

Environmental Lighting Impact Assessment Report

Reliance Street, Newton Heath

Project number: SHD244

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1. INTRODUCTION

1.1 General

- 1.1.1 This report has been prepared by SHD Lighting Consultancy Ltd on behalf of Canham Consulting to develop a sensitive lighting strategy to support the planning application for the construction of an extension to a household waste and recycling centre (hereafter referred to as the *Proposed Development*).
- 1.1.2 The report has been prepared by SHD Lighting Consultancy Ltd to the best of our knowledge using information provided by Canham Consulting.
- 1.1.3 The Proposed Development is to be constructed at land accessed off Reliance Street, Newton Heath, Manchester.
- 1.1.4 The report assesses the potential effects of obtrusive light that could arise from artificial lighting at the Proposed Development.
- 1.1.5 The lighting design should be carried out by a competent person governed by the Institution of Lighting Professionals.
- 1.1.6 SHD Lighting Consultancy are a lighting design consultancy who specialise in outdoor lighting design and lighting assessments and have knowledge, experience and professional qualifications to undertake lighting designs and outdoor lighting impact assessment reports.
- 1.1.7 SHD Lighting Consultancy Ltd accept no responsibility or liability for:
- The consequence of this documentation being used for any purpose or project other than that for which it was commissioned.
 - The issue of this document to any third party with whom approval for use has not been agreed.
- 1.1.8 The principal objective is to identify the effects associated with obtrusive light on various sensitive receptors and propose suitable mitigation measures.
- 1.1.9 Obtrusive light or light pollution is any light that strays to areas other than where it is intended and can include light intrusion (spill light) into neighbouring properties, upward light (which can create sky glow) and visual source intensity (glare).
- 1.1.10 The lighting impact assessment considers the maximum adverse scenario in relation to the proposed artificial lighting, in order to assess the significance of the potential effects on identified receptors.

2. LEGISLATION, PLANNING AND POLICY GUIDANCE

2.1 Legislative Background

- 2.1.1 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:

“Artificial light emitted from premises so as to be prejudicial to health or nuisance”

- 2.1.2 Although light was described as having the potential to cause statutory nuisance, no prescriptive limits or rules were set for impact assessment purposes.

2.2 National Planning Policy Framework

- 2.2.1 The National Planning Policy Framework (NPPF), published in July 2021, sets out the governments planning policies for England and how they are expected to be applied and provides a framework for local plans.
- 2.2.2 Planning policies and decisions should also ensure that the Proposed 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 Proposed Development.

2.3 British and European Lighting Standards

- 2.3.1 The most applicable British Standards for lighting that relate to the Proposed Development are:
- BS 5489-1: 2020 Code of practice for the design of road lighting. Part 1: Lighting of roads and public amenity areas.
 - BS EN 13201-2: 2015 Road Lighting: Part 2 - Performance requirements.
 - BS EN 12464-2: 2014 Light and lighting - Lighting of work places. Part 2: Outdoor work places

2.4 Ecology Reports

- 2.4.1 An ecology report was produced in October 2021 by Aspect Ecology (**1006323 EcoApp vf1-compressed**) which identified woodland and biodiversity issues to the northern boundary of the Proposed Development.

2.5 Relevant Lighting Standards

2.5.1 The applicable standards for outdoor lighting that relate to the Proposed Development are:

Guidance Notes for the Reduction of Obtrusive Light; GN01/21 (2021) as published by The Institution of Lighting Professionals (ILP)

2.5.2 The ILP has proposed lighting guidance and criteria for local authorities with a recommendation that these are incorporated into the local planning applications.

2.5.3 Guidance notes produced by the Institution of Lighting Professionals are among the most commonly referenced guidance notes for good practice within the lighting design industry.

2.5.4 The ILP Guidance Notes define various forms of light pollution and describe a series of environmental zones and suitable criteria against which the effects of artificial lighting can be assessed.

2.5.5 Guidance Notes for the Reduction of Obtrusive Light; GN01/21 (2021). Institution of Lighting Professionals (ILP) should be used in conjunction with CIE 150:2017 and CIE 216:1997 and is not a replacement for the procedures contained therein.

2.5.6 Guidance Notes for the Reduction of Obtrusive Light GN01/21 produced by the Institution of Lighting Professionals (ILP) has, therefore, been referred to for the purposes of this assessment.

The Exterior Environment: Lighting Guide 6 (2016) as published by The Chartered Institution of Building Services Engineers (CIBSE)

2.5.7 Lighting Guide 6 provides information and guidance on lighting in the exterior environment in particular light pollution, energy use and long-term sustainability.

Public Lighting Guide 04: Guidance on Undertaking Environmental Lighting Impact Assessments (2013) as published by The Institution of Lighting Professionals (ILP)

2.5.8 Guidance is provided within Public Lighting Guide 04 that outlines the best practice approach to preparing lighting assessments.

CIE 150: Guide on the limitations of the effects of obtrusive light from outdoor lighting installations (2003)

2.5.9 The purpose of this Guide is to help formulate guidelines for assessing the environmental impacts of outdoor lighting and to give recommended limits for relevant lighting parameters to contain the obtrusive effects of outdoor lighting within tolerable levels

CIE 126: Guidelines for Minimising Sky Glow (1997)

2.5.10 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.

2.5.11 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.

3. ASSESSMENT METHODOLOGY

3.1 Environmental Zone Classification

- 3.1.1 All standards consulted are nationally recognised documents, (some internationally also) which deal with all design issues associated with external lighting.
- 3.1.2 CIE Standards, the CIBSE and the Society of Light & Lighting guidance documents, all apply a common Environmental Zoning system, which is summarised in Table 3.1 below.

ENVIRONMENTAL ZONE CLASSIFICATION AND PARAMETERS			
Zone	Surrounding	Lighting Environment	Example
E0	Protected	Dark	UNESCO Starlight reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	Nation Parks, Areas of Outstanding Natural Beauty
E2	Rural	Low district brightness	Village or relatively dark outer suburban location
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Tow or City centres with high levels of night time activity

Table 3.1

Notes:

1. Where an area to be lit lies on the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone.
2. Rural zones under protected designations should use a higher standard of policy.
3. Zone E0 must always be surrounded by an E1 Zone.
4. Zoning should be agreed with the local planning authority and due to local requirements a more stringent zone classification may be applied to protect special/specific areas.
5. SQM (Sky Quality Measurements) referenced by the International Dark-Sky Association (IDA), the criteria for E0 being revised in mid-2019 but not retrospective.
6. Astronomical observable dark skies will offer clearer views of the Milky Way and of other objects such as the Andromeda galaxy and the Orion Nebula.
7. Although values of SQM 20 to 20.5 may not offer clear views of astronomical dark sky objects such as the Milky Way, these skies will have their own relative intrinsic value in the UK.

- 3.1.3 Using Table 3.1, the assessment site would be classified as **E3 Medium district brightness**

3.2 Obtrusive Light Limitation for Outdoor Lighting Installations

- 3.2.1 The ILP Guidance Notes for the Reduction of Obtrusive Light (ILP GN01/21) provide guidelines and threshold values applicable to each Environmental Zone, which are reproduced in Table 3.2 below.

OBTRUSIVE LIGHT LIMITATIONS FOR EXTERIOR LIGHTING INSTALLATIONS						
Zone	Sky Glow Upward Light Ratio % (i)	Light intrusion into windows E_v , measured in Lux (ii)		Luminaire intensity I , measured in kilo candelas (iii)		Building luminance L , (cd/m^2) (iv)
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Pre-curfew
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2.5	0	0
E2	2.5	5	1	7.5	0.5	5
E3	5.0	10	2	10	1	10
E4	15	25	5	25	2.5	25

Table 3.2

Upward light ratio of the installation – maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky

Vertical illuminance measured flat at the glazing at the centre of the window

Light intensity in kilo candelas

(iv) Luminance in candelas per square metre (cd/m^2)

(*) From public road lighting installations only

3.3 Obtrusive Light Definition

- 3.3.1 Obtrusive light (or sometimes referred to as light pollution) refers to any light emitted in a direction in which it is not required or wanted and as such is detrimental to other users.
- 3.3.2 Light intrusion refers to the spilling of light beyond the boundary of the area to be lit. This includes the intrusion of light into bedroom windows.
- 3.3.3 Sky glow refers to the brightening of the sky above towns caused by direct or reflected upward light.
- 3.3.4 Glare refers to the uncomfortable brightness of a light source when viewed against a dark background. Figure 3.1 illustrates the different types of obtrusive light.

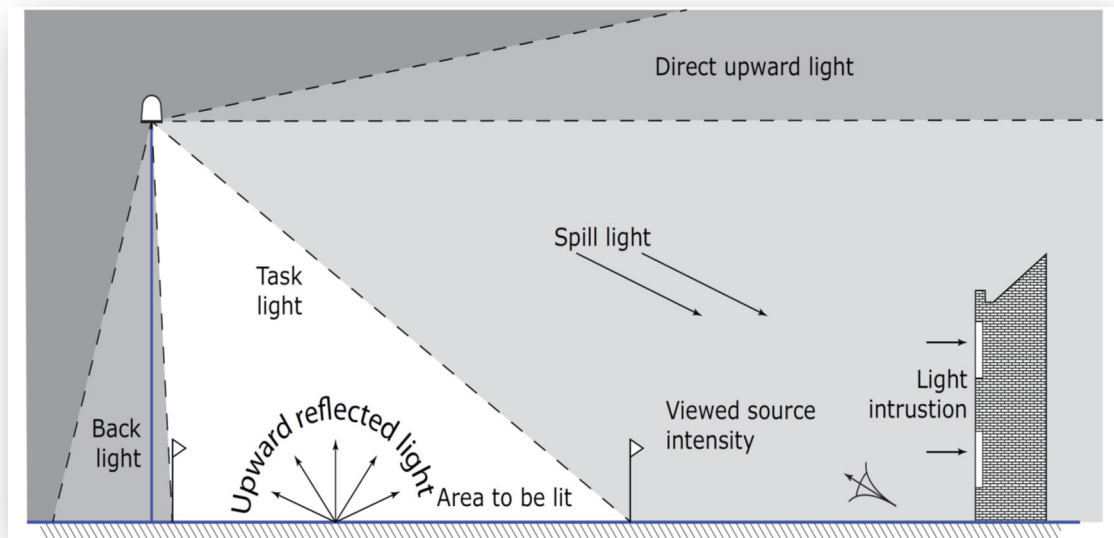


Figure 3.1: Obtrusive light diagram

Taken from The Institution of Lighting Professionals: Guidance Note 01/21: Guidance notes for the reduction of obtrusive light (2021)

4. BASELINE CONDITIONS

4.1 Site Overview

- 4.1.1 The site for the Proposed Development is accessed off Reliance Street, Newton Heath which is a commercial area, populated with business units with the existing road network illuminated with lighting columns owned and maintained by the local authority.
- 4.1.2 Information in this report will assess the impact on the introduction of artificial lighting which consists of eight floodlights on 8 & 10m lighting columns with neutral white LED luminaires installed to illuminate the operational areas and two 6m lighting columns which will illuminate the access and egress roads to the recycling centre and resale building car park area.
- 4.1.3 There are also six wall mounted bulkhead units located on the resale building which will illuminate the car parking area and footpaths around the resale building itself.

