

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.

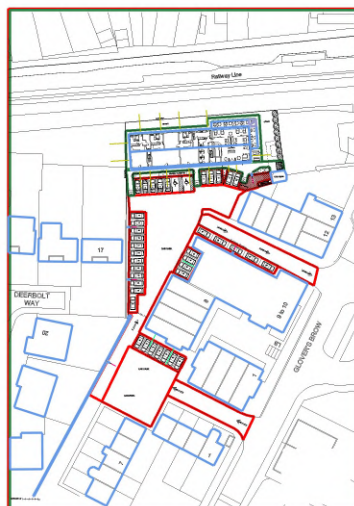
The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

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

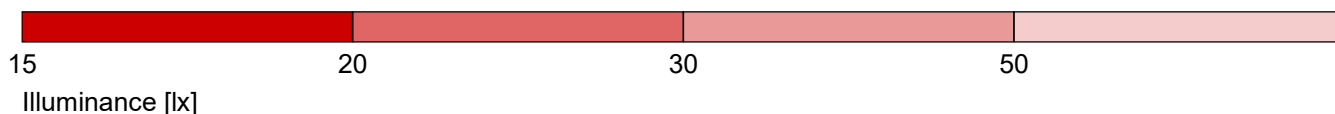
1 External Lighting

1.1 Summary, External Lighting

1.1.1 Result overview, No Parking (Loading Area)



-1 19 39 59 79 99 x [m]



General

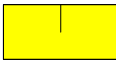

| | |
|---|---------------------------|
| Calculation algorithm used | Average indirect fraction |
| Height of evaluation surface | 0.00 m |
| Maintenance factor | 0.85 |
| Total luminous flux | 62325 lm |
| Total power | 397.5 W |
| Total power per area (19397.25 m ²) | 0.02 W/m ² |

Illuminance

| | | |
|---------------------|---------------------|---------------|
| Average illuminance | \bar{E}_m | 34.6 lx |
| Minimum illuminance | E_{min} | 15.7 lx |
| Maximum illuminance | E_{max} | 53.4 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | 1:2.2 (0.45) |
| Diversity U_d | E_{min}/E_{max} | 1:3.39 (0.29) |

Type No.Make

Lumineux Lighting

| | | | | | |
|---|-------|---|----------------|---|--------------------------|
| 1 | 14E 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 | 5 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)

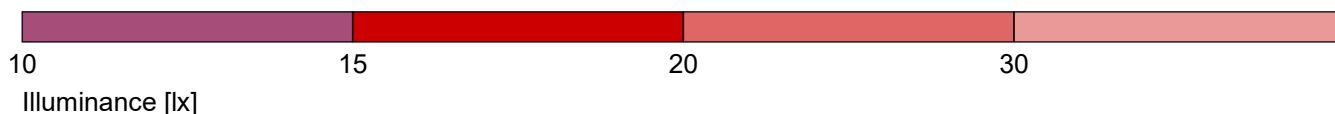
| | | | |
|---|-----|----------------|--------------------------------|
| 7 | 3 x | Order No. | : 431139 (E3_300lm) Rydal 3CCT |
|  | | Luminaire name | : 15W Rydal 3CCT Wallpack 840 |
| | | Equipment | : 1 x LED 14.5 W / 2275 lm |

1.1 Summary, External Lighting

1.1.2 Result overview, Bin Store



-1 19 39 59 79 99 x [m]



General

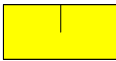

| | |
|---|---------------------------|
| Calculation algorithm used | Average indirect fraction |
| Height of evaluation surface | 0.00 m |
| Maintenance factor | 0.85 |
| Total luminous flux | 62325 lm |
| Total power | 397.5 W |
| Total power per area (19397.25 m ²) | 0.02 W/m ² |

Illuminance

| | | |
|---------------------|---------------------|---------------|
| Average illuminance | \bar{E}_m | 24.1 lx |
| Minimum illuminance | E_{min} | 15 lx |
| Maximum illuminance | E_{max} | 38.2 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | 1:1.61 (0.62) |
| Diversity U_d | E_{min}/E_{max} | 1:2.55 (0.39) |

Type No.Make

Lumineux Lighting


| | | | | |
|---|---|----------------|---|--------------------------|
| 1 | 14E 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 | 5 x | Order No. | : 430611 Windermere | |
| |  | Luminaire name | : 30W Windermere Streetlight 840 | |
| | | Equipment | : 1 x LED 30.2 W / 4730 lm | |

Object : Lighting Design
Installation : Glovers Brow Development
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1.1 Summary, External Lighting

1.1.2 Result overview, Bin Store

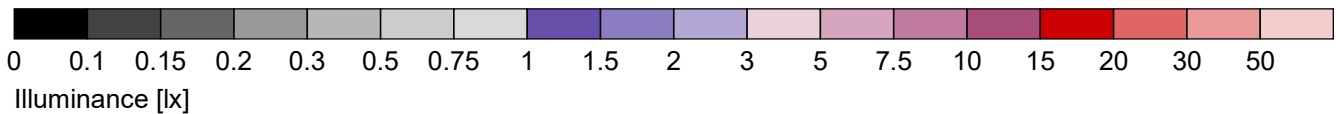
| | | | |
|---|-----|----------------|--------------------------------|
| 7 | 3 x | Order No. | : 431139 (E3_300lm) Rydal 3CCT |
|  | | Luminaire name | : 15W Rydal 3CCT Wallpack 840 |
| | | Equipment | : 1 x LED 14.5 W / 2275 lm |

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 | 62325.00 lm |
| Luminaire luminous flux | 62270.95 lm |
| Total power | 397.5 W |
| Total power per area (19397.25 m ²) | 0.02 W/m ² (0.72 W/m ² /100lx) |

Evaluation area 1

Reference plane 1.1


| | |
|---------------------------|------------|
| | Horizontal |
| \bar{E}_m | 2.83 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



| | |
|--|---|
| <p>1 14E x</p>  | <p>Order No. : !431139-E3 (E3_300lm) Rydal 3CCT -- Emergency Lighting --</p> <p>Luminaire name : Emergency 15W Rydal 3CCT Wallpack 840</p> <p>Equipment : 1 x LED 14.5 W / 2275 lm</p> <p>Emergency : 300 lm (13.2 %)</p> |
|--|---|

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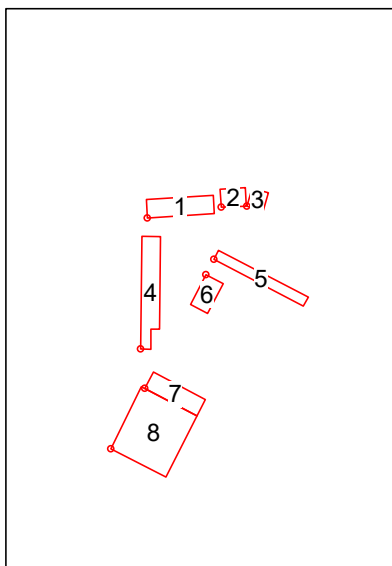
1.1 Summary, External Lighting

1.1.3 Result overview, Evaluation area 1

| | | | |
|---|-----|----------------|----------------------------------|
| 4 | 5 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)

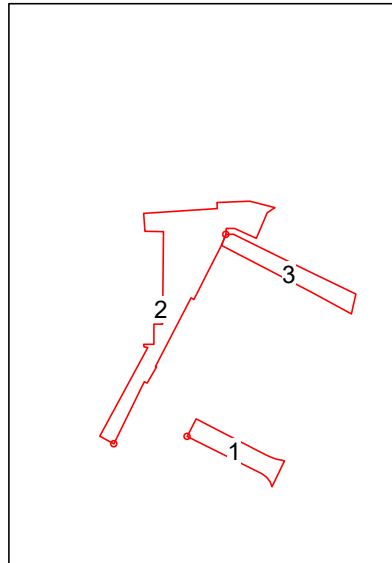


Horizontal illuminance

| 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 | 18.4 lx | 6.9 lx | 37 lx | 0.37 | 0.19 |
| 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 | 23.9 lx | 4.2 lx | 50.2 lx | 0.18 | 0.08 |
| 6.5 | Parking Bays (25-29) | 70 x 7 | 16.4 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 | 54.2 lx | 0.28 | 0.11 |
| 6.7 | Parking Bays (34-40) | 27 x 8 | 16.3 lx | 5.3 lx | 37.4 lx | 0.32 | 0.14 |
| 6.8 | Car Park | 11 x 12 | 3.1 lx | 0.1 lx | 27 lx | 0.02 | 0.00 |
| Summary | | | 13.5 lx | 0.1 lx | 81.2 lx | 0.00 | 0.00 |

1.1 Summary, External Lighting

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

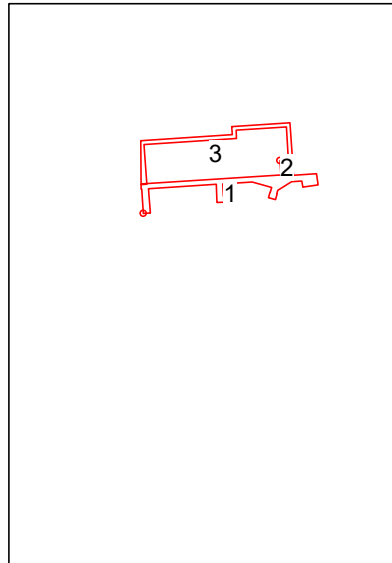


Horizontal illuminance

| 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 | 0.01 | 0.00 |
| 7.2 | Site Road | 118 x 48 | 5.8 lx | 0.3 lx | 49.8 lx | 0.05 | 0.01 |
| 7.3 | Vehicle Exit | 64 x 41 | 5.9 lx | 0 lx | 41.8 lx | 0.00 | 0.00 |
| Summary | | | 5 lx | 0 lx | 49.8 lx | 0.00 | 0.00 |

1.1 Summary, External Lighting

1.1.6 Result overview, Walkways & Outdoor Seating (8)



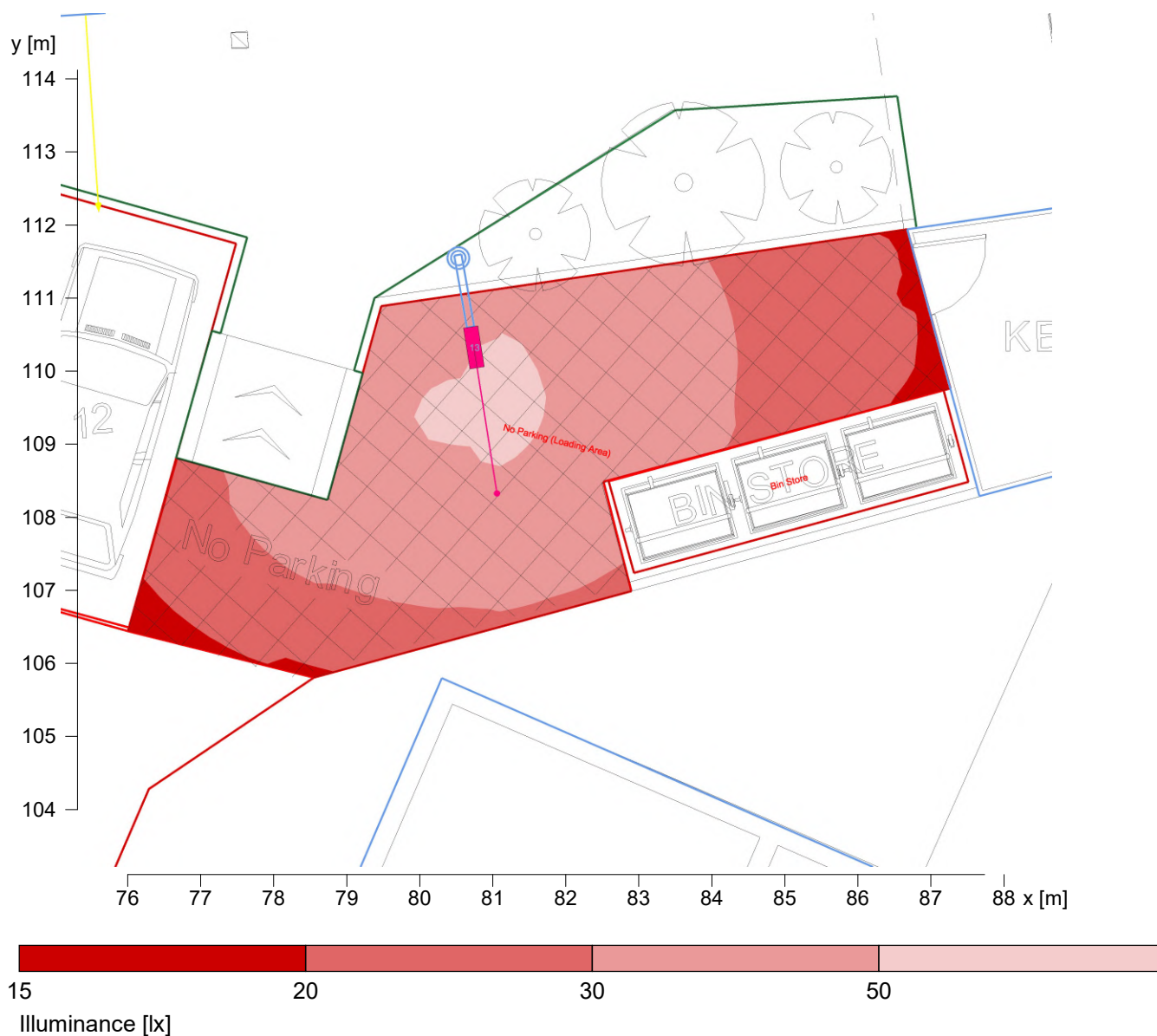
Horizontal illuminance

| No. | Measuring surface | Grid | \bar{E}_m | E_{min} | E_{max} | U_o | U_d |
|----------------|-------------------|----------|--------------|-------------|---------------|-------------|-------------|
| 8.1 | Front Walkway | 146 x 24 | 39 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 | 20 lx | 0 lx | 42 lx | --- | --- |
| Summary | | | 32 lx | 0 lx | 177 lx | 0.00 | 0.00 |

