

STREET and EXTERNAL LIGHTING

Condition 31 of planning permission F/21/91686 reads:

No external lighting shall be installed except in accordance with a lighting strategy that has first been submitted to and approved in writing by the Local Planning Authority.

This document confirms the details required under 31

Street lighting is proposed on this development and has been designed by Enerveo. The street lighting plan and reports can be found at the end of this document.

For external lighting on the individual plots, it is proposed that each dwelling is supplied with a half lantern light to the front and rear of the property.

The half lanterns, specification below, will be positioned in close proximity to the front and rear doors.

The lantern positioned next to the front door will be P.I.R operated with a two-and-a-half-minute automatic switch off setting and the one by the rear door will be manually operated.

Flats will have one, P.I.R operated half lantern light at each external door.



HALF LANTERN + 110°P.I.R.

Description

A decorative polycarbonate vandal resistant Half lanterns with an integral passive infra red detector (P.I.R.). That is designed to illuminate for approximately 2½ minutes when triggered by a moving heat source.

Mains supply - 230V~ 50Hz.

Power Rating: 250W maximum total.

Weather rating: IP44.

Suitable for outdoor use only.

Conforms to BS EN 60598-2-1.

This unit must be wired in accordance with all the latest relevant regulations.

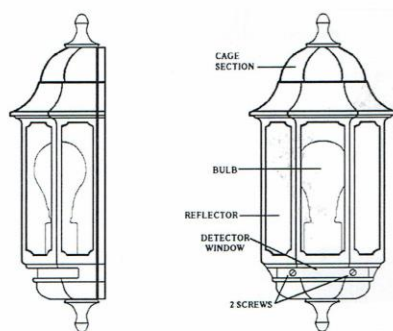
Location and Range

The Half lantern Should be mounted flush to a vertical wall ensuring that the detector head sits underneath the luminaire.

The P.I.R. range is dependent on the mounting height; typical range is 6 metres with a mounting height of 1.7 metres.

Ensure that direct light from any other lamp can not enter the sensor lens.

Product Diagram



Installation

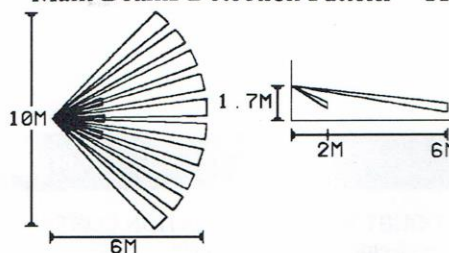
ISOLATE THE MAINS SUPPLY BEFORE WORKING ON THE INSTALLATION.

Avoid mounting the unit near sources of heat such as boiler vents as these could cause spurious triggering.

1. Remove the single screw on the bottom of the lantern. Unhook the front cage section.
2. Mark the wall using the base as a template and drill to suit.
3. Thread the incoming mains cable through the grommet. Fit the base plate to the wall using 2 screws and plugs (not supplied). Seal the cable entry & fixings with silicone sealant.
4. Wire the mains cable to the connector block, following the wiring diagram shown. Connect Live to 1, Neutral to N and Earth to $\oplus$. Note that the unit is a class 2 fitting and does not require an Earth. The Earth connector simply provides a safe place for the earth wire to be terminated or carried through to earth other fittings if used.
5. Fit the lamp
6. Hook the cage onto the top of the back plate and replace the screw.

Typical Beam Pattern

Main Beams Detection Pattern = 110°



The Half lantern P.I.R. is most sensitive when a body is moving across the beam and less sensitive directly into the beam

INS908

Our Ref: EVO20022271-SL-001-A

Your Ref: HFM-495/0043

Jane Carrington
Technical Planner
Foreman Homes
Yarmouth House,
1300 Parkway,
Whiteley,
Hampshire.
PO15 7AX

26/01/2024

Dear Jane Carrington,

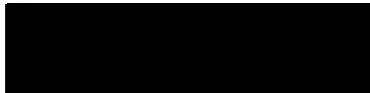
Toynbee Road (Non-Adoptable), Eastleigh

Thank you for your scheme enquiry regarding Toynbee Road (Non-Adoptable), Eastleigh.

We have undertaken a lighting design for the area using Urbis Axia 3.1 lanterns on 6 metre post top columns. Lighting has been designed in accordance with BS5489-01:2020, and lighting classes of P5 & P6 was applied.

Following the completed design work if there are changes to the road layouts which require design revisions these may incur further charges.

Yours sincerely,



James Duffin BA (Hons) IEng MILP
Senior Lighting Designer
Enerveo

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Design Commentary Toynbee Road (Non-Adoptable), Eastleigh

1. Introduction

- 1.1. Enerveo has been commissioned by Foreman Homes to develop a detailed lighting design for a non-adoptable residential development.
- 1.2. The purpose of this document is to provide commentary on the lighting design methodology adopted for the proposed works including decisions for design constraints and deviations from design standards.

2. Drawings

- 2.1. Drawing at 1:500 scale.

3. Standards

- 3.1. The proposed lighting design has been carried out using the following non-exhaustive list of standards and documents:
 - BS 5489-1:2020, *Code of practice for the design of road lighting - Part 1: Lighting of roads and public amenity areas.*
 - BS EN 13201-2:2015, *Road lighting — Part 2: Performance requirements*
 - ILP Guidance Note, GN01/21, *Guidance Notes for the Reduction of Obtrusive Light.*
 - ILP Guidance Note, GN08/23, *Bats and Artificial Lighting at Night.*

4. General Layout

- 4.1. The location of the proposed works is the former Jewson site at the northern end of Toynbee Road.
- 4.2. The works consist of a new residential development of 105 dwellings on a former commercial site.

5. Street Lighting Class

- 5.1. The lighting design has been carried out in accordance with the requirements of BS5489-01:2020, Table A.5.

	Toynbee Road	Granary Lane	Footpath
Reference Table	A.5	A.5	A.5
Environmental Zone	E3, moderate ambient brightness	E3, moderate ambient brightness	E3, moderate ambient brightness
Traffic flow	Quiet	Very Quiet	Quiet
Traffic composition	Mixed	Mixed	Pedestrians
Road Speed	30 mph	30 mph	N/A
Other Considerations	Unrestricted parking road geometry dictates slow speeds	Unrestricted parking, road geometry & short length dictates slow speeds	None
Lighting Class	P5 (reduced to match tie in with existing lighting on Toynbee Road)	P5 (reduced to match tie in with existing lighting on Granary Lane)	P6

Lighting Class	Average Illuminance, Eave (Lux)	Average Illuminance Maximum, Eave (Lux)	Minimum Illuminance, Eave (Lux)
P5	3.00	4.50	0.6
P6	2.00	3.00	0.4

6. Lighting Design Notes

- 6.1. To avoid the new developments lighting being significantly brighter than the adjacent existing development, lighting levels have been selected to match the existing P5. Given that this is the final section of the development as the surrounding areas are either fully developed or a railway line, significant traffic levels are not to be expected and a P5 lighting level would not be problematic.
- 6.2. The proposed columns have been sited to minimise spill light onto dwellings and lanterns are proposed to be fitted with rear louvres to minimise spill light further.
- 6.3. At all calculated locations spill light onto frontages (with CLO applied) is below the 2-lux cited in HCC TG13. This advice has been followed to allow the site to be made adoptable if necessary but also minimise the risk of complaints about light intrusion from the street lighting.
- 6.4. Columns have been proposed to be installed rear of path as far as possible.
- 6.5. Columns at the western end of the site are proposed to be installed with 1 metre setback from the kerb as there is no footway at this location directly adjacent to the carriageway.
- 6.6. Columns on the spur at the eastern side of the are proposed with 1 metre setback to minimise spill light onto the adjacent dwellings.
- 6.7. The footpath is too long to be lit to standard with a single lantern, however, not long enough to need two. However, to avoid underlighting two columns are proposed which results in the calculated results being higher than required for P6. It is noted that the two trees proposed at the centre of the footpath will reduce levels further, and levels on site will be closer to the required P6.
- 6.8. 3000K warm white LEDs are proposed to match HCC requirements for residential streets.
- 6.9. Glare has been controlled using G1 optics as the short sections and frequent bends make the use threshold increment (TI) inappropriate as it requires many columns in a row to be accurately calculated.
- 6.10. Equipment along with other Foreman homes sites Enerveo has designed, is proposed to use PFI type equipment, albeit with black rather than green columns and lanterns. This approach would allow the design to be quickly converted to adoptable standards if adoption were sort with only fairly minor amendments to the design.

7. Environmental

- 7.1. The designer has not been notified by the principal designer or client about site-specific Environmental Impact Assessments, mitigations, or other designations of nature conservation (including but not limited to SSSI, SAC, SPA).

8. Maintenance Factor

- 8.1. Environmental maintenance factor assuming a 48-month clean is 0.94.
- 8.2. Luminaire maintenance is 0.9 (this considers lumen depreciation and LED failures, L90B10).
- 8.3. Giving overall maintenance factors of 0.85 (as per HCC TG13).

9. Column Locations

- 9.1. Columns are to be installed at the rear of footway / footpath.
- 9.2. Any deviation from rear of footway / footpath are noted on the drawing.

10. Column Type

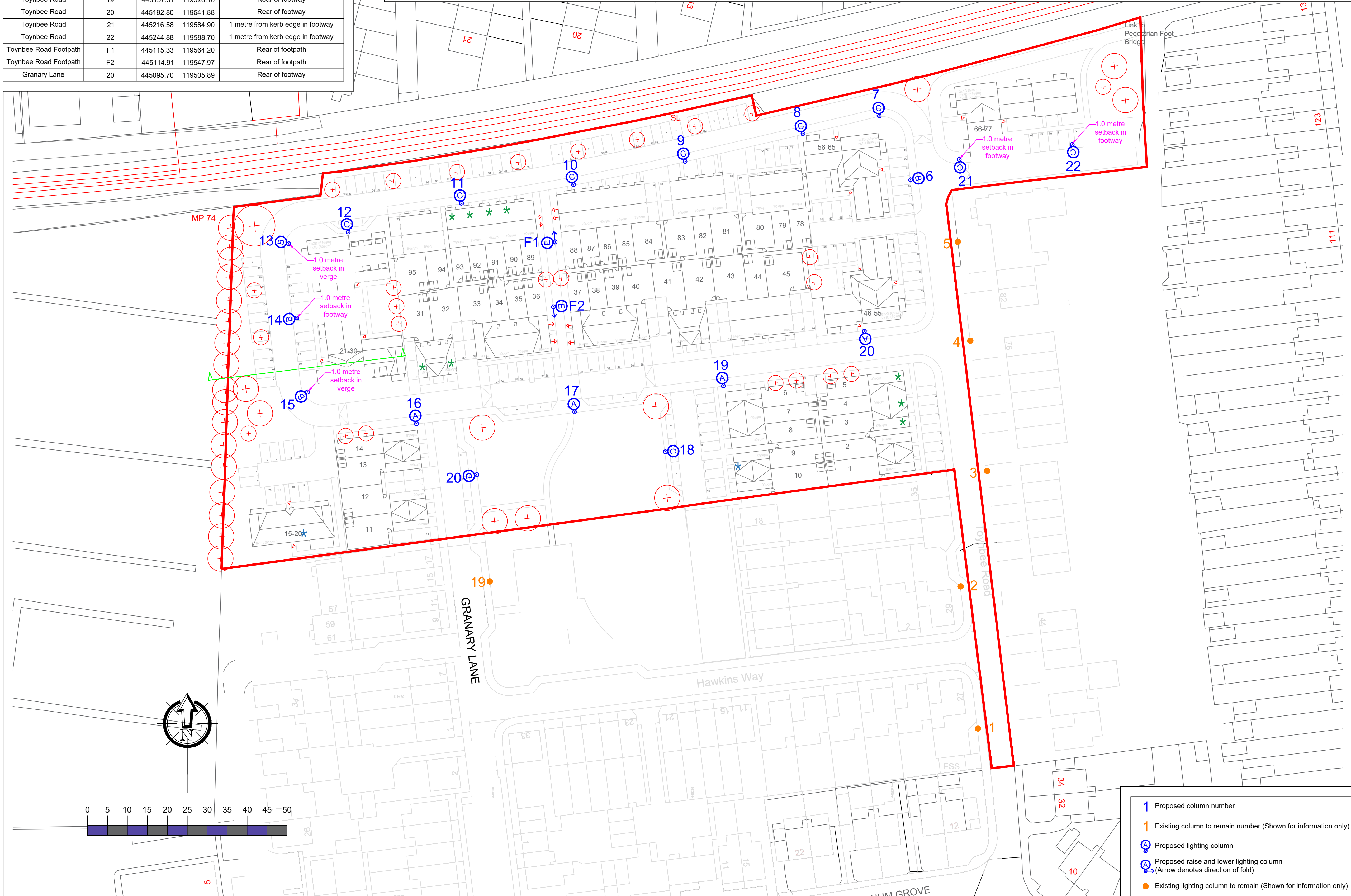
- 10.1. Columns to be 6 metre galvanized tubular steel straight shaft (no outreach bracket), painted (factory finished).
- 10.2. Columns to be finished in BS4800 00E53 black.
- 10.3. Raise and lower columns are to be installed on footpaths and are to be of the mid hinge type.

