

DATE: 2 November 2023

DESIGNER: Alex Naper

PROJECT No: SES 17022 Rev D

PROJECT NAME: Clonburris – Adamstown Extension - Clear Real Estate Holdings Limited



Residential area designed in accordance with EN13201-2:2015 Category P4.

Residential access road section designed in accordance with EN13201-2:2015 Category P3.

Residential access junction designed in accordance with EN13201-2:2015 Category C3.

Ramp/Step sections designed in accordance with I.S.EN17210-2021 with illuminance levels as per the recommendations of BS8300-1:2018 Table 5 Stairways and ramps (open) in the external environment.

MF derived from: $0.92 \times 0.90 \times 0.99$ (LMF (Low pollution environment & 72 month cleaning cycle) x LLMF x LSF) LLMF & LSF values @ 100,000 hours & 25 degrees C.

Rev A: Updated site layout.

Rev B: Updated site layout and updated as per comments.

Rev C: Updated Site layout.

Rev D: Updated as per comments.

Outdoor Lighting Report

PREPARED BY:

Sabre Electrical Services Ltd.
Unit 11,
Bellview Industrial Estate,
Tolka Valley Road,
Dublin 11
Phone Number: 01 8110875
Contact: Graham Sheehan
eMail: graham@sabrelighting.ie

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	702917.85	732591.18	238.00	156.00	1.50	1.50
2	Grid 2	702917.19	732365.15	147.00	219.00	1.50	1.50
3	Grid 3	703058.43	732404.48	208.00	219.00	1.50	1.50
4	Grid 4	703035.52	732556.06	48.00	54.00	1.50	1.50
5	Grid 5	702897.62	732477.01	2.63	1.80	0.38	0.60
6	Grid 6	702894.45	732525.88	2.63	1.80	0.38	0.60
7	Grid 7	703023.25	732602.19	48.00	24.00	1.50	1.50
8	Grid 8	702876.73	732410.17	33.00	182.44	1.50	1.50
9	Grid 9	702962.19	732711.67	2.09	3.18	0.70	0.24

Luminaires

Luminaire A Data



Supplier	C U Phosco
Type	E950-28-F2A-740-C600-16W
Lamp(s)	740N
Lamp Flux (klm)	2.21
File Name	E950-28-F2A-740-C0600-16W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	623.6, 113.9, 0.3
No. in Project	17

Luminaire B Data



Supplier	C U Phosco
Type	E950-28-P4A-740-C600-16W
Lamp(s)	740N
Lamp Flux (klm)	2.17
File Name	E950-28-P4A-740-C0600-16W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	659.3, 183.1, 0.3
No. in Project	21

Luminaire C Data



Supplier	C U Phosco
Type	E950-28-P4A-740-C350-10W
Lamp(s)	740N
Lamp Flux (klm)	1.32
File Name	E950-28-P4A-740-C0350-10W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	659.3, 183.1, 0.3
No. in Project	13

Luminaire D Data



Supplier	Urbis Schreder
Type	ALINEA Handrail 5121 - 3 LED 350mA NW Profiled Poly Clear, 5m
Lamp(s)	3 LEDs NW
Lamp Flux (klm)	0.39
File Name	ALINEA Handrail 5121 3 LED 350mA NW P rofiled Poly Clear Smooth W07314.1dt
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	230.6, 22.2, 4.1
No. in Project	4

Luminaires



Luminaire E Data

Supplier	Urbis Schreder
Type	AXIA 3.3 5295 Integrated lenses 64 OSLO N SQUARE GIANT@500mA
Lamp(s)	64 OSLO N SQUARE GIANT@500mA NW 740 230V
LampFlux(klm)/Colour	14.38 NW 4000K/70
File Name	AXIA 3.3 5295 64 OSLO N SQUARE GIANT 500mA NW 740 94W 441022 Integrated le...
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	753.3, 15.9, 0.0
No. in Project	4



Luminaire F Data

Supplier	TRT Lighting
Type	VIA ASY 160mA 4000K LED
Lamp(s)	42 0005 0000 100
Lamp Flux (klm)	0.25
File Name	VIA_ASY_160mA_250LM_4K.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	615.1, 393.5, 54.6
No. in Project	6



Luminaire G Data

Supplier	C U Phosco
Type	E950-28-P4A-740-BB-C0350-10W
Lamp(s)	740N
Lamp Flux (klm)	1.26
File Name	E950-28-P4A-740-BB-C0350-10W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	689.1, 181.9, 0.3
No. in Project	31



Luminaire H Data

Supplier	C U Phosco
Type	E950-28-F2A-740-BB-C0600-16W
Lamp(s)	740N
Lamp Flux (klm)	2.07
File Name	E950-28-F2A-740-BB-C0600-16W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	664.5, 121.3, 0.3
No. in Project	54