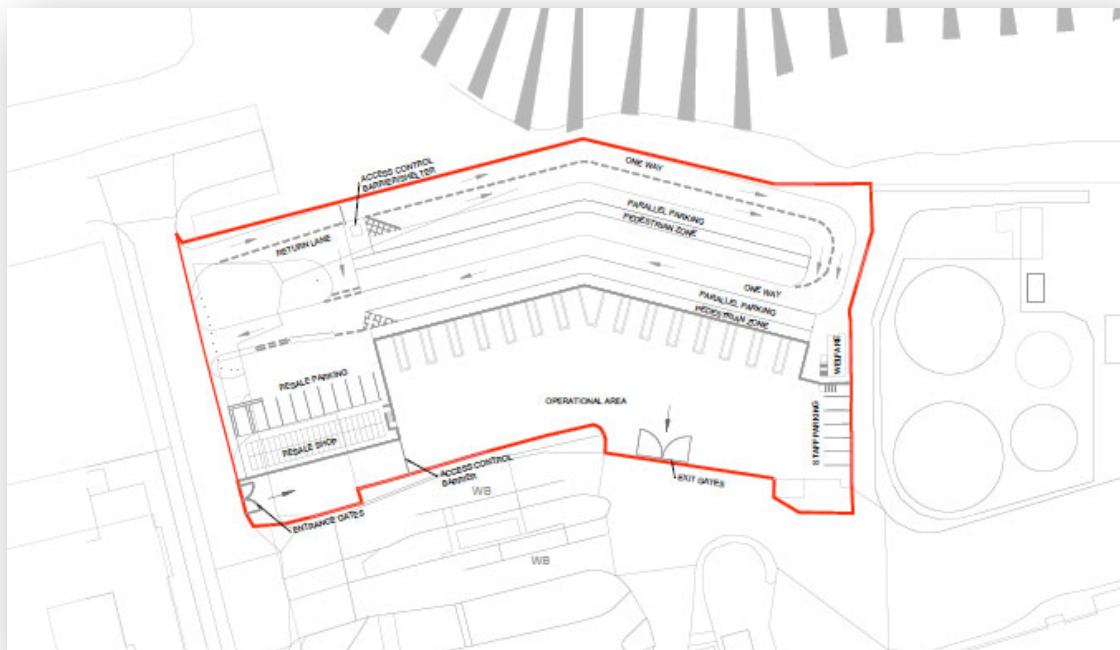


Figure 4.1: Proposed Development boundary outline (Aerial View)

5. LIGHTING STRATEGY

5.1 Lighting Brief

- 5.1.1 The aim of the lighting strategy is to ensure that lighting is fit for purpose and compliant with British Standards to ensure safety and amenity of on-site operations during the hours of darkness, whilst minimising the potential for obtrusive light.
- 5.1.2 Lighting performance details outlined in this section of the document are to be considered in conjunction with the following key documents:
- SHD244-SHD-HLG-RELI-DR-EO-Lighting Layout-R1
 - SHD244-SHD-HLG-RELI-CA-EO-Lighting Calculation-R1
 - SHD244-SHD-HLG-RELI-DR-EO-Light Spill-R1

5.2 Existing Lighting

- 5.2.1 The existing adopted highway has a series of street lighting columns luminaires owned and maintained by the local authority which illuminate the highway during the hours of darkness.
- 5.2.2 The Recycling Centre has existing several lighting columns throughout the facility. It is unknown which lighting units within the facility are to be retained or removed.
- 5.2.3 No additional lighting units have been used as part of the lighting calculations and have not been included in the lighting impact assessment.

5.3 Lighting Criteria

5.3.1 Outdoor artificial lighting is to be provided for the following areas:

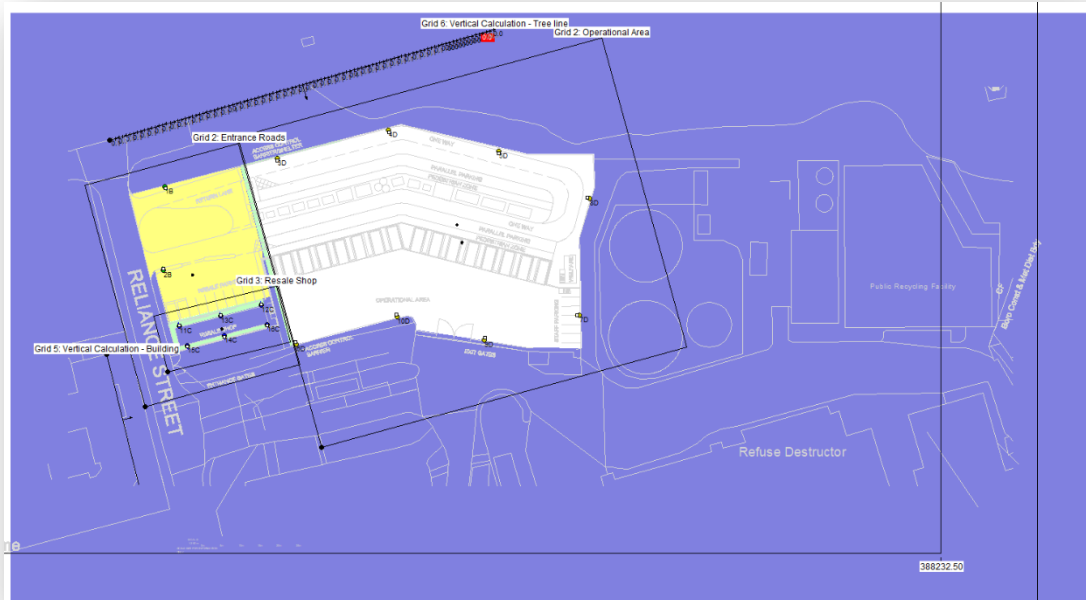


Figure 5.1: Outdoor areas to be illuminated

- 5.3.2 The site access road is shown north of the Proposed Development which comprises of a one-way system that motorists can dispose of their household recycling from an elevated platform into different containers, then exit the site south of the access road.
- 5.3.3 The whole operational area is to be illuminated via a floodlighting system and the access roads and small car park area adjacent to exit junction, illuminated using a combination of conventional road lighting column and wall mounted bulkhead luminaires affixed to the resales outbuilding.

5.4 Lighting Calculations and Modelling

- 5.4.1 An external lighting design has been prepared by SHD Lighting Consultancy Ltd for the Proposed Development off Reliance Street, Newton Heath.
- 5.4.2 SHD Lighting Consultancy do not accept design responsibility for any lighting designs and strategies prepared by others.
- 5.4.3 The site was modelled, replicating the design provided by others, using industry standard software Lighting Reality.
- 5.4.4 Lighting Reality is a computer software calculation package which utilises manufacturers photometric data files to simulate the lighting output of chosen light fittings.
- 5.4.5 It is to be noted that the lighting calculation report has been produced with a luminaire maintenance factor of 1.0 as specified in the ILP publication, Public Lighting Guide 04 – Guidance on undertaking an Environmental Assessment Report.
- 5.4.6 It defines a maintenance factor of 1.0 as being worst-case scenario as all the outdoor lighting will be performing at peak intensity.
- 5.4.7 Light spill calculations are also based on the luminaires at full output, with a maintenance factor of 1.0, as this will represent the worst-case scenario.
- 5.4.8 The light spill model does not consider physical obstructions and provides light spill details for the initial light output, therefore disregarding the maintenance factor used for ensuring the lighting design performs as required at the end of its life.
- 5.4.9 Considering this, the light spill diagram provides an exaggerated and absolute worst-case scenario with regards to the light spill at ground level, assuming no light limiting features are present.
- 5.4.10 From these calculations, drawings illustrating the illuminance levels throughout the site and at the boundary have been produced so that the lighting scheme's impact can be assessed.
- 5.4.11 The calculation model (illustrated by illuminance levels and Isolux contour lines on a drawing) does not include any proposed or existing planting/ hedgerows/ trees on site, or in the surrounding area.

5.5 Potential Effects

5.5.1 Poorly designed lighting can contribute the following obtrusive light components:

- Light spill into windows: this is typical of wall mounted luminaires with high tilt angles
- Upward light causing sky glow: this is typical of up-lighting
- Glare: due to high light source intensity from floodlights
- Intrusive light affecting ecology: caused by excessive height and tilt.

5.5.2 Poorly designed lighting generally consists of the installation of a limited number of luminaires that are being used to light a wide area. Due to this, the lighting is normally installed with tilt angles that are too great, because there is a need to spread the light as far as possible, lighting the intended area, as well as surfaces where the lighting was not intended.

5.5.3 The following paragraphs outline good lighting practices to be applied to the design of the artificial lighting required for the adoptable lighting during normal operation.

5.5.4 Many of the potential effects of artificial lighting can be effectively mitigated by a suitable lighting strategy, good design and choice of suitable lighting equipment and the lighting design being carried out by a suitably qualified and competent professional.

5.5.5 It is proposed that the lighting impact can be minimised by using accepted methods of lighting control, essentially limiting illuminance and controlling light spill.

5.5.6 Generally lighting shall be selected to provide safety and security without polluting the boundary site residents.

5.5.7 The light source specified for this lighting scheme is LED, this is a low lumen output, high efficiency light source with all luminaires having electronic ballasts and electronic control gear.

5.5.8 The electronic drivers and LED lamps running together produce a very efficient lighting system which reduces overall energy usage and environmental impact on natural resources.

5.5.9 Desk top assessments on the proposed lighting installation indicate (with respect to identified sensitive receptors) that overall surrounding light pollution levels will not be significantly influenced by the proposed lighting

5.5.10 These accepted methods have all been adopted within the proposed lighting design to keep the overall impact of the lighting to a minimum.

5.6 Upward Light and Glare

5.6.1 Through the use of professional grade luminaires that comply with minimum luminous intensity limitations, glare will be suitably controlled and mitigated.

5.6.2 Luminaires will be installed with 0° tilt and are professional grade luminaires, designed in accordance with industry specific luminaire design and photometric standards.

As such, they are all compliant with a minimum luminous intensity class of G3. Thus, ensuring that the Upward Light Ratio for the installation is lower than the maximum permitted value of 5% for an E3 environmental Zone.

6. OUTDOOR LIGHTING REQUIREMENTS

6.1 Proposed Lighting Requirements

- 6.1.1 Lighting has been designed in accordance with the relevant and appropriate British Standards as outlined within Section 3 of this document.
- 6.1.2 Additionally, lighting has been designed in accordance with obtrusive light guidance, to ensure that obtrusive light potential is minimised in accordance with E3 Environmental Zone criteria.
- 6.1.3 Using BS EN 12464-2: 2014 as reference, the operational area has been designed to have an average illuminance level of >50 lux at ground level and good levels of lighting uniformity, ensuring no areas are over or under lit for the tasks to be undertaken.

Table 5.1 — General requirements for areas and for cleaning at outdoor work places

Ref. no.	Type of area, task or activity	$\bar{E}_m$ lx	U_o —	R_{GL} —	R_a —	Specific requirements
5.1.1	Walkways exclusively for pedestrians	5	0,25	50	20	
5.1.2	Traffic areas for slowly moving vehicles (max. 10 km/h), e.g. bicycles, trucks and excavators	10	0,40	50	20	
5.1.3	Regular vehicle traffic (max. 40 km/h)	20	0,40	45	20	At shipyards and in docks, R_{GL} may be 50
5.1.4	Pedestrian passages, vehicle turning, loading and unloading points	50	0,40	50	20	
5.1.5	Cleaning and servicing	50	0,25	50	20	All relevant surfaces

Figure 6.1: Extract from BS EN 12464-2:2014 Lighting of Outdoor Work Places

- 6.1.4 The access roads and car parking area have been designed to have an average illuminance light level of >10 lux and a lighting uniformity of >25% ensuring the whole area is lit to a quality standard.

Table 5.9 — Parking areas

Ref. no.	Type of area, task or activity	$\bar{E}_m$ lx	U_o —	R_{GL} —	R_a —	Specific requirements
5.9.1	Light traffic, e.g. parking areas of shops, terraced and apartment houses; cycle parks	5	0,25	55	20	
5.9.2	Medium traffic, e.g. parking areas of department stores, office buildings, plants, sports and multipurpose building complexes	10	0,25	50	20	
5.9.3	Heavy traffic, e.g. parking areas of major shopping centres, major sports and multipurpose building complexes	20	0,25	50	20	

Figure 6.2: Extract from BS EN 12464-2:2014 Lighting of Outdoor Work Places

6.2 Lighting Levels

6.2.1 Table 6.1 provides details of typical lighting levels in lux for comparison.

CHART OF EXAMPLE LUX LEVELS FOR REFERENCE			
Lighting Conditions	Lux Level	Lighting Conditions	Lux Level
British summer sunshine	50,000	Typical side road lighting	5
Overcast sky	5,000	Minimum security lighting	2
Well-lit office	500	Twilight	1
Minimum for easy reading	300	Clear full moon	0.25 to <1
Passageway or outside working area	50	Typical moonlight/cloudy sky	0.1
Good main road lighting	5 to 20	Typical starlight	0.001
Sunset	10	Poor starlight	0.0001

Table 6.1: Chart of example lux levels for reference

6.3 Operational Area

- 6.3.1 Lighting of the operational areas will be provided in accordance with British Standards, and Guidance Notes for the Reduction of Obtrusive Light (GN01:2021). This will ensure that the lighting levels provided are suitable for operational purposes, whilst ensuring the environmental surrounds are suitably mitigated against, in accordance with the guidance.
- 6.3.2 It is proposed that the external lighting shall be installed on 8m & 10m columns using neutral white LED floodlighting units, post top horizontally mounted at 0° tilt facing downwards. This minimizes any sky glow or potential light spill.
- 6.3.3 All proposed lighting columns are sited on the periphery of the operational area to minimise any potential vehicle strikes and will ensure that all light is focused inwards towards the site.
- 6.3.4 Luminaires will distribute light downwards only to reduce the potential for light spill onto the boundaries of the Proposed Development and reduces light upwards towards the sky.
- 6.3.5 Lighting performance parameters for the adoptable lighting are outlined in Table 6.2 below

LUMINAIRE SPECIFICATION	
Location:	Operational Area
Luminaire Manufacturer:	Philips
Luminaire model ref:	BGP651 DX10 64.00klm
Luminaire style:	Floodlight
Mounting height:	8m & 10m
Mounting type:	Post mounted on single stirrup bracket
Luminaire tilt:	0° horizontally
Light source:	Warm White LED
Lighting luminous intensity class:	G4 (no light above the horizontal)
DESIGN PARAMETERS	
Lighting classification:	BS EN 12464-2:2014, Table 5.1
Luminaire control:	20 lux Photocell (1:1)

