

DATE: 19 October 2020
DESIGNER: AECOM
PROJECT No: 60632497
PROJECT NAME: Didcot HIF 1 - RIV



Proposed lighting calculation for Didcot River Crossing.

Target lighting classes:
Conflict Area Class C3
Pedestrian Crossings C4

Maintenance factor:
DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E3/E4, >6m mounting height)

DW Windsor Kirium Overall MF = 0.84 (from manufacturer's data)
(72 month cleaning, zone E3/E4, <6m mounting height)

RIV_PD-ACM-HLG-SW_LTG_ZZ_ZZ-CA-LE-0001

PREPARED BY: AECOM
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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	Grid 1 - A4130 Roundabout	452040.98	191798.11	249.58	168.95	1.50	1.50
2	Grid 2 - A4130 Highway Eas...	452274.29	191790.43	119.06	90.57	1.49	1.48
3	Grid 3 - RAB South of Rive...	451738.83	193749.22	315.54	346.40	1.50	1.50
4	Grid 4 - RAB North of Rive...	451923.57	195215.32	313.69	259.44	1.50	1.50
5	Grid 5 - A4130 Highway Wes...	452011.01	191841.09	113.32	60.66	1.49	1.48
6	Grid 6 - Pedestrian Crossi...	452217.51	192051.26	52.84	53.24	1.47	1.48
7	Grid 7 - Pedestrian Crossi...	452246.87	192171.37	35.69	38.51	1.49	1.48
8	Grid 8 - Pegasus Crossing	452377.36	192811.09	54.82	58.10	1.48	1.49
9	Grid 9 - Pedestrian Crossi...	451936.12	193676.16	136.16	138.24	1.50	1.50

Luminaires

Luminaire A Data



Supplier	D W Windsor
Type	KIRIUM PRO2 64LED 3k A1 CLO 400mA UM SUG 42 0066 0000 100
Lamp(s)	64 x 3k LED
Lamp Flux (klm)	9.80
File Name	KIRIUM PRO2 64LED 3k A1 CLO_400mA U MSUG 42 0066 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	50

Luminaire B Data



Supplier	D W Windsor
Type	KIRIUM PRO2 48LED 3k C3 CLO 250mA UM SUG 42 0033 0000 100
Lamp(s)	48 x 3k LED
Lamp Flux (klm)	5.11
File Name	KIRIUM PRO2 48LED 3k C3 CLO_250mA U MSUG 42 0033 0000 100.ies
Maintenance Factor	0.84
Imax70,80,90(cd/klm)	64.8, 8.3, 0.0
No. in Project	7

Luminaire D Data



Supplier	D W Windsor
Type	KIRIUM PRO2 64LED 3k A1 CLO 600mA UM SUG 42 0099 0000 100
Lamp(s)	64 x 3k LED
Lamp Flux (klm)	13.96
File Name	KIRIUM PRO2 64LED 3k A1 CLO_600mA U MSUG 42 0099 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	9

Luminaire E Data



Supplier	D W Windsor
Type	KIRIUM PRO2 64LED 3k A5 CLO 500mA UM SUG 42 0082 0000 100
Lamp(s)	64 x 3k LED
Lamp Flux (klm)	11.34
File Name	KIRIUM PRO2 64LED 3k A5 CLO_500mA U MSUG 42 0082 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	979.2, 459.0, 0.0
No. in Project	24

Luminaires



Luminaire F Data

Supplier	ASD Lighting
Type	HWD-#4LED4460-M1 Osram Rev 1
Lamp(s)	4000K Osram LED
LampFlux(klm)/Colour	8.85 4000/72
File Name	HWD-#4LED4460-M1 (80w).ldt
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	675.3, 133.9, 0.4
No. in Project	2

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	452166.63	191863.84	10.00	90.00	0.00	0.00	1.25			
3	A	452199.32	191928.10	10.00	322.00	0.00	0.00	1.25			
5	E	452226.70	191908.50	10.00	200.00	0.00	0.00	1.25			
6	E	452217.52	191851.03	10.00	141.00	0.00	0.00	1.25			
8	E	452186.83	191860.21	10.00	42.00	0.00	0.00	1.25			
8	A	452132.13	191863.29	10.00	90.00	0.00	0.00	1.25			
11	A	452149.67	191885.23	10.00	272.00	0.00	0.00	1.25			
11	E	452241.85	191894.64	10.00	223.00	0.00	0.00	1.25			
15	D	452098.88	191881.60	10.00	276.00	0.00	0.00	1.25			
16	A	452203.49	191805.75	10.00	162.00	0.00	0.00	1.25			
17	A	452191.47	191832.24	10.00	354.00	0.00	0.00	1.25			
18	A	452259.41	191882.69	10.00	240.00	0.00	0.00	1.25			
19	A	452261.38	191853.55	10.00	69.00	0.00	0.00	1.25			
21	A	452229.48	191939.91	10.00	172.00	0.00	0.00	1.25			
22	A	452212.01	191963.23	10.00	344.00	0.00	0.00	1.25			
17	E	451868.67	193912.59	10.00	50.00	0.00	0.00	1.25			
22	E	451892.93	193901.01	10.00	70.00	0.00	0.00	1.25			
24	E	452233.97	191861.68	10.00	117.00	0.00	0.00	1.25			
28	D	452293.39	191863.41	10.00	245.00	0.00	0.00	1.25			
29	E	452184.37	191902.19	10.00	321.00	0.00	0.00	1.25			
31	D	452305.45	191829.86	10.00	61.00	0.00	0.00	1.25			
29	A	451925.95	193868.17	10.00	31.00	0.00	0.00	1.25			
32	A	451824.98	193974.31	10.00	49.00	0.00	0.00	1.25			
33	A	451798.49	194002.09	10.00	53.00	0.00	0.00	1.25			
34	A	451855.75	193973.65	10.00	239.00	0.00	0.00	1.25			
35	E	451877.57	193973.20	10.00	300.00	0.00	0.00	1.25			
36	A	451889.38	193987.09	10.00	342.00	0.00	0.00	1.25			
38	A	451912.31	194000.17	10.00	172.00	0.00	0.00	1.25			
39	A	451914.21	193970.67	10.00	216.00	0.00	0.00	1.25			
40	A	451926.77	193950.25	10.00	195.00	0.00	0.00	1.25			
EX-49A	F	452018.38	191869.69	10.00	280.00	0.00	0.00	2.40			
50	D	452056.18	191874.51	10.00	278.00	0.00	0.00	1.25			
EX-66A	F	452415.76	191799.11	10.00	240.00	0.00	0.00	2.40			
34	D	452390.92	191812.98	10.00	244.00	0.00	0.00	1.25			
55	D	452347.32	191835.52	10.00	245.00	0.00	0.00	1.25			
47	E	451923.72	193924.22	10.00	165.00	0.00	0.00	1.25			

Layout Continued

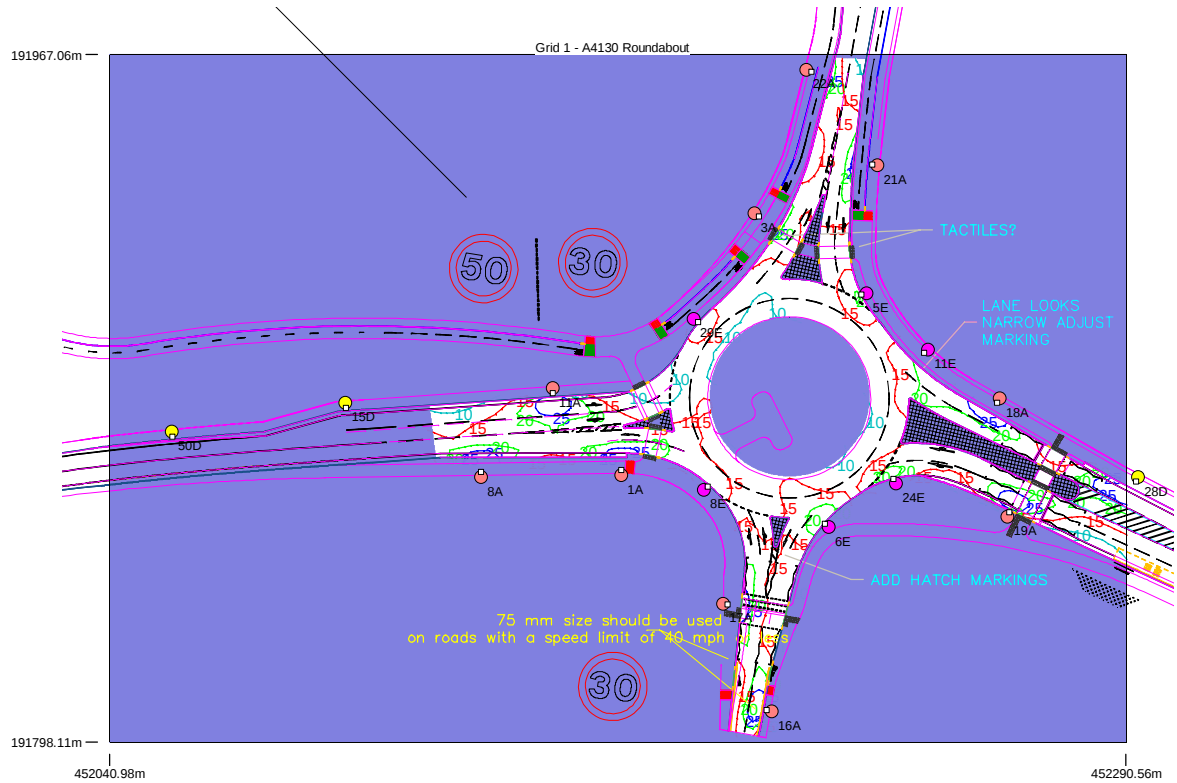
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
48	E	451927.04	193904.50	10.00	203.00	0.00	0.00	1.25			
50	E	451947.08	193822.49	10.00	28.00	0.00	0.00	1.25			
54	A	451774.72	194024.25	10.00	46.00	0.00	0.00	1.25			
55	E	451977.21	193806.39	10.00	206.00	0.00	0.00	1.25			
56	A	451855.59	193934.70	10.00	23.00	0.00	0.00	1.25			
60	A	451956.36	193847.34	10.00	206.00	0.00	0.00	1.25			
61	A	451913.38	194020.14	10.00	172.00	0.00	0.00	1.25			
62	E	452042.78	195361.42	10.00	11.00	0.00	0.00	1.25			
63	E	452102.21	195408.82	10.00	244.00	0.00	0.00	1.25			
64	E	452051.44	195393.87	10.00	326.00	0.00	0.00	1.25			
65	E	452073.25	195415.22	10.00	288.00	0.00	0.00	1.25			
66	E	452079.91	195327.67	10.00	79.00	0.00	0.00	1.25			
67	E	452126.34	195396.79	10.00	204.00	0.00	0.00	1.25			
68	E	452138.43	195378.70	10.00	224.00	0.00	0.00	1.25			
51	A	452080.88	195216.91	10.00	167.00	0.00	0.00	1.25			
70	A	452128.53	195355.40	10.00	155.00	0.00	0.00	1.25			
72	A	452145.38	195327.52	10.00	67.00	0.00	0.00	1.25			
73	A	452117.77	195329.54	10.00	109.00	0.00	0.00	1.25			
75	A	452099.45	195316.82	10.00	148.00	0.00	0.00	1.25			
79	A	452067.17	195314.38	10.00	354.00	0.00	0.00	1.25			
81	A	452057.38	195340.61	10.00	43.00	0.00	0.00	1.25			
84	A	452034.81	195350.52	10.00	90.00	0.00	0.00	1.25			
85	A	452024.96	195369.51	10.00	291.00	0.00	0.00	1.25			
86	A	452004.05	195347.04	10.00	96.00	0.00	0.00	1.25			
87	D	451976.52	195358.94	10.00	278.00	0.00	0.00	1.25			
89	D	451944.33	195338.92	10.00	98.00	0.00	0.00	1.25			
94	A	452089.50	195293.66	10.00	163.00	0.00	0.00	1.25			
97	A	452062.51	195279.02	10.00	349.00	0.00	0.00	1.25			
98	A	452088.33	195255.77	10.00	167.00	0.00	0.00	1.25			
99	A	452057.73	195240.84	10.00	352.00	0.00	0.00	1.25			
103	A	452174.04	195316.03	10.00	71.00	0.00	0.00	1.25			
104	A	452198.46	195306.88	10.00	71.00	0.00	0.00	1.25			
106	A	452226.53	195297.27	10.00	71.00	0.00	0.00	1.25			
107	A	452235.93	195324.84	10.00	252.00	0.00	0.00	1.25			
109	A	452210.17	195337.55	10.00	252.00	0.00	0.00	1.25			
110	A	452185.68	195349.28	10.00	252.00	0.00	0.00	1.25			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
111	A	452162.08	195360.83	10.00	243.00	0.00	0.00	1.25			
112	A	452124.73	195414.36	10.00	168.00	0.00	0.00	1.25			
113	A	452113.96	195454.32	10.00	334.00	0.00	0.00	1.25			
114	A	452137.98	195440.38	10.00	151.00	0.00	0.00	1.25			
115	A	452095.68	195428.17	10.00	315.00	0.00	0.00	1.25			
78	A	451915.94	194039.74	10.00	172.00	0.00	0.00	1.25			
79	A	451918.70	194060.09	10.00	172.00	0.00	0.00	1.25			
80	A	451921.58	194083.87	10.00	172.00	0.00	0.00	1.25			
81	B	452254.35	192086.28	6.00	170.00	0.00	0.00	0.50			
82	B	452274.93	192194.16	6.00	169.00	0.00	0.00	0.50			
83	B	452233.91	192079.96	6.00	345.00	0.00	0.00	0.50			
84	B	452253.82	192189.36	5.00	348.00	0.00	0.00	0.50			
85	B	452411.84	192828.76	6.00	186.00	0.00	0.00	0.50			
86	B	452396.09	192838.08	6.00	0.00	0.00	0.00	0.50			
87	D	451979.26	193764.32	10.00	26.00	0.00	0.00	1.25			
88	E	452016.15	193732.90	10.00	204.00	0.00	0.00	1.25			
89	E	452009.67	193701.61	10.00	26.00	0.00	0.00	1.25			
90	E	452043.51	193725.97	10.00	294.00	0.00	0.00	1.25			
91	E	452038.04	193690.39	10.00	206.00	0.00	0.00	1.25			
92	B	452413.83	192850.38	6.00	180.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1 - A4130 Roundabout