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	703031.43	732639.04	6.00	19.00	0.00	0.00	0.40			
2	A	703044.77	732653.27	6.00	197.00	0.00	0.00	0.40			
3	H	703052.34	732655.63	6.00	100.00	0.00	0.00	0.40			
4	H	703081.65	732663.43	6.00	109.00	0.00	0.00	0.40			
5	H	703061.37	732676.76	6.00	280.00	0.00	0.00	0.40			
6	H	703089.26	732684.23	6.00	280.00	0.00	0.00	0.40			
7	H	703028.82	732653.00	6.00	18.00	0.00	0.00	0.40			
8	H	703021.61	732679.21	6.00	17.00	0.00	0.00	0.40			
9	H	703039.71	732685.41	6.00	185.00	0.00	0.00	0.40			
10	H	703030.01	732715.75	6.00	197.00	0.00	0.00	0.40			
11	A	703007.92	732729.13	6.00	16.00	0.00	0.00	0.40			
12	H	703022.84	732746.81	6.00	197.00	0.00	0.00	0.40			
13	B	703031.00	732756.12	6.00	107.00	0.00	0.00	0.40			
14	B	703061.51	732760.90	6.00	93.00	0.00	0.00	0.40			
15	B	703003.99	732744.46	6.00	110.00	0.00	0.00	0.40			
16	A	702995.91	732702.67	6.00	167.00	0.00	0.00	0.40			
17	A	702986.17	732673.38	6.00	158.00	0.00	0.00	0.40			
18	B	702967.41	732667.93	6.00	324.00	0.00	0.00	0.40			
19	A	702958.72	732680.51	6.00	327.00	0.00	0.00	0.40			
20	G	702956.34	732650.24	6.00	327.00	0.00	0.00	0.40			
21	C	702993.08	732639.21	6.00	106.00	0.00	0.00	0.40			
22	C	703021.46	732646.96	6.00	106.00	0.00	0.00	0.40			
23	C	703003.06	732666.05	6.00	196.00	0.00	0.00	0.40			
24	C	702996.53	732690.83	6.00	191.00	0.00	0.00	0.40			
25	C	702975.21	732646.31	6.00	150.00	0.00	0.00	0.40			
26	C	702986.48	732673.44	6.00	347.00	0.00	0.00	0.40			
27	G	702938.76	732621.14	6.00	325.00	0.00	0.00	0.40			
28	C	702956.04	732617.55	6.00	194.00	0.00	0.00	0.40			
29	C	702952.79	732627.55	6.00	152.00	0.00	0.00	0.40			
30	C	702969.45	732634.74	6.00	286.00	0.00	0.00	0.40			
31	G	702996.36	732758.49	6.00	305.00	0.00	0.00	0.40			
32	G	703107.38	732670.63	6.00	106.00	0.00	0.00	0.40			
33	G	703118.36	732654.74	6.00	194.00	0.00	0.00	0.40			
34	H	703107.20	732707.60	6.00	194.00	0.00	0.00	0.40			
35	H	703101.71	732728.86	6.00	196.00	0.00	0.00	0.40			
36	G	703088.30	732704.40	6.00	14.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
37	G	703081.61	732729.24	6.00	15.00	0.00	0.00	0.40			
38	G	703076.05	732749.65	6.00	13.00	0.00	0.00	0.40			
39	H	703094.29	732754.68	6.00	198.00	0.00	0.00	0.40			
40	G	702923.55	732584.80	6.00	343.00	0.00	0.00	0.40			
41	C	703005.27	732698.37	6.00	282.00	0.00	0.00	0.40			
42	G	703026.26	732768.52	6.00	286.00	0.00	0.00	0.40			
43	G	703064.52	732773.95	6.00	273.00	0.00	0.00	0.40			
60	B	703052.69	732607.77	6.00	203.00	0.00	0.00	0.40			
61	B	703047.52	732586.62	6.00	18.00	0.00	0.00	0.40			
62	H	703047.49	732567.24	6.00	17.00	0.00	0.00	0.40			
63	A	703064.34	732590.72	6.00	281.00	0.00	0.00	0.40			
64	H	703039.04	732583.78	6.00	282.00	0.00	0.00	0.40			
65	A	703074.15	732575.46	6.00	108.00	0.00	0.00	0.40			
66	H	703027.20	732561.84	6.00	109.00	0.00	0.00	0.40			
67	H	703020.49	732578.67	6.00	282.00	0.00	0.00	0.40			
68	H	703002.11	732555.00	6.00	107.00	0.00	0.00	0.40			
69	A	703089.03	732598.08	6.00	297.00	0.00	0.00	0.40			
70	A	703101.74	732582.58	6.00	101.00	0.00	0.00	0.40			
71	B	703119.39	732599.79	6.00	278.00	0.00	0.00	0.40			
72	B	703119.19	732567.71	6.00	2.00	0.00	0.00	0.40			
73	B	703129.39	732589.84	6.00	184.00	0.00	0.00	0.40			
74	B	703132.86	732550.19	6.00	184.00	0.00	0.00	0.40			
75	B	703122.55	732528.26	6.00	359.00	0.00	0.00	0.40			
76	B	703135.53	732519.12	6.00	186.00	0.00	0.00	0.40			
77	B	703152.52	732496.53	6.00	216.00	0.00	0.00	0.40			
78	B	703133.09	732498.78	6.00	47.00	0.00	0.00	0.40			
79	G	703146.91	732484.67	6.00	308.00	0.00	0.00	0.40			
80	G	703131.41	732469.11	6.00	316.00	0.00	0.00	0.40			
81	G	703111.91	732449.31	6.00	309.00	0.00	0.00	0.40			
82	H	703078.81	732435.95	6.00	191.00	0.00	0.00	0.40			
83	G	703089.57	732439.14	6.00	290.00	0.00	0.00	0.40			
84	G	703179.30	732517.70	6.00	310.00	0.00	0.00	0.40			
85	H	703187.43	732536.86	6.00	8.00	0.00	0.00	0.40			
86	H	703185.66	732560.10	6.00	3.00	0.00	0.00	0.40			
87	H	703182.27	732583.21	6.00	0.00	0.00	0.00	0.40			
88	A	703142.80	732610.53	6.00	274.00	0.00	0.00	0.40			

