



**PUBLIC LIGHTING REPORT
PRIORSLAND VILLAGE CENTRE & RESIDENTIAL
DEVELOPMENT**

**Project: 1830
Issue: Planning
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Table of Contents

1. Introduction..... 4

2. Design Concept..... 5

3. Detailed Design 6

4. Grid Results..... 9

5. Ecological Impact Design Considerations:..... 10

6. Ecology Grid Results..... 12

Project Details:

Project: Priorsland Village Centre and Residential Development,
Carrickmines,
Co. Dublin.

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Document Details:

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1. Introduction

This report will outline the design intent for the proposed public lighting design at Priorsland Village Centre and Residential Development, Carrickmines, Co. Dublin.

This report outlines the lighting design as developed by Fallon Design to provide adequate illuminance to meet all regulations and requirements as follows;

- To provide adequate illumination to contribute toward the safe use of the access roads and pathways for vehicular and pedestrians.
- 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

The complete installation will be required to meet the following regulatory standards and policies:

- S.I. No. 291 of 2013: Safety, Health and Welfare at work (Construction Reg. 2013)
- ETCI National Rules for electrical Installation ET101-2008
- BS 5489-1:2013 Code of Practice for the design of road lighting
- IS EN 13201-1 & 2 -2015
- IS EN 13201-5-2015 S2 & ME4A
- CIBSE Lighting Guide 7
- Housing Scheme: Guidebook ESB Networks Standards for Electrical Services
- Guidance Note 08/18:Bats and artificial lighting in the UK (Bat Conservation Trust, 2018)
- Bats & Lighting Guidance notes for: Planners, engineers, architects and developers (12/2010)
- Dun Laoghaire- Rathdown County Council Street Lighting Technical Specification

2. Development Description

The development will comprise a mixed-use village centre and residential development of 443 no. units comprising 6 no. blocks (A-F) of apartments (up to 5 storeys with basement/undercroft parking) providing 402 no. apartments units (146 no. 1-beds; 218 no. 2-beds and 38 no. 3-beds), and 41 no. houses (19 no. 3-beds and 22 no. 4-beds). All apartments provided with private balconies/terraces. Provision of indoor residential facilities to serve apartment residents.

The Village Centre and non-residential elements will comprise a supermarket, local retail/retail service units, non-retail commercial units, creche, gym, community space, and offices (High Intensity Employment) use.

Provision of car/bicycle/motorcycle parking; ESB sub-stations; bin storages areas, and all associated plant areas.

Provision of the first phase of Priorsland Park (on lands within the applicant's ownership) and other public and communal open spaces.

Construction of Castle Street through the subject lands and two road bridges across the Carrickmines Stream, one to serve the future school site/ park, the second to provide pedestrian and cyclist access to the Carrickmines Luas station and future Transport Interchange to the north. Provision of an additional pedestrian bridge to the park. Provision of an acoustic barrier along the southern/western edge of the site.

All associated site development works, landscaping, boundary treatments and services provision.

3. Design Concept

The public lighting design for Priorsland Village Centre and Residential Development is proposed to continue the existing Cherrywood public lighting scheme with opposing opposite 8m poles from the junction of Castle Street and Barrington Road to the village centre.

Beyond the village centre, as you travel into the scheme the public lighting will change to single side 5m lamp posts and change the lighting levels to a residential standard. Positioning lighting on one side of the road highlights the existing mature natural landscape and allows more green space.

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

4. Detailed Design

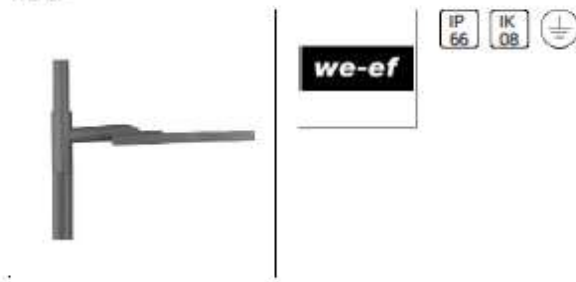
The design proposes to use 6 No. Luminaires types mounted at varying heights and with varying beam widths across the development.

Proposed luminaire design layout as per drawing 1830-BW-04A including indicative ducting routes and lighting circuits.

