



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE &
PLANNING

ASHBOURNE SKATE PARK

PUBLIC LIGHTING DESIGN

Prepared for: Meath County Council



comhairle chontae na mí
meath county council

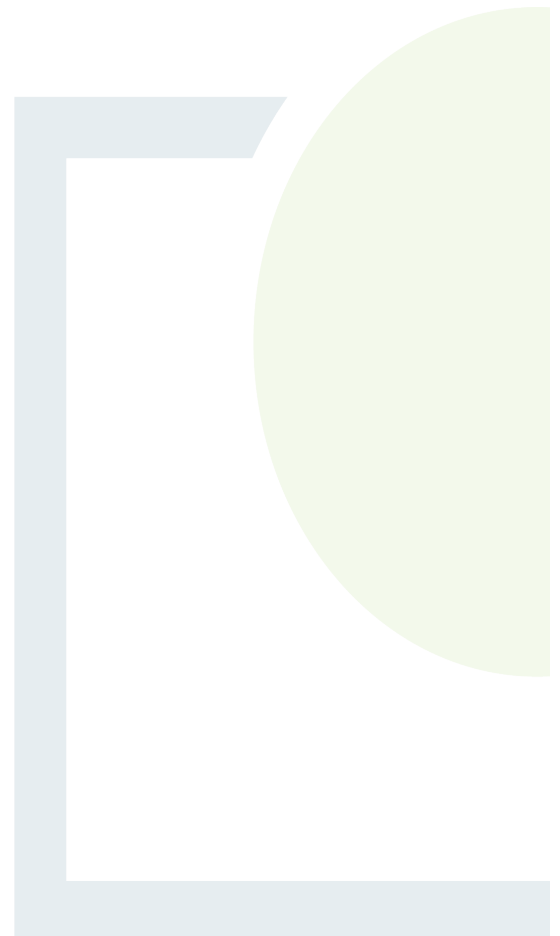
Date: February 2022

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ASHBOURNE SKATE PARK

PUBLIC LIGHTING DESIGN

REVISION CONTROL TABLE, CLIENT, KEYWORDS AND ABSTRACT

User is responsible for Checking the Revision Status of This Document

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0	Issue for Planning	FC/KC(KCA)/AM	JON	BG	03.02.2022

Client: Meath County Council

Keywords: Ashbourne, Skate Park, Lighting Design

Abstract: Fehily Timoney and Company (FT) was commissioned by Meath County Council to prepare a Public Lighting Design in support of a planning application for the proposed Zone 3 of the Ashbourne Linear Park along the Broadmeadow River in Ashbourne, Co. Meath. FT appointed Kevin Cleary & Associates (KCA) to prepare a lighting design for the scheme. This report presents the proposed lighting design for the park development.

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1. INTRODUCTION

Fehily Timoney and Company (FT) was commissioned by Meath County Council to prepare a Public Lighting Design in support of a Part VIII planning application for the proposed Zone 3 of the Ashbourne Linear Park along the Broadmeadow River in Ashbourne, Co. Meath.

FT appointed Kevin Cleary & Associates (KCA) to prepare a lighting design for the scheme. This report presents the proposed lighting design for the park development.

1.1 Site Description

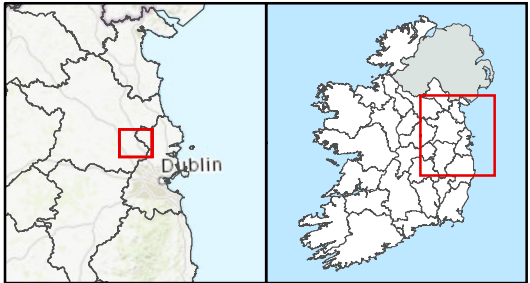
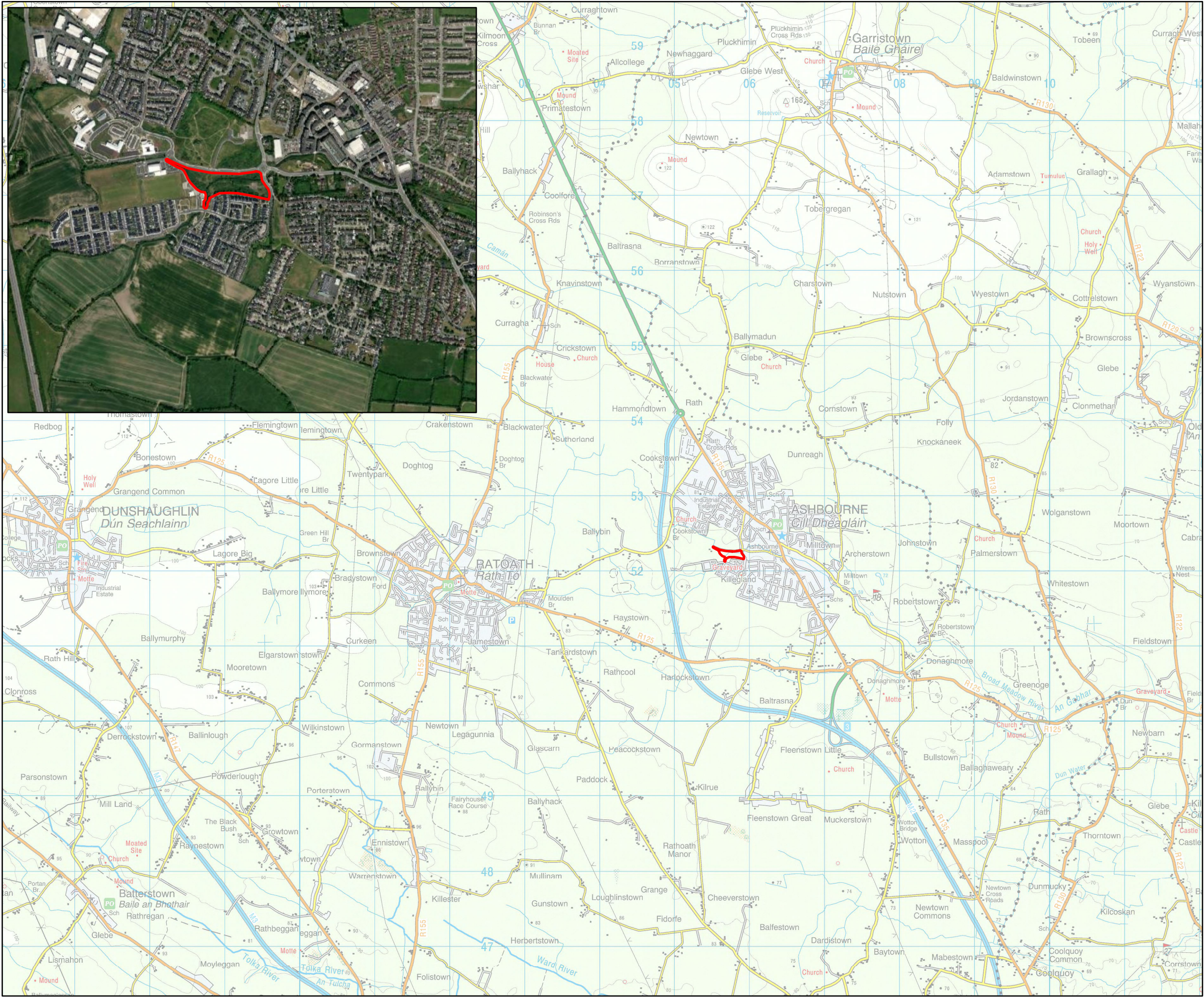
Zone 3 of the Ashbourne Linear Park is located along the Broadmeadow River in Ashbourne, Co. Meath. See Figure 1-1 for Site Location. The proposed site comprises approximately 2.9 hectares situated in a suburban area, approximately 500 m southwest of Ashbourne town centre. The site borders a housing estate to the south, a local road to the north and east, and the Donaghmore Ashbourne GAA Club to the west.

1.2 Proposed Development

The proposed development, comprises an open landscaped recreational area including:

- Footpaths, cycleways and a riverside walkway.
- A Plaza Style skate park (approximately 500 m²) to the north-western end of the site.
- A Car park (364 m², 14 no. car parking spaces) in the south-eastern end of the site and associated vehicular access.
- A new pedestrian footbridge over the Broadmeadow River to connect northern and southern areas of the site, subject to a Section 50 Application to the OPW.
- A service vehicle entrance will also be included to the Northern end of the site.
- Public lighting and associated services.

The proposed development is shown in Appendix 1.



Legend

Site Boundary

TITLE:		Site Location	
PROJECT:		Ashbourne Skate Park	
FIGURE NO:		1.1	
CLIENT:		Meath County Council	
SCALE:	1:50000	REVISION:	0
DATE:	15/06/2021	PAGE SIZE:	A3



2. PROPOSED LIGHTING DESIGN

The following section presents the proposed public lighting design for the site.

2.1 Existing Public Lighting

The existing public lighting consist mainly of modern LED traffic route lighting installations in the following locations:

- Castle Street roundabout on the north-east corner of the site;
- The Primary School roundabout to the north-western corner of the site;
- On the link road between the two roundabouts mentioned above, which defines the northern perimeter of the site;
- On Churchfields Road going south from the Castle Street roundabout, defining the eastern boundary of the site.

There is also public lighting to residential standard in the housing developments to the southern perimeter of the site.

The existing public lighting is maintained by contract under Meath County Council's public lighting maintenance programme. It is anticipated that these or similar arrangements will continue to apply to the proposed lighting

2.2 Proposed Public Lighting

There are five elements to the lighting installation proposed for the proposed development:

1. Pedestrian/Cycle Track Lighting (including Riverside Boardwalk).
2. Pedestrian/Cycle Lighting on the pedestrian bridge over Broadmeadow River.
3. Car Park/Cycle Park Lighting.
4. Skate Park Lighting.
5. Road Lighting Design

The standard of lighting proposed for each of these elements and the lighting equipment proposed is described in the proceeding sections with supporting information provided in the following Appendices:

- Appendix 2: Ashbourne Linear Park Proposed Lighting Design Calculations and Layout;
- Appendix 3: Proposed Bridge Lighting Design Calculations and Layout;
- Appendix 4: Proposed Lighting Design Spill Light Analysis;
- Appendix 5: Proposed Lighting Equipment.



2.3 Pedestrian/Cycle Track Lighting

The standard of lighting proposed is in accordance with the recommendations of Technical Report No. TR23 Lighting of Cycle Tracks, published by the Institution of Lighting Professionals. Clause 3.2.2 Table 1(a) of the Report recommends for Category 3/2 cycle tracks, where night-time use is likely to be moderate, that an average illuminance of 6 lux and a minimum of 2.5 lux on the track surface is required.

To achieve this level of lighting it is proposed to use 6 metre lighting columns without bracket arms at a single-side spacing of approximately 30 metres, carrying 3 kilolumen LED lanterns, such as Philips/Signify MicroLuma BGP702 DM50, or equivalent.

See lighting layout drawing ALP-PL-001 (Appendix 2) and Luma lantern data sheets (Appendix 5).

2.4 Pedestrian/Cycle Lighting on Bridge

The standard of lighting proposed for the bridge is the same as for the pedestrian/cycle track above, i.e. Category 3/2 of TR23.

It is proposed, however, to illuminate the bridge deck using spotlights embedded in the hand rails. The particular light fitting proposed is the LED Puck light from Planet Lighting, seven of which are proposed to be fitted to each handrail at a spacing of about 5 metres, angled at 45 degrees below the horizontal. See layout drawing ALP-PL-002 (Appendix 3) and Puck light data sheets (Appendix 5).

2.5 Car Park/Cycle Park Lighting

As recommended in BS5489-1 (2020) Code of Practice for Lighting Roads and Public Amenity Areas, Clause 7.4.8.3 Table 4, outdoor parking with medium traffic should be lit to an average illuminance of 10 lux with an overall uniformity (minimum/average) of 0.25.

It is proposed to achieve this level of lighting using two 8 metre lighting columns without bracket arms, each carrying a 7 kilolumen LED lantern such as Philips/Signify MiniLuma BGP703 DX50 (Refer to Appendix 5), or equivalent.

2.6 Skate Park Lighting

It is proposed to light the skate park to the recommendations of Sports Lighting Guide EN12193 (2018), Table A.29 Category III, which is an illuminance of 30 lux average over the general area and 50 lux average on the ramps and other features, with overall uniformities of 0.3. The lighting calculation presented in Appendix 2 actually achieves an average illuminance of 50 lux the entire skate park area.

The proposed design provides six 8 metre lighting columns without bracket arms around the perimeter of the skate park, each with a single 15 kilolumen LED lantern type Luma Medium BGP704 DX50 (Refer to Appendix 5) or equivalent.

It is recommended that, in the interests of user safety, a phased switch off system be provided for the lights.



2.7 Spill Light Analysis

A Spill Light analysis and associated drawing ALP-SPL-001 (See Appendix 4) has been prepared. It can be seen that spill light on a horizontal plane at ground level diminishes to less than one lux at about 10 metres from the pedestrian/cycle track edge, and therefore does not impinge on any properties outside of the park. There is little or no light spill on the Broadmeadow River. The only area of significant light spill is around the skate park area, where the one lux value extends to about 25 metre from the skate park perimeter.

This low level of spill light is attributable to a number of factors, including selection of an appropriate lighting class for all elements of the installation, the choice of environmentally friendly flat glass LED light fittings, together with lower height lighting columns, and careful design.

2.8 Lighting Installation Design

The proposed lighting installation shall be designed to current Irish and European Standards:

- BS 5489-1 (2020);
- IS EN 13201 (2015);
- EN 12193 (2018).

The supporting electrical installation shall be designed in compliance with:

- National Rules for Electrical Installations, Fifth Edition (NSAI I.S. 10101:2020) National Standards Association of Ireland.

The lighting design shall also follow best practice in relation to environmental issues, particularly in strictly limiting light to areas where required for user safety and limiting nuisance light spill. See Spill Light Drawing ALP-SPL-001 (Appendix 4).

Among the measures to be employed in this regard shall be:

- The use of LED lanterns which are very energy-efficient, which focus light accurately where it is wanted, and minimise spill light.
- LED lanterns have long maintenance intervals, thus reducing maintenance costs and carbon-generating maintenance journeys and transport.
- The design shall employ lanterns mounted at zero degrees tilt to the horizontal, so that no light is emitted above the horizontal plane, thus minimising sky glow.
- In order to limit the environmental impact on surrounding areas, limit spill light and enhance the daytime appearance of the installation, only lighting columns of 8 metres and 6 metres height without bracket arms shall be used in the design.
- As far as possible, fully recyclable materials shall be specified.



2.9 Proposed Lighting Design: Energy Supply

There are a number of ESB and public lighting supply pillars along the link road on the northern perimeter of the site, from which one or more supply connections may be taken for the proposed park lighting installation.

All lighting electrical cables and services shall be ducted underground.

2.10 Proposed Lighting Design: Energy Usage

The entire lighting installation as designed, including the pedestrian/cycle track and bridge, the car park and skate park will consume 985 watts of electrical power. Based on dusk to dawn usage the proposed lighting installation will consume 4,088 kW.hr of energy per annum for 4,150 burning hours per annum.

At the current rate of approximately 20 cents per kW.hr, running costs are estimated at €818 plus VAT per annum.

