



APPENDIX 5.2

(Superseded by Appendix 5.3)



APPENDIX 5.3

DATE: 17 March 2026
DESIGNER: Don Kinghan
PROJECT No: DAR25411
PROJECT NAME: Red Admiral DC Ltd R1

DARAMACK
Exterior Lighting Design

Lighting designed to the recommendations of BS5489-1:2020 and
CIBSE Society of Light and Lighting - Lighting Handbook.

Grids 01 - 18

Internal roads - BS5489-1:2020 Lighting Class P4
Maintained average illuminance >5.0Lux
Minimum point illuminance >1.0Lux

Xref MASTER PLAN - FI v1 Feb 2026.dwg

Outdoor Lighting Report

PREPARED BY: W Don Kinghan
www.daramacklighting.co.uk

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	644099.55	739140.41	309.00	30.00	1.50	1.50
2	Grid 2	644381.08	739269.01	235.00	27.00	1.50	1.50
3	Grid 3	644127.13	739048.26	273.00	21.00	1.34	1.50
4	Grid 4	644396.70	739167.74	240.00	21.00	1.50	1.50
5	Grid 5	644167.90	738967.16	300.00	21.00	1.50	1.50
6	Grid 6	644442.47	739089.46	270.00	21.00	1.50	1.50
7	Grid 7	644129.61	739071.17	15.00	75.00	1.50	1.50
8	Grid 8	644405.64	739095.20	21.00	171.00	1.50	1.50
9	Grid 9	644639.92	739200.58	27.00	168.00	1.50	1.50
10	Grid 10	644548.23	739021.30	21.00	108.00	1.50	1.50
11	Grid 11	644358.76	738901.62	246.00	63.00	1.50	1.50
12	Grid 12	644171.28	738956.16	315.00	36.00	1.50	1.50
13	Grid 13	644102.24	739017.11	72.00	36.00	1.50	1.50
14	Grid 14	644150.02	738833.17	315.00	51.00	1.50	1.50
15	Grid 15	644173.90	738877.08	27.00	78.00	1.50	1.50
16	Grid 16	644428.44	738805.73	27.00	78.00	1.50	1.50
17	Grid 17	644455.61	738806.63	60.00	24.00	1.50	1.50
18	Grid 18	644687.97	739194.88	99.00	189.00	1.50	1.50

Luminaires



Luminaire A Data

Supplier	Philips
Type	BGP292 DW50 BL1
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	6.00
File Name	LumiStreet Gen2 Mini_BGP292_DW50 BL1_6000_40LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.83
Lum. Int. Class	G3
No. in Project	100

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	644391.30	739170.77	6.00	113.00	0.00	0.00	0.40			
2	A	644153.97	739179.06	6.00	294.00	0.00	0.00	0.40			
3	A	644193.45	739197.00	6.00	294.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
4	A	644234.18	739215.17	6.00	294.00	0.00	0.00	0.40			
5	A	644274.80	739233.32	6.00	294.00	0.00	0.00	0.40			
6	A	644312.88	739250.34	6.00	294.00	0.00	0.00	0.40			
7	A	644384.23	739282.34	6.00	294.00	0.00	0.00	0.40			
8	A	644115.41	739162.13	6.00	295.00	0.00	0.00	0.40			
9	A	644349.82	739266.91	6.00	292.00	0.00	0.00	0.40			
10	A	644416.52	739296.72	6.00	294.00	0.00	0.00	0.40			
11	A	644448.96	739311.50	6.00	299.00	0.00	0.00	0.40			
12	A	644488.77	739329.12	6.00	295.00	0.00	0.00	0.40			
13	A	644528.78	739346.98	6.00	294.00	0.00	0.00	0.40			
14	A	644569.06	739364.96	6.00	296.00	0.00	0.00	0.40			
15	A	644582.24	739350.44	6.00	34.00	0.00	0.00	0.40			
16	A	644157.89	739067.17	6.00	118.00	0.00	0.00	0.40			
17	A	644125.72	739088.72	6.00	25.00	0.00	0.00	0.40			
18	A	644198.01	739085.30	6.00	116.00	0.00	0.00	0.40			
19	A	644238.15	739102.98	6.00	116.00	0.00	0.00	0.40			
20	A	644272.13	739118.14	6.00	116.00	0.00	0.00	0.40			
21	A	644306.41	739133.55	6.00	115.00	0.00	0.00	0.40			
25	A	644345.24	739150.78	6.00	115.00	0.00	0.00	0.40			
27	A	644365.10	739190.22	6.00	29.00	0.00	0.00	0.40			
28	A	644369.00	739161.14	6.00	112.00	0.00	0.00	0.40			
29	A	644416.94	739182.91	6.00	112.00	0.00	0.00	0.40			
30	A	644454.79	739200.05	6.00	115.00	0.00	0.00	0.40			
31	A	644489.09	739215.19	6.00	117.00	0.00	0.00	0.40			
32	A	644523.27	739230.35	6.00	115.00	0.00	0.00	0.40			
33	A	644561.44	739247.77	6.00	116.00	0.00	0.00	0.40			
36	A	644601.63	739265.75	6.00	113.00	0.00	0.00	0.40			
40	A	644608.76	739291.16	6.00	24.00	0.00	0.00	0.40			
41	A	644170.60	738978.36	6.00	44.00	0.00	0.00	0.40			
42	A	644205.44	738984.15	6.00	115.00	0.00	0.00	0.40			
43	A	644244.65	739001.65	6.00	114.00	0.00	0.00	0.40			
44	A	644283.97	739019.02	6.00	115.00	0.00	0.00	0.40			
45	A	644323.26	739036.55	6.00	116.00	0.00	0.00	0.40			
46	A	644363.77	739054.60	6.00	117.00	0.00	0.00	0.40			
47	A	644402.88	739072.25	6.00	112.00	0.00	0.00	0.40			
48	A	644445.61	739091.18	6.00	115.00	0.00	0.00	0.40			

Layout Continued

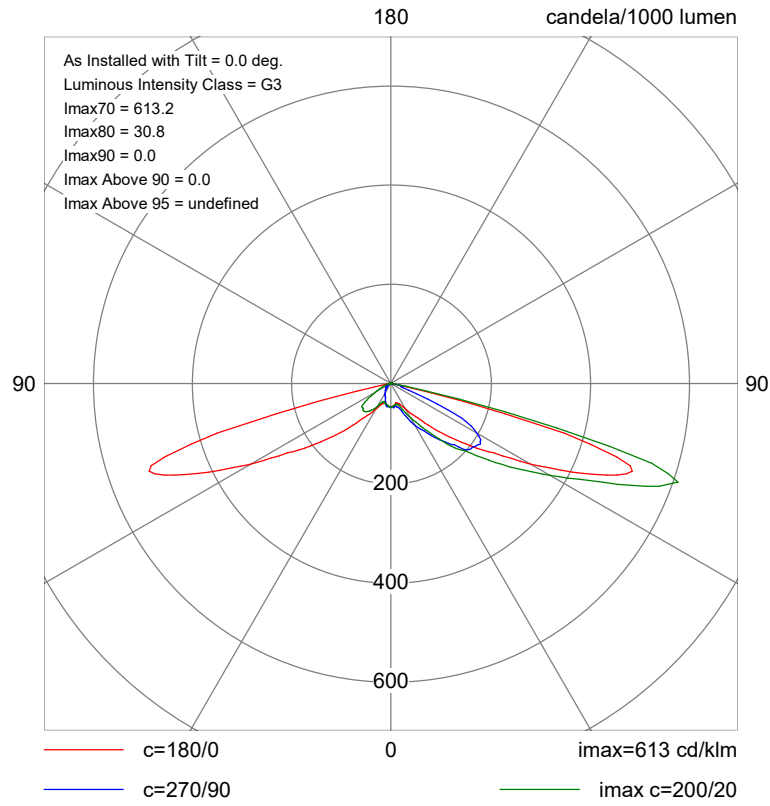
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
49	A	644403.16	739105.42	6.00	25.00	0.00	0.00	0.40			
50	A	644482.51	739107.69	6.00	113.00	0.00	0.00	0.40			
51	A	644529.14	739128.44	6.00	113.00	0.00	0.00	0.40			
52	A	644509.21	739113.78	6.00	23.00	0.00	0.00	0.40			
53	A	644511.95	739130.81	6.00	298.00	0.00	0.00	0.40			
54	A	644567.09	739145.44	6.00	115.00	0.00	0.00	0.40			
55	A	644602.73	739161.47	6.00	114.00	0.00	0.00	0.40			
56	A	644636.71	739186.67	6.00	295.00	0.00	0.00	0.40			
57	A	644674.47	739193.57	6.00	114.00	0.00	0.00	0.40			
58	A	644643.27	739214.74	6.00	25.00	0.00	0.00	0.40			
59	A	644107.84	739128.77	6.00	30.00	0.00	0.00	0.40			
60	A	644347.34	739230.59	6.00	24.00	0.00	0.00	0.40			
61	A	644384.97	739146.25	6.00	25.00	0.00	0.00	0.40			
62	A	644595.64	739320.70	6.00	26.00	0.00	0.00	0.40			
63	A	644626.63	739251.54	6.00	28.00	0.00	0.00	0.40			
66	A	644526.25	739079.85	6.00	24.00	0.00	0.00	0.40			
67	A	644541.23	739045.97	6.00	21.00	0.00	0.00	0.40			
68	A	644526.66	739019.90	6.00	116.00	0.00	0.00	0.40			
71	A	644486.60	739001.99	6.00	116.00	0.00	0.00	0.40			
72	A	644445.65	738983.62	6.00	115.00	0.00	0.00	0.40			
73	A	644404.70	738965.30	6.00	112.00	0.00	0.00	0.40			
74	A	644377.80	738951.68	6.00	132.00	0.00	0.00	0.40			
75	A	644358.51	738931.84	6.00	343.00	0.00	0.00	0.40			
76	A	644342.03	738925.37	6.00	250.00	0.00	0.00	0.40			
77	A	644199.59	738956.46	6.00	71.00	0.00	0.00	0.40			
78	A	644213.75	738935.78	6.00	163.00	0.00	0.00	0.40			
79	A	644237.71	738955.26	6.00	253.00	0.00	0.00	0.40			
80	A	644272.44	738945.68	6.00	250.00	0.00	0.00	0.40			
81	A	644307.33	738936.09	6.00	253.00	0.00	0.00	0.40			
82	A	644384.58	738913.64	6.00	252.00	0.00	0.00	0.40			
83	A	644465.46	738874.93	6.00	163.00	0.00	0.00	0.40			
84	A	644414.91	738896.23	6.00	74.00	0.00	0.00	0.40			
85	A	644450.36	738895.55	6.00	252.00	0.00	0.00	0.40			
86	A	644466.61	738909.06	6.00	349.00	0.00	0.00	0.40			
87	A	644501.84	738913.50	6.00	268.00	0.00	0.00	0.40			
88	A	644154.13	738995.12	6.00	45.00	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	644139.84	739014.97	6.00	243.00	0.00	0.00	0.40			
90	A	644188.16	738875.02	6.00	345.00	0.00	0.00	0.40			
91	A	644217.97	738851.63	6.00	74.00	0.00	0.00	0.40			
92	A	644260.33	738839.96	6.00	75.00	0.00	0.00	0.40			
93	A	644302.84	738828.03	6.00	76.00	0.00	0.00	0.40			
94	A	644345.22	738816.09	6.00	75.00	0.00	0.00	0.40			
95	A	644381.09	738796.59	6.00	51.00	0.00	0.00	0.40			
96	A	644394.89	738810.32	6.00	329.00	0.00	0.00	0.40			
97	A	644416.44	738805.28	6.00	186.00	0.00	0.00	0.40			
98	A	644419.31	738779.01	6.00	74.00	0.00	0.00	0.40			
99	A	644424.89	738797.60	6.00	253.00	0.00	0.00	0.40			
100	A	644445.47	738802.39	6.00	163.00	0.00	0.00	0.40			
101	A	644196.81	738907.01	6.00	344.00	0.00	0.00	0.40			
102	A	644455.58	738838.65	6.00	162.00	0.00	0.00	0.40			
103	A	644466.02	738811.61	6.00	76.00	0.00	0.00	0.40			
104	A	644501.12	738808.35	6.00	245.00	0.00	0.00	0.40			
105	A	644712.01	739211.35	6.00	139.00	0.00	0.00	0.40			
106	A	644708.88	739253.79	6.00	199.00	0.00	0.00	0.40			
107	A	644683.29	739246.36	6.00	27.00	0.00	0.00	0.40			
108	A	644696.51	739289.77	6.00	193.00	0.00	0.00	0.40			
109	A	644672.50	739278.67	6.00	23.00	0.00	0.00	0.40			
110	A	644674.35	739313.34	6.00	206.00	0.00	0.00	0.40			
111	A	644677.54	739336.97	6.00	151.00	0.00	0.00	0.40			
112	A	644700.05	739350.91	6.00	114.00	0.00	0.00	0.40			
113	A	644689.71	739223.11	6.00	339.00	0.00	0.00	0.40			

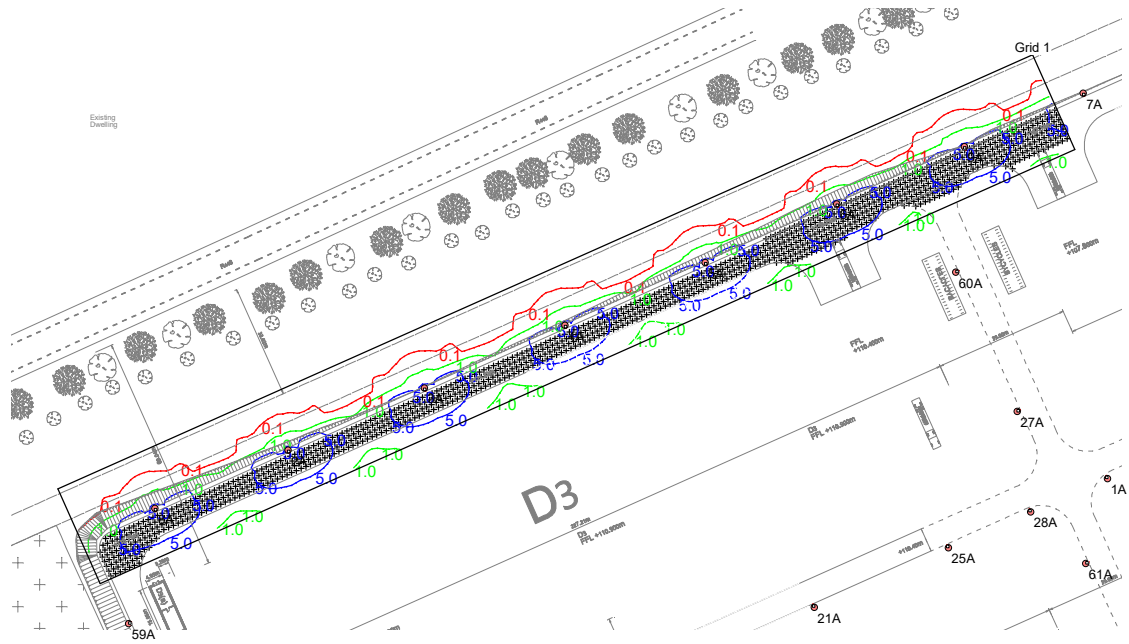
Polar Diagram

Luminaire A BGP292 DW50 BL1



Horizontal Illuminance (lux)

Grid 1

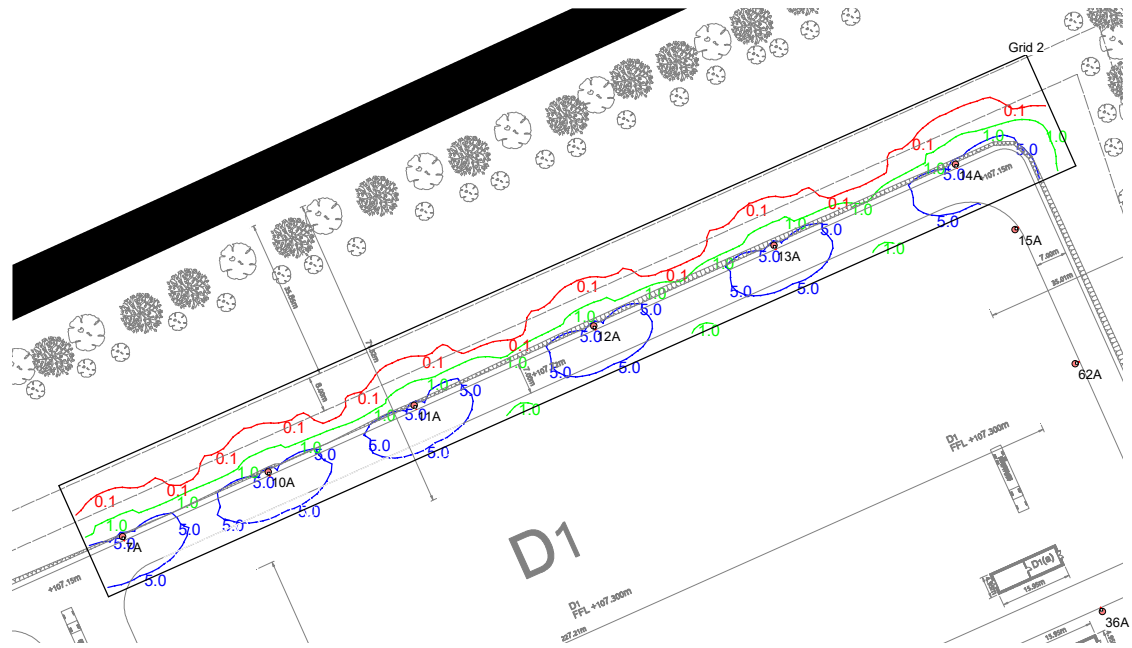


Results

Eav	5.40
Emin	1.26
E _{max}	10.58
Emin/E _{max}	0.12
Emin/Eav	0.23

Horizontal Illuminance (lux)

Grid 2

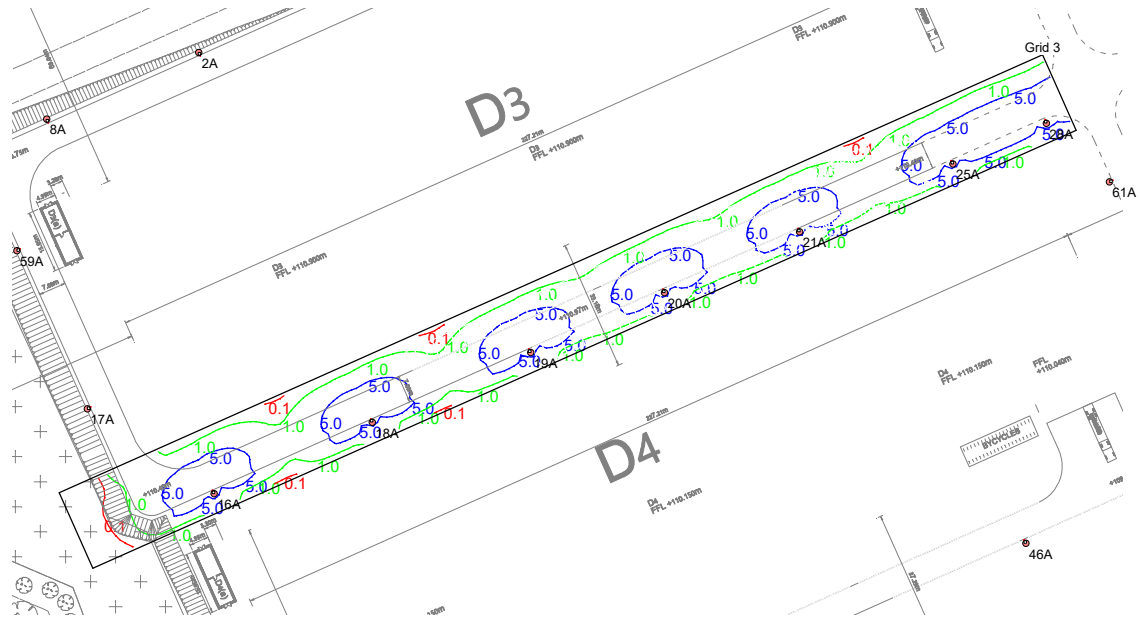


Results

Eav	6.16
Emin	1.31
Emax	13.93
Emin/Emax	0.09
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 3

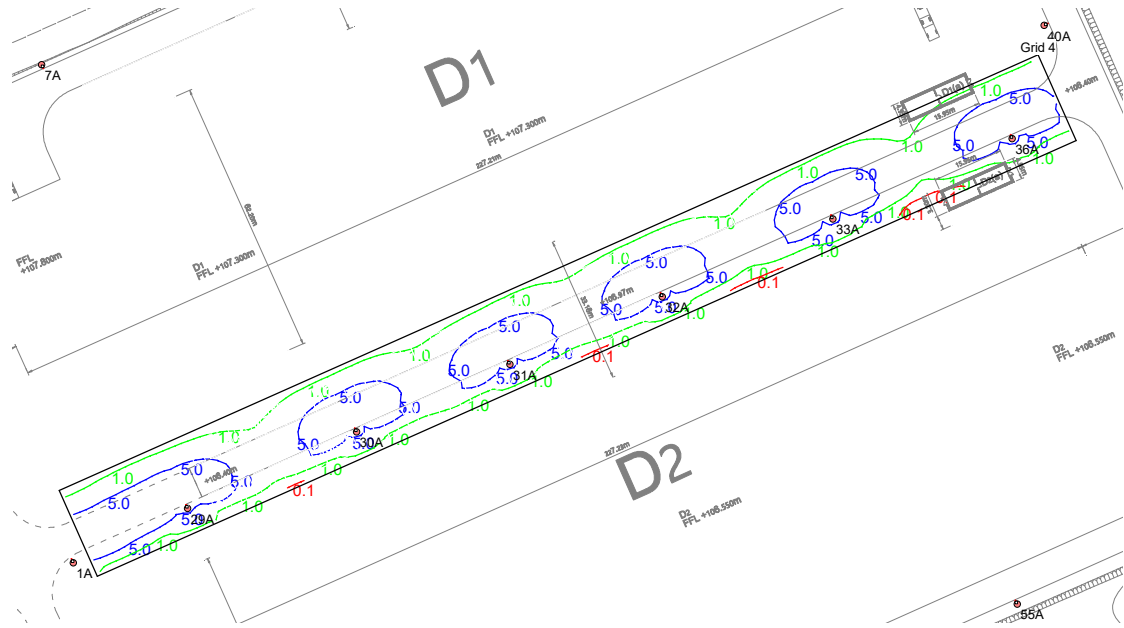


Results

Eav	5.91
Emin	1.23
Emax	11.76
Emin/Emax	0.10
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 4