Luminaires:

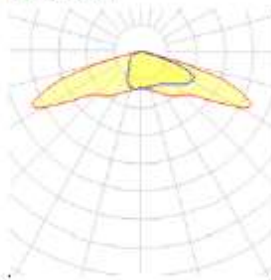
Product data sheet

VFL540-SE [R65] IP66:LED-36/72W/3K
108-1255
WE-EF



IP66, Class I or Class II. IK08. Marine-grade die-cast aluminium alloy. 5CE superior corrosion protection including PCS hardware. Silicone CCG® Controlled Compression Gasket. UV stabilised acrylic panel in RFC® technology. Integrated heat sinks. Easy removal and replacement of LED board. CAD optimised OLC® PMMA lens for superior illumination and glare control. The luminaire is factory-sealed and does not need to be opened during the installation. Recommended mounting height 2.5-8.0 m, depending on lamp type selected.

Light output 1



36 x LED			
Nominal lamp power	2 W	LOR	85%
Lamp flux	246 lm	Total flux	7555 lm
Luminous efficacy	93 lm/W	Total power	81 W
CCT	3000 K		
CRI	80		

Mounting mode

Pole integrated

Shape and measurements

Length: 680 mm
Width: 300 mm
Height: 91 mm

Electric

System power: 81 W
Appliance Class: I

Protection

IP: 66
IK: 08

Castle Street Cherrywood Priorsland 01 15/03/2019



Castle Street Cherrywood Priorsland 01 / Luminaire parts list

Castle Street Cherrywood Priorsland 01

Quantity	Luminaire (Luminous emittance)		
2	WE-EF - 108-1144 VFL530 [A60] IP66:LED-12/24W/3K Luminous emittance 1 Fitting: 12xLED-12/24W/830 - 3000K Light output ratio: 82.97% Lamp luminous flux: 2951 lm Luminaire luminous flux: 2448 lm Power: 28.0 W Luminous efficacy: 87.4 lm/W Colourimetric data 12xLED-12/24W/830 - 3000K: CCT 3000 K, CRI 80		
32	WE-EF - 108-1150 VFL530 [R65] IP66:LED-12/24W/3K Luminous emittance 1 Fitting: 12xLED-12/24W/830 - 3000K Light output ratio: 84.12% Lamp luminous flux: 2951 lm Luminaire luminous flux: 2482 lm Power: 28.0 W Luminous efficacy: 88.7 lm/W Colourimetric data 12xLED-12/24W/830 - 3000K: CCT 3000 K, CRI 80		
24	WE-EF - 108-1249 VFL540-SE [S70] IP66:LED-36/72W/3K Luminous emittance 1 Fitting: 36xLED-36/72W/830 - 3000K Light output ratio: 88.75% Lamp luminous flux: 8854 lm Luminaire luminous flux: 7858 lm Power: 81.0 W Luminous efficacy: 97.0 lm/W Colourimetric data 36xLED-36/72W/830 - 3000K: CCT 3000 K, CRI 80		
18	WE-EF - 108-1255 VFL540-SE [R65] IP66:LED-36/72W/3K Luminous emittance 1 Fitting: 36xLED-36/72W/830 - 3000K Light output ratio: 85.31% Lamp luminous flux: 8854 lm Luminaire luminous flux: 7553 lm Power: 81.0 W Luminous efficacy: 93.2 lm/W Colourimetric data 36xLED-36/72W/830 - 3000K: CCT 3000 K, CRI 80		
31	WE-EF - 108-1552 VFL530 [P65] IP66:LED-12/12W/3K Luminous emittance 1 Fitting: 12xLED-12/12W/830 - 3000K Light output ratio: 91.84% Lamp luminous flux: 1614 lm Luminaire luminous flux: 1482 lm Power: 14.0 W Luminous efficacy: 105.9 lm/W Colourimetric data 12xLED-12/12W/830 - 3000K: CCT 3000 K, CRI 80		

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Page 1

Castle Street Cherrywood Priorsland 01 15/03/2019



Castle Street Cherrywood Priorsland 01 / Luminaire parts list

Quantity	Luminaire (Luminous emittance)		
40	WE-EF - 139-1999 FLC220 [B] IP66:LED-6/12W/3K + IO-180 Luminous emittance 1 Fitting: 6xLED-6/12W - 3000K Light output ratio: 75.46% Lamp luminous flux: 1629 lm Luminaire luminous flux: 1229 lm Power: 15.0 W Luminous efficacy: 82.0 lm/W Colourimetric data 6xLED-6/12W - 3000K: CCT 3000 K, CRI 80		

Total lamp luminous flux: 587396 lm, Total luminaire luminous flux: 503968 lm, Total Load: 5388.0 W, Luminous efficacy: 93.5 lm/W

Lighting Dialux Calculations:

Development Lighting:

