

Kenmare LRD

Proposed Residential Development

EXTERNAL (PUBLIC) LIGHTING REPORT

Pat Scarteen Road
(Kenmare by-pass)
Kenmare
Co. Kerry

Client
KPH Construction

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Architect	Meitheal Architects	☒	☒	☒	☒
Planning consultant	HW Planning	☒	☒	☒	☒

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Issue	2P	2026-05-06	Planning issue
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- # Sketch/draft
- P Planning
- C Concept
- D Design
- G General information
- T Tender
- W Works/construction
- Z As-build/constructed

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ING Gerard (Craig) van Deventer CEng., BE(mech)., HDip CIOB, MCIBSE

M : [00] 353 (0)87 260 8080
E : gerard@dkpartnership.com

DKPartnership
70 Main Street, Applewood , Swords, Co. Dublin, Ireland
Reen Kenmare Co. Kerry

post@dkpartnership.com
www.dkpartnership.com

T : [00] 353 (0) 1813 1930
T : [00] 353 (0)64664 1686

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Appendix B	Drawing 80201 – DKP - 1:500 Public lighting - Highlighted column locations	Separate
Appendix C	Drawing 80202 – DKP - 1:500 Public lighting – Illumination contours	Separate



1 Introduction

1.1 Report purpose

This report gives information on the external (public) lighting installation in connection with the new proposed project covering the site main entrance, estate roads, public parking spaces and adjacent foot path.

1.2 Instruction

DKPartnership (DKP) have been commissioned by KPH Construction, Kenmare, Co. Kerry to carry out the analysis and report for the proposed development at Pat Scarteen Road (Kenmare by-pass), Kenmare, Co. Kerry.

1.3 Development detail

KPH Construction intend to apply for planning permission for a Large-scale Residential Development (LRD) at a site located off Pat Scarteen Road, Killowen, (townland), Kenmare, Co. Kerry.

The proposed development includes the demolition of 2 no. existing single-storey sheds and the construction of 100 no. residential units comprising 30 no. 1-bed units; 30 no. 2-bed units; and 40 no. 3-bed houses, with ancillary landscaping and associated site development works. The development makes provision for 40 no. two-storey houses, comprising 36 no. semi-detached 3 bed units and 4 no. 3 bed mid-terraced units and 60 no. own-door maisonette/apartment units over 2 no. storeys (30 no. 1 bed units, 30 no. 2 bed units).

Vehicular access to the development will be via an upgraded and relocated entrance off the Pat Scarteen Road, with proposed upgrades including amendments to the existing shared pedestrian/cycle path and modifications to the signing and lining on the public road. The proposed development also provides for separate pedestrian/cycle entrances off Pat Scarteen Road and includes dedicated pedestrian and cycling paths traversing the site.

Ancillary infrastructure development works will include wastewater infrastructure, a pumping station, surface water attenuation, water utility services, public lighting, bin stores, bicycle stores, ESB substations, landscaping and all associated site development works.

1.4 Policy and building regulation requirements

The project is subject to the following statutory and policy illumination target requirements:

- a) 1 EN13201 European Standard for Road lighting
- b) Kerry County Council Public Lighting Manual and Product Specification.



2 Executive summary

2.1 Analysis conducted

This report analyses the illumination calculation results of the proposed lighting design in respect of new project the site main entrance, internal circulation roads, public parking spaces, cycle & footpath.

2.2 EN132201 External lighting calculation design targets

The table below details the main targets to be achieved for the different lighting classes. The P class is generally for pedestrian traffic and cyclists for use on footways and cycleways, and drivers of motorised vehicles at low speed on residential roads, shoulder or parking lanes, and other road areas lying separately or along a carriageway of a traffic route or a residential road, etc.. The C lighting class is applied for use in conflict areas on traffic routes where the traffic composition is mainly motorised. Conflict areas occur wherever vehicle streams intersect each other or run into areas frequented by pedestrians, cyclists, or other road users. Areas showing a change in road geometry, such as a reduced number of lanes or a reduced lane or carriageway width, are also regarded as conflict areas. The M standard is mainly for motorways.

The table below indicates the P4 and C4 class minimum EN13201 illumination targets.

Illumination class	E avg lx	E min lx	Uniformity		Illumination class	E avg lx	E min lx	Luminance cd/m2	Uniformity
P1	15.0	3.0	0.2		M1/C1	30.0	12.0	2.0	0.4
P2	10.0	2.0	0.2		M2/C2	20.0	8.00	1.5	0.4
P3	7.50	1.5	0.2		M3/C3	15.0	6.00	1.0	0.4
P4	5.00	1.0	0.2		M4/C4	10.0	4.00	0.75	0.4
					M5/C5	7.50	1.50	0.50	0.3

Copy of Table 4.2 EN132201 lighting class P, C and M standards.

2.3 Design considerations

The external lighting design has been executed using the European design standard EN 1332201 category P3 for the development estate roads adjoining footpath and public parking spaces and the category C3 was applied for the site main entrance junction with the Pat Scardeen road. Further design consideration was given to the light fitting colour temperature using 2700K in line with the bat mitigation recommendations of the National parks and Wildlife Service which is deemed to have less impact on fauna and in particular bats by minimising the light spill into identified zones where bats may be active to ca 1.0lx or less.

2.4 Calculation data results

From the appendix representing the illumination calculations and the 1:500 DKP and Lighting Reality overall site public lighting drawings we note that the estate circulation roads and public parking area's average and minimum illuminance achieved is in excess of the P3 average and minimum illuminance standard of 7.5Lx and 1.5lx respectively and that the site's main access point junction average and minimum illuminance achieved is in excess of the C3 average and minimum illuminance standard of 15.0Lx and 6.0lx respectively. Uniformity for the P3 and C3 classes are also in compliance.

Element	Standard	E avg lx	E min lx	Uniformity	Compliance
Estate roads & public parking – Grid 1	P3	8.36 (≥ 7.50)	1.83 (≥ 1.50)	0.22 (≥ 0.20)	√
Junction with Pat Scardeen road – Grid 3	C3	15.15 (≥ 15.00)	6.02 (≥ 6.00)	0.40 (≥ 0.40)	√

Copy of Table 5.1 Achieved illumination levels.



The illuminance data was calculated using the following fittings/poles.