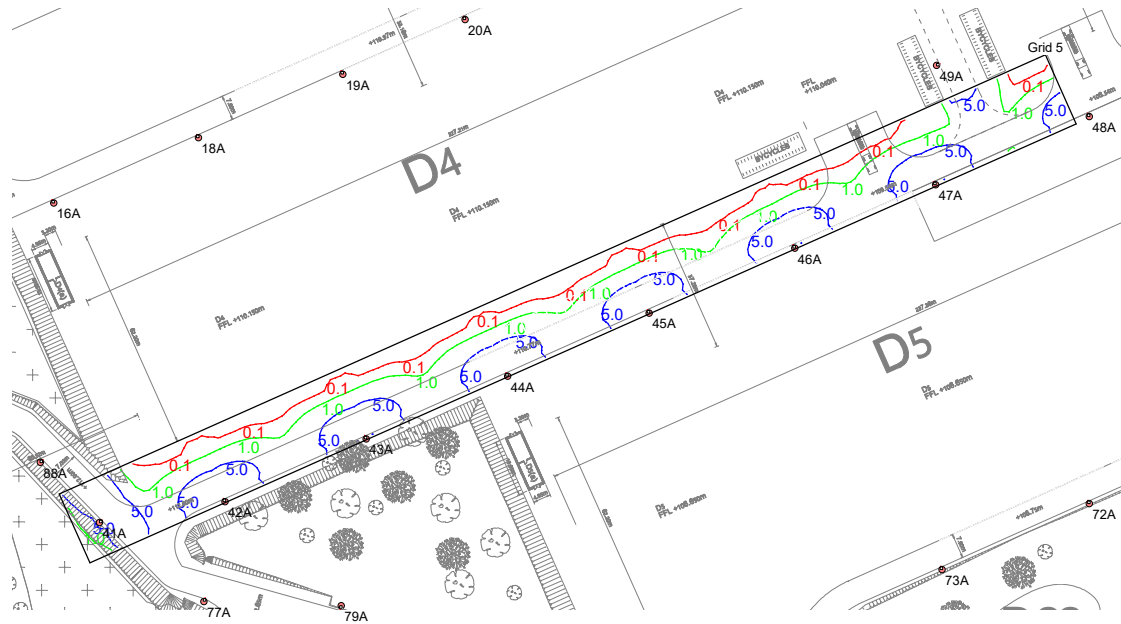


Results

Eav	6.23
Emin	1.35
E _{max}	10.79
E _{min} /E _{max}	0.13
E _{min} /E _{av}	0.22

Horizontal Illuminance (lux)

Grid 5

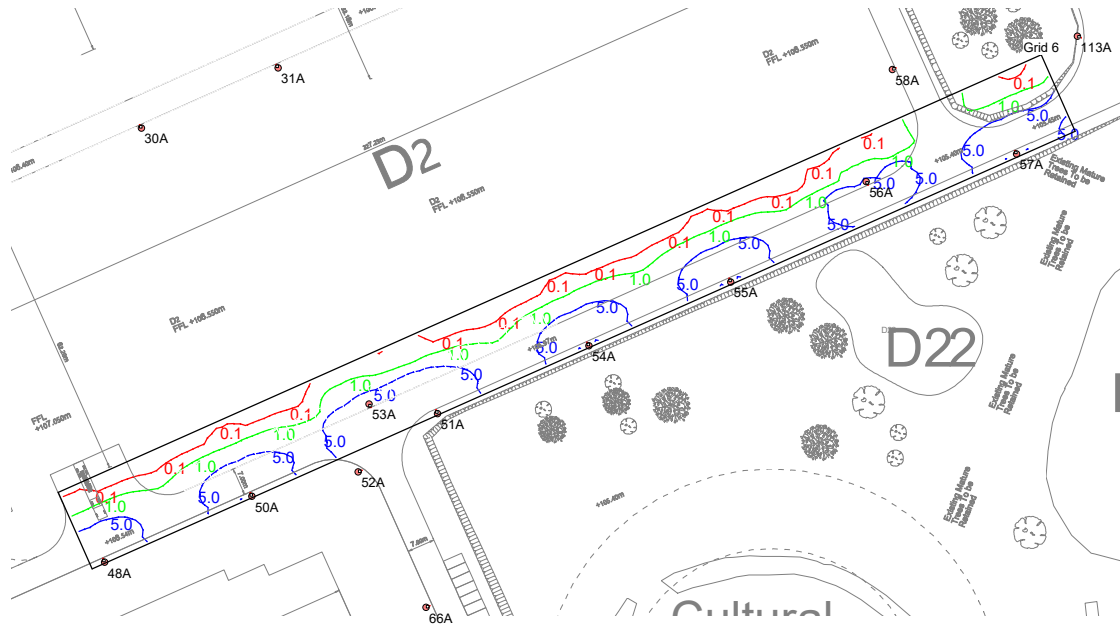


Results

Eav	5.44
Emin	1.09
Emax	11.89
Emin/Emax	0.09
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 6

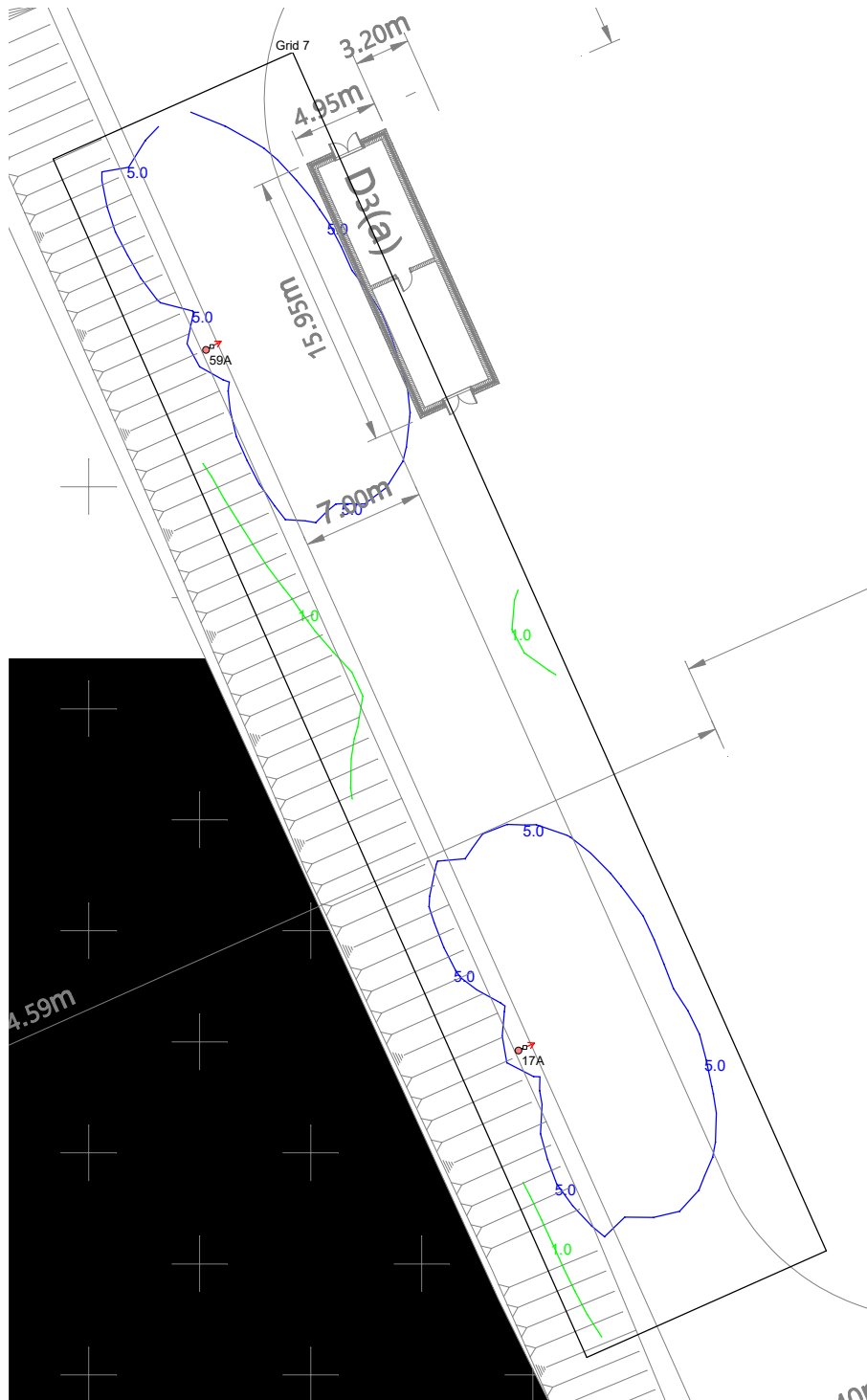


Results

Eav	6.55
Emin	1.35
Emax	17.91
Emin/Emax	0.08
Emin/Eav	0.21

Horizontal Illuminance (lux)

Grid 7

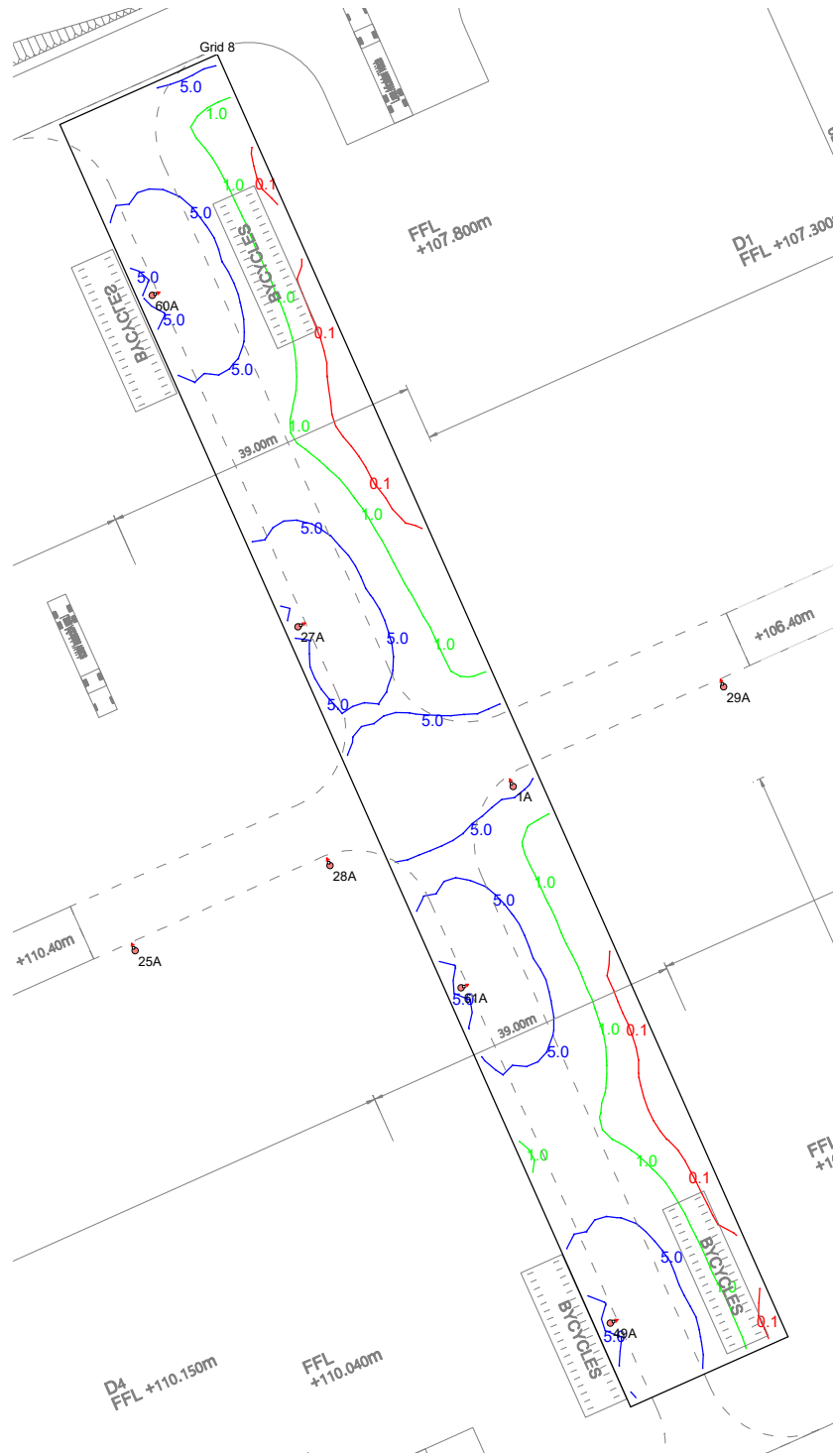


Results

Eav	5.75
Emin	1.25
Emax	10.31
Emin/Emax	0.12
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 8

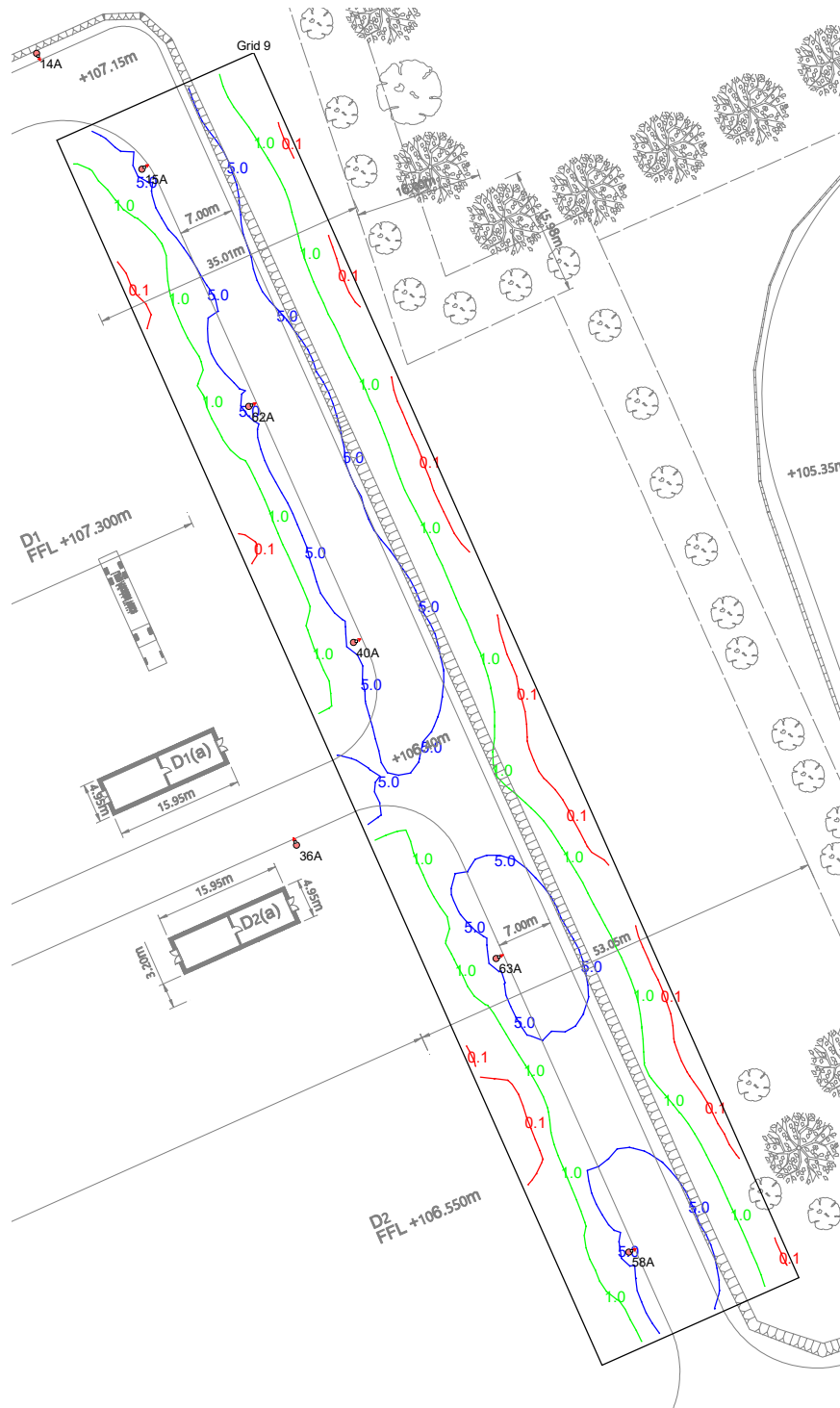


Results

Eav	6.41
Emin	1.27
Emax	12.06
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 9

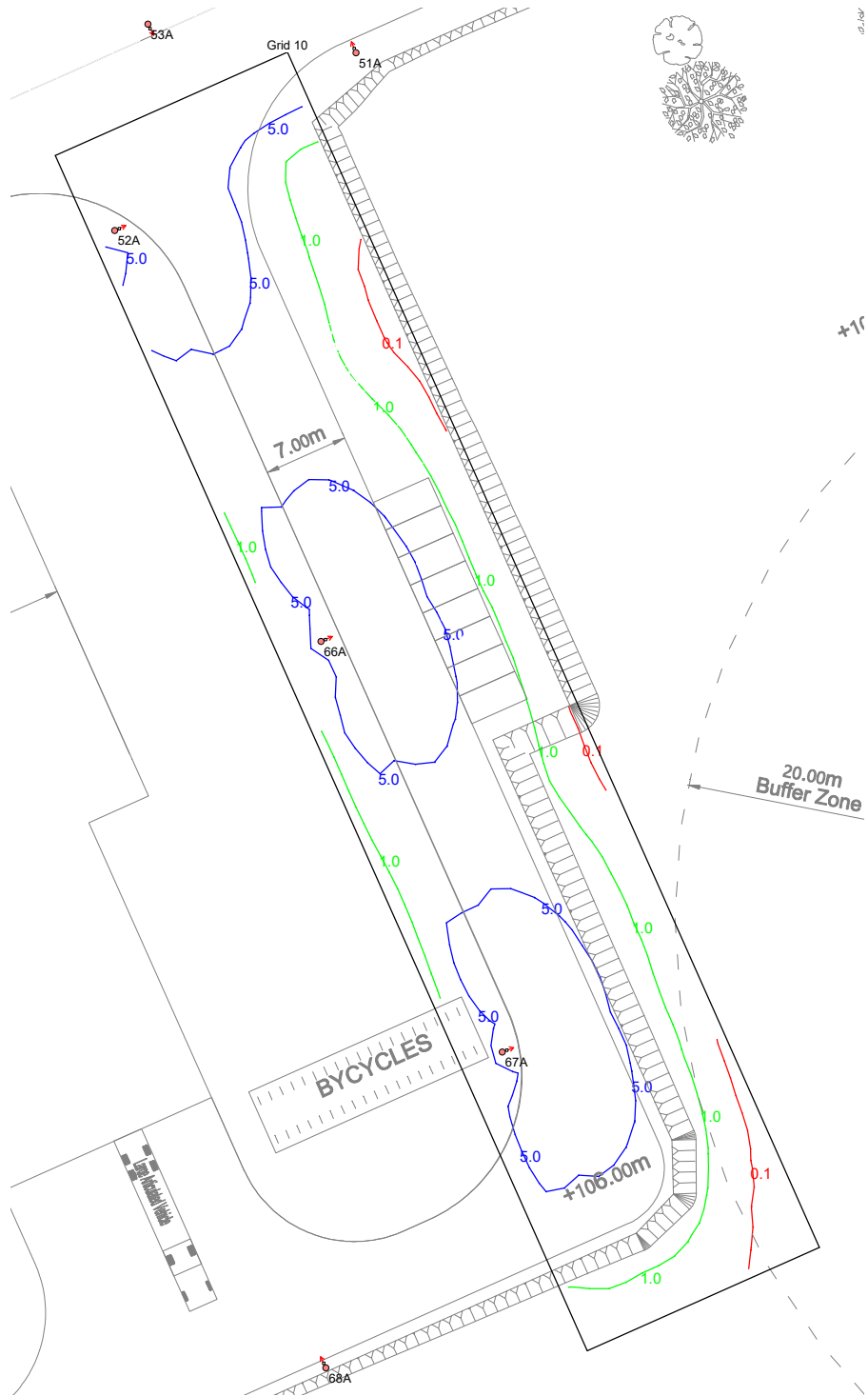


Results

Eav	6.42
Emin	1.61
Emax	11.35
Emin/Emax	0.14
Emin/Eav	0.25

Horizontal Illuminance (lux)

Grid 10

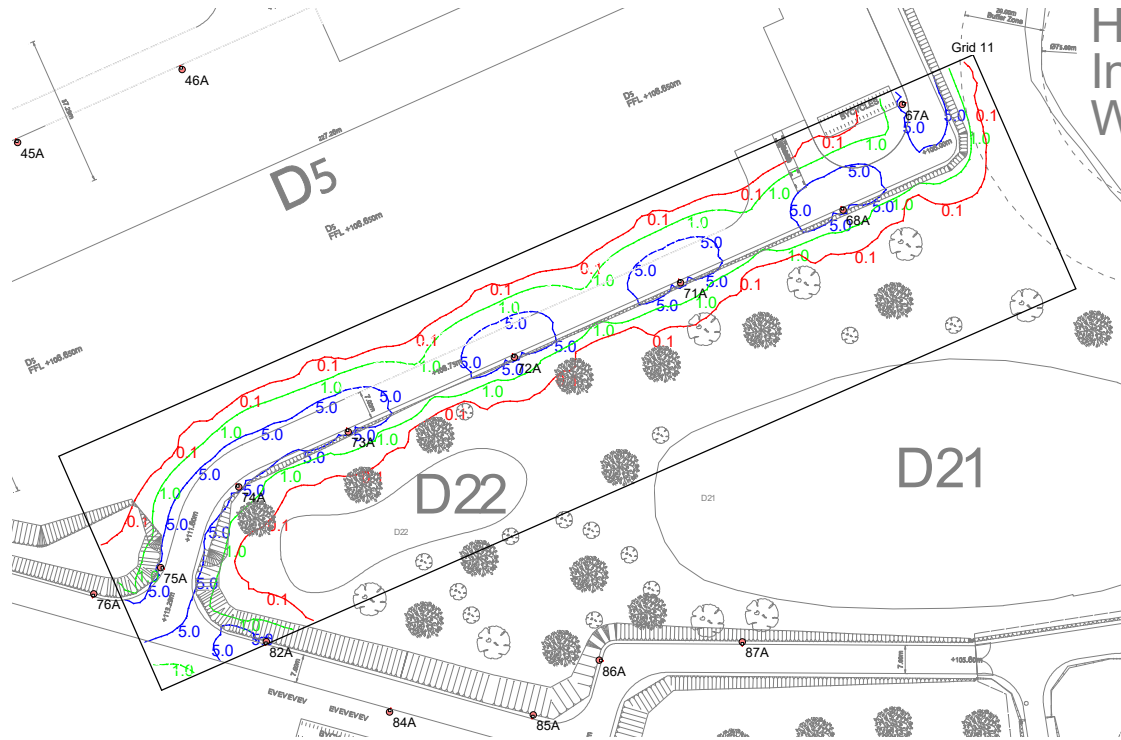


Results

Eav	6.39
Emin	2.30
Emax	15.13
Emin/Emax	0.15
Emin/Eav	0.36

Horizontal Illuminance (lux)