1 External Lighting

1.2 Calculation results, External Lighting

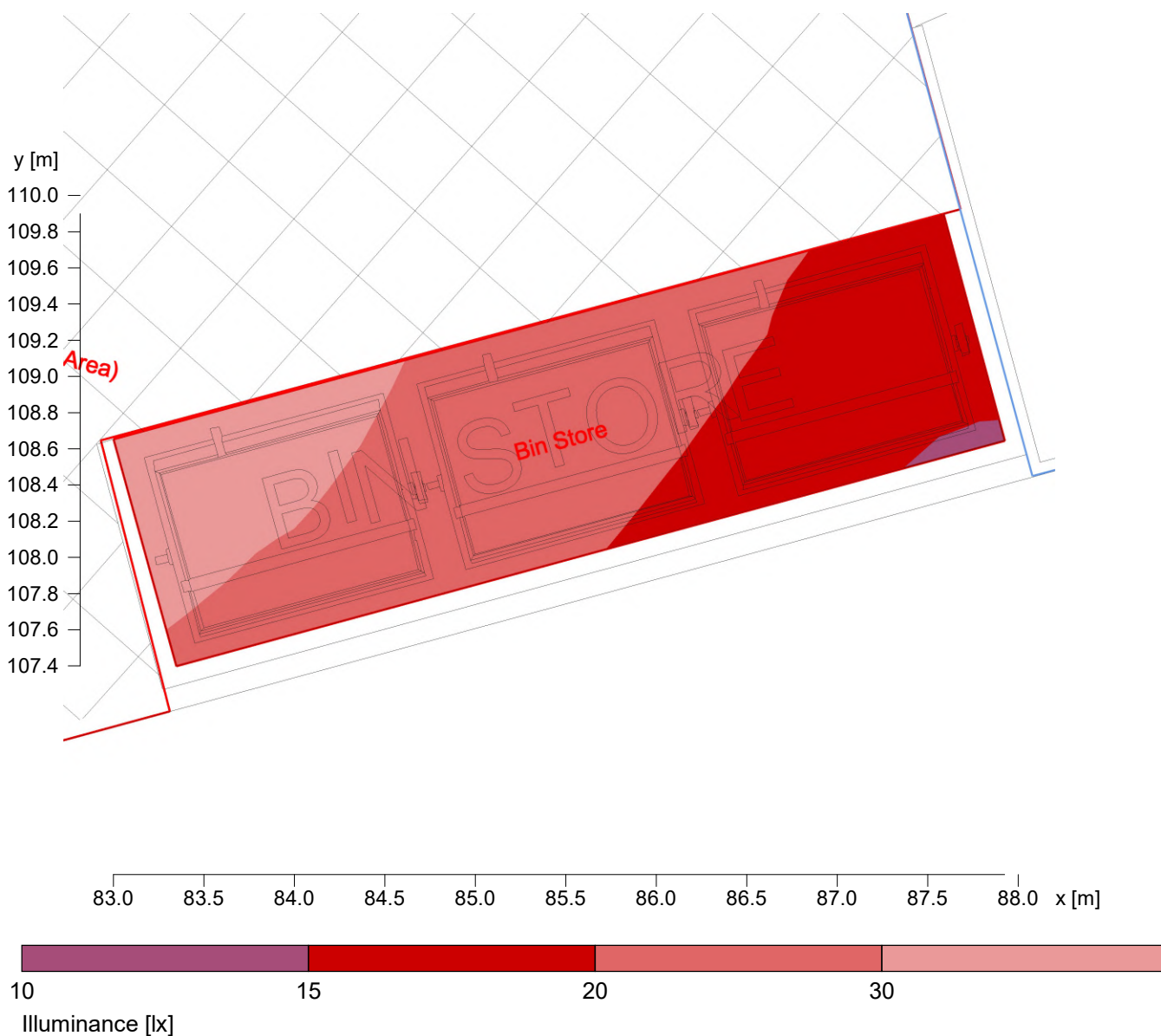
1.2.1 Pseudo colours, No Parking (Loading Area) (E)



| | | |
|------------------------|---------------------|-------------------|
| 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} | : 53.4 lx |
| Uniformity U_0 | E_{min}/\bar{E}_m | : 1 : 2.20 (0.45) |

1.2 Calculation results, External Lighting

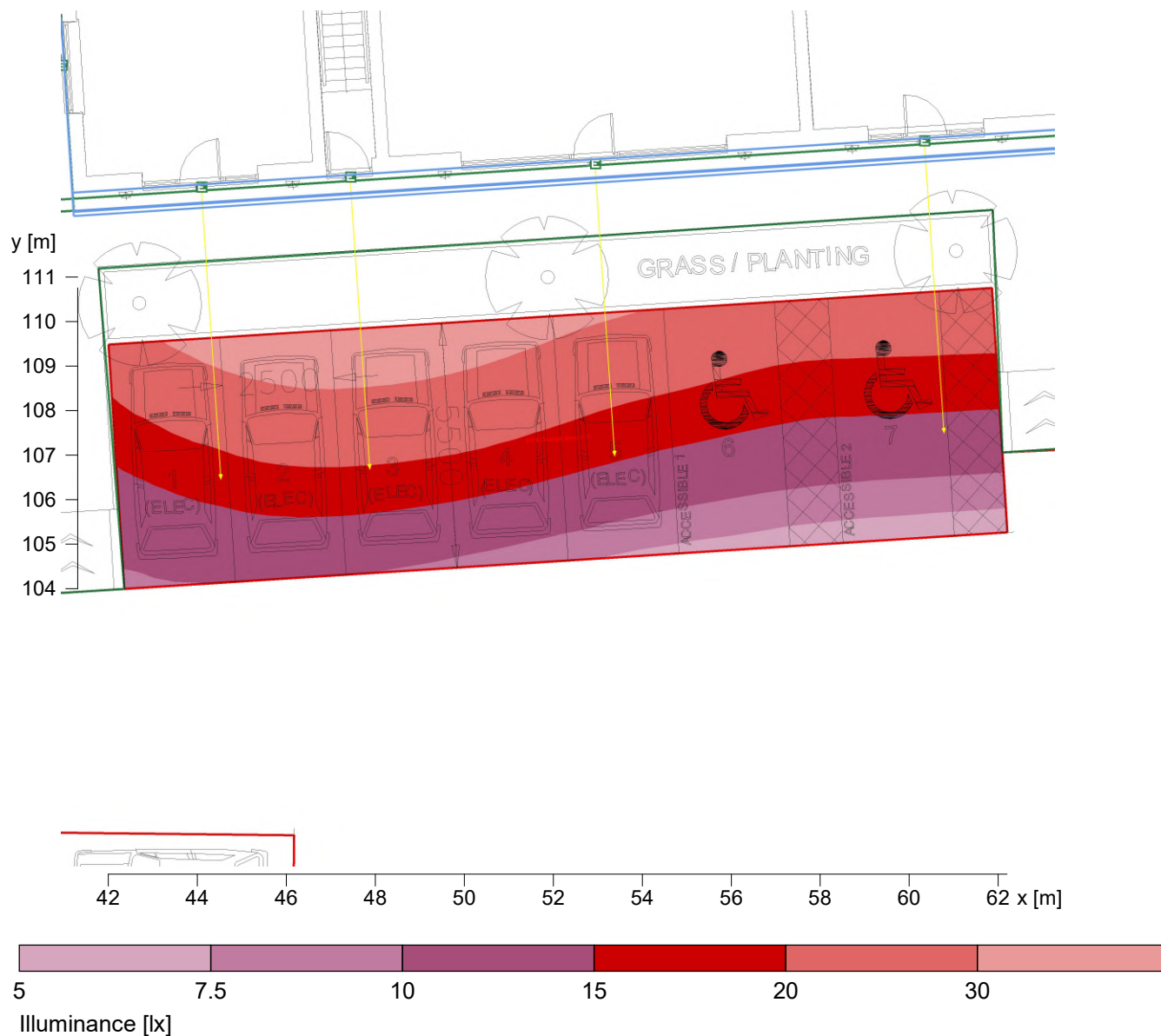
1.2.2 Pseudo colours, Bin Store (E)



| | | |
|------------------------|---------------------|-------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 24.1 lx |
| Minimum illuminance | E_{min} | : 15 lx |
| Maximum illuminance | E_{max} | : 38.2 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | : 1 : 1.61 (0.62) |

1.2 Calculation results, External Lighting

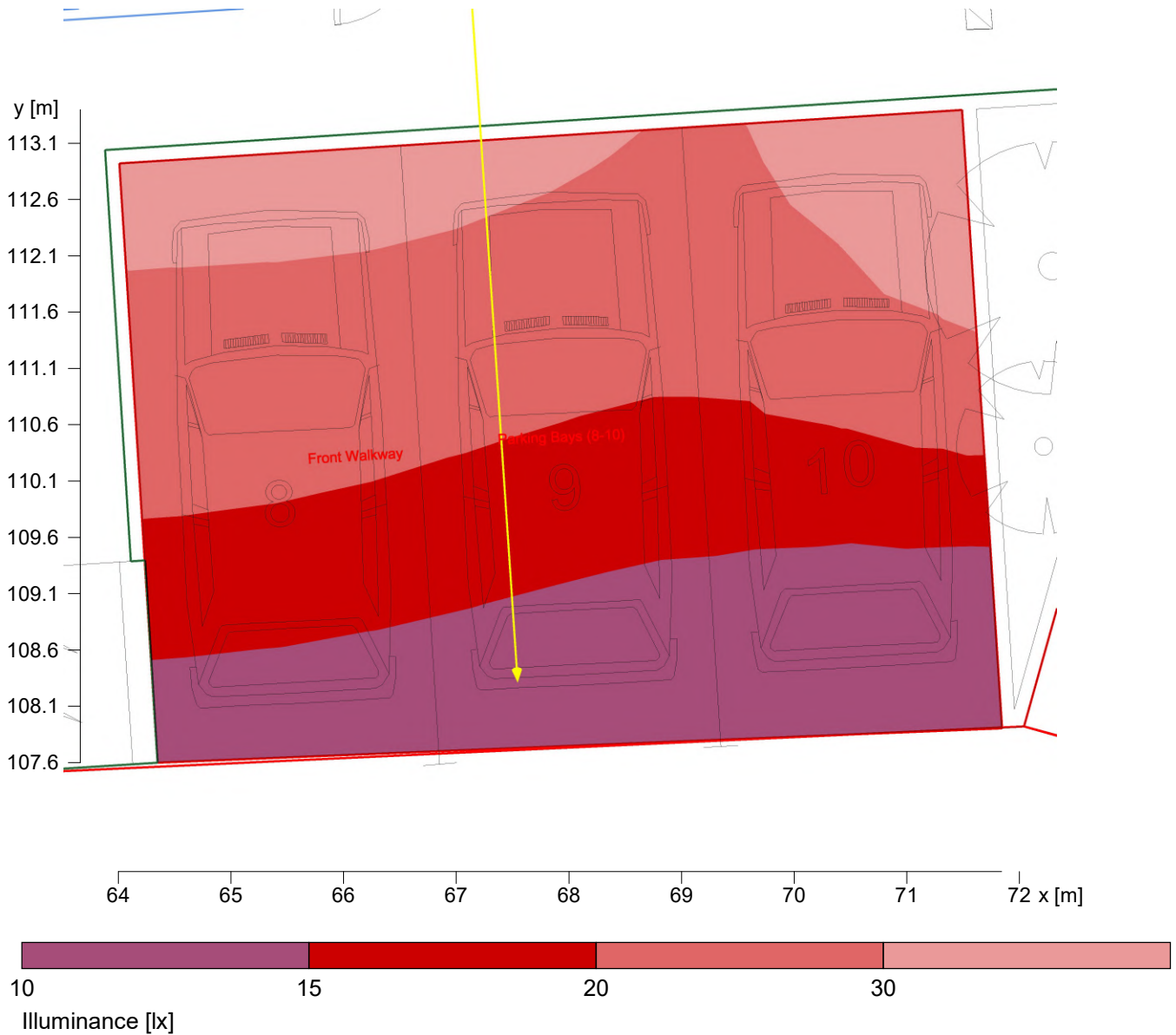
1.2.3 Pseudo colours, EV & Disabled Bays (1-7) (E)



| | | |
|------------------------|---------------------|-------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 18.4 lx |
| Minimum illuminance | E_{min} | : 6.9 lx |
| Maximum illuminance | E_{max} | : 37 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | : 1 : 2.67 (0.37) |