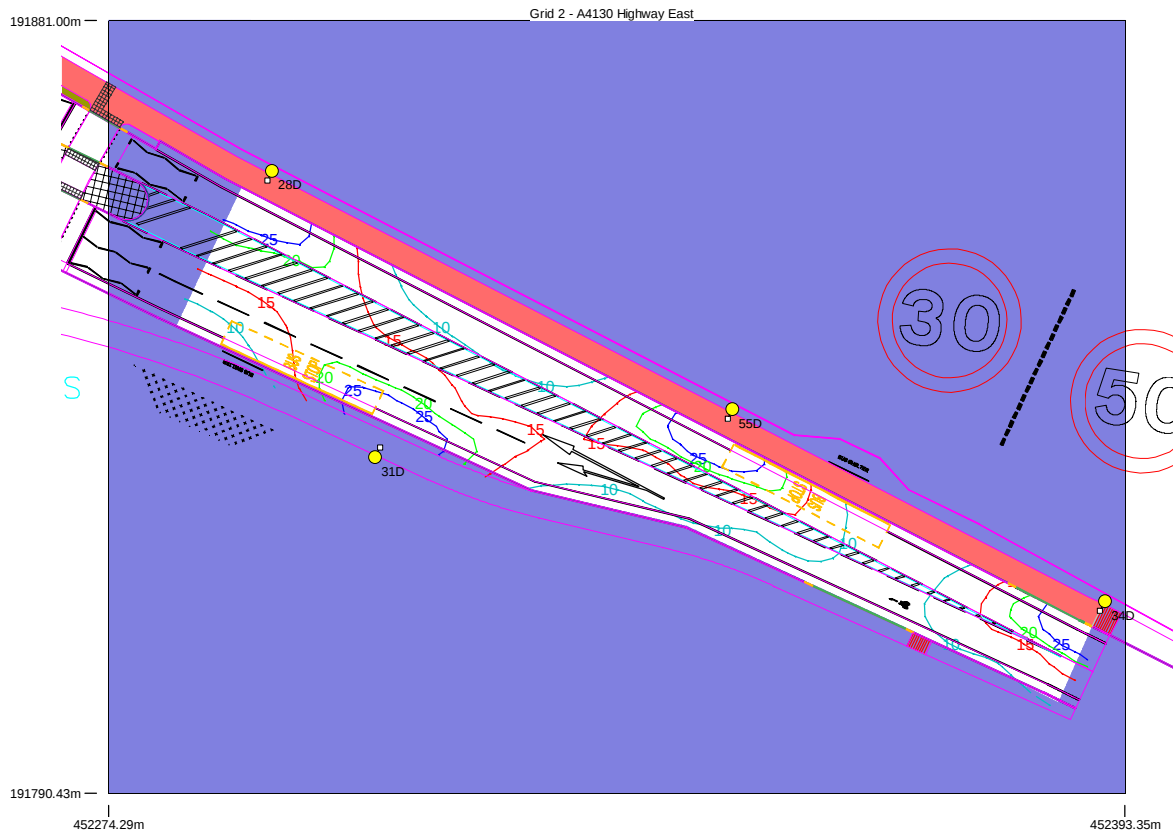


Results

Eav	16.12
Emin	7.15
Emax	40.00
Emin/Emax	0.18
Emin/Eav	0.44

Horizontal Illuminance (lux)

Grid 2 - A4130 Highway East

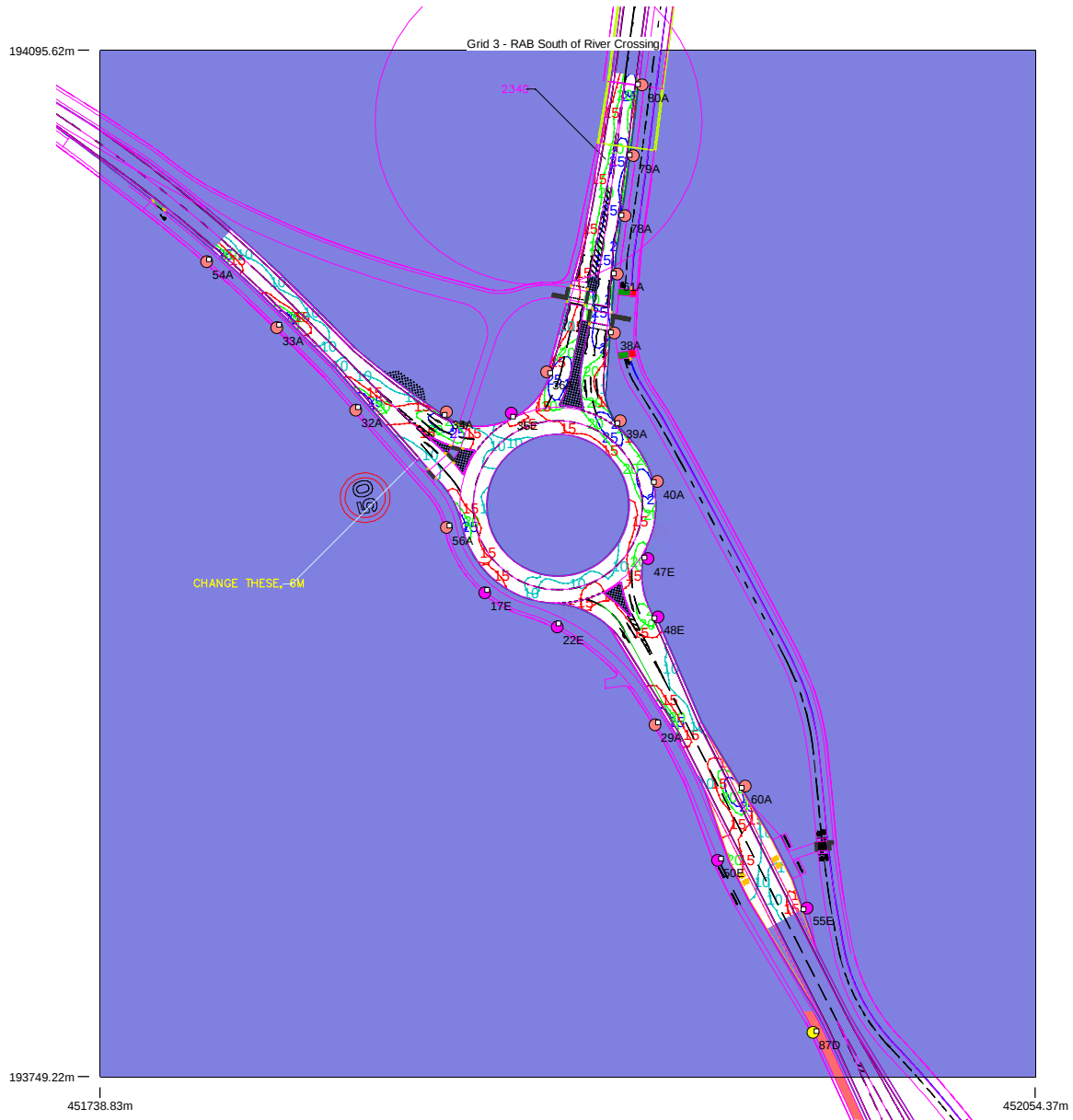


Results

Eav	15.22
Emin	6.17
Emax	46.76
Emin/Emax	0.13
Emin/Eav	0.41

Horizontal Illuminance (lux)

Grid 3 - RAB South of River Crossing

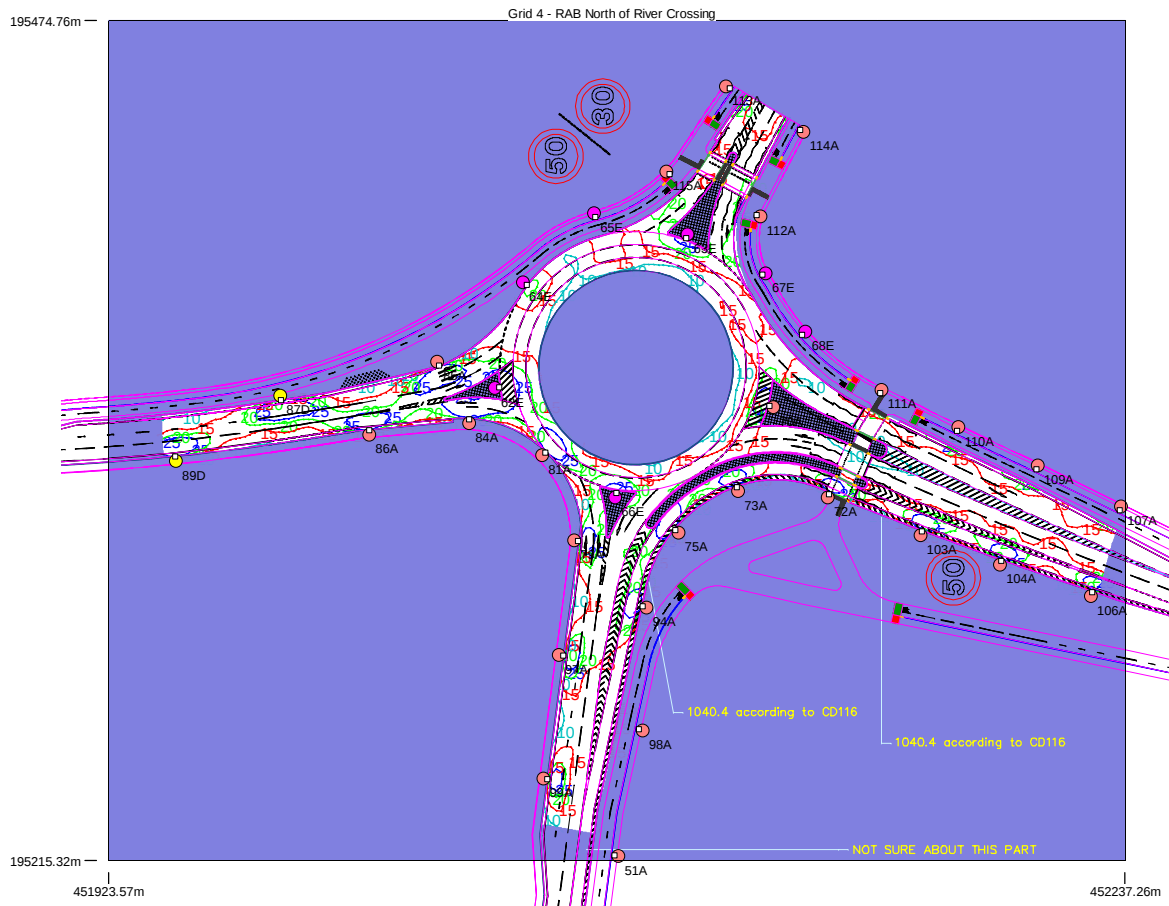


Results

Eav	16.14
Emin	6.38
Emax	39.88
Emin/Emax	0.16
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 4 - RAB North of River Crossing

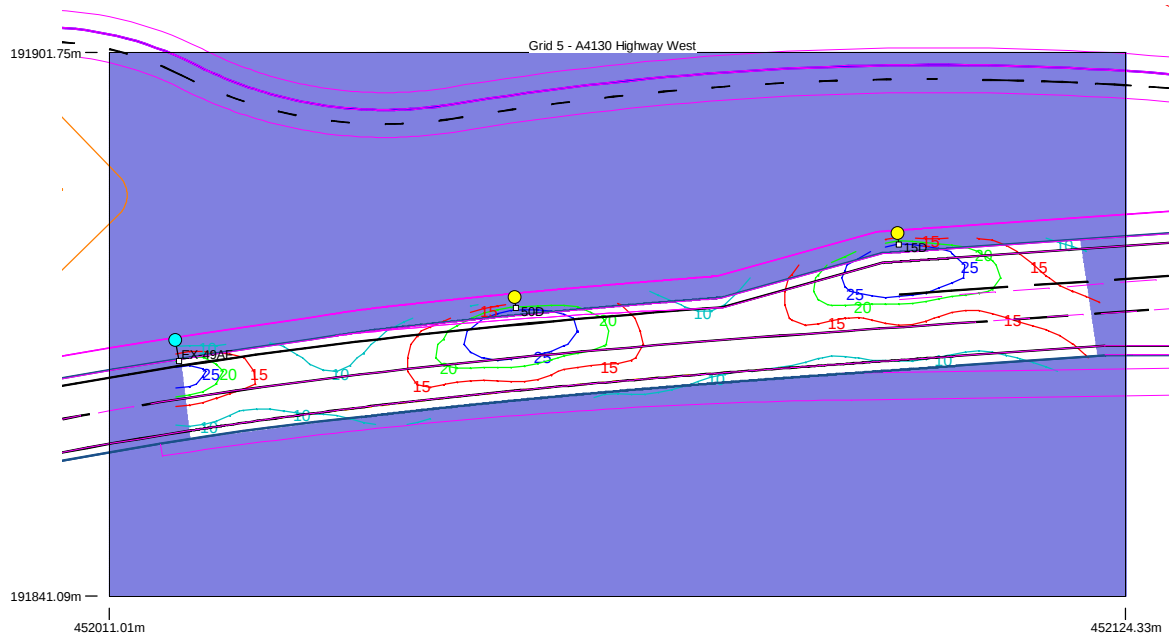


Results

Eav	16.92
Emin	7.05
Emax	47.42
Emin/Emax	0.15
Emin/Eav	0.42

Horizontal Illuminance (lux)

Grid 5 - A4130 Highway West

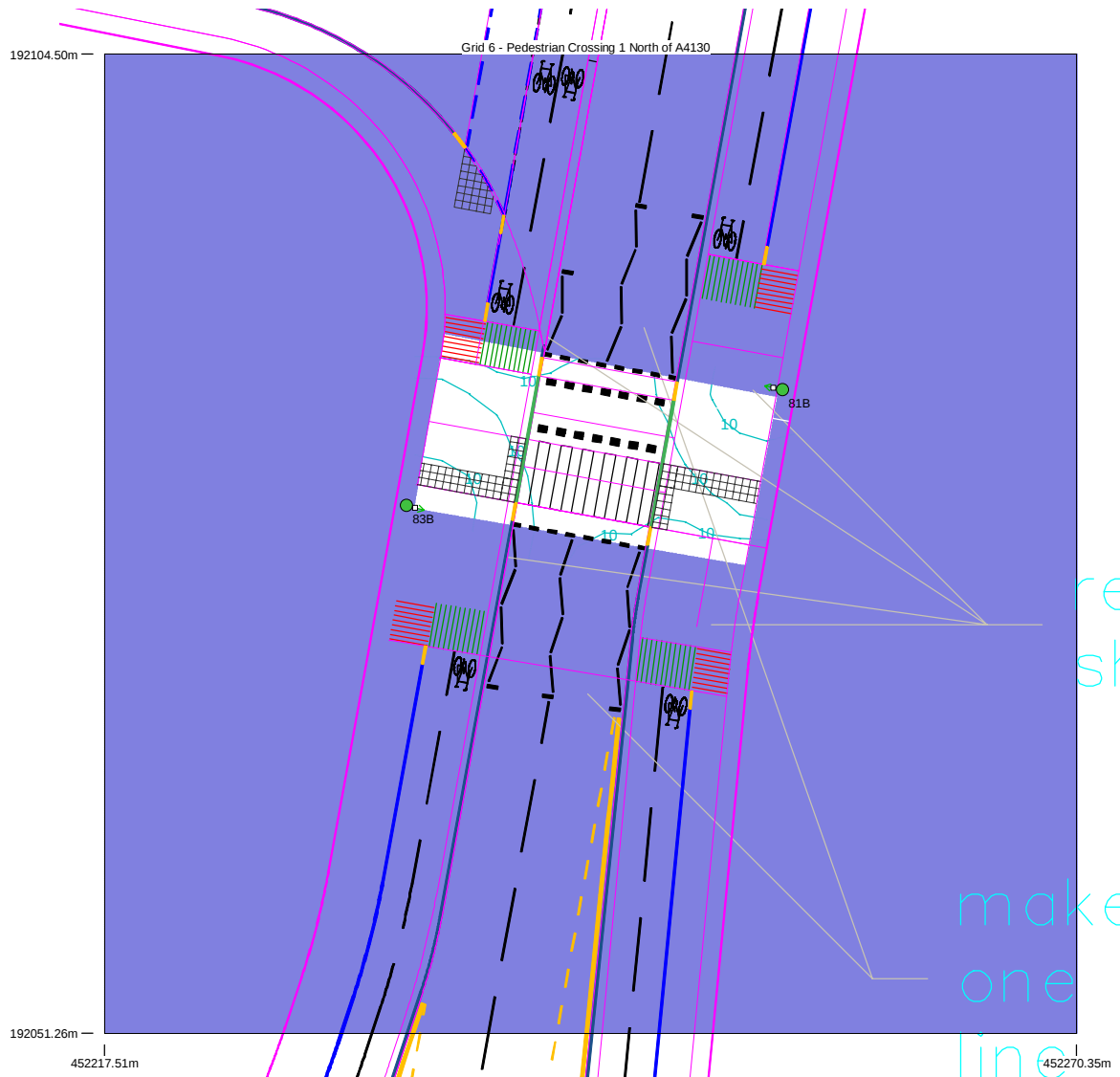


Results

Eav	16.10
Emin	8.43
Emax	45.68
Emin/Emax	0.18
Emin/Eav	0.52

Horizontal Illuminance (lux)

