



Lighting Strategy Report
PA1712-TAC-ZZ-XX-T-E-0006
Kingsway Burnage
PA1712

Client

JA Lewis

Consulting Engineers

TACE

Portland House

Oak Green

Earl Road

Cheadle Hulme

Cheshire

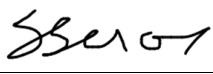
SK8 6QL

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Ref: PA1712

Revision: P01

Date: November 2023

CONTROLLED DOCUMENT			
TACE Project Ref:		PA1712	
	<i>Name</i>	<i>Signature</i>	<i>Date</i>
<i>Prepared by:</i>	James Rouen Stout		24.11.23
<i>Checked:</i>	Stephen Senior		24.11.23
<i>TACE Approved:</i>	Nigel Griffiths		24.11.23

Revision Record					
<i>Rev.</i>	<i>Date</i>	<i>By</i>	<i>Summary of Changes</i>	<i>Chkd</i>	<i>Aprd</i>
P01	24.11.23	JRS	Preliminary Issue	SS	NG

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Introduction & Design Parameters

TACE has been requested to complete an external lighting report for Kingsway, Burnage. A Residential estate located on the A34, Kingsway, Burnage, Manchester M19 1BB.

There are bats adjacent to our site, the railway is classed as Zone A, the trees east of the railway are Zone B and the entry roadway for our site is Zone C. The fittings on site need to be a warm white light (2700/3000K), they must be mounted horizontally, bollards are strongly discouraged from being used (As per ILP GN08/23, Bats and Artificial Lighting At Night).

A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component

Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt

The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues. See Case Study 6

We are classing the site as an E3 environmental zone, so we cannot have a vertical illuminance on the windows higher than 2 lux.

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Due to the presence of bats, the roadway only needs to be lit to 4 lux with a minimum illuminance of 0.8 lux.

Table A.5 Lighting classes for subsidiary roads with a typical speed of main user $v \leq 30$ mph

Traffic flow	Lighting class			
	Ambient luminance: very low (E1)	Ambient luminance: low (E2)	Ambient luminance: moderate (E3)	Ambient luminance: high (E4)
Busy ^{A)}	S3 or P3	S3 or P3	S2 or P2	S2 or P2
Normal ^{B)}	S4 or P4	S4 or P4	S3 or P3	S3 or P3
Quiet ^{C)}	S5 or P5	S5 or P5	S4 or P4	S4 or P4

Table A.7 Variation of maintained lighting level with S/P ratio of light source

Lighting class	Values in lux					
	Benchmark (e.g. $R_a < 60$ or when S/P ratio of light source is not known or specified)		S/P ratio = 1.2 and $R_a \geq 60$ (e.g. some types of warm white lamp such as metal halide)		S/P ratio = 2 and $R_a \geq 60$ (e.g. some types of cool white compact fluorescent or LED)	
	$\bar{E}$	E_{min}	$\bar{E}$	E_{min}	$\bar{E}$	E_{min}
P1 or S1	15.0	3.0	13.4	2.7	12.3	2.5
P2 or S2	10.0	2.0	8.6	1.7	7.7	1.5
P3 or S3	7.5	1.5	6.3	1.3	5.5	1.1
P4 or S4	5.0	1.0	4.0	0.8	3.4	0.7
P5 or S5	3.0	0.6	2.2	0.4	1.8	0.4
P6 or S6	2.0	0.4	1.4	0.4	1.1	0.4

The walkways and car parks are to be lit to an average of 5 lux with an average uniformity of 0.25 uniformity.

BS EN 12464-2:2014
EN 12464-2:2014 (E)

Table 5.9 — Parking areas

Ref. no.	Type of area, task or activity	$\bar{E}_m$ lx	U_o	R_{GL}	R_a	Specific requirements
5.9.1	Light traffic, e.g. parking areas of shops, terraced and apartment houses; cycle parks	5	0.25	55	20	

1.0 – External Lighting Strategy Calculations

DATE:	24 November 2023	Urbis Schröder
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PROJECT No:	OP000230237	
PROJECT NAME:	BURNAGE - LAND OFF KINGSWAY HOUSING DEVELOPMENT	

LD19545

Main Roadway: 4lux Eav, 0.8lux Min
Car Parks and Pathways: 5lux Eav, 25% Uniformity

Lantern A, Roadway - Axia 3.1 at 4m
Lantern B, Car Parks and Larger open areas - Axia 3.1 at 4m.
Lantern C, Pathways - Axia 3.1 at 3m
All lanterns with Rear Shields

Vertical Grid 8 across window line of residences near to lanterns, showing 0.82lux Max (2lux limit)

Vertical Grid 9 across railway line bat area, showing 0.12lux Max

MF calculated to BS5489-1:2020, TS22012 & GN11: 0.81

Outdoor Lighting Report

This design has been prepared in accordance with the HEA/HEMSA Guidance Note - CDM2015 Regulations, Issue 1.1 dated 09/04/15 - Procedure 2 for an outline design. The information in this report does not account for installation considerations, site conditions or provide any form of risk assessment. Urbis' design service is advisory only and it is the responsibility of the recipient of this information to verify that the design is suitable for the intended application. No account is taken for the blocking effect caused by buildings, trees etc. The calculation shown assumes that the whole area considered is in the same plane.