11. Lantern Type

- 11.1. Urbis Axia 3 with DALI dimming ballast fitted with Mayflower six pin NEMA socket, post-top mounted, tilt 0 degree.
- 11.2. Lanterns to be finished in BS4800 00E53 black.
- 11.3. Every lighting scheme is required to install one Mayflower Complete Lighting Control DALI Sub-master unit to control Nodes and link to Central Management System

Road Name	Column Number	Easting	Northing	Setback
Toynbee Road	6	445204.39	119579.81	Rear of footway
Toynbee Road	7	445196.54	119595.79	Rear of footway
Toynbee Road	8	445177.46	119591.34	Rear of footway
Toynbee Road	9	445147.90	119584.41	Rear of footway
Toynbee Road	10	445119.95	119578.53	Rear of footway
Toynbee Road	11	445091.86	119573.90	Rear of footway
Toynbee Road	12	445063.48	119566.67	Rear of footway
Toynbee Road	13	445048.57	119563.76	1 metre from kerb edge in verge
Toynbee Road	14	445050.63	119545.17	1 metre from kerb edge in footway
Toynbee Road	15	445053.29	119526.63	1 metre from kerb edge in verge
Toynbee Road	16	445080.59	119518.68	Rear of footway
Toynbee Road	17	445120.19	119521.63	Rear of footway
Toynbee Road	18	445142.93	119511.65	Rear of footway
Toynbee Road	19	445157.51	119528.16	Rear of footway
Toynbee Road	20	445192.80	119541.88	Rear of footway
Toynbee Road	21	445216.58	119584.90	1 metre from kerb edge in footway
Toynbee Road	22	445244.88	119588.70	1 metre from kerb edge in footway
Toynbee Road Footpath	F1	445115.33	119564.20	Rear of footpath
Toynbee Road Footpath	F2	445114.91	119547.97	Rear of footpath
Granary Lane	20	445095.70	119505.89	Rear of footway

Symbol	Count	Mounting Height	Column Material	Column Type	Column Colour	Installation Type	Root Length	Lantern	Lantern Weight	Windage	Mounting	Lantern Tilt	Lantern Colour	Optic Setting	Output	Drive Current	Number of LEDs	Colour Temperature	Wattage	Control Unit	Switching Unit	Isolator	Electricity Supply	Luminaire Elexon Code	Switching Elexon Code
	4	6 metres	Galvanised Steel	Stepped tubular (South Coast PFI Spec)	BS4800 00E53 Black	Planted	1000mm Factory Standard	Urbis Axia 3.1	3.6kg	0.030m²	Post Top	0 degrees	BS4800 00E53 Black	5266 Rear Louver	1.78 klm	300mA	16	3000K (Warm White)	16W	Electronic DALI Enabled	Zodion SS6 20/20/ NEMA photocell	DNO & Secondary Isolator	DNO	42 0016 0000 100	98 0001 0010 100
	4	6 metres	Galvanised Steel	Stepped tubular (South Coast PFI Spec)	BS4800 00E53 Black	Planted	1000mm Factory Standard	Urbis Axia 3.1	3.6kg	0.030m²	Post Top	0 degrees	BS4800 00E53 Black	5295 Rear Louver	0.85 klm	300mA	8	3000K (Warm White)	9W	Electronic DALI Enabled	Mayflower External GPS Node	DNO & Secondary Isolator	DNO	42 0009 0000 100	98 0001 0010 100
	9	6 metres	Galvanised Steel	Stepped tubular (South Coast PFI Spec)	BS4800 00E53 Black	Planted	1000mm Factory Standard	Urbis Axia 3.1	3.6kg	0.030m²	Post Top	0 degrees	BS4800 00E53 Black	5295 Rear Louver	1.11 klm	400mA	8	3000K (Warm White)	11W	Electronic DALI Enabled	Mayflower External GPS Node	DNO & Secondary Isolator	DNO	42 0011 0000 100	98 0001 0010 100
	1	6 metres	Galvanised Steel	Stepped tubular (South Coast PFI Spec)	BS4800 00E53 Black	Planted	1000mm Factory Standard	Urbis Axia 3.1	3.6kg	0.030m²	Post Top	0 degrees	BS4800 00E53 Black	5267 Rear Louver	1.48 klm	600mA	8	3000K (Warm White)	17W	Electronic DALI Enabled	Mayflower External GPS Node	DNO & Secondary Isolator	DNO	42 0017 0000 100	98 0001 0010 100
	2	6 metres	Galvanised Steel	Mid-hinged raise & lower (South Coast PFI Spec)	BS4800 00E53 Black	Planted	1000mm Factory Standard	Urbis Axia 3.1	3.6kg	0.030m²	Post Top	0 degrees	BS4800 00E53 Black	5296 Rear Louver	0.88 klm	300mA	8	3000K (Warm White)	9W	Electronic DALI Enabled	Mayflower External GPS Node	DNO & Secondary Isolator	DNO	42 0009 0000 100	98 0001 0010 100



- Notes
- Do not scale from drawing if not printed at original paper size.
 - All street lighting equipment and works to be carried out in accordance with current Hampshire County Council specification TG13 and standard detail drawings HCC11/L & HCC11/C series.
 - Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeuidig.co.uk
 - During works all traffic management to be in accordance with Chapter 8 of the Traffic Signs Manual.
 - Lighting columns to be fed by DNO supply unless otherwise shown.
 - Each luminaire to be fitted with 5 pin NEMA Socket.
 - Maintenance numbers as shown on the drawing are to be confirmed by Foreman Homes. Numbering shown is a continuation of earlier developments
 - Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
 - All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
 - All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
 - All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
 - All installations shall ensure that trees, vegetation and foliage does not interfere with lighting distribution. Refer to HCC's drawing HCC11/L/085 'Areas to be kept clear of trees and shrubs'.
 - This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer and includes a Linesearch by the lighting scheme designer which forms which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list. The designer has carried out a Linesearch however no further checks have been undertaken.
 - Lanterns to be installed perpendicular to the kerb edge, unless stated on the drawing
 - Columns must be setback at least 0.8 metres from the kerb edge (30mph).
 - Any re-sited columns or lanterns must be inspected and if found to be damaged replaced with new equipment.

SAFETY HEALTH AND ENVIRONMENTAL (SHE) INFORMATION

Please refer to: Hazard Elimination List Document Ref: EVO20022271-HE-001-A

Lighting Clases - BS5489-1:2020	
Toynbee Road	P5
Granary Lane	P5
Footpath	P6

A	Original Issue	26/01/24	JLD
REV	DESCRIPTION	DATE	BY
DWG STATUS			
FOR COMMENTS			
ENERVEO			
ENERVEO - STREET LIGHTING 34 Palmerston Drive, Fareham, Hampshire PO14 1DJ Email: lightingdesign@enerveo.com Tel: 01133 853129			
TITLE Lighting Layout (Non adoptable)			
PROJECT Toynbee Road, Eastleigh			
CLIENT Foreman Homes			
SHEET NUMBER 1 of 1			
SCALE 1:500		DATE 26/01/24	
PAPER SIZE A1		DRAWN JLD	
DRAWING NUMBER EVO20022271-LD-001		CHECKED RHJ	
		APPROVED SAB	
			REVISION A

DATE: 26/01/2024
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20022271-AC-001-A
PROJECT NAME: Toynbee Road, Eastleigh

ENERVEO

Toynbee Road, Eastleigh
(Non adoptable)

Road Lighting Class - P5
Footpath Lighting Class - P6

Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Outdoor Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
Senior Lighting Designer
Enerveo
Unit 34
Palmerston Business Park
Fareham
Hampshire
PO14 1DJ
e-mail: james.duffin@enerveo.com

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 - Existing - P5	445204.90	119472.50	30.00	90.00	1.50	1.50
2	Grid 2 - South	445043.41	119506.92	180.00	27.00	1.50	1.50
3	Grid 3 - West - P5	445034.63	119511.16	30.00	66.00	1.50	1.50
4	Grid 4 - North - P5	445036.78	119550.72	180.00	30.00	1.50	1.50
5	Grid 5 - East - P5	445196.01	119561.81	27.00	51.00	1.50	1.50
6	Grid 6 - Eastern Spur - P5	445213.31	119568.05	60.00	24.00	1.50	1.50
7	Grid 7 - Vertical Plots 46...	445183.20	119542.59	18.94	5.00	1.46	1.25
8	Grid 8 - Vertical Plot 6	445166.84	119527.65	9.02	5.00	1.29	1.25
9	Grid 9 - Vertical Plot 14	445080.86	119517.08	9.14	5.00	1.31	1.25
10	Grid 10 - Vertical Plots 9...	445096.41	119573.10	8.76	5.00	1.46	1.25
11	Grid 11 - Vertical Plots 8...	445124.61	119577.18	9.01	5.00	1.50	1.25
12	Grid 12 - Vertical Plots 5...	445196.23	119591.56	18.92	5.00	1.46	1.25
13	Grid 13 - Vertical Plots 6...	445218.52	119593.95	8.38	5.00	1.40	1.25
14	Grid 14 - Granary Lane - P...	445081.33	119476.95	21.00	42.00	1.50	1.50
15	Grid 15 - Southern Spur - ...	445142.59	119493.13	17.69	35.38	1.47	1.47
16	Grid 16 - Footpath - P6	445115.38	119529.16	6.00	51.00	0.86	1.50
17	Grid 17 - Vertical (Side) ...	445115.68	119576.04	9.46	5.00	1.35	1.25
18	Grid 18 - Vertical (Side) ...	445110.96	119565.29	9.50	5.00	1.36	1.25
19	Grid 19 - Vertical (Side) ...	445119.24	119546.58	9.04	5.00	1.29	1.25
20	Grid 20 - Vertical (Side) ...	445114.45	119536.96	9.04	5.00	1.29	1.25

Luminares

Luminaire A Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5266 Integrated lenses Rear louvers 16 OSLO SQUARE
Lamp(s)	16 OSLO SQUARE GIANT@300mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.78 WW 3000K/70
File Name	AXIA 3.1 5266 16 LED 300mA WW 730 16.1W 457662 BL 230V TF.Idt
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1216.3, 169.4, 0.0
No. in Project	4

Luminaire B Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 8 OSLO SQUARE G
Lamp(s)	8 OSLO SQUARE GIANT@300mA WW 730 230V 01-42-072
LampFlux(klm)/Colour	0.85 WW 3000K/70
File Name	AXIA 3.1 5295 8 LED 300mA WW 730 8.9W 457592 BL 230V TF.Idt
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	842.8, 11.9, 0.0
No. in Project	4

Luminaire C Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 8 OSLO SQUARE G
Lamp(s)	8 OSLO SQUARE GIANT@400mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.11 WW 3000K/70
File Name	AXIA 3.1 5295 8 LED 400mA WW 730 11W 457592 BL 230V TF.Idt
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	842.8, 11.9, 0.0
No. in Project	9

Luminaire D Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5267 Integrated lenses Rear louvers 8 OSLO SQUARE G
Lamp(s)	8 OSLO SQUARE GIANT@600mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.48 WW 3000K/70
File Name	AXIA 3.1 5267 8 LED 600mA WW 730 16.6W 457672 BL 230V TF.Idt
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1281.8, 174.5, 0.0
No. in Project	1

Luminaires

Luminaire E Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5296 Integrated lenses Rear louvers 8 OSLON SQUARE G
Lamp(s)	8 OSLON SQUARE GIANT@300mA WW 730 230V 01-42-072
LampFlux(klm)/Colour	0.88 WW 3000K/70
File Name	AXIA 3.1 5296 8 LED 300mA WW 730 8.9 W 457602 BL 230V TF.Idt
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1285.9, 28.2, 0.0
No. in Project	2

Luminaire Z Data

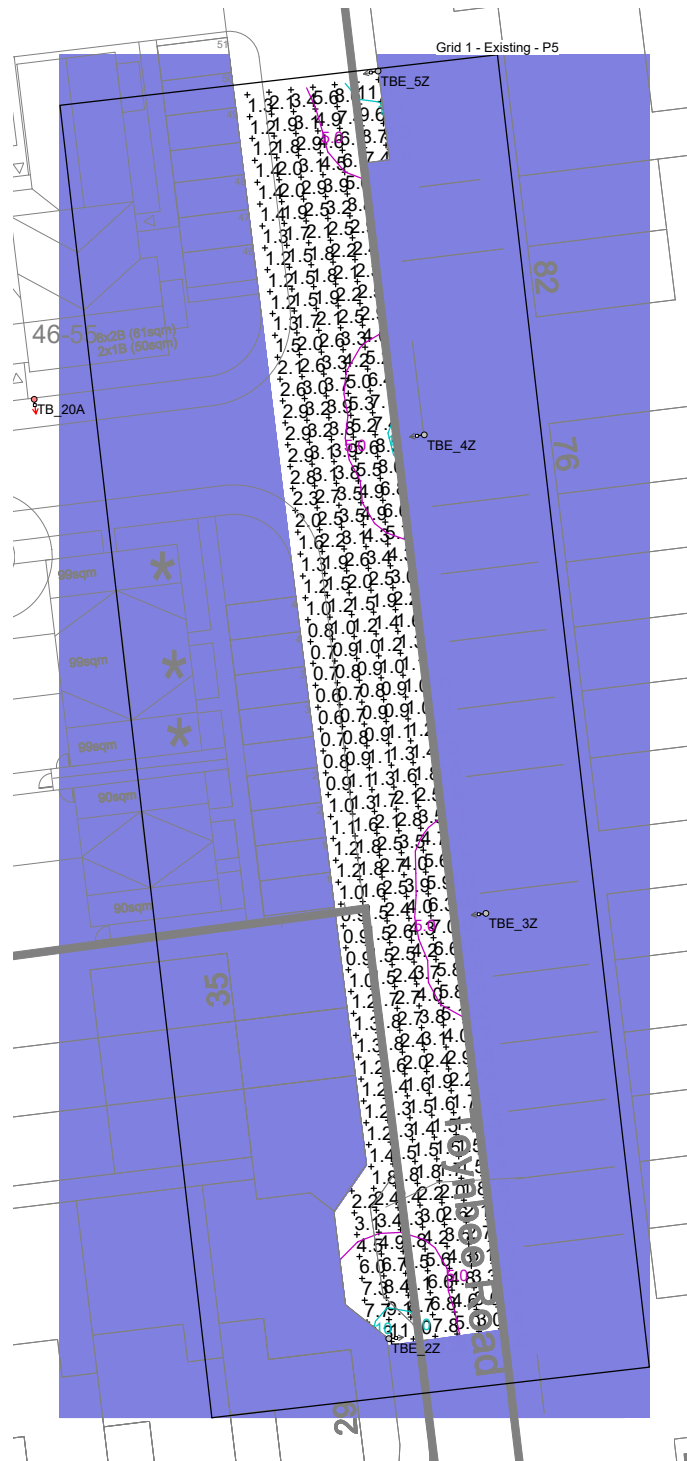
Supplier	South Coast PFI
Type	2565/2566 PNN*
Lamp(s)	1PL-L 36W
Lamp Flux (klm)	2.90
File Name	INR819Y
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	184.0, 89.0, 9.0
No. in Project	6

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
TBE_1	Z	445221.28	119442.29	6.00	5.00	0.00	0.00	0.50			
TBE_2	Z	445216.95	119477.89	6.00	5.00	0.00	0.00	0.50			
TBE_3	Z	445223.57	119506.86	6.00	187.00	0.00	0.00	0.50			
TBE_4	Z	445219.37	119539.46	6.00	188.00	0.00	0.00	0.50			
TBE_5	Z	445216.22	119564.24	6.00	191.00	0.00	0.00	0.50			
TB_20	A	445192.80	119541.88	6.00	277.00	0.00	0.00	0.40			
TB_19	A	445157.51	119528.16	6.00	99.00	0.00	0.00	0.40			
TB_17	A	445120.19	119521.63	6.00	100.00	0.00	0.00	0.40			
TB_16	A	445080.59	119518.68	6.00	98.00	0.00	0.00	0.40			
TB_15	B	445053.29	119526.63	6.00	215.00	0.00	0.00	0.40			
TB_14	B	445050.63	119545.17	6.00	188.00	0.00	0.00	0.40			
TB_13	B	445048.57	119563.76	6.00	167.00	0.00	0.00	0.40			
TB_12	C	445063.48	119566.67	6.00	100.00	0.00	0.00	0.40			
TB_11	C	445091.86	119573.90	6.00	101.00	0.00	0.00	0.40			
TB_10	C	445119.95	119578.53	6.00	102.00	0.00	0.00	0.40			
TB_9	C	445147.90	119584.41	6.00	103.00	0.00	0.00	0.40			
TB_8	C	445177.46	119591.34	6.00	107.00	0.00	0.00	0.40			
TB_7	C	445196.54	119595.79	6.00	95.00	0.00	0.00	0.40			
TB_6	B	445204.39	119579.81	6.00	10.00	0.00	0.00	0.40			
TBS_21	C	445216.58	119584.90	6.00	277.00	0.00	0.00	0.40			
TBS_22	C	445244.88	119588.70	6.00	278.00	0.00	0.00	0.40			
GLE_19	Z	445098.93	119479.14	6.00	186.00	0.00	0.00	0.50			
GL_20	D	445095.70	119505.89	6.00	188.00	0.00	0.00	0.40			
TB_18	C	445142.93	119511.65	6.00	4.00	0.00	0.00	0.40			
FP_F1	E	445115.33	119564.20	6.00	186.00	0.00	0.00	0.40			
FP_F2	E	445114.91	119547.97	6.00	5.00	0.00	0.00	0.40			