Fitting	Make	Model	Lamp / Colour	Load (W)	Flux (klm)	Pole
Luminaire D	Cree	TRSA-02-200-6L-27827W	12lu6L27W3K 2700K	27	4.17	6m
Luminaire B	Cree	SPMA-2-200-D-110-277	65.30W10450 2700K	65	10.45	8m

Copy of Table 5.1 Light fitting types applied. (Luminaire B are existing columns on the Pat Scardeen Road)

Light fitting columns.

The following column notes represents to column specification to be applied;

General: All new lighting columns will be sided steel tapered, hot dipped galvanised coated finish to ISO EN 40.

In restricted locations: Where access for a hoist and other mechanically operated machine for the purpose of lamp/column maintenance is not possible the relevant column shall be of the foldable type.

2.5 Conclusion

The external (public) lighting design as per illumination calculation report appendix A and 1:500 DKP public lighting drawings appendix B & C meets the criteria set out in EN13201 for lighting class P3 covering the internal roads, and public parking area and lighting class C3 for the estate road junction with the Countess road. Separate foot and cycle path have been calculated using the P4 standard. Further consideration was given to the lighting design by using a light fitting colour temperature of 2700K in line with the bat mitigation recommendations of the National parks and Wildlife Service which is deemed to have less impact on fauna and in particular bats and by minimising the light spill into the identified possible bat activity zones to be to a minimum of ca 1.0lx and we, DKP therefore deem the external lighting design to be in compliance with the applied standards and recommendations.

2.6 Mitigation measures / actions

No mitigation measures required for compliance to lighting standards.



3 Geographical overview

3.1 Project overview

Image 3.1, the (google maps) site map below shows the approximate location of the site with proposed development approximately outlined in red.



Image 3.1 Proposed development with approximate site boundary in red.

4 Approach and methodology

4.1 Design targets

For the design of the public lighting we applied the P3 standard for the estate roads, adjacent footpath & public parking areas and applied the C3 standard for the estate access road junctions with the Pat Scarteen road in line with the general requirement for as outlined in EN132201.

4.2 The extend of the external lighting sections.

The illumination calculations are executed using 2 different calculations grids. The estate circulation roads and public parking spaces and adjacent footpath are executed using calculation grid 1 and a separate grid 2 is applied on the estate main access point junction with the Pat Scarteen road as this requires higher illumination category for road safety. Further calculations have been executed on the separate foot & cycle path using grid 1 and grid 2 area as listed above.



Image 4.1 Grid Area 1 & 2 site layout.

Roads



Public parking



DAC parkin



Grid lighting class categories applied.

Area/Section	Grid	Standard
Estate roads 1	1	P3
Junction with Countess Road	2	C3

Table 4.1 Illumination areas applied for calculation.

4.3 EN132201 external lighting data and targets

The table below details the relevant P and C targeted as noted above. The P class is generally for pedestrian traffic and cyclists for use on footways and cycleways, and drivers of motorised vehicles at low speed on residential roads, shoulder or parking lanes, and other road areas lying separately or along a carriageway of a traffic route or a residential road, etc. The C lighting class is applied for use in conflict areas on traffic routes where the traffic composition is mainly motorised. Conflict areas occur wherever vehicle streams intersect each other or run into areas frequented by pedestrians, cyclists, or other road users. Areas showing a change in road geometry, such as a reduced number of lanes or a reduced lane or carriageway width, are also regarded as conflict areas. The M standard is mainly for motorways.

Illumination class	E avg lx	E min lx	Uniformity		Illumination class	E avg lx	E min lx	Luminance cd/m2	Uniformity
P1	15.0	3.0	0.2		M1/C1	30.0	12.0	2.0	0.4
P2	10.0	2.0	0.2		M2/C2	20.0	8.00	1.5	0.4
P3	7.50	1.5	0.2		M3/C3	15.0	6.00	1.0	0.4
P4	5.00	1.0	0.2		M4/C4	10.0	4.00	0.75	0.4
					M5/C5	7.50	1.50	0.50	0.3

Table 4.2 EN132201 lighting class P, C and M standards. Applied P3 and C4 standards highlighted.

4.4 The general design approach

Step 1: We in first instance use Lighting Reality Roadway linear road luminance calculations to establish the most energy and column-to-column distance efficient light fitting for the estate inner roads. We use Lighting Reality Outdoor to calculate the illuminance using the most efficient light fittings established in step 1 to target the P3 lighting category for the estate inner roads & public parking areas and C3 lighting category for the sites entrance junctions with the Pat Scarteen road.

4.5 The design approach to cover any identified bat routs or roosting areas

Consideration to the fauna was applied in the lighting design by keeping the light colour temperature of all fittings at 2700K in line with the bat mitigation recommendations of the National parks and Wildlife Service which is deemed to have less impact on fauna and in particular bats and by minimising the light spill into the identified bat activity zones to a minimum of +/- 1.0Lux.



5 Calculation data and conclusion

5.1 Baseline fitting choice

To establish the most efficient fittings with regards to illuminance and energy usage we executed a linear horizontal illuminance calculation using a 2700K colour temperature covering the main road type with the selected fitting (Type D) Cree 27W led resulting in a low power density of ca 34mW/lx/m2 and usage factor of 0.92kWh/m2. The Cree fitting is available locally (Tralee) to enhance maintenance.