Grid 11

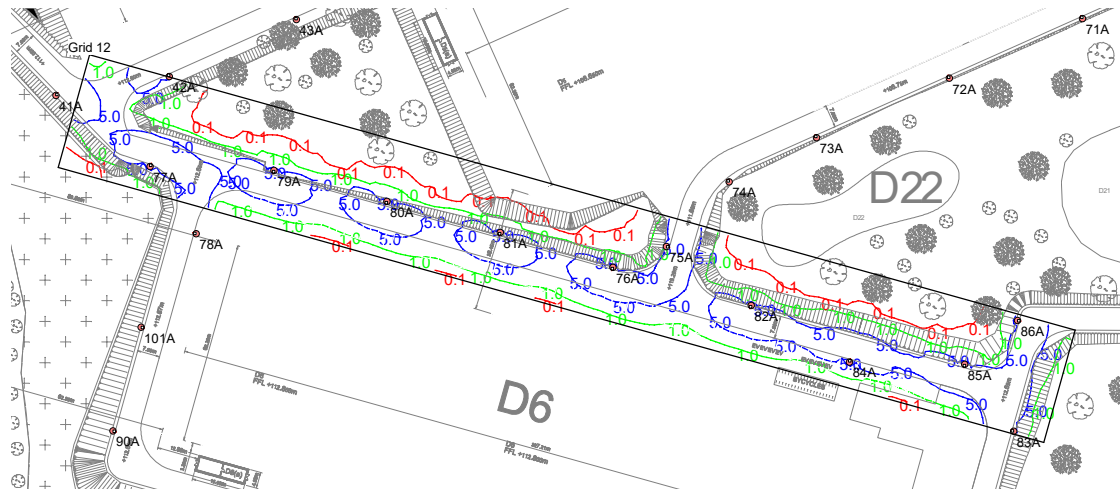


Results

Eav	6.01
Emin	1.20
Emax	10.52
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 12

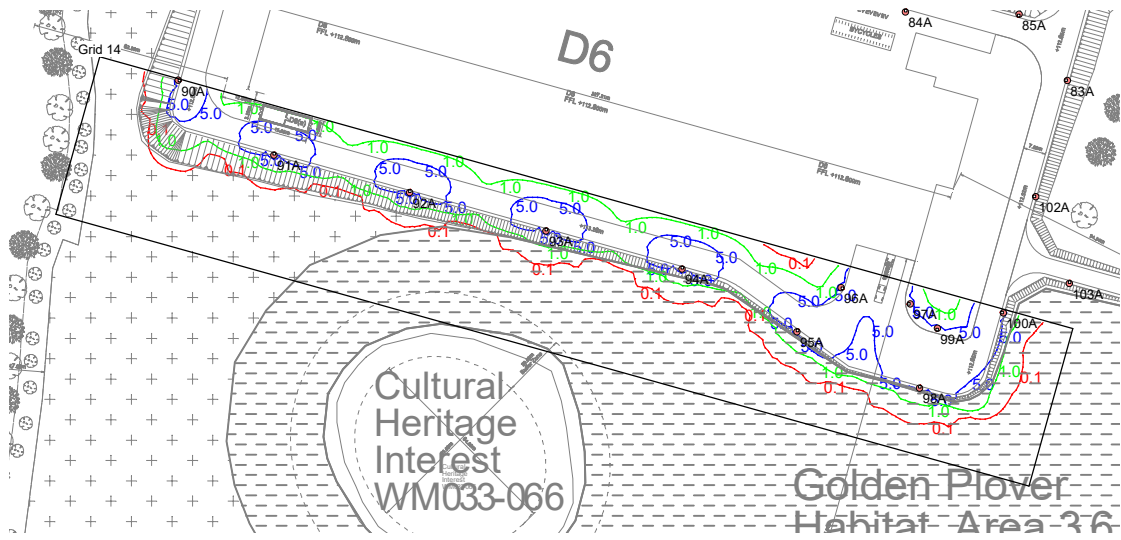


Results

Eav	6.78
Emin	1.56
Emax	11.68
Emin/Emax	0.13
Emin/Eav	0.23

Horizontal Illuminance (lux)

Grid 14

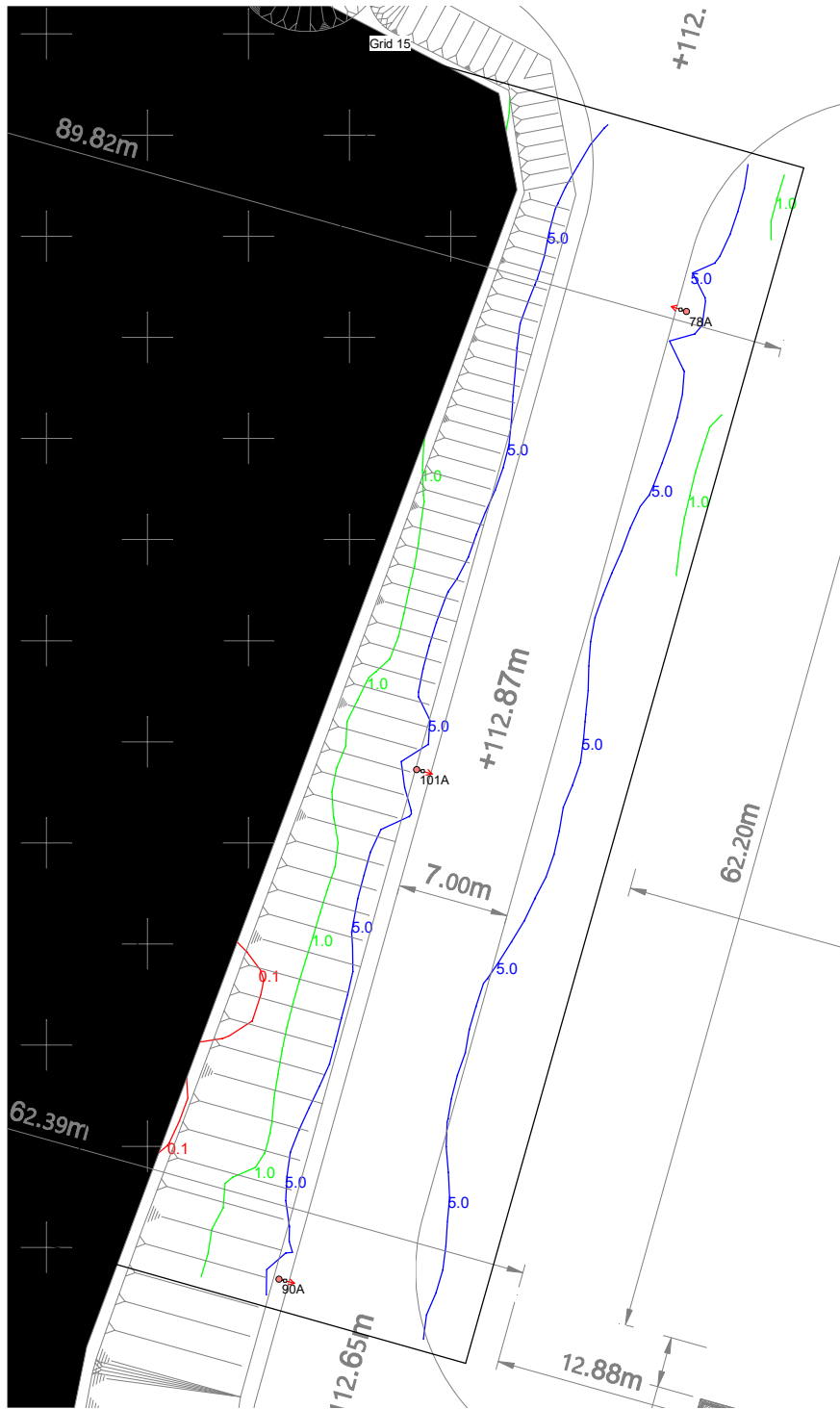


Results

Eav	6.94
Emin	1.38
E _{max}	15.12
E _{min} /E _{max}	0.09
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)

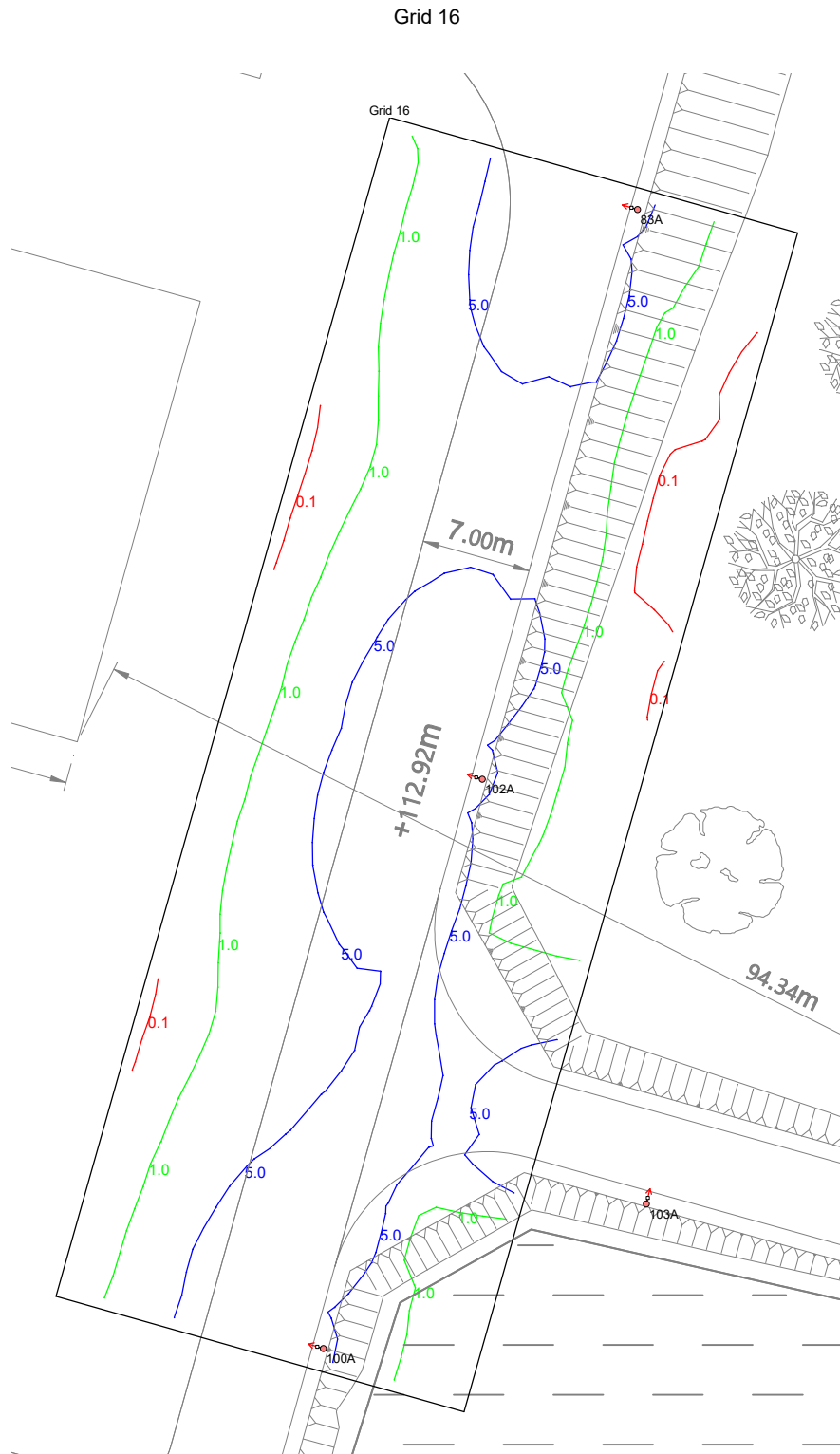
Grid 15



Results

Eav	7.22
Emin	4.89
E _{max}	10.36
E _{min} /E _{max}	0.47
E _{min} /E _{av}	0.68

Horizontal Illuminance (lux)

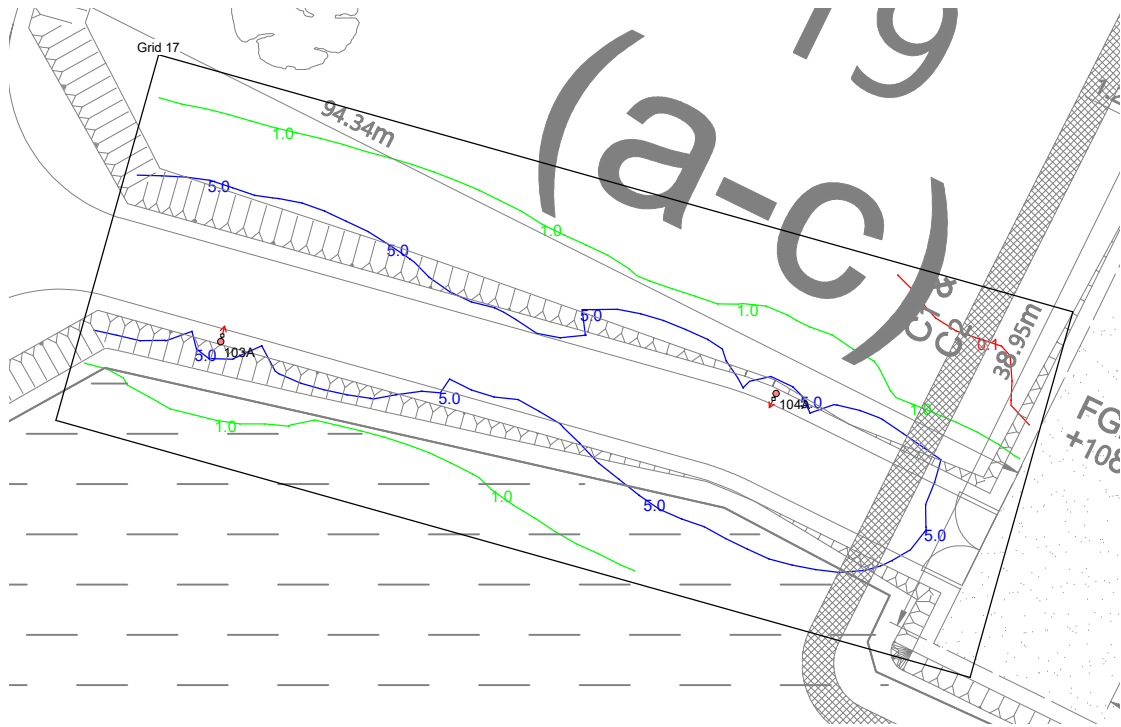


Results

Eav	6.16
Emin	3.39
E _{max}	10.52
E _{min} /E _{max}	0.32
E _{min} /E _{av}	0.55

Horizontal Illuminance (lux)

Grid 17



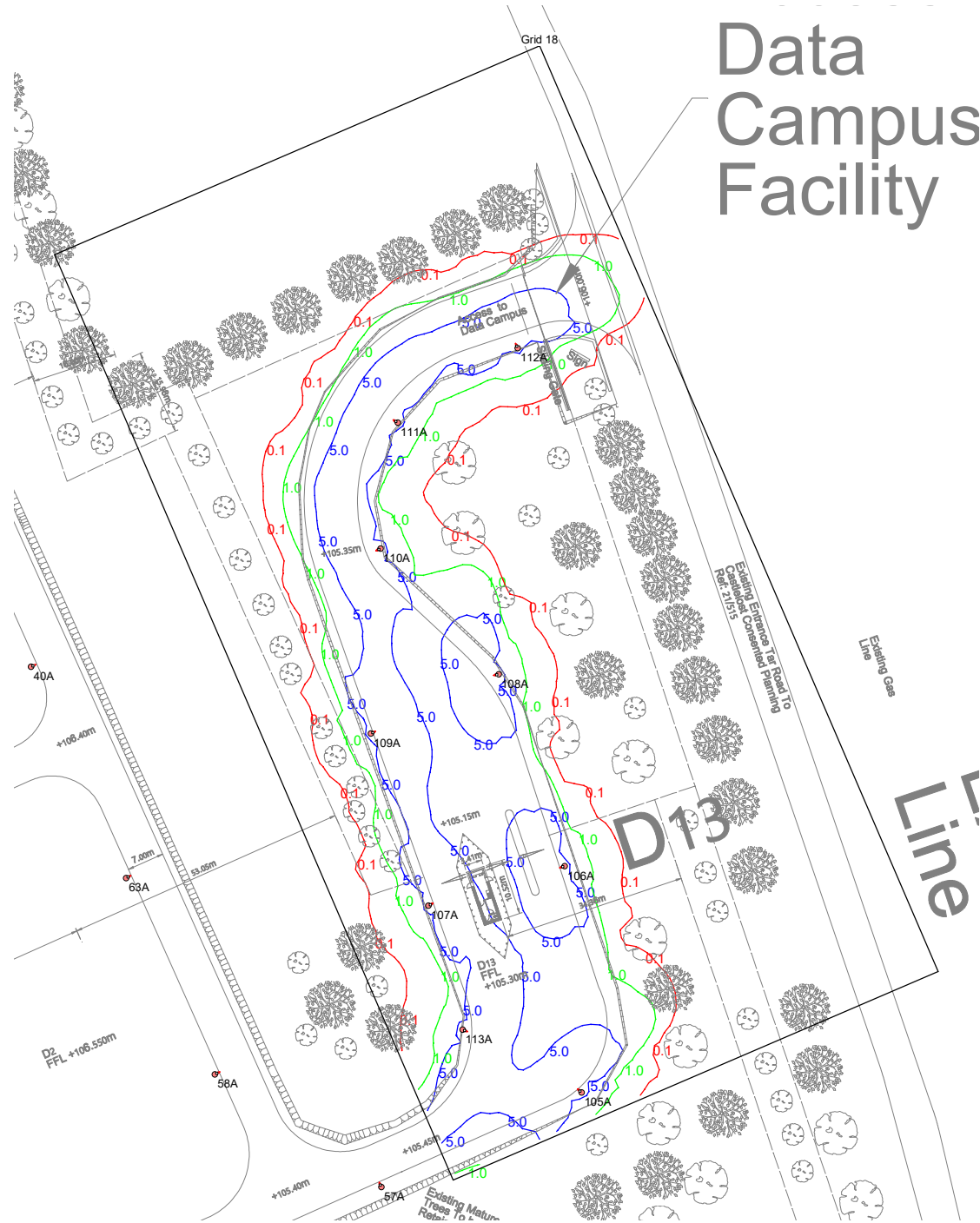
Results

Eav	7.15
Emin	3.20
Emax	10.23
Emin/Emax	0.31
Emin/Eav	0.45

Horizontal Illuminance (lux)

Grid 18

Data
Campus
Facility



Results

Eav	5.69
Emin	1.28
Emax	10.66
Emin/Emax	0.12
Emin/Eav	0.22

DATE: 17 March 2026

DESIGNER: Don Kinghan

PROJECT No: DAR25411

PROJECT NAME: Red Admiral DC Ltd - Grids 19 - 35 + Bat Roost R1

DARAMACK

Exterior Lighting Design

Lighting designed to the recommendations of BS5489-1:2020 and
CIBSE Society of Light and Lighting - Lighting Handbook.