1.2 Calculation results, External Lighting

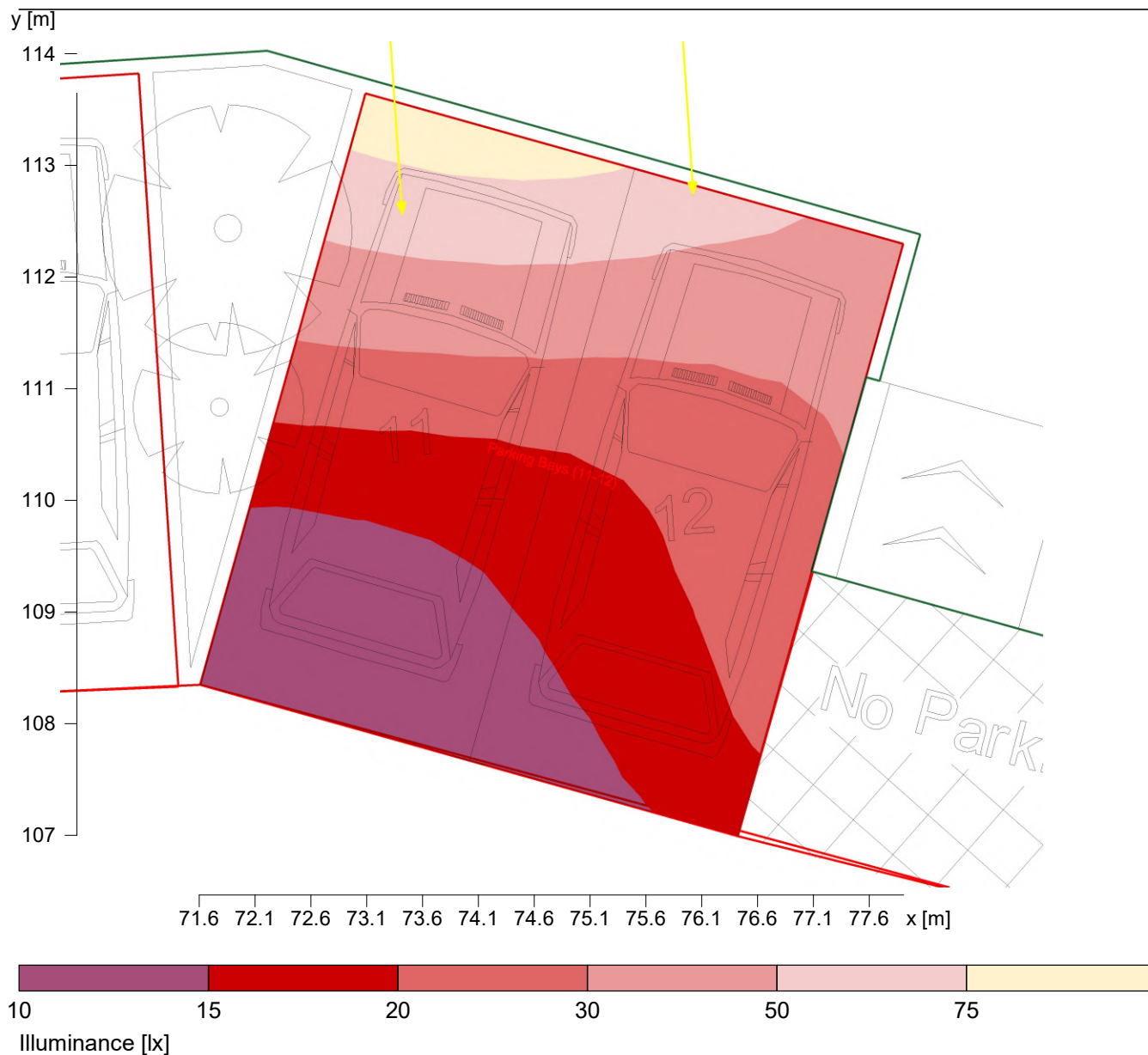
1.2.4 Pseudo colours, Parking Bays (8-10) (E)



| | | |
|------------------------|---------------------|-------------------|
| 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

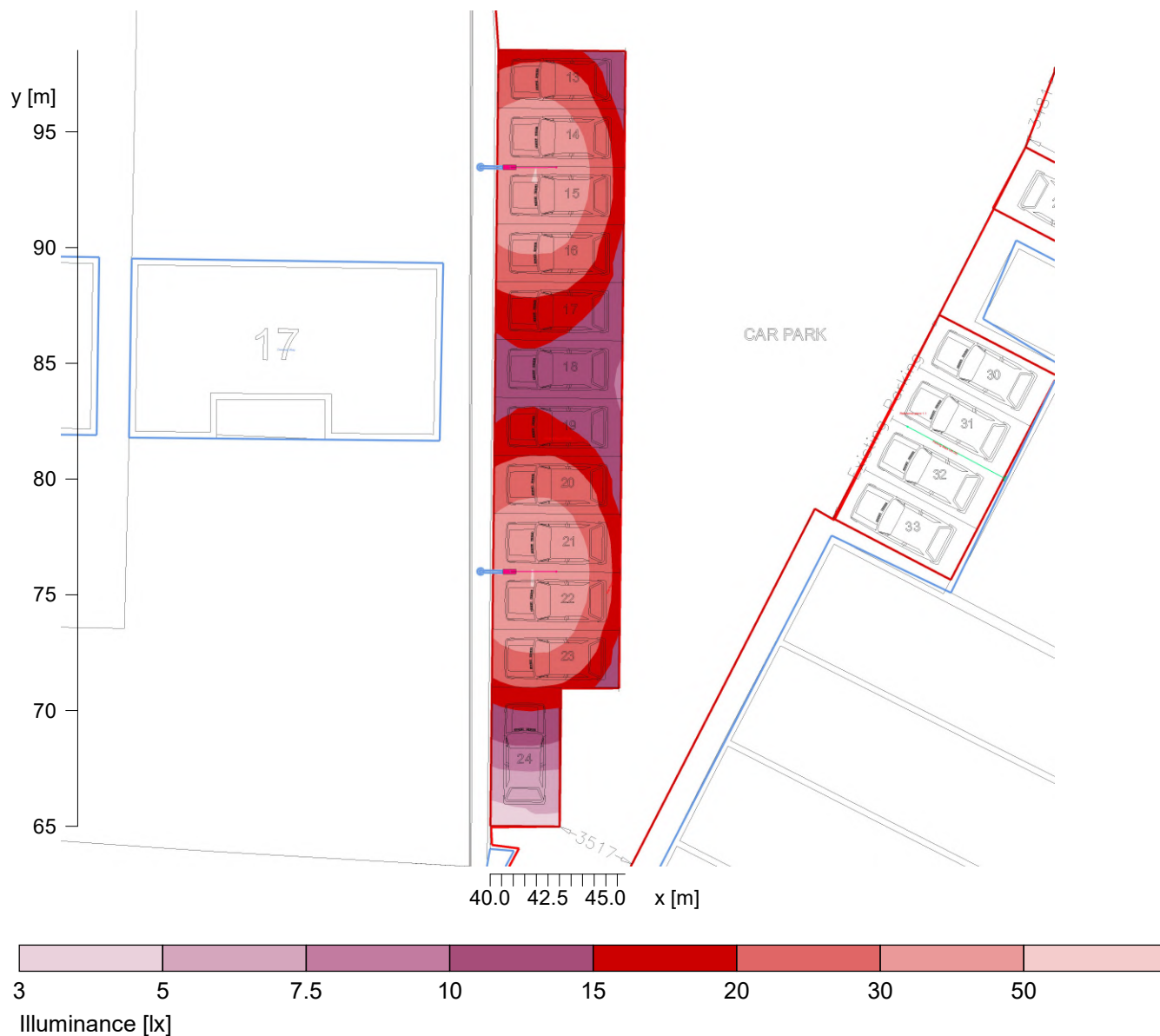
1.2.5 Pseudo colours, Parking Bays (11-12) (E)



| | | |
|------------------------|---------------------|-------------------|
| 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)

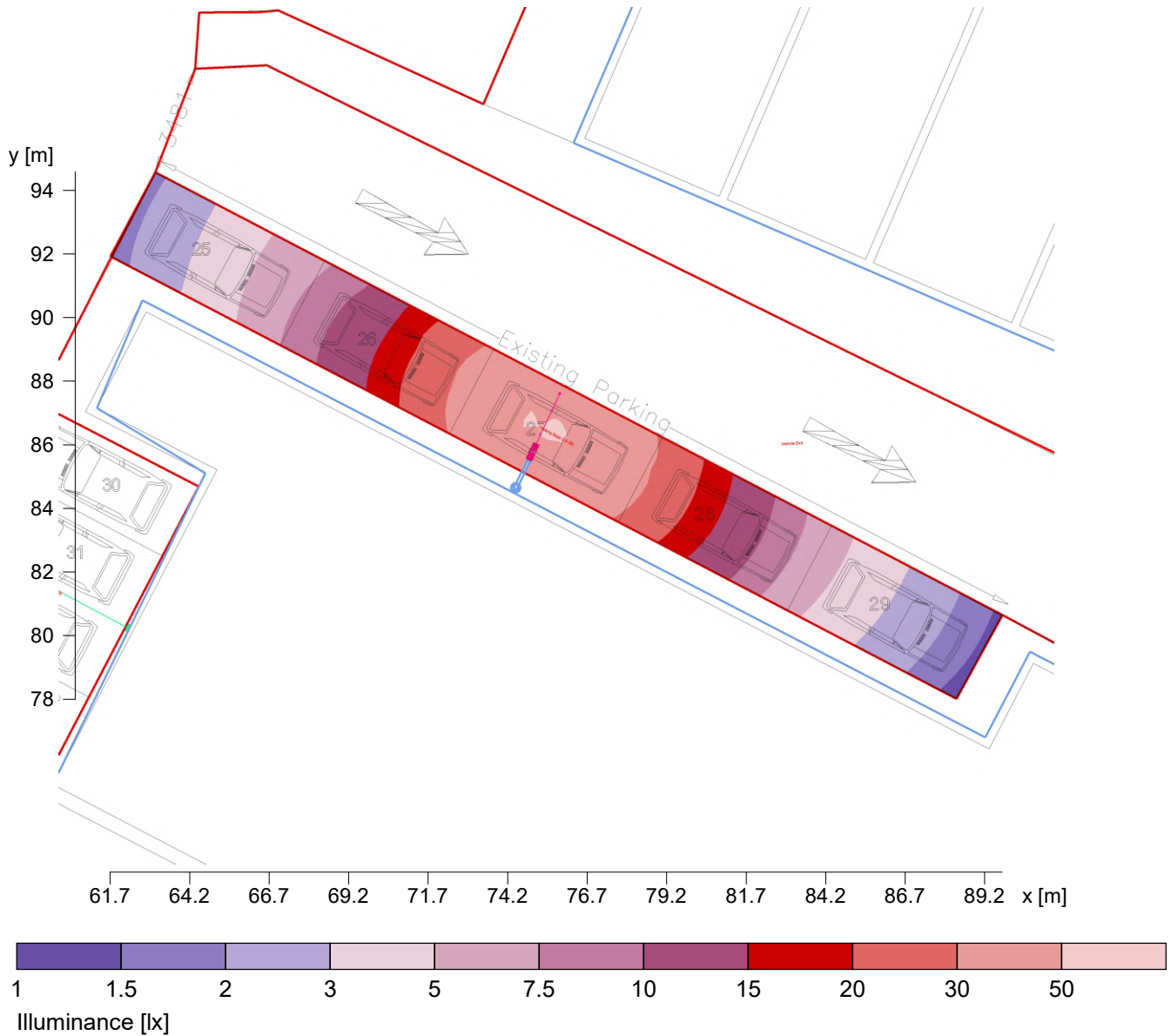


Height reference plane
 Average illuminance
 Minimum illuminance
 Maximum illuminance
 Uniformity U_0