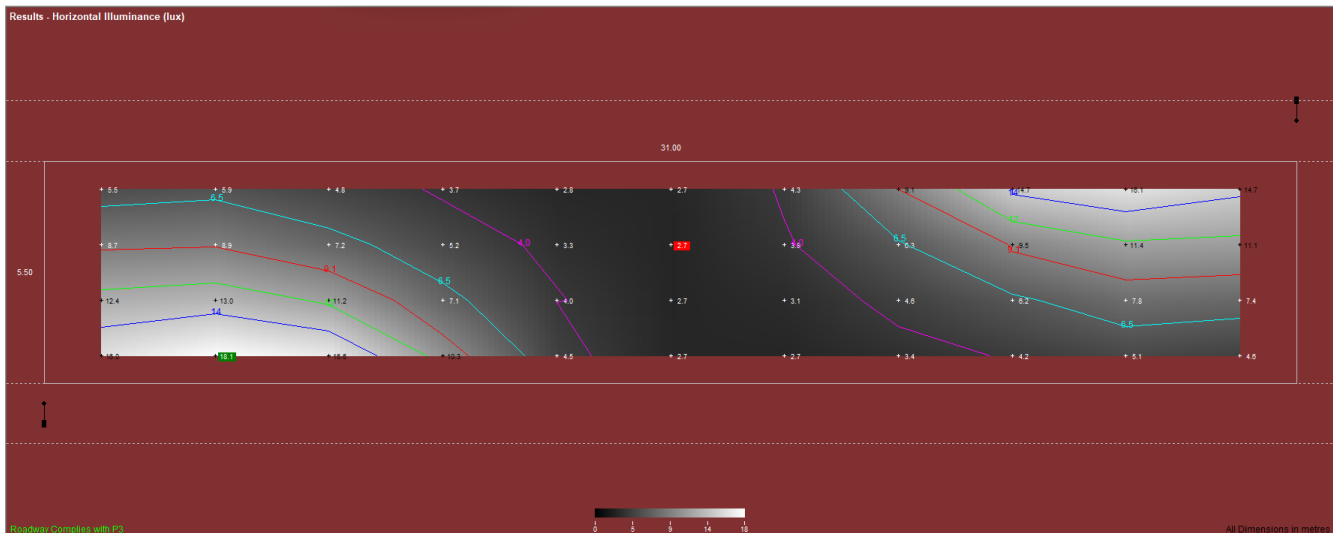


Image 5.1 Linear road illuminance calculation results.

5.2 Calculated achieved illuminance results

From the appendix representing the illumination calculations and the 1:500 DKP and Lighting Reality overall site public lighting drawings we note that the estate circulation roads and public parking area's average and minimum illuminance achieved is in excess of the P3 average and minimum illuminance standard of 7.5Lx and 1.5lx respectively and that the site's main access point junction average and minimum illuminance achieved is in excess of the C3 average and minimum illuminance standard of 15.0Lx and 6.0lx respectively. Uniformity for the P3 and C3 classes are also in compliance.

Element	Standard	E avg lx	E min lx	Uniformity	Compliance
Estate roads & public parking – Grid 1	P3	8.36 (>=7.50)	1.83 (>=1.50)	0.22 (>=0.20)	√
Junction with Pat Scarteen road – Grid 3	C3	15.15 (>=15.00)	6.02 (>=6.00)	0.40 (>=0.40)	√

Table 5.1 Achieved illumination levels.

5.3 Public lighting infrastructure layout. 80200

The public lighting infrastructure drawing will be submitted prior to construction for approval once the ESB has issued the relevant mini/midi pillar information. If and when this ESB information becomes available DKP issue drawing P0600-DKP-80200-DR-XX-XX detailing the infrastructure/ductwork requirements.

5.4 Highlighted lighting column location site layout drawing. 80201

The 1:500 public lighting highlighted column locations site layout drawing is sized as A1/A0 and whereas we are showing an A4 clip of the site layout for this report a separate DKP drawing P0600-DKP-80201-DR-XX-XX (appendix B) has been attached/enclosed representing the high lighted public lighting column locations for better clarity and details.

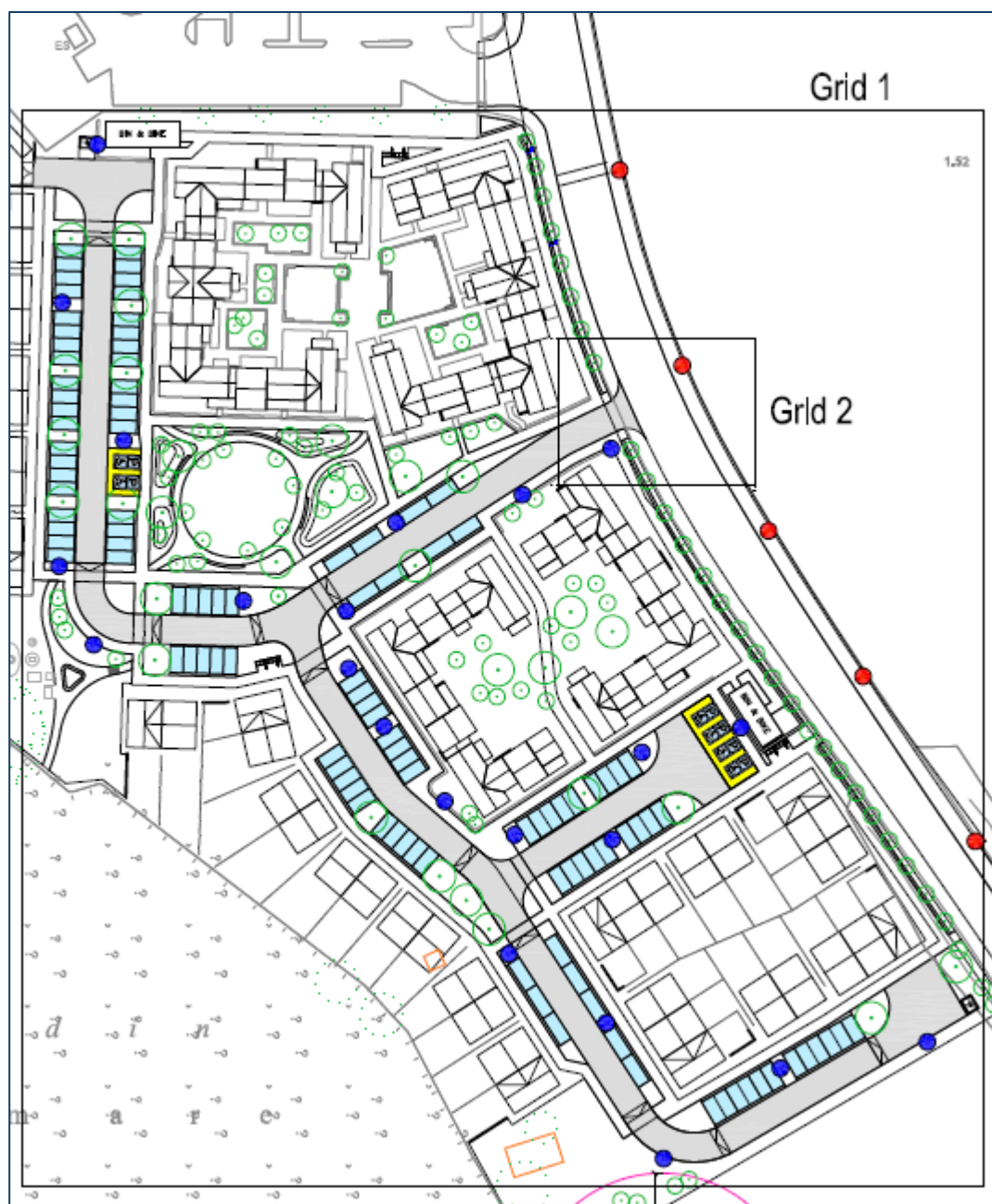


Image 5.2 Public lighting highlighted column location layout. See DKP 80201 drawing for better clarity/accuracy)..

