

DATE: 30 March 2022
DESIGNER: Alex Naper-Graham Sheehan
PROJECT No: SES 01820 Rev K
PROJECT NAME: Auburn Malahide - Kinwest Ltd.



Area designed in accordance with EN13201-2:2015 Category P4.
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.
Road/site junction designed in accordance with EN13201-2:2015 Category C4.

Rev A: Latest site layout used, redesigned to suit.
Rev B: Latest site layout used, redesigned to suit.
Rev C: Latest site layout used, redesigned to suit.
Rev D: Changes as requested by CCK.
Rev E: Latest site layout used, redesigned to suit.
Rev F: 36A relocated
Rev G: New site layout.
Rev H: Updated site layout.
Rev i: Updated site layout.
Rev J: Updated layout.
Rev K: 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	721025.88	745162.46	297.53	135.30	1.50	1.50
2	Grid 2	720981.59	745145.99	150.00	250.00	1.50	1.50
3	Grid 3	720800.00	744897.00	303.00	203.00	1.50	1.50
4	Grid 4	720795.62	745190.58	160.00	160.00	1.50	1.50
5	Grid 5	721100.91	744862.88	75.00	90.00	1.50	1.50
6	Grid 6	721144.31	745043.12	2.00	9.88	0.67	0.28

Luminaires

Luminaire A Data

Supplier	C U Phosco
Type	E950-28-P4A-727-C500-13W
Lamp(s)	727N
Lamp Flux (klm)	1.86
File Name	E950-28-P4A-727-C0500-13W.ies
Maintenance Factor	0.84
Imax70,80,90(cd/klm)	659.3, 183.1, 0.3
No. in Project	53

Luminaire B Data

Supplier	
Type	PW19916 (5W)
Lamp(s)	5W LED
Lamp Flux (klm)	0.45
File Name	PW19916_5W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	645.8, 352.2, 39.8
No. in Project	30

Luminaire C Data

Supplier	C U Phosco
Type	E950-28-R3A-727-C250-8W
Lamp(s)	727N
Lamp Flux (klm)	0.98
File Name	E950-28-R3A-727-C0250-8W.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	716.7, 30.5, 0.3
No. in Project	34

Luminaire D Data

Supplier	C U Phosco
Type	E950-28-F2A-727-C650-17W
Lamp(s)	727N
Lamp Flux (klm)	2.39
File Name	E950-28-F2A-727-C0650-17W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	623.6, 113.9, 0.3
No. in Project	6



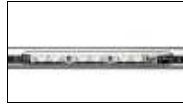
Luminaire E Data

Supplier	Urbis Schreder
Type	AXIA 2.2 5167 Integrated lenses Rear louve rs 48 OSLO SQUARE
Lamp(s)	48 OSLO SQUARE GIANT@500mA WW 727 230V 00-36-983
LampFlux(klm)/Colour	10.73 WW 2700K/70
File Name	AXIA 2.2 5167 48 OSLO SQUARE GIANT 500mA WW 727 71W 491142 Integrated I...
Maintenance Factor	0.87
Imax70,80,90(cd/klm)	877.5, 121.4, 0.0
No. in Project	4

Luminaire F Data

Supplier	
Type	2687 SNN-1C#
Lamp(s)	1 ST 150 17500 2000 E40
LampFlux(klm)/Colour	17.50 1950 / 23
File Name	Arc 2687 SNN 1C# 1 ST 150 17500 1950 E 40.ltd
Maintenance Factor	0.75
Imax70,80,90(cd/klm)	316.0, 165.0, 8.0
No. in Project	4

Luminaires



Luminaire G Data

Supplier	Urbis Schreder
Type	ALINEA Handrail 5121 - 3 LED 350mA WW Profiled Poly Clear, Sm
Lamp(s)	3 LEDs WW
Lamp Flux (klm)	0.37
File Name	ALINEA Handrail 5121 3 LED 350mA WW Profiled Poly Clear Smooth WO7314.Idt
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	230.6, 22.2, 4.1
No. in Project	4