: 0.00 m
 \bar{E}_m : 23.9 lx
 E_{min} : 4.2 lx
 E_{max} : 50.2 lx
 E_{min}/\bar{E}_m : 1 : 5.71 (0.18)

1.2 Calculation results, External Lighting

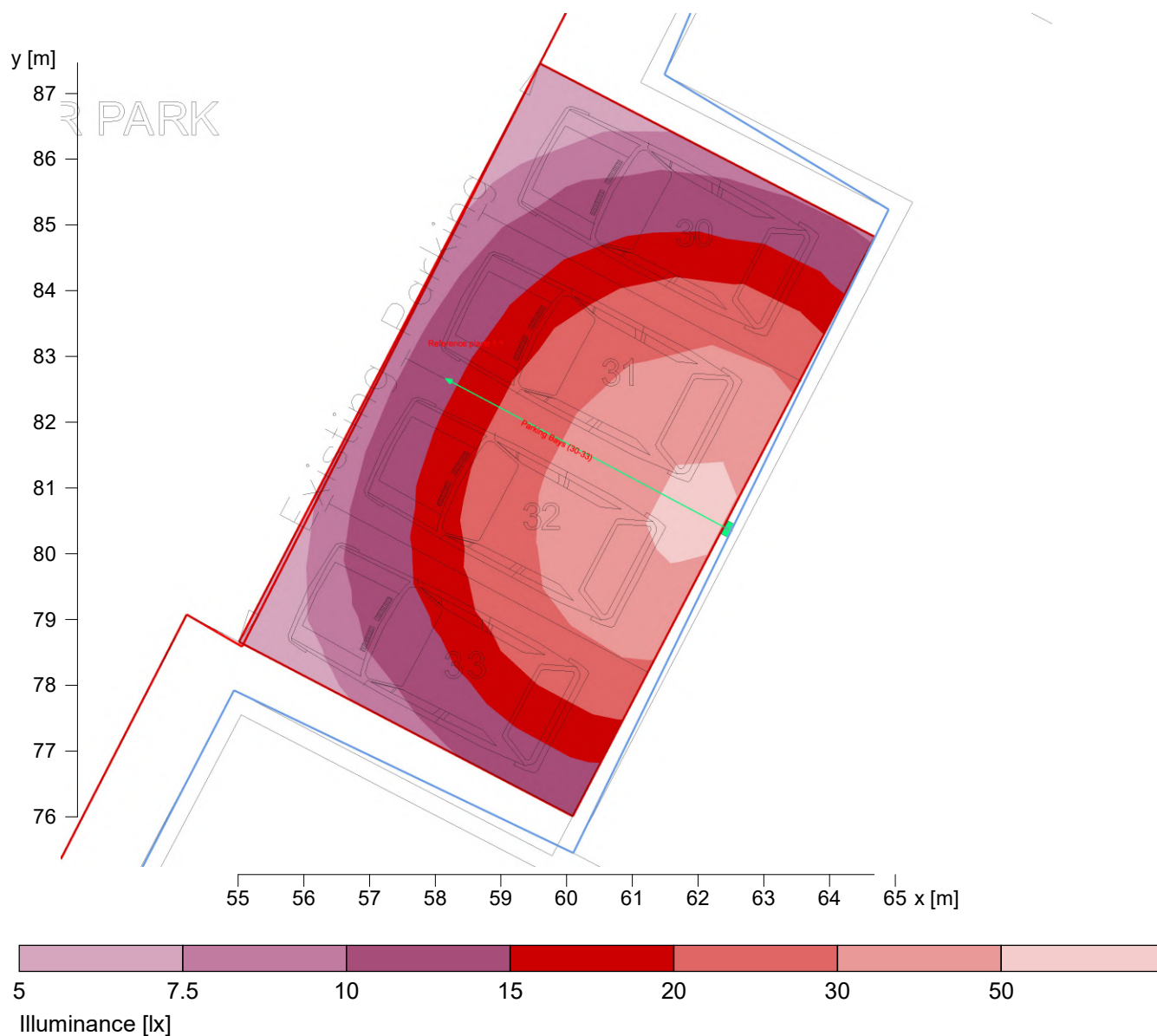
1.2.7 Pseudo colours, Parking Bays (25-29) (E)



| | | |
|------------------------|---------------------|--------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 16.4 lx |
| Minimum illuminance | E_{min} | : 1.4 lx |
| Maximum illuminance | E_{max} | : 50.9 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | : 1 : 12.06 (0.08) |

1.2 Calculation results, External Lighting

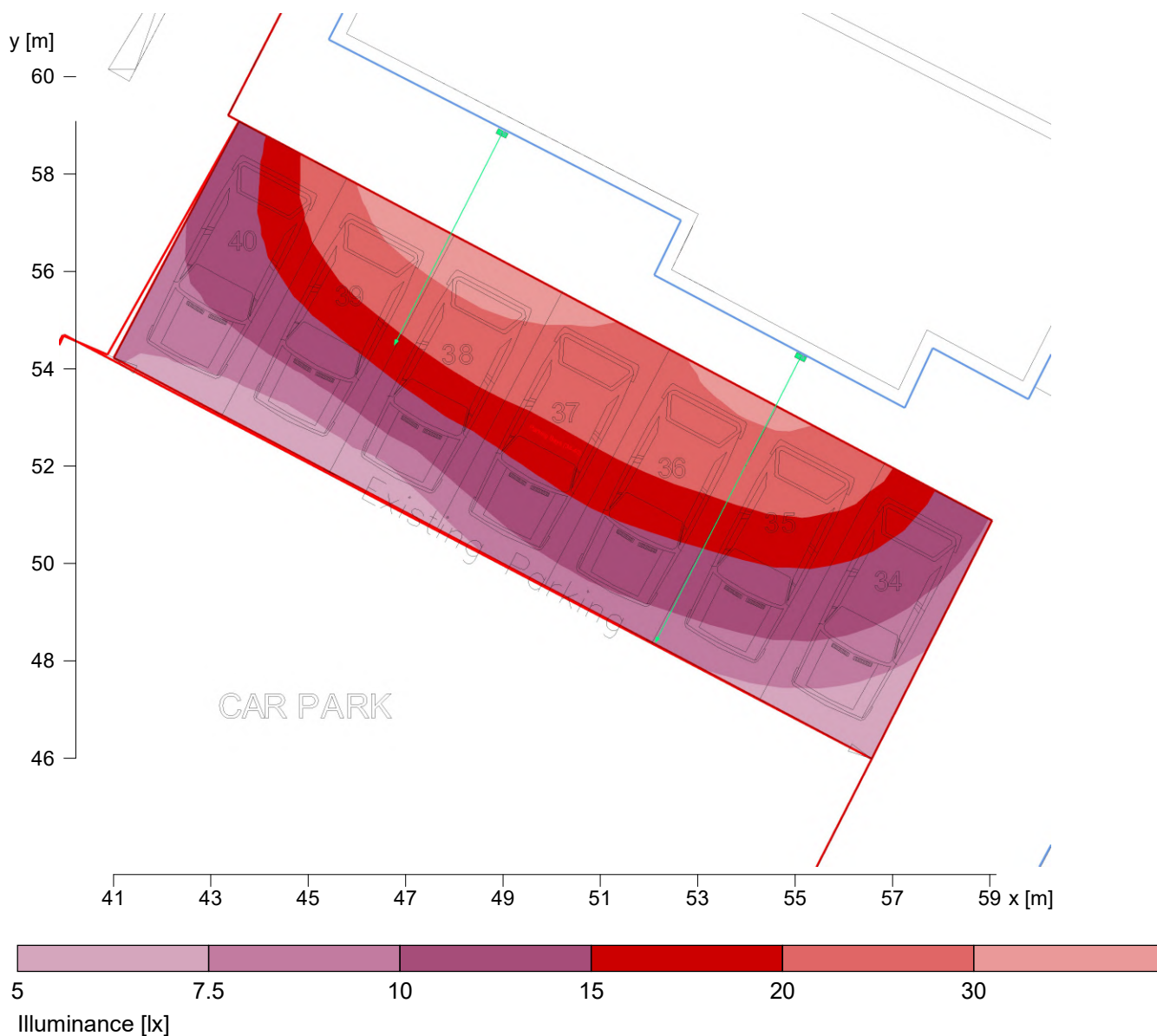
1.2.8 Pseudo colours, Parking Bays (30-33) (E)



| | | |
|------------------------|---------------------|-------------------|
| 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} | : 54.2 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | : 1 : 3.63 (0.28) |

1.2 Calculation results, External Lighting

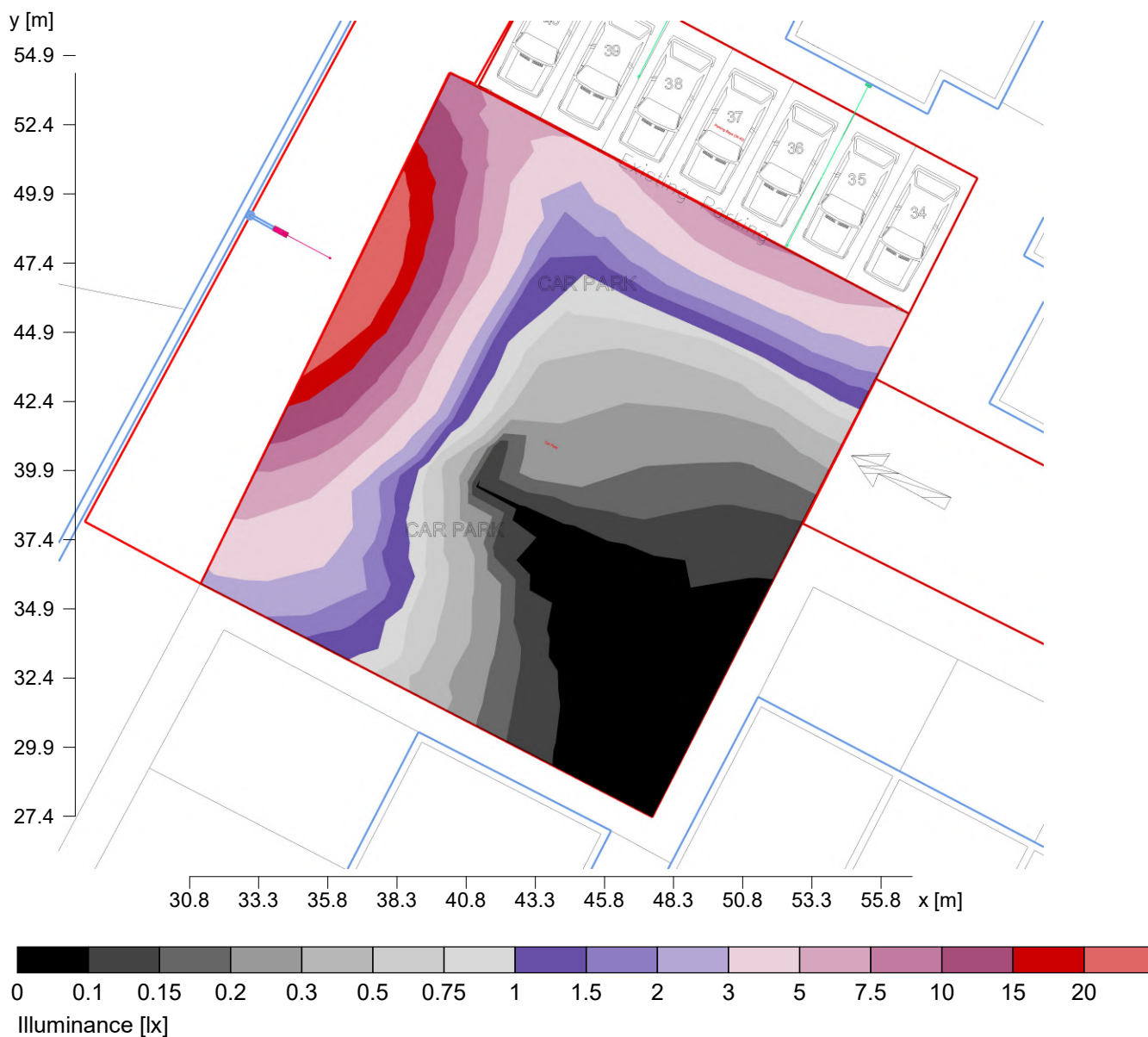
1.2.9 Pseudo colours, Parking Bays (34-40) (E)



| | | |
|------------------------|---------------------|-------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 16.3 lx |
| Minimum illuminance | E_{min} | : 5.3 lx |
| Maximum illuminance | E_{max} | : 37.4 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | : 1 : 3.09 (0.32) |

