

**Uber Boat**  
by **thames clippers**

**HAMMERSMITH  
TEMPORARY FERRY  
LIGHTING PLAN**

**JUNE 2021**  
2048-BRL-02-XX-RP-C-1900



**BECKETT RANKINE**  
Marine Consulting Engineers

## CONTROLLED DOCUMENT STATUS

<b>CLIENT</b>		Uber Boat by Thames Clippers				
<b>PROJECT TITLE</b>		Hammersmith Temporary Ferry				
<b>SUBJECT</b>		Consents & Planning				
<b>DOCUMENT TITLE</b>		Lighting Plan				
<b>DOCUMENT REF</b>		2048-BRL-02-XX-RP-C-1900				
<b>REVISION RECORD</b>						
REV	STATUS	DATE	SUMMARY OF CHANGES	PREP	CHK	APP
P01	S3 – Suitable for Review & Comment	21/05/2021	-	FB	NS / HP	TKHB
P02	S3 – Suitable for Review & Comment	10/06/2021	Updated to address LBRuT comment	GG	OM	GG

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## 1 INTRODUCTION

### 1.1 General

- 1.1.1 In May 2021, Robus were commissioned to carry out the lighting plan for the proposed Hammersmith Temporary Ferry. The ferry will require a temporary pier on each side of the river, both of which are to be illuminated with Fumagalli Leti 100 ST Round units (with GX53 LED modules). Technical information is included within Appendix A.



Figure 1.1: Fumagalli Leti 100 ST Round units (with GX53 LED modules)

- 1.1.2 These are to be fixed alternately onto the handrails of both the piers and landside access walkways (to both Barnes and Hammersmith piers, including the raised walkway on the Barnes towpath) at 4m spacings.

### 1.2 Summary of Findings

- 1.2.1 The following lighting plan (Appendix B) details the illuminance expected for both piers and the Hammersmith floating walkway. Appendix B also includes a further

plan which demonstrate the lighting locations and resultant illuminance along the raised walkway on the Barnes towpath.

- 1.2.2 The proposals provide an average luminance of approximately 30lux.
- 1.2.3 Maximum light spillage beyond the pontoons and walkways generally does not exceed 2lux in accordance with Environment Agency guidelines.
- 1.2.4 Luminaire spacing will be constant across the full arrangement and therefore this average luminance level and light spillage can be expected across the full arrangement.
- 1.2.5 The lighting units will be set to a light temperature of 3000k to minimise the impact on local ecology.

**APPENDIX A            LIGHTING UNIT – TECHNICAL INFORMATION**

COMPANY UP&DOWN DOWNLIGHT IN-GROUND BRICKLIGHT FLOODLIGHT BOLLARD BULKHEAD GARDEN URBAN CLASSIC URBAN MODERN POST LAMPS REFERENCES

# LETI 100 ROUND

RECESSED LAMP



Recessed wall lamp with round shape, made of shockproof resin material, UV-rays stabilized, rust and corrosion-free. Supplied as standard with TÜV-CB certified, long-life, efficient and **Kelvin settable GX53 LED lamp included.** Available in 4 different cover options to get a diffuse or downwards directed light emission. Insulation class II, Protection rating IP66.

*Lampada LED per incasso a muro con forma circolare, realizzata in resina antiurto, stabilizzata ai raggi UV, inattaccabile da ruggine e corrosione. Fornito con inclusa lampadina a LED GX53 con Kelvin regolabile certificata TÜV-CB, di lunga durata ed elevata efficienza. Disponibile in 4 differenti versioni di cover per permettere un'emissione della luce diffusa o diretta verso il basso. Classe di isolamento II, grado di protezione IP66.*



LETI 100 ROUND  
2C1.000



LETI 100 ROUND-GR  
2C2.000



LETI 100 ROUND-EL  
2C3.000



LETI 100 ROUND-ST  
2C4.000



2C1.000.G1K

**CCT SETTABLE**

3000 K 4000 K 6500 K

SDCM <6




LETI 100 ROUND - COMPONENTS

IP 66



**COVER** made of shockproof resin material, UV-rays stabilized, rust and corrosion free. Different shapes available allowing a diffuse or a downwards light emission.

*COVER realizzata in resina antiurto, stabilizzata ai raggi UV, inattaccabile da ruggine e corrosione. Disponibile in diverse versioni per permettere un'emissione della luce diffusa o diretta verso il basso.*

**Opal DIFFUSER** made of UV-rays stabilized polymethylmethacrylate (PMMA).

*DIFFUSORE opale realizzato in polimetilmetacrilato (PMMA) stabilizzato ai raggi UV.*

High quality silicone rubber **GASKET** to ensure high protection against external agents.

*GUARNIZIONE in gomma siliconica per garantire un alto livello di protezione contro gli agenti esterni.*

**HOUSING** made of shockproof resin material, UV rays stabilized, suitable for the electrical devices fixation. Provided complete with **GX53 led lamp**.

*CASSA realizzata in resina antiurto, stabilizzata ai raggi UV, adatta ad alloggiare gli accessori elettrici. Fornita completa di lampadina led GX53.*

**INSTALLATION HOUSING** made of resin material to be cemented into the wall before installing the luminaries. Provided with double cable entry with silicone cable gland.

*CONTRO-CASSA in resina da cementare nel muro prima dell'installazione degli apparecchi. Completa di doppia entrata per il cavo elettrico e passacavo in gomma.*

LETI 100 ROUND



Dimensions and weight

Diameter: Ø 134 mm  
Installation housing depth: 80 mm  
Weight: 0,4 Kg

Moulded colours:

Black     White     Grey

Diffuser PMMA:

Opal

GX53 LED

100 - 240 V

\*ADD. SUFFIX



	3 W	350 Lm	6500 K	.G1K
			4000 K	
			3000 K	

Recessed lamp supplied as standard with TÜV-CB certified, long-life, efficient and Kelvin settable **GX53 LED lamp included**. Quick and easy lamp replacement for a very simple maintenance after installation.

- **COST SAVING:** long-life and efficient LED light sources
- **BUILT-IN DRIVER:** quick and easy lamp replacement
- **GREAT FLEXIBILITY:** GX53 standard lamp holder
- **FUTURE-PROOFED LUMINARIES:** performances easy to upgrade to latest technology developments.

3W 350 Lm = 40W incandescent  
**SAVE 93%**

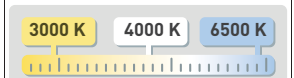


LED LAMPS



Technical details on page 552.

CCT SETTABLE LED LAMP



CCT switch settable in three different positions, to select the desired Kelvin temperature (3000K/4000K/6500K) and get a customized ambiance.