Internal roads - BS5489-1:2020 Lighting Class P4
Maintained average illuminance >5.0Lux
Minimum point illuminance >1.0Lux

Xref MASTER PLAN - FI v1 Feb 2026.dwg

Outdoor Lighting Report

PREPARED BY: W Don Kinghan
www.daramacklighting.co.uk

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 19	644464.66	738892.41	174.00	39.00	1.50	1.50
2	Grid 20	644652.17	738883.44	284.00	42.00	1.50	1.50
3	Grid 21	644750.39	738828.84	294.00	42.00	1.50	1.50
4	Grid 22	644642.96	738876.34	84.00	21.00	1.50	1.50
5	Grid 23	644675.49	738949.88	84.00	21.00	1.50	1.50
6	Grid 24	644706.81	739016.67	84.00	21.00	1.50	1.50
7	Grid 25	644723.77	739048.60	84.00	21.00	1.50	1.50
8	Grid 26	644757.42	739118.69	84.00	27.00	1.50	1.50
9	Grid 27	644530.64	738827.65	42.00	87.00	1.50	1.50
10	Grid 28	644565.28	738817.13	123.00	93.00	1.50	1.50
11	Grid 29	644738.72	738823.26	93.00	48.00	1.50	1.50
12	Grid 30	644812.63	738826.94	33.00	12.00	1.50	1.50
13	Grid 31	644781.22	738844.47	105.00	24.00	1.50	1.50
14	Grid 32	645142.74	738916.87	225.00	57.00	1.50	1.50
15	Grid 33	645276.98	738812.37	66.00	144.00	1.50	1.50
16	Grid 34	645354.44	738825.72	66.00	120.00	1.50	1.50
17	Grid 35	645103.02	738959.13	48.00	93.00	1.50	1.50
18	Bat Roost - vertical plane	644047.20	739163.34	10.00	5.00	0.50	0.50

Luminaires



Luminaire A Data

Supplier	Philips
Type	BGP292 DW50 BL1
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	6.00
File Name	LumiStreet Gen2 Mini_BGP292_DW50 BL1_6000_40LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.83
Lum. Int. Class	G3
No. in Project	82

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target		
									X	Y	Z
1	A	644466.61	738909.06	6.00	349.00	0.00	0.00	0.40			
2	A	644502.09	738913.39	6.00	275.00	0.00	0.00	0.40			
3	A	644546.43	738913.16	6.00	266.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
4	A	644586.02	738917.05	6.00	285.00	0.00	0.00	0.40			
5	A	644577.24	738895.42	6.00	187.00	0.00	0.00	0.40			
6	A	644620.29	738909.65	6.00	240.00	0.00	0.00	0.40			
7	A	644639.13	738890.77	6.00	64.00	0.00	0.00	0.40			
8	A	644638.05	738917.99	6.00	332.00	0.00	0.00	0.40			
9	A	644656.08	738954.07	6.00	328.00	0.00	0.00	0.40			
10	A	644685.85	738961.46	6.00	241.00	0.00	0.00	0.40			
11	A	644673.68	738989.62	6.00	333.00	0.00	0.00	0.40			
12	A	644692.71	739029.22	6.00	333.00	0.00	0.00	0.40			
13	A	644712.21	739068.85	6.00	333.00	0.00	0.00	0.40			
14	A	644731.52	739107.53	6.00	333.00	0.00	0.00	0.40			
15	A	644761.59	739131.32	6.00	241.00	0.00	0.00	0.40			
16	A	644720.48	739028.69	6.00	241.00	0.00	0.00	0.40			
17	A	644735.17	739060.38	6.00	239.00	0.00	0.00	0.40			
18	A	644731.59	738844.95	6.00	63.00	0.00	0.00	0.40			
19	A	644737.11	738865.96	6.00	333.00	0.00	0.00	0.40			
20	A	644754.90	738902.20	6.00	333.00	0.00	0.00	0.40			
21	A	644771.87	738936.88	6.00	333.00	0.00	0.00	0.40			
22	A	644748.77	738920.96	6.00	67.00	0.00	0.00	0.40			
23	A	644789.13	738972.38	6.00	333.00	0.00	0.00	0.40			
24	A	644803.63	739001.03	6.00	333.00	0.00	0.00	0.40			
25	A	644823.90	739042.24	6.00	329.00	0.00	0.00	0.40			
26	A	644801.26	739027.81	6.00	246.00	0.00	0.00	0.40			
27	A	644784.55	738996.60	6.00	244.00	0.00	0.00	0.40			
28	A	644838.06	739071.02	6.00	333.00	0.00	0.00	0.40			
29	A	644832.05	739096.79	6.00	243.00	0.00	0.00	0.40			
30	A	644853.55	739102.48	6.00	333.00	0.00	0.00	0.40			
31	A	644766.56	738821.21	6.00	51.00	0.00	0.00	0.40			
32	A	644800.05	738796.49	6.00	50.00	0.00	0.00	0.40			
33	A	644668.15	738876.52	6.00	60.00	0.00	0.00	0.40			
34	A	644699.48	738860.93	6.00	62.00	0.00	0.00	0.40			
35	A	644700.84	738843.35	6.00	158.00	0.00	0.00	0.40			
36	A	644691.36	738824.18	6.00	157.00	0.00	0.00	0.40			
37	A	644716.27	738946.17	6.00	243.00	0.00	0.00	0.40			
38	A	644750.90	739013.32	6.00	242.00	0.00	0.00	0.40			
39	A	644767.48	739044.17	6.00	242.00	0.00	0.00	0.40			

Layout Continued

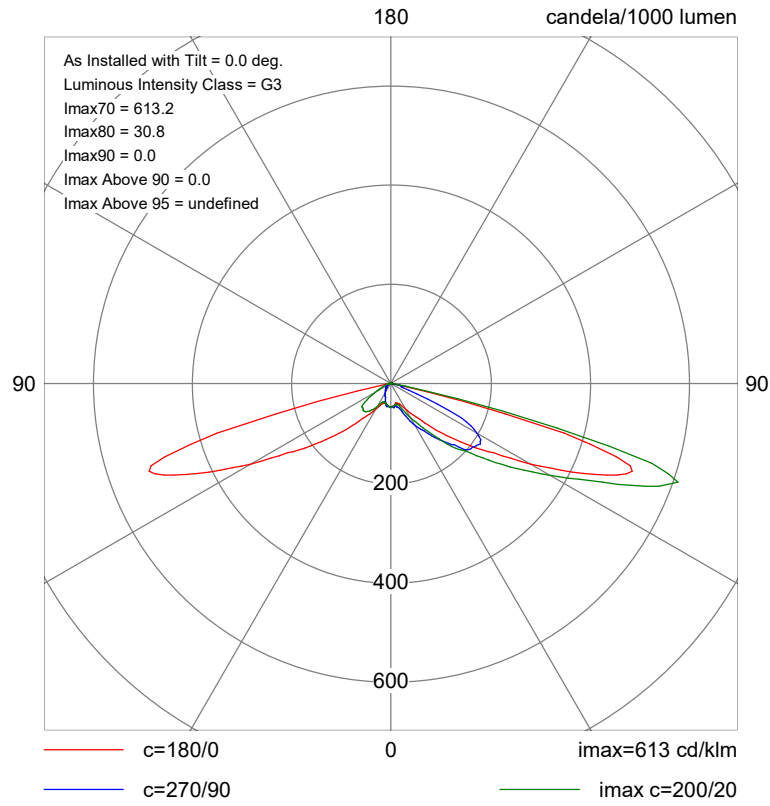
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
40	A	644797.24	739113.72	6.00	240.00	0.00	0.00	0.40			
41	A	644573.98	738866.60	6.00	333.00	0.00	0.00	0.40			
42	A	644566.93	738830.60	6.00	154.00	0.00	0.00	0.40			
43	A	644602.60	738856.59	6.00	236.00	0.00	0.00	0.40			
44	A	644602.77	738856.92	6.00	62.00	0.00	0.00	0.40			
45	A	644640.58	738837.65	6.00	241.00	0.00	0.00	0.40			
46	A	644640.81	738838.09	6.00	64.00	0.00	0.00	0.40			
47	A	644616.10	738886.79	6.00	238.00	0.00	0.00	0.40			
48	A	644596.57	738830.58	6.00	330.00	0.00	0.00	0.40			
49	A	644635.72	738811.26	6.00	333.00	0.00	0.00	0.40			
50	A	644654.51	738867.63	6.00	240.00	0.00	0.00	0.40			
51	A	644669.66	738841.75	6.00	156.00	0.00	0.00	0.40			
52	A	644597.71	738878.54	6.00	334.00	0.00	0.00	0.40			
53	A	644811.58	738812.04	6.00	229.00	0.00	0.00	0.40			
54	A	644777.70	738852.72	6.00	136.00	0.00	0.00	0.40			
55	A	644812.68	738828.67	6.00	140.00	0.00	0.00	0.40			
56	A	644812.97	738878.21	6.00	123.00	0.00	0.00	0.40			
57	A	644844.84	738904.12	6.00	153.00	0.00	0.00	0.40			
58	A	645349.88	738940.68	6.00	208.00	0.00	0.00	0.40			
59	A	645310.40	738962.08	6.00	276.00	0.00	0.00	0.40			
60	A	645266.89	738959.60	6.00	269.00	0.00	0.00	0.40			
61	A	645221.62	738957.09	6.00	272.00	0.00	0.00	0.40			
62	A	645177.02	738949.64	6.00	298.00	0.00	0.00	0.40			
63	A	645151.96	738942.04	6.00	253.00	0.00	0.00	0.40			
64	A	645153.58	738925.73	6.00	172.00	0.00	0.00	0.40			
65	A	645258.78	738941.45	6.00	19.00	0.00	0.00	0.40			
66	A	645278.09	738936.09	6.00	288.00	0.00	0.00	0.40			
67	A	645269.03	738901.52	6.00	19.00	0.00	0.00	0.40			
68	A	645300.92	738910.12	6.00	197.00	0.00	0.00	0.40			
69	A	645279.99	738863.72	6.00	17.00	0.00	0.00	0.40			
70	A	645311.63	738872.03	6.00	198.00	0.00	0.00	0.40			
71	A	645289.46	738833.00	6.00	20.00	0.00	0.00	0.40			
72	A	645299.69	738858.32	6.00	109.00	0.00	0.00	0.40			
73	A	645354.69	738903.76	6.00	17.00	0.00	0.00	0.40			
74	A	645345.67	738879.54	6.00	19.00	0.00	0.00	0.40			
75	A	645376.58	738875.02	6.00	109.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
76	A	645368.28	738856.09	6.00	17.00	0.00	0.00	0.40			
77	A	645121.34	738986.42	6.00	190.00	0.00	0.00	0.40			
78	A	645122.15	739032.20	6.00	195.00	0.00	0.00	0.40			
79	A	645100.48	739026.36	6.00	19.00	0.00	0.00	0.40			
8 duplicate	A	644094.25	739159.39	6.00	21.00	0.00	0.00	0.40			
59 duplicate	A	644107.34	739129.62	6.00	20.00	0.00	0.00	0.40			
1 duplicate	A	644103.78	739185.89	6.00	294.00	0.00	0.00	0.40			

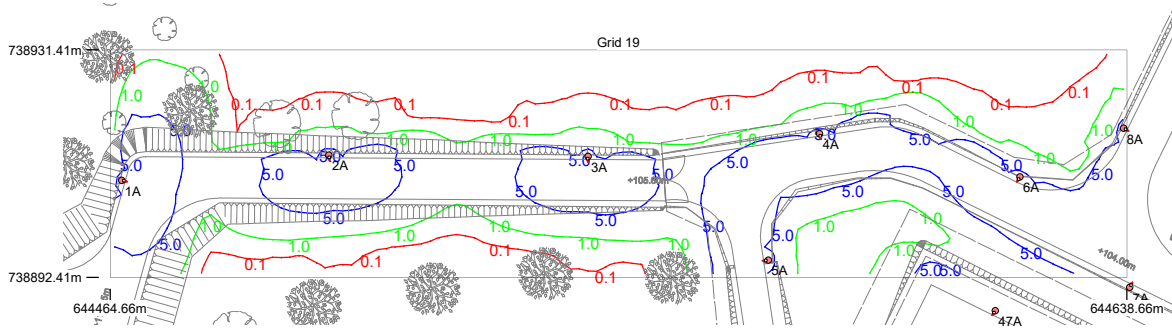
Polar Diagram

Luminaire A BGP292 DW50 BL1



Horizontal Illuminance (lux)

