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6600 EXTERNAL (PUBLIC) LIGHTING ANALYSIS

WYATTVILLE PARK BTR

Loughlinstown
Co. Dublin

Green Urban Living N11 Ltd

Project file no
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C	Concept
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Contents

1 Introduction

1.1 Report purpose

This report gives information on the external (public) lighting installation in the new prosed project main drive way and the entrance road / parking areas of Saint Laurence College.

1.2 Instruction

DKPartnership (DKP) have been commissioned by Green Urban Living N11 Ltd to carry out the analysis and report for the proposed development on lands associated with St. Laurence College, Wyattville Park, Loughlinstown, Co. Dublin.

1.3 Development description

The development will principally consist of the demolition of the existing AstroTurf and hardcourt area and the construction of: 256 no. Build-to-Rent apartments (105 no. 1-bed, 145 no. 2-bed and 6 no. 3-bed) in 4 no. blocks ranging in height from 1 to 8 no. storeys above ground level including and connected by single storey podiums with internal communal amenities and facilities; a crèche with outdoor play area; a café; communal and public open space and play facilities; a permanent multimodal access off Wyattville Park Road; a pedestrian/cycle link from the N11 to Wyattville Park; a temporary construction access off the N11; car, motorcycle and bicycle parking; and a set down area. Furthermore, the school side development will consist of: the provision of a new AstroTurf pitch and associated floodlighting; a bin store/vehicle shed; and a new vehicular and pedestrian entrance off Wyattville Park Road. The development will also include all ancillary site services and works to facilitate the development.

2 Executive summary

2.1 Analysis conducted

This report analyses the illumination calculation results of the proposed lighting design in respect of main drive way into the new proposed development and the drive way / parking areas of Saint Laurence college.

2.2 Design considerations

The external lighting design has been executed using the European design standard EN 1332201 class P3 for the main carriage way, minor branches and parking areas.

2.3 Calculation data and targets

The external lighting standard EN132201 was applied using the class P3 for the main carriage way into the proposed new development and drive way into the Saint Laurence College and relevant parking areas. The remaining podium areas and footpath etc are envisaged to have minimal low level (bollards) lighting and forms part of the construction stage and is not part of this initial external lighting report. The table below indicates the minimum P3 EN13201 illumination targets.

CLASS	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3	7.50	Na	1.5
EN13201 standard P4	5.00	Na	1.0

2.4 Calculation results.

The average illuminance calculated using the abovementioned fittings achieves between 6.06 to 7.84 Lx and is in excess of the P3 standard. This has been achieved by applying the fittings SP ratio @ 1.2 given an improved day / night time ratio over and above the initial calculated average illuminance of 6.06, 6.30 and 9.93 Lx.

Element	E avg min (lx)	E max (lx) average	E min (lx) average
EN13201 standard P3	7.50	Na	1.5
EN13201 standard P4	5.00	Na	1.0
Achieved	606 – 7.84	16.77	1.62

2.5 Conclusion

The external (public) lighting design as per illumination report appendix D meets the criteria set out in EN13201 for lighting class P3 and we, DKP, therefor deem the external lighting design to be in compliance with the applied standards and recommendations.

2.6 Mitigation measures / actions

There are no mitigation measures anticipated.

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 the area site map.

Image 3.1 Approximate geographical location of proposed development site.

4 Approach and methodology

4.1 Analysis approach

The external lighting was designed with specific design considerations;
A – As per the guidelines set out by the European standard EN132201 for external lighting class P3.

