards may occur. For example, levels of obtrusive light in the form of sky glow, light trespass or glare towards a receptor which exceeds the limits set within the ILP guidance for a higher environmental zone might classify as a high magnitude of change. For example, for ecological receptors levels of illuminance predicted in designated dark zones far exceed the levels recommended by current ILP/BCT guidance.
Medium	Readily apparent change in conditions or circumstances. Change which is noticeable and may be a breach of limits and standards. In terms of the limits set in the ILP guidance this might equate to exceeding the limit but within the limits set for the next Environmental Zone. For example, for ecological receptors levels of illuminance predicted in designated dark zones slightly exceed the levels recommended by current ILP/BCT guidance.
Low	Perceptible change in conditions or circumstances.
Negligible	No discernible change in conditions or circumstances

4.4.3 Classification of Effects

The classification of effects associated with the Proposed Development are then assessed as major, moderate, minor, or negligible, using the matrix shown in Table 4.5 as a guide:

TABLE 4.5: CLASSIFICATION OF EFFECTS				
Sensitivity of Receptor	Magnitude of Change			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor to Negligible
Medium	Major	Moderate	Minor to Moderate	Negligible
Low	Moderate	Minor to Moderate	Negligible	Negligible

4.4.4 Significance Criteria

The threshold values stated in the obtrusive light standards and guidance (refer to section 3.3) aim to control obtrusive light by limiting:

- the illumination on surrounding properties, referred to as light intrusion, and limited by the vertical illuminance measured typically at the window of a neighbouring property;
- bright luminaires in the field of view, referred to as glare, and limited by the luminous intensity in designated directions;
- sky glow, limited by upward light ratio (ULR) and upward flux ratio (UFR); and
- the effects of over lit building facades and signs, limited by the average luminance on the surface.

These parameters form the primary basis for considering potential effects from artificial lighting and defining the effect criteria (refer to Table 4.7). However, this assessment also gives consideration to light spill, 'over' lighting, energy consumption and the effect on flora and fauna, as these are also identified as being of environmental concern with regard to lighting installations. The distant view of light across the landscape, particularly in rural or dark landscapes (Light Presence), is another consideration; however this aspect is covered by the Landscape and Visual Impact Assessment for the project.

These factors are described in more detail below.

Light Intrusion (into windows)

Light intrusion is light that impacts on to a surface outside of the area designed to be lit by the installation concerned. It is somewhat subjective because it is difficult to define when, where and how much light is unwanted. An example of light intrusion is when spill light from a streetlight enters a window and illuminates an indoor area. The ILP guidance specifies limits for light intrusion entering windows in terms of environmental zones. The values in the table are the suggested maximum and need to also take into account the existing light intrusion at the point of measurement. Light intrusion is measured in illuminance on the vertical plane. Other forms of light intrusion are not specifically limited in the guidance, however it is becoming increasingly common to assess light spill at the boundary of a development, especially in ecologically sensitive areas.

Light spill

Light spill, sometimes referred to as stray light, is light emitted by a lighting installation, which falls outside the boundary of the property on which the installation is sited. This is usually measured in illuminance on a horizontal plane.

Glare

Glare is the uncomfortable brightness of a light source against a darker background. It can cause discomfort or a reduction in the ability to see details or objects, caused by an unsuitable distribution or range of luminance, or to extreme contrasts.

The ILP guidance sets limits for the luminous intensity in designated directions for each luminaire in a potentially obtrusive direction, outside of the site being lit, in an attempt to control glare. It should only be applied to viewing directions that are likely to cause discomfort or disability glare. The guidance suggests that glare should be minimised by ensuring that the main beam angle of all lights directed towards any potential observer is not more than 70 degrees.

Sky Glow

Sky glow is the brightening of the night sky caused by outdoor lighting and natural atmospheric and celestial factors. Outdoor lighting contributes to sky glow by producing light that is either emitted directly upward by luminaires or reflected from the ground. This light is then scattered by dust and gas molecules in the atmosphere, producing a luminous background. The part of the sky glow which is attributed to man-made sources of luminous radiation is called Artificial Sky Glow. (Note: this assessment considers the impact of artificial sky glow only)

A major effect of sky glow at night is to reduce contrast in the sky. It has the effect of reducing one's ability to view the stars. This is the most pervasive form of light pollution and can affect areas many miles from the original light source.

Sky glow is highly variable depending on immediate weather conditions, quality of dust and gas in the atmosphere, amount of light directed skyward, and the direction from which it is viewed.

Measuring and predicting sky glow from artificial lighting is a very challenging task due to the number of factors involved. Sky glow caused by artificial light can be minimised by limiting the upward light output of luminaires used in a lighting installation, and limiting the amount of reflected light from the installation by considering the levels of illuminance provided to the areas being lit, and reflectance of surfaces being lit and in the immediate surrounding areas.

Building and Signage Luminance

Building and signage luminance should be limited to avoid 'over' lighting and to relate to general district brightness. Building luminance is applicable to buildings directly illuminated as a night time feature as opposed to the illumination of a building caused by spill light from adjacent luminaires or luminaires fixed to the building but used to light an adjacent area.

Over' Lighting

'Over' lighting is when an area is lit to a higher level of illuminance than the task/use requires. It is identified by the ILP guidance as being a major cause of obtrusive light and for wasting energy. Good design practice and adherence to the published lighting standards prevents 'over' lighting areas, which in turn helps to minimise upward reflected light.

Energy Consumption

Consideration should be given to the energy efficiency of the existing lighting installed on site and to minimising the energy consumption of any proposed lighting. Energy efficient luminaires, light sources and lighting controls should be selected.

The Effect on Flora and Fauna

Liaison with the project ecologist is required to identify any light sensitive receptors in terms of flora and fauna, so an assessment of the effect can be established.

TABLE 4.6: SIGNIFICANCE CRITERIA			
Nature	Level of significance	Descriptions	Remedial Needs
Positive	Major / substantial beneficial effects (Significant)	Substantial reduction in obtrusive light at sensitive receptors such that large scale improvements to visual amenity, human safety or health is delivered, with a noticeable or major improvement in baseline conditions. Significantly improves ecological habitats.	None
	Moderate beneficial effects (Significant)	Moderate reduction in obtrusive light at sensitive receptors such that noticeable improvements to visual amenity, human safety or health are delivered, resulting in moderate improvement to in current baseline conditions. Improves ecological habitats.	
	Minor beneficial effects (Not Significant)	Minor reduction in obtrusive light at sensitive receptors such that perceptible improvements to visual amenity, human safety or health is delivered, resulting in perceptible improvement to in current baseline conditions. Perceptible improvement to ecological habitats.	
Neutral	None / negligible (Not Significant)	No appreciable effect on sensitive receptors, and effects are within the recommended ILP guidance levels for the environmental zone, and/ or overall effects balancing out, resulting in a negligible or barely discernible change to current baseline conditions.	None
Negative	Minor adverse effects (Not Significant)	Minor increase in obtrusive light at sensitive receptors which are slightly above recommended CIE guidance levels but where current uses could still be maintained, such as an increase in Glare, Light Trespass to properties, increase in Sky Glow or effects on flora and fauna. Resulting in a perceptible change in baseline conditions.	Develop appropriate levels and type of mitigation
	Moderate adverse effects (Significant)	Moderate increase in obtrusive light at sensitive receptors such as an increase in Glare, Light Trespass to properties, increase in Sky Glow or effects on flora and fauna. Requires monitoring and local remedial work. For example, lighting which is visible and causes nuisance to a sensitive receptor outside the Application Site. Resulting in a noticeable change in baseline conditions.	
	Major adverse effects (Significant)	Major increase in obtrusive light at sensitive receptors such as an increase in Glare, Light Trespass to properties, increase in Sky Glow or effects on flora and fauna. Requires extensive remedial works. For example, a floodlighting installation which directs light into the eyes of oncoming motorists causing disability glare and potential reduction in visual performance leading to an increased risk of collision. Resulting in a major effect on baseline conditions.	

5 Environmental Baseline

5.1 Assessment of Existing Environmental Zones

The site has been assessed to be located within Environmental Lighting Zone E2, in accordance with a low district brightness area, broadly characteristic of a sparsely inhabited rural area.

The area to the north west of the site is assessed to be Environmental Zone E3 in accordance with a medium district brightness suburban area, associated with Pewsham, and Chippenham further to the north west.

The areas to the south, east, and north of the site are assessed to be Environmental Zones E2, in accordance with low district brightness rural areas, although it should be noted that the lighting from Stanley Park Sports Ground far exceeds the lighting parameters/ conditions expected within an E2 zone.

All the viewpoint locations are considered to be classified as Environmental Zone E2, following the baseline survey. VP01 and VP07 may be considered to be located on the boundary of an Environmental Zone E3. However, these are still classed as an E2 designation for assessment purposes, as the guidance on undertaking environmental lighting impact assessments states that the zone with more stringent limitations should be applied in this type of circumstance.

This assessment has been based on the ILP guidance (refer to table 3.1), and the results of the baseline lighting survey.

5.2 Baseline Conditions within the Site and Surrounding Area

The Application Site comprises of seven grassland fields, and is currently unlit.

The farm buildings centrally located on the site are excluded from the planning application boundary and will remain in agricultural use. There is small amount of lighting to the residential properties among the farm buildings, and some floodlighting to the yard area. This lighting was not operational at the time of the survey.

There is existing LED street lighting to London Road to the north east and Pewsham Way to the north west.

Stanley Park sports ground lies beyond the A4 London Road to the north east of the site. This has a large amount of external lighting, including building mounted bulkheads and sports pitch floodlighting, which impact onto the site.

The site is bordered to the north by several dwellings. One of these properties has windows that are directly adjacent to the site boundary, and another has external solar lighting fitted to the fence within the garden. Other forms of external lighting appear to be limited in this area.