5.5 Illumination contours site layout drawing. 80202

The 1:500 public lighting illumination contours site layout drawing is sized as A1/A0 and whereas we are showing an A4 clip of the site layout for this report a separate DKP drawing P0600-DKP-80202-DR-XX-XX (appendix C) has been attached/enclosed representing the public lighting illumination contours for better clarity and details.

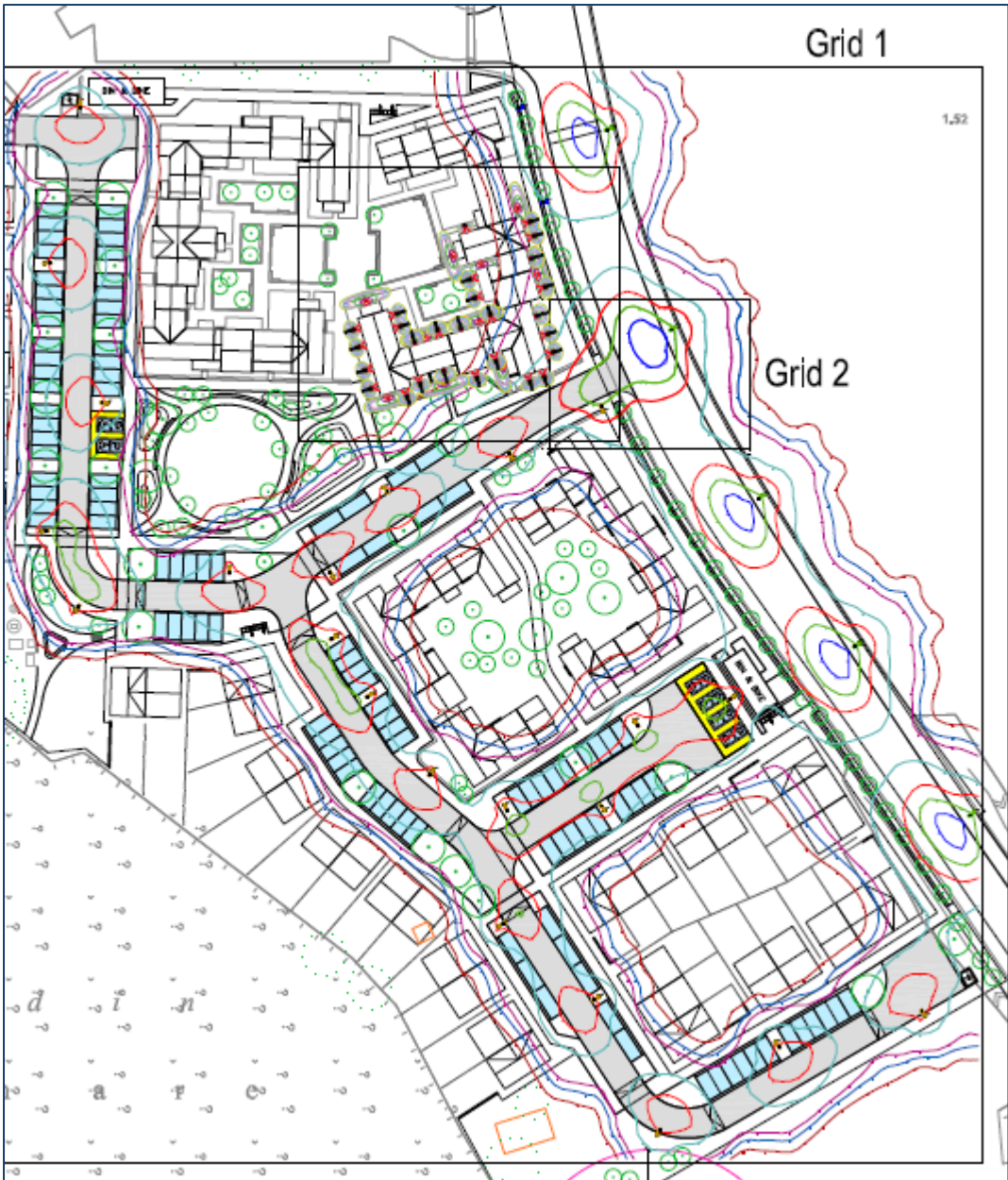


Image 5.3 Public lighting illumination contours layout. See DKP 80202 drawing for better clarity/accuracy)..

5.6 Applied light fittings schedule

From appendix A and B representing the illumination calculations across the site and the 1:500 DKP site illumination contours and highlighted column location site drawings we note that the following lighting fittings have been applied as a result of the initial step 1 linear road luminance calculations to establish the most energy and column-to-column distance efficient light fittings.

Fitting	Make	Model	Lamp / Colour	Load (W)	Flux (klm)	Pole
Luminaire D	Cree	TRSA-02-200-6L-27827W	12lu6L27W3K 2700K	27	4.17	6m
Luminaire B	Cree	SPMA-2-200-D-110-277	65.30W10450 2700K	65	10.45	8m

Table 5.1 Light fitting types applied. (Luminaire B are existing columns on the Pat Scarteen Road)



Luminaire B Data

Supplier	Cree Lighting
Type	SPMA-2-200-D-110-277
Lamp(s)	SPMA-2-200-D-110-277 65.30W 10450.00 lm
Lamp Flux (klm)	10.45
File Name	SPMA-2-200-D-110-277.IES
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	596.3, 74.4, 0.0
No. in Project	8



Luminaire D Data

Supplier	Cree Lighting
Type	TRSA-02-200-6L27827W
Lamp(s)	12lu6L27W2.7K
Lamp Flux (klm)	4.17
File Name	TRSA-02-200-6L-278 27W-1408-QL20-S05 .IES
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	462.5, 41.7, 0.0
No. in Project	22

Image 5.2 Applied light fitting data.

