IN2
ENGINEERING DESIGN PARTNERSHIP

White Heather, South Circular Road, Dublin 8

Site Lighting Report

IN2 Project No. D2502

27th November 2025

Rev 01

Revision History

Date	Revision	Description
31/10/2025	00	Issued for Comment
27/11/2025	01	Planning Stage Issue

Registered Office:. Unit E, Mount Pleasant Business Park, Upper Mount Pleasant Avenue, Dublin 6

Company Registration No.: 466565

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1.0 INTRODUCTION

The site lighting design is for information only and provides an indication of the intent for the developments site lighting only.

The site lighting will not be taken in charge by the city council and the quantities and types of fittings may differ following during the design stage.

The purpose of this report is to demonstrate that the proposed site lighting design will both enhance the development and maintain safe levels of illumination to circulation areas while minimising light overspill on the neighbouring properties and mitigating the residual impacts that the proposed lighting scheme may have on existing habitats within the site.

2.0 EXECUTIVE SUMMARY

The following report contains the design layout and accompanying calculations for the proposed site lighting scheme for the proposed new development.

The external lighting for this development has been designed to achieve the performance requirements as set out in the following standards:

- BS 5489-1:2013 Code of Practice for the Design of Road Lighting
- BS EN 13201-2:2015 – Road Lighting Part 2: Performance Requirements
- BS 8300:2018 - Design of an accessible and inclusive built environment
- Guidance Notes for the Reduction of Obtrusive Light GN01-21 (Institute of Lighting Professionals, 2021)
- CIBSE – Lighting Guide 6: The Exterior Environment
- NSAI National Rules for Electrical Installations I.S. 10101:2020
- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010);
- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018).

The design criteria set out for this proposed development is based on the lighting requirements of the BS EN 13201-2:2015, BS 5489-1:2020 and BS 8300:2018, as specified in the table below.

BS 8300:2018		
Area	Lighting Levels (Lux)	Uniformity (Uo)
Pedestrian Access Routes in the open Environment. Level and gently sloped.	*5*	-
Pedestrian routes adjacent to the entrances/exits of buildings	*100*	-
Stairways and ramps in the external Environment	*30*	-
Outdoor Car Parks (light traffic)	*5*	-
Outdoor Car Park (Medium traffic)	*10*	-

Table 2.1 Minimum Lighting Requirements BS 8300:2018

BS EN 13201-2:2015		
Class	Average Lighting Levels (LUX)	*Minimum Lighting Levels (LUX)*
P1 Lighting Class	*15*	*3*
P2 Lighting Class	*10*	*2*
P3 Lighting Class	*7.5*	*1.5*
P4 Lighting Class	*5*	*1*
P5 Lighting Class	*3*	*0.6*

Table 2.2 3 Minimum Lighting Requirements P Classes BD 13201-2

3.0 DEVELOPMENT OVERVIEW

The proposed mixed-use Large-Scale Residential Development (LRD) will comprise the demolition of all existing commercial and warehouse buildings and structures on the site, and the construction of 250 no. residential units within six blocks (Blocks 01, 02(A/B), 03(A/B), 04(A/B), and two duplex blocks) ranging in height up to seven storeys. The development will include 12 no. studio apartments, 148 no. one-bedroom apartments, 74 no. two-bedroom apartments, 8 no. one-bedroom duplex units, and 8 no. two-bedroom duplex units.

All residential units will include private balconies or terraces, oriented north, south, east, or west.

The proposal also includes the conversion of the existing residential dwelling at 307/307A South Circular Road to a crèche with an associated external play area. A new kiosk/café and adjoining open space will be provided adjacent to 307/307A South Circular Road, along with car and bicycle parking. The development will provide public open spaces between Blocks 03 and 04, as well as to the north and south of the apartment blocks, the latter overlooking the Grand Canal, together with communal open spaces throughout the scheme. Vehicular, pedestrian, and cyclist access will be provided from the northeast of the site via South Circular Road, with additional pedestrian and cyclist access from the west via St James's Terrace.

The proposal also includes landscaping, public and communal open spaces, and all associated site development works required to facilitate the project. These works include boundary treatments, plant and waste management areas, and other service provisions, including ESB infrastructure.

4.0 PROPOSED INSTALLATION

The proposed site lighting for the new development has been designed to ensure compliance with, or exceedance of, the lighting criteria set out in the relevant standards listed previously. The design provides adequate illumination to meet key requirements such as safe access and egress, enhanced site security, and the comfortable and safe use of pedestrian routes.

The lighting design has also been assessed to ensure minimal environmental impact, reducing glare, sky glow, and obtrusive light.

It is proposed to illuminate the roads using two Type X5 luminaires per 6-metre pole-mounted, providing uniform lighting distribution along vehicular routes.

All footpaths, apart from the one adjacent to the canal, will be illuminated using Type X7 luminaires, 4-metre pole-mounted, ensuring adequate visibility and visual comfort for pedestrians.

The footpath adjacent to the canal will be illuminated by Type X9 LED strip luminaires, installed in 45-degree profiles integrated into the seating benches, providing low-level lighting that minimises light spill toward the canal.

5.0 DESIGN ANALYSIS AND CALCULATION RESULTS

5.1 Roads

The lighting performance at the Roads have been assessed with fitting Type ‘X6’ 6-meter (H) pole mounted Luminaire as per luminaire schedule, Appendix A.

Figure 5.1.1 – Illumination Levels at the Roads

Evaluation	Target	Result	
Eaverage (maintained)	7.5-10 lux	8.07	Pass
UO (Uniformity)	0.20	0.24	Pass

Figure 5.1.2 – Analysis Results

5.2 Pedestrian Footpaths

5.2.1 General Footpaths

The lighting performance for the pedestrian footpaths (excluding the canal-side footpath) has been assessed using Type ‘X7’ luminaires, 4-metre pole-mounted, as detailed in the luminaire schedule, Appendix A.