Table 6.2: Operational Area lighting performance parameters

6.4 Access Roads and Car Park

- 6.4.1 Lighting of the access roads and car parking areas will be provided in accordance with British Standards, and Guidance Notes for the Reduction of Obtrusive Light (GN01:2021). This will ensure that the lighting levels provided are suitable for operational purposes, whilst ensuring the environmental surrounds are suitably mitigated against, in accordance with the guidance.
- 6.4.2 It is proposed that the external lighting shall be installed on 6m columns using neutral white LED road lighting units, post top horizontally mounted at 0° tilt facing downwards. This minimizes any sky glow or potential light spill.
- 6.4.3 Each proposed lighting column are sited away from the access road and within a raised verge within the car parking area to minimise any potential vehicle strikes and will ensure that all light is focused only on the areas intended to be lit during the hours of darkness.
- 6.4.4 Luminaires will distribute light downwards only to reduce the potential for light spill onto the boundaries of the Proposed Development and reduces light upwards towards the sky.
- 6.4.5 Lighting performance parameters for the adoptable lighting are outlined in Table 6.3 below

LUMINAIRE SPECIFICATION	
Location:	Access Roads and Car Park Areas
Luminaire Manufacturer:	Philips
Luminaire model ref:	BGP702 DW50 3.00klm 17w
Luminaire style:	Road lighting luminaire
Mounting height:	6m
Mounting type:	Post mounted
Luminaire tilt:	0° horizontally
Light source:	Warm White LED
Lighting luminous intensity class:	G3 (no light above the horizontal)
DESIGN PARAMETERS	
Lighting classification:	BS EN 12464-2:2014, Table 5.9
Luminaire control:	20 lux Photocell (1:1)

Table 6.3: Access Road and Car Park areas lighting performance parameters

6.5 Indicative Light Spill

- 6.5.1 The indicative light spill models included in **Appendix A** demonstrates the ability to provide lighting for the Proposed Development and to ensure that a sensitive lighting solution is installed.
- 6.5.2 The light spill diagrams closely demonstrate the tight restrictions in light spill that are essential for protecting the immediate surrounds and receptors of the Proposed Development.
- 6.5.3 As the models do not consider obstructions such as the buildings, any proposed fencing, landscaping features or the topography.
- 6.5.4 The Isolux contours presented in **Appendix A** represent the adverse scenario. Blocking effects of the site features would further reduce the potential for light spill to affect the boundaries of the Proposed Development.
- 6.5.5 The proposed lighting uses luminaires that focus the light down onto the ground, reducing the likelihood of upward light and light spill, as the installation will achieve 0% Upward Light Ratio. The Isolux contours demonstrate the initial light output ultimately demonstrating the absolute worst-case scenario.

6.6 Sensitive Receptors

- 6.6.1 The Proposed Development is planned to be built off Reliance Street, Newton Heath. Reliance Street has multiple commercial buildings on either side to the approach to the Proposed Development, however there are none in the immediate vicinity of the proposed junction on Reliance Street.
- 6.6.2 There is a care home accessed from High Peak Street, Newton Heath. Which has a building that overlooks Reliance Street. This single-story building has a number of ground floor windows that face the Proposed Development.
- 6.6.3 These windows were the only identifiable sensitive receptors which have been identified in **Appendix C**
- 6.6.4 Therefore, the choice of luminaire was carefully considered as the luminaire model had to be fit for purpose whilst ensuring there was adequate lighting control to limit any light spill or sky glow.
- 6.6.5 Isolux lines of 0.2 lux, 1.0 lux and 2.0 lux have been shown on the light spill diagrams in **Appendix A**.
- 6.6.6 A post curfew time of 23:00 has a maximum permissible lux value of 2.0 lux for any window.
- 6.6.7 During the desktop lighting calculation, a 4m high vertical grid was applied to the care home ground floor façade to demonstrate that the light levels on all the windows did not exceed 2.0 lux as provided in Table 3.2 of this report.
- 6.6.8 The vertical calculation below does not take into consideration any blocking effects caused by walls, fencing, trees or other foliage.

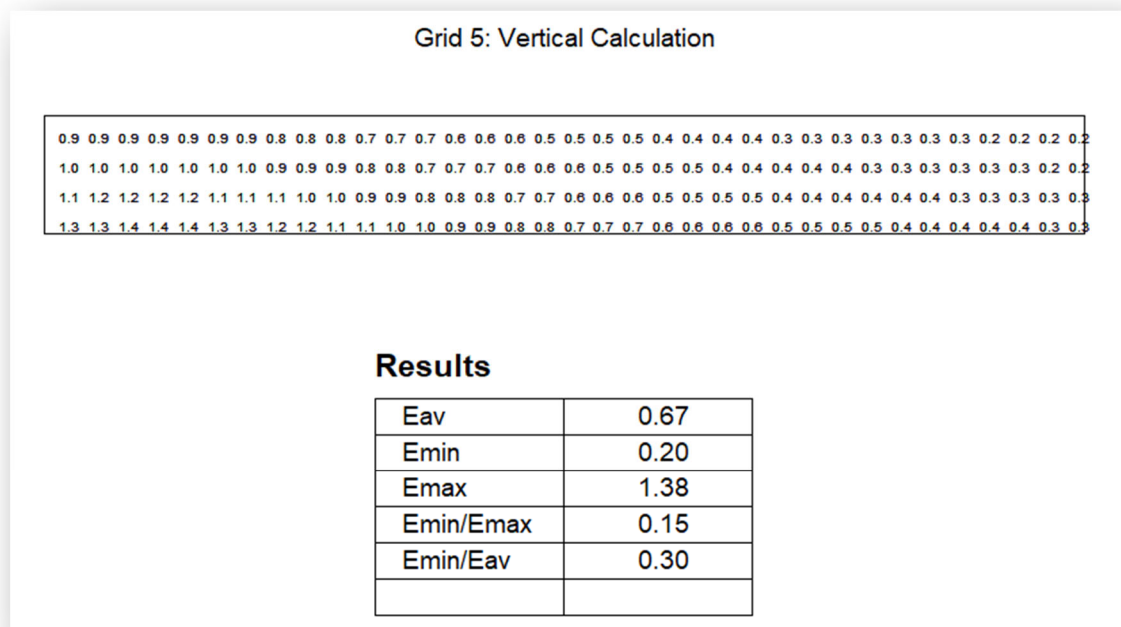


Figure 6.1: Vertical calculation and light level results (Care Home)

- 6.6.9 To the north of the Household Waste Recycling Centre there is a large woodland area containing dense trees, nature trails and Moston Brook river.



Figure 6.2: Woodland, north of the Proposed Development.

7. CONCLUSION

7.1 Mitigation

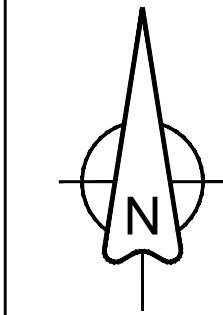
- 7.1.1 A desktop site appraisal, the designer shall ensure that luminaires are focused downwards, with the inclination angle set at 0° as this will reduce any glare potential from each of the LED luminaires.
- 7.1.2 Any variation to the tilt angle will result in the provided lighting calculations and Isolux line drawings being incorrect.
- 7.1.3 Any variation of the specified make and model of any luminaire, change of lumen output, colour temperature, installed luminaire angle or column height will result in the lighting calculation report and information contained within this assessment report to be incorrect.
- 7.1.4 In summary it is our considered opinion that the proposed lighting installation will not have any significant negative impact on the immediate environment with respect to lighting pollution or energy usage and that all sensible steps have been taken within the design stage of this lighting scheme to keep the impact to the environment to a minimum.

7.2 Summary

- 7.2.1 This lighting assessment report does not take into consideration any other outdoor lighting installed within the existing Recycling Centre or any other lighting from any other sources.
- 7.2.2 The lighting strategy and assessment outlines the lighting design criteria for the lighting design of the Proposed Development, to ensure that the lighting is fit for purpose whilst maintaining sensitivity towards the environment. This is achieved through compliance with relevant British Standards and lighting industry Guidance.
- 7.2.3 The exterior lighting outlined in the lighting strategy shall comply with the requirements for an E3 Environmental Zone as per Tables 4.1 and 4.2.
- 7.2.4 Compliance with the lighting strategy will allow a safe and sensitive level of light for the movement of pedestrians / drivers at night, whilst reducing the potential for obtrusive light and limiting this to a negligible level and in compliance with ILP GN01:2021.

8. APPENDIX A**8.1 Light Spill Drawing**

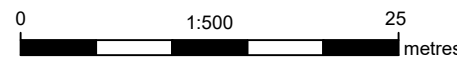
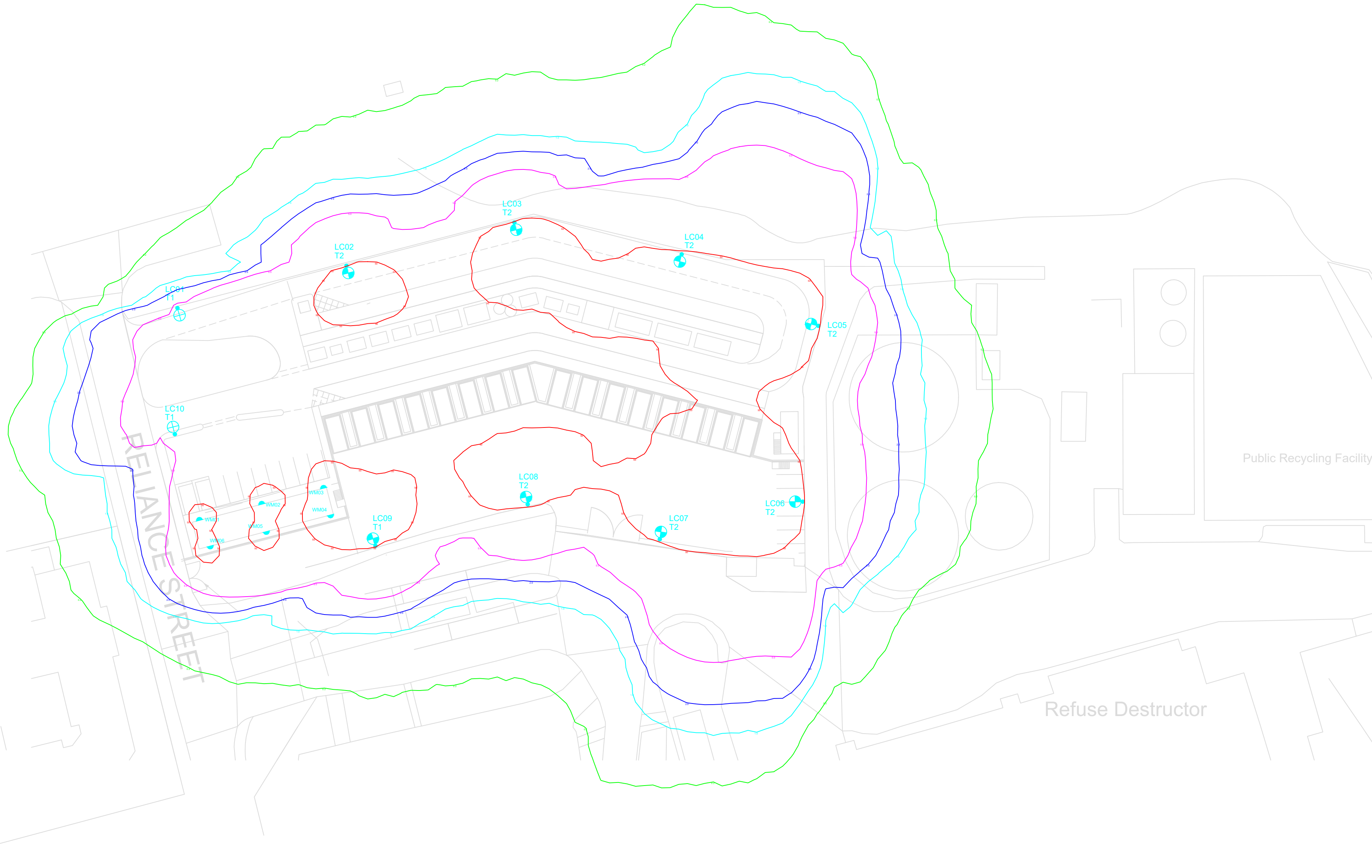
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RD ROAD

ange Nursing Home

on Grange Nursing Home



City 6

Wall mounted bulkhead LED luminaire

Luminaire: Venture Lighting Walney wallpack

Mounting Type: Wall mounted at 2500mm FFL

Manufacturer Ref: WAL002 26w

Lumen Output: 3.12klm

Charge Code: 42 0026 0000 100

Luminaire Wattage: 26w

Colour Temperature: Warm White (3000k) switchable

Control Type: Built in photocell

Supply: Fed via Sales building

City 2

Proposed galvanised tubular steel lighting column of 6.0 metre nominal height with a planted base with glass flake root protection.
Column to be manufactured to:
EN 40, BS EN 1461 & BS 5649 standards