PREPARED BY:	Urbis Schreder Limited Sapphire House Lime Tree Way Chineham Basingstoke RG23 8GG Tel. 01256 354446
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DATE: 24 November 2023
PROJECT No: OP000230237

DESIGNER: J Crossley
PROJECT NAME: BURNAGE - LAND OFF KINGSWAY HOUSING DEVELOPMENT

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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	Roadways	-82.80	32.33	85.13	322.39	1.49	1.50
2	Car Parks and Footways...	6.15	220.26	47.93	93.61	1.20	1.17
3	Central Garden	2.36	199.72	49.01	20.65	1.07	0.98
4	Car Parks and Footways...	-7.86	168.49	49.37	32.92	1.01	0.97
5	Car Parks and Footways...	-17.74	137.84	49.37	32.15	1.10	1.11
6	Car Parks and Footways...	-27.19	108.48	49.37	30.73	1.01	1.06
7	Car Parks and Footways...	-52.36	30.53	49.44	81.89	1.07	1.22
8	Resident Window Example	48.44	251.75	37.65	5.00	1.45	1.25
9	Train Line Vertical Grid	-64.41	37.76	283.31	5.00	1.50	1.25

Luminaires

Luminaire A Data

Supplier	
Type	AXIA 3.1 5267 Integrated lenses Rear louve m 8 OSLON SQUARE G
Lamp(s)	8 OSLON SQUARE GIANT @800mA WW 7 27 230V 01-37-041
LampFlux(klm)/Colour	1.32 WW 2700K/70
File Name	5267 8 OSLON SQUARE GIANT 800mA 18 6W 457672 Integrated lenses 230V TF .ldt
Maintenance Factor	0.81
Imax70,80,90(cd/klm)	1281.8, 174.5, 0.0
No. in Project	11

Luminaire B Data

Supplier	
Type	AXIA 3.1 5293 Integrated lenses Rear louve m 8 OSLON SQUARE G
Lamp(s)	8 OSLON SQUARE GIANT @400mA WW 7 27 230V 01-37-041
LampFlux(klm)/Colour	0.88 WW 2700K/70
File Name	5293 8 OSLON SQUARE GIANT 400mA 11 W 457572 Integrated lenses 230V TF .ldt
Maintenance Factor	0.81
Imax70,80,90(cd/klm)	445.1, 6.7, 0.0
No. in Project	39

Luminaire C Data

Supplier	
Type	AXIA 3.1 5294 Integrated lenses Rear louve m 8 OSLON SQUARE G
Lamp(s)	8 OSLON SQUARE GIANT @300mA WW 7 27 230V 01-42-072
LampFlux(klm)/Colour	0.75 WW 2700K/70
File Name	5294 8 OSLON SQUARE GIANT 300mA 8, 6W 457682 Integrated lenses 230V TF .ldt
Maintenance Factor	0.81
Imax70,80,90(cd/klm)	682.8, 14.6, 0.0
No. in Project	21

