



Padel facility - Sholing FC - Court and obtrusive light simulation

Preface

THE BASIS

A comprehensive lighting study was undertaken to ensure that the proposed lighting design and specified equipment for the PADEL Court facility would not only achieve but maintain the stringent standards required for sporting venues. According to the Lawn Tennis Association (LTA) guidelines for padel courts.

The study assessed the spatial arrangement of luminaires, the height and orientation of columns, and the technical characteristics of the chosen fixtures to verify that these standards could be met under all typical operating conditions. Advanced software modelling was used to simulate real-world lighting scenarios, accounting for both direct and reflected light within the facility.

In addition to achieving the optimal lighting levels for play, a critical objective of the study was to minimize obtrusive light beyond the court boundaries. This involved analysing potential impacts on adjacent residential areas and local wildlife habitats, ensuring that the facility would operate in harmony with its surroundings and comply with environmental lighting regulations. Specific attention was given to controlling glare, upward light, horizontal light trespass, precise aiming of luminaires and using the optimal luminaire optics.

Overall, this rigorous lighting assessment confirms that the PADEL Court installation will deliver high-quality, competition-ready illumination while maintaining minimal obtrusive light levels, thereby balancing both performance and environmental considerations.

METHODOLOGY

To ensure accuracy and compliance with lighting standards, topographical maps and facility drawings were incorporated into advanced lighting simulation software, (Dialux Pro). This allowed for precise modelling of artificial light distribution across the proposed PADEL Courts and surroundings. The simulations accounted for the positioning, mounting heights, and angles of all lighting fixtures, enabling a thorough evaluation of illumination levels both on the playing surface and in the immediate environment.

By replicating real-world conditions, the software was able to predict areas of potential light spill, glare, or insufficient illumination, guiding the design team in optimising fixture placement and specifications. This process not only addressed the requirements for high-quality, uniform lighting suitable for competitive play but also ensured that obtrusive light impacts on nearby residences, pathways, roads and ecological zones would be minimised through suitable luminaire selection, optics and careful adjustment of luminaire direction.

Through this meticulous approach, the lighting design could be refined iteratively, balancing the need for performance-level visibility with the imperative to protect local environmental quality and community amenity.

Notes on planning:

The energy consumption quantities do not take into account light scenes and their dimming levels.

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Site 1

200M Diametre overspill mesaurement

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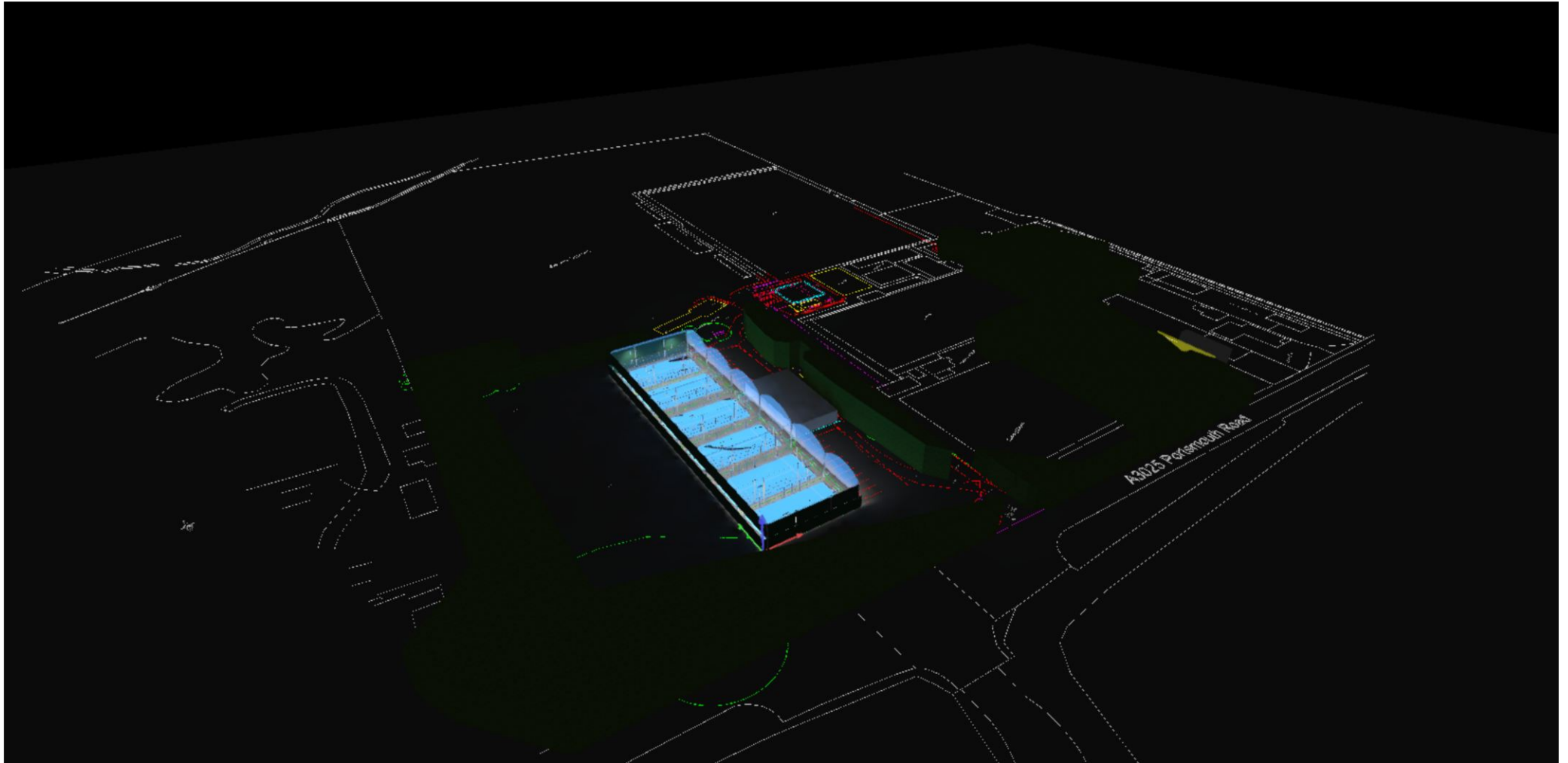
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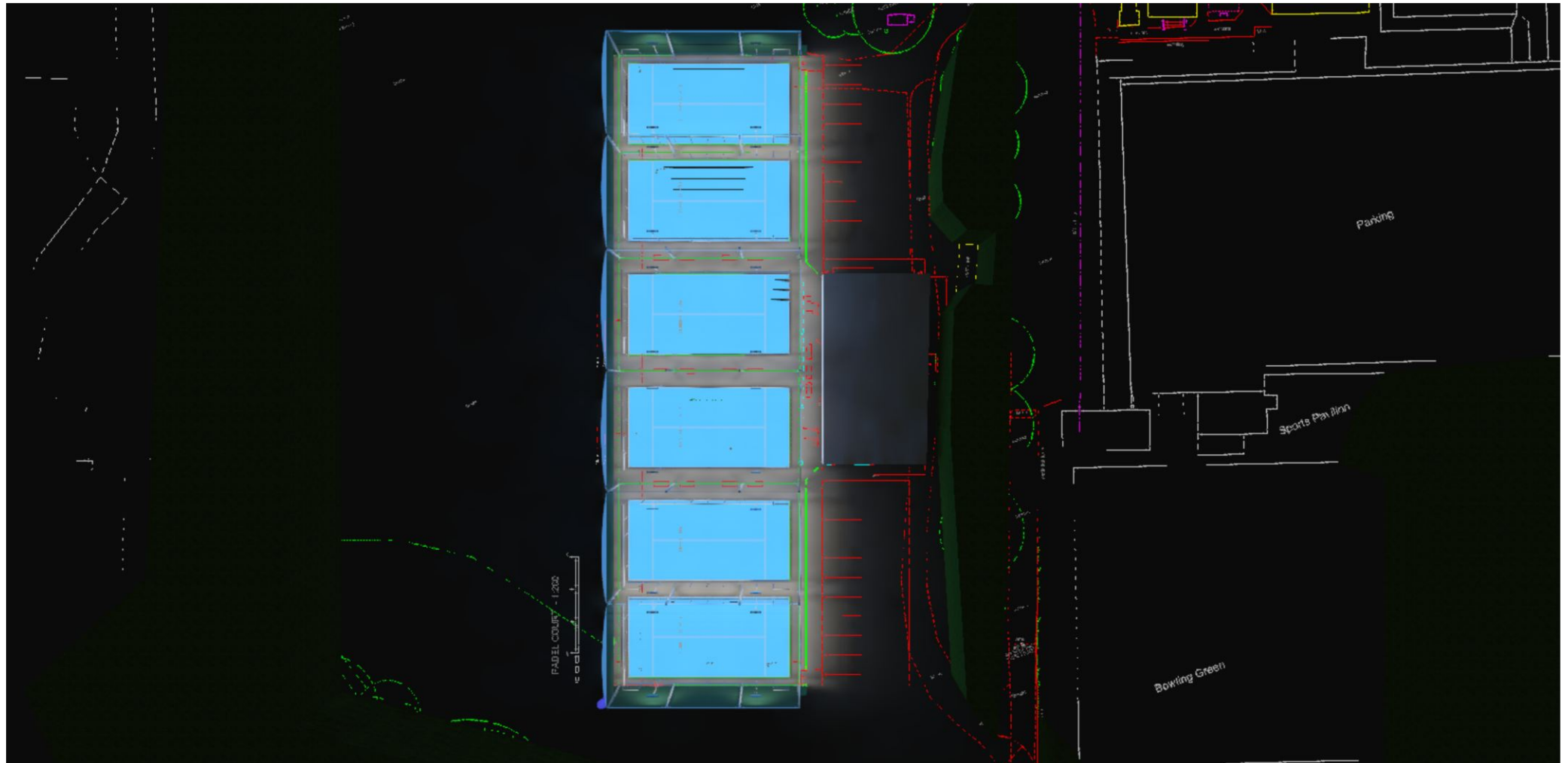
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Images