Horizontal Illuminance (lux)

Grid 1 - Existing - P5

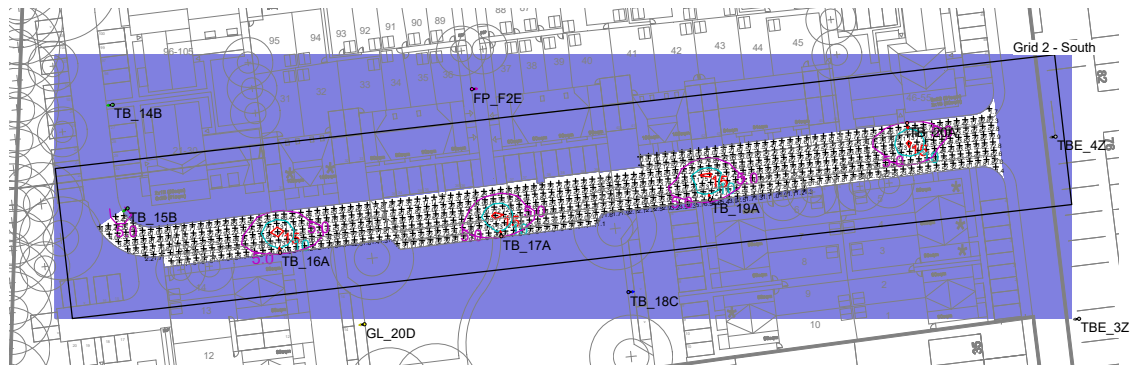


Results

Eav	3.23
Emin	0.64
Emax	12.03
Emin/Emax	0.05
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 2 - South

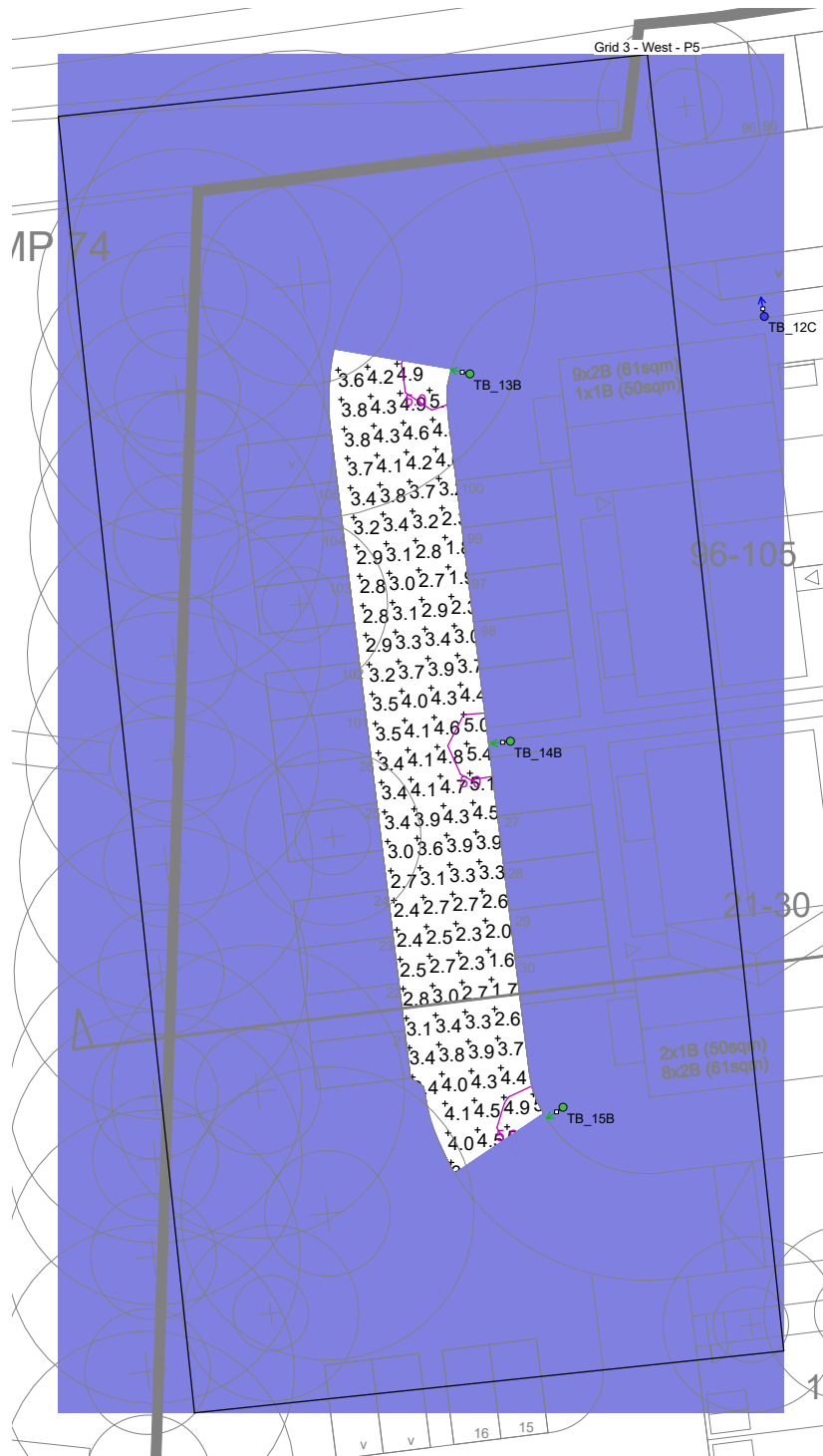


Results

Eav	3.99
Emin	0.72
Emax	17.47
Emin/Emax	0.04
Emin/Eav	0.18

Horizontal Illuminance (lux)

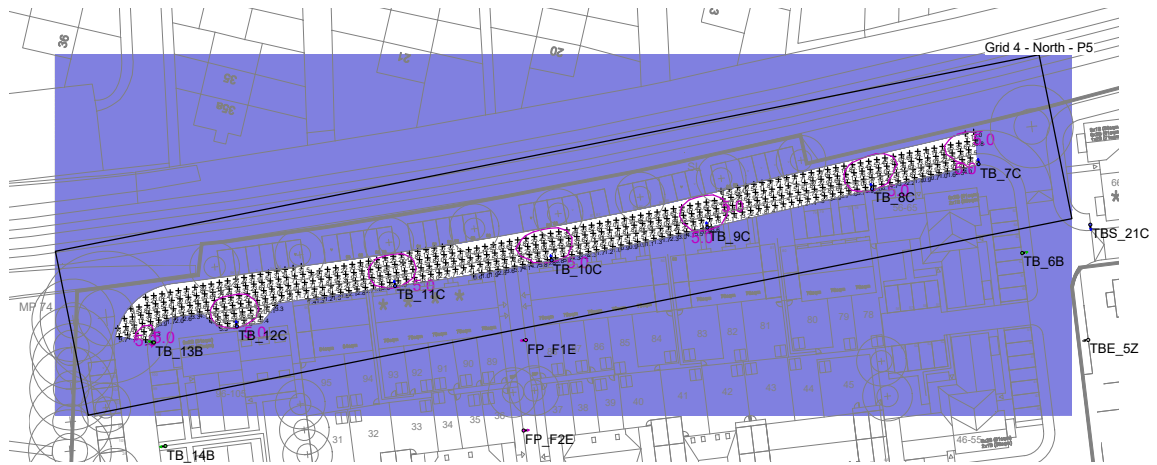
Grid 3 - West - P5

**Results**

Eav	3.55
Emin	1.57
Emax	5.49
Emin/Emax	0.29
Emin/Eav	0.44

Horizontal Illuminance (lux)

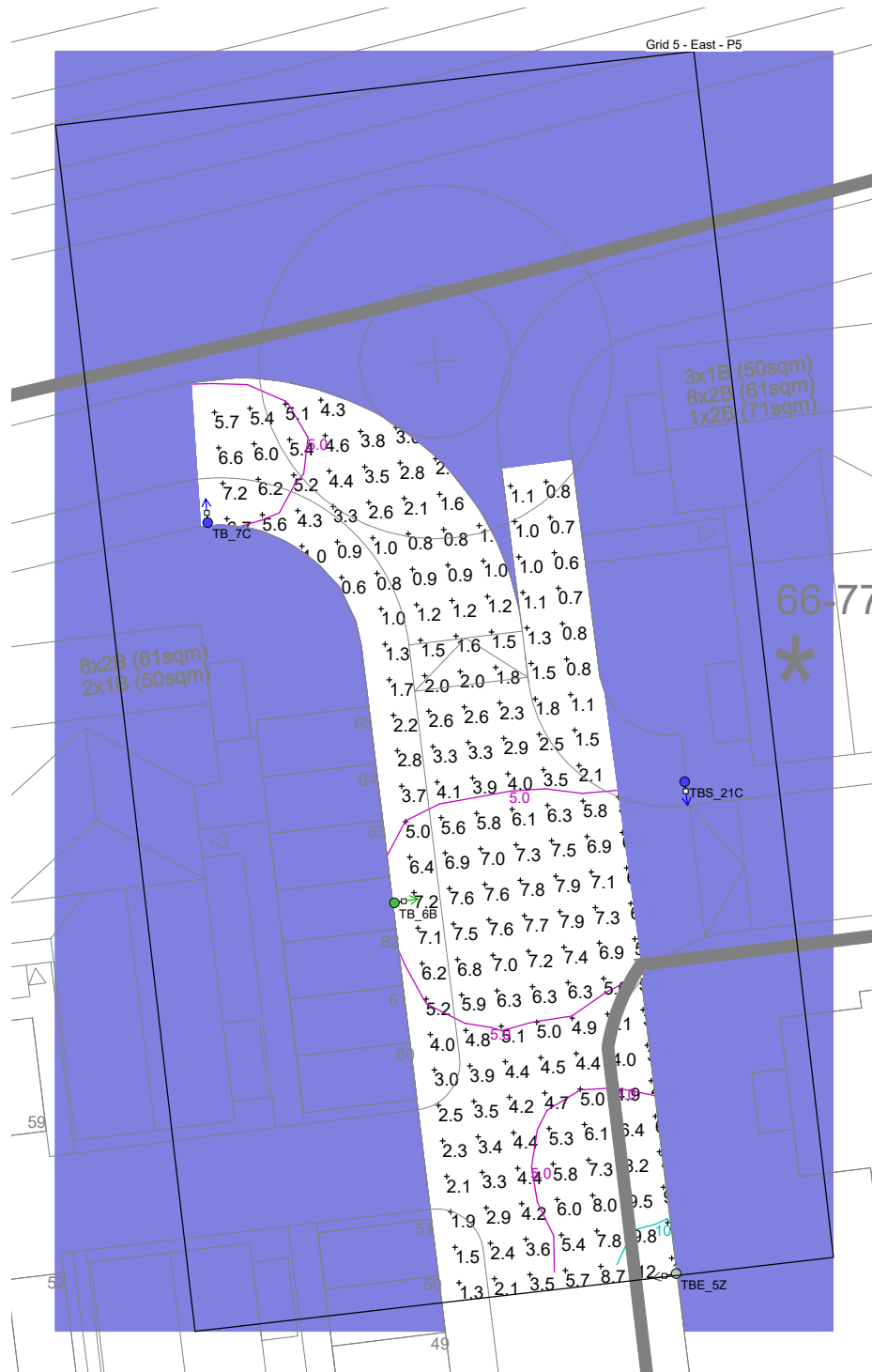
Grid 4 - North - P5

**Results**

Eav	3.66
Emin	0.73
Emax	7.14
Emin/Emax	0.10
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 5 - East - P5

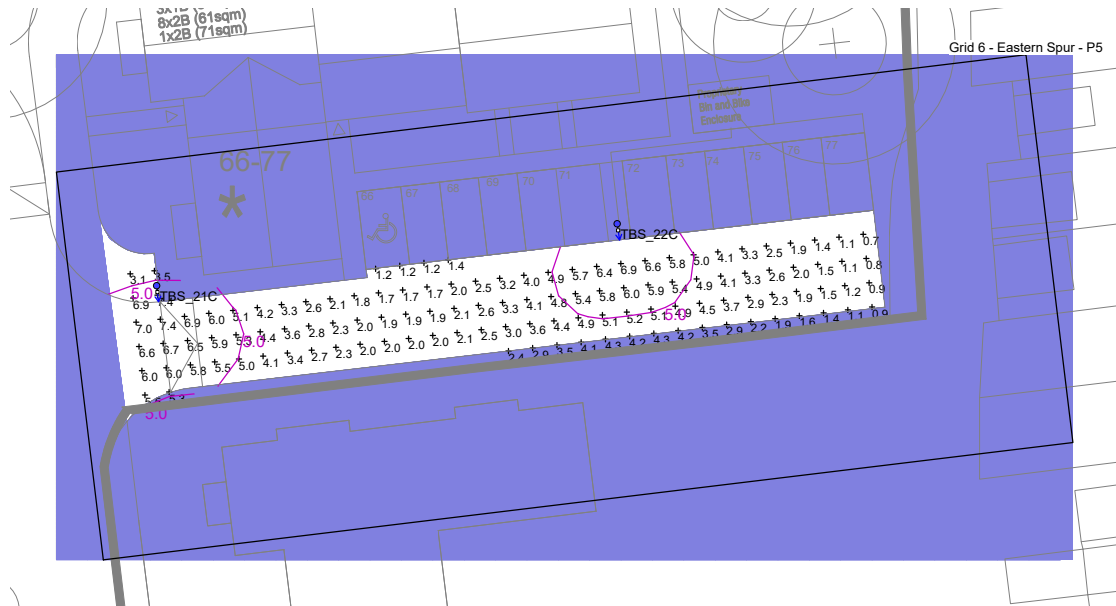


Results

Eav	4.37
Emin	0.63
Emax	12.06
Emin/Emax	0.05
Emin/Eav	0.14

Horizontal Illuminance (lux)

Grid 6 - Eastern Spur - P5



Results

Eav	3.59
Emin	0.72
Emax	7.38
Emin/Emax	0.10
Emin/Eav	0.20

Illuminance (lux)

