

DATE: 16 July 2022
DESIGNER: SHD Lighting Consultancy Ltd
PROJECT No: SHD244
PROJECT NAME: Reliance Street, Manchester



CAD layout reference: 216352-CCL-XX-00-DR-C-4000 P04 - External Works GA

BS EN 12464-2:2014, Table 5.1

5.1.4: Pedestrian passages, vehicle turning, loading and unloading points
Minimum maintained average illuminance (Eav): >50.00 lux
Emin/Eav (Uniformity): >0.40 (40%)

BS EN 12464-2:2014, Table 5.9

5.9.2: Medium traffic car park, plants and multipurpose building complexes
Minimum maintained average illuminance (Eav): >10.00 lux
Emin/Eav (Uniformity): >0.25 (25%)

Maintenance factor shown as 1.00 to represent the worst case scenario of 'day one' initial installation and does not factor lumen depreciation which will occur during normal operation.

All luminaires use warm white 3000k light sources

Outdoor Lighting Report

PREPARED BY: SHD Lighting Consultancy Ltd
Contact: info@shdlighting.co.uk
Phone: 07834 490 192
Website: www.shdlighting.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 2: Operational Area	388070.60	401004.32	99.00	84.00	1.50	1.50
2	Grid 2: Entrance Roads	388024.40	401014.93	42.00	60.00	1.50	1.50
3	Grid 3: Resale Shop	388030.28	401024.07	33.00	15.00	1.50	1.50
4	Grid 4: Whole Site	387979.50	400976.54	253.00	171.96	1.50	1.50
5	Grid 5: Vertical Calculati...	388014.43	401028.61	35.00	5.00	1.00	1.00
6	Grid 6: Vertical Calculati...	388015.11	401084.66	105.00	8.00	1.00	1.00

Luminaires



Luminaire B Data

Supplier	Philips
Type	BGP702 DW50 BL1
Lamp(s)	LED-HB 5.2S 830
Lamp Flux (klm)	3.00
File Name	Luma Gen2 Micro_BGP702_DW50 BL1_3000_20LED_5.2S_CLO_L90_830.ies
Maintenance Factor	1.00
Lum. Int. Class	G3
No. in Project	2

Luminaire C Data

Supplier	
Type	26w Walney Wallpack with photocell 830
Lamp(s)	LED 3000k
LampFlux(klm)/Colour	3.12 3000k/0
File Name	WAL002-3000K.ltd
Maintenance Factor	1.00
Lum. Int. Class	None
No. in Project	6



Luminaire D Data

Supplier	Philips
Type	BVP651 DX10 BL1
Lamp(s)	LED-HB 5.1S
Lamp Flux (klm)	64.00
File Name	Clearflood Large_BVP651_DX10 BL1_6400_5.1S_L90_CLO_WW.ies
Maintenance Factor	1.00
Lum. Int. Class	G4
No. in Project	8

Layout

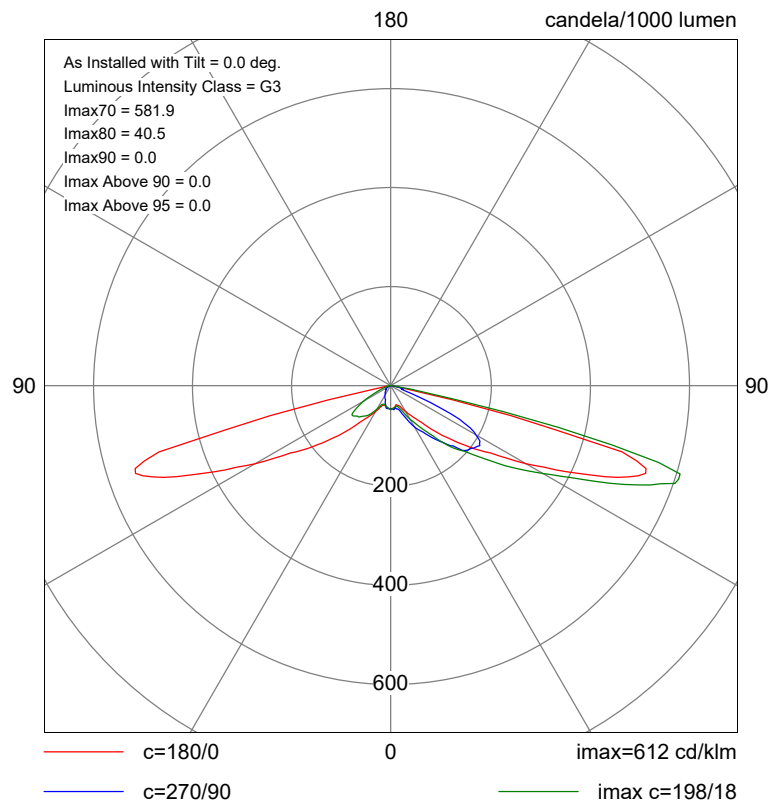
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	B	388029.63	401072.50	6.00	286.00	0.00	0.00	0.40			
2	B	388029.18	401050.64	6.00	104.00	0.00	0.00	0.40			
3	D	388058.90	401079.84	10.00	285.00	0.00	0.00	0.60			
4	D	388087.98	401087.33	10.00	285.00	0.00	0.00	0.60			
5	D	388116.96	401081.82	10.00	257.00	0.00	0.00	0.60			