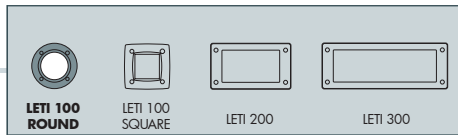
\* ADD THESE SUFFIXES TO THE REFERENCES MENTIONED IN THE CATALOGUE



# LETI 100 ROUND

RECESSED LAMP





**LETI 100 ROUND** 2C1.000.G1K

**3W**

CCT SETTABLE GX53 LED LAMP INCLUDED  
3000K/4000K/6500K

Pcs 48  
Kg 20,3  
mc 0,12

**LETI 100 ROUND-GR** 2C2.000.G1K

**3W**

CCT SETTABLE GX53 LED LAMP INCLUDED  
3000K/4000K/6500K

Pcs 48  
Kg 20,3  
mc 0,12

**LETI 100 ROUND-EL** 2C3.000.G1K

**3W**

CCT SETTABLE GX53 LED LAMP INCLUDED  
3000K/4000K/6500K

Pcs 48  
Kg 20,3  
mc 0,12

**LETI 100 ROUND-ST** 2C4.000.G1K

**3W**

CCT SETTABLE GX53 LED LAMP INCLUDED  
3000K/4000K/6500K

Pcs 48  
Kg 20,3  
mc 0,12

# FUMAGALLI LED LAMPS

## MODULAR SYSTEM



Innovative **TÜV certified LED lamps** with standard E27, GX53 ,R7s, GU10 or G9 lamp holder to get a very efficient LED lighting system. Heatsink and driver are built-in the lamps. LED modules can be easily replaced without the help of a qualified technician. Available in different wattage versions and color temperature. Moreover combining in series Fumagalli GX53 lamps you get a powerful and efficient public lighting system both on classic and modern luminaries.

LVD	EMC	ERP 6000h	RoHS REACH compliant
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### BENEFITS:

- **COST SAVING:** long-life and efficient LED light sources.
- **BUILT-IN DRIVER:** quick and easy lamp replacement.
- **GREAT FLEXIBILITY:** standard lamp holder.
- **FUTURE-PROOFED LUMINARIES:** performances easy to upgrade to latest technology developments.
- **SUITABLE FOR OUTDOOR USE:** driver fully protected against heat and humidity by silicone paste.
- **TÜV CERTIFIED QUALITY:** Production monitored, CE marked, LVD and EMC tested, in compliance with the European Ecodesign Directive (ERP) and with RoHS and REACH directives. CB certified.



**Power surges resistant**

- **Wide voltage range (100-240V)** to protect the driver both from voltage droop and voltage overshoot, which are quite frequent in case of outdoor installations.
- **Double 400V capacitors** and multiple resistances to withstand power surges.
- **Silicone paste** to avoid – in case of voltage swings- the vibration of the electronic components of the driver and the consequent risk of components unsoldering.



**Heat resistant - Working temperature -30°+80°C**

- **Gold wire bonding:** Chips connected by pure gold wires, which are able to withstand at the highest and lowest temperatures and at temperature fluctuations between day and night. The gold wire bonding can grant a lumens maintenance factor > 80%.
- **Silicone paste:** Thermoconductive silicone paste with metal powder inside for helping heat dissipation and avoid overheating problems and for protecting the electronic components in case of high and low temperatures.

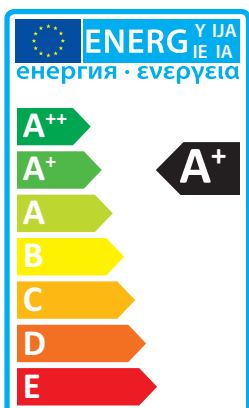


**Humidity resistant - Weatherproof driver for a longer lifetime**

- **Silicone paste:** The driver is fully enclosed in a special silicone paste, which ensures the highest driver protection against moisture and humidity up to 90%, both unavoidable in outdoor installations.



Tested according to :  
EN 62560:2012/A1: 2015  
IEC/TR 62778:2014  
EN 62493:2015



**LVD**  
TESTED

**LVD Certificate:** Fumagalli lamps fulfil the Low Voltage Directive 2014/35/EU, therefore are CE marked and comply with safety requirements like protection against electrical shock, moisture and heat resistance, resistance to flame and ignition.

**EMC**  
TESTED

**EMC Certificate:** Fumagalli lamps meet the Electromagnetic Compatibility Directive 2014/30/EU and its amendments.

**ERP**  
6000 h

**ERP Attestation of conformity:** Fumagalli lamps fulfil the European Ecodesign Directive 2009/125/EC and EU 2015/1428 about the energy performance requirements of energy related products. Lamp lumen maintenance factor after 6.000 hrs > 80%

**CB**  
IECEE CB SCHEME

**IECEE CB Certificate:** Fumagalli lamps meet the International System for Conformity and Certification of Electrotechnical Equipment allowing direct market access in more than 50 countries all over the world.

**RoHS**  
REACH  
COMPLIANT

**RoHS REACH compliant:** Fumagalli lamps fulfil the RoHS (Restriction of Hazardous Substances) directive 2011/65/EU and its amendments and the REACH regulation (EC) No. 1907/2006, regarding the concentration of Very High Concern Substances (SVHC).



COMPANY  
UP&DOWN  
DOWNLIGHT  
IN-GROUND  
BRICKLIGHT  
FLOODLIGHT  
BOLLARD  
BULKHEAD  
GARDEN  
URBAN CLASSIC  
URBAN MODERN  
POST  
LAMPS  
REFERENCES

# GX53 LED Ø75mm

TÜV- CB CERTIFIED LED MODULES



## INDOOR & OUTDOOR USE

-30 +80 °C      90% HUMIDITY

VOLTAGE SURGE RESISTANT



## PCB AND CONNECTION RING

- Special connection ring to avoid the PCB deformation under high temperatures and to keep the PCB adhering to the heatsink.



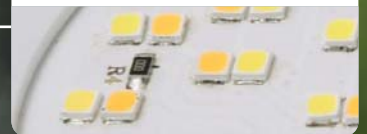
## LENS

- Frosted color lens reducing dazzle.
- Made of UV stabilized resin material to avoid yellowing process.
- Very compact and **slim design** for a better light distribution and for improving the light efficiency.



## GOLD WIRE BONDING

- LED chips connected by pure **gold wires** able to withstand at the highest and lowest temperatures and granting a **lumens maintenance factor > 80%**.
- SMD 3528 LED.



## DRIVER 100-240V

- IC isolated driver technology.
- Wide voltage range: **100-240V** +/- 10% tolerance to protect the driver both from voltage droop and voltage overshoot.
- High quality capacitors and multiple resistances able to withstand power surges.



## GX53 LAMPHOLDER

- Quick and easy lamp replacement and version upgrade.
- Made of PBT material resisting up to 180° and 250V.
- VDE certified.



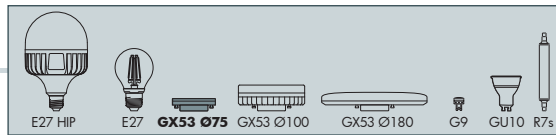
## CCT SETTABLE

- Switch settable in three different positions, to select the desired Kelvin temperature (3000K, 4000K, 6500K) and get a customized ambiance.
- SDCM < 6.