Grid 19

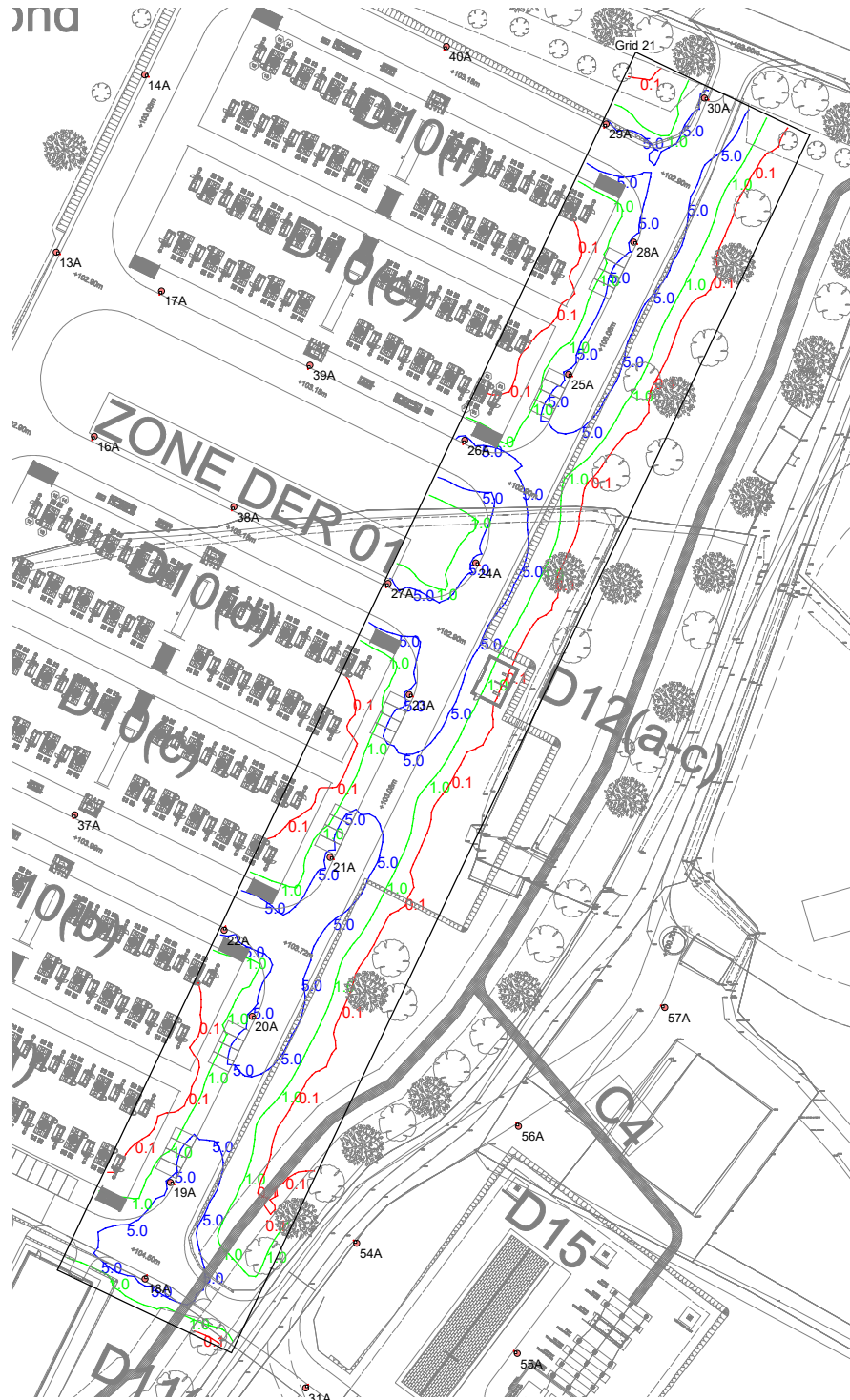


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 21

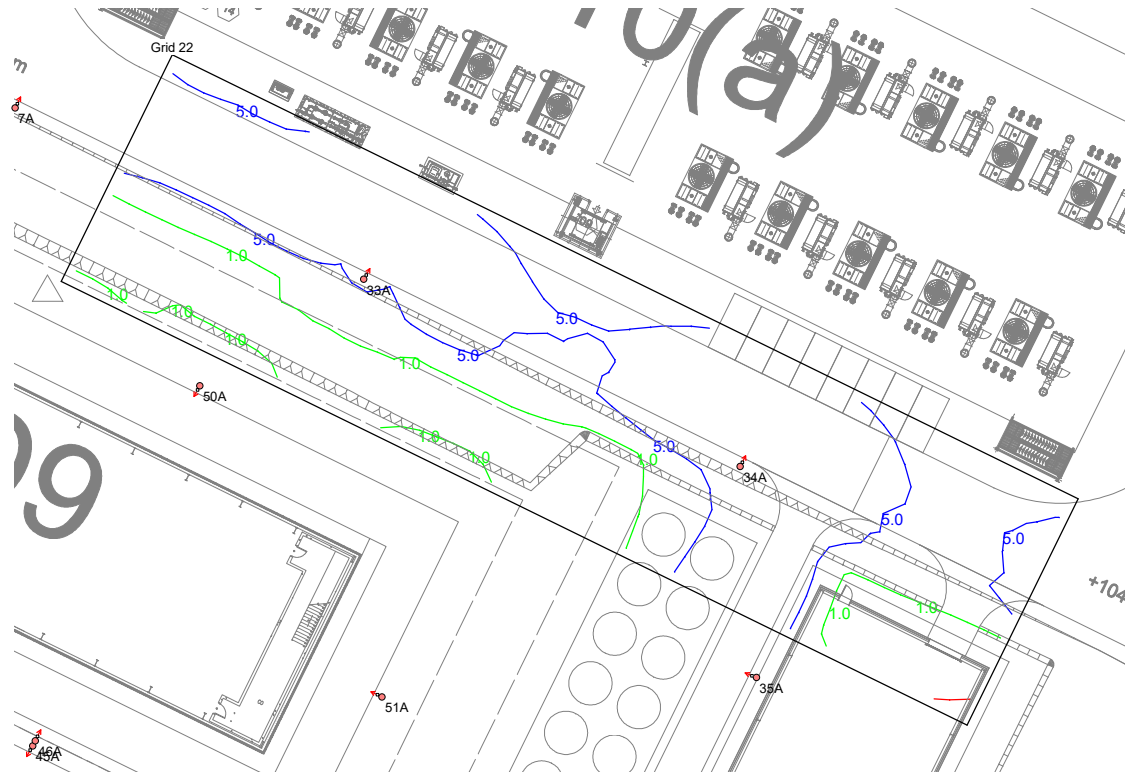


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 22

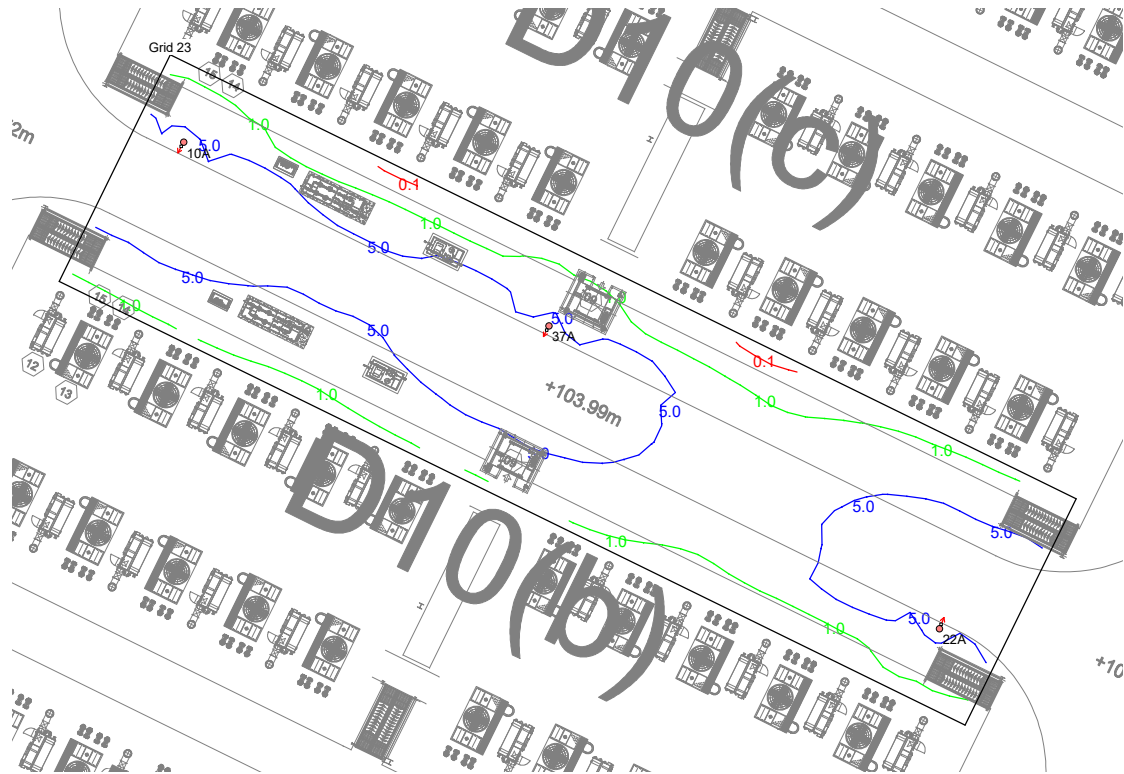


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 23

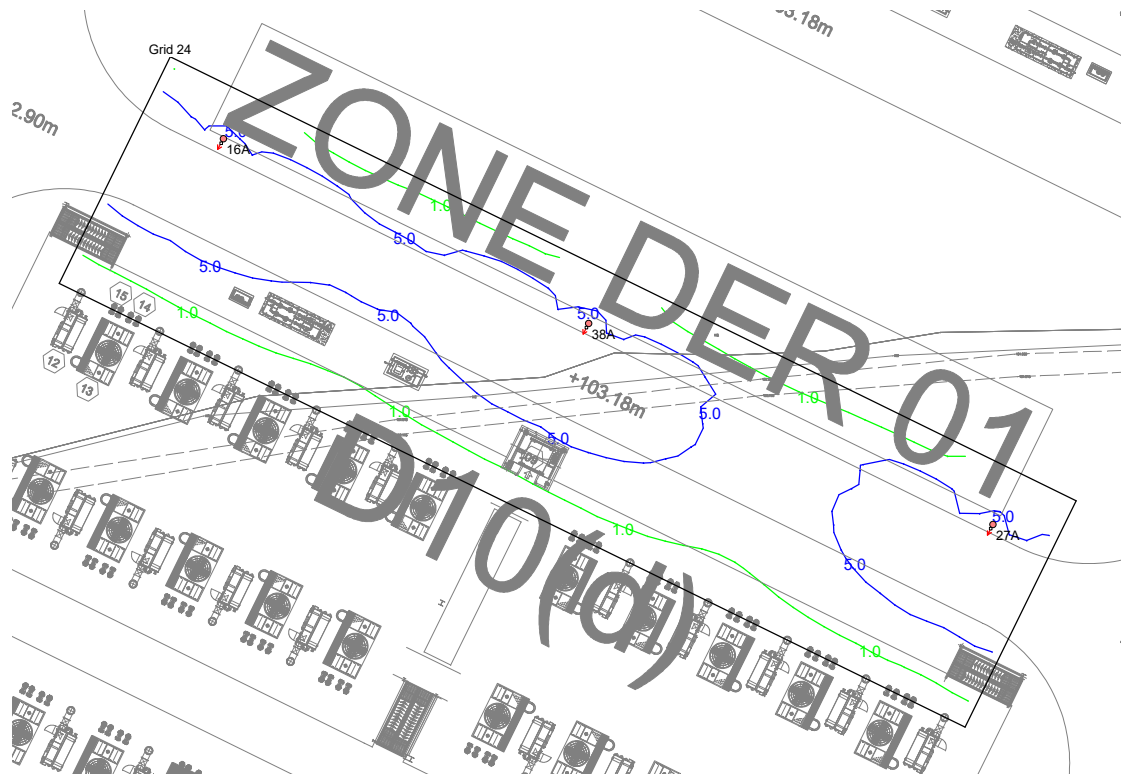


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 24

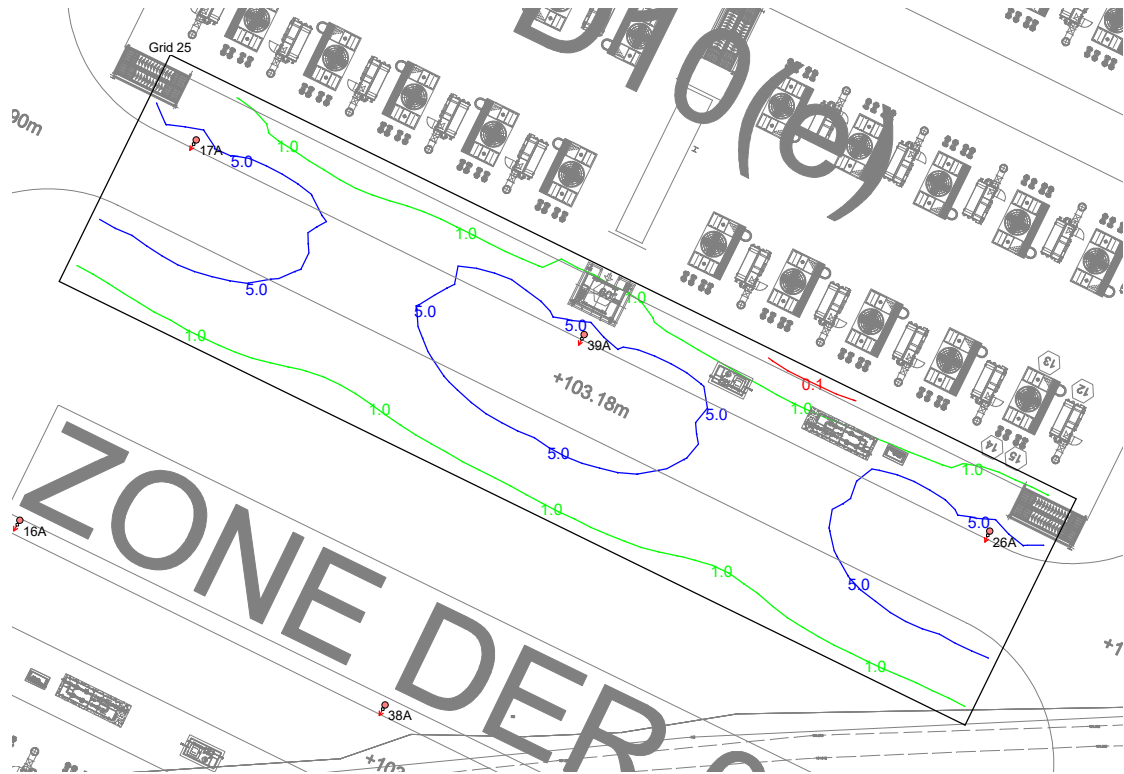


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 25

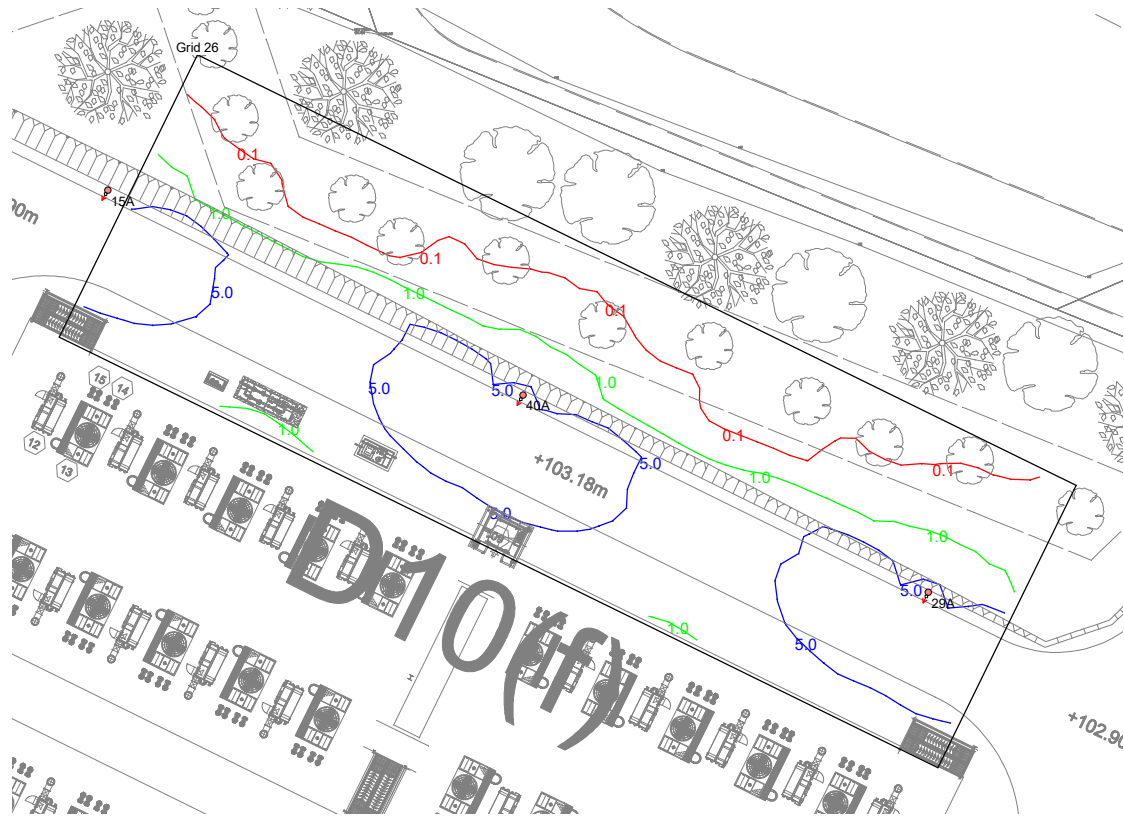


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 26



Results

Eav	6.82
Emin	1.35
E _{max}	12.39
E _{min} /E _{max}	0.11
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)

Grid 27

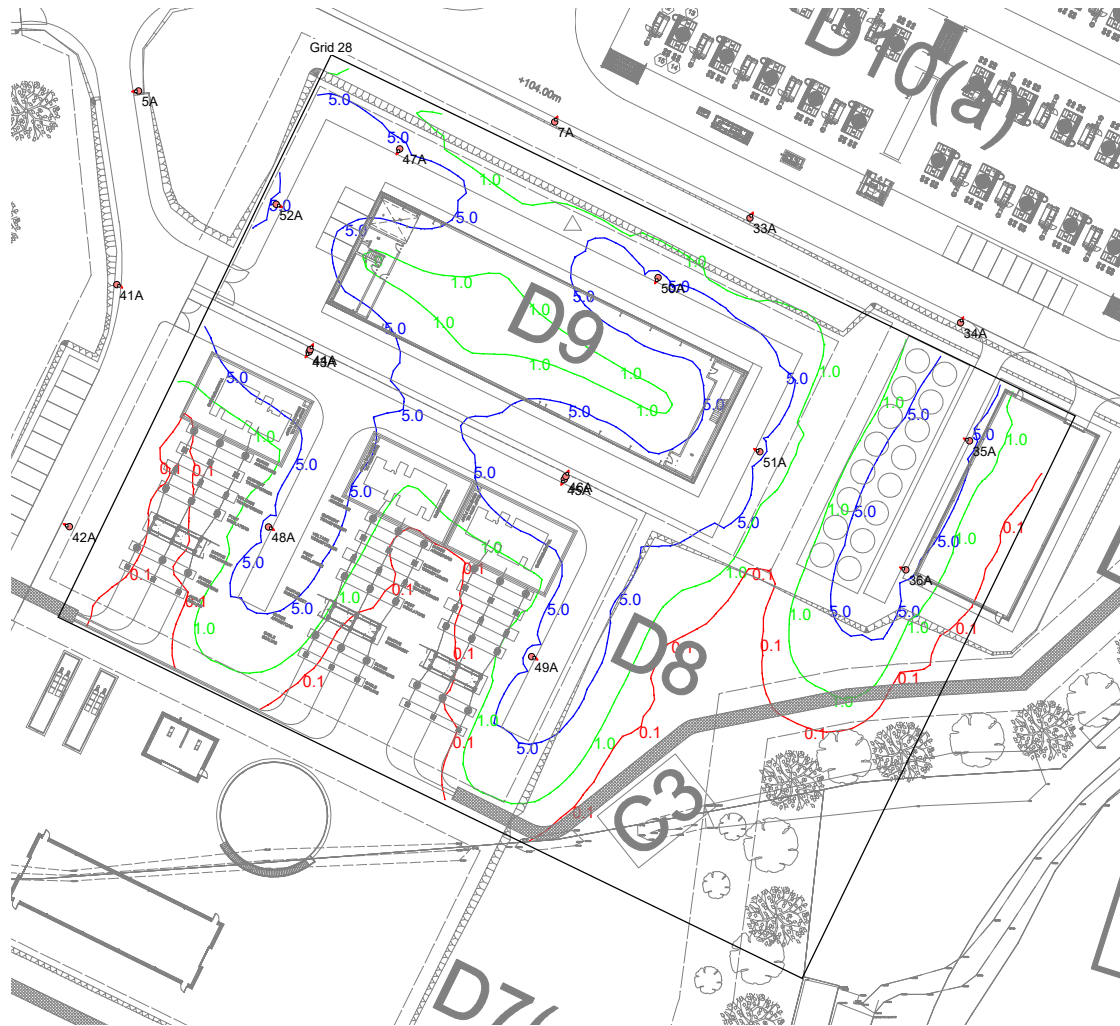


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 28

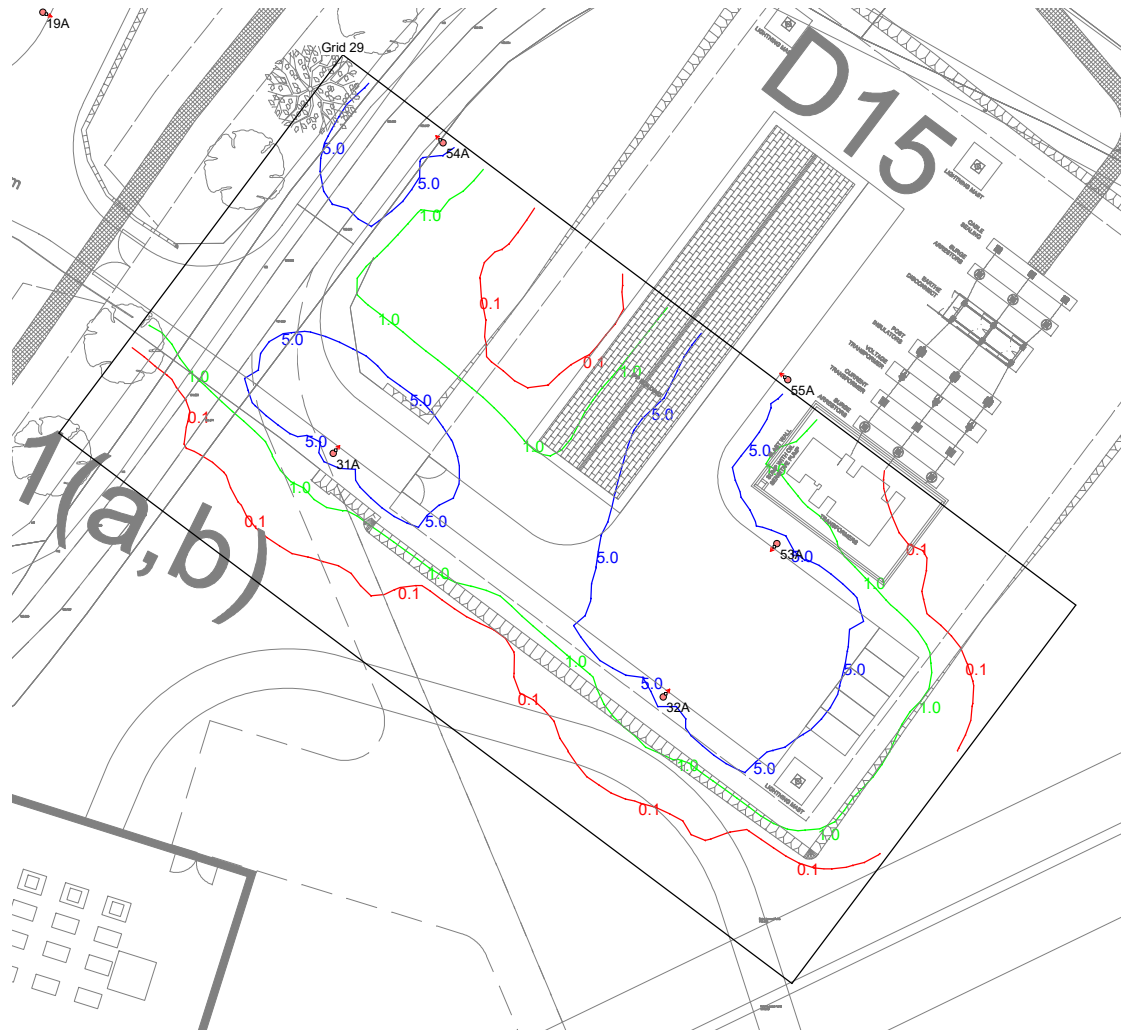


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 29

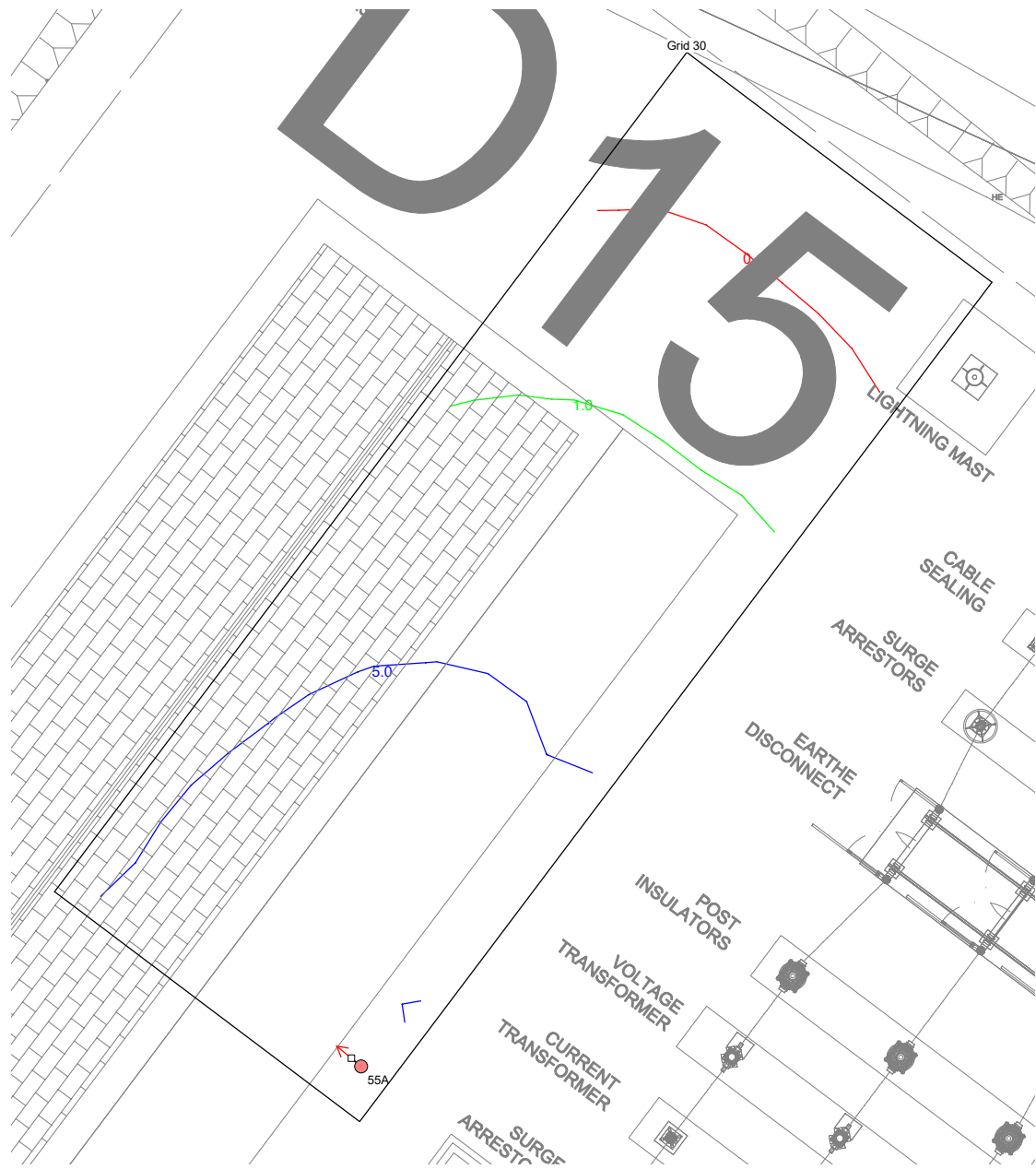


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 30

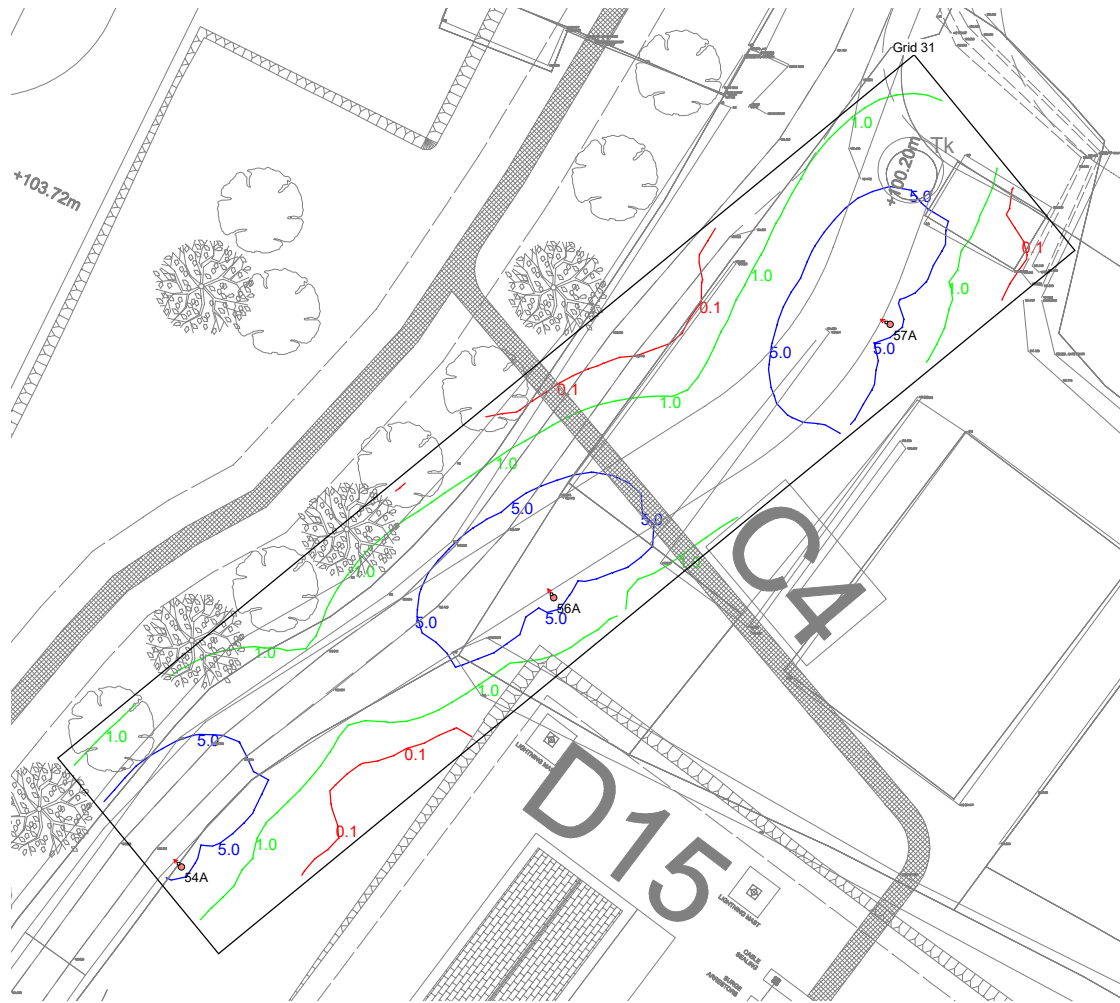


Results

Eav	6.82
Emin	1.35
E _{max}	12.39
E _{min} /E _{max}	0.11
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)

Grid 31

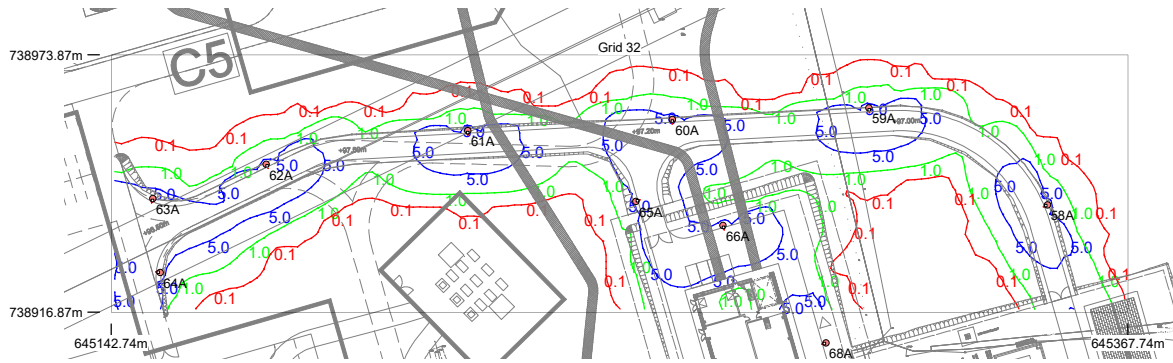


Results

Eav	6.82
Emin	1.35
E _{max}	12.39
E _{min} /E _{max}	0.11
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)

