

Seven Sisters Community Centre

Installation : Proposed Lighting Design

Project number : LD4755
Customer :
Processed by : Kat Ellerington
Date : 29.10.2024

Project description:

Design based on the information provided and aiming show resulting illuminance with lighting upgrade for multi-use sports pitch with exiting 6m columns with 2 floodlights per column.

Option 3 – floodlights switched to 150W output.
We have utilised 8no of Skyline Virtus 150W Asymmetric Floodlights (type EX3 green arrow) mounted on exiting 6m columns resulted an average horizontal illuminance of 165 lux 0.63Uo.

Upward light ratio (ULR) is 0%.

Lights spillage on day one of the installation for all options is also shown for your information. Shields can be added to further reduce light spillage onto residential properties, however vertical spillage for this proposal is within 10 lux max permissible for environmental zone E3.

The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

This exclusion of liability applies irrespective of the legal grounds for both damages and consequential damages suffered by users and third parties.

Luminaire data

BELL Lighting Limited, Virtus 150W 4000K Asymmetric ... (!EX3 11491)

Data sheet

Manufacturer: BELL Lighting Limited

!EX3 11491 Virtus 150W 4000K Asymmetric Floodlight

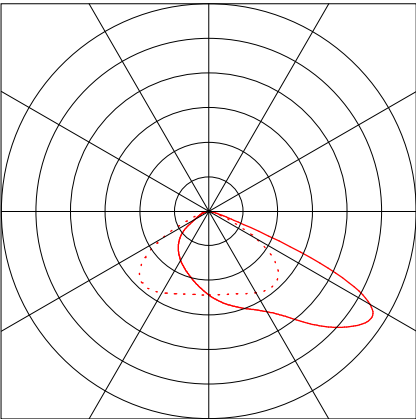
Luminaire data

Luminaire efficiency : 100%
Luminaire efficacy : 149.81 lm/W
Classification : A40 ↓100.0% ↑0.0%
CIE Flux Codes : 41 84 99 100 100
UGR 4H 8H : 36.7 / 30.6
Power : 150 W
Luminous flux : 22471 lm

Equipped with

Quantity : 1
Designation : LED 840
Colour : 4000K
Luminous flux : 22471 lm
Colour reproduction : 80