3000 K      4000 K      6500 K





GX53 Ø75 - CCT SETTABLE															
		POWER	<b>3 W</b>												
	LUMINOUS FLUX	<b>350 lm</b>													
	SIZE & SOCKET														
	EFFICIENCY	116 Lm/W													
	VOLTAGE	100-240 V													
	FREQUENCY	50/60 Hz													
	CURRENT	30 mA													
	COLOR RENDERING INDEX RA	> 80													
	SDCM	< 6													
				<table border="1"> <tr> <td>BEAM ANGLE</td> <td>120°</td> </tr> <tr> <td>WARM UP TIME</td> <td>0 s</td> </tr> <tr> <td>SWITCHING CYCLE</td> <td>&gt; 30.000</td> </tr> <tr> <td>LIFETIME</td> <td>25.000 h</td> </tr> <tr> <td>KELVIN SETTABLE</td> <td>3000 K / 4000 K / 6500 K</td> </tr> <tr> <td>REF. CODE</td> <td>H.LED.G53.CCT</td> </tr> </table>	BEAM ANGLE	120°	WARM UP TIME	0 s	SWITCHING CYCLE	> 30.000	LIFETIME	25.000 h	KELVIN SETTABLE	3000 K / 4000 K / 6500 K	REF. CODE
BEAM ANGLE	120°														
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SWITCHING CYCLE	> 30.000														
LIFETIME	25.000 h														
KELVIN SETTABLE	3000 K / 4000 K / 6500 K														
REF. CODE	H.LED.G53.CCT														
INDOOR & OUTDOOR USE		COMPARISON	<p><b>3W = 40W</b> 350 Lm incandescent</p>												

**APPENDIX B      LIGHTING PLAN**

## Hammersmith Ferry

### Installation :

Project number : LD-KB-21087-SG-REVA External  
Customer : ADD1  
Processed by : Kaio Bercan  
Date : 10.05.2021

### Project description:

All calculations have been based on the information provided, plus the accompanying drawings and verbal information received. The Led Group take no responsibility for the maintenance regime and only guarantee light levels at start of life. Our lighting designs are based on relevant lighting guides in conjunction with best practice.

The Robus LDT files used to produce this design are specific to the Robus Luminaires 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 render the scheme non-compliant with relevant lighting guides.

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 unless otherwise stated. In general information with regard to positioning of fire fighting and call points is unknown and hence the design does not consider this requirement. 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 provided by another source.

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

### \*\*Assumptions/ Comments:

Reflectance's: 70.50.20  
Maintenance factor: 0.8  
Maintenance factor external: 0.6  
Measuring plane at 0.00/ 0.75 m from F.F.L  
Ceiling Height:

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.



Object : Hammersmith Ferry  
Installation :  
Project number : LD-KB-21087-SG-REVA External  
Date : 10.05.2021

# ROBUS<sup>®</sup>

## 1 Luminaire data

### 1.1 FUMAGALLI, LETI 100 ST ROUND (2C4.000.G1L)

#### 1.1.1 Data sheet

Manufacturer: FUMAGALLI

2C4.000.G1L LETI 100 ST ROUND

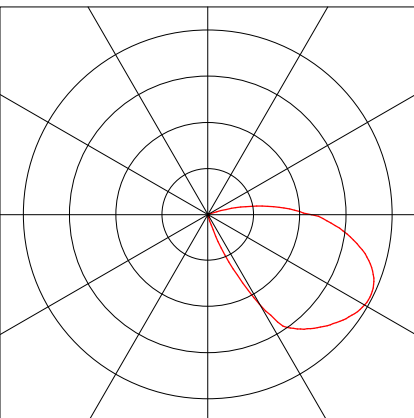
#### Luminaire data

Luminaire efficiency : 100%  
Luminaire efficacy :  
Classification : A11 ↓90.4% ↑9.6%  
CIE Flux Codes : 14 46 77 90 100  
UGR 4H 8H : 40.7 / 24.0  
Luminous flux : 292 lm

#### Equipped with

Quantity : 1  
Designation : CL493/gx53\_3W  
Colour : 4000  
Luminous flux : 292 lm  
Colour reproduction : 0

Dimensions : Ø134 mm x 15 mm

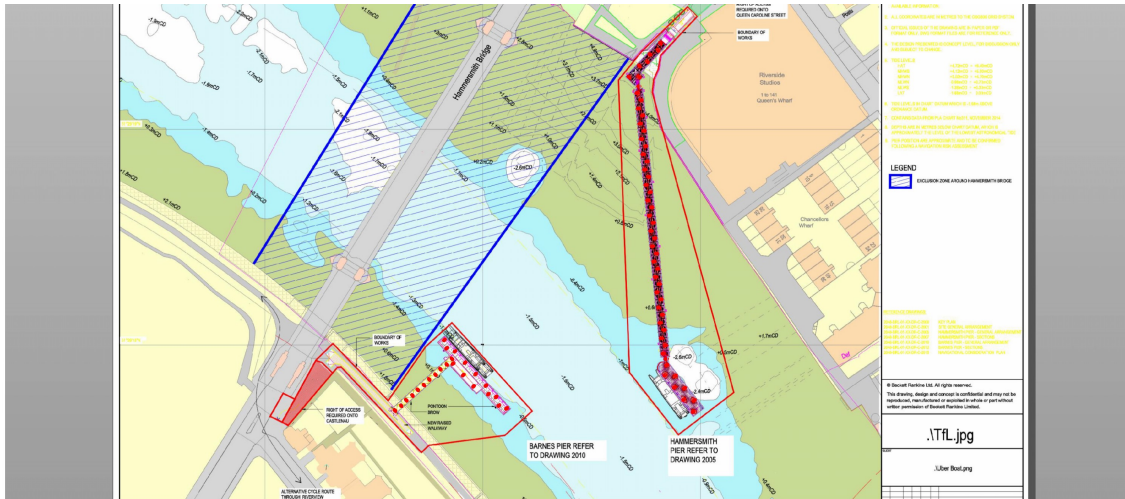


Object : Hammersmith Ferry  
 Installation :  
 Project number : LD-KB-21087-SG-REVA External  
 Date : 10.05.2021

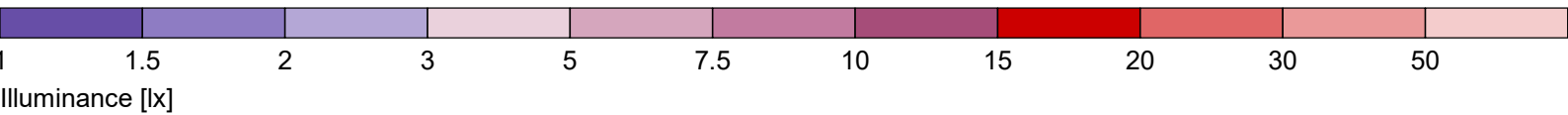
## 2 Exterior 1

### 2.1 Summary, Exterior 1

#### 2.1.1 Result overview, Evaluation area 1



146 166 186 206 226 246 266 286 306 326 x [m]



