

Client: STRAND COURT LIMITED

Project: PROPOSED RESIDENTIAL DEVELOPMENT at
CHURCHVIEW ROAD & CHURCH ROAD,
KILLINEY, CO DUBLIN

Title: SITE LIGHTING REPORT

Date: 28th JUNE 2019

Revision: FINAL STATUS

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1 INTRODUCTION

We, Strand Court Limited, seek planning permission for a strategic housing development at Churchview Road and Church Road, Killiney, Co. Dublin. The site is located to the west of the Graduate Roundabout and Church Road, to the north of Fairhaven and Churchview Road, and to the east of an area of open space.

The proposed development (See Fig. 1 below) will consist of:

- The demolition of 3 no. existing dwellings known as Culgrenagh, Briar Hill, and Hayfield;
- The construction of 210 no. residential units (apartments) in 3 no. blocks (A, B and C) ranging in height from 3 to 7 storeys, including lower ground floor / basement level, incorporating 27 no. 1-bed units, 160 no. 2-bed units and 23 no. 3 bed units;
- Apartment Block C includes a childcare facility with a gross floor area of 203 sq.m, with an adjacent external play area, and Apartment Block B includes a resident’s amenity facility with a gross floor area of 130 sq.m;
- A total of 227 no. car parking spaces are proposed to be provided, including 186 no. spaces at basement/undercroft level and 41 no. surface car parking spaces, including parking for visitors and set-down parking for the childcare facility. The development provides a total of 348 no. cycle parking spaces (surface and basement level). Bin storage and plant areas are also provided at basement level.

The associated site development and infrastructural works will include upgrade of the existing access from Churchview Road, which also serves the Fairhaven development, and provision of an internal access road, associated upgrade works to Churchview Road, foul and surface water drainage, attenuation tanks, open space areas, hard and soft landscaping, 1 no. electricity substation, boundary treatments and all ancillary works on a total site area of 1.59ha.



Fig. 1 Aerial View-Site Location-Intersection of Churchview Road Onto Church Road

2 DESIGN CONSIDERATIONS

2.1 Road Usage

When designing the proposed lighting scheme for the development the following traffic classifications have been considered;

- Vehicular Traffic
- Pedestrian Traffic
- Cyclist Traffic
- Car parking

2.2 Landscape Trees

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

- Luminaire and tree positions do 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

2.3 Lighting Design Parameters

The lighting layout was designed with the following considerations:

- Provide safe entry to the development
- Avoiding light spill entering homes
- Ensuring visibility is good for all road users and ensuring there are no dark areas within the development
- Coordination with the landscape developers to ensure light positions do not clash with tree positions, limiting light obstruction and future maintenance costs.
- Reduction in the height of lighting columns where possible to reduce light glow.
- 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
- Consideration of disabled access lighting requirements (20 lux)
- 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 SITE LIGHTING

3.1 Introduction

The lighting design is based on current Dun Laoghaire, Rathdown County Council, Public Lighting Guidance Document, CIBSE lighting guide 6 2016, British Standards BS 5489 2013 and EN 13201 1&2 2003. Lighting calculations shown in dwg P017-PMEP-00-00-DR-E-01 are only applied to the main road of the development.

Based on the guidelines set out in the above documents, the parameters applicable to the site are set out in table 1 below. Prior to lux level calculations being performed, we use the relevant design guidelines to determine the class of lighting required within the development (*ref: Table 3 BS5489-1-2013*).

Table 1

Location	Lighting Class	Maintained (E _{ave}) Lux Level	Maintained (E _{min}) Lux Level
Site Entrance/T-Junction	P2	10 Lux	3 Lux
Disabled Car Park Spaces	-	20 Lux	-
open Ramps/stairways	-	30 Lux	15 Lux
Subsidiary Roads-Traffic areas for slow moving vehicles	P3	7.5 Lux	1.5 Lux

3.2 Lighting Class

The main entrance to the proposed development there is a T-junction which is considered a conflict area*. The new site entrance is currently adjacent to an existing relatively new development. Light levels at the site entrance are deemed to be sufficient and is to be retained.