Luminaire: Philips Luma Gen2 Micro

Mounting Type: Post top mounted

Manufacturer Ref: BGP702 DW50 BL1 3000 20LED 5.2S CLO L90 830

Lumen Output: 3.00klm

Charge Code: 42 0021 0000 100

Luminaire Wattage: 21w

Colour Temperature: Warm White (3000k)

Luminaire Tilt Inclination: 0°

Luminous Intensity: G3

Control Gear: Integral driver

Control Type: Lucy Zodion ZCELL 20 lux (1:1 ratio)

Dimming Profile: N/A

Supply: Private cable network

Primary Isolator: Double pole Isolator with 32A double pole switch with BS 88 Type 2 6A fuse to luminaire

Secondary Isolator: N/A

Internal Wiring: Internal wiring to luminaire shall be 1.5mm² PVC insulated flexible cable

Door Orientation: Perpendicular to kerb edge

City 8

Proposed galvanised tubular steel lighting column of 10.0 metre nominal height with a planted base with glass flake root protection.
Column to be manufactured to:
EN 40, BS EN 1461 & BS 5649 standards

Luminaire: Philips Clearflood Large

Mounting Type: Post top mounted on single stirrup bracket

Manufacturer Ref: BVP651 DX50 BL1 64000 5.1S L90 CLO WW

Lumen Output: 64.00klm

Charge Code: 42 0527 0000 100

Luminaire Wattage: 527w

Colour Temperature: Warm White (2700k)

Luminaire Tilt Inclination: 0° to the horizontal plane

Luminous Intensity: G4

Control Gear: Integral driver

Control Type: Lucy Zodion ZCELL 20 lux (1:1 ratio)

Dimming Profile: N/A

Supply: Private cable network

Primary Isolator: Double pole Isolator with 32A double pole switch with BS 88 Type 2 6A fuse to luminaire

Secondary Isolator: N/A

Internal Wiring: Internal wiring to luminaire shall be 1.5mm² PVC insulated flexible cable

Door Orientation: Perpendicular to kerb edge

ISOLUX CONTOUR KEY:

- 0.20 Isolux contour line
- 1.00 Isolux contour line
- 2.00 Isolux contour line
- 5.00 Isolux contour line
- 50.00 Isolux contour line

Isolux contour lines are shown horizontally at ground level.

Luminaire maintenance factor used is 1.00, which represents a day one worst case scenario of any light spill calculations.

No blocking effects caused by walls, fencing, trees or other foliage has been taken into consideration.

R1	SWAPPED ALL LUMINAIRES FOR WARM WHITE OPTIONS	16/07/2022	SRH
R0	INITIAL DESIGN FOR REVIEW AND COMMENT	06/04/2022	SRH
REV	DESCRIPTION	DATE	BY



info@shdlighting.co.uk 07834 490 192 www.shdlighting.co.uk

SCHEME:	RELANCE STREET, NEWTON HEATH		
DRAWING:	PRIVATE LIGHTING DESIGN LIGHT SPILL		
CLIENT:	CANHAM CONSULTING		
DRAWING NUMBER:	SHD04-SHD-HLD-REL-LED-Lighting Spill-R1	DRAWN:	SRH
	SHEET 1 OF 1	CHECKED:	SRH
CONTRACT NUMBER:	SHD244	APPROVED:	
	DATE: 06/04/2022	SCALE @ A1: 1:500	REVISION: R1

PRELIMINARY DESIGN - NOT FOR CONSTRUCTION

The details provided on this drawing are subject to comments by all the relevant approving authorities or overseeing organisation. No construction works shall take place until technical approval has been obtained by the approving authority or overseeing organisation.

It is to be understood that these drawings and the information shown are preliminary only and shall not be used for construction. Should the contractor commence work on site prior to obtaining technical approval, then it is entirely at their own risk and no liability shall be accepted by SHD Lighting Consultancy Ltd.

9. APPENDIX B

9.1 Lighting Calculation Reports

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DATE: 16 July 2022
DESIGNER: SHD Lighting Consultancy Ltd
PROJECT No: SHD244
PROJECT NAME: Reliance Street, Manchester



CAD layout reference: 216352-CCL-XX-00-DR-C-4000 P04 - External Works GA

BS EN 12464-2:2014, Table 5.1

5.1.4: Pedestrian passages, vehicle turning, loading and unloading points
Minimum maintained average illuminance (Eav): >50.00 lux
Emin/Eav (Uniformity): >0.40 (40%)

BS EN 12464-2:2014, Table 5.9

5.9.2: Medium traffic car park, plants and multipurpose building complexes
Minimum maintained average illuminance (Eav): >10.00 lux
Emin/Eav (Uniformity): >0.25 (25%)

Maintenance factor shown as 1.00 to represent the worst case scenario of 'day one' initial installation and does not factor lumen depreciation which will occur during normal operation.

All luminaires use warm white 3000k light sources

Outdoor Lighting Report

PREPARED BY: SHD Lighting Consultancy Ltd
Contact: info@shdlighting.co.uk
Phone: 07834 490 192
Website: www.shdlighting.co.uk

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 2: Operational Area	388070.60	401004.32	99.00	84.00	1.50	1.50
2	Grid 2: Entrance Roads	388024.40	401014.93	42.00	60.00	1.50	1.50
3	Grid 3: Resale Shop	388030.28	401024.07	33.00	15.00	1.50	1.50
4	Grid 4: Whole Site	387979.50	400976.54	253.00	171.96	1.50	1.50
5	Grid 5: Vertical Calculati...	388014.43	401028.61	35.00	5.00	1.00	1.00
6	Grid 6: Vertical Calculati...	388015.11	401084.66	105.00	8.00	1.00	1.00

Luminaires



Luminaire B Data

Supplier	Philips
Type	BGP702 DW50 BL1
Lamp(s)	LED-HB 5.2S 830
Lamp Flux (klm)	3.00
File Name	Luma Gen2 Micro_BGP702_DW50 BL1_3000_20LED_5.2S_CLO_L90_830.ies
Maintenance Factor	1.00
Lum. Int. Class	G3
No. in Project	2

Luminaire C Data

Supplier	
Type	26w Walney Wallpack with photocell 830
Lamp(s)	LED 3000k
LampFlux(klm)/Colour	3.12 3000k/0
File Name	WAL002-3000K.ltd
Maintenance Factor	1.00
Lum. Int. Class	None
No. in Project	6



Luminaire D Data

Supplier	Philips
Type	BVP651 DX10 BL1
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	64.00
File Name	Clearflood Large_BVP651_DX10 BL1_6400_5.1S_L90_CLO_WW.ies
Maintenance Factor	1.00
Lum. Int. Class	G4
No. in Project	8

Layout

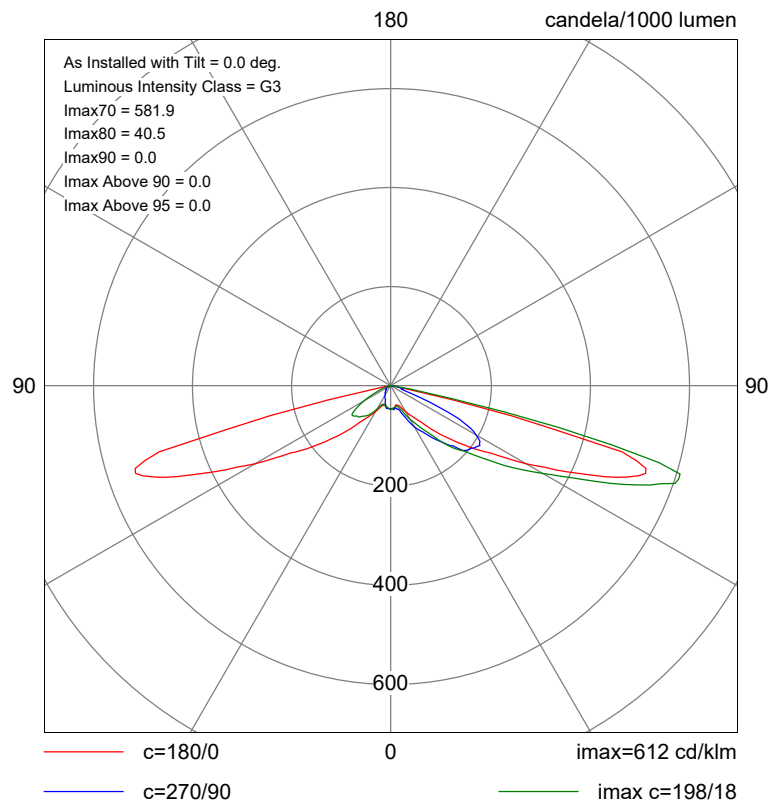
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	B	388029.63	401072.50	6.00	286.00	0.00	0.00	0.40			
2	B	388029.18	401050.64	6.00	104.00	0.00	0.00	0.40			
3	D	388058.90	401079.84	10.00	285.00	0.00	0.00	0.60			
4	D	388087.98	401087.33	10.00	285.00	0.00	0.00	0.60			
5	D	388116.96	401081.82	10.00	257.00	0.00	0.00	0.60			

Layout Continued

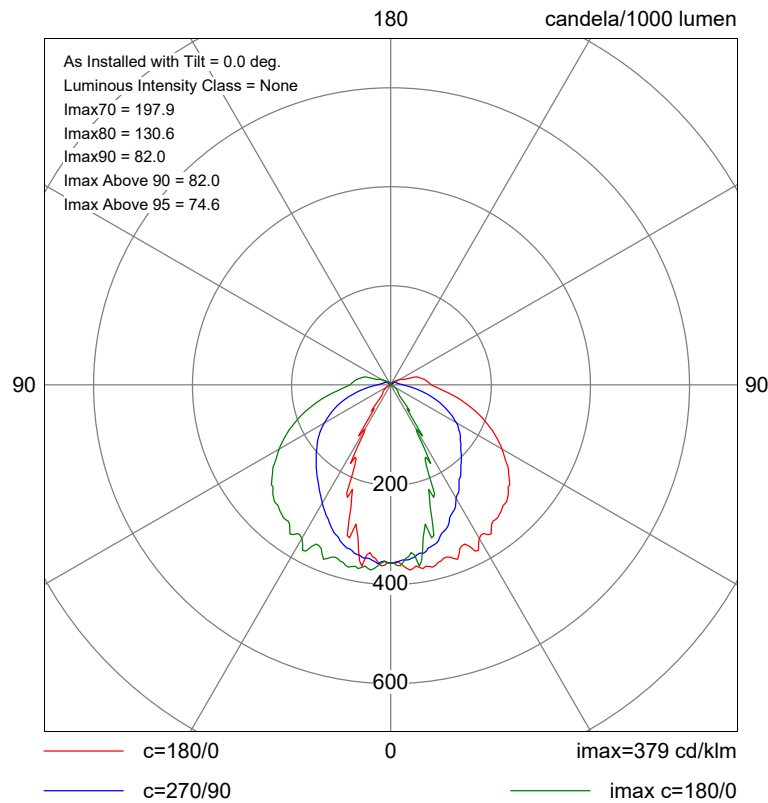
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
6	D	388063.92	401031.29	10.00	109.00	0.00	0.00	0.60			
7	D	388137.93	401038.95	10.00	180.00	0.00	0.00	0.60			
8	D	388140.64	401069.41	10.00	165.00	0.00	0.00	0.60			
9	D	388113.17	401032.43	10.00	81.00	0.00	0.00	0.60			
10	D	388090.30	401038.49	10.00	103.00	0.00	0.00	0.60			
11	C	388033.38	401036.01	2.50	105.00	0.00	0.00	0.20			
12	C	388054.89	401041.53	2.50	106.00	0.00	0.00	0.20			
13	C	388044.22	401038.77	2.50	106.00	0.00	0.00	0.20			
14	C	388045.10	401033.48	2.50	285.00	0.00	0.00	0.20			
15	C	388035.39	401030.98	2.50	285.00	0.00	0.00	0.20			
16	C	388056.23	401036.41	2.50	286.00	0.00	0.00	0.20			