Layout Continued

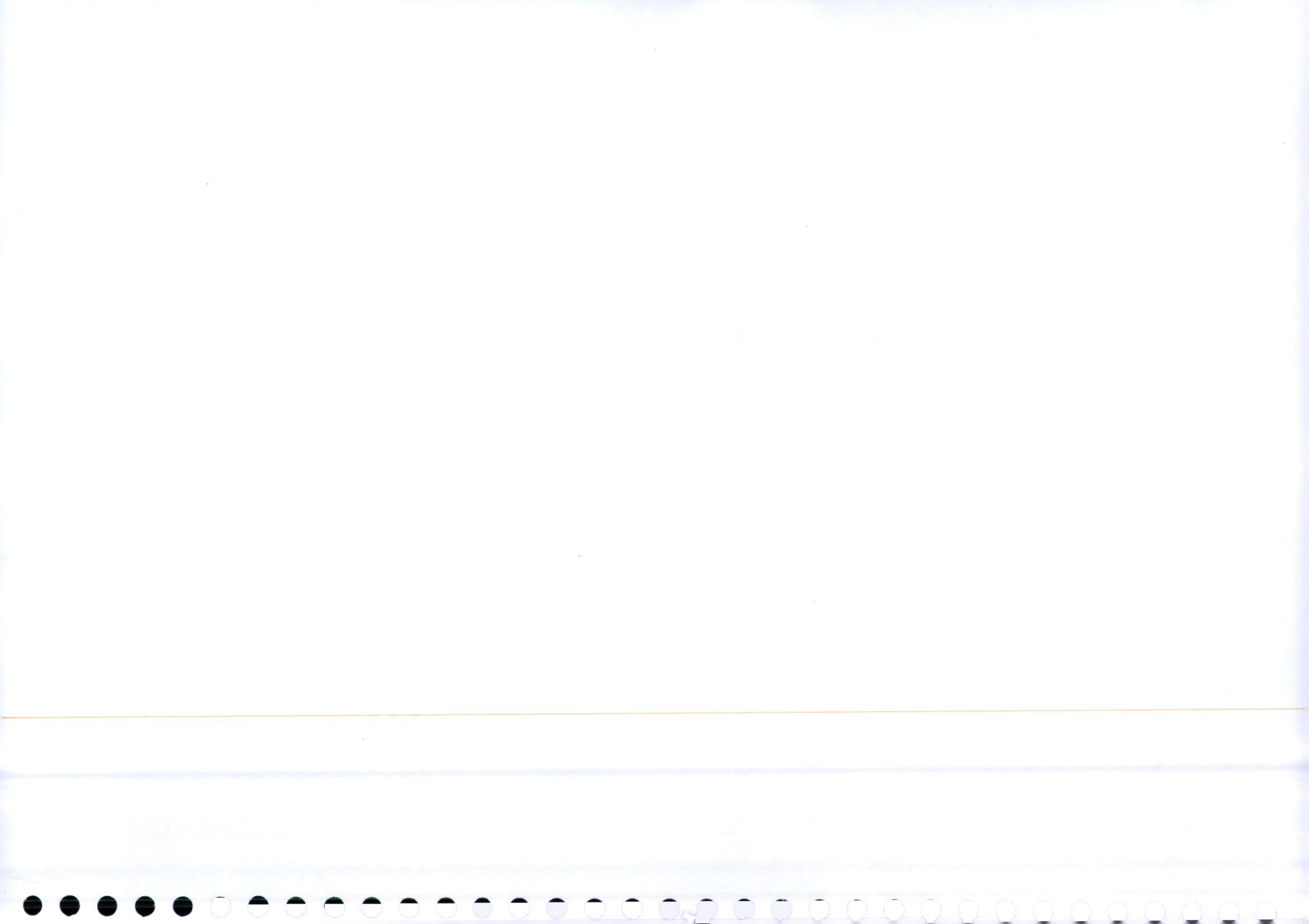
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
89	A	703170.18	732614.53	6.00	277.00	0.00	0.00	0.40			
90	A	703164.54	732595.29	6.00	103.00	0.00	0.00	0.40			
91	A	703136.92	732591.32	6.00	94.00	0.00	0.00	0.40			
92	C	703121.16	732618.81	6.00	185.00	0.00	0.00	0.40			
93	H	703066.99	732561.79	6.00	191.00	0.00	0.00	0.40			
94	H	703049.40	732545.09	6.00	5.00	0.00	0.00	0.40			
95	H	703068.07	732530.01	6.00	178.00	0.00	0.00	0.40			
96	H	703050.99	732519.21	6.00	355.00	0.00	0.00	0.40			
97	H	703070.80	732501.67	6.00	182.00	0.00	0.00	0.40			
98	H	703054.58	732488.07	6.00	12.00	0.00	0.00	0.40			
99	H	703057.68	732456.76	6.00	8.00	0.00	0.00	0.40			
100	H	703053.02	732440.89	6.00	255.00	0.00	0.00	0.40			
101	G	703177.65	732623.61	6.00	2.00	0.00	0.00	0.40			
102	A	703184.44	732633.04	6.00	6.00	0.00	0.00	0.40			
103	A	703187.24	732601.26	6.00	48.00	0.00	0.00	0.40			
104	G	703162.31	732500.37	6.00	310.00	0.00	0.00	0.40			
105	H	703073.59	732478.26	6.00	189.00	0.00	0.00	0.40			
106	G	702975.17	732580.66	6.00	351.00	0.00	0.00	0.40			
107	H	702970.77	732548.64	6.00	92.00	0.00	0.00	0.40			
108	B	702994.76	732547.71	6.00	187.00	0.00	0.00	0.40			
109	B	702984.84	732523.99	6.00	10.00	0.00	0.00	0.40			
110	B	702998.54	732507.99	6.00	184.00	0.00	0.00	0.40			
111	B	702987.96	732491.98	6.00	3.00	0.00	0.00	0.40			
112	B	703001.78	732473.05	6.00	193.00	0.00	0.00	0.40			
113	H	703027.17	732447.48	6.00	246.00	0.00	0.00	0.40			
114	H	702972.01	732453.28	6.00	272.00	0.00	0.00	0.40			
115	H	702942.78	732450.04	6.00	275.00	0.00	0.00	0.40			
116	H	702919.65	732463.52	6.00	4.00	0.00	0.00	0.40			
117	H	702917.17	732489.60	6.00	3.00	0.00	0.00	0.40			
118	H	702936.23	732480.55	6.00	183.00	0.00	0.00	0.40			
119	H	702934.24	732507.28	6.00	183.00	0.00	0.00	0.40			
120	G	702902.77	732524.97	6.00	82.00	0.00	0.00	0.40			
121	H	702915.49	732519.27	6.00	349.00	0.00	0.00	0.40			
122	H	702936.14	732535.19	6.00	173.00	0.00	0.00	0.40			
123	H	702919.60	732549.30	6.00	347.00	0.00	0.00	0.40			
124	H	702936.37	732568.96	6.00	264.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
125	H	702959.29	732566.28	6.00	262.00	0.00	0.00	0.40			
126	H	702942.27	732550.30	6.00	84.00	0.00	0.00	0.40			