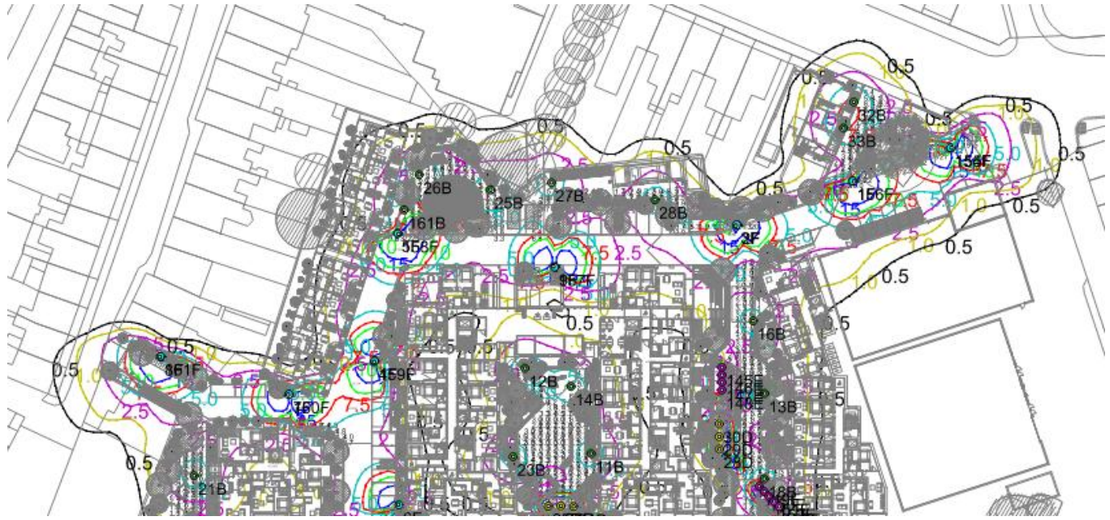


Figure 5.2.1.1 – Illumination Levels at the Footpaths

Evaluation	Target	Result	
Eaverage (maintained)	5-7.5 lux	6.33	Pass
UO (Uniformity)	0.20	0.24	Pass

Figure 5.2.1.2 – Analysis Results

5.2.2 Footpath Adjacent to the Grand Canal

To minimise light spill towards the canal and prevent disturbance to local fauna, the proposed lighting consists of LED strip luminaires integrated into the benches, mounted within 45° profiles and directed downwards towards the ground surface.

The LED strips will operate at a 2700 K colour temperature and will be dimmed to 50 % output to further reduce light spill.

Within the Lighting Reality software, vertical and horizontal calculation grids were placed along the southern boundary of the footpath. The results indicate that light spill beyond the southern limit of the footpath is minimal.

The detailed photometric analysis supporting this assessment is provided in Appendix C – Lighting Reality Report.

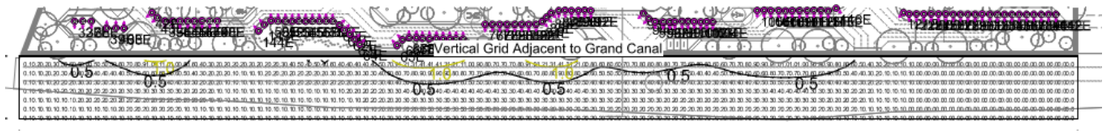


Figure 5.2.2.1 – Illuminance Levels in the Canal Area – Horizontal Grid

Results

Eav	0.34
Emin	0.05
Emax	1.44
Emin/Emax	0.04
Emin/Eav	0.16

Figure 5.2.2.2 – Analysis Results – Horizontal Grid

Results

Eav	0.00
Emin	0.00
Emax	0.00
Emin/Emax	0.00
Emin/Eav	0.00

Figure 5.2.2.3 – Analysis Results – Vertical Grid Adjacent to Grand Canal

6.0 APPENDIX A – LUMINAIRE SCHEDULE

IN2
ENGINEERING DESIGN PARTNERSHIP

LUMINAIRE SCHEDULE – SITE LIGHTING

White Heather, South Circular Road, Dublin 8

ISSUED FOR PLANNING

Rev 01

27th November 2025

Luminaire Schedule
D2502
Rev 00

WHITE HEATHER SHD

IN2 ENGINEERING DESIGN PARTNERSHIP

Luminaire Reference	**X5**	**Manufacturer**	**CU PHOSCO** P510-28-P4A-730-SE-0500-21W
Body Description	Die-Cast aluminium. IP67	Recessed/Surface or Wall Mounted	Pole Mounted
Diffuser Type	Polycarbonate bowl	Lumen Output	1800 lumens
Control Gear	DALI	Colour of Lamps	3000K
Power	17W	Lamp Life	100,000 Hrs
Dimensions (mm)	106 mm (D) x 178mm (H)	IEC Photometric Code	
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes
Lumen Depreciation	L80 B10	Power Factor	0.90
Colour rendering Index	80	LED luminaire tested	To be in accordance with IESNA LM-79-08
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED drivers shall conform to	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Five-year. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		

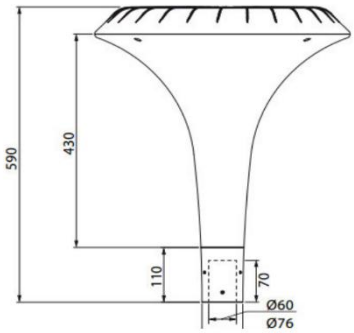
Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

Luminaire Schedule
D2502
Rev 00

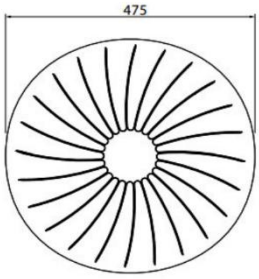
WHITE HEATHER SHD

IN2 ENGINEERING DESIGN PARTNERSHIP

Luminaire Reference	**X7**	**Manufacturer**	**VeeLite, Chi Series C6,** 5CHI10LGA-C6
Body Description	Injected cast aluminium. IP66. IK10.	Recessed/Surface or Wall Mounted	Pole Mounted
Diffuser Type	LED with Polycarbonate Lens	Lumen Output	2815 lumens
Control Gear	220-240V AC 50/60Hz., 500mA Driver.	Colour of Lamps	4000K
Power	26W	Lamp Life	>100,000 Hrs
Dimensions (mm)	475mm (Dia) x 590mm (H)	IEC Photometric Code	830/339
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes
Lumen Depreciation	L80 B10	Power Factor	0.8
Colour rendering Index	>80	LED luminaire tested	To be in accordance with IESNA LM-79-08
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED drivers shall conform to	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Five-year. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		



All dimensions are in mm.