**Conflict areas are typically junctions, intersections, roundabouts and pedestrian crossings, where significant streams of motorized traffic intersect with each other or with other road users such as pedestrians and cyclists. At conflict areas, the visual task is generally more difficult than on straight roads, and a higher luminance or illuminance class may be selected at the conflict area. Ref BS 5489-1:2003 +A2:2008 Code of practice for the design of road lighting — Part 1: Lighting of roads and public amenity areas*

The road entering the development is deemed to be a subsidiary road within the development, a lighting class P3 is selected, achieving a maintained average illuminance of 7.5lux and minimum illuminance of 1.5lux.

3.3 Luminaire Selection

The main proposed lighting scheme within the development consists of 6m pole-mounted fittings as indicated in the drawings. Supplementary lighting for access routes, ramps and pedestrian areas are also included in the layouts. (refer to dwg P017-PMEP-00-00-DR-E-00 & P017-PMEP-00-00- DR-E-01).

The proposed pole mounted fitting for the main access road, the Thorn CiviTeq luminaire was selected for the following reasons:

- Provides low level lighting.
- Minimises upward light spill.
- Use of low voltage LED lamps.
- Pre-approved by Dun Laoghaire Rathdown County Council.



Fig 2. CiviTeq

For the supplementary lighting in access routes, ramps and pedestrian areas, the following fittings are proposed:

- Amenity lighting Thorn Avenue F2, 4 meters poles, LED lamps.



Fig. 3 Avenue F2

- Amenity lighting Thorn Bollard, 0.8 metres height, LED type.



Figure 4: Bollard 700

4 LIGHTING LAYOUT

Fig. 5 indicates the proposed lighting layout for the main road, further supplementary lighting will be added to areas such a pedestrian & cycle lanes/entrances to comply with regulatory requirements. (refer to dwg P017-PMEP-00-00-DR-E-00 & P017-PMEP-00-00-DR-E-01).

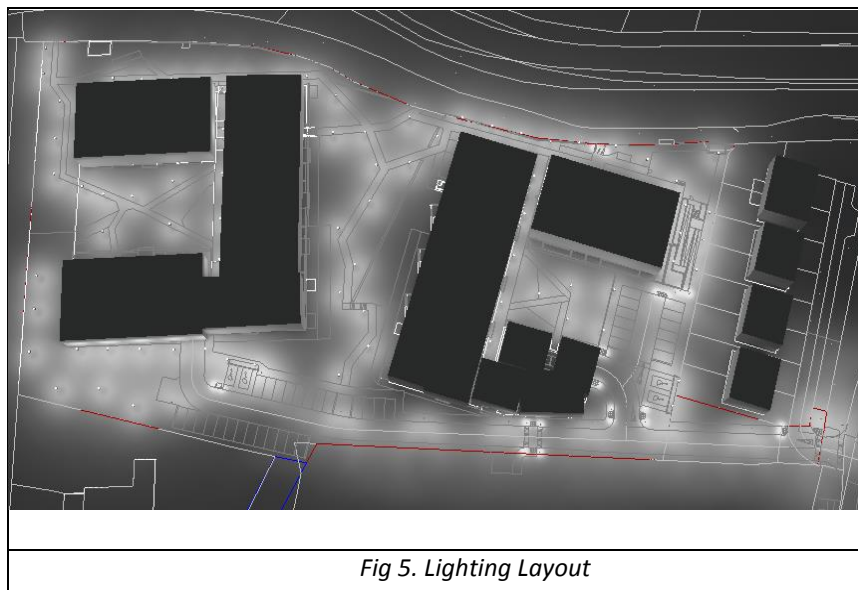


Fig 5. Lighting Layout

5 ADDITIONAL DESIGN CONSIDERATION

To ensure new developments are not over lit and to reduce light pollution in the area, each development is categorised into an environmental zone (ref; Table 2.1 CIBSE Lighting Guide 6 The exterior environment & ILE Guidance notes for the reduction of light pollution). This site location would be considered a class E3 medium brightness zone.

