PROJECT TITLE:	Clongriffin Phase 2
CLIENT:	The Land Development Agency
DOCUMENT TITLE:	Site Lighting Report
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1 INTRODUCTION

This external lighting report has been developed for the Phase 02 of the Clongriffin Wider Lands development. The report will outline the design criteria, luminaire types proposed for the development and how the proposed design will meet the relevant public lighting standards.

The aim for road and public space lighting schemes can include any or all the following:

- Facilitation of safe movement of vehicles and people.
- Discouragement of illegal acts.
- Contributing to the prestige and amenity of an area through increased aesthetic appeal.
- Minimum light spill and glare.

The lighting system was designed to achieve the level of Lux and set up a plan to bring up the overall to the desired limits.

The lighting guidelines being used for the study require that in no event shall any light element associated with the buildings adversely impact the operation of motor vehicles on entire roads. Additionally, the Lux light levels shall not significantly adversely impact the workers community, nearby heritage, and ecological sensitive receptors.

2 PROPOSED DEVELOPMENT DESCRIPTION

The development will consist of the construction of a residential development set out in 3 no. blocks (identified as Zone 7, 8 & 9), ranging in height from 5 to 10 storeys, to accommodate 711 no. apartments including café/restaurant/retail units, community/cultural spaces, a standalone creche building and the completion of Market St.

The 3 no. residential buildings are arranged around podium courtyards accommodating communal amenity spaces for future residents. Zone 7 is a 5 to 7 storey block onto Main St, Friar's St, Park St and Market St containing 280 apartments. Zone 8 is a 6 to 8 storey block between Main St and Market Street containing 263 apartments. Zone 9 is a 6 to 10 storey block located on Main St, Station Square and Market Street containing 168 units.

Car and cycle parking for both residents and visitors is provided below podium and at surface level throughout the scheme. The proposed development includes all site landscaping works, open space, green roofs, lighting, servicing and utilities, signage, and associated and ancillary works, including site development works above and below ground.

The proposed development sits as part of a Masterplan for a wider Clongriffin landbank which includes the under-construction Block 5 & 6 to the north of Market Street.



Figure 1 – Proposed Site Layout

3 LIGHTING STANDARDS

The lighting design will follow guidance from the following standards:

- SLL Code for Lighting – Society of Light and Lighting
- BS5489-1:2020 – Design of Road Lighting
- BS EN 13201-2:2015 Road Lighting. Part 2: Performance requirements
- General Specification for Public Lighting Design and Installation in the Dublin City Council Area

Compliance with the above lighting standards will ensure a uniform level of light suitable to the task at hand is provided across the public areas.

4 LIGHTING DESIGN CRITERIA

4.1 LIGHTING DESIGN PROCESS STAGES

The lighting design process stages used to design the external lighting of the development will be considered to comprise of three key steps:

a) Concept (valid for this stage).

b) Preliminary (will be developed in Preliminary Design Stage)

c) Detailed (will be developed in Tender Stage)

Concept Design:

The concept design stage was the first stage of the lighting design process that was used to develop the following aspects:

a) Identify the approximate extents of the area to be lit.

b) Undertake an initial assessment for the options using the energy performance indicators identified in IS EN 13201-5.

c) Identify constraints and hazards.

d) Initial risk assessments.

e) Prepare an outline design methodology summarising lighting aspect to be included as part of the design file and the assumptions that have been made in developing the concept lighting design.

f) Prepare the Lighting Design File

4.2 COMPETENCY FOR DESIGNERS & QUALITY ASSURANCE

The design of lighting was undertaken by competent and experienced Team who could demonstrate an appropriate understanding of road lighting design principles.

4.3 DESIGN FILE

This report has been prepared as a concept stage and this shall be developed during the preliminary and detailed design phases.

4.4 CONTROL OF OBTRUSIVE LIGHTING

To safeguard and enhance the night-time environment it is necessary to control obtrusive light (Also known as light pollution), which can present physiological and ecological problems to the surrounding areas and people. The limits of intrusive light for exterior installations, to minimise problems for people are given in the below table extracted from IS EN 12464-2 Lighting of Outdoor Workplaces. The designer proposes that the figures outlined in E4 are utilised. The external lighting design will ensure the positions of each luminaire are designed in such a way to limit obtrusive light.

Table 2 — Maximum obtrusive light permitted for exterior lighting installations

Environmental zone	Light on properties		Luminaire intensity		Upward light ratio	Luminance	
	E_v lx		I cd		R_{UL} %	L_b cd·m^{-2}	L_s cd·m^{-2}
	Pre-curfew[a]	Post-curfew	Pre-curfew	Post-curfew		Building facade	Signs
E1	2	0	2 500	0	0	0	50
E2	5	1	7 500	500	5	5	400
E3	10	2	10 000	1 000	15	10	800
E4	25	5	25 000	2 500	25	25	1 000

where

E1 represents intrinsically dark areas, such as national parks or protected sites;

E2 represents low district brightness areas, such as industrial or residential rural areas;

E3 represents medium district brightness areas, such as industrial or residential suburbs;

E4 represents high district brightness areas, such as town centres and commercial areas;

E_v is the maximum value of vertical illuminance on properties in lx;

I is the light intensity of each source in the potentially obtrusive direction in cd;

R_{UL} is the proportion of the flux of the luminaire(s) that is emitted above the horizontal, when the luminaire(s) is (are) mounted in its (their) installed position and attitude, and given in %;

L_b is the maximum average luminance of the facade of a building in cd·m^{-2};

L_s is the maximum average luminance of signs in cd·m^{-2}.

