

Lighting Design

Installation : Glovers Brow Development

Project number : LP251172

Customer : Arcadia Maintenance Ltd

Processed by : MJC

Date : 28.11.2025

Project description:

All calculations have been based on the information provided, plus the accompanying drawings and verbal information received.

BI Associates t/a Lumineux take no responsibility for the maintenance regime and can only guarantee light levels at start of life.

Our lighting designs are based on relevant lighting guides in conjunction with best practice. The Lumineux LDT files used to produce this design are specific to the Lumineux fittings included herein. A new lighting design must be produced should an alternative fitting be required. The optics of different fittings are rarely the same even if the lumen output is identical. Using an alternate fitting without a design could make the scheme non-compliant with relevant lighting guides.

Racking installed into an open plan warehouse will drastically alter the lighting requirements both with regard to normal and emergency lighting. A new lighting design is recommended prior to the racking being installed.

Emergency scheme is to be checked and confirmed with local building or fire control officer and ultimately approved by the owner of the building. Any emergency calculations that have been completed have been based on 0.5 lux for open areas and 1 lux for escape routes. In general information with regard to positioning of fire fighting and call points is unknown and hence the design does not consider this requirement. Emergency lighting for High Risk areas should be considered additional to this design.

The absence of an emergency scheme within the design does not indicate one is not required, rather that the brief has suggested that this is either already in existence or will be supplied by another source.

A Design based on a 1-4-1 replacement should not be considered to be compliant with current codes of Practice.

Please ensure that this lighting scheme complies with all your requirements before placing order with our sales team.

The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

This exclusion of liability applies irrespective of the legal grounds for both damages and consequential damages suffered by users and third parties.

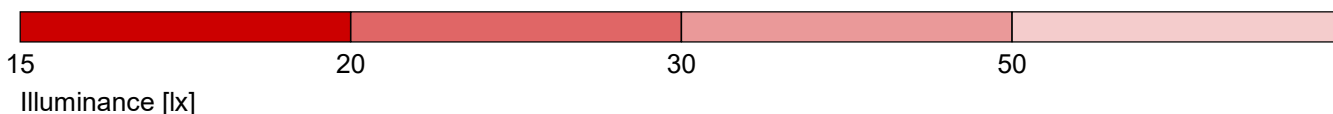
1 External Lighting

1.1 Summary, External Lighting

1.1.1 Result overview, No Parking (Loading Area)



-1 19 39 59 79 99 x [m]



General

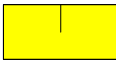
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.85
Total luminous flux	43585 lm
Total power	277.9 W
Total power per area (19397.25 m ²)	0.01 W/m ²


Illuminance

Average illuminance	\bar{E}_m	34.6 lx
Minimum illuminance	E_{min}	15.7 lx
Maximum illuminance	E_{max}	53.3 lx
Uniformity U_o	E_{min}/\bar{E}_m	1:2.2 (0.45)
Diversity U_d	E_{min}/E_{max}	1:3.4 (0.29)

Type No.Make

Lumineux Lighting

1	12E x		Order No.	: !431139-E3 (E3_300lm) Rydal 3CCT	-- Emergency Lighting --
			Luminaire name	: Emergency 15W Rydal 3CCT Wallpack 840	
			Equipment	: 1 x LED 14.5 W / 2275 lm	
			Emergency	: 300 lm (13.2 %)	

4	2 x		Order No.	: 430611 Windermere
			Luminaire name	: 30W Windermere Streetlight 840
			Equipment	: 1 x LED 30.2 W / 4730 lm


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1 External Lighting

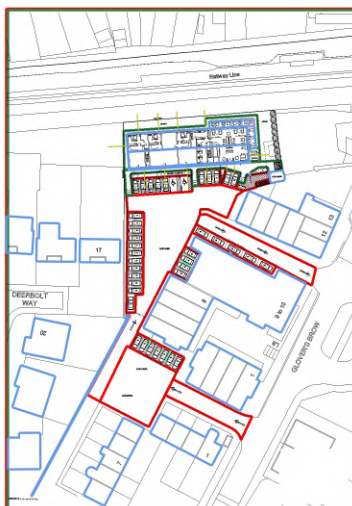
1.1 Summary, External Lighting

1.1.1 Result overview, No Parking (Loading Area)

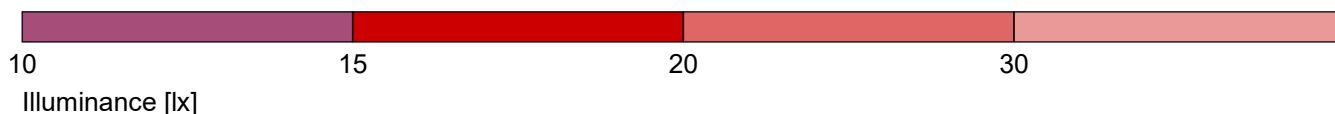
7	3 x	Order No.	: 431139 (E3_300lm) Rydal 3CCT
		Luminaire name	: 15W Rydal 3CCT Wallpack 840
		Equipment	: 1 x LED 14.5 W / 2275 lm

1.1 Summary, External Lighting

1.1.2 Result overview, Bin Store



-1 19 39 59 79 99 x [m]



General

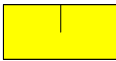
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.85
Total luminous flux	43585 lm
Total power	277.9 W
Total power per area (19397.25 m ²)	0.01 W/m ²

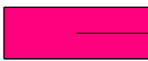
Illuminance

Average illuminance	\bar{E}_m	24.1 lx
Minimum illuminance	E_{min}	14.9 lx
Maximum illuminance	E_{max}	38.1 lx
Uniformity U_o	E_{min}/\bar{E}_m	1:1.62 (0.62)
Diversity U_d	E_{min}/E_{max}	1:2.56 (0.39)

Type No.Make

Lumineux Lighting

1	12E x	Order No. : !431139-E3 (E3_300lm) Rydal 3CCT	-- Emergency Lighting --
		Luminaire name : Emergency 15W Rydal 3CCT Wallpack 840	
		Equipment : 1 x LED 14.5 W / 2275 lm	
		Emergency : 300 lm (13.2 %)	


4	2 x	Order No. : 430611 Windermere
		Luminaire name : 30W Windermere Streetlight 840
		Equipment : 1 x LED 30.2 W / 4730 lm

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Installation : Glovers Brow Development
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1.1 Summary, External Lighting

1.1.2 Result overview, Bin Store

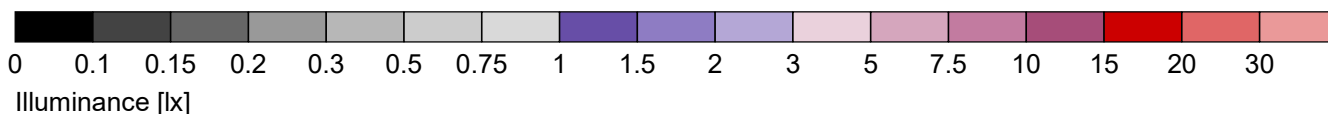
7	3 x	Order No.	: 431139 (E3_300lm) Rydal 3CCT
		Luminaire name	: 15W Rydal 3CCT Wallpack 840
		Equipment	: 1 x LED 14.5 W / 2275 lm

1.1 Summary, External Lighting

1.1.3 Result overview, Evaluation area 1



-1 19 39 59 79 99 x [m]



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.85
Total lamp luminous flux	43585.00 lm
Luminaire luminous flux	43537.30 lm
Total power	277.9 W
Total power per area (19397.25 m ²)	0.01 W/m ² (0.77 W/m ² /100lx)

Evaluation area 1

Reference plane 1.1

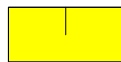
	Horizontal
\bar{E}_m	1.87 lx
E_{min}	0 lx
$E_{min}/\bar{E}_m (U_o)$	---
$E_{min}/E_{max} (U_d)$	---
Position	0.00 m

Major surfaces

\bar{E}_m U_o

Type No. Make

Lumineux Lighting



1	12E x	Order No. : I431139-E3 (E3_300lm) Rydal 3CCT	-- Emergency Lighting --
		Luminaire name : Emergency 15W Rydal 3CCT Wallpack 840	
		Equipment : 1 x LED 14.5 W / 2275 lm	
		Emergency : 300 lm (13.2 %)	

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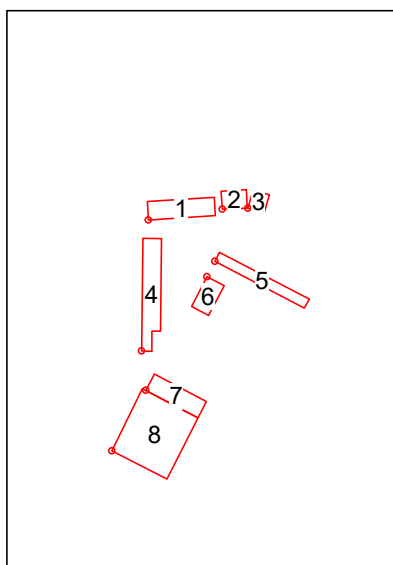
1.1 Summary, External Lighting

1.1.3 Result overview, Evaluation area 1

4	2 x	Order No.	: 430611 Windermere
		Luminaire name	: 30W Windermere Streetlight 840
		Equipment	: 1 x LED 30.2 W / 4730 lm
7	3 x	Order No.	: 431139 (E3_300lm) Rydal 3CCT
		Luminaire name	: 15W Rydal 3CCT Wallpack 840
		Equipment	: 1 x LED 14.5 W / 2275 lm

1.1 Summary, External Lighting

1.1.4 Result overview, Parking Bays & Car Park (6)

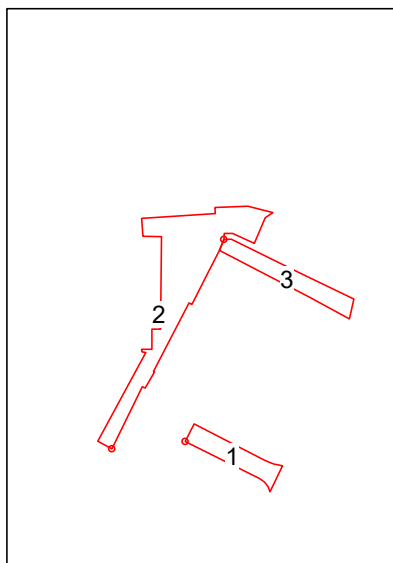


Horizontal illuminance

No.	Measuring surface	Grid	\bar{E}_m	E_{min}	E_{max}	U_o	U_d
6.1	EV & Disabled Bays (1-7)	30 x 8	13.7 lx	3.2 lx	25.2 lx	0.24	0.13
6.2	Parking Bays (8-10)	9 x 7	21.5 lx	11 lx	45.3 lx	0.51	0.24
6.3	Parking Bays (11-12)	8 x 8	28.7 lx	11.2 lx	81.2 lx	0.39	0.14
6.4	Parking Bays (13-24)	8 x 50	0.1 lx	0 lx	0.3 lx	0.15	0.04
6.5	Parking Bays (25-29)	70 x 7	16.3 lx	1.4 lx	50.9 lx	0.08	0.03
6.6	Parking Bays (30-33)	6 x 10	20.7 lx	5.7 lx	54.1 lx	0.27	0.10
6.7	Parking Bays (34-40)	27 x 8	15.3 lx	2.1 lx	36.6 lx	0.14	0.06
6.8	Car Park	11 x 12	0.6 lx	0 lx	6.1 lx	0.03	0.00
Summary			7.7 lx	0 lx	81.2 lx	0.00	0.00