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	721129.30	744913.77	6.00	244.00	0.00	0.00	0.40			
2	A	721128.26	744934.96	6.00	160.00	0.00	0.00	0.40			
3	A	721140.45	744966.25	6.00	180.00	0.00	0.00	0.40			
4	A	721137.33	744997.55	6.00	213.00	0.00	0.00	0.40			
5	A	721117.20	745023.98	6.00	219.00	0.00	0.00	0.40			
6	A	721108.73	745051.39	6.00	193.00	0.00	0.00	0.40			
7	A	721095.87	745084.54	6.00	206.00	0.00	0.00	0.40			
8	C	721105.71	745078.81	5.00	116.00	0.00	0.00	0.40			
9	A	721076.23	745108.85	6.00	212.00	0.00	0.00	0.40			
10	A	721139.60	745005.50	6.00	146.00	0.00	0.00	0.40			
11	A	720843.10	744992.94	6.00	127.00	0.00	0.00	0.40			
12	A	721063.32	745130.16	6.00	207.00	0.00	0.00	0.40			
13	A	721041.09	745179.85	6.00	146.00	0.00	0.00	0.40			
14	A	720978.54	745097.02	6.00	85.00	0.00	0.00	0.40			
15	A	720930.62	745107.70	6.00	87.00	0.00	0.00	0.40			
16	A	720900.26	745108.31	6.00	92.00	0.00	0.00	0.40			
17	A	721058.96	745208.17	6.00	165.00	0.00	0.00	0.40			
18	A	720792.74	745016.29	6.00	170.00	0.00	0.00	0.40			
19	A	721056.22	745240.47	6.00	201.00	0.00	0.00	0.40			
20	A	721006.32	745288.01	6.00	229.00	0.00	0.00	0.40			
21	A	721031.37	745264.33	6.00	233.00	0.00	0.00	0.40			
22	A	720987.01	745302.99	6.00	242.00	0.00	0.00	0.40			
23	A	720942.70	745332.36	6.00	216.00	0.00	0.00	0.40			
24	A	720926.05	745355.10	6.00	244.00	0.00	0.00	0.40			
25	A	720898.67	745361.00	6.00	287.00	0.00	0.00	0.40			
26	A	720865.25	745350.39	6.00	274.00	0.00	0.00	0.40			
27	A	720828.01	745343.14	6.00	284.00	0.00	0.00	0.40			
28	A	720783.38	745286.55	6.00	192.00	0.00	0.00	0.40			
29	A	720778.08	745311.61	6.00	194.00	0.00	0.00	0.40			
30	C	720881.06	745342.40	6.00	195.00	0.00	0.00	0.40			
31	A	720890.54	745092.18	6.00	166.00	0.00	0.00	0.40			
32	A	720891.21	745035.98	6.00	187.00	0.00	0.00	0.40			
33	A	720892.55	745010.63	6.00	160.00	0.00	0.00	0.40			
34	D	720899.58	745037.38	6.00	90.00	0.00	0.00	0.40			
35	A	720866.41	744998.08	6.00	92.00	0.00	0.00	0.40			
36	A	720787.92	744971.64	6.00	148.00	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	A	720811.01	744981.79	6.00	78.00	0.00	0.00	0.40			
38	D	720936.71	744992.44	6.00	184.00	0.00	0.00	0.40			
39	D	720930.06	744969.12	6.00	98.00	0.00	0.00	0.40			
40	D	720895.38	744994.10	6.00	98.00	0.00	0.00	0.40			
41	C	721150.92	745041.66	5.00	295.00	0.00	0.00	0.40			
42	C	721172.34	745049.31	5.00	123.00	0.00	0.00	0.40			
43	C	721180.34	745068.24	5.00	161.00	0.00	0.00	0.40			
44	C	721178.19	745091.42	5.00	223.00	0.00	0.00	0.40			
45	C	721158.07	745106.15	5.00	232.00	0.00	0.00	0.40			