Grid 6 - Pedestrian Crossing 1 North of A4130

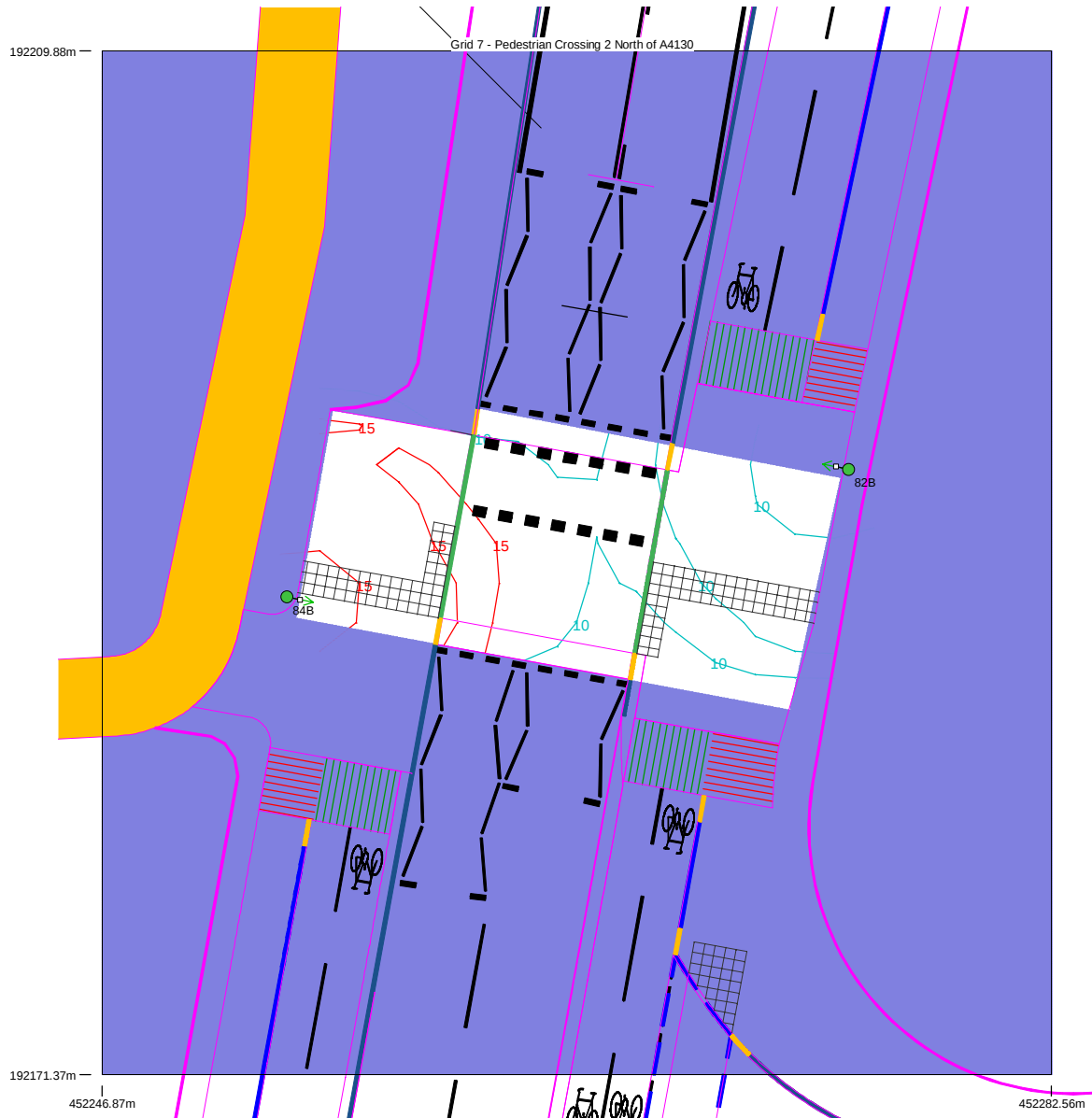


Results

Eav	10.73
Emin	6.88
Emax	14.79
Emin/Emax	0.46
Emin/Eav	0.64

Horizontal Illuminance (lux)

Grid 7 - Pedestrian Crossing 2 North of A4130

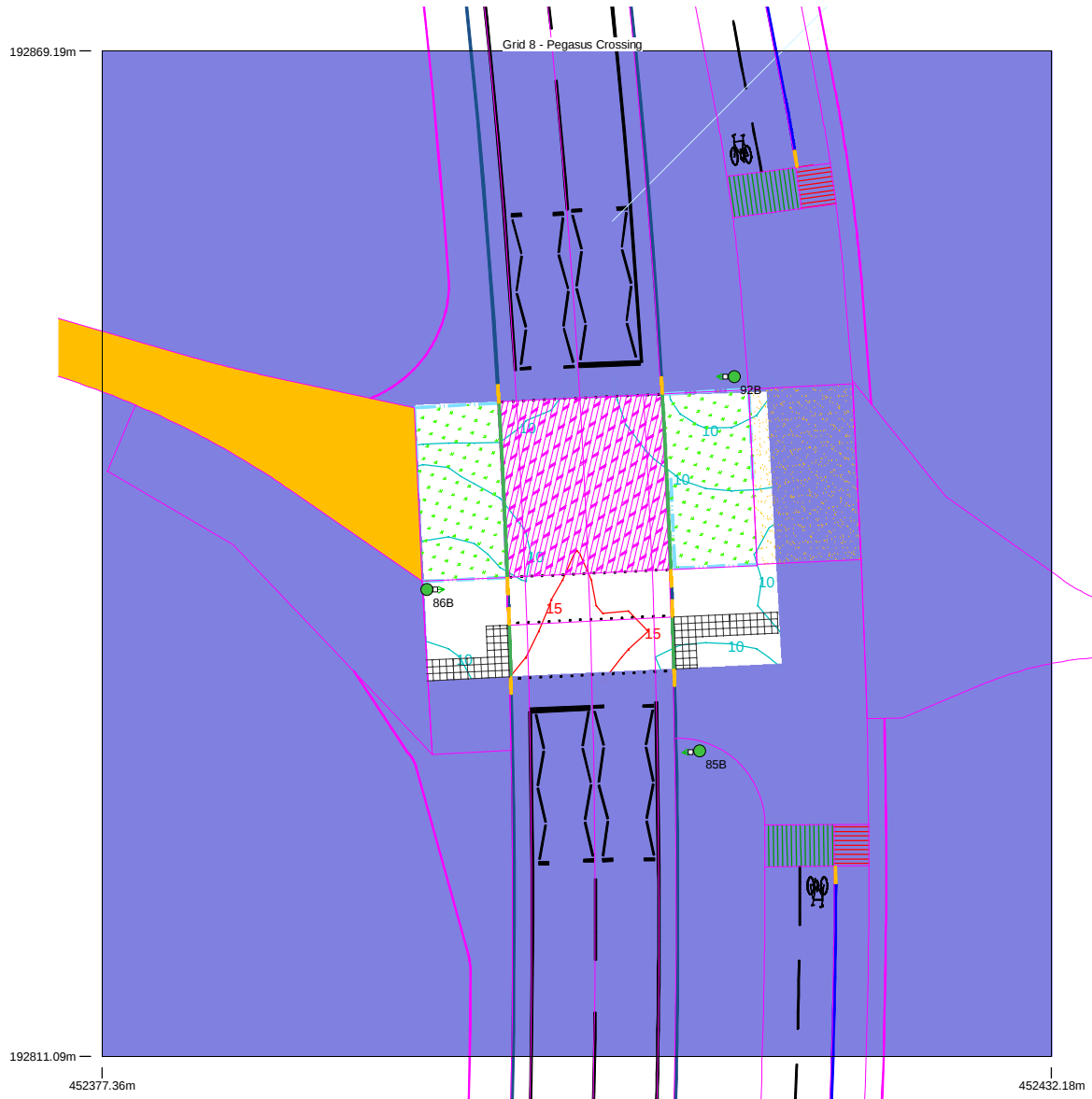


Results

Eav	11.36
Emin	6.71
Emax	17.61
Emin/Emax	0.38
Emin/Eav	0.59

Horizontal Illuminance (lux)

Grid 8 - Pegasus Crossing

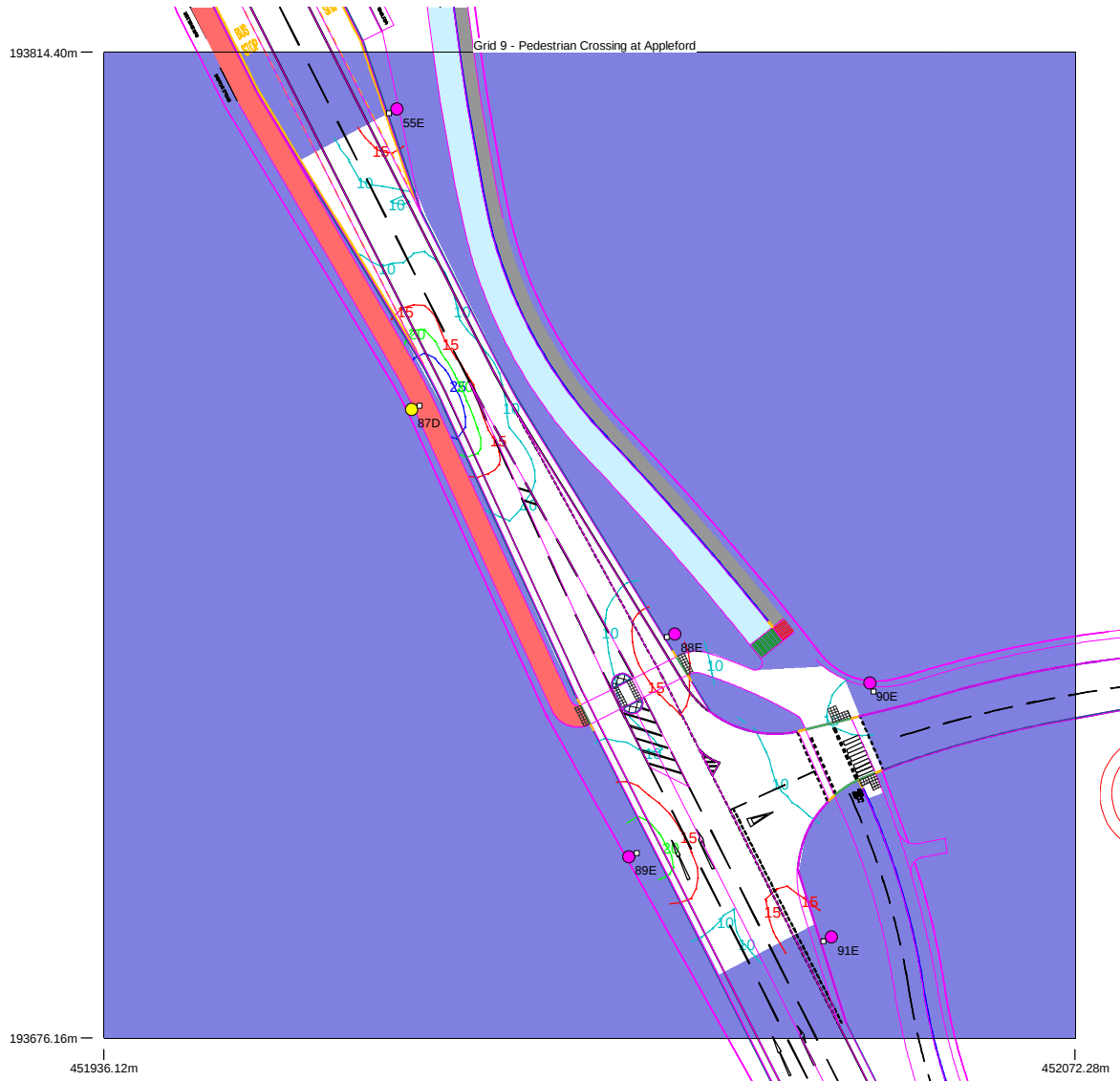


Results

Eav	11.64
Emin	7.05
Emax	18.96
Emin/Emax	0.37
Emin/Eav	0.61

Horizontal Illuminance (lux)

Grid 9 - Pedestrian Crossing at Appleford



Results

Eav	11.56
Emin	4.61
Emax	40.82
Emin/Emax	0.11
Emin/Eav	0.40

DATE: 29 March 2021
DESIGNER: AECOM
PROJECT No: 60606782
PROJECT NAME: Clifton Hampden By-Pass



Proposed lighting calculation for
A415 Culham Roundabout

Target Lighting Class C3

Maintenance factor:

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, >6m mounting height)

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, <6m mounting height)

CHB-PD-ACM-HLG-SW-LTG-ZZ-ZZ-CA-LE-0001

PREPARED BY: AECOM Ltd
Saxon House
27 Dukes Street
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CM1 1 HT

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	453163.35	195185.60	142.30	120.27	1.50	1.48
2	Grid 2	452910.00	195171.45	253.34	71.86	1.42	1.50
3	Grid 3	453305.72	195204.46	185.18	90.00	1.29	1.50

Luminaires



Luminaire A Data

Supplier	D W Windsor
Type	KIRIUM PRO2 48LED 3k D1 CLO 650mA UM SUG 42 0082 0000 100
Lamp(s)	48 x 3k LED
Lamp Flux (klm)	11.61
File Name	KIRIUM PRO2 48LED 3k D1 CLO_650mA U MSUG 42 0082 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	26



Luminaire G Data

Supplier	D W Windsor
Type	KIRIUM PRO2 64LED 3k A5 CLO 550mA UM SUG 42 0091 0000 100
Lamp(s)	64 x 3k LED
Lamp Flux (klm)	12.31
File Name	KIRIUM PRO2 64LED 3k A5 CLO_550mA U MSUG 42 0091 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	979.2, 459.0, 0.0
No. in Project	4