1.2 Calculation results, External Lighting

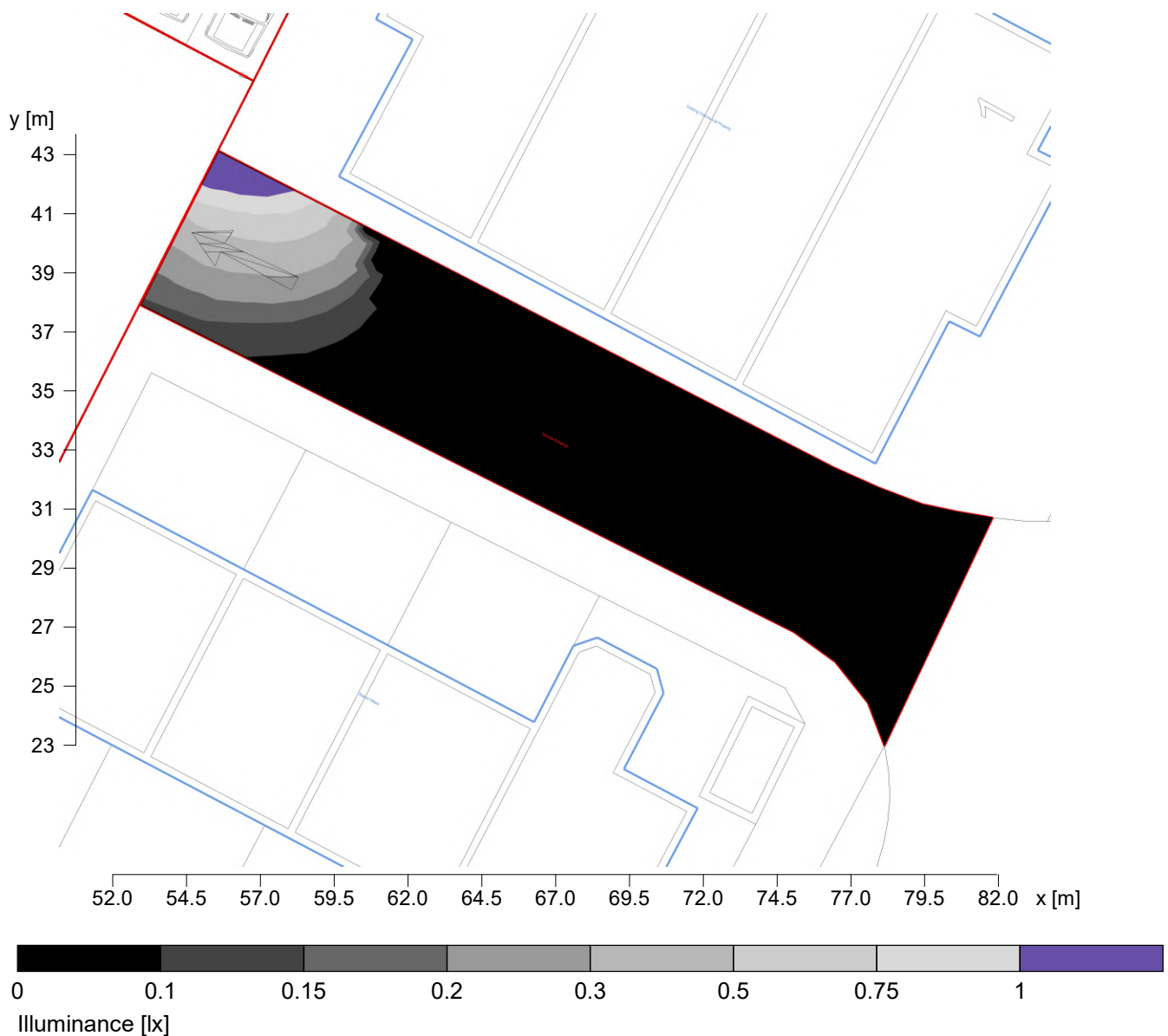
1.2.10 Pseudo colours, Car Park (E)



| | | |
|------------------------|---------------------|--------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 3.1 lx |
| Minimum illuminance | E_{min} | : 0.1 lx |
| Maximum illuminance | E_{max} | : 27 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | : 1 : 58.61 (0.02) |

1.2 Calculation results, External Lighting

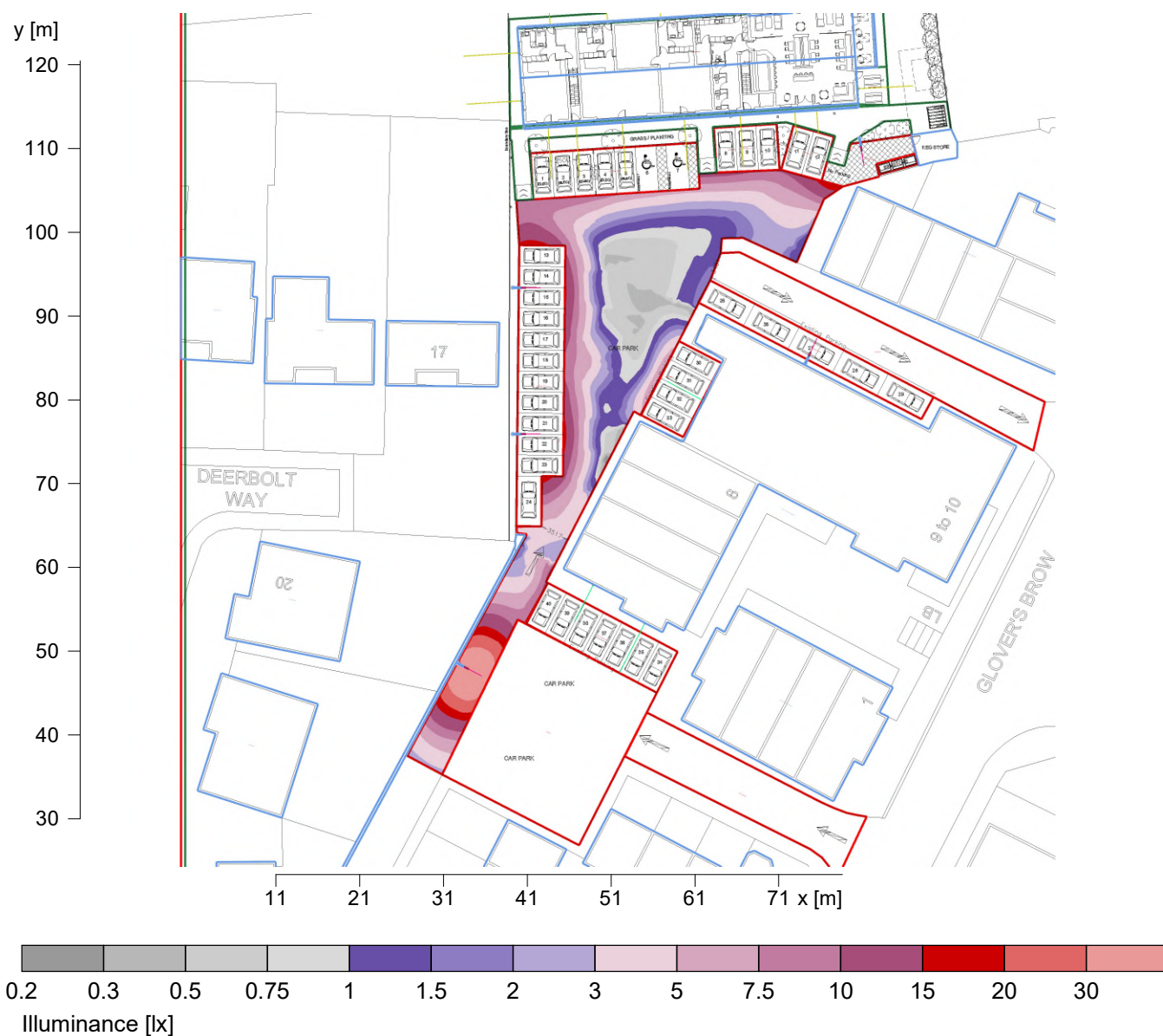
1.2.11 Pseudo colours, Vehicle Entrance (E)



| | | |
|------------------------|---------------------|--------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 0.08 lx |
| Minimum illuminance | E_{min} | : 0 lx |
| Maximum illuminance | E_{max} | : 1.3 lx |
| Uniformity U_0 | E_{min}/\bar{E}_m | : 1 : 66.68 (0.01) |

1.2 Calculation results, External Lighting

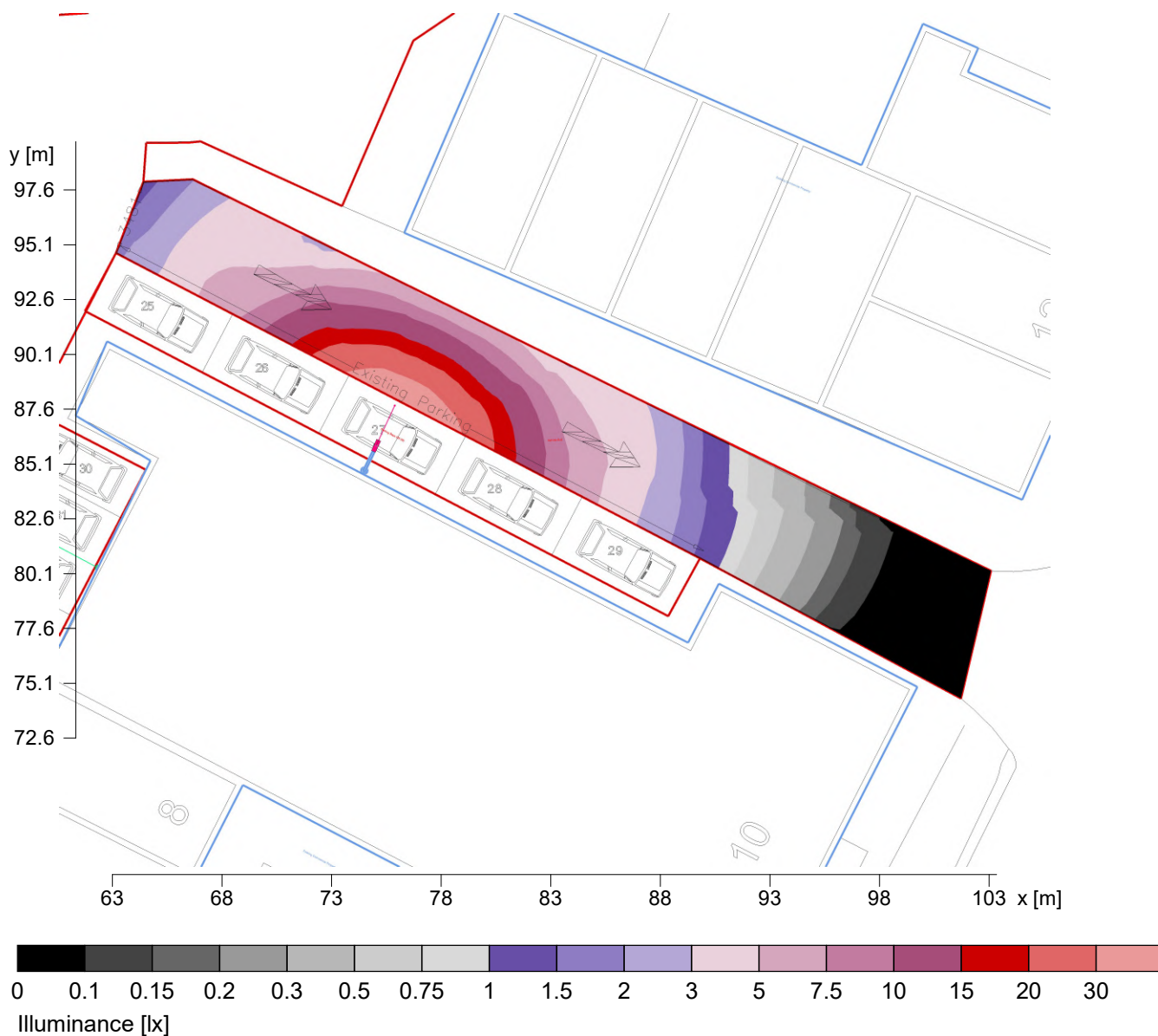
1.2.12 Pseudo colours, Site Road (E)



| | | |
|------------------------|---------------------|--------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 5.8 lx |
| Minimum illuminance | E_{min} | : 0.3 lx |
| Maximum illuminance | E_{max} | : 49.8 lx |
| Uniformity U_0 | E_{min}/\bar{E}_m | : 1 : 21.69 (0.05) |