5.7 Light fitting columns

The following column notes represents to column specification to be applied;

General: All new lighting columns will be sided steel tapered, hot dipped galvanised coated finish to ISO EN 40.

In restricted locations: Where access for a hoist and other mechanically operated machine for the purpose of lamp/column maintenance is not possible the relevant column shall be of the foldable type.

5.8 Conclusion

The external (public) lighting design as per illumination calculation report appendix A and 1:500 DKP public lighting drawings appendix B & C meets the criteria set out in EN13201 for lighting class P3 covering the internal roads, and public parking area and lighting class C3 for the estate road junction with the Pat Scardeen road. Further consideration was given to the lighting design by using a light fitting colour temperature of 2700K in line with the bat mitigation recommendations of the National parks and Wildlife Service which is deemed to have less impact on fauna and in particular bats and by minimising the light spill into possible bat activity zones to be to a minimum of ca 1.0lx and we, DKP therefore deem the external lighting design to be in compliance with the applied standards and recommendations.

5.9 Mitigation measures / actions

No mitigation measures required for compliance to lighting standards.

APPENDIX A

Site illuminance calculation report



DATE: 07 September 2026
DESIGNER: DKPartnership
PROJECT No: P0600
PROJECT NAME: Killowen



Estate roads and parking areas are designed to and comply with horizontal illuminance class P3. Lighting columns within the estate complex are 6m height. Existing lighting on Kenmare by-pass road are B type on 8m columns.

Killowen Kenmare



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	76.58	-398.21	179.44	200.79	1.50	1.50
2	Grid 2	176.82	-267.20	36.51	27.30	1.46	1.09

Luminaires

Luminaire B Data



Supplier	Cree Lighting
Type	SPMA-2-200-D-110-277
Lamp(s)	SPMA-2-200-D-110-277 65.30W 10450.00 lm
Lamp Flux (klm)	10.45
File Name	SPMA-2-200-D-110-277.IES
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	596.3, 74.4, 0.0
No. in Project	8

Luminaire D Data



Supplier	Cree Lighting
Type	TRSA-02-200-6L27827W
Lamp(s)	12lu6L27W2.7K
Lamp Flux (klm)	4.17
File Name	TRSA-02-200-6L-278 27W-1408-QL20-S05 .IES
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	462.5, 41.7, 0.0
No. in Project	22

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	D	90.64	-203.68	6.00	269.00	0.00	0.00	1.00			
2	D	84.12	-233.29	6.00	0.00	0.00	0.00	1.00			
3	D	95.68	-258.93	6.00	176.00	0.00	0.00	1.00			
4	D	83.52	-282.43	6.00	0.00	0.00	0.00	1.00			
5	D	89.79	-296.97	6.00	55.00	0.00	0.00	1.00			
6	D	118.00	-288.94	6.00	268.00	0.00	0.00	1.00			
7	D	137.03	-290.78	6.00	122.00	0.00	0.00	1.00			
8	D	146.36	-274.36	6.00	305.00	0.00	0.00	1.00			
9	D	169.89	-269.07	6.00	119.00	0.00	0.00	1.00			
10	B	233.55	-302.99	8.00	212.00	0.00	0.00	1.00			
11	B	277.25	-367.72	6.00	220.00	0.00	0.00	1.00			
12	B	301.32	-404.82	8.00	218.00	0.00	0.00	1.00			
13	B	254.54	-333.87	8.00	219.00	0.00	0.00	1.00			
14	B	215.97	-275.74	8.00	216.00	0.00	0.00	1.00			
15	B	199.82	-244.94	8.00	212.00	0.00	0.00	1.00			
16	B	188.11	-208.46	8.00	201.00	0.00	0.00	1.00			
17	B	181.62	-176.93	8.00	195.00	0.00	0.00	1.00			
18	D	137.59	-301.61	6.00	214.00	0.00	0.00	1.00			
19	D	144.13	-312.16	6.00	214.00	0.00	0.00	1.00			

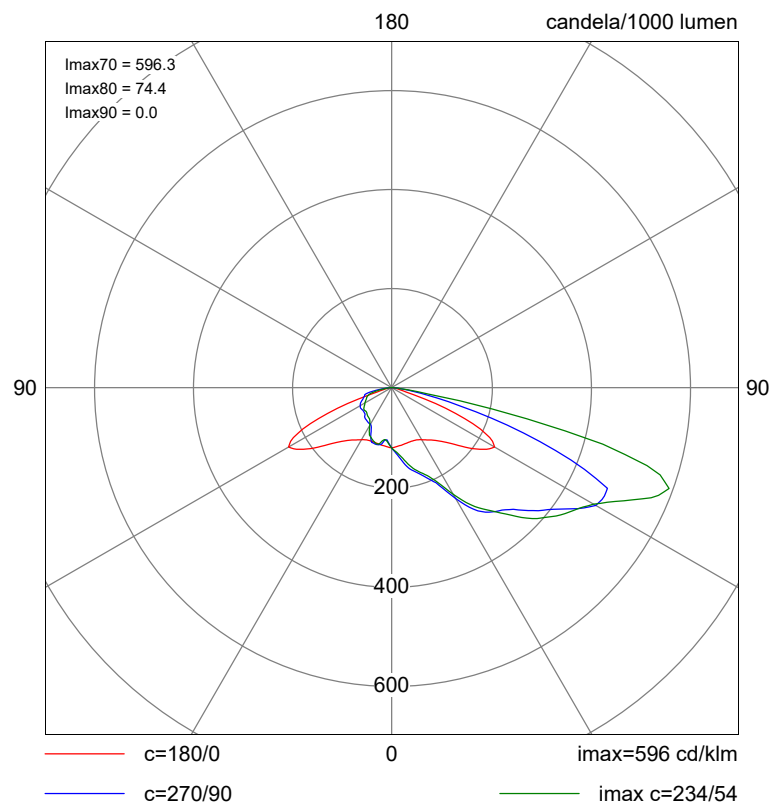


Layout Continues											
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
20	D	155.36	-326.24	6.00	232.00	0.00	0.00	1.00			
21	D	192.28	-317.18	6.00	305.00	0.00	0.00	1.00			
22	D	210.67	-312.58	6.00	212.00	0.00	0.00	1.00			
23	D	167.44	-354.83	6.00	30.00	0.00	0.00	1.00			
24	D	185.67	-367.80	6.00	213.00	0.00	0.00	1.00			
25	D	196.41	-393.09	6.00	60.00	0.00	0.00	1.00			
26	D	218.13	-376.16	6.00	310.00	0.00	0.00	1.00			
27	D	245.55	-371.24	6.00	124.00	0.00	0.00	1.00			
28	D	168.44	-332.61	6.00	296.00	0.00	0.00	1.00			
29	D	186.77	-333.57	6.00	128.00	0.00	0.00	1.00			
46	C	171.73	-204.68	6.00	197.00	0.00	0.00	0.60			
47	C	176.13	-221.95	6.00	202.00	0.00	0.00	0.60			
32	D	186.55	-260.46	6.00	113.00	0.00	0.00	1.00			