DATE: 24 November 2023
PROJECT No: OP00230237

DESIGNER: J Crossley
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Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	41.91	310.37	4.00	180.00	0.00	0.00	0.45			
2	A	36.73	287.43	4.00	158.00	0.00	0.00	0.45			
3	A	26.25	265.67	4.00	157.00	0.00	0.00	0.45			
4	A	18.38	241.98	4.00	158.00	0.00	0.00	0.45			
5	A	9.94	217.31	4.00	157.00	0.00	0.00	0.45			
6	A	1.67	194.44	4.00	162.00	0.00	0.00	0.45			
7	A	-6.16	169.33	4.00	161.00	0.00	0.00	0.45			
8	A	-14.51	143.77	4.00	161.00	0.00	0.00	0.45			
9	A	-22.55	119.22	4.00	161.00	0.00	0.00	0.45			
10	A	-29.62	95.51	4.00	164.00	0.00	0.00	0.45			
11	A	-35.37	75.88	4.00	159.00	0.00	0.00	0.45			
12	B	44.83	303.58	4.00	268.00	0.00	0.00	0.45			
13	B	51.58	290.79	4.00	172.00	0.00	0.00	0.45			
14	B	45.84	283.70	4.00	174.00	0.00	0.00	0.45			
15	B	32.69	270.92	4.00	351.00	0.00	0.00	0.45			
16	B	44.97	272.61	4.00	103.00	0.00	0.00	0.45			
17	B	26.88	265.50	4.00	333.00	0.00	0.00	0.45			
18	B	44.02	260.10	4.00	231.00	0.00	0.00	0.45			
19	B	29.68	252.23	4.00	68.00	0.00	0.00	0.45			
20	C	48.08	229.22	3.00	258.00	0.00	0.00	0.45			
21	B	41.10	247.60	4.00	79.00	0.00	0.00	0.45			
22	B	41.06	247.05	4.00	256.00	0.00	0.00	0.45			
23	B	29.88	232.77	4.00	339.00	0.00	0.00	0.45			
24	C	40.76	209.80	3.00	258.00	0.00	0.00	0.45			
25	B	18.56	218.14	4.00	42.00	0.00	0.00	0.45			
26	B	22.33	230.01	4.00	281.00	0.00	0.00	0.45			
27	B	35.38	214.21	4.00	125.00	0.00	0.00	0.45			
28	C	57.10	248.52	3.00	82.00	0.00	0.00	0.45			
29	C	53.16	213.67	3.00	166.00	0.00	0.00	0.45			
30	C	56.46	231.33	3.00	170.00	0.00	0.00	0.45			
31	B	42.61	230.88	4.00	170.00	0.00	0.00	0.45			
32	B	24.14	203.23	4.00	161.00	0.00	0.00	0.45			
33	B	30.22	204.07	4.00	192.00	0.00	0.00	0.45			
34	B	32.17	198.12	4.00	349.00	0.00	0.00	0.45			
35	C	50.22	196.01	3.00	169.00	0.00	0.00	0.45			
36	C	40.69	189.11	3.00	260.00	0.00	0.00	0.45			

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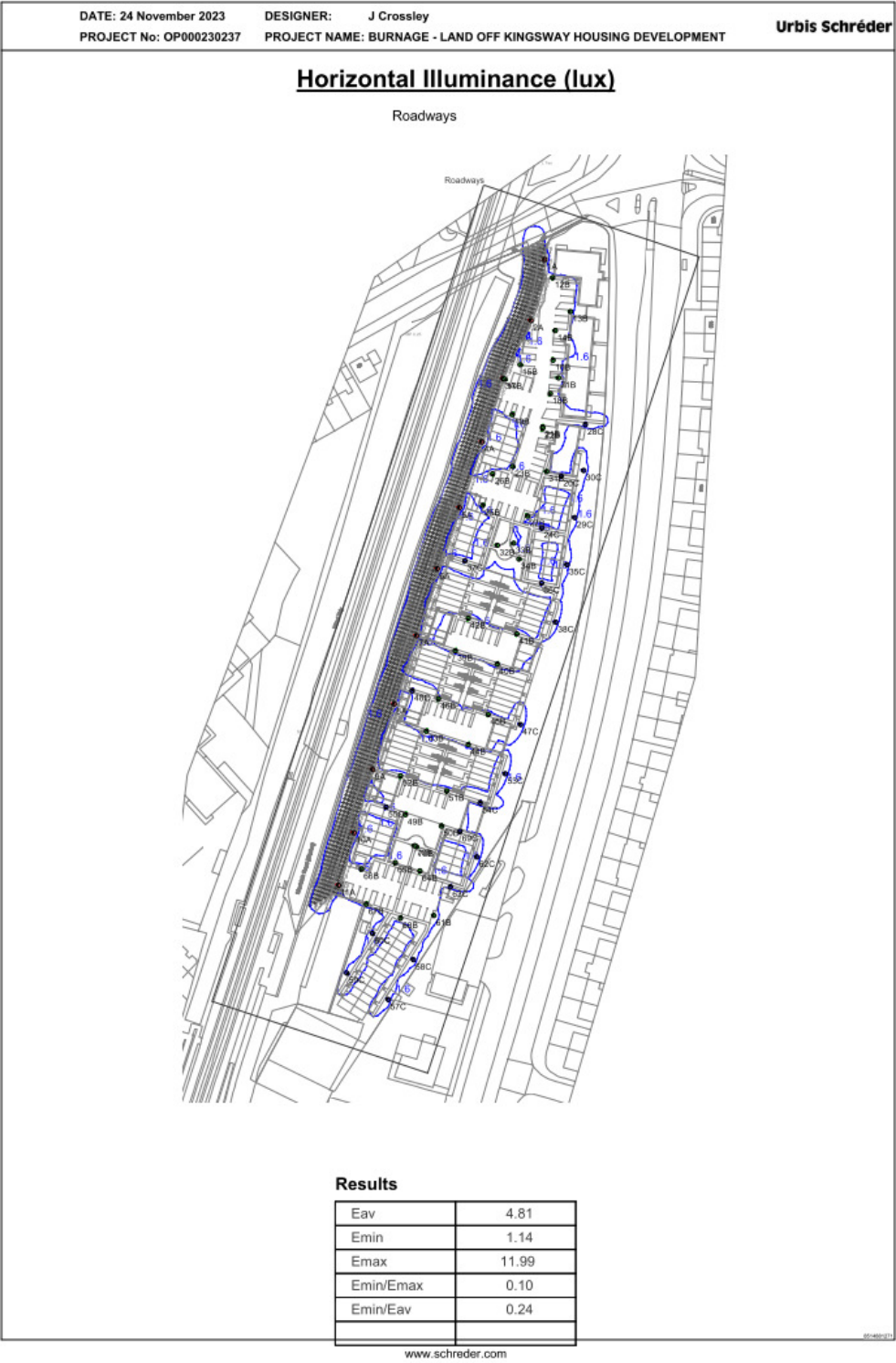
DESIGNER: J Crossley
PROJECT NAME: BURNAGE - LAND OFF KINGSWAY HOUSING DEVELOPMENT

