MEP ENGINEERING CONSULTANTS

PROJECT REFERENCE	DOCUMENT TITLE	REVISION	DATE
2525	SITE LIGHTING REPORT – DRAFT ISSUE – **LISDARAN, CAVAN TOWN, CO CAVAN**	R03	17/10/2025

PROPOSED RESIDENTIAL DEVELOPMENT AT
LANDS AT LISDARAN TOWNLAND
LORETO ROAD, CAVAN TOWN
CO. CAVAN

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1. INTRODUCTION

This document outlines the design intent for the public lighting design within the proposed development at Lisdaran Co Cavan.

The proposed mixed use development will consist of the provision of residential dwellings, apartment, creche faciality and parking. Access to the development is facilitated by pedestrian and vehicular entry through Lisdaran road.

The surrounding area consists mainly of residential dwellings with local amenities. The lighting has been designed to provide a safe environment for road users, to deter anti-social behaviour and to limit the environmental impact of artificial lighting on existing flora and fauna in the area.

2. DEFINITIONS

2.1.1 THROUGHOUT THIS DOCUMENT the Term 'Client' shall be deemed to refer to:

Lisdaran Developments Ltd

47 Church Street

Cavan

Co Cavan

2.1.2 THROUGHOUT THIS DOCUMENT the Term 'Engineer' shall be deemed to refer to:

AMRA Engineering Consultants

Office 13 New Town Centre,

Ashbourne,

Co. Meath

3. DESIGN CONSIDERATION

The public lighting design for residential development is to provide adequate illuminance for vehicular and pedestrian access for the residents and general public.

The design of the public lighting includes low energy LED lighting throughout. Energy efficient light fittings are a key element in reducing the developments energy consumption.

The public lighting has been designed with the following considerations:

- Provide safe entry to the development.
- Ensuring visibility is good for all road users and ensuring there are no dark areas within the development.
- Minimise lighting pollution on surrounding areas and neighbours.
- Reduce glare on pedestrians and other users of the access areas
- Use of highly efficient artificial lighting to reduce energy consumption
- Coordination with the landscape developers to ensure light positions do not clash with tree positions, limiting light obstruction and future maintenance costs.
- Direction of the light to avoid light spill into homes.
- Using flat glass in the light fitting to reduce light spill.
- Using LED lamp sources
- Dimming post curfew hours (Curfew – The time after which stricter requirements will apply – if not otherwise given 23:00hrs is suggested ILP GN01:2011)

3.1 ROAD USAGE

Within the development the following traffic classifications have been considered:

- Vehicular Traffic
- Pedestrian Traffic
- Cyclist Traffic

3.2 LANDSCAPE TREES

Co-ordination with the landscape designer was necessary to ensure the following:

- Luminaire and tree positions did not overlay.
- Luminaires located outside the branch width of the trees to avoid damage to the light fitting from falling branches and to avoid the need for regular trimming.
- Avoid the obstruction to lighting by reducing the height of lighting columns.

4. SITE LIGHTING

The lighting design is based on current Cavan County Council Public Lighting Guidance Document, CIBSE lighting guide 6 2016, British Standards BS 5489-1 2020 and EN 13201 1&2 2003.

Based on the guidelines outlined in the above documents, the parameters applicable to the site are set out in table 1 below. Prior to lux level calculations being performed, the use of relevant design guidelines has been implemented to determine the class of lighting required within the development *(ref: Table 3 BS 5489-1-2020 & BS EN 12464-2:2014).*

Table 1

Location	**Lighting Class**	**Maintained (Eave) Lux Level**	**Maintained (Emin) Lux Level**
Subsidiary Roads-Traffic areas for slow moving vehicles	P4	5Lux	1 Lux
Pedestrian & Cyclist areas	P5	3 Lux	0.6 Lux

4.1 LIGHTING CLASS

Along the subsidiary road within the development, a lighting class P4 is selected, achieving a maintained average illuminance of 5lux and minimum illuminance of 1lux.

Along the pedestrian and cycle routes within the development, a lighting class P5 is selected, achieving a maintained average illuminance of 3lux and minimum illuminance of 0.6lux.

4.2 LUMINAIRE SELECTION

The proposed lighting scheme within the development consists of 6m pole mounted fittings as indicated on the drawings (refer to dwg 2525-E1000-COR & 2525-E1001-COR).

The proposed pole mounted fitting, the C U Phosco luminaire was selected for the following reasons:

- Provides low level lighting.
- Minimises upward light spill.
- Use of low voltage LED lamps.

TYPE PL1

Supplier	C U Phosco
Type	C U PHOSCO P852K-24-A2A-730-HE-0500-24W
Lamps	730P
Lamp Flux	3937
File Name	C U PHOSCO P852K-24-A2A-730-HE-0500-24 LED A2A lens 500mA ldt
Maintenance Factor	0.85

TYPE PL2

Supplier	C U Phosco
Type	C U PHOSCO P852K-24-A2A-740-HE-0800-38 W
Lamps	730P
Lamp Flux	6117
File Name	C U PHOSCO P852K-24-A2A-740-HE-0800-38 W P852K 24LED A2A LENS 800mA ldt
Maintenance Factor	0.85

TYPE PL3

Supplier	C U Phosco
Type	C U PHOSCO P852K-24-A2A-740-HE-0600-28 W
Lamps	730P
Lamp Flux	4688
File Name	C U PHOSCO P852K-24-A2A-740-HE-0800-28 W P852K 24LED A2A LENS 600mA ldt
Maintenance Factor	0.85

There is no existing public lighting near the proposed development along Lisdaran road entering the development.