Section 5.3 details the measurements of illuminance recorded at each survey location within the site. The measurements recorded show that the majority of the site is dark (<0.5 lux), with the exception the boundary with the A4 London Road, and the area opposite Stanley Park

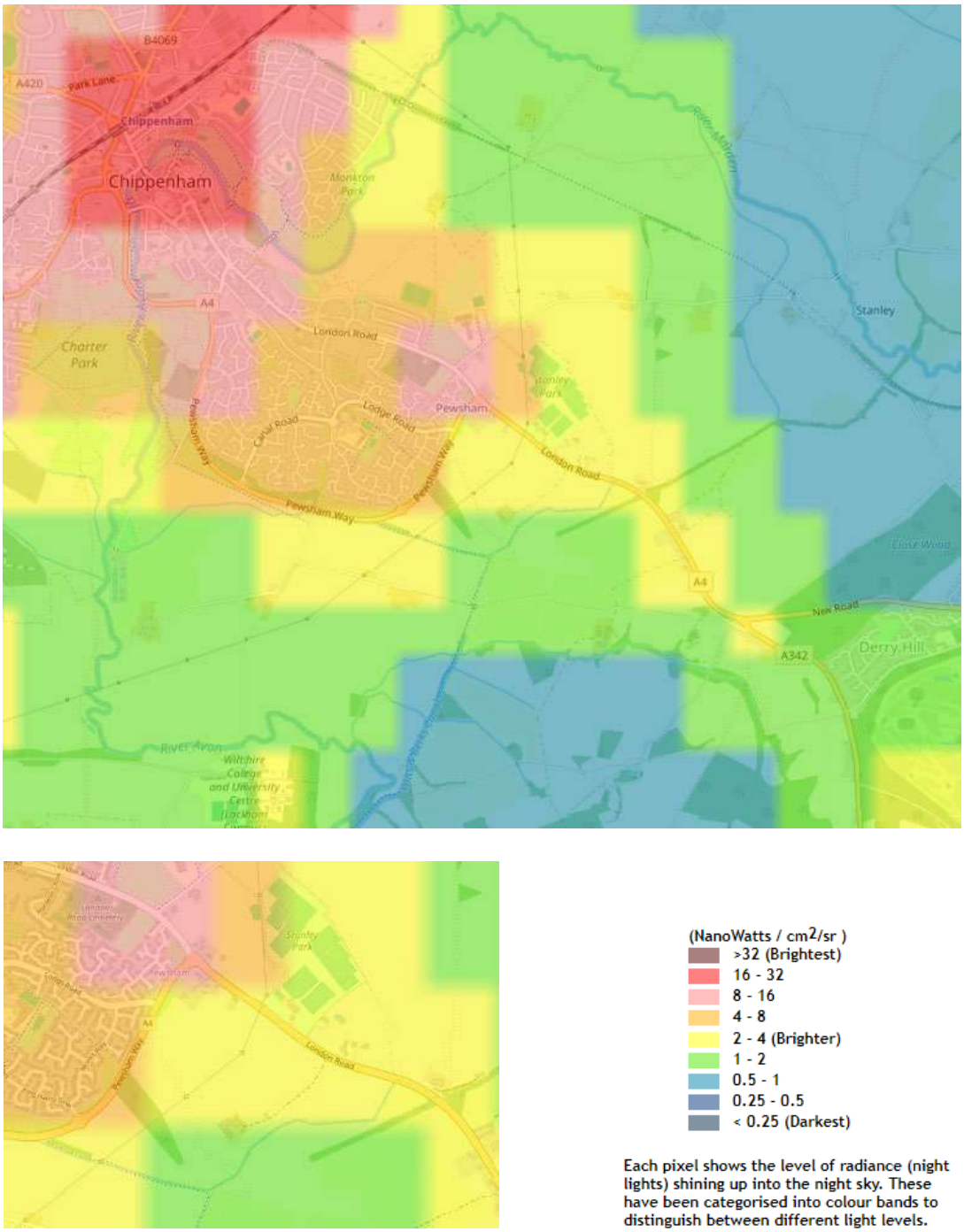
sports ground. This boundary is impacted by light spill from the street lights, and from the lighting to Stanley Park sports building and ground. Levels of illuminance recorded along this boundary are in the region of 1 - 3 lux. Considering levels of illuminance up to 0.5 lux, there is zone of influence of approximately 10-15m from this boundary from the street lighting, and this increases to 35m from the boundary in the area opposite Stanley Park sports ground and building. The luminous intensity (glare), levels of illuminance (spill light), and upward light output from the building mounted lighting is particularly high.

There is a small potential for the levels of illuminance to be higher in some locations close to the bounding residential properties if all lighting, including internal lighting, was operational.

Refer to the Baseline Survey drawing in Appendix B, where survey locations where levels of illuminance recorded equal or exceed 0.2 lux have been coloured orange, and levels that equal or exceed 0.5 lux have been coloured red.

Section 5.4 details the measurements of illuminance recorded at each viewpoint location to correspond to the LVIA. VP01 is located along Pewsham Way which street lit. VP07, VP07, and VP09 are located along London Road which is also street lit. The level recorded appear low at VP07 as the 3 street lights closest to this location had failed/ were not operating at the time of the survey. Levels of illuminance at VP09 are also influenced by the lighting to the car sales premises. VP04 - VP06 and VP10 – VP16 are all in locations with little to no potential for direct impacts from artificial lighting. There is an adjacent dwelling to VP11 with various building mounted lighting, as shown by figures 3.33 to 3.35, however these lights were not operational at the time of the survey. There is also lighting to some of the residential properties in the wider area to these locations and around Nocketts Hill, as shown by figures 3.27 to 3.32. This lighting is very typical of an E2 Environmental Zone in accordance with sparsely inhabited rural areas, with low district brightness.

The Light Pollution and Dark Skies mapping provided by CPRE show that the site is broadly located within the 5th brightest colour band, with brighter areas focussed along London Road, and to the north west towards Chippenham, with darker areas to the south. Refer to figures 5.1 to 5.3.



(NanoWatts / cm^2/sr)
- >32 (Brightest)
- 16 - 32
- 8 - 16
- 4 - 8
- 2 - 4 (Brighter)
- 1 - 2
- 0.5 - 1
- 0.25 - 0.5
- < 0.25 (Darkest)

Each pixel shows the level of radiance (night lights) shining up into the night sky. These have been categorised into colour bands to distinguish between different light levels.

Figures 5.1 – 5.3 – show extracts from the CPRE Light Pollution and Dark Skies mapping for the Application Site and surrounding area. (Reference: https://www.nightblight.cpre.org.uk/maps/)

The following images within this section of the report show the luminaire types/ artificial light sources to the surroundings of the site.

Figure 5.1 - shows a residential property to the north of the site, at survey location L11.

Figure 5.2 –shows solar lighting to the fence to one of the residential properties to the north of the site.

Figures 5.3 and 5.4 – shows a couple of the dwellings bordering the site to the north, with lantern lighting to the entrance door.

Figure 5.5 - shows one of the residential properties to the north of the site.

Figure 5.6 – shows the northern site boundary viewed from within the site.

Figure 5.7 shows the A4 London Road to the north east of the site with street lighting

Figure 5.8 – shows an example of one the LED street lights along the A4 London Road.

Figures 5.9 and 5.10 – show one of the residential properties directly the north which windows facing the site.

Figure 5.11 - shows Stanley Park sports ground with floodlighting beyond the A4 London Road to the north east of the site.

Figures 5.12 and 5.13 – show the LED street lighting along London Road.

Figures 5.14 and 5.15 – shows the buildings beyond London Road, with the building mounted bulkheads to Stanley Park Sports building.

Figures 5.16 and 5.17 – show the street lighting along London Road.

Figures 5.18 and 5.19– show one of the residential properties within the centre of the site, with building mounted floodlighting. These lights were not operational at the time of the survey.

Figures 5.20 and 5.21 – shows one of the residential properties within the centre of the site, with building mounted lantern above the front door. These lights were not operational at the time of the survey.

Figure 5.22 – shows building mounted lantern above the front door.

Figure 5.23 and 5.24 - show the yard area in the centre of the site with a large pole mounted flood light. These lights were not operational at the time of the survey.

Figures 5.25 and 5.26 – show the yard area in the centre of the site with a large building mounted flood light. These lights were not operational at the time of the survey.

Figures 5.27 and 5.28 - show some examples of the residential buildings and associated lighting in the Nocketts hill area.

Figures 5.29 – 5.32 - show some examples of the residential buildings and associated lighting in the Nocketts hill area.

Figures 5.33 and 5.34 - show the residential property located adjacent to VP11, with examples of the external lighting present shown.

Figure 5.35 - show the residential property located adjacent to VP11, with examples of the external lighting present shown.

5.3 Measurements of Illuminance at Survey Locations

Table 5.1 summarises the levels of illuminance recorded at each survey location. (Levels of illuminance recorded that equal or exceed 0.2 lux have been coloured orange, and levels that equal or exceed 0.5 lux have been coloured red.)

