



Damask Way, Warminster

Lighting Impact Assessment

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Revision Summary

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1 Constraints and Limitations

1.1 QODA Consulting Ltd disclaims any responsibility to the Client and others regarding any matters outside the scope of this report.

1.2 The copyright of this report is vested in QODA Consulting Ltd and Backhouse Housing Ltd. The Client, or their appointed representatives, may copy the report in connection with the development described herein. It shall not be reproduced by any other party or used for any other purposes without the written consent of QODA Consulting Ltd or Backhouse Ltd.

1.3 QODA Consulting Ltd accepts no responsibility to other parties to whom this report, or any part thereof, is made known. Any such other parties rely upon the report at their own risk.

2 Executive Summary

2.1 This Lighting Impact Assessment has been prepared by QODA Consulting Ltd as part of the planning application for the proposed development at Damask Way, Warminster ('The Site').

2.2 This report defines the requirements of the external lighting provision for the proposed erection of 49 residential units at the Site. The proposed development will require meticulous lighting schemes to illuminate pathways, roads, parking spaces and turning heads where required, providing safe movement around the proposed development. This has been based upon an illustrative layout, indicating a fully functioning lighting proposal that is sensitive to the receptors and environment within - and in proximity to - the proposed development red line boundary.

2.3 Written in accordance with relevant lighting standards provided by the British Standards Institution and the Institute of Lighting Professionals, the report categorises the proposed development location as E3 – Suburban. This defines the Obtrusive Light Limitations for the development and has been adopted with the intention of mitigating light pollution, thereby reducing any impacts the development may have on ecology in the local area.

2.4 Where appropriate, measures to reduce light pollution through the selection of low mounted luminaires or motion sensor activation have been discussed.

2.5 The assessment also includes an external lighting design, specified luminaires and illuminance calculations within the Appendices.

2.6 This demonstrates that the mitigation measures included within Section 4 proposed conditions and Section 5 Lighting Assessment have been included to reduce the impact of the proposed development to the existing receptors.

3 Introduction

3.1 Brief

3.1.1 This Lighting Impact Assessment has been prepared by QODA Consulting Ltd on behalf of Backhouse Housing Ltd in relation to external lighting impact.

3.1.2 The report undertakes an exterior lighting assessment to advise on potentially obtrusive effects created by the new lighting scheme associated with the proposed development including erection of 50 residential units together with associated landscaping, car parking and highways. These effects include:

- Light Spill.
- Sky Glow.
- Glare.

3.1.3 The receptors are assessed which may have sensitivity in the differing light levels that can be produced from a new development. These changes can be harmful to the receptors such as bats, birds, hedgehogs, reptiles and varying forms of ecology. These effects are mitigated through a conscientious design process by implementing diligent lighting control; the use of Dark Sky compliant luminaires can be utilised if required, but the focus on downward oriented optics to prevent sky glow and reduce glare have been implemented into the design, as described in this report.

3.1.4 The plan for the proposed development is the erection (new build) of 49 dwellings. This will include the creation of new vehicular access into and around the Site along with car parking, vehicle manoeuvring areas and pedestrian walkways.

3.1.5 At the time of writing this report, the Site is inhabited by some ecology species and comprises of matured grassland divided by native hedgerows with mature trees, scrub, bordering woodland, and with existing residential dwellings to the west and south of the site which remains the closest to the new development.

3.2 Scope

3.2.1 This report supports the application and presents the predicated night-time artificial lighting effects on existing receptors that are likely to result directly from the new installations that form part of the proposed development.

3.2.2 The effects are then compared to recommended benchmarks for light spill, sky glow and glare, as set out within the ILP GN:01 Guidance note for the reduction of obtrusive light, which would fit within the character of a particular area brightness. This report does not consider the effects of a new lighting installation on views as this is subjective and not able to be technically quantified.

3.2.3 Where lighting is found to have the potential for creating obtrusive effects, mitigation strategies are recommended.

3.3 Legislation and Planning Policy Context

3.3.1 This assessment has been undertaken considering relevant legislation and guidance set out in national and local planning policy (summarised below) relating to obtrusive light. The legislation, policy requirements and good practice guidance recommendations have informed this assessment.

3.4 National Legislation

3.4.1 Clause 102 in the Clean Neighbourhoods and Environment Act 2005 defines statutory nuisance from artificial lighting as ‘artificial lighting emitted from premises to be prejudicial to health or nuisance’.

3.4.2 The clause also includes guidance for local authorities to control exterior lighting, depending on the specific context.

3.5 Standards Informing Building Regulations

British Standards

3.5.1 British Standards (BS) are produced by BSI Group, incorporated under Royal Charter, which are intended to set a standard of quality for goods and services. BS documents that are expected to be applicable for the Proposed development include:

- BS 5489-1:2013 – Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas.
- BS EN 13201-2:2015 – Code of practice for the design of road lighting – Part 2: Performance requirements.
- BS EN 12464-2:2014 – Light and lighting – Lighting of workplaces Part 2: Outdoor workplaces.
- CIBSE Lighting Guide 5 – Lighting for Education.
- CIBSE Lighting Guide 6 – The Exterior Environment.
- CIBSE Society of Light and Lighting – Guide to Limiting Obtrusive Light.
- Institution of Lighting Professionals – Guidance Note 01/20 for the Reduction of Obtrusive Light.
- Institution of Lighting Professionals – Guidance Note 08/18 – Bats and Artificial Lighting in the UK.

3.6 National Planning Policy and Guidance

National Planning Policy Framework

3.6.1 The revised National Planning Policy Framework (NPPF) was published in December 2024, amended on 7th February 2025, and sets out the Governments planning policies for England and how they should be applied. This NPPF superseded the previous NPPF published in December 2023.

3.6.2 The revised NPPF maintains the presumption in favour of sustainable development which should be delivered in accordance with three main objectives areas: economic, social, and environmental. The revised NPPF aims to enable local people and their local authorities to produce their own distinctive local

and neighbourhood plans, which should be interpreted and applied in order to meet the needs and priorities of their communities.

3.6.3 Policies and objectives which are of particular relevance to lighting are summarised on paragraph 198:

3.6.4 “Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

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

3.7 Other Relevant Policy, Standards and Guidance

3.7.1 The following best practice guidance has been taken into account informing this assessment:

- CIE 126:1997 – Guidelines for Minimising Sky Glow (Ref 9).
- CIE 150:2017 – Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations. Document referenced by the Clean Neighbourhoods and Environment Act 2005 to inform consideration of artificial lighting.
- CIE 136:2000 – Guide to the Lighting of Urban Areas. Document referenced by BS 5489 Part 1 and BS EN 13201 Part 2.
- ILP GN01:2011 – Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light. Reference document offers context-dependent solutions for control and reduction of light pollution.
- CIBSE Code for Lighting: 2012 reference document published by the Chartered Institute of Building Services Engineers covering good practice interior and exterior lighting.
- DEFRA Lighting in the Countryside: Towards Good Practice, July 1997 reference document on exterior lighting and classification as it applies to the British countryside. Includes guidance and recommendations for development limitations based on context.
- Bat Conservation Trust (2018) Bats and artificial lighting in the UK: Bats and the Built Environment series includes guidance for lighting approaches where bats are present.
- Reduction of Obtrusive Light reference document offers context-dependent solutions for control and reduction of light pollution.
- CIBSE Code for Lighting: 2012 reference document published by the Chartered Institute of Building Services Engineers covering good practice interior and exterior lighting.
- DEFRA Lighting in the Countryside: Towards Good Practice, July 1997 reference document on exterior lighting and classification as it applies to the British countryside. Includes guidance and recommendations for development limitations based on context.

- Bat Conservation Trust (2018) Bats and artificial lighting in the UK: Bats and the Build Environment series includes guidance for lighting approaches where bats are present.
- ILP GN09:2023 - Bats and Artificial Lighting At Night.

4 Methodology

4.1 Assessment Methodology

4.1.1 This report engages a process that is outlined as:

- Identification of existing, or baseline lighting condition, to include identification and assessment of receptors and their sensitivity.
- Review of an outline lighting strategy for statutory installations which is representative of the requirements of the proposed development under British Standards for the associated environment.
- Assessment of the potential effects created by a new lighting condition benchmarked against good practice guidance.

4.2 Data Collection

- New, temporary, and permanent lighting as part of the new installation has the potential to cause change in the night-time visual envelope by creating a noticeable change in brightness to receptors that have an existing exposure to their local brightness conditions.
- Existing conditions, in lighting terms, describes how an area is affected by local lighting installations with the existing land-use in place. This composite creates a baseline that future lighting installations can be reviewed against, including context changes, in order to quantify the potential change that is likely to occur. It also allows for the selection of appropriate receptors likely to be affected; typically, these are people living in local residences or sensitive species inhabiting and/or utilising the area.
- Receptors are those bodies/objects considered to have an elevated level of sensitivity to night-time artificial lighting within a study area, or area likely to be influenced by a new or changed lighting condition. Typically, receptors are selected which have direct views, or the potential to have direct views of new lighting.
- Receptors are further differentiated with respect to their distance from the Site. These are considered to be immediate (on-Site), adjacent (next to the red line boundary), in close proximity (aligning to the ecological Study Area within 250m of the red line boundary) or at a distance (over 250m from the red line boundary). Identifying the extent of potentially affected receptors helps us to identify the extent of the Study Area.

4.3 Potential Effects

- Potential effects created by new or changed lighting can be predicted by demonstrating a given change in lighting condition through a measurable parameter. Changes in lighting effects that are observed to create a negative response for people, wildlife and the environment are created by light that strays away from the area that is being lit, results from a too-bright installation, or from lighting that is not correctly directed.
- The assessment process establishes a baseline condition to identify characteristics for lighting in a particular area or environmental zone, as well as identifying receptors that may be affected by a change in their local lighting condition.