**General**  
 Calculation algorithm used : Average indirect fraction  
 Height (phot. centre) : 0.99 m  
 Maintenance factor : 0.80  
 Total luminous flux of all lamps : 15184.00 lm

**Evaluation area 1**  
**Reference plane 1.1**  
 Horizontal  
 Em : 14.9 lx  
 Emin : 1.2 lx  
 Emin/Em (Uo) : 0.08  
 Emin/Emax (Ud) : 0.02  
 Position : 0.00 m

#### Type No.\Make

##### FUMAGALLI

Order No. : 2C4.000.G1L  
 Luminaire name : LETI 100 ST ROUND  
 Equipment : 1 x CL493/gx53\_3W / 292 lm

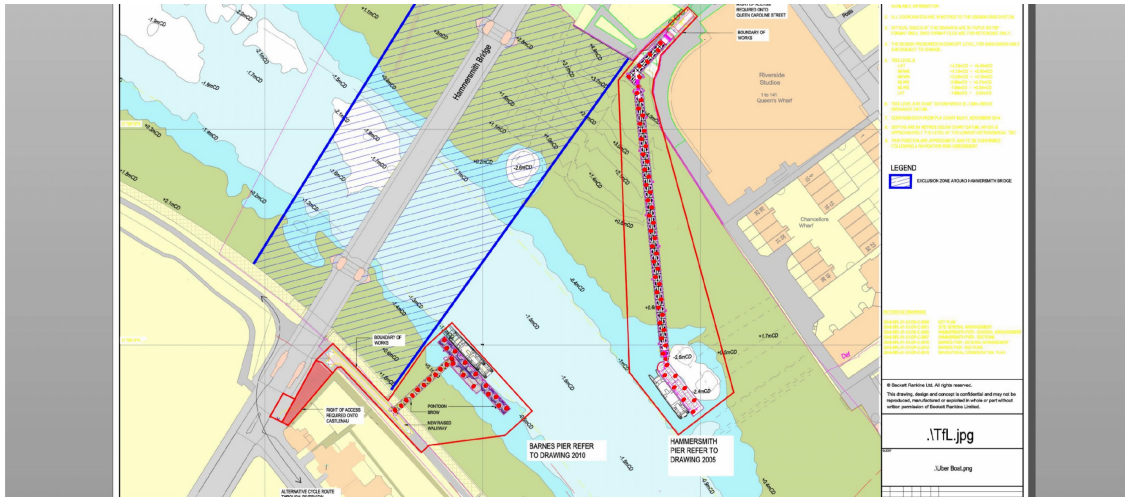
1 52



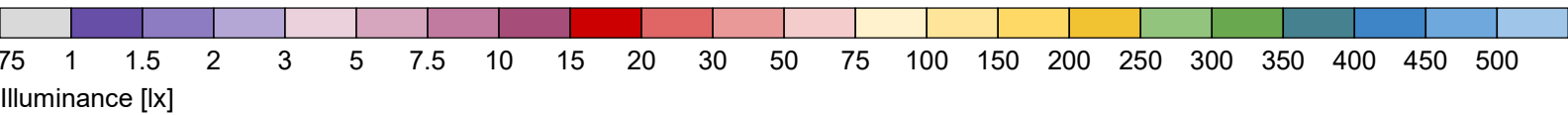
Object : Hammersmith Ferry  
 Installation :  
 Project number : LD-KB-21087-SG-REVA External  
 Date : 10.05.2021

## 2.1 Summary, Exterior 1

### 2.1.2 Result overview, Evaluation area 2




146 166 186 206 226 246 266 286 306 326 x [m]



<b>General</b>	
Calculation algorithm used	Average indirect fraction
Height (phot. centre)	0.99 m
Maintenance factor	0.80
Total luminous flux of all lamps	6716.00 lm

<b>Evaluation area 2</b>	<b>Reference plane 2.1</b>
	Horizontal
Em	13 lx
Emin	0 lx
Emin/Em (Uo)	0.00
Emin/Emax (Ud)	0.00
Position	0.75 m

#### Type No.\Make

1	23	<b>FUMAGALLI</b>	
		Order No.	: 2C4.000.G1L
		Luminaire name	: LET1 100 ST ROUND
		Equipment	: 1 x CL493/gx53_3W / 292 lm

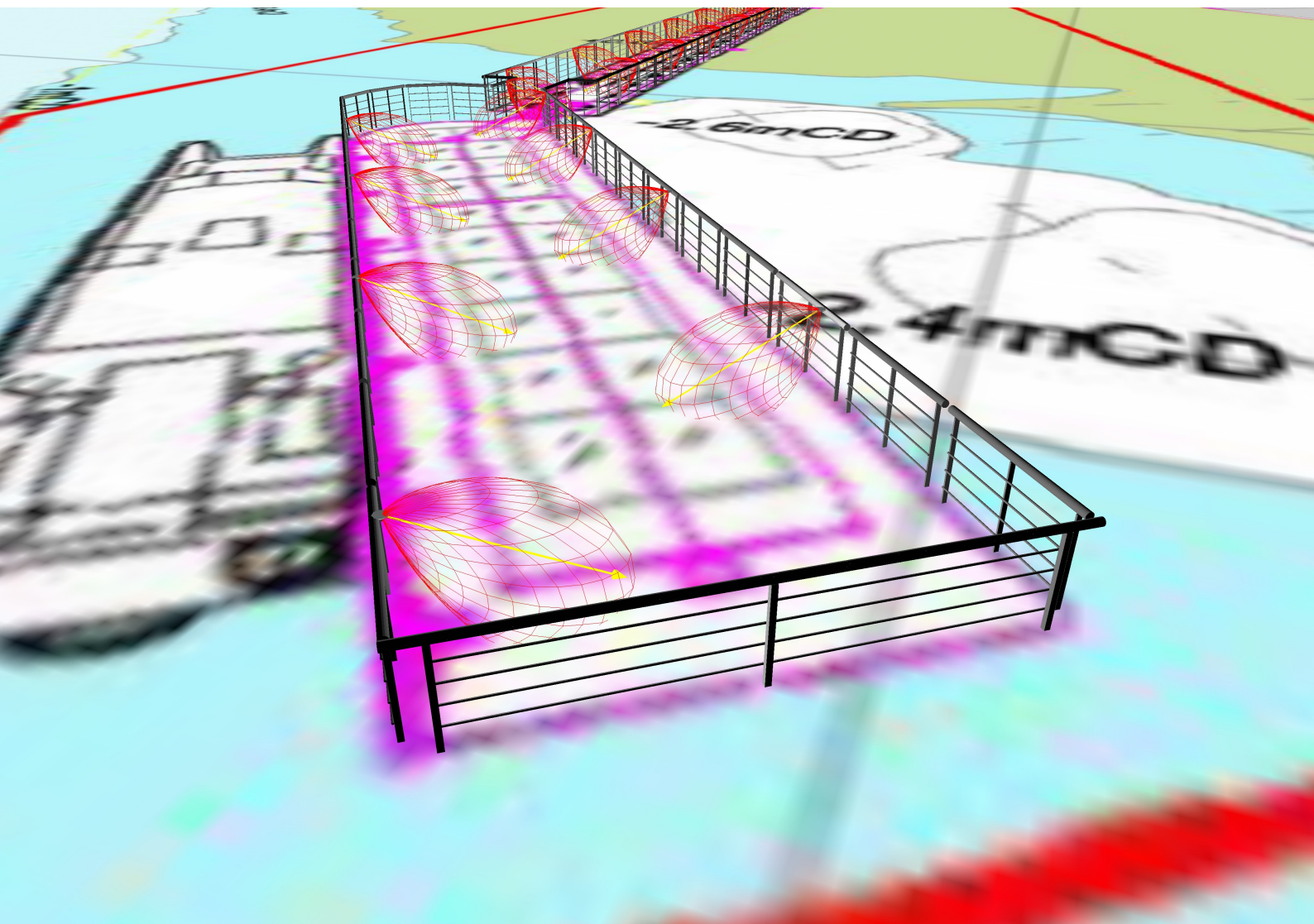
Object : Hammersmith Ferry  
Installation :  
Project number : LD-KB-21087-SG-REVA External  
Date : 10.05.2021