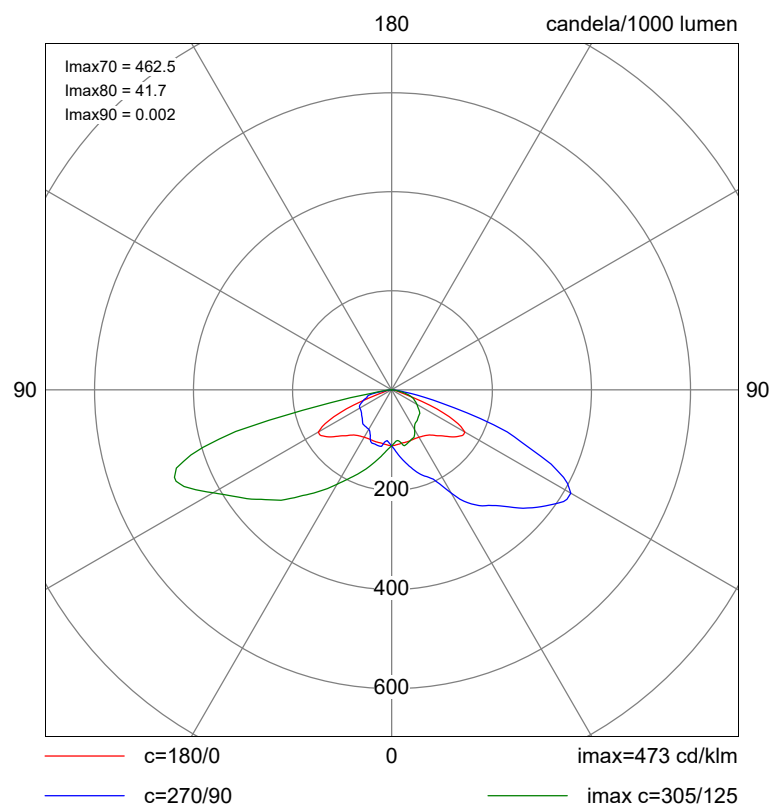


Polar Diagrams

Luminaire B SPMA-2-200-D-110-277



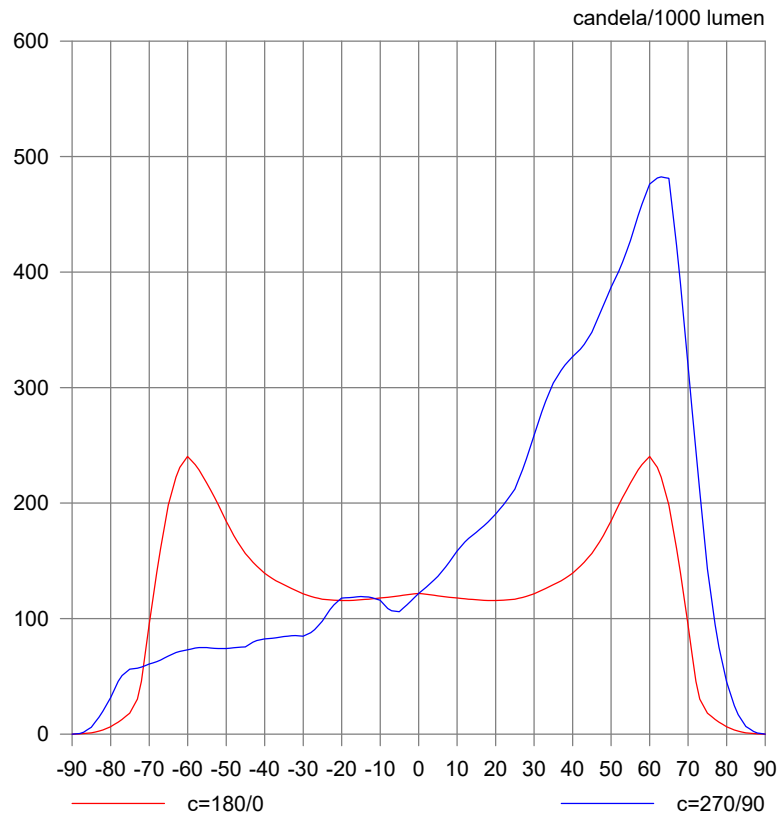
Luminaire D TRSA-02-200-6L27827W