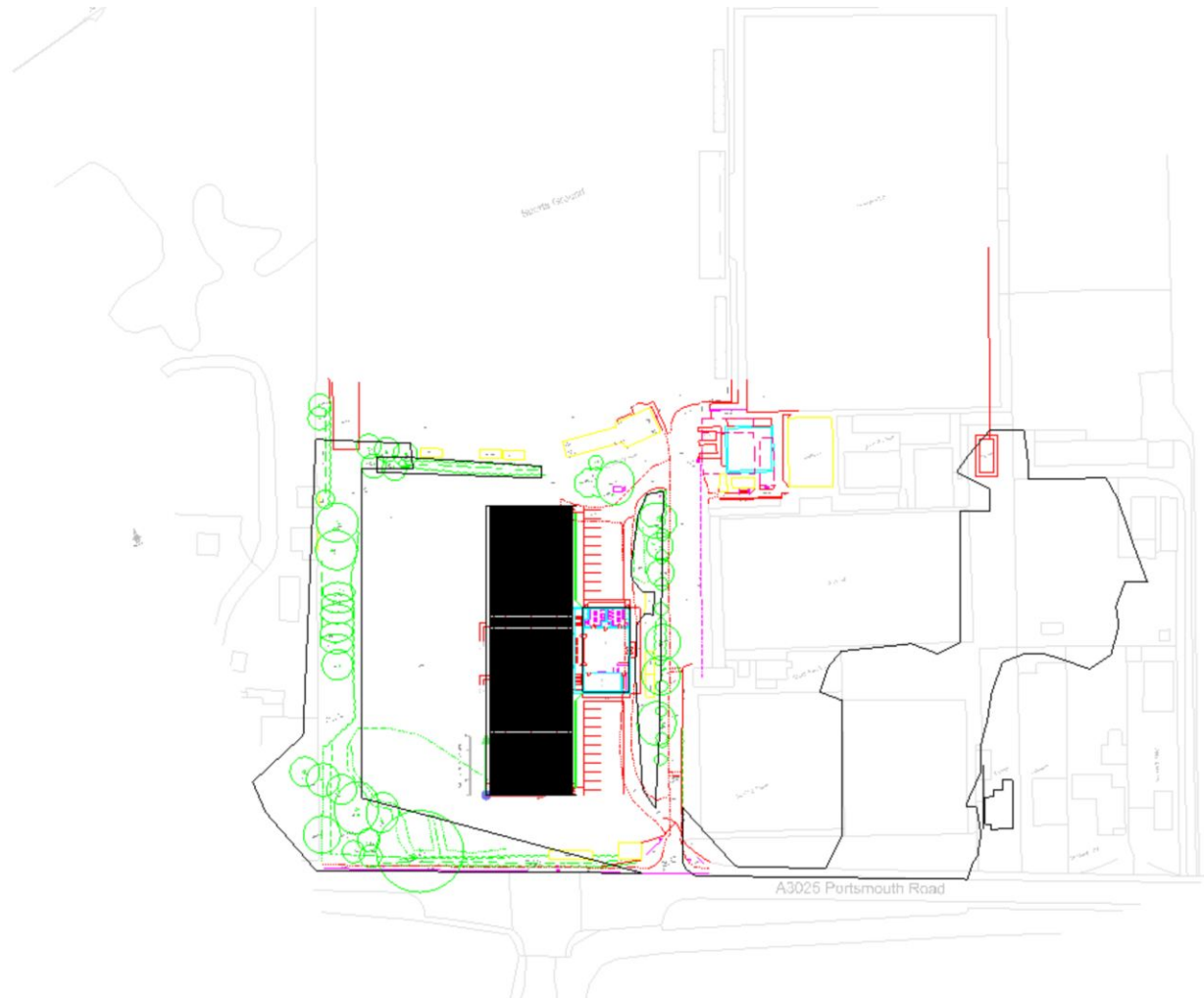
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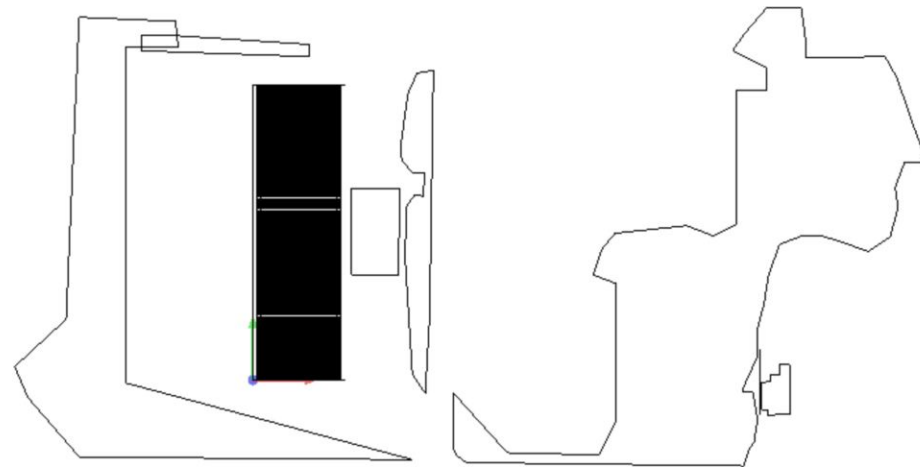
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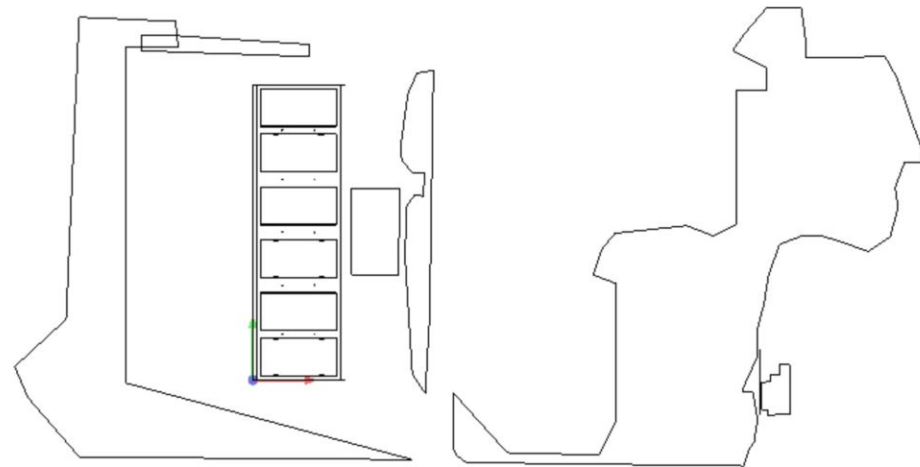
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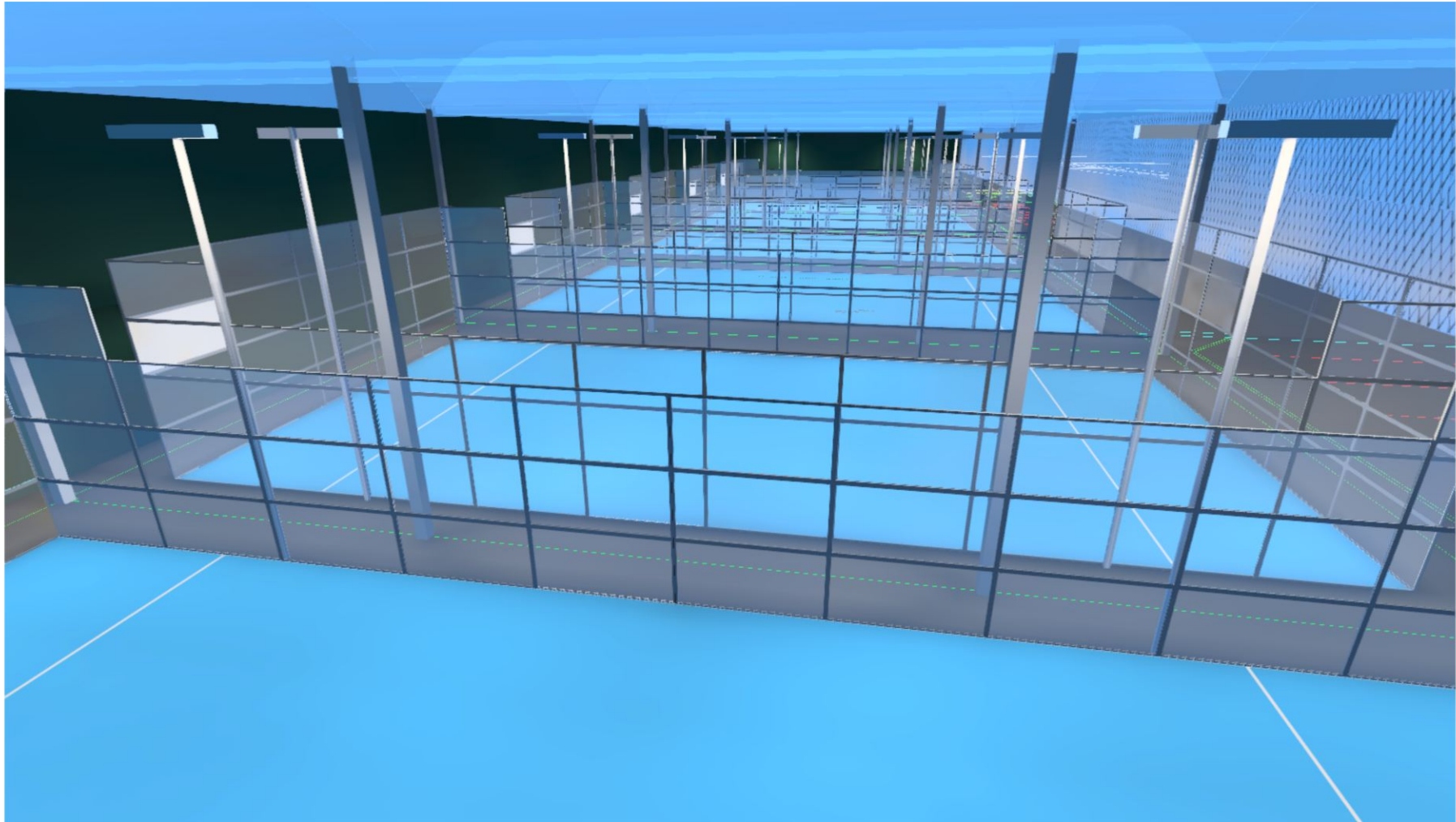
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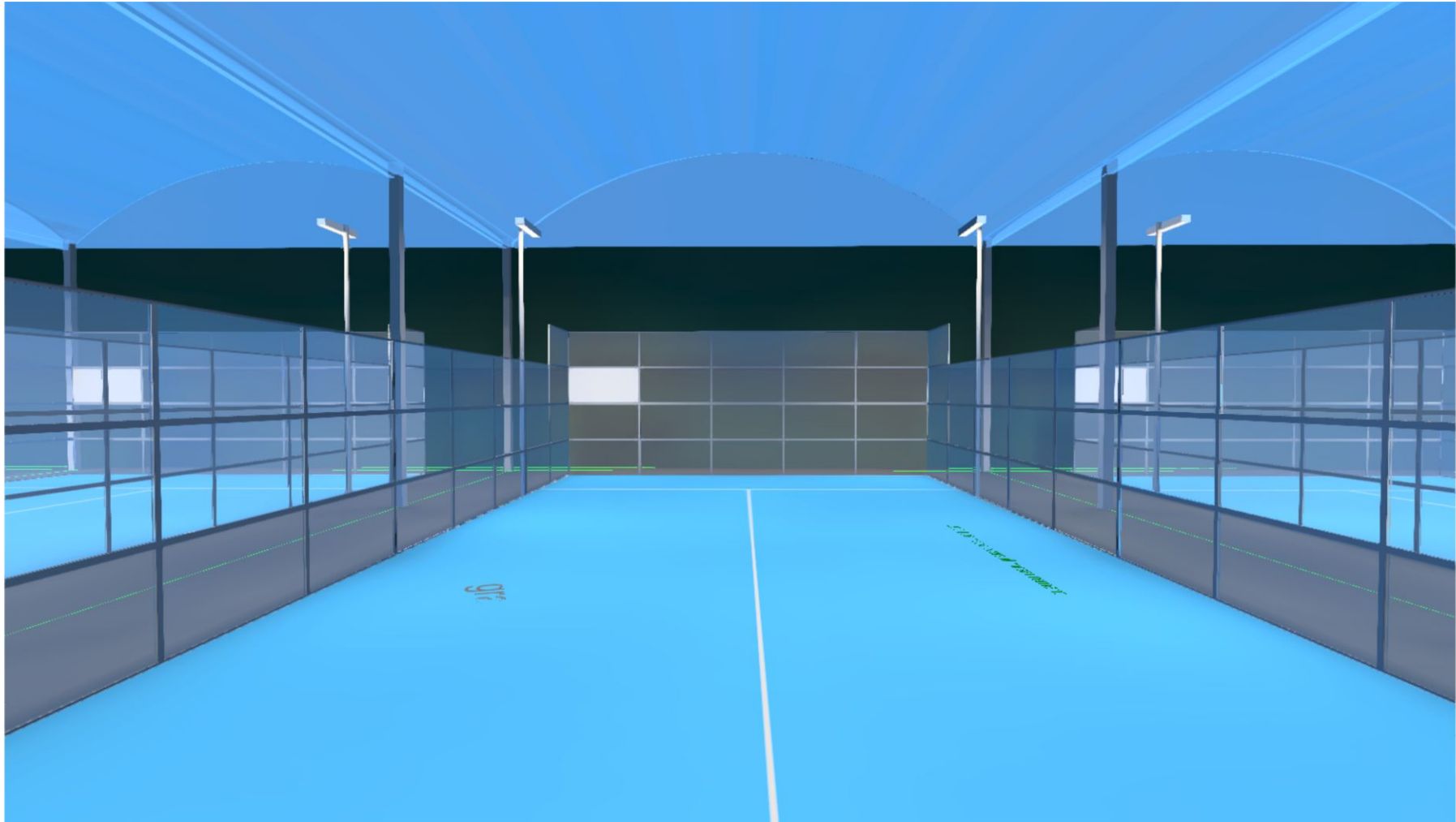
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Images



Images



Luminaire list

Φ_{total} 1247832 lm	P_{total} 7680.0 W	Luminous efficacy 162.5 lm/W
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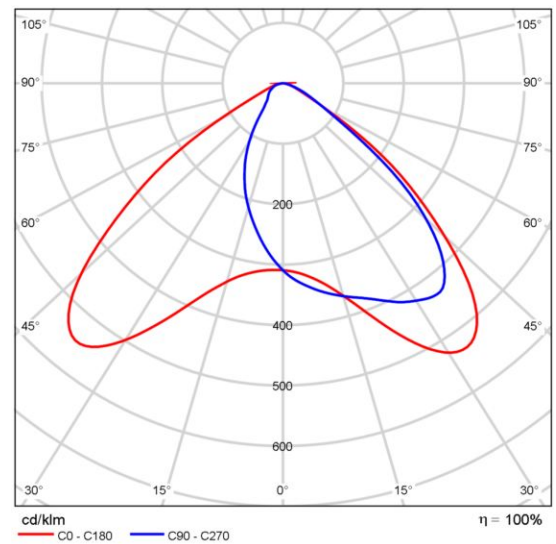
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
24	ARON LIGHT	ILAR-02524	320W PADELite Master PWR switch (320W) 4K	320.0 W	51993 lm	162.5 lm/W

Product data sheet

ARON LIGHT - 320W PADELite Master PWR switch (320W) 4K



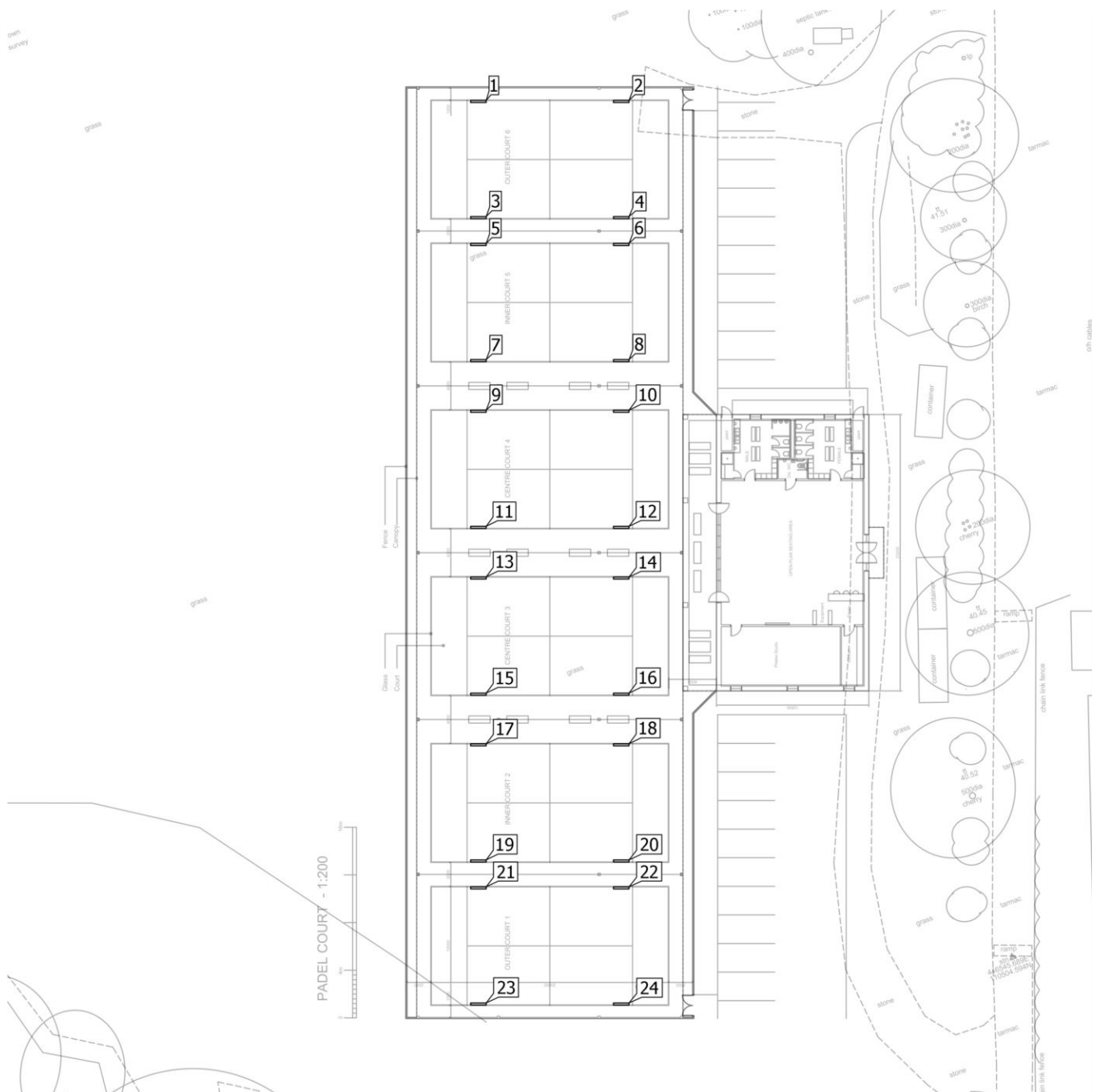
Article No.	ILAR-02524
P	320.0 W
Φ_{Lamp}	51999 lm
$\Phi_{\text{Luminaire}}$	51993 lm
η	99.99 %
Luminous efficacy	162.5 lm/W
CCT	4000 K
CRI	100



Polar LDC

Site 1 (Obtrusive light scene)

Summary



Site 1 (Obtrusive light scene)

Summary

General information on the obtrusive light calculation

Standard	EN 12464-2:2014
Zone	Environmental Zone E3
Period under review	Pre-curfew
Apply limits for	General lighting

General obtrusive light scene results

Symbol	Calculated	Threshold value	Check
R _{UF}	2.9 %	–	
R _{UL}	0.0 %	≤ 15.0 %	✓
R _{DLO}	100.0 %	–	
R _{ULO}	0.0 %	–	

Calculation surfaces

Symbol	Calculated	Threshold value	Check	Index
E _{vmax}	0.00 lx	≤ 10.0 lx	✓	OCG2

Flux ratios are also calculated using only luminaires in the obtrusive lighting scene.