Grid 32

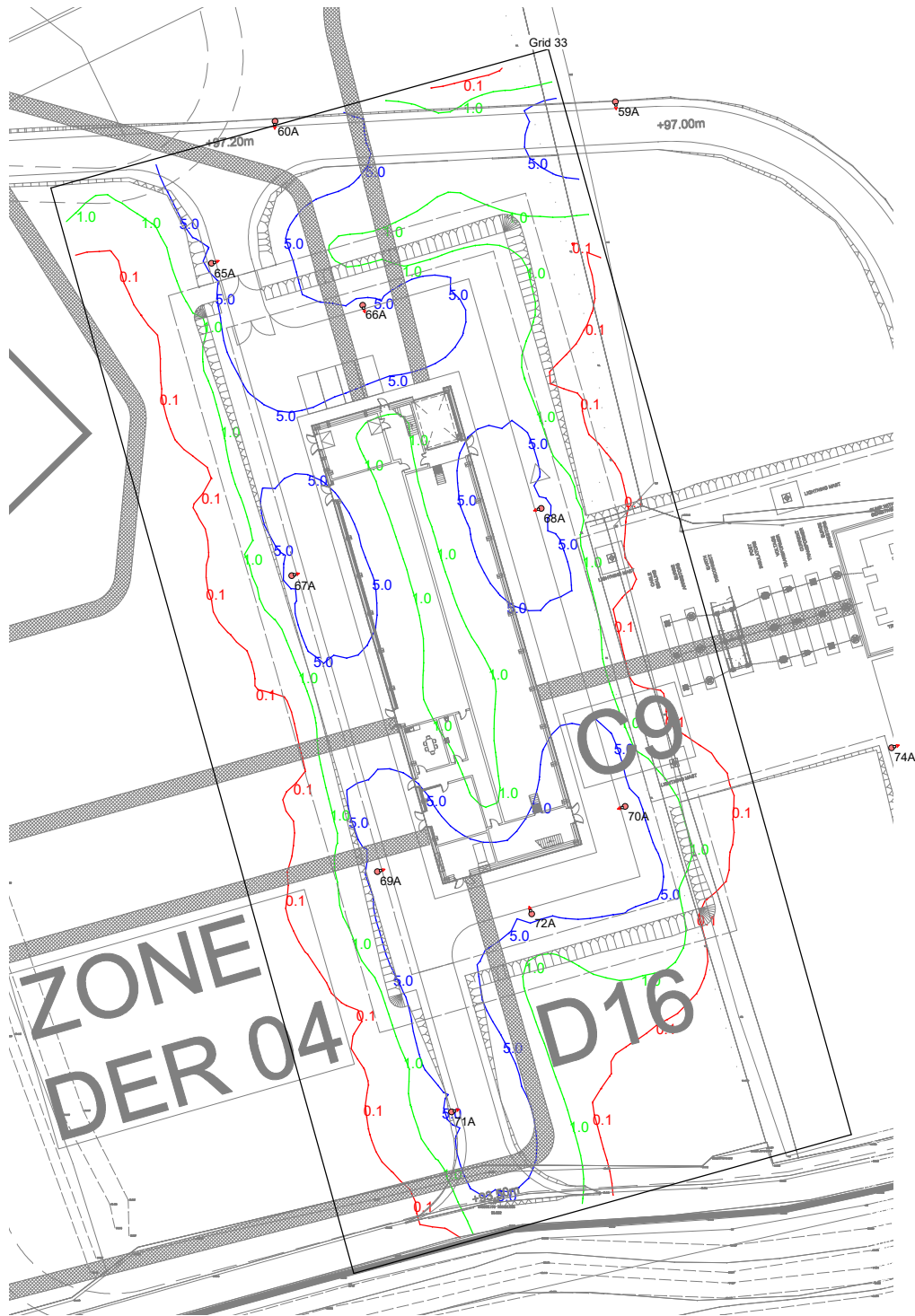


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 33

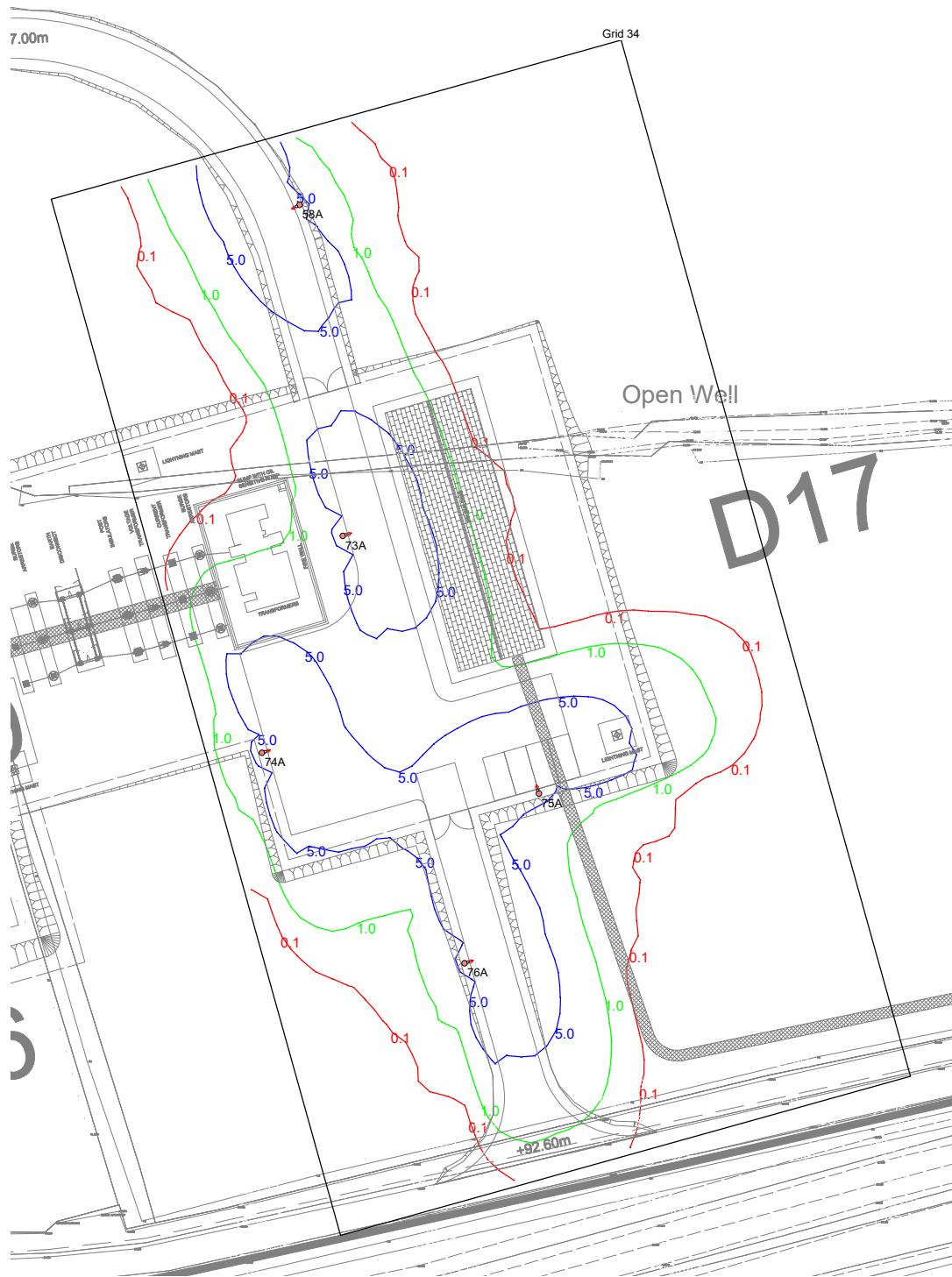


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 34

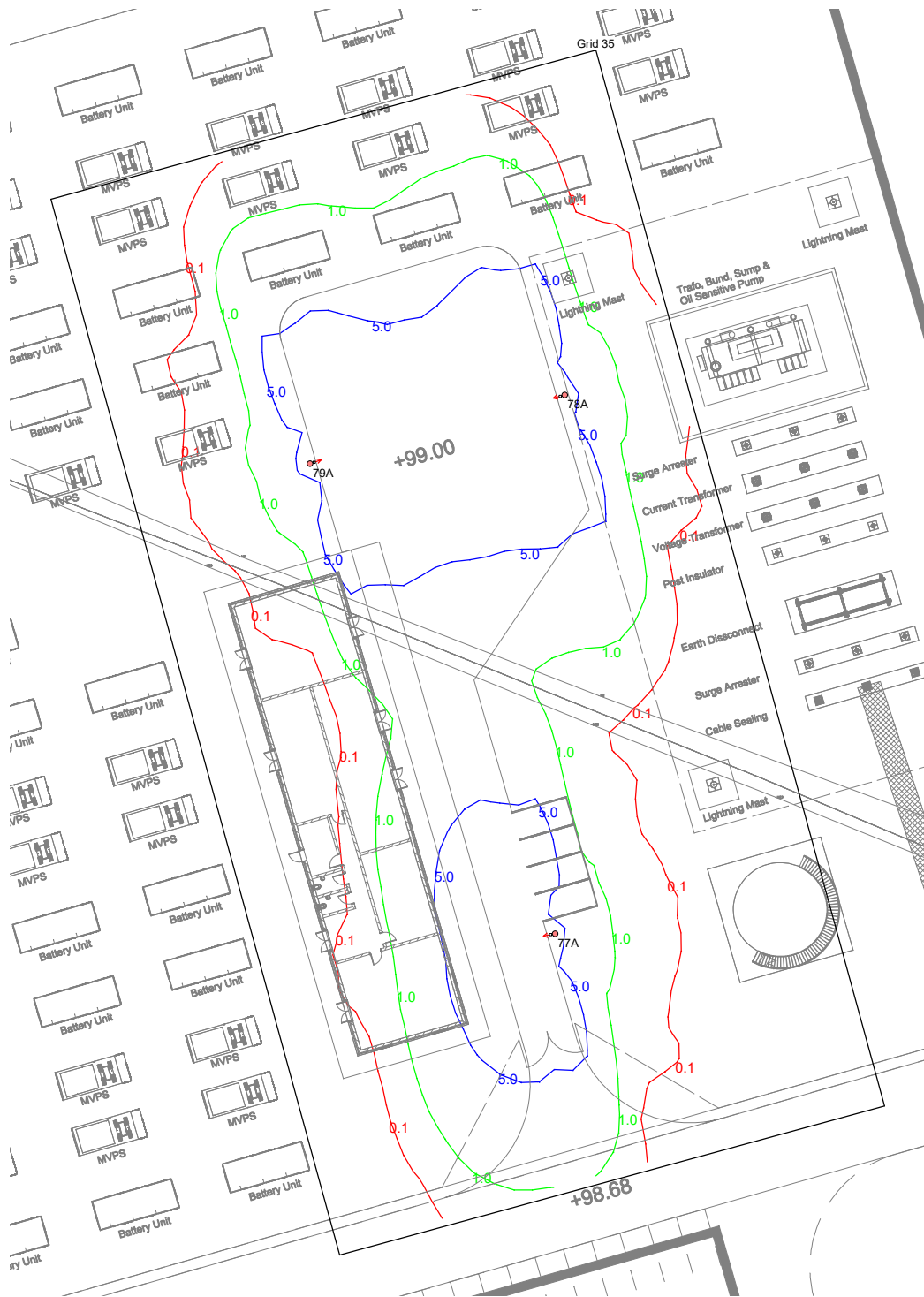


Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 35



Results

Eav	6.82
Emin	1.35
Emax	12.39
Emin/Emax	0.11
Emin/Eav	0.20

Illuminance (lux)

Bat Roost - vertical plane

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Results

Eav	6.82
Emin	1.35
E _{max}	12.39
E _{min} /E _{max}	0.11
E _{min} /E _{av}	0.20

1. LIGHTING DESIGN

Lighting Levels

Internal road lighting designed to the recommendations of BS5489-1:2020 and Lighting Class P4 for roads. This is based on a safe movement of traffic level for motorized and pedestrians in an Environmental Zone 3 (sparsely inhabited rural areas), speed limit <30mph, quiet traffic flow, occasional vehicles which can be applied to the site roads.

Guidance was also taken from the SLL Lighting Handbook and Table 17.1 - Illumination recommendations for exterior workplaces. (Excerpts shown below from the respective guidance)

Table A.5 - Lighting classes for subsidiary roads

Traffic flow	Lighting class		
	E1 to E4 ⁽¹⁾	E1 to E2 ⁽²⁾	E3 to E4 ⁽³⁾
Pedestrian and cyclists only	P5	P4	P3
Speed limit v ≤ 30 mph	P5	P5	P4
Speed limit v > 30 mph	P6	P5	P4

Class	Horizontal illuminance		Additional requirement if facial recognition is necessary	
	E _{min} [maintained] lx	E _{max} [maintained] lx	E _{min} [maintained] lx	E _{max} [maintained] lx
P1	15.0	3.00	5.0	5.0
P2	10.0	2.00	3.0	2.0
P3	7.50	1.50	2.5	1.5
P4	5.00	1.00	1.5	1.0
P5	3.00	0.60	1.0	0.6
P6	2.00	0.40	0.6	0.2

Activity	Minimum maintained mean illuminance (lx)	Illuminance uniformity (minimum/average)	Typical applications
Safe pedestrian movement in low risk areas	5	0.15	Industrial storage areas with only occasional traffic

Lighting calculations have been produced for the compound using the industry recognized Lighting Reality (Version 2.1). The lux level targets should be read in conjunction with the results in "3.RESULTS".

2. LUMINAIRE

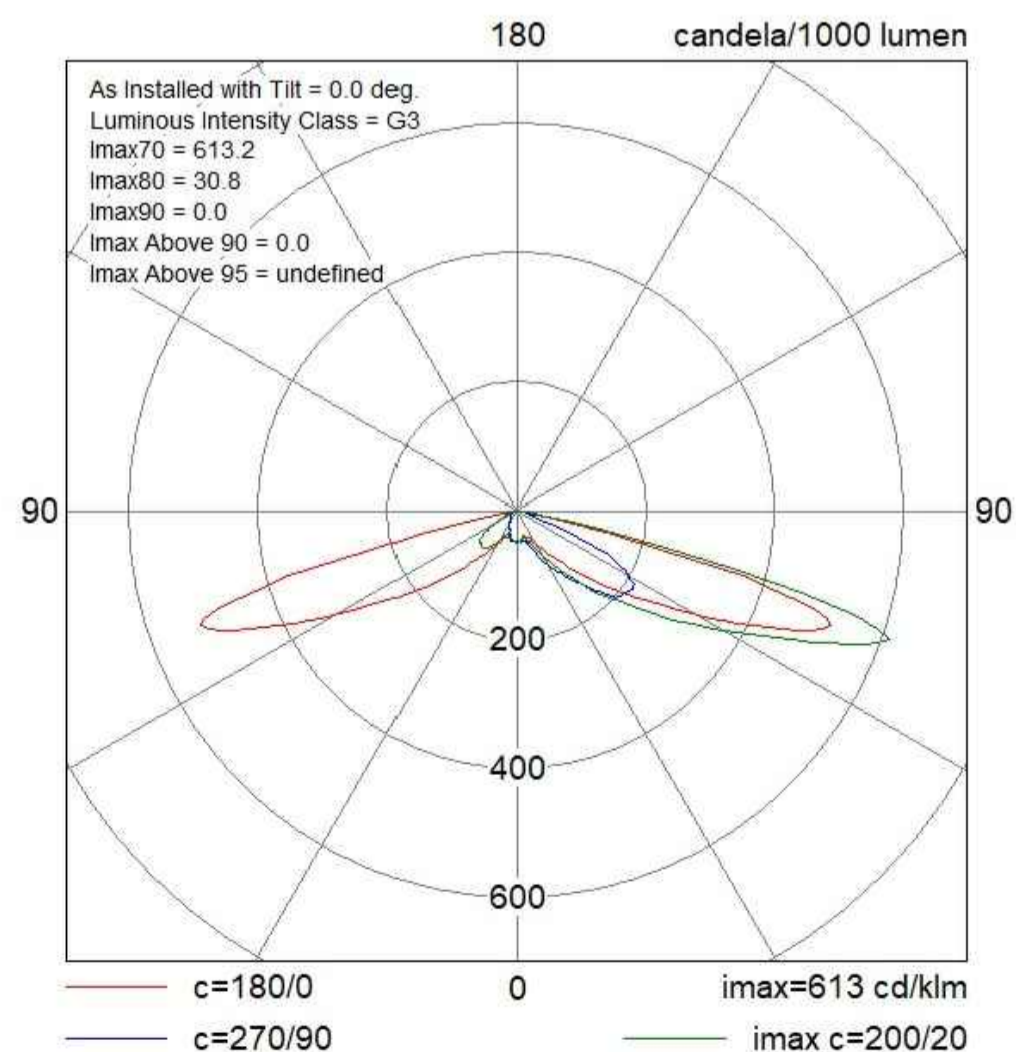
Lighting Arrangement

Lighting columns are arranged to achieve the required minimum lighting levels while avoiding excessive light spill onto the site perimeter. These lighting columns are installed with luminaires mounted at 6m, with factory fitted rear shields, a 0° tilt angle and a G3 rating. (This is a rating (G1 - G6) of the control of obtrusive light and upward light output with G6 being the highest.)



The Philips Lighting luminaire range - Philips LumiStreet Gen2 Mini - has been selected to provide the lighting. Philips are a reputable and approved manufacturer which have lighting units installed on Ireland's road networks and many exterior lighting applications. Polar diagram, below, for the G3 rated luminaire right shows the light distribution.

Luminaire A BGP292 DW50 BL1



3. RESULTS

Results below are taken from the accompanying 2No. lighting calculation reports. The site area is broken down into 37No. number grids to cover the site area.

Grid	Eav	Emin	Emax	Emin/Emax	Emin/Eav
Grid 1	5.40	1.26	10.58	0.12	0.23
Grid 2	6.16	1.31	13.93	0.09	0.21
Grid 3	5.91	1.23	11.76	0.10	0.21
Grid 4	6.23	1.35	10.79	0.13	0.22
Grid 5	5.43	1.07	11.89	0.09	0.20
Grid 6	6.55	1.35	17.91	0.08	0.21
Grid 7	5.75	1.25	10.31	0.12	0.22
Grid 8	6.41	1.27	12.06	0.11	0.20
Grid 9	6.42	1.61	11.35	0.14	0.25
Grid 10	6.39	2.30	15.13	0.15	0.36
Grid 11	6.01	1.20	10.52	0.11	0.20
Grid 12	6.78	1.56	11.68	0.13	0.23
Grid 13	9.38	5.28	12.39	0.43	0.56
Grid 14	6.94	1.38	15.12	0.09	0.20
Grid 15	7.22	4.89	10.36	0.47	0.68
Grid 16	6.16	3.39	10.52	0.32	0.55
Grid 17	7.15	3.20	10.23	0.31	0.45
Grid 18	5.69	1.28	10.66	0.12	0.22
Grid 19	6.82	1.35	12.39	0.11	0.20
Grid 20	6.42	1.35	12.44	0.11	0.21
Grid 21	6.64	1.35	12.91	0.10	0.20
Grid 22	7.01	3.84	12.01	0.32	0.55
Grid 23	6.55	2.70	10.41	0.26	0.41
Grid 24	6.68	3.63	10.50	0.35	0.54
Grid 25	6.29	3.50	10.45	0.34	0.56
Grid 26	5.82	2.75	10.24	0.27	0.47
Grid 27	7.04	2.28	10.66	0.21	0.32
Grid 28	7.83	1.70	14.61	0.12	0.22
Grid 29	6.15	1.30	10.82	0.12	0.21
Grid 30	5.64	1.34	10.15	0.13	0.24
Grid 31	5.62	1.18	10.40	0.11	0.21
Grid 32	6.29	1.25	15.31	0.08	0.20
Grid 33	7.58	1.65	15.40	0.10	0.20
Grid 34	6.28	1.63	11.33	0.14	0.26
Grid 35	6.31	1.49	10.65	0.14	0.24
Bat roost - vertical plane - see Sheet 7.	0.00	0.00	0.00	0.00	0.00

NOTES:

- The electricity storage facility will not be a manned facility. It is anticipated that personnel will only be on site for planned maintenance which would be expected to be carried out during daylight hours.
- The chosen lighting level has been selected from the BS5489-1:2020 and SLL - Lighting Handbook to provide safe movement of both personnel and vehicular traffic were the risk level is low and with only occasional vehicles.
- Light spill has been limited to approximately 1.0Lux where the lighting is next to a site boundary
- LIGHT SPILL MITIGATION MEASURES
- The luminaires have been proposed with integral rear shields and a mounting tilt of 0° to reduce back spill lighting and upward light. The limitation to upward light is shown in the polar diagram where it is shown there is no light output at 90° or above. Glare is controlled by the use of glare rated luminaires (G3). Therefore, Back-light, upward light and Glare (BUG) has been considered to a high level. Additional lighting mitigation measures could be applied such as photocell control to switch lights on and off at dusk and dawn and programmed off at preset times such as the example switching regime below.
- Vertical planes calculations have been provided in the report on the bat roost west of area D3. It shows no lighting being measured on this roost.
- There are a multitude of potential additional electronic control measures ranging from preset dim of individual luminaires to a full central management system which would include motion sensors that would activate the lighting only when movement is detected and programmable variable dimming regimes such as the Philips Interact and Multisensor system which can operate as a standalone installation or be locally networked and remotely managed by the Interact software. However, the method and extent of lighting control will be a decision based on the operational requirements of the client and available budget.
- For ecology purposes it is recommended that some form of illumination reduction was provided either by the example switching regime below or by a dimming to, for example, 50% during these same times.

Example switching/dimming regime.
 Dusk - 22:00hrs - ON
 22:00 - 05:00hrs - OFF or 50% dim
 06:00 - Dawn - ON

It is anticipated the buildings within the facility will have perimeter wall-mounted lighting installed which should select fittings with downward optical lighting control. For maintenance purposes portable lighting would be recommended to be carried by the maintenance personnel to provide localized lighting where required which further reduces the amount of permanent site lighting required.