127	G	702908.81	732434.54	6.00	275.00	0.00	0.00	0.40			
128	G	702904.96	732477.25	6.00	92.00	0.00	0.00	0.40			
129	B	702991.46	732455.68	6.00	7.00	0.00	0.00	0.40			
130	H	702997.88	732572.39	6.00	282.00	0.00	0.00	0.40			
132	D	702898.74	732478.88	1.00	277.00	0.00	0.00	0.10			
133	D	702895.90	732527.57	1.00	263.00	0.00	0.00	0.10			
134	F	702892.49	732514.49	1.13	96.00	0.00	0.00	0.00			
135	F	702892.49	732501.05	1.13	96.00	0.00	0.00	0.00			
136	F	702892.97	732487.48	1.13	96.00	0.00	0.00	0.00			
137	E	703053.20	732614.69	10.00	100.00	0.00	0.00	1.00			
138	E	703016.62	732604.84	10.00	104.00	0.00	0.00	1.00			
139	E	703085.96	732623.93	10.00	104.00	0.00	0.00	1.00			
140	E	702982.30	732595.23	10.00	104.00	0.00	0.00	1.00			
125	C	702995.99	732702.63	6.00	344.00	0.00	0.00	0.40			
126	H	702982.10	732442.41	6.00	97.00	0.00	0.00	0.40			
149	F	702895.14	732469.02	1.13	274.00	0.00	0.00	0.00			
150	F	702896.55	732455.71	1.13	274.00	0.00	0.00	0.00			
151	F	702897.38	732442.17	1.13	272.00	0.00	0.00	0.00			
152	D	702961.27	732712.05	1.00	75.00	0.00	0.00	0.10			
153	D	702959.96	732712.44	1.00	75.00	0.00	0.00	0.10			
138	G	703113.28	732679.03	6.00	184.00	0.00	0.00	0.40			
139	G	703092.80	732773.28	6.00	272.00	0.00	0.00	0.40			
140	A	703012.87	732709.82	6.00	17.00	0.00	0.00	0.40			
141	B	702991.88	732739.69	6.00	342.00	0.00	0.00	0.40			
142	C	703007.61	732729.06	6.00	189.00	0.00	0.00	0.40			
143	H	702956.32	732439.34	6.00	98.00	0.00	0.00	0.40			
144	H	703036.26	732432.49	6.00	78.00	0.00	0.00	0.40			
145	H	703008.82	732439.86	6.00	75.00	0.00	0.00	0.40			
146	H	702939.08	732455.20	6.00	187.00	0.00	0.00	0.40			
147	G	702921.93	732443.83	6.00	9.00	0.00	0.00	0.40			
148	H	703075.91	732460.89	6.00	185.00	0.00	0.00	0.40			
149	G	703091.87	732422.24	6.00	109.00	0.00	0.00	0.40			
150	G	703119.18	732432.66	6.00	126.00	0.00	0.00	0.40			
151	G	703139.97	732453.26	6.00	131.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
152	G	703163.68	732477.77	6.00	137.00	0.00	0.00	0.40			
153	G	703184.45	732498.96	6.00	137.00	0.00	0.00	0.40			
154	G	703207.63	732524.24	6.00	153.00	0.00	0.00	0.40			
155	H	703206.07	732555.34	6.00	184.00	0.00	0.00	0.40			
156	H	703203.72	732580.99	6.00	184.00	0.00	0.00	0.40			
157	H	703199.86	732620.01	6.00	184.00	0.00	0.00	0.40			