- The type of environmental zone within which a Site is located aligns to descriptions provided by the ILP GN01 guidance note, i.e. city centres with high night-time activity (E4), urban areas (E3), rural locations (E2), those set aside as National Parks or Areas Of Natural Beauty – AONBs (E1) or protected locations that have achieved dark sky status (E0). The environmental zone provides limiting criteria, which further reduce the potential effects of a new lighting installation, as well as fitting within the character of the area. See Table 5.2 for descriptions of these environmental zones. The existing environmental zone for the Site has been determined by assessment to be of E3 status, as shown in Table 5.2 within this report.
- A proposed lighting condition or outline lighting strategy is then tested in order to assess how the new lighting strategy will perform against good practice guidance ILP GN01 recommendations for light spill, sky glow and glare. Testing uses a proposed lighting design, by constructing a simple model of the Site incorporating proposed lighting equipment and receptors of concern along with any permanent obstruction, i.e. buildings. The model incorporates luminaires that are consistent with the design criteria described by a lighting strategy, if a design has not been proposed, thus providing an indication of how the new lighting is expected to perform.
- A lighting design found to meet or improve upon the established benchmarks and criteria within ILP GN01 is normally considered to have a negligible effect on receptors, while a design that exceeds these benchmarks may create adverse effects. By reviewing proposed conditions against these criteria, the perceived effects to receptors can be predicted, calculated and mitigated, where required.

4.4 Defining Potential Effects

4.4.1 While the effects of a lighting installation may be commented on, the visual impact for lighting to adjacent properties is subjective and will not form part of the analysis. The three metrics that are tested include:

- **Light spill** - which is considered to be illuminance extending beyond the boundary of a Site on which a light source is located to a degree which causes a visual nuisance. Light spill is often considered to be the intrusion of light into homes; however, it may occur when light reaches an area where it is not intended or desired. Light spill can have a negative impact on wildlife and ecological systems local to an installation. Coordination with the project landscape architect and the project's ecologist will look to minimise this disturbance by ensuring illuminance is targeted at the areas that require the proposed lighting levels.
- **Sky glow** - which is considered to be the brightening of the night sky above illuminated areas. This brightness created is constantly varying as a function of multiple parameters, such as direct-upward light through ing, ground surface reflectance, overhead cloud cover exacerbating the straying upward light through reflectance, and the degree of water droplets in the atmosphere – rain, fog/mist, and snow, for example, amplifying the effect further.
- **Glare** - which may include the placement of luminaries, their optical and photometric characteristics, how brightly they are lighting a building or external space, compared to the relative brightness of the viewing context, this is measured in kilocandela (kcd, source intensity).

4.5 Reporting

4.5.1 The results from the analysis are explored and summarised, with commentary given for any outcomes which are likely to exceed good practice guidance on identified receptors or thoroughfares. Conclusions are presented and a brief commentary made; adjustments of the proposed array can then be undertaken at this stage to satisfy any further client or compliance requirements.

4.6 Limitations and Assumptions

4.6.1 It is expected that generally, the lighting for construction and operational phases will adhere to the following recommendations:

- All lighting is to be aimed at its intended target, optics being orientated downward and away from neighbouring properties and identified habitats or commuting routes where possible which may include trees; hedgerows, rivers, ponds, and bat/bird flight zones. Luminaires are to enable dark sky compliance properties if required, which will be determined on a site-by-site and site operational layout basis.
- Where possible, full cut-off luminaires will be used and it is expected that shields, hoods, cowls, baffles, or louvres will be employed to aid in further control of new lighting near sensitive areas to limit and minimise upward light output ratio (ULOR) or direct views of light sources.
- New permanent or temporary lighting in locations near sensitive ecological receptors should limit output in the blue/ultraviolet range to avoid a change to insect behaviours.
- If luminaires are situated within tree RPAs or through the woodland on site for pathway illumination, this is to be hand dug to minimise ecological disturbance in these areas.
- Following coordination with the ecologist, the external lighting provision shall be minimised to not exceed 0.2lx on the horizontal plane and 0.4lx on the vertical plan at 7.5m away from where sensitive inhabitants live or commute.

4.6.2 It is assumed that the construction schedule activities will be primarily kept to daylight hours and the use of high-powered floodlights during the hours of darkness will be limited and are therefore not assessed; nevertheless, in the case where lighting is adopted for night-time activities, it is expected that a Construction Lighting Management Plan is included with the Construction Environmental Management Plan (CEMP) to limit the potential for obtrusive light.

4.6.3 It is expected that new lighting for the proposed development will respond to requirements and recommendations set out by British Standards and good practice guidance to support safe access and use of the Site.

4.6.4 New permanent lighting associated with the proposed development is expected to incorporate statutory road lighting around the new access road to the Site as part of the Section 38 and 278 works in addition to lighting for newly developed car parks and pedestrian pathways.

4.6.5 It is assumed that all new permanent lighting introduced as part of the proposed development will adhere to the requirements established for external lighting applications, where present, and will not exceed recommendations made within this report.

4.6.6 Though it is assumed that some visual screening will be provided by existing landscape such as trees or hedgerow to some receptors, or introduced as part of the proposed development, this type of variable effect is not included for assessment, except where particular discussion of bat flight routes have been proposed by the ecologist with light spill to be minimised in these locations, as achieved by the proposed array.

4.6.7 It is assumed that the overall presence of species/habitat will be investigated within the ecological report supporting the application as necessary. Should these assumptions be changed, potential effects of wildlife or habitat in association with the proposed Site will be reviewed and reassessed.

4.6.8 It is assumed that all lighting applications within the proposed development are not required throughout all hours of darkness. Lighting equipment with the capability of dimming is to be used, or lighting is to be switched off, in accordance with good practice and current planning policy approved strategies for part-night lighting. Lighting within the proposed array is to operate within the hours set by the adjoining existing residential development external lighting scheme. These parameters are to be obtained by the contractor prior to commissioning of the proposed array for synonymous illumination on initial energisation.

5 Site Description

5.1 Site Conditions

5.1.1 A lighting review and desktop study have both been undertaken to determine the proposed lighting conditions which potentially will be present as the built environment. Existing conditions are experienced by residents and ecological receptors, typically from locations within the local area which have direct views of the Site. The existing Site comprises of mature grassland, circumferential native hedgerows with mature trees.

5.2 Site Context

5.2.1 The redline boundary indicated for the Proposed development covers is shown in Figure 5.1.

5.2.2 The Site (Nat Grid ref - ST 8776644143) is located in a predominantly suburban area, there are existing residential buildings to the South and the West of the site.



Figure 5.1: Site Plan and Red Line Boundary – Damask Way, Warminster



Figure 5.2: Damask Way - Site Location

5.3 Existing Lighting Context

5.3.1 The existing housing development along Damask Way is currently illuminated with post top lights which is concurrent with the proposed scheme. The majority of the existing lighting associated with the surrounding areas of the Site can be considered to be consistent with typical suburban residential properties and the estates they reside on.

5.4 Lighting Control

5.4.1 Control strategies for lighting installation respond to mitigation measures for ecology and impact on neighbouring properties.

5.4.2 Further to this, the external light provision will have lighting control strategies in place to limit unnecessary light pollution, avoid unnecessary illumination and mitigate against any disturbances to the ecology and neighbouring properties.

5.4.3 The proposed lighting control strategies on the proposed development are detailed in the paragraph below:

- The lighting to the pathways, access road and parking areas will be on from dusk and deenergise when daylight is sufficient to activate daylight sensors. They will energise at 100% at the pre-set time in the morning should the daylight level not be enough and turn off when there is sufficient

daylight. The existing residential development along Damask Way has an existing external lighting provision, and the control method in which it is energised shall be imitated for synonymous timing of illumination, with time clock control in place. The developer shall ascertain this method of control during developed design stage.

5.4.4 These methods of control strategy are described in Section 6 of this document.

5.5 Built Receptors

5.5.1 Built receptors that are considered to both have the potential for being affected by a noticeable change in lighting condition and have the potential for direct views of the Site or the potential for direct views include:

- Residential buildings with direct views of the Site are most likely to be sensitive to, and experience a noticeable change in, the night-time lighting conditions. The residential building bordering the Site to the west has been examined as being the closest. As seen in Figure 5.3, the residential property located at this point is at a distance of approximately 20m. Even if one was to discount the proposed planted trees between the roadway and mentioned house, and assess it as a clear line of sight, with the distances shown of the residences to the Site and the luminaires proposed on the scheme, the inverse square law and the calculations provided in the Appendix, tell us that the light intensity on the ground will be that of only moonlight by the time it is measured at the location of the house from where the luminaires are to be situated. The inverse square law is the scientific law of light intensity diminishing over distance, with the rate of decrease in proportion to the square of the distance between emitter and receiver.

5.5.2 Public and commercial buildings are within the Site, adjacent to the red line boundary, or in close proximity, are not considered to have a particular sensitivity to light, as they are less likely to be sensitive to a change, or experience a noticeable change, in the night-time lighting conditions. Public, commercial, and industrial buildings are therefore not included within this assessment.



Figure 5.3: Built Receptor Distance Plan

5.6 Ecological Receptors

5.6.1 Artificial lighting may influence nocturnal species, with some insects attracted to blue and ultraviolet wavelengths. This can affect how species use adjacent areas for movement or foraging.

5.6.2 Available literature indicates that some bat species (e.g. pipistrelle, noctule, Leisler's) may feed near lit areas due to increased insect activity, while others (e.g. myotis species, Lesser Horseshoe, long-eared bats) tend to avoid illumination. These responses can vary by context and species, and detailed ecological interpretation lies outside the scope of this lighting report.