Layout

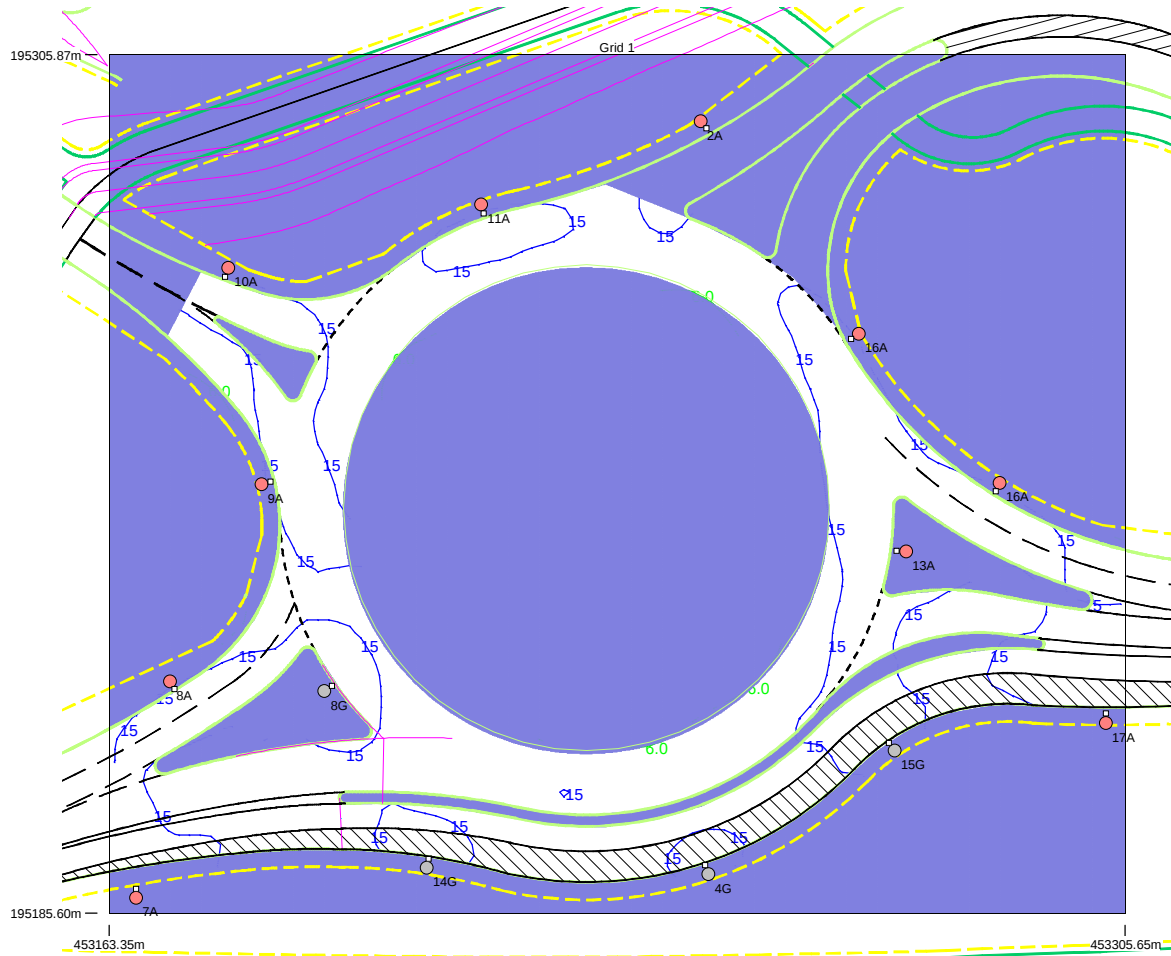
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	A	453215.38	195284.93	10.00	287.00	0.00	0.00	1.30			
2	A	453246.16	195296.59	10.00	307.00	0.00	0.00	1.30			
13	A	453274.90	195236.35	10.00	175.00	0.00	0.00	1.30			
4	G	453247.20	195191.17	10.00	108.00	0.00	0.00	1.30			
14	G	453207.77	195192.03	10.00	79.00	0.00	0.00	1.30			
9	A	453184.70	195245.75	10.00	15.00	0.00	0.00	1.30			
10	A	453180.01	195276.04	10.00	250.00	0.00	0.00	1.30			
8	G	453193.41	195216.80	10.00	32.00	0.00	0.00	1.30			
8	A	453171.84	195218.19	10.00	301.00	0.00	0.00	1.30			
16	A	453288.03	195245.90	10.00	243.00	0.00	0.00	1.30			
16	A	453268.29	195266.78	10.00	213.00	0.00	0.00	1.30			
17	A	453302.86	195212.33	10.00	89.00	0.00	0.00	1.30			
15	G	453273.31	195208.51	10.00	128.00	0.00	0.00	1.30			
7	A	453167.16	195187.82	10.00	92.00	0.00	0.00	1.30			
5	A	453121.25	195202.81	10.00	286.00	0.00	0.00	1.30			
6	A	453134.04	195180.33	10.00	99.00	0.00	0.00	1.30			
3	A	453069.81	195196.51	10.00	275.00	0.00	0.00	1.30			
4	A	453085.90	195173.56	10.00	89.00	0.00	0.00	1.30			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
2	A	453040.69	195174.68	10.00	87.00	0.00	0.00	1.30			
1	A	453016.54	195193.69	10.00	268.00	0.00	0.00	1.30			
18	A	453349.67	195217.20	10.00	100.00	0.00	0.00	1.30			
19	A	453323.07	195237.27	10.00	273.00	0.00	0.00	1.30			
20	A	453403.99	195231.41	10.00	107.00	0.00	0.00	1.30			
21	A	453370.75	195242.24	10.00	284.00	0.00	0.00	1.30			
22	A	453465.49	195258.78	10.00	112.00	0.00	0.00	1.30			
23	A	453425.35	195258.76	10.00	295.00	0.00	0.00	1.30			
25	A	453482.20	195287.88	10.00	299.00	0.00	0.00	1.30			
59	A	452973.58	195181.47	10.00	87.00	0.00	0.00	1.30			
31	A	452918.62	195185.20	10.00	84.00	0.00	0.00	1.30			
60	A	452947.87	195196.06	10.00	267.00	0.00	0.00	1.30			

Horizontal Illuminance (lux)

Grid 1

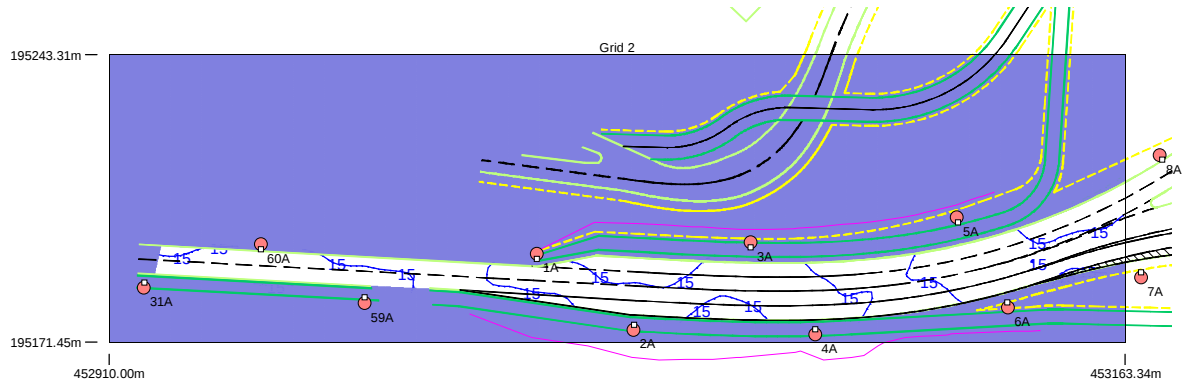


Results

Eav	15.62
Emin	6.24
Emax	42.99
Emin/Emax	0.15
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 2

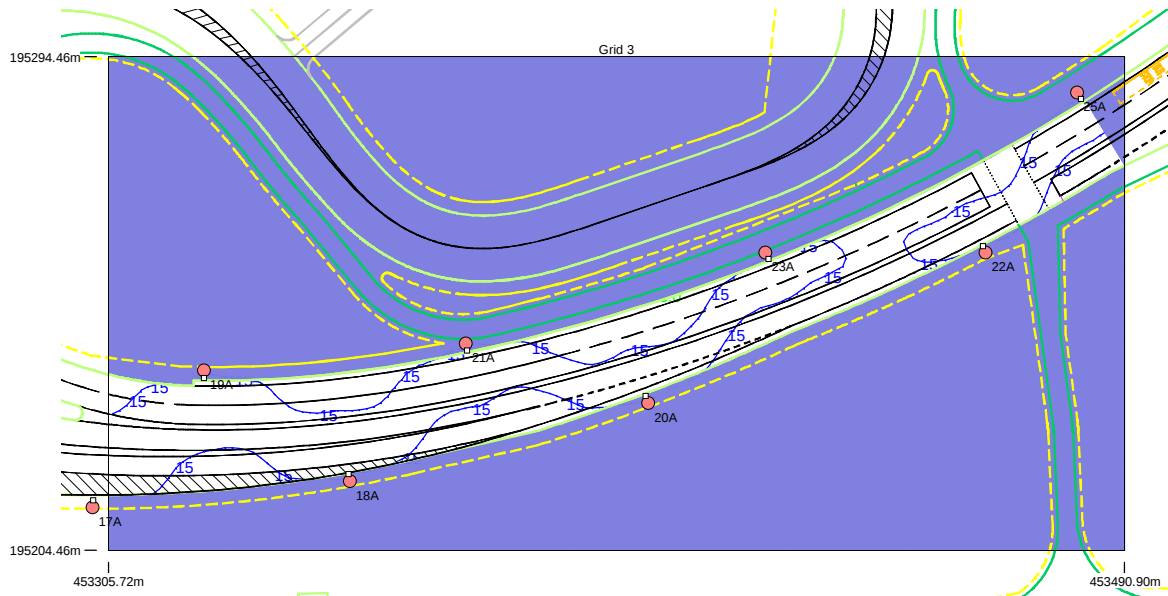


Results

Eav	17.24
Emin	7.02
Emax	40.05
Emin/Emax	0.18
Emin/Eav	0.41

Horizontal Illuminance (lux)

Grid 3



Results

Eav	16.95
Emin	6.98
Emax	40.77
Emin/Emax	0.17
Emin/Eav	0.41

DATE: 29 March 2021
DESIGNER: AECOM
PROJECT No: 60606782
PROJECT NAME: Clifton Hampden By-Pass



Proposed lighting calculation for
Bus Stop to Science Centre NMU Link

Target Lighting Class P4

Maintenance factor:

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, >6m mounting height)

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, <6m mounting height)

CHB-PD-ACM-HLG-SW-LTG-ZZ-ZZ-CA-LE-0002

PREPARED BY: AECOM Ltd
Saxon House
27 Dukes Street
Chelmsford
Essex
CM1 1 HT

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 453420.3m x 195263.3m
Area 111.4m x 87.0m
Sample Spacing 1.49m x 1.50m

Luminaires

Luminaire A Data



Supplier	D W Windsor
Type	KIRIUM PRO2 48LED 3k D1 CLO 650mA UM SUG 42 0082 0000 100
Lamp(s)	48 x 3k LED
Lamp Flux (klm)	11.61
File Name	KIRIUM PRO2 48LED 3k D1 CLO_650mA U MSUG 42 0082 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	3

Luminaire F Data



Supplier	D W Windsor
Type	KIRIUM PRO MINI 8LED 3k D1 CLO 750mA UMSUG 42 0019 0000 100
Lamp(s)	8 x 3k LED
Lamp Flux (klm)	2.26
File Name	KIRIUM PRO MINI 8LED 3k D1 CLO_750mA UMSUG 42 0019 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	741.1, 276.1, 0.0
No. in Project	2

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
25	A	453482.20	195287.88	10.00	299.00	0.00	0.00	1.30			
24	A	453465.49	195258.78	10.00	112.00	0.00	0.00	1.30			
23	A	453425.35	195258.76	10.00	295.00	0.00	0.00	1.30			
35	F	453460.03	195307.54	5.00	188.00	0.00	0.00	0.50			
36	F	453447.66	195343.27	5.00	200.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1



Results

Eav	6.09
Emin	1.08
Emax	27.57
Emin/Emax	0.04
Emin/Eav	0.18

DATE: 29 March 2021
DESIGNER: AECOM
PROJECT No: 60606782
PROJECT NAME: Clifton Hampden By-Pass



Proposed lighting calculation for
A415 T Junction Link to Existing A415

Target Lighting Class C3

Maintenance factor:

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, >6m mounting height)

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, <6m mounting height)

CHB-PD-ACM-HLG-SW-LTG-ZZ-ZZ-CA-LE-0003

PREPARED BY: AECOM Ltd
Saxon House
27 Dukes Street
Chelmsford
Essex
CM1 1 HT

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 453490.9m x 195260.2m
Area 210.0m x 220.0m
Sample Spacing 1.50m x 1.50m

Luminaires

Luminaire A Data



Supplier	D W Windsor
Type	KIRIUM PRO2 48LED 3k D1 CLO 650mA UM SUG 42 0082 0000 100
Lamp(s)	48 x 3k LED
Lamp Flux (klm)	11.61
File Name	KIRIUM PRO2 48LED 3k D1 CLO_650mA U MSUG 42 0082 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	5