Site 1 (240W Class II)

Calculation objects



Site 1 (240W Class II)

Calculation objects

Working planes

Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Working plane (200M Diametre overspil measurement) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	0.001 lx	0.00 lx	0.10 lx	-	0.00	WP1

Calculation surfaces

Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
A3025 Horizontal illuminance Height: 1.200 m	0.002 lx	0.00 lx	0.18 lx	-	0.00	CG10
A3025 Vertical illuminance Rotation: 0.0°, Height: 1.200 m	0.001 lx	0.000 lx	0.011 lx	-	0.00	CG10
Bat flight 1.5M from ground North Horizontal illuminance Height: 1.500 m	0.043 lx	0.003 lx	0.34 lx	0.070	0.009	CG9
Bat flight 1.5M from ground North Vertical illuminance Rotation: 287.3°, Height: 1.500 m	0.14 lx	0.005 lx	1.29 lx	0.036	0.004	CG9
Bat flight 1.5M from ground South Horizontal illuminance Height: 1.500 m	0.070 lx	0.012 lx	1.82 lx	0.17	0.007	CG8
Bat flight 1.5M from ground South Vertical illuminance Rotation: 68.9°, Height: 1.500 m	0.19 lx	0.005 lx	3.81 lx	0.026	0.001	CG8
Bat flight 1.5M from ground West Horizontal illuminance Height: 1.500 m	0.024 lx	0.002 lx	1.01 lx	0.083	0.002	CG7
Bat flight 1.5M from ground West Vertical illuminance Rotation: 0.0°, Height: 1.500 m	0.099 lx	0.003 lx	6.66 lx	0.030	0.000	CG7
Court 1 Perpendicular illuminance Height: 0.012 m	447 lx	381 lx	531 lx	0.85	0.72	CG1

Site 1 (240W Class II)

Calculation objects

Court 2 Perpendicular illuminance Height: 0.012 m	455 lx	404 lx	536 lx	0.89	0.75	CG2
Court 3 Perpendicular illuminance Height: 0.012 m	445 lx	399 lx	508 lx	0.90	0.79	CG3
Court 4 Perpendicular illuminance Height: 0.012 m	444 lx	397 lx	507 lx	0.89	0.78	CG4
Court 5 Perpendicular illuminance Height: 0.012 m	455 lx	402 lx	529 lx	0.88	0.76	CG5
Court 6 Perpendicular illuminance Height: 0.012 m	447 lx	384 lx	533 lx	0.86	0.72	CG6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (320W Class I)

Calculation objects



Site 1 (320W Class I)

Calculation objects

Working planes

Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Working plane (200M Diametre overspil measurement) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	0.002 lx	0.00 lx	0.14 lx	-	0.00	WP1

Calculation surfaces

Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
A3025 Horizontal illuminance Height: 1.200 m	0.002 lx	0.00 lx	0.25 lx	-	0.00	CG10
A3025 Vertical illuminance Rotation: 0.0°, Height: 1.200 m	0.001 lx	0.000 lx	0.014 lx	-	0.00	CG10
Bat flight 1.5M from ground North Horizontal illuminance Height: 1.500 m	0.057 lx	0.004 lx	0.45 lx	0.070	0.009	CG9
Bat flight 1.5M from ground North Vertical illuminance Rotation: 287.3°, Height: 1.500 m	0.18 lx	0.006 lx	1.72 lx	0.033	0.003	CG9
Bat flight 1.5M from ground South Horizontal illuminance Height: 1.500 m	0.093 lx	0.016 lx	2.43 lx	0.17	0.007	CG8
Bat flight 1.5M from ground South Vertical illuminance Rotation: 68.9°, Height: 1.500 m	0.26 lx	0.006 lx	5.08 lx	0.023	0.001	CG8
Bat flight 1.5M from ground West Horizontal illuminance Height: 1.500 m	0.032 lx	0.003 lx	1.35 lx	0.094	0.002	CG7
Bat flight 1.5M from ground West Vertical illuminance Rotation: 0.0°, Height: 1.500 m	0.13 lx	0.005 lx	8.88 lx	0.038	0.001	CG7
Court 1 Perpendicular illuminance Height: 0.012 m	596 lx	508 lx	708 lx	0.85	0.72	CG1

Site 1 (320W Class I)

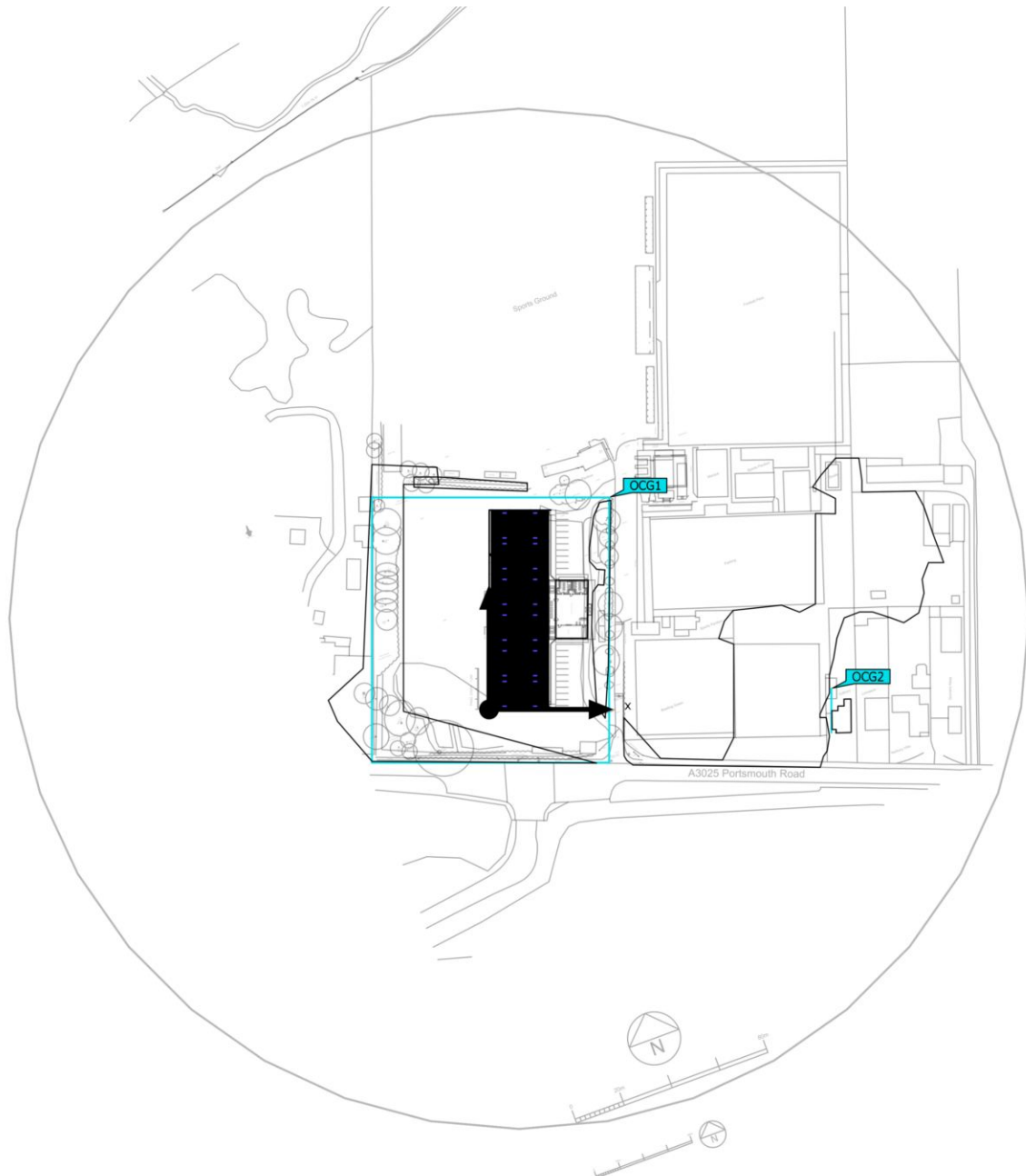
Calculation objects

Court 2 Perpendicular illuminance Height: 0.012 m	607 lx	539 lx	715 lx	0.89	0.75	CG2
Court 3 Perpendicular illuminance Height: 0.012 m	593 lx	532 lx	678 lx	0.90	0.78	CG3
Court 4 Perpendicular illuminance Height: 0.012 m	593 lx	530 lx	677 lx	0.89	0.78	CG4
Court 5 Perpendicular illuminance Height: 0.012 m	607 lx	536 lx	706 lx	0.88	0.76	CG5
Court 6 Perpendicular illuminance Height: 0.012 m	596 lx	511 lx	711 lx	0.86	0.72	CG6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Obtrusive light scene)

Calculation objects



Site 1 (Obtrusive light scene)

Calculation objects

Calculation surfaces

Properties	$\bar{E}$	E_{min}	E_{max} (Target)	$U_o (g_1)$	g_2	Index
Residence "Colbury" Vertical illuminance Vertical illuminance Rotation: 168.5°, Height: 3.000 m	0.00 lx	0.00 lx	0.00 lx (≤ 10.0 lx) ✓	-	-	OCG2

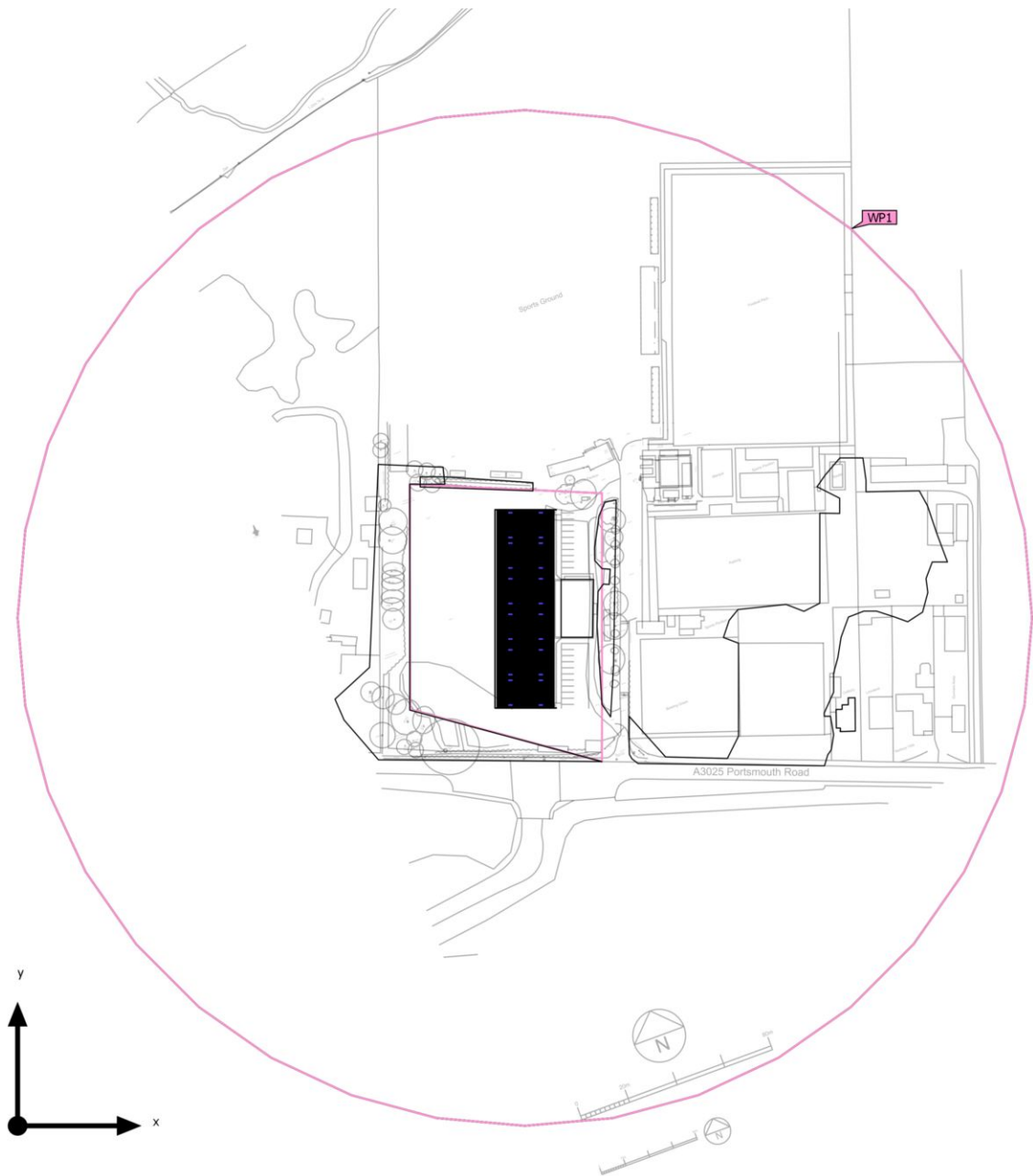
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:

All values take the initial flux (MF = 1) into account. The k_s value was calculated by limiting the spatial angle to $10e-6$.

200M Diametre overspil mesaurement (240W Class II)

Summary



		Mounting height	6.000 m
Ground area		Height _{Working plane}	0.000 m
Maintenance factor		Wall zone _{Working plane}	0.000 m

200M Diametre overspil mesaurement (240W Class II)

Summary

Results

	Symbol	Calculated	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	0.001 lx	WP1
	$U_o (g_1)$	-	WP1
Energy estimation ⁽²⁾	Consumption	67277 kWh/a	
Space	Lighting power density	0.06 W/m ²	
		4676.64 W/m ² /100 lx	

(2) Calculated using DIN:18599-4.

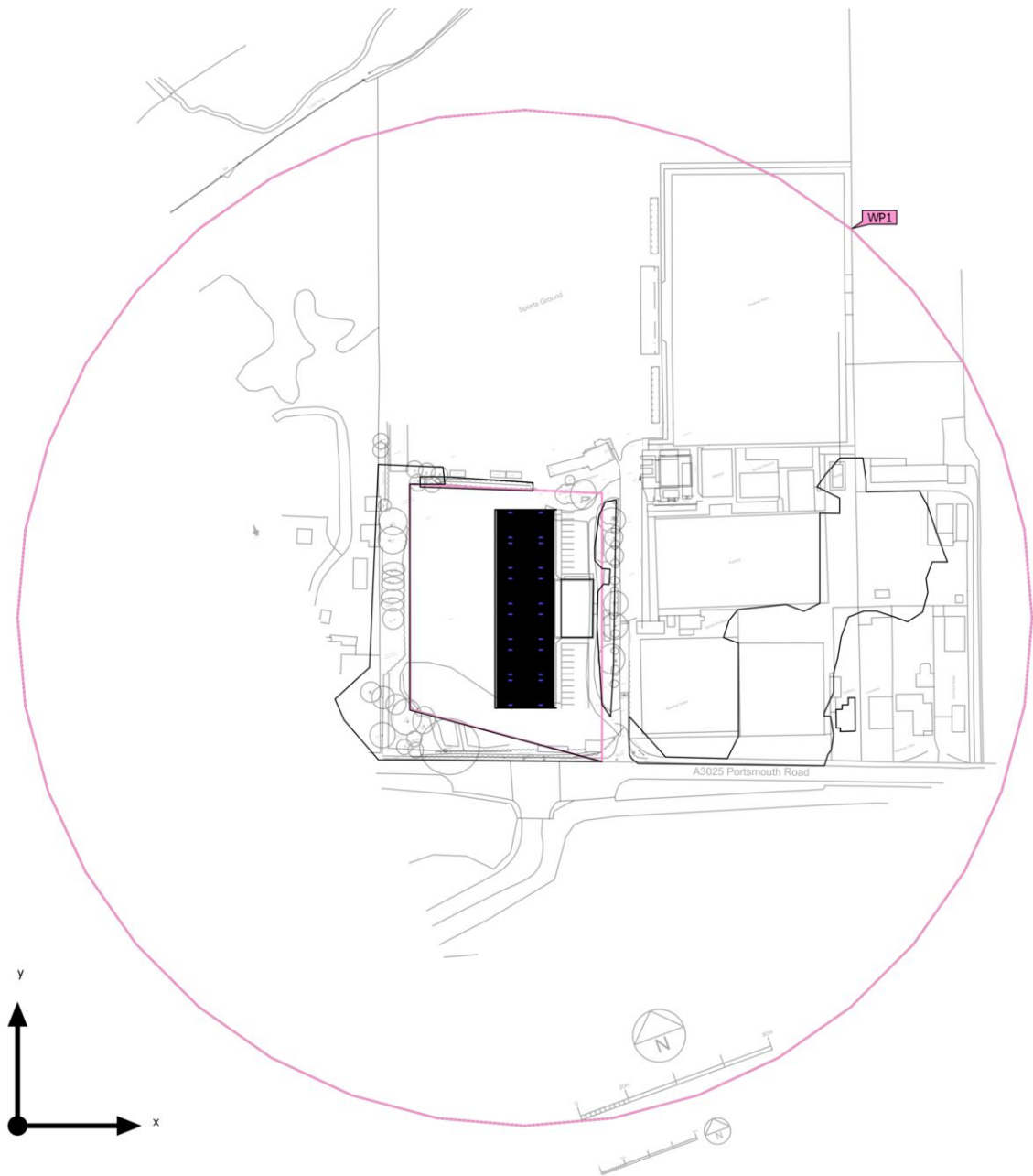
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Luminaire list