[a] In case no curfew regulations are available, the higher values shall not be exceeded and the lower values should be taken as preferable limits.

4.5 ECOLOGICAL REQUIREMENTS

The private external lighting for the courtyards will be designed to limit overspill and prevent light pollution. The key design features include:

- All luminaires shall be designed to minimize the spill of upward light and should not emit any up-light.
- All luminaires shall lack UV elements when manufactured and shall be LED
- A warm white spectrum (ideally ≤ 2700K, with 3000K allowance for low level lighting e.g. bollards) shall be adopted to reduce the blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats

The public lighting will be designed in accordance with DCC lighting standards, adhering to the recommendation for neutral white light (4000K). This approach ensures that all installations meet the requisite specifications for safety, efficiency, and environmental considerations, while providing optimal illumination for public areas.

4.6 LUX LEVELS

The lighting design for the development will follow guidance from the following standards:

- BS5489-1:2020 – Design of Road Lighting
- BS EN 13201-2:2015 Road Lighting. Part 2: Performance requirements

Public Lighting:

The Residential Roads lighting has been designed to meet P4 class standards

Table 3 — P lighting classes

Class	Horizontal illuminance		Additional requirement if facial recognition is necessary	
	$\bar{E}$ [a] [minimum maintained] lx	E_{min} [maintained] lx	$E_{v,min}$ [maintained] lx	$E_{sc,min}$ [maintained] lx
P1	15,0	3,00	5,0	5,0
P2	10,0	2,00	3,0	2,0
P3	7,50	1,50	2,5	1,5
P4	5,00	1,00	1,5	1,0
P5	3,00	0,60	1,0	0,6
P6	2,00	0,40	0,6	0,2
P7	performance not determined	performance not determined		

[a] To provide for uniformity, the actual value of the maintained average illuminance shall not exceed 1,5 times the minimum $\bar{E}$ value indicated for the class.

The Conflict Zones lighting at site entrances has been designed to meet C3 class standards.

Table 2 — C lighting classes based on road surface illuminance

Class	Horizontal illuminance	
	$\bar{E}$ [minimum maintained] lx	U_o [minimum]
C0	50	0,40
C1	30	0,40
C2	20,0	0,40
C3	15,0	0,40
C4	10,0	0,40
C5	7,50	0,40

It is proposed that the existing public lighting along Main Street, Friar's Street, and Bridge Street / Clongriffin Road should be retained as part of the development.



Figure 2 – Main Street Existing Lighting



Figure 3 – Friar's Street Existing Lighting



Figure 4 – Bridge Street / Clongriffin Road Existing Lighting

External Private Lighting:

The Courtyards lighting has been designed to meet P4 class standards.

Table 3 — P lighting classes

Class	Horizontal illuminance		Additional requirement if facial recognition is necessary	
	$\bar{E}$ [a] [minimum maintained] lx	E_{min} [maintained] lx	$E_{v,min}$ [maintained] lx	$E_{sc,min}$ [maintained] lx
P1	15,0	3,00	5,0	5,0
P2	10,0	2,00	3,0	2,0
P3	7,50	1,50	2,5	1,5
P4	5,00	1,00	1,5	1,0
P5	3,00	0,60	1,0	0,6
P6	2,00	0,40	0,6	0,2
P7	performance not determined	performance not determined		

[a] To provide for uniformity, the actual value of the maintained average illuminance shall not exceed 1,5 times the minimum $\bar{E}$ value indicated for the class.

5 KEY DEFINITIONS

In accordance with the Guidance Notes for the Reduction of Obtrusive Light, the following definitions are used to describe lighting effects in this assessment:

• Average Road Luminance: Road Luminance is a measure of the visibility of the road and it is based on the principle of illuminating the road enough to see the outline of the obstacle.

• Uniformity: Uniformity is an index to measure the uniformity of light distribution on the road, which can be expressed as overall uniformity (U0) and longitudinal uniformity (UI).

• Glare: Glare is the blinding sensation that occurs when the brightness of light exceeds the level of adaptation of the human eye to light.

• Light spill: the unwanted spillage of light onto adjacent areas and may affect sensitive receptors, particularly residential properties; (this includes the spill of light from a badly aimed floodlight stray in beyond the task area such as light into windows or a neighbouring property).

• Colour Rendering Index: The colour rendering index measures the ability of artificial light sources to display or reproduce the colour of the road or objects on the road relative to natural light sources.

6 PROPOSED LIGHT FITTINGS

The proposed light fittings will all be of the LED type:

- Fittings A – Street light
- Fittings B,C,D – Existing Street light (for calculation purposes only)
- Fittings E – Bollard



Fitting A, B – Street Light



Fitting E – Bollard

7 CONTROL STRATEGY

It is proposed that external luminaires will be controlled via photocells. The controls strategy aims to provide the necessary level of light at the time when it is needed in the most energy efficient manner.