Additional guidance has been taken from the Institution of Lighting Professionals (ILP) guidance documents "Bats and Lighting in the UK" and "Dark Sky Ireland - Policy Document"

CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

- Do not scale from this drawing.
- Site verify all dimensions prior to construction
- Report all discrepancies to the Drawing Originator immediately
- This drawing is to be read in conjunction with all relevant documents and drawings

Notes:

Rev	Date	Description	Dwn	Chkd
R1	17/03/25	NEW BASE DRAWING - GRIDS UPDATED	WDK	WDK
R0	01/06/25	FIRST ISSUE	WDK	WDK



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Crown Copyright. Unauthorized reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

DARAMACK
 EXTERIOR LIGHTING DESIGN
 www.daramacklighting.co.uk

THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. LONDON, TEL: 07500 986 007

PRELIMINARY

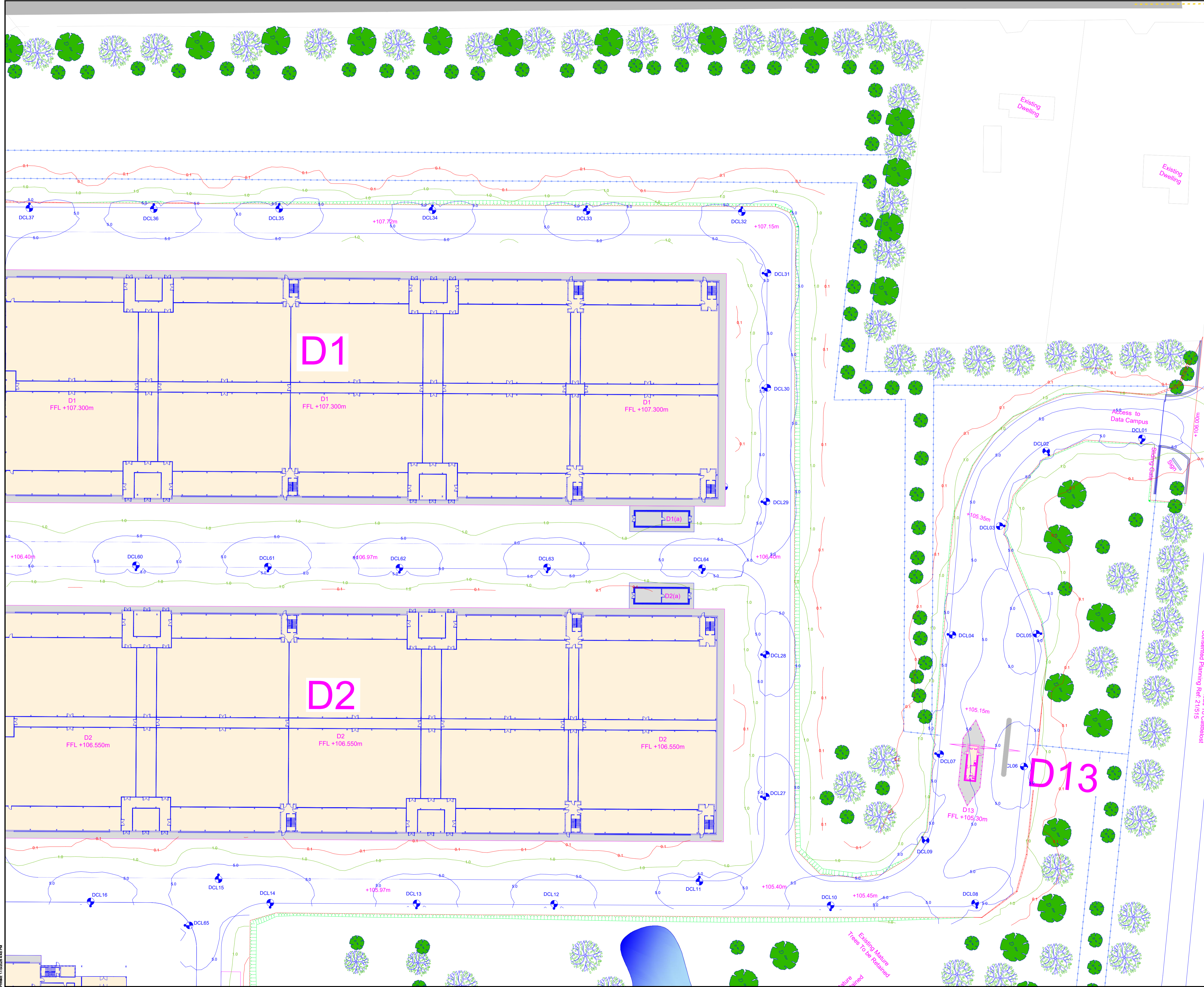
Project Name
RED ADMIRAL DC LTD, DATA CENTRE

Drawn by WDK	Drawn Date 01/06/2025	Checked by WDK	Checked Date 01/06/25
Approved by	Approved Date	Scale NTS	

Title
 Original drawing sheet is A1

EXTERNAL LIGHTING LAYOUT RESULTS AND SPECIFICATIONS

Drawing Number DAR25411/008	Revision R1
--------------------------------	----------------



CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

- Do not scale from this drawing.
- Site verify all dimensions prior to construction
- Report all discrepancies to the Drawing Originator immediately
- This drawing is to be read in conjunction with all relevant documents and drawings

- Notes:
- 177 Luminaire as Philips LumiStreet Gen2 Micro BGP291, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO post top mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
 - 2 x Luminaire as Philips LumiStreet Gen2 Micro BGP292, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO twin outreach bracket mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.

5.0 5.0Lux Contour Line - Target average illuminance
 1.0 1.0Lux Contour Line - Target minimum illuminance
 0.1 0.1Lux Contour Line - equivalent moon light

QUANTITIES ABOVE ARE THE TOTAL NUMBER OF PROPOSED UNITS ACROSS THE SITE.

LUX RATING CHART

Condition	Light Level (LUX)	Foot Candles (FC)
Sunlight	107,527	10,000
Daylight	10,752.70	1,000
Overcast Day	1,075.30	100
Very Dark Day	107.53	10
Twilight	10.75	1
Deep Twilight	1.08	0.1
Full Moon	0.108	0.01
Quarter Moon	0.0108	0.001
Starlight	0.0011	0.0001
Overcast Night	0.0001	0.00001

Rev	Date	Description	Drn	Chkd
R1	17/03/26	NEW BASE DRAWING	WDK	WDK
R0	01/06/25	FIRST ISSUE	WDK	WDK

Revisions



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorized reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. LIBRARY TEL: 07590 986 007

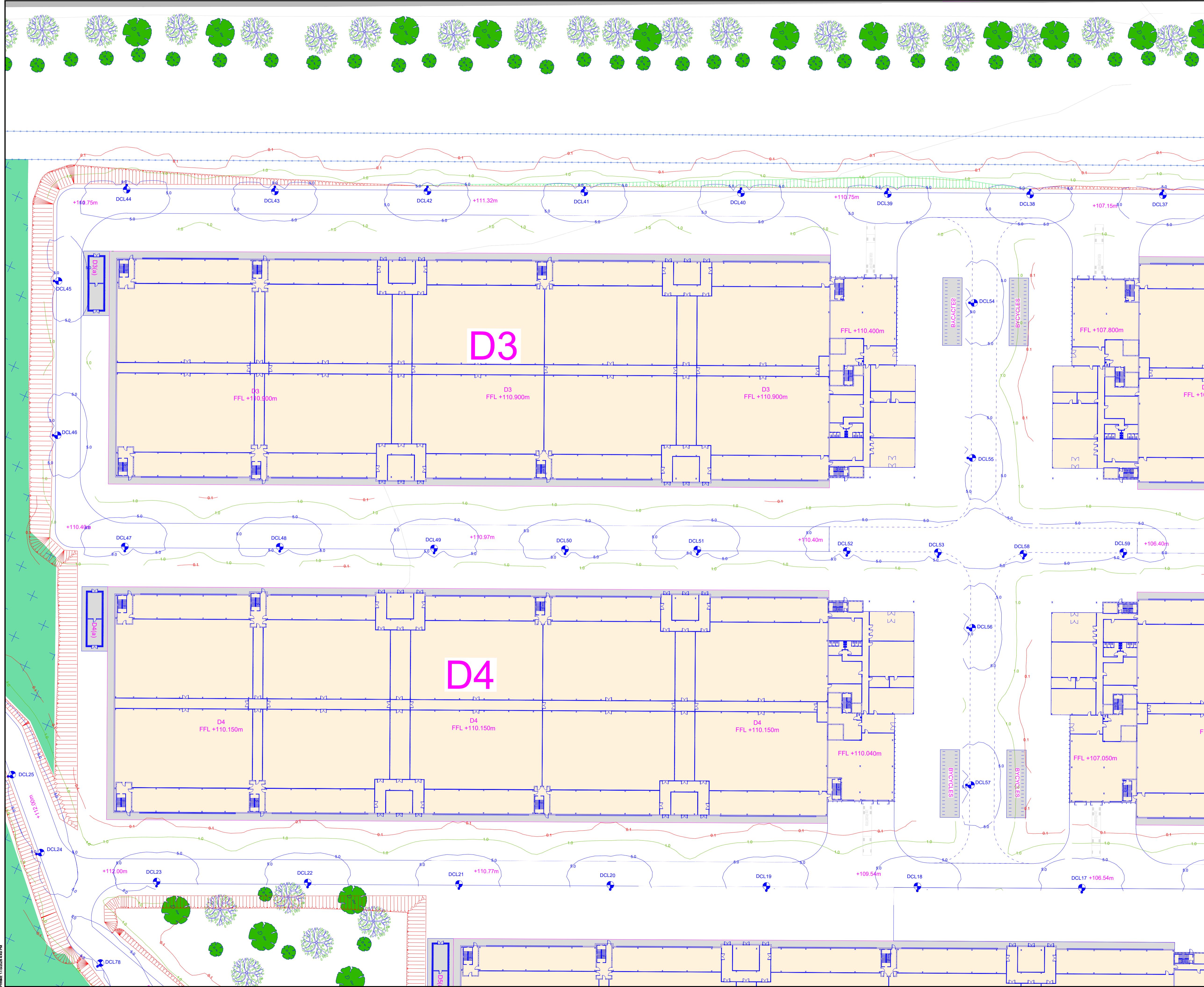
Drawing Status
PRELIMINARY

Project Name
RED ADMIRAL DC LTD, DATA CENTRE

Drawn by WDK	Drawn Date 01/06/2025	Checked by WDK	Checked Date 01/06/25
Approved by	Approved Date	Scale NTS	

Title
 Original drawing sheet is A1

EXTERNAL LIGHTING LAYOUT WITH LUX LEVEL CONTOURS SHEET 1 OF 7



CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

- Do not scale from this drawing.
- Site verify all dimensions prior to construction
- Report all discrepancies to the Drawing Originator immediately
- This drawing is to be read in conjunction with all relevant documents and drawings

- Notes:
- 177 Luminaire as Philips LumiStreet Gen2 Micro BGP291, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO post top mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
 - 2 Luminaire as Philips LumiStreet Gen2 Micro BGP292, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO twin outreach bracket mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
- 5.0 5.0Lux Contour Line - Target average illuminance
 1.0 1.0Lux Contour Line - Target minimum illuminance
 0.1 0.1Lux Contour Line - equivalent moon light

QUANTITIES ABOVE ARE THE TOTAL NUMBER OF PROPOSED UNITS ACROSS THE SITE.

LUX RATING CHART

Condition	Light Level (LUX)	Foot Candles (FC)
Sunlight	107,527	10,000
Daylight	10,752.70	1,000
Overcast Day	1,075.30	100
Very Dark Day	107.53	10
Twilight	10.75	1
Deep Twilight	1.08	0.1
Full Moon	0.108	0.01
Quarter Moon	0.0108	0.001
Starlight	0.0011	0.0001
Overcast Night	0.0001	0.00001

Rev	Date	Description	Dn	Chkd
R1	17/03/25	NEW BASE DRAWING		WDK/WDK
R0	01/06/25	FIRST ISSUE		WDK/WDK

Revisions



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorized reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. L081819 - TEL: 01793 986 007

Drawing Status: PRELIMINARY

Project Name: RED ADMIRAL DC LTD, DATA CENTRE

Drawn by: WDK	Drawn Date: 01/06/2025	Checked by: WDK	Checked Date: 01/06/25
Approved by:	Approved Date:	Scale: NTS	

Title: Original drawing sheet is A1

EXTERNAL LIGHTING LAYOUT WITH LUX LEVEL CONTOURS SHEET 2 OF 7



CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

1. Do not scale from this drawing.
2. Site verify all dimensions prior to construction
3. Report all discrepancies to the Drawing Originator immediately
4. This drawing is to be read in conjunction with all relevant documents and drawings

- Notes:
- 177 Luminaire as Philips LumiStreet Gen2 Micro BGP291, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO post top mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
 - 2 2 x Luminaire as Philips LumiStreet Gen2 Micro BGP292, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO twin outreach bracket mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.

5.0 5.0Lux Contour Line - Target average illuminance
 1.0 1.0Lux Contour Line - Target minimum illuminance
 0.1 0.1Lux Contour Line - equivalent moon light

QUANTITIES ABOVE ARE THE TOTAL NUMBER OF PROPOSED UNITS ACROSS THE SITE.

LUX RATING CHART

Condition	Light Level (LUX)	Foot Candles (FC)
Sunlight	107,527	10,000
Daylight	10,752.70	1,000
Overcast Day	1,075.30	100
Very Dark Day	107.53	10
Twilight	10.75	1
Deep Twilight	1.08	0.1
Full Moon	0.108	0.01
Quarter Moon	0.0108	0.001
Starlight	0.0011	0.0001
Overcast Night	0.0001	0.00001

Rev	Date	Description	Drn	Chkd
R1	17/03/26	NEW BASE DRAWING	WDK	WDK
R0	01/06/25	FIRST ISSUE	WDK	WDK

Revisions



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorized reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. L081001 - TEL: 01790 986 007

Drawing Status

PRELIMINARY

Project Name
RED ADMIRAL DC LTD, DATA CENTRE

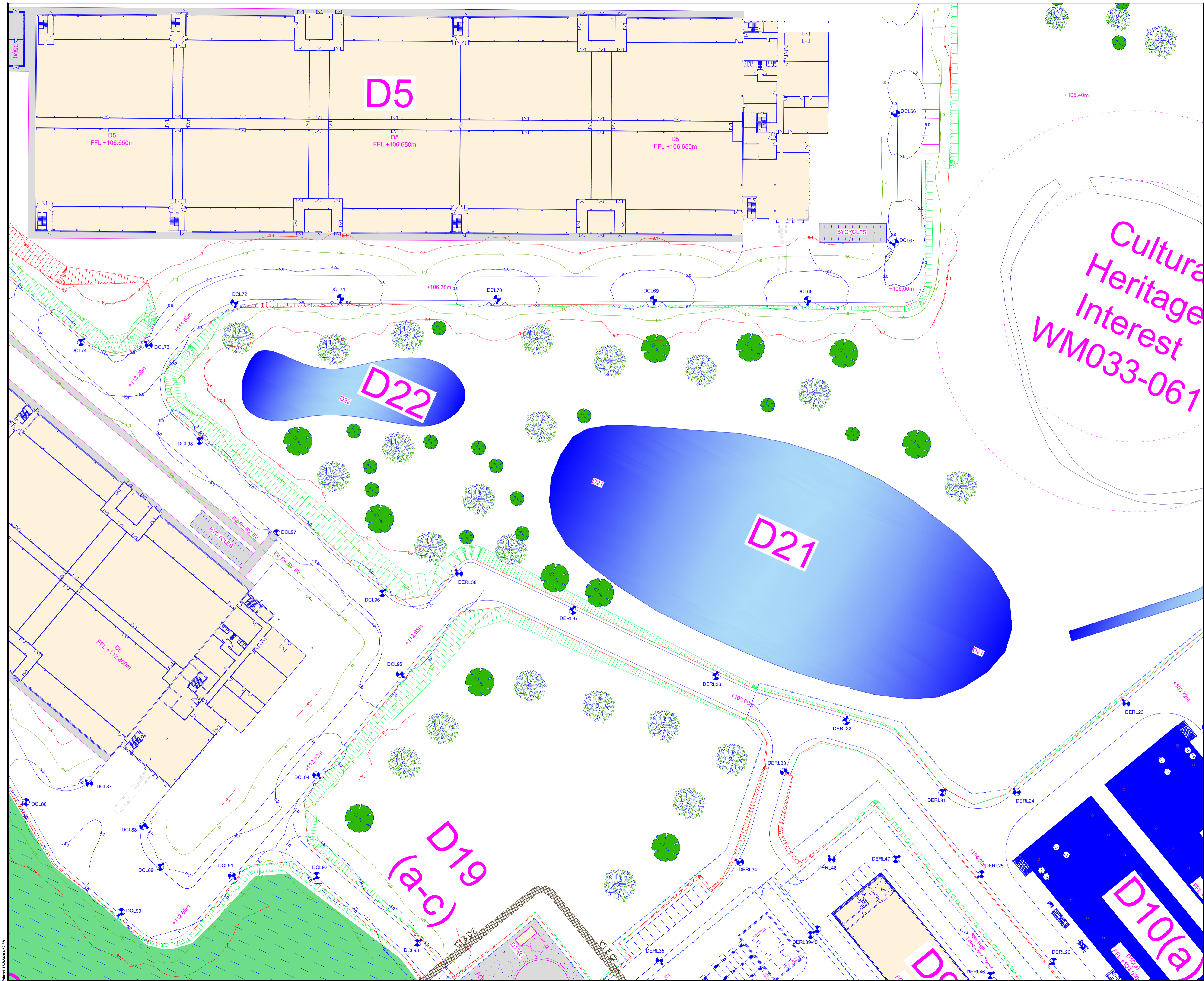
Drawn by	Drawn Date	Checked by	Checked Date
WDK	01/06/2025	WDK	01/06/25

Approved by	Approved Date	Scale
		NTS

Title Original drawing sheet is A1

EXTERNAL LIGHTING LAYOUT WITH LUX LEVEL CONTOURS SHEET 3 OF 7

Drawing Number	Revision
DAR25411/003	R1



CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

- Do not scale from this drawing.
- Site verify all dimensions prior to construction.
- Report all discrepancies to the Drawing Originator immediately.
- This drawing is to be read in conjunction with all relevant documents and drawings.

- Notes:
- 177 Luminaire as Philips LumiStreet Gen2 Micro BGP291, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO post top mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
 - 2 2 x Luminaire as Philips LumiStreet Gen2 Micro BGP292, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO twin outreach bracket mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
- 5.0 5.0Lux Contour Line - Target average illuminance
 1.0 1.0Lux Contour Line - Target minimum illuminance
 0.1 0.1Lux Contour Line - equivalent moon light

QUANTITIES ABOVE ARE THE TOTAL NUMBER OF PROPOSED UNITS ACROSS THE SITE.

LUX RATING CHART

Condition	Light Level (LUX)	Foot Candles (FC)
Sunlight	107,527	10,000
Daylight	10,752.70	1,000
Overcast Day	1,075.30	100
Very Dark Day	107.53	10
Twilight	10.75	1
Deep Twilight	1.08	0.1
Full Moon	0.108	0.01
Quarter Moon	0.0108	0.001
Starlight	0.0011	0.0001
Overcast Night	0.0001	0.00001

Rev	Date	Description	Dn	Chkd
R1	17/03/25	NEW BASE DRAWING	WDK	WDK
R0	01/06/25	FIRST ISSUE	WDK	WDK

Revisions



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. LIBRARY TEL: 01790 986 007

Drawing Status

PRELIMINARY

Project Name

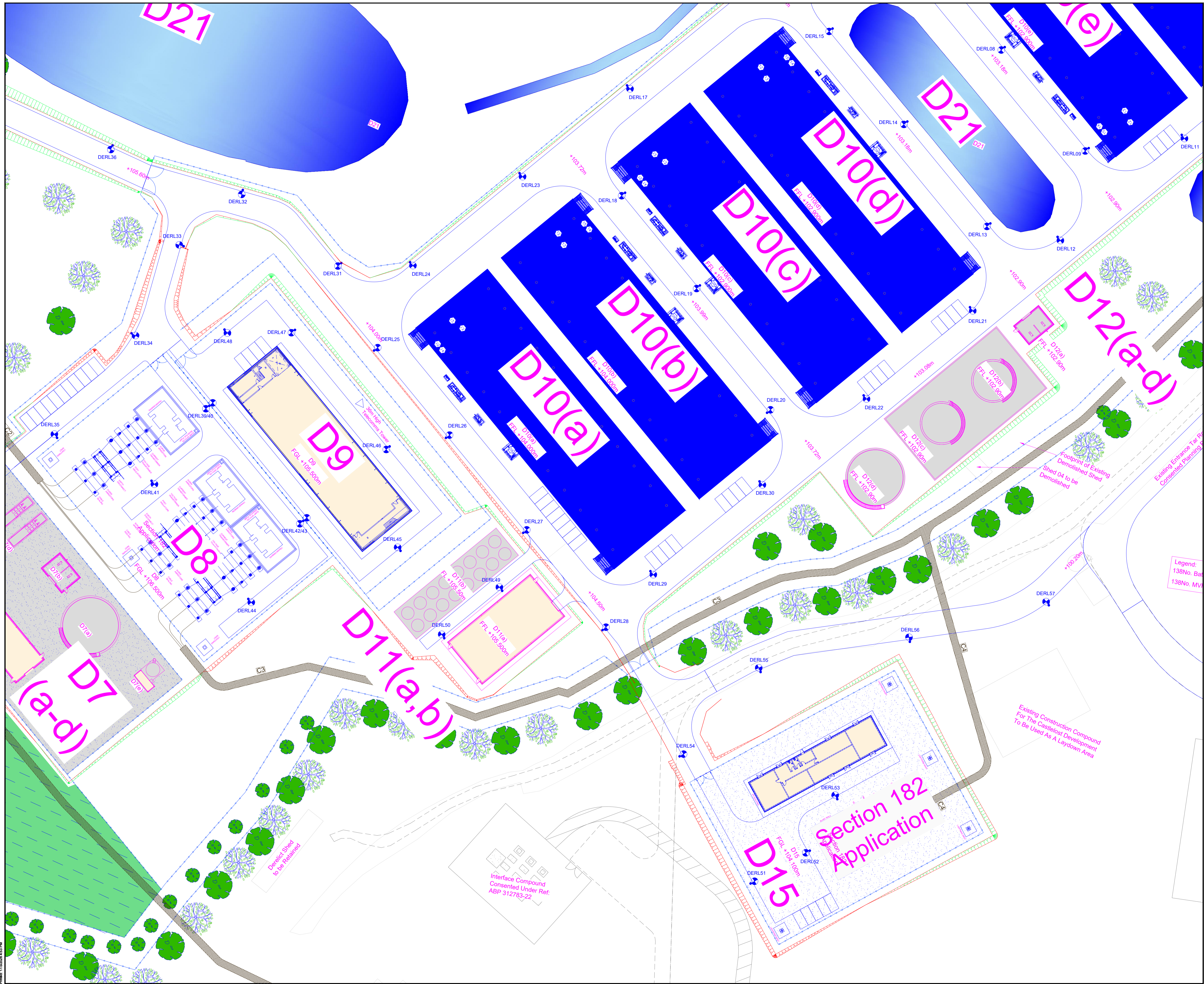
RED ADMIRAL DC LTD, DATA CENTRE

Drawn by	Drawn Date	Checked by	Checked Date
WDK	01/06/2025	WDK	01/06/25
Approved by	Approved Date	Scale	
		NTS	

Title: Original drawing sheet is A1

EXTERNAL LIGHTING LAYOUT WITH LUX LEVEL CONTOURS SHEET 4 OF 7

Drawing Number	Revision
DAR25411/004	R1



CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

- Do not scale from this drawing.
- Site verify all dimensions prior to construction.
- Report all discrepancies to the Drawing Originator immediately.
- This drawing is to be read in conjunction with all relevant documents and drawings.

- Notes:
- 177 Luminaire as Philips LumiStreet Gen2 Micro BGP291, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO post top mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
 - 2 2 x Luminaire as Philips LumiStreet Gen2 Micro BGP292, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO twin outreach bracket mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
- 5.0 5.0Lux Contour Line - Target average illuminance
 1.0 1.0Lux Contour Line - Target minimum illuminance
 0.1 0.1Lux Contour Line - equivalent moon light

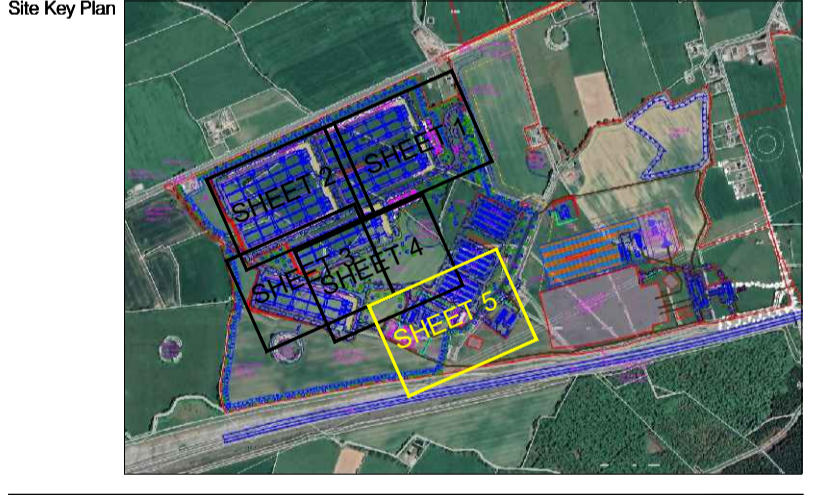
QUANTITIES ABOVE ARE THE TOTAL NUMBER OF PROPOSED UNITS ACROSS THE SITE.