1.1 Summary, External Lighting

1.1.5 Result overview, Vehicle Entrance, Exit & Site Road (7)

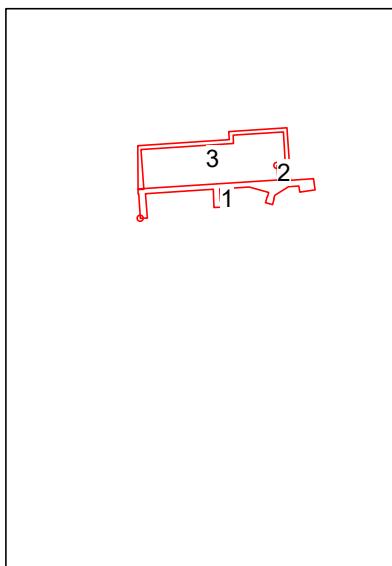


Horizontal illuminance

No.	Measuring surface	Grid	\bar{E}_m	E_{min}	E_{max}	U_o	U_d
7.1	Vehicle Entrance	33 x 10	0.1 lx	0 lx	1.3 lx	---	---
7.2	Site Road	118 x 48	1.4 lx	0 lx	18.7 lx	0.01	0.00
7.3	Vehicle Exit	64 x 41	5.9 lx	0 lx	41.8 lx	0.00	0.00
Summary			2.1 lx	0 lx	41.8 lx	0.00	0.00

1.1 Summary, External Lighting

1.1.6 Result overview, Walkways & Outdoor Seating (8)



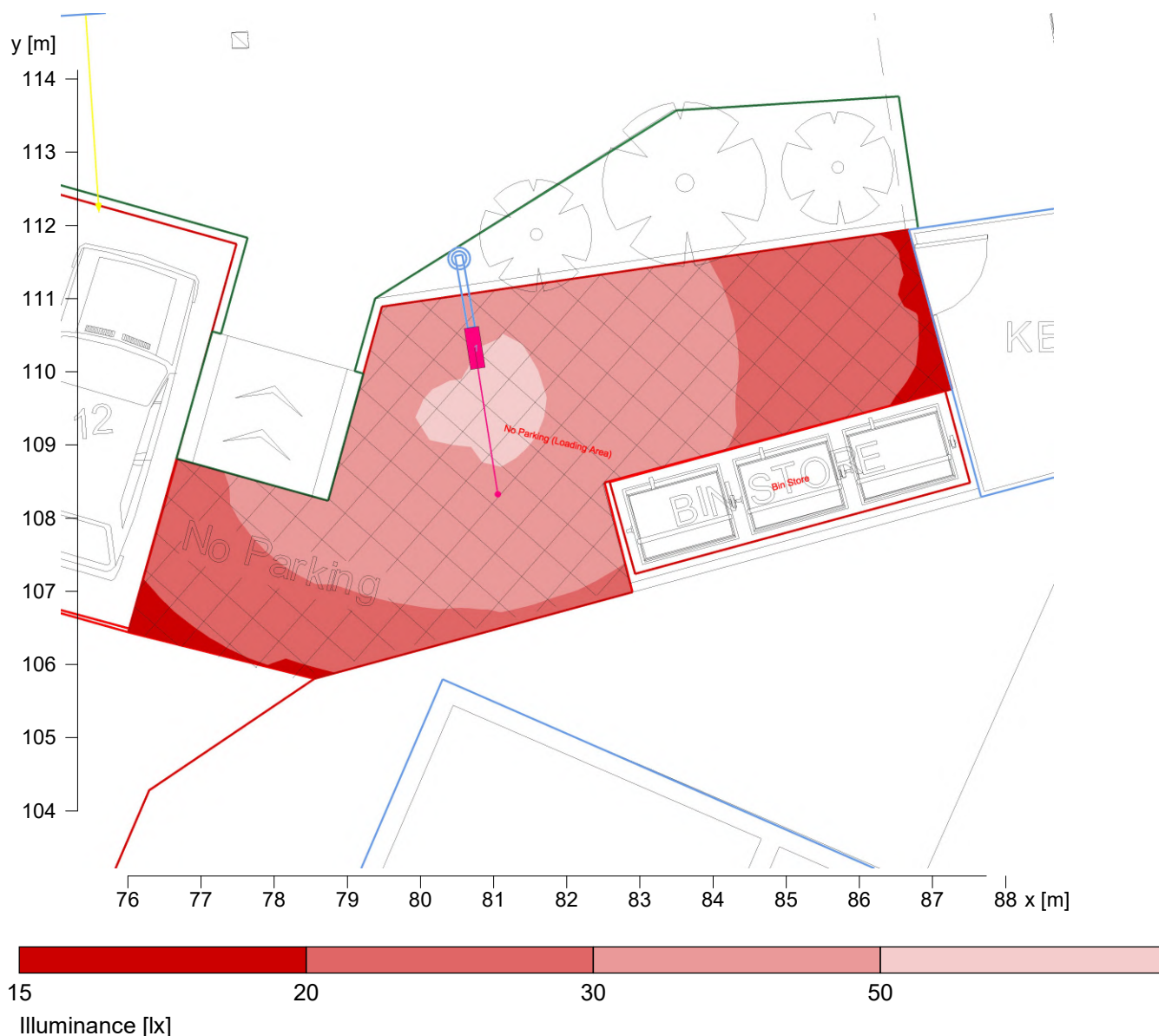
Horizontal illuminance

No.	Measuring surface	Grid	\bar{E}_m	E_{min}	E_{max}	U_o	U_d
8.1	Front Walkway	146 x 24	35 lx	1 lx	177 lx	0.03	0.01
8.2	Outdoor Seating	6 x 8	27 lx	14 lx	35 lx	0.50	0.40
8.3	Building Walkway	107 x 37	17 lx	0 lx	42 lx	---	---
Summary			28 lx	0 lx	177 lx	0.00	0.00

1 External Lighting

1.2 Calculation results, External Lighting

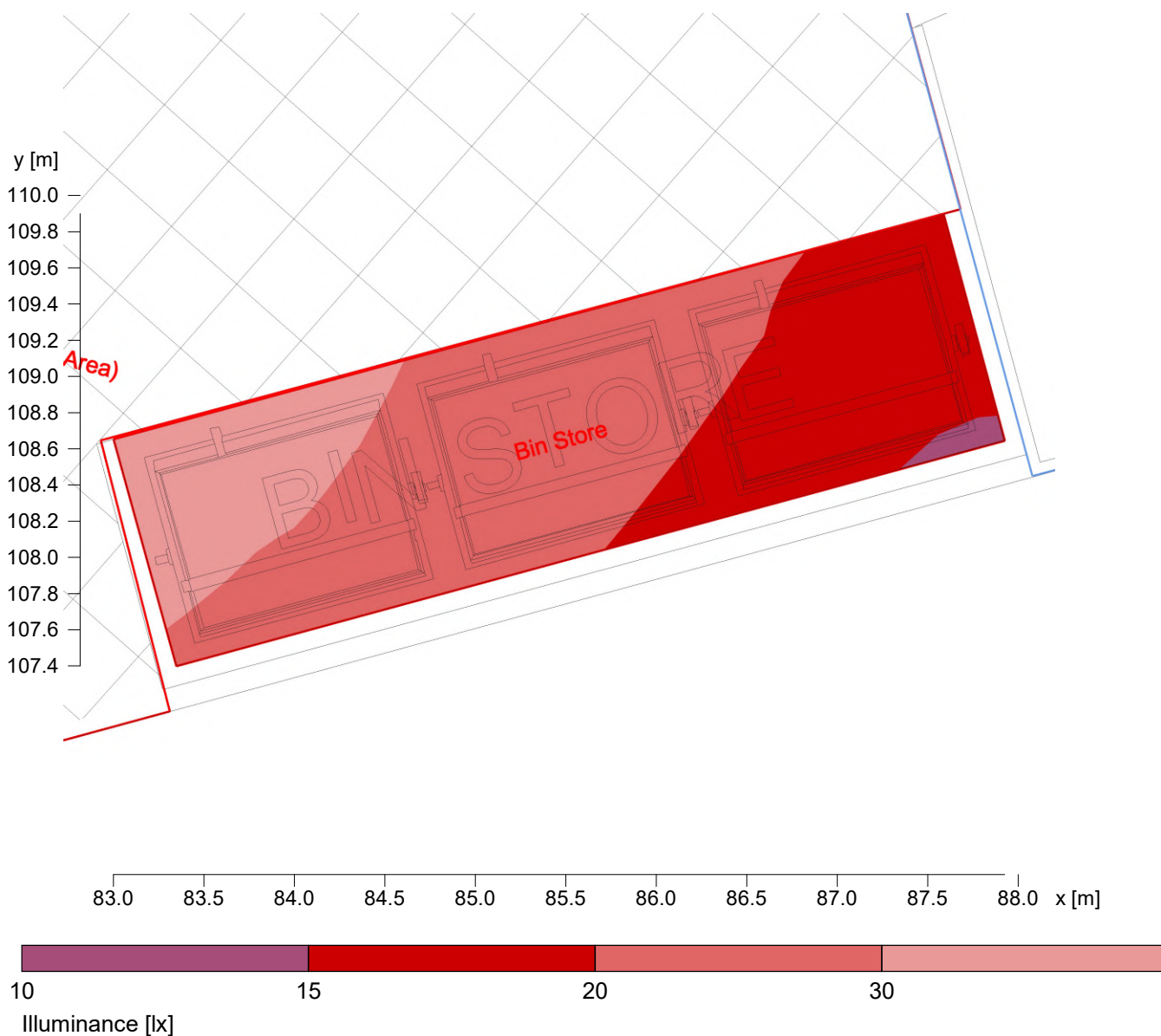
1.2.1 Pseudo colours, No Parking (Loading Area) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 34.6 lx
Minimum illuminance	E_{min}	: 15.7 lx
Maximum illuminance	E_{max}	: 53.3 lx
Uniformity U_0	E_{min}/\bar{E}_m	: 1 : 2.20 (0.45)