APPENDIX A
External Lighting Layout

UNDER CONSTRUCTION
PERMITTED UNDER
LRD6064/24-S3

Proposed Scheme
Permitted under
2405/12

PARK STREET

BLOCK 5

DARGAN STREET

LAKE STREET

FUTURE DEVELOPMENT

PARK MEWS

FRIARS STREET

ZONE 7

ZONE 8

ZONE 9

BLOCK 12

Proposed Creche

30 Apts 2, 4, 6

30 Apts 1, 3, 5

13 Apts 1-2

5 Apts 1-8

48 Apts 1-11

Area Under Construction

MAIN STREET

STATION SQUARE

GRANGE LODGE AVENUE

BEAU PARK AVE

ES

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ARCHITECTS, STRUCTURAL ENGINEERS, BUILDING SERVICES, SPECIFICATIONS & SCHEDULES
2. ALL DIMENSIONS ARE IN MILLIMETERS
3. THE CONTRACTORS SHALL NOTE THAT THIS DRAWING IS INDICITIVE AND ILLUSTRATES DESIGN INTENT ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED DESIGN AND COORDINATION WITH OTHER SERVICES

LEGEND

PUBLIC LIGHTING:

TYPE A - STREET LIGHTING CU PHOSCO
P852K, 2.67klm, 21w, 4000K, 6m column

TYPE B - EXISTING STREET LIGHTING
CU PHOSCO P852K, 6m column

TYPE C - EXISTING STREET LIGHTING
SON, 6m column

TYPE D - EXISTING STREET LIGHTING
CU PHOSCO P863, 10m column

Estate
Results - Horizontal Illuminance (lux)
Eav= 5.46
Emin= 1.08
Emax= 34.76
Emin/Emax= 0.03
Emin/Eav= 0.20
Emax/Eav= 6.37

Conflict Zone 2
Results - Horizontal Illuminance (lux)
Eav= 17.12
Emin= 15.02
Emax= 19.57
Emin/Emax= 0.77
Emin/Eav= 0.88
Emax/Eav= 1.14

Conflict Zone 1
Results - Horizontal Illuminance (lux)
Eav= 17.72
Emin= 15.03
Emax= 23.58
Emin/Emax= 0.64
Emin/Eav= 0.85
Emax/Eav= 1.33

PRIVATE LIGHTING:

TYPE E - BOLLARD GEMMA LIGHTING HAMILTON
0.79klm, 10w, 3000K, 1m

Zone 9 Courtyard
Results - Horizontal Illuminance (lux)
Eav= 5.88
Emin= 1.43
Emax= 44.13
Emin/Emax= 0.03
Emin/Eav= 0.24
Emax/Eav= 7.51

Zone 8 Courtyard
Results - Horizontal Illuminance (lux)
Eav= 5.09
Emin= 1.04
Emax= 41.16
Emin/Emax= 0.03
Emin/Eav= 0.20
Emax/Eav= 8.09

Zone 7 Courtyard
Results - Horizontal Illuminance (lux)
Eav= 5.53
Emin= 1.09
Emax= 53.52
Emin/Emax= 0.02
Emin/Eav= 0.20
Emax/Eav= 9.67

Rev	Date	Description	Orig	App
0	08-05-2026	ISSUED FOR PLANNING	AZ	GM

Client
LDA

Project
LDA CLONGRIFFIN

Title
PUBLIC LIGHTING LAYOUT

Drawing No
D24004-70-ZZ-L00-DR-EDC-EE-0001

RIBA Work Stage	Status Code	Revision
STAGE 2	P3	0

Scale @ A1	Model Manager	Project Manager
1:500	TB	ER

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1 CLONGRIFFIN - PUBLIC LIGHTING LAYOUT
1 : 500

APPENDIX B
External Lighting Calculation Report

DATE: **8 May 2026**

DESIGNER: **Andrii Zaporozhchenko**

PROJECT No: **D24004**

PROJECT NAME: **Clongriffin**

Lighting to BS5489:1 2020

Residential Roads and Pedestrian Access lighting to P4
Courtyards lighting to P4
Conflict zone lighting to C3

Dimming To U14 Regime, 4000k/3000k(courtyards) colour temp.

6m Columns

Lights B, C, D are existing

Outdoor Lighting Report

PREPARED BY:

EDC-Mechanical & Electrical Consulting Engineers
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DATE: 8 May 2026 DESIGNER: Andrii Zaporozhchenko
PROJECT No: D24004 PROJECT NAME: Clongriffin

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	Estate	-254.30	-275.74	301.85	212.95	1.49	1.50
2	Conflict Zone 1	-182.53	-237.03	25.28	8.46	1.49	1.41
3	Conflict Zone 2	-79.51	-251.66	20.81	6.29	1.49	1.26
4	Zone 9 Courtyard	-52.61	-214.83	58.45	37.08	1.50	1.48
5	Zone 8 Courtyard	-148.87	-210.65	56.78	82.05	1.49	1.49
6	Zone 7 Courtyard	-244.48	-169.11	80.74	98.06	1.50	1.49

Luminaires



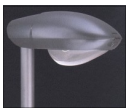
Luminaire A Data

Supplier	C U Phosco
Type	P852K-12-F2-NW-CB0550-21W
Lamp(s)	740C NW
Lamp Flux (klm)	2.67
File Name	P852K-12-F2-NW-CB0550-21W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	761.9, 260.5, 34.9
No. in Project	28