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## 2 Exterior 1

### 2.2 Calculation results, Exterior 1

#### 2.2.1 3D luminance, View 1 - Hammersmith Pier

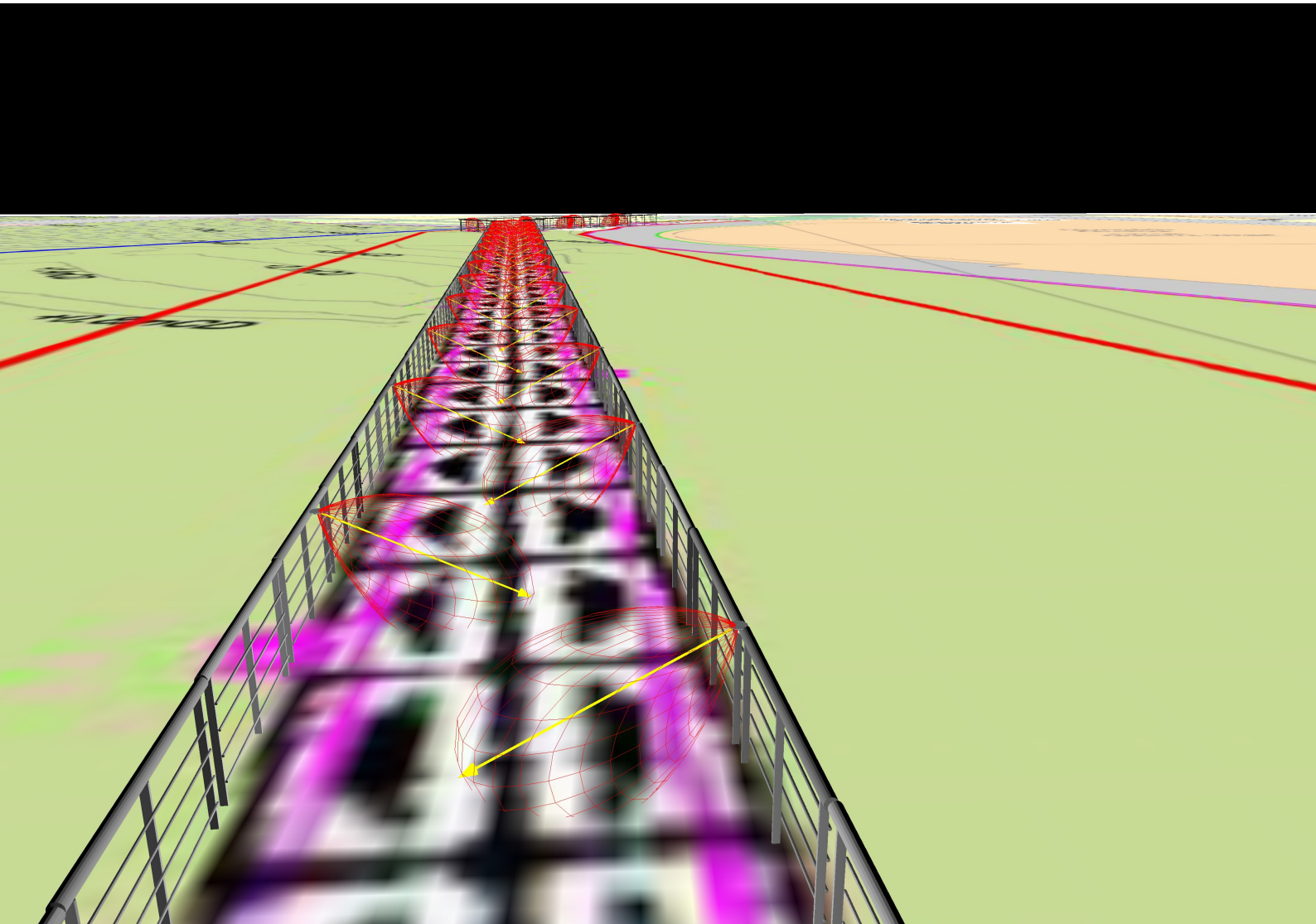


Object : Hammersmith Ferry  
Installation :  
Project number : LD-KB-21087-SG-REVA External  
Date : 10.05.2021