1.2 Calculation results, External Lighting

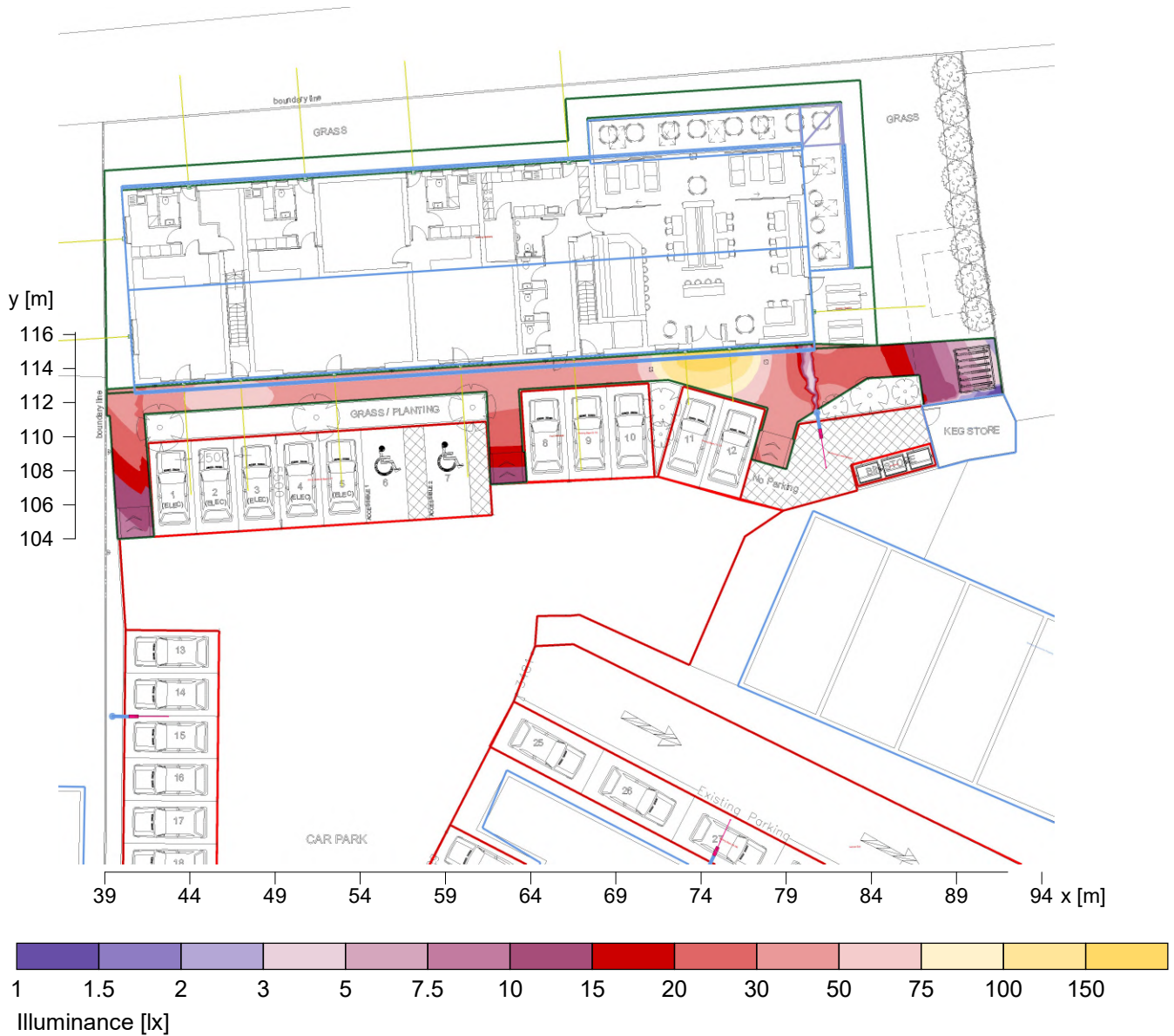
1.2.13 Pseudo colours, Vehicle Exit (E)



| | | |
|------------------------|---------------------|----------------------|
| 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 : 1855.03 (0.00) |

1.2 Calculation results, External Lighting

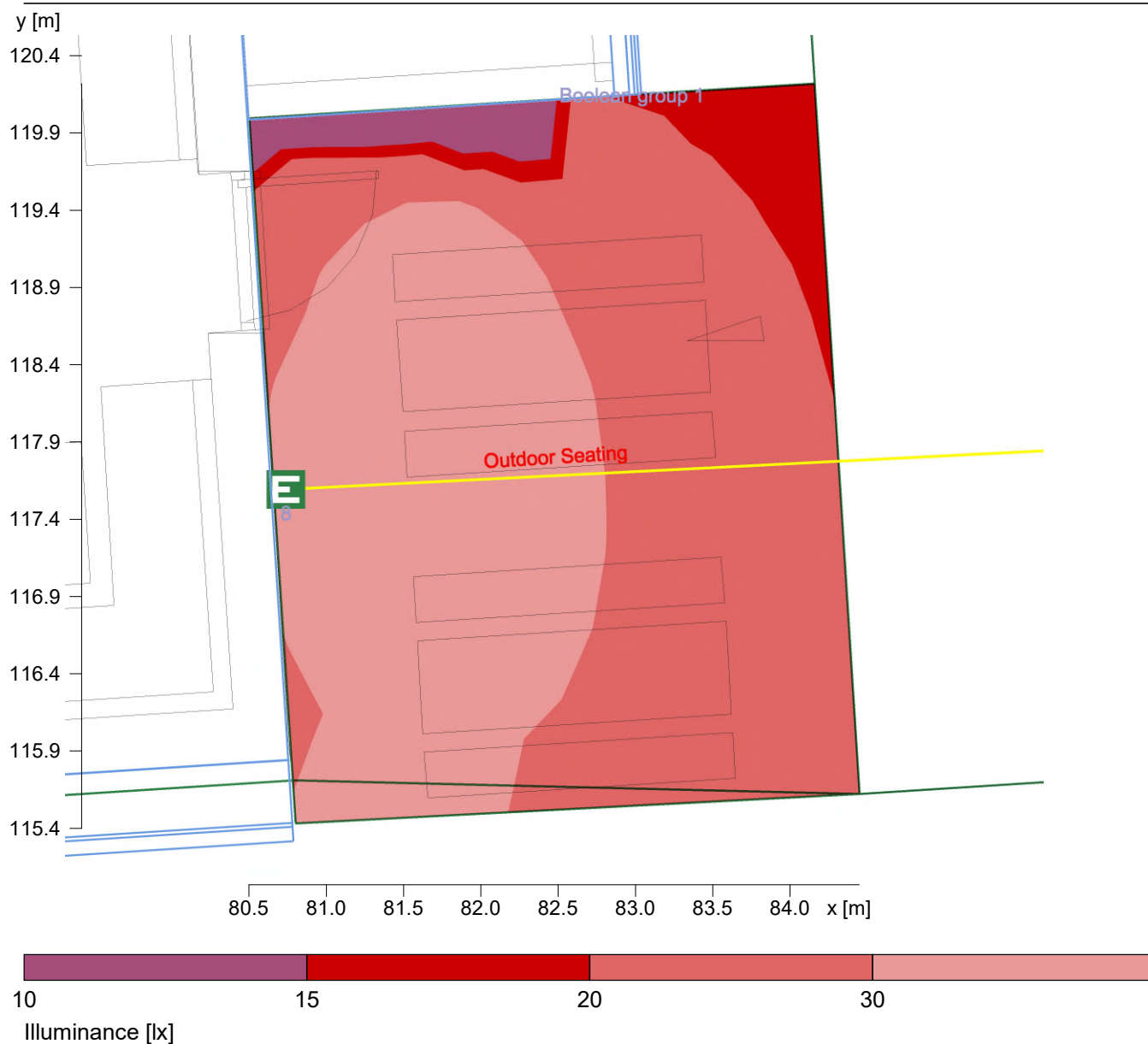
1.2.14 Pseudo colours, Front Walkway (E)



| | | |
|------------------------|---------------------|--------------------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 39 lx |
| Minimum illuminance | E_{min} | : 1 lx |
| Maximum illuminance | E_{max} | : 177 lx |
| Uniformity U_o | E_{min}/\bar{E}_m | : 1 : 35.21 (0.03) |

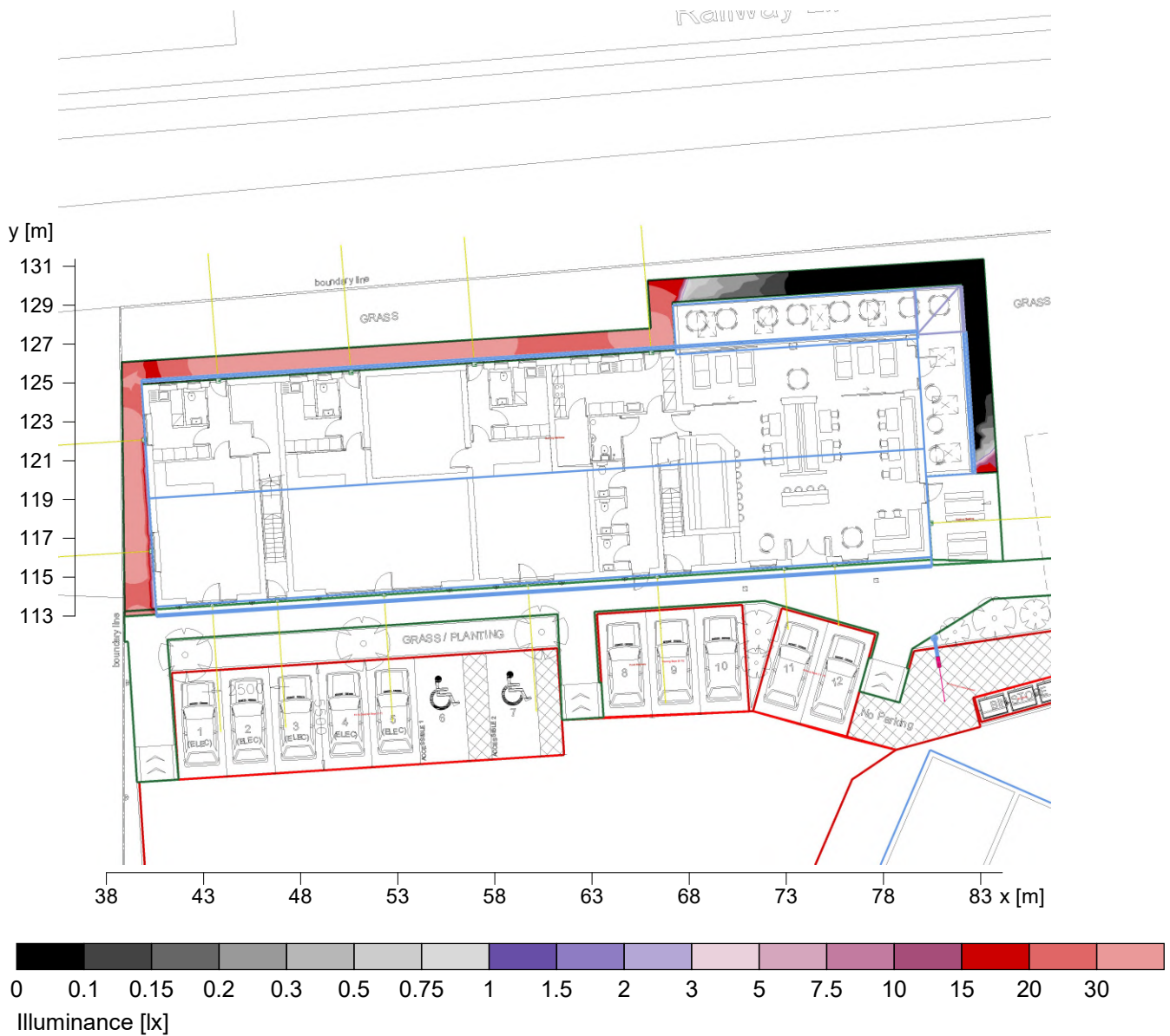
1.2 Calculation results, External Lighting