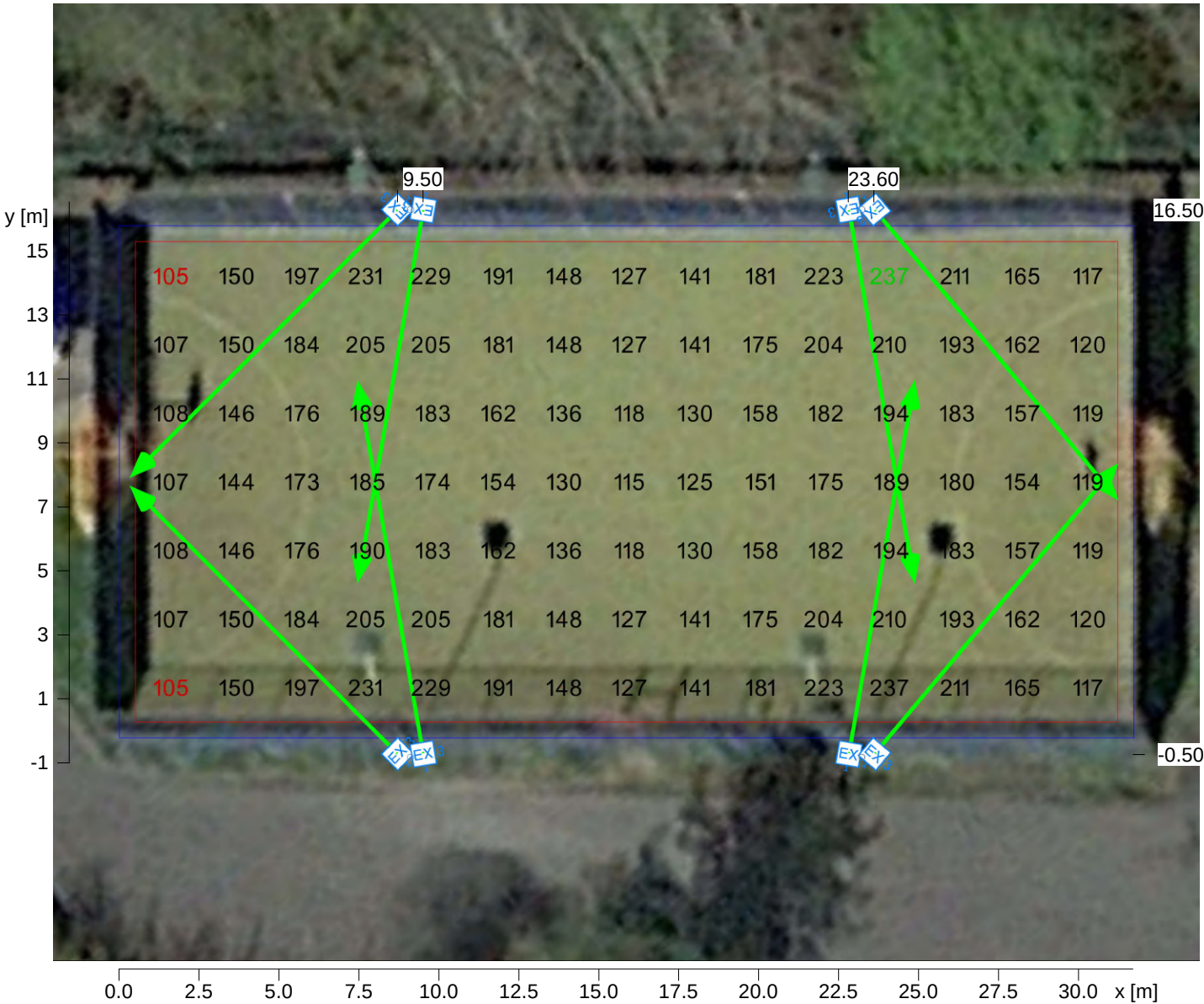
Dimensions : 380 mm x 380 mm x 75 mm



Pitch - Option 3 - switched to 150W

Description, Pitch - Option 3 - switched to 150W

Floor plan



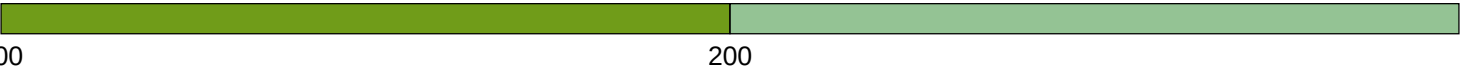
Pitch - Option 3 - switched to 150W

Summary, Pitch - Option 3 - switched to 150W

Result overview, Evaluation area 1



0.0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0 x [m]



Illuminance [lx]

General	
Calculation algorithm used	Average indirect fraction
Height (phot centre)	6.30 m
Maintenance factor	0.80
Total luminous flux	179768.00 lm
Total power	1200.0 W
Total power per area (507.20 m²)	2.37 W/m² (1.44 W/m²/100lx)
Upward light ratio (R _{UL})	0.00 %

Evaluation area 1	Reference plane 1.1
	Horizontal
$\bar{E}_m$	165 lx
E_{min}	105 lx
$E_{min}/\bar{E}_m (U_o)$	0.63
$E_{min}/E_{max} (U_d)$	0.44
Position	0.00 m

RG Table	
0.46 cd/m², 210 lx, $\rho = 0 \%$ (-2°)	
RG,max	43.2 (h=1.60m)

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Pitch - Option 3 - switched to 150W