46	C	721136.75	745122.85	5.00	232.00	0.00	0.00	0.40			
47	C	721125.30	745141.77	5.00	202.00	0.00	0.00	0.40			
48	C	721116.52	745163.88	5.00	207.00	0.00	0.00	0.40			
49	C	721094.21	745166.87	5.00	297.00	0.00	0.00	0.40			
50	C	721069.46	745153.50	5.00	293.00	0.00	0.00	0.40			
51	A	720959.31	745315.31	6.00	243.00	0.00	0.00	0.40			
52	A	720924.21	745263.68	6.00	39.00	0.00	0.00	0.40			
53	C	720959.17	745251.80	5.00	129.00	0.00	0.00	0.40			
54	C	720978.65	745269.48	5.00	301.00	0.00	0.00	0.40			
55	A	721020.65	745165.57	6.00	307.00	0.00	0.00	0.40			
56	C	721009.18	745164.45	5.00	254.00	0.00	0.00	0.40			
57	C	720986.59	745171.15	5.00	253.00	0.00	0.00	0.40			
58	C	720940.27	745249.12	5.00	46.00	0.00	0.00	0.40			
59	A	721044.24	745158.30	5.00	204.00	0.00	0.00	0.40			
60	A	721138.35	745020.84	5.00	222.00	0.00	0.00	0.40			
61	A	720984.27	745123.09	6.00	72.00	0.00	0.00	0.40			
62	A	720787.66	744996.04	6.00	349.00	0.00	0.00	0.40			
63	A	721009.63	745147.20	5.00	343.00	0.00	0.00	0.40			
64	C	720963.22	745139.94	5.00	344.00	0.00	0.00	0.40			
65	C	720970.65	745163.77	5.00	343.00	0.00	0.00	0.40			
66	A	720955.59	745102.87	6.00	65.00	0.00	0.00	0.40			
67	C	720836.57	745277.27	5.00	18.00	0.00	0.00	0.40			
68	C	720861.96	745336.16	5.00	117.00	0.00	0.00	0.40			
69	A	720994.59	745118.44	6.00	328.00	0.00	0.00	0.40			
70	A	720791.93	745335.45	6.00	282.00	0.00	0.00	0.40			
71	A	720791.27	745265.47	5.00	139.00	0.00	0.00	0.40			
72	A	720869.25	745326.61	6.00	3.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
73	C	720879.99	745289.65	5.00	24.00	0.00	0.00	0.40			
74	C	720872.42	745310.99	5.00	123.00	0.00	0.00	0.40			
75	C	720883.33	745303.54	5.00	183.00	0.00	0.00	0.40			
76	C	720885.27	745325.63	5.00	188.00	0.00	0.00	0.40			
77	C	720827.35	745296.00	5.00	58.00	0.00	0.00	0.40			
78	C	720797.61	745323.81	5.00	109.00	0.00	0.00	0.40			
79	C	720822.07	745325.24	5.00	100.00	0.00	0.00	0.40			
80	C	720840.31	745330.87	5.00	104.00	0.00	0.00	0.40			
81	A	720951.45	745304.07	6.00	128.00	0.00	0.00	0.40			
82	A	720935.00	745282.77	6.00	162.00	0.00	0.00	0.40			
83	C	720966.53	745118.77	5.00	148.00	0.00	0.00	0.40			
84	C	720975.13	745117.16	5.00	71.00	0.00	0.00	0.40			
85	D	720917.58	744995.95	6.00	97.00	0.00	0.00	0.40			
86	A	720812.12	744999.66	6.00	251.00	0.00	0.00	0.40			
87	A	720826.72	745004.24	6.00	270.00	0.00	0.00	0.40			
89	D	720914.47	745056.04	6.00	266.00	0.00	0.00	0.40			
90	A	720888.60	745061.45	6.00	189.00	0.00	0.00	0.40			
91	C	721136.76	745026.52	5.00	133.00	0.00	0.00	0.40			
92	B	720898.56	745009.21	1.00	272.00	0.00	0.00	0.00			