5.6.3 Relevant ecological receptors for the lighting impact assessment include:

- Wildlife and habitat within the Red Line Boundary and up to 100 m beyond it, particularly areas that may be used by commuting or foraging bats.

5.6.4 This report should be read alongside the Ecology Report by Nicholson Pearson Associates, which provides the definitive ecological assessment for the Site.

5.6.5 Table 5.1 outlines bat species identified or considered likely to be present and their general sensitivity to lighting, as relevant to informing lighting design and mitigation.

Species	Sensitivity to Light	Notes	Considered for Lighting Assessment
Bats (Roosting)	High	Species of bat have been recorded at the site location. Two specific trees have been identified as having potential to support multiple roosting bats, but none recorded on the Site within the red line boundary.	Yes. Dark Sky, strategically oriented luminaires used for the Site to minimise disturbance and dispel upward sky glow directly from the luminaire.
Bats (Commuting and Foraging)	High	Impacts on foraging and commuting bats are possible through clearance of vegetation, removal or modification of trees, construction activities, habitat loss and habitat modification. The study found that the bats used the existing hedgerows as commuting flight paths to and from the Site to access the neighbouring habitats.	Yes. 0.5lx maximum illuminance to be within 7.5m of woodland boundary, as dictated by the ecologist and incorporated into the lighting design.

Table 5.1: Ecological Receptor Identification

5.7 Environmental Classification

5.7.1 The degree to which an artificial lighting installation is likely to impact on an environment is in part dependent on visual context. Lighting installation in areas that are relatively dark are likely to have a greater effect on their environment than those in areas that are used throughout the night and are brightly lit.

5.7.2 Benchmarks, and subsequent recommendation, also refer to a curfew period, after which reduced obtrusive lighting effect criteria are stipulated. Curfew typically is considered to start from 23:00 at the latest, although this may differ between councils and their local requirements. Table 5.2 below provides additional detail of how lighting environmental zones are considered, as set out in ILP GN:01.

5.7.3 The Site can be considered as having a suburban surrounding, due to its concentration of homes next to a larger town, adjacent to a section of grassland and has been designated as an E3 zone as part of this report shown in Table 5.2 below. The development will therefore be designed within the Zone E3 limitations.

Zone	Surrounding	Lighting Environment	Examples	Equivalence Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks	Few people, few paved roads, infrequent use of exterior lighting to promote dark skies with minimised sky glow.

Zone	Surrounding	Lighting Environment	Examples	Equivalence Examples
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc.	No road lighting and low population.
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations.	Road lighting lit to residential standards and relatively low population.
E3	Suburban	Medium district brightness	Small town centres or suburban locations.	Roads lit to traffic route standards with moderate population density.
E4	Urban	High district brightness	Town/city centres with high levels of nighttime activity.	Areas of high activity after dark, such as shopping centres or urban areas with a high concentration of restaurants and clubs.

Table 5.2: Environmental Zones (extract ILP GN01)

5.7.4 It is recommended that new lighting associated with the development extending toward the woodland, including local/residential roads, incorporate illuminance control for new lighting through strict upward light cut-offs and good optical distribution in keeping with Zone E3 recommendation.

5.7.5 Performance findings are provided and discussed in this context, with further commentary made for the performance given in terms of Zone E3, where the external lighting scheme is adjacent to A and B-roads, and residential areas.

5.7.6 It can be seen from Table 5.3 below, that a lighting installation located in an area deemed to be more sensitive will understandably equate to greater constraints with regards to obtrusive light. Based on our appraisal, see below for maximum levels of obtrusive light associated with an E3 Zone.

Zone	Sky Glow ULR (Max %)	Light Intrusion (into Windows) Ev (Lux)		Luminaire Intensity I (Candelas)		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L (cd/m ²)
E0	0	0	0	0	0	0
E1	0	2	0	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	25,000	25

Table 5.3: Obtrusive Light Limitations for Exterior Lighting Installations (extract ILP GN:01)

Note: Curfew – The time at which more stringent requirements for the control of obtrusive light are enforced. The ILP recommend that this occurs from 23:00hrs although this can also be defined by the local planning authority/adjoining site external lighting parameters.

6 Proposed Conditions

6.1 Site Context

6.1.1 The Proposed development includes erection of 49 residential units together with associated landscaping, footpaths, car parking and roadways.



Figure 6.1 Proposed Site Residential Development – Damask Way

6.1.2 Figure 6.1 above provides an overview of the proposed development indicating the density of proposed residential dwellings within the Site and proximity to surrounding landscape and receptors.

6.1.3 New lighting should follow the recommended optical performance indicated in the Outline Lighting Strategy below.

6.1.4 It is expected that other types of lighting associated with residential installations will also incorporate recommendations provided within the Outline Lighting Strategy.

6.2 Proposed Lighting Context

6.2.1 The proposed development is to present new overall lighting condition within the Site for vehicular movement across the site including the access road, car parking and turning heads. Lighting is already present up to the adjoining residential estate boundary and the proposed design will form an extension of the existing access road lighting provision.

6.3 Outline Lighting Strategy

6.3.1 This assessment recommends approaches and considerations for lighting performance criteria and design from the available development information and good practice guidance for new lighting installed as part of the proposed development, based upon an illustrative layout, with further details of the lighting to be agreed at the Reserved Matters Stage. These approaches and considerations form the Outline Lighting Strategy which will limit the potentially obtrusive lighting effects associated with the proposed development and demonstrate the feasibility of a suitable lighting strategy within the red line boundary for the environment in which it is to reside, sensitive to the nearby receptors. The proposed design can be found within Appendix A and the calculations affirming the strategy within Appendix B at the back of this assessment.

6.4 Aesthetic Building and Landscape Amenity Lighting

6.4.1 Specific aesthetic / decorative landscape lighting strategies and equipment selections should be designed cohesively with the landscape architecture and its context. Any application of aesthetic landscape lighting should ensure only immediate landscape feature elements are illuminated, avoiding obtrusive light contribution in cohesion with this report ethos.

6.4.2 Aesthetic / decorative building lighting strategies and equipment selections should be designed cohesively with the architecture of buildings and their context. Use of decorative building lighting should limit illumination to feature building elements in close vicinity only to aid in avoiding obtrusive light contribution in cohesion with this report ethos also.

6.5 Building Perimeter / Security Lighting

6.5.1 The use of wall mounted luminaires, functional or decorative, with full horizontal cut-off installed at 0° tilt with back reflectors, and internal baffles designed to limit views of the lamp, glare and direct light in a controlled pattern is recommended. This is to limit upward light output ratio (ULOR) to prevent sky glow and minimise disturbance to neighbouring receptors. Mounting height should be kept to a minimum and confirmed with the Architect/Contract Administrator/Site Coordinator prior to installation.

6.5.2 Alternatively, or in combination with the above, full horizontal cut-off light poles, bollards, and low-level lighting in the form of IP rated LED strips may be utilised provided they are appropriately aimed to their intended target or illuminance and shielded accordingly.

6.6 Luminaire Selection

6.6.1 The use of Dark Sky Compliant, full horizontal cut-off luminaires installed at 0° tilt with flat glass lenses, back reflectors and internal baffles designed to limit views of the lamp and glare and direct light in a controlled pattern are recommended. This will protect the surrounding area from unnecessary light spill, minimise light spill to only that of the intended area of illumination, and protect wildlife from intruding illumination into the ecological inhabited area.

6.6.2 Where full cut-off type luminaires installed at 0° tilt are not suitable for a particular application, it is recommended to use shields, hoods, cowls, or baffles to aid in controlling how light is distributed.

6.6.3 Figure 6.2 provides an indication of the downward-oriented optic column luminaires proposed for illumination of pathways, turning heads, access roads and parking spaces on the new residential development at Damask Way.



Figure 6.2: Dark Sky Compliant Holophane Factor Small Post-Top Luminaire

6.6.4 Figure 6.3 provides an indication of the downward-oriented optic bollard luminaires proposed for the pathways that are separate to the roadway, where the illuminance does not have to reach distances provided by the post-top luminaires shown in Figure 6.2, and illuminates the pathways as necessary for pedestrian ease of movement across the Site as an entirety. Both luminaire datasheets are located within Appendix C at the back of this assessment.



Figure 6.3: Dark Sky Compliant Holophane Denver iD Bollard Luminaire

6.7 Lamps

6.7.1 The proposed development will utilise LED technology. Use of LEDs are recommended low energy consumption solutions and for installation that needs to incorporate dimming strategies.

6.7.2 Light colour and spectral composition should respond to area character and ecology recommendations. It is expected that this will involve a warmer white, with 2700K in residential areas in order to reduce the overall UV component of new installation through limiting blue spectrum light causing disruption to the ecology within the surrounding area.

6.7.3 Additionally, luminaire optic outputs should be selected to achieve required light levels without over-lighting to minimise impact of the installed array.

6.8 Lighting Control

6.8.1 It is expected that new luminaires used for amenity applications will be full cut-off and have good optical control to limit the potential for stray light and visual discomfort for neighbouring receptors, both built and environmental.

6.8.2 Control strategies for a lighting installation are partly in response to mitigation measures for ecology, impact on neighbouring properties and used for energy saving purposed also. In general, as part of the part night-lit strategy, the majority of lights are switched off post-curfew, this is to be agreed with the local council and imitate that of the neighbouring existing development along Damask Way. This will be via timeclock/photocell control, ensuring illumination of the luminaires is only activated when required and to local artificial illumination parameters. PIR detection is also recommended to form part of the scheme where suitable, such as part of the building perimeter incorporated onto the new dwellings, to reinforce the need to illuminate when required only and to minimise light spill into the surrounding areas whilst maintaining site security.