Horizontal Illuminance (lux)

Grid 1



Results

Eav	5.30
Emin	1.04
E _{max}	16.81
E _{min} /E _{max}	0.06
E _{min} /E _{av}	0.20



Horizontal Illuminance (lux)

Grid 2



Results

Eav	5.84
Emin	1.15
Emax	52.39
Emin/Emax	0.02
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 3

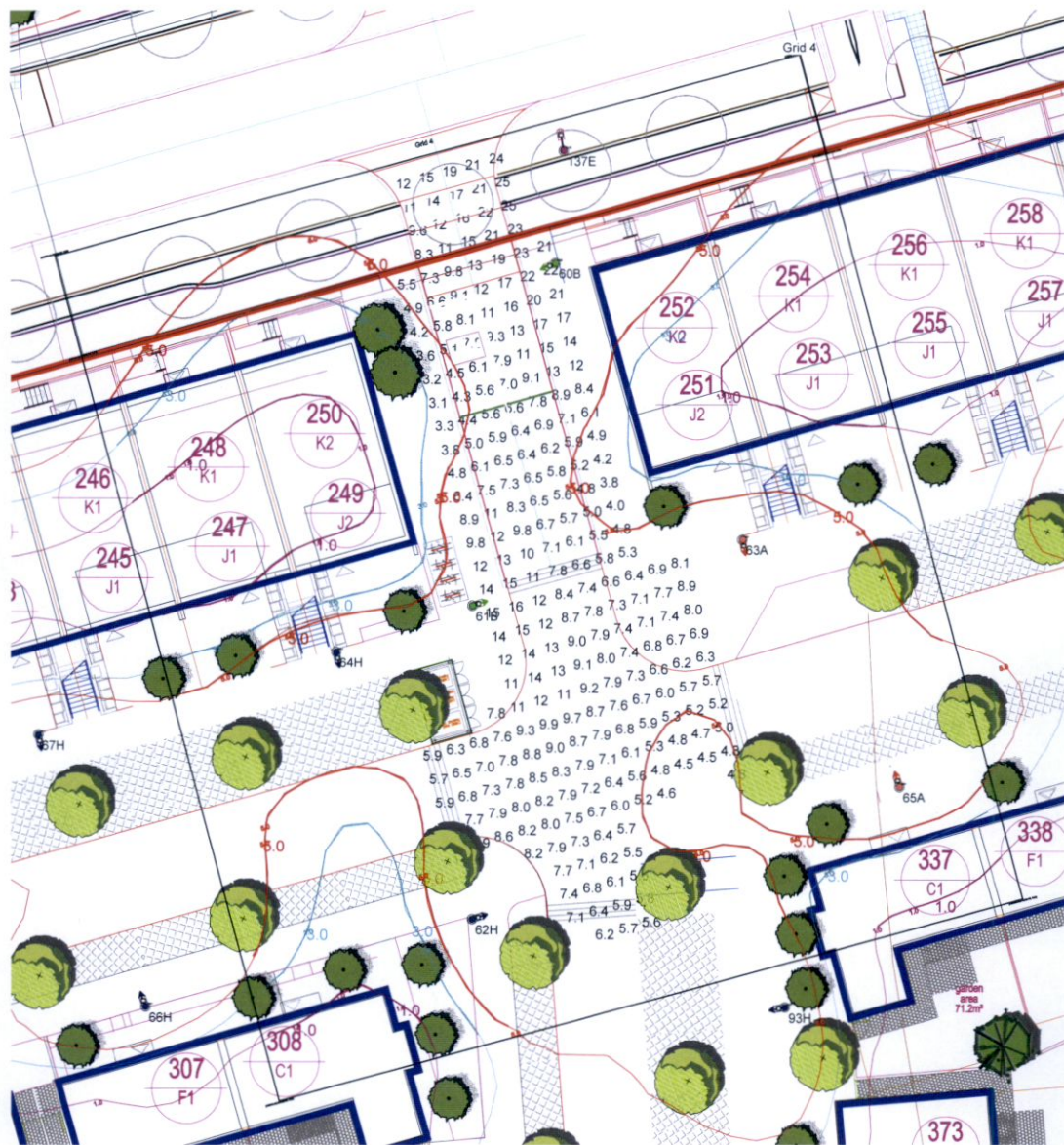


Results

Eav	5.41
Emin	1.08
E _{max}	18.21
E _{min} /E _{max}	0.06
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)