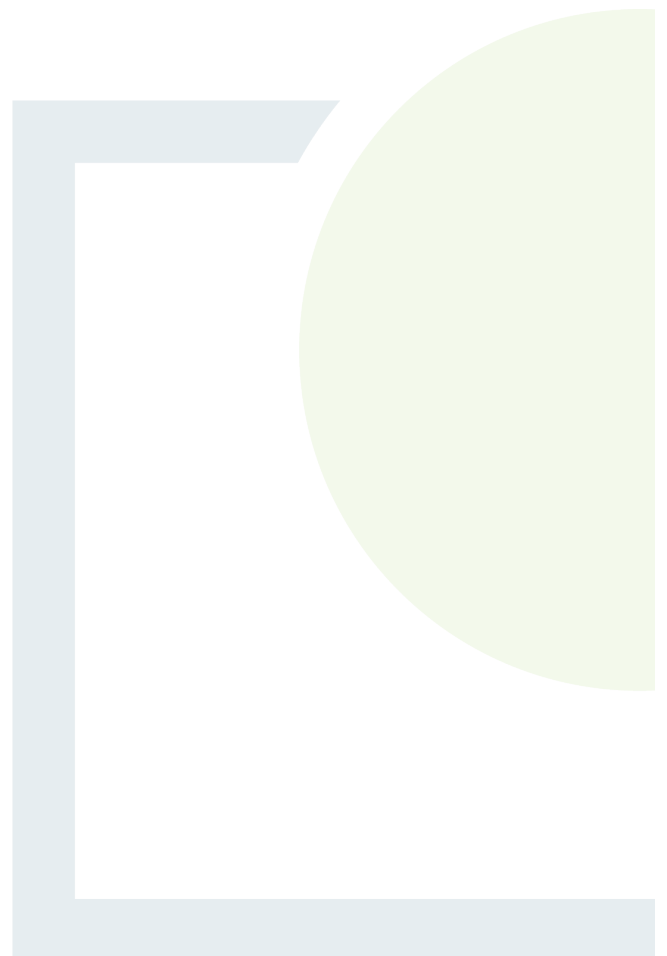
As the park will be gated and may have restricted access after dark, it is unlikely the lighting will be operated on a dusk-to-dawn basis, so a significant reduction on the above consumption may be achieved.



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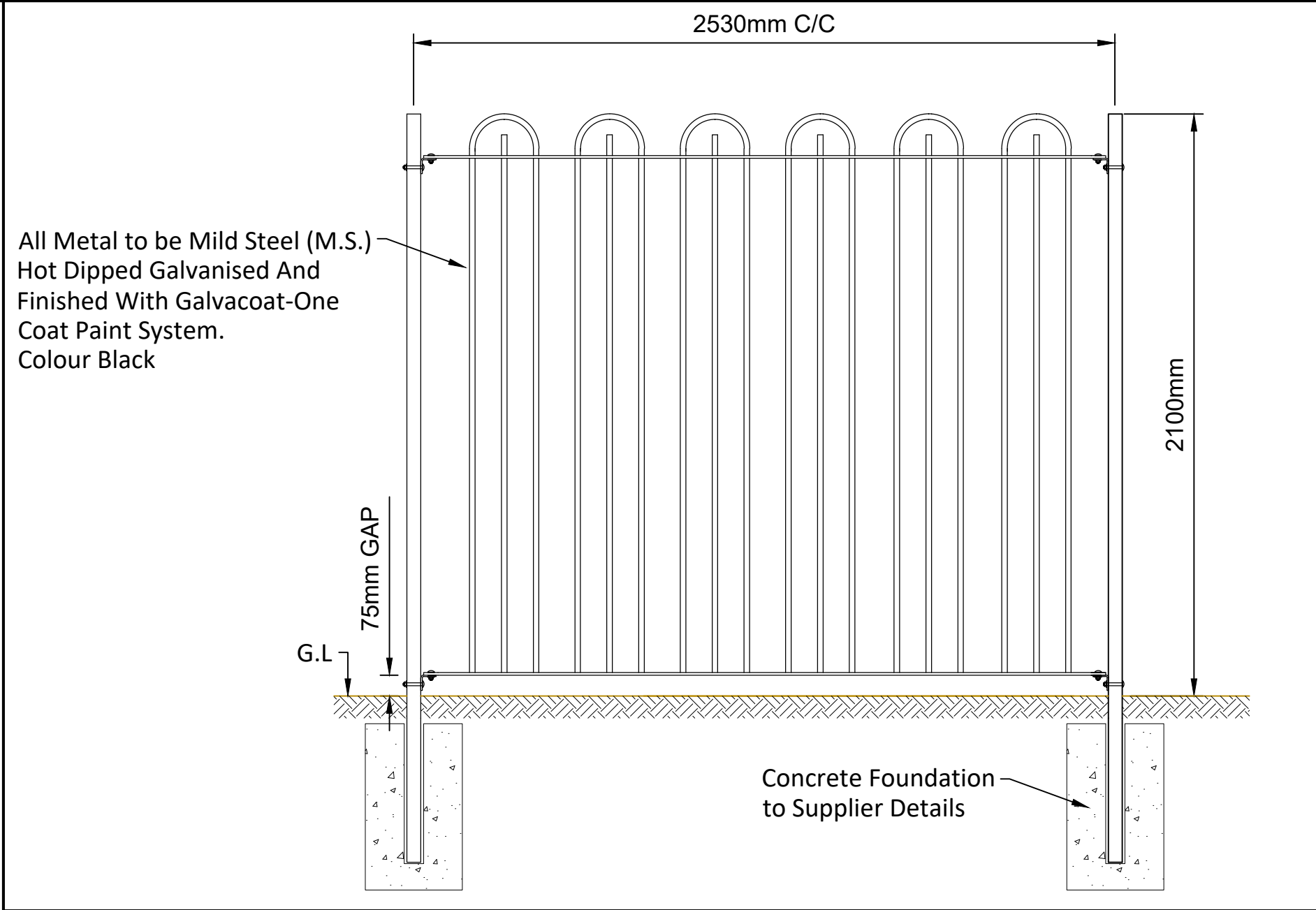
APPENDIX 1

Proposed Site Layout





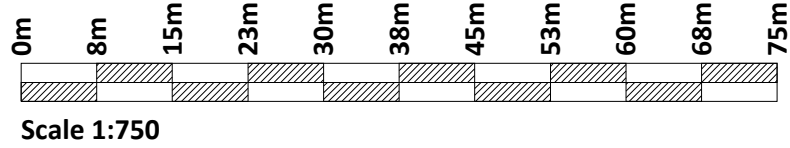
- Legend**
- Site Boundary
 - Proposed Design Level - Subject to Section 50 Application and Detailed Design
 - Potential Area for Compensatory Flood Plain (Subject to Detailed Design and Section 50 Application)
 - SuDS Paving System
 - Proposed Bike Rack
 - Existing Water Feature
 - Proposed Landscape Screening
 - Proposed Upgrade of Existing Fence to Bow Top Railing as per Typical Detail
 - Proposed Gate



TYPICAL RAILING DETAIL 1
Scale 1:75

If Applicable : Ordnance Survey Ireland Licence No. EN 0001220 © Ordnance Survey Ireland and Government of Ireland OSI-3258

PLAN
Scale 1:750



Rev.	Description	App By	Date
A	Issue For Comment	JON	15.07.21
B	Issue For Planning	JON	19.08.21

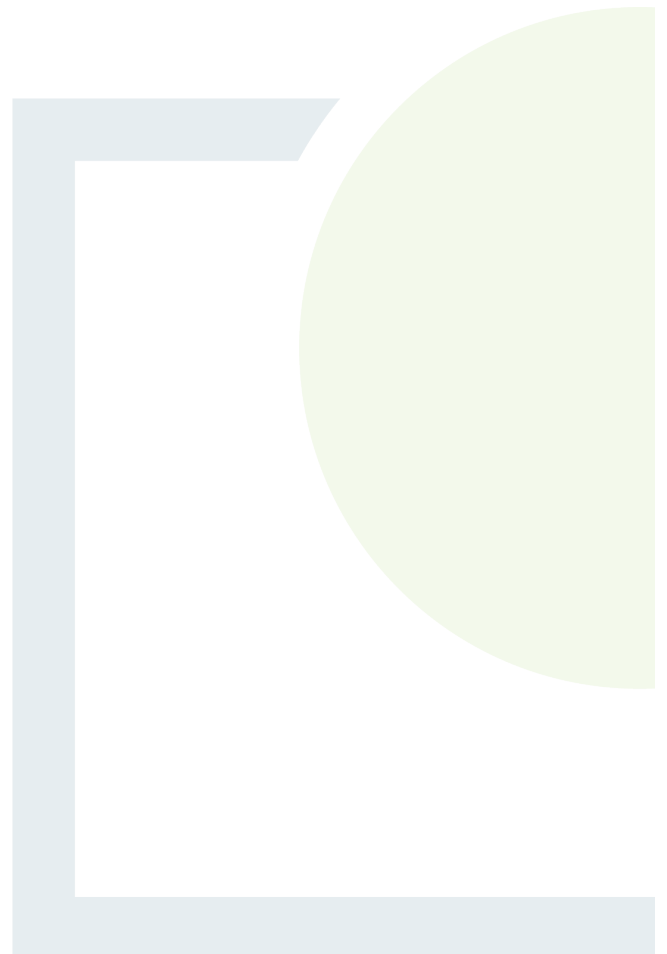
PROJECT	CLIENT		
ASHBOURNE SKATE PARK	MEATH COUNTY COUNCIL		
SHEET	Date	Project number	Scale (@ A1-)
SITE LAYOUT	15.07.21	P20-343	1:750
	Drawn by	Drawing Number	Rev
	NS	P20-343-0100-0002	B
	Checked by	GL	



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& PLANNING

APPENDIX 2

Ashbourne Linear Park
Proposed Lighting Design
Calculations and Layout



DATE: 26 January 2022
DESIGNER: KC
PROJECT No: 000000
PROJECT NAME: Ashbourne Linear Park

**LIGHTING
REALITY**

LIGHTING LEVELS

Cycle/Pedestrian Track : Category 3/2 Technical Report TR23 ILP
(6 lux average, 2.5 lux minimum)

Car Park : BS5489-1 (2020) Clause 7.4.8.3 Table 4. (10 lux
average, overall uniformity Uo 0.25)

Skate Park : EN12193 (2018) Table A.29 Category III, Local,
Training and Recreational use. (50 lux
average, overall uniformity Uo 0.3)

Outdoor Lighting Report

PREPARED BY: KEVIN CLEARY & ASSOCIATES Ltd.
5A, HARTY AVENUE,
DUBLIN 12,
IRELAND.
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e-mail: info@kca.ie
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e-mail: sales@lightingreality.com
website: www.lightingreality.com

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	Grid 1	705558.27	752274.42	48.99	20.83	1.48	1.49
2	Grid 2	705821.86	752195.74	25.69	24.96	1.43	1.47
3	Grid 3	705518.20	752270.74	39.94	36.82	1.48	1.47
4	Grid 4	705558.37	752248.89	48.92	25.35	1.48	1.49
5	Grid 5	705607.60	752248.57	132.10	35.25	1.48	1.60
6	Grid 6	705595.86	752138.71	90.87	108.88	1.49	1.49
7	Grid 7	705687.25	752221.00	156.08	27.03	1.49	1.42

Luminaires

Luminaire A Data

Supplier	
Type	BGP704 DX50
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	15.00
File Name	Luma Gen2 Medium_BGP704_DX50_15000_80LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	563.2, 53.2, 0.0
No. in Project	6

Luminaire B Data

Supplier	
Type	BGP703 DX50
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	7.00
File Name	Luma Gen2 Mini_BGP703_DX50_7000_40LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	563.2, 53.2, 0.0
No. in Project	2

Luminaire C Data

Supplier	
Type	BGP702 DM50
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	3.00
File Name	Luma Gen2 Micro_BGP702_DM50_3000_20LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	921.3, 65.9, 0.0
No. in Project	20

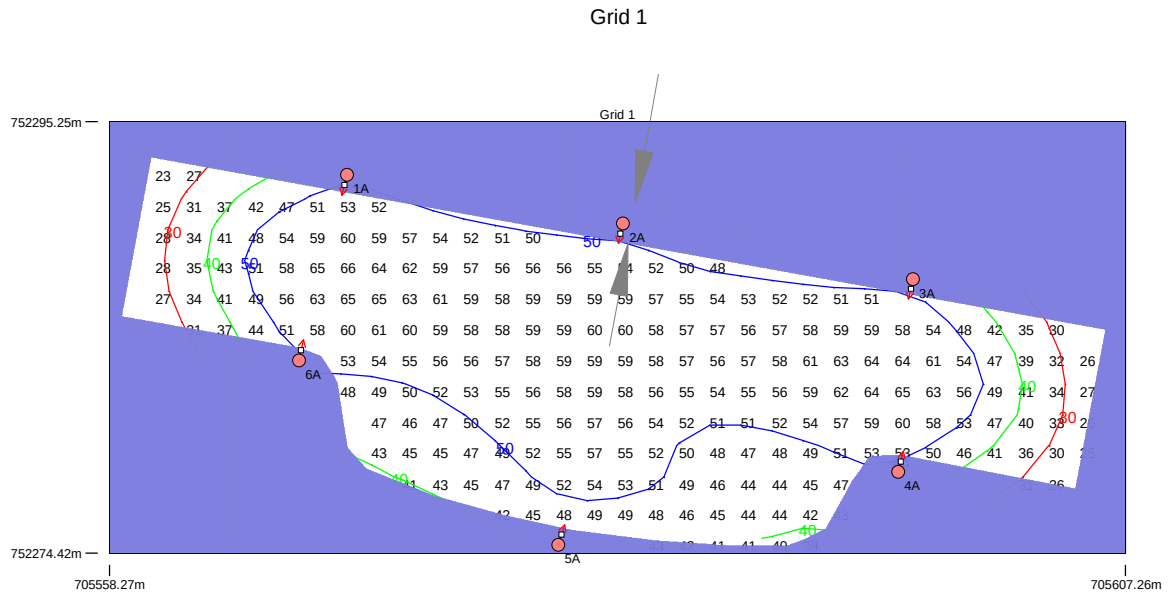
Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	705569.72	752292.67	8.00	255.00	0.00	0.00	0.50			
2	A	705583.00	752290.35	8.00	258.00	0.00	0.00	0.50			
3	A	705596.99	752287.67	8.00	258.00	0.00	0.00	0.50			
4	A	705596.28	752278.38	8.00	75.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
5	A	705579.90	752274.87	8.00	73.00	0.00	0.00	0.50			
6	A	705567.40	752283.74	8.00	78.00	0.00	0.00	0.50			
7	B	705828.71	752218.28	8.00	18.00	0.00	0.00	0.50			
8	B	705837.43	752198.81	8.00	107.00	0.00	0.00	0.50			
9	C	705525.08	752300.79	6.00	56.00	0.00	0.00	0.50			
10	C	705546.75	752278.84	6.00	31.00	0.00	0.00	0.50			
11	C	705583.55	752258.27	6.00	74.00	0.00	0.00	0.50			
12	C	705614.31	752259.41	6.00	172.00	0.00	0.00	0.50			
13	C	705624.57	752268.76	6.00	126.00	0.00	0.00	0.50			
14	C	705648.52	752276.74	6.00	103.00	0.00	0.00	0.50			
15	C	705674.29	752277.20	6.00	88.00	0.00	0.00	0.50			
16	C	705703.78	752276.77	6.00	90.00	0.00	0.00	0.50			
17	C	705726.90	752276.65	6.00	89.00	0.00	0.00	0.50			
18	C	705606.50	752148.87	6.00	165.00	0.00	0.00	0.50			
19	C	705618.48	752181.69	6.00	160.00	0.00	0.00	0.50			
20	C	705632.02	752206.49	6.00	127.00	0.00	0.00	0.50			
21	C	705642.69	752229.09	6.00	280.00	0.00	0.00	0.50			
22	C	705659.24	752235.98	6.00	152.00	0.00	0.00	0.50			
23	C	705677.87	752242.49	6.00	92.00	0.00	0.00	0.50			
24	C	705710.57	752236.82	6.00	77.00	0.00	0.00	0.50			
25	C	705743.74	752238.41	6.00	96.00	0.00	0.00	0.50			
26	C	705773.20	752231.60	6.00	65.00	0.00	0.00	0.50			
27	C	705803.80	752224.55	6.00	85.00	0.00	0.00	0.50			
28	C	705828.63	752228.87	6.00	138.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