Luminaire B Data



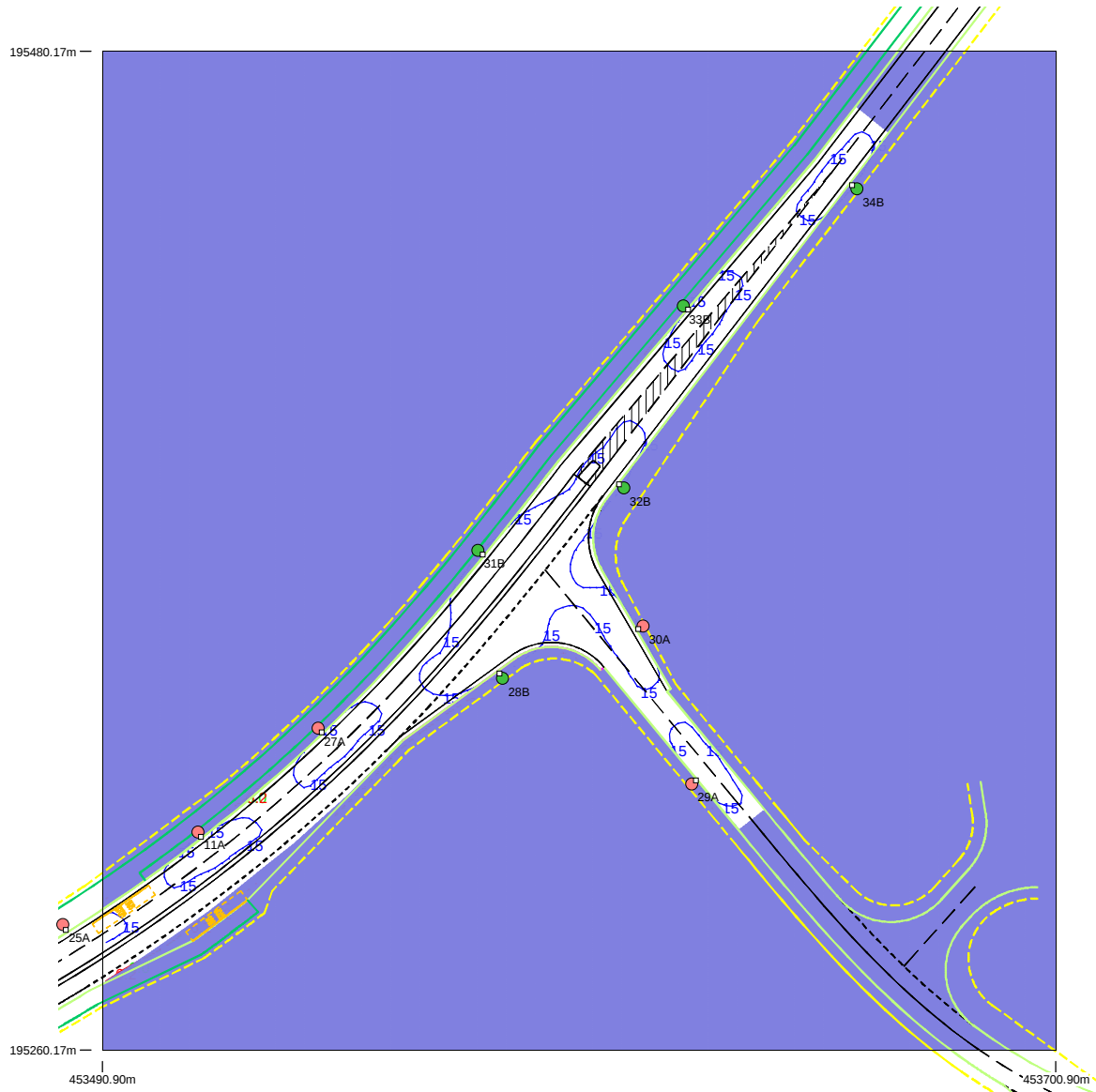
Supplier	D W Windsor
Type	KIRIUM PRO2 48LED 3k D1 CLO 750mA UM SUG 42 0095 0000 100
Lamp(s)	48 x 3k LED
Lamp Flux (klm)	13.02
File Name	KIRIUM PRO2 48LED 3k D1 CLO_750mA U MSUG 42 0095 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	5

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
25	A	453482.20	195287.88	10.00	299.00	0.00	0.00	1.30			
27	A	453538.33	195331.15	10.00	314.00	0.00	0.00	1.30			
29	A	453620.59	195318.85	10.00	39.00	0.00	0.00	1.30			
28	B	453578.92	195342.09	10.00	119.00	0.00	0.00	1.30			
31	B	453573.61	195370.24	10.00	316.00	0.00	0.00	1.30			
32	B	453605.69	195384.08	10.00	145.00	0.00	0.00	1.30			
33	B	453618.77	195424.07	10.00	325.00	0.00	0.00	1.30			
34	B	453656.93	195449.91	10.00	142.00	0.00	0.00	1.30			
30	A	453609.92	195353.67	10.00	211.00	0.00	0.00	1.30			
11	A	453511.88	195308.24	10.00	302.00	0.00	0.00	1.30			

Horizontal Illuminance (lux)

Grid 1



Results

Eav	16.33
Emin	6.56
Emax	44.50
Emin/Emax	0.15
Emin/Eav	0.40

DATE: 29 March 2021
DESIGNER: AECOM
PROJECT No: 60606782
PROJECT NAME: Clifton Hampden By-Pass



Proposed lighting calculation for
Culham Station Access

Target Lighting Class P4

Maintenance factor:

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, >6m mounting height)

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, <6m mounting height)

CHB-PD-ACM-HLG-SW-LTG-ZZ-ZZ-CA-LE-0004

PREPARED BY: AECOM Ltd
Saxon House
27 Dukes Street
Chelmsford
Essex
CM1 1 HT

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	453052.87	195340.88	158.14	43.30	1.49	1.49
2	Grid 2	453043.00	195198.06	112.16	96.94	1.00	1.00

Luminaires

Luminaire A Data



Supplier	D W Windsor
Type	KIRIUM PRO2 48LED 3k D1 CLO 650mA UMSUG 42 0082 0000 100
Lamp(s)	48 x 3k LED
Lamp Flux (klm)	11.61
File Name	KIRIUM PRO2 48LED 3k D1 CLO_650mA UMSUG 42 0082 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	3

Luminaire D Data



Supplier	D W Windsor
Type	KIRIUM PRO MINI 16LED 3k D3 CLO 500mA UMSUG 42 0023 0000 100
Lamp(s)	16 x 3k LED
Lamp Flux (klm)	3.27
File Name	KIRIUM PRO MINI 16LED 3k D3 CLO_500mA UMSUG 42 0023 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	629.2, 57.7, 0.0
No. in Project	4

Luminaire E Data



Supplier	D W Windsor
Type	KIRIUM PRO2 32LED 3k D1 CLO 600mA UMSUG 42 0051 0000 100
Lamp(s)	32 x 3k LED
Lamp Flux (klm)	6.99
File Name	KIRIUM PRO2 32LED 3k D1 CLO_600mA UMSUG 42 0051 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	755.0, 211.5, 0.0
No. in Project	2

Luminaire F Data



Supplier	D W Windsor
Type	KIRIUM PRO MINI 8LED 3k D1 CLO 750mA UMSUG 42 0019 0000 100
Lamp(s)	8 x 3k LED
Lamp Flux (klm)	2.26
File Name	KIRIUM PRO MINI 8LED 3k D1 CLO_750mA UMSUG 42 0019 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	741.1, 276.1, 0.0
No. in Project	2

Layout

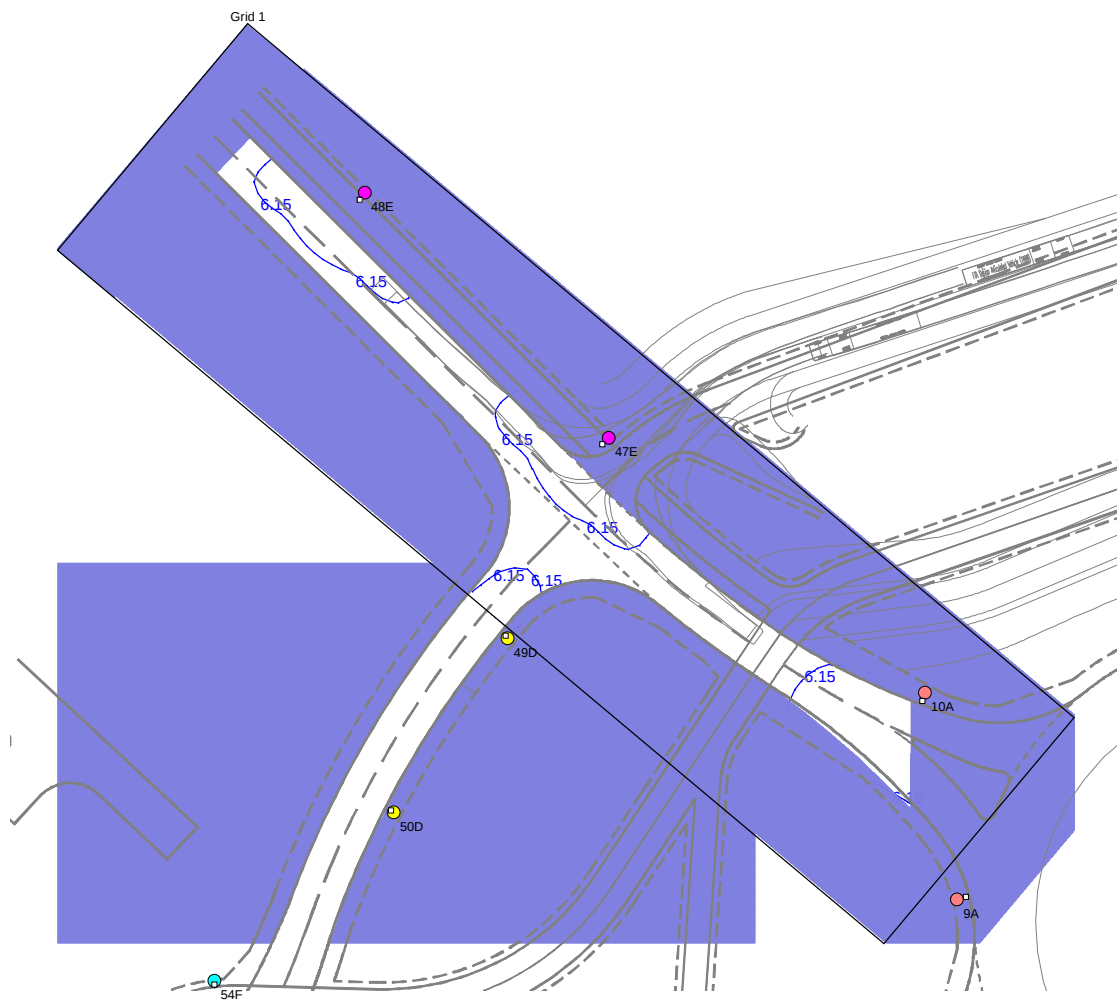
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	A	453215.38	195284.93	10.00	287.00	0.00	0.00	1.30			
9	A	453184.70	195245.75	10.00	15.00	0.00	0.00	1.30			
10	A	453180.01	195276.04	10.00	250.00	0.00	0.00	1.30			
48	E	453097.95	195349.28	8.00	231.00	0.00	0.00	1.30			
47	E	453133.62	195313.31	8.00	225.00	0.00	0.00	1.30			
49	D	453118.86	195284.01	6.00	135.00	0.00	0.00	0.50			
50	D	453102.14	195258.50	6.00	150.00	0.00	0.00	0.50			
51	D	453090.17	195225.20	6.00	154.00	0.00	0.00	0.50			
52	D	453062.67	195204.46	6.00	97.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out- reach	Target X	Target Y	Target Z
53	F	453046.63	195224.02	5.00	274.00	0.00	0.00	0.50			
54	F	453075.83	195233.78	5.00	269.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1

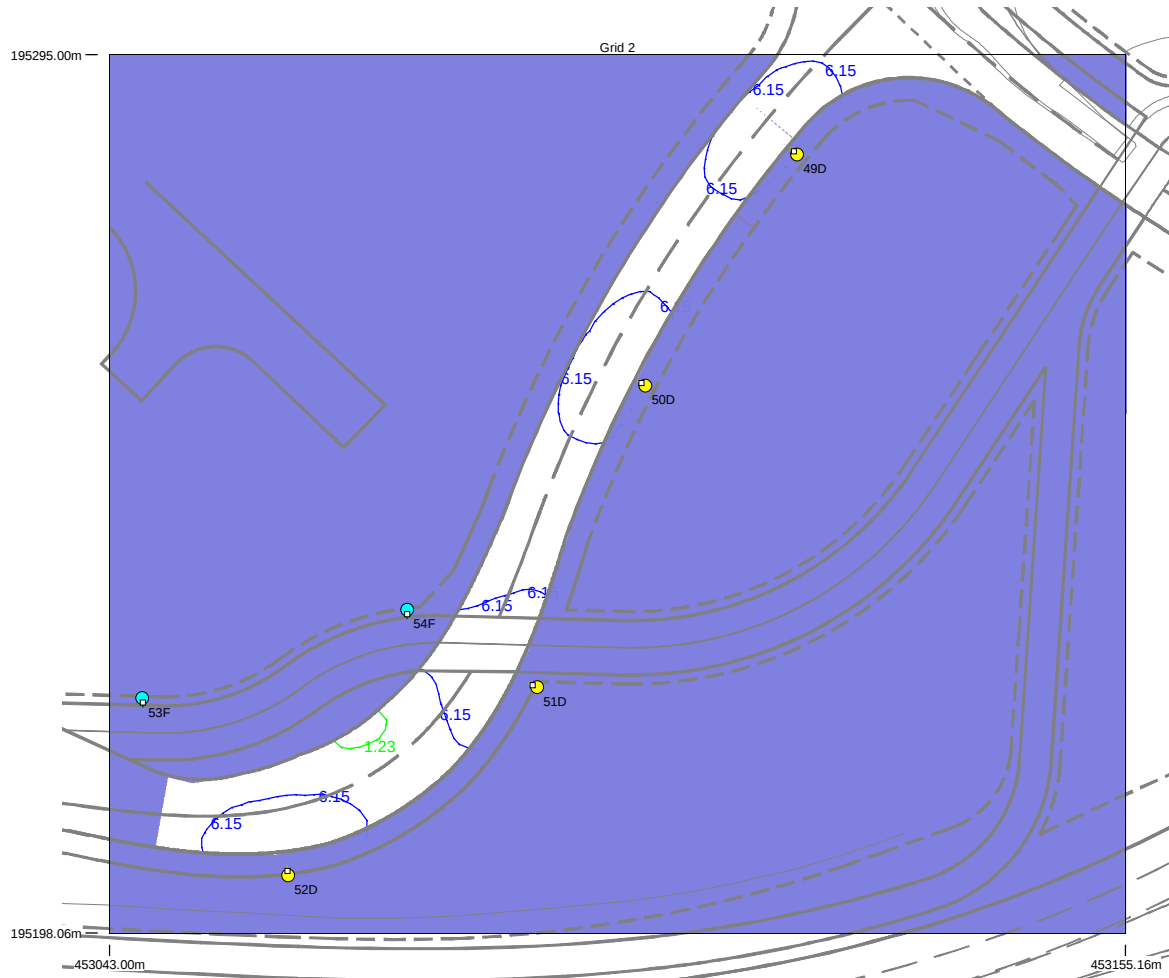


Results

Eav	6.80
Emin	1.57
Emax	37.21
Emin/Emax	0.04
Emin/Eav	0.23

Horizontal Illuminance (lux)

Grid 2



DATE: 29 March 2021
DESIGNER: AECOM
PROJECT No: 60606782
PROJECT NAME: Clifton Hampden By-Pass



Proposed lighting calculation for
Culham Station to Science Centre NMU Link

Target Lighting Class P4

Maintenance factor:

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, >6m mounting height)

DW Windsor Kirium Overall MF = 0.92 (from manufacturer's data)
(72 month cleaning, zone E1/E2, <6m mounting height)

CHB-PD-ACM-HLG-SW-LTG-ZZ-ZZ-CA-LE-0005

PREPARED BY: AECOM Ltd
Saxon House
27 Dukes Street
Chelmsford
Essex
CM1 1 HT

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 453027.8m x 195198.0m
Area 293.1m x 153.6m
Sample Spacing 1.50m x 1.49m

Luminaires

Luminaire A Data



Supplier	D W Windsor
Type	KIRIUM PRO2 48LED 3k D1 CLO 650mA UMSUG 42 0082 0000 100
Lamp(s)	48 x 3k LED
Lamp Flux (klm)	11.61
File Name	KIRIUM PRO2 48LED 3k D1 CLO_650mA UMSUG 42 0082 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	754.9, 211.4, 0.0
No. in Project	3