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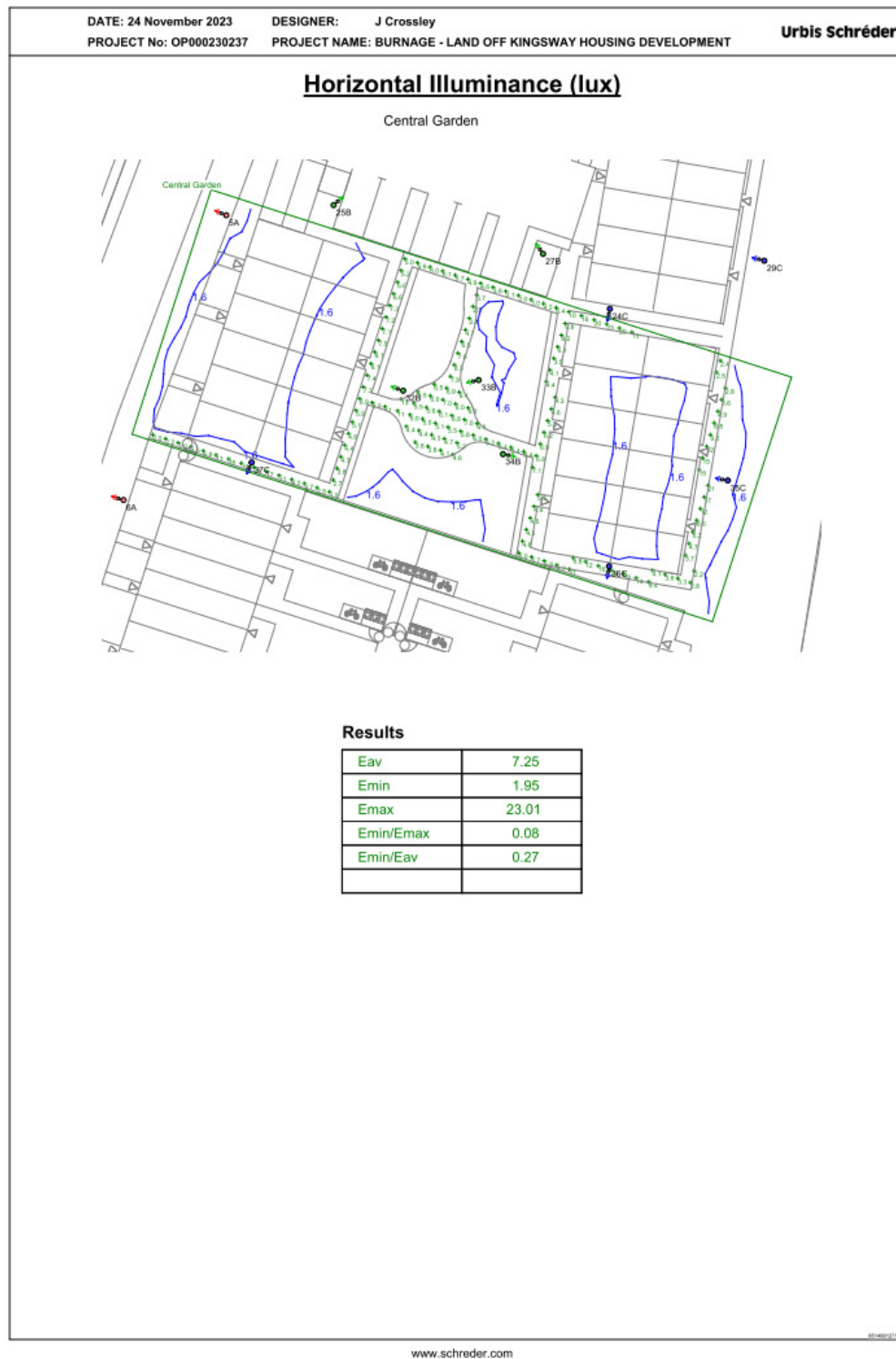
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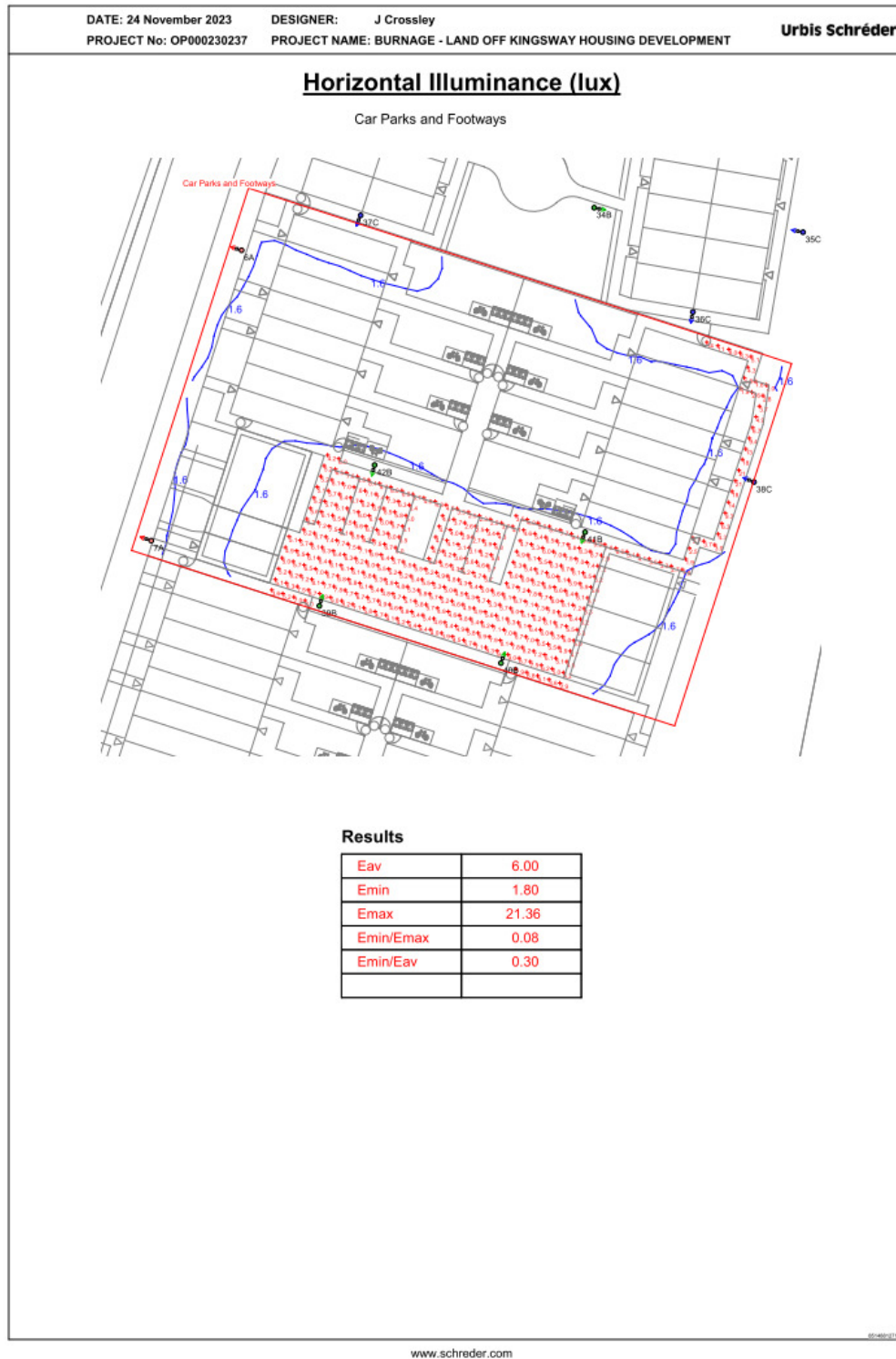
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
37	C	11.96	197.46	3.00	248.00	0.00	0.00	0.45			
38	C	45.98	174.41	3.00	158.00	0.00	0.00	0.45			
39	B	8.38	163.69	4.00	72.00	0.00	0.00	0.45			
40	B	24.09	158.74	4.00	70.00	0.00	0.00	0.45			
41	B	31.37	170.07	4.00	252.00	0.00	0.00	0.45			
42	B	13.17	175.88	4.00	255.00	0.00	0.00	0.45			
43	B	-2.48	133.55	4.00	72.00	0.00	0.00	0.45			
44	B	13.23	128.60	4.00	70.00	0.00	0.00	0.45			
45	B	20.73	139.88	4.00	252.00	0.00	0.00	0.45			
46	B	2.06	145.76	4.00	254.00	0.00	0.00	0.45			
47	C	32.83	136.07	3.00	162.00	0.00	0.00	0.45			
48	C	-7.78	148.72	3.00	72.00	0.00	0.00	0.45			
49	B	-10.28	102.32	4.00	72.00	0.00	0.00	0.45			
50	B	3.14	98.02	4.00	72.00	0.00	0.00	0.45			
51	B	5.19	111.21	4.00	252.00	0.00	0.00	0.45			