93	B	720909.91	745010.26	1.00	276.00	0.00	0.00	0.00			
94	B	720920.65	745011.27	1.00	279.00	0.00	0.00	0.00			
95	B	720929.84	745011.76	1.00	272.00	0.00	0.00	0.00			
96	B	720934.68	745006.84	1.00	271.00	0.00	0.00	0.00			
97	C	720825.59	745316.85	5.00	342.00	0.00	0.00	0.40			
98	B	721096.37	745160.86	1.00	296.00	0.00	0.00	0.00			
99	B	721096.89	745154.60	1.00	27.00	0.00	0.00	0.00			
100	B	721101.14	745147.47	1.00	214.00	0.00	0.00	0.00			
101	B	721090.66	745138.63	1.00	115.00	0.00	0.00	0.00			
102	B	721080.05	745133.34	1.00	117.00	0.00	0.00	0.00			
103	B	721086.15	745131.46	1.00	214.00	0.00	0.00	0.00			
104	B	721099.61	745138.09	1.00	205.00	0.00	0.00	0.00			
105	B	721105.34	745140.63	1.00	215.00	0.00	0.00	0.00			
106	B	721093.51	745132.47	1.00	291.00	0.00	0.00	0.00			
107	B	721108.07	745131.63	1.00	210.00	0.00	0.00	0.00			
108	B	721113.00	745121.91	1.00	210.00	0.00	0.00	0.00			
109	B	721113.40	745112.47	1.00	113.00	0.00	0.00	0.00			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
110	B	721122.53	745115.62	1.00	205.00	0.00	0.00	0.00			
111	B	721127.43	745105.96	1.00	210.00	0.00	0.00	0.00			
112	B	721136.74	745095.07	1.00	226.00	0.00	0.00	0.00			
113	B	721145.03	745087.85	1.00	235.00	0.00	0.00	0.00			
114	B	721153.69	745080.03	1.00	229.00	0.00	0.00	0.00			
115	B	721156.89	745069.96	1.00	161.00	0.00	0.00	0.00			
116	B	721147.56	745064.77	1.00	119.00	0.00	0.00	0.00			
117	B	721128.29	745090.63	1.00	218.00	0.00	0.00	0.00			
118	B	721132.52	745080.44	1.00	200.00	0.00	0.00	0.00			
119	B	721135.27	745071.14	1.00	208.00	0.00	0.00	0.00			
119	B	721138.83	745062.52	1.00	30.00	0.00	0.00	0.00			
121	B	721126.26	745096.79	1.00	308.00	0.00	0.00	0.00			
121	E	721136.35	744898.34	8.00	333.00	0.00	0.00	0.50			
122	E	721158.70	744914.72	8.00	162.00	0.00	0.00	0.50			
123	E	721180.36	744873.64	8.00	62.00	0.00	0.00	0.50			
124	F	721120.06	744845.59	8.00	340.00	0.00	0.00	0.50			
125	F	721129.80	744877.28	8.00	328.00	0.00	0.00	0.50			
126	F	721169.12	744943.08	8.00	158.00	0.00	0.00	0.50			
127	E	721157.26	744887.54	8.00	54.00	0.00	0.00	0.50			
128	B	721142.33	745055.56	1.00	144.00	0.00	0.00	0.00			
129	G	721144.07	745043.97	1.00	30.00	0.00	0.00	0.10			
130	G	721142.83	745046.15	1.00	30.00	0.00	0.00	0.10			
131	G	721141.74	745048.42	1.00	27.00	0.00	0.00	0.10			
132	C	720997.17	745279.30	5.00	300.00	0.00	0.00	0.40			
133	G	721140.25	745051.28	1.00	25.00	0.00	0.00	0.10			
134	A	720768.02	745329.68	6.00	8.00	0.00	0.00	0.40			
135	F	721187.16	744985.74	8.00	148.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1