Polar Diagrams

Luminaire B BGP702 DW50 BL1

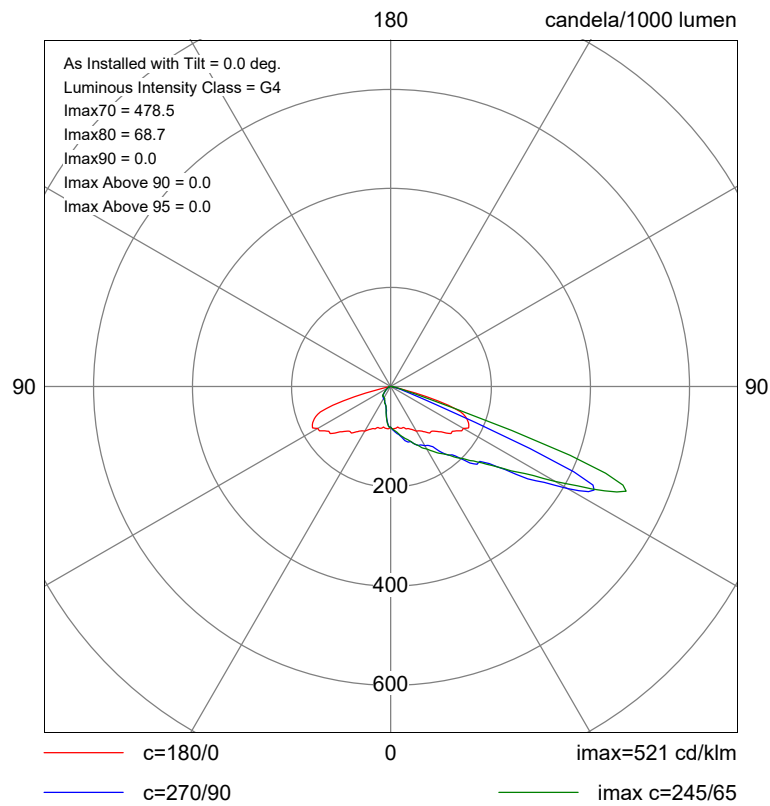


Luminaire C 26w Walney Wallpack with photocell 830



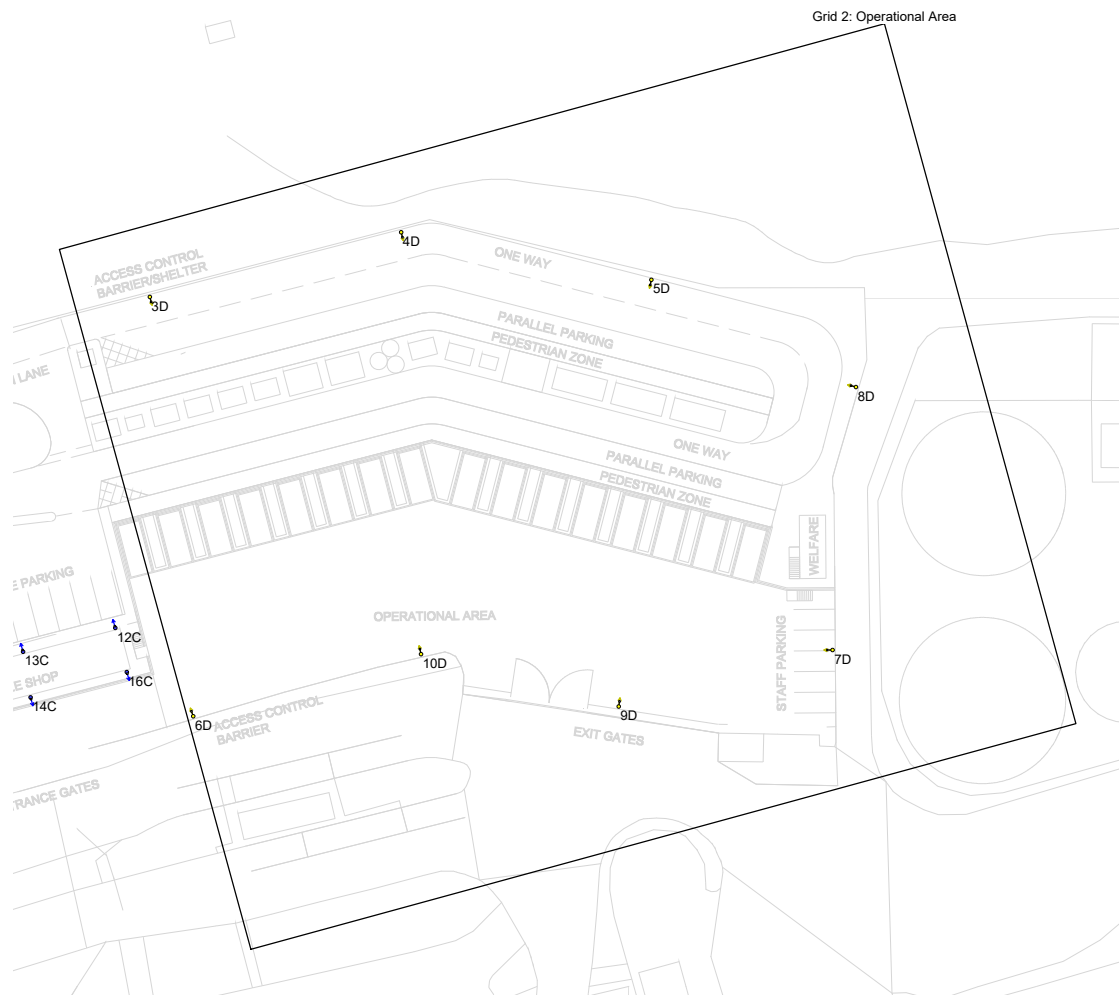
Polar Diagrams Continued

Luminaire D BVP651 DX10 BL1



Horizontal Illuminance (lux)

Grid 2: Operational Area

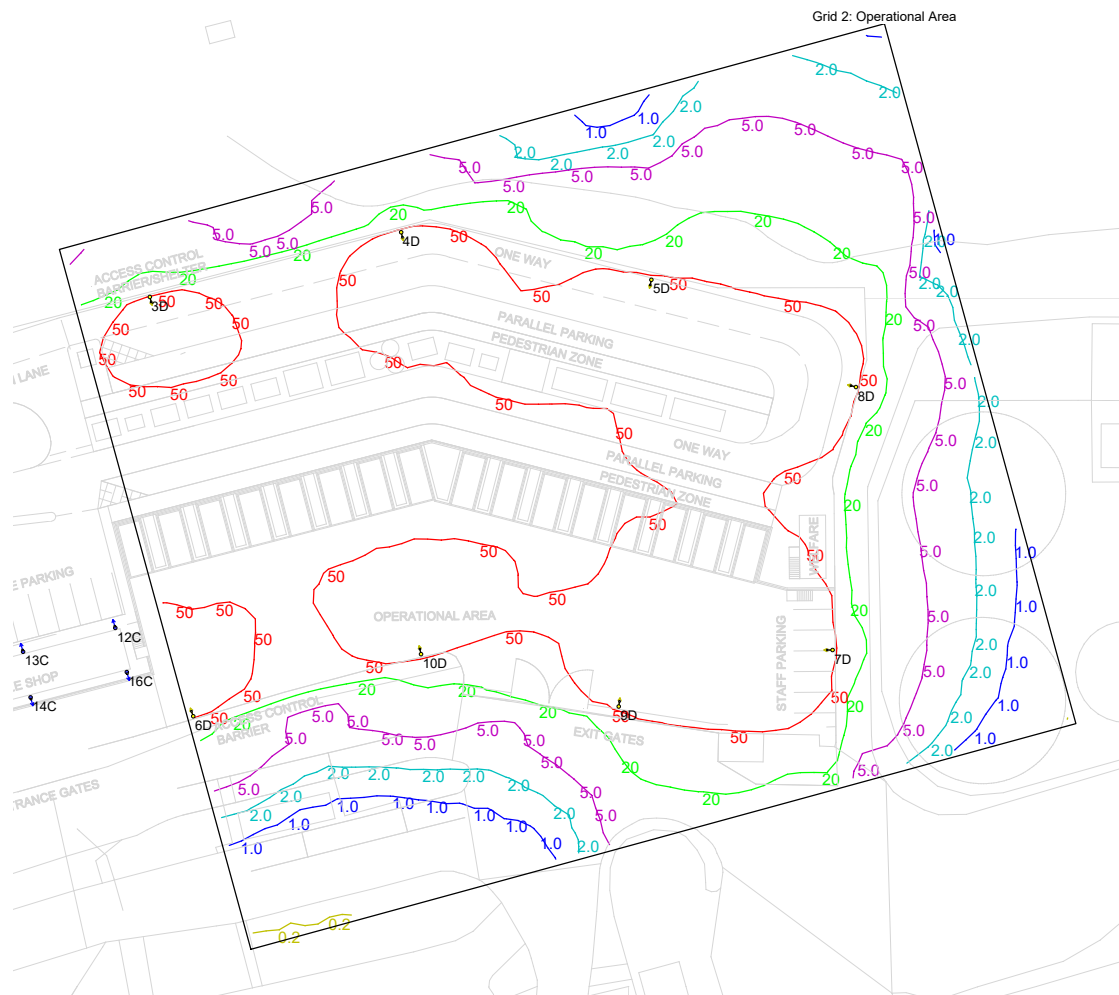


Results

Eav	53.34
Emin	21.28
Emax	90.35
Emin/Emax	0.24
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 2: Operational Area



Results

Eav	53.34
Emin	21.28
Emax	90.35
Emin/Emax	0.24
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 2: Operational Area



Results

Eav	53.34
Emin	21.28
Emax	90.35
Emin/Emax	0.24
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 2: Entrance Roads



Results

Eav	16.56
Emin	4.05
Emax	81.36
Emin/Emax	0.05
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 2: Entrance Roads

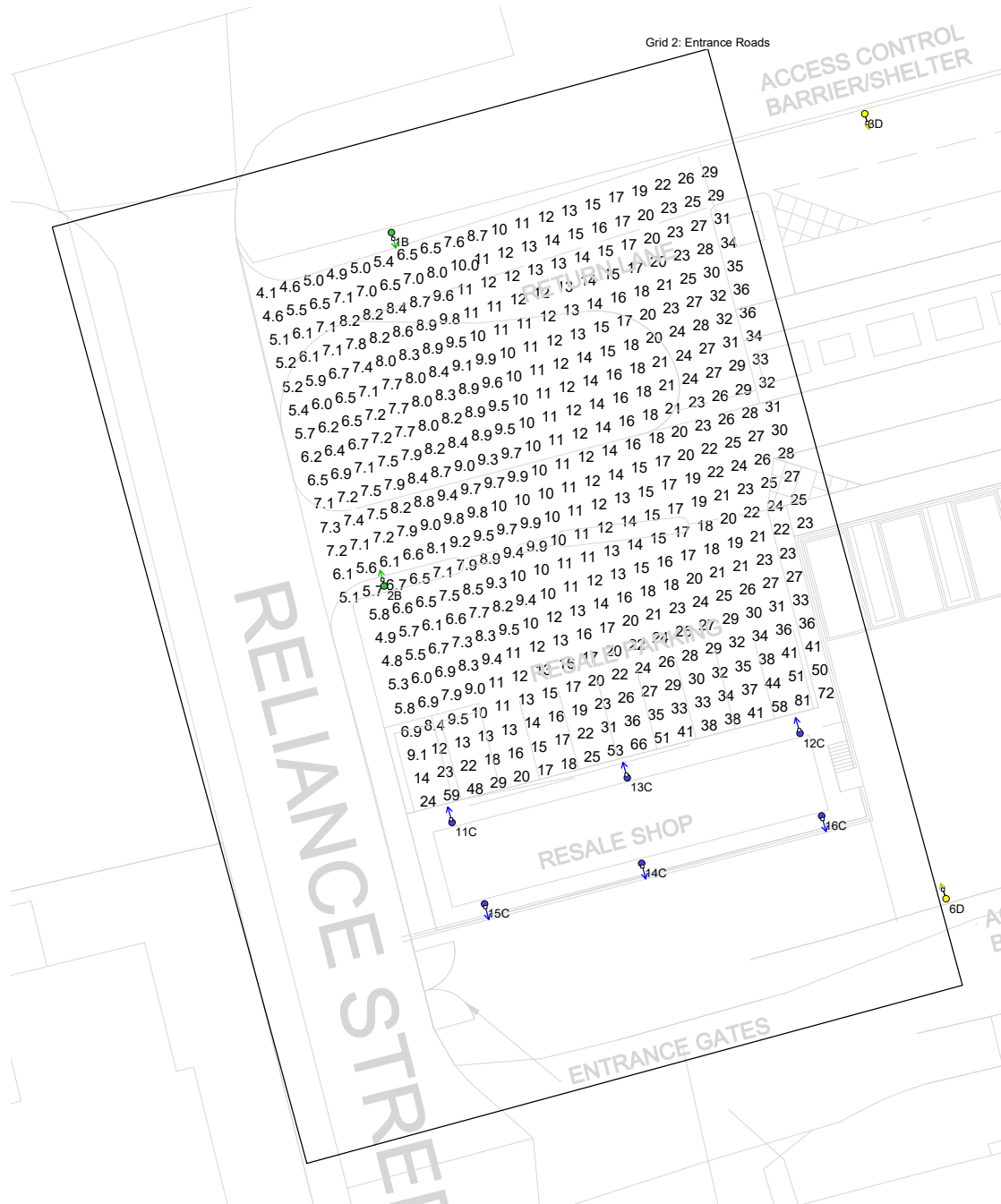


Results

Eav	16.56
Emin	4.05
Emax	81.36
Emin/Emax	0.05
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 2: Entrance Roads