5.1 Light Baffles

In regards to the obtrusive light expected to get into the windows of the Block 2 of apartments, with lighting levels around 2 Lux (refer to dwg P017-PMEP-00-00-DR-E-01). The lighting poles in this area will count with a light baffle to block the spilling light.

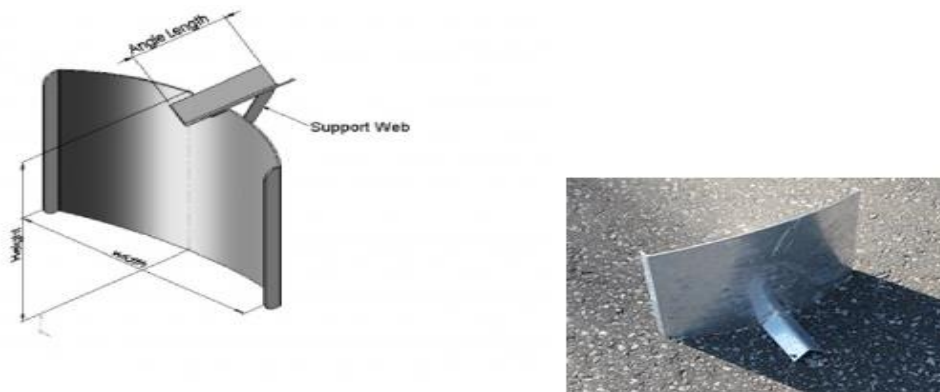


Figure 6: Light Baffle

5.2 Lighting Control

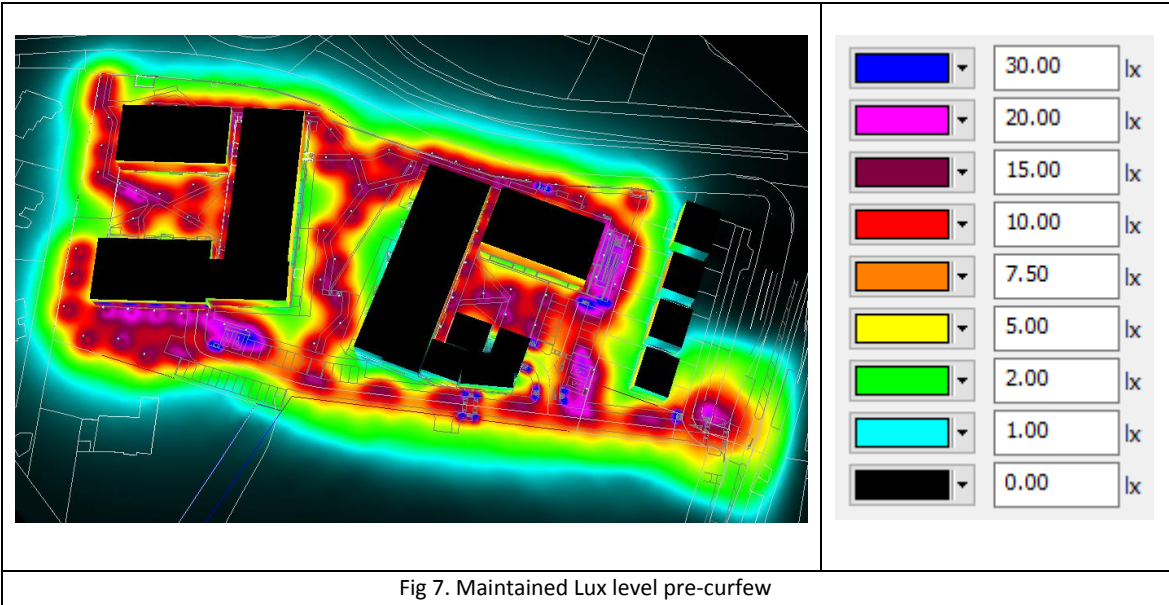
Each light fitting will be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile, 35 lux on/18 lux off.