# ROBUS<sup>®</sup>

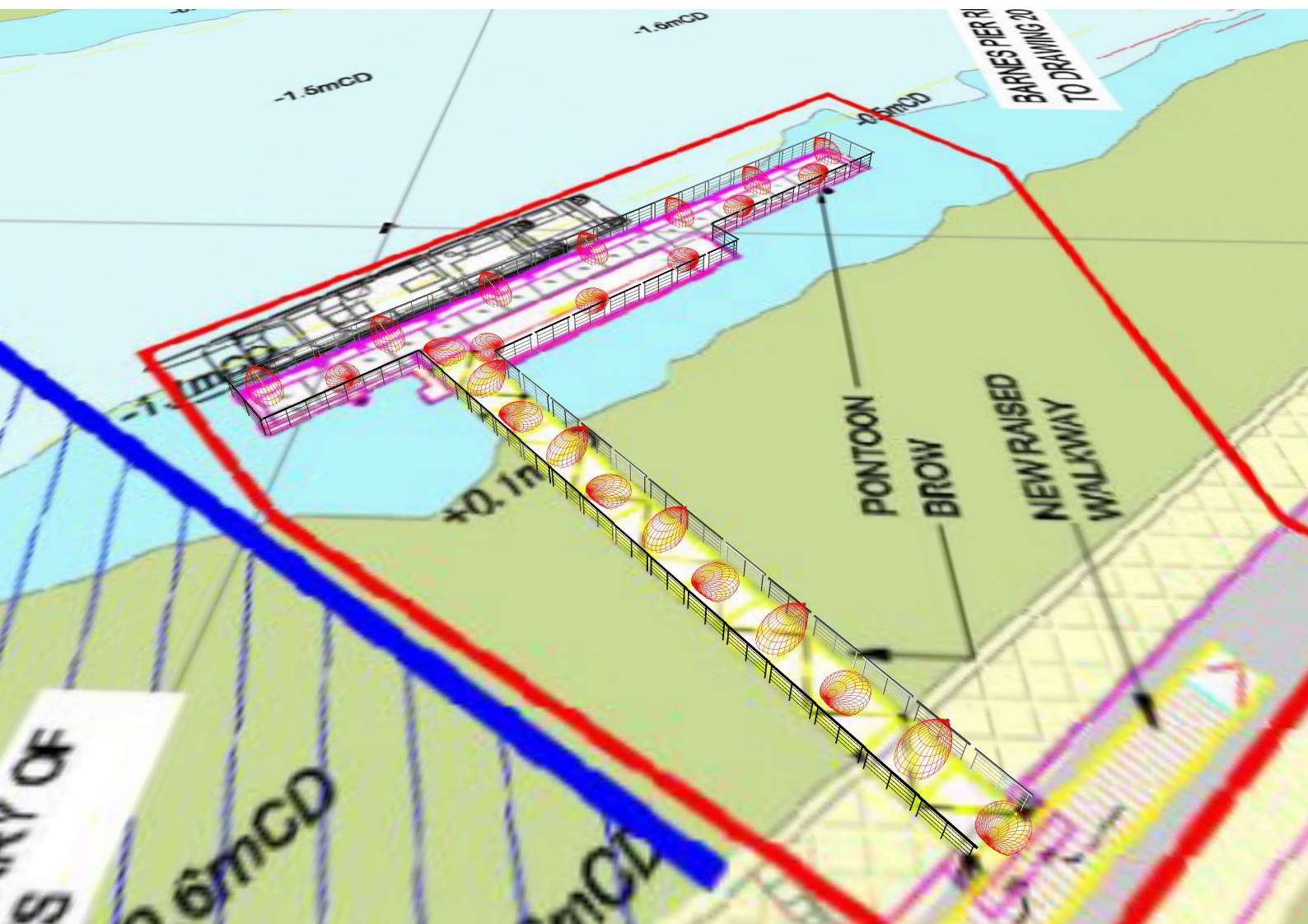
## 2.2 Calculation results, Exterior 1

### 2.2.2 3D luminance, View 2 - Hammersmith Pier - Access Walkway



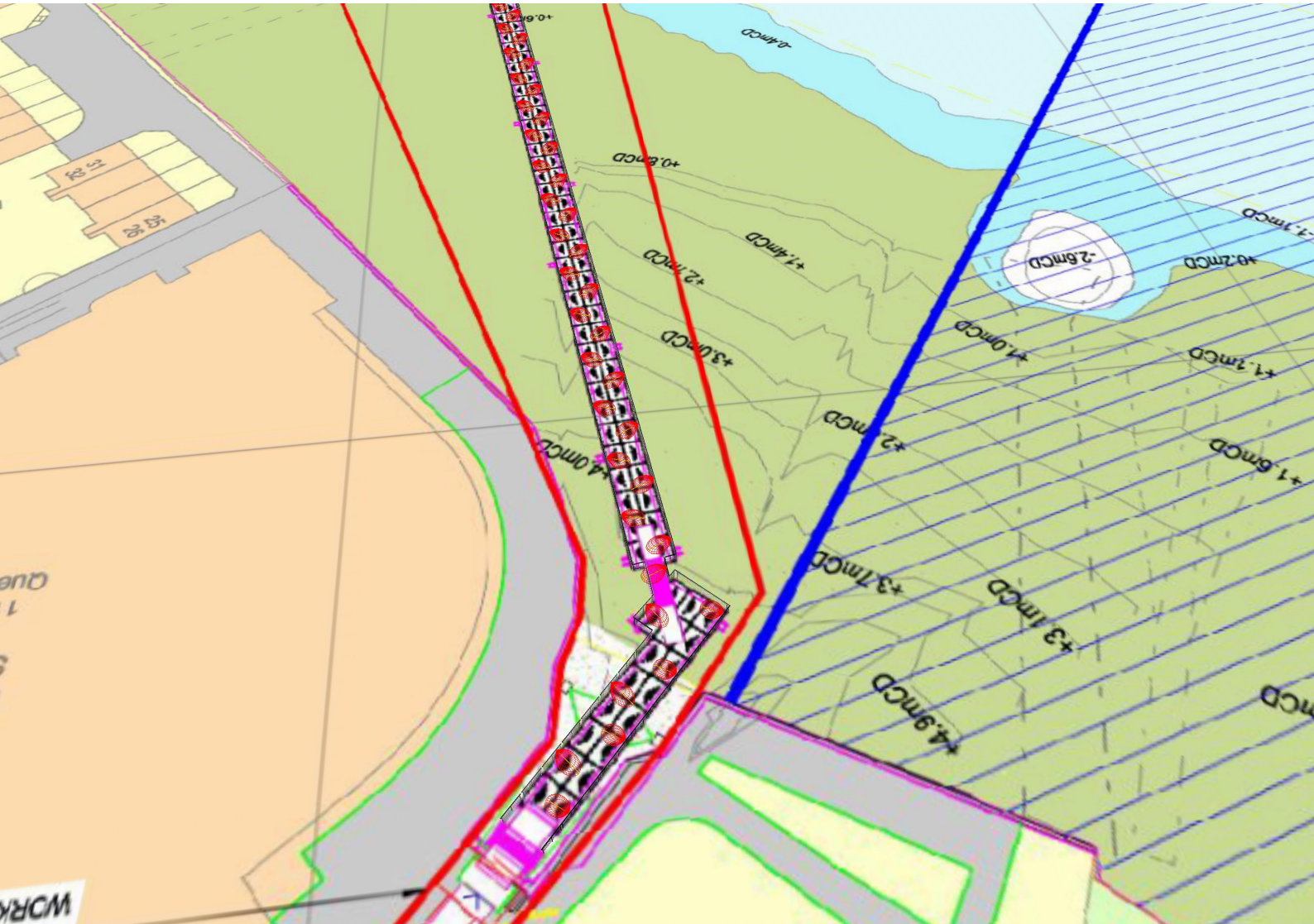
## 2.2 Calculation results, Exterior 1

### 2.2.3 3D luminance, View 3 - Barnes Pier



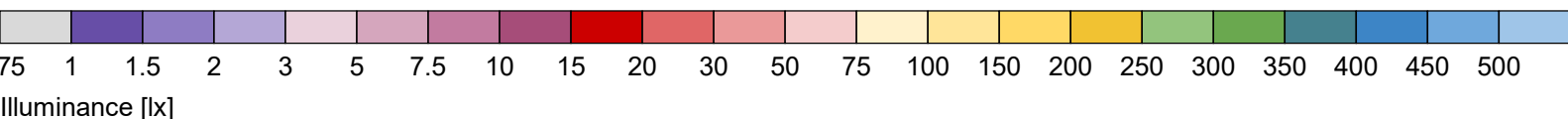
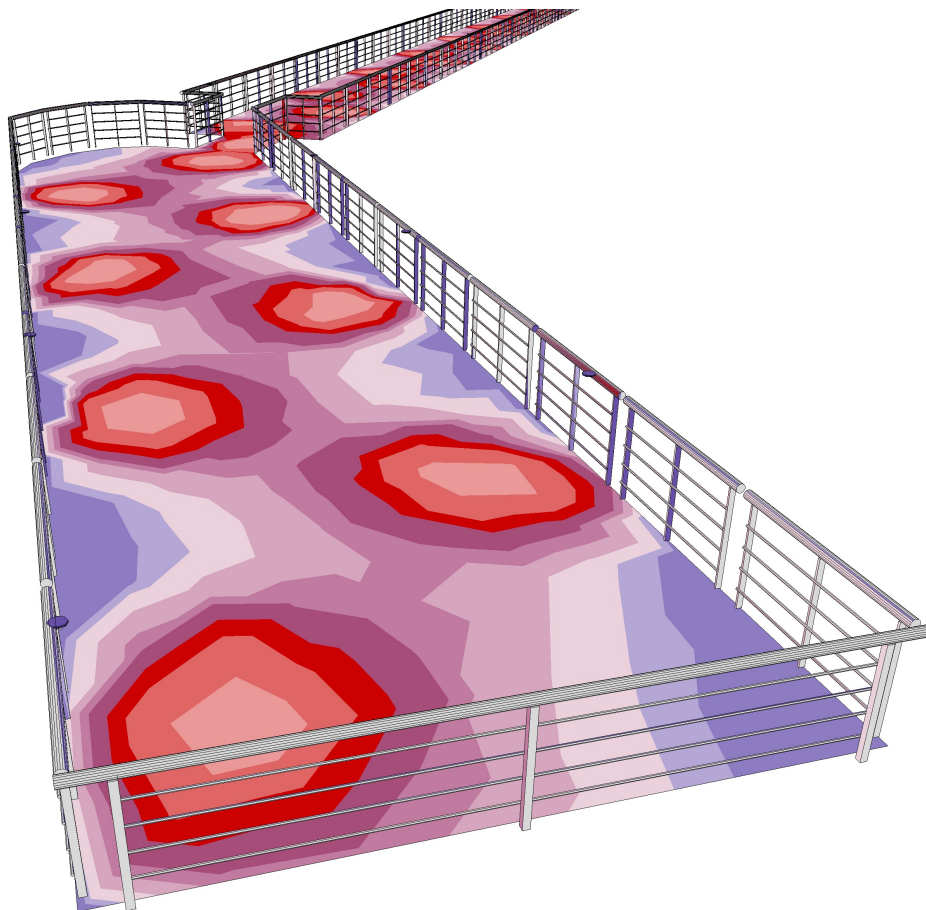