TABLE 5.1: ECOLOGICAL RECEPTOR LOCATIONS - LEVELS OF ILLUMINANCE RECORDED

Survey Location Reference	Horizontal Illuminance at Ground level	Horizontal Illuminance at 1.5m high	Vertical Illuminance at 1.5m				
			N	E	S	W	Perpendicular to area of interest/ worst case (where applicable)
L01	0.03	0.04	0.02	0.02	0.02	0.02	N/A
L02	0.03	0.04	0.02	0.02	0.01	0.00	N/A
L03	0.03	0.03	0.02	0.02	0.02	0.00	N/A
L04	0.03	0.04	0.02	0.02	0.02	0.01	N/A
L05	0.00	0.03	0.11	0.03	0.01	0.00	N/A
L06	0.03	0.04	0.00	0.00	0.01	0.02	N/A
L07	0.02	0.04	0.00	0.02	0.03	0.02	N/A
L08	0.02	0.04	0.02	0.04	0.04	0.02	N/A
L09	0.03	0.03	0.00	0.00	0.02	0.01	N/A
L10	0.03	0.04	0.00	0.04	0.04	0.00	N/A
L11	0.03	0.05	0.03	0.16	0.03	0.02	0.18
L12	0.06	0.03	0.03	0.20	0.05	0.03	0.23
L13	0.40	2.15	1.25	0.05	0.05	0.04	1.25
L14	1.08	0.67	1.53	0.76	0.08	0.08	1.53
L15	0.32	0.33	0.85	0.36	0.08	0.23	0.85
L16	0.94	0.78	0.98	1.24	0.08	0.08	1.24
L17	0.90	0.80	1.50	0.48	0.08	0.08	1.50
L18	3.96	3.10	2.55	1.00	0.11	0.63	2.55
L19	2.46	1.83	1.65	1.51	0.09	2.72	2.72
L20	0.31	0.54	0.91	0.47	0.07	0.38	0.91
L21	0.04	0.05	0.07	0.01	0.03	0.05	N/A
L22	0.00	0.04	0.02	0.02	0.02	0.02	N/A
L23	0.02	0.03	0.02	0.02	0.01	0.00	N/A
L24	0.02	0.03	0.02	0.02	0.01	0.00	N/A
L25	0.02	0.03	0.02	0.02	0.01	0.00	N/A
L26	0.00	0.00	0.02	0.02	0.01	0.00	N/A

TABLE 5.1: ECOLOGICAL RECEPTOR LOCATIONS - LEVELS OF ILLUMINANCE RECORDED							
Survey Location Reference	Horizontal Illuminance at Ground level	Horizontal Illuminance at 1.5m high	Vertical Illuminance at 1.5m				
			N	E	S	W	Perpendicular to area of interest/ worst case (where applicable)
L27	0.00	0.00	0.02	0.02	0.01	0.00	N/A
L28	0.00	0.00	0.02	0.02	0.01	0.00	N/A
L29	0.02	0.03	0.02	0.02	0.01	0.00	N/A
L30	2.16	1.84	2.29	2.18	0.08	0.67	2.43

5.4 Measurements of Illuminance at Viewpoint Locations

Table 5.2 summarises the levels of illuminance recorded at each viewpoint survey location.

TABLE 5.2 : VIEWPOINT SURVEY LOCATIONS - LEVELS OF ILLUMINANCE RECORDED						
Survey Location Reference	Horizontal Illuminance at Ground level	Horizontal Illuminance at 1.5m high	Vertical Illuminance at 1.5m			
			N	E	S	W
VP01	5.35	2.47	1.51	5.67	5.40	4.12
VP02	0.02	0.04	0.02	0.04	0.04	0.02
VP02	0.02	0.03	0.02	0.02	0.01	0.00
VP04	0.02	0.03	0.02	0.02	0.01	0.00
VP05	0.01	0.02	0.02	0.02	0.01	0.00
VP06	0.02	0.03	0.02	0.02	0.01	0.00
VP07	0.11	0.12	0.74	1.00	0.03	0.05
VP08	16.38	21.74	0.68	2.30	3.87	1.78
VP09	14.01	12.39	3.82	9.86	6.07	4.68
VP10	0.02	0.03	0.02	0.02	0.01	0.00
VP11	0.02	0.03	0.02	0.02	0.01	0.00
VP12	0.01	0.02	0.02	0.02	0.01	0.00
VP13	0.01	0.02	0.01	0.01	0.01	0.00
VP14	0.02	0.03	0.02	0.02	0.01	0.00
VP15	0.02	0.03	0.02	0.01	0.01	0.00
VP16	0.02	0.03	0.02	0.02	0.01	0.00

6 Proposed Lighting

6.1 Construction Phase

The primary reasons for lighting provision within the construction site will be for health and safety and security requirements.

The sources of artificial light that have been assumed to be present during the construction phase are:

- Temporary floodlighting particularly during winter months;
- Floodlighting and security lighting associated with site access, on-going work areas, temporary car parking areas and on the exterior of construction compounds;
- Lighting at height associated with construction of structures;
- Interior lighting within any temporary office units within any construction compounds.
- Crane warning lights.

The working hours for construction are anticipated to be typical industry hours (i.e. 08:00 to 18:00 Monday to Friday and 09:00 to 13:00 on Saturday). It is assumed there will be no working on Sundays or Bank Holidays. Therefore, it is likely that temporary sources of artificial lighting will be required to enable the safe continuation of works in the early morning and late afternoons during the winter months when working hours fall within the hours of darkness. Lighting associated with the construction works is assumed to be temporary and intermittent in nature. It is assumed that some level of security lighting will be required at all times during the hours or darkness.

6.2 Operational Phase- Proposed Lighting

The Proposed Development will require lighting for safety, amenity and security during the hours of darkness. This section outlines the requirements for the lighting design, ensuring that it is fit for purpose and sensitive to ecological and environmental receptors.

The external lighting for the development will be provided in accordance with industry standards, guidance and recommendations in order to provide an adequate level of illuminance for security, safety and amenity throughout the site, whilst limiting obtrusive light, over-lighting, energy consumption, and impacts to sensitive receptors, including ecological receptors.

Lighting in this section generally refers to public realm lighting, excluding lighting to domestic/ residential properties. However, specific mitigation measures related to residential properties required to minimise impacts ecological buffers/ dark zones are included.

The main sources of lighting for the operational phase of the proposed development will be as follows:

- Street lighting to the new site access roundabout/ entrance;

- Street lighting associated with strategic cycle route, pedestrian, and vehicular routes throughout the development;
- Lighting to car parking areas;
- Lighting to building entrances/ exits;
- Lighting to the local centre.

6.2.1 Recommended Lighting Levels

There is no legal duty or requirement to light an area, including the provision of street lighting, however it is often installed for safety (including perceived safety), amenity, and security reasons.

British Standards and other policy documents provide guidance on lighting provision, and also allow for deviation from their own guidance where there are significant ecological/ environmental reasons for doing so.

The design standards recognise road lighting in three classes; traffic routes where the needs of the driver are dominant, subsidiary roads where the lighting is primarily intended for the pedestrian and the cyclist, and urban centres, where the lighting is designed to enhance public safety and security, while also providing an attractive night time environment (SLL Lighting Handbook). The photometric recommendations for all types of road lighting in the UK are given in BS EN 13201: Part 2. Advice on implementation of these recommendations is given in BS5489-1.

The various roads within the site will be designed in accordance with these recommendations and Wiltshire Council's specification and requirements, whilst also considering the sensitive ecological receptors within the site. Refer to section 6.2.5.

The street lighting for the site access, and S278 area have been designed to BS 5489:2020, as follows. An indicative street lighting has been prepared for the planning stage, however this will be required to be developed at the Technical Design stage for council approval.

- The proposed access roundabout has been designed to a C2 conflict zone (C2 = 20 Lux Eav, and 0.40 uniformity)
- The proposed roundabout eastern and western approaches have been designed to an M3 class.
- The proposed junction to the south has been designed to C3 conflict zones (C3 = 15 Lux Eav, and 0.40 uniformity)
- The existing lighting to Pewsham Way and London Road is proposed to be altered to suit the strategic cycle path proposals. This has been calculated based on an M3 class, and C2 conflict zone. The strategic cycle paths adjacent to the existing road have been designed to a P3 class. The standalone strategic cycle path links into and within the site are proposed to be lit to a P5 class, grading down from a P3.

It is expected that the subsidiary roads within the development will be lit to a P5 class, with the Primary Street being lit to a P4. It is expected that the standalone sections of the strategic foot/ cycle path will require lighting to a P5 or P6 class, but that any other local foot/ cycle

path that are standalone will not require lighting. Lighting to the foot/ cycle paths that are located within the landscape buffers is intended to be minimised as far as possible to reduce the potential impacts on to ecological receptors.

Lighting within these zones, and within the whole site, will be designed to meet the parameters of an E2 Zone. This is also in accordance with Policy G14 of the Chippenham Made Neighbourhood Plan (2024). With further measures proposed to minimise impacts. Refer to Section 6.2.3 and 6.2.5.

Table 6.1 and 6.2 summarises the levels of design illuminance and uniformity to be targeted for the roads and externally lit areas within the proposed development. This list is not exhaustive as areas to be lit will be reviewed as part of the detailed submissions. The values have been taken from BS 5489-1 and BS EN 12464-2: 2014.

TABLE 6.1: RECOMMENED LEVELS OF ILLUMINANCE- STREET LIGHTING		
Road Type / Classification	Average level of Illuminance required (lux)	Minimum level of Illuminance required (lux)
Residential Roads- Primary Road (spine) – P4	5.0	1.0
Residential Roads – Subsidiary Roads - P5	3.0	0.6
Standalone footpaths – P6	2.0	0.4

TABLE 6.2: RECOMMENED LEVELS OF ILLUMINANCE- OTHER AREAS		
Description of Area Type	Average level of Illuminance required (lux)	Uniformity
Areas and walkways used exclusively for pedestrians	5	0.25
Parking areas- for light traffic	5	0.25
Parking areas- for medium traffic	10	0.25
Vehicular Routes – for slowly moving vehicles	10	0.40
Vehicle turning, loading and unloading points	50	0.40

6.2.2 Strategy for Luminaire Type and Light Source

The luminaires selected for the street lighting throughout the development will be provided in accordance with Wiltshire Councils specification. Luminaires to the residential roads are likely to be mounted on 5m or 6m columns depending on the road widths.