LUX RATING CHART

Condition	Light Level (LUX)	Foot Candles (FC)
Sunlight	107,527	10,000
Daylight	10,752.70	1,000
Overcast Day	1,075.30	100
Very Dark Day	107.53	10
Twilight	10.75	1
Deep Twilight	1.08	0.1
Full Moon	0.108	0.01
Quarter Moon	0.0108	0.001
Starlight	0.0011	0.0001
Overcast Night	0.0001	0.00001

Rev	Date	Description	Dn	Chkd
R1	17/03/25	NEW BASE DRAWING	WDK	WDK
R0	01/06/25	FIRST ISSUE	WDK	WDK

Revisions



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorized reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. LONDON, TEL: 07560 886 007

Drawing Status
PRELIMINARY

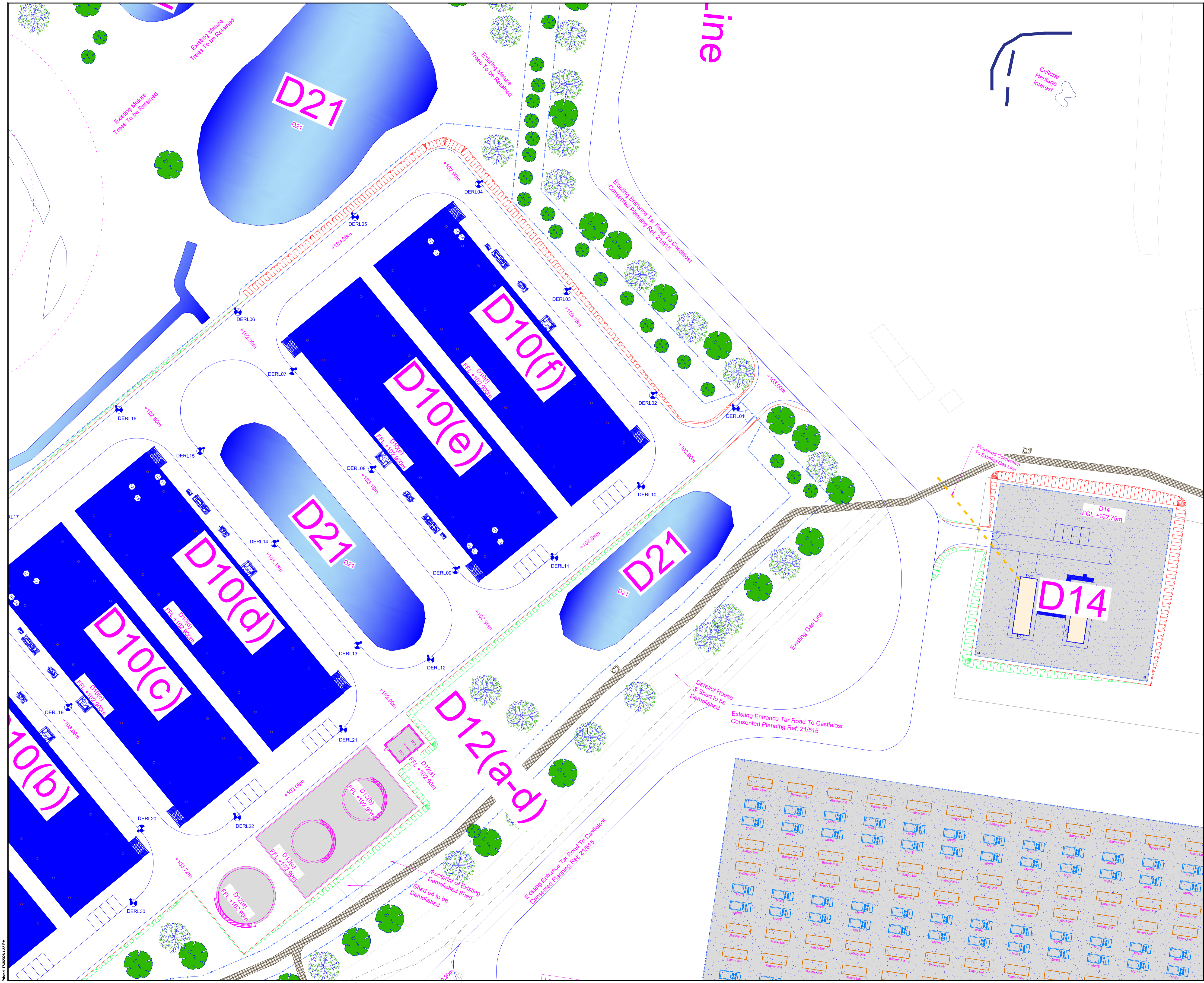
Project Name
RED ADMIRAL DC LTD, DATA CENTRE

Drawn by WDK	Drawn Date 01/06/2025	Checked by WDK	Checked Date 01/06/25
Approved by	Approved Date	Scale NTS	

Title
 Original drawing sheet is A1

EXTERNAL LIGHTING LAYOUT WITH LUX LEVEL CONTOURS SHEET 5 OF 7

Drawing Number DAR25411/005	Revision R1
---------------------------------------	-----------------------



CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all of the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

- Do not scale from this drawing.
- Site verify all dimensions prior to construction
- Report all discrepancies to the Drawing Originator immediately
- This drawing is to be read in conjunction with all relevant documents and drawings

- Notes:
- 177 Luminaire as Philips LumiStreet Gen2 Micro BGP291, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO post top mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
 - 2 2 x Luminaire as Philips LumiStreet Gen2 Micro BGP292, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO twin outreach bracket mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
- 5.0 5.0Lux Contour Line - Target average illuminance
 1.0 1.0Lux Contour Line - Target minimum illuminance
 0.1 0.1Lux Contour Line - equivalent moon light

QUANTITIES ABOVE ARE THE TOTAL NUMBER OF PROPOSED UNITS ACROSS THE SITE.

LUX RATING CHART

Condition	Light Level (LUX)	Foot Candles (FC)
Sunlight	107,527	10,000
Daylight	10,752.70	1,000
Overcast Day	1,075.30	100
Very Dark Day	107.53	10
Twilight	10.75	1
Deep Twilight	1.08	0.1
Full Moon	0.108	0.01
Quarter Moon	0.0108	0.001
Starlight	0.0011	0.0001
Overcast Night	0.0001	0.00001

Rev	Date	Description	Dn	Chkd
R1	17/03/26	NEW BASE DRAWING	WDK	WDK
R0	01/06/25	FIRST ISSUE	WDK	WDK

Revisions



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. LONDON, TEL: 02030 986 007

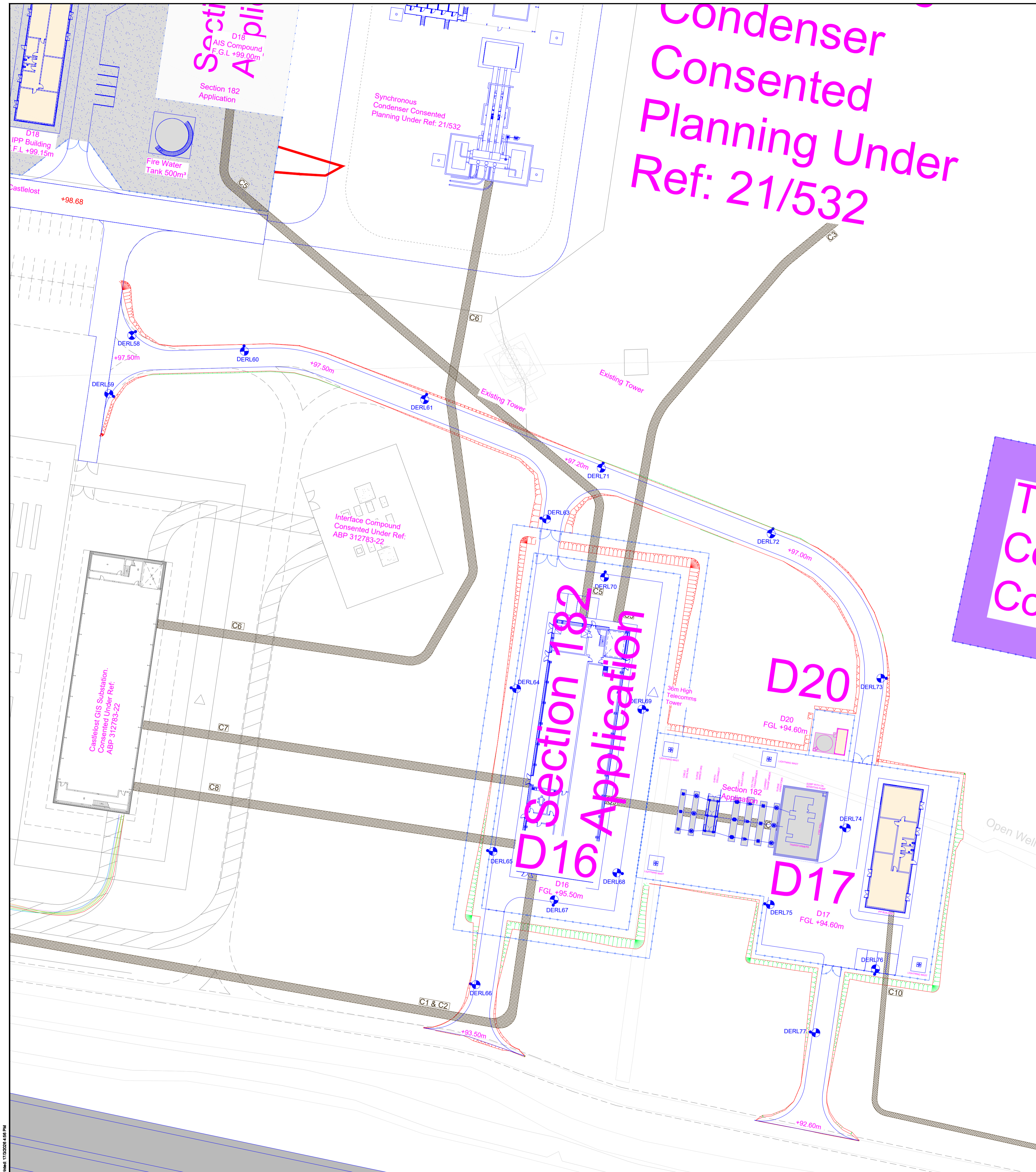
Drawing Status
PRELIMINARY

Project Name
RED ADMIRAL DC LTD, DATA CENTRE

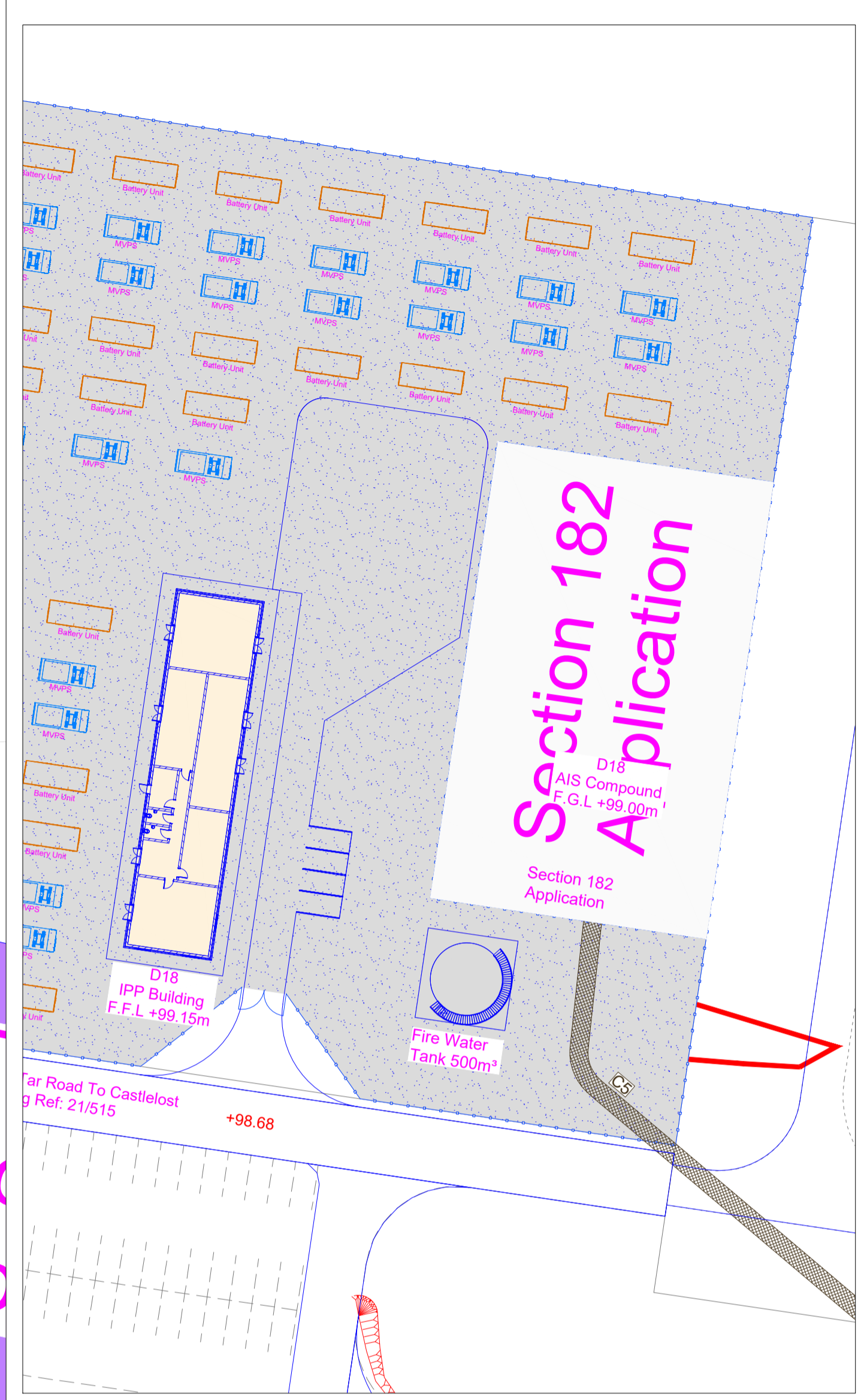
Drawn by WDK	Drawn Date 01/06/2025	Checked by WDK	Checked Date 01/06/25
Approved by	Approved Date	Scale NTS	

Title
 Original drawing sheet is A1

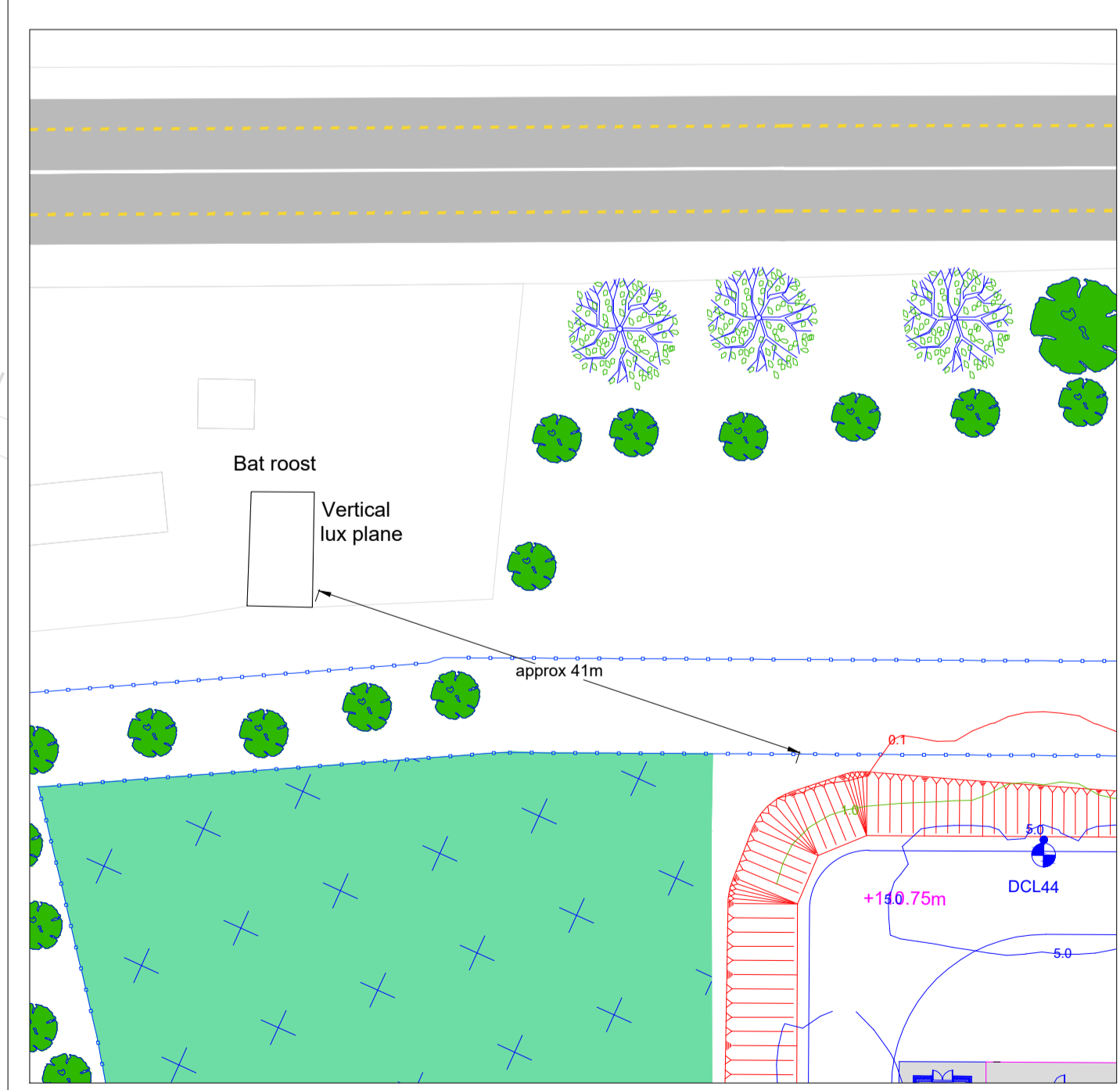
EXTERNAL LIGHTING LAYOUT WITH LUX LEVEL CONTOURS SHEET 6 OF 7



Condenser
Consented
Planning Under
Ref: 21/532



LIGHTING DETAIL ON AREA C5



BAT ROOST - WEST OF AREA D3
(See Sheet 2)

CDM RESIDUAL DESIGN RISKS AND RESIDUAL ENVIRONMENTAL RISKS

--	--

In accordance with the Construction Design Management Regulations 2015, Daramack Lighting Consultancy has undertaken a design risk assessment for the elements of work shown on this drawing. The above are some but not all the residual risks identified in the risk assessment. For a comprehensive list refer to the design risk assessment.

- Do not scale from this drawing.
- Site verify all dimensions prior to construction
- Report all discrepancies to the Drawing Originator immediately
- This drawing is to be read in conjunction with all relevant documents and drawings

- Notes:
- 177 Luminaire as Philips LumiStreet Gen2 Micro BGP291, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO post top mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
 - 2 2 x Luminaire as Philips LumiStreet Gen2 Micro BGP292, 6.0km 40LED 17W DW50 BL1 3000K Warm White CLO twin outreach bracket mounted luminaire complete with factory-fitted integral rear shields at 0° tilt on 6m standard galvanized steel planted lighting columns.
- 5.0 5.0Lux Contour Line - Target average illuminance
1.0 1.0Lux Contour Line - Target minimum illuminance
0.1 0.1Lux Contour Line - equivalent moon light

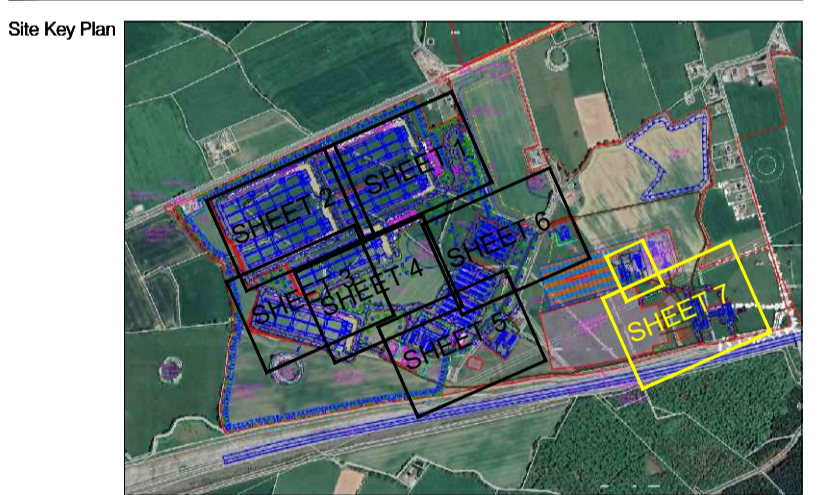
QUANTITIES ABOVE ARE THE TOTAL NUMBER OF PROPOSED UNITS ACROSS THE SITE.

LUX RATING CHART

Condition	Light Level (LUX)	Foot Candles (FC)
Sunlight	107,527	10,000
Daylight	10,752.70	1,000
Overcast Day	1,075.30	100
Very Dark Day	107.53	10
Twilight	10.75	1
Deep Twilight	1.08	0.1
Full Moon	0.108	0.01
Quarter Moon	0.0108	0.001
Starlight	0.0011	0.0001
Overcast Night	0.0001	0.00001

Rev	Date	Description	Dn	Chkd
R1	17/03/26	NEW BASE DRAWING	WDK	WDK
R0	01/06/25	FIRST ISSUE	WDK	WDK

Revisions



Reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorized reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



THIS DRAWING IS THE PROPERTY OF DARAMACK LIGHTING CONSULTANCY AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. LIBRARY TEL: 01793 986 007

Drawing Status: PRELIMINARY

Project Name: RED ADMIRAL DC LTD, DATA CENTRE

Drawn by: WDK	Drawn Date: 01/06/2025	Checked by: WDK	Checked Date: 01/06/25
Approved by:	Approved Date:	Scale: NTS	

Title: Original drawing sheet is A1

EXTERNAL LIGHTING LAYOUT WITH LUX LEVEL CONTOURS SHEET 7 OF 7

Drawing Number: DAR25411/007	Revision: R1
------------------------------	--------------