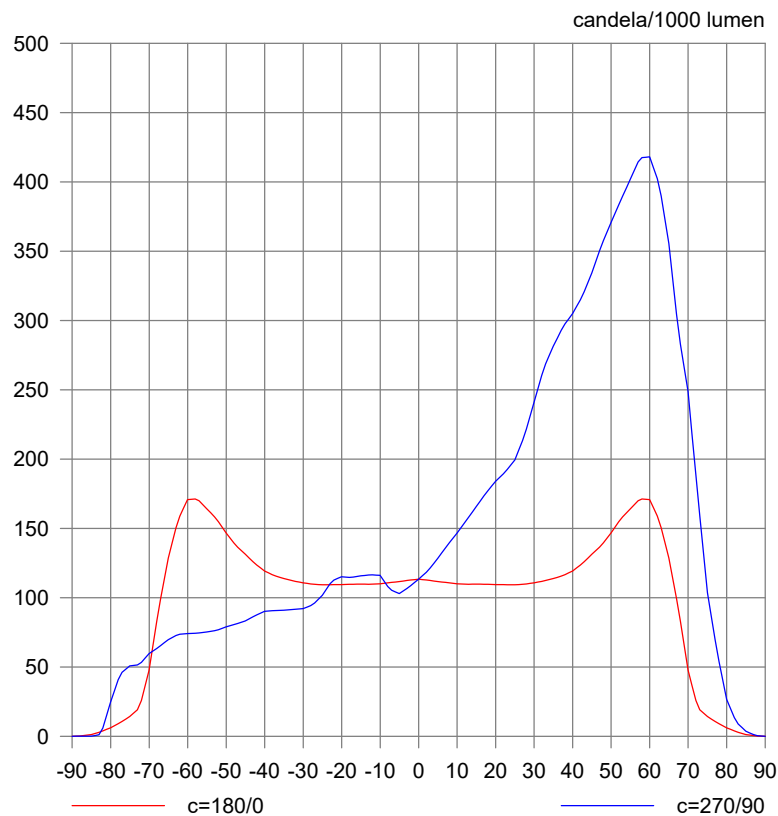


Cartesian Diagrams

Luminaire B SPMA-2-200-D-110-277



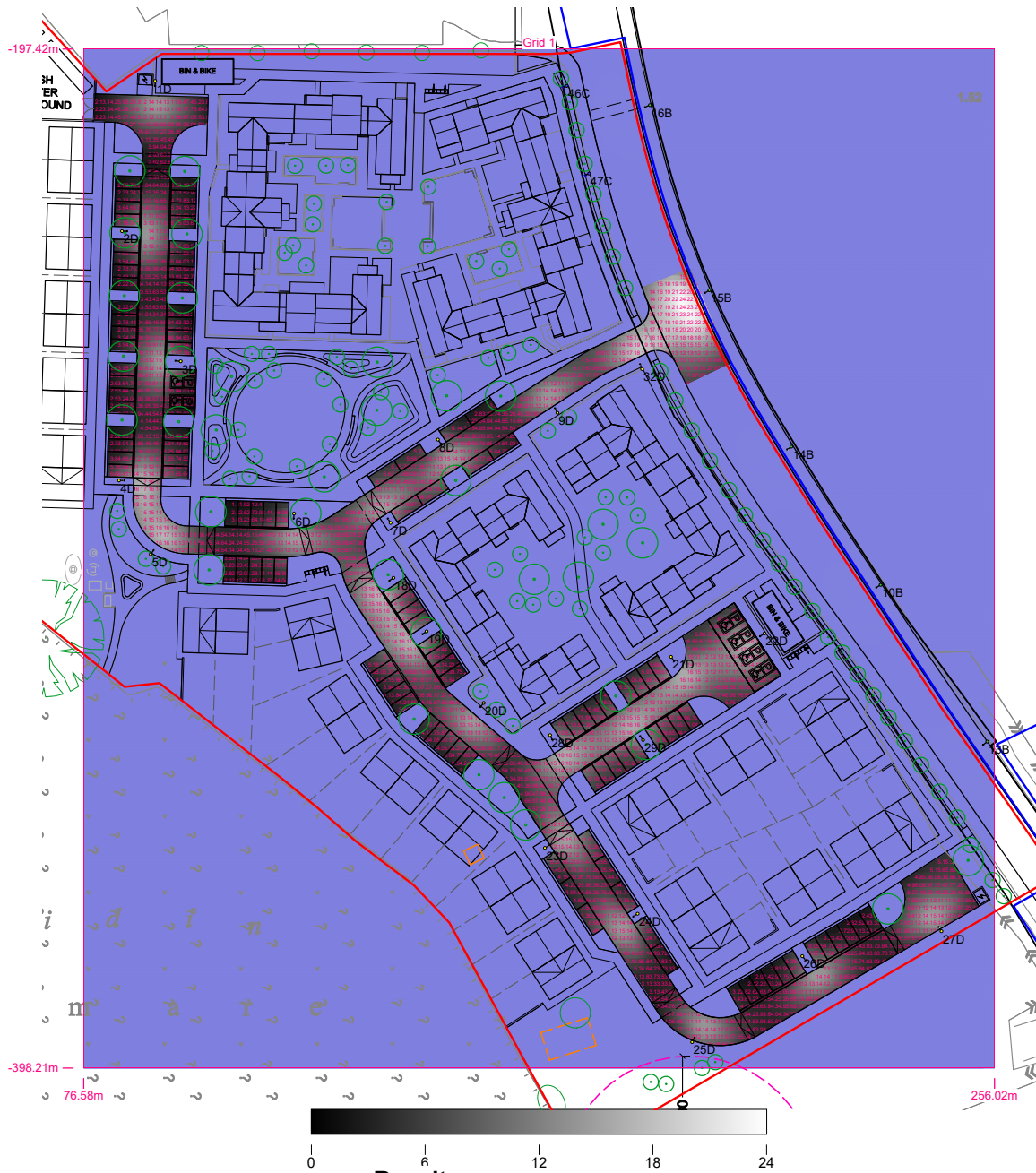
Luminaire D TRSA-02-200-6L27827W





Horizontal Illuminance (lux)