Luminaire B Data

Supplier	C U Phosco
Type	P852K-12-F2-NW-CB0550-21W
Lamp(s)	740C NW
Lamp Flux (klm)	2.67
File Name	P852K-12-F2-NW-CB0550-21W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	761.9, 260.5, 34.9
No. in Project	9



Luminaire C Data

Supplier	Demo
Type	70W Side road lantern
Lamp(s)	SONT70
Lamp Flux (klm)	6.60
File Name	sroad070.pmo
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	489.0, 80.0, 38.0
No. in Project	8



Luminaire D Data

Supplier	C U Phosco
Type	P863-128-C1-740-W5-300-40W
Lamp(s)	740SS
Lamp Flux (klm)	6.03
File Name	P863-128-C1-740-W5-300-40W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	265.0, 34.2, 0.0
No. in Project	20



Luminaire E Data

Supplier	Gemma Lighting
Type	Hamilton 10W
Lamp(s)	HB10-A1W-00B
LampFlux(klm)/Colour	0.79 3000/Ra80
File Name	Hamilton 10W - 3K.ldt
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	118.7, 282.3, 298.4
No. in Project	51

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	-161.70	-196.08	6.00	319.00	0.00	0.00	0.40			
2	A	-120.99	-157.92	6.00	143.00	0.00	0.00	0.40			
4	A	-146.83	-173.53	6.00	310.00	0.00	0.00	0.40			
5	A	-126.06	-146.82	6.00	335.00	0.00	0.00	0.40			
6	A	-175.68	-214.83	6.00	344.00	0.00	0.00	0.40			
7	A	-158.91	-208.01	6.00	166.00	0.00	0.00	0.40			
8	A	-57.07	-232.79	6.00	168.00	0.00	0.00	0.40			
9	A	-82.70	-223.76	6.00	328.00	0.00	0.00	0.40			
10	A	-47.52	-190.82	6.00	144.00	0.00	0.00	0.40			
11	A	-64.79	-202.29	6.00	341.00	0.00	0.00	0.40			
12	A	-36.45	-173.99	6.00	144.00	0.00	0.00	0.40			
14	A	-183.04	-102.78	6.00	137.00	0.00	0.00	0.40			
15	A	-211.86	-119.96	6.00	100.00	0.00	0.00	0.40			
16	B	-234.21	-106.58	6.00	266.00	0.00	0.00	0.40			
17	B	-246.70	-137.13	6.00	355.00	0.00	0.00	0.40			
18	B	-247.98	-160.59	6.00	355.00	0.00	0.00	0.40			
19	B	-235.67	-179.05	6.00	176.00	0.00	0.00	0.40			
20	B	-247.55	-192.02	6.00	358.00	0.00	0.00	0.40			
21	B	-248.21	-213.70	6.00	355.00	0.00	0.00	0.40			
22	A	-168.99	-82.35	6.00	151.00	0.00	0.00	0.40			
24	A	-200.00	-131.51	6.00	110.00	0.00	0.00	0.40			
25	B	-145.39	-68.83	6.00	232.00	0.00	0.00	0.40			
26	B	-122.29	-83.10	6.00	228.00	0.00	0.00	0.40			
27	B	-96.37	-100.64	6.00	230.00	0.00	0.00	0.40			
28	A	-145.68	-92.00	6.00	58.00	0.00	0.00	0.40			
29	A	-157.79	-73.75	6.00	71.00	0.00	0.00	0.40			
31	A	-104.72	-123.25	6.00	304.00	0.00	0.00	0.40			
32	A	-76.10	-128.25	6.00	49.00	0.00	0.00	0.40			
33	A	-58.56	-143.38	6.00	70.00	0.00	0.00	0.40			
34	A	-18.56	-154.48	6.00	229.00	0.00	0.00	0.40			
35	A	1.31	-164.64	6.00	228.00	0.00	0.00	0.40			
34	A	3.64	-115.66	6.00	146.00	0.00	0.00	0.40			
37	A	5.88	-186.24	6.00	61.00	0.00	0.00	0.40			
38	C	24.95	-83.63	6.00	180.00	0.00	0.00	1.00			
39	C	17.29	-116.63	6.00	358.00	0.00	0.00	1.00			
40	C	27.53	-130.53	6.00	180.00	0.00	0.00	1.00			