Grid 4

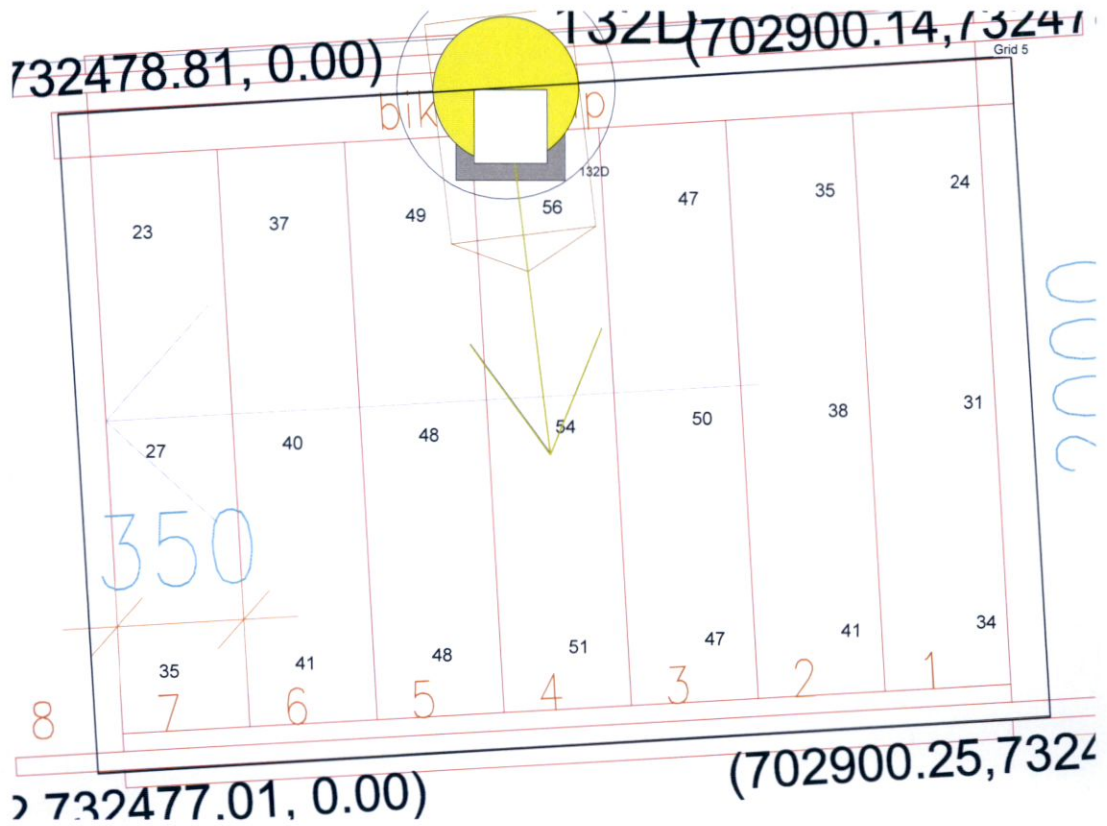


Results

Eav	8.91
Emin	3.05
Emax	24.90
Emin/Emax	0.12
Emin/Eav	0.34

Horizontal Illuminance (lux)