Layout Continued

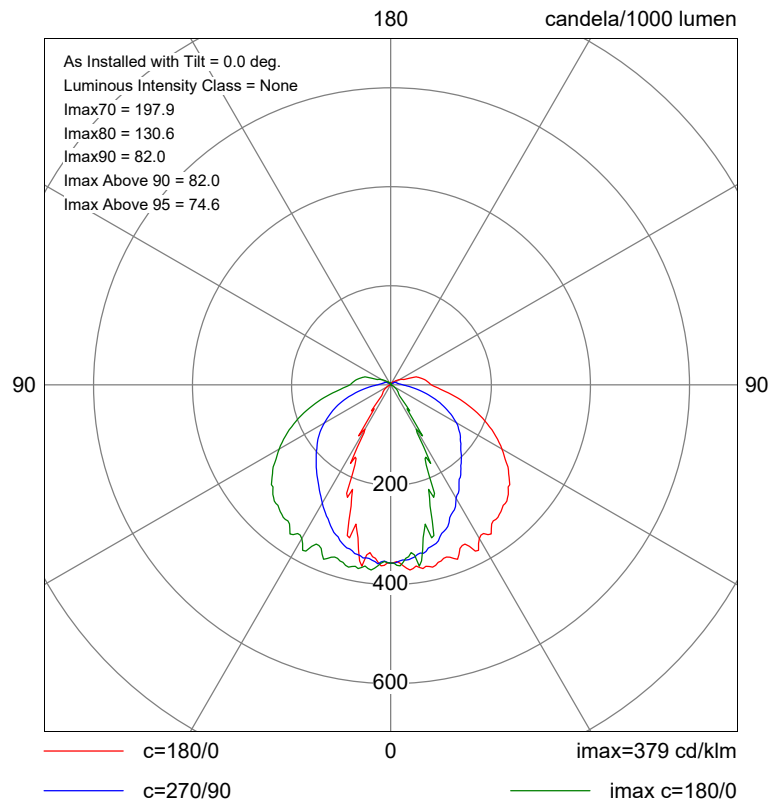
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
6	D	388063.92	401031.29	10.00	109.00	0.00	0.00	0.60			
7	D	388137.93	401038.95	10.00	180.00	0.00	0.00	0.60			
8	D	388140.64	401069.41	10.00	165.00	0.00	0.00	0.60			
9	D	388113.17	401032.43	10.00	81.00	0.00	0.00	0.60			
10	D	388090.30	401038.49	10.00	103.00	0.00	0.00	0.60			
11	C	388033.38	401036.01	2.50	105.00	0.00	0.00	0.20			
12	C	388054.89	401041.53	2.50	106.00	0.00	0.00	0.20			
13	C	388044.22	401038.77	2.50	106.00	0.00	0.00	0.20			
14	C	388045.10	401033.48	2.50	285.00	0.00	0.00	0.20			
15	C	388035.39	401030.98	2.50	285.00	0.00	0.00	0.20			
16	C	388056.23	401036.41	2.50	286.00	0.00	0.00	0.20			