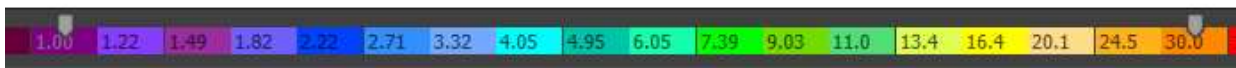
- Castle Street
 - The Average Horizontal Illuminance is 10 Lux average (EN13201 S2) Lighting Guide to be compliant.
Average achieved: 25 lux (Predetermined by existing installation)
The Minimum Horizontal Illuminance is 3 Lux (EN13201 S2) Lighting Guide to be compliant
The Minimum Horizontal Illuminance is 4.98 Lux

- Zone 2 Residential:
 - The Average Horizontal Illuminance is 5 Lux ($E_m \geq 5$ Lux) P4 to be compliant.
Average achieved: 7.1
The Minimum Horizontal Illuminance is 1 Lux ($E_{min} \geq 1$ Lux) P4 to be compliant.
Average achieved: 2.57

- Zone 3 Residential:
 - The Average Horizontal Illuminance is 5 Lux ($E_m \geq 5$ Lux) P4 to be compliant.
Average achieved: 5.4
The Minimum Horizontal Illuminance is 1 Lux ($E_{min} \geq 1$ Lux) P4 to be compliant.
Average achieved: 1.4