52	B	-12.16	116.82	4.00	254.00	0.00	0.00	0.45			
53	C	27.09	117.66	3.00	162.00	0.00	0.00	0.45			
54	C	17.69	106.70	3.00	71.00	0.00	0.00	0.45			
55	C	-17.60	105.15	3.00	251.00	0.00	0.00	0.45			
57	C	-16.82	33.00	3.00	150.00	0.00	0.00	0.45			
58	C	-7.33	47.97	3.00	148.00	0.00	0.00	0.45			
59	C	-32.31	42.92	3.00	326.00	0.00	0.00	0.45			
60	C	-22.73	57.82	3.00	326.00	0.00	0.00	0.45			
61	B	0.34	64.50	4.00	164.00	0.00	0.00	0.45			
62	C	16.46	86.45	3.00	164.00	0.00	0.00	0.45			
63	C	6.48	75.25	3.00	73.00	0.00	0.00	0.45			
64	B	-4.90	81.22	4.00	255.00	0.00	0.00	0.45			
65	B	-14.13	84.32	4.00	250.00	0.00	0.00	0.45			
66	B	-26.79	81.92	4.00	252.00	0.00	0.00	0.45			
67	B	-25.03	68.77	4.00	73.00	0.00	0.00	0.45			
68	B	-12.19	63.49	4.00	73.00	0.00	0.00	0.45			
69	C	10.11	96.05	3.00	254.00	0.00	0.00	0.45			
70	B	-6.29	90.39	4.00	343.00	0.00	0.00	0.45			
70	B	-6.88	90.68	4.00	159.00	0.00	0.00	0.45			
71	B	47.04	266.01	4.00	174.00	0.00	0.00	0.45			