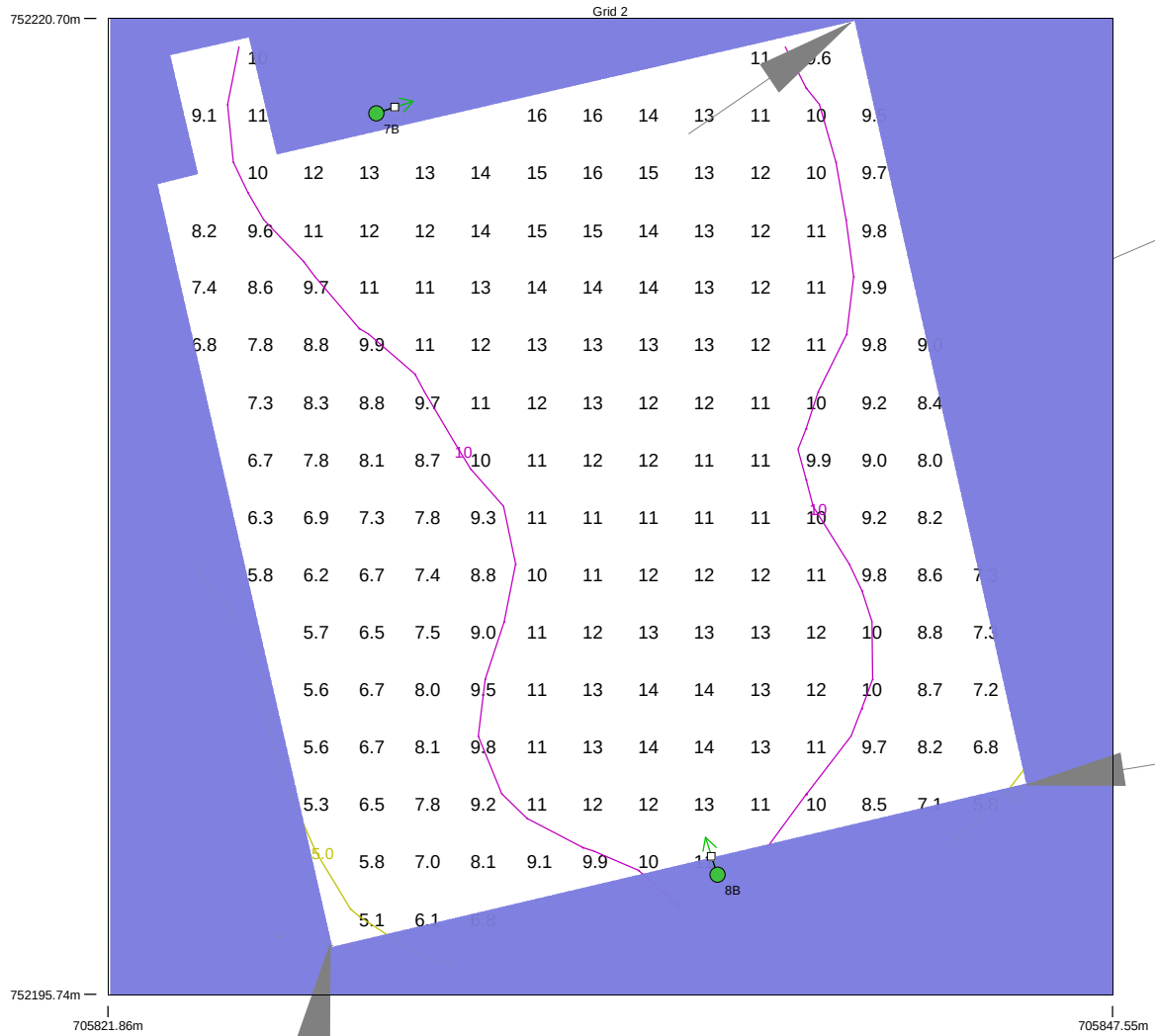


Results

Eav	50.37
Emin	22.74
Emax	66.35
Emin/Emax	0.34
Emin/Eav	0.45

Horizontal Illuminance (lux)

Grid 2

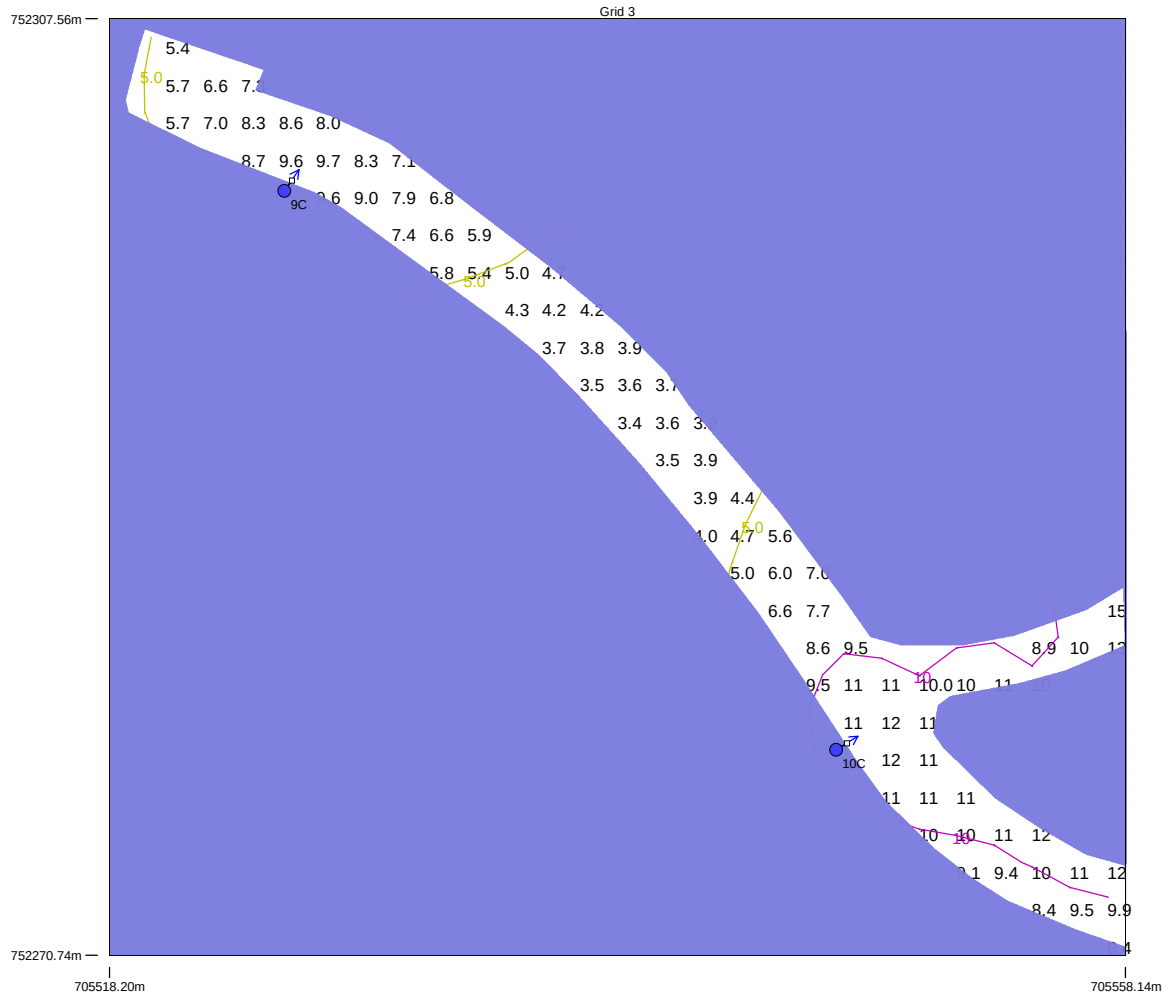


Results

Eav	10.31
Emin	5.14
Emax	15.77
Emin/Emax	0.33
Emin/Eav	0.50

Horizontal Illuminance (lux)

Grid 3

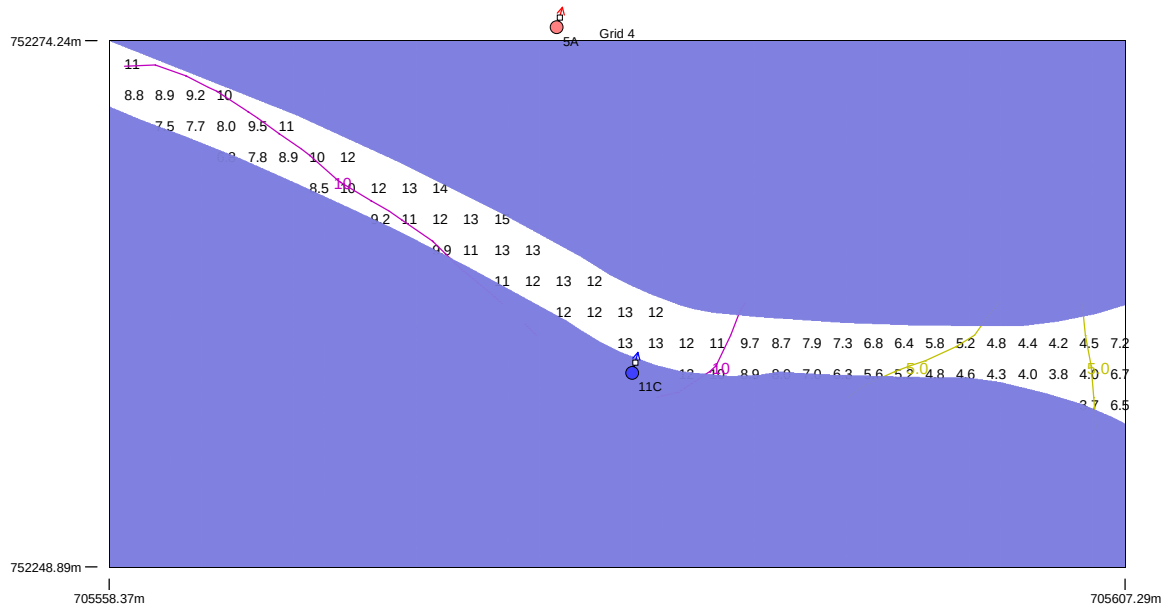


Results

Eav	7.80
Emin	3.41
Emax	14.53
Emin/Emax	0.23
Emin/Eav	0.44

Horizontal Illuminance (lux)

Grid 4

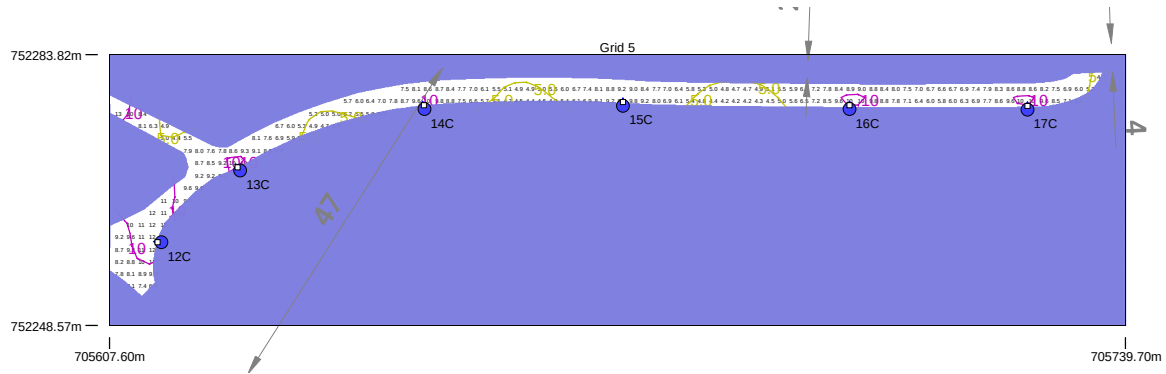


Results

Eav	8.95
Emin	3.73
Emax	14.56
Emin/Emax	0.26
Emin/Eav	0.42

Horizontal Illuminance (lux)

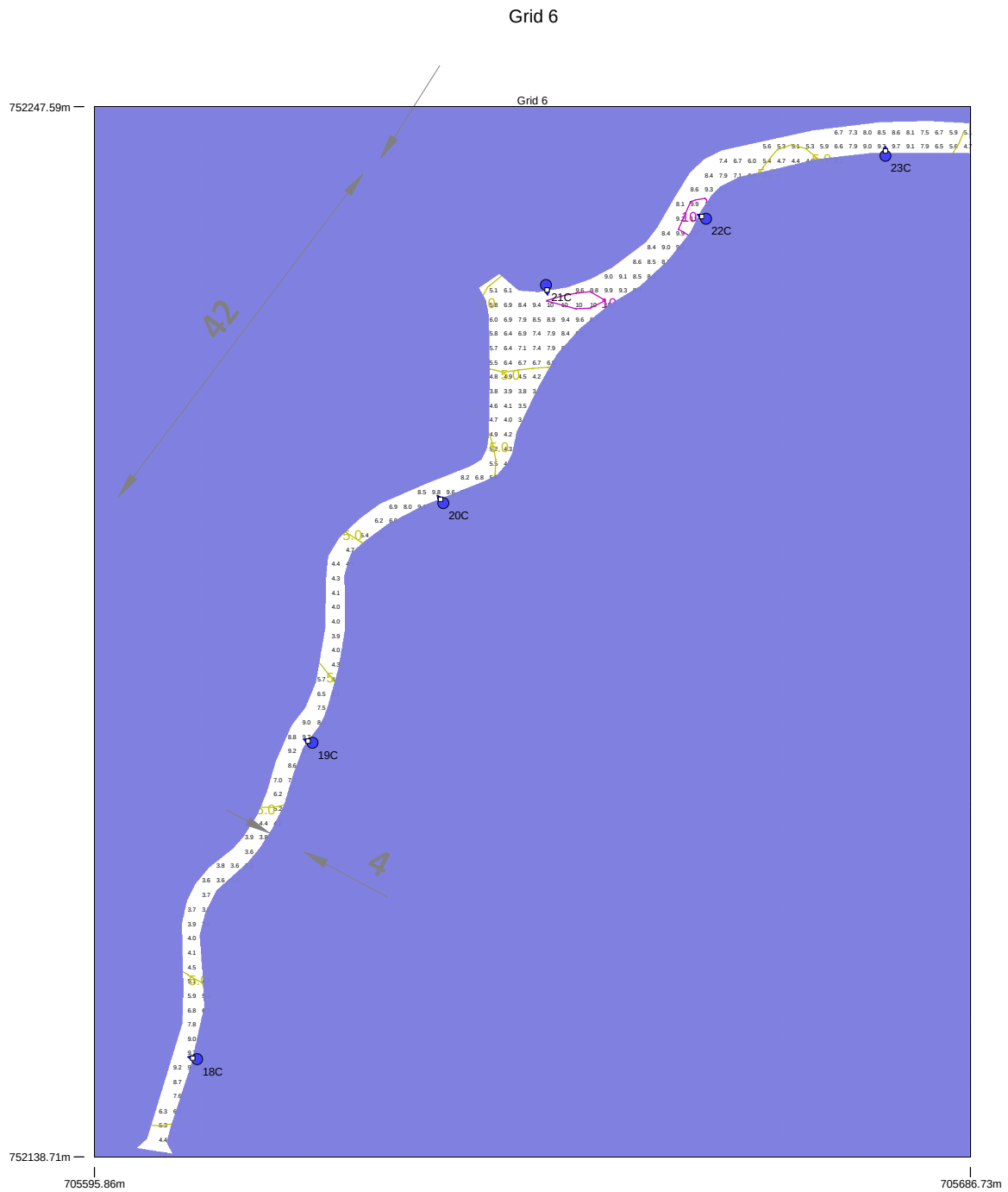
Grid 5



Results

Eav	7.49
Emin	4.15
Emax	12.58
Emin/Emax	0.33
Emin/Eav	0.55

Horizontal Illuminance (lux)