Grid 7 - Vertical Plots 46-55

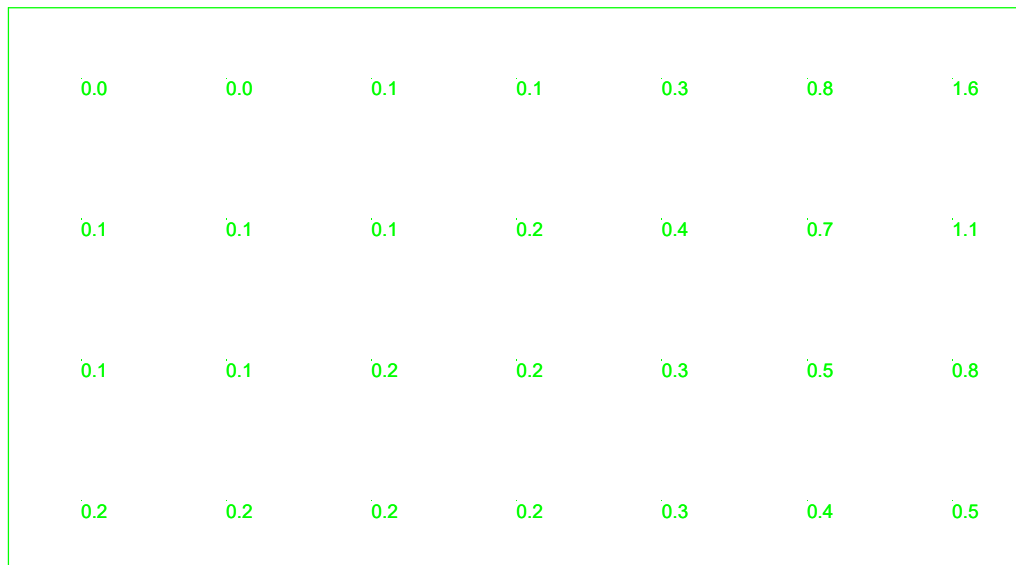
0.0	0.1	0.1	0.2	0.4	1.0	2.0	1.0	0.5	0.2	0.1	0.1	0.1
0.1	0.1	0.2	0.3	0.6	1.0	1.2	1.0	0.6	0.4	0.3	0.2	0.3
0.2	0.2	0.2	0.3	0.5	0.7	0.9	0.7	0.5	0.4	0.3	0.3	0.3
0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.5	0.4	0.3	0.4	0.4

Results

Eav	0.44
Emin	0.05
Emax	1.97
Emin/Emax	0.02
Emin/Eav	0.11

Illuminance (lux)

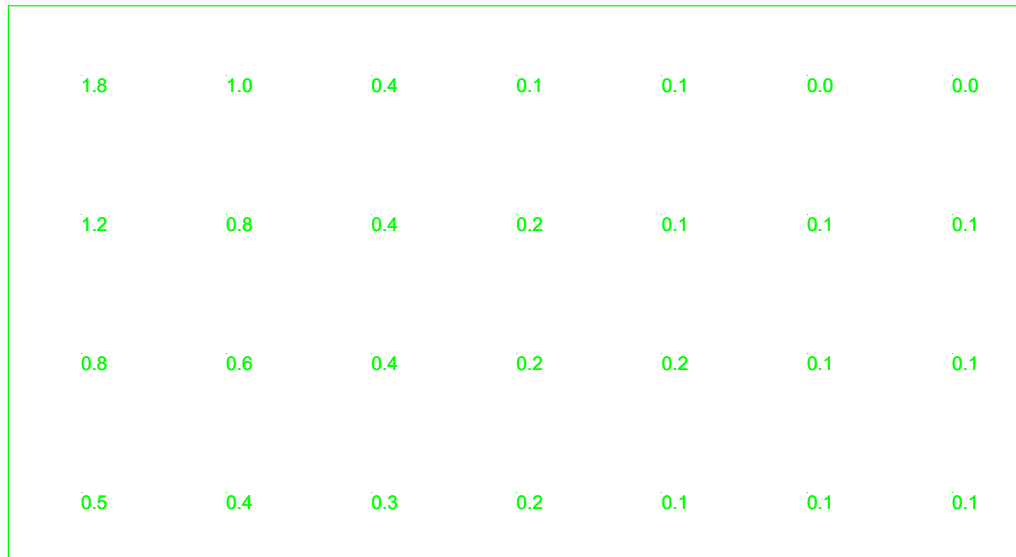
Grid 8 - Vertical Plot 6

**Results**

Eav	0.35
Emin	0.03
Emax	1.55
Emin/Emax	0.02
Emin/Eav	0.08

Illuminance (lux)

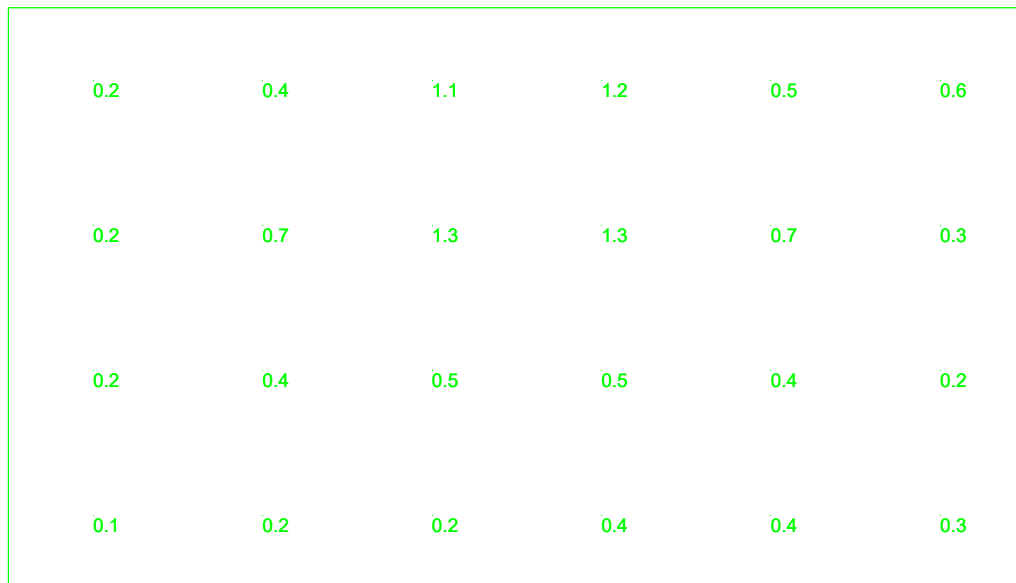
Grid 9 - Vertical Plot 14

**Results**

Eav	0.37
Emin	0.03
Emax	1.78
Emin/Emax	0.01
Emin/Eav	0.07

Illuminance (lux)

Grid 10 - Vertical Plots 92-93



Results

Eav	0.51
Emin	0.14
Emax	1.34
Emin/Emax	0.10
Emin/Eav	0.27

Illuminance (lux)

Grid 11 - Vertical Plots 87-88

0.1	0.3	0.9	0.7	0.3	0.3
0.2	0.4	1.0	0.9	0.6	0.2
0.2	0.5	0.7	0.6	0.4	0.2
0.2	0.3	0.3	0.3	0.2	0.2

Results

Eav	0.42
Emin	0.10
E _{max}	1.02
Emin/E _{max}	0.10
Emin/Eav	0.25

Illuminance (lux)

Grid 12 - Vertical Plots 56-65

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.0
0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.4	1.3
0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.8
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3

Results

Eav	0.17
Emin	0.02
E _{max}	1.27
Emin/E _{max}	0.01
Emin/Eav	0.09

Illuminance (lux)

Grid 13 - Vertical Plots 66-77

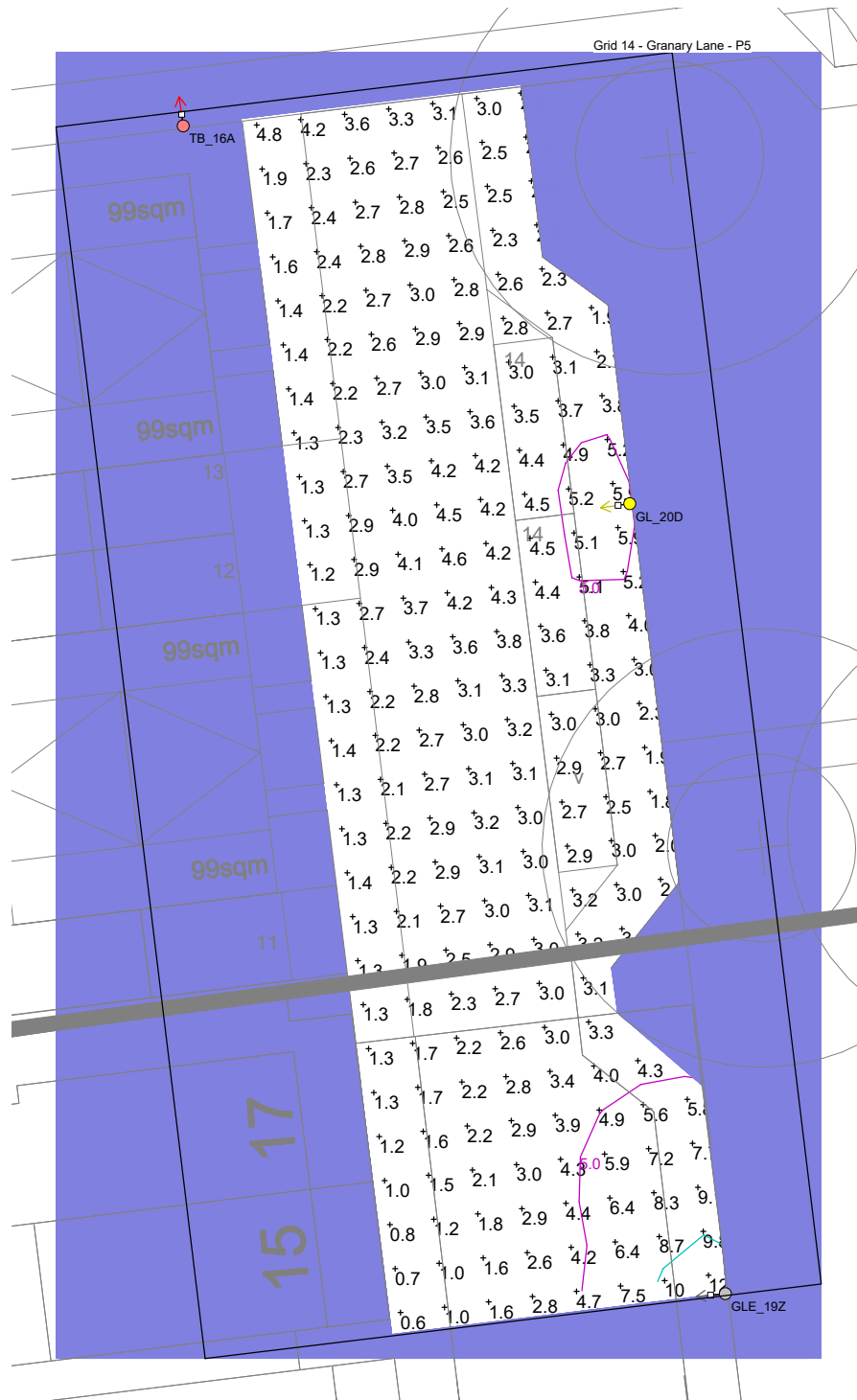
0.0	0.0	0.0	0.1	0.2	0.9
0.0	0.1	0.1	0.2	0.3	0.8
0.1	0.1	0.1	0.2	0.5	0.7
0.1	0.1	0.2	0.3	0.4	0.9

Results

Eav	0.27
Emin	0.03
E _{max}	0.95
Emin/E _{max}	0.03
Emin/Eav	0.10

Horizontal Illuminance (lux)

Grid 14 - Granary Lane - P5

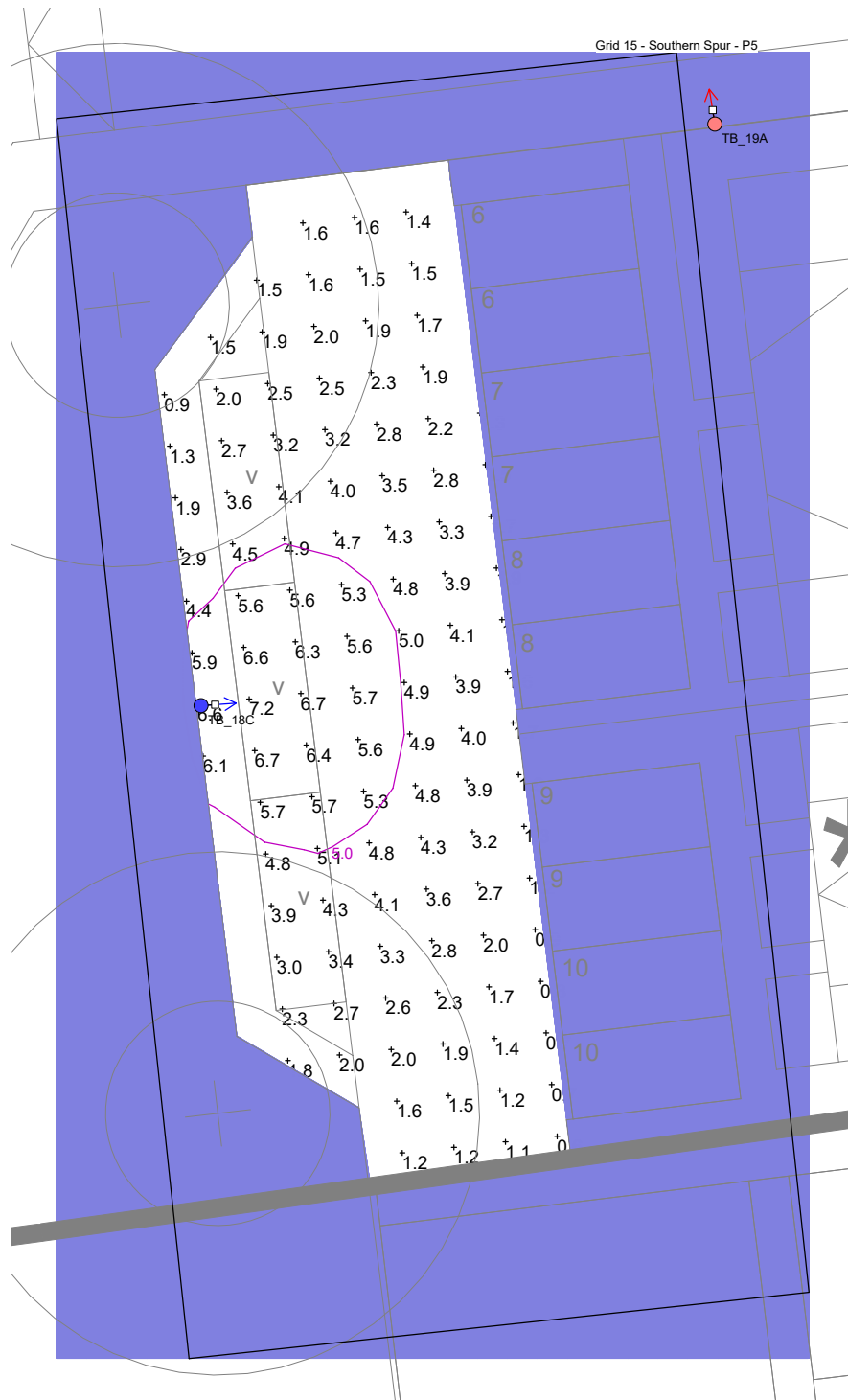


Results

Eav	3.15
Emin	0.64
Emax	11.92
Emin/Emax	0.05
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 15 - Southern Spur - P5