EPA 0.08m^2. Weight: 7kg

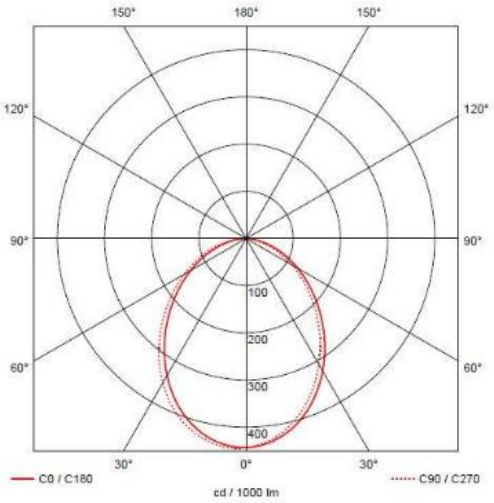
Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

Luminaire Schedule
D2502
Rev 00

WHITE HEATHER SHD

IN2 ENGINEERING DESIGN PARTNERSHIP

Luminaire Reference	**X8**	**Manufacturer**	**Ansell Lighting**
Body Description	Polycarbonate construction, IP65, IK08	Recessed/Surface or Wall Mounted	Surface
Diffuser Type	Polycarbonate	Lumen Output	480 lumens
Control Gear	220-240V	Colour of Lamps	3000K
Power	5W	Lamp Life	100,000 Hrs
Dimensions (mm)	110 mm (H) x 85mm (D) x	IEC Photometric Code	
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes
Lumen Depreciation	L80 B10	Power Factor	0.90
Colour rendering Index	70	LED luminaire tested	To be in accordance with IESNA LM-79-08
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED drivers shall conform to	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Five-year. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		



Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

Luminaire Schedule
D2502
Rev 00

WHITE HEATHER SHD

IN2 ENGINEERING DESIGN PARTNERSHIP

Luminaire Reference	**X9**	**Manufacturer**	**Ansell** P-Cell PRO LED Strip
Body Description	IP65.	Recessed/Surface or Wall Mounted	-
Diffuser Type	-	Lumen Output	500lm/m
Control Gear	24V	Colour of Lamps	2700K
Power	4.8W/m	Lamp Life	>50,000 Hrs
Dimensions (mm)	4mm (H) x 10mm (W)	IEC Photometric Code	830/339
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes
Lumen Depreciation	L70 B10	Power Factor	0.8
Colour rendering Index	>80	LED luminaire tested	To be in accordance with IESNA LM-79-08
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED drivers shall conform to	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Five-year. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		

Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

7.0 APPENDIX B – LIGHTING DRAWINGS

Refer to IN2 Drawing:

1. WHR-IN2-ZZ-00-DR-E-0101
2. WHR-IN2-ZZ-00-DR-E-0110

REF: 'X5' LUMINAIRES

17W, 3000K, 1800lm, tilt angle 45°
MOUNTED @6m ON LIGHTING COLUMN.

DIMS: 106 (D) x 78mm(H)

AS PER LUMINAIRE SCHEDULE

REF: 'X7' LUMINAIRES

26W, 4000K, 2815lm, POLE MOUNTED LUMINAIRE ON 4m HIGH COLUMN.

DIMS: Ø 475mm x 590mm (H)

AS PER LUMINAIRE SCHEDULE

REF: 'X8' LUMINAIRES

5W, 3000K, 480lm, SURFACE MOUNTED LUMINAIRE

DIMS: Ø 85mm x 110mm (H)

AS PER LUMINAIRE SCHEDULE

REF: 'X9' LUMINAIRES

4.8W/m, 2700K, 500lm/m, LED STRIP MOUNTED ON 45° PROFILE, DIMMED TO 50 %

DIMS: 10mm (W) x 4mm (H)

AS PER LUMINAIRE SCHEDULE

ISOLUX CONTOUR LINES REFERENCE KEY

- 5 — 5 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)
- 7.5 — 7.5 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)
- 10 — 10 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)
- 15 — 15 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)

SITE LIGHTING SYMBOLS REFERENCE KEY

- LIGHTING CIRCUIT
- X5 / X6 — STREET LIGHTING
- X7 — AMENITY SPACES
- X8 — AMENITY SPACES
- X9 — AMENITY SPACES
- LC — LIGHTING COLUMN

SITE LIGHTING NOTES

1.00 LIGHTING POLES TO BE ALUMINIUM, ROOT MOUNTED, CONE SHAPED WITH TOP TAIL OF 60mm Ø c/w CLASS II 4x16mm² SHUNT TERMINAL CONNECTION BLOCK - HEIGHT 5m ABOVE FINISHED GROUND LEVEL c/w TILTING FACILITY TO ALLOW FOR EASE OF MAINTENANCE.

2.00 LIGHTING POLES TO ACCOMMODATE UP TO 3no. LIGHT FITTINGS. FITTING BRACKETS TO BE SUITABLE FOR SPECIFIED POLE WITH TOP BRACKET FOR UPPER FITTING. DIRECTION OF FITTINGS TO BE CONFIRMED AND COORDINATED ON SITE.

3.00 ALL CABLING TO EXTERNAL LIGHTING LOCATIONS TO BE WIRED IN 3 Core 6mm² CU/XLPE/SWA/LSOH CONTAINED IN HOPE DUCTS.

4.00 ALL IN GROUND HDPE DUCTS TO BE INSTALLED BY THE MAIN CONTRACTOR UNDER THE COORDINATION OF THE ELECTRICAL CONTRACTOR.