Results

Eav	5.82
Emin	1.12
Emax	31.93
Emin/Emax	0.04
Emin/Eav	0.19

Horizontal Illuminance (lux)

Grid 2



Results

Eav	5.03
Emin	1.08
Emax	15.10
Emin/Emax	0.07
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 3



Results

Eav	5.48
Emin	1.07
Emax	35.19
Emin/Emax	0.03
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 4

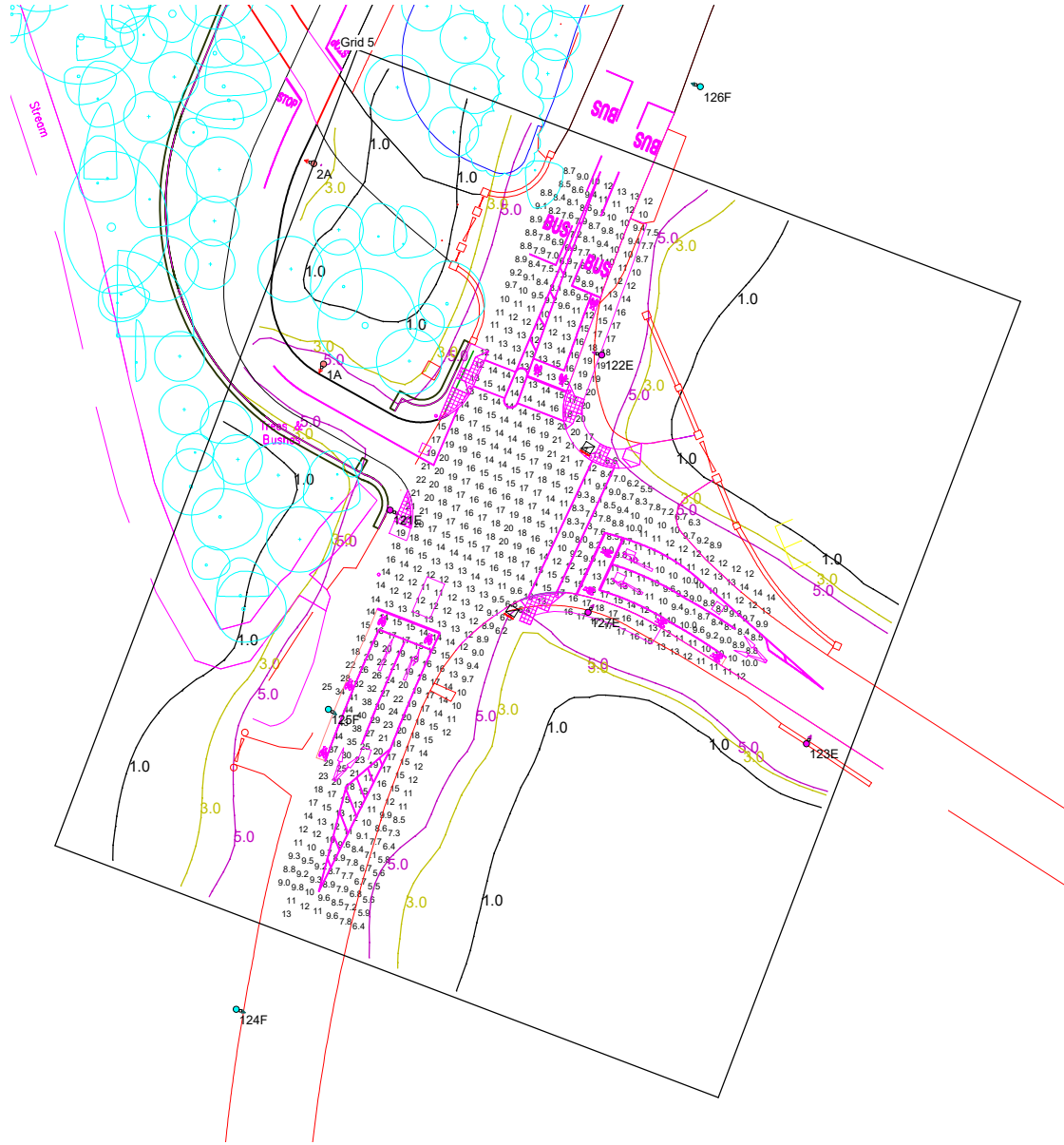


Results

Eav	5.46
Emin	1.08
E _{max}	18.25
E _{min} /E _{max}	0.06
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)