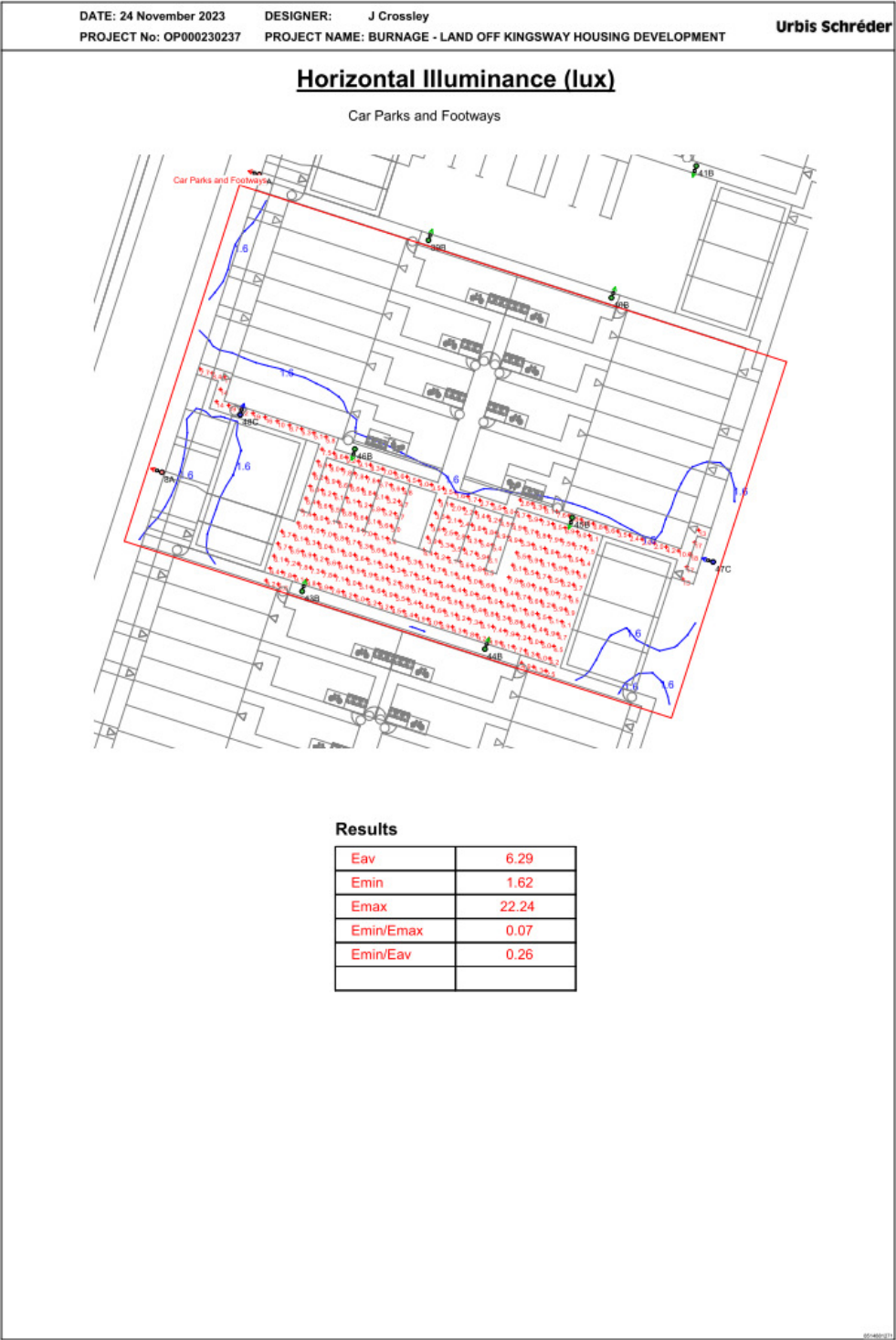
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