5.00 THE ELECTRICAL CONTRACTOR SHALL, PRIOR TO THE INSTALLATION, VERIFY THE CAPACITY OF THE IN-GROUND DUCT NETWORK TO THE MAIN CONTRACTOR.

6.00 EACH EXTERNAL LIGHTING LUMINAIRE SHALL BE SWITCHED BY MINIATURE PHOTO-ELECTRONIC SWITCH INTEGRATED INTO THE LED LUMINAIRE SUCH AS THE SELC 8482 OR APPROVED EQUAL AND EACH LUMINAIRE SHALL BE INDIVIDUALLY CONTROLLED BY THIS PHOTOCELL.

7.00 THE PHOTOCELL USED SHALL COMPLY WITH THE LATEST VERSION OF BS5972. THE PHOTOCELL CONTROLL SHALL SWITCH ON/OFF THE LUMINAIRE AT 35/ 18 LUX RESPECTIVELY.

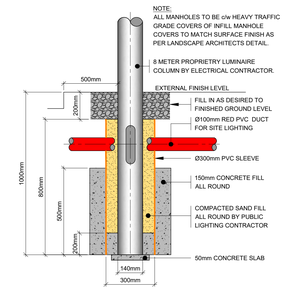
8.00 ALL OUTGOING CIRCUITS SHALL BE INDIVIDUALLY FUSED BY MEANS OF A 16 OR 20 AMP HRC CUT-OUT TYPE AND CAPABLE OF ACCOMMODATING CABLE SIZES UP TO 25mm². THESE FUSES SHALL BE RATED 20kA MINIMUM RUPTURING CAPACITY AND SHALL COMPLY WITH BS88.

9.00 THE CONTRACTOR SHALL MAKE A FULL TECHNICAL SUBMITTAL TO THE DESIGN TEAM FOR ALL EXTERNAL LIGHTING FOR APPROVAL PRIOR TO ORDERING.

10.00 THE ELECTRICAL CONTRACTOR SHALL REFER TO IN2 ENGINEERING DRAWING No.s E-0201 & E-0201 FOR ROUTING OF IN-GROUND DUCTS.

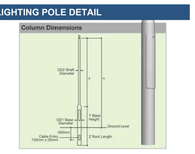
11.00 THE CONTRACTOR SHALL MAKE A FULL TECHNICAL SUBMITTAL TO THE DESIGN TEAM FOR ALL EXTERNAL LIGHTING FOR APPROVAL PRIOR TO ORDERING.

SLEEVE DETAIL FOR COLUMN LUMINAIRE



LIGHTING POLE DETAIL

6m HIGH CONICAL TUBULAR STEEL LIGHTING COLUMN.



0 5m 10m

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IN2 Engineering Design Partnership
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STATUS	DATE	DESCRIPTION	DRN	ENG	APP	REV
S1	27.11.2025	ISSUED FOR PLANNING	DS	YP	JR	P01

PROJECT
White Heather Residential
White Heather Industrial Estate,
South Circular Road, Dublin 8

CLIENT
Palm Capital

DRAWING TITLE
ELECTRICAL SERVICES INSTALLATION
SITE PLAN
SITE LIGHTING LAYOUT

IN2

STATUS	REVISION
S1	P01

IN2 REF:	DRAWING No.	SCALE	SIZE
D2502	WHR-IN2-ZZ-ZZ-DR-E-0101	1:200	A0

REF: 'X5' LUMINAIRES

17W, 3000K, 1800lm, tilt angle 45°
MOUNTED @6m ON LIGHTING COLUMN
DIMS:106 (D) x 78mm(H)

AS PER LUMINAIRE SCHEDULE

REF: 'X7' LUMINAIRES

26W, 4000K, 2815lm, POLE MOUNTED LUMINAIRE ON 4m HIGH COLUMN.
DIMS: Ø 475mm x 590mm (H)

AS PER LUMINAIRE SCHEDULE

REF: 'X8' LUMINAIRES

5W, 3000K, 480m, SURFACE MOUNTED LUMINAIRE

DIMS: Ø 85mm x 110mm (H)

AS PER LUMINAIRE SCHEDULE

REF: 'X9' LUMINAIRES

4.8W/m, 2700K, 500lm/m, LED STRIP MOUNTED ON 45° PROFILE, DIMMED TO 50 %
DIMS: 10mm (W) x 4mm (H)

AS PER LUMINAIRE SCHEDULE

ISOLUX CONTOUR LINES REFERENCE KEY

- 5 — 5 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)
- 7.5 — 7.5 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)
- 10 — 10 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)
- 15 — 15 LUX (REALITY LIGHTING ISOLUX CONTOUR LINE)

SITE LIGHTING SYMBOLS REFERENCE KEY

- LIGHTING CIRCUIT
- X5 / X6 — STREET LIGHTING
- X7 — AMENITY SPACES
- X8 — AMENITY SPACES
- X9 — AMENITY SPACES
- LC — LIGHTING COLUMN

SITE LIGHTING NOTES

1.00 LIGHTING POLES TO BE ALUMINIUM, ROOT MOUNTED, CONE SHAPED WITH TOP TAIL OF 60mm Ø c/w CLASS II 4x16mm² SHUNT TERMINAL CONNECTION BLOCK.- HEIGHT 5m ABOVE FINISHED GROUND LEVEL c/w TILTING FACILITY TO ALLOW FOR EASE OF MAINTENANCE.

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4.00 ALL IN GROUND HDPE DUCTS TO BE INSTALLED BY THE MAIN CONTRACTOR UNDER THE COORDINATION OF THE ELECTRICAL CONTRACTOR.

5.00 THE ELECTRICAL CONTRACTOR SHALL, PRIOR TO THE INSTALLATION, VERIFY THE CAPACITY OF THE IN-GROUND DUCT NETWORK TO THE MAIN CONTRACTOR.