1.2 Calculation results, External Lighting

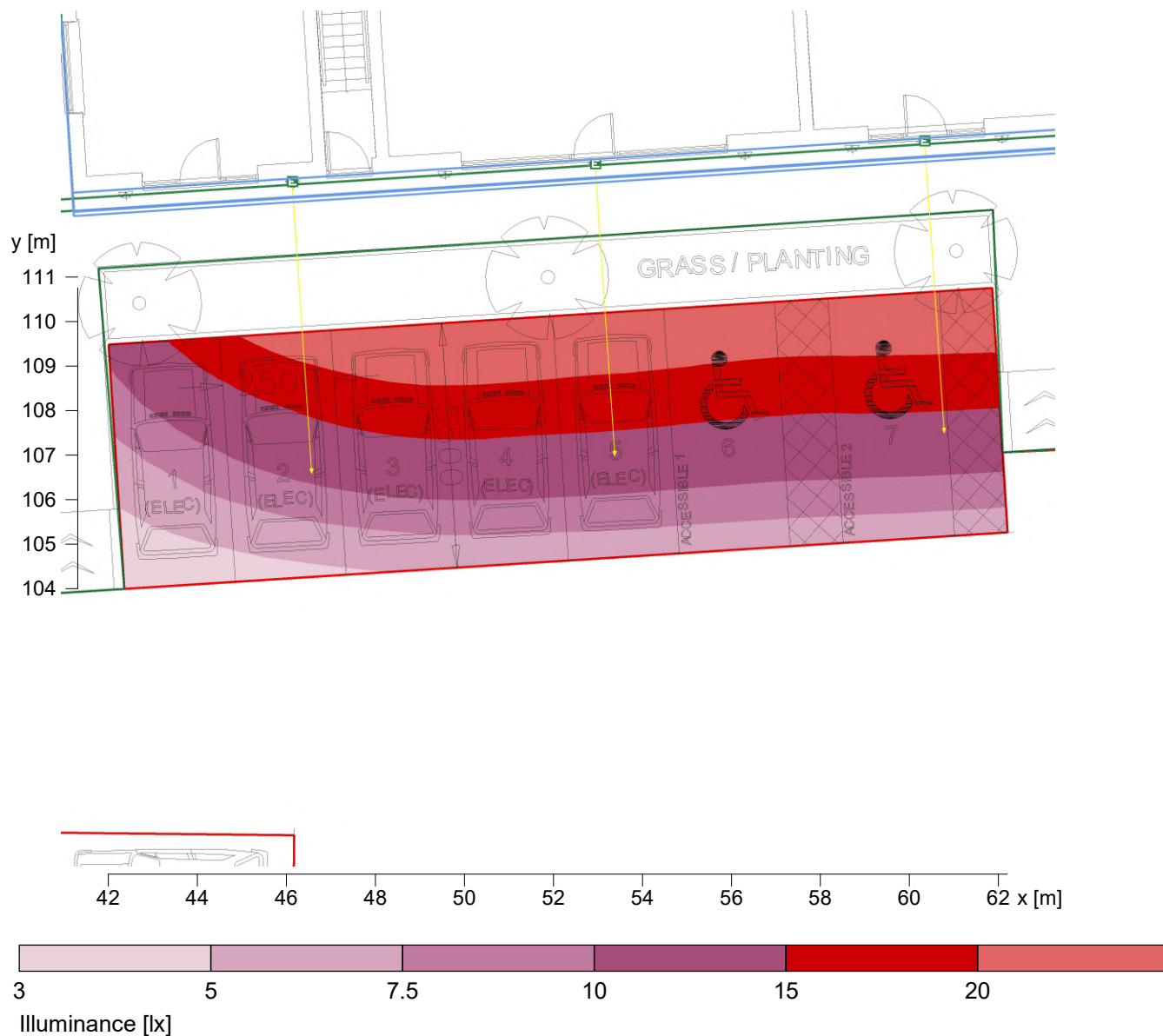
1.2.2 Pseudo colours, Bin Store (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 24.1 lx
Minimum illuminance	E_{min}	: 14.9 lx
Maximum illuminance	E_{max}	: 38.1 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 1.62 (0.62)

1.2 Calculation results, External Lighting

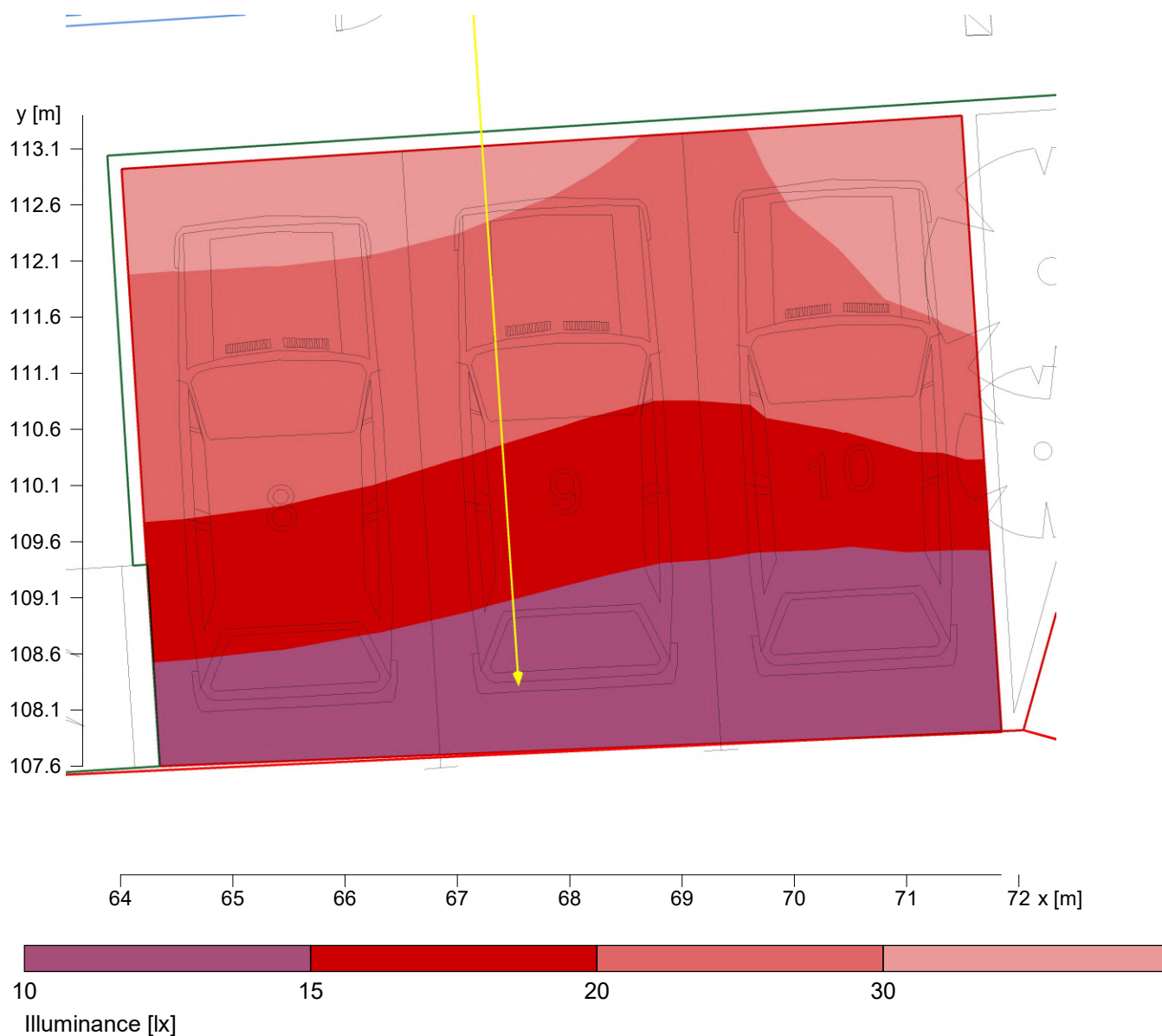
1.2.3 Pseudo colours, EV & Disabled Bays (1-7) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 13.7 lx
Minimum illuminance	E_{min}	: 3.2 lx
Maximum illuminance	E_{max}	: 25.2 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 4.21 (0.24)

1.2 Calculation results, External Lighting

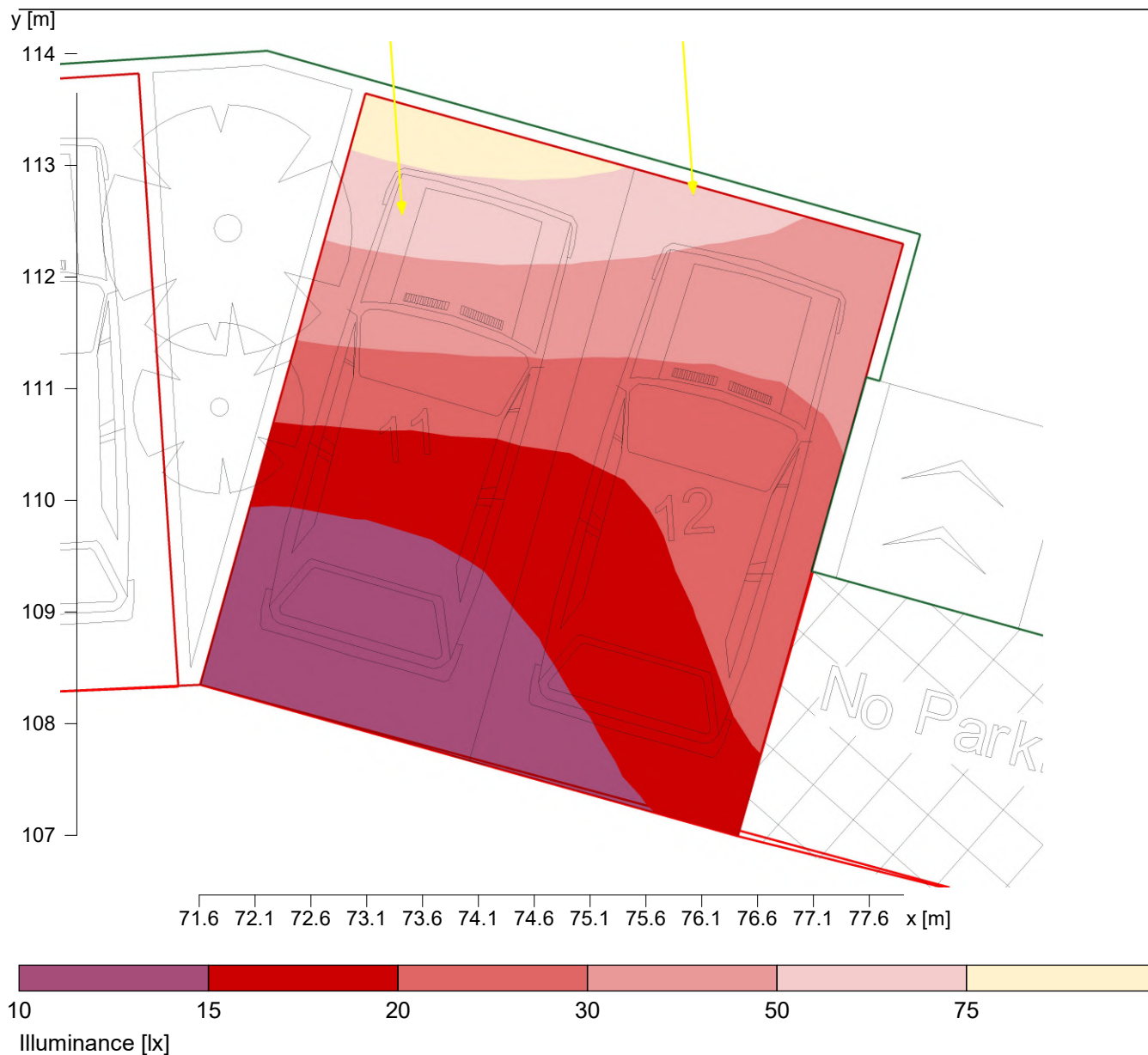
1.2.4 Pseudo colours, Parking Bays (8-10) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 21.5 lx
Minimum illuminance	E_{min}	: 11 lx
Maximum illuminance	E_{max}	: 45.3 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 1.96 (0.51)