Luminaire D Data



Supplier	D W Windsor
Type	KIRIUM PRO MINI 16LED 3k D3 CLO 500mA UMSUG 42 0023 0000 100
Lamp(s)	16 x 3k LED
Lamp Flux (klm)	3.27
File Name	KIRIUM PRO MINI 16LED 3k D3 CLO_500mA UMSUG 42 0023 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	629.2, 57.7, 0.0
No. in Project	2

Luminaire F Data



Supplier	D W Windsor
Type	KIRIUM PRO MINI 8LED 3k D1 CLO 750mA UMSUG 42 0019 0000 100
Lamp(s)	8 x 3k LED
Lamp Flux (klm)	2.26
File Name	KIRIUM PRO MINI 8LED 3k D1 CLO_750mA UMSUG 42 0019 0000 100.ies
Maintenance Factor	0.92
Imax70,80,90(cd/klm)	741.1, 276.1, 0.0
No. in Project	10

Layout

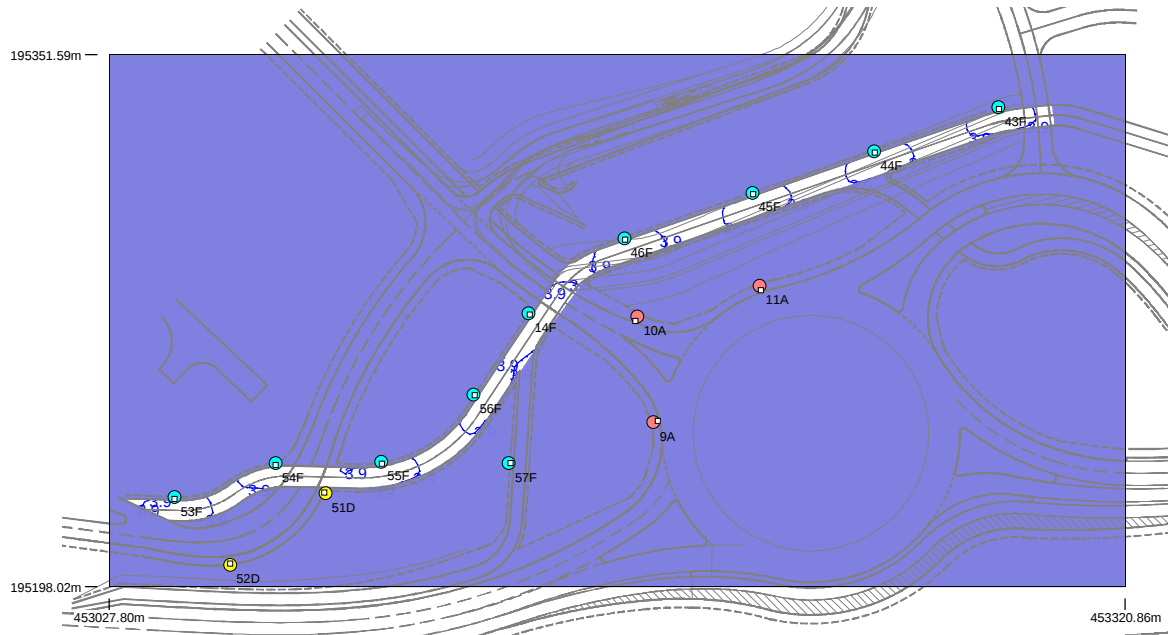
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
53	F	453046.63	195224.02	5.00	274.00	0.00	0.00	0.50			
52	D	453062.67	195204.46	6.00	97.00	0.00	0.00	0.50			
51	D	453090.17	195225.20	6.00	154.00	0.00	0.00	0.50			
11	A	453215.38	195284.93	10.00	287.00	0.00	0.00	1.30			
9	A	453184.70	195245.75	10.00	15.00	0.00	0.00	1.30			
54	F	453075.83	195233.78	5.00	269.00	0.00	0.00	0.50			
55	F	453106.23	195234.22	5.00	283.00	0.00	0.00	0.50			
56	F	453132.82	195253.66	5.00	326.00	0.00	0.00	0.50			
46	F	453176.32	195298.68	5.00	290.00	0.00	0.00	0.50			
44	F	453248.41	195323.79	5.00	290.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
43	F	453284.17	195336.37	5.00	281.00	0.00	0.00	0.50			
14	F	453148.74	195277.03	5.00	315.00	0.00	0.00	0.50			
45	F	453213.21	195311.74	5.00	290.00	0.00	0.00	0.50			
10	A	453180.01	195276.04	10.00	250.00	0.00	0.00	1.30			
57	F	453143.03	195233.85	5.00	0.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

Grid 1



Results

Eav	6.80
Emin	1.39
Emax	27.66
Emin/Emax	0.05
Emin/Eav	0.20

Appendix B – Desktop Calculation Report – Roadway Calculation

File	Section
CHB_PD_ACM_HLG_SW_LTG_ZZ_ZZ_CA-LE-0006	All sections of remote Footway / Cyclepath across the entire scheme – Footway / Cyclepath 3000k
CHB_PD_ACM_HLG_SW_LTG_ZZ_ZZ_CA-LE-0007	CHB – Footway / Cyclepath 2700k

DATE: 7 May 2021
DESIGNER: AECOM
PROJECT No: 60606782
PROJECT NAME: Didcot HIF 1 - CHB



Proposed lighting calculation for Didcot Science Bridge -
Footway / Cycleway

Target lighting classes:
Footway / Cycleway - P3

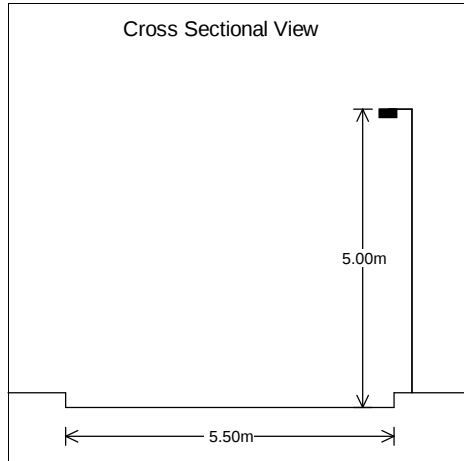
Maintenance factor:
DW Windsor Kirium Overall MF = 0.84 (from manufacturer's data
taking into account CLO)
(72 month cleaning, zone E3/E4, <6m mounting height)

CHB Proposed Lighting Design

PREPARED BY: AECOM Ltd
Saxon House
27 Dukes Street
Chelmsford
Essex
CM1 1 HT

Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	5.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	0.00
Right Footpath(m)	0.00

Main Lighting

Column Data

Configuration	Single Sided Right
Spacing (m)	35.50
Height (m)	5.00
Tilt (deg)	0.00
Setback (m)	0.30
Outreach (m)	0.40
Overhang (m)	0.10

Luminaire Data

Supplier	D W Windsor
Type	KIRIUM PRO MINI 16LED 3k A3 CLO 850mA UMSUG 42 0039 0000 100
Lamp(s)	16 x 3k LED
Lamp Flux (klm)	4.83
File Name	KIRIUM PRO MINI 16LED 3k A3 CLO_850m A UMSUG 42 0039 0000 100.ies
Maintenance Factor	0.84
Lum. Int. Class	G3

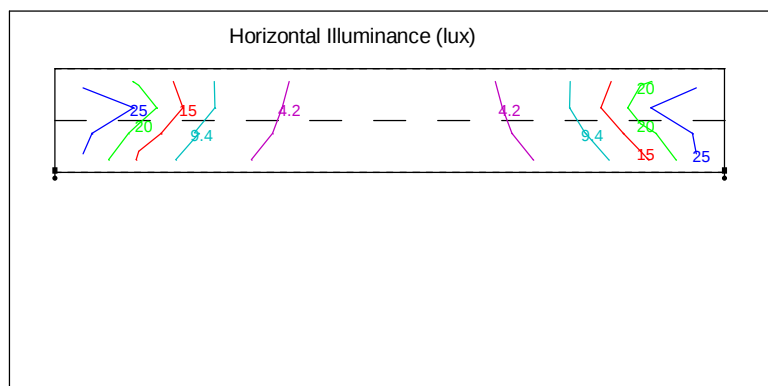


Results

Main

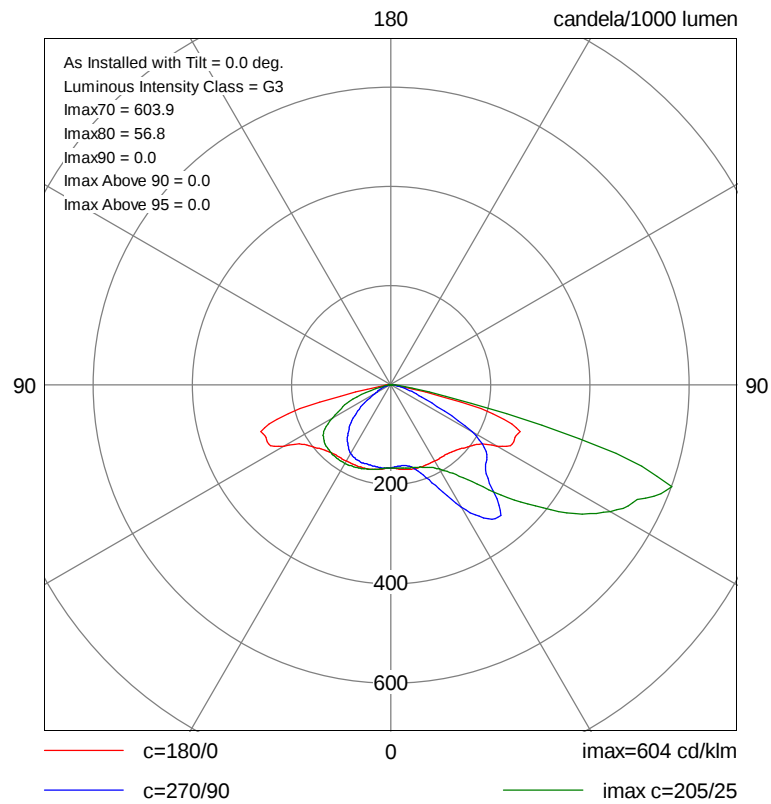
Complies with P3

Eav	10.76
Emin	1.57
E _{max}	32.78
E _{min} /E _{max}	0.05
E _{min} /E _{av}	0.15

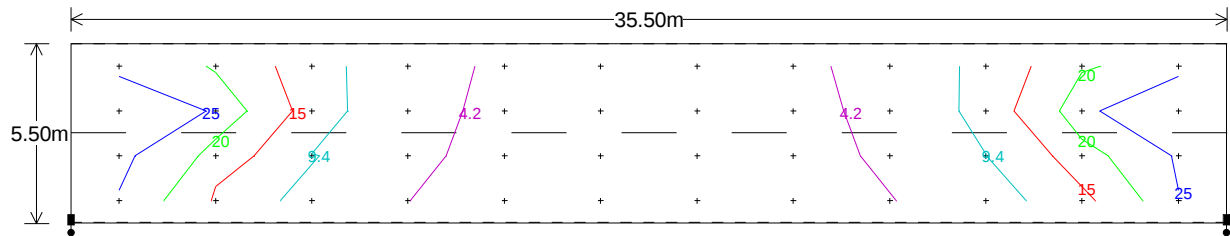


Polar Diagram

Main Luminaire KIRIUM PRO MINI 16LED 3k A3 CLO 850mA UMSUG 42 0039 0000 100



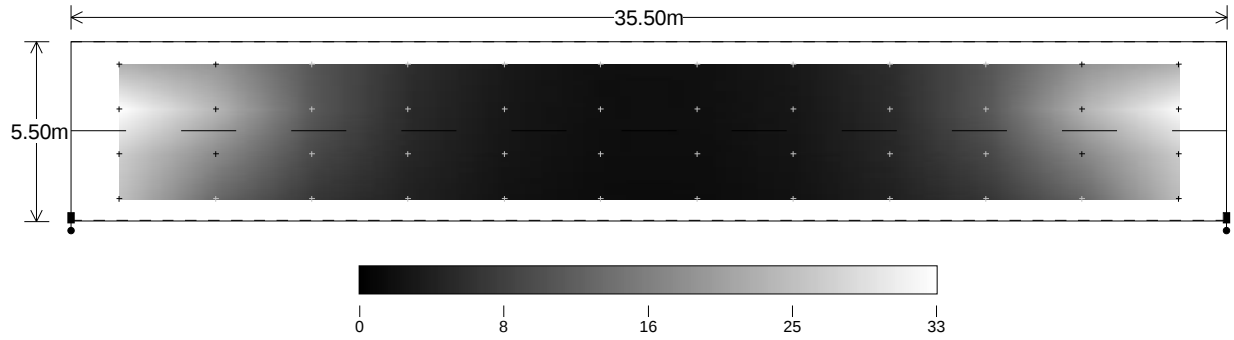
Horizontal Illuminance (lux)



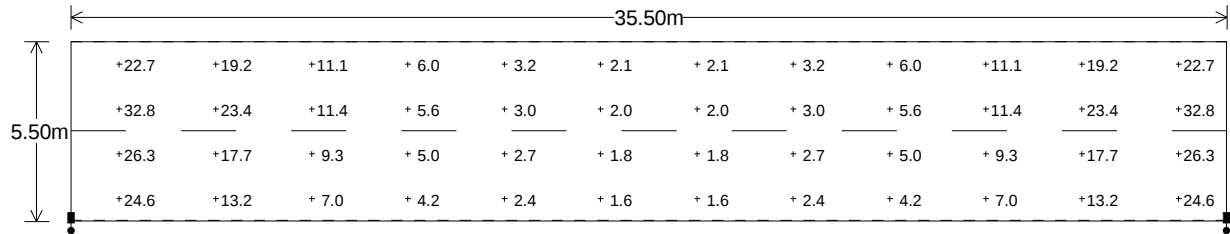
Main Results

Eav	10.76
Emin	1.57
E _{max}	32.78
E _{min} /E _{max}	0.05
E _{min} /E _{av}	0.15

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)



DATE: 20 May 2021
DESIGNER: AECOM
PROJECT No: 60606782
PROJECT NAME: Didcot HIF 1 - CHB



Proposed lighting calculation for Didcot Science Bridge -
Footway / Cycleway

Design undertaken with 3000k Kirium Pro Mini luminaire with MF
adjusted to replicate a 2700k output as per manufactures guidance

Target lighting classes:
Footway / Cycleway - P3

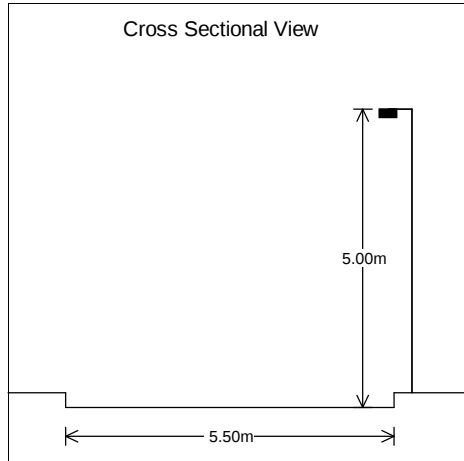
Maintenance factor:
DW Windsor Kirium Overall MF = 0.76 (from manufactures data)
(72 month cleaning, zone E3/E4, <6m mounting height)