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
24	ARON LIGHT	ILAR-02524	320W PADELite Master PWR switch (320W) 4K	320.0 W	51993 lm	162.5 lm/W

200M Diametre overspil mesaurement (320W Class I)

Summary



		Mounting height	6.000 m
Ground area	125026.69 m ²	Height _{Working plane}	0.000 m
Maintenance factor	0.90 (fixed)	Wall zone _{Working plane}	0.000 m

200M Diametre overspil mesaurement (320W Class I)

Summary

Results

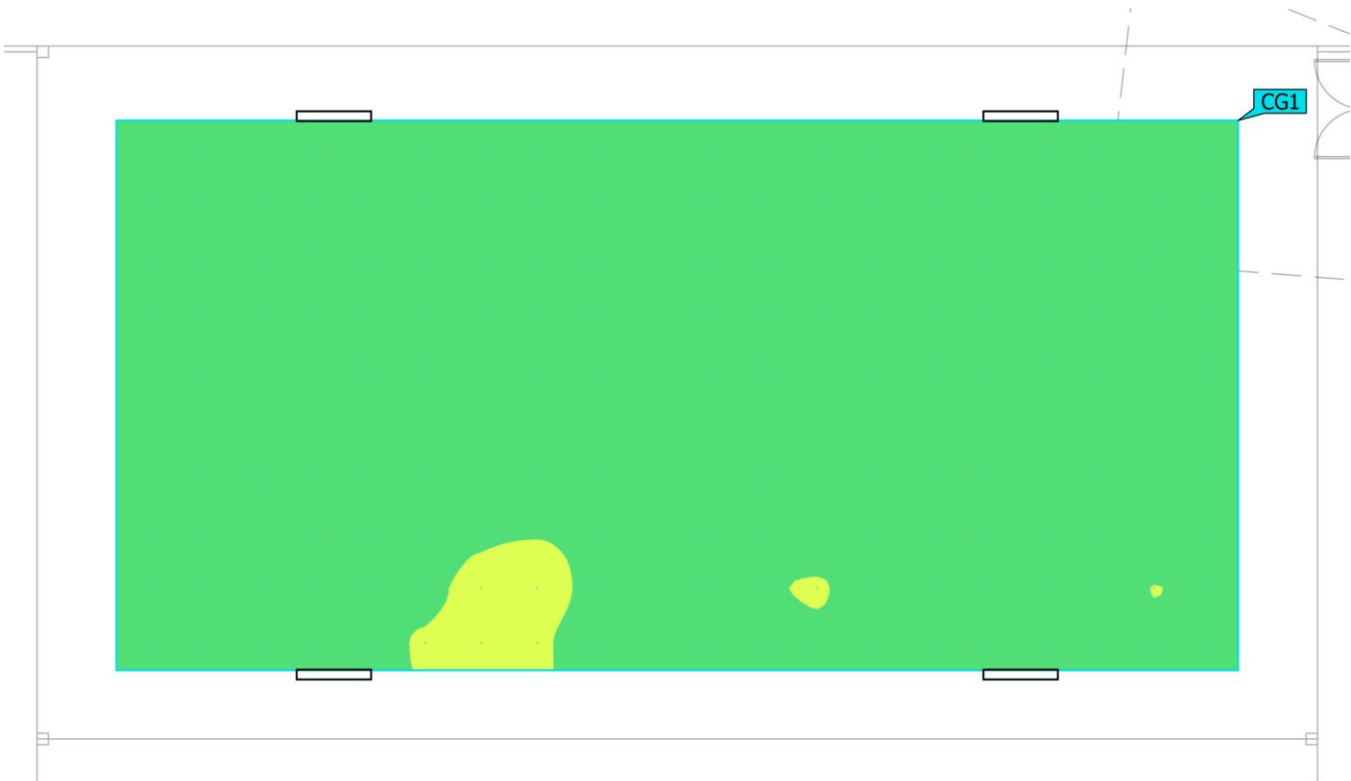
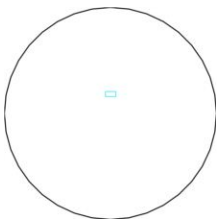
	Symbol	Calculated	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	0.002 lx	WP1
	$U_o (g_1)$	-	WP1
Space	Lighting power density	0.06 W/m ²	
		3507.48 W/m ² /100 lx	

Luminaire list

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
24	ARON LIGHT	ILAR-02524	320W PADELite Master PWR switch (320W) 4K	320.0 W	51993 lm	162.5 lm/W

200M Diametre overspil mesaurement (240W Class II)

Court 1

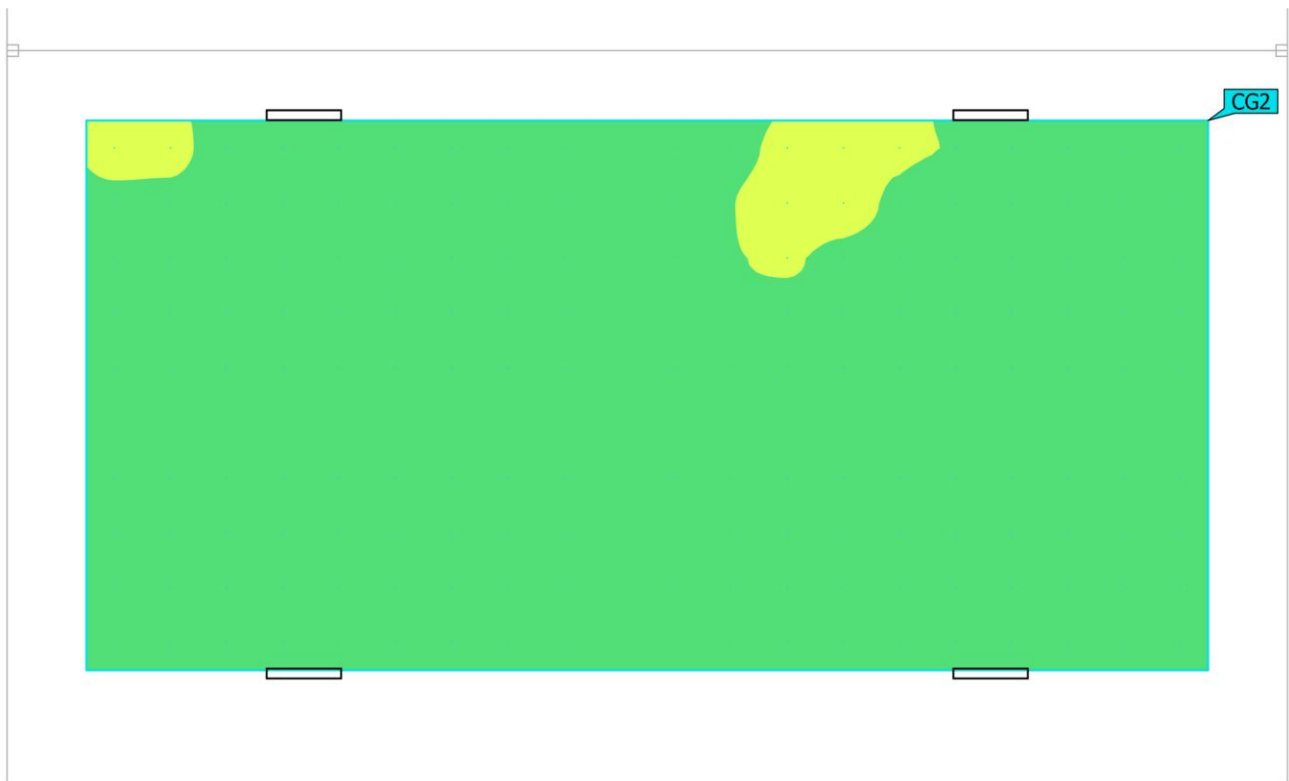
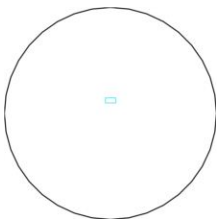


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 1 Perpendicular illuminance Height: 0.012 m	447 lx	381 lx	531 lx	0.85	0.72	CG1

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (240W Class II)

Court 2

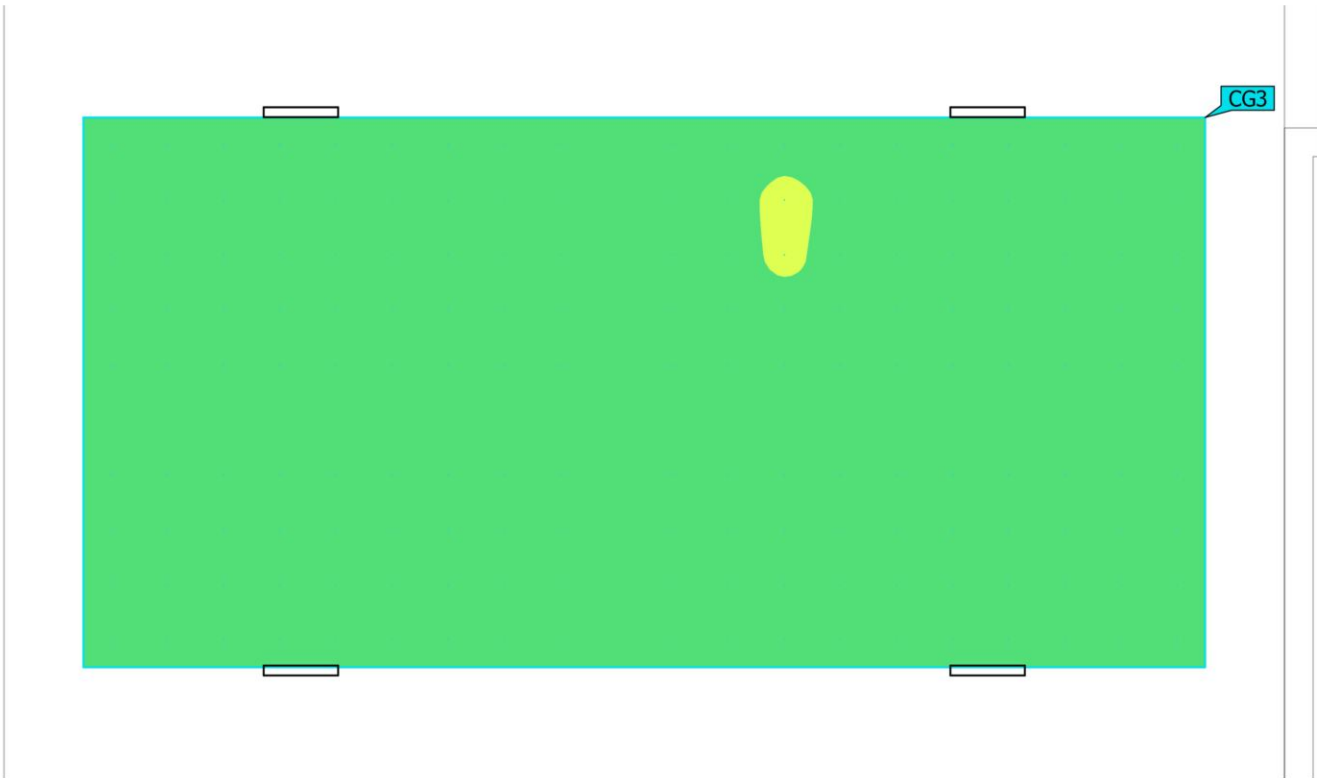
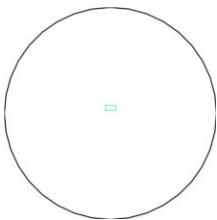


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 2	455 lx	404 lx	536 lx	0.89	0.75	CG2
Perpendicular illuminance						
Height: 0.012 m						

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (240W Class II)

Court 3

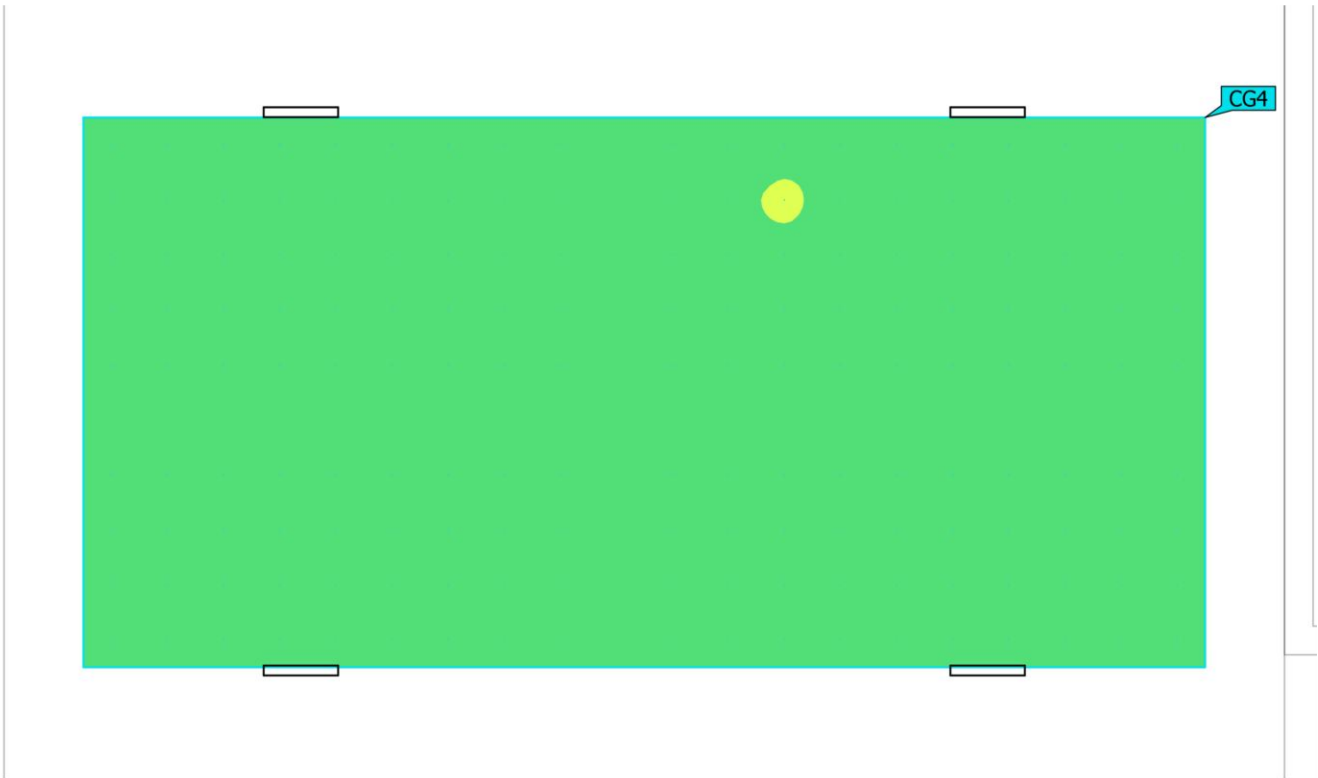
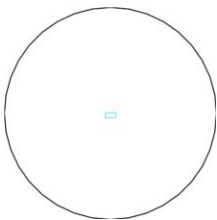