1.2 Calculation results, External Lighting

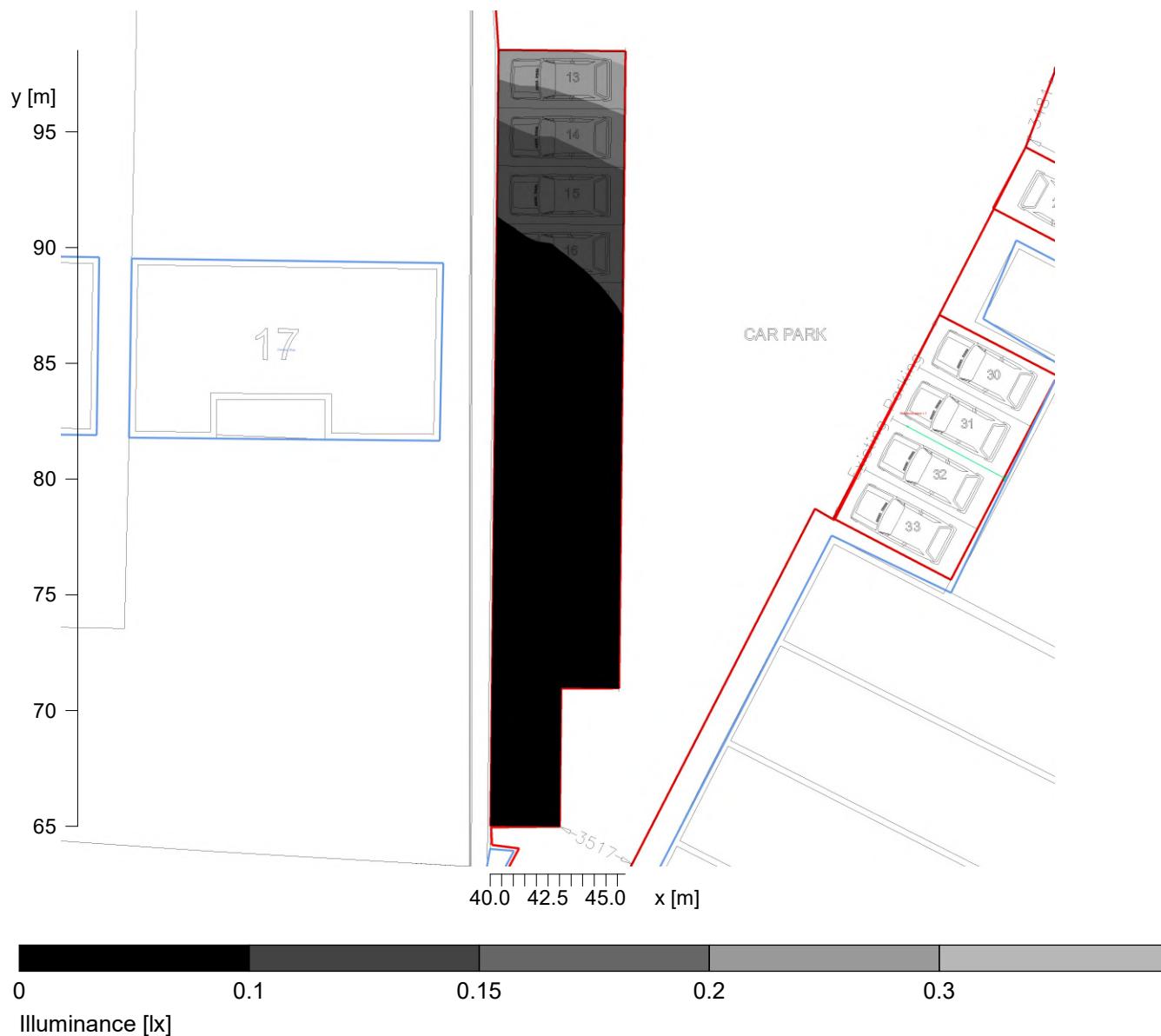
1.2.5 Pseudo colours, Parking Bays (11-12) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 28.7 lx
Minimum illuminance	E_{min}	: 11.2 lx
Maximum illuminance	E_{max}	: 81.2 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 2.56 (0.39)

1.2 Calculation results, External Lighting

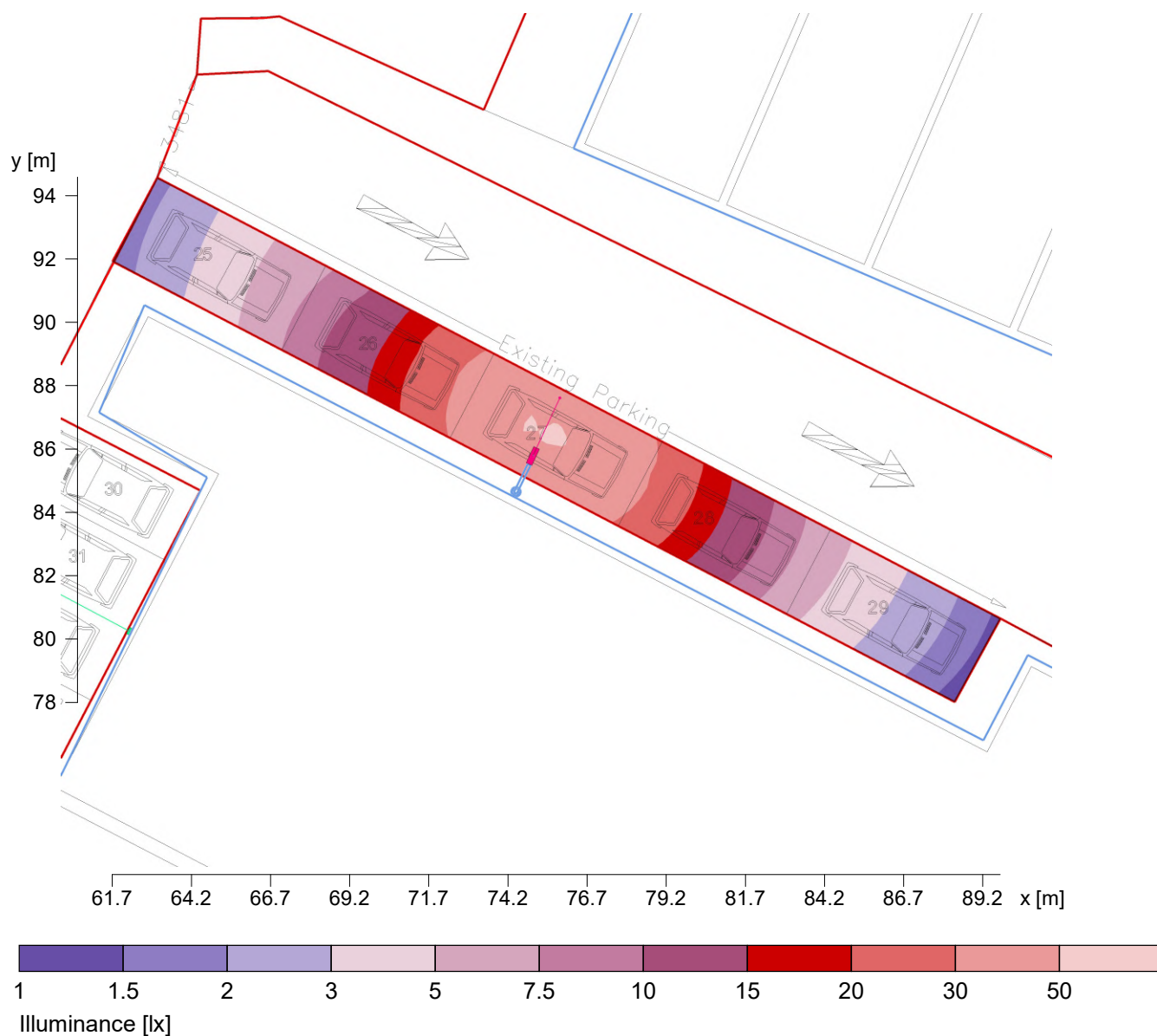
1.2.6 Pseudo colours, Parking Bays (13-24) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 0.09 lx
Minimum illuminance	E_{min}	: 0.01 lx
Maximum illuminance	E_{max}	: 0.31 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 6.87 (0.15)

1.2 Calculation results, External Lighting

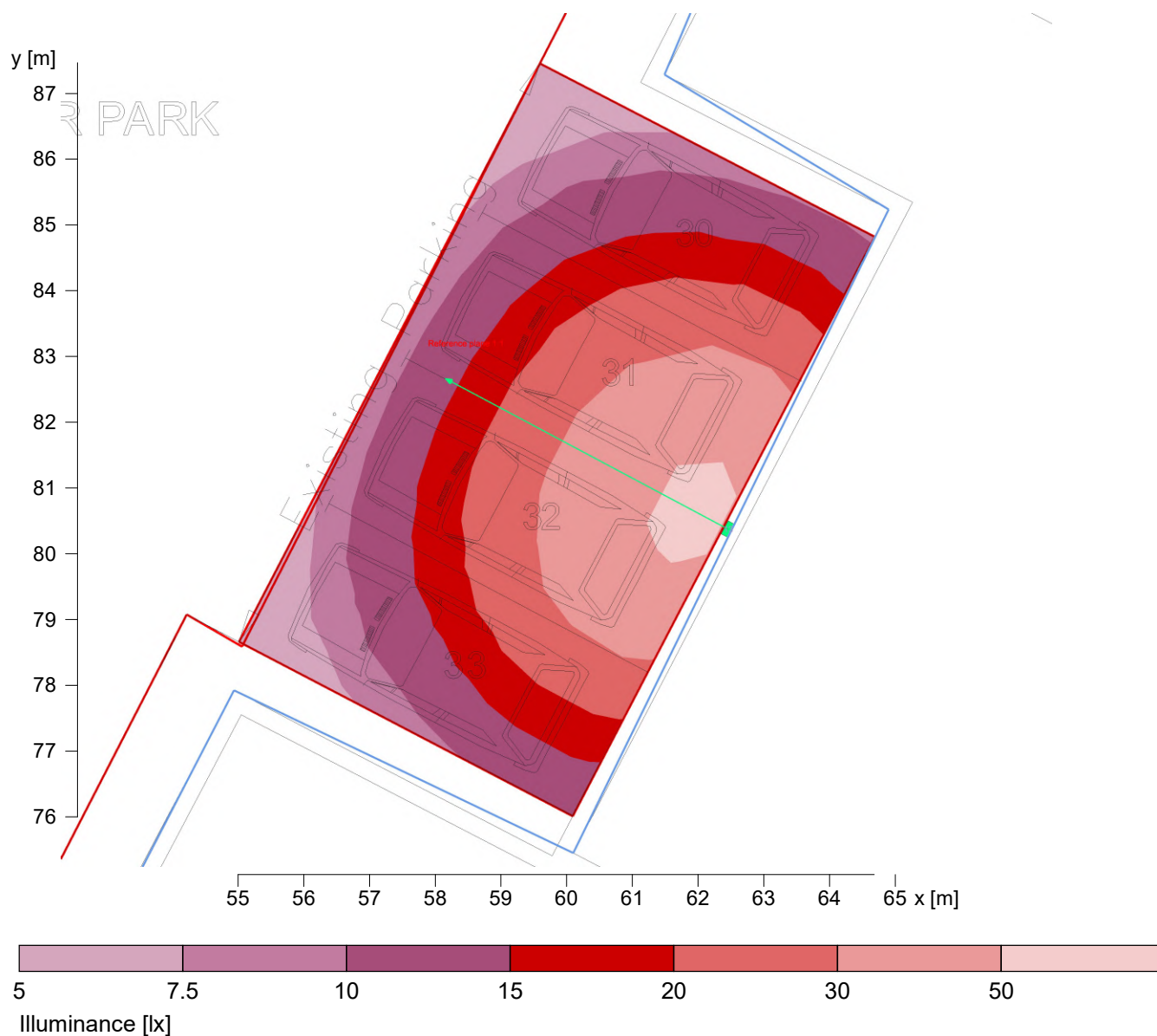
1.2.7 Pseudo colours, Parking Bays (25-29) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 16.3 lx
Minimum illuminance	E_{min}	: 1.4 lx
Maximum illuminance	E_{max}	: 50.9 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 12.08 (0.08)