The luminaires selected for the street lighting throughout the residential roads within development will be provided in accordance with Wiltshire Councils specification. Luminaires are likely to be mounted on 5m or 6m columns depending on the road widths.

Luminaires to the access are proposed to be mounted on 10m columns. Luminaires to the standalone sections of the strategic cycle route are proposed to be mounted on 4m columns, with shields applied to minimise light spill to the landscape buffers.

The street lighting luminaires will have good light control and cut off angles to reduce light spillage, control glare and limit sky glow. The Upward Light Output Ratio of the luminaires will be 0%. The street lighting luminaires selected will have a warm white colour temperature, expected to be 3000K in most areas.

Integral rear louvres/ back shields will be provided where possible to minimise light spill into the landscape buffer.

Lighting provided to the local centre is likely to consist of a mixture of luminaire types including column mounted, building mounted and low level bollard lighting.

All luminaires provided shall have good light control and cut off angles to reduce light spillage, control glare and limit sky glow. The luminaires selected will be LED and all have a warm white colour temperatures (3000K or less).

The specified luminaires selected at the detailed design stage will comply with the requirements for an E2 Environmental Zone to limit upward light output.

6.2.3 External Luminaire Control Strategy

It is expected that the S38 adoptable street lighting to the residential roads and site access will operate on a dimming profile, whereby the streetlights will dim for periods during the night, subject to Wiltshire Councils requirements. (Current protocol is that luminaires operate at 100% output from Dusk till 8pm, 75% output from 8pm-11pm, 50% output from 11pm- 6am, 100% output from 6am-Dawn.)

It may be possible for a seasonal dimming profile to be applied to the cycle path lighting that is adjacent to or within the landscape buffers. Timings and outputs will need to be discussed and agreed with Wiltshire County Council Street Lighting Team and Council Ecologist at the Reserved Matters/ technical design stage. Based on previous liaison with Wiltshire Council for a similar scenario an option may be for these lights to operate during the winter months only; October to March, 4pm to 9pm, to provide lighting during the darker winter months during the times when it is likely to be used, whilst being outside of the main bat activity season.

Control strategies to be provided at the Reserved Matters/ technical design stage for the local centre. Lighting outside of operational hours should be kept to a minimum level for security and safety purposes only. As a minimum lighting to this area should be controlled by 7 day

programmable time switches with primary photocell control to ensure that no luminaires will be left on during daylight hours, and to give flexibility over the operation timings.

6.2.4 Strategy for Minimising Obtrusive Light

The proposed lighting shall be designed in accordance with the limiting criteria for an E2 Environmental Zone, in order to limit obtrusive light and light pollution.

It is not expected that any buildings within the proposals will have decoratively lit facades, or that there will be any lit signage, however if any are included, they will be designed in accordance with the limits for an E2 zone.

6.2.5 Strategy for Minimising Impacts in terms of Ecology

The application site does not lie within any bat consultation zones, so there is no requirement to provide formal dark corridors within the site. However, a minimum 10m development buffer from the offsite woodland (to the southwest), and at least 5m development buffers from all retained hedgerows are proposed. Whilst these habitat buffers are not formal dark corridors, with no requirement to achieve a certain level of illuminance, there is a requirement to minimise lighting impacts to these buffer zones as far as possible. (Refer to the Environmental Statement - Natural Heritage Chapter.)

There is an intention to maintain a darker corridor/ bat flight line from the centre of the site, where the farm buildings are located, out to the east of the site. This route is bisected by a cycle / footpath that is likely to require lighting. Lighting will need to be kept to the minimum standard for this cycle path and be discussed with the local planning authority at the RM stage so mitigation can be agreed. A bat hopover/ crossing point may be created. Strategic landscaping may also be provided at this location to enhance the hopover.

Where developed areas are proposed to be adjacent to the landscape buffers levels of illuminance from lighting may be minimised by adopting a lighting strategy that includes some or all of the parameters/mitigation measures listed below.

- No artificial lighting, or paved surfaces where possible, to be proposed within the proposed landscape buffers, with the exception of the cycle/ foot paths.
- Careful consideration to be given to the locations of the residential roads within the site and their hierarchy. Where roads are required to be located adjacent to the dark corridors, where possible these should be private roads/drives rather than adoptable roads, as these areas can be left un-lit, or be provided with lower levels of illuminance, and luminaires with lower mounting heights than Section 38 adoptable standards will require. Consideration has been given to the street hierarchy during the masterplanning stage.
- Street lighting luminaires with either back shields, or a narrow optic designed for the road width, may be used to limit light spill into the proposed landscape buffers, where street lighting is required to be adjacent to these zones.
- Luminaires to the standalone sections of the strategic cycle route to be mounted on 4m columns, with shields applied to minimise light spill to the landscape buffers.

- Private external lighting to the residential properties adjacent to the proposed landscape buffers to be carefully positioned, limited in number, and to operate by PIR (movement) detectors. Luminaires should be selected to be downward directional with good light control and cut off angles to limit light spill into the proposed dark zones.
- All external lighting proposed in areas adjacent to the proposed landscape buffers should utilise LED lights sources, therefore emitting no UV light, and should have a warm white colour temperature of <3000K, ideally 2700K, where possible.

7 Assessment of Impacts

7.1 Construction Phase

Construction impacts are temporary in their nature, however prior to mitigation there is potential for the development to result in adverse effects. Mitigation and residual effects are further discussed in Sections 8 and 9.

7.2 Operational Phase

The site is currently classified as Environmental Zone E2, with the proposed lighting for the site being assessed in accordance with the limiting criteria for that zone, in order to limit obtrusive light and light pollution to an acceptable level.

7.2.1 Assessment of impact In terms of Obtrusive Light

The upward light ratio (ULR) of luminaires and the installation will be limited to 2.5% in accordance with the parameters for an E2 zone.

Following a review of the locations of existing residential receptors in proximity to any proposed lighting/ lit areas, and the types of lighting proposed, there is no potential for light intrusion from the proposed development to impact on those properties.

Light intrusion to proposed residential properties should be limited by carefully positioning street lights to minimise impacts, with back shields applied where necessary. The obtrusive light guidance states that Light Intrusion into windows should be limited to 5 lux pre curfew and 1 lux post curfew in Environmental Zone E2.

The majority of light spill is expected to be contained within the application boundary and development area, however due to the nature of the lighting for the access and strategic foot/ cycle paths, it is not expected that light spill can be completely contained within the application boundary at these points.

The obtrusive light guidance aims to limit the luminous intensity of bright luminaires in order to limit glare. The limits for luminaire intensity apply to luminaires situated in a potentially obtrusive direction outside of the area being lit. The luminaires proposed for the development will have clear and defined cut-off angles, without the potential for glare. Lighting to the local centre within the site will be designed to meet the requirements of an E2 zone for luminous intensity. Design calculations to be provided at the Reserved Matters/ technical design stage.

The lighting scheme for the proposed development, as outlined in section 6, has been assessed against the significance criteria shown in section 4 to establish the effects.

The sensitivity of existing residential receptors is considered to be medium, with the magnitude of impact predicted to be negligible, resulting in a negligible effect.

The sensitivity of the site when considering sky glow is considered to be medium in accordance with an E2 zone, with the magnitude of impact predicted to be low, resulting in a minor adverse effect as levels of ULR are expected to be within the limits of an E2 zone,

however it is predicted that levels reflected light will be higher than the existing conditions due to the additional lighting, resulting in a perceptible change in conditions.

It can be concluded that the lighting scheme will have Minor Adverse Effects/ Not Significant. Although the impacts in terms of obtrusive light will be designed to be within the recommended CIE/ Obtrusive Light guidance levels for an E2 Environmental Zone, the site is currently predominantly unlit so there will be a perceptible change to current baseline conditions.

7.3 Assessment of Impact In terms of effect on Flora and Fauna

There is no requirement to provide formal dark corridors within the site. However, a minimum 10m development buffer from the offsite woodland (to the southwest), and at least 5m development buffers from all retained hedgerows are proposed.

There is an intention to also maintain a darker corridor/ bat flight line from the centre of the site, where the farm buildings are located, out to the east of the site.

The lighting strategy and mitigation measures outlined, along with the coordinated landscape proposals, aim to address these impacts, and minimise light spill and impacts to the landscape buffers and at the bat hopover location.

For further detail refer to the Environmental Statement - Natural Heritage Chapter.

7.4 Assessment of impact at the Viewpoint locations

The viewpoint locations have been assessed against the significance criteria shown in section 4 to establish the effects of the completed proposed development with lighting as described in section 6.

All the viewpoint locations are considered to be classified as Environmental Zone E2, following the baseline survey. Therefore, a sensitivity of medium has been applied, with a low magnitude of change as the lighting will be provided to meet the parameters set for a E2 zone, resulting in Minor Adverse effects.

There is predicted to be a negligible perceptible change in the level of sky glow at the viewpoint locations; and no change at this in terms of light spill, glare or light intrusion. Therefore, the change to current baseline conditions in terms of obtrusive light will be negligible.

However, when considering light presence, there will be a noticeable/ perceptible increase in the visibility of the site. However, this is expected to be limited and minimised, but the lighting strategy and mitigation proposed. Refer to LVIA for further details of visual impact.

8 Mitigation Measures

8.1 Construction Phase

Mitigation of the effects of the lighting installation during the construction phase will include:

- Specifying working hours, uses of lighting, location of temporary floodlights and construction compound and agreeing these with the local council
- Lighting to be switched off when not required specifically for construction activities or required for health and safety or security
- Glare will be minimised by ensuring that the main beam angle of all luminaires are directed away from any potential observer into the centre of site wherever possible, and angled at less than 70 degrees from the horizontal
- Light spill will be minimised by avoiding poorly sited luminaires located at the boundary of the development
- Sky glow will be minimised by using modern flood lights with good photometric control, angled at less than 70 degrees from the horizontal and by using additional shields as appropriate
- The selection of luminaires, including those required for night-time security, that are designed to minimise any obtrusive light
- No construction lighting or compounds to be located within the landscape buffers. All construction lighting to be directed away from the buffer zones. Construction lighting for security purposes to be operate by PIRs (movement detection) on short timers and be mounted at the lowest practical mounting height to minimise light spill.