Polar Diagrams

Luminaire B BGP702 DW50 BL1

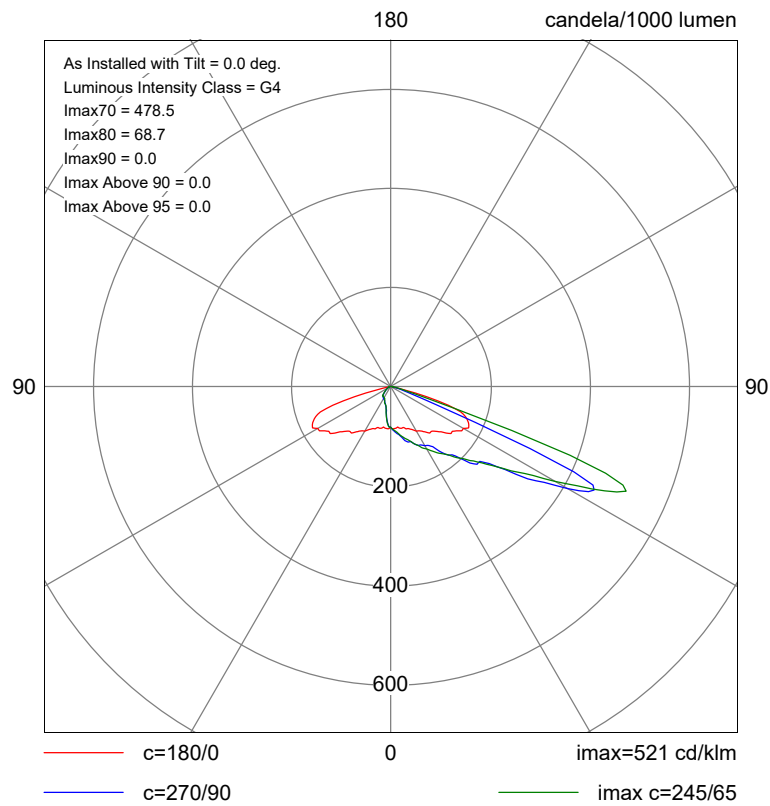


Luminaire C 26w Walney Wallpack with photocell 830



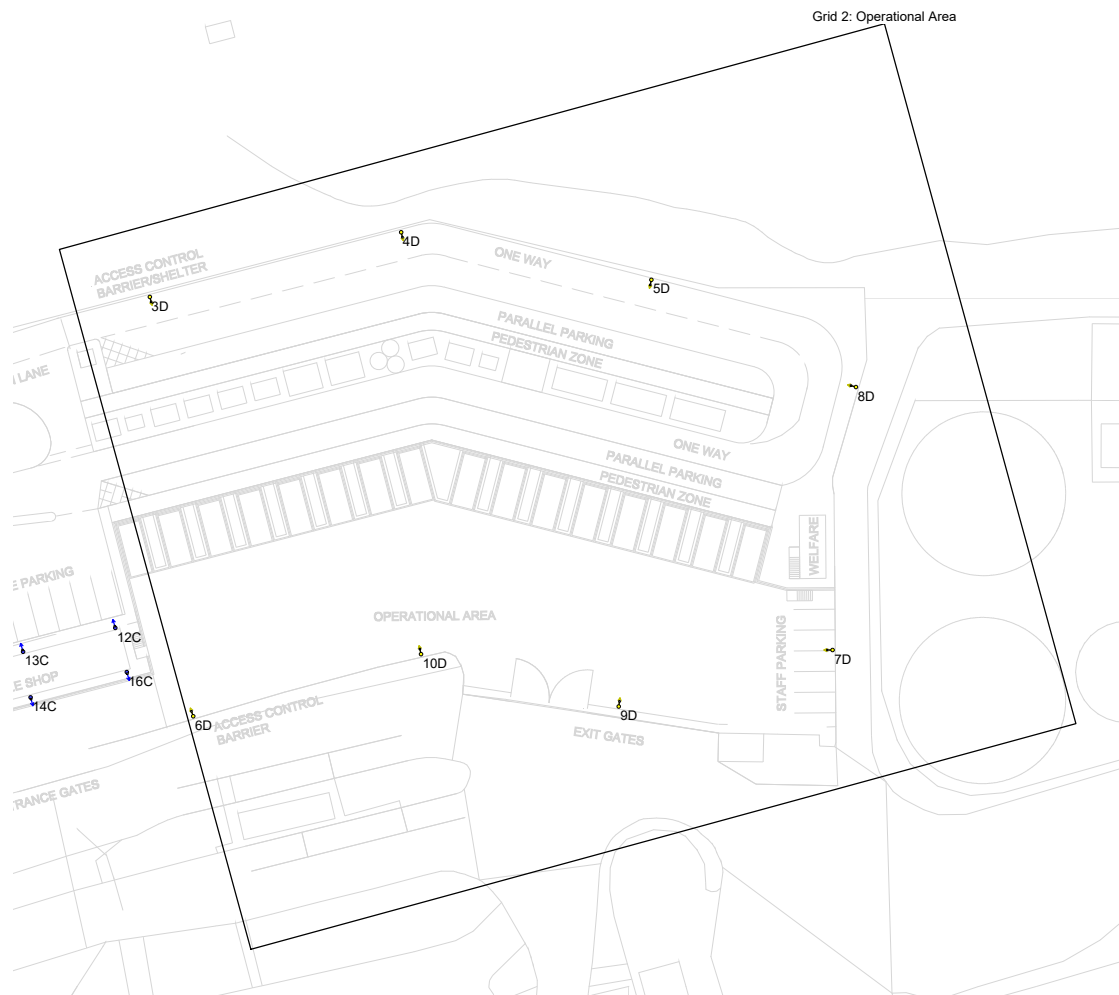
Polar Diagrams Continued

Luminaire D BVP651 DX10 BL1



Horizontal Illuminance (lux)