1.2.15 Pseudo colours, Outdoor Seating (E)



1.2 Calculation results, External Lighting

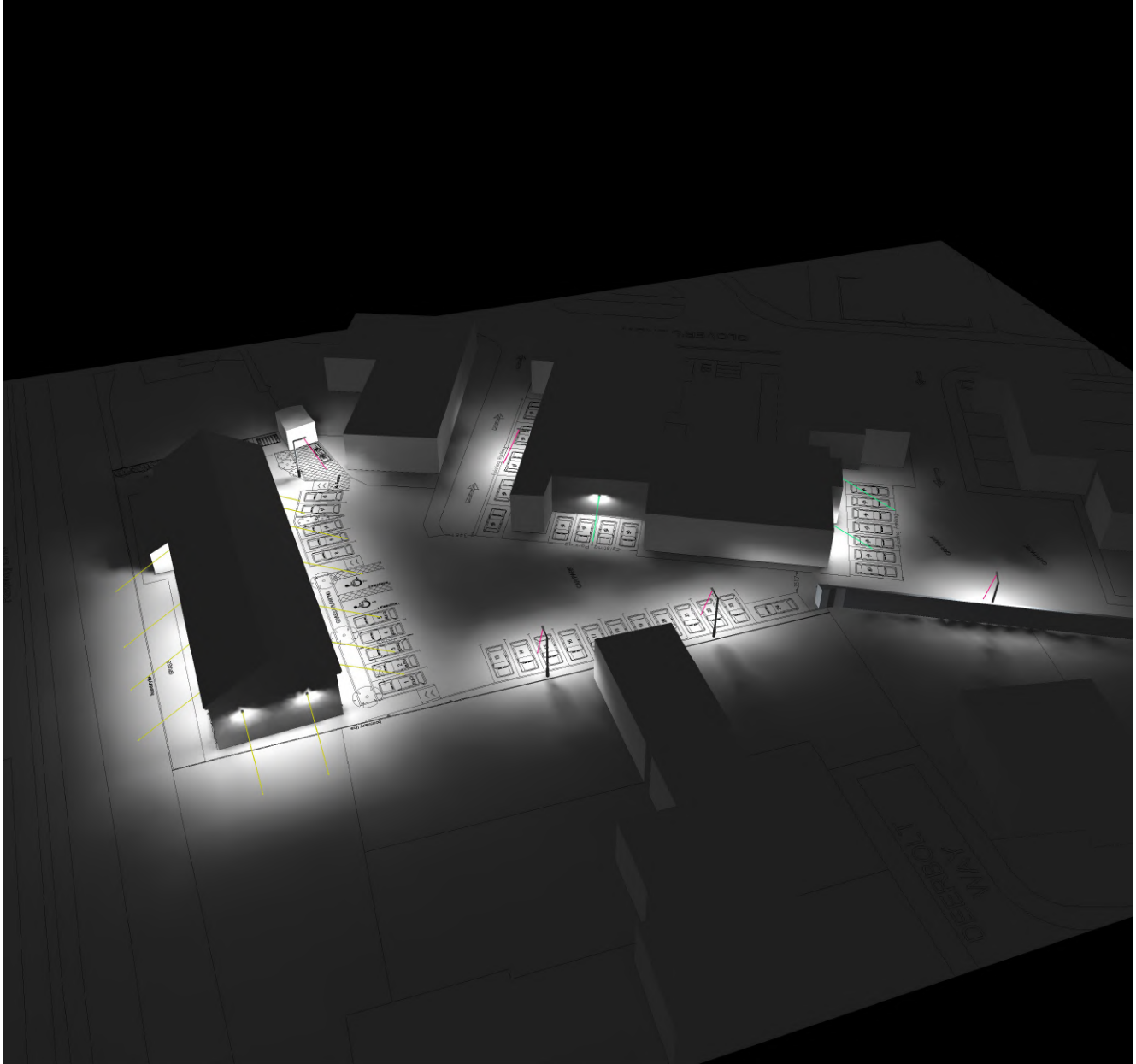
1.2.16 Pseudo colours, Building Walkway (E)



| | | |
|------------------------|---------------------|-----------|
| Height reference plane | | : 0.00 m |
| Average illuminance | \bar{E}_m | : 20.2 lx |
| Minimum illuminance | E_{min} | : 0 lx |
| Maximum illuminance | E_{max} | : 41.9 lx |
| Uniformity U_0 | E_{min}/\bar{E}_m | : --- |