6.00 EACH EXTERNAL LIGHTING LUMINAIRE SHALL BE SWITCHED BY MINIATURE PHOTO-ELECTRONIC SWITCH INTEGRATED INTO THE LED LUMINAIRE SUCH AS THE SELC 8482 OR APPROVED EQUAL AND EACH LUMINAIRE SHALL BE INDIVIDUALLY CONTROLLED BY THIS PHOTOCELL.

7.00 THE PHOTOCELL USED SHALL COMPLY WITH THE LATEST VERSION OF BS5972. THE PHOTOCELL CONTROLL SHALL SWITCH ON/OFF THE LUMINAIRE AT 35/ 18 LUX RESPECTIVELY.

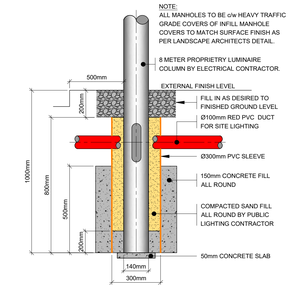
8.00 ALL OUTGOING CIRCUITS SHALL BE INDIVIDUALLY FUSED BY MEANS OF A 16 OR 20 AMP HRC CUT-OUT TYPE AND CAPABLE OF ACCOMMODATING CABLE SIZES UP TO 25mm². THESE FUSES SHALL BE RATED 20kA MINIMUM RUPTURING CAPACITY AND SHALL COMPLY WITH BS88.

9.00 THE CONTRACTOR SHALL MAKE A FULL TECHNICAL SUBMITTAL TO THE DESIGN TEAM FOR ALL EXTERNAL LIGHTING FOR APPROVAL PRIOR TO ORDERING.

10.00 THE ELECTRICAL CONTRACTOR SHALL REFER TO IN2 ENGINEERING DRAWING No.s E-0201 & E-0201 FOR ROUTING OF IN-GROUND DUCTS.

11.00 THE CONTRACTOR SHALL MAKE A FULL TECHNICAL SUBMITTAL TO THE DESIGN TEAM FOR ALL EXTERNAL LIGHTING FOR APPROVAL PRIOR TO ORDERING.

SLEEVE DETAIL FOR COLUMN LUMINAIRE



LIGHTING POLE DETAIL

6m HIGH CONICAL TUBULAR
STEEL LIGHTING COLUMN.

0 5m 10m

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STATUS	DATE	DESCRIPTION	DRN	ENG	APP	REV
S1	27.11.2025	ISSUED FOR PLANNING	DS	YP	JR	P01

PROJECT
White Heather Residential
White Heather Industrial Estate,
South Circular Road, Dublin 8

CLIENT
Palm Capital

DRAWING TITLE
ELECTRICAL SERVICES INSTALLATION
SITE PLAN
SITE LIGHTING ISOLINES LAYOUT

IN2

STATUS	REVISION
S1	P01

IN2 REF:	DRAWING No.	SCALE	SIZE
D2502	WHR-IN2-ZZ-ZZ-DR-E-0110	1:200	A0

8.0 APPENDIX C – LIGHTING REALITY REPORT

DATE:	**27 November 2025**
DESIGNER:	**Yuri Pereira**
PROJECT No:	**D2502**
PROJECT NAME:	**White Heather**

LIGHTING REALITY

Outdoor Lighting Report

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	Roads	514.43	869.85	247.92	116.72	1.49	1.12
2	Footpaths	514.24	869.86	248.11	116.71	1.49	1.16
3	Footpath adjacent to Grand...	514.24	835.88	248.13	33.80	1.49	1.47
4	Vertical Grid Adjacent to ...	543.68	861.44	155.38	4.00	1.49	1.33
5	Horizontal Grid Adjacent t...	542.34	851.84	155.60	9.16	1.20	1.31

Luminaires

Luminaire B Data

Supplier	
Type	5CHI06LGA-C6
Lamp(s)	8L(2x4)4000K350mA
Lamp Flux (klm)	1.04
File Name	5CHI06LGA-C6.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	304.9, 124.4, 32.2
No. in Project	15

Luminaire D Data

Supplier	
Type	Reef CCT Fixed Surface Downlight
Lamp(s)	3000K
LampFlux(klm)/Colour	0.45 3000/
File Name	AREELEDD (3000K).ldt
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	70.1, 24.8, 0.0
No. in Project	6

Luminaire E Data

Supplier	
Type	P/24/01/65/01/27/S01/01
Lamp(s)	
Lamp Flux (klm)	0.52
File Name	P-24-01-65-01-27-S01-01.IES
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	84.6, 45.1, 14.8
No. in Project	122

Luminaire F Data

Supplier	
Type	Olivio Universal Piccolo
Lamp(s)	LED
LampFlux(klm)/Colour	1.80 3000K/80
File Name	SX 965 12-9.orig.ldt
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	8.8, 0.6, 0.0
No. in Project	17

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Dimmed to	Target X	Target Y	Target Z
1	F	687.62	937.47	6.00	243.00	45.00	0.00	0.20	100%			
2	F	664.87	928.73	6.00	352.00	45.00	0.00	0.20	100%			
3	F	664.70	928.80	6.00	215.00	45.00	0.00	0.20	100%			
4	F	593.00	901.90	6.00	93.00	45.00	0.00	0.20	100%			
5	F	597.54	927.17	6.00	255.00	45.00	0.00	0.20	100%			
6	F	597.84	873.40	6.00	143.00	45.00	0.00	0.20	100%			