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 is 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 it 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 7 below illustrates the maintained lux level pre-curfew:



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

Fig 8 below illustrates the maintained lux level post-curfew when selected light fittings have automatically dimmed by 30%.

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

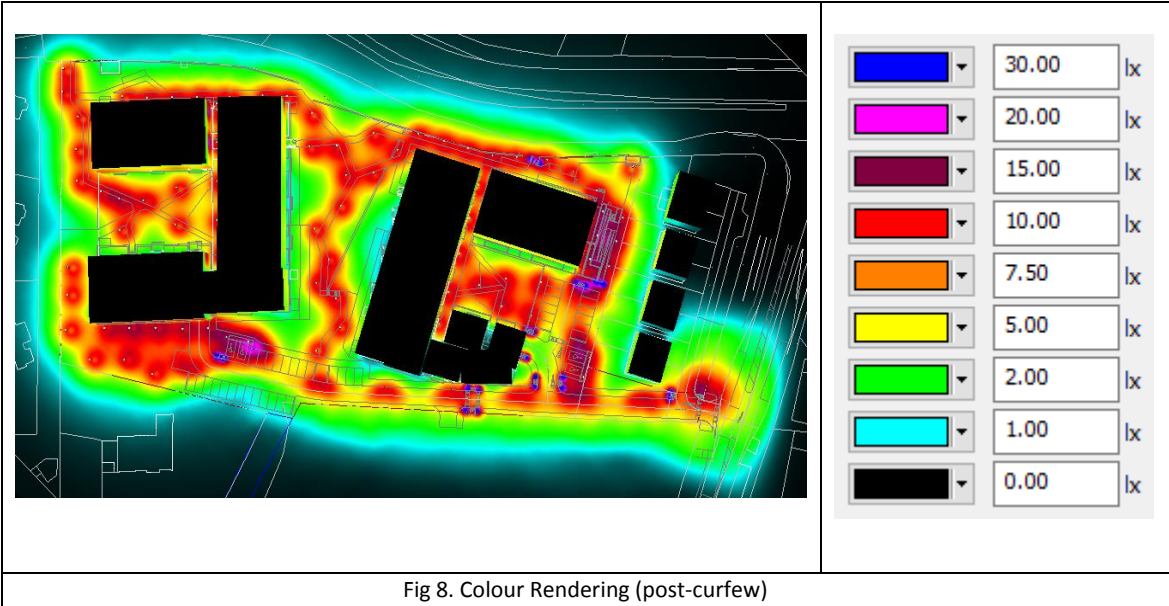


Table 2

Location	Maintained (Eave) Lux Level	Maintained (Emin) Lux Level
Site Entrance/T-Junction	7 Lux	2 Lux
Subsidiary Roads-Traffic areas for slow moving vehicles	5 Lux	1 Lux
Disabled Car Park Spaces	20 Lux	-
open Ramps/stairways	30 Lux	15 Lux

6 CONCLUSION

The proposed lighting installation for the Churchview Residential Development achieves the following;

- Luminaire selection limits upward light spill.
- Light Baffles have been selected to avoid light spill on the apartments.
- Dimming lights by 30% post-curfew will reduce running and maintenance cost.
- As bat feeding periods are from dusk to dawn, dimming lights by 30% post-curfew will reduce the impact of artificial lighting on the existing fauna and flora in the area.
- 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.
- Consideration of disabled access lighting requirements (20 lux)

7 REFERENCE

INFORMATION

Codes and Standards;

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

- Dun Laoghaire Rathdown County Council *Public Lighting Guidance Document*
- *BS 5489 – 1 2013*
- *PD CEN TR 13201 – 1 2004*
- *EN 13201 – 2 2015*
- *CIBSE Lighting Guide 6 2016 – Outdoor Environment*