CHB Proposed Lighting Design

PREPARED BY: AECOM Ltd
Saxon House
27 Dukes Street
Chelmsford
Essex
CM1 1 HT

Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	5.50
No. of Lanes	2
Road Surface	R2
Q0	0.07
Left Footpath(m)	0.00
Right Footpath(m)	0.00

Main Lighting

Column Data

Configuration	Single Sided Right
Spacing (m)	35.00
Height (m)	5.00
Tilt (deg)	0.00
Setback (m)	0.30
Outreach (m)	0.40
Overhang (m)	0.10

Luminaire Data

Supplier	D W Windsor
Type	KIRIUM PRO MINI 16LED 3k A3 CLO 850mA UMSUG 42 0039 0000 100
Lamp(s)	16 x 3k LED
Lamp Flux (klm)	4.83
File Name	KIRIUM PRO MINI 16LED 3k A3 CLO_850m A UMSUG 42 0039 0000 100.ies
Maintenance Factor	0.76
Lum. Int. Class	G3

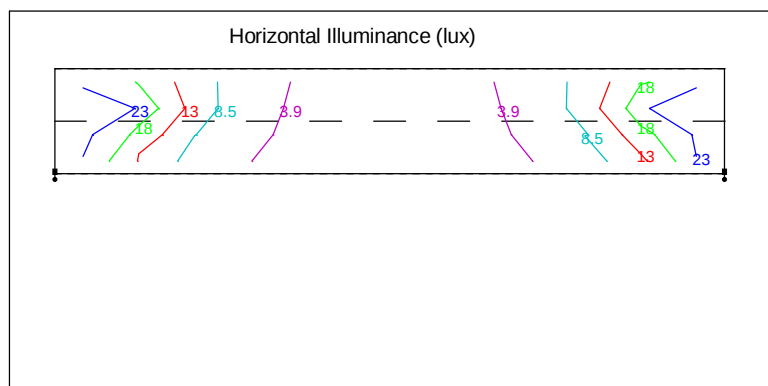


Results

Main

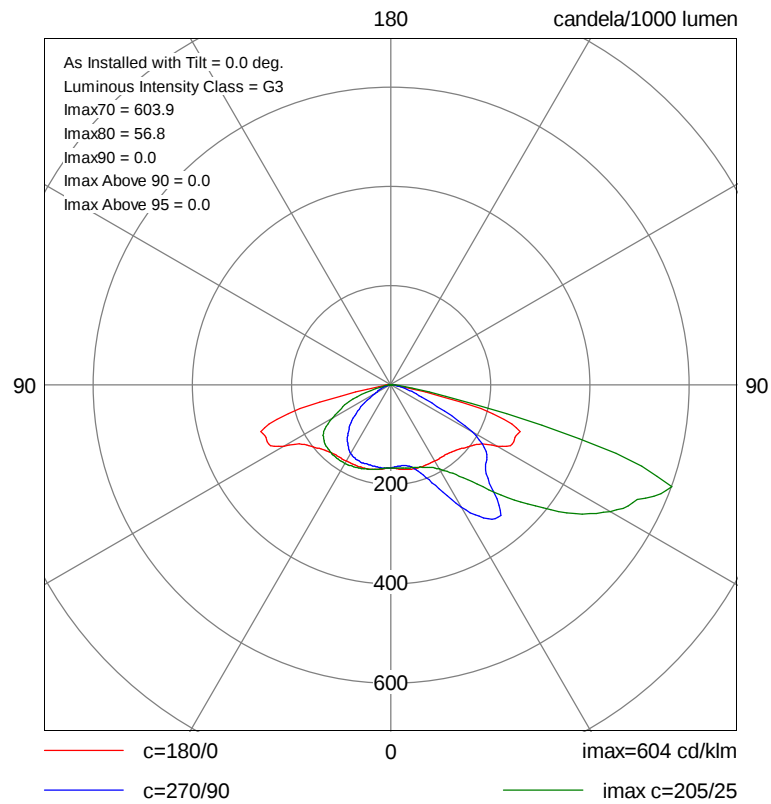
Complies with P3

Eav	9.87
Emin	1.53
Emax	29.62
Emin/Emax	0.05
Emin/Eav	0.15

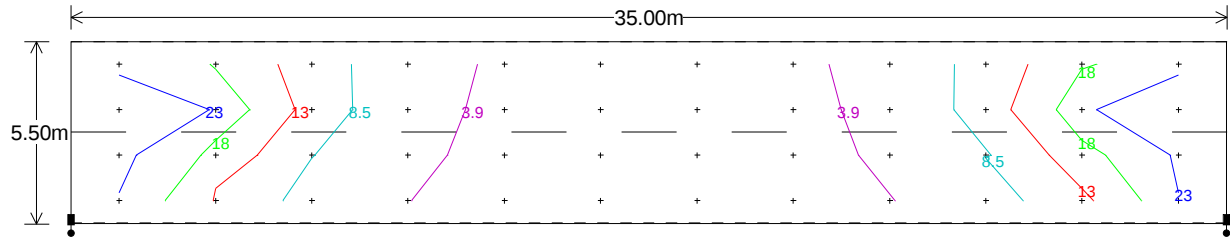


Polar Diagram

Main Luminaire KIRIUM PRO MINI 16LED 3k A3 CLO 850mA UMSUG 42 0039 0000 100



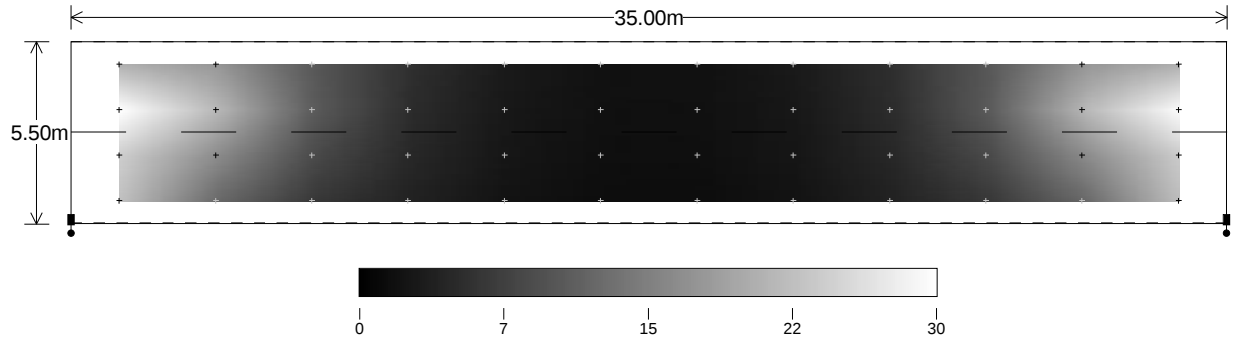
Horizontal Illuminance (lux)



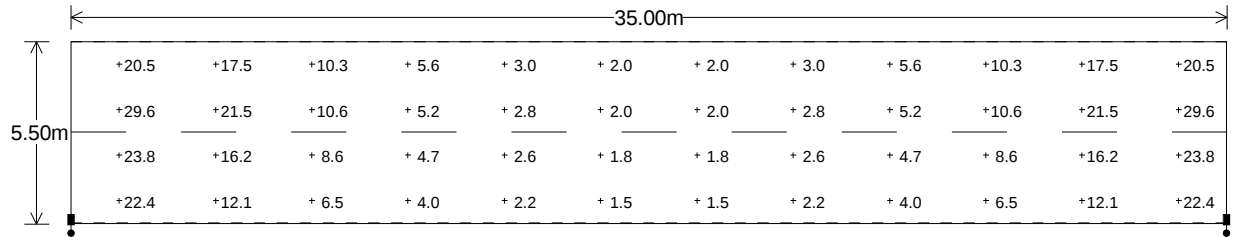
Main Results

Eav	9.87
Emin	1.53
Emax	29.62
Emin/Emax	0.05
Emin/Eav	0.15

Horizontal Illuminance (lux)

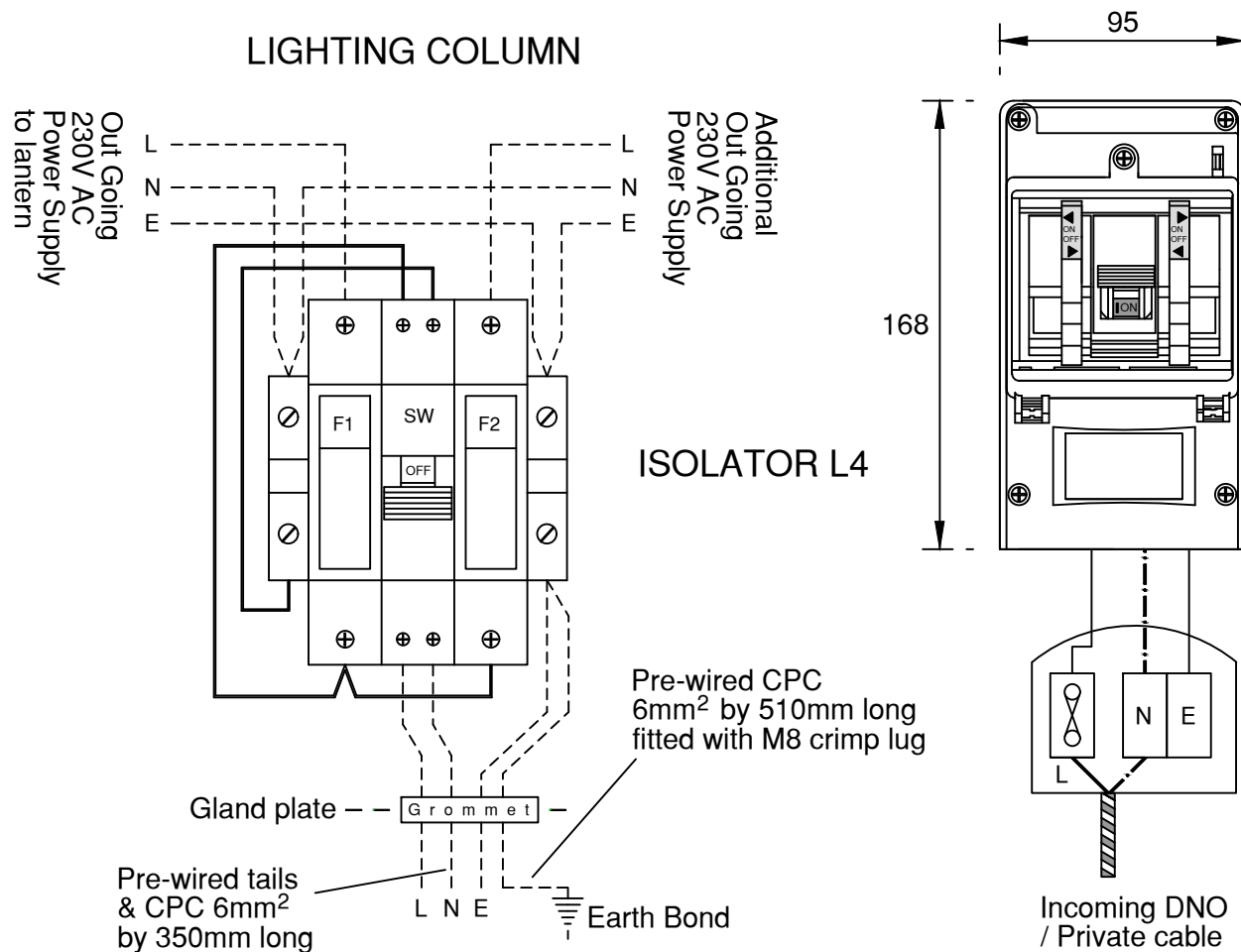


Horizontal Illuminance (lux)



Appendix C – OCC Standard Details

File	Detail
OCC HSD 1300 – 005	Wiring cut out details secondary isolation for standard columns
OCC HSD 1300 – 006	Column Styles 1, 2 & 4
OCC HSD 1300 – 007	Raise and Lower style 2 column
OCC HSD 1300 – 021	Column style 9 Conical – Ayr & Avon style brackets



Notes

1. All annotations and dimensions on this drawing complement or supersede the Highway England Specification for Highways which shall otherwise apply (along with the appropriate Appendices) to all works and materials required for this Standard Detail.
2. Cables between cut-out and fused isolator unit in column must be 2.5mm² PVC insulated PVC sheathed single core.
3. Sub fuse assembly L4 :-
Manufactured by
Charles Endirect Ltd Sherborne Dorset
or similar approved
Lockable safely isolator consisting of 32A DP isolator with 2 No. BS 88 fuse ways. Fuse for street light to be correctly rated for lamp size, see HSD/1400/016 for fusing requirements. BS 88 fuse for bus circuit to be maximum 10A.
Lockable safety isolator consisting of 32A DP isolator with 1 No. 6A BS 88 fuse.
4. All fixing screws to be stainless steel.
5. All dimensions are in millimetres unless shown otherwise.
6. Individual isolator circuits are required to be labelled.

Wiring cut out details secondary isolation for standard columns

Electrical works for road lighting
and traffic signs

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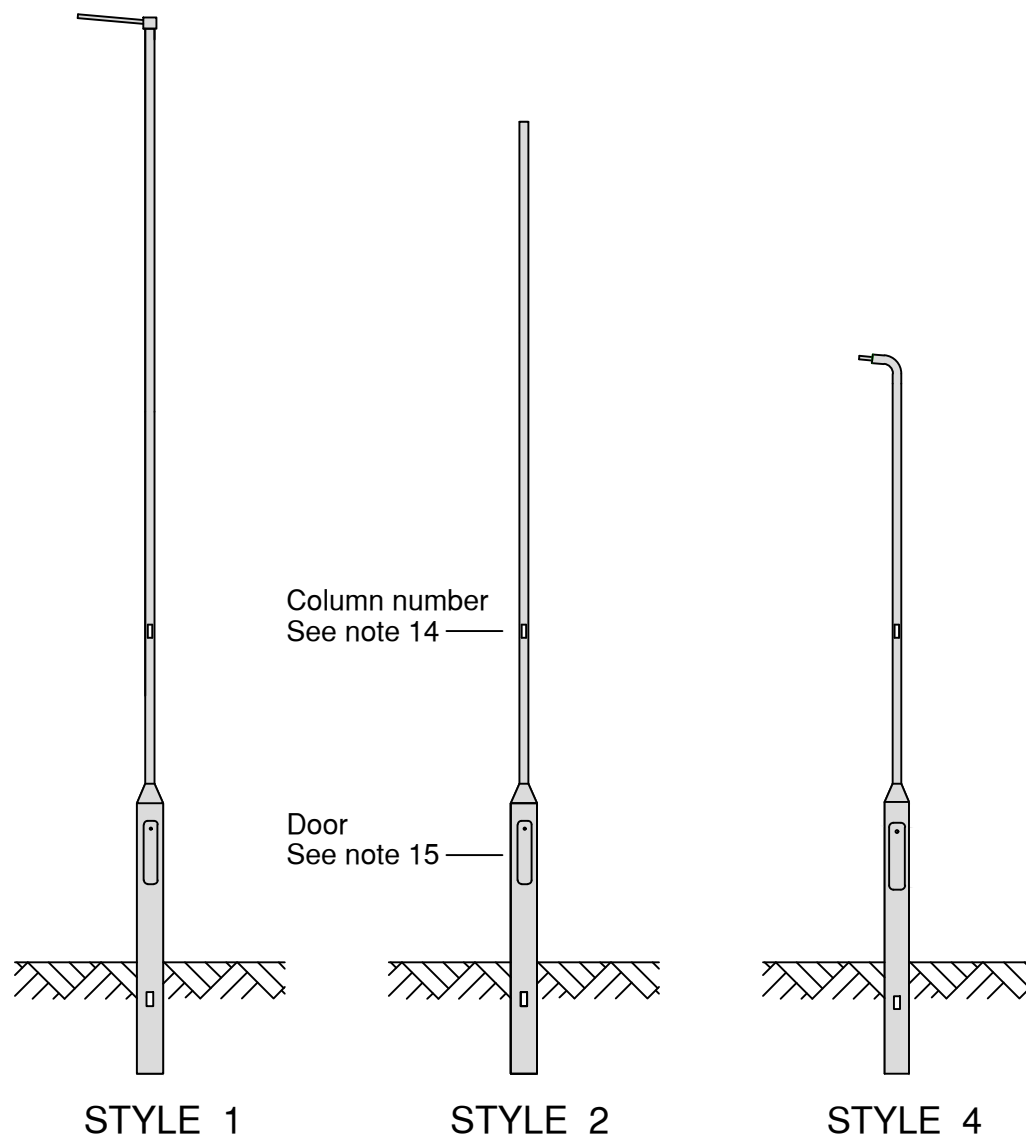
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Date

Drawing No.

