



Where
buildings
come alive

Opus Land Ltd on behalf of MGTS St John High Income
Property ICVC Bank of New York Mellon (International) Ltd

Plot C1, Llantarnam Park, Cwmbran

230456

External Lighting Report for Planning

Document Revision History

Rev	Author	Verification By	Date	Suitability	Comments / Status
P01	J. Denyer	A. Cox	27/06/2024	S3	For Planning
P02	J. Denyer	A. Cox	09/07/2024	S3	For Planning

Birmingham | Nottingham | Huntingdon | Leeds | Bristol | Leicester | London | Manchester | Derby | Poland | India

www.cpwp.com

©2024 Couch Perry Wilkes

Couch Perry Wilkes shall not be liable in whole or part for any use of this document beyond such purpose(s) as the same was originally prepared or provided nor shall Couch Perry Wilkes be liable for any misinterpretation as to such intended purpose(s).

Sustainability at our core.



Contents

Section	Description	Page No.
1.0	Introduction	3
2.0	Lighting Design Brief	3
3.0	Product Types	4
4.0	Illumination Levels	4
5.0	ILP Guidance Notes for the Reduction of Obtrusive Light, 2021	5
6.0	Comparison to ILP Guidance Notes for the Reduction of Obtrusive Light, 2021	5
7.0	Observer Reference Points	6
8.0	The CPRE Sky Glow Map	6
9.0	Lighting Levels	7
10.0	Summary	7
11.0	Appendix A: Lighting Plans	8

External Lighting Report



1.0 Introduction

This report details the proposed external lighting design and associated products in support of an application to discharge requirement 15 (lighting) for the proposed development of the erection of a new build, two-storey unit for use class B1/B2/B8, to provide operational/warehousing space and office accommodation together with associated yards and parking, located at Plot C1 Llantarnam Industrial Park, Cwmbran, Torfaen, NP44 3SE. This report has been prepared by CPW for Opus Land Ltd on behalf of MGTS St John High Income Property ICVC Bank of New York Mellon (International) Ltd.

The proposed luminaires will utilise various forms to provide functional, amenity and security lighting to service yard, car parks and all other associated areas as detailed later in this report.

In general, only high colour rendering lamps are proposed to aid the visual tasks required such as parking. LED luminaires which exhibit a white light colour of 3000°K will be used to minimise disturbance of local ecology. Luminaires will have tight optical control and emit light in the downwards direction only to meet the requirements of Environmental Zone E2 for ULR and light trespass.

The lighting design will be sensitive and compliant with the principles set out within the ILP (Institute of Lighting Professionals) *'Guidance Notes for the Reduction of Obtrusive Light, Guidance Note GN01/21*, BS EN 12464-2, and other institutional guides for exterior lighting.

This report should be read in conjunction with the included CPW external lighting drawing '230456-CPW-XX-XX-DR-E-307001'.

2.0 Lighting Design Brief

The external lighting concept design has been developed with reference to:

- BS EN 12464-2:2014 Light and Lighting – Lighting of workplaces: Part 2 Outdoor Workplaces.
- BS 5489-1:2013 Code of practice for the design of road lighting — Part 1: Lighting of roads and public amenity areas.
- BS EN 13201-1:2015 Road Lighting, Part 1 Guidelines on selection of lighting classes.
- BS EN 13201-2:2015 Road Lighting, Part 2 Performance Requirements.
- ILP Guidance Notes on the Reduction of Obtrusive Light, Guidance Note GN01/21.
- Lighting Guide 6 - The Outdoor Environment
- Client briefing documents and specification.

Due to the site's location, it has been assessed as an environmental zone of E2, by the local authority and in accordance with the wider site DCO strategy.

Calculations have been made to assess the horizontal and vertical illuminance produced by the lighting design, as well as light pollution intensities on various grid planes around the site to apprise the light trespass toward nearby stakeholders.

The following sections of this report detail the proposed external lighting installation and the calculation results produced.

The external lighting within the site has been designed to meet illumination levels set out within the client specification, CIBSE Lighting Guide 6 and the British Standards on a horizontal calculation grid.

The following pages detail the external lighting proposal and calculations against the required performance criteria. The required lighting levels are baseline targets which can be increased upon in areas as dictated by the landscaping and client's requirements.