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Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Dimmed to	Target X	Target Y	Target Z
7	F	576.09	895.30	6.00	332.00	45.00	0.00	0.20	100%			
8	F	550.69	902.74	6.00	303.00	45.00	0.00	0.20	100%			
9	F	628.71	920.57	6.00	15.00	45.00	0.00	0.20	100%			
11	B	635.93	883.54	4.00	130.00	0.00	0.00	0.00	100%			
12	B	622.78	900.42	4.00	137.00	0.00	0.00	0.00	100%			
14	B	631.90	896.88	4.00	176.00	0.00	0.00	0.00	100%			
13	B	670.20	895.48	4.00	89.00	0.00	0.00	0.00	100%			
18	B	670.18	878.60	4.00	89.00	0.00	0.00	0.00	100%			
16	B	667.94	909.84	4.00	89.00	0.00	0.00	0.00	100%			
21	B	557.28	879.23	4.00	0.00	0.00	0.00	0.00	100%			
23	B	620.47	882.97	4.00	52.00	0.00	0.00	0.00	100%			
25	B	616.00	935.81	4.00	184.00	0.00	0.00	0.00	100%			
26	B	601.86	938.76	4.00	279.00	0.00	0.00	0.00	100%			
28	B	648.52	933.85	4.00	311.00	0.00	0.00	0.00	100%			
32	B	687.91	953.10	4.00	38.00	0.00	0.00	0.00	100%			
33	B	685.83	947.96	4.00	63.00	0.00	0.00	0.00	100%			
24	D	632.39	873.11	2.30	272.00	0.00	0.00	0.00	100%			
25	D	627.40	873.18	2.30	272.00	0.00	0.00	0.00	100%			
26	D	629.88	873.26	2.30	272.00	0.00	0.00	0.00	100%			
27	B	628.01	937.16	4.00	312.00	0.00	0.00	0.00	100%			
28	D	661.30	884.46	2.30	272.00	0.00	0.00	0.00	100%			
29	D	661.27	886.93	2.30	272.00	0.00	0.00	0.00	100%			
30	D	661.25	889.44	2.30	272.00	0.00	0.00	0.00	100%			
32	E	550.46	866.10	0.60	270.00	45.00	0.00	0.00	50%			
33	E	557.71	865.05	0.60	90.00	45.00	0.00	0.00	50%			
34	E	560.21	869.16	0.60	220.00	45.00	0.00	0.00	50%			
35	E	563.74	866.13	0.60	270.00	45.00	0.00	0.00	50%			
36	E	564.86	866.15	0.60	270.00	45.00	0.00	0.00	50%			
37	E	551.67	866.13	0.60	270.00	45.00	0.00	0.00	50%			
38	E	552.94	866.12	0.60	270.00	45.00	0.00	0.00	50%			
39	E	555.19	865.10	0.60	90.00	45.00	0.00	0.00	50%			
40	E	556.56	865.11	0.60	90.00	45.00	0.00	0.00	50%			
41	E	561.00	868.24	0.60	220.00	45.00	0.00	0.00	50%			
42	E	561.83	867.37	0.60	220.00	45.00	0.00	0.00	50%			
43	E	562.64	866.62	0.60	220.00	45.00	0.00	0.00	50%			
44	E	565.96	866.14	0.60	270.00	45.00	0.00	0.00	50%			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Dimmed to	Target X	Target Y	Target Z
45	E	567.08	866.16	0.60	270.00	45.00	0.00	0.00	50%			
46	E	568.05	866.16	0.60	270.00	45.00	0.00	0.00	50%			
47	E	569.21	866.18	0.60	270.00	45.00	0.00	0.00	50%			
48	E	571.44	866.16	0.60	270.00	45.00	0.00	0.00	50%			
49	E	570.35	866.16	0.60	270.00	45.00	0.00	0.00	50%			
50	E	579.33	866.18	0.60	90.00	45.00	0.00	0.00	50%			
51	E	580.39	866.16	0.60	90.00	45.00	0.00	0.00	50%			
52	E	581.47	866.14	0.60	90.00	45.00	0.00	0.00	50%			
53	E	582.46	866.12	0.60	90.00	45.00	0.00	0.00	50%			
54	E	583.39	866.14	0.60	90.00	45.00	0.00	0.00	50%			
55	E	584.42	866.12	0.60	90.00	45.00	0.00	0.00	50%			
56	E	585.44	866.13	0.60	90.00	45.00	0.00	0.00	50%			
57	E	586.44	866.14	0.60	90.00	45.00	0.00	0.00	50%			
58	E	587.41	866.16	0.60	90.00	45.00	0.00	0.00	50%			
59	E	588.39	866.14	0.60	90.00	45.00	0.00	0.00	50%			
60	E	589.40	865.55	0.60	45.00	45.00	0.00	0.00	50%			
61	E	590.12	864.84	0.60	45.00	45.00	0.00	0.00	50%			
62	E	590.90	864.19	0.60	45.00	45.00	0.00	0.00	50%			
63	E	591.64	863.45	0.60	45.00	45.00	0.00	0.00	50%			
64	E	592.38	862.71	0.60	45.00	45.00	0.00	0.00	100%			
65	E	597.88	862.57	0.60	135.00	45.00	0.00	0.00	100%			
66	E	598.67	863.40	0.60	135.00	45.00	0.00	0.00	50%			
67	E	599.61	863.68	0.60	90.00	45.00	0.00	0.00	50%			
68	E	600.70	863.68	0.60	90.00	45.00	0.00	0.00	50%			
69	E	606.56	863.55	0.60	90.00	45.00	0.00	0.00	50%			
70	E	605.60	863.55	0.60	90.00	45.00	0.00	0.00	50%			
71	E	604.63	863.55	0.60	90.00	45.00	0.00	0.00	50%			
72	E	603.66	863.59	0.60	90.00	45.00	0.00	0.00	50%			
73	E	601.61	863.57	0.60	90.00	45.00	0.00	0.00	50%			
74	E	602.64	863.57	0.60	90.00	45.00	0.00	0.00	50%			
75	E	607.57	863.49	0.60	90.00	45.00	0.00	0.00	50%			
76	E	610.80	865.64	0.60	270.00	45.00	0.00	0.00	50%			
77	E	611.90	865.66	0.60	270.00	45.00	0.00	0.00	50%			
78	E	612.94	865.64	0.60	270.00	45.00	0.00	0.00	50%			
79	E	614.04	865.66	0.60	270.00	45.00	0.00	0.00	50%			
80	E	615.16	865.66	0.60	270.00	45.00	0.00	0.00	50%			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Dimmed to	Target X	Target Y	Target Z
81	E	616.19	865.66	0.60	270.00	45.00	0.00	0.00	50%			
82	E	617.23	865.68	0.60	270.00	45.00	0.00	0.00	50%			
83	E	618.30	865.66	0.60	270.00	45.00	0.00	0.00	50%			
84	E	619.20	866.07	0.60	315.00	45.00	0.00	0.00	50%			
85	E	619.84	866.70	0.60	315.00	45.00	0.00	0.00	50%			