Grid 1



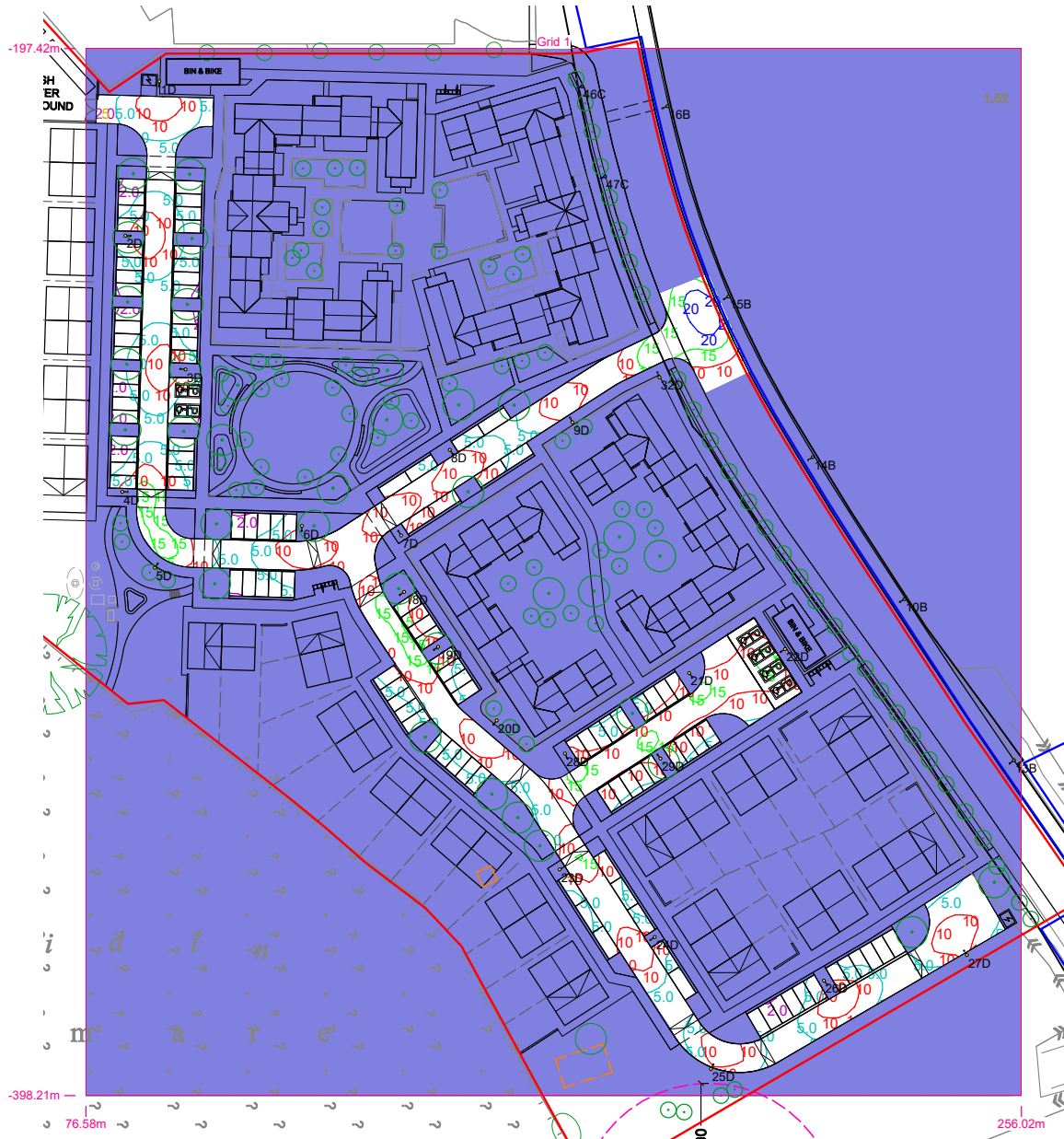
Results

Eav	8.36
Emin	1.83
Emax	24.01
Emin/Emax	0.08
Emin/Eav	0.22



Horizontal Illuminance (lux)

Grid 1



Results

Eav	8.36
Emin	1.83
Emax	24.01
Emin/Emax	0.08
Emin/Eav	0.22



Horizontal Illuminance (lux)

Grid 1



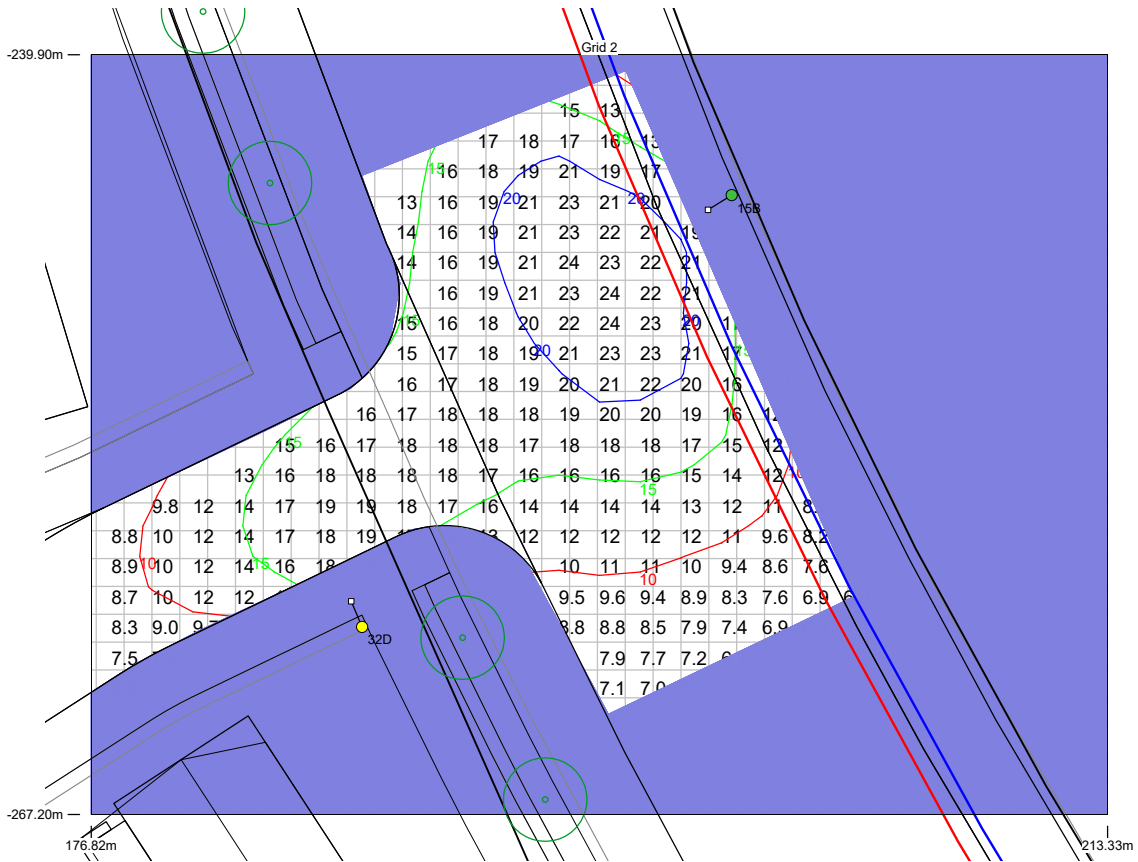
Results

Eav	8.36
Emin	1.83
Emax	24.01
Emin/Emax	0.08
Emin/Eav	0.22



Horizontal Illuminance (lux)

Grid 2



Results

Eav	15.15
Emin	6.02
Emax	23.68
Emin/Emax	0.25
Emin/Eav	0.40