



**PUBLIC LIGHTING
DESIGN CALCULATIONS REPORT
PALMERSTOWN STRATEGIC DEVELOPMENT**

**Strategic Housing Development
Dublin 20**

for

**Lighting Department
South Dublin Co. Co.**

**Project: 1804
Issue: Planning
Rev: C
Date: 16th April 2020**

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1. Introduction

This report will outline the design intent for the public lighting design of the proposed development at Palmerstown including access to the development through the Palmerstown Business park.

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)
- South Dublin City County Council Street Lighting Technical Specification

2. LED Street Light Selection

The fittings proposed for the development shall be as follows;

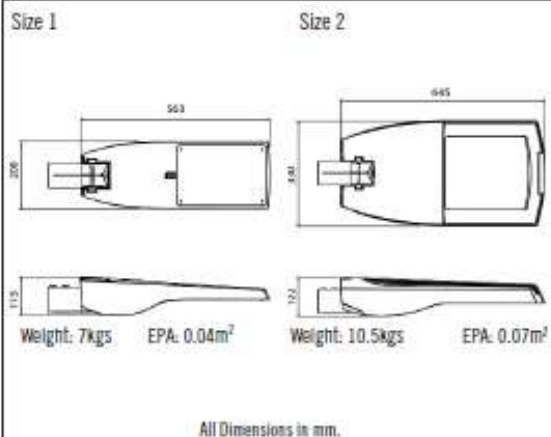
- Veelight Tech Series luminaire mounted on 6 meter column.
- Veelight Tech Series luminaire mounted on wall brackets (Palmerstown Business Park)
- Veelight Chi Series luminaire mounted on 4 meter columns.

Proposed luminaire as follows;

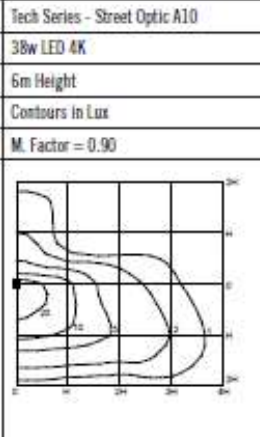


Polycarbonate Shield Option (IK10+)

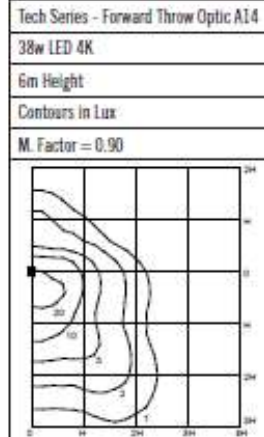
DIMENSIONS



APPLICATION GUIDE



APPLICATION GUIDE



ORDERING CODE

Wattage	Type	Code - Size 1	Code - Size 2	Details	Optic	Option	Lumens
11w	8 LED	5TCA10GLC	-	Tech Series, 350mA driver, 4K	A10	A11-A14, C6	1175 lm
15w	8 LED	5TCA10GLB	-	Tech Series, 500mA driver, 4K	A10	A11-A14, C6	1583 lm
20w	8 LED	5TCA10GLA	-	Tech Series, 700mA driver, 4K	A10	A11-A14, C6	2098 lm
19w	16 LED	5TCA11GLC	-	Tech Series, 350mA driver, 4K	A10	A11-A14, C6	2350 lm
27w	16 LED	5TCA11GLB	-	Tech Series, 500mA driver, 4K	A10	A11-A14, C6	3167 lm
38w	16 LED	5TCA11GLA	-	Tech Series, 700mA driver, 4K	A10	A11-A14, C6	4197 lm
28w	24 LED	5TCA12GLC	5TCB12GLC	Tech Series, 350mA driver, 4K	A10	A11-A14, C6	3526 lm
40w	24 LED	5TCA12GLB	5TCB12GLB	Tech Series, 500mA driver, 4K	A10	A11-A14, C6	4752 lm
55w	24 LED	5TCA12GLA	5TCB12GLA	Tech Series, 700mA driver, 4K	A10	A11-A14, C6	6296 lm
36w	32 LED	5TCA13GLC	5TCB13GLC	Tech Series, 350mA driver, 4K	A10	A11-A14, C6	4700 lm
52w	32 LED	5TCA13GLB	5TCB13GLB	Tech Series, 500mA driver, 4K	A10	A11-A14, C6	6334 lm
73w	32 LED	5TCA13GLA	5TCB13GLA	Tech Series, 700mA driver, 4K	A10	A11-A14, C6	8393 lm
54w	48 LED	-	5TCB14GLC	Tech Series, 350mA driver, 4K	A10	A11-A14, C6	7050 lm
77w	48 LED	-	5TCB14GLB	Tech Series, 500mA driver, 4K	A10	A11-A14, C6	9501 lm
108w	48 LED	-	5TCB14GLA	Tech Series, 700mA driver, 4K	A10	A11-A14, C6	12590 lm
69w	64 LED	-	5TCB15GLC	Tech Series, 350mA driver, 4K	A10	A11-A14, C6	9400 lm
100w	64 LED	-	5TCB15GLB	Tech Series, 500mA driver, 4K	A10	A11-A14, C6	12668 lm
142w	64 LED	-	5TCB15GLA	Tech Series, 700mA driver, 4K	A10	A11-A14, C6	16787 lm