7 Lighting Assessment

7.1 General Observations

7.1.1 The proposed development will introduce new structures which, if built to their maximum heights, would create new screening elements which are taller than columns that are anticipated to be used along new internal roads, paths and parking areas. This will aid in inherently limiting direct views of new installations from many viewing locations internal and external to the redline boundary and to notable sensitive areas such as the surrounding woodland.

7.1.2 With the significant quantities of trees and hedgerows being retained and proposed as part of the new development, both within the Site and at the perimeter, natural screening is retained and expected to provide for additional obstruction to direct views of new lighting. This will primarily benefit residential receptors on all sides, near and far.

7.1.3 Residential receptors outside the redline boundary may have occasional direct view to locations within the Site, but it is expected that these will be limited through a combination of distance from the proposed development, retained/proposed landscape elements around the Site boundary, and the introduction of new structures.

7.2 Recommendations

7.2.1 The predicted performance of the proposed development uses the Outline Lighting Strategy described within this report and published guidance within the field for the ecological mitigation measures to preserve the environment in situ whilst providing resident/pedestrian safety. This has been based on an illustrative layout, and finite details of the lighting strategy are to be agreed at the Reserved Matters stage. This proposal has been prepared to demonstrate a suitable lighting strategy can be achieved in the development location chosen and that a condition to the outline planning permission can be imposed to require details to be submitted and agreed prior to occupation of any dwelling.

7.2.2 The final development lighting proposals for exterior spaces should reflect:

- Environmental requirements and adherence to good practice guidance recommendations.
- Technical requirements as described by British Standards and other related academic documentation, as appropriate.
- Appropriate selection of luminaires and optics which respond to both environmental and technical requirements.
- Local authority requirements.

7.3 Summary

7.3.1 To summarise the lighting strategy detailed within this report, the key principles that will need to be carried forward to the detailed design stage are as follows:

- Roadways and pathways illuminated to the correct lighting levels as detailed in the relevant British Standards for the area in which the proposed development resides.
- To minimise habitat disturbance, the proposed design is to achieve 0.5lux or less in the areas outlined by the ecological assessor as being ecologically sensitive.
- To ensure the luminaires chosen for installation offer minimal ULOR, utilise Dark Sky properties, and have the correct optic to minimise light spill into unwanted areas whilst illuminating the intended target.
- Ensure that internal road and parking areas within the development are lit adequately to the correct technical specification, depending on the nature, intended use and to ensure users' safety.
- Minimise crime, arson, and fear of both.
- Minimise impact on ecology and neighbouring residences.

8 Definitions

8.1 Sky Glow ULOR (Upward Light Output Ratio)

The percentage of luminaire flux of a luminaire that is emitted above the horizontal. This value is limited by the environmental zone classification of the surrounding area.

8.2 Light Intrusion (into Windows) E_v (Lux)

Light intrusion, measured in the vertical plane, into windows as a result of street lighting.

8.3 Luminaire Intensity I (Candelas)

The SI measure of luminous power per unit solid angle emitted by a point light source in a particular direction. This is calculated by summing the weighted contribution of each wavelength emitted by the light source. Weightings are attributed based on the sensitivity of the human eye to different wavelengths of light.

8.4 Building Luminance (cd/m^2)

A measure of Luminous Intensity per metre square on nearby buildings.

8.5 Average Road Surface Luminance (cd/m^2)

The average value of Luminous Intensity per metre square across a road surface.

8.6 Longitudinal Uniformity (U_o)

Ratio of the lowest to the highest road surface luminance in a line in the centre along a driving lane.

8.7 Longitudinal Uniformity (U_l)

Lowest of the longitudinal uniformities of the driving lanes of the carriageway.

8.8 Threshold Increment (TI)

Measure of the loss of visibility caused by the disability glare of the luminaires of a road lighting installation. Disability glare is caused by the reduction in contrast between an object and its background due to situations such as reflection of sunlight off a road or car-bonnet into a motorist's eyes.

8.9 Surround Ratio (SR)

Average illuminance on strips just outside the edges of the carriageway in proportion to the average illuminance on strips just inside the edges.

8.10 Conflict Area

Conflict areas are typically junctions, intersections, roundabouts, and pedestrian crossings, where significant streams of motorised traffic intersect with each other or with other road users such as pedestrians and cyclists.

8.11 Illuminance (Lux)

A measure of luminous flux per unit area (One lumen per metre square).

9 Appendices

9.1 Appendix A – Proposed External Lighting Design

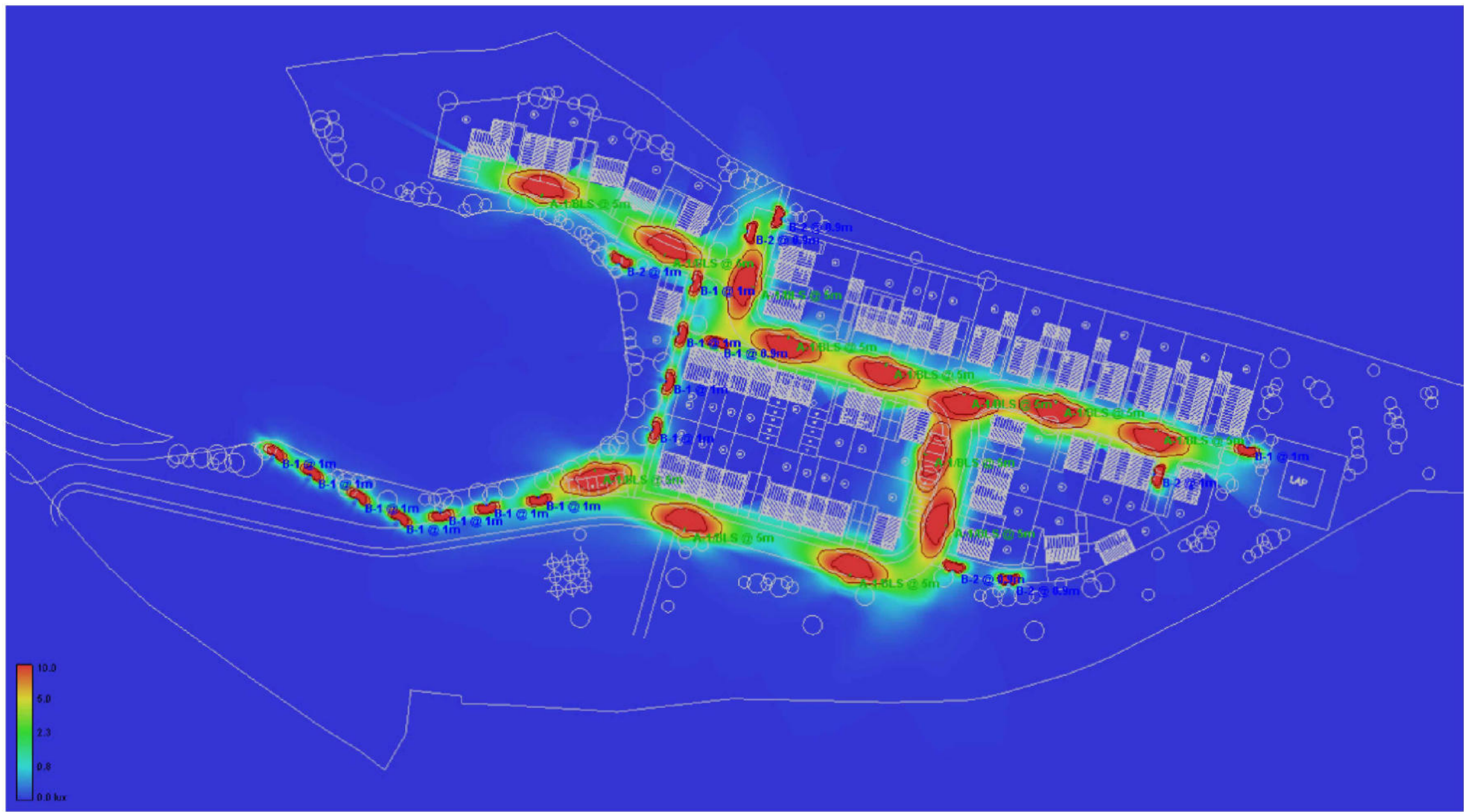
Schedule						
Symbol	Label	Quantity	Catalog Number	Description	Lumens Per Lamp	Wattage
	A-1	13	FTS.4.LA032.20LED.NR.BLS	Column mounted @ 5m, External Back Light Shield	3000	21.5
	B-1	13	DBD.1.LA012.SU.NR.LS.W006	Bollard @ 900mm	393	6
	B-2	6	DBD.1.LA012.SU.NR.LS.W006	Bollard @ 900mm	496	6

Isoline				
5 Lux	2 Lux	1 Lux	0.5 Lux	0.2 Lux

Statistics						
Description	Symbol	Target Lux (Avg)	Target Uniformity	Achieved Lux Avg	Achieved Lux Min	
Walkway 1				6 lux	1 lux	
Walkway 2				4 lux	1 lux	
Walkway 3				3 lux	1 lux	
Walkway 4				7 lux	2 lux	
Walkway 5				9 lux	1 lux	

Statistics							
Description	Symbol	Target Lux (Avg)	Target Lux (Min)	Target lux for Uniformity	Achieved Lux Avg	Achieved Lux Min	Standard
Main Road - P4 - 5 Lux Avg/ 1 Lux Min		5 lux	1 lux	7.5 lux	7 lux	1 lux	BSEN 13201 - P4
Secondary Road		5 lux			9 lux	0 lux	
Secondary Road 2		5 lux			9 lux	1 lux	
Secondary Road 3		5 lux			6 lux	0 lux	

Statistics							
Description	Symbol	Target Lux (Avg)	Target Uniformity	Achieved Lux Avg	Achieved Lux Min	Achieved Min/Avg	Standard
Parking		10 lux	0.25Uo	10 lux	3 lux	0.30	BS EN 12464-2:2024
Parking 2		10 lux	0.25Uo	10 lux	6 lux	0.60	BS EN 12464-2:2024



DRAWING NOTES

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- STRUCTURE, STRUCTURAL MEMBERS & GEOTECHNICAL INVESTIGATIONS ARE TO BE CARRIED OUT & APPROVED BY THE APPOINTED STRUCTURAL ENGINEER. ANY DEVIATIONS TO THESE ELEMENTS ARE TO BE REPORTED TO THE APPOINTED CONSULTANT IMMEDIATELY.
- DRAWING TO BE READ ALONGSIDE ALL PLANNING DOCUMENTATION SUBMITTED BY BACKHOUSE HOUSING LIMITED. IF ANY CHANGES ARE MADE TO THE PROPOSED DEVELOPMENT WITHOUT THE CONSULTATION TO THE LIGHTING ENGINEERS, THIS DRAWING WILL BE NULL AND VOID WITH NO ADMISSION FOR INSTALLATION.