External Lighting Report



3.0 Product Types

Type EX1-EX2

The D-Series luminaire is part of the Holophane range. It is ideal for open spaced areas with its asymmetric, symmetric, and forward throw light distribution options. Precisely controlled light distribution offers maximum efficiency keeping light pollution along with spillage and glare to a minimum.

Reference EX1 - Single headed 15,000lm LED modules are to be housed within an IP65 enclosure and are to be column mounted.

Reference EX2 - Single headed 6,000lm LED modules are to be housed within an IP65 enclosure and are to be column mounted.



Type EX3-EX4

The Denver ID Wall is part of the Holophane range. It is a modern aesthetic design that incorporates LEDs in addition to standard white light sources. Its stylish design and clear glass optic provide a high performance, high efficiency LED luminaire that allows wide spacing for most applications.

Reference EX2 - Asymmetric optic, 1,500 lumen package LED, building mounted.

Reference EX3 - Asymmetric optic, 2,000 lumen package LED, building mounted.



Type EX5

The Denver ID Bollard is part of the Holophane range. It is a modern aesthetic design to coordinate with the matching wall mounted luminaire. The luminaire consists of an extruded aluminium body, housing high performance, high efficiency, LED technology.

Reference EX5 - Asymmetric optic, 1,000lm package LED, symmetric single lens 1m bollard.



'FW' Denotes forward throw distribution.

'AY' Denotes asymmetric distribution.

'SY' Denotes symmetric distribution.

'NR' Denotes narrow distribution.

'BLS' Denotes Back Light Shield

'BLC' Denotes narrow distribution with extreme back light cut-off.

4.0 Illumination Levels

In accordance with the clients briefing and specification, CIBSE Lighting Guide 6 (LG6) and BS EN 12464-2:2014, the following illumination levels are to be achieved:

Area	Maintained Illuminance (Lux)	Uniformity
Site Access Road	10	0.40
Pedestrian Only Walkways	5	0.25
Car Park Areas	10	0.25
Service Yard	30	0.40
Office Entrance	50	0.40
Dock	50	0.40

Average illumination levels achieved on CPW drawing 230456-CPW-XX-XX-DR-E-307001 - Proposed External Lighting Layout:

Unit	Average Level Achieved (Lux)	Uniformity
Site Access Road	19	0.63
Access Road	18	0.48
Car Park Areas	19	0.36
Dock	60	0.48
Service Yard	30	0.50

External Lighting Report



5.0 ILP Guidance Notes for the Reduction of Obtrusive Light, 2021

In accordance with the Institute of Lighting Professionals (ILP) 'Guidance Notes for the Reduction of Obtrusive Light, 2021'. The development has been classed with having an environmental zone of E2.

Zone	Surrounding	Examples
E0:	Protected - Dark	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1:	Natural - Dark	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2:	Rural - Low district brightness	Sparsely inhabited rural areas, village, or relatively dark outer suburban locations
E3:	Suburban - Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4:	Urban - High district brightness areas	Town/city centres with high levels of night-time activity

Having an environmental zone of E2 indicated that the design shall need to comply with the table below:

Environmental Zone	Sky Glow ULR (Max %)	Light Trespass (into windows) Ev (Lux)		Source Intensity I (cd)		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L
E0:	0	n/a	n/a	0	0	<0.1
E1:	0	2	<0.1	2500	0	<0.1
E2:	2.5	5	1	7500	500	5
E3:	5	10	2	10000	1000	10
E4:	15	25	5	25000	2500	25

- ULR** Upward light ratio of the installation is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.
- EV** Vertical illuminance in lux and is measured flat on the glazing at the centre of the window.
- I** Light intensity in Cd.
- L** Luminance in Cd/m².
- Curfew** Time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of lighting applied by the local authority. If not stated—23:00h is suggested.