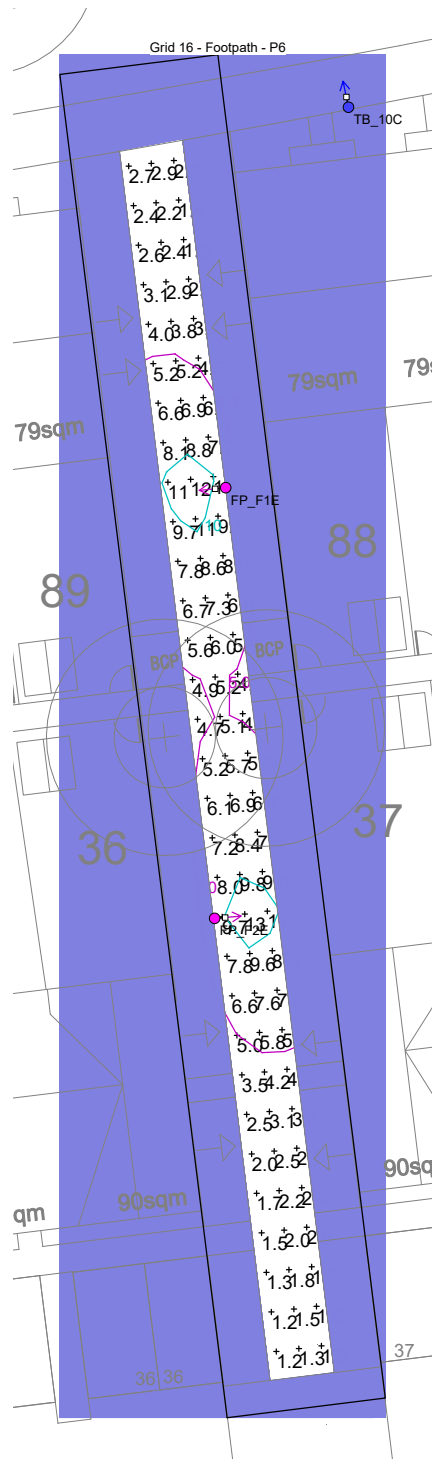


Results

Eav	3.17
Emin	0.62
Emax	7.19
Emin/Emax	0.09
Emin/Eav	0.20

Horizontal Illuminance (lux)

Grid 16 - Footpath - P6

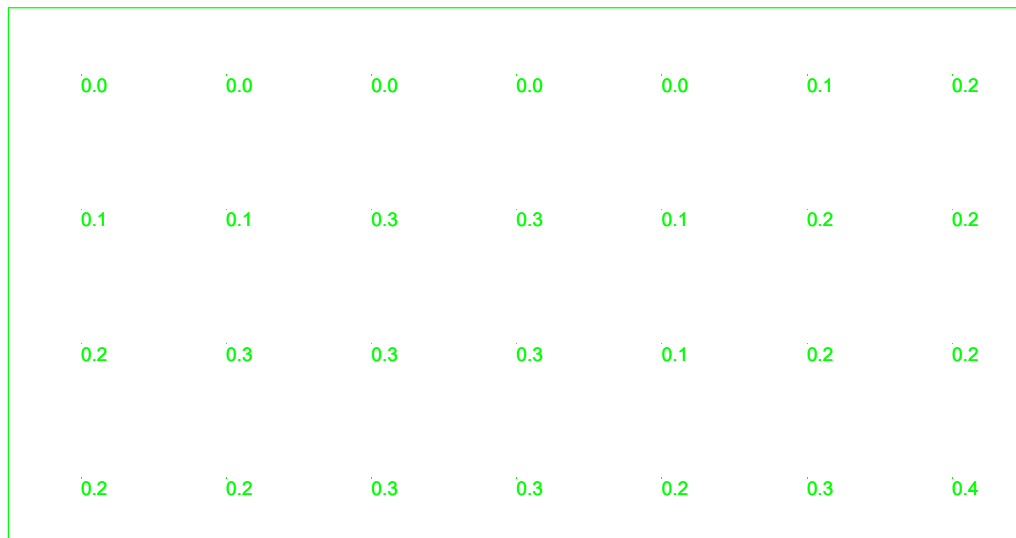


Results

Eav	5.28
Emin	1.20
Emax	12.65
Emin/Emax	0.09
Emin/Eav	0.23

Illuminance (lux)

Grid 17 - Vertical (Side) Plot 88



Results

Eav	0.19
Emin	0.01
Emax	0.40
Emin/Emax	0.03
Emin/Eav	0.06

Illuminance (lux)

Grid 18 - Vertical (Side) Plot 89

0.5	0.3	0.1	0.1	0.1	0.1	0.1
1.0	0.5	0.3	0.2	0.2	0.3	0.4
1.9	1.8	1.5	0.7	0.5	0.7	1.0
2.0	1.7	1.7	1.8	1.7	1.3	1.2

Results

Eav	0.84
Emin	0.05
E _{max}	1.95
E _{min} /E _{max}	0.03
E _{min} /E _{av}	0.06

Illuminance (lux)

Grid 19 - Vertical (Side) Plot 37

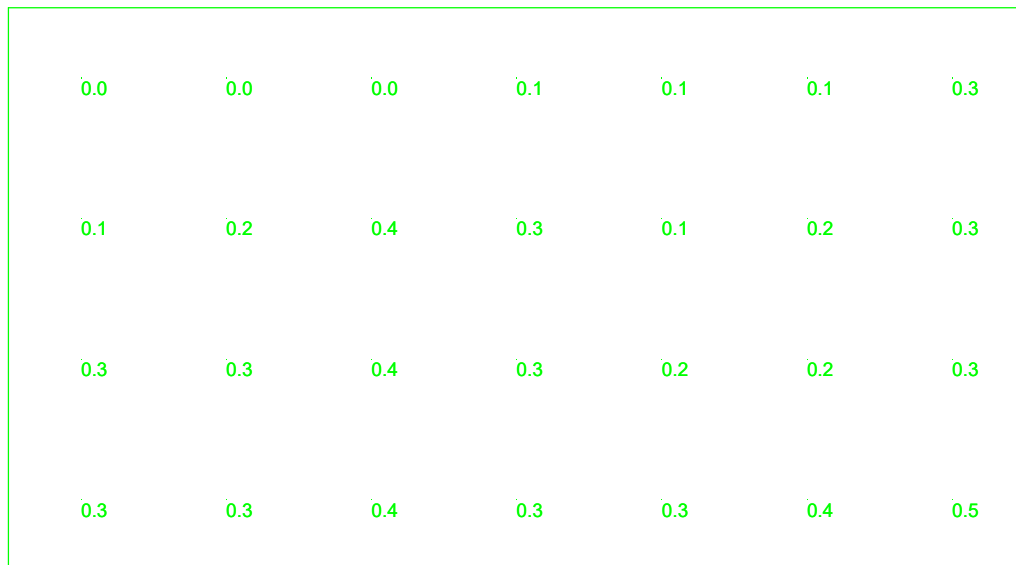
0.4	0.2	0.1	0.1	0.0	0.0	0.0
0.9	0.5	0.2	0.2	0.2	0.2	0.3
1.9	1.8	1.4	0.7	0.4	0.4	0.6
1.9	1.7	1.7	1.7	1.5	1.2	0.9

Results

Eav	0.76
Emin	0.03
E _{max}	1.92
E _{min} /E _{max}	0.02
E _{min} /E _{av}	0.04

Illuminance (lux)

Grid 20 - Vertical (Side) Plot 36

**Results**

Eav	0.24
Emin	0.02
Emax	0.47
Emin/Emax	0.04
Emin/Eav	0.08

DATE: 26/01/2024
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20022271-RC-006-A
PROJECT NAME: Toynbee Road, Eastleigh

ENERVEO

Granary Lane, Eastleigh
(Non adoptable)

Lighting Class - P5

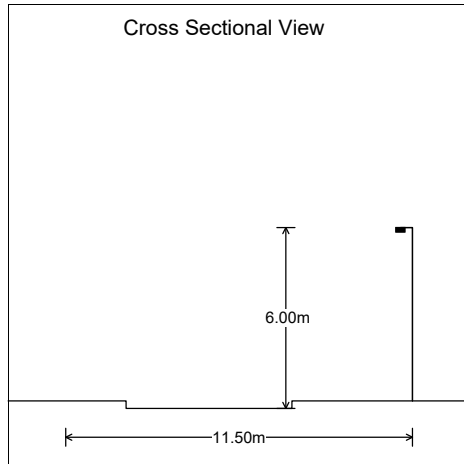
Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Roadway Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
Senior Lighting Designer
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Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	11.50
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	4.00

Main Lighting

Column Data

Configuration	Single Sided Right
Spacing (m)	31.00
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	4.00
Outreach (m)	0.40
Overhang (m)	-3.60

Luminaire Data

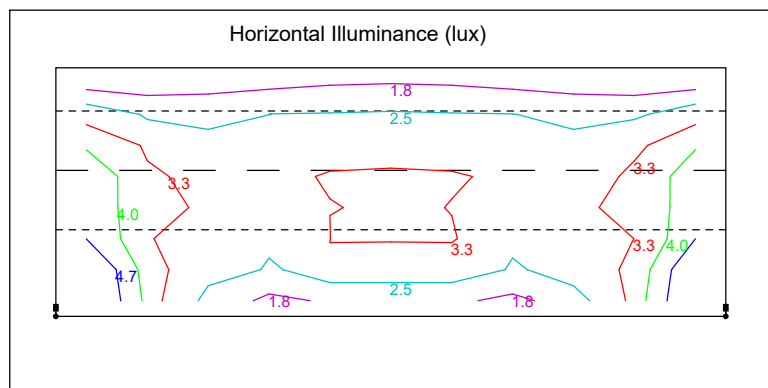
Supplier	Urbis Schreder
Type	AXIA 3.1 5267 Integrated lenses Rear louvers 8 OSLO SQUARE G
Lamp(s)	8 OSLO SQUARE GIANT@600mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.48 WW 3000K/70
File Name	AXIA 3.1 5267 8 LED 600mA WW 730 16.6 W 457672 BL 230V TF.Idt
Maintenance Factor	0.85
Lum. Int. Class	G1

Results

Main

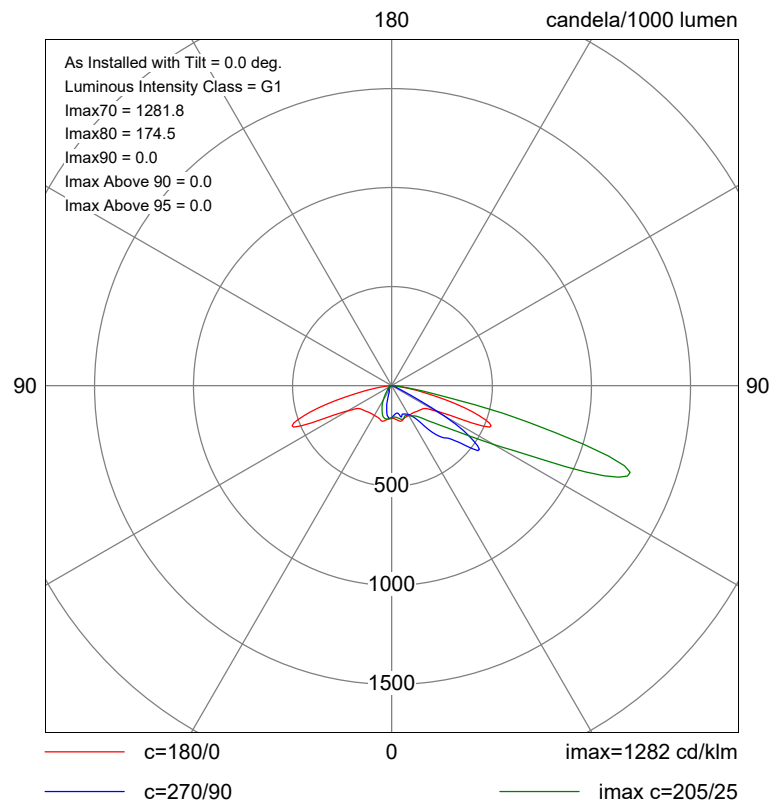
Complies with P5

Eav	3.00
Emin	1.43
E _{max}	5.83
E _{min} /E _{max}	0.25
E _{min} /E _{av}	0.48

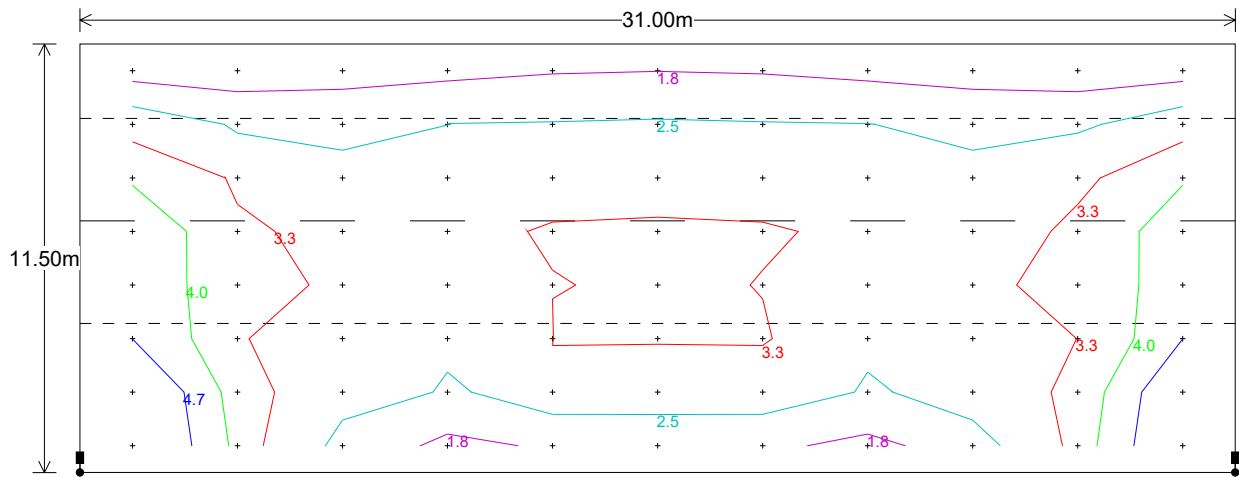


Polar Diagram

Main Luminaire AXIA 3.1 5267 Integrated lenses Rear louvers 8 OSLON SQUARE G



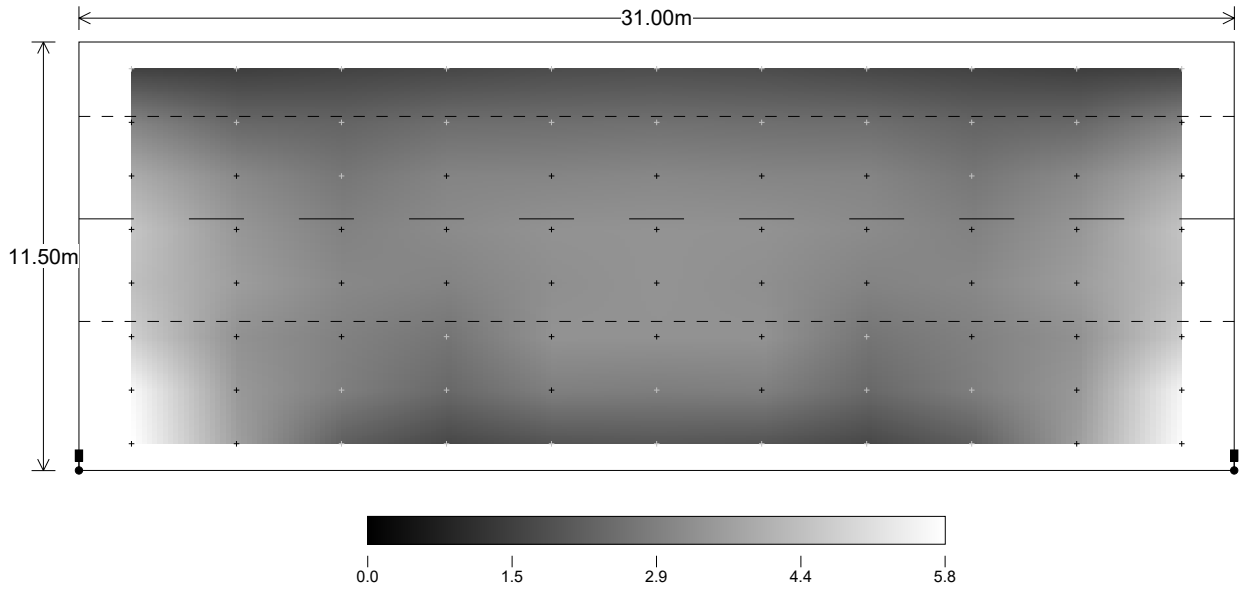
Horizontal Illuminance (lux)