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 3 Perpendicular illuminance Height: 0.012 m	445 lx	399 lx	508 lx	0.90	0.79	CG3

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (240W Class II)

Court 4

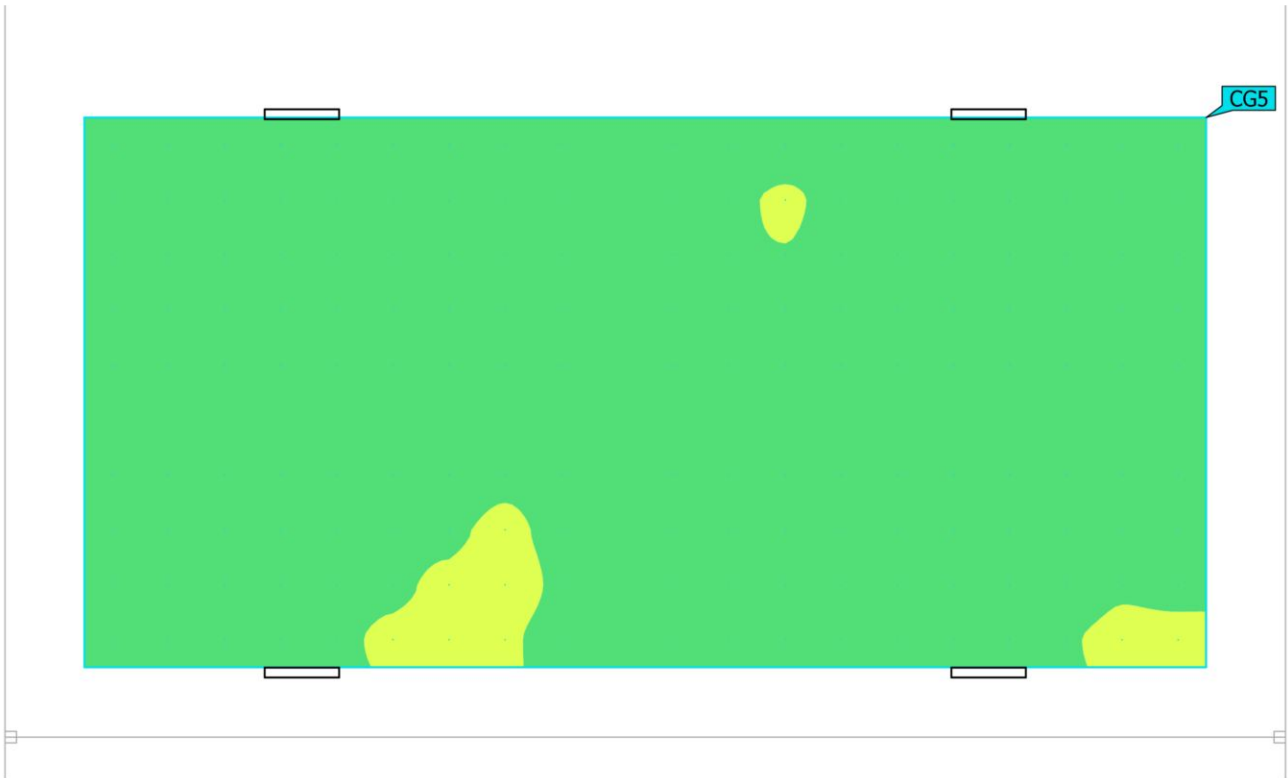
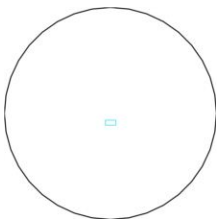


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 4 Perpendicular illuminance Height: 0.012 m	444 lx	397 lx	507 lx	0.89	0.78	CG4

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (240W Class II)

Court 5

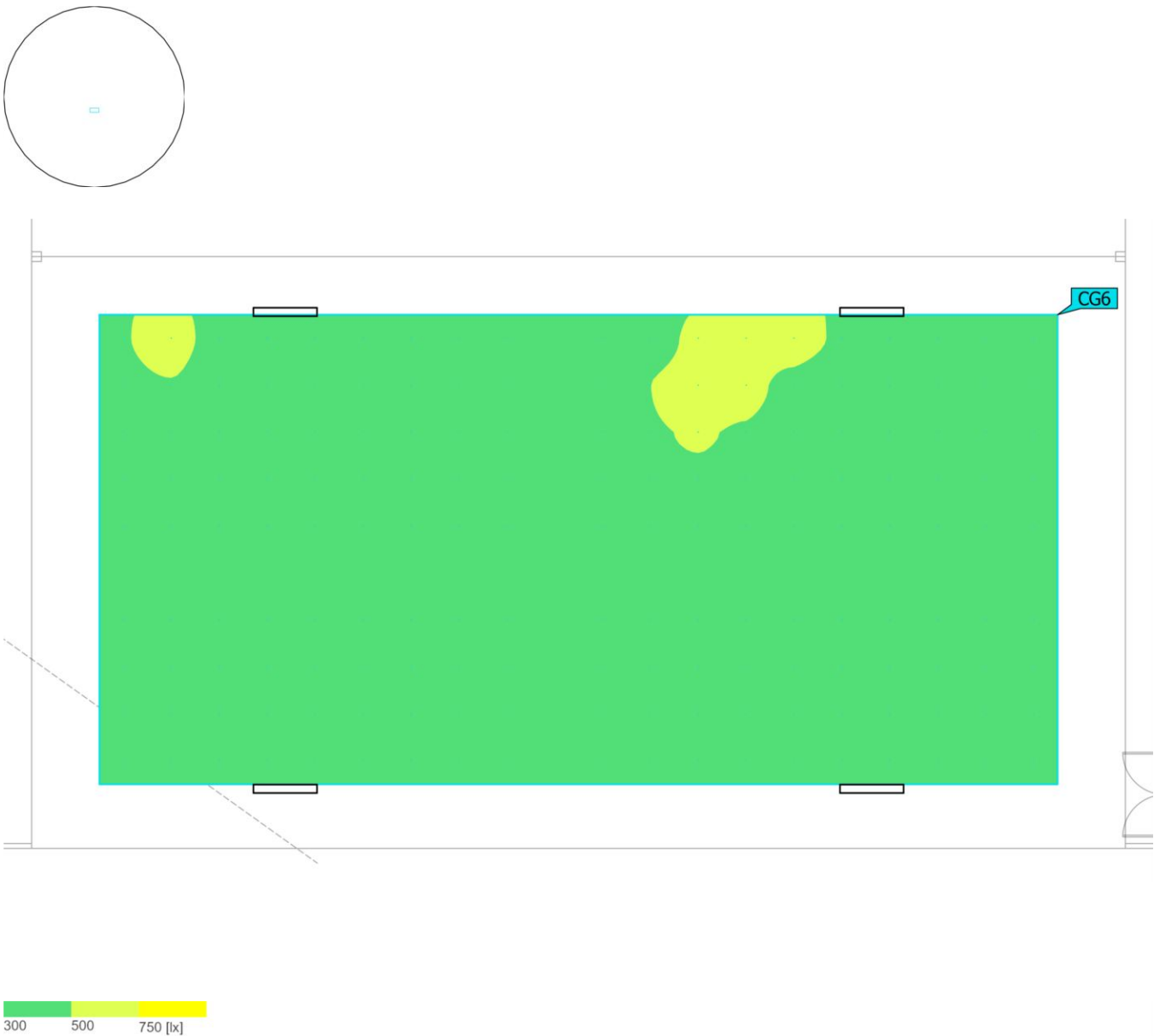


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 5 Perpendicular illuminance Height: 0.012 m	455 lx	402 lx	529 lx	0.88	0.76	CG5

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (240W Class II)

Court 6

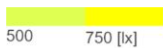
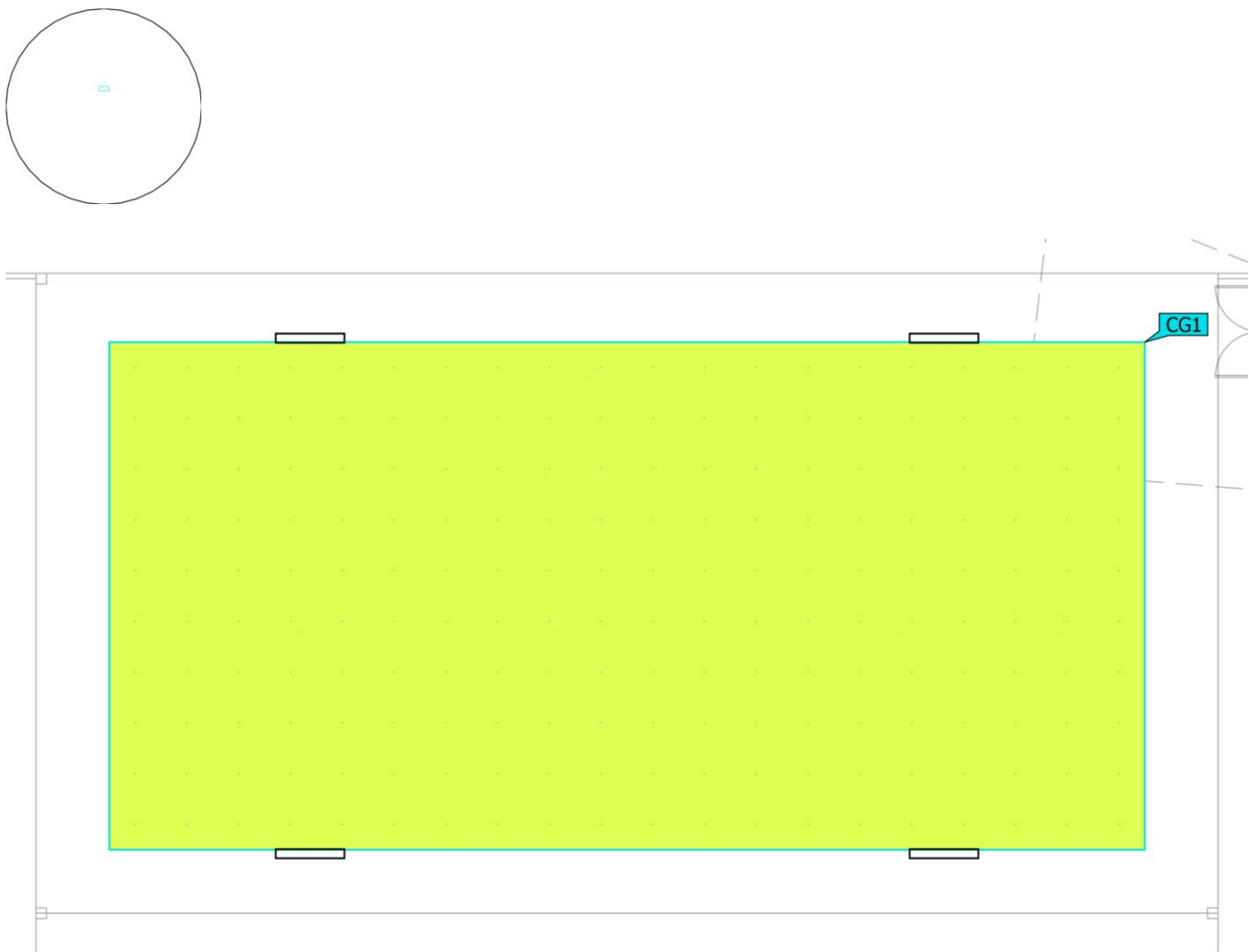


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 6 Perpendicular illuminance Height: 0.012 m	447 lx	384 lx	533 lx	0.86	0.72	CG6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Court 1

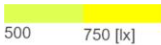
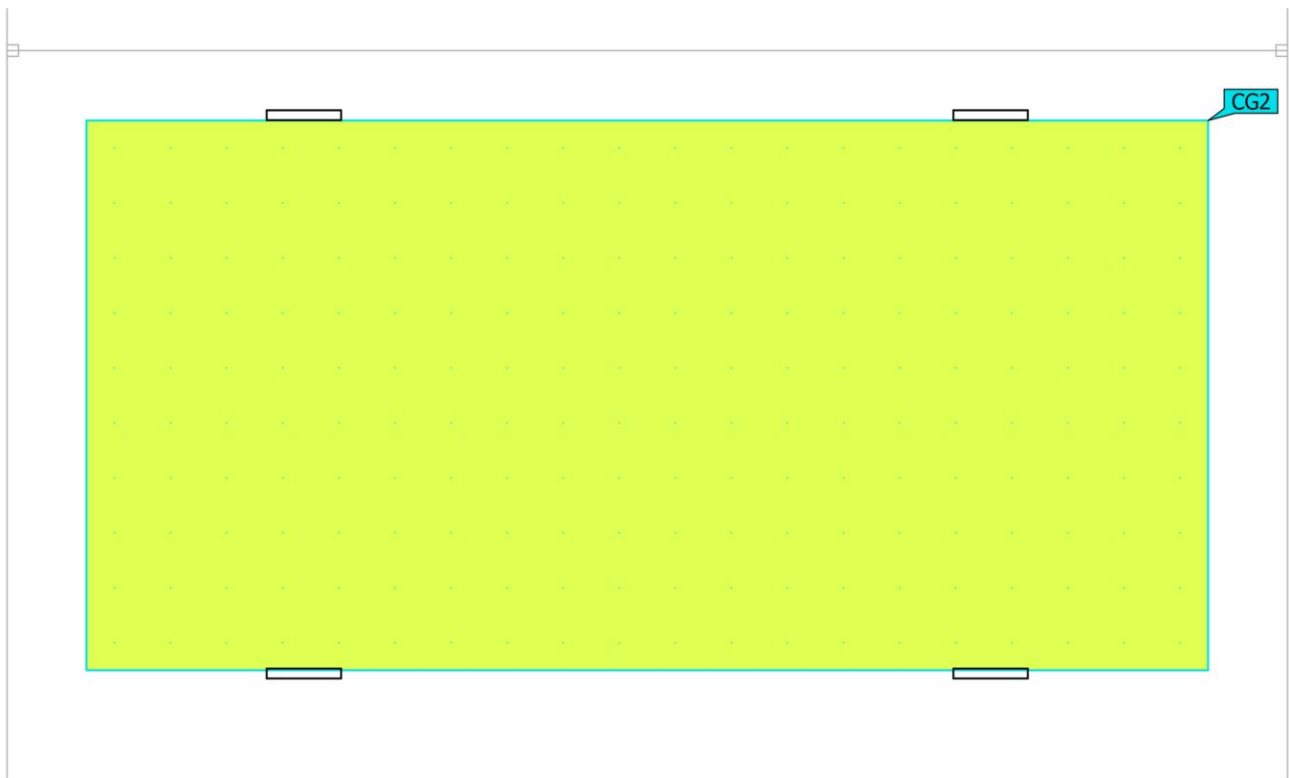
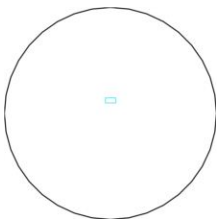


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 1 Perpendicular illuminance Height: 0.012 m	596 lx	508 lx	708 lx	0.85	0.72	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Court 2