1.2 Calculation results, External Lighting

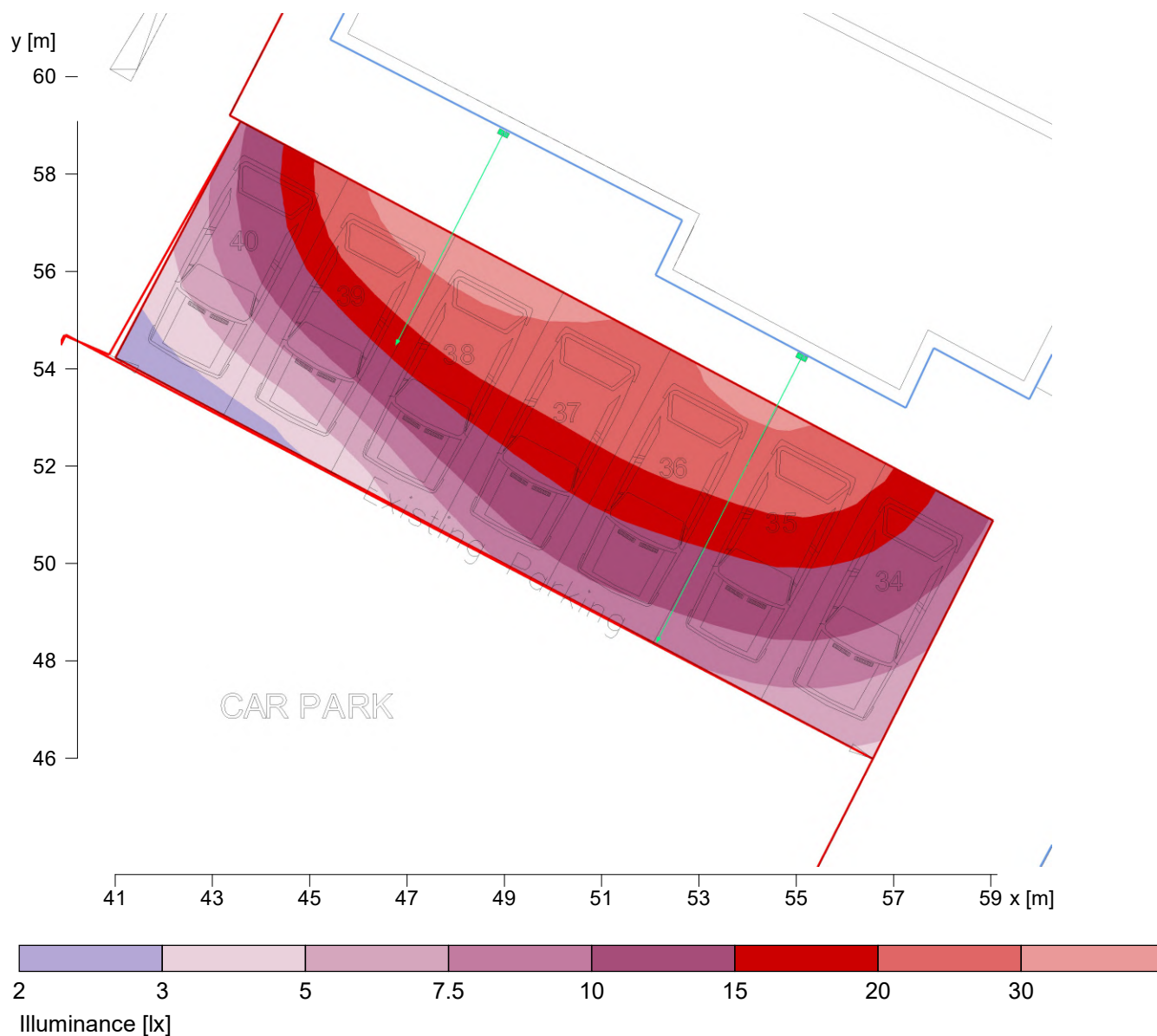
1.2.8 Pseudo colours, Parking Bays (30-33) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 20.7 lx
Minimum illuminance	E_{min}	: 5.7 lx
Maximum illuminance	E_{max}	: 54.1 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 3.64 (0.27)

1.2 Calculation results, External Lighting

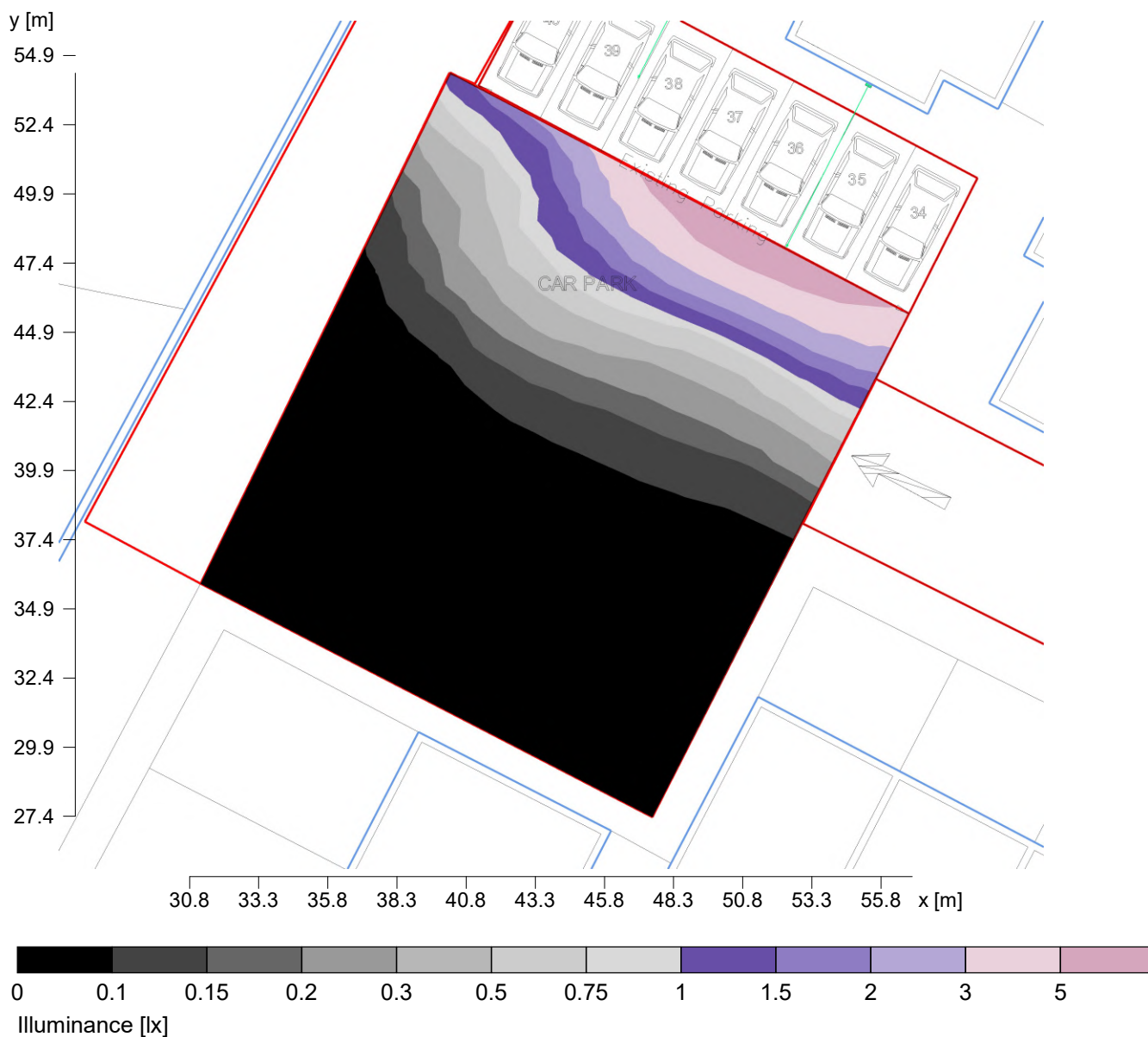
1.2.9 Pseudo colours, Parking Bays (34-40) (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 15.3 lx
Minimum illuminance	E_{min}	: 2.1 lx
Maximum illuminance	E_{max}	: 36.6 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 7.19 (0.14)

1.2 Calculation results, External Lighting

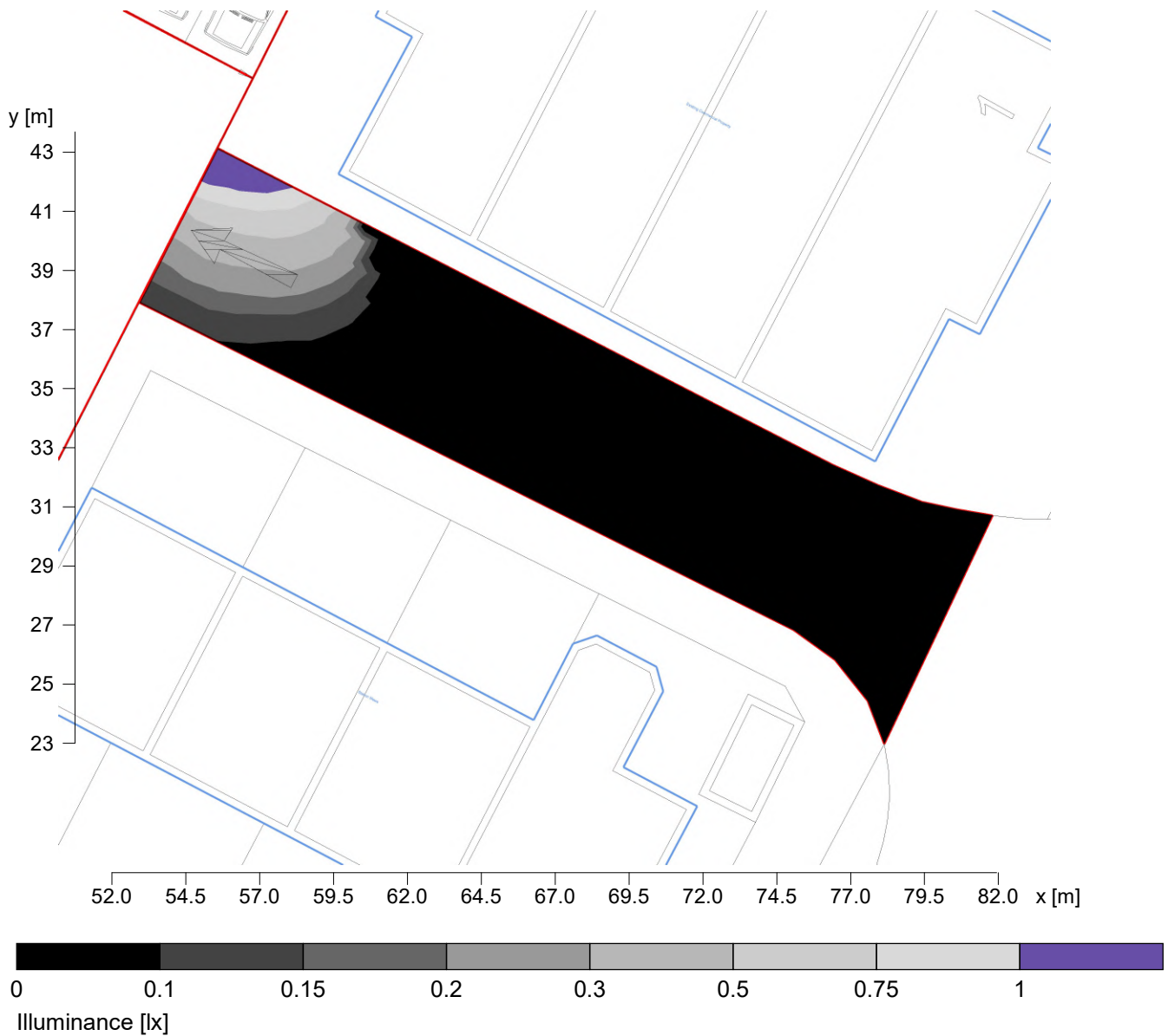
1.2.10 Pseudo colours, Car Park (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 0.58 lx
Minimum illuminance	E_{min}	: 0.02 lx
Maximum illuminance	E_{max}	: 6.09 lx
Uniformity U_0	E_{min}/\bar{E}_m	: 1 : 29.87 (0.03)