Grid 2: Operational Area

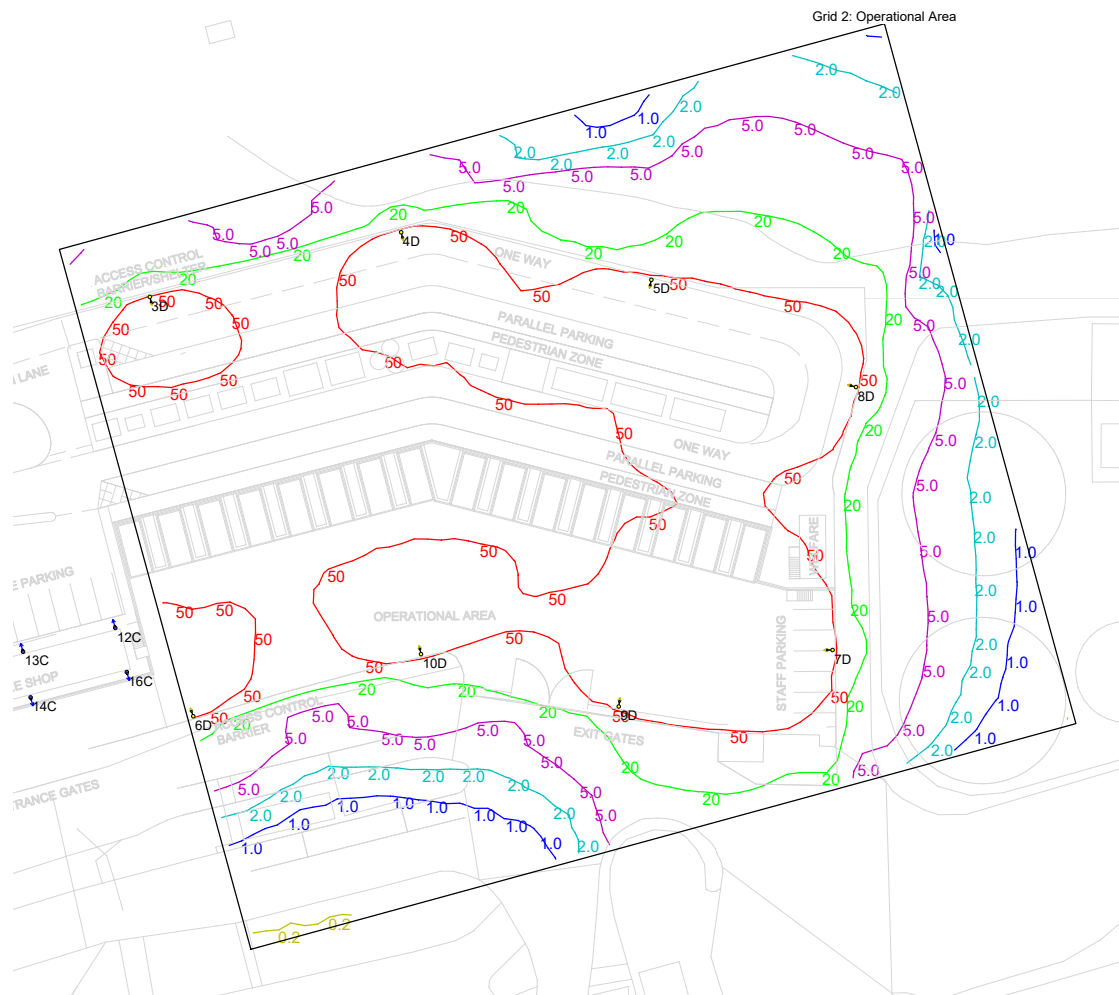


Results

Eav	53.34
Emin	21.28
Emax	90.35
Emin/Emax	0.24
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 2: Operational Area



Results

Eav	53.34
Emin	21.28
Emax	90.35
Emin/Emax	0.24
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 2: Operational Area



Results

Eav	53.34
Emin	21.28
Emax	90.35
Emin/Emax	0.24
Emin/Eav	0.40

Horizontal Illuminance (lux)

Grid 2: Entrance Roads



Results

Eav	16.56
Emin	4.05
Emax	81.36
Emin/Emax	0.05
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 2: Entrance Roads