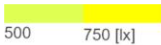
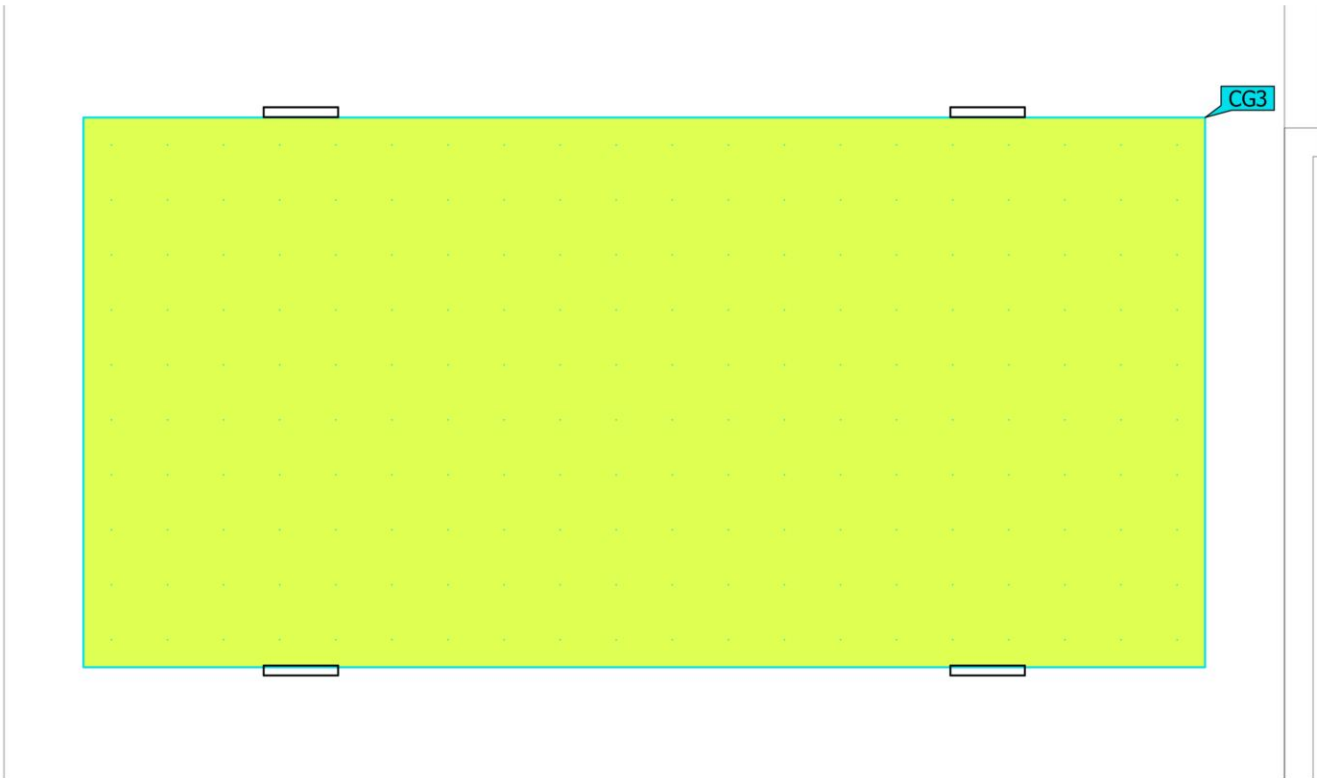
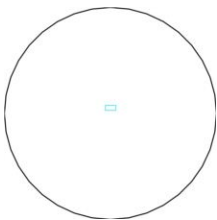


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 2	607 lx	539 lx	715 lx	0.89	0.75	CG2
Perpendicular illuminance						
Height: 0.012 m						

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Court 3

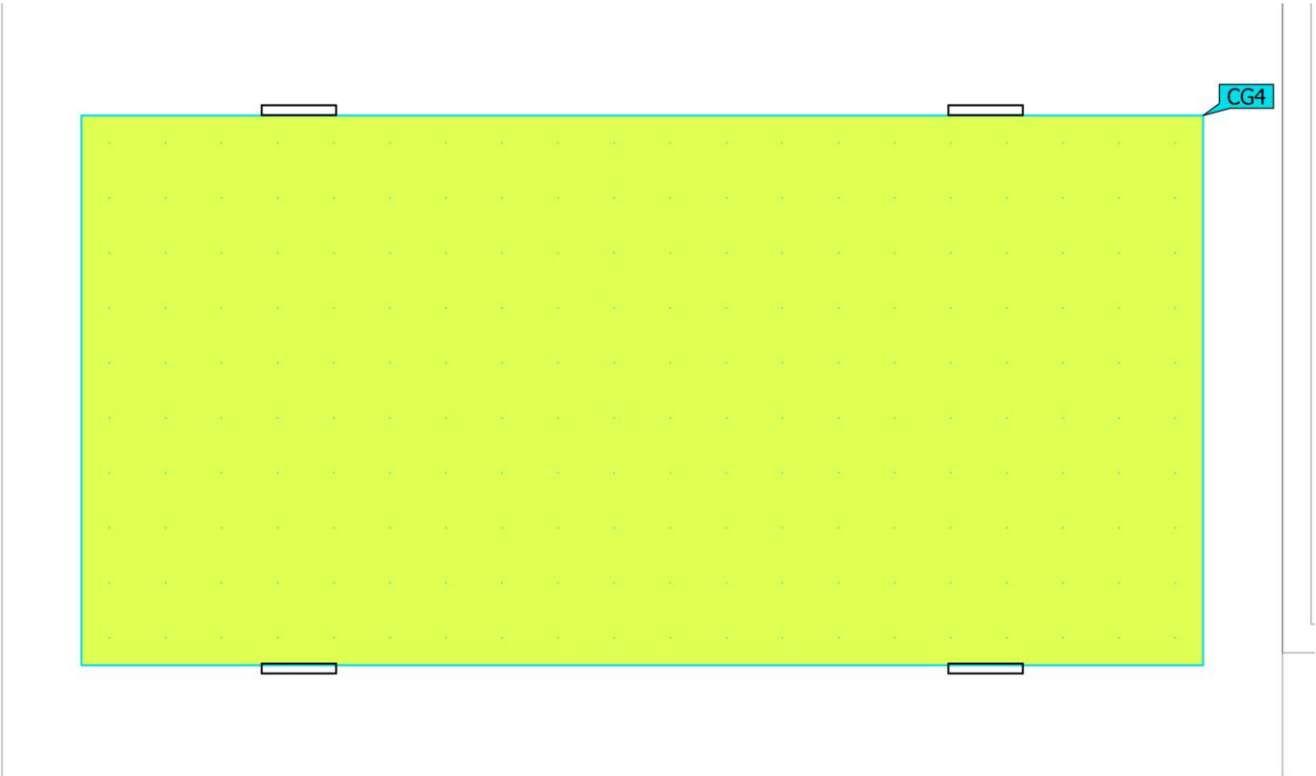
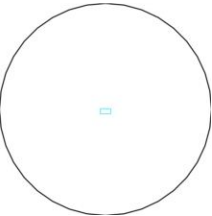


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 3 Perpendicular illuminance Height: 0.012 m	593 lx	532 lx	678 lx	0.90	0.78	CG3

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Court 4

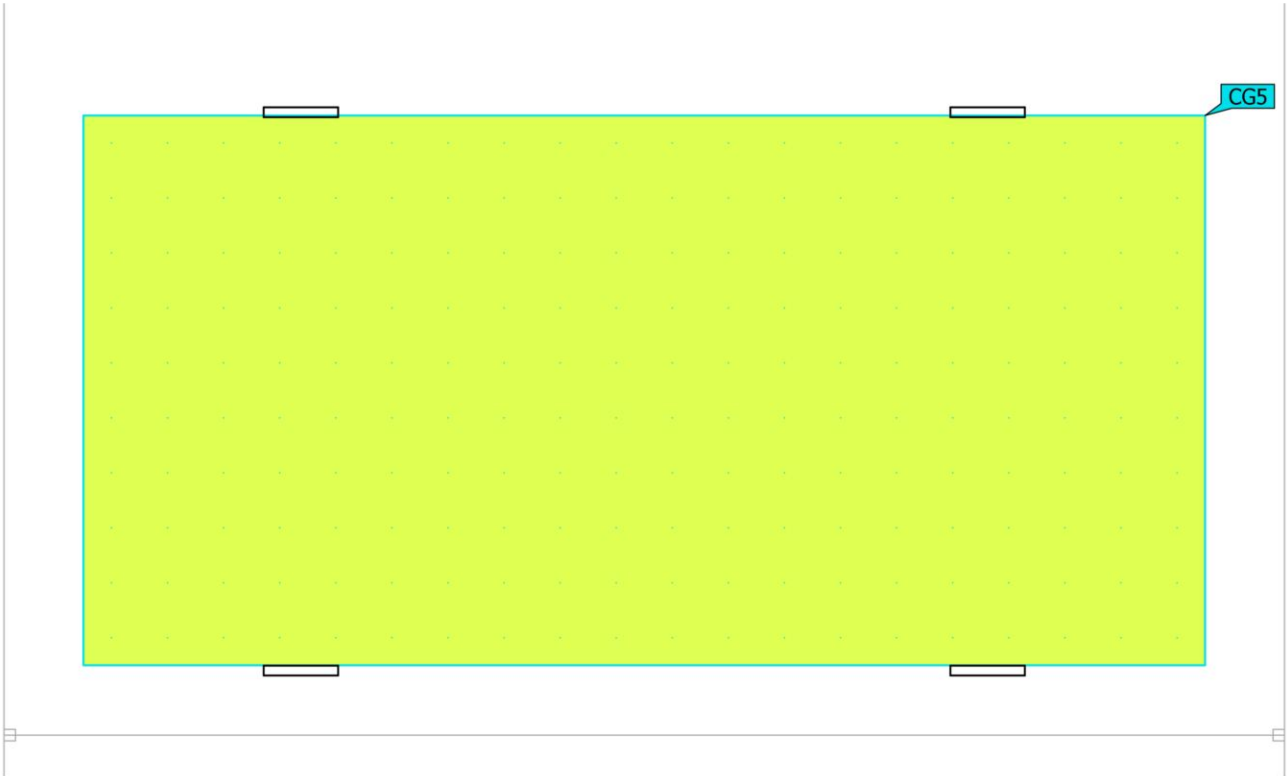
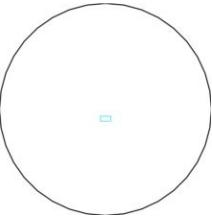


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 4 Perpendicular illuminance Height: 0.012 m	593 lx	530 lx	677 lx	0.89	0.78	CG4

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Court 5

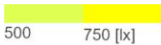
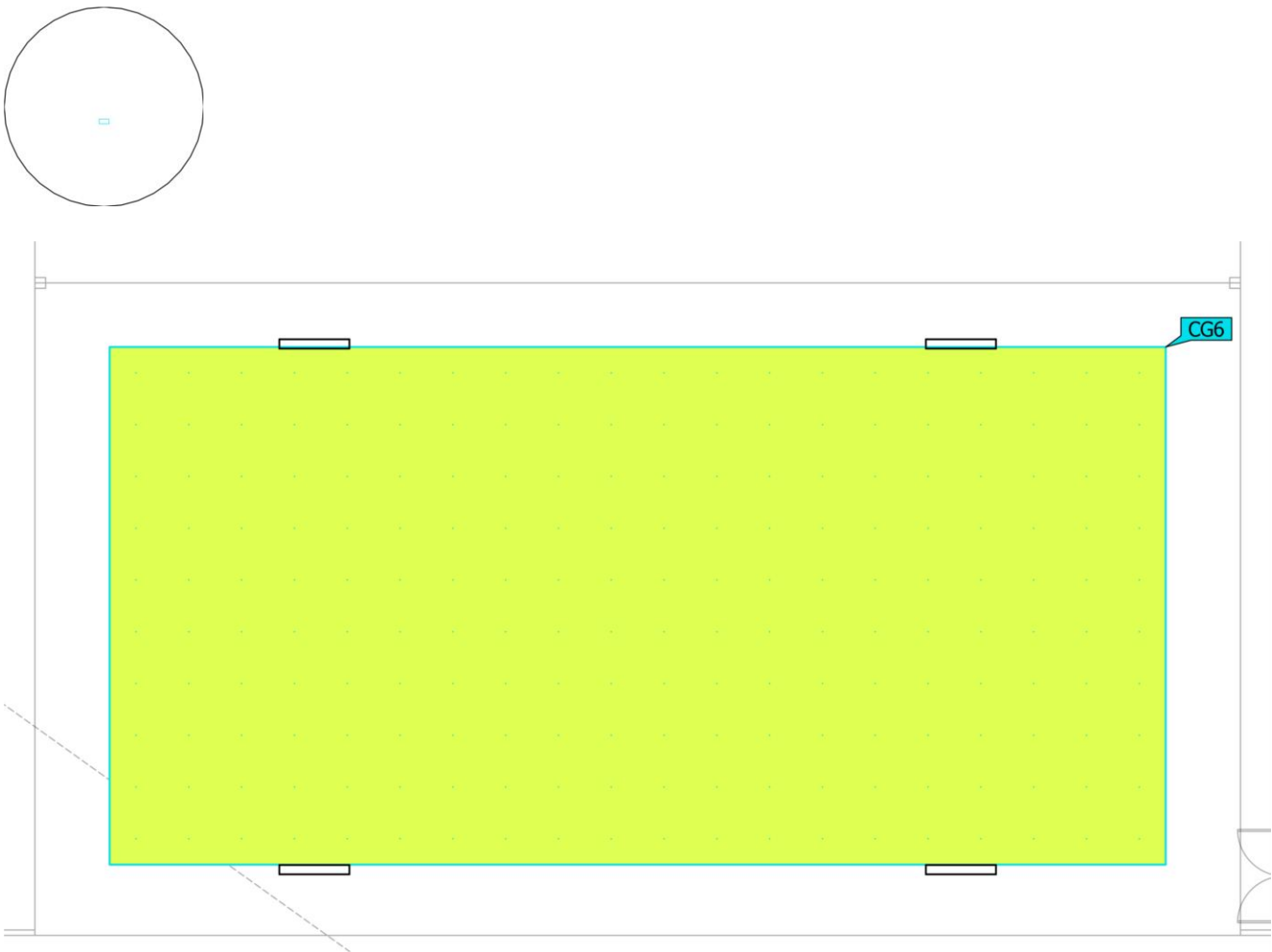


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 5	607 lx	536 lx	706 lx	0.88	0.76	CG5
Perpendicular illuminance						
Height: 0.012 m						