5. LIGHTING LAYOUT

Fig. 2 indicates the proposed lighting layout (refer to dwg 2525-E1000-PLN & 2525-E1001-PLN)

Fig 2. Lighting Layout

5.1 LIGHTING CONTROL

Each light fitting will be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile, 35 lux on/18 lux off. The supermarket surface level carpark will be switched off 1 hr after closing hours 11pm approx.

Additional to this, all lighting will be dimmed by 30% post curfew, this will limit the amount of upward sky glow at night. For this development post curfew is considered to be 11pm *(Curfew – The time after which stricter requirements will apply – if not otherwise given, 23:00hrs are suggested ILP GN01:2011).*

All lamps selected have a DALI ballast and as a result are dimmable. Dimming of the lamp is controlled via an astronomical clock which is built into the circuit board of the luminaire. This clock is standard in all external light fittings and determines when the lamp should be switched on/off based on time and date.

Preferred light output settings can be pre-programmed within the clock. It is proposed to pre-programme the fittings to ensure all lights are dimmed post curfew between 11pm-6am.
Fig 3 below illustrates the maintained lux level pre-curfew:

*Fig 3. Colour Rendering (*pre-curfew)

Pre-curfew lux level results are within the parameters set out in table 1 above.

Fig 4 below illustrates the maintained lux level post-curfew when selected light fittings have automatically dimmed by 30%.

Fig 4. Colour Rendering (post-curfew)

Post curfew lux level results are within the parameters set out in table 2 below.

Table 2

Location	Maintained (Eave) Lux Level	Maintained (Emin) Lux Level
Subsidiary Roads-Traffic areas for slow moving vehicles	3 Lux	0.6 Lux
Pedestrian & Cyclist areas	2 Lux	0.6Lux

6. CONCLUSION

The proposed lighting installation for the Lisdaran, Co Cavan achieves the following:

- The new development will have no impact on existing public lighting along Swan Gate . Additional lighting within the development captures the lux level requirements at the junction of the development.
- Luminaire selection limits upward light spill, reducing light pollution.
- Dimming lights by 30% post-curfew will reduce running and maintenance cost.
- The lighting scheme achieves the recommended lux levels in accordance with current regulations and standards.
- The lighting scheme achieves good uniformity throughout the development to ensure good visibility at night.

- Co-ordination with the landscape developers will ensure light positions do not clash with tree position, limiting light obstruction and future maintenance costs.

7. REFERENCE

Codes and Standards.

Calculations performed and results produced in this document are in accordance with the following relevant codes and standards:

- Cavan County Council - *Street Lighting Technical Specification.*
- *BS 5489 – 1 2020 Code of Practice for the design of road lighting.*
- *IS EN 13201-1 & 2 -2015.*
- *IS EN 12464-2:2014 Lighting of the workplace Outdoors.*
- *ILE Guidance notes for the reduction of light pollution.*
- *Housing Scheme: Guidebook ESB Networks Standards for Electrical Services.*
- *I.S.10101:2020 National Rules for Electrical Installations.*

8. APPENDICE

Lisdaran Residential Development

Lisdaran Residential Development:
Site Lighting Report:
Designed in Accordance with EN 13201-2 2015:

Date: 17.10.2025
Operator: Rachel Frasca

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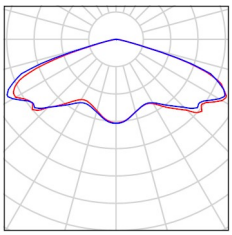
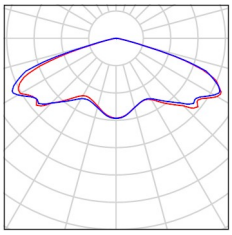
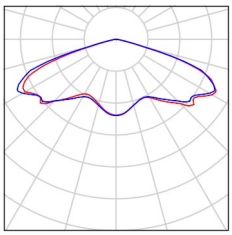
Lisdaran Pre Curfew / Luminaire parts list

25 Pieces	Phosco P852K-24-A2A-730-HE-0500-24W P852K 24 LED A2A lens 500mA Article No.: P852K-24-A2A-730-HE-0500-24W Luminous flux (Luminaire): 3937 lm Luminous flux (Lamps): 3937 lm Luminaire Wattage: 24.0 W Luminaire classification according to CIE: 100 CIE flux code: 23 56 93 100 100 Fitting: 1 x 730P (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.
7 Pieces	Phosco P852K-24-A2A-730-HE-0600-28W P852K 24 LED A2A lens 600mA Article No.: P852K-24-A2A-730-HE-0600-28W Luminous flux (Luminaire): 4688 lm Luminous flux (Lamps): 4688 lm Luminaire Wattage: 28.0 W Luminaire classification according to CIE: 100 CIE flux code: 23 56 93 100 100 Fitting: 1 x 730P (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.
65 Pieces	Phosco P852K-24-A2A-730-HE-0800-38W P852K 24 LED A2A lens 800mA Article No.: P852K-24-A2A-730-HE-0800-38W Luminous flux (Luminaire): 6117 lm Luminous flux (Lamps): 6117 lm Luminaire Wattage: 38.0 W Luminaire classification according to CIE: 100 CIE flux code: 23 56 93 100 100 Fitting: 1 x 730P (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.