9750899767

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
41	C	19.39	-159.11	6.00	4.00	0.00	0.00	1.00			
42	C	29.61	-181.25	6.00	180.00	0.00	0.00	1.00			
43	C	36.25	-206.25	6.00	53.00	0.00	0.00	1.00			
44	C	19.34	-243.05	6.00	343.00	0.00	0.00	1.00			
45	C	27.97	-221.28	6.00	340.00	0.00	0.00	1.00			
46	D	-239.48	-229.53	10.00	82.00	5.00	0.00	1.50			
47	D	-239.58	-230.10	10.00	260.00	0.00	0.00	1.50			
48	D	-208.26	-233.12	10.00	81.00	5.00	0.00	1.50			
49	D	-178.81	-238.44	10.00	80.00	5.00	0.00	1.50			
50	D	-156.80	-241.84	10.00	80.00	0.00	0.00	1.50			
51	D	-128.88	-245.25	10.00	81.00	0.00	0.00	1.50			
52	D	-102.85	-249.03	10.00	81.00	0.00	0.00	1.50			
53	D	-77.90	-264.55	10.00	81.00	0.00	0.00	1.50			
54	D	-73.67	-244.24	10.00	261.00	0.00	0.00	1.50			
55	D	-54.15	-255.99	10.00	81.00	0.00	0.00	1.50			
56	D	-22.64	-260.37	10.00	81.00	0.00	0.00	1.50			
57	D	7.82	-264.77	10.00	81.00	0.00	0.00	1.50			
58	D	-208.45	-233.69	10.00	260.00	0.00	0.00	1.50			
59	D	-178.86	-238.93	10.00	260.00	0.00	0.00	1.50			
60	D	-156.85	-242.23	10.00	260.00	0.00	0.00	1.50			
61	D	-128.98	-245.84	10.00	260.00	0.00	0.00	1.50			
62	D	-102.99	-249.65	10.00	260.00	0.00	0.00	1.50			
63	D	-54.29	-256.62	10.00	260.00	0.00	0.00	1.50			
64	D	-22.82	-260.95	10.00	260.00	0.00	0.00	1.50			
65	D	7.65	-265.40	10.00	260.00	0.00	0.00	1.50			
66	A	-190.86	-212.58	6.00	271.00	0.00	0.00	0.40			
67	A	13.83	-237.91	6.00	19.00	0.00	0.00	0.40			
68	A	-9.41	-135.99	6.00	143.00	0.00	0.00	0.40			
69	E	-39.96	-213.88	1.00	259.00	0.00	0.00	0.00			
70	E	-34.90	-218.43	1.00	350.00	0.00	0.00	0.00			
71	E	-30.51	-200.40	1.00	314.00	0.00	0.00	0.00			
72	E	-24.39	-219.12	1.00	75.00	0.00	0.00	0.00			
73	E	-7.38	-212.77	1.00	264.00	0.00	0.00	0.00			
74	E	5.22	-221.53	1.00	259.00	0.00	0.00	0.00			
75	E	-5.62	-223.89	1.00	84.00	0.00	0.00	0.00			
73	E	-123.54	-206.28	1.00	80.00	0.00	0.00	0.00			

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Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
77	E	-30.00	-211.38	1.00	174.00	0.00	0.00	0.00			
78	E	-16.14	-223.38	1.00	354.00	0.00	0.00	0.00			
79	E	-18.37	-208.42	1.00	234.00	0.00	0.00	0.00			
80	E	-98.68	-152.76	1.00	239.00	0.00	0.00	0.00			
81	E	-89.48	-158.94	1.00	244.00	0.00	0.00	0.00			
82	E	-81.65	-175.97	1.00	145.00	0.00	0.00	0.00			
80	E	-87.26	-194.48	1.00	80.00	0.00	0.00	0.00			
84	E	-87.57	-185.07	1.00	150.00	0.00	0.00	0.00			
85	E	-79.69	-165.29	1.00	244.00	0.00	0.00	0.00			
86	E	-103.28	-184.28	1.00	234.00	0.00	0.00	0.00			
87	E	-107.20	-191.10	1.00	330.00	0.00	0.00	0.00			
88	E	-77.63	-195.65	1.00	239.00	0.00	0.00	0.00			
89	E	-95.67	-193.96	1.00	140.00	0.00	0.00	0.00			
90	E	-101.43	-202.52	1.00	169.00	0.00	0.00	0.00			
91	E	-112.06	-198.45	1.00	314.00	0.00	0.00	0.00			
92	E	-113.65	-207.76	1.00	90.00	0.00	0.00	0.00			
93	E	-130.89	-198.40	1.00	220.00	0.00	0.00	0.00			
94	E	-131.95	-205.11	1.00	80.00	0.00	0.00	0.00			
92	E	-207.58	-166.93	1.00	354.00	0.00	0.00	0.00			
96	E	-93.07	-173.65	1.00	324.00	0.00	0.00	0.00			
97	E	-135.71	-128.46	1.00	244.00	0.00	0.00	0.00			
98	E	-145.73	-121.89	1.00	234.00	0.00	0.00	0.00			
99	E	-156.66	-114.67	1.00	229.00	0.00	0.00	0.00			
100	E	-148.17	-128.51	1.00	140.00	0.00	0.00	0.00			
101	E	-166.19	-130.19	1.00	325.00	0.00	0.00	0.00			
102	E	-161.09	-122.01	1.00	330.00	0.00	0.00	0.00			
103	E	-156.98	-135.89	1.00	140.00	0.00	0.00	0.00			
104	E	-181.44	-129.51	1.00	229.00	0.00	0.00	0.00			
105	E	-180.03	-137.61	1.00	45.00	0.00	0.00	0.00			
106	E	-163.44	-149.65	1.00	60.00	0.00	0.00	0.00			
107	E	-173.61	-156.71	1.00	140.00	0.00	0.00	0.00			
108	E	-181.91	-149.73	1.00	314.00	0.00	0.00	0.00			
109	E	-202.35	-156.99	1.00	270.00	0.00	0.00	0.00			
110	E	-218.76	-156.51	1.00	270.00	0.00	0.00	0.00			
111	E	-188.21	-160.86	1.00	85.00	0.00	0.00	0.00			
112	E	-167.54	-173.44	1.00	270.00	0.00	0.00	0.00			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
113	E	-176.40	-169.15	1.00	50.00	0.00	0.00	0.00			
114	E	-196.18	-167.76	1.00	319.00	0.00	0.00	0.00			
115	E	-206.75	-188.49	1.00	125.00	0.00	0.00	0.00			
116	E	-195.23	-185.46	1.00	55.00	0.00	0.00	0.00			
117	E	-203.16	-175.37	1.00	320.00	0.00	0.00	0.00			
118	E	-186.53	-173.54	1.00	145.00	0.00	0.00	0.00			
120	E	-163.72	-139.20	1.00	234.00	0.00	0.00	0.00			
120	A	-38.24	-155.82	6.00	62.00	0.00	0.00	0.40			