LUMINAIRE SCHEDULE

- A-1** - HOLOPHANE FACTOR SMALL SM COLUMN POST TOP LUMINAIRE WITH BACK LIGHT SHIELD
- CATALOGUE NUMBER
 - FTS.4.LA032.20LED.NR.BLK
 - 21W
 - 2700K DARK SKY APPROVED
 - METALLIC SILVER (RAL9006)



- B-1&2** - HOLOPHANE DENVER ID 1M BOLLARD
- CATALOGUE NUMBER
 - DBD.1.LA012.SU.NR.LS.W006
 - 6W OUTPUT
 - 2700K DARK SKY APPROVED
 - METALLIC SILVER (RAL9006)



DO NOT SCALE

P03 DESIGN REVISED	01.04.2026
P02 PLANNING ISSUE	20.03.2026
P01 PRELIMINARY ISSUE	17.03.2026
Rev Description	Date



Client:

BACKHOUSE HOUSING

Project:

DAMASK WAY, WARMINSTER

Drawing Title:

Electrical Services
External Lighting Services Layout

Status:	Stage:	Job Number:
S2	3	NOR00866D

Designed:	Drawn:	Checked:	Scale:	Paper Size:
JR	JR	RR	1:500	A1

Drawing Number:	Rev.
NOR00866D-QODA-XX-XX-DR-E-0901	P03

9.2 Appendix B – Proposed External Lighting Calculations



Damask Way, Warminster

Lux Level Report

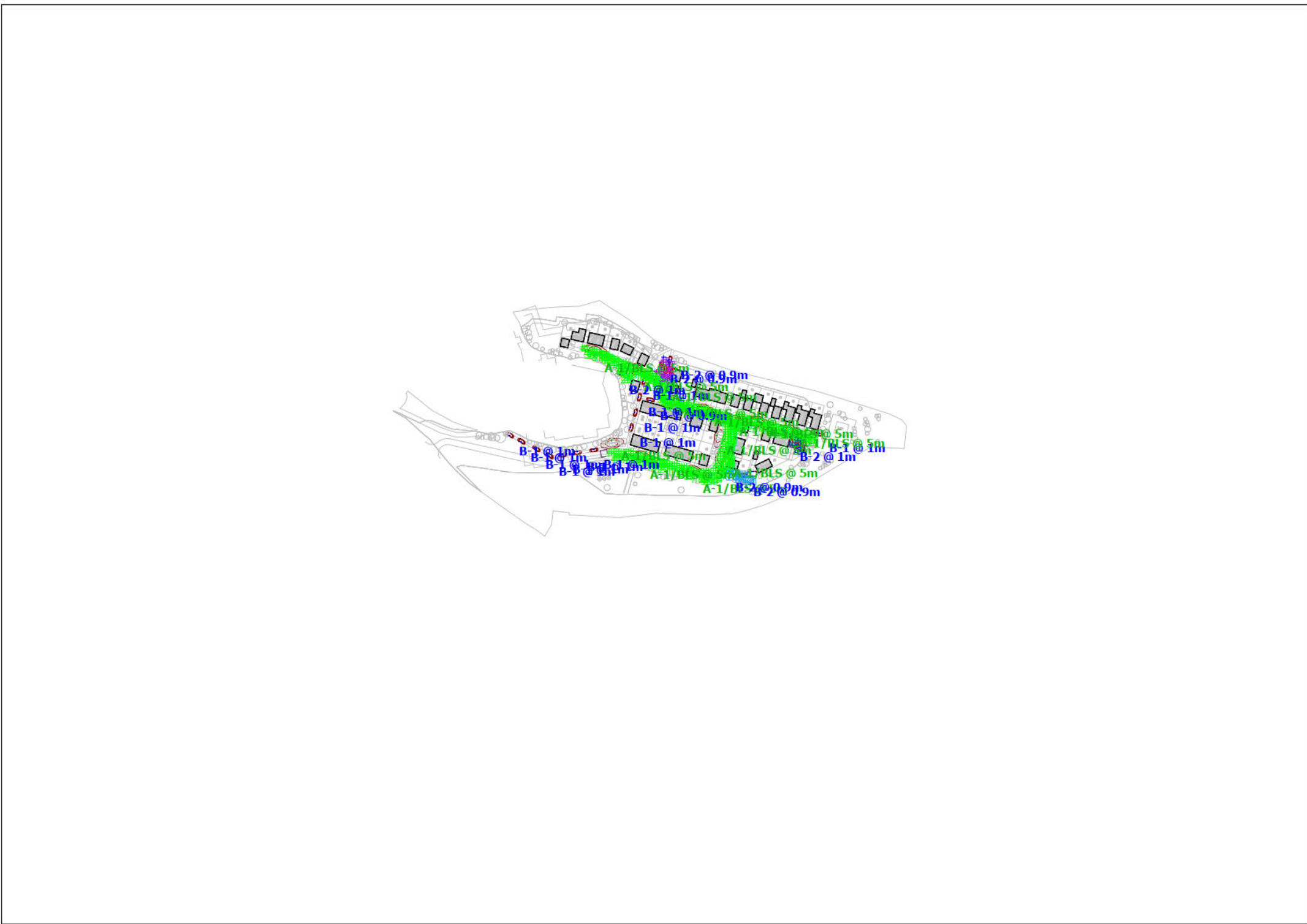
NOR00866D-QODA-XX-XX-RP-E-0001

Revision Summary

Issue	Document prepared			Document checked		
	Name	Signature	Date	Name	Signature	Date
01	R.Rahimi		20/03/2026	J.Rushton		20/03/2026
02	R.Rahimi		01.04.2026	J.Rushton		01.04.2026

Schedule						
Symbol	Label	Quantity	Catalog Number	Description	Lumens Per Lamp	Wattage
	A-1/BLS	13	FTS.4.LA032.20LED.NR.BLS	Column mounted @ 5m. External Back Light Shield	3000	21.5
	B-1	13	DBD.1.LA012.SU.NR.LS.W006	Bollard @ 900mm with internal Light Shield	393	6
	B-2	6	DBD.1.LA012.SU.AY.LS.W006	Bollard @ 900mm with internal Light Shield	496	6
	C-1/BLS	0	FTS.4.LA022.20LED.NR.BLS	Column mounted @ 5m. External Back Light Shield	2000	16.2

Isolines				
=0.2 lux	=0.5 lux	=1 lux	=2 lux	=5 lux
RED	BLUE	GREEN	BROWN	PURPLE



Plan View
Scale - 1 : 3810

Statistics							
Description	Symbol	Target Lux (Avg)	Target Lux (Min)	Target lux for Uniformity	Achieved Lux Avg	Achieved Lux Min	Standard
Secondary Road 2	+	5 lux			9 lux	1 lux	