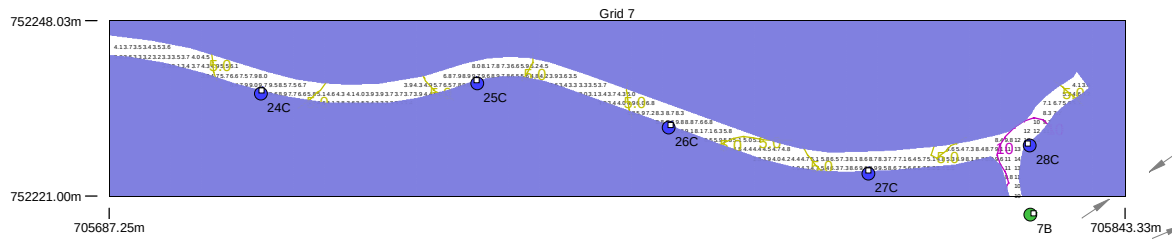


Results

Eav	6.69
Emin	3.29
Emax	10.55
Emin/Emax	0.31
Emin/Eav	0.49

Horizontal Illuminance (lux)

Grid 7

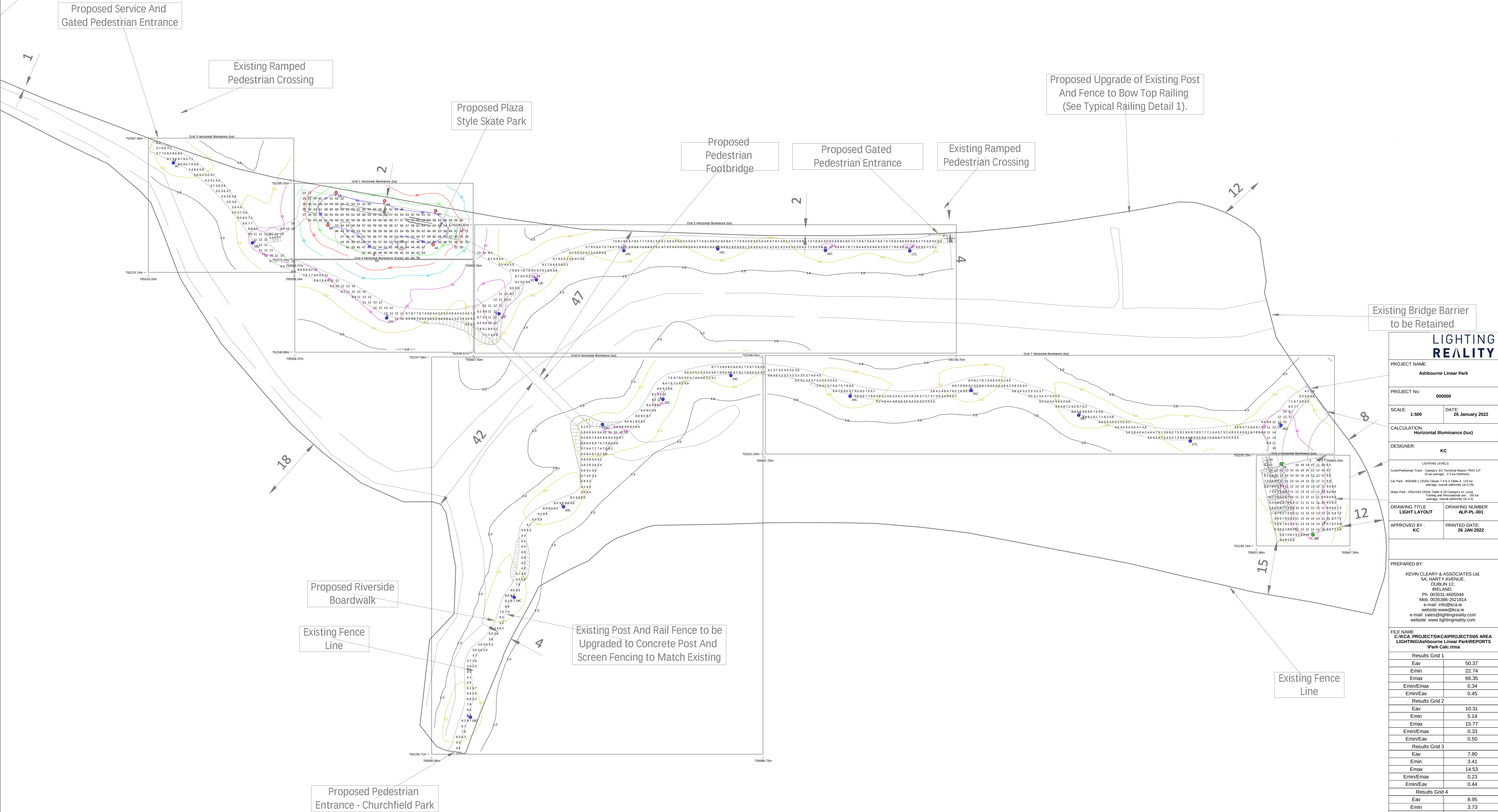


Results

Eav	6.31
Emin	3.01
Emax	14.38
Emin/Emax	0.21
Emin/Eav	0.48

	Luminaire A	Luminaire B	Luminaire C
Supplier			
Type	BGP704 DX50	BGP703 DX50	BGP702 DM50
Lamps(s)	LED-H8 5.25 730	LED-H8 5.25 730	LED-H8 5.25 730
Lamp Flux (lm)	15.00	7.00	3.00
Maintenance Factor	0.80	0.80	0.80
No. in Project	6	2	20

Results Grid 1	Results Grid 2	Results Grid 3	Results Grid 4	Results Grid 5	Results Grid 6	Results Grid 7
Eav 50.37	Eav 10.31	Eav 7.80	Eav 8.95	Eav 7.49	Eav 6.69	Eav 6.31
Emin 22.74	Emin 5.14	Emin 3.41	Emin 3.73	Emin 4.15	Emin 3.29	Emin 3.01
Emax 66.35	Emax 15.77	Emax 14.53	Emax 14.56	Emax 12.58	Emax 10.55	Emax 14.38
Emin/Emax 0.34	Emin/Emax 0.33	Emin/Emax 0.23	Emin/Emax 0.26	Emin/Emax 0.33	Emin/Emax 0.31	Emin/Emax 0.21
Emin/Eav 0.45	Emin/Eav 0.50	Emin/Eav 0.44	Emin/Eav 0.42	Emin/Eav 0.55	Emin/Eav 0.49	Emin/Eav 0.48



LIGHTING REALITY

PROJECT NAME:
Ashbourne Linear Park

PROJECT No:
000000

SCALE: 1:500
DATE: 26 January 2022

CALCULATION:
Horizontal Illuminance (lux)

DESIGNER:
KC

LIGHTING LEVELS
Cycle/Pedestrian Tracks: Category 301 Technical Report TR02 ALP (6 lux average, 2.5 lux minimum)
Car Park: BS5489-1 (2020) Clause 7.4.3 Table 4 (10 lux average, overall uniformity 0.5-0.75)
Squash Courts: EN12233 (2015) Table A.20 Category H1 Local (10 lux average, overall uniformity 0.5-0.75)

DRAWING TITLE:
LIGHT LAYOUT

DRAWING NUMBER:
ALP-PL-001

APPROVED BY:
KC

PRINTED DATE:
26 JAN 2022

PREPARED BY:
KEVIN CLEARY & ASSOCIATES Ltd.
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website: www@kca.ie
e-mail: sales@lightingreality.com
website: www.lightingreality.com

FILE NAME:
C:\KCA PROJECTS\KCA\PROJECTS\05 AREA LIGHTING\Ashbourne Linear Park\REPORTS\Park Calc.rvt

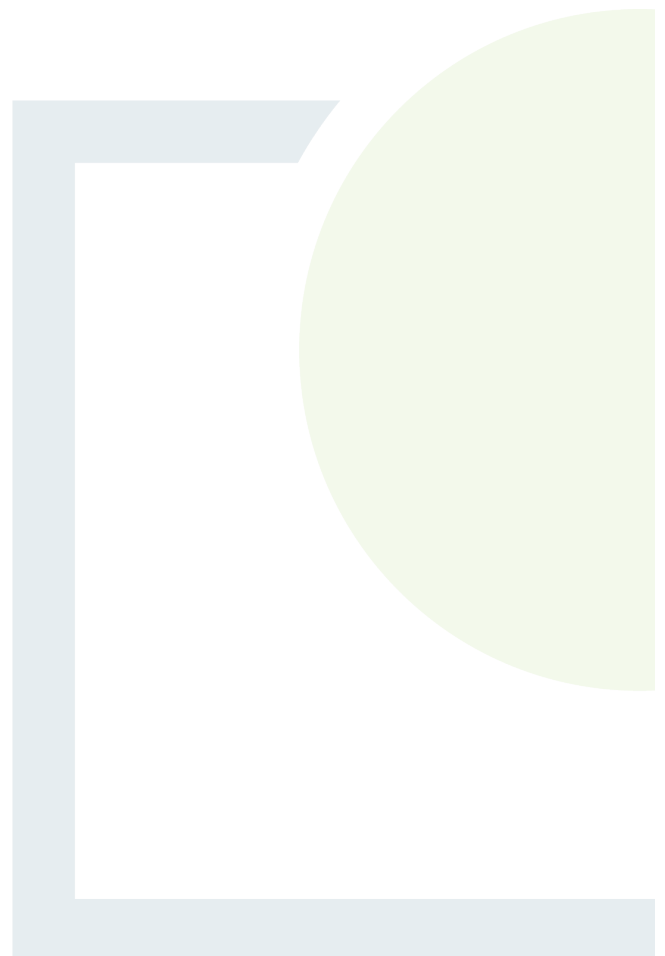
Results Grid 1	
Eav	50.37
Emin	22.74
Emax	66.35
Emin/Emax	0.34
Emin/Eav	0.45
Results Grid 2	
Eav	10.31
Emin	5.14
Emax	15.77
Emin/Emax	0.33
Emin/Eav	0.50
Results Grid 3	
Eav	7.80
Emin	3.41
Emax	14.53
Emin/Emax	0.23
Emin/Eav	0.44
Results Grid 4	
Eav	8.95
Emin	3.73
Emax	14.56
Emin/Emax	0.26
Emin/Eav	0.42
Results Grid 5	
Eav	7.49
Emin	4.15
Emax	12.58
Emin/Emax	0.33
Emin/Eav	0.55
Results Grid 6	
Eav	6.69
Emin	3.29
Emax	10.55
Emin/Emax	0.31
Emin/Eav	0.49
Results Grid 7	
Eav	6.31
Emin	3.01
Emax	14.38
Emin/Emax	0.21
Emin/Eav	0.48



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& PLANNING

APPENDIX 3

Proposed Bridge Lighting
Design Calculations and
Layout



DATE: 27 January 2022
DESIGNER: KC
PROJECT No: 000000
PROJECT NAME: Ashbourne Linear Park Bridge

**LIGHTING
REALITY**

LIGHTING LEVELS

Pedestrian/Cycle Bridge Deck : Category 3/2 Technical Report
TR23 ILP (6 lux average, 2.5 lux
minimum)

Outdoor Lighting Report

PREPARED BY: KEVIN CLEARY & ASSOCIATES Ltd.
5A, HARTY AVENUE,
DUBLIN 12,
IRELAND.
Ph. 003531-4605044
Mob. 0035386-2621814
e-mail: info@kca.ie
website: www@kca.ie
e-mail: sales@lightingreality.com
website: www.lightingreality.com

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 705610.1m x 752226.4m
Area 29.7m x 28.8m
Sample Spacing 1.48m x 1.44m

Luminaires

Luminaire A Data

Supplier	
Type	BGP704 DX50
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	15.00
File Name	Luma Gen2 Medium_BGP704_DX50_15000_80LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	563.2, 53.2, 0.0
No. in Project	6

Luminaire B Data

Supplier	
Type	BGP703 DX50
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	7.00
File Name	Luma Gen2 Mini_BGP703_DX50_7000_40LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	563.2, 53.2, 0.0
No. in Project	2

Luminaire C Data

Supplier	
Type	BGP702 DM50
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	3.00
File Name	Luma Gen2 Micro_BGP702_DM50_3000_20LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	921.3, 65.9, 0.0
No. in Project	20

Luminaire D Data

Supplier	
Type	HLS VA 3000k 500mA
Lamp(s)	119 lm, 1.5 W
Lamp Flux (klm)	0.12
File Name	HLS VA WW 500mA.IES
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	31.1, 2.5, 0.0
No. in Project	14