6.0 Comparison to ILP Guidance Notes for the Reduction of Obtrusive Light, 2021

Lighting calculations have been undertaken as demonstrated on the CPW External Lighting drawings 'Proposed External Lighting Layout' and the following values have been obtained which demonstrate compliance to the ILP guidance table for environmental zone E2 for ULR and light trespass. The sensitive receptors identified by the blue lines above in Section 7, as follows:

Unit	Ref 1	Ref 2	Ref 3
Sky Glow ULR Max %	0.001%	0.001%	0.001%
Light intrusion (into windows) EV Lux			
Pre-curfew	0.0	0.0	0.0
Post-curfew	0.0	0.0	0.0
Luminaire Intensity I (candelas)			
Pre-curfew	8	177	33
Post-curfew	8	177	33

External Lighting Report



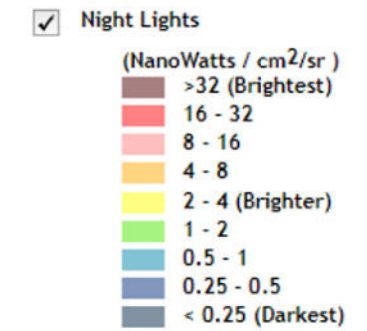
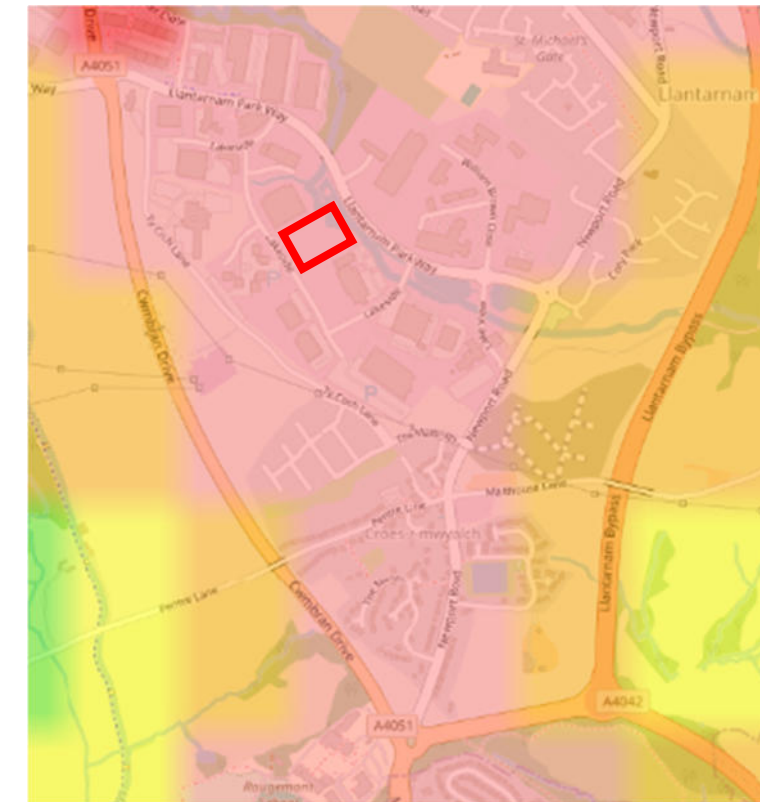
7.0 Observer Reference Points

The blue lines indicate observer reference points which are located at the nearest properties to the development. The calculation is a worst-case calculation as it does not account for any trees or fencing. The red line indicates the plot's location.



8.0 The CPRE Sky Glow Map

The CPRE Sky Glow Map identifies that the existing light pollution levels surrounding the Site (outlined in red below) fall under a high brightness designation, which is confirmed by the red colouration (8-16 NanoWatts / cm² / sr) in the extract provided below. The main area of high brightness surrounding the Application Site are the nearby industrial & residential developments.



Each pixel shows the level of radiance (night lights) shining up into the night sky. These have been categorised into colour bands to distinguish between different light levels. Please see the [REPORT](#) for more information on this.

External Lighting Report



9.0 Lighting Levels

The minimum recommended levels targeted are 5 lux average for the building periphery, controlled and pedestrian walkways with 10 lux in car park areas. Increased illuminance levels of 30 lux for service yards, 50 lux to the docks is required to ensure safe manoeuvring of vehicles.

These lighting levels are baseline targets which meet the minimum levels within current British Standards (BS EN 12464-2:2014), Lighting Guide LG6 and the developer's specification.

The lighting scheme produced and indicated on CPW drawings '230456-CPW-XX-XX-DR-E-307001 - Proposed External Lighting Layout', is within the parameters specified within the ILP guidance notes for the reduction of obtrusive light, 2021. The luminaires have been carefully selected to minimise upward light spill, glare, and backwards light spillage.

All external lighting is to be controlled with a photocell and time clock such that the lighting will be energised at low ambient lighting and will switch off during daylight hours. (Final settings to be determined by Client).