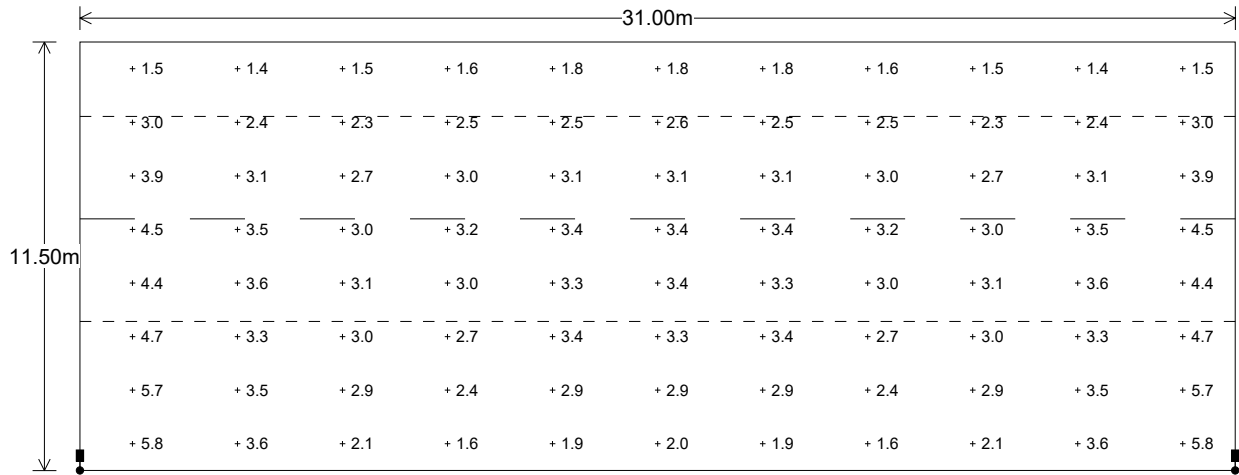


Main Results

Eav	3.00
Emin	1.43
Emax	5.83
Emin/Emax	0.25
Emin/Eav	0.48

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)

DATE: 26/01/2024
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20022271-RC-005-A
PROJECT NAME: Toynbee Road, Eastleigh

ENERVEO

Toynbee Road Footpath, Eastleigh
(Non adoptable)

Lighting Class - P6

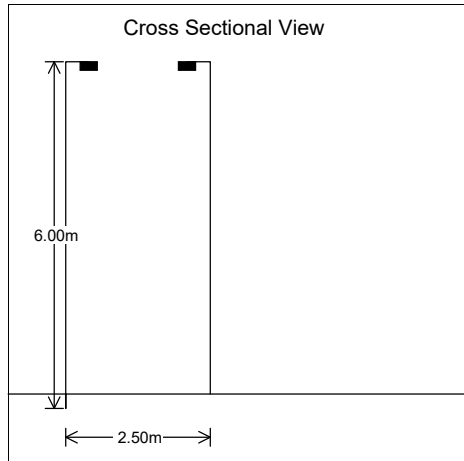
Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Roadway Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
Senior Lighting Designer
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PO14 1DJ
e-mail: james.duffin@enerveo.com

Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	2.50
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	0.00
Right Footpath(m)	2.50

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	41.00
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	0.00
Left Outreach (m)	0.40
Left Overhang (m)	0.40
Right Setback (m)	2.50
Right Outreach (m)	0.40
Right Overhang (m)	-2.10

Luminaire Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5296 Integrated lenses Rear louvers 8 OSLON SQUARE G
Lamp(s)	8 OSLON SQUARE GIANT@300mA WW 730 230V 01-42-072
LampFlux(klm)/Colour	0.88 WW 3000K/70
File Name	AXIA 3.1 5296 8 LED 300mA WW 730 8.9 W 457602 BL 230V TF.ltd
Maintenance Factor	0.85
Lum. Int. Class	G3

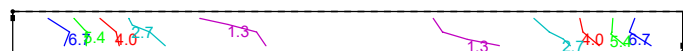
Results

Main

Complies with P5

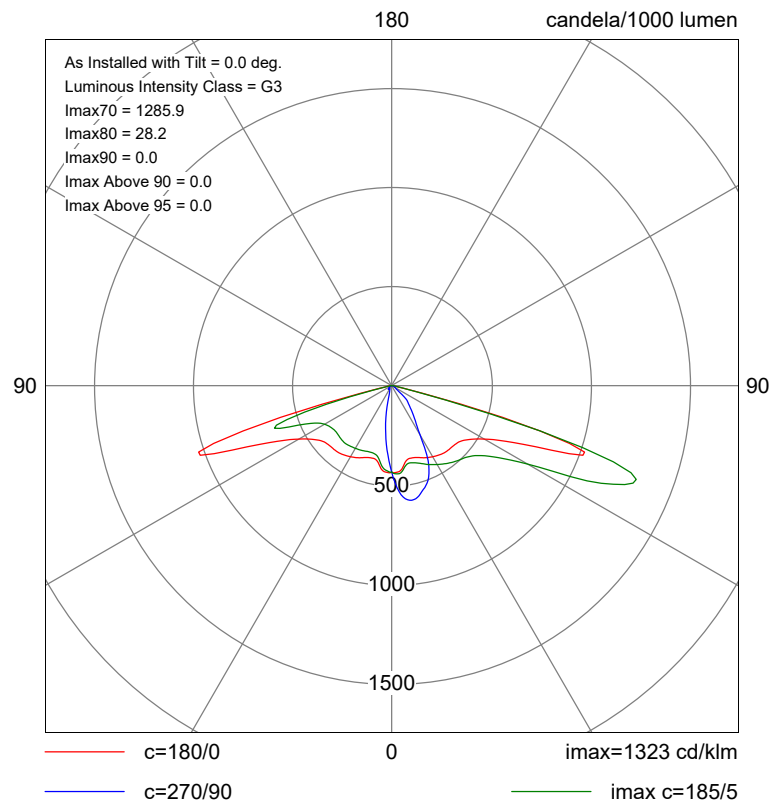
Eav	3.04
Emin	0.62
E _{max}	8.78
E _{min} /E _{max}	0.07
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)

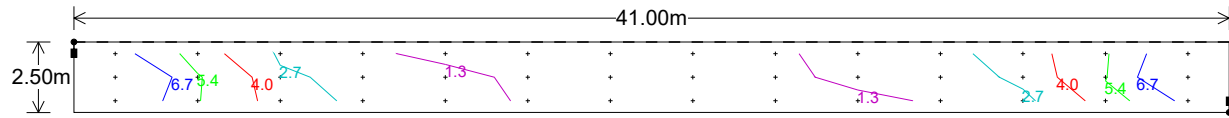


Polar Diagram

Main Luminaire AXIA 3.1 5296 Integrated lenses Rear louvers 8 OSLON SQUARE G



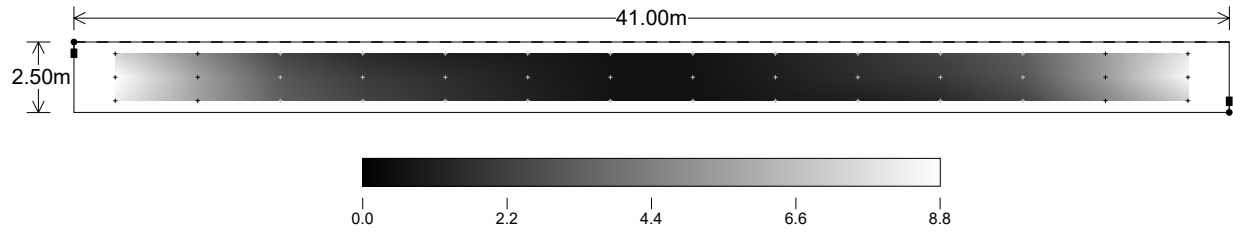
Horizontal Illuminance (lux)



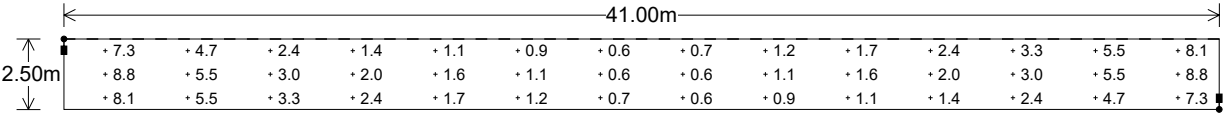
Main Results

Eav	3.04
Emin	0.62
E _{max}	8.78
E _{min} /E _{max}	0.07
E _{min} /E _{av}	0.20

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)



DATE: 26/01/2024
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20022271-RC-004-A
PROJECT NAME: Toynbee Road, Eastleigh

ENERVEO

Toynbee Road, Eastleigh
(Non adoptable)

Lighting Class - P5

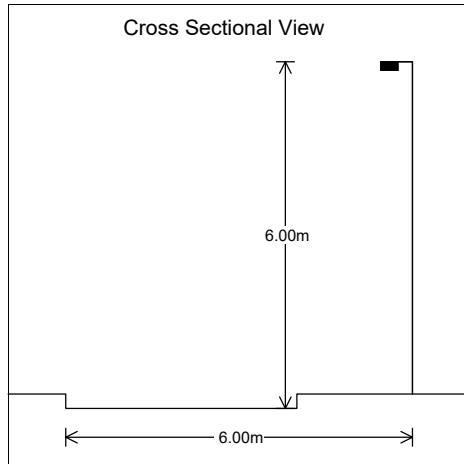
Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Roadway Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
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Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	6.00
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	0.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Right
Spacing (m)	32.00
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	2.00
Outreach (m)	0.40
Overhang (m)	-1.60

Luminaire Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 8 OSLON SQUARE G
Lamp(s)	8 OSLON SQUARE GIANT@400mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.11 WW 3000K/70
File Name	AXIA 3.1 5295 8 LED 400mA WW 730 11 W 457592 BL 230V TF.Jdt
Maintenance Factor	0.85
Lum. Int. Class	G3

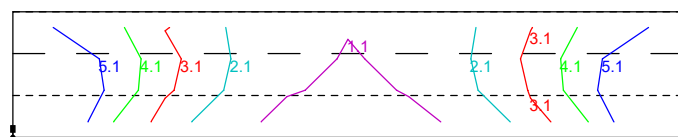
Results

Main

Complies with P5

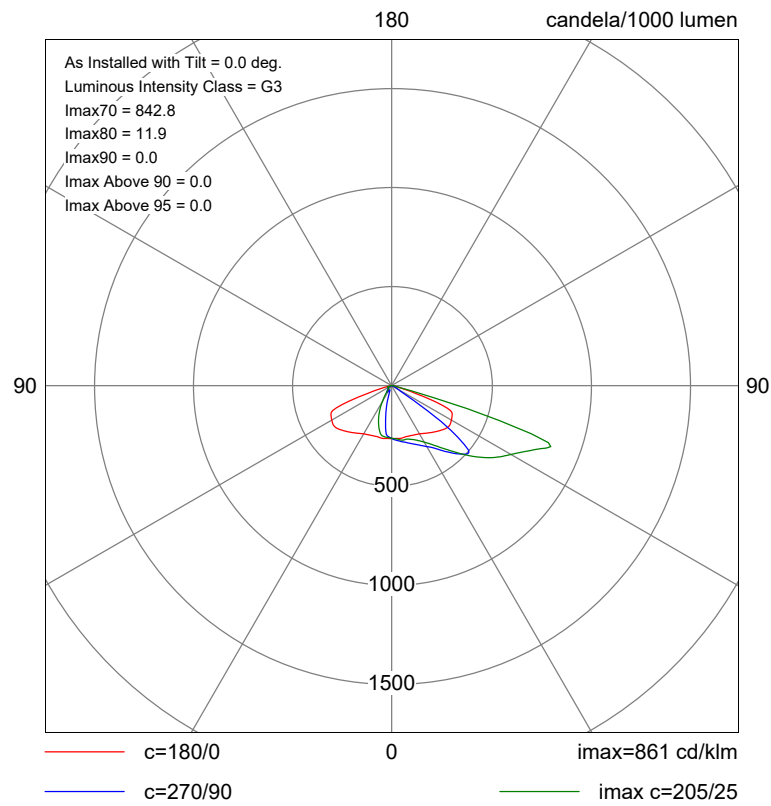
Eav	3.15
Emin	0.64
Emax	6.59
Emin/Emax	0.10
Emin/Eav	0.20

Horizontal Illuminance (lux)