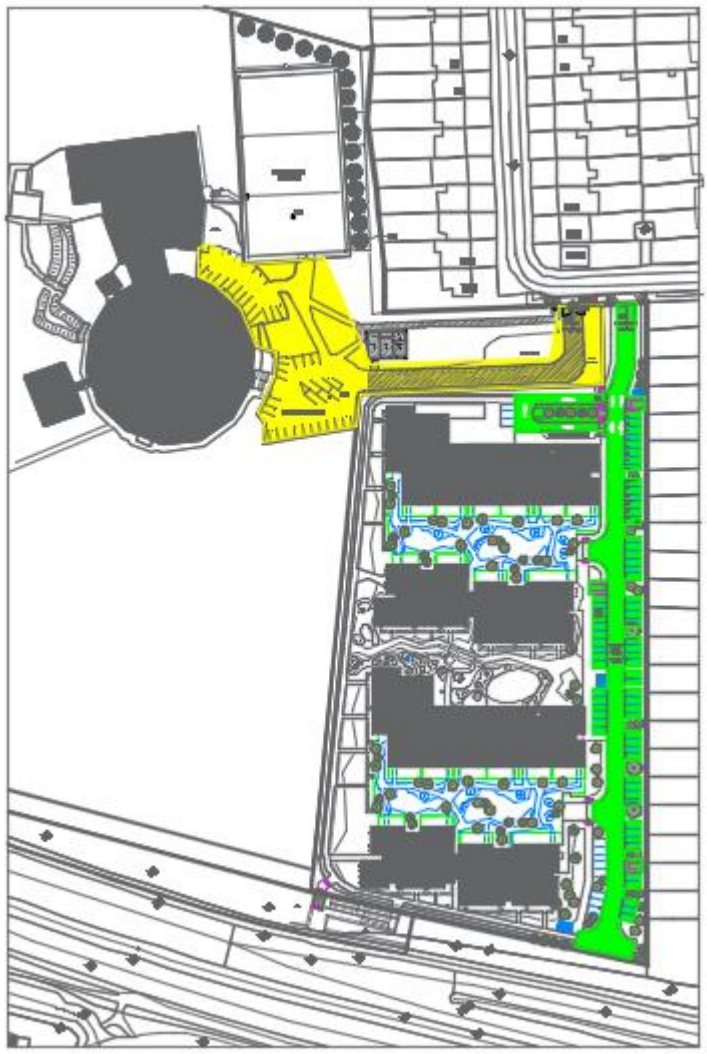
4.2 A - EN132201 external lighting data and targets

The external lighting standard EN132201 was applied using the class P3 for the main carriage way into the proposed new development and for the drive way into the Saint Laurence College and relevant parking areas. The podium slab, local foot path, walkways etc are envisaged to have minimal low level (bollards) lighting and this forms part of the construction stage and is not covered by this initial external lighting report. The table below indicates the minimum P3 EN13201 illumination targets.

CLASS	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3	7.50	Na	1.5
EN13201 standard P4	5.00	Na	1.0

4.3 External lighting area extend

The following area have been including in the external (public) lighting design.
S1 = Saint Laurance College drive way / parking areas. (yellow)
S2, S3, S4, S5 = New proposed development drive way and parking area's. (green)



5 Calculation data and conclusion

5.1 EN132201 External lighting

As per appendix D for the design of the external lighting illumination calculation the following parameters for the carriage way into the proposed new development and drive way into the Saint Laurence College and relevant parking areas. have been applied. The illumination data was calculated using a 6m high pole and a flat bottom clear glass Thorn CQ 12L50 740 EWS BPS CL1 M42 GY-S (STD) narrow spectrum pole top fitting with an average efficacy of 138.9lm/W. These light fitting are asymmetric and only cast light on the surfaces to be illuminated with little or no spill outside the 'to be illuminated area'

Element	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard	7.50	Na	1.5
Achieved	7.92	17.1	2.2

5.2 Calculation surfaces S1, S2, S3, S4, S5 results – Illustration.

From the illumination report Appendix D

5.3 Calculation surfaces S1, S2, S3, S4, S5 results – calculations.

The table below represent a summary of the main calculation data from the illumination calculation software. See appendix D External (public) lighting illumination calculation report.

Properties	Ē	E_{min}	E_{max}	g_1	g_2	Index
Calculation surface 1 Perpendicular illuminance @ 0.00 height	6.93 lx	1.76 lx	33.3 lx	0.25	0.053	S1
Calculation surface 2 Perpendicular illuminance @ 0.00 height	7.84 lx	1.73 lx	16.8 lx	0.22	0.10	S2
Calculation surface 3 Perpendicular illuminance @ 0.00 height	7.82 lx	1.58 lx	15.6 lx	0.20	0.10	S3
Calculation surface 4 Perpendicular illuminance @ 0.00 height	6.06 lx	1.59 lx	14.3 lx	0.26	0.11	S4
Calculation surface 5 Perpendicular illuminance @ 0.00 height	6.30 lx	1.54 lx	14.1 lx	0.21	0.095	S5

Conclusion

The average illuminance calculated using the abovementioned fittings achieves between 6.06 to 7.84 Lx and is in excess of the P3 standard. This has been achieved by applying the fittings SP ratio @ 1.2 given an improved day / night time ratio over and above the initial calculated average illuminance of 6.06, 6.30 and 9.93 Lx. Minimum illuminance achieved is 1.54Lx. Based on the above data we, DKP, deem the external lighting in compliance with the lighting standard EN 13201.

Element	E avg min (lx)	E max (lx) average	E min (lx) average
EN13201 standard P3	7.50	Na	1.5
EN13201 standard P4	5.00	Na	1.0
Achieved	606 – 7.84	16.77	1.62

5.4 Mitigation measures / actions

No mitigation measures required.

5.5 Light fitting illustration

Thorn CQ 12L50 740 EWS BPS CL1 M42 GY-S (STD) on a 6m pole