10.0 Summary

The scheme has been developed to reduce the impact that the external lighting would have on the surrounding areas. The scheme produced shows that the illuminance spillage towards the nearest residential properties to the development are within the parameters of environmental zone E2 for ULR and light trespass.

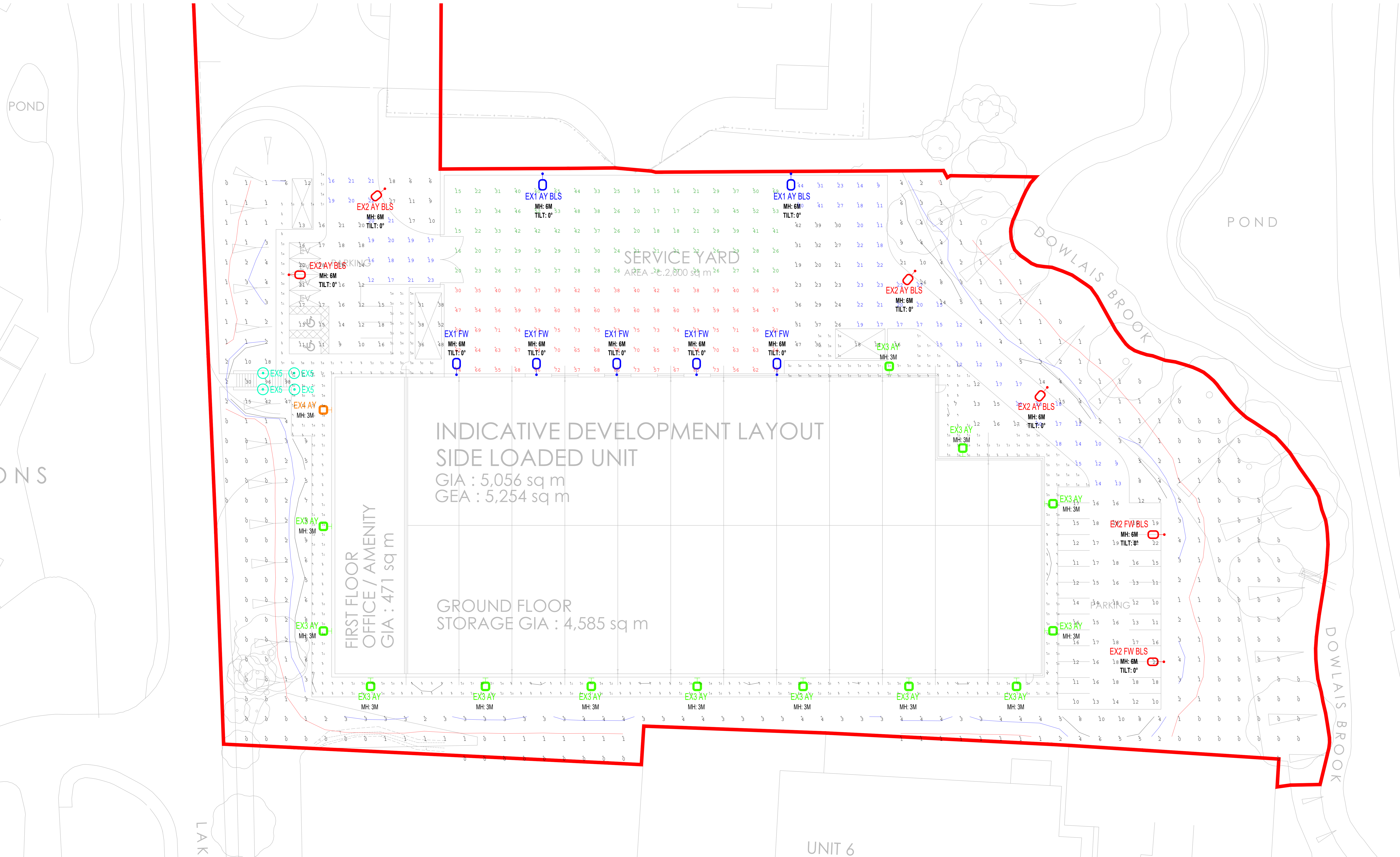
The lighting scheme is based around a low pollution, low energy, and low maintenance strategy. Considerations were also given to low energy products which have excellent light control optics such that their efficiencies are maximised, carbon footprint minimised and impact on the local ecology reduced.