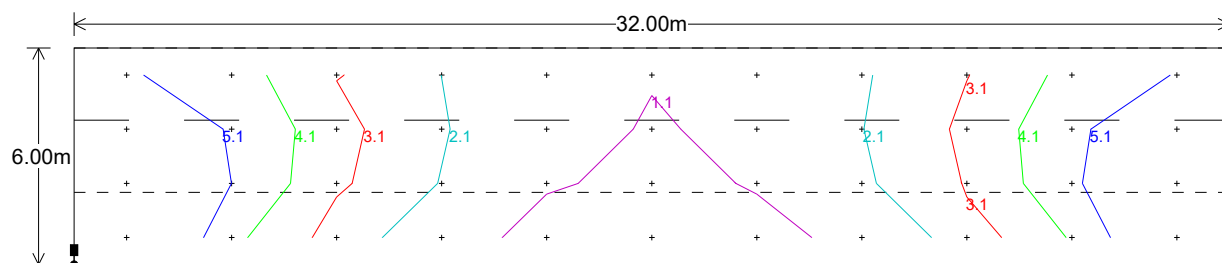


Polar Diagram

Main Luminaire AXIA 3.1 5295 Integrated lenses Rear louvers 8 OSLON SQUARE G



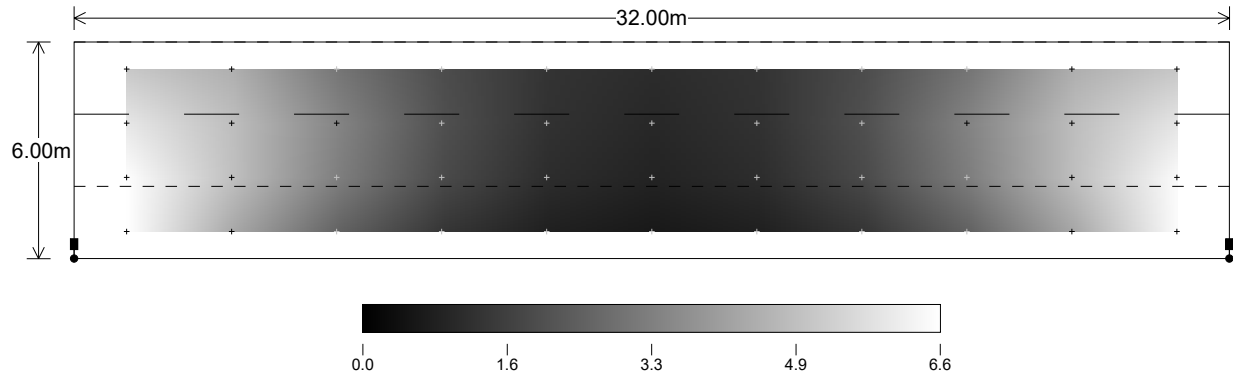
Horizontal Illuminance (lux)

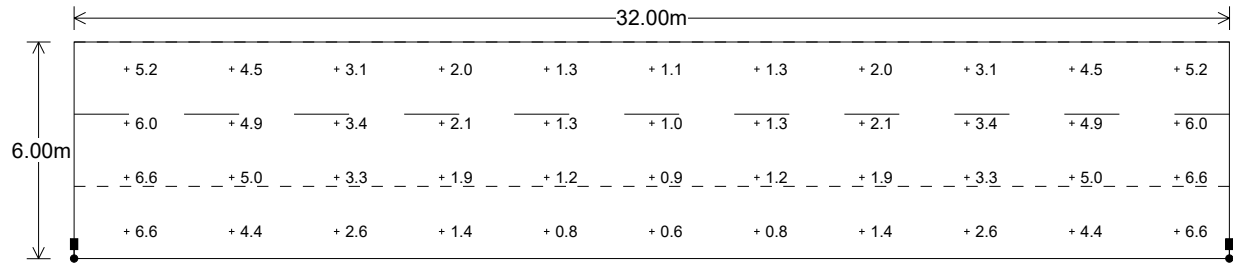


Main Results

Eav	3.15
Emin	0.64
Emax	6.59
Emin/Emax	0.10
Emin/Eav	0.20

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)

DATE: 26/01/2024
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20022271-RC-003-A
PROJECT NAME: Toynbee Road, Eastleigh

ENERVEO

Toynbee Road, Eastleigh
(Non adoptable)

Lighting Class - P5

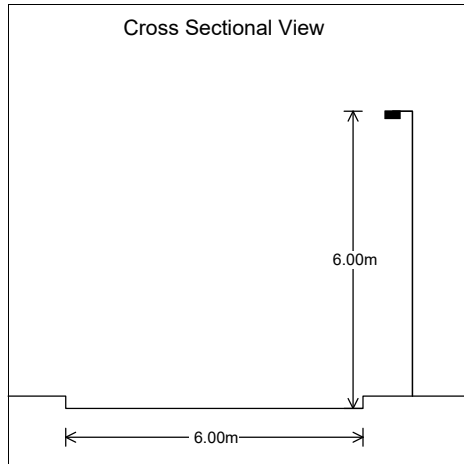
Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Roadway Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
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PO14 1DJ
e-mail: james.duffin@enerveo.com

Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	6.00
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	0.00
Right Footpath(m)	0.00

Main Lighting

Column Data

Configuration	Single Sided Right
Spacing (m)	25.00
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	1.00
Outreach (m)	0.40
Overhang (m)	-0.60

Luminaire Data

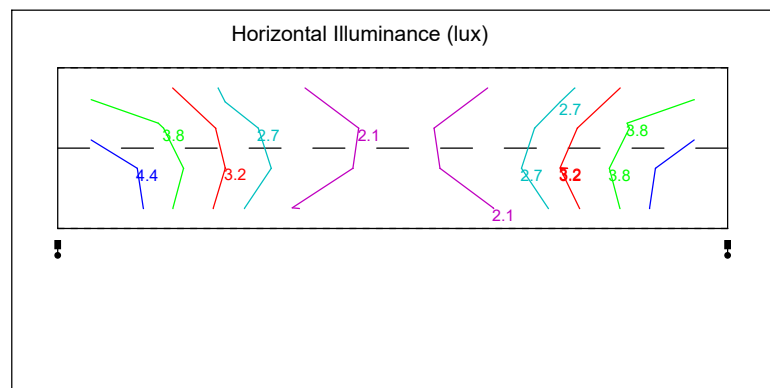
Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 8 OSLO SQUARE G
Lamp(s)	8 OSLO SQUARE GIANT@300mA WW 730 230V 01-42-072
LampFlux(klm)/Colour	0.85 WW 3000K/70
File Name	AXIA 3.1 5295 8 LED 300mA WW 730 8.9 W 457592 BL 230V TF.Idt
Maintenance Factor	0.85
Lum. Int. Class	G3

Results

Main

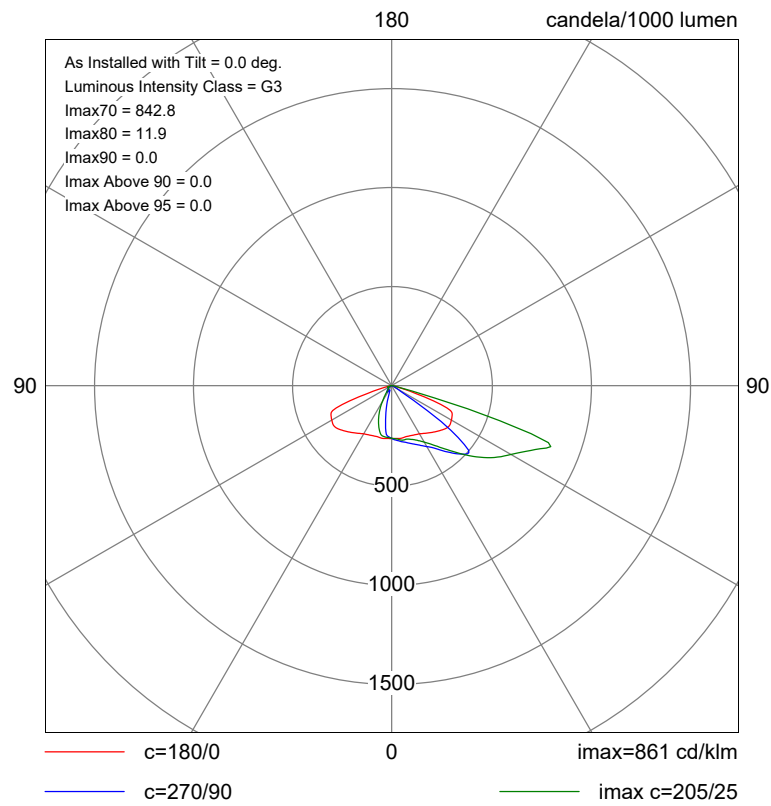
Complies with P5

Eav	3.09
Emin	1.77
E _{max}	5.29
E _{min} /E _{max}	0.34
E _{min} /E _{av}	0.57

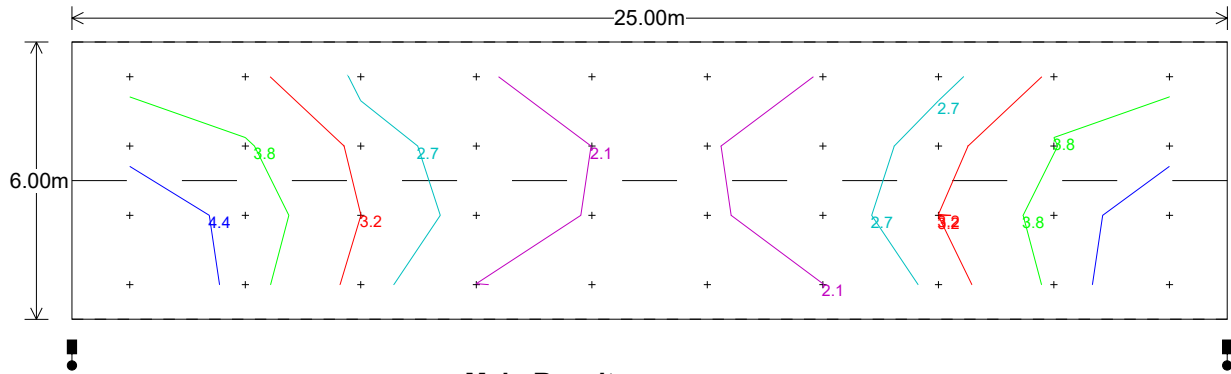


Polar Diagram

Main Luminaire AXIA 3.1 5295 Integrated lenses Rear louvers 8 OSLON SQUARE G



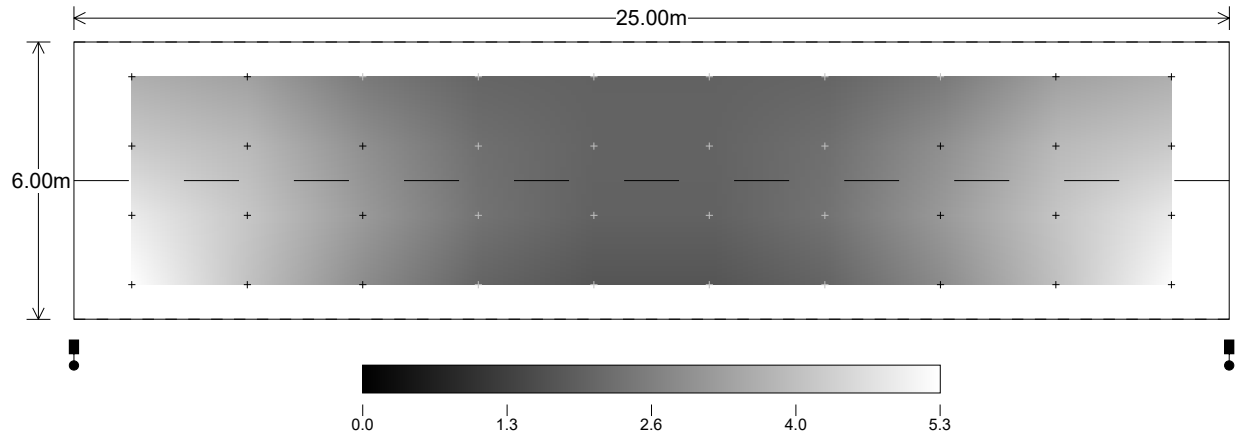
Horizontal Illuminance (lux)



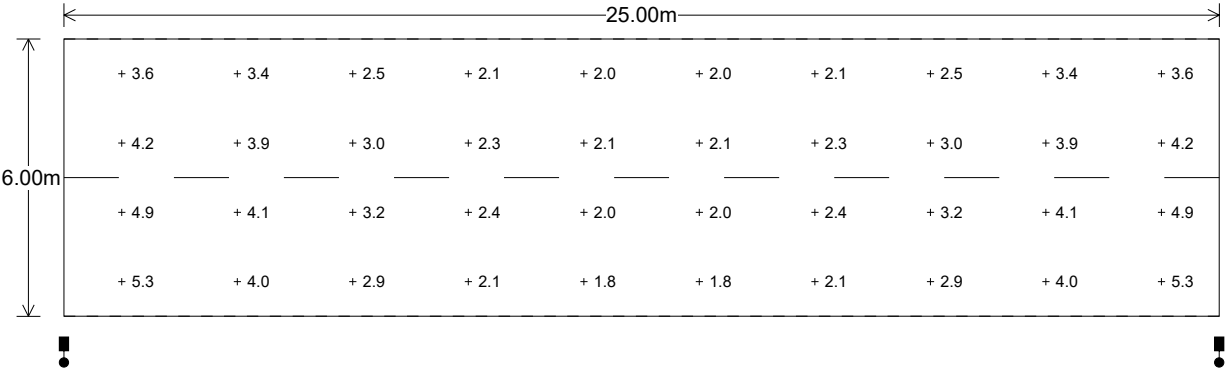
Main Results

Eav	3.09
Emin	1.77
Emax	5.29
Emin/Emax	0.34
Emin/Eav	0.57

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)



DATE: 26/01/2024
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20022271-RC-002-A
PROJECT NAME: Toynbee Road, Eastleigh

ENERVEO

Toynbee Road, Eastleigh
(Non adoptable)

Lighting Class - P5

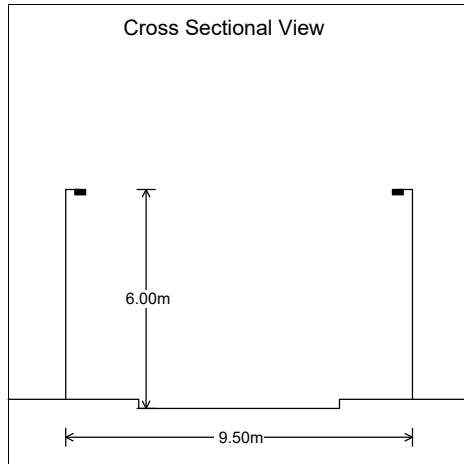
Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Roadway Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
Senior Lighting Designer
Enerveo
Unit 34
Palmerston Business Park
Fareham
Hampshire
PO14 1DJ
e-mail: james.duffin@enerveo.com

Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	9.50
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Staggered
Spacing (m)	43.00
Height (m)	6.00
Tilt (deg)	0.00
Left Setback (m)	2.00
Left Outreach (m)	0.40
Left Overhang (m)	-1.60
Right Setback (m)	2.00
Right Outreach (m)	0.40
Right Overhang (m)	-1.60

Luminaire Data

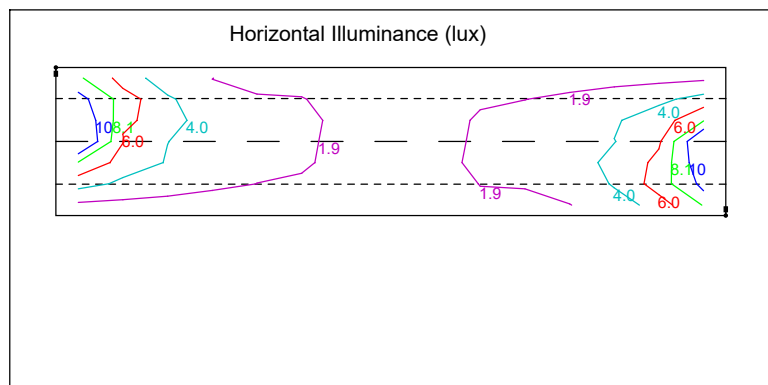
Supplier	Urbis Schreder
Type	AXIA 3.1 5266 Integrated lenses Rear louvers 16 OSLO SQUARE
Lamp(s)	16 OSLO SQUARE GIANT@300mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.78 WW 3000K/70
File Name	AXIA 3.1 5266 16 LED 300mA WW 730 16.1W 457662 BL 230V TF.ltd
Maintenance Factor	0.85
Lum. Int. Class	G1