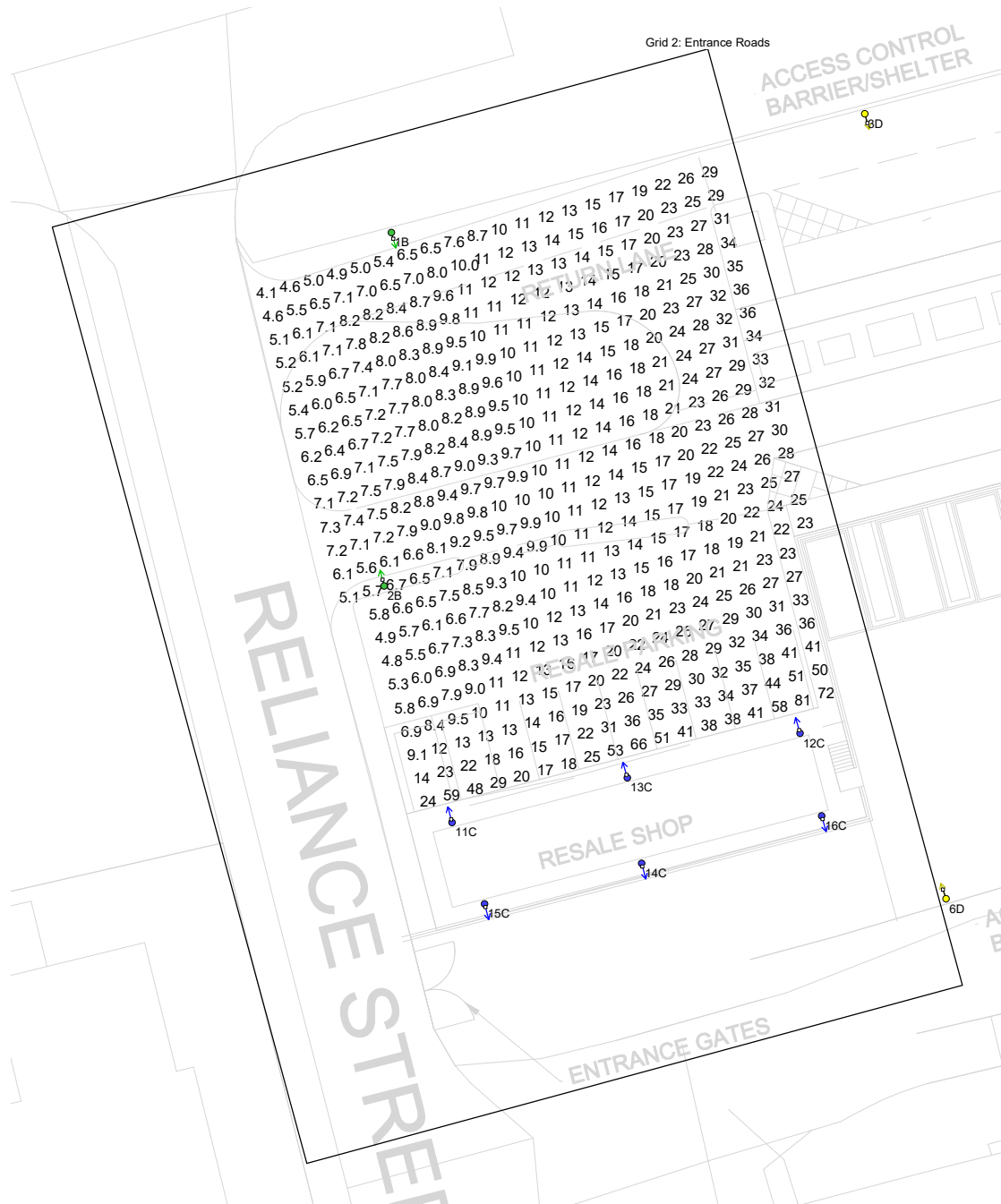


Results

Eav	16.56
Emin	4.05
Emax	81.36
Emin/Emax	0.05
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 2: Entrance Roads



Results

Eav	16.56
Emin	4.05
Emax	81.36
Emin/Emax	0.05
Emin/Eav	0.24

Horizontal Illuminance (lux)