Results

Eav	16.56
Emin	4.05
Emax	81.36
Emin/Emax	0.05
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 3: Resale Shop

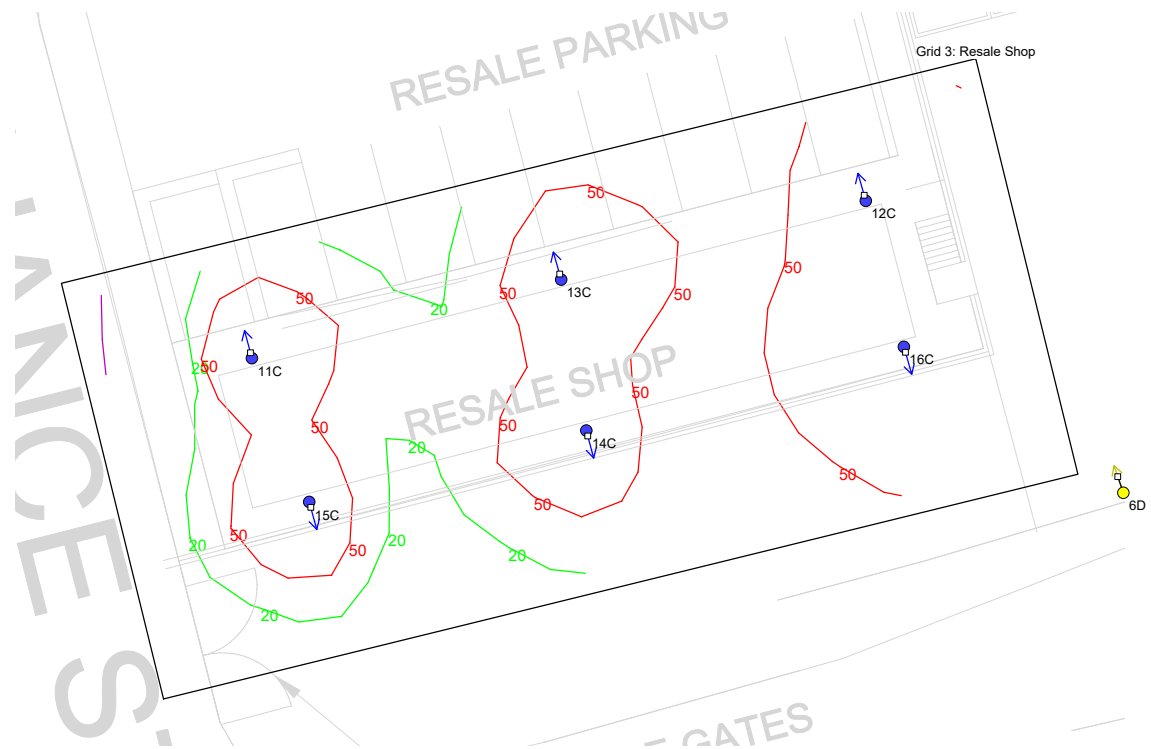


Results

Eav	79.45
Emin	15.61
Emax	225.46
Emin/Emax	0.07
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 3: Resale Shop



Results

Eav	79.45
Emin	15.61
Emax	225.46
Emin/Emax	0.07
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 3: Resale Shop

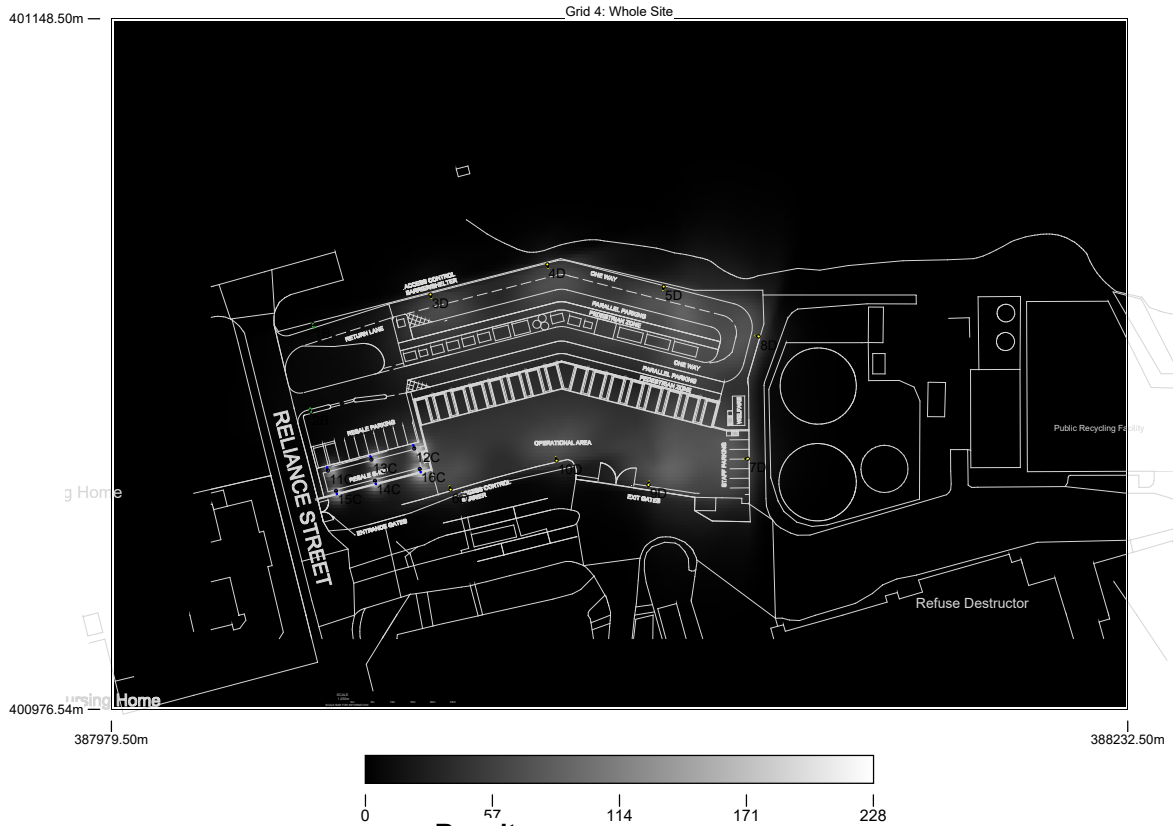


Results

Eav	79.45
Emin	15.61
Emax	225.46
Emin/Emax	0.07
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 4: Whole Site

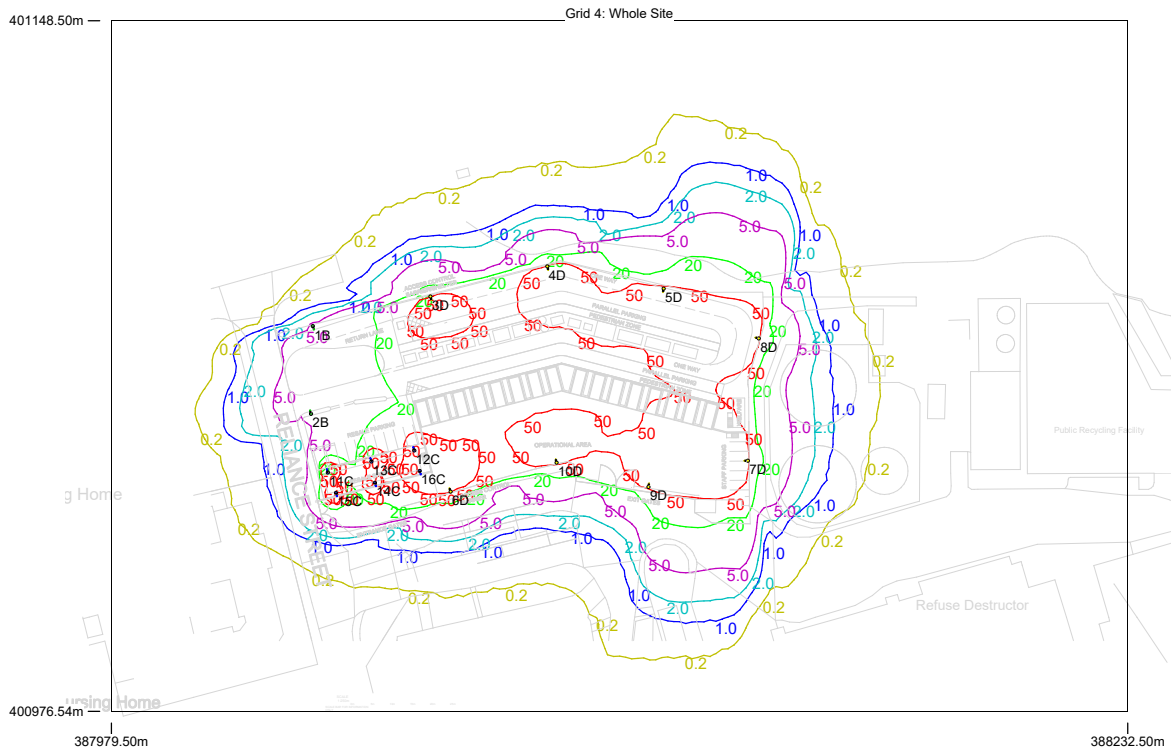


Results

Eav	16.94
Emin	0.00
Emax	227.67
Emin/Emax	0.00
Emin/Eav	0.00

Horizontal Illuminance (lux)

Grid 4: Whole Site

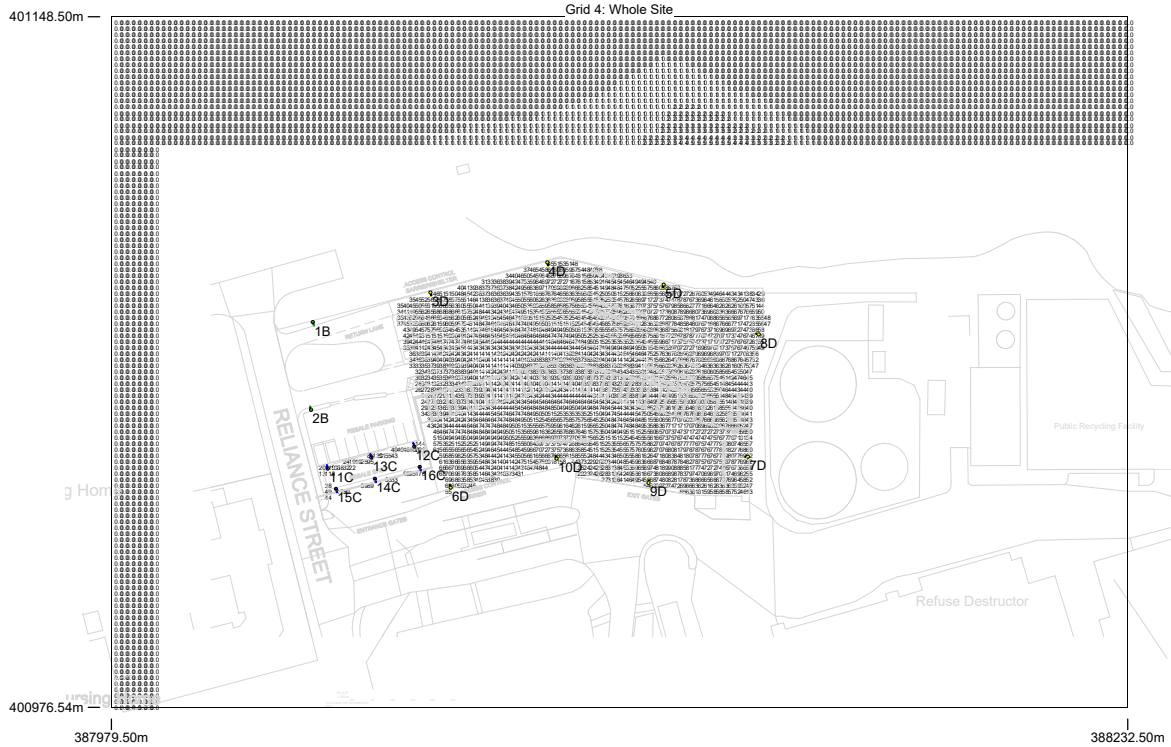


Results

Eav	16.94
Emin	0.00
Emax	227.67
Emin/Emax	0.00
Emin/Eav	0.00

Horizontal Illuminance (lux)

Grid 4: Whole Site



Results

Eav	16.94
Emin	0.00
Emax	227.67
Emin/Emax	0.00
Emin/Eav	0.00

Illuminance (lux)