HSD/1400/005



Notes

1. All annotations and dimensions on this drawing complement or supersede the Highway England Specification for Highways which shall otherwise apply (along with the appropriate Appendices) to all works and materials required for this Standard Detail.
2. See HSD/1300/002 for column heights, planting & foundation details.
3. See HSD/1400/018 for wiring details.
4. Not all column styles are available in all heights.
5. Column heights vary from 5 to 15 metres.
6. All bracket arms to be 5 deg uplift.
7. All columns to be BS EN 40 BD94/07.
8. Bracket arm lantern spigots to be in line with the bracket arm.
9. Rationalised wind loading factors (RWF) for Oxfordshire as specified in PD6547:2009 are to be used as a minimum for detecting the design wind pressure for the design of lighting columns.
10. Notes 4 and 6 apply to style 1 only.
11. Column to have a G2a protection system EPA Oxfordshire Specification (see Appendix 19/3). Final coat to be Reed Green RAL 6013, Jet Black RAL 9005 or as specified by the Engineer.
12. Manufacturers label must be fitted in the base of the column indicating production date and batch numbers for audit purposes.
13. Style 3 column with post top mounting 43mm diameter arch bracket 1" BS.P thread for lantern.
14. All columns shall be numbered at the time of erection with a 50mm high black figures(s) on a white background. This is to be a self adhesive (one piece) label manufactured by BRADY UK (outdoor marking vinyl film ref:- B30C-2250-595-WT or similar approved). Numbers are to be applied 2m above ground level, and shall face the carriageway.
15. Column door must be erected facing away from oncoming traffic.
16. Minimum post base thickness to be 5.0mm and shaft 3.0mm up to 6m high.
17. No trees are to be planted within ten metres longitudinal of a Sign or Column.

Column styles 1, 2 & 4

Road lighting columns and brackets

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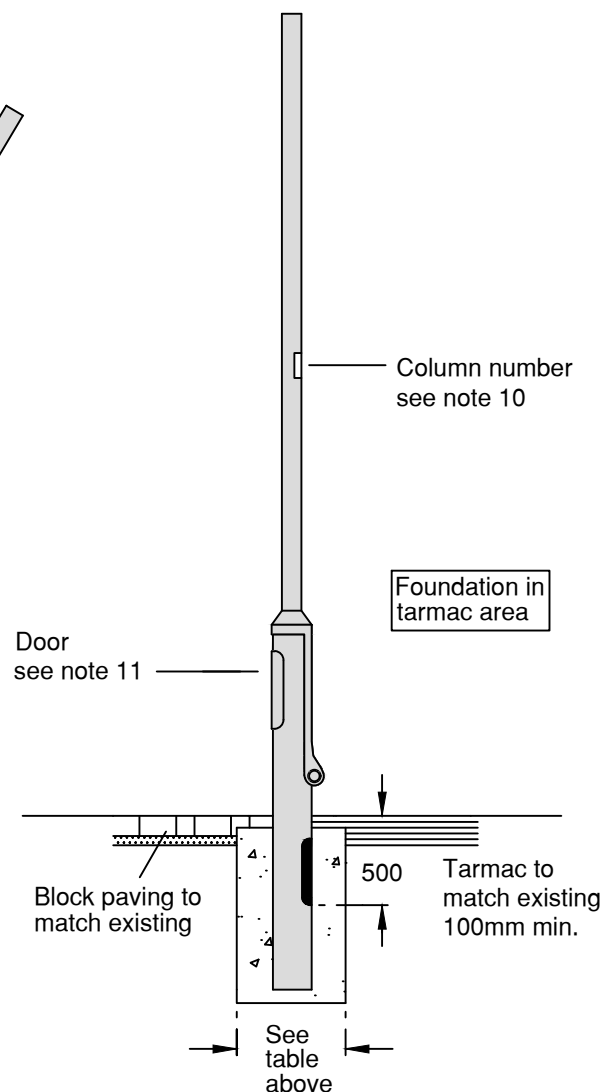
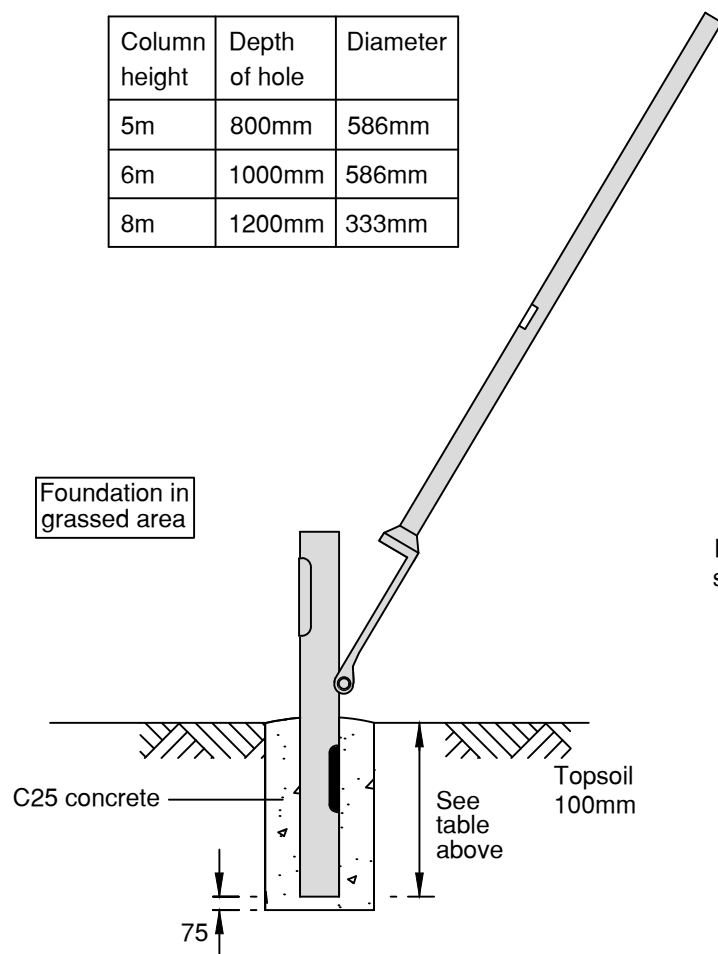
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Drawing No.

HSD/1300/006

Column height	Depth of hole	Diameter
5m	800mm	586mm
6m	1000mm	586mm
8m	1200mm	333mm



Notes

1. All annotations and dimensions on this drawing complement or superseded the Highway England Specification for Highways which shall otherwise apply (along with the appropriate Appendices) to all works and materials required for this Standard Detail.
2. All dimensions are in millimetres unless shown otherwise.
3. 5m, 6m or 8m Abacus Raise & Lowering spring operated column, Patent No. 968113 or equivalent.
4. All columns to be BS EN 40 BD94/07.
5. Column to have a G2a protection system EPA Compliant Oxfordshire Specification (see Appendix 19/3). Final coat to be Green RAL 6013, Jet Black 9005 or as specified by the Engineer.
6. Manufacturers label must be fitted in the base of the column indicating production date and batch numbers for audit purposes.
7. See HSD/1300/002 for planting depths and foundation details.
8. Rationalised wind loading factors (RWF) for Oxfordshire as specified in PD6547:2009 are to be used a minimum for determining the design of lighting columns.
9. Concrete mix shall comply with Clause 2602.
10. All columns shall be numbered at the time of erection with a 50mm high black figure(s) on a white background. This is to be a self adhesive (one piece) label manufactured by BRADY UK (outdoor marking vinyl film ref:- B30C-2250-595-WT or similar approved). Numbers are to be applied 2m above ground level, and shall face the carriageway.
11. Column door must be erected facing away from oncoming traffic, and to be fitted with an anti-vandal lock.
12. Minimum post base thickness to be 5.0mm and shaft 3.0mm up
13. No trees are to be planted within ten metres longitudinal of a sign or column.

Raise and lower style 2 column

Road lighting columns and brackets

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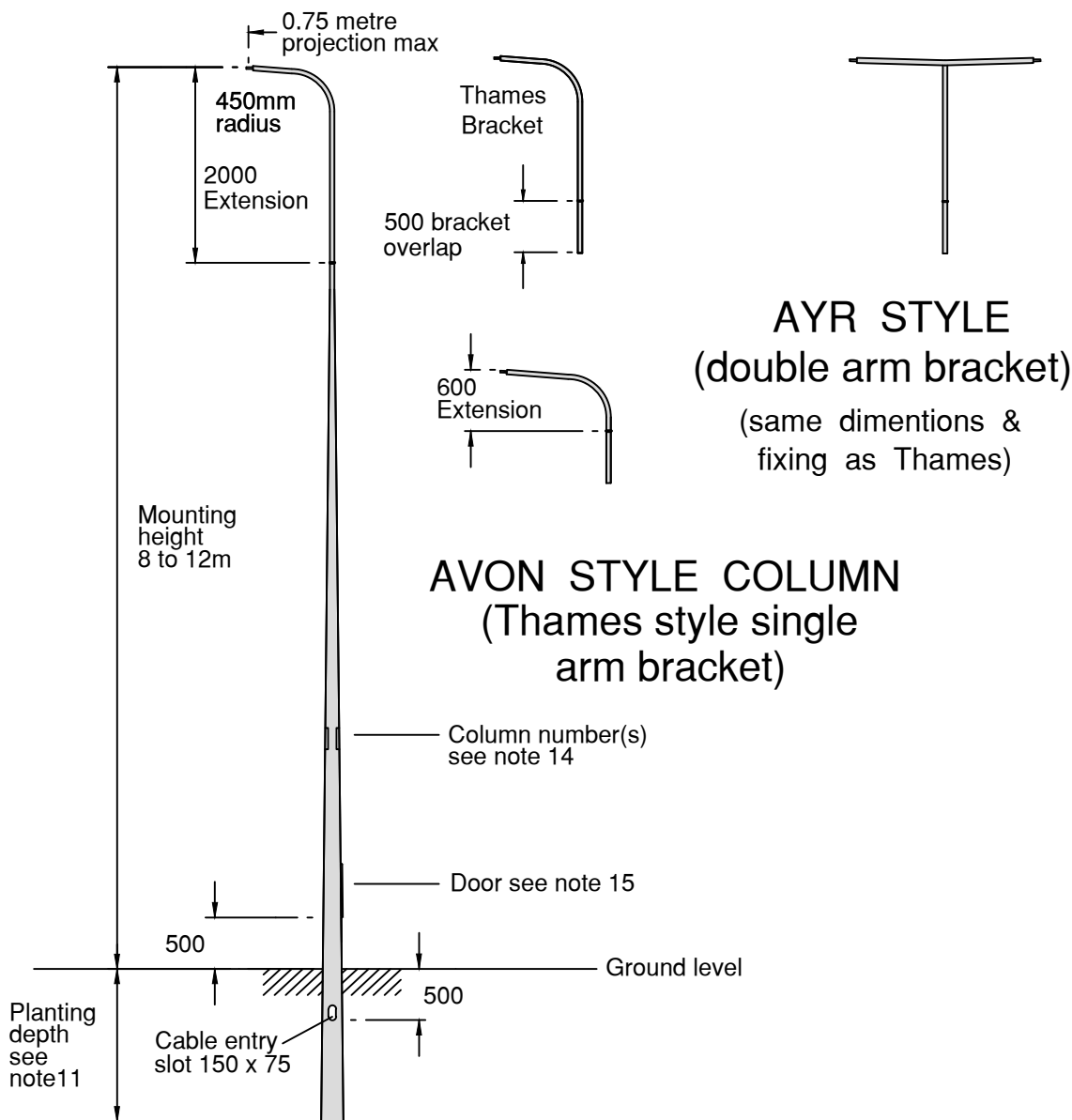
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Drawing No.

HSD/1300/007

Date



Notes

1. All annotations and dimensions on this drawing complement or supersede the Highway England Specification for Highways which shall otherwise apply (along with the appropriate Appendices) to all works and materials required for this Standard Detail.
2. All dimensions are in millimetres unless shown otherwise.
3. Column heights vary from 8 to 15 m.
4. All brackets arms to be 5 deg uplift.
5. Rationalised wind loading factors (RWF) for Oxfordshire as specified in PD6547:2009 are to be used as a pressure for the design of lighting columns.
6. Bracket arm lantern spigots to be in line with the bracket arm.
7. All columns to be BS EN 40 BD94/07.
8. Conical steel column supplied by Stainton Metal Co. Avon Style or similar approved. For double arm column use Ayr bracket or similar approved.
9. Maximum projection of bracket to be 0.75 metre.
10. Column to have a G2a protection system EPA Compliant Oxfordshire Specifications (see Appendix 19/3). Final coat to be Reed Green RAL 6013, Jet Black RAL 9005 or as specified by the Engineer.
11. See HSD/1300/002 for planting depths and foundation details.
12. See HSD/1400/018 for wiring details.
13. Manufacturers label must be fitted in the base of the sign indicating production date and batch numbers for audit purposes.
14. All columns shall be numbered at the time of erection with a 50mm high black figure(s) on a white background. This is to be a self adhesive (one piece) label manufactured by BRADY UK (outdoor marking vinyl film ref:- B30C-2250-595-WT or similar approved). Numbers are to be applied 2m above ground level, and shall face the carriageway. When the column is a double arm then the numbers are fixed on either side.
15. Column door must be erected facing away from oncoming traffic.
16. No trees are to be planted within ten metres longitudinal of a Sign or Column.

Column style 9 Conical - Ayr & Avon style brackets

Road lighting columns and brackets

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HSD/1300/021