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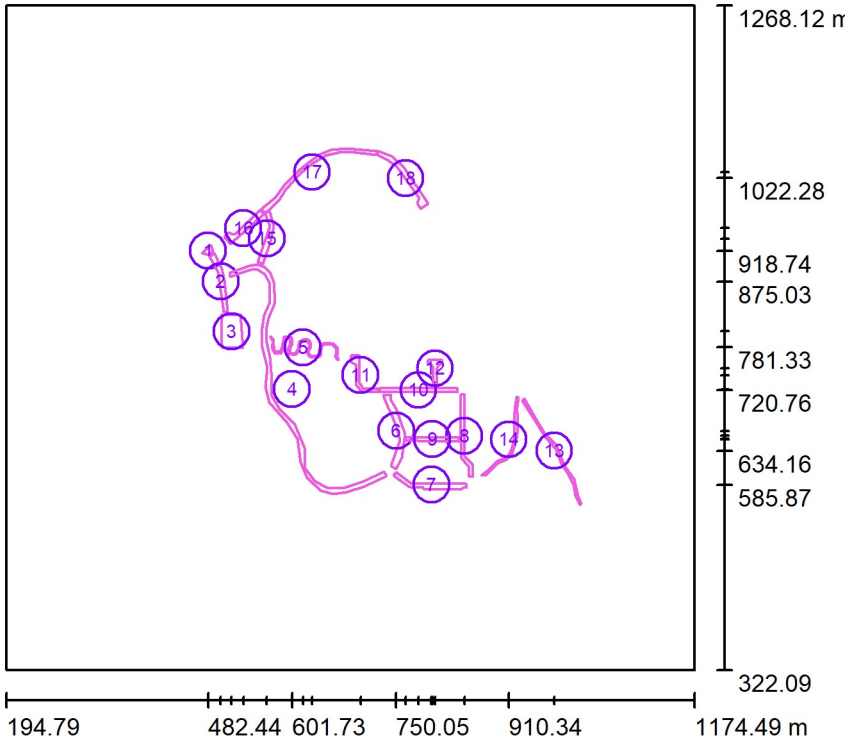
Lisdaran Pre Curfew / Calculation surfaces (results overview)



Scale 1 : 10764

Calculation Surface List

No.	Designation	Type	Grid	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1	Site Entrance	perpendicular	32 x 16	7.60	5.66	14	0.745	0.417
2	Road 1	perpendicular	128 x 32	5.97	2.32	16	0.389	0.143
3	Set Down	perpendicular	64 x 64	7.49	0.81	19	0.108	0.043
4	Road 2	perpendicular	128 x 128	5.44	0.69	16	0.127	0.043
5	Footpath 1	perpendicular	128 x 64	3.28	0.43	10	0.131	0.041
6	Road 3	perpendicular	128 x 64	6.61	2.10	17	0.318	0.127
7	Road 4	perpendicular	128 x 64	4.96	2.29	10	0.463	0.222
8	Road 5	perpendicular	128 x 64	5.93	1.91	15	0.323	0.131
9	Calculation Surface 1	perpendicular	128 x 64	4.59	2.37	7.91	0.517	0.300

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Lisdaran Pre Curfew / Calculation surfaces (results overview)

Calculation Surface List

No.	Designation	Type	Grid	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
10	Road 7	perpendicular	128 x 64	4.61	1.94	12	0.421	0.163
11	Road 8	perpendicular	128 x 64	6.81	2.98	15	0.438	0.199
12	Road 9	perpendicular	128 x 64	6.63	2.43	12	0.367	0.197
13	Footpath 2	perpendicular	128 x 64	3.54	0.43	10	0.122	0.043
14	Footpath 3	perpendicular	128 x 64	3.64	0.49	10	0.133	0.046
15	Road 10	perpendicular	128 x 32	6.38	1.09	16	0.171	0.067
16	Road 11	perpendicular	128 x 32	6.88	3.02	17	0.439	0.181
17	Road 12	perpendicular	128 x 64	6.31	1.00	17	0.158	0.060
18	Road 13	perpendicular	128 x 32	5.87	2.05	13	0.349	0.156

Summary of Results

Type	Quantity	Average [lx]	Min [lx]	Max [lx]	u0	E_{min} / E_{max}
perpendicular	18	5.75	0.43	19	0.07	0.02