These measures will form part of a Construction Environmental Management Plan.

8.2 Operational Phase

Mitigation of the effects of the lighting installation during the operational phase will be achieved by designing the lighting for the development in accordance with the lighting strategy outlined in this report, including primary mitigation measures outlined in Section 6.

Further mitigation measures beyond this are not deemed to be required.

9 Residual effects

9.1 Construction Phase

It is predicted that following implementation of the mitigation measures outlined in section 8, overall there will be a minor adverse residual effect of lighting at the construction phase.

9.2 Operational Phase

There are no significant residual effects predicted for the operational phase of the Proposed Development.

10 Conclusion/ Summary

The site has been assessed to be located within Environmental Lighting Zone E2, representative of a rural location with low district brightness.

The external lighting and street lighting proposed for the development will be designed in accordance with industry standards, guidance and recommendations in order to provide an adequate level of illuminance for security, safety and amenity throughout the site, whilst limiting obtrusive light, over-lighting, energy consumption and impacts on ecological receptors.

The proposed lighting shall be designed in accordance with the limiting criteria for an E2 Environmental Zone, in order to limit obtrusive light and light pollution.

In summary, it is our considered opinion that by the use of a well-designed lighting strategy, adopting the criteria outlined in this report, together with careful site planning that the impact from the new development on sensitive receptors in terms of lighting will not be significant.

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APPENDIX A

Lighting Terminology

Lighting Terminology and Abbreviations

Glossary of terms

For the purpose of this report, the definitions given below apply. For further definitions the International Lighting Vocabulary (ILV), published by the CIE, can be found at http://eilv.cie.co.at/

Colour Rendering Index (CRI): A scale of the colour appearance of an object under a particular light source compared to its colour appearance under a reference light source. Expressed on a scale of 1 to 100 Ra, where 100 Ra represents the colour rendering of natural daylight i.e. perfect colour.

Curfew: The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by a government controlling authority, usually the local government (CIE, 2003).

Disability Glare: Glare which impairs the vision of objects but may not cause discomfort.

Discomfort Glare: Glare causing discomfort which may not impair the ability to see objects.

Environmental Zones: Area where specific activities take place or are planned and where specific requirements for the restriction of obtrusive light are recommended. Zones are indicated by the zone rating (E1… E4) (CIE, 2003).

Illuminance: Illuminance is the quantity of light, or luminous flux, falling on a unit area of a surface. It is designated by the symbol E. The unit is the lux (lx). One lux equals one lumen per square metre (lm/m²).

> **Horizontal Illuminance**: Illuminance incident on a horizontal surface or calculation plane.
>
> **Vertical Illuminance**: Illuminance incident on a vertical surface or calculation plane.

Isolux Diagram: A diagram showing lines joining points of equal illuminance. Sometimes also referred to as Isolines.

Light Pollution: The spillage of light into areas where it is not required.

Light Intrusion: Light that impacts on a surface outside of the area designed to be lit by a lighting installation.

Obtrusive Light: Spill light which because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information (CIE, 2003).

Photocell: A unit which senses light to control luminaires.

Residential Property: Land upon which a dwelling exists (CIE, 2003).

Sky Glow: The brightening of the night sky caused by artificial lighting resulting from the reflection of radiation (visible and non-visible), scattered from the constituents of the atmosphere (gas molecules, aerosols and particulate matter), in the direction of observation. It comprises two separate components as follows:

(a) *Natural sky glow* - That part of the sky glow which is attributable to radiation from celestial sources and luminescent processes in the Earth's upper atmosphere.

(b) *Man-made sky glow* - That part of the sky glow which is attributable to man-made sources of radiation (e.g. outdoor electric lighting), including radiation that is emitted directly upwards and radiation that is reflected from the surface of the Earth (CIE, 2003).

Spill Light (Stray Light): Light emitted by a lighting installation which falls outside the boundaries of the property for which the lighting installation is designed (CIE, 2003).

Upward Light Ratio: The maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.

Abbreviations

CIBSE	Chartered Institute of Building Services Engineers
CIE	International Commission on Illumination
CNEA	Clean Neighbourhoods and Environment Act
ILP	Institute of Lighting Professionals
SLL	Society of Light and Lighting

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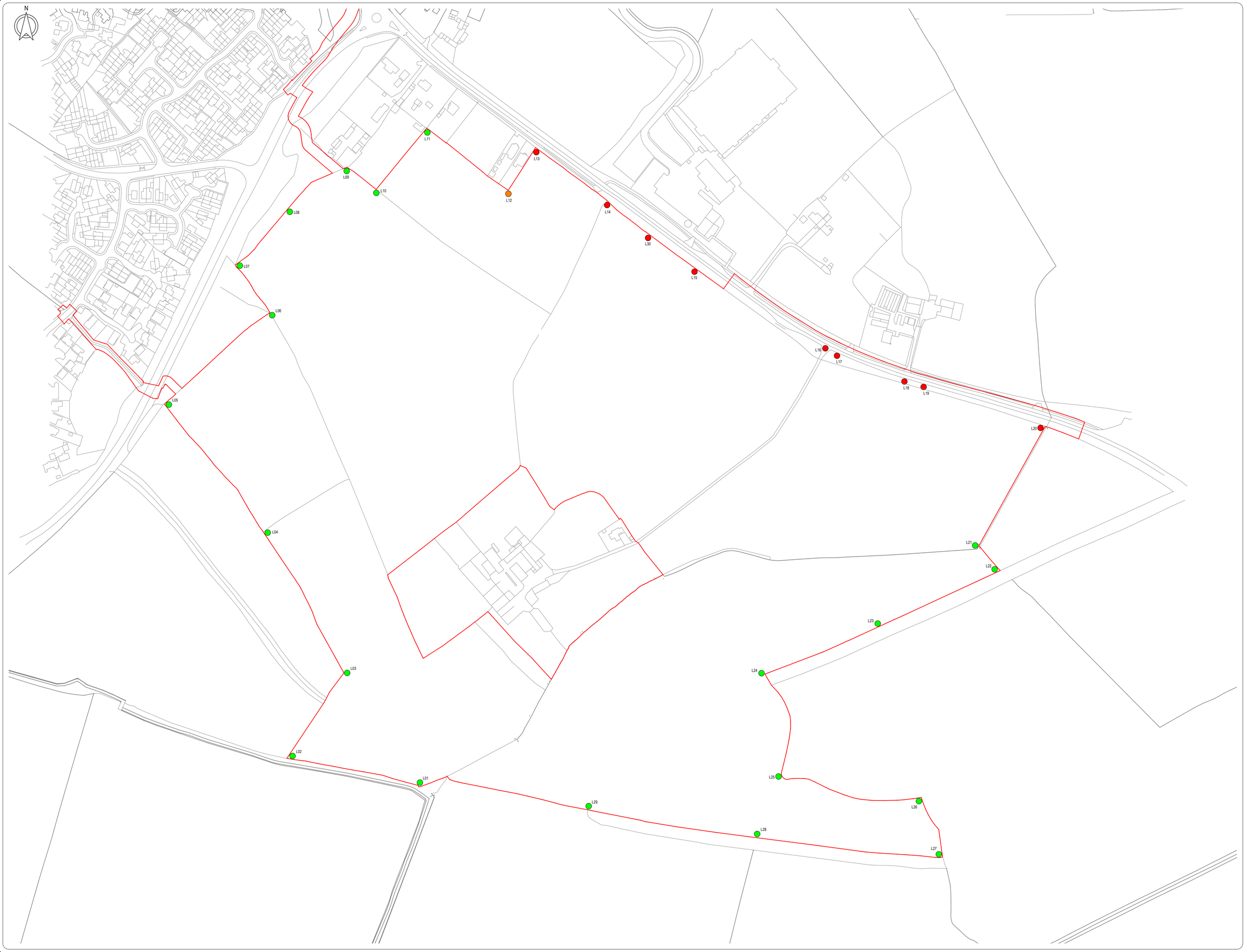
APPENDIX B

Baseline Survey Location Plan

A0 - DO NOT SCALE



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Legend

LXX = Survey Location where levels of illuminance are <0.2 lux - Survey Location Reference denoted

LXX = Survey Location where levels of illuminance exceed 0.2 lux, but are <0.5 lux - Survey Location Reference denoted

LXX = Survey Location where levels of illuminance exceed 0.5 lux - Survey Location Reference denoted

= Application Boundary

Notes

1. Positions shown on plan are indicative.
2. Refer to baseline report and GPS locations.
3. This drawing should be read in conjunction with the Baseline Survey report.
4. Do not scale from this drawing.

Rev	Details	By / Reviewed	Date
P02	Site Boundary	TB / BB	20.01.26
P01	Preliminary Issue	TB / BB	11.03.25

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CLIENT
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Promoting Land, Unlocking Value.

PROJECT TITLE
Forest Farm
Chippenham

DRAWING TITLE
Baseline Survey Location Plan

SCALE AT A0
1:1250

DISCIPLINE
Lighting

DRAWING NUMBER
1523-LB-EX-XX-SU-E-7080-01
Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS
Preliminary

ISSUE
P02

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APPENDIX C

Site Plan showing Levels of Horizontal Illuminance at Ground Level from S278 Street Lighting Only

A0 - DO NOT SCALE

N

Refer to Drawing:
1523-LB-EX-XX-DR-E-7080-63

Refer to Drawing:
1523-LB-EX-XX-DR-E-7080-62

Refer to Drawing:
1523-LB-EX-XX-DR-E-7080-64

Refer to Drawing:
1523-LB-EX-XX-DR-E-7080-61

Stanley Park Sports Ground (Football Pitch)

Ponds

Pond

Pond

Spires View

Wedmore Farm

Track

Drain

Drain

Drain

Quarry Bed

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Legend

Application Boundary

Notes

1. This drawing should be read in conjunction with the Lighting Impact Assessment report. Refer to the vertical calculation results in the appendices of this report.
2. Do not scale from this drawing.
3. All measurements are in millimeters unless stated otherwise.