## 2.2 Calculation results, Exterior 1

### 2.2.4 3D luminance, View 4 - Hammersmith Pier - Access



## 2.2 Calculation results, Exterior 1

### 2.2.5 3D pseudo colours, View 1 (E) - Hammersmith Pier



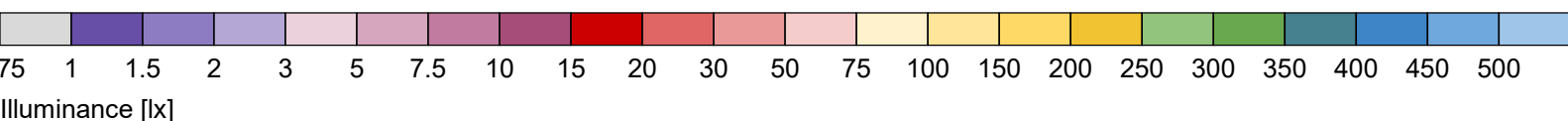
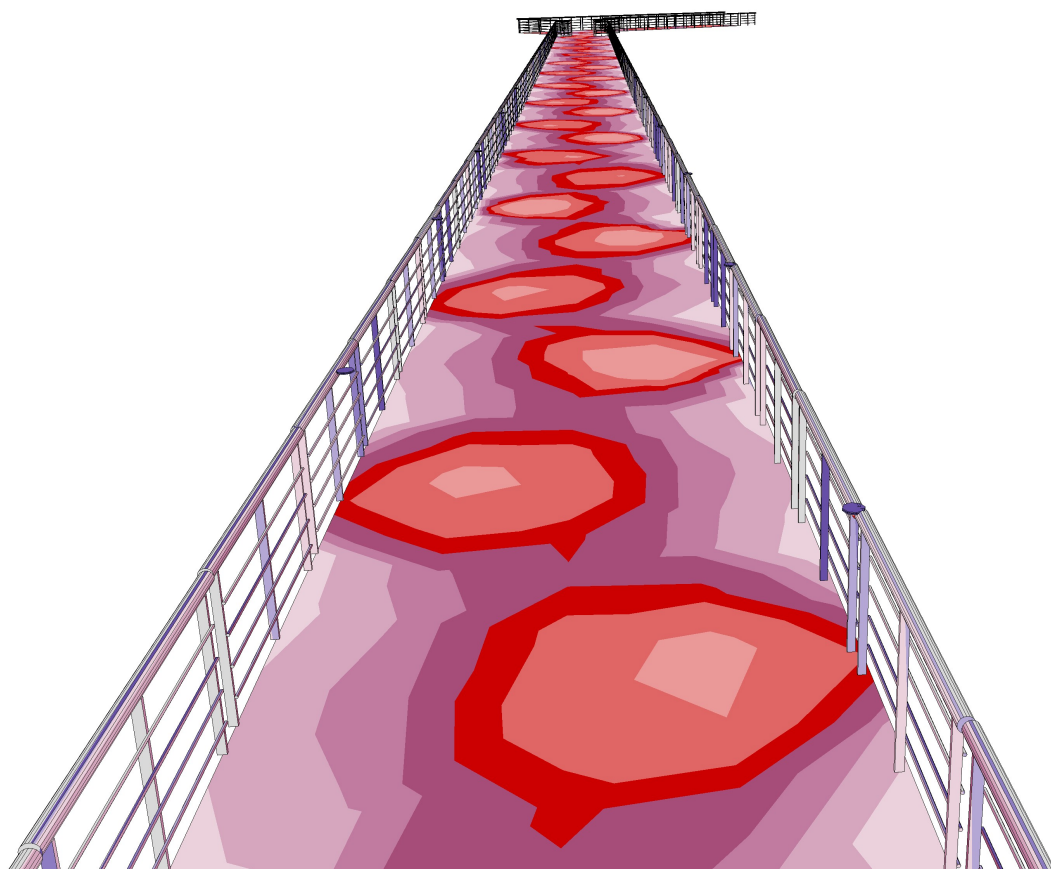


Object : Hammersmith Ferry  
Installation :  
Project number : LD-KB-21087-SG-REVA External  
Date : 10.05.2021