1.2 Calculation results, External Lighting

1.2.17 3D luminance, View 1

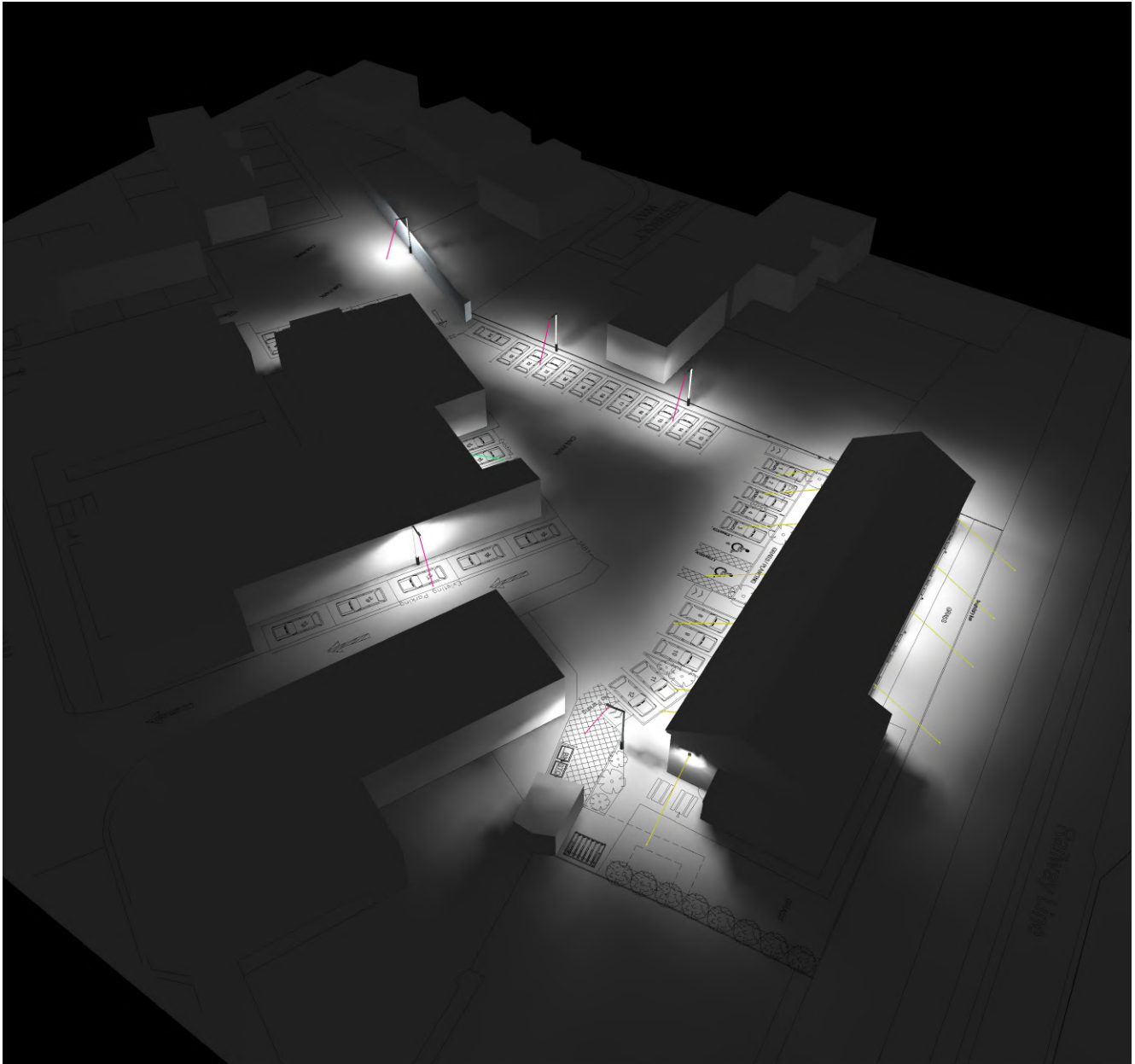


Luminance in the scene

Minimum: : 0 cd/m²
Maximum: : 384 cd/m²

1.2 Calculation results, External Lighting

1.2.18 3D luminance, View 2



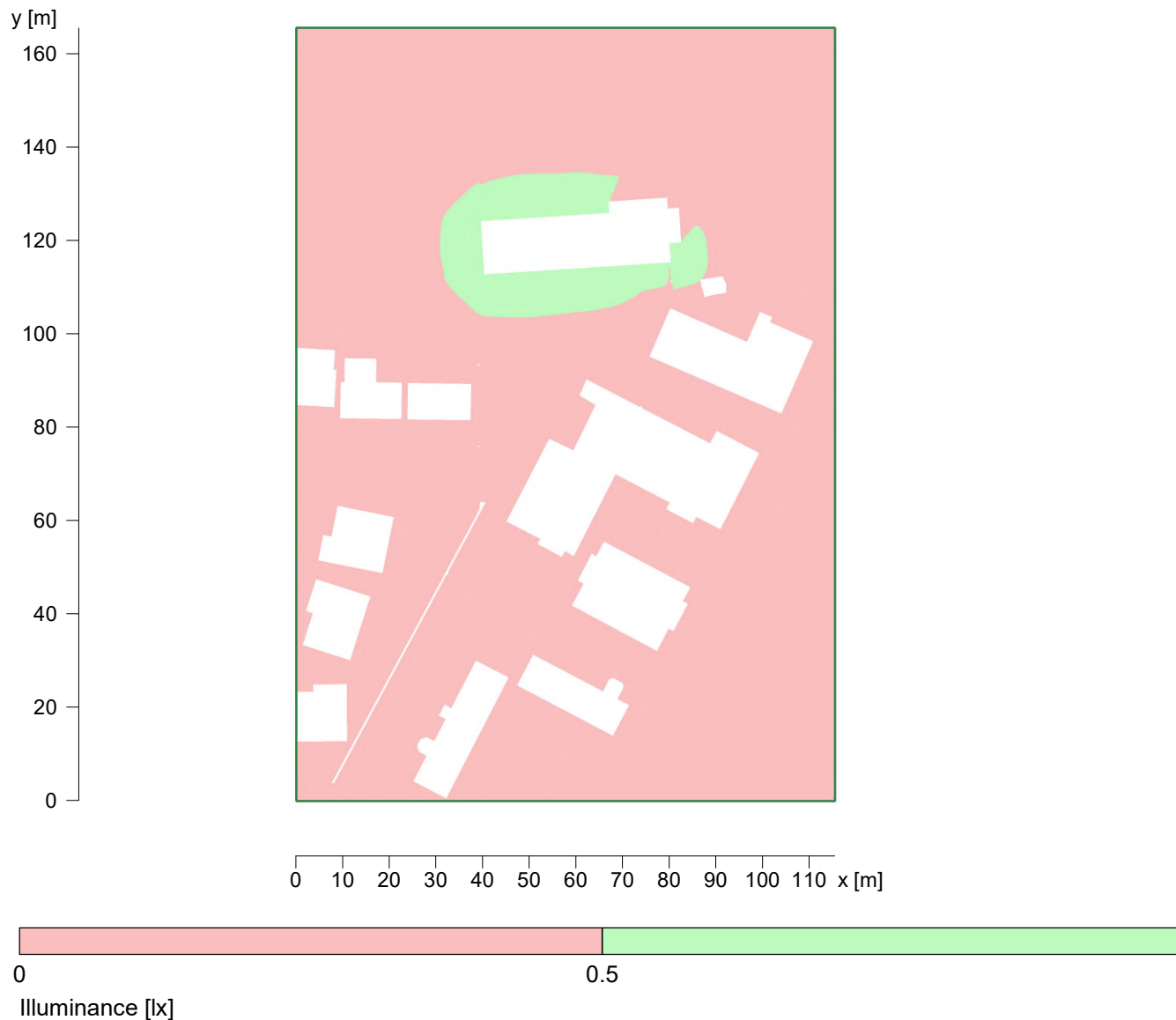
Luminance in the scene

Minimum: : 0 cd/m²
Maximum: : 384 cd/m²

1 External Lighting

1.3 Calculation results, External Lighting

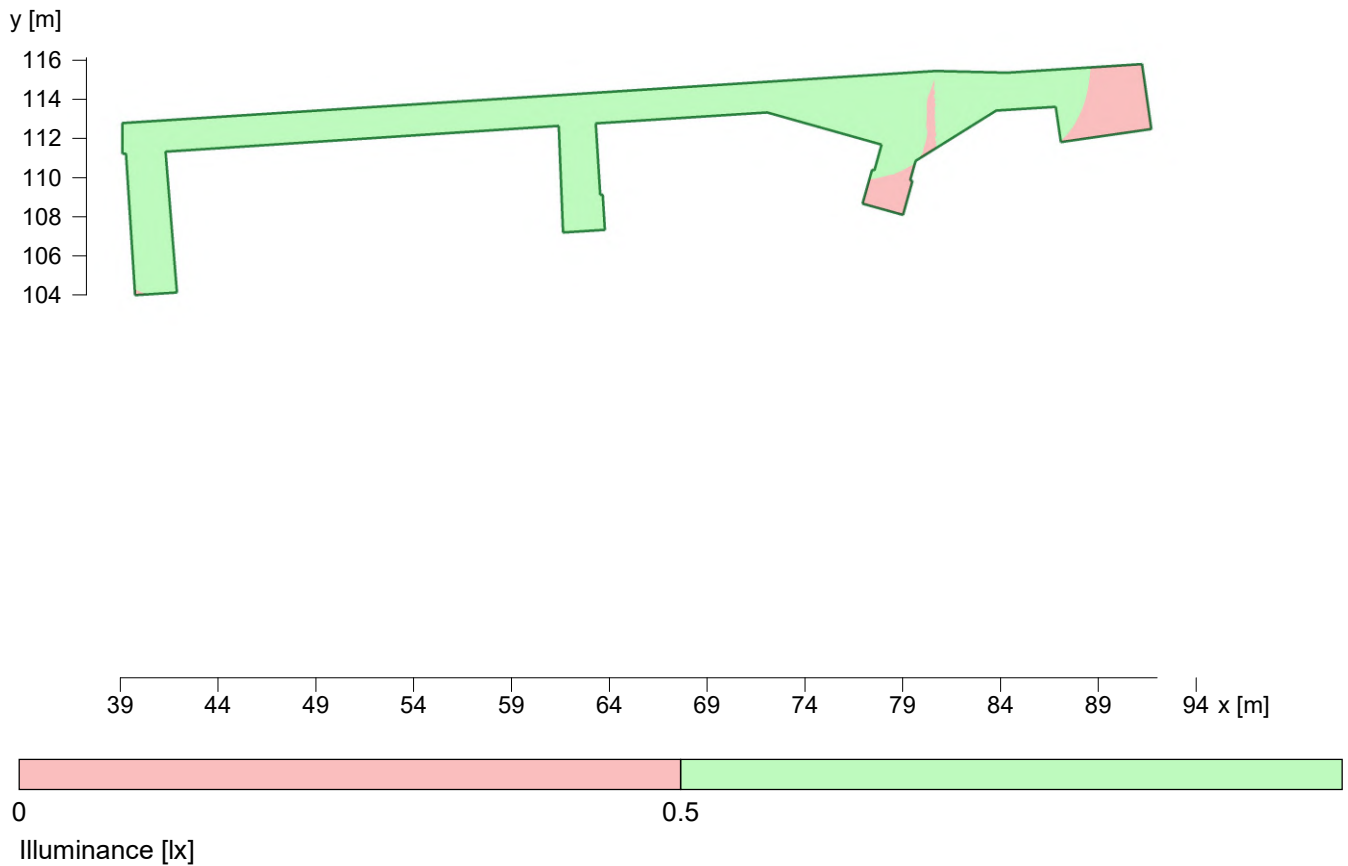
1.3.1 Boundary line, Anti panic area 1.1 (E)



| | | |
|------------------------------|------------------------------------|------------------------------|
| 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

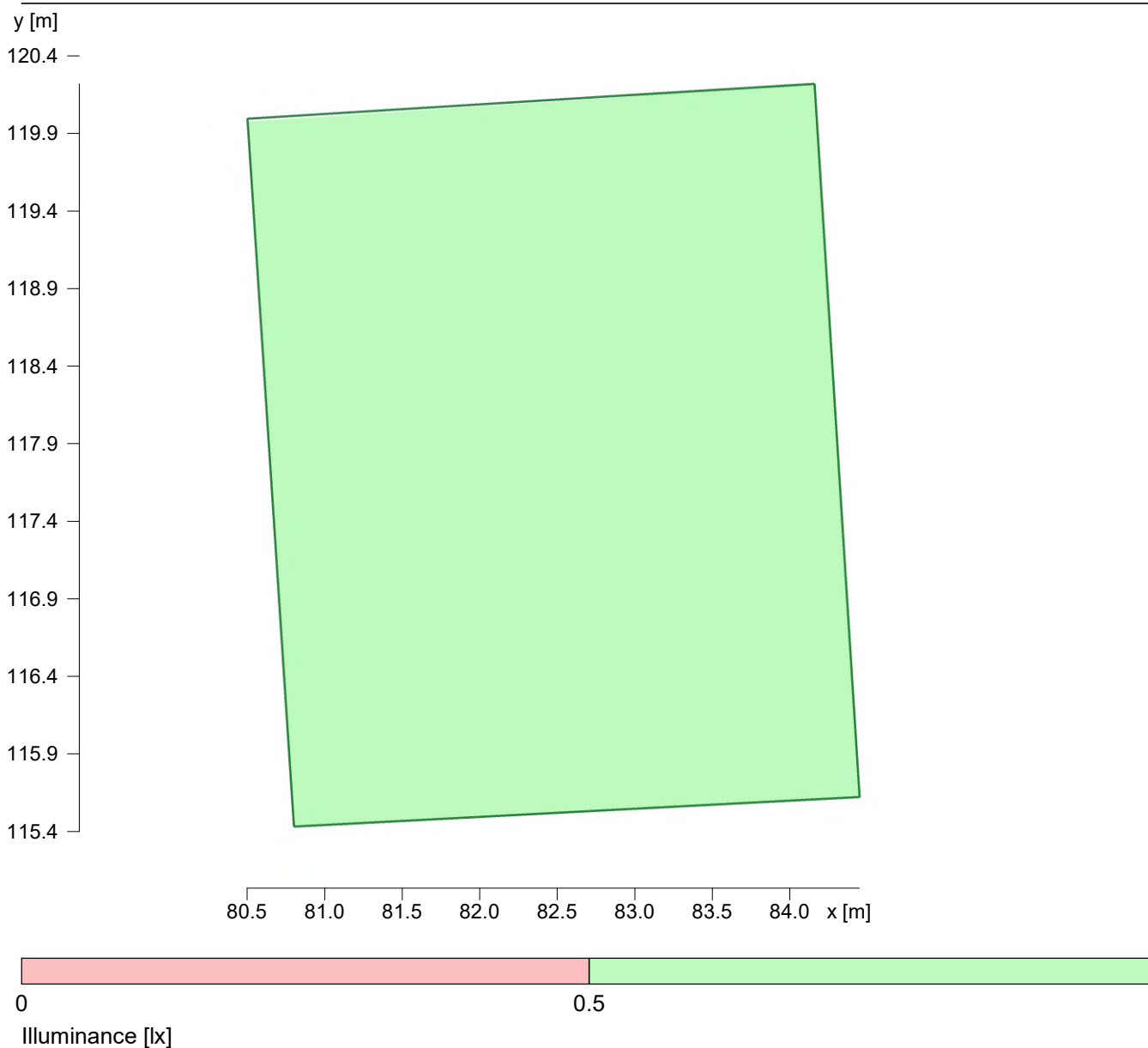
1.3.2 Boundary line, Front Walkway (E)



| | | |
|------------------------------|------------------------------------|--|
| 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 : 412.00 (0.00) (Threshold value 1:40) |
| Height | | : 0 m |
| Calculation algorithm used | | : Direct component |
| Maintenance factor | | : 0.8 |

1.3 Calculation results, External Lighting

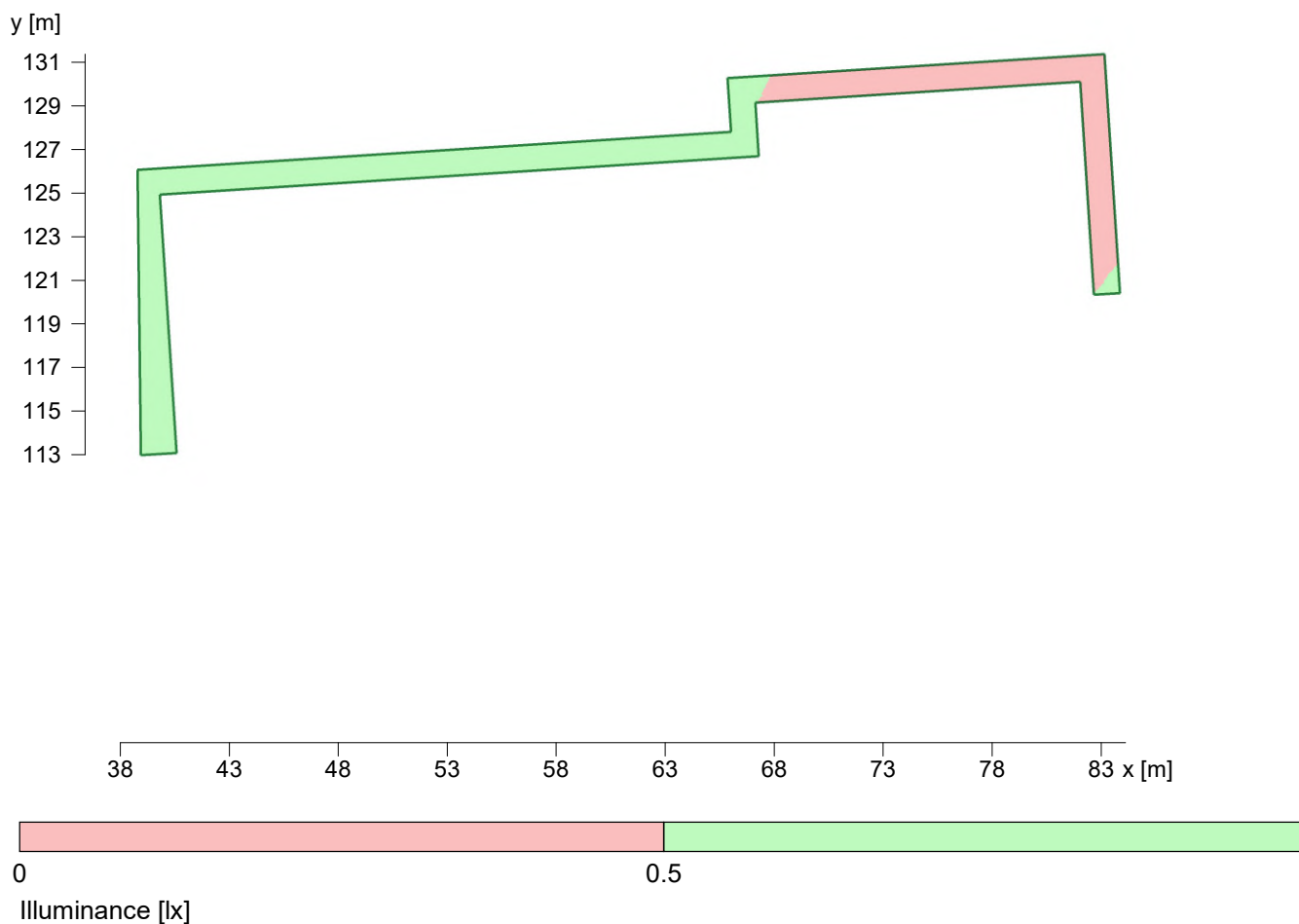
1.3.3 Boundary line, Outdoor Seating (E)



| | | |
|------------------------------|------------------------------------|--|
| 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} | : 5.2 lx |
| Diversity | E _{min} /E _{max} | : --- (Threshold value 1:40) |
| Height | | : 0 m |
| Calculation algorithm used | | : Direct component |
| Maintenance factor | | : 0.8 |