Alternative luminaires may develop and be introduced into the market during the detailed design stage, however the philosophy of downward light only should always be retained and implemented into the finalised design.

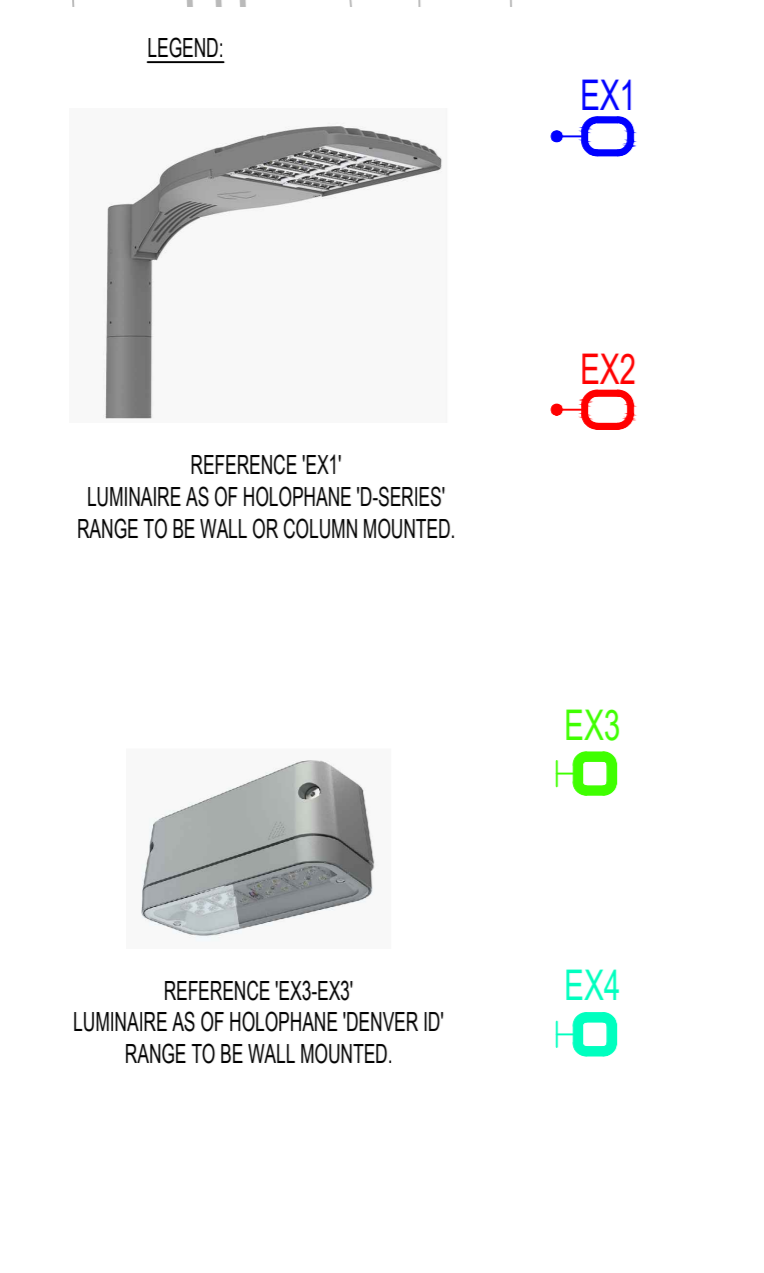
External Lighting Report



11.0 Appendix A: Lighting Plans



- NOTES**
- ELECTRICAL CONTRACTOR TO VERIFY LIGHTING DESIGN PRIOR TO INSTALLATION. THIS IS ONLY A CONCEPTUAL DESIGN.
 - ELECTRICAL CONTRACTOR TO READ THIS DRAWING IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS.
 - ELECTRICAL CONTRACTOR TO ENSURE CABLES AND LIGHTING COLUMNS ARE LOCATED SUCH THAT THEY WILL NOT BE AFFECTED BY THE FUTURE GROWTH OF THE TREE ROOF.
 - FOR PLANNING PURPOSES ASSUME ALL EXTERNAL LIGHTING WILL COME ON AT DUSK AND REMAIN ON UNTIL DAWN, EXACT HOURS TO BE CONFIRMED BY THE OCCUPYER.
 - THE LIGHTING DESIGN TO COMPLY WITH THE CIBSE GUIDE L10K THE OUTDOOR ENVIRONMENT, AND THE I.P. GUIDANCE NOTES FOR REDUCTION OF OBTRUSIVE LIGHT, 2021 AND ALL LATEST ADDITIONS.
 - LUMINAIRE COLOURS TO MATCH COLUMN COLOURS.
 - ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE CPW EXTERNAL LIGHTING REPORT.
 - ALL LIGHTING TO BE INSTALLED WITH 1° TILT.
- FW** DENOTES FORWARD THROW OPTIC
AY DENOTES ASYMMETRICAL OPTIC
SY DENOTES SYMMETRICAL OPTIC
NR DENOTES NARROW DISTRIBUTION
BSL DENOTES BACK LIGHT SHIELD
SLL DENOTES SHARP DISTRIBUTION WITH EXTREME BACK LIGHT OFF-OFF



EX1
 COLUMN MOUNTED D-SERIES.
 3000K, 1500 INITIAL LUMENS PER LAMP
 MAINTENANCE FACTOR = 1
 WATTS PER LUMINAIRE = 131
 TILT ANGLE = 0
 MOUNTING HEIGHT = AS SHOWN

EX2
 COLUMN MOUNTED D-SERIES.
 3000K, 6,000 INITIAL LUMENS PER LAMP
 MAINTENANCE FACTOR = 1
 WATTS PER LUMINAIRE = 44
 TILT ANGLE = 0
 MOUNTING HEIGHT = AS SHOWN

EX3