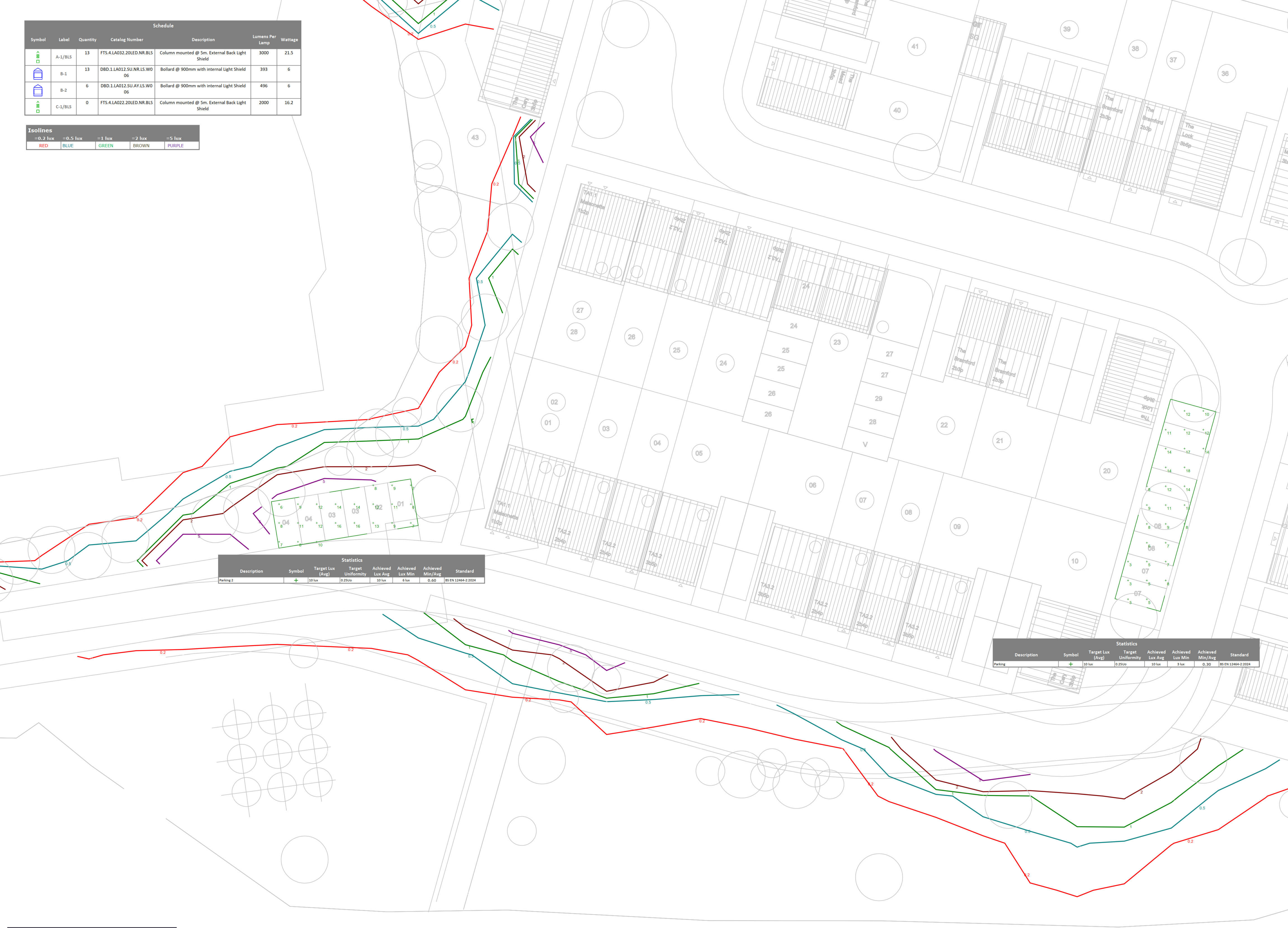
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Description	Symbol	Target Lux (Avg)	Target Lux (Min)	Target lux for Uniformity	Achieved Lux Avg	Achieved Lux Min	Standard
Secondary Road 3	+	5 lux			6 lux	0 lux	

Statistics							
Description	Symbol	Target Lux (Avg)	Target Lux (Min)	Target lux for Uniformity	Achieved Lux Avg	Achieved Lux Min	Standard
Secondary Road	+	5 Lux			9 lux	0 lux	

Statistics							
Description	Symbol	Target Lux (Avg)	Target Lux (Min)	Target lux for Uniformity	Achieved Lux Avg	Achieved Lux Min	Standard
Main Road - P4 - 5 Lux Avg / 1 Lux Min	+	5 lux	1 lux	7.5 lux	7 lux	1 lux	BS EN 13201 - P4

Schedule						
Symbol	Label	Quantity	Catalog Number	Description	Lumens Per Lamp	Wattage
	A-1/BLS	13	FTS.4.LA032.20LED.NR.BLS	Column mounted @ 5m. External Back Light Shield	3000	21.5
	B-1	13	DBD.1.LA012.SU.NR.LS.WO 06	Bollard @ 900mm with Internal Light Shield	393	6
	B-2	6	DBD.1.LA012.SU.AY.LS.WO 06	Bollard @ 900mm with Internal Light Shield	496	6
	C-1/BLS	0	FTS.4.LA022.20LED.NR.BLS	Column mounted @ 5m. External Back Light Shield	2000	16.2

Isolines				
=0.2 lux	=0.5 lux	=1 lux	=2 lux	=5 lux
RED	BLUE	GREEN	BROWN	PURPLE

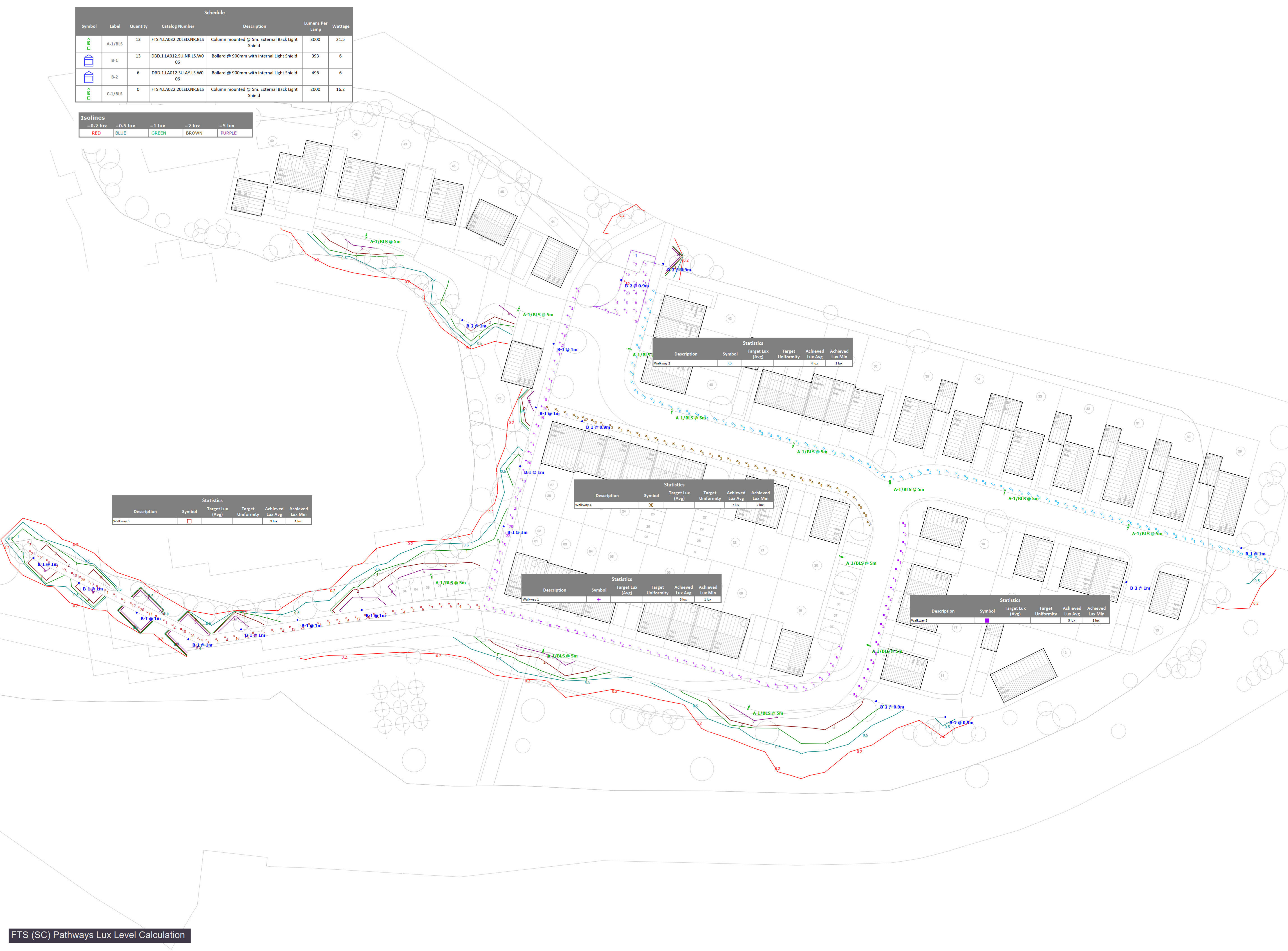


Statistics							
Description	Symbol	Target Lux (Avg)	Target Uniformity	Achieved Lux Avg	Achieved Lux Min	Achieved Min/Avg	Standard
Parking 2	+	10 lux	0.25Up	10 lux	6 lux	0.60	BS EN 12464-2:2024

Statistics						
Description	Symbol	Target Lux (Avg)	Target Uniformity	Achieved Lux Avg	Achieved Lux Min	Achieved Min/Avg
Parking	+	10 lux	0.25Up	10 lux	9 lux	0.30

Schedule						
Symbol	Label	Quantity	Catalog Number	Description	Lumens Per Lamp	Wattage
	A-1/BLS	13	FTS.4.LA032.20LED.NR.BLS	Column mounted @ 5m. External Back Light Shield	3000	21.5
	B-1	13	DBD.1.LA012.SU.NR.LS.W006	Bollard @ 900mm with internal Light Shield	393	6
	B-2	6	DBD.1.LA012.SU.AY.LS.W006	Bollard @ 900mm with internal Light Shield	496	6
	C-1/BLS	0	FTS.4.LA022.20LED.NR.BLS	Column mounted @ 5m. External Back Light Shield	2000	16.2

Isolines				
≈0.2 lux	≈0.5 lux	≈1 lux	≈2 lux	≈5 lux
RED	BLUE	GREEN	BROWN	PURPLE



Isolines				
=0.2 lux	=0.5 lux	=1 lux	=2 lux	=5 lux
RED	BLUE	GREEN	BROWN	PURPLE

A large, stylized graphic of a city skyline composed of many small, colorful circles (red, orange, yellow, green, blue, purple) arranged in a grid-like pattern, tilted diagonally across the page. The circles are of varying sizes and colors, creating a vibrant, pixelated effect. The graphic is set against a white background with faint, light gray lines suggesting a city grid or streets. The overall composition is dynamic and modern, with a strong sense of perspective and depth.