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Court 6

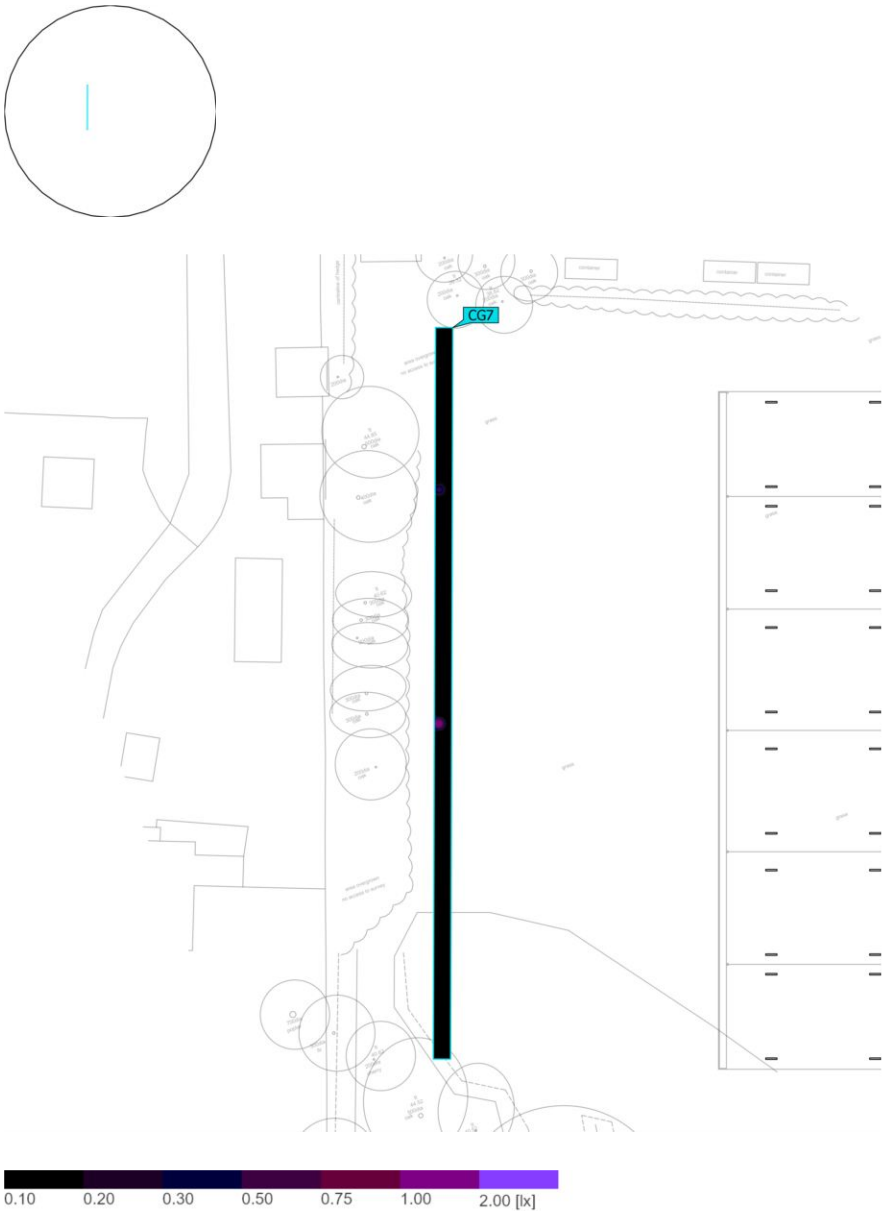


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 6 Perpendicular illuminance Height: 0.012 m	596 lx	511 lx	711 lx	0.86	0.72	CG6

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Bat fllight 1.5M from ground West

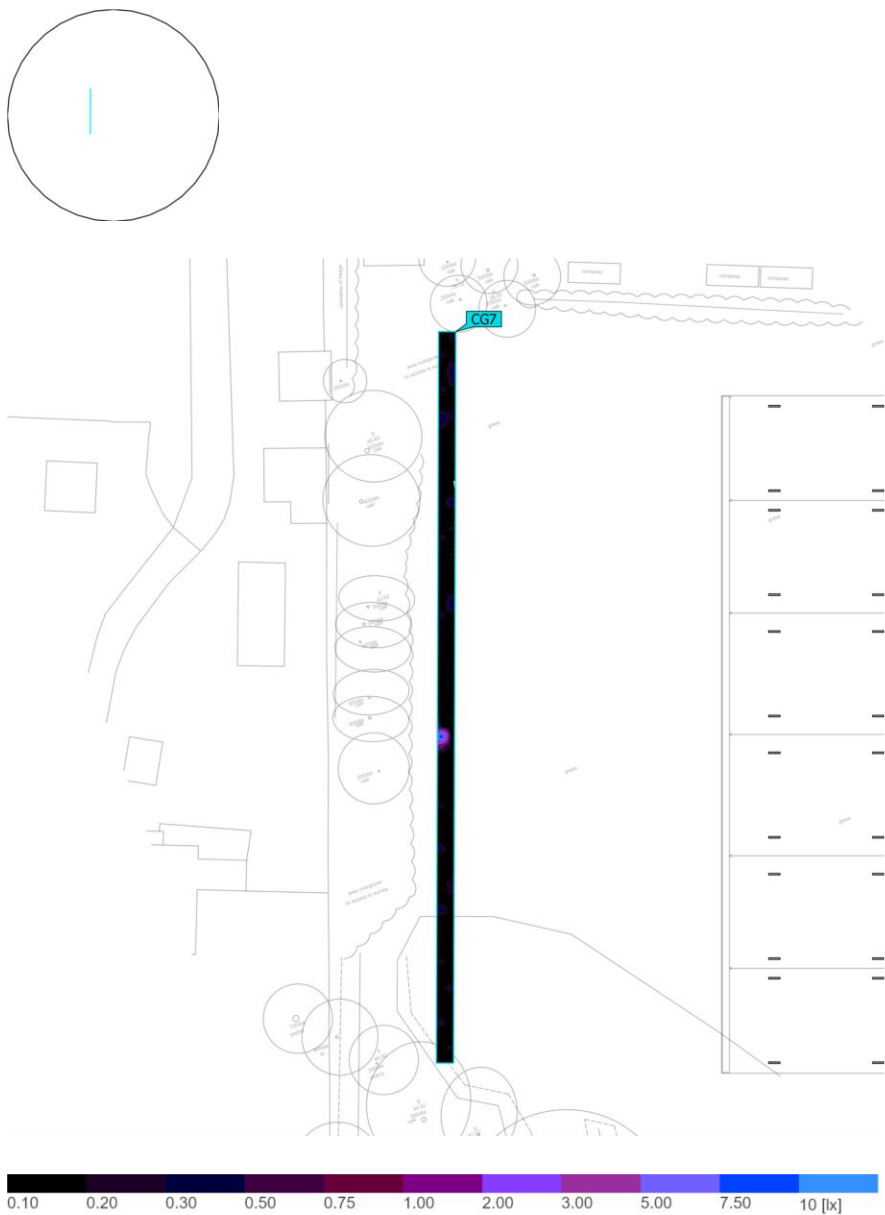


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Bat fllight 1.5M from ground West	0.032 lx	0.003 lx	1.35 lx	0.094	0.002	CG7
Horizontal illuminance						
Height: 1.500 m						

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Bat fllight 1.5M from ground West

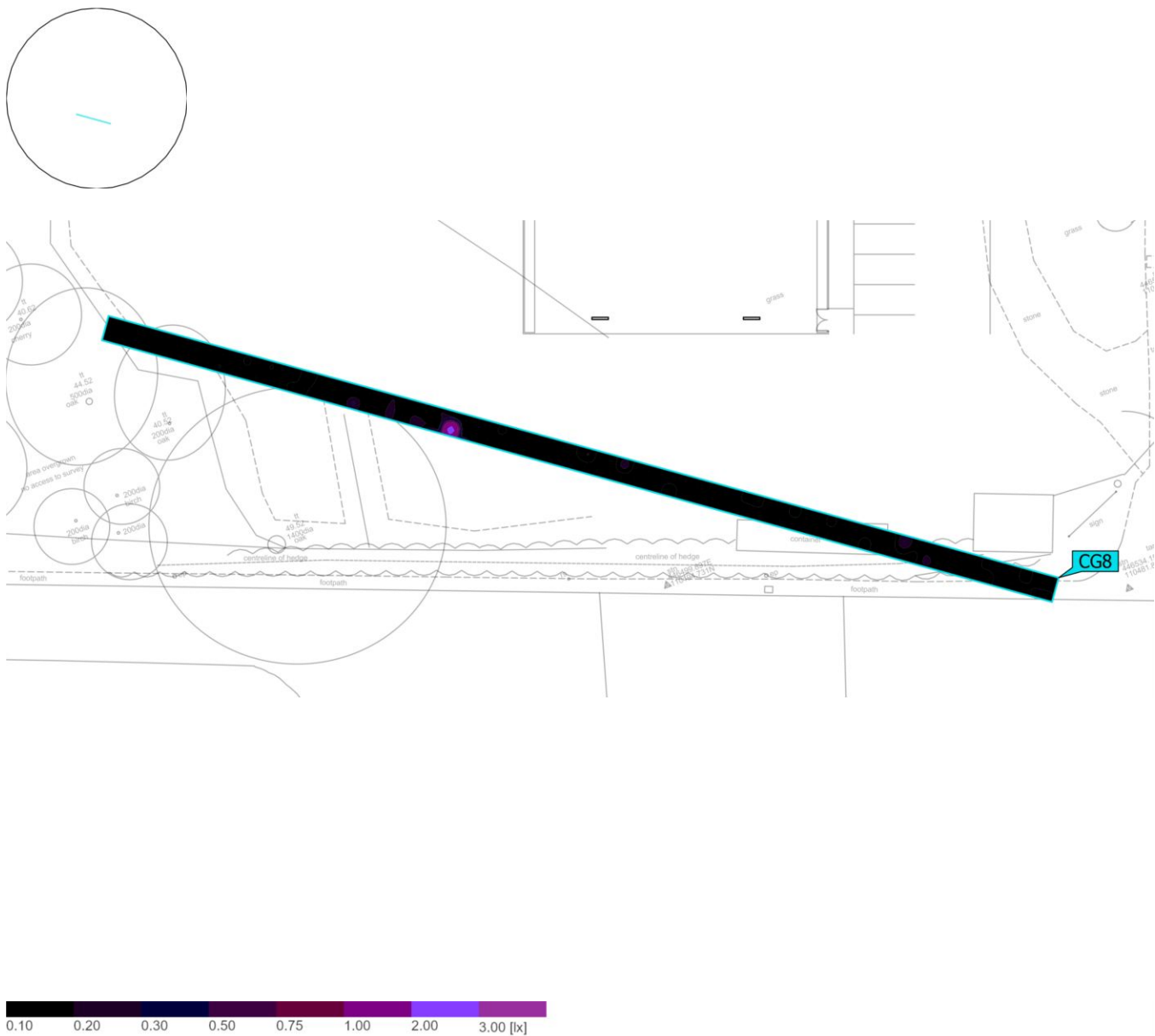


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Bat fllight 1.5M from ground West	0.13 lx	0.005 lx	8.88 lx	0.038	0.001	CG7
Vertical illuminance						
Rotation: 0.0°, Height: 1.500 m						

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Bat flight 1.5M from ground South

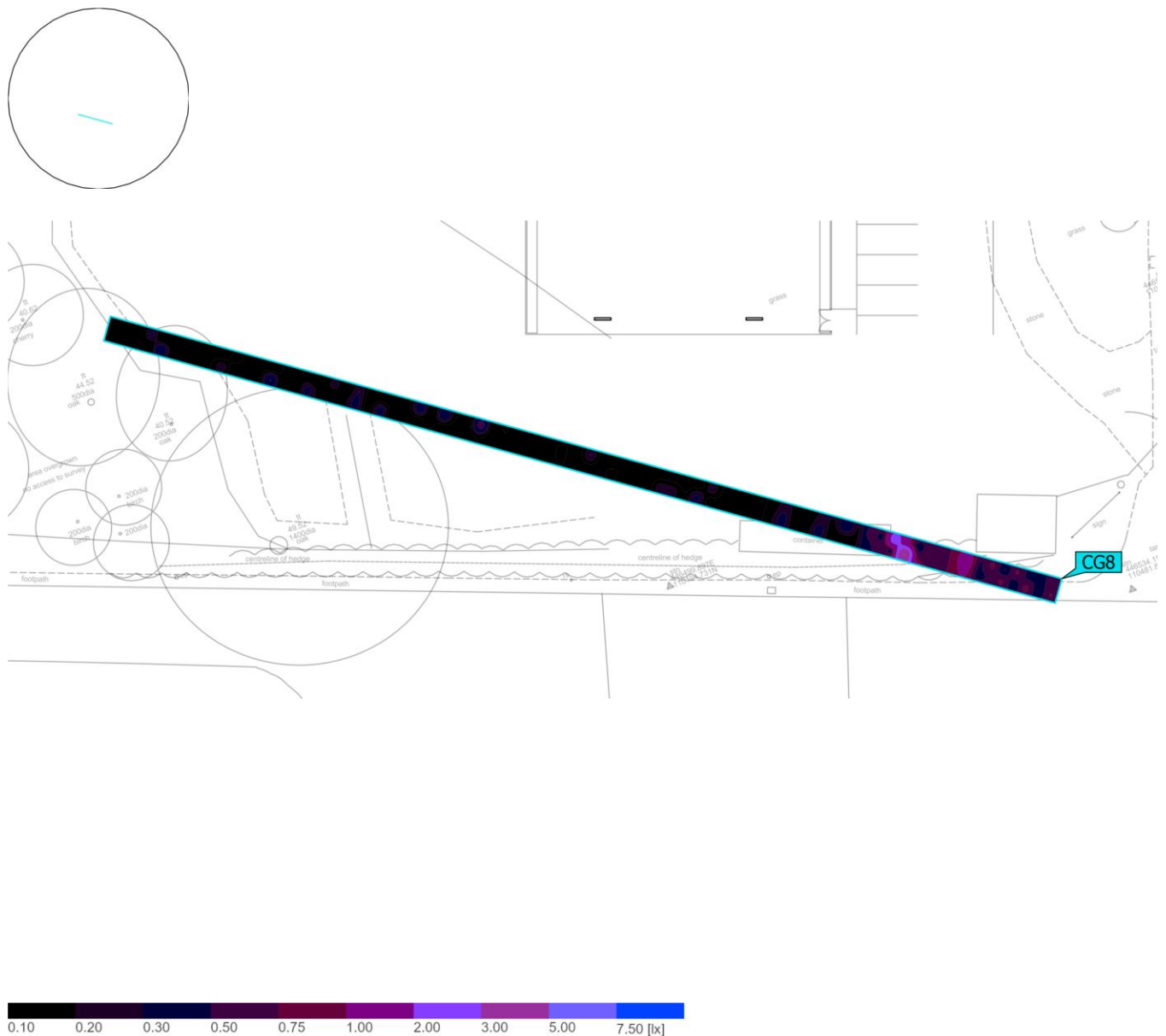


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Bat flight 1.5M from ground South	0.093 lx	0.016 lx	2.43 lx	0.17	0.007	CG8
Horizontal illuminance						
Height: 1.500 m						

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesasurement (320W Class I)

Bat flight 1.5M from ground South

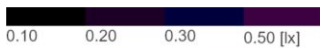
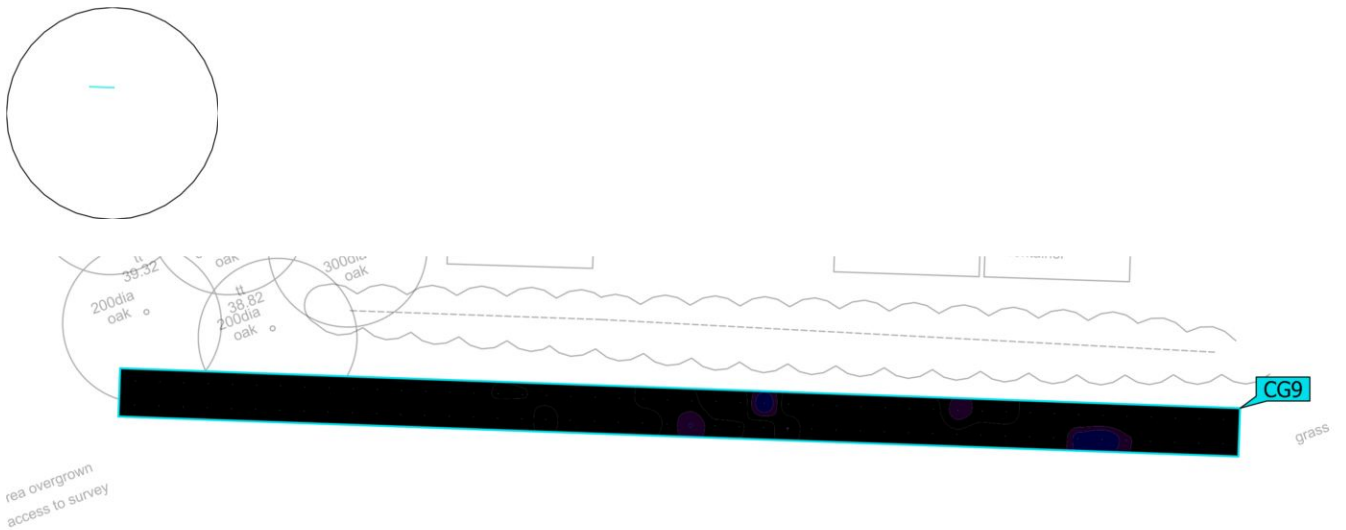