 WALL MOUNTED DENVER ID.
 3000K, 1500 INITIAL LUMENS PER LAMP
 MAINTENANCE FACTOR = 1
 WATTS PER LUMINAIRE = 10
 TILT ANGLE = 0
 MOUNTING HEIGHT = AS SHOWN

EX4
 WALL MOUNTED DENVER ID.
 3000K, 2,000 INITIAL LUMENS PER LAMP
 MAINTENANCE FACTOR = 1
 WATTS PER LUMINAIRE = 18
 TILT ANGLE = 0
 MOUNTING HEIGHT = AS SHOWN

EX5
 DENVER ID BOLLARD.
 ASYMMETRICAL OPTIC, 3000K
 1,000 INITIAL LUMENS PER LAMP
 MAINTENANCE FACTOR = 1
 WATTS PER LUMINAIRE = 9
 TILT ANGLE = 0

EX7
 REFERENCE EX7 LUMINAIRE AS OF HOLOPHONE DENVER ID RANGE

CPW
 Interface 100
 Malvern Way, Southall
 UY9 4LT
 Phone: +44(0) 121 709 6600
 Email: southall@cpw.com

STAGE 2
FOR PLANNING

Client: OPUS LAND LTD ON BEHALF OF MCTS ST JOHN HIGH INCOME PROPERTY (VIC BANK OF NEW YORK MELLON INTERNATIONAL) LTD

Project: PLOT C1 LLANTARNAM INDUSTRIAL PARK, CWMBRAN

Drawing Title: PROPOSED EXTERNAL LIGHTING LUX LEVEL LAYOUT

Scale (A0): 1:200 Date: JUNE 24 By: JD Ve: AC

REV	DATE	DESCRIPTION	BY	CHK	APP
2540	CPW	XX	XX	DR	E
				20793	S3
					P02

230456-CPW-XX-XX-DR-E-307001 S3 P02
 CPW Project No. 2028
 Linked Files
 2540/PL13



Where
buildings
come alive

+44 (0) 121 709 6600

Interface 100
Arleston Way, Solihull
B90 4LH

birmingham@cpwp.com
www.cpwp.com

CPW & couchperrywilkes are trading styles of:

- Couch Perry & Wilkes LLP (Registered Number: OC317478)
- Couch Perry & Wilkes Environmental LLP (Registered Number: OC366464)
- Couch Perry Wilkes East Midlands LLP (Registered Number: OC373814)
- Couch Perry & Wilkes (Acoustics) Limited (Registered Number: 13392985)
- C.P.W. Services Limited (Registered Number: 01554095)
- Couchperrywilkes Support Limited (Registered Number: 10249381)

All are registered in England & Wales. Registered Office: Interface 100, Arleston Way, Solihull, B90 4LH