Rev	Details:	By / Reviewed	Date
P05	Minor Update	TB / BB	03.07.26
P04	Updated Site Plan	TB / BB	25.06.26
P03	Updated Site Plan	TB / BB	27.03.26
P02	Updated Site Boundary	TB / BB	27.01.26
P01	Preliminary Issue	TB / BB	14.03.25

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PROJECT TITLE
Forest Farm
Chippenham

DRAWING TITLE
Key Plan

SCALE AT A0
1:1250

DISCIPLINE
Lighting

DRAWING NUMBER
1523-LB-EX-XX-DR-E-7080-01
Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS
Preliminary

ISSUE
P05

A0 - DO NOT SCALE

N

Pond

Pond

Spires View

Wedmore Farm

LONDON ROAD A4

Tank

1504-LB-EX-XX-DR-E-7080-02

For continuation refer to drawing No.:

160m VISIBILITY TO SIGNAL HEAD

1.5m x 160m VISIBILITY SPLAY

EXISTING BUS STOP LAY-BY ROAD MARKINGS RE-MARKED

BUS STOP LAY-BY 33m LONG WITH 20m ENTRY TAPER, 18m STRAIGHTENING LENGTH AND 35m EXIT TAPER. FIRST 8.5m OF LAY-BY 3.3m

2.0m FOOTWAY OF ROUTE INTO SITE. EXACT LOCATION TO BE CONFIRMED AT RESERVED MATTERS STAGE

18m DITCH TO BE REPROVIDED

CUT-LINE 1

2.0m WIDE FOOTWAY WITH 0.5m MARGIN TO CARRIAGEWAY

160m VISIBILITY SPLAY

VEHICLE CROSSOVER RETAINED

EXISTING FOOTWAY

EXISTING FARM ACCESS

2m FOOTWAY LINK TO EXISTING FOOTWAY

2.0m x 2.0m PEDESTRIAN VISIBILITY SPLAYS

DIRECT ACCESS FROM ROUNDABOUT

175m DITCH TO BE REPROVIDED

NEW ROUNDABOUT AND LOWER MAIN CARRIAGEWAY

2.5m VERGE

FARM ACCESS CLOSED

"DIO MOD - Abandoned Pipeline"

1.5m x 136m VISIBILITY SPLAY

3.5m FOOTWAY / CYCLEWAY ROUTE TO BE CONFIRMED

2.4m x 103m VISIBILITY SPLAY

APPROXIMATELY 50m OF CARRIAGEWAY TO BE REMOVED / LOWERED TO MEET NEW ROUNDABOUT LEVEL

EXISTING FOOTWAY

3.5m FOOTWAY / CYCLEWAY 2.5m VERGE

PROPOSED SPEED LIMIT CHANGE 50/40

3.5m FOOTWAY / CYCLEWAY

2.5m VERGE

INDICATIVE DIVERSION OF PIPELINE CIRCA 125m

156m VISIBILITY SPLAY

2.4m x 43m VISIBILITY SPLAY

1:10 TAPER TO EXISTING WIDTH OF FOREST FARM ACCESS TRACK

3.00m

3m FOOTWAY / CYCLEWAY

BUS CAGE 2.7m WIDE x 15m LONG

2m VERGE

5.61m

6.50m

2.0m FOOTWAY

6.5m CARRIAGEWAY

PROPOSED SPEED LIMIT CHANGE 30/40

1.37m RH

RH

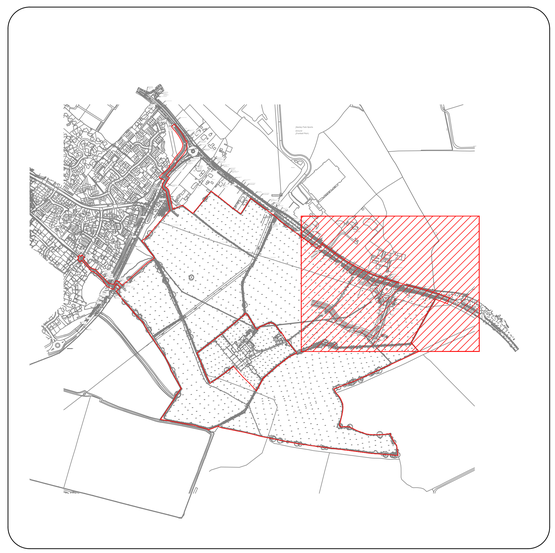
Co Const & ED Bdy

Drain

1.00d

1.20d

1:500
10m 0 10m 20m 30m 40m 50m



1 Key Plan
Scale: NTS

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Notes

1. This drawing should be read in conjunction with the Luminaire Legend and Notes drawing 1523-LB-EX-XX-SH-E-7080-02.

Rev	Details:	By / Reviewed	Date
P07	Minor Update	TB / BB	03.07.26
P06	Updated Site Plan	TB / BB	25.06.26
P05	Updated Site Plan	TB / BB	27.03.26
P04	Updated Site Boundary	TB / BB	27.01.26
P03	Minor Update	TB / BB	20.03.25
P02	Updated Bat Hop Over	TB / BB	07.03.25
P01	Preliminary Issue	TB / BB	03.03.25

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CLIENT
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PROJECT TITLE
Forest Farm
Chippenham

DRAWING TITLE
Street Lighting Strategy - Section 278
Levels of Horrizontal Illuminance Shown at Ground Level
Full Output Shown (MF=1)

SCALE AT A0
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1523-LB-EX-XX-DR-E-7080-61
Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS
Preliminary

ISSUE
P07

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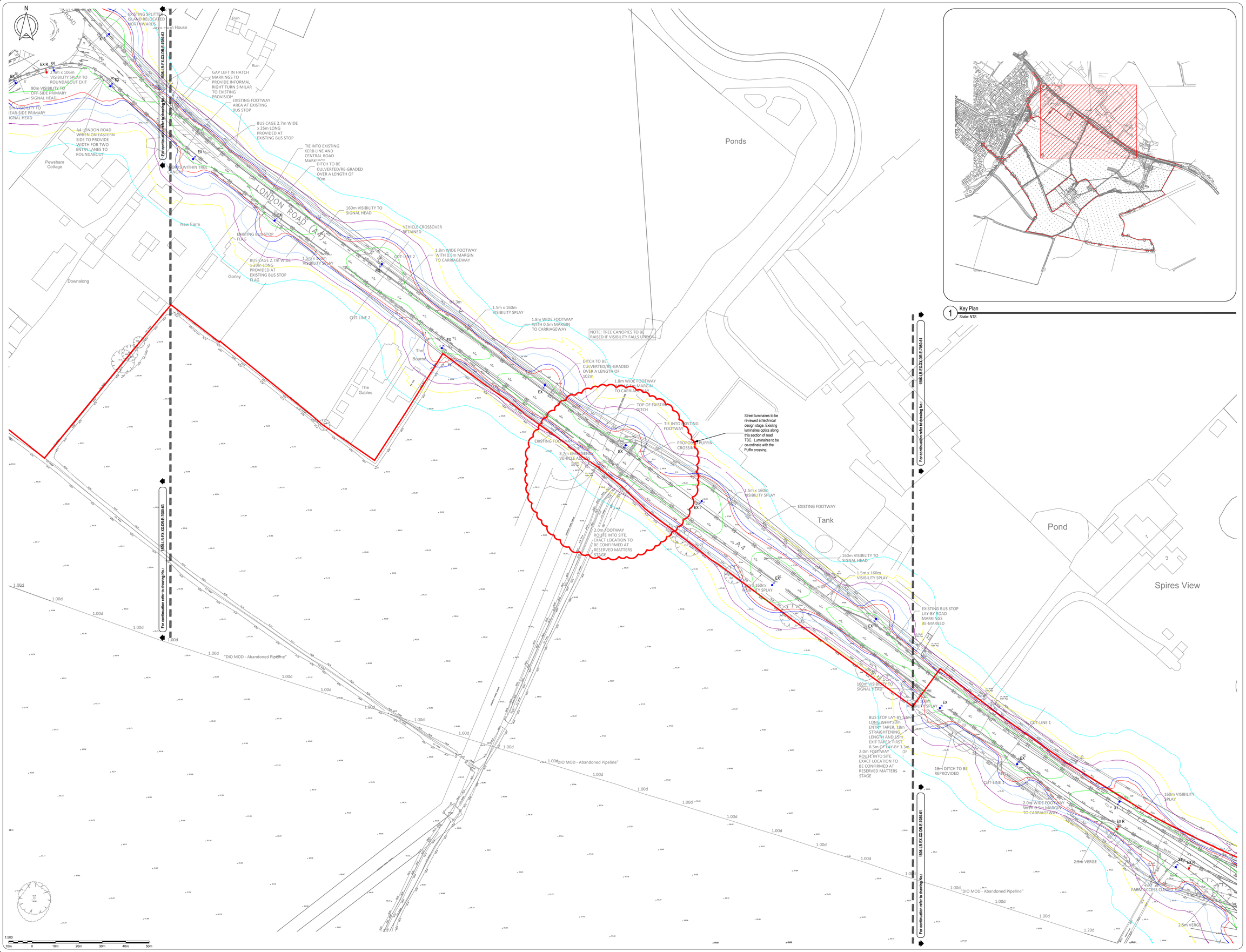

1 Key Plan
Scale: NTS

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Rev.	Details:	By / Reviewed	Date
P05	Minor Update	TB / BB	03.07.26
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P03	Updated Site Plan	TB / BB	26.03.26
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P01	Preliminary Issue	TB / BB	20.03.25

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PROJECT TITLE
Forest Farm
Chippenham

DRAWING TITLE
Street Lighting Strategy - Section 278
Levels of Horrizontal Illuminance Shown at Ground Level
Full Output Shown (MF=1)

SCALE AT A0
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1523-LB-EX-XX-DR-E-7080-62
Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS
Preliminary

ISSUE
P05

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CROSSING WITH CENTRAL TRAFFIC ISLAND

CONNECTION TO EXISTING SHARED FOOTWAY / CYCLEWAY ON NORTHERN SIDE OF STANLEY LANE

1.8m WIDE FOOTWAY

EXISTING LANE WIDTHS 3.4m NEARSIDE LANE 3.0m RIGHT TURN LANE

TIE INTO EXISTING SHARED USE FOOTWAY/CYCLEWAY

EXISTING ISLAND MOVED OVER TO PROVIDE 3.0m THROUGH LANES BOTH SIDES AND NEW 3.65m WIDE LANE LINE. EXISTING SIGNAGE TO BE RELOCATED ON TO NEW TRAFFIC ISLAND

Street luminaires to be coordinated with the overhead lines at Technical Design stage.