Layout

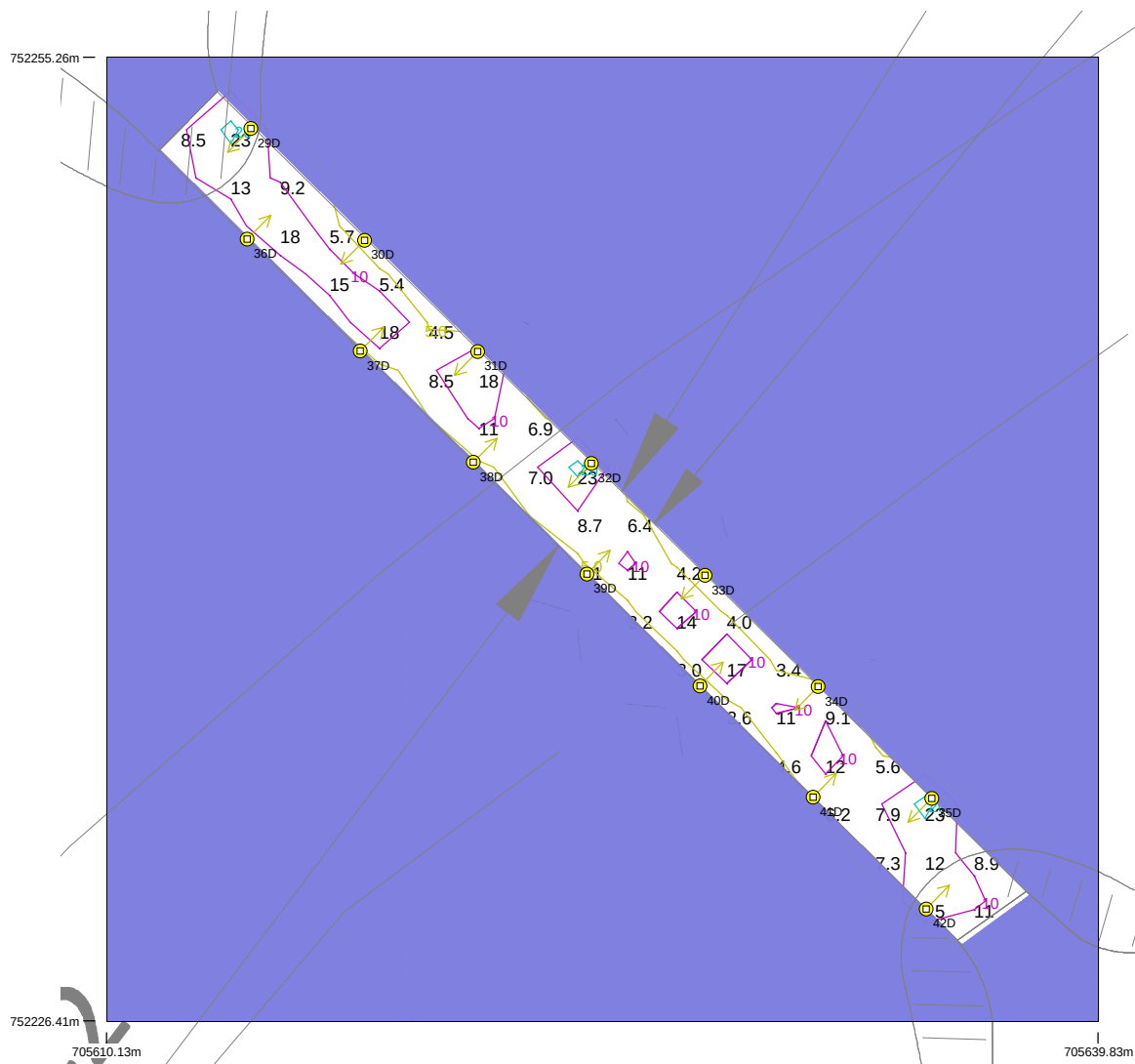
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	705569.72	752292.67	8.00	255.00	0.00	0.00	0.50			
2	A	705583.00	752290.35	8.00	258.00	0.00	0.00	0.50			
3	A	705596.99	752287.67	8.00	258.00	0.00	0.00	0.50			
4	A	705596.28	752278.38	8.00	75.00	0.00	0.00	0.50			
5	A	705579.90	752274.87	8.00	73.00	0.00	0.00	0.50			
6	A	705567.40	752283.74	8.00	78.00	0.00	0.00	0.50			
7	B	705828.71	752218.28	8.00	18.00	0.00	0.00	0.50			
8	B	705837.43	752198.81	8.00	107.00	0.00	0.00	0.50			
9	C	705525.08	752300.79	6.00	56.00	0.00	0.00	0.50			
10	C	705546.75	752278.84	6.00	31.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	C	705583.55	752258.27	6.00	74.00	0.00	0.00	0.50			
12	C	705614.31	752259.41	6.00	172.00	0.00	0.00	0.50			
13	C	705624.57	752268.76	6.00	126.00	0.00	0.00	0.50			
14	C	705648.52	752276.74	6.00	103.00	0.00	0.00	0.50			
15	C	705674.29	752277.20	6.00	88.00	0.00	0.00	0.50			
16	C	705703.78	752276.77	6.00	90.00	0.00	0.00	0.50			
17	C	705726.90	752276.65	6.00	89.00	0.00	0.00	0.50			
18	C	705606.50	752148.87	6.00	165.00	0.00	0.00	0.50			
19	C	705618.48	752181.69	6.00	160.00	0.00	0.00	0.50			
20	C	705632.02	752206.49	6.00	127.00	0.00	0.00	0.50			
21	C	705642.69	752229.09	6.00	280.00	0.00	0.00	0.50			
22	C	705659.24	752235.98	6.00	152.00	0.00	0.00	0.50			
23	C	705677.87	752242.49	6.00	92.00	0.00	0.00	0.50			
24	C	705710.57	752236.82	6.00	77.00	0.00	0.00	0.50			
25	C	705743.74	752238.41	6.00	96.00	0.00	0.00	0.50			
26	C	705773.20	752231.60	6.00	65.00	0.00	0.00	0.50			
27	C	705803.80	752224.55	6.00	85.00	0.00	0.00	0.50			
28	C	705828.63	752228.87	6.00	138.00	0.00	0.00	0.50			
29	D	705614.45	752253.13	1.00	225.48	45.00	0.00	0.00			
30	D	705617.85	752249.79	1.00	225.48	45.00	0.00	0.00			
31	D	705621.25	752246.45	1.00	225.48	45.00	0.00	0.00			
32	D	705624.64	752243.10	1.00	225.48	45.00	0.00	0.00			
33	D	705628.04	752239.76	1.00	225.48	45.00	0.00	0.00			
34	D	705631.44	752236.42	1.00	225.48	45.00	0.00	0.00			
35	D	705634.83	752233.08	1.00	225.48	45.00	0.00	0.00			
36	D	705614.34	752249.81	1.00	45.40	45.00	0.00	0.00			
37	D	705617.73	752246.47	1.00	45.40	45.00	0.00	0.00			
38	D	705621.12	752243.13	1.00	45.40	45.00	0.00	0.00			
39	D	705624.50	752239.79	1.00	45.40	45.00	0.00	0.00			
40	D	705627.89	752236.45	1.00	45.40	45.00	0.00	0.00			
41	D	705631.28	752233.11	1.00	45.40	45.00	0.00	0.00			
42	D	705634.67	752229.77	1.00	45.40	45.00	0.00	0.00			

Horizontal Illuminance (lux)

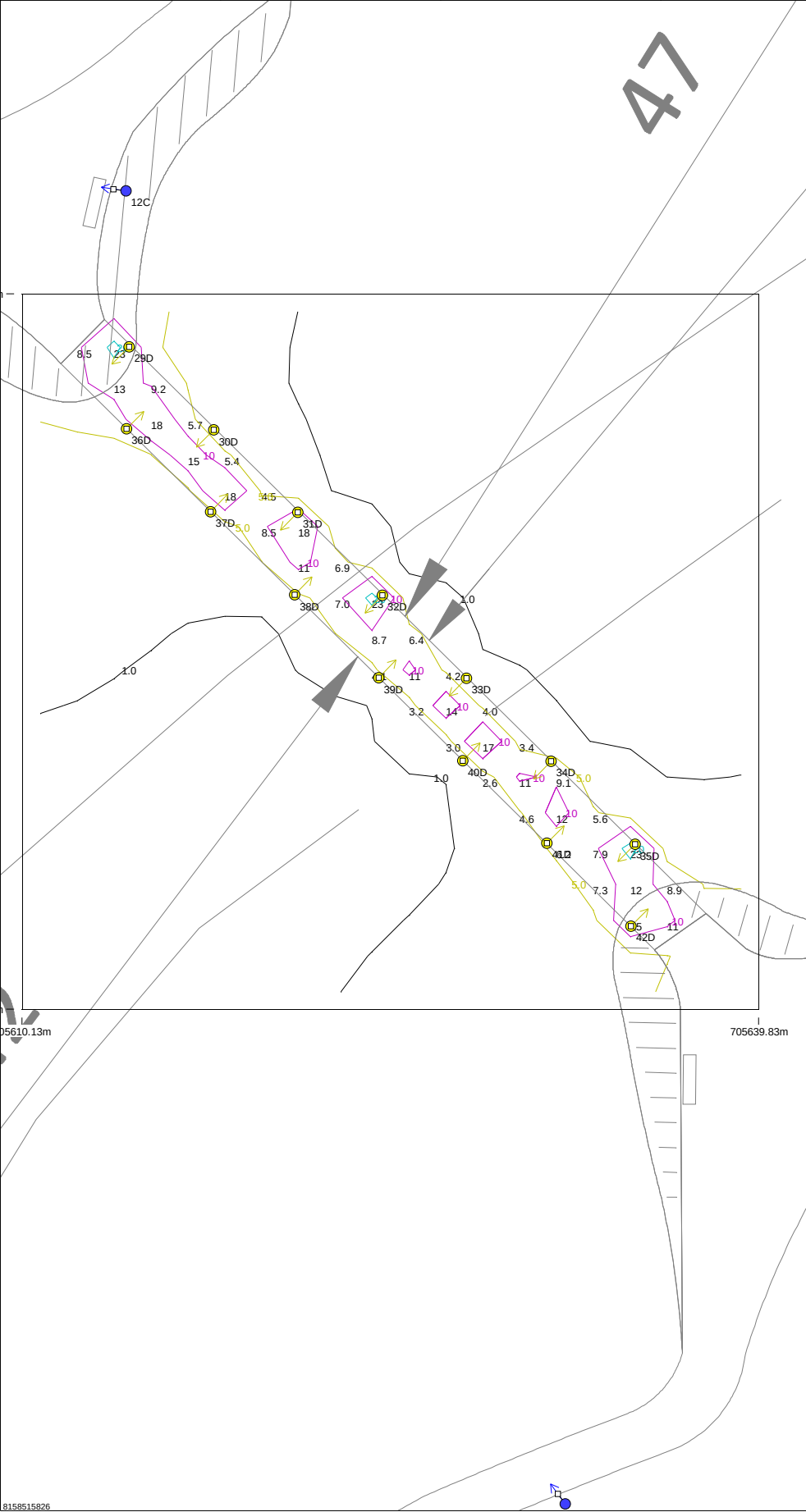
Grid 1



Results

Eav	10.01
Emin	2.61
E _{max}	23.42
Emin/E _{max}	0.11
Emin/Eav	0.26

	 Luminaire A	 Luminaire B	 Luminaire C	 Luminaire D	10.01
					2.61
Supplier					23.42
Type	BGP704 DX50	BGP703 DX50	BGP702 DM50	HLS VA 3000k 500mA	0.11
Lamp(s)	LED-HB 5.2S 730	LED-HB 5.2S 730	LED-HB 5.2S 730	119 lm, 1.5 W	0.26
Lamp Flux (klm)	15.00	7.00	3.00	0.12	
Maintenance Factor	0.80	0.80	0.80	0.80	
No. in Project	6	2	20	14	



LIGHTING REALITY

PROJECT NAME:
Ashbourne Linear Park Bridge

PROJECT No:
000000

SCALE:
1:250

DATE:
27 January 2022

CALCULATION:
Horizontal Illuminance (lux)

DESIGNER:
KC

LIGHTING LEVELS
Pedestrian/Cycle Bridge Deck : Category 3/2 Technical Report
TR23 ILP (6 lux average, 2.5 lux minimum)

DRAWING TITLE
BRIDGE LIGHT LAYOUT

DRAWING NUMBER
ALP-PL-002

APPROVED BY :
KC

PRINTED DATE:
27 JAN 2022

PREPARED BY:

KEVIN CLEARY & ASSOCIATES Ltd.
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website:www@kca.ie
e-mail: sales@lightingreality.com
website: www.lightingreality.com

FILE NAME
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LIGHTING\Ashbourne Linear Park\REPORTS
Bridge Calc.rtm

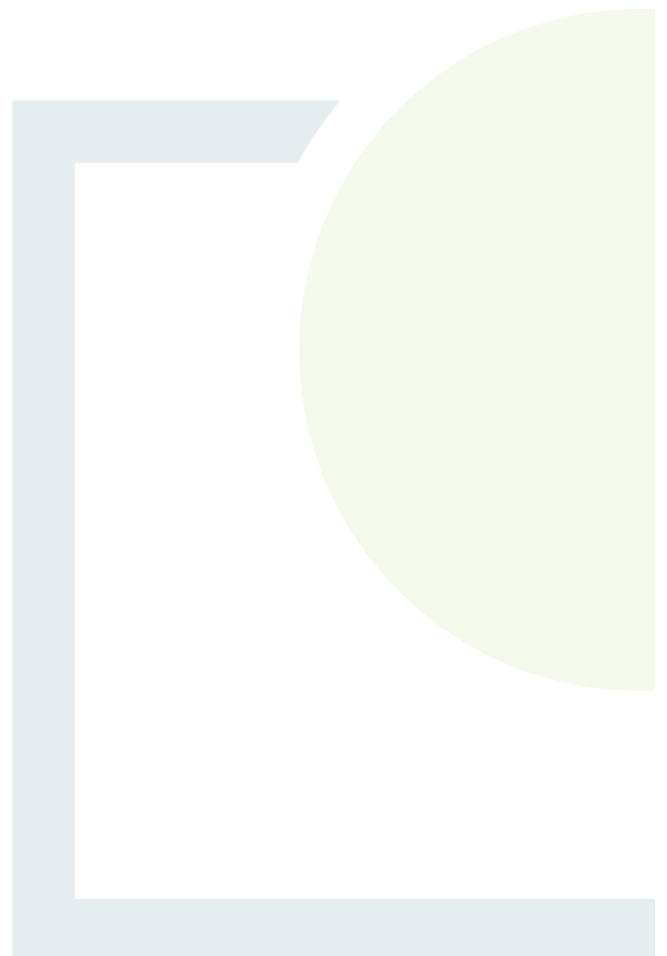
Results Grid 1	
Eav	10.01
Emin	2.61
Emax	23.42
Emin/Emax	0.11
Emin/Eav	0.26

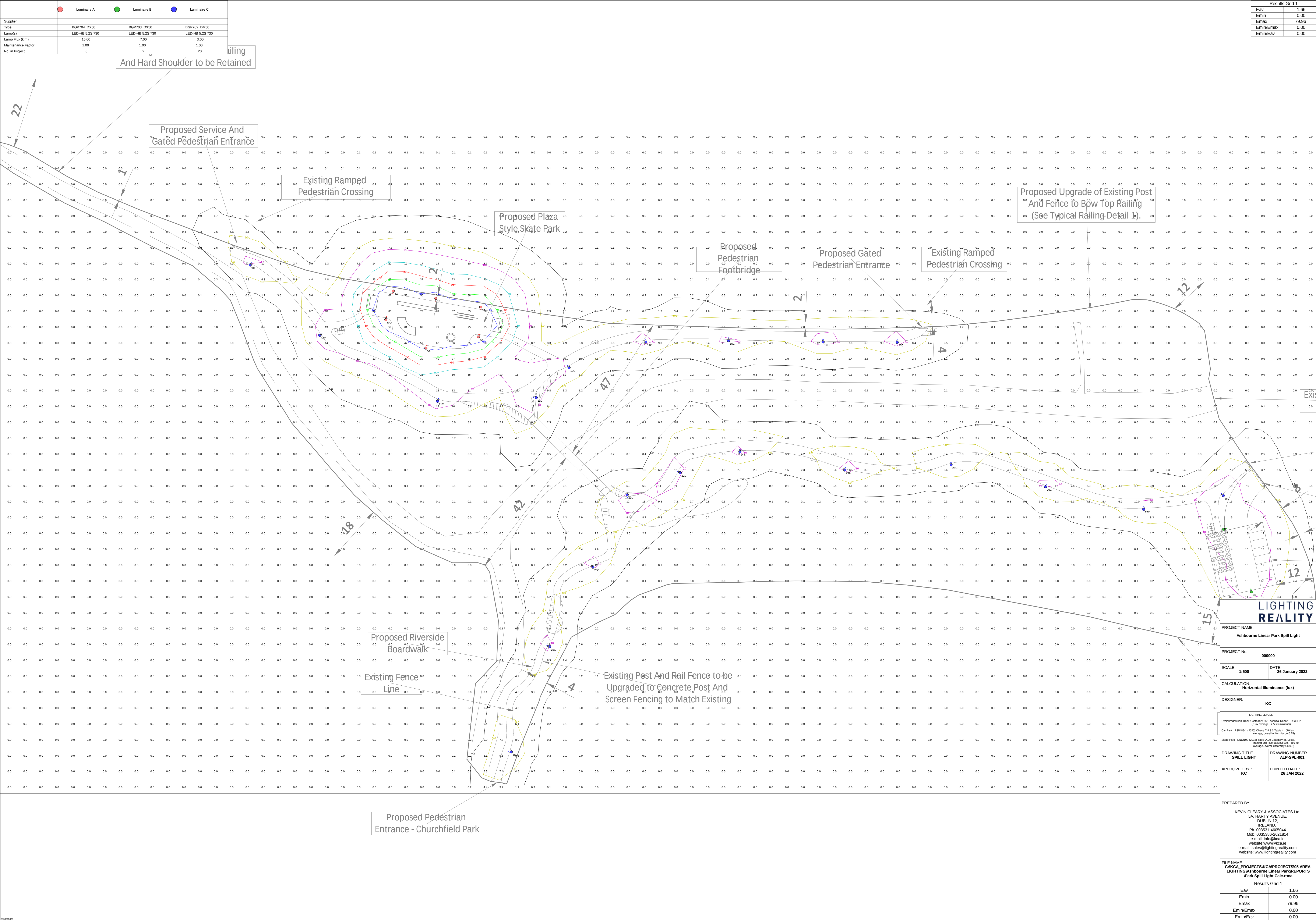


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APPENDIX 4

Proposed Lighting Design Spill
Light Analysis





LIGHTING
REALITY

PROJECT NAME:
Ashbourne Linear Park Spill Light

PROJECT No:
000000

SCALE:
1:500

DATE:
26 January 2022

CALCULATION:
Horizontal Illuminance (lux)

DESIGNER:
KC

LIGHTING LEVELS
Cycle/Pedestrian Track - Category 302 Technical Report TR3 ILP
(0.5m average, 2.5m minimum)
Car Park - BS5489-1 (2003) Clause 7.4.3.3 Table 4 (100 lux average, overall uniformity 0.5/0.3)
Skate Park - EN12293 (2005) Table A.29 Category H1 Local
Training and Recreational use (50 lux average, overall uniformity 0.5/0.3)

DRAWING TITLE
SPILL LIGHT

DRAWING NUMBER
ALP-SPL-001

APPROVED BY:
KC

PRINTED DATE:
26 JAN 2022

PREPARED BY:
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e-mail: info@kca.ie
website: www@kca.ie
e-mail: sales@lightingreality.com
website: www.lightingreality.com

FILE NAME:
C:\KCA_PROJECTS\KCA\PROJECTS\05 AREA
LIGHTING\Ashbourne Linear Park\REPORTS
Park Spill Light Calc.rma

Results Grid 1

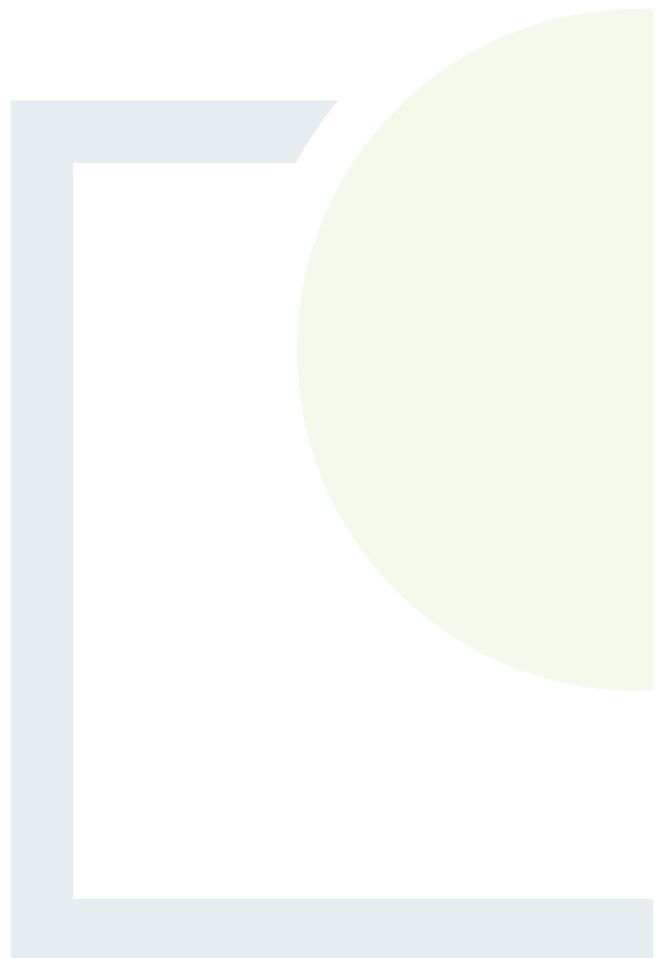
Eav	1.66
Emin	0.00
Emax	79.96
Emin/Emax	0.00
Emin/Eav	0.00



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& PLANNING

APPENDIX 5

Proposed Lighting Equipment





Luma gen2 – The standard in road lighting, redefined

Luma gen2

Luma gen2 is the next generation of the Luma LED luminaire family, fully optimized to become your long-term lighting and innovation partner. While keeping the distinctive design characteristics of the first generation, Luma gen2 gives you the benefits of the latest technologies thanks to its future-proof System Ready architecture, use of optimized Ledgine LED and optical platform ensuring best in class lighting performance in a broad range of applications. It also offers improved serviceability. Installation has also become easier and faster, and thanks to the Service tag, you have access to all relevant documentations onsite. Also, the cable feed-through has been redesigned and access to the gear components is easy thanks to top down tool-less access. Luma gen2 also offers all connectivity and dimming options available today and thanks to being System Ready, it can also be paired with lighting management systems such as Interact City or existing and upcoming sensor innovations. The Luma gen2 has been developed to optimize and simplify spare part repair and maintenance work using a new plug & play GearFlex module containing all electrical components in an easy to handle and accessible box inside the housing. As a company conscious about the impact of light on the environment and biodiversity, we also equipped the Luma gen2 with dedicated light recipes that help with maintaining the optimal ecosystems for bats or preserve a dark night sky.

Benefits

- Ease of maintenance and spare part repair enabled through the dedicated GearFlex module
- Best in class efficiency and light performance in a broad range of applications
- Future-ready thanks to the SR (System Ready) socket
- Luminaire is also equipped with dedicated light recipes that help with: 1) maintaining the optimal ecosystems for bats 2) preserve a dark night sky and reduce light pollution
- Equipped with Service tag, a QR-based identification system that makes each luminaire uniquely identifiable and provides maintenance, installation and spare part information

Features

- Dedicated GearFlex module enabling faster, safer and tool-less maintenance
- New cable feedthrough for easy installation
- Ready to be connected to the Interact City lighting management software
- Ready to be paired with third party lighting management systems and sensors
- Tilt now with 2,5 degrees precision
- Efficacy up to 155 lm/W
- Choice of 40+ different beams and option of different internal louvers
- Further optimization on performance flux level enabled by the Philips L-Tune
- Surge protection up to 10kV
- Wide range of lumen packages, ranging from 1,000 to 55,000 lm

Application

- Motorways, inter-urban main roads, boulevards and avenues, roundabouts, pedestrian crossings
- Residential streets, side streets, squares, parks, cycle and pedestrian paths, playgrounds
- Parking areas, industrial areas, petrol stations, rail yards, airports, harbors, waterways

Specifications

Ambient Temperature	-40 to +50 °C	Initial correlated color temperature	1000 K, 3000 K, 4000 K
Main color of the Luminaire	Dark gray, gray	Initial input power	154 W, 166 W, 170 W, 174 W, 24 W, 25 W, 31.5 W, 36.5 W, 37 W, 38 W, 40.5 W, 42 W, 52 W, 57 W, 6.1 W, 71 W, 74 W, 79 W, 82 W, 83 W, 87 W, 91 W
Dimming	No, yes	Initial LED luminaire efficacy	86, 100, 108, 109, 111, 114, 115, 118, 119, 120, 129, 133, 137, 141, 142, 143, 144, 146, 147, 148, 152, 153, 154, 155, 158 lm/W
Driver	Power supply unit with DALI and SystemReady interface (Power supply unit with DALI and SystemReady interface) Power supply unit with DALI and SystemReady interface and constant light output (integrated) (Power supply unit with DALI and SystemReady interface and constant light output (integrated)) Power supply unit with DynaDimmer (Power supply unit with DynaDimmer) Power supply unit with DynaDimmer and constant light output (integrated) (Power supply unit with DynaDimmer and constant light output (integrated))	Initial luminous flux	10350 lm, 10465 lm, 10800 lm, 10920 lm, 12150 lm, 12740 lm, 13500 lm, 17850 lm, 18900 lm, 22500 lm, 25810 lm, 26700 lm, 3000 lm, 3510 lm, 3549 lm, 3600 lm, 4482 lm, 4500 lm, 4550 lm, 4988 lm, 5220 lm, 5278 lm, 5400 lm, 728 lm, 8600 lm, 8700 lm, 9000 lm, 9016 lm, 9100 lm
Driver failure rate at 5000 h in %	0.005 %	Input frequency	50 to 60 Hz
		Input voltage	220 to 240 V
		Inrush current (A)	4, 11.5, 18, 21, 47, 58 A
		Light source color	510 ClearField, 610 ClearField, 730 warm white, 740 neutral white, 830 warm white

Luma gen2

Light source replaceable	Yes
Material	Bracket:
Material	Gear box:
Material	Housing: aluminum die cast
Optic	Distribution extra wide 10, distribution medium 10, distribution medium 11, distribution medium 31, distribution medium 32, distribution medium 50, distribution wide 50
Optical cover	Polymethyl methacrylate
Surge protection	Luminaire surge protection level until 10 kV differential mode and 10 kV common mode, luminaire surge protection level until 6 kV differential mode and 8 kV common mode, surge protection level until 10 kV differential mode

Tilt angle housing	Standard tilt angle posttop: -, 0°Standard tilt angle side entry: -, 0°
Type	BGP701
	BGP702
	BGP703
	BGP704
	BGP705
	BGP713

Versions

Luma gen2 Micro bottom view



Luma gen2 Mini bottom view



Luma gen2 Medium bottom view



BGP705 Luma gen2 Large GearFlex1



LUMA GEN2 NANO - LED Module, system flux 800 lm - LED - 160° - 42° x 54°



LUMA GEN2 MICRO - LED module 5000 lm - LED - 70° x 37°



Versions



LUMA GEN2 MINI - LED module
10000 lm - LED - 70° x 37°



LUMA GEN2 MEDIUM - LED
module 21000 lm - LED - 70° x 37°



LUMA GEN2 MICRO - LED module
6000 lm - LED - Power supply
unit with DALI and SystemReady
interface - Distribution medium 11
- Glass - 70° x 37° - Internal (no
external connection) - Post-top for
diameter 60 to 76 mm



LUMA GEN2 MINI - LED module
12000 lm - LED - Power supply
unit with DALI and SystemReady
interface - Distribution medium 50
- Glass - 154° - 31° x 54° - Internal
(no external connection) - Post-
top for diameter 60 to 76 mm



LUMA GEN2 MEDIUM - LED
module 14000 lm - LED - Power
supply unit with DALI and
SystemReady interface -
Distribution medium 50 - Glass -
154° - 31° x 54° - Internal (no
external connection) - Post-top for
diameter 60 to 76 mm



LUMA GEN2 NANO - LED module
6000 lm - LED - 70° x 37°



LUMA GEN2 LARGE - LED module
14000 lm - LED - Power supply
unit with DALI and SystemReady
interface and constant light output
(integrated) - Distribution medium
31 - - - Glass - 65° x 23° - Internal
(no external connection) - Side-
entry for diameter 42 to 60 mm



Luma gen2 Mini Compact - LED
module, system flux 12000 lm -
LED - Power supply unit with DALI
and SystemReady interface -
Distribution medium 50 - Glass -
42° x 85° - Internal (no external
connection) - Post-top for
diameter 60 to 76 mm



Luma gen2 Mini Compact - LED
module, system flux 5000 lm -
LED - Power supply unit with DALI
and SystemReady interface -
Distribution medium 11 - Glass -
160° x 95° - GPRS network - Post-
top for diameter 60 to 76 mm

Luma gen2

Versions



LUMA GEN2 MEDIUM - LED module 10000 lm - LED - Power supply unit with DynaDimmer and constant light output (integrated) - Distribution medium 32 - Glass - 65° x 39° - Internal (no external connection) - Post-top for diameter 60 mm

Product details

BGP705 Luma gen2 Large FG DPP



BGP705 Luma gen2 Large Open1 DPP

BGP701 Luma gen2 Nano FG DPP



BGP701 Luma gen2 Nano Open2 DPP

BGP713 Luma gen2 Mini Compact Open1 DPP



BGP713 Luma gen2 Mini Compact Open2 DPP

General Information	
CE mark	CE mark
Optical cover/lens type	Glass
Driver included	Yes
Light source replaceable	Yes
Service tag	Yes
Light Technical	
Upward light output ratio	0

-

Order Code	Full Product Name	Driver failure rate at 5000 h
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	0.005 %
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	0.005 %
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	0.005 %
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	0.005 %
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	0.005 %
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	0.005 %
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	0.005 %
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	0.005 %
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	0.005 %
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	0.005 %
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	0.005 %
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	0.005 %
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	0.005 %
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	0.005 %
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	-
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	0.005 %
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	0.005 %
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	0.005 %
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	-
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	-
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	0.005 %
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	0.005 %
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	0.005 %
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	0.005 %
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	-
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	-

Application Conditions

Order Code	Full Product Name	Maximum dim level
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	Not applicable
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	Not applicable
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	Not applicable
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	Not applicable
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	Not applicable
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	Not applicable
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	Not applicable
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	Not applicable

Order Code	Full Product Name	Driver failure rate at 5000 h
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	-
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	-
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	-
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	-
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	-
910925867833	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	-
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	-
910925867834	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	-
910925867835	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	-
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	-
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	-
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	-
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	-
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	-
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	-
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	-
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	-
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	-
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	-
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	-
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	-
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	-
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	-
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	-
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	-
910925868792	BGP704 LED100-4S/740 II DM32 MSP CLO-DDF	-

Order Code	Full Product Name	Maximum dim level
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	Not applicable
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	Not applicable
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	Not applicable
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	Not applicable
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	Not applicable
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	Not applicable
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	50%
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	Not applicable

Order Code	Full Product Name	Maximum dim level
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	30%
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	Not applicable
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	Not applicable
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	50%
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	Not applicable
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	Not applicable
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	Not applicable
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	Not applicable
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	Not applicable
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	Not applicable
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	Not applicable
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	Not applicable
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	Not applicable
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	Not applicable
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	50%
910925867833	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	50%
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	50%
910925867834	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	50%

Order Code	Full Product Name	Maximum dim level
910925867835	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	50%
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	Not applicable
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	Not applicable
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	Not applicable
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	Not applicable
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	Not applicable
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	Not applicable
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	Not applicable
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	30%
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	Not applicable
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	Not applicable
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	Not applicable
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	Not applicable
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	Not applicable
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	Not applicable
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	Not applicable
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	1%
910925868792	BGP704 LED100-4S/740 II DM32 MSP CLO-DDF	50%

Approval and Application

Order Code	Full Product Name	Mech. impact protection code	Surge Protection (Common/Differential)
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode

Order Code	Full Product Name	Mech. impact protection code	Surge Protection (Common/Differential)
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	IK10	Luminaire surge protection level until 10 kV differential mode and 10 kV common mode
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	IK10	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode

Order Code	Full Product Name	Mech. impact protection code	Surge Protection (Common/ Differential)
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	IK10	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	IK10	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	IK10	Luminaire surge protection level until 10 kV differential mode and 10 kV common mode
910925867833	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	IK10	Luminaire surge protection level until 10 kV differential mode and 10 kV common mode
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	IK10	Luminaire surge protection level until 10 kV differential mode and 10 kV common mode
910925867834	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	IK10	Surge protection level until 10 kV differential mode
910925867835	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	IK10	Surge protection level until 10 kV differential mode

Order Code	Full Product Name	Mech. impact protection code	Surge Protection (Common/ Differential)
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	IK10	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	IK09	Surge protection level until 10 kV differential mode
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	IK09	Luminaire surge protection level until 6 kV differential mode and 8 kV common mode

Order Code	Full Product Name	Mech. impact protection	Surge Protection (Common/ Differential)
		code	
910925868792	BGP704	IK09	Luminaire surge protection
	LED100-4S/740 II DM32		level until 6 kV differential
	MSP CLO-DDF		mode and 8 kV common mode

Controls and Dimming

Order Code	Full Product Name	Dimmable
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	No
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	No
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	Yes
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	No
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	No
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	No
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	No
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	No
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	No
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	No
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	No
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	No
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	No
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	No
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	Yes
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	No
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	Yes
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	Yes
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	No
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	No
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	No
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	No
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	No
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	No
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	No
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	No

Order Code	Full Product Name	Dimmable
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	No
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	Yes
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	No
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	No
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	Yes
910925867833	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	Yes
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	Yes
910925867834	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	Yes
910925867835	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	Yes
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	No
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	No
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	Yes
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	No
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	No
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	No
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	No
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	Yes
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	Yes
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	No
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	No
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	No
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	No
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	No
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	No
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	Yes
910925868792	BGP704 LED100-4S/740 II DM32 MSP CLO-DDF	Yes

General Information

Order Code	Full Product Name	Luminaire light		Flammability	Lamp family	Number of	Optic type	Product
		beam spread	Light source color					
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	70° x 37°	740 neutral white	-	LED60	1 unit	Distribution medium 11	BGP702
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	73° x 44°	740 neutral white	-	LED40	1 unit	Distribution medium 10	BGP702
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	70° x 37°	830 warm white	-	LED50	1 unit	Distribution medium 11	BGP702
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	73° x 44°	740 neutral white	-	LED40	1 unit	Distribution medium 10	BGP702

Order Code	Full Product Name	Luminaire light beam spread	Light source color	Flammability mark	Lamp family code	Number of gear units	Optic type	Product Family Code
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	65° x 39°	740 neutral white	-	LED60	1 unit	Distribution medium 32	BGP702
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	70° x 37°	740 neutral white	-	LED60	1 unit	Distribution medium 11	BGP702
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	70° x 37°	740 neutral white	-	LED60	1 unit	Distribution medium 11	BGP702
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	154° - 31° x 54°	740 neutral white	-	LED120	1 unit	Distribution medium 50	BGP703
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	150° - 43° x 67°	830 warm white	-	LED100	1 unit	Distribution wide 50	BGP703
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	70° x 37°	510 ClearField	-	LED54	1 unit	Distribution medium 11	BGP703
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	65° x 23°	740 neutral white	-	LED60	1 unit	Distribution medium 31	BGP703
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	70° x 37°	740 neutral white	-	LED120	1 unit	Distribution medium 11	BGP703
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	70° x 37°	740 neutral white	-	LED120	1 unit	Distribution medium 11	BGP703
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	65° x 39°	740 neutral white	-	LED120	1 unit	Distribution medium 32	BGP703
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	70° x 37°	730 warm white	-	LED120	1 unit	Distribution medium 11	BGP703
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	154° - 31° x 54°	740 neutral white	-	LED140	1 unit	Distribution medium 50	BGP704
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	150° - 43° x 67°	830 warm white	-	LED210	1 unit	Distribution extra wide 10	BGP704
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	70° x 37°	830 warm white	-	LED120	1 unit	Distribution medium 11	BGP704
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	70° x 37°	740 neutral white	-	LED260	1 unit	Distribution medium 31	BGP704
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	70° x 37°	740 neutral white	-	LED260	1 unit	Distribution medium 11	BGP704
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	154° - 31° x 54°	740 neutral white	-	LED120	1 unit	Distribution medium 50	BGP705
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	150° - 43° x 67°	830 warm white	-	LED100	1 unit	Distribution wide 50	BGP705
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	70° x 37°	740 neutral white	-	LED150	1 unit	Distribution medium 11	BGP705
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	70° x 37°	740 neutral white	-	LED300	3 units	Distribution medium 11	BGP705
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	65° x 39°	740 neutral white	-	LED300	3 units	Distribution medium 32	BGP705
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	70° x 37°	740 neutral white	-	LED8	1 unit	Distribution medium 11	BGP701
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	73° x 44°	740 neutral white	-	LED40	1 unit	Distribution medium 10	BGP701
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	70° x 37°	830 warm white	-	LED50	1 unit	Distribution medium 11	BGP701
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	65° x 39°	740 neutral white	-	LED60	1 unit	Distribution medium 32	BGP701

Order Code	Full Product Name	Luminaire light beam spread	Light source color	Flammability mark	Lamp family code	Number of gear units	Optic type	Product Family Code
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	73° x 44°	740 neutral white	-	LED40	1 unit	Distribution medium 10	BGP701
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	70° x 37°	730 warm white	-	LED60	1 unit	Distribution medium 11	BGP701
910925868733	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	70° x 37°	830 warm white	-	LED50	1 unit	Distribution medium 11	BGP702
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	70° x 37°	730 warm white	-	LED60	1 unit	Distribution medium 11	BGP702
910925868734	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	70° x 37°	830 warm white	-	LED100	1 unit	Distribution medium 32	BGP703
910925868735	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	70° x 37°	830 warm white	-	LED210	1 unit	Distribution medium 31	BGP704
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	70° x 37°	740 neutral white	-	LED60	1 unit	Distribution medium 11	BGP702
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	73° x 44°	740 neutral white	-	LED40	1 unit	Distribution medium 10	BGP702
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	70° x 37°	830 warm white	-	LED50	1 unit	Distribution medium 11	BGP702
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	154° - 31° x 54°	740 neutral white	-	LED120	1 unit	Distribution medium 50	BGP703
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	150° - 43° x 67°	830 warm white	-	LED100	1 unit	Distribution wide 50	BGP703
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	70° x 37°	510 ClearField	-	LED54	1 unit	Distribution medium 11	BGP703
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	154° - 31° x 54°	740 neutral white	-	LED140	1 unit	Distribution medium 50	BGP704
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	150° - 43° x 67°	830 warm white	-	LED210	1 unit	Distribution extra wide 10	BGP704
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	70° x 37°	830 warm white	-	LED120	1 unit	Distribution medium 11	BGP704
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	70° x 37°	740 neutral white	-	LED60	1 unit	Distribution medium 11	BGP701
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	70° x 37°	740 neutral white	-	LED60	1 unit	Distribution medium 11	BGP701
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	65° x 23°	740 neutral white	-	LED140	1 unit	Distribution medium 31	BGP705
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	42° x 85°	740 neutral white	For mounting on normally flammable surfaces	LED120-4S	1 unit	Distribution medium 50	BGP713
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	40° x 42°	830 warm white	For mounting on normally flammable surfaces	LED100-4S	1 unit	Distribution wide 50	BGP713
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	160° x 95°	610 ClearField	For mounting on normally flammable surfaces	LED30-4S	1 unit	Distribution medium 11	BGP713
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	160° x 95°	740 neutral white	For mounting on normally	LED50-4S	1 unit	Distribution medium 11	BGP713

Order Code	Full Product Name	Luminaire light beam spread	Light source color	Flammability mark	Lamp family code	Number of gear units	Optic type	Product Family Code
				flammable surfaces				
910925868792	BGP704 LED100-4S/740 II DM32 MSP CLO-DDF	65° x 39°	740 neutral white	-	LED100	1 unit	Distribution medium 32	BGP704

Initial Performance (IEC Compliant)

Order Code	Full Product Name	Init. Corr. Color Temperature	Init. Color Rendering Index	Initial luminous flux
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	4000 K	>70	5400 lm
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	4000 K	>70	3600 lm
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	3000 K	>80	4500 lm
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	4000 K	>70	3510 lm
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	4000 K	>70	5278 lm
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	4000 K	>70	5220 lm
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	4000 K	>70	5220 lm
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	4000 K	>70	10800 lm
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	3000 K	>80	8600 lm
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	1000 K	>60	4482 lm
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	4000 K	>70	5278 lm
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	4000 K	>70	10350 lm
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	4000 K	>70	10350 lm
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	4000 K	>70	10465 lm
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	3000 K	>70	10800 lm
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	4000 K	>70	12740 lm
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	3000 K	>80	17850 lm
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	3000 K	>80	10920 lm
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	4000 K	>70	22500 lm

Order Code	Full Product Name	Init. Corr. Color Temperature	Init. Color Rendering Index	Initial luminous flux
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	4000 K	>70	22500 lm
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	4000 K	>70	10920 lm
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	3000 K	>80	8700 lm
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	4000 K	>70	13500 lm
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	4000 K	>70	26700 lm
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	4000 K	>70	25810 lm
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	4000 K	>70	728 lm
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	4000 K	>70	3600 lm
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	3000 K	>80	4500 lm
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	4000 K	>70	4988 lm
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	4000 K	>70	3549 lm
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	3000 K	>70	5400 lm
910925867833	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	3000 K	>80	4500 lm
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	3000 K	>70	5400 lm
910925867834	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	3000 K	>80	9100 lm
910925867835	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	3000 K	>80	18900 lm
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	4000 K	>70	5400 lm
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	4000 K	>70	3600 lm
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	3000 K	>80	4500 lm

Order Code	Full Product Name	Init. Corr. Color Temperature	Init. Color Rendering Index	Initial luminous flux
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	4000 K	>70	10800 lm
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	3000 K	>80	8600 lm
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	1000 K	>60	4482 lm
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	4000 K	>70	12740 lm
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	3000 K	>80	17850 lm
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	3000 K	>80	10920 lm
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	4000 K	>70	5220 lm

Order Code	Full Product Name	Init. Corr. Color Temperature	Init. Color Rendering Index	Initial luminous flux
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	4000 K	>70	5220 lm
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	4000 K	>70	12150 lm
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	4000 K	>70	10800 lm
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	3000 K	>80	9000 lm
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	1000 K	>60	3000 lm
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	4000 K	>70	4550 lm
910925868792	BGP704 LED100-4S/740 II DM32 MSP CLO-DDF	4000 K	>70	9016 lm

Light Technical

Order Code	Full Product Name	Standard tilt angle side entry	Standard tilt angle posttop
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	-	0°
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	-	0°
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	-	0°
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	-	0°
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	-	0°
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	0°	-
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	0°	-
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	-	0°
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	-	0°
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	-	0°
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	-	0°
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	-	0°
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	0°	-
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	-	0°

Order Code	Full Product Name	Standard tilt angle side entry	Standard tilt angle posttop
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	0°	-
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	-	0°
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	-	0°
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	-	0°
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	0°	-
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	0°	-
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	-	0°
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	-	0°
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	-	0°
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	-	0°
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	0°	0°
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	-	0°
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	-	0°
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	-	0°

Order Code	Full Product Name	Standard tilt angle side entry	Standard tilt angle posttop
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	0°	0°
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	0°	0°
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	0°	-
910925868783	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	0°	-
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	0°	-
910925868784	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	0°	-
910925868785	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	0°	-
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	-	0°
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	-	0°
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	-	0°
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	-	0°
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	-	0°

Order Code	Full Product Name	Standard tilt angle side entry	Standard tilt angle posttop
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	-	0°
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	-	0°
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	-	0°
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	-	0°
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	0°	-
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	0°	-
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	0°	-
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	0°	0°
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	0°	0°
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	0°	0°
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	0°	0°
910925868792	BGP704 LED100-4S/740 II DM32 MSP CLO-DDF	-	0°

Mechanical and Housing

Order Code	Full Product Name	Color
910925866534	BGP702 LED60-4S/740 DM11 GF SRT SRB 60/7	Gray
910925866535	BGP702 LED40-4S/740 DM10 GF SRT SRB 60/7	Gray
910925866536	BGP702 LW10 LED50-4S/830 DM11 GF CTGO	Gray
910925867784	BGP702 LED40-4S/740 II DM10 MSP CLO SRT	Gray
910925867785	BGP702 LED60-4S/740 II DM32 MSP CLO SRT	Gray
910925867786	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	Gray
910925867787	BGP702 LED60-4S/740 II DM11 CLO SRT SRB	Gray
910925866538	BGP703 LED120-4S/740 DM50 GF SRT SRB 60	Gray
910925866539	BGP703 LED100-4S/830 II DW50 GF SRT SRB	Gray
910925866540	BGP703 LED54-4S/610 DM11 GF SRT SRB 60/7	Gray
910925867788	BGP703 LED60-4S/740 II DM31 MSP CLO SRT	Gray
910925867789	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	Gray
910925867790	BGP703 LED120-4S/740 II DM11 CLO SRT SRB	Gray
910925867791	BGP703 LED120-4S/740 II DM32 MSP CLO SRT	Gray
910925868802	BGP703 LED120-4S/730 DM11 DDF27 D18 SRG1	Gray
910925866542	BGP704 LED140-4S/740 DM50 GF SRT SRB 60	Gray
910925866543	BGP704 LED210-4S/830 II DX10 GF D18 DDF3	Gray
910925866544	BGP704 LW10 LED120-4S/830 DM11 GF CTGO	Gray
910925867794	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	Gray
910925867795	BGP704 LED260-4S/740 DM11 CLO SRT SRB 48	Gray
910925867140	BGP705 LED120-4S/740 DM50 GF SRT SRB 60	Gray
910925867141	BGP705 LED100-4S/830 II DW50 GF SRT SRB	Gray

Order Code	Full Product Name	Color
910925867142	BGP705 LED150-4S/740 DM11 GF SRT SRB 60/	Gray
910925867143	BGP705 LED300-4S/740 II DM11 GF SRT SRB	Gray
910925868226	BGP705 LED300-4S/740 II DM32 MSP CLO SRT	Gray
910925867324	BGP701 LED8-4S/740 DM11 FG GR 42/60P	Gray
910925867325	BGP701 LED40-4S/740 DM10 GF SRT SRB 42/6	Gray
910925867326	BGP701 LW10 LED50-4S/830 DM11 GF CTGO-DG	Gray
910925868225	BGP701 LED60-4S/740 II DM32 MSP CLO SRT	Gray
910925868227	BGP701 LED40-4S/740 II DM10 MSP CLO SRT	Gray
910925868799	BGP701 LED60-4S/730 DM11 DDF27 D18 SRG10	Gray
910925867833	BGP702 LED50-4S/830 DM11 DDF27 D18 SRG10	Gray
910925868801	BGP702 LED60-4S/730 DM11 DDF27 D18 SRG10	Gray
910925867834	BGP703 LED100-4S/830 DM11 DDF27 D18 SRG1	Gray
910925867835	BGP704 LED210-4S/830 DM11 DDF27 D18 SRG1	Gray
910925868042	BGP702 LED60-4S/740 DM11 PGR SRT SRB 60	Gray
910925868043	BGP702 LED40-4S/740 DM10 PGR SRT SRB 60	Gray
910925868044	BGP702 LW10 LED50-4S/830 DM11 PGR CTGO	Gray
910925868046	BGP703 LED120-4S/740 DM50 PGR SRT SRB 60	Gray
910925868047	BGP703 LED100-4S/830 II DW50 PGR SRT SRB	Gray
910925868048	BGP703 LED54-4S/610 DM11 PGR SRT SRB 60	Gray
910925868050	BGP704 LED140-4S/740 DM50 PGR SRT SRB 60	Gray
910925868051	BGP704 LED210-4S/830 II DX10 PGR DDF3 D1	Gray
910925868052	BGP704 LW10 LED120-4S/830 DM11 CTGO-DG	Gray

Order Code	Full Product Name	Color
910925868136	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	Gray
910925868137	BGP701 LED60-4S/740 II DM11 CLO SRT SRB	Gray
910925868228	BGP705 LED140-4S/740 II DM31 MSP CLO SRT	Gray
910925868406	BGP713 LED120-4S/740 DM50 GF SRT SRB 60	Gray

Order Code	Full Product Name	Color
910925868407	BGP713 LED100-4S/830 II DW50 GF SRT SRB	Gray
910925868408	BGP713 LED33-4S/610 DM11 SRT SRB 60/76P	Gray
910925868409	BGP713 LED50-4S/740 II DM11 GF EZR SRB 6	Dark gray
910925868792	BGP704 LED100-4S/740 II DM32 MSP CLO-DDF	Gray





**PLANET
LIGHTING**

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LED Puck Asymmetric Beam



Jubilee Bridge, Singapore

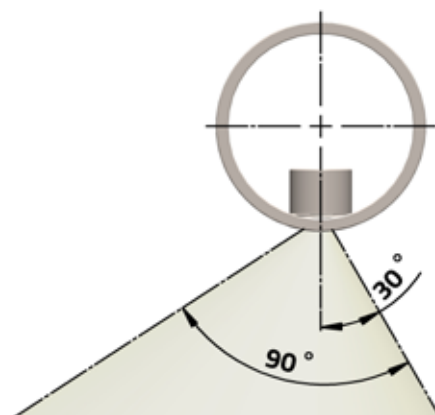
Features

The market-leading HLS minipuck is a flexible and vandal resistant LED handrail lighting module offering unrivalled uniformity and photometric performance.

- 100% made in Australia from high quality components
- Cree LED Technology
- Vandal resistant design
- High energy efficiency
- Glare-free access lighting
- Suitable for any metallic surface
- Extreme durability
 - Impact tested to IK10 (EN62262)
 - Marine compatible (316 stainless steel)
 - Up to IP67
- Flexible lighting concept
 - Installed in curved or flat surfaces
 - Fits $\varnothing 38$ -100mm handrail
 - Custom curvature available
 - Suitable for wall thicknesses >1.5 mm
 - Available in 3 beam types
 - Any dimming protocol
- Emergency lighting compatible
- Stand alone solar PV solutions
- Easy and fast installation with proprietary system
- UL listed



Orientation and Beam Shape



Dimensions



Coding Table

	BEAM TYPE	WALL THICKNESS	FACE PROFILE	COLOR TEMP	LENS
HLS	ST	HW	CF	WW	B
	↑	↑	↑	↑	↑
	ST = Standard Beam VA = Vertical down - Asymmetric VS = Vertical down - Symmetric LE = Lensed beam CU = Custom beam	HW = Heavy Wall TW = Thin Wall	CF = Curved Face FF = Flat Face	IW = 2700K WW = 3000K NW = 4000K DW = 5000K	B = Borosilicate nil = Polycarbonate

Face and thread types

Choice between heavy and thin wall minipuck versions should be guided by the wall thickness of the handrail material. Rebated heavy wall minipucks have a flawless finish at final assembly, but are limited to a minimum wall thickness of 2.5mm. Thin wall minipucks can be mounted into material of 1.5mm and above.

CURVED FACE



Heavy WallThin Wall

FLAT FACE

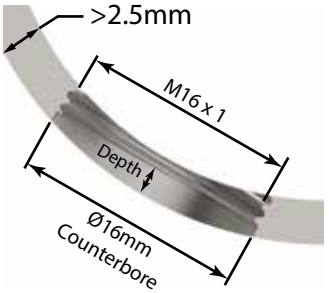


Heavy WallThin Wall

Curved faced minipucks are suitable for round material ranging between Ø38-100mm. Typical applications include handrails, guardrails and kickrails.

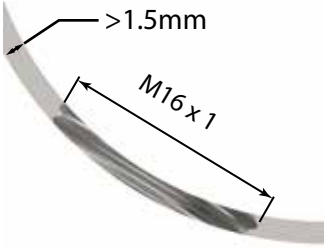
The flat face puck can be installed into a wide variety of square and rectangular hollow sections or sheet. Applications include public outdoor awnings such as shelters or oval handrails.

Hole detail



Wall thicknesses: >1.5mm

If the wall thickness of the pipe is greater than 2.5mm, a counterbore is possible, and heavy wall (HW) pucks can be used.

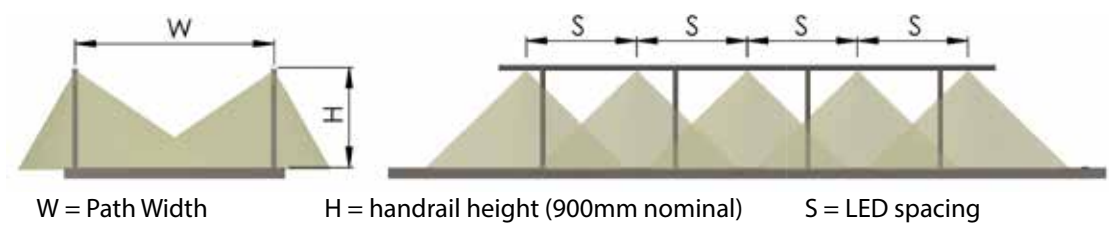


Wall thicknesses: >1.5mm

The thin wall (TW) puck is suitable for use in all metal materials with a minimum wall-thickness of 1.5mm.

Average lux and uniformity guide

The following is a brief guide for specifiers and lighting designers, conveying a feel the HLS system. The drawings below describe a typical installation into a handrail, providing a dimensional key for the data in the tables. The tables below list the average lux and uniformity at a variety of path widths, and LED spacings.



Vertical Asymmetric Beam - light from one side

Path Width	1.2m		2.0m		3.0m		4.0m	
LED Spacing	lx	u	lx	u	lx	u	lx	u
0.5m	95	0.8	73	0.45	52	0.21	40	0.15
1.0m	48	0.89	37	0.51	27	0.23	20	0.16
2.0m	23	0.89	18	0.51	13	0.23	10	0.16

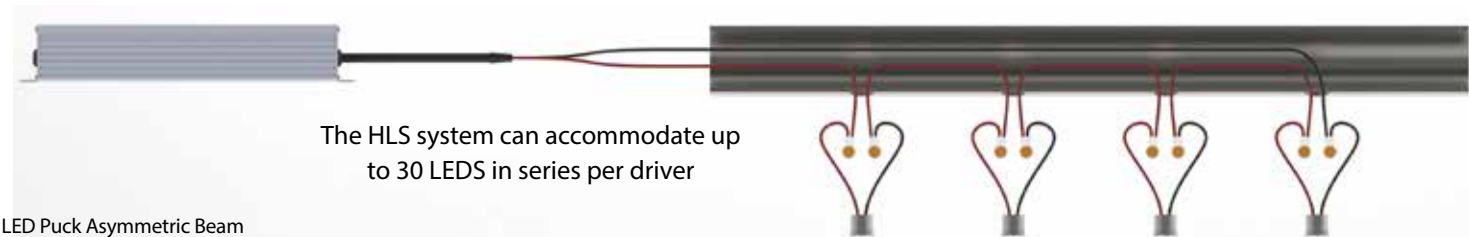
lx = average lux u=uniformity colour temp=3000k

Vertical Asymmetric Beam - light from both sides

Path Width	1.2m		2.0m		3.0m		4.0m	
LED Spacing	lx	u	lx	u	lx	u	lx	u
0.5m	193	0.89	148	0.8	105	0.77	81	0.62
1.0m	97	0.9	74	0.8	53	0.86	41	0.66
2.0m	48	0.84	37	0.8	27	0.84	20	0.68

lx = average lux u=uniformity colour temp=3000k

Typical series wiring



The HLS system can accommodate up to 30 LEDs in series per driver

LED Puck Asymmetric Beam

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Overview - conical steel lighting columns

Conical Steel Tapering Lighting Columns are one of the most aesthetically pleasing products Valmont Stainton manufactures.

We provide a lighter duty application (12mm taper) and a heavier duty (17mm taper) allowing for total design customisation.

A variety of standard and decorative brackets are available. Bespoke and Specialist columns are not a problem and a seamless welding technology is available for a crisp modern street impact!

When you specify Valmont Stainton, you specify world-proven, reliable products which will give you years of trouble-free performance.



BENEFITS

Specification



Conical steel lighting columns are available in mounting heights from 3 to 12 metres.

They can be used for post top applications or supplied with demountable or integral bracket arm arrangements.

Corrosion Protection

The standard corrosion protection system is hot dip galvanised to BS EN 1461. In addition, a variety of root treatments and full paint specification options are available.

Quality Assurance

Valmont Stainton operates a Quality Assurance system which complies with requirements of BS EN ISO 9001:2000.

Our welders and welding procedures are independently certified in accordance with BS EN 287 and 288.

Load and Dimensional Data

Planted Root Option									
	Column Height	Physical Sizes (mm) -See Elevation for Abbreviations				Loads & Foundation			
		BD	TD	PD	DH x DW	Mass (kg)	OTM (kNm)	Shear (kN)	Min. Concrete Dia.
Taper 12mm/m	4m	146	76 (spigot)	800	500 x 100	44	3.52	1.12	426
	5m	146	76	800	500 x 100	49	4.7	1.24	555
	6m	160	76	1000	500 x 100	65	6.1	1.38	372
	8m	186	76	1200	600 x 115	88	7.5	1.5	263
	10m	214	76	1500	600 x 115	174	16.01	2.34	285
	12m	240	76	1700	600 x 115	220	21.3	2.85	260
Taper 17mm/m	4m	157	76	800	500 x 100	46	3.65	1.15	442
	5m	175	76	800	500 x 100	56	7.2	1.7	852
	6m	195	76	1000	500 x 100	73	9.37	1.9	569
	8m	232	76	1200	600 x 115	110	12.37	2.12	430
	10m	272	76	1500	600 x 115	204	26.6	3.49	474
	12m	309	76	1700	600 x 115	270	43.9	4.96	535

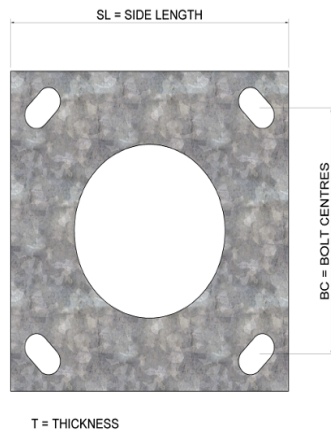
Click table to enlarge.



Click image to enlarge.

 [Conical-Pole-Bracket-Valmont-Stainton-2](#)

Click image to enlarge.



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Flange Plated Option										
	Column Height	Physical Sizes (mm) -See Elevation for Abbreviations					Loads & Foundation			
		BD	TD	DH x DW	SL x T x BC	Anchor Bolts	Mass (kg)	OTM (kNm)	Shear (kN)	Conc. Found. Sizes
Taper 12mm/m	4m	136	76 (spigot)	500 x 100	260 x 15 x 200	M18 X 400	40	3.52	1.12	400 sq x 500h
	5m	136	76	500 x 100	260 x 15 x 200	M18 X 400	46	4.7	1.24	400 sq x 600 h
	6m	148	76	500 x 100	260 x 15 x 200	M18 X 400	65	6.1	1.38	400 sq x 700 h
	8m	172	76	600 x 115	420 x 20 x 300	M24 X 820	100	7.5	1.5	400 sq x 700 h
	10m	196	76	600 x 115	420 x 20 x 300	M24 X 820	159	16.01	2.34	600 sq x 1100 h
	12m	220	76	600 x 115	420 x 20 x 300	M24 X 820	202	21.3	2.85	600 sq x 1200 h
Taper 17mm/m	4m	144	76	500 x 100	260 x 15 x 200	M18 X 400	49	3.65	1.15	400 sq x 500 h
	5m	161	76	500 x 100	260 x 15 x 200	M18 X 400	52	7.2	1.7	400 sq x 800 h
	6m	178	76	500 x 100	260 x 15 x 200	M18 X 400	73	9.37	1.9	500 sq x 800 h
	8m	212	76	600 x 115	420 x 20 x 300	M24 X 820	114	12.37	2.12	500 sq x 1000 h
	10m	246	76	600 x 115	420 x 20 x 300	M24 X 820	186	26.6	3.49	700 sq x 1300 h
	12m	280	76	600 x 115	420 x 20 x 300	M24 X 820	240	43.9	4.96	800 sq x 1500 h

Click table to enlarge.

Headload Capacity

					Max Effective Windage Area, Based on T CAT III (Upto 7m) and T CAT II (8m and Above)				
	Column Height	Mounting Arrangement	Projection (m)	Max Headweight	Extra Light (m ²)	Light (m ²)	Medium (m ²)	Heavy (m ²)	Extra Heavy (m ²)
Taper 12mm/m	4m	Post Top	N/A	30	0.8	0.69	0.63	0.57	0.45
		Single Arm	0.5	15	0.41	0.35	0.32	0.29	0.22
		Double Arm	0.5	15	0.5	0.43	0.39	0.35	0.27
	5m	Post Top	N/A	30	0.56	0.48	0.43	0.4	0.3
		Single Arm	0.5	15	0.322	0.263	0.234	0.214	0.156
		Double Arm	0.5	15	0.312	0.253	0.224	0.205	0.136
	6m	Post Top	N/A	30	0.64	0.54	0.48	0.43	0.33
		Single Arm	0.5	15	0.41	0.341	0.302	0.273	0.195
		Double Arm	0.5	15	0.322	0.263	0.234	0.205	0.146
	8m	Post Top	N/A	30	0.31	0.25	0.22	0.19	0.13
		Single Arm	1	15	0.117	0.078	0.068	0.048	0.019
		Double Arm	1	15	0.078	0.048	0.029	0.019	0
	10m	Post Top	N/A	30	0.66	0.56	0.5	0.45	0.35
		Single Arm	1	15	0.38	0.312	0.283	0.244	0.166
		Double Arm	1	15	0.253	0.205	0.175	0.146	0.097
	12m	Post Top	N/A	30	0.65	0.55	0.5	0.44	0.33
		Single Arm	1	15	0.419	0.351	0.302	0.263	0.175
		Double Arm	1	15	0.244	0.195	0.166	0.136	0.078
Taper 17mm/m	4m	Post Top	N/A	30	0.84	0.73	0.67	0.61	0.48
		Single Arm	0.5	15	0.7	0.6	0.54	0.49	0.38
		Double Arm	0.5	15	0.61	0.52	0.47	0.42	0.33
	5m	Post Top	N/A	30	1.132	0.986	0.898	0.82	0.644
		Single Arm	0.5	15	0.722	0.625	0.566	0.507	0.4
		Double Arm	0.5	15	0.615	0.527	0.478	0.429	0.332
	6m	Post Top	N/A	30	1.269	1.103	1.005	0.917	0.722
		Single Arm	0.5	15	0.898	0.781	0.703	0.634	0.498
		Double Arm	0.5	15	0.654	0.585	0.537	0.478	0.371
	8m	Post Top	N/A	30	0.82	0.712	0.644	0.585	0.458
		Single Arm	1	15	0.468	0.39	0.351	0.312	0.224
		Double Arm	1	15	0.332	0.283	0.244	0.214	0.146
	10m	Post Top	N/A	30	1.562	1.357	1.24	1.132	0.878
		Single Arm	1	15	1.074	0.927	0.839	0.761	0.576
		Double Arm	1	15	0.703	0.595	0.537	0.478	0.361
	12m	Post Top	N/A	30	2.21	1.92	1.76	1.59	1.23
		Single Arm	1	15	1.62	1.43	1.32	1.21	0.93
		Double Arm	1	15	1	0.86	0.78	0.7	0.52

Click table to enlarge.

Complementary Products



MC Style Bracket



MD Style Bracket



Cross-Arm Brackets

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