Grid 5: Vertical Calculation - Building

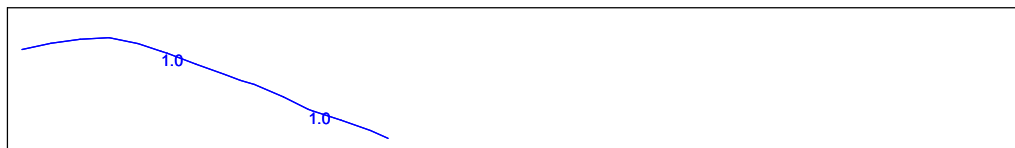


Results

Eav	0.70
Emin	0.22
Emax	1.66
Emin/Emax	0.13
Emin/Eav	0.31

Illuminance (lux)

Grid 5: Vertical Calculation - Building



Results

Eav	0.70
Emin	0.22
Emax	1.66
Emin/Emax	0.13
Emin/Eav	0.31

Illuminance (lux)

Grid 5: Vertical Calculation - Building

0.9	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2
1.1	1.1	1.2	1.1	1.1	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3
1.7	1.6	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3

Results

Eav	0.70
Emin	0.22
Emax	1.66
Emin/Emax	0.13
Emin/Eav	0.31

Illuminance (lux)

Grid 6: Vertical Calculation - Tree line

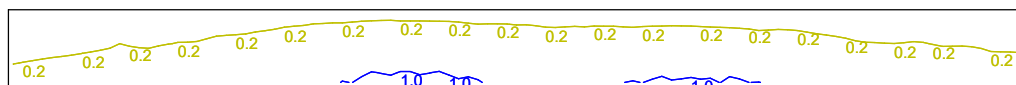
--

Results

Eav	0.38
Emin	0.04
Emax	1.25
Emin/Emax	0.03
Emin/Eav	0.10

Illuminance (lux)

Grid 6: Vertical Calculation - Tree line



Results

Eav	0.38
Emin	0.04
Emax	1.25
Emin/Emax	0.03
Emin/Eav	0.10

Illuminance (lux)

Grid 6: Vertical Calculation - Tree line

[illegible]

Results

Eav	0.38
Emin	0.04
E _{max}	1.25
Emin/E _{max}	0.03
Emin/Eav	0.10

11. APPENDIX C

11.1 Sensitive Receptors



Figure 12.0: Sensitive receptors (Aerial view)

SENSITIVE RECEPTORS	
DESCRIPTION	COLOUR
Household Waste Recycling Centre	Red
Care Home	Yellow
Woodland	Green

Table 12.0: Sensitive receptors

12. APPENDIX D

12.1 Technical Datasheets

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ClearFlood Large – The best solution for 1:1 retrofit

ClearFlood Large

ClearFlood Large is designed to meet the requirements of a wide range of floodlighting applications. It also includes all the necessary control features and interfaces to make it future-proof and even more efficient. ClearFlood Large lets you choose the exact number of lumens you need for your application. Incorporating extremely high-efficiency optics and state-of-the-art LEDs, it is a highly competitive solution offering an outstanding lux/euro ratio and energy savings of up to 40% (without the use of additional controls). The wide choice of optics ensures maximum application coverage. ClearFlood Large is easy to install – you simply plug it in and select the best option for your needs. Perfect for replacing conventional technology and enabling intelligent lighting control while retaining the same electrical installation and poles.

Benefits

- Fast payback and low Total Cost of Ownership with energy savings and minimum maintenance costs
- Multiple control options ensure increased efficiency with intelligent lighting
- Combination of lenses and flux options ensures high level of project flexibility

Features

- Designed for 1:1 retrofit up to 1000 W HID
- Wide range of lumen packages between 30 klm and 65 klm
- Gear and PCB easy to replace
- Wide range of control options, such as CityTouch Ready, CLO, DALI, 1-10 V
- LEDs and optics deliver highest level of efficiency
- Components are 100% Philips
- Wide choice of optics to suit all applications: 3x Asymmetrical, 3x Road, 3x Symmetrical, versions with louver (optional)
- Optimized architecture for 4 kV surge (optional 10 kV), IP66 and IK08 protection

Application

- Airports
- Harbors
- Large recreational sports facilities
- Industrial areas
- Roundabouts and motorway junctions

Specifications

Type	BVP651:LEDxxx-4S
	BVP651i: additional options via a configurator
Light source	Integral LED-module
Power	Up to 553 W (+/- 11%) all CCT
Luminous flux	Up to 62,000 lm (NW/CW) (-/+7%)
Luminaire efficacy	Up to 130 lm/W (NW/CW)
Correlated Colour	3,000, 4,000 or 5,700 K
Temperature	
Colour Rendering Index	80 / 70 / 70
Lumen maintenance at median useful life*	up to L93
100,000 h	
Control gear failure rate at median useful life	10%
100,000 h	
Performance Ambient Temperature Tq	+25 °C
Operating temperature range	-40 to +45 °C
Driver	Built-in (self-ballasted LED-module) – NTC
Mains voltage	220-240 V AC / 50-60 Hz
Power factor	>0.95
Surge protection	4 kV as standard, 10 kV optional
Dimming	Dimming via external communication (DALI)
	Dimming via mains voltage (AmpDim)
	Dimming via DynaDimmer (5 steps)
	Constant Light Output (CLO)
	CityTouch-ready; GPRS antenna
Control system input	DALI
Options	Class I or II
	(MSP) Marine salt protection – 1,000 h
	(SPO) Swimming Pool Protection

Optic	Asymmetrical, symmetrical and road optics
Optical element	Louvre for limited backlight cut-off (BL1 and BL2)
Optical cover	Clear tempered flat glass
Material	Die-cast aluminium
Colour	RAL9007 matt
Connection	Mains power via a waterproof connector (supplied) mounted on the projector and accepting cable diameters between 10 to 14 mm
	External control command DALI (D9), via the supplied waterproof connector (same as the mains supply) accepting cable diameters from 10 mm to 14 mm, or cable entry via 2 waterproof connectors supplied (in DALI/DALI out)
Maintenance	No internal cleaning required
	Direct access to LED engine modules and drivers
	Ballast can be replaced on request
	Spare part list available (glass, optics, bracket, protractor scale, PCB LED, connector)
Installation	U-shaped mounting bracket with a foot-print suitable for 3-point fixation by means of M20 bolts
	Vertical aiming from the horizontal: -90° / +90°, memory cap
	Standing-up or hanging-down mounting /U-bracket stirrup with standard nuts and bolts
	Protractor scale with intervals of 5°, memory cap
	Ready for CityTouch (based on the DALI protocol) with an external tray fixed on the bracket
	Projected area in horizontal position: at 0° 0.05 SCx: at 90° : 0.41 m², at 0° : 0.05 m², at 15° : 0.13 m²
	Max adjustment from the horizontal: -170 to +170°
Cable gland	External IP67 waterproof, plug-in connector (5-pin)
Remarks	CE, ENEC, RoHS, VDE-Ball proof

ClearFlood Large

Versions



Product details



OPDP_BVP650i_0013-Detail
photo



OPDP_BVP650i_0017-Detail
photo



Clearflood Large CityTouch-
DPP.jpg

ClearFlood Large

Approval and Application

Mech. impact protection code	IK08
Surge protection (common/differential)	Luminaire surge protection level up to 4 kV differential mode and 4 kV common mode

Controls and Dimming

Dimmable	No
----------	----

General Information

CE mark	CE mark
Light source colour	740 neutral white
Optical cover/lens type	FG
Driver included	Yes
Flammability mark	F
Light source replaceable	Yes
Number of gear units	2 units
Product family code	BVP651

Initial Performance (IEC Compliant)

Init. Corr. Colour Temperature	4000 K
Init. Colour rendering index	70

Light Technical

Standard tilt angle side entry	0°
Standard tilt angle post-top	0°
Upward light output ratio	0

General Information

Order Code	Full Product Name	Luminaire light beam spread	Lamp family code	Optic type
11281300	BVP651 LED750-4S/740 S ALU PSU	70° x 21°	LED750	Symmetrical
11285100	BVP651 LED750-4S/740 DX10 ALU PSU	20° - 4° x 150°	LED750	Distribution extra-wide 10
11286800	BVP651 LED750-4S/740 DX50 ALU PSU	17° - 5° x 132°	LED750	Distribution extra wide 50
11287500	BVP651 LED750-4S/740 DX51 ALU PSU	14° - 5° x 132°	LED750	Distribution extra wide 51
12902600	BVP651 LED450-4S/740 DX60 ALU PSU	8° - 26° x 82°	LED450	Distribution extra-wide 60
12905700	BVP651 LED600-4S/740 DX60 ALU PSU	8° - 26° x 82°	LED600	Distribution extra-wide 60
12908800	BVP651 LED750-4S/740 DX60 ALU PSU	8° - 26° x 82°	LED750	Distribution extra-wide 60

Initial Performance (IEC Compliant)

Order Code	Full Product Name	Initial luminous flux
11281300	BVP651 LED750-4S/740 S ALU PSU	64600 lm
11285100	BVP651 LED750-4S/740 DX10 ALU PSU	60800 lm
11286800	BVP651 LED750-4S/740 DX50 ALU PSU	61560 lm
11287500	BVP651 LED750-4S/740 DX51 ALU PSU	37240 lm

Order Code	Full Product Name	Initial luminous flux
12902600	BVP651 LED450-4S/740 DX60 ALU PSU	40050 lm
12905700	BVP651 LED600-4S/740 DX60 ALU PSU	52800 lm
12908800	BVP651 LED750-4S/740 DX60 ALU PSU	66880 lm

Mechanical and Housing

Order Code	Full Product Name	Colour
11281300	BVP651 LED750-4S/740 S ALU PSU	Grey
11285100	BVP651 LED750-4S/740 DX10 ALU PSU	Grey
11286800	BVP651 LED750-4S/740 DX50 ALU PSU	Aluminium
11287500	BVP651 LED750-4S/740 DX51 ALU PSU	Grey

Order Code	Full Product Name	Colour
12902600	BVP651 LED450-4S/740 DX60 ALU PSU	Grey
12905700	BVP651 LED600-4S/740 DX60 ALU PSU	Grey
12908800	BVP651 LED750-4S/740 DX60 ALU PSU	Grey

ClearFlood Large





Luma gen2 – The standard in road lighting, redefined

Luma gen2

Luma gen2 is the next generation of the Luma LED luminaire family, fully optimised to become your long-term lighting and innovation partner. While keeping the distinctive design characteristics of the first generation, Luma gen2 gives you the benefits of the latest technologies thanks to its future-proof System Ready architecture, use of optimised Ledgine LED and optical platform ensuring best-in-class lighting performance in a broad range of applications. It also offers improved serviceability. Installation has also become easier and faster, and thanks to the Service tag, you have access to all relevant documentations onsite. Also, the cable feed-through has been redesigned and access to the gear components is easy thanks to top down tool-less access. Luma gen2 also offers all connectivity and dimming options available today and thanks to being System Ready, it can also be paired with lighting management systems such as Interact City or existing and upcoming sensor innovations. The Luma gen2 has been developed to optimise and simplify spare part repair and maintenance work using a new plug-and-play GearFlex module containing all electrical components in an easy to handle and accessible box inside the housing. As a company conscious about the impact of light on the environment and biodiversity, we also equipped the Luma gen2 with dedicated light recipes that help with maintaining the optimal ecosystems for bats or preserve a dark night sky.