86	E	620.50	867.32	0.60	315.00	45.00	0.00	0.00	50%			
87	E	621.66	867.69	0.60	270.00	45.00	0.00	0.00	50%			
88	E	622.57	867.71	0.60	270.00	45.00	0.00	0.00	50%			
89	E	623.50	867.69	0.60	270.00	45.00	0.00	0.00	50%			
90	E	624.52	867.69	0.60	270.00	45.00	0.00	0.00	50%			
91	E	625.47	867.71	0.60	270.00	45.00	0.00	0.00	50%			
92	E	626.36	867.65	0.60	270.00	45.00	0.00	0.00	50%			
93	E	634.06	867.26	0.60	225.00	45.00	0.00	0.00	50%			
94	E	634.85	866.51	0.60	225.00	45.00	0.00	0.00	50%			
95	E	635.79	866.06	0.60	270.00	45.00	0.00	0.00	50%			
96	E	636.97	866.02	0.60	270.00	45.00	0.00	0.00	50%			
97	E	637.96	866.02	0.60	270.00	45.00	0.00	0.00	50%			
98	E	638.70	866.04	0.60	270.00	45.00	0.00	0.00	50%			
99	E	639.75	866.08	0.60	270.00	45.00	0.00	0.00	50%			
100	E	640.63	866.08	0.60	270.00	45.00	0.00	0.00	50%			
101	E	641.55	866.06	0.60	270.00	45.00	0.00	0.00	50%			
102	E	642.49	866.02	0.60	270.00	45.00	0.00	0.00	50%			
103	E	643.39	866.04	0.60	270.00	45.00	0.00	0.00	50%			
104	E	644.29	866.00	0.60	270.00	45.00	0.00	0.00	50%			
105	E	650.80	867.67	0.60	270.00	45.00	0.00	0.00	50%			
106	E	651.80	867.69	0.60	270.00	45.00	0.00	0.00	50%			
107	E	652.81	867.67	0.60	270.00	45.00	0.00	0.00	50%			
108	E	653.98	867.67	0.60	270.00	45.00	0.00	0.00	50%			
109	E	654.96	867.62	0.60	270.00	45.00	0.00	0.00	50%			
110	E	655.96	867.67	0.60	270.00	45.00	0.00	0.00	50%			
111	E	657.04	867.65	0.60	270.00	45.00	0.00	0.00	50%			
112	E	658.13	867.67	0.60	270.00	45.00	0.00	0.00	50%			
113	E	659.14	867.69	0.60	270.00	45.00	0.00	0.00	50%			
114	E	660.17	867.69	0.60	270.00	45.00	0.00	0.00	50%			
115	E	661.24	867.62	0.60	270.00	45.00	0.00	0.00	50%			
116	E	662.39	868.03	0.60	315.00	45.00	0.00	0.00	50%			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Dimmed to	Target X	Target Y	Target Z
117	E	663.05	868.71	0.60	315.00	45.00	0.00	0.00	50%			
118	E	663.77	869.30	0.60	315.00	45.00	0.00	0.00	50%			
119	E	670.40	869.22	0.60	225.00	45.00	0.00	0.00	50%			
120	E	671.32	868.38	0.60	225.00	45.00	0.00	0.00	50%			
121	E	672.32	867.39	0.60	225.00	45.00	0.00	0.00	50%			
122	E	673.13	867.16	0.60	269.88	45.00	0.00	0.00	50%			
123	E	674.21	867.16	0.60	269.88	45.00	0.00	0.00	50%			
124	E	675.29	867.16	0.60	269.88	45.00	0.00	0.00	50%			
125	E	676.37	867.16	0.60	269.88	45.00	0.00	0.00	50%			
126	E	677.45	867.15	0.60	269.88	45.00	0.00	0.00	50%			
127	E	678.53	867.15	0.60	269.88	45.00	0.00	0.00	50%			
128	E	679.61	867.15	0.60	269.88	45.00	0.00	0.00	50%			
129	E	680.69	867.15	0.60	269.88	45.00	0.00	0.00	50%			
130	E	681.77	867.14	0.60	269.88	45.00	0.00	0.00	50%			
131	E	682.85	867.14	0.60	269.88	45.00	0.00	0.00	50%			
132	E	683.89	867.16	0.60	269.88	45.00	0.00	0.00	50%			
133	E	685.01	867.14	0.60	270.00	45.00	0.00	0.00	50%			
134	E	686.09	867.14	0.60	269.88	45.00	0.00	0.00	50%			
135	E	687.17	867.13	0.60	269.88	45.00	0.00	0.00	50%			
136	E	688.25	867.13	0.60	269.88	45.00	0.00	0.00	50%			
137	E	689.33	867.13	0.60	269.88	45.00	0.00	0.00	50%			
138	E	690.41	867.13	0.60	269.88	45.00	0.00	0.00	50%			
139	E	691.49	867.12	0.60	269.88	45.00	0.00	0.00	50%			
140	E	692.56	867.12	0.60	269.88	45.00	0.00	0.00	50%			
141	E	693.64	867.12	0.60	269.88	45.00	0.00	0.00	50%			
142	E	694.72	867.12	0.60	269.88	45.00	0.00	0.00	50%			
143	E	578.37	865.62	0.60	135.00	45.00	0.00	0.00	100%			
144	E	577.55	864.70	0.60	135.00	45.00	0.00	0.00	100%			
145	E	661.76	900.62	0.60	180.00	45.00	0.00	0.00	50%			
146	E	661.76	899.14	0.60	180.00	45.00	0.00	0.00	50%			
147	E	661.76	897.66	0.60	180.00	45.00	0.00	0.00	50%			
148	E	661.76	896.17	0.60	180.00	45.00	0.00	0.00	50%			
149	E	669.12	877.11	0.60	224.53	45.00	0.00	0.00	50%			
150	E	670.11	876.11	0.60	224.53	45.00	0.00	0.00	50%			
151	E	671.10	875.10	0.60	224.53	45.00	0.00	0.00	50%			
152	E	672.09	874.10	0.60	224.53	45.00	0.00	0.00	50%			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Dimmed to	Target X	Target Y	Target Z
153	E	673.08	873.09	0.60	224.53	45.00	0.00	0.00	50%			
154	F	707.06	944.04	6.00	215.00	45.00	0.00	0.20	100%			
155	F	707.02	944.06	6.00	1.00	45.00	0.00	0.20	100%			
156	F	687.75	937.48	6.00	352.00	45.00	0.00	0.20	100%			
157	F	628.61	920.50	6.00	152.00	45.00	0.00	0.20	100%			
158	F	597.60	927.11	6.00	346.00	45.00	0.00	0.20	100%			
159	F	593.00	901.86	6.00	242.00	45.00	0.00	0.20	100%			
160	F	576.09	895.27	6.00	197.00	45.00	0.00	0.20	100%			
161	F	550.69	902.78	6.00	201.00	45.00	0.00	0.20	100%			
161	B	598.89	931.76	4.00	0.00	0.00	0.00	0.00	100%			