Grid 5

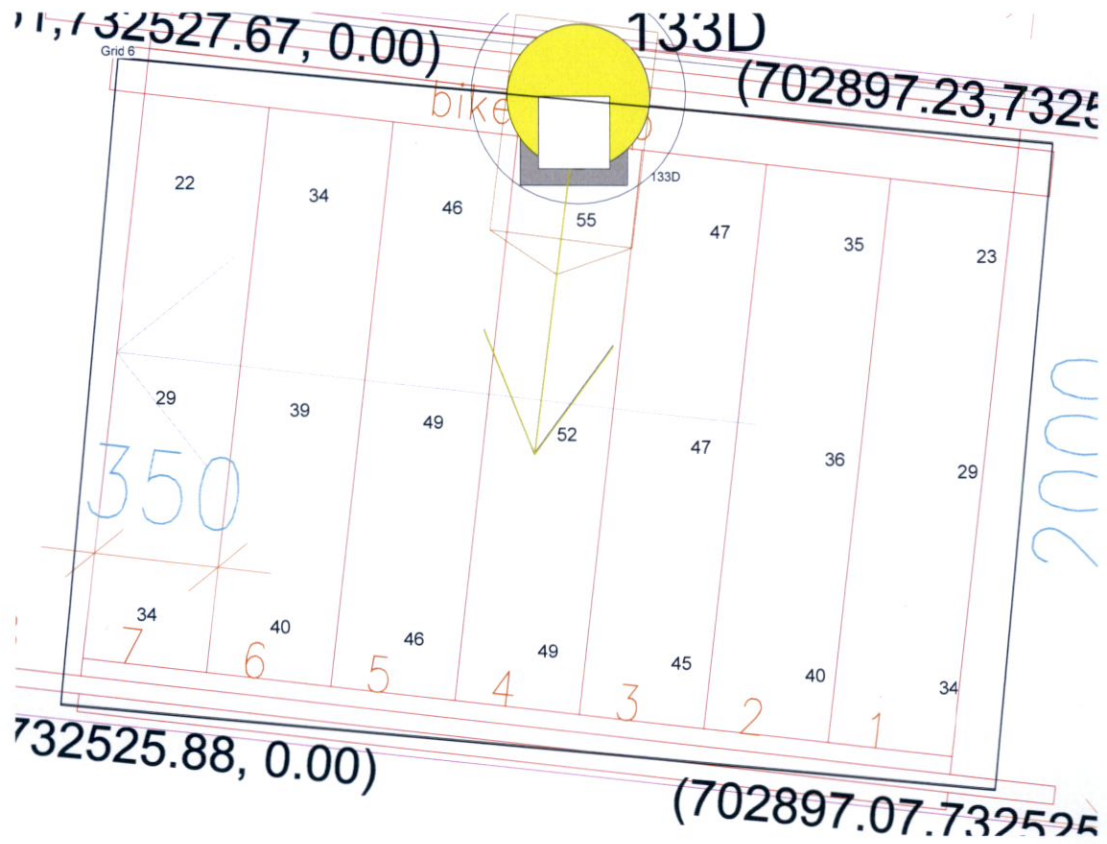


Results

Eav	40.74
Emin	22.59
E _{max}	56.36
E _{min} /E _{max}	0.40
E _{min} /E _{av}	0.55

Horizontal Illuminance (lux)

Grid 6

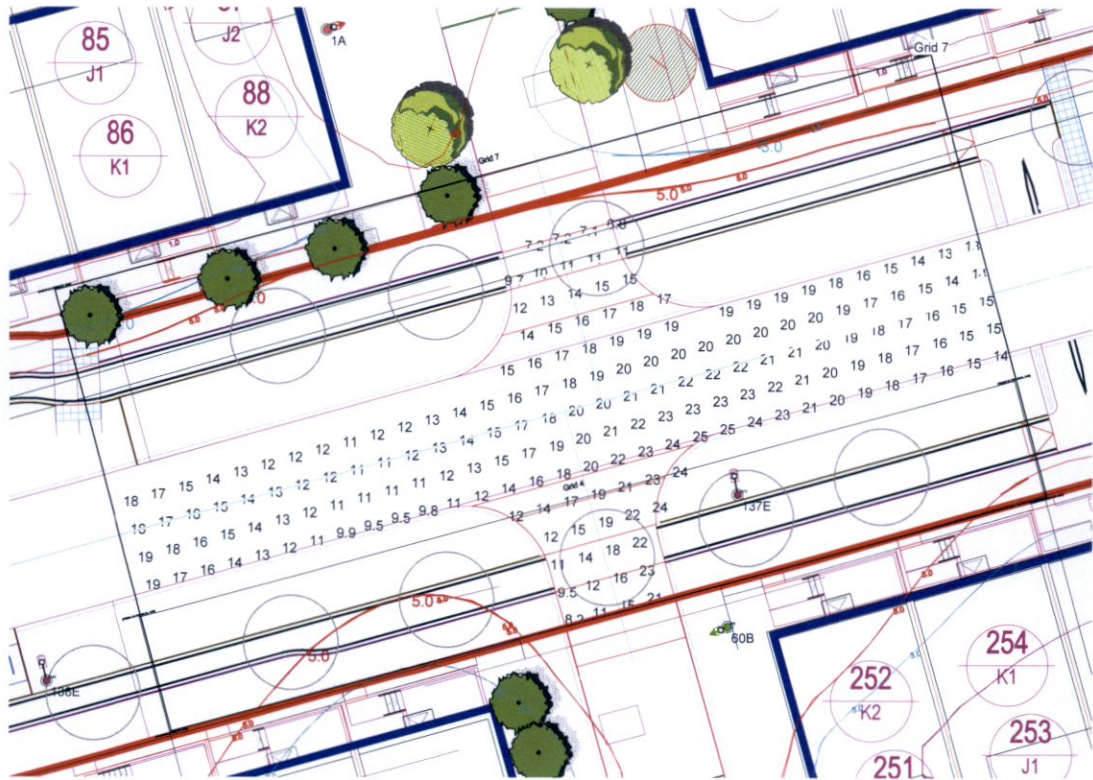


Results

Eav	39.49
Emin	21.73
Emax	54.59
Emin/Emax	0.40
Emin/Eav	0.55

Horizontal Illuminance (lux)