1.2 Calculation results, External Lighting

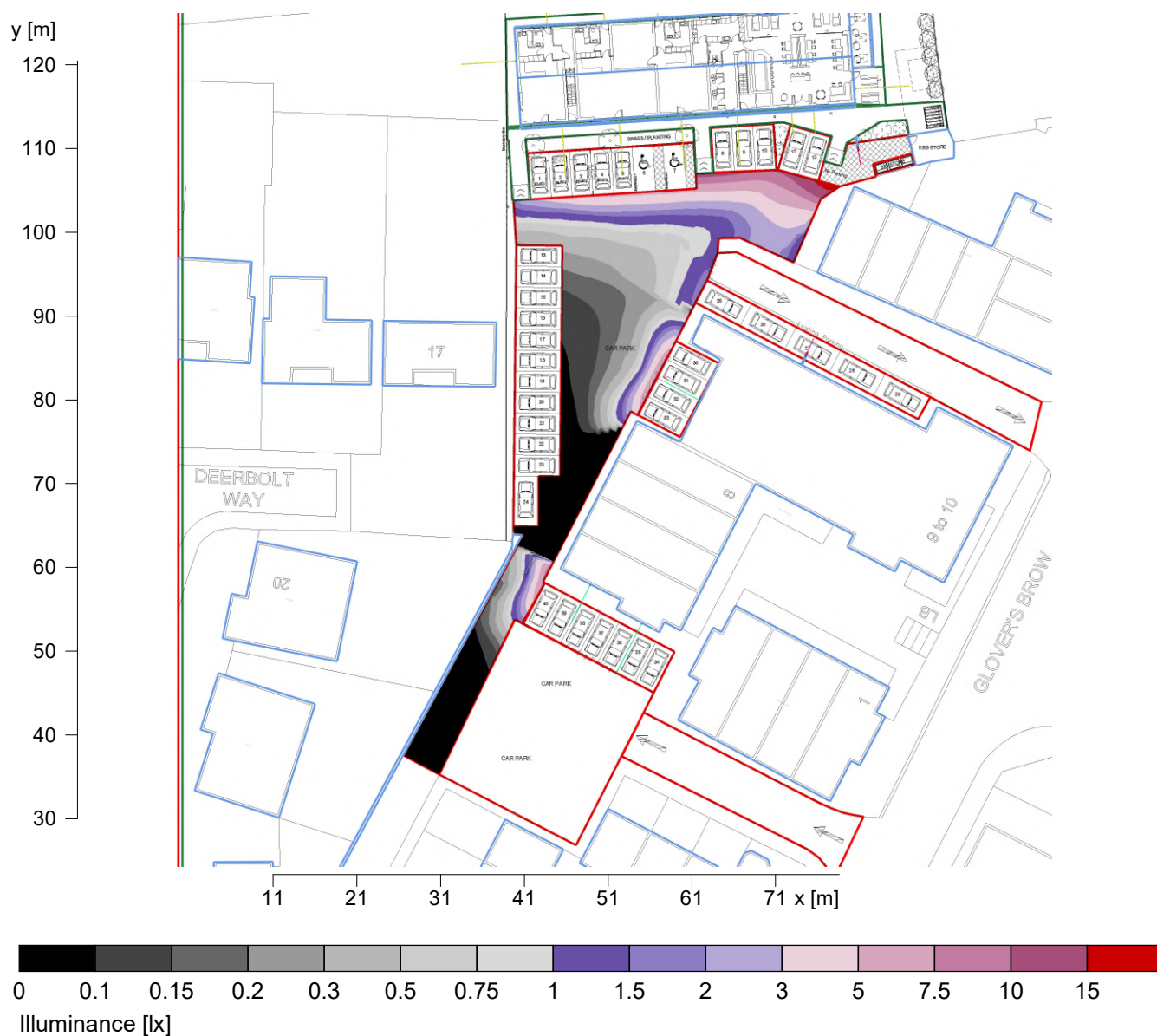
1.2.11 Pseudo colours, Vehicle Entrance (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 0.08 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 1.27 lx
Uniformity U_0	E_{min}/\bar{E}_m	: ---

1.2 Calculation results, External Lighting

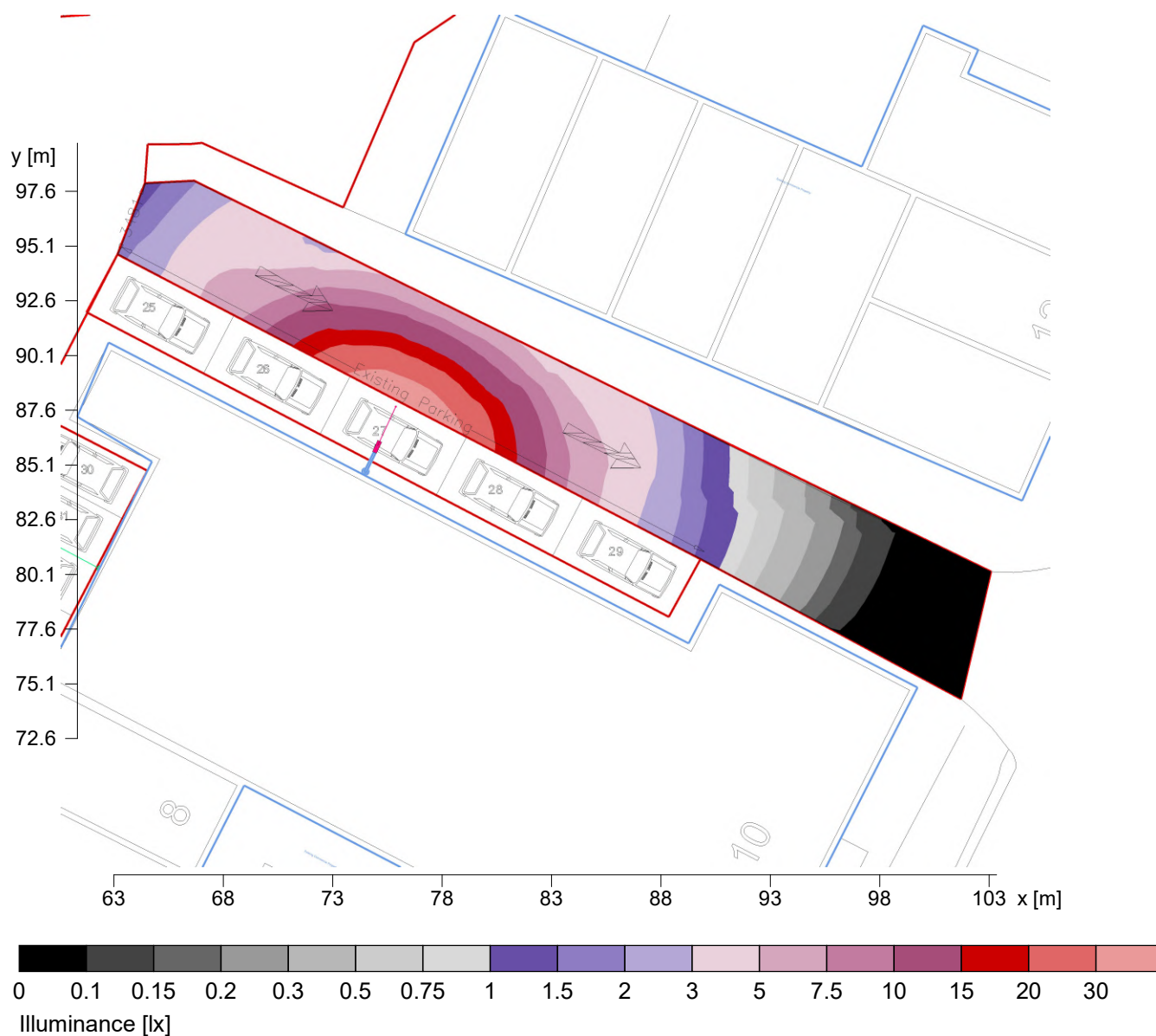
1.2.12 Pseudo colours, Site Road (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 1.4 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 18.7 lx
Uniformity U_0	E_{min}/\bar{E}_m	: 1 : 130.85 (0.01)

1.2 Calculation results, External Lighting

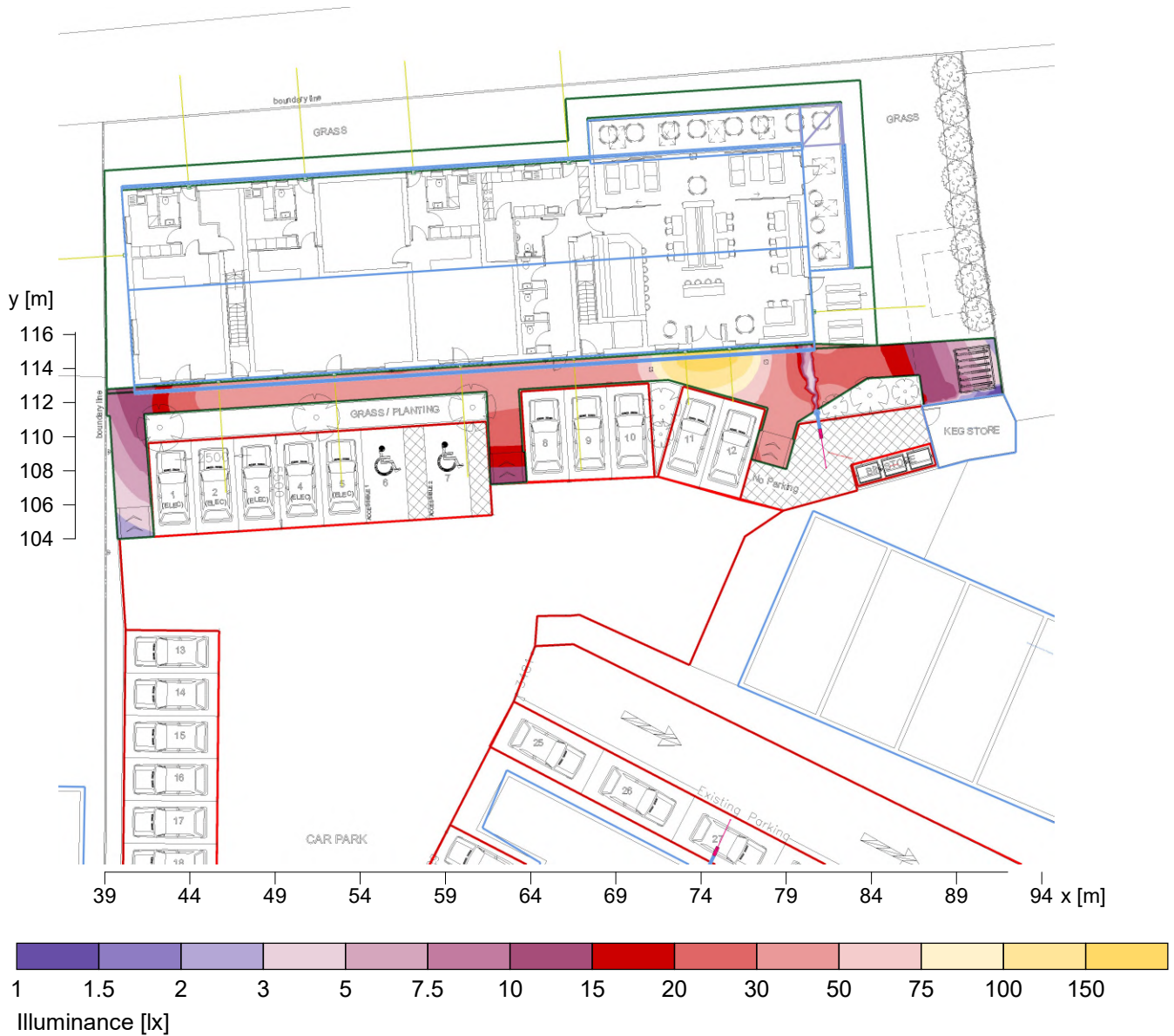
1.2.13 Pseudo colours, Vehicle Exit (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 5.9 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 41.8 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 2047.40 (0.00)