Grid 5

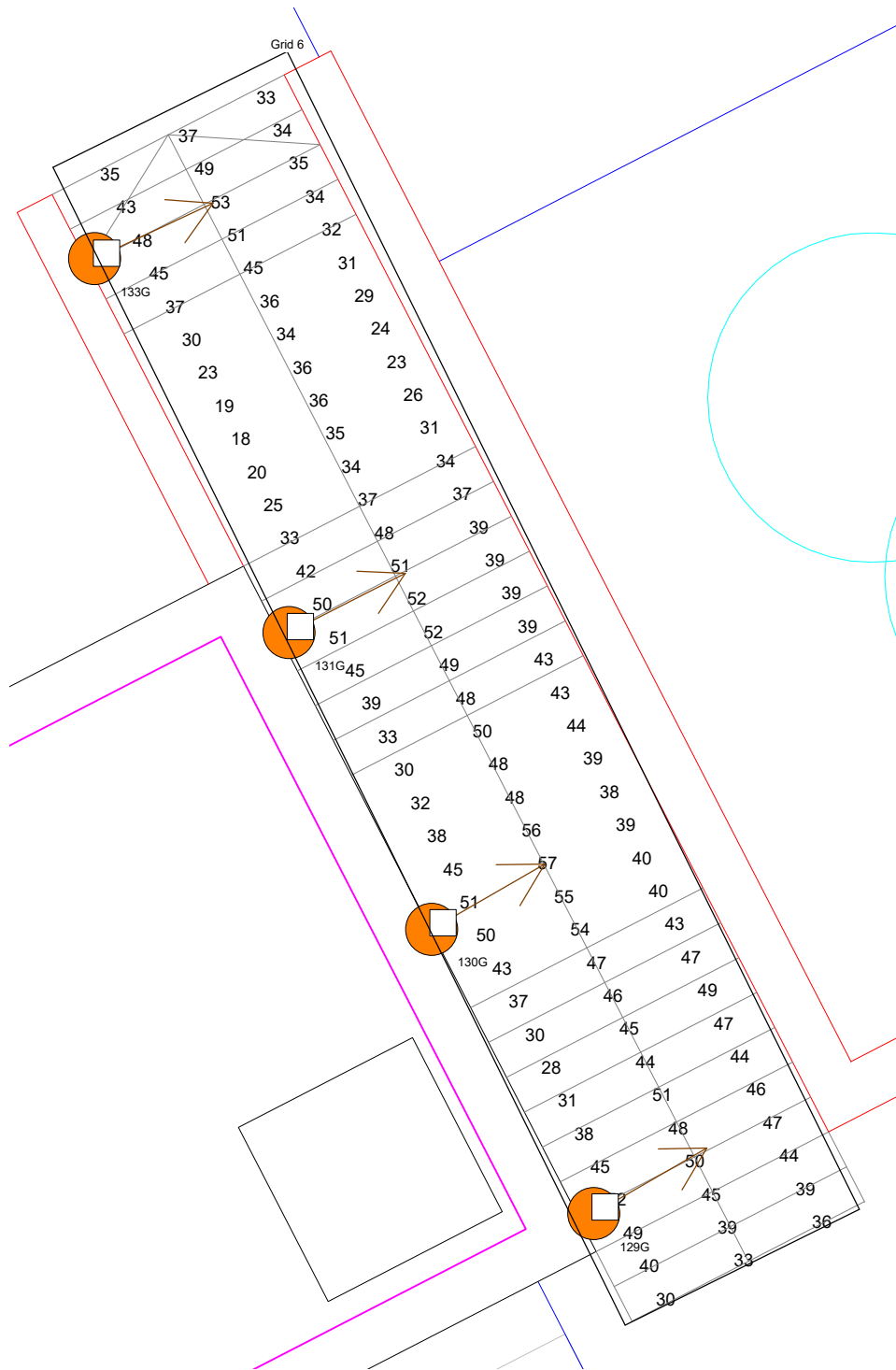


Results

Eav	13.70
Emin	5.45
Emax	43.94
Emin/Emax	0.12
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 6



Results

Eav	40.30
Emin	18.06
E _{max}	56.59
E _{min} /E _{max}	0.32
E _{min} /E _{av}	0.45