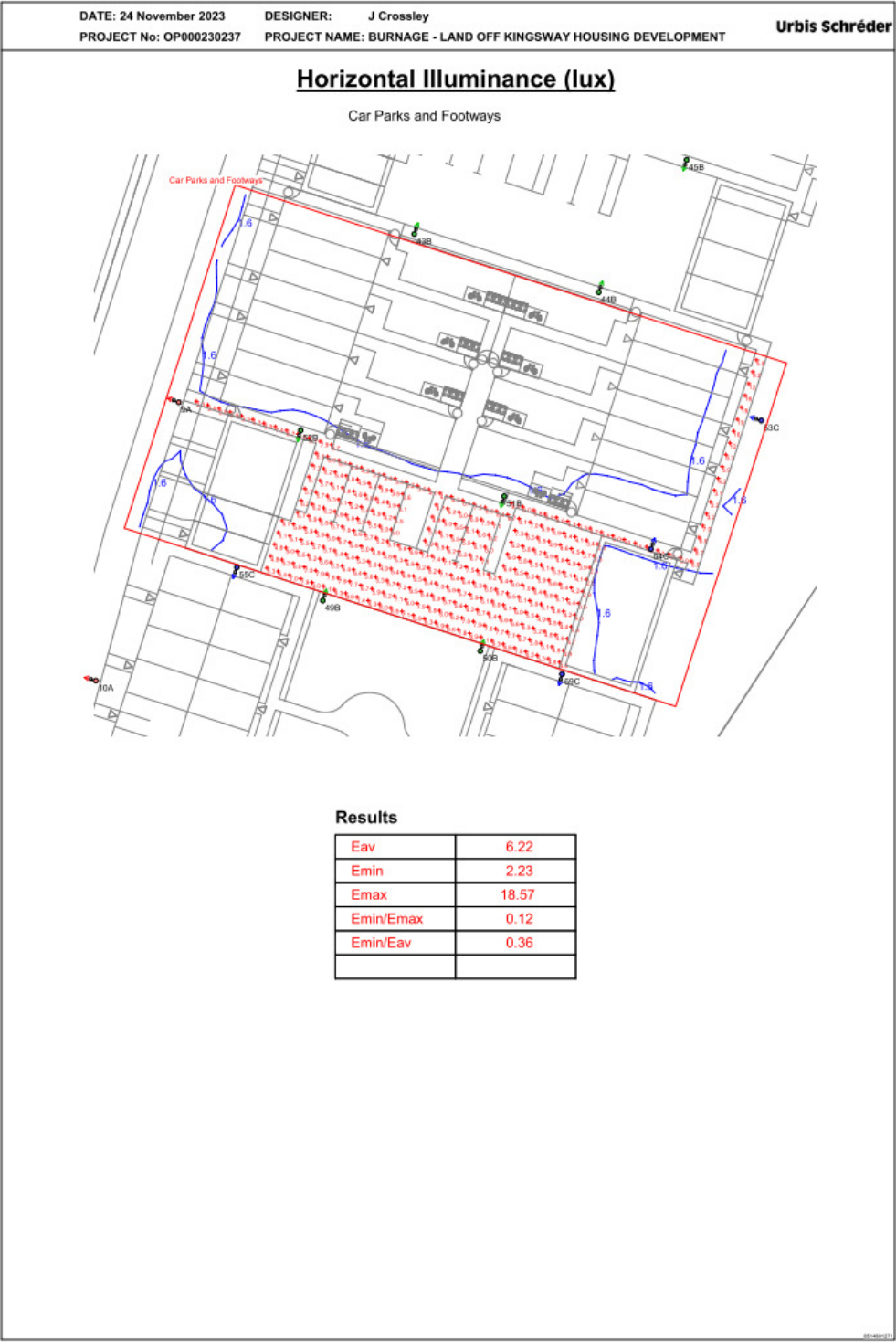