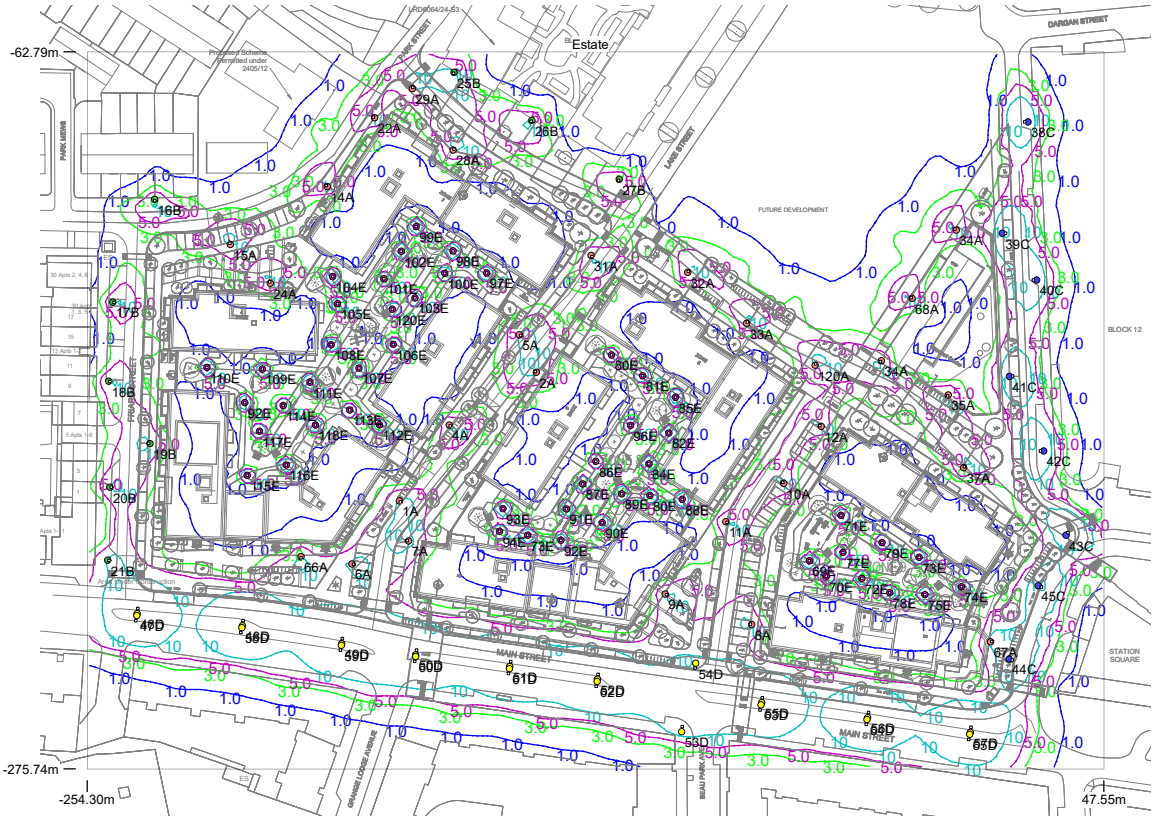
975089767

DATE: 8 May 2026 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D24004 PROJECT NAME: Clongriffin

Horizontal Illuminance (lux)