# ROBUS®

## 2.2 Calculation results, Exterior 1

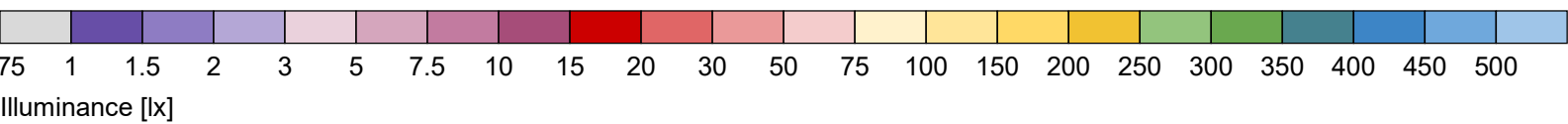
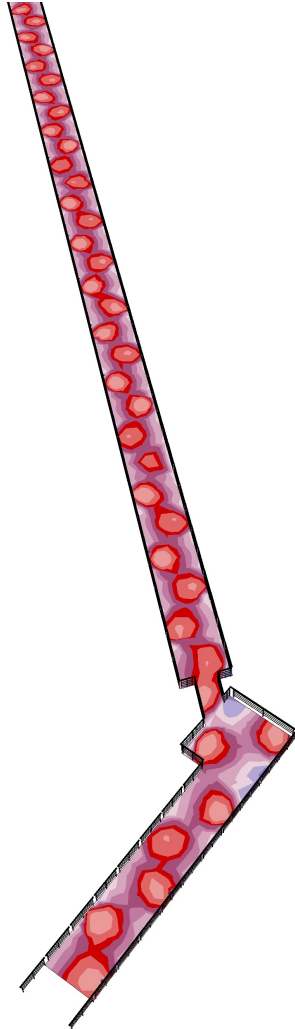
### 2.2.6 3D pseudo colours, View 2 (E) - Hammersmith Pier - Access Walkway

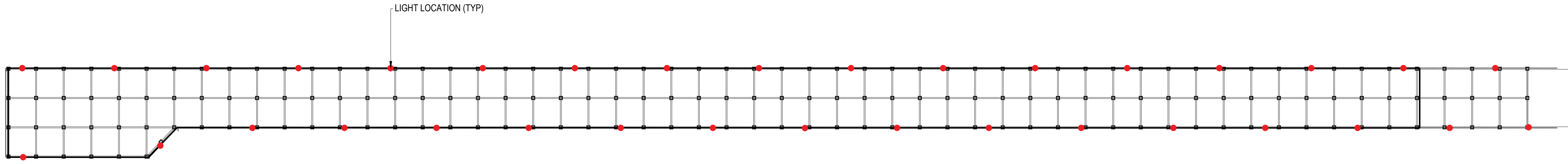


Illuminance [lx]

## 2.2 Calculation results, Exterior 1

### 2.2.7 3D pseudo colours, View 4 (E) - Hammersmith Pier Access

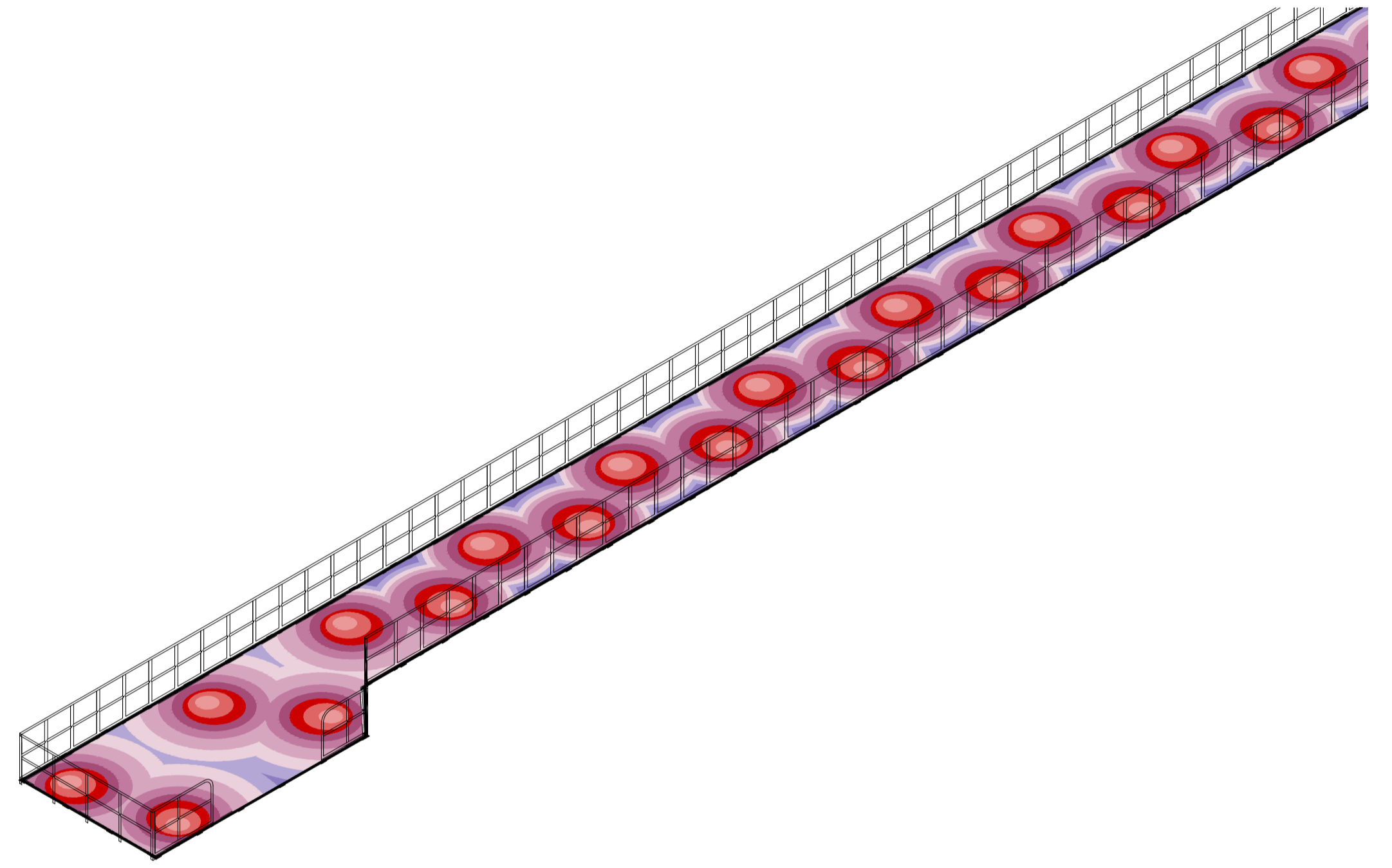
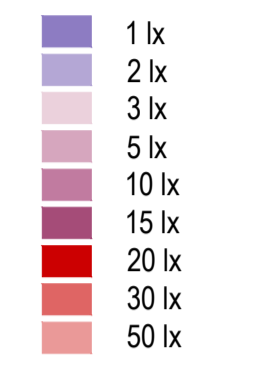