Results

Main

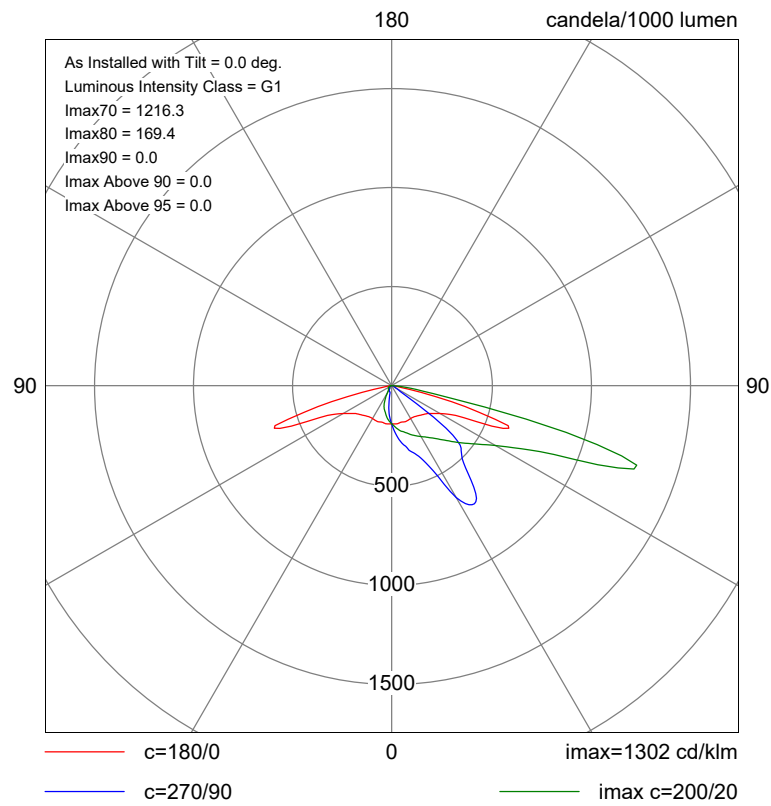
Complies with P5

Eav	3.30
Emin	0.84
Emax	13.30
Emin/Emax	0.06
Emin/Eav	0.25

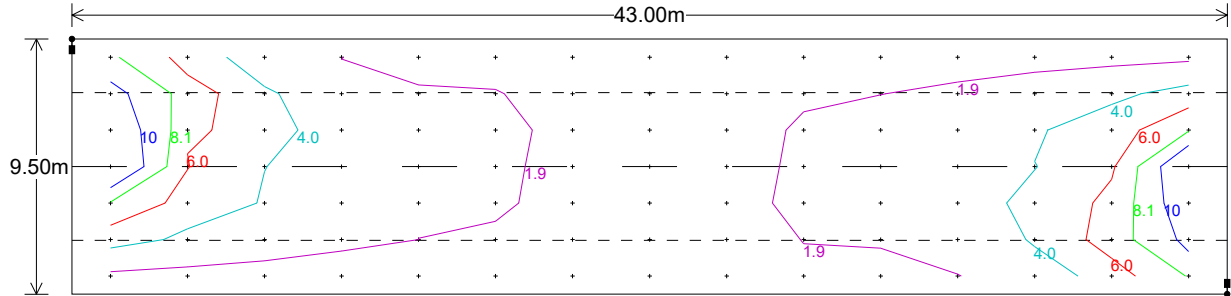


Polar Diagram

Main Luminaire AXIA 3.1 5266 Integrated lenses Rear louvers 16 OSLON SQUARE



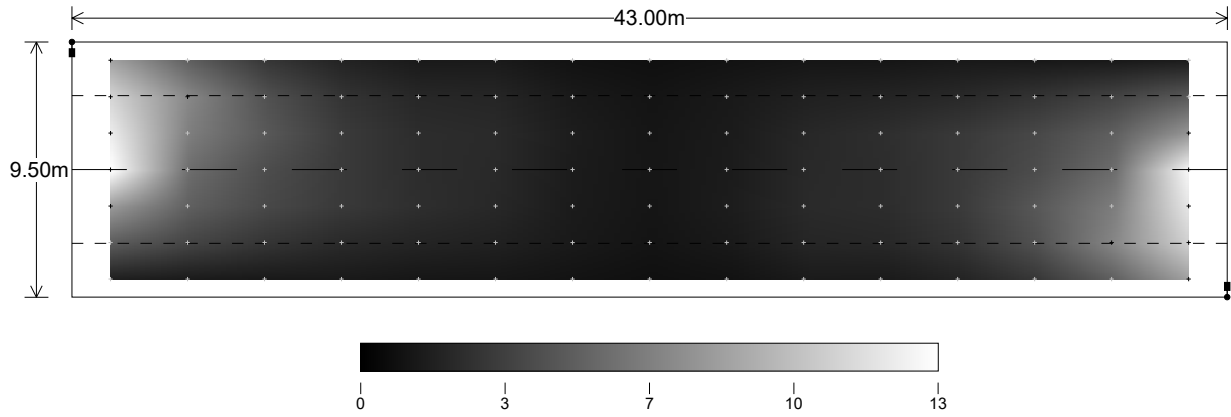
Horizontal Illuminance (lux)

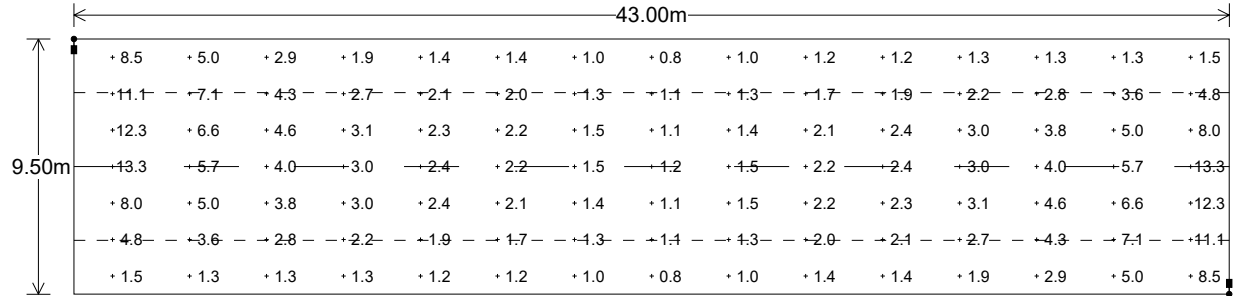


Main Results

Eav	3.30
Emin	0.84
E _{max}	13.30
E _{min} /E _{max}	0.06
E _{min} /E _{av}	0.25

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)

DATE: 26/01/2024
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20022271-RC-001-A
PROJECT NAME: Toynbee Road, Eastleigh

ENERVEO

Toynbee Road, Eastleigh
(Non adoptable)

Lighting Class - P5

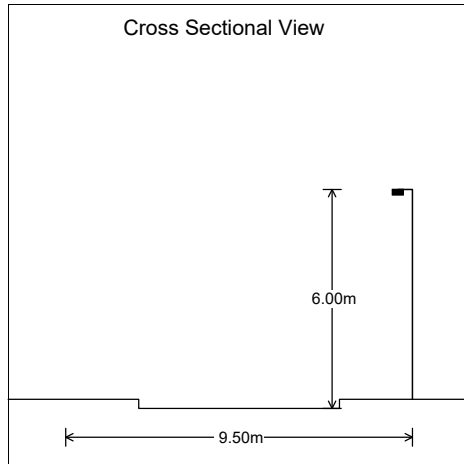
Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Roadway Lighting Report

PREPARED BY: James Duffin BA (Hons) IEng MILP
Senior Lighting Designer
Enerveo
Unit 34
Palmerston Business Park
Fareham
Hampshire
PO14 1DJ
e-mail: james.duffin@enerveo.com

Roadway Report Summary

Layout



Road Data

Calculation Grid	2015:EN13201 Illuminance
Width (m)	9.50
No. of Lanes	2
Road Surface	C2
Q0	0.07
Left Footpath(m)	2.00
Right Footpath(m)	2.00

Main Lighting

Column Data

Configuration	Single Sided Right
Spacing (m)	43.00
Height (m)	6.00
Tilt (deg)	0.00
Setback (m)	2.00
Outreach (m)	0.40
Overhang (m)	-1.60

Luminaire Data

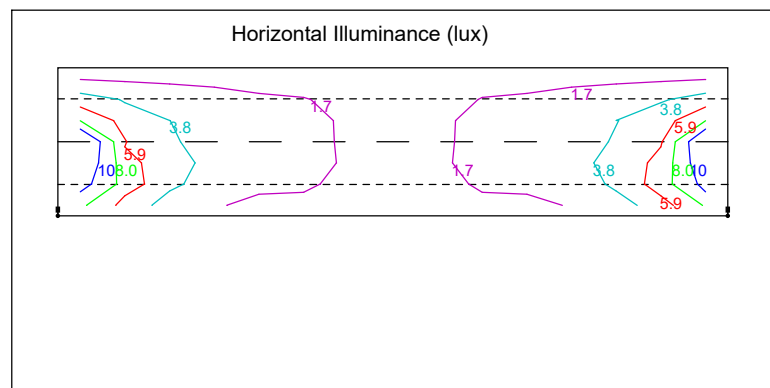
Supplier	Urbis Schreder
Type	AXIA 3.1 5266 Integrated lenses Rear louvers 16 OSLON SQUARE
Lamp(s)	16 OSLON SQUARE GIANT@300mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.78 WW 3000K/70
File Name	AXIA 3.1 5266 16 LED 300mA WW 730 16.1W 457662 BL 230V TF.Idt
Maintenance Factor	0.85
Lum. Int. Class	G1

Results

Main

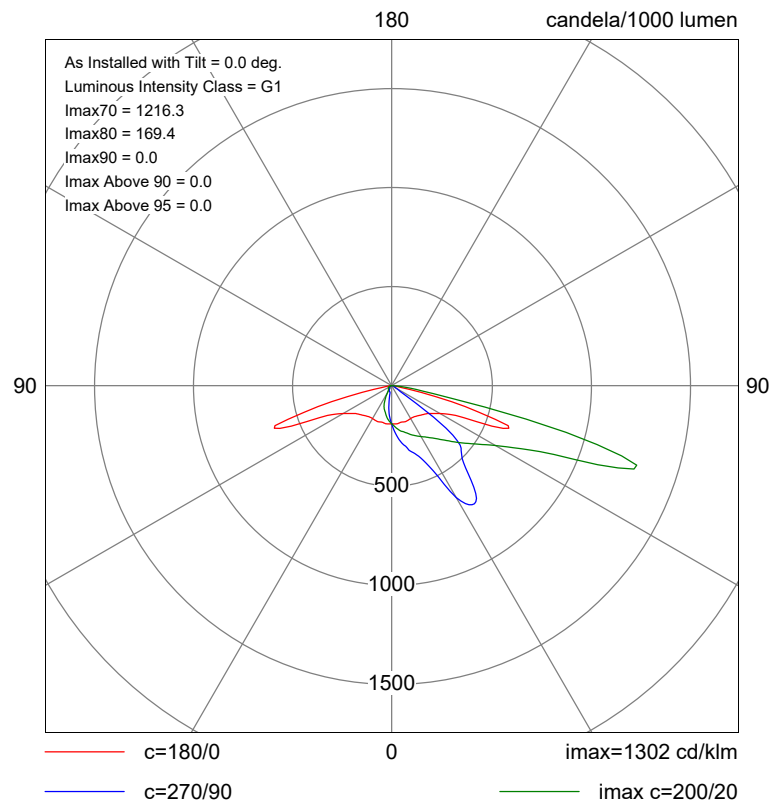
Complies with P5

Eav	3.30
Emin	0.65
E _{max}	13.30
E _{min} /E _{max}	0.05
E _{min} /E _{av}	0.20

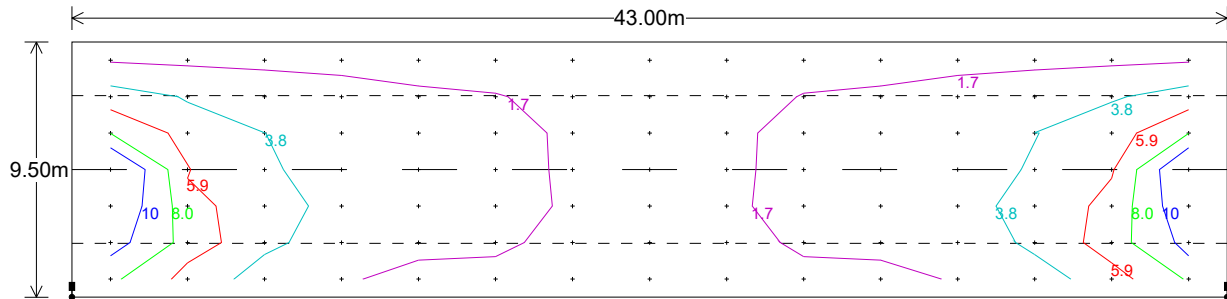


Polar Diagram

Main Luminaire AXIA 3.1 5266 Integrated lenses Rear louvers 16 OSLON SQUARE



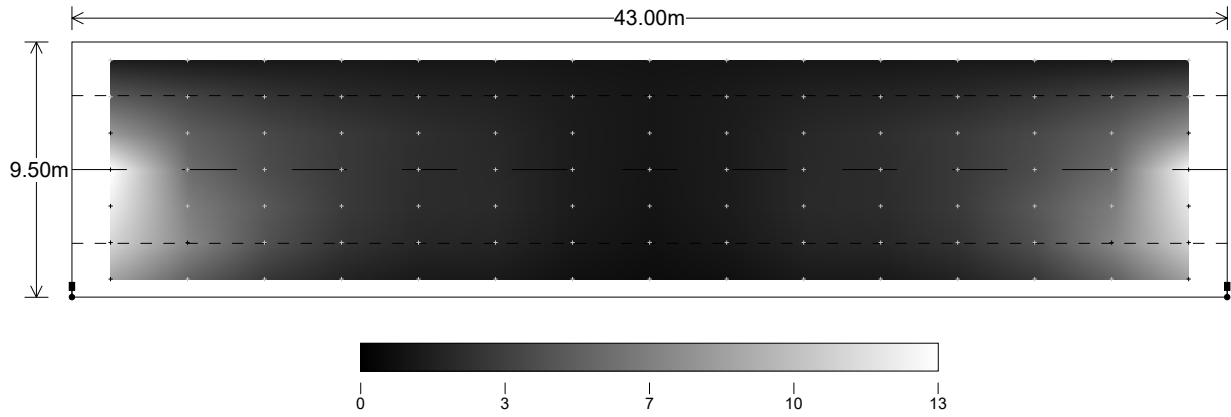
Horizontal Illuminance (lux)



Main Results

Eav	3.30
Emin	0.65
Emax	13.30
Emin/Emax	0.05
Emin/Eav	0.20

Horizontal Illuminance (lux)



Horizontal Illuminance (lux)