Horizontal Illuminance (lux)

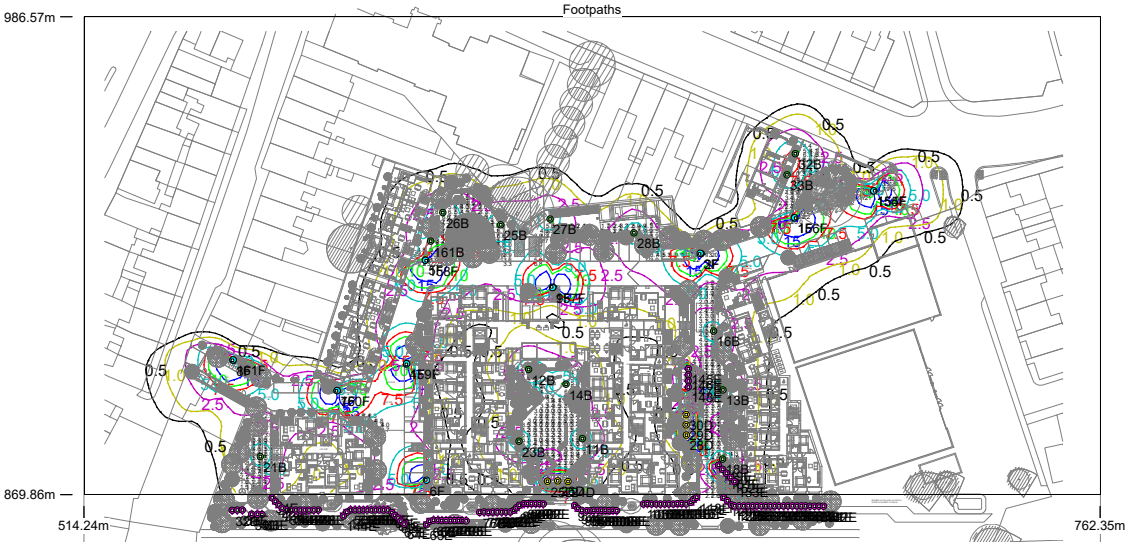
Roads

Results

Eav	8.07
Emin	1.94
Emax	32.70
Emin/Emax	0.06
Emin/Eav	0.24

Horizontal Illuminance (lux)

Footpaths

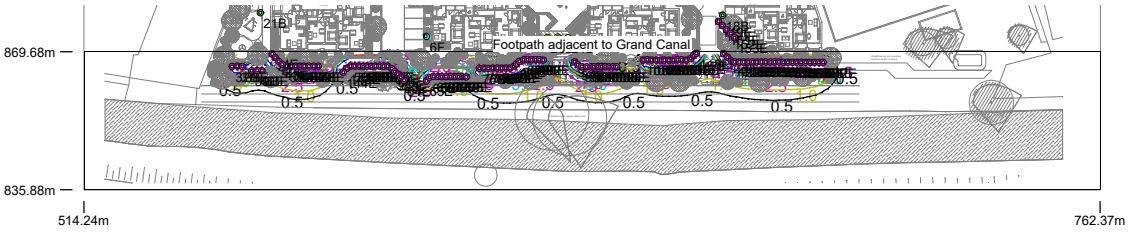


Results

Eav	6.33
Emin	1.52
Emax	154.69
Emin/Emax	0.01
Emin/Eav	0.24

Horizontal Illuminance (lux)

Footpath adjacent to Grand Canal

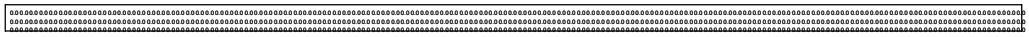


Results

Eav	34.88
Emin	0.72
Emax	199.23
Emin/Emax	0.00
Emin/Eav	0.02

Illuminance (lux)

Vertical Grid Adjacent to Grand Canal

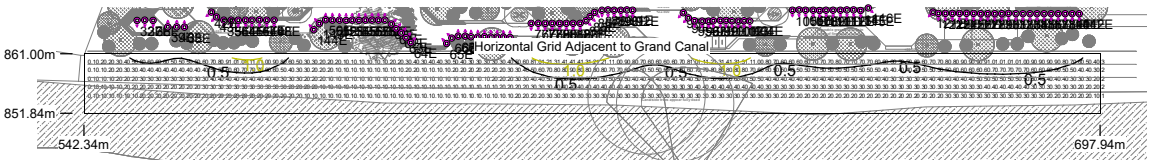


Results

Eav	0.00
Emin	0.00
Emax	0.00
Emin/Emax	0.00
Emin/Eav	0.00

Horizontal Illuminance (lux)

Horizontal Grid Adjacent to Grand Canal



Results

Eav	0.39
Emin	0.07
Emax	1.39
Emin/Emax	0.05
Emin/Eav	0.17

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