1.2 Calculation results, External Lighting

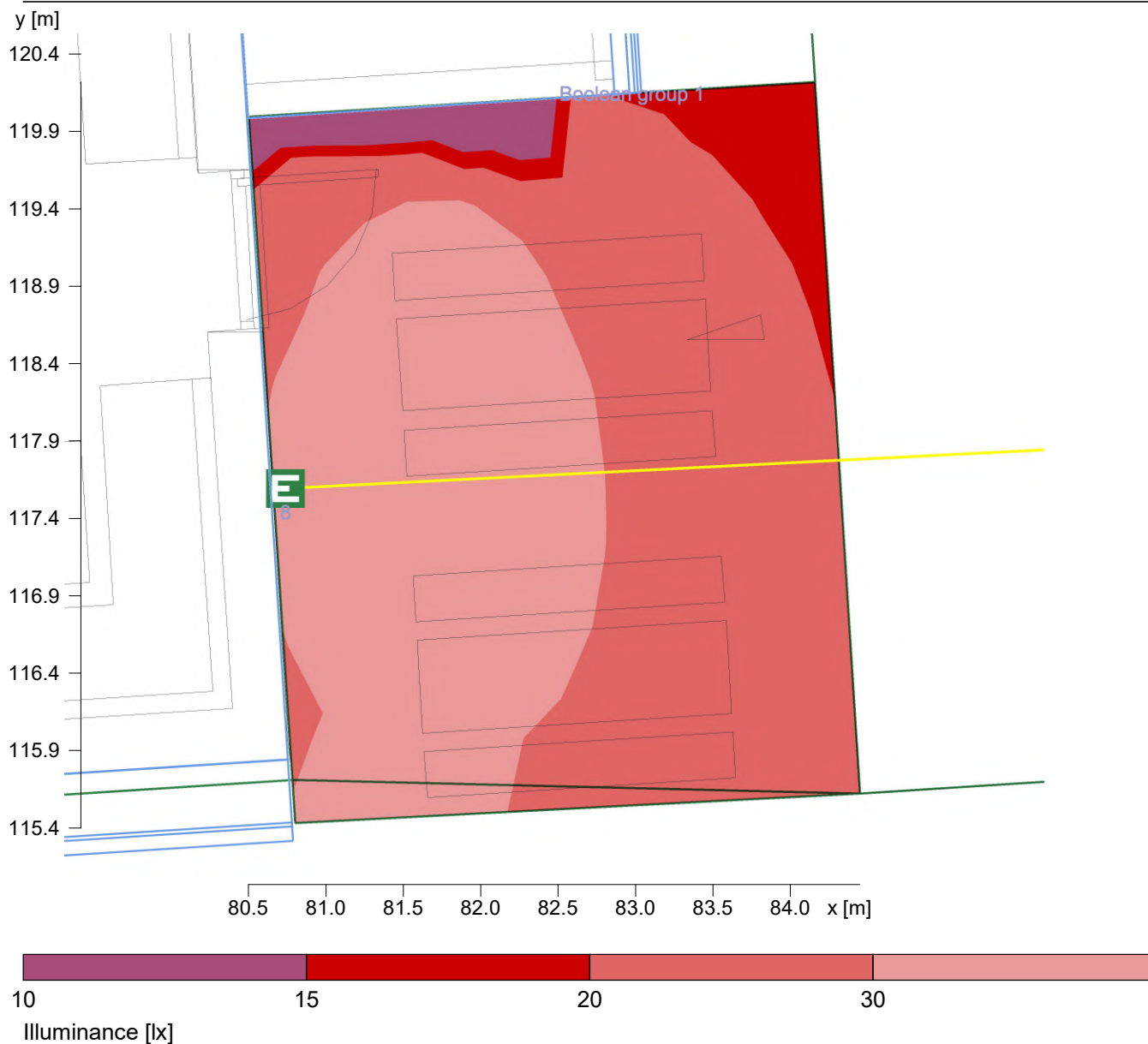
1.2.14 Pseudo colours, Front Walkway (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 35 lx
Minimum illuminance	E_{min}	: 1 lx
Maximum illuminance	E_{max}	: 177 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 31.59 (0.03)

1.2 Calculation results, External Lighting

1.2.15 Pseudo colours, Outdoor Seating (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 27.5 lx
Minimum illuminance	E_{min}	: 13.9 lx
Maximum illuminance	E_{max}	: 35 lx
Uniformity U_o	E_{min}/\bar{E}_m	: 1 : 1.98 (0.50)

1.2 Calculation results, External Lighting

1.2.16 Pseudo colours, Building Walkway (E)

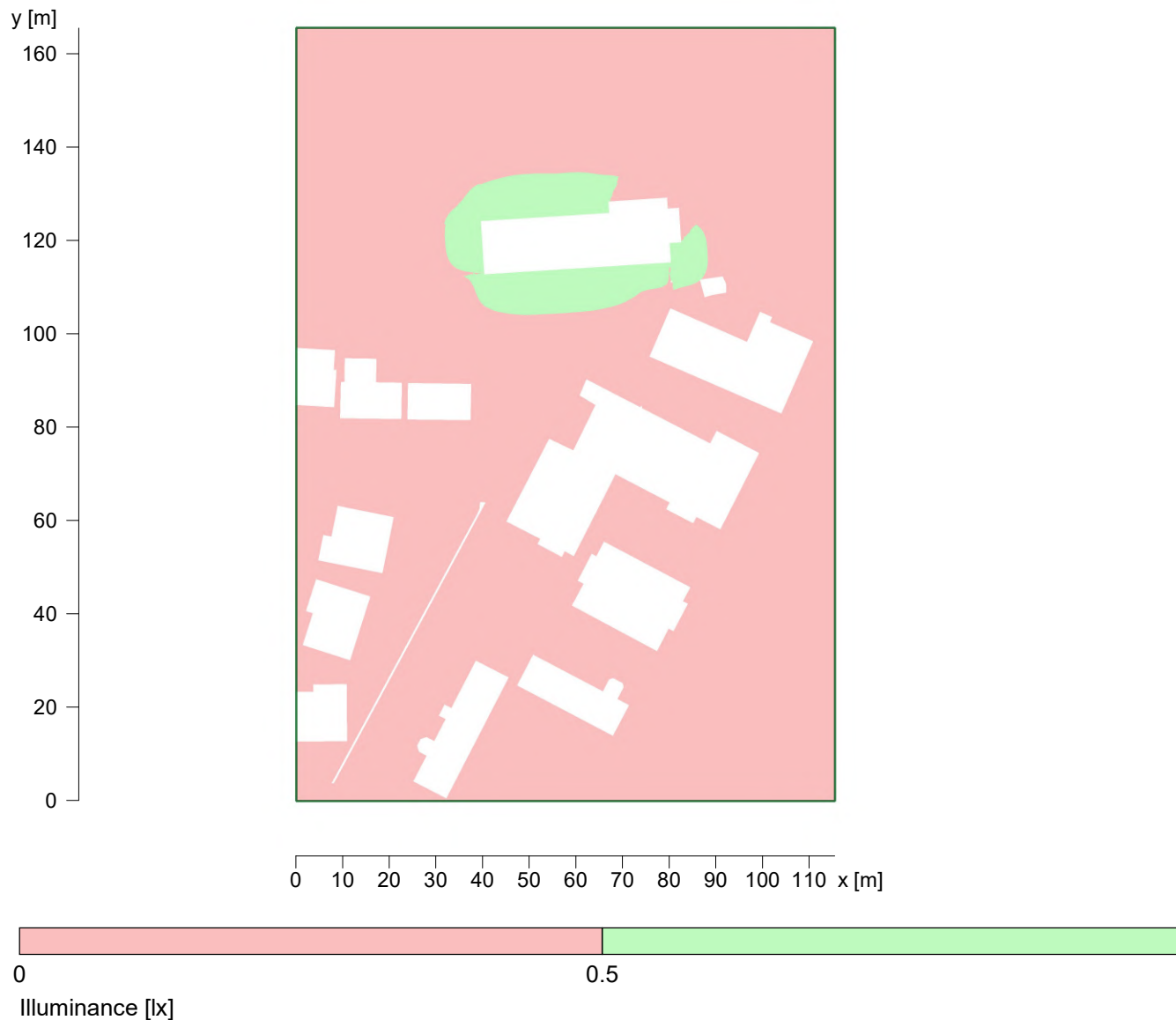


Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 17.2 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 41.9 lx
Uniformity U_0	E_{min}/\bar{E}_m	: ---