64.9m

EXISTING TRAFFIC ISLAND

VEHICLE CROSSOVER RETAINED

Cherry Tops

The Haven

1.8m WIDE FOOTWAY WITH 0.5m MARGIN TO CARRIAGEWAY

ACCESS RETAINED

EXISTING SPLITTER ISLAND RELOCATED NORTHWARDS

CUT-LINE 3

PEWSHAM

2.4m x 106m VISIBILITY SPLAY TO ROUNDABOUT EXIT

90m VISIBILITY TO OFF-SIDE PRIMARY SIGNAL HEAD

75m VISIBILITY TO NEAR-SIDE PRIMARY SIGNAL HEAD

A4 LONDON ROAD WIDEN ON EASTERN SIDE TO PROVIDE WIDTH FOR TWO ENTRY LANES TO ROUNDABOUT

2.4m x 44m VISIBILITY SPLAY

Pewsham Cottage

GAP LEFT IN HATCH MARKINGS TO PROVIDE INFORMAL RIGHT TURN SIMILAR TO EXISTING PROVISION

EXISTING FOOTWAY AREA AT EXISTING BUS STOP

BUS CAGE 2.7m WIDE x 25m LONG PROVIDED AT EXISTING BUS STOP

TIE INTO EXISTING KERB LINE AND CENTRAL ROAD MARKINGS

DITCH TO BE CULVERTED/RE-GRADED OVER A LENGTH OF 70m

WORKS WITHIN TREE CANOPY

LONDON ROAD (A4)

160m VISIBILITY TO SIGNAL HEAD

New Farm

EXISTING BUS STOP FLAG

BUS CAGE 2.7m WIDE x 25m LONG PROVIDED AT EXISTING BUS STOP FLAG

1.5m x 160m VISIBILITY SPLAY

VEHICLE CROSSOVER RETAINED

1.8m WIDE FOOTWAY WITH 0.5m MARGIN TO CARRIAGEWAY

CUT-LINE 2

64.3m

1.5m x 160m VISIBILITY SPLAY

1.8m WIDE FOOTWAY WITH 0.5m MARGIN TO CARRIAGEWAY

NOTE: TREE CANOPY RAISED IF VISIBILITY

DITCH TO BE CULVERTED/RE-GRADED OVER A LENGTH OF 102m

1.8m WIDE FOOTWAY TO CA

EXISTING FOOTWAY

3.7m EM VEHICLE ACC

The Bourne

The Gables

Ruin

ALLOWANCE FOR EMBANKMENT TO BE REGRADED

Downalong

Gorley

160m VISIBILITY TO SIGNAL HEAD

2.4m x 61m VISIBILITY SPLAY

CUT-LINE 4

2.4m x 160m VISIBILITY SPLAY

THE TURNPIKE

BRAD BURY CLOSE

ROMAN WAY

COLBORNE CLOSE

HENLEY CLOSE

ABBEY CLOSE

LEGATE CLOSE

PEWSHAM WAY

LOUGHE ROAD

LONDON ROAD

El Sub Sta

Shelter

LB

For continuation refer to drawing No.: 1506-LB-EX-XX-DR-E-7080-64

For continuation refer to drawing No.: 1506-LB-EX-XX-DR-E-7080-62

For continuation refer to drawing No.: 1506-LB-EX-XX-DR-E-7080-64

1:500 10m 0 10m 20m 30m 40m 50m

1 Key Plan
Scale: NTS

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Notes

1. This drawing should be read in conjunction with the Luminaire Legend and Notes drawing 1523-LB-EX-XX-SH-E-7080-02.

P05	Minor Update	TB / BB	03.07.26
P04	Updated Site Plan	TB / BB	29.06.26
P03	Updated Site Plan	TB / BB	26.03.26
P02	Updated Site Boundary	TB / BB	27.01.26
P01	Preliminary Issue	TB / BB	20.03.25
Rev	Details:	By / Reviewed	Date

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CLIENT
gleeson HOMES
Promoting Land, Unleashing Value.

PROJECT TITLE
Forest Farm
Chippenham

DRAWING TITLE
Street Lighting Strategy - Section 278
Levels of Horizontal Illuminance Shown at Ground Level
Full Output Shown (MF=1)

SCALE AT A0
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1523-LB-EX-XX-DR-E-7080-63
Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS
Preliminary

ISSUE
P05

A0 - DO NOT SCALE

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Notes

1. This drawing should be read in conjunction with the Luminaire Legend and Notes drawing 1523-LB-EX-XX-SH-E-7080-02.

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For continuation refer to drawing No.: 1506-LB-EX-XX-DR-E-7080-63

For continuation refer to drawing No.: 1506-LB-EX-XX-DR-E-7080-63

CENTURION CLOSE
LODGE MEAD
Shelter
PEWSHAM WAY
DANVERS MEAD
SHERRINGTON MEAD
HOLLAND CLOSE
EXISTING SHARED USE FOOTWAY/CYCLEWAY
PROPOSED NEW UNCONTROLLED CROSSING FOR SHARED USE FOOTWAY/CYCLEWAY
ALDESBURY CLOSE
MONKS WAY
CORY GUSH
ANSTEY PLACE
UPGRADE EXISTING FOOTPATH TO SHARED USE FOOTWAY/CYCLEWAY
EXISTING GATE
RE-GRADE EXISTING FOOTPATH TO 1:12
INDICATIVE 1:3 EARTHWORKS
NEW TOUCH CROSSING OF PEWSHAM WAY
120m FORWARD VISIBILITY SPLAY FROM VEHICLE EXITING ROUNDABOUT TO NEAR SIDE
VEGETATION TO BE CUT BACK TO HIGHWAY BOUNDARY
2.4m x 93m VISIBILITY SPLAY TO 1.5m OFFSET
VEGETATION TO BE CUT BACK TO HIGHWAY BOUNDARY
CUT-LINE 5
CUT-LINE 5
120m VISIBILITY TO PRIMARY HEAD
160m VISIBILITY TO SECONDARY SIGNAL HEAD
2.4m x 160m VISIBILITY SPLAY
CUT-LINE 4
CUT-LINE 4
2.4m x 160m VISIBILITY SPLAY
2.4m x 160m VISIBILITY SPLAY
2.4m x 64m VISIBILITY SPLAY
TREE ROOT PROTECTION AREA
160m VISIBILITY TO SIGNAL HEAD
POTENTIAL NEW LOCATION OF MAINTENANCE ACCESS
INDICATIVE 1:3 EARTHWORKS
SITE BOUNDARY
PUBLIC RIGHT OF WAY TO BE REGRADED ON APPROACH (c. 0.08m BELOW PROPOSED LEVEL)
SHARED USE FOOTWAY/CYCLEWAY
OSA
1.00d
"DIO MOD - Abandoned Pipeline"
Unable to access
X11
X12
X13
ERS Sub Stn

1 Key Plan
Scale: NTS

1:500
10m 0 10m 20m 30m 40m 50m

P05	Minor Update	TB / BB	03.07.26
P04	Updated Site Plan	TB / BB	25.06.26
P03	Updated Site Plan	TB / BB	26.03.26
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Rev	Details:	By / Reviewed	Date

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CLIENT
gleeson PLC
Promoting Land, Unlocking Value.