OPTIONS

RAL: Pls specify
D60: 60mm Mastfitter
PC: Photocell (NEMA)
DALI: DALI Dimmable
1-10V: 1-10V Dimmable
CLO: Constant Lumen Output
PRO: Programmed Dimming
A11: Street Optic A11
A12: Street Optic A12
A13: Street Optic Wide A13
A14: Forward Throw Optic A14
C6: Symmetric Optic C6
3K: 3000K Warm White LED
2.7K: 2700K Warm White LED
2.2K: 2200K Amber White LED
AMB: Amber colour LED
MIRN: Marine Finish
PC: Polycarbonate Shield (IK10+)

3. Lighting Design

The lighting calculation are broken into 3 areas as follows;

- 3.1 Path No. 1
- 3.2 Path No. 2
- 3.3 Main Road



The lighting of the Palmerstown Business Park access route lighting is not part of this application; however it will be installed in the coming weeks.

Through the access route into the development we propose the Tech Series lights on wall brackets with an average lux level of 4.69, 1.3 lux minimum which complies

Calculation Results Summary:

Calculation Summary										
Description	Class (BS5489-1:2013)	Avg	Max	Min	Min/Avg	Min/Max	Units	PtSpcLr	PtSpcTb	# Pts
Path 1	P4	4.76	18.3	0.8	0.17	0.04	Lux	1.2	1.2	616
Path 2	P4	5.67	19.3	0.8	0.14	0.04	Lux	1	1	1237
Road	P4	4.69	19.1	0.3	0.06	0.02	Lux	1.5	1.5	1050

Luminaire Summary:

Luminaire Schedule							
Symbol	Qty	Label	Lum. Lumens	LLF	S/P Ratio	Description	Filename
	9	C38S	3730	0.720	1.40	Chi 38w 16LED 700mA 4000K Symmetric C6 Optic	5CHI13LGA-C6.ies
	7	C20W	1865	0.720	1.40	Chi 20W 8LED 4000K 700mA Street Optic A13	CHIC-ASY13-8L(2x4)
	6	T27-A10	3166	0.750	1.40	Tech Size 1 27w 16LED 4000K 500mA Street Optic A10	5TCA11GLB-A10.ies
	2	T38W	4170	0.720	1.40	Tech Size 1 38w 16LED 4000K 700mA Street Optic A13	5TCA11GLA-A13.ies
	2	T38-F	4196	0.720	1.40	Tech Size 1 38w 16LED 4000K 700mA Forward Throw Optic A14	5TCA11GLA-A14.ies

The design uses 10 x Tech Series LED Streetlights mounted at 6m with 5 degree tilt with the following optics/mounting type:

- 6 x 27w Street Optic A10 pole mounted.
- 2 x 38w Street Optic Wide A13 building mounted.
- 2 x 38w Forward Throw Optic A14 building/fence mounted.

18 No. Chi Series (10 x 38w Symmetric, and 8 x 20w Asymmetric/Street Optic Wide) mounted on 4m columns to light the paths.

Summary Light levels are as follows:

- Path 1: 5.4 lux average, 0.9 lux minimum.
- Path 2: 5.3 lux average, 0.8 lux minimum.
- Road: 5.1 lux average, 0.9 lux minimum.