Grid 3: Resale Shop

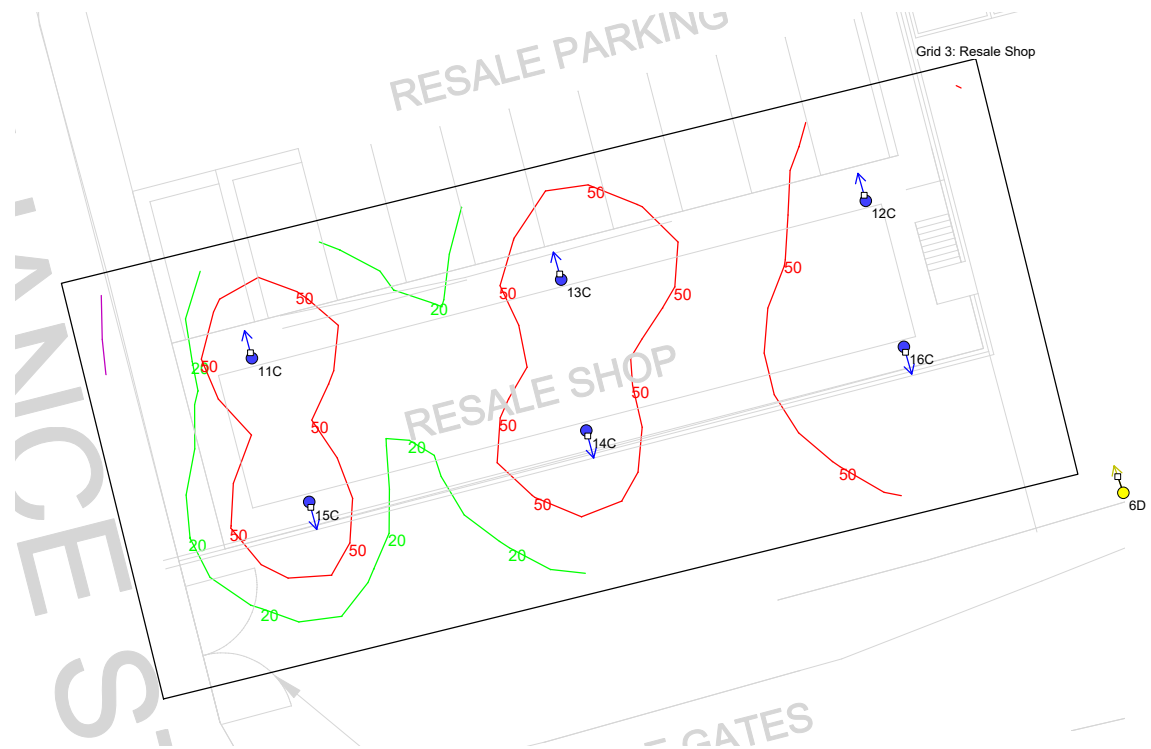


Results

Eav	79.45
Emin	15.61
Emax	225.46
Emin/Emax	0.07
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 3: Resale Shop



Results

Eav	79.45
Emin	15.61
Emax	225.46
Emin/Emax	0.07
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 3: Resale Shop