Benefits

- Ease of maintenance and spare part repair enabled through the dedicated GearFlex module
- Best-in-class efficiency and light performance in a broad range of applications
- Future-ready thanks to the SR (System Ready) socket
- The luminaire is also equipped with dedicated light recipes that help with: 1) maintaining the optimal ecosystems for bats 2) preserve a dark night sky and reduce light pollution
- Equipped with a service tag, a QR-based identification system that makes each luminaire uniquely identifiable and provides maintenance, installation and spare part information

Features

- Dedicated GearFlex module enabling faster, safer and tool-less maintenance
- New cable feed-through for easy installation
- Ready to be connected to the Interact City lighting management software
- Ready to be paired with third-party lighting management systems and sensors
- Tilt now with 2-5-degree precision
- Efficacy up to 155 lm/W
- Choice of 40+ different beams and the option of different internal louvres
- Further optimisation on performance flux level enabled by the Philips L-Tune
- Surge protection up to 10 kV
- Wide range of lumen packages, ranging from 1,000 to 55,000 lm

Application

- Motorways, inter-urban main roads, boulevards and avenues, roundabouts, pedestrian crossings
- Residential streets, side streets, squares, parks, cycle and pedestrian paths, playgrounds
- Parking areas, industrial areas, petrol stations, rail yards, airports, harbours, waterways

Specifications

Ambient Temperature	-40 to +50 °C
Main colour of the luminaire	Grey
Dimming	No, yes
Driver	Power supply unit with DALI and SystemReady interface (Power supply unit with DALI and SystemReady interface)
Driver failure rate at 5,000 h in %	0.005 %
Initial correlated colour temperature	3000 K, 4000 K
Initial input power	25 W, 38 W, 40.5 W, 6.1 W, 83 W, 87 W, 91 W
Initial LED luminaire efficacy	111, 119, 120, 142, 144, 153, 155 lm/W
Initial luminous flux	10920 lm, 12740 lm, 13500 lm, 3600 lm, 4500 lm, 5400 lm, 728 lm
Input frequency	50 to 60 Hz
Input voltage	220 to 240 V

Inrush current (A)	4, 11.5, 18, 21 A
Light source colour	740 neutral white, 830 warm white
Light source replaceable	Yes
Material	Bracket:
Material	Gear box:
Material	Housing: aluminium die-cast
Optic	Distribution medium 10, distribution medium 11, distribution medium 50
Optical cover	Polymethyl methacrylate
Surge protection	Luminaire surge protection level up to 6 kV differential mode and 8 kV common mode
Tilt angle housing	Standard tilt angle post-top: 0°Standard tilt angle side entry: -
Type	BGP701
	BGP702
	BGP704
	BGP705

Luma gen2

Versions



LUMA GEN2 MICRO - LED module
6000 lm - LED - 70° x 37°



LUMA GEN2 MEDIUM - LED
module 14000 lm - LED - 154° - 31°
x 54°



LUMA GEN2 LARGE - LED module
12000 lm - LED - 154° - 31° x 54°



LUMA GEN2 NANO - LED Module,
system flux 800 lm - LED - 160° -
42° x 54°

Product details



BGP705 Luma gen2 Large FG DPP



BGP705 Luma gen2 Large Open1
DPP



BGP701 Luma gen2 Nano FG DPP



BGP701 Luma gen2 Nano Open2
DPP

Application Conditions	
Maximum dimming level	Not applicable
Approval and Application	
Surge protection (common/differential)	Luminaire surge protection level up to 6 kV differential mode and 8 kV common mode
General Information	
CE mark	CE mark
Optical cover/lens type	G
Driver included	Yes
Flammability mark	NO
Light source replaceable	Yes
Number of gear units	1 unit
Light Technical	
Standard tilt angle side entry	-
Standard tilt angle post-top	0°
Upward light output ratio	0
Mechanical and Housing	
Colour	Grey

-

Order Code	Full Product Name	Driver failure rate at 5,000 hours
05966500	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	0.005 %
05967200	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	0.005 %
05968900	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	0.005 %
05974000	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	0.005 %
05976400	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	0.005 %
10403700	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	0.005 %
10583600	BGP701 LED8-4S/740 DM11 FG GR 42/60P	-
10584300	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	-
10585000	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	-

Approval and Application

Order Code	Full Product Name	Mech. impact protection code
05966500	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	IK09
05967200	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	IK09
05968900	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	IK09
05974000	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	IK09
05976400	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	IK09

Order Code	Full Product Name	Mech. impact protection code
10403700	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	IK09
10583600	BGP701 LED8-4S/740 DM11 FG GR 42/60P	IK10
10584300	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	IK09
10585000	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	IK09

Controls and Dimming

Order Code	Full Product Name	Dimmable
05966500	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	No
05967200	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	No
05968900	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	Yes
05974000	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	No
05976400	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	Yes

Order Code	Full Product Name	Dimmable
10403700	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	No
10583600	BGP701 LED8-4S/740 DM11 FG GR 42/60P	No
10584300	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	No
10585000	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	Yes

General Information (1/2)

Order Code	Full Product Name	Luminaire	Light	Lamp	Optic type
		light beam spread	source colour	family code	
05966500	BGP702	70° x 37°	740	LED60	Distribution medium 11
	LED60-4S/740		neutral		
	DM11 GF SRT SRB		white		
	60/7				
05967200	BGP702	73° x 44°	740	LED40	Distribution medium 10
	LED40-4S/740		neutral		
	DM10 GF SRT SRB		white		
	60/7				
05968900	BGP702 LW10	70° x 37°	830 warm	LED50	Distribution medium 11
	LED50-4S/830		white		
	DM11 GF CTGO				
05974000	BGP704	154° - 31° x 54°	740	LED140	Distribution medium 50
	LED140-4S/740		neutral		
	DM50 GF SRT SRB		white		
	60				
05976400	BGP704 LW10	70° x 37°	830 warm	LED120	Distribution medium 11
	LED120-4S/830		white		
	DM11 GF CTGO				

General Information (2/2)

Order Code	Full Product Name	Product family code
05966500	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	BGP702
05967200	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	BGP702
05968900	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	BGP702
05974000	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	BGP704
05976400	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	BGP704

Initial Performance (IEC Compliant)

Order Code	Full Product Name	Init. Corr. Colour	Init. Colour	Initial
		Temperature	rendering index	luminous flux
05966500	BGP702 LED60-4S/740	4000 K	>70	5400 lm
	DM11 GF SRT SRB 60/7			
05967200	BGP702 LED40-4S/740	4000 K	>70	3600 lm
	DM10 GF SRT SRB 60/7			
05968900	BGP702 LW10	3000 K	>80	4500 lm
	LED50-4S/830 DM11 GF CTGO			
05974000	BGP704 LED140-4S/740	4000 K	>70	12740 lm
	DM50 GF SRT SRB 60			
05976400	BGP704 LW10	3000 K	>80	10920 lm
	LED120-4S/830 DM11 GF CTGO			

Order Code	Full Product Name	Luminaire	Light	Lamp	Optic type
		light beam spread	source colour	family code	
10403700	BGP705	70° x 37°	740	LED150	Distribution medium 11
	LED150-4S/740		neutral		
	DM11 GF SRT SRB		white		
	60/				
10583600	BGP701	70° x 37°	740	LED8	Distribution medium 11
	LED8-4S/740 DM11		neutral		
	FG GR 42/60P		white		
10584300	BGP701	73° x 44°	740	LED40	Distribution medium 10
	LED40-4S/740		neutral		
	DM10 GF SRT SRB		white		
	42/6				
10585000	BGP701 LW10	70° x 37°	830 warm	LED50	Distribution medium 11
	LED50-4S/830		white		
	DM11 GF CTGO-DG				

Order Code	Full Product Name	Product family code
10403700	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	BGP705
10583600	BGP701 LED8-4S/740 DM11 FG GR 42/60P	BGP701
10584300	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	BGP701
10585000	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	BGP701

Order Code	Full Product Name	Init. Corr. Colour	Init. Colour	Initial
		Temperature	rendering index	luminous flux
10403700	BGP705 LED150-4S/740	4000 K	>70	13500 lm
	DM11 GF SRT SRB 60/			
10583600	BGP701 LED8-4S/740	4000 K	>70	728 lm
	DM11 FG GR 42/60P			
10584300	BGP701 LED40-4S/740	4000 K	>70	3600 lm
	DM10 GF SRT SRB 42/6			
10585000	BGP701 LW10	3000 K	>80	4500 lm
	LED50-4S/830 DM11 GF CTGO-DG			





50,000
HOURS

5
YEARS'
WARRANTY

NEXT DAY
DELIVERY

EXTERIOR RANGE



VENTURE
LIGHTING

IK07

IP65

OUTDOOR
PROTECTION



AVAILABLE IN
15W AND 26W

New for 2020! The Walney Wallpack is a **robust die-cast aluminium wallpack** featuring an **in-built photocell**. Designed with **low glare asymmetric light output**, this sleek and discrete design is perfect for **perimeter and walkway lighting**. Available in **15W and 26W outputs** for impressive **energy savings and long life**.

The 26W model is colour switchable between 3000K, 4000K and 5000K.

WALNEY WALLPACK

26W Walney Wallpack, Photocell 830/840/850

Order Code: WAL002

Photometric Data

Lumens	3120
Colour Rendering Index (CRI)	80-89
LPW (lm/W)	120
Colour Temperature (K)	3000 - 5000
SDCM	<5
Light Distribution	Symmetric/asymmetric
Lens / Reflector	Refractor Lens

Life Data

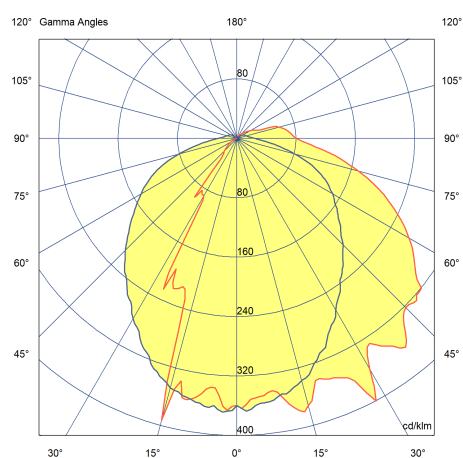
Rated Life @ 25°C (Hrs)	50000
Rated Life L90/B50 @ 25°C	50000

Electrical Data

LED Power	24 - 24
Input (W)	26
Input (V)±10%	120 - 270
Voltage Type	AC
Input Current (A)	0.13
Power Factor	0.9
THD (%)	<10
No. Per C16 Breaker	84
Electrical Class	I
Short Circuit Protection	Yes
Thermal Overload Protection	Yes
Wiring X-sec (mm ²)	1.5
Non-dimmable	Yes
LED Nominal Current (mA)	410 - 410

Physical Data

Degree of Protection (IP)	IP65
Housing Colour	Black
Housing Material	Aluminium
Length (mm)	218
Width (mm)	147
Height/Depth (mm)	78
Weight (kg)	0.9
Warranty (year)	5
Case Material	Aluminium
Suitable for wall mounting	Yes
Suitable for surface mounting	Yes
Lamp Type	LED Not Exchangeable
Cover Material	Structured Plastic
Impact Strength	IK07



Order Code: WAL002

Environmental Data	
Ambient Rated Temperature Range (°C)	-30 to 45

Accessories	
-	

Logistical Data	
Item Gross Weight (kg)	0.9
Packaging Length (cm)	22.5
Packaging Width (cm)	15.4
Packaging Height (cm)	8.8
Carton Quantity	10
Carton Length (cm)	460
Carton Width (cm)	325
Carton Height (cm)	245
Carton Gross Weight (kg)	9.5

13. APPENDIX E

13.1 Abbreviations and Definitions

Colour Rendering Index

A scale from 0 to 100 percent indicating how accurate a given light source is at rendering colour when compared to a reference light source. The higher the number, the better a light source is at revealing the actual colours present at a surface or object.

Glare

The sensation produced by luminance's within the visual field that are sufficiently greater than the luminance to which the eyes are adapted, which causes annoyance, discomfort, or loss in visual performance and visibility.

Light trespass (nuisance)

Light that impacts on a surface outside of the area designed to be lit by a lighting installation. The correct legal term is nuisance.

Illuminance

Illuminance is the quantity of light, or luminous flux, falling on a unit area of a surface. It is sometimes designated by the symbol E. The unit is the lux (lx). Luminance refers to the light given off from a source while illuminance refers to the amount of light hitting a surface.

Maintained illuminance

The minimum light level over an area.

Maintenance factor

A correction applied to a lighting calculation to allow for the build-up of dirt on a luminaire and the depreciation of the lumen output of a lamp over time. 1=100% output, 0.9=90% etc.

LED

Lighting Emitting Diodes.

Colour temperature (K)

It is the value given to the colour of the light in degrees' kelvin. It can range from 1500K to 7000K, 1500K being warm/red to 7000K being cool/blue.

Luminaire

Combination of a light source, a housing, and electronics, with the purpose of providing light.

Sky glow

The brightening of the night sky caused by artificial lighting.

14. APPENDIX F

14.1 Regulations and References

The National Planning Policy Framework (NPPF), 2021

Clean Neighbourhoods and Environment Act, 2005

The Environmental Protection Act, 1990

The Exterior Environment - Lighting Guide 6, 2016: Chartered Institution of Building Services Engineers (CIBSE)

Public Lighting Guide 04 Guidance on Undertaking Environmental Lighting Impact Assessments, 2013. Institution of Lighting Professionals (ILP)

CIE 126: Guidelines for Minimising Sky Glow, 1997

CIE 150: Guide on the limitations of the effects of obtrusive light from outdoor lighting installations, 2003

BS 5489-1, 2020 - Code of Practice for the Design of Road Lighting;

Well-lit Highways - Code of Practice for Highway Lighting Management - UK Lighting Board, 2004

The Exterior Environment - Lighting Guide 6, 2016: Chartered Institution of Building Services Engineers (CIBSE)

Well Maintained Roads – Code of Practice for Highway Maintenance Management – Roads Liaison Group, 2005;

BS EN 13201, Parts 2, 3 and 4, Road lighting

Institution of Lighting Professionals: Competency Requirements for Lighting Design Staff, 2007

Guidance Notes for the Reduction of Obtrusive Light; GN01/21, 2021. Institution of Lighting Professionals (ILP)

ILP and CIBSE document 'Lighting the Environment - A guide to good urban lighting'