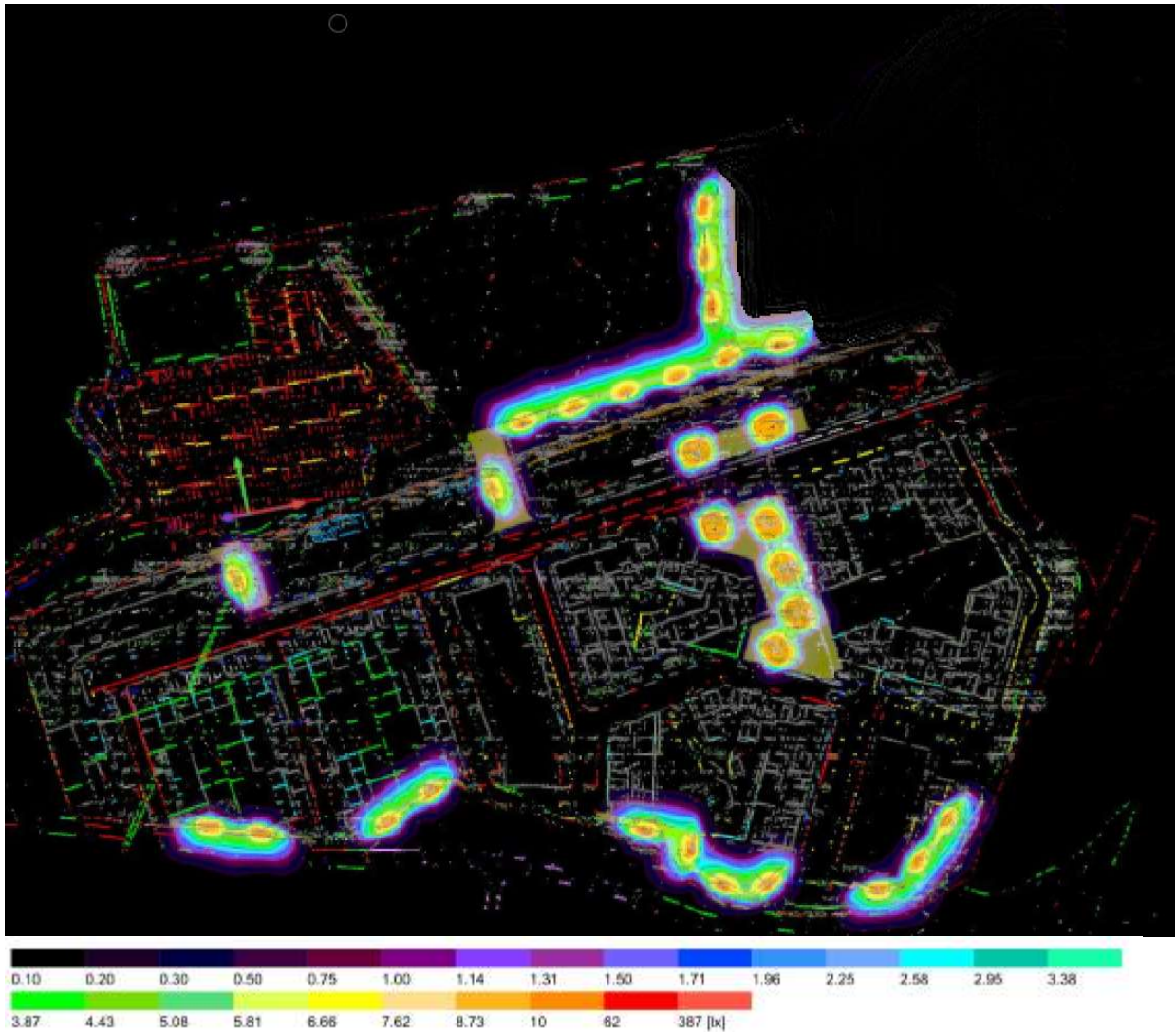
5. Grid Results

5.1 Full Site



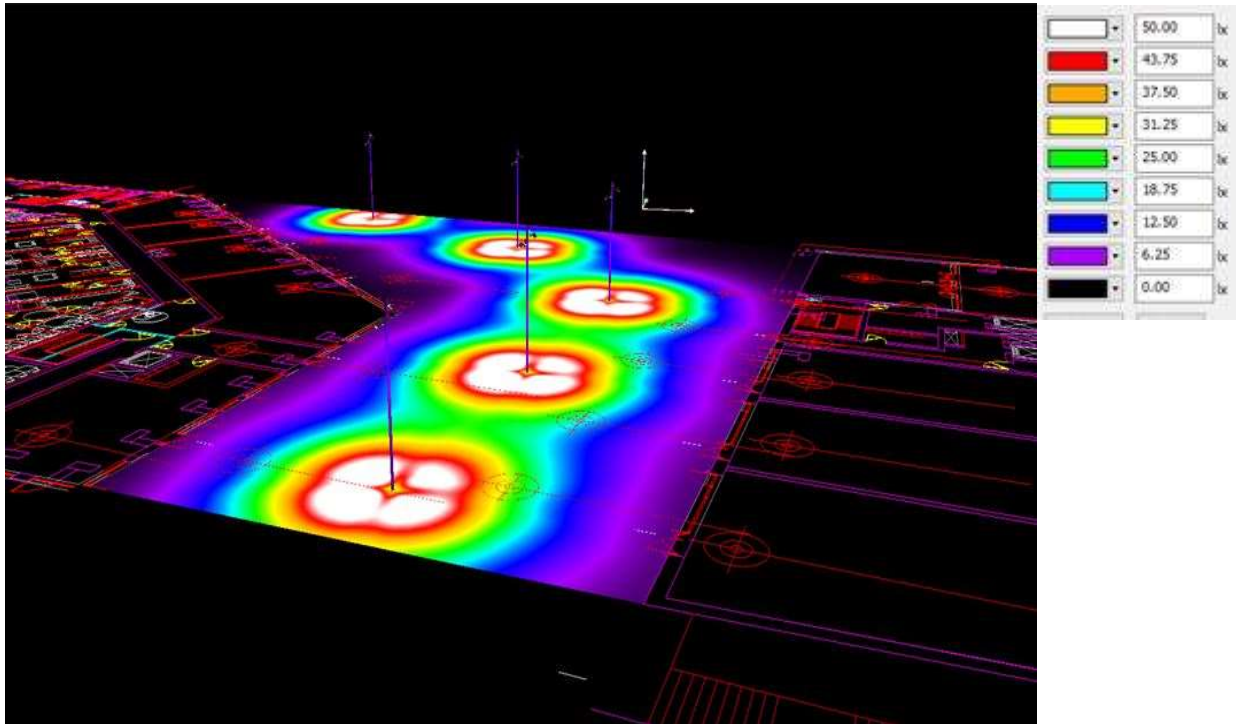
5.2 Walkways & pedestrian interconnecting routes

Public walkways have been illuminated to the required 5 lux with full shut off optics on the light fittings to ensure the local ecology and natural habitats are maintained.



5.3 Village Centre:

Feature Lighting – Public Plaza



The public lighting for Priorsland Village Centre has been designed to the relevant standards and regulations as referenced in section 1.0.

The coordination with the landscape architect has brought directional fittings into the design to allow flexibility and illumination of features in the village centre.



6. Ecological Impact Design Considerations:

Careful consideration has been given to the design of Public Lighting with regard to the existing natural habitat and the wildlife along the water way banks. The chosen luminaire We-ef VFL540 has a full cut off lantern type, that offers with a G6 Glare rating and no upward light making it dark sky friendly.

- An inbuilt multi step dimming program within this luminaire allows for night time hours to be dimmed by up to 25%. This means during peak hours of nocturnal foraging, feeding and activity the adjacent public lighting can be further designed to minimize impact on the local wildlife.
- The colour rendering of the selected light fitting is 3000k making the LED fittings a warmer light, helping to further minimize the impact on the local wildlife.
- Greater energy savings will also result using the inbuilt multi-step dimming program during late hours of darkens along the public lighting spaces.

7. Ecology Grid Results

Außenszene 1 / Falschfarben Rendering