Properties	$\bar{E}$	$E_{\min}$	$E_{\max}$	$U_o(g_1)$	g_2	Index
Bat flight 1.5M from ground South Vertical illuminance Rotation: 68.9°, Height: 1.500 m	0.26 lx	0.006 lx	5.08 lx	0.023	0.001	CG8

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Bat fflight 1.5M from ground North

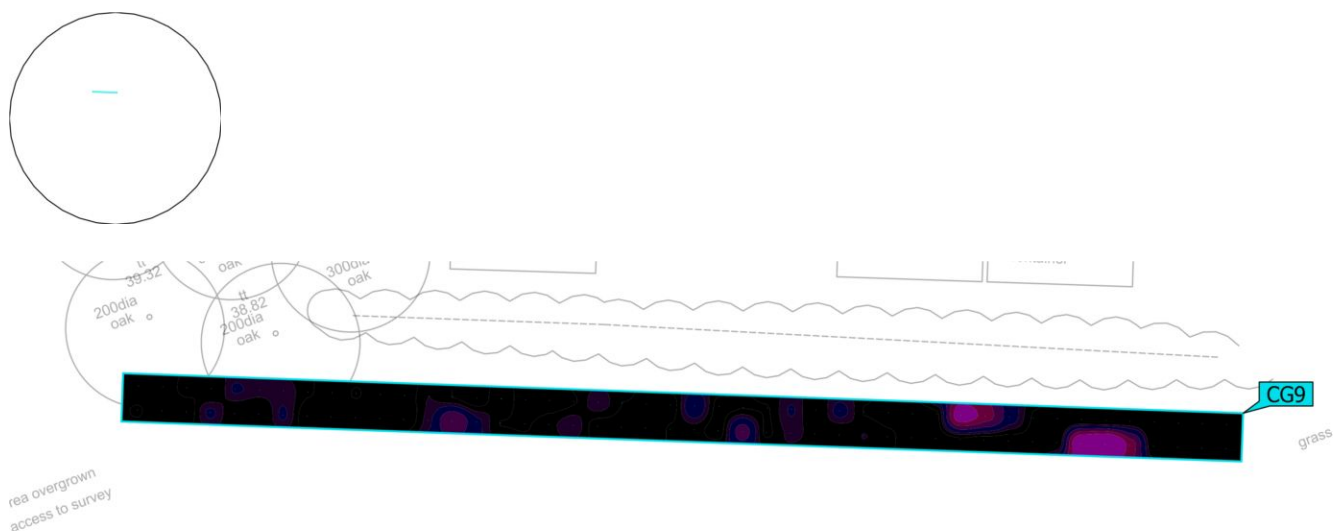


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Bat fflight 1.5M from ground North	0.057 lx	0.004 lx	0.45 lx	0.070	0.009	CG9
Horizontal illuminance						
Height: 1.500 m						

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

Bat fflight 1.5M from ground North

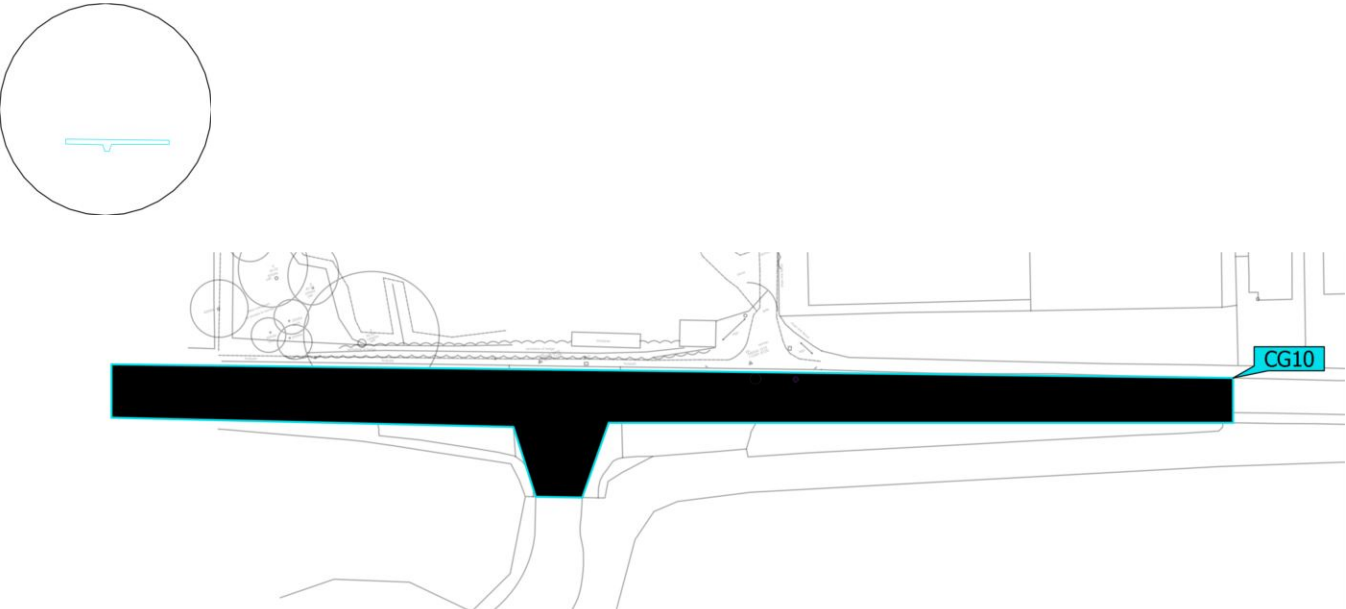


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Bat fflight 1.5M from ground North Vertical illuminance Rotation: 287.3°, Height: 1.500 m	0.18 lx	0.006 lx	1.72 lx	0.033	0.003	CG9

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

A3025

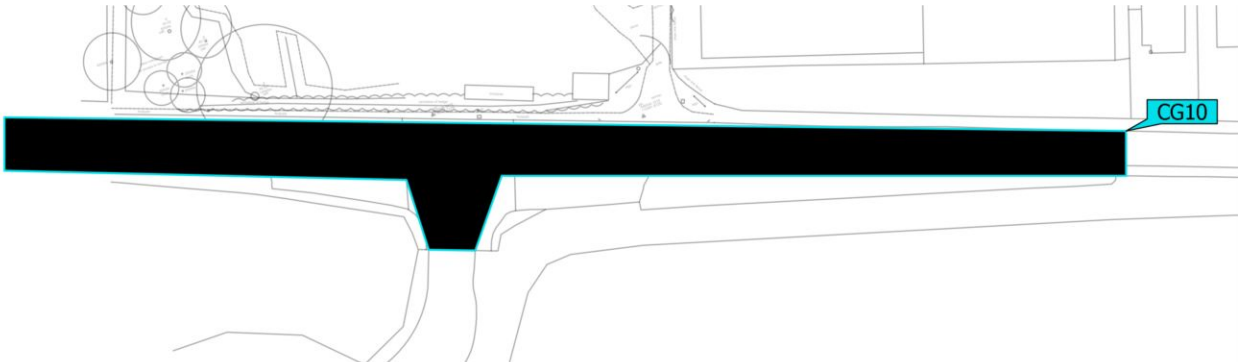
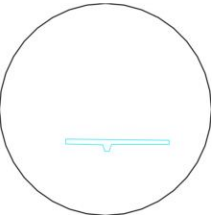


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
A3025 Horizontal illuminance Height: 1.200 m	0.002 lx	0.00 lx	0.25 lx	-	0.00	CG10

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (320W Class I)

A3025



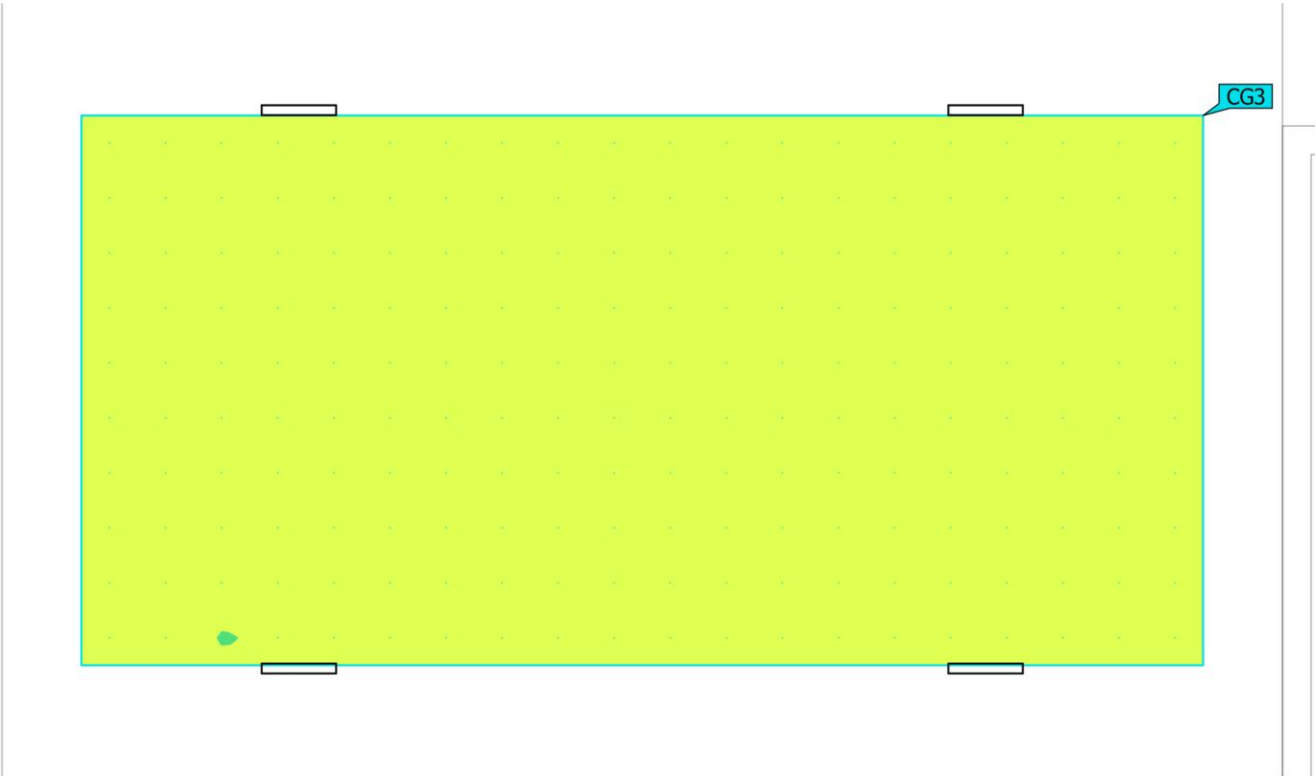
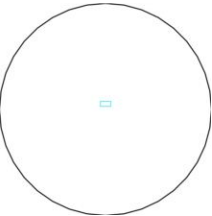
0.10 [lx]

Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
A3025 Vertical illuminance Rotation: 0.0°, Height: 1.200 m	0.001 lx	0.000 lx	0.014 lx	-	0.00	CG10

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

200M Diametre overspil mesaurement (Single court Class I)

Court 3

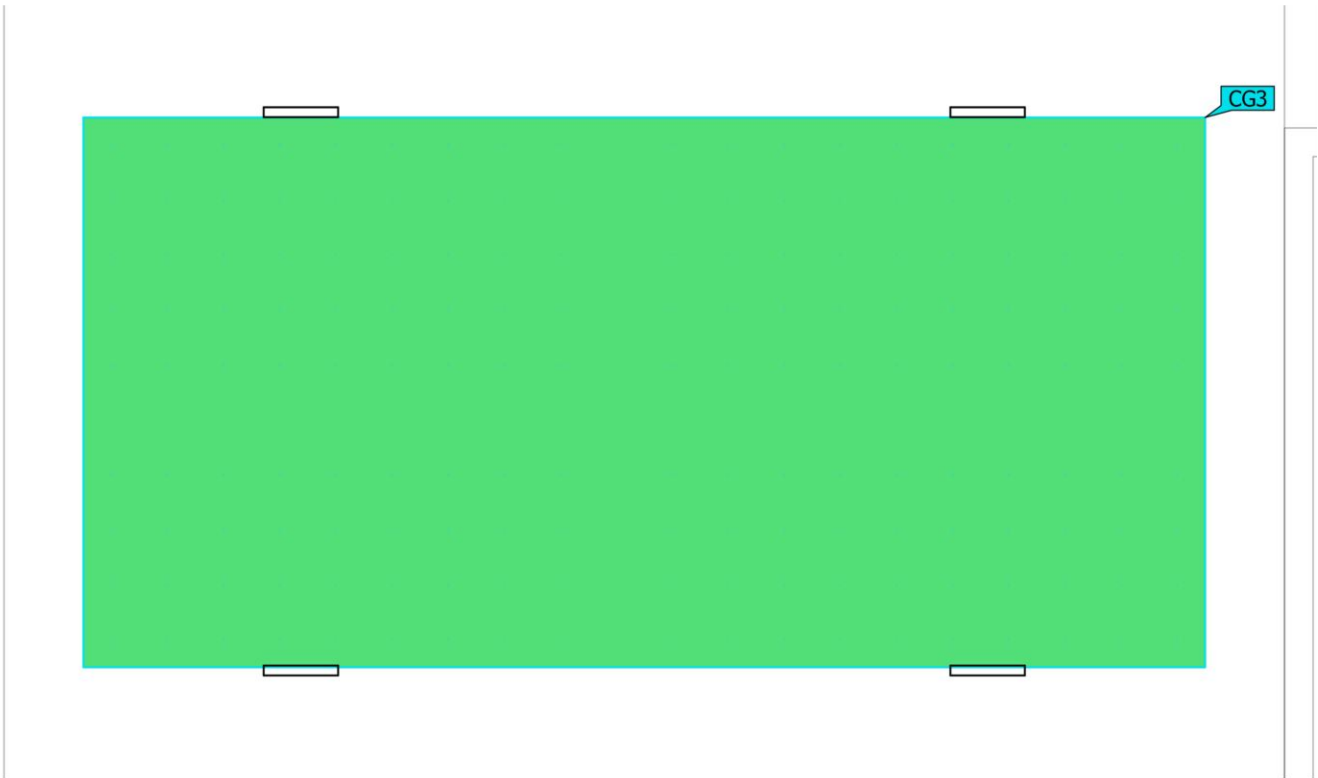
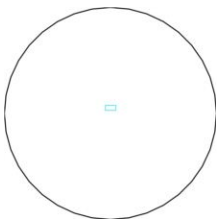


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 3 Perpendicular illuminance Height: 0.012 m	567 lx	499 lx	650 lx	0.88	0.77	CG3

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

200M Diametre overspil mesaurement (Single court Class II)

Court 3



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Court 3 Perpendicular illuminance Height: 0.012 m	425 lx	374 lx	487 lx	0.88	0.77	CG3

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))