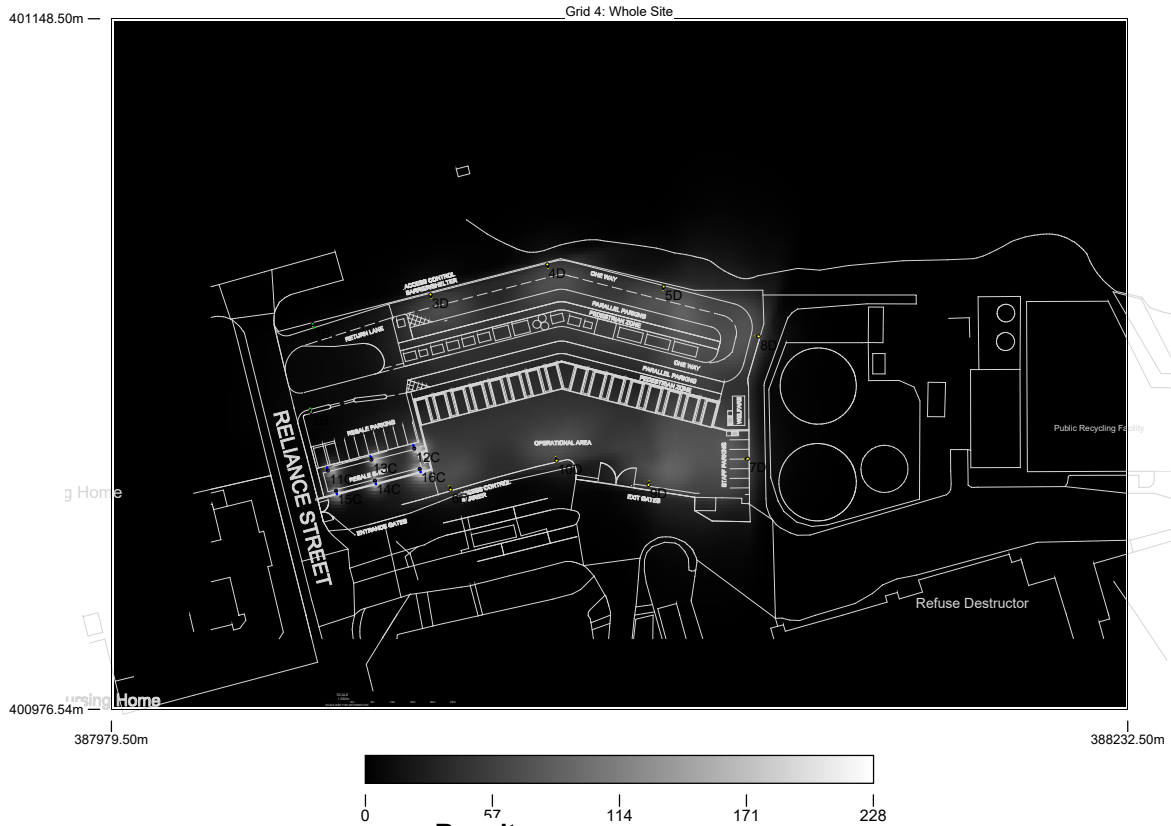


Results

Eav	79.45
Emin	15.61
Emax	225.46
Emin/Emax	0.07
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 4: Whole Site

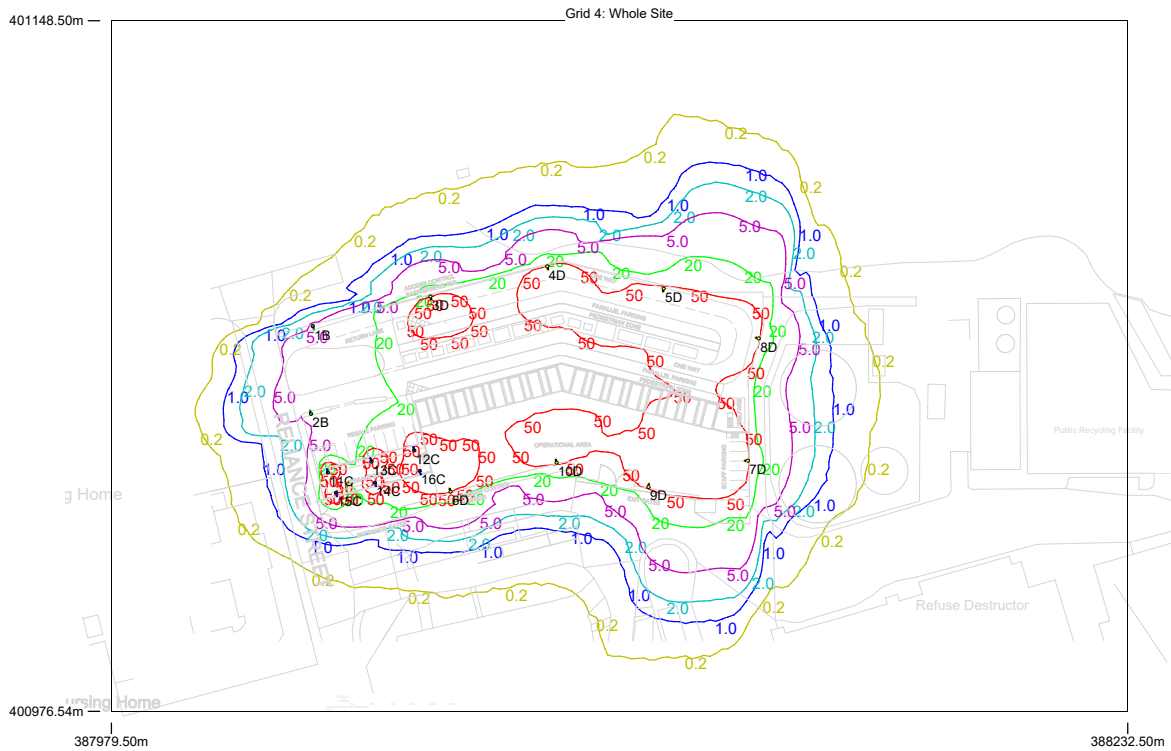


Results

Eav	16.94
Emin	0.00
Emax	227.67
Emin/Emax	0.00
Emin/Eav	0.00

Horizontal Illuminance (lux)