These levels comply with Class P4 of IS EN 13201 / BS5489 with S/P ratio of 1.4 applied (3.8 lux average, 0.8 lux minimum).

Road 2: 4.6 lux average, 0.2 lux minimum.

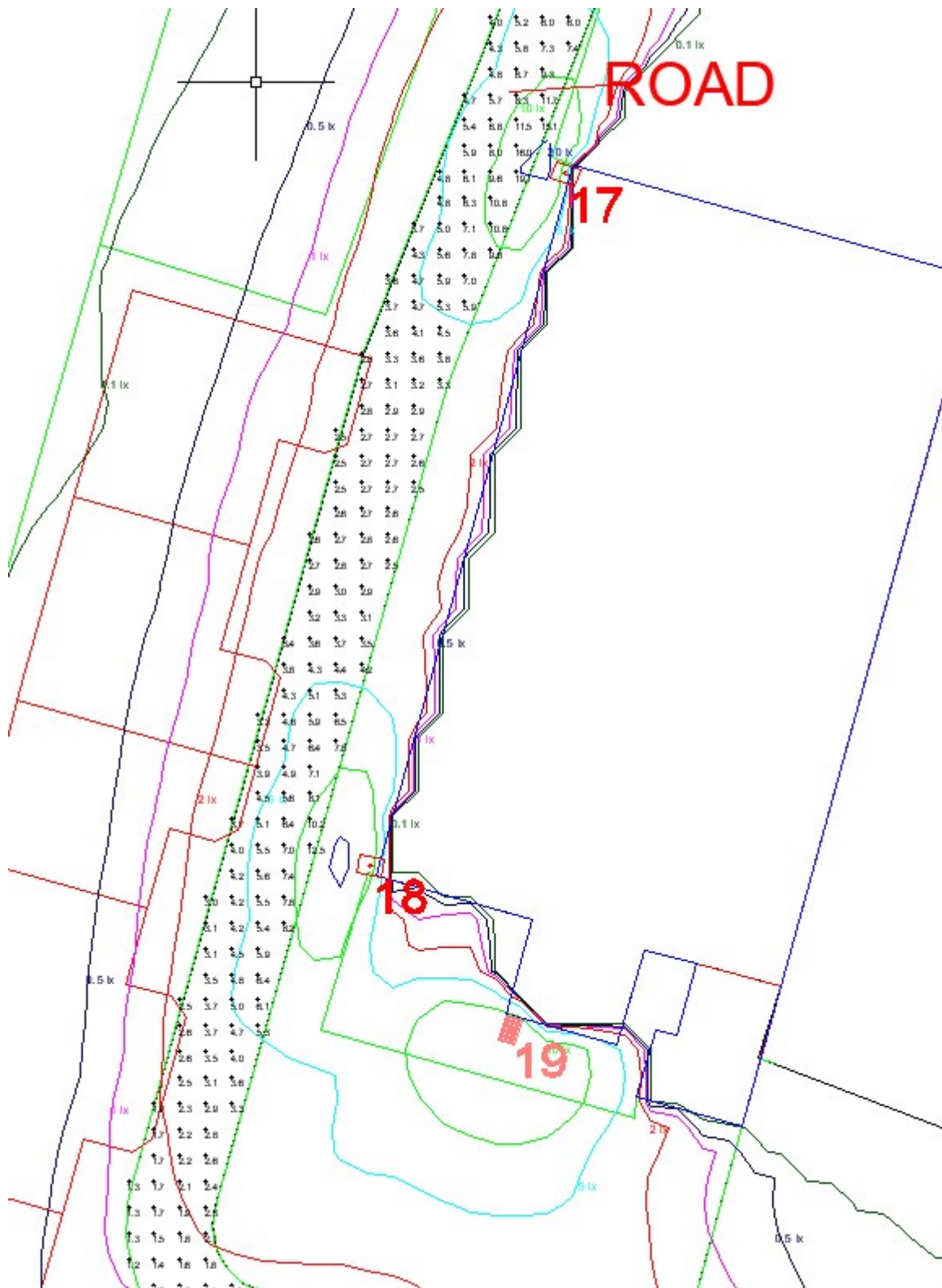
4. Calculation Results

Full Development lux plot:



Note: Reference A0 drawings for full lux plot details.

Palmerstown Business Park Entrance:



Note: Reference A0 drawings for full lux plot details.