Estate



Results

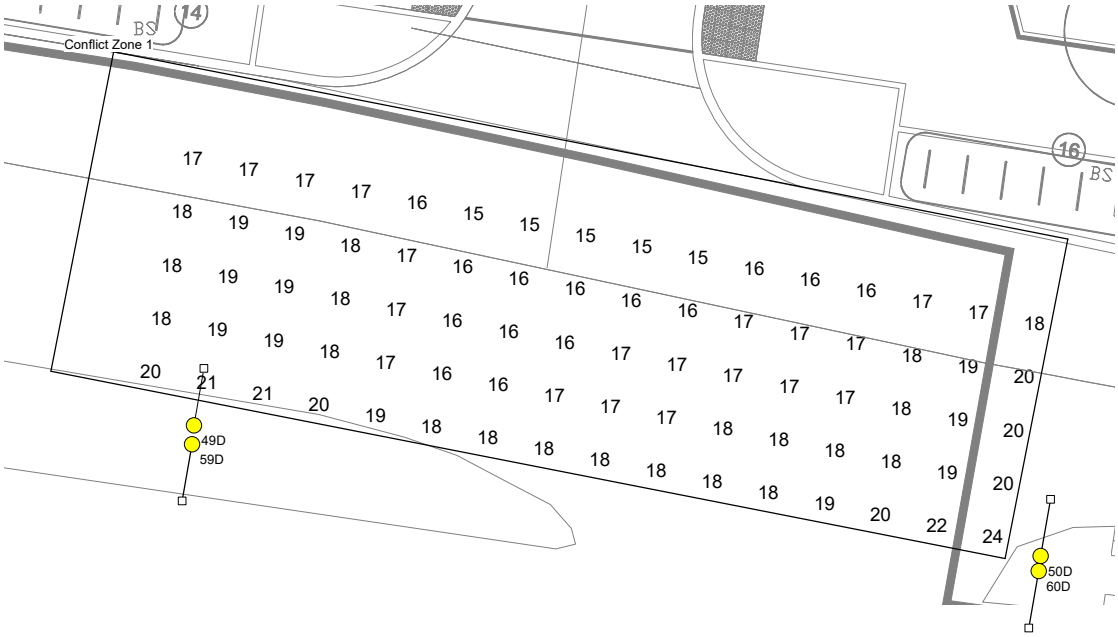
Eav	5.46
Emin	1.08
Emax	34.76
Emin/Emax	0.03
Emin/Eav	0.20

DATE: 8 May 2026 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D24004 PROJECT NAME: Clongriffin

Horizontal Illuminance (lux)

Conflict Zone 1



Results

Eav	17.72
Emin	15.03
Emax	23.58
Emin/Emax	0.64
Emin/Eav	0.85

DATE: 8 May 2026 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D24004 PROJECT NAME: Clongriffin

Horizontal Illuminance (lux)

Conflict Zone 2



Results

Eav	17.12
Emin	15.02
Emax	19.57
Emin/Emax	0.77
Emin/Eav	0.88

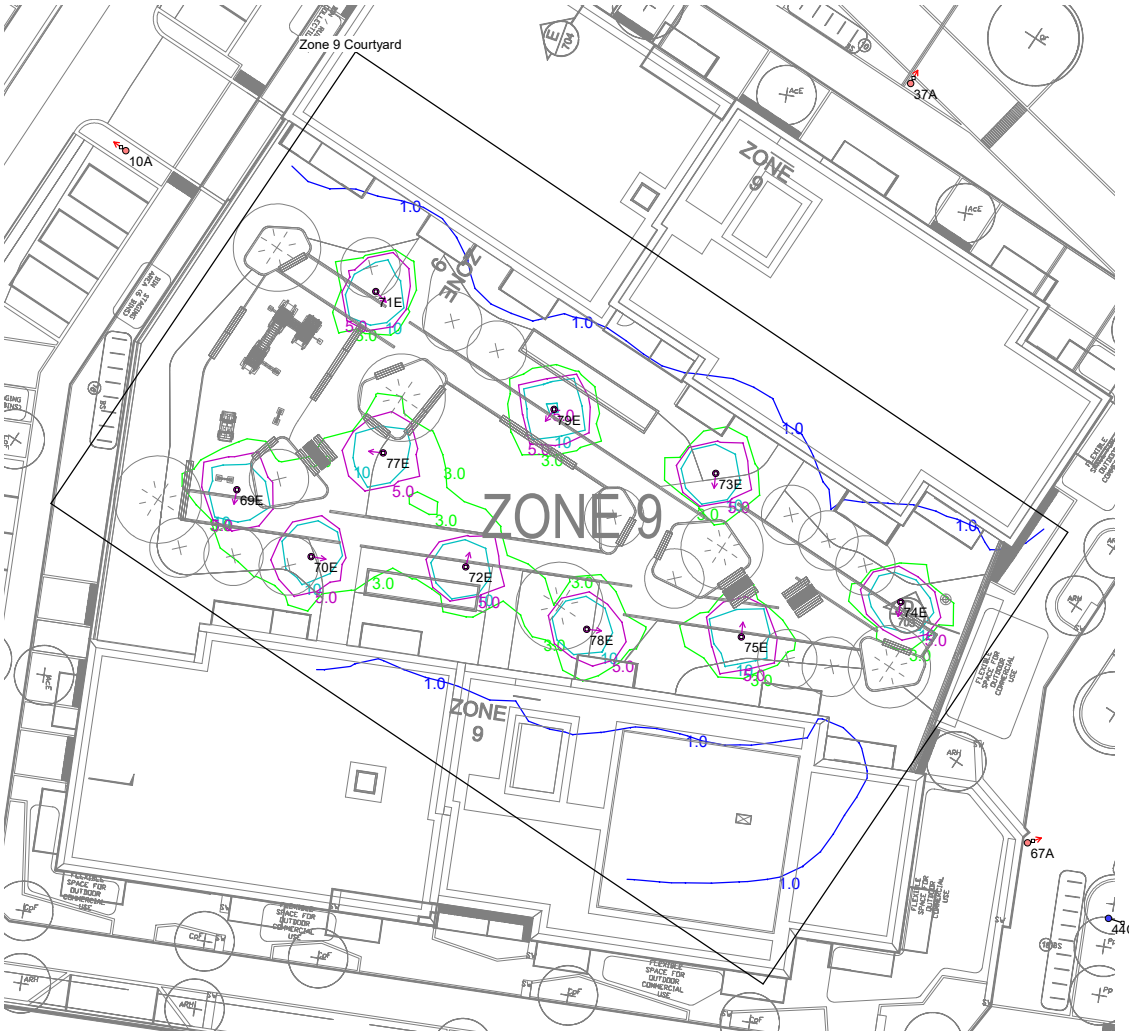
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DATE: 8 May 2026 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D24004 PROJECT NAME: Clongriffin