Grid 4: Whole Site

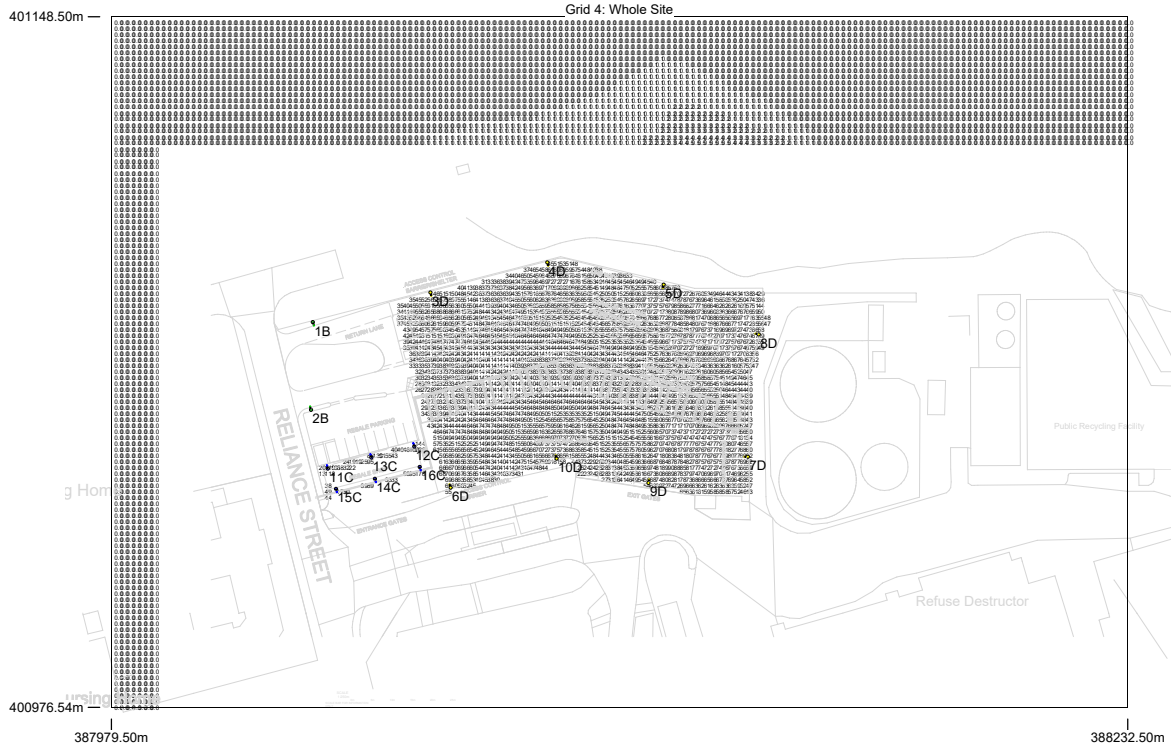


Results

Eav	16.94
Emin	0.00
Emax	227.67
Emin/Emax	0.00
Emin/Eav	0.00

Horizontal Illuminance (lux)

Grid 4: Whole Site



Results

Eav	16.94
Emin	0.00
Emax	227.67
Emin/Emax	0.00
Emin/Eav	0.00

Illuminance (lux)

Grid 5: Vertical Calculation - Building



Results

Eav	0.70
Emin	0.22
Emax	1.66
Emin/Emax	0.13
Emin/Eav	0.31

Illuminance (lux)

Grid 5: Vertical Calculation - Building



Results

Eav	0.70
Emin	0.22
Emax	1.66
Emin/Emax	0.13
Emin/Eav	0.31

Illuminance (lux)

Grid 5: Vertical Calculation - Building

0.9	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2
1.1	1.1	1.2	1.1	1.1	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3
1.7	1.6	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3

Results

Eav	0.70
Emin	0.22
Emax	1.66
Emin/Emax	0.13
Emin/Eav	0.31

Illuminance (lux)

Grid 6: Vertical Calculation - Tree line

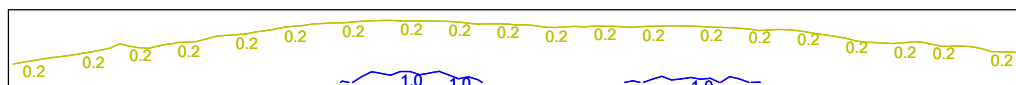
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Results

Eav	0.38
Emin	0.04
Emax	1.25
Emin/Emax	0.03
Emin/Eav	0.10

Illuminance (lux)

Grid 6: Vertical Calculation - Tree line



Results

Eav	0.38
Emin	0.04
Emax	1.25
Emin/Emax	0.03
Emin/Eav	0.10

Illuminance (lux)

Grid 6: Vertical Calculation - Tree line

[illegible]

Results

Eav	0.38
Emin	0.04
E _{max}	1.25
Emin/E _{max}	0.03
Emin/Eav	0.10