1 External Lighting

1.3 Calculation results, External Lighting

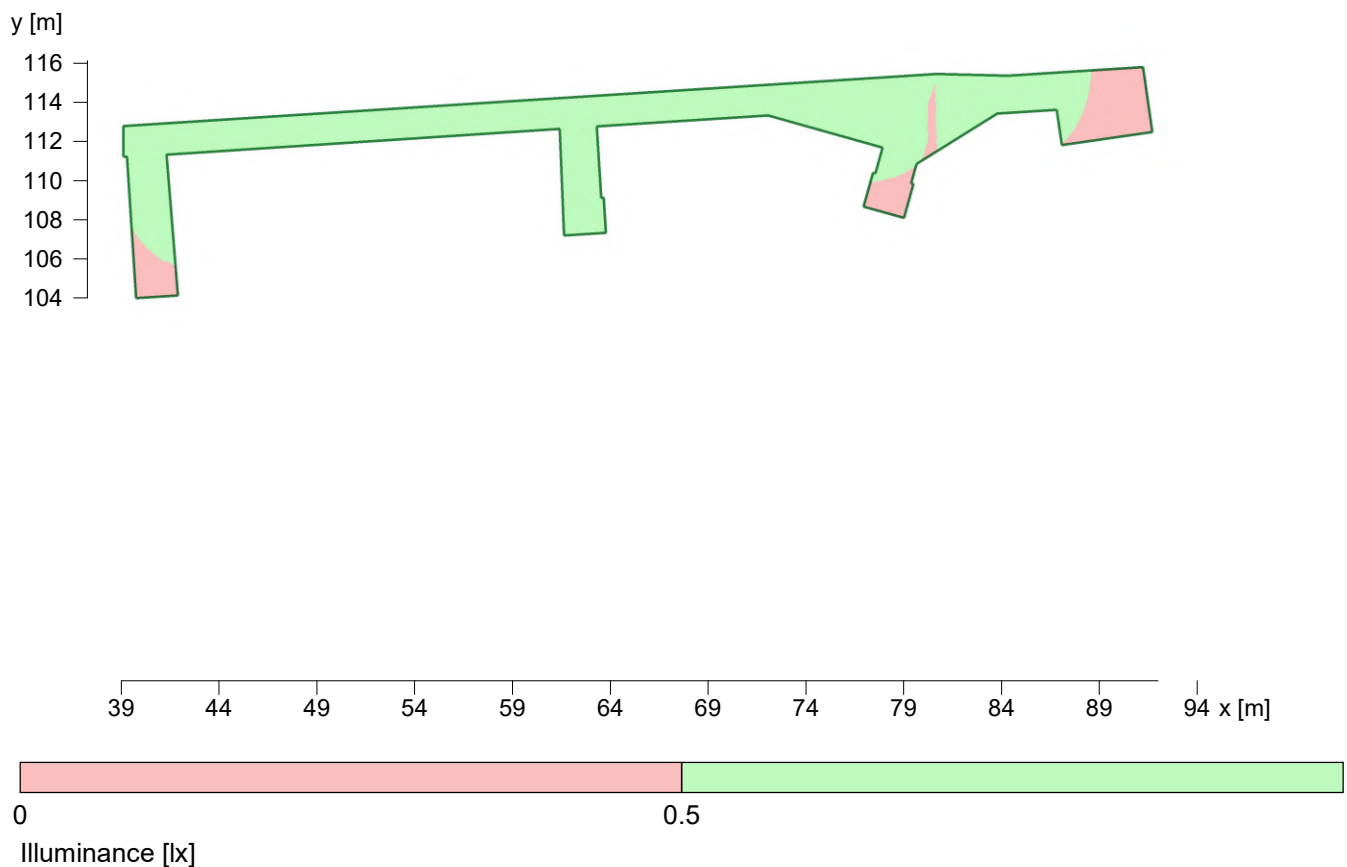
1.3.1 Boundary line, Anti panic area 1.1 (E)



Required minimum illuminance		: 0.5 lx
Minimum illuminance	E _{min}	: 0 lx
Maximum illuminance	E _{max}	: 21 lx
Diversity	E _{min} /E _{max}	: --- (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8

1.3 Calculation results, External Lighting

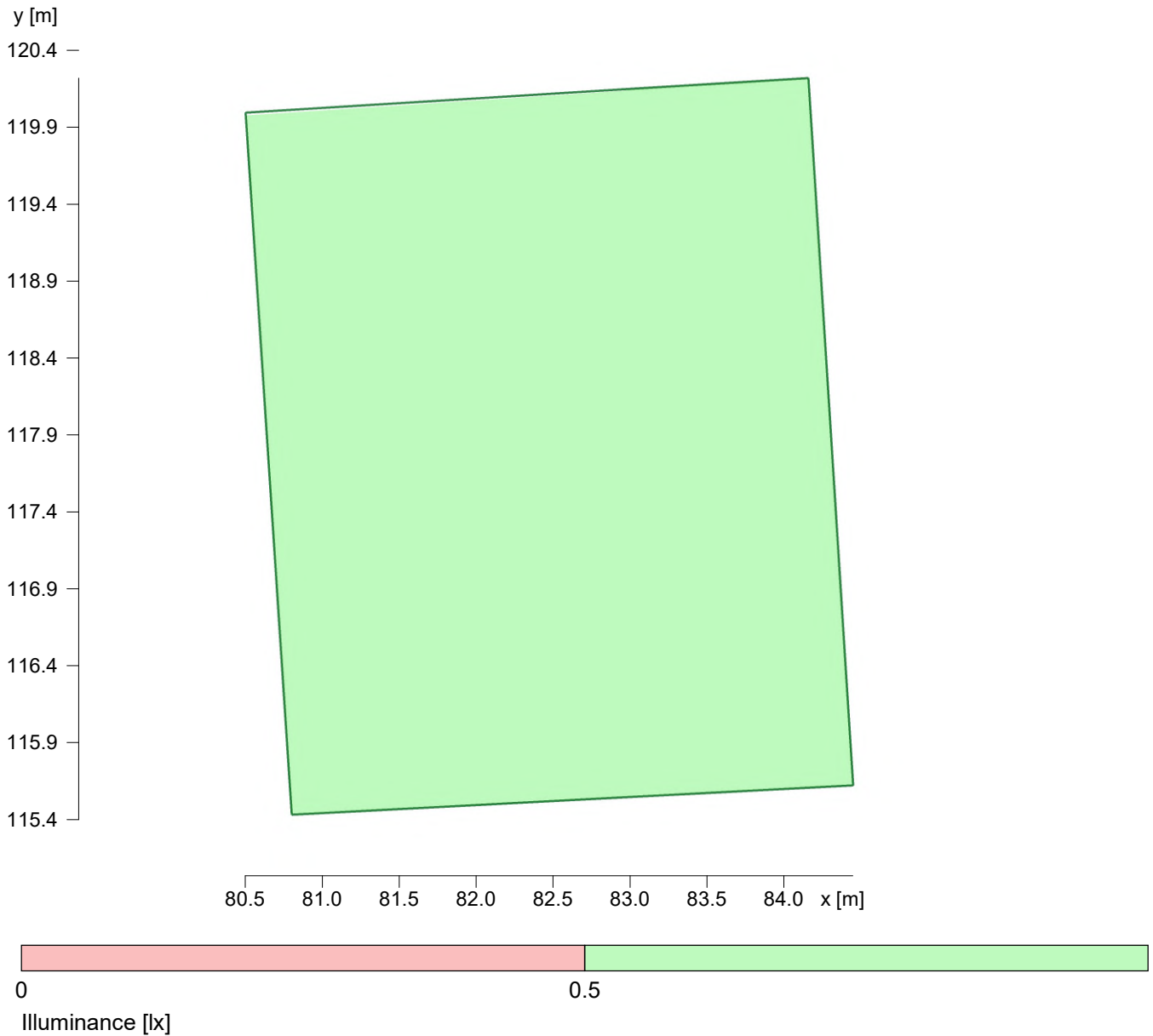
1.3.2 Boundary line, Front Walkway (E)



Required minimum illuminance		: 0.5 lx
Minimum illuminance	E _{min}	: 0.05 lx
Maximum illuminance	E _{max}	: 21 lx
Diversity	E _{min} /E _{max}	: 1 : 413.00 (0.00) (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8

1.3 Calculation results, External Lighting

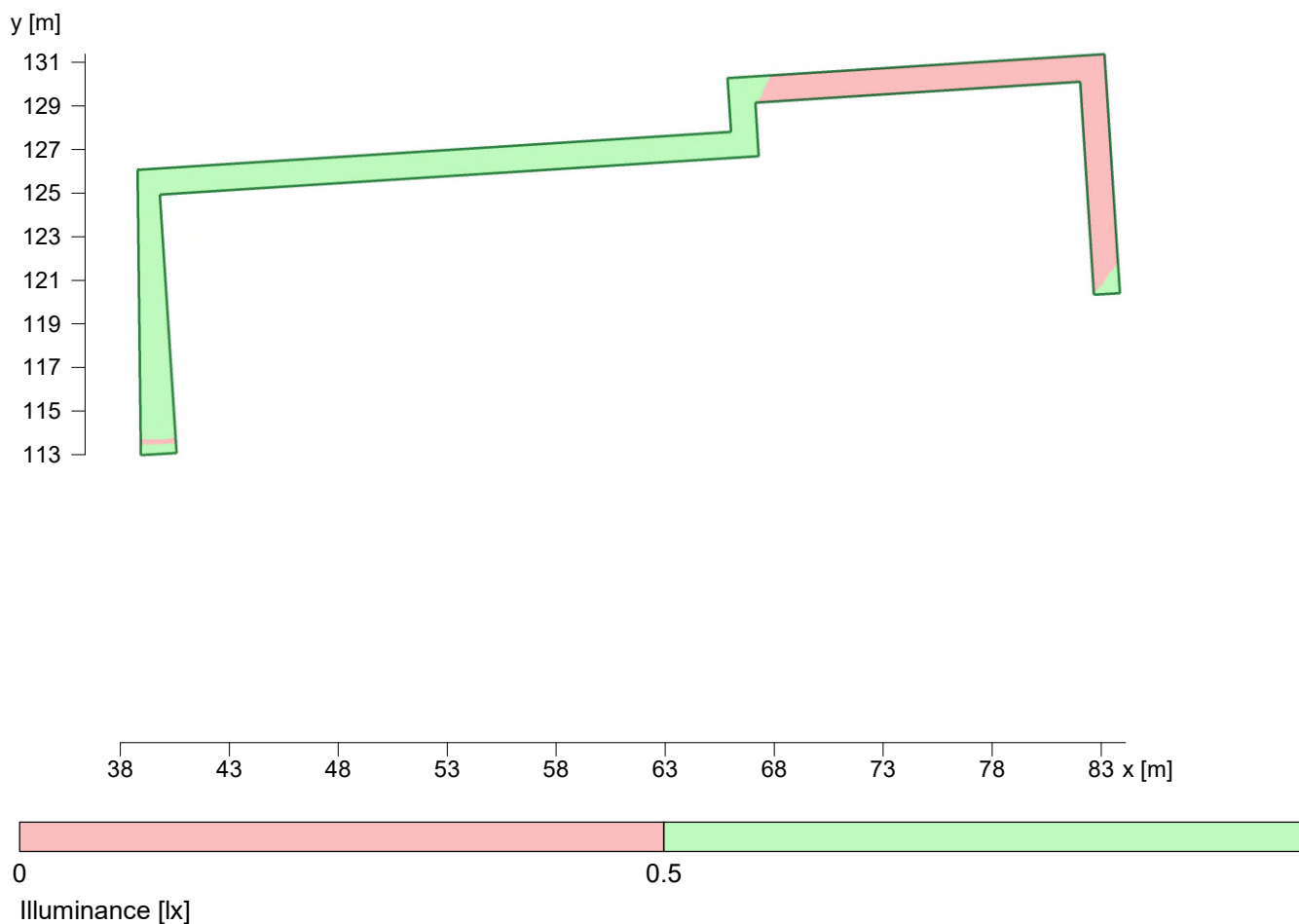
1.3.3 Boundary line, Outdoor Seating (E)



Required minimum illuminance		: 0.5 lx
Minimum illuminance	E _{min}	: 1.7 lx
Maximum illuminance	E _{max}	: 3.7 lx
Diversity	E _{min} /E _{max}	: 1 : 2.12 (0.47) (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8

1.3 Calculation results, External Lighting

1.3.4 Boundary line, Building Walkway (E)



Required minimum illuminance		: 0.5 lx
Minimum illuminance	E _{min}	: 0 lx
Maximum illuminance	E _{max}	: 5 lx
Diversity	E _{min} /E _{max}	: --- (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component
Maintenance factor		: 0.8