Summary, Pitch - Option 3 - switched to 150W

Result overview, Evaluation area 1

Type No.\Make

3		8 x		BELL Lighting Limited	
		Order No.		: !EX3 11491	
		Luminaire name		: Virtus 150W 4000K Asymmetric Floodlight	
		Equipment		: 1 x LED 840 150 W / 22471 lm	

Pitch - Option 3 - switched to 150W

Calculation results, Pitch - Option 3 - switched to 150W

Table, Reference plane 1.1 (RG)

	38.9	38.3	34.5	30.6	30.1	(29.6)	32.0	30.0	32.2	31.1	30.7	31.6	32.8	37.5	38.8
[m]															
12	40.2	40.7	39.2	36.8	35.7	35.6	34.7	31.1	34.2	35.9	35.9	37.4	38.3	40.5	40.4
10	41.1	42.5	42.3	41.0	39.5	38.6	36.1	31.0	35.1	38.4	39.5	41.0	42.0	42.6	41.6
8	40.8	42.7	43.1	42.1	40.5	38.8	35.6	30.1	34.4	38.5	40.5	42.2	[43.2]	43.0	41.6
6	41.1	42.5	42.3	41.0	39.5	38.6	36.1	31.0	35.1	38.4	39.5	41.0	42.0	42.6	41.6
4	40.2	40.7	39.2	36.8	35.7	35.6	34.7	31.1	34.2	35.9	35.9	37.4	38.3	40.5	40.5
2	39.0	38.3	34.6	30.6	30.1	(29.6)	32.0	29.9	32.2	31.1	30.7	31.6	32.9	37.5	38.8
	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	[m]			



Observer Rg

L_{ve} = 0.46 cd/m², E_i = 210 lx, ρ = 20 % (-2°)

Height reference plane : 1.60 m
Minimum : 29.6
Maximum : 43.2

Pitch - Option 3 - switched to 150W - Light Spillage

Description, Pitch - Option 3 - switched to 150W - Light Spillage

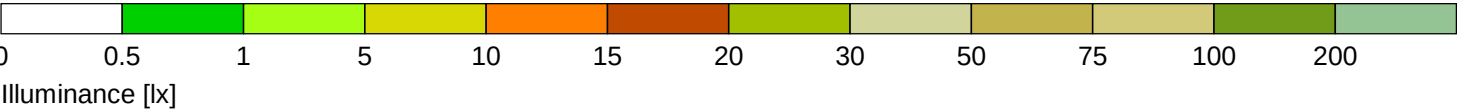
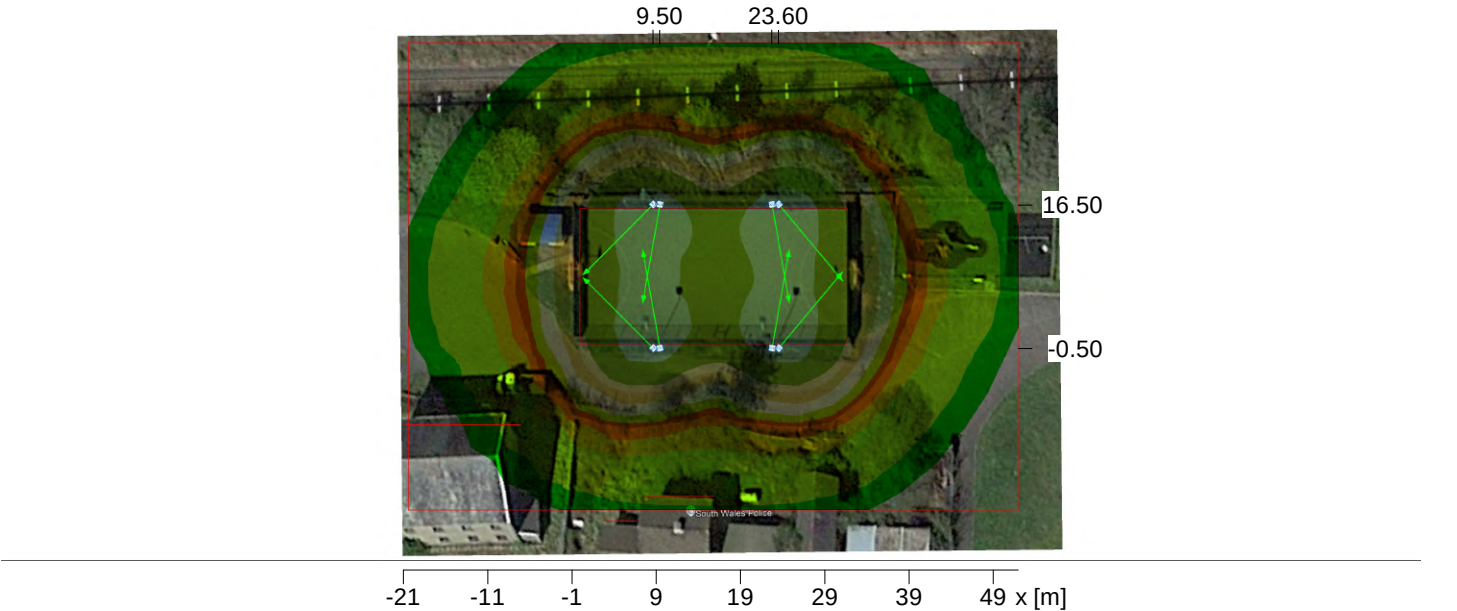
Floor plan