9.3 Appendix C – Proposed Project Dark Sky Luminaires

> Datasheet - ROADWAY - FTS

FTS.NCPA.4.LA032.NR.C9.F140



Product image may not represent the final configuration stated above.



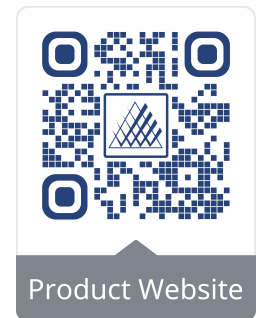
This is a bespoke product configuration. The performance data, dimensions and photometry included on this Datasheet are for a standard configured product only and may differ to the specification outlined below.

Product Specification [FTS Holophane Website](#)

FTS.NCPA.4.LA032.NR.C9.FI40

Holophane Factor Small luminaire with an IP66 LED light engine module comprising and die-cast aluminium finned body that conforms to EN1706 AC-46500. Tool-less access via trigger latch hinging door to the driver and electrical termination compartment. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA). This specific SKU includes:

- Series 4
- LED light engine producing c.3,000 lm with a nominal 2700°K colour temperature
- Long and Narrow light distribution
- Metallic Silver (RAL9006)



FTSB.5.1L.SA42.LMZ.GV

Holophane tubular base compartment column for use with Factor Small Luminaires. 5 metre, Single head long bracket (500mm outreach), Side arm bracket suitable for 42mm entry. For light & medium area wind zones (compliant to EN40).

- Bracket galvanised
- Direct embedment

Performance

Drive Current from Driver:	668mA
Power:	21.5W
Fitting Current:	0.1A
Power Factor:	0.98
Optical Risk Group:	1



7Kg



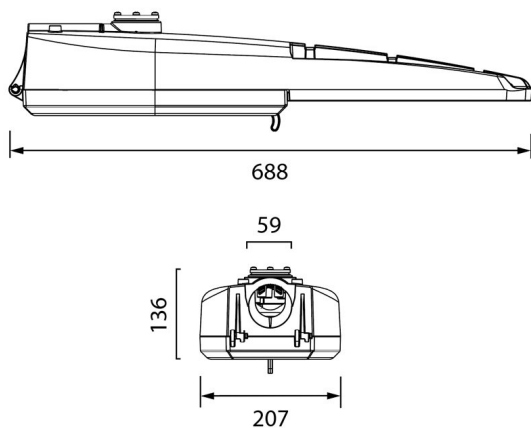
42 0022 0000 100*



[Installation Guide](#)

*Generic UMSUG code based on product wattage and some or all of product family being included within Elexon data base.

Dimensions



CIBSE TM66 - CEAM Rating

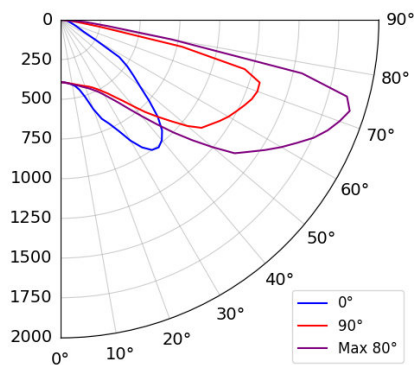
2.3*

2.5 to 4.0	1.5 to 2.5	0.5 to 1.5	0 to 0.5
Excellent circularity	Definite/ substantial progress to circularity	Some circular economy functionality	Very poor circular economy performance

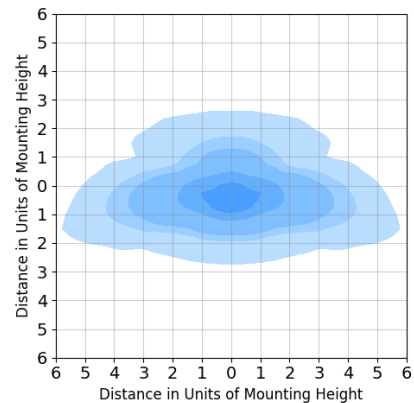
*Preliminary Score

Photometry [↓ IES File](#)

Polar Plot



Isoilluminance Plot



Lumens:	2,680
CCT:	2700K
CRI:	80
IES File:	FTS.4.LA032.NR

Colour Temperatures

3000K



4000K



Colours

Selected Colour

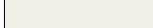
	C9	Metallic Silver (RAL9006)
--	-----------	---------------------------

Custom Colour Available

	RAL****	Customer specified colour
--	----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

Standard Colours Available

	C1	Smooth White (RAL9016)
---	-----------	------------------------

	C4	graphite (RAL7011)
---	-----------	--------------------

	C6	Smooth Grey (RAL7035)
---	-----------	-----------------------

	C7	Black (RAL9005)
---	-----------	-----------------

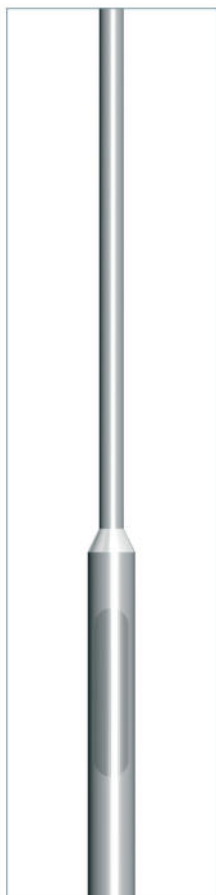
	C9	Metallic Silver (RAL9006)
---	-----------	---------------------------

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

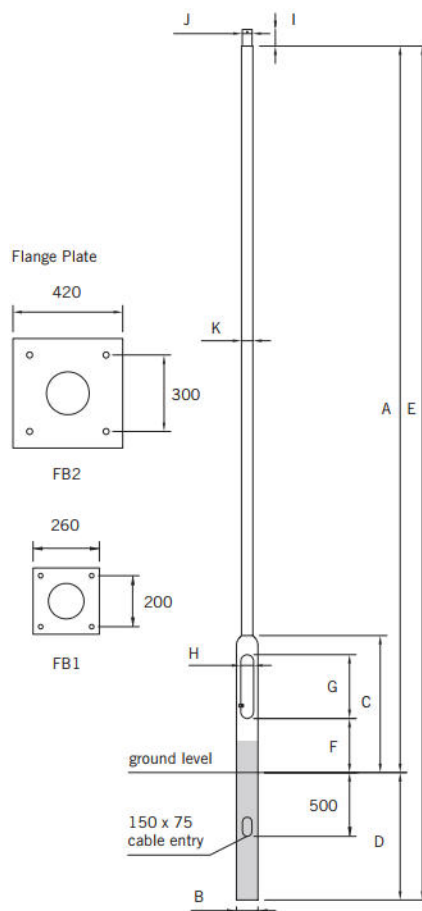
> Datasheet

FTSB.5.1L.SA42.LMZ.GV



Holophane products that are suitable

CityMax
Denver Elite pole
D-Series
Factor
Factor small
V-Max



	Nominal Height	Base Diameter*	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg*	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
2.5m standard duty	2500	140	1075	800	3300	400	500	100	-	-	76	27	2100
3m standard duty	3000	140	1075	800	3800	400	500	100	-	-	76	30	4666
3.5m standard duty	3500	140	1075	800	4300	400	500	100	-	-	76	32	2100
4m standard duty	4000	140	1075	800	4800	400	500	100	-	-	76	34	6484
4.5m standard duty	4500	140	1075	800	5300	400	500	100	-	-	76	37	5108
5m standard duty	5000	140	1075	800	5800	400	500	100	-	-	76	39	6149
5.5m standard duty	5500	140	1075	1000	6500	400	500	100	-	-	76	44	6003
6m standard duty	6000	140	1075	1000	7000	400	500	100	-	-	76	46	5999
6m heavy duty	5700	168	1200	1000	6700	400	600	115	130	76	89	71	10404
8m standard duty	7700	168	1200	1200	8900	400	600	115	130	76	89	89	10072
8m heavy duty	7700	168	1300	1200	9000	500	600	115	250	101	114	107	15699
8m extra heavy duty	7700	194	1300	1200	9000	500	600	115	250	127	140	136	18973
10m standard duty	9700	168	1300	1500	11200	500	600	115	250	101	114	150	18067
10m heavy duty	9700	194	1300	1500	11200	500	600	115	250	127	140	168	23193
10m extra heavy duty	9700	194	1300	1500	11200	500	600	115	250	152	168	220	28317
12m standard duty	11700	194	1300	1700	13400	500	600	115	250	127	140	213	26251
12m heavy duty	11700	194	1300	1700	13400	500	600	115	250	127	168	260	40390

* Exclusion TBC

2.5-6m std Poles	Flange Plate FB1	Bolts	M18 x 400
8-12m std Poles	Flange Plate FB2	Bolts	M24 x 820

Flange Plate and Anchor Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and Anchor Bolts are supplied.

Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

stepped steel - CityMax Large only

post top

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
6m	6000	140	1075	1000	7000	400	500	115	-	-	-	46	5999
8m	7700	168	1300	1200	9000	500	600	115	100	76	114	107	15699
10m	9700	168	1300	1500	11200	500	600	115	100	76	114	150	18067
12m	11700	194	1300	1700	13400	500	600	115	100	76	140	168	26251
15m	14700	194	1200	2000	17000	400	600	115	100	76	168	306	40300

twin head

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
8m	7400	194	1200	1200	8800	400	600	115	200	127	139.7	125	22610
10m	9400	194	1200	1500	11100	400	600	115	200	152.4	168.3	208	39131
12m	11400	194	2500	1700	13300	1000	600	115	200	152.4	168.3	295	41585

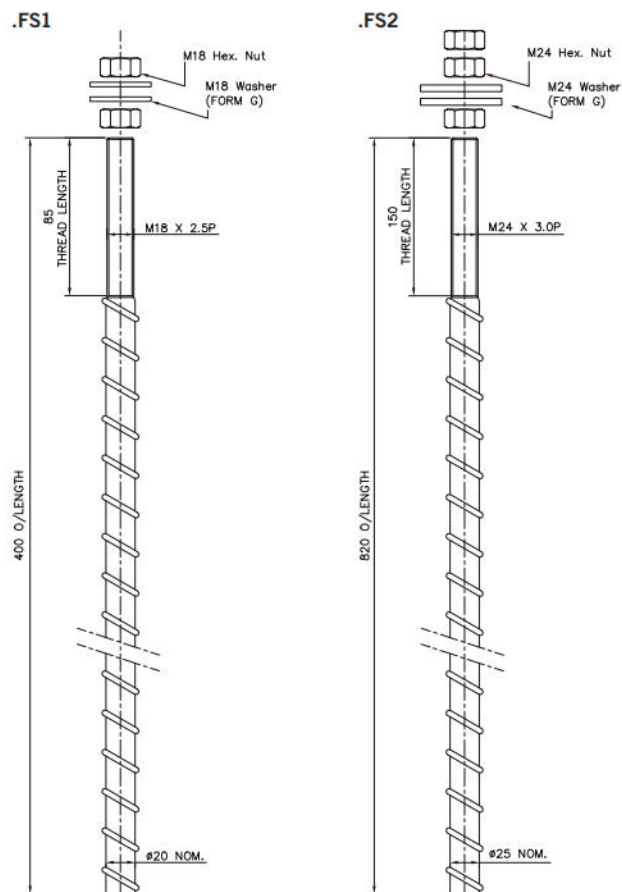
Note: For Terrain Category 2 locations LMZ, HVZ & HEZ

For columns supplied with optional flange base Holophane offers two types of foundation bolts.

Note: The material used for the bolts is Fe E500 grade steel, with yield strength 500 N/mm² and minimum UTS 550 N/mm².

HEL.FS1 M18 Bolts (FS1) x 400 mm long

HEL.FS2 M24 Bolts (FS2) x 820 mm long



> Datasheet - EXTERNAL - DBD

DBD.1.LA012.SU.NR.H100.C9.W006.LS



Product image may not represent the final configuration stated above.



Product Specification

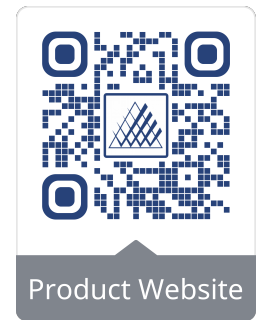


[DBD HoloPhane Website](#)

HoloPhane Denver iD: Bollard luminaire. Extruded marine grade aluminium body with die-cast aluminium top and base secured by stainless steel nuts and sealed to IP65. The optical arrangement consists of individual optical modules with a patented transition zone to minimise glare. Suitable for flange base mounting (bolts available as an accessory).

This specific SKU includes:

- Series 1
- LED light engine producing c.1,000 lm with a nominal 2700K colour temperature
- Single sided
- Long and Narrow light distribution
- 1 metre high
- Metallic Silver (RAL9006)
- 6W
- Internal light shield



Performance

Drive Current from Driver:	285mA
Power:	6W
Fitting Current:	0.03A
Power Factor:	0.96
Fitting Inrush:	15A - 0.36ms
Number of Drivers:	1
1x Driver 1 Inrush:	15A - 0.36ms
Max Drivers per 16A Type B MCB:	23
Max Fittings per 16A Type B MCB:	23
Total Number of LEDs:	5
Minimum Dim Level:	25%
THDi:	13.2
SVM:	0.07
Pst LM:	0.05
Optical Risk Group:	1
SDCM/MacAdam Ellipse:	5

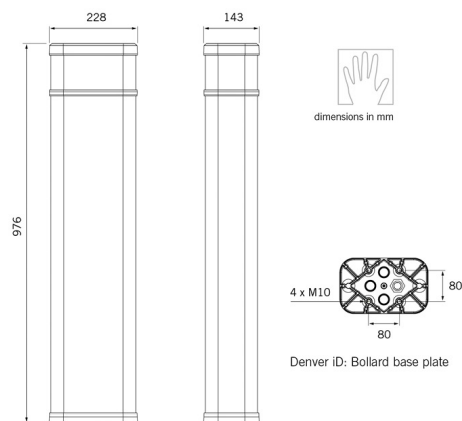


9.5Kg



[Installation Guide](#)

Dimensions



CIBSE TM66 - CEAM Rating

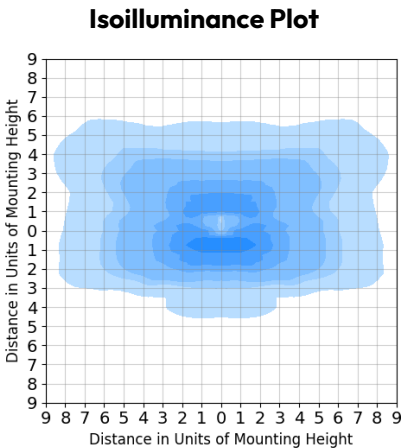
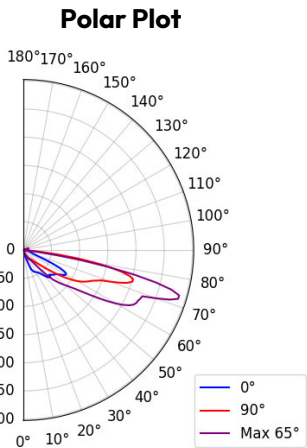
2.4*

2.5 to 4.0	1.5 to 2.5	0.5 to 1.5	0 to 0.5
Excellent circularity	Definite/ substantial progress to circularity	Some circular economy functionality	Very poor circular economy performance

*Preliminary Score

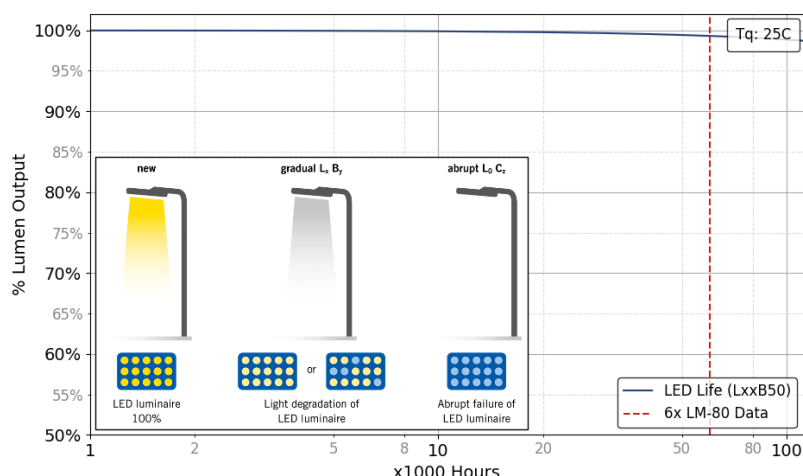
Photometry

↓ IES File



Lumens:	432
CCT:	2700K
CRI:	70
IES File:	DBD.1.LA012.SU.NR.W006

LLMF Graph



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

Colour Temperatures



Colours

Selected Colour

C9 Metallic Silver (RAL9006)

Custom Colour Available

RAL**** Customer specified colour

*Choosing a custom colour may increase the cost and lead time.

Standard Colours Available

C1 Smooth White (RAL9016)

C4 graphite (RAL7011)

C6 Smooth Grey (RAL7035)

C7 Black (RAL9005)

C9 Metallic Silver (RAL9006)

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

BREEAM

P195-386 - Damask Way, Warminster

Total Lumens

57,398

Installation ULR

0.36%

Complies with environmental zones

E2 & E3 & E4

Total Upward Lumens

204.48

CATALOGUE	ITEM REF	QUANTITY	LUMENS	POWER (W)	LLM/TcW	TOTAL LUMENS	TILT (°)	ULOR	TOTAL UPWARD LUMENS
DBD.1.LA012.SU.NR.H100.C9.W006.LS	B-1	15	432	6	72	6,479	-	3.2%	204.48
FTS.NCPA.4.LA032.NR.C9.F140	A-1	19	2,680	22	125	50,920	-	0.0%	0

Required LLM/TcW: 70

Permissible ULR %: EO: 0.0% EO: 0.0% EO: up to 2.5% EO: up to 5.0% EO: up to 15.0%

Environmental zone level is based solely on the ULR.

The information provided is based on the latest the Institute of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light and the latest BREEAM UK New construction V6.1. This assumes that all external lighting (except safety and security lighting) can automatically be switched off between 23:00 and 07:00. If safety or security lighting is required to be on during these hours, then it should comply with the levels recommended in the ILP guidance notes.

All values shown are the result of calculations derived from product specific photometry of luminaires positioned in a fixed relationship to each other and the statistical zone. In practice the values may vary due to tolerances in column installation, luminaire orientation, and surface reflectance, the substitution of alternative luminaires will not produce comparable results.

Summary

P195-386 - Damask Way, Warminster

Line No.	Item Ref	Quantity	Catalogue
LUMINAIRE, COLUMN AND BRACKET PACKAGE			
10	A-1	19	FTS.NCPA.4.LA032.NR.C9.F140
11	A-1	19	FTSB.5.1L.SA42.LMZ.GV
LUMINAIRE			
20	B-1	15	DBD.1.LA012.SU.NR.H100.C9.W006.LS
ACCESSORY			
30		15	DBD.ROOT