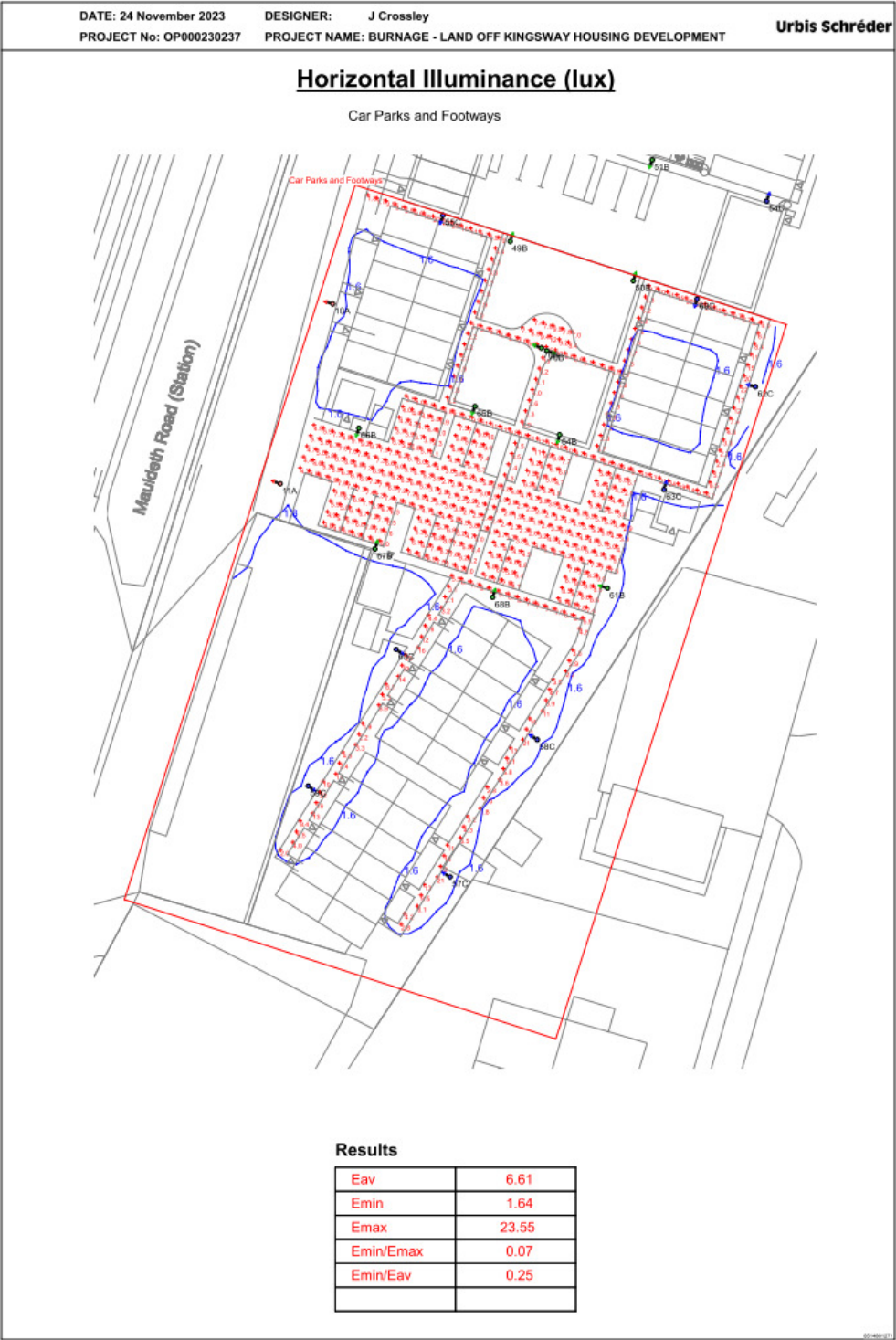












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DATE: 24 November 2023	DESIGNER: J Crossley	Urbis Schröder
PROJECT No: OP000230237	PROJECT NAME: BURNAGE - LAND OFF KINGSWAY HOUSING DEVELOPMENT	
Illuminance (lux)		
Train Line Vertical Grid		
		
Results		
Eav	0.04	
Emin	0.00	
Emax	0.12	
Emin/Emax	0.00	
Emin/Eav	0.00	

2.0 – External Lighting Strategy Drawing