PROJECT TITLE
Forest Farm
Chippenham

DRAWING TITLE
Street Lighting Strategy - Section 278
Levels of Horrizontal Illuminance Shown at Ground Level
Full Output Shown (MF=1)

SCALE AT A0
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1523-LB-EX-XX-DR-E-7080-64
Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS
Preliminary

ISSUE
P05

A1 - DO NOT SCALE

Luminaire Legend

X1

Proposed 10m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.3 - 64 LED Oslon square giant 480mA 3000K warm white with D14.6 optic (64 LED / 14.60klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2610A03/WILTS
Luminaire Ref: Urbis Axia 3.3 - 64 Oslon Square Giant 480mA 3000K warm white with D14.6 optic (64 LED / 14.60klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X2

Proposed 10m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.3 - 64 LED Oslon square giant 480mA 3000K warm white with D14.6 optic (64 LED / 14.60klm output) complete with integral rear louver.
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2610A03/WILTS
Luminaire Ref: Urbis Axia 3.3 - 64 Oslon Square Giant 480mA 3000K warm white with D14.6 optic (64 LED / 14.60klm output) complete with integral rear louver.
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X3

Proposed 10m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.3 - 64 LED Oslon square giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output) complete with integral rear louver.
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2610A03/WILTS
Luminaire Ref: Urbis Axia 3.3 - 64 Oslon Square Giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output) complete with integral rear louver.
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X4

Proposed 10m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.3 - 64 LED Oslon square giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2610A03/WILTS
Luminaire Ref: Urbis Axia 3.3 - 64 Oslon Square Giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X5

Proposed 8m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.3 - 64 LED Oslon square giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output) complete with integral rear louver.
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2608A01/WILTS
Luminaire Ref: Urbis Axia 3.3 - 64 Oslon Square Giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output) complete with integral rear louver.
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X6

Proposed 8m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.3 - 64 LED Oslon square giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2608A01/WILTS
Luminaire Ref: Urbis Axia 3.3 - 64 Oslon Square Giant 480mA 3000K warm white with E14.6 optic (64 LED / 13.69klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X7

Proposed 5m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.1 - 16 LED Oslon square giant 460mA 2700K warm white with C3.5 optic (16 LED / 3.50klm output) complete with integral rear louver.
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2505T01/WILTS
Luminaire Ref: Urbis Axia 3.1 - 16 LED Oslon square giant 460mA 2700K warm white with C3.5 optic (16 LED / 3.50klm output)complete with integral rear louver
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X8

Proposed 8m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.2 - 32 LED Oslon square giant 580mA 3000K warm white with D8.8 optic (32 LED / 8.87klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2608A01/WILTS
Luminaire Ref: Urbis Axia 3.2 - 32 Oslon Square Giant 580mA 3000K warm white with D8.8 optic (32 LED / 8.87klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X9

Proposed 8m tubular stepped steel (galvanised finish) (root base) column with 1m outreach bracket mounted at 0° Urbis Axia 3.2 - 32 LED Oslon square giant 580mA 3000K warm white with D8.8 optic (32 LED / 8.87klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2608A01/WILTS
Luminaire Ref: Urbis Axia 3.2 - 32 Oslon Square Giant 580mA 3000K warm white with D8.8 optic (32 LED / 8.87klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X10

Proposed 6m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.1 - 8 Oslon Square Giant 540mA 3000K warm white with B2.1 optic (8 LED / 2.10klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2506T01/WILTS
Luminaire Ref: Urbis Axia 3.1 - 8 Oslon Square Giant 540mA 3000K warm white with B2.1 optic (8 LED / 2.10klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X11

Proposed 4m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.1 - 8 Oslon Square Giant 540mA 3000K warm white with B2.1 optic (8 LED / 2.10klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column TBC
Luminaire Ref: Urbis Axia 3.1 - 8 Oslon Square Giant 540mA 3000K warm white with B2.1 optic (8 LED / 2.10klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X12

Proposed 4m tubular stepped steel (galvanised finish) (root base) column with post top mounted at 0° Urbis Axia 3.1 - 8 Oslon Square Giant 270mA 3000K warm white with A1.1 optic (8 LED / 1.13klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column TBC
Luminaire Ref: Urbis Axia 3.1 - 8 Oslon Square Giant 270mA 3000K warm white with A1.1 optic (8 LED / 1.13klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

X13

Proposed 6m tubular stepped steel (galvanised finish) (root base) column with 1m outreach bracket mounted at 0° Urbis Axia 3.2 - 32 LED Oslon square giant 580mA 3000K warm white with E8.8 optic (32 LED / 8.04klm output).
Luminaire to be fitted with DALI dimming and CMS compatible LED driver and temporary miniature photocell with 20 Lux switching. Luminaire shall dim in accordance with the dimming regime below.

Column Ref: CU Phosco - Column R2506T01/WILTS
Luminaire Ref: Urbis Axia 3.2 - 32 Oslon Square Giant 580mA 3000K warm white with E8.8 optic (32 LED / 8.04klm output).
Control Gear Ref: Dali dimming and CMS compatible
Photocell Ref: Zodion SS6 - 20 Lux switch on/off level output
Telecell Ref: Telensa-T2E1N-B-3
Dimming Regime:
100% - Dusk to 20.00HRS
75% - 20.00HRS to 23.00HRS
50% - 23:00HRS to 06:00HRS
100% - 06.00HRS to Dawn
Switch Regime: D19
Dimming Code: 42 0015 0000 100
Isolator Ref: (Single) Lucy Lighting
TR2-PP20-EB2-LD06-06
Internal Wiring: 3 core 2.5mm flexible arctic grade (230V)
Service Connection: Unmetered statutory low voltage supply

EX

Existing luminaire position.

EX R

Existing luminaire proposed to be removed.

Legend

= Application Boundary

Isoline Legend

= 10 Lux
= 5 Lux
= 4 Lux
= 2 Lux
= 1 Lux
= 0.5 Lux
= 0.2 Lux

Notes

1. This drawing represents an indicative street lighting strategy prepared for the planning application stage, and should be developed at technical design stage.
2. Luminaire/ column positions are indicative and will be subject to final site/ road layout and Atkins / Wiltshire Council approval.
3. Levels of illuminance are calculated and shown horizontally at ground level. Calculations are based on luminaires at full output/ maintenance factor = 1 to represent the worst case scenario for assessment purposes. Refer to Calculation Summary for maintained levels of design illuminance.
4. Isolines contours represent values of illuminance calculated in lux.
5. The street lighting has been designed to BS 5489:2020, as follows:
   - The proposed roundabout has been designed to a C2 conflict zone (C2 = 20 Lux Eav, and 0.40 uniformity)
   - The roundabout eastern and western approaches have been designed to an M3 class.
   - The link road has been designed to an M4 class
   - At the bat hop over location an equivalent P2 Class (P2 = 10.0 - 15.0 Lux Eav, and 2.0 Lux Emin) has been applied
   - The proposed junctions along the link road have been designed to a C3 conflict zone (C3 = 15 Lux Eav, and 0.40 uniformity)
   - The existing lighting to Pewsham Way and London Road is proposed to be altered to suit the strategic cycle path proposals. This has been calculated based on an M3 class, and C2 conflict zone.The strategic cycle paths adjacent to the existing road have been designed to a P3 class. The standalone strategic cycle path link into the site is proposed to be lit to a P3 class, grading down to a P5 class.
6. The environmental lighting zone for the site is assumed to be E2, in accordance with a low district brightness area in a rural location.
7. The maintenance factor has been derived, as follows:
   - f_{LLF} / LLMF= 0.98
   - f_{RS} = 0.97
   - f_{LLM} = 0.92 for an E2 zone, with a mounting height of 6m or less, and a 72 months cleaning frequency, as derived from table 1 in BS 5489.

   This results in a 0.87 maintenance factor.
8. The street lighting has been designed to minimise the impact on bats and the environment. All luminaries have been specified in 3000K warm white with the exception of the 2 lanterns for the pedestrian crossing along the link road which have been specified in 4000K neutral white in accordance with Wilshire Council's specification.
9. Integral back light shields (louvres) have been specified to the luminaires as indicated, to minimise the impacts on to the dark areas required for bats. The effect of the back light shields is reflected by the isolines on the drawing.
10. Standard street lighting installation shall be in accordance with Wiltshire Council standard details.
11. The developer is required to supply free of charge the required number of T2e1n-b-3 Telensa telecells to Wiltshire Council for fitting after adoption.
12. Without receipt of telecell's the site shall not be deemed acceptable for adoption.
13. Luminaires, columns, controls, isolation units, cut-outs, fuses and all associated equipment shall be in accordance with Atkins / Wiltshire Council specification.
14. For full section 278 street lighting specification refer to Atkins / Wiltshire Council documentation.
15. Columns should be sited in accordance with BS 5489, and generally be installed in the footpath at the rear or in the absence of a footpath, a minimum of 1.0 metres from the kerb edge to the face of the column. Unless a reduction in set-back distance is agreed with the local authority for shared surfaces/spaces.
16. No obstruction or planting shall hinder access to the column base compartment or the light distribution from the lantern.
17. This drawing should be read in conjunction with the Calculation Summary and all relevant architectural, structural, mechanical and electrical services information.
18. The model is based on calculations on a flat ground plane. No topography, buildings or proposed levels have been built into this calculation model.
19. This design is based on a desktop study, on the information provided by others, with no site visit having been undertaken. The use of this drawing does not absolve the client from his responsibilities under the Health and Safety: The Construction Design and Management Regulations 2015. The Contractor should undertake a thorough Risk Assessment prior to undertaking any installation works.
20. Refer to accompanying Designers Risk Assessment for details of design risks identified.
21. Do not scale from this drawing.
22. All measurements are in millimetres unless stated otherwise.
23. All symbols used are generic and should not be considered as true representations of size or dimensions of actual luminaires.

This Drawing is protected by Copyright. It may not be reproduced in any form or by any means for any purpose without the written consent of The Lighting Bee Ltd. Do not scale: All Dimensions to be checked on Site and verified prior to commencing Works / Manufacture. Any discrepancies to be reported to The Lighting Bee Ltd. These Drawings reflect the layouts for the purposes of design only. The Contractor shall be responsible for producing their own Working and Co-ordination drawings prior to commencing their installations. If these drawings are used for Construction purposes it is done so at the Contractor's Risk.

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P02	Updated Site Plan	TB / BB	26.06.26
P01	Preliminary Issue	TB / BB	27.03.26
Rev	Details:	By / Reviewed	Date

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CLIENT
gleeson land
Promoting Land, Unlocking Value.

PROJECT TITLE
Forest Farm
Chippenham

DRAWING TITLE
Luminaires and Notes Legend

SCALE AT A1
N/A

DISCIPLINE
Lighting

DRAWING NUMBER
1523-LB-EX-XX-SH-E-7080-02
Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS
Preliminary

ISSUE
P02