Horizontal Illuminance (lux)

Zone 9 Courtyard



Results

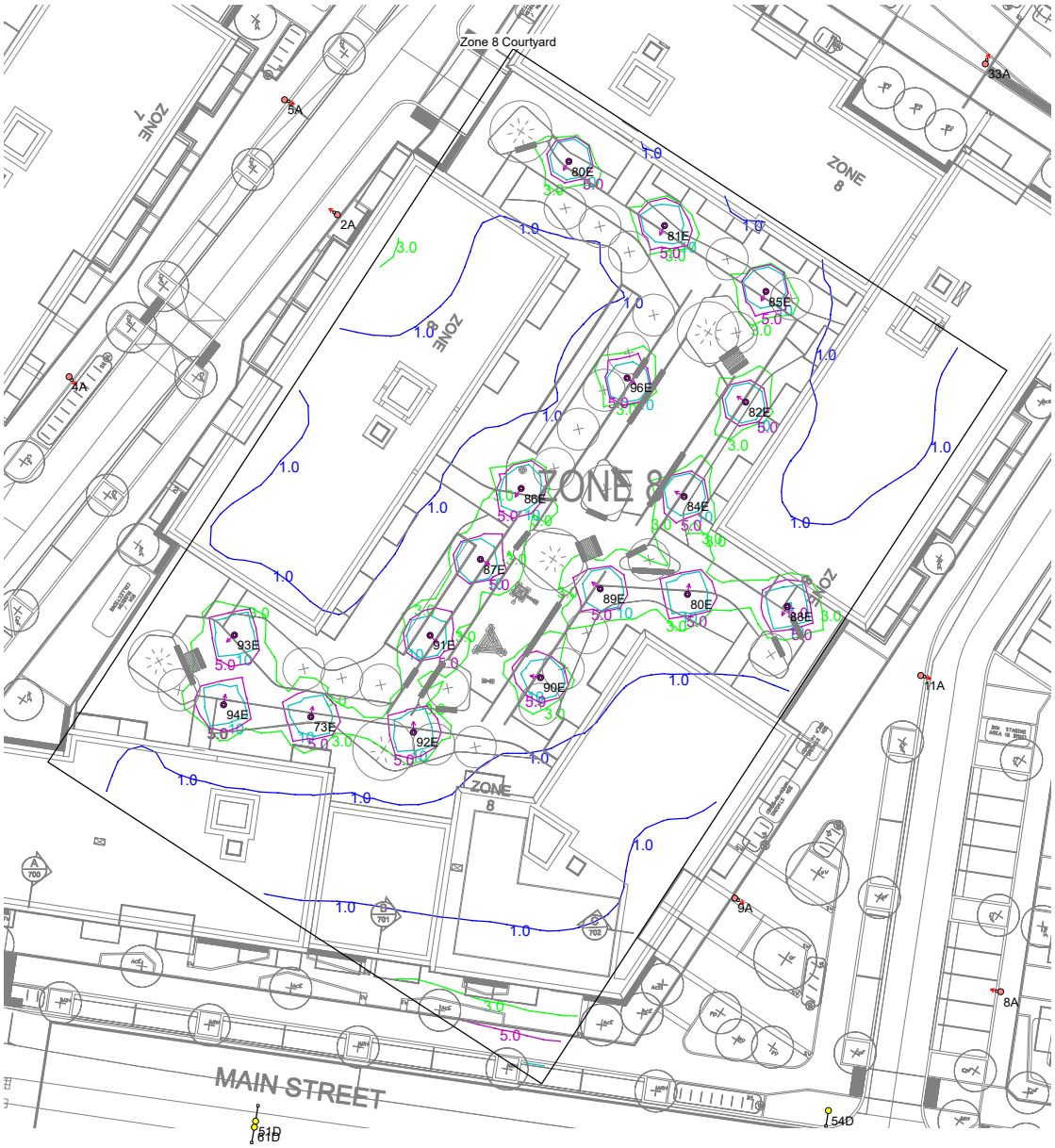
Eav	5.88
Emin	1.43
Emax	44.13
Emin/Emax	0.03
Emin/Eav	0.24

DATE: 8 May 2026 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D24004 PROJECT NAME: Clongriffin

Horizontal Illuminance (lux)

Zone 8 Courtyard



Results

Eav	5.09
Emin	1.04
Emax	41.16
Emin/Emax	0.03
Emin/Eav	0.20

DATE: 8 May 2026 DESIGNER: Andrii Zaporozhchenko

PROJECT No: D24004 PROJECT NAME: Clongriffin

Horizontal Illuminance (lux)

Zone 7 Courtyard



Results

Eav	5.53
Emin	1.09
Emax	53.52
Emin/Emax	0.02
Emin/Eav	0.20

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