Grid 7

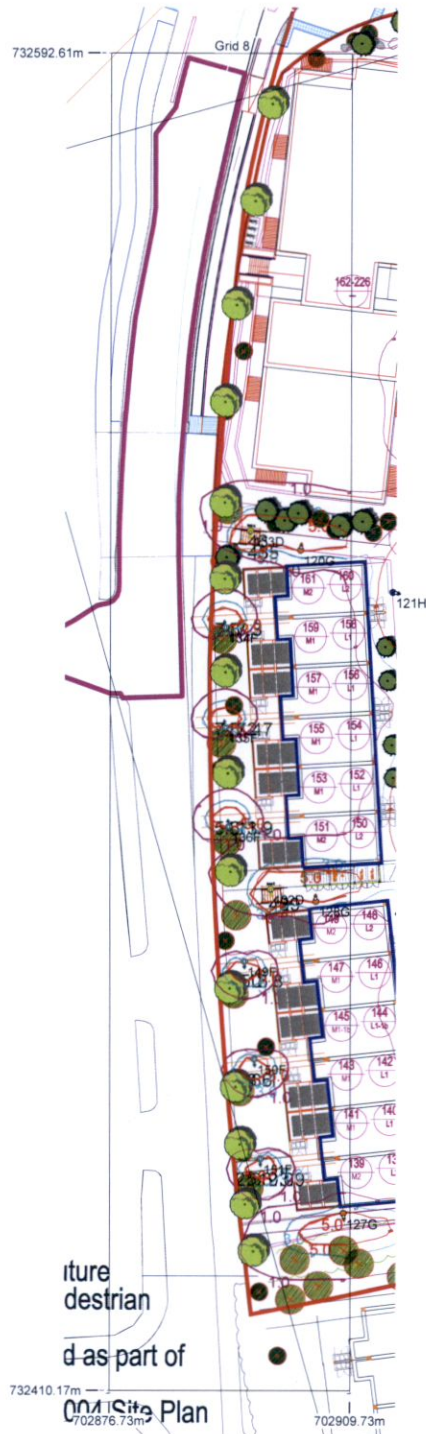


Results

Eav	16.27
Emin	6.81
E _{max}	24.84
E _{min} /E _{max}	0.27
E _{min} /E _{av}	0.42

Horizontal Illuminance (lux)

Grid 8

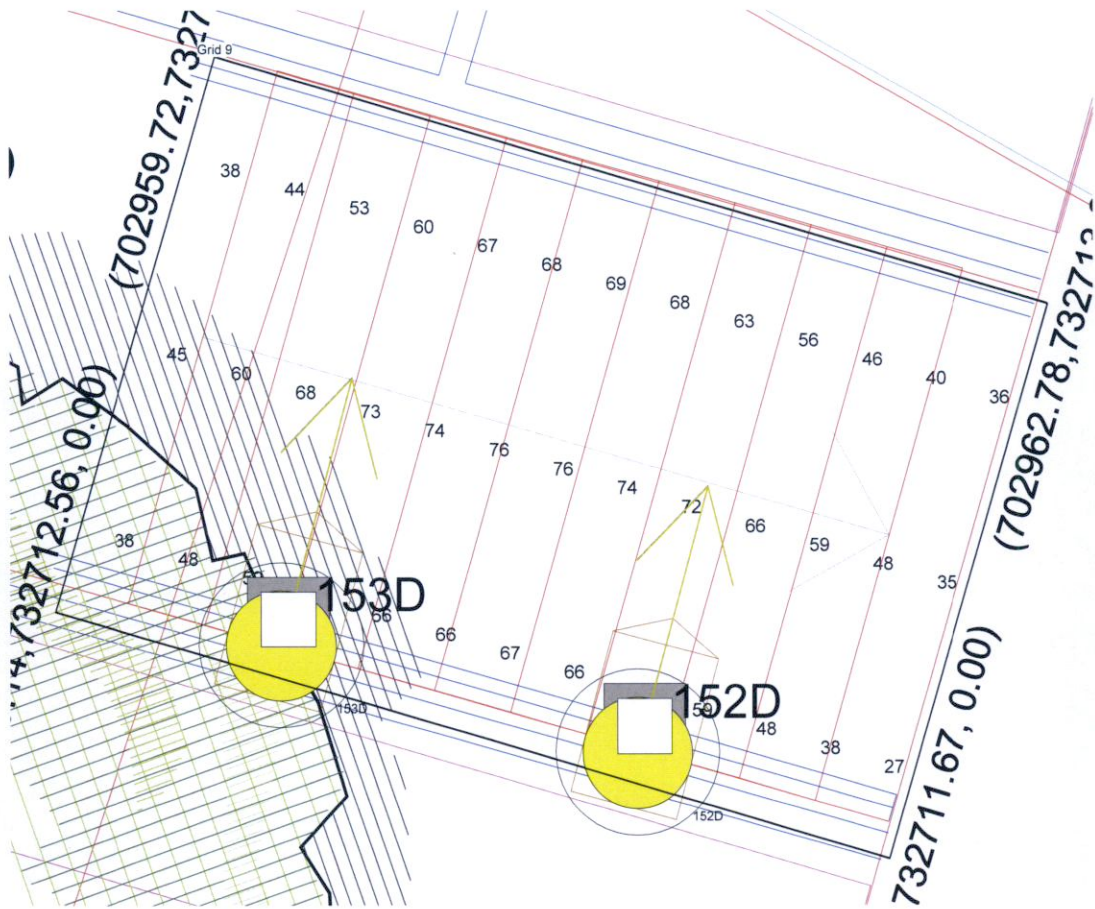


Results

Eav	13.51
Emin	2.30
Emax	45.89
Emin/Emax	0.05
Emin/Eav	0.17

Horizontal Illuminance (lux)

Grid 9



Results

Eav	57.64
Emin	27.40
Emax	75.92
Emin/Emax	0.36
Emin/Eav	0.48