Pitch - Option 3 - switched to 150W - Light Spillage

Summary, Pitch - Option 3 - switched to 150W - Light Spillage

Result overview, Horizontal Light Spillage



General	
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Height (phot centre) [m]:	6.30 m
Maintenance factor	1.00
Total luminous flux	179768 lm
Total power	1200 W
Total power per area (507.20 m²)	2.37 W/m²
Upward light ratio (RUL)	0.00 %

Illuminance	
Average illuminance	$\bar{E}_m$ 45 lx
Minimum illuminance	E_{min} 0 lx
Maximum illuminance	E_{max} 281 lx
Uniformity U_o	$E_{min}/\bar{E}_m$ 1:347 (0)
Diversity U_d	E_{min}/E_{max} 1:2180 (0)

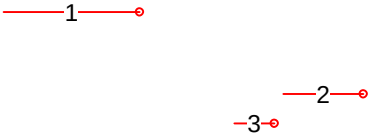
Type No. \Make

BELL Lighting Limited	
3 8 x	Order No. : !EX3 11491
	Luminaire name : Virtus 150W 4000K Asymmetric Floodlight
	Equipment : 1 x LED 840 150 W / 22471 lm

The ULR value has been calculated without obstruction by other objects.

Summary, Pitch - Option 3 - switched to 150W - Light Spillage

Result overview, Vertical Spillage Results Overview (1)



Illuminance

No.	Measuring surface	Grid	$\bar{E}_m$	E_{min}	E_{max}	U_o	U_d
1.1	Vertical Light Spillage House	13 x 4	0.83 lx	0.33 lx	2.14 lx	0.39	0.15
1.2	Vertical Light Spillage Police 1	8 x 4	2.06 lx	1.56 lx	2.88 lx	0.76	0.54
1.3	Vertical Light Spillage Police 2	4 x 2	1.3 lx	1.09 lx	1.54 lx	0.84	0.71
Summary			1.29 lx	0.33 lx	2.88 lx	0.25	0.11

Pitch - Option 3 - switched to 150W - Light Spillage

Calculation results, Pitch - Option 3 - switched to 150W - Light Spillage

Boundary line, Horizontal Light Spillage (E)



Height reference plane		: 0.00 m
Average illuminance	$\bar{E}_m$	: 45 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 281 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	: 1 : 347.25 (0.00)
Diversity U_d	E_{min}/E_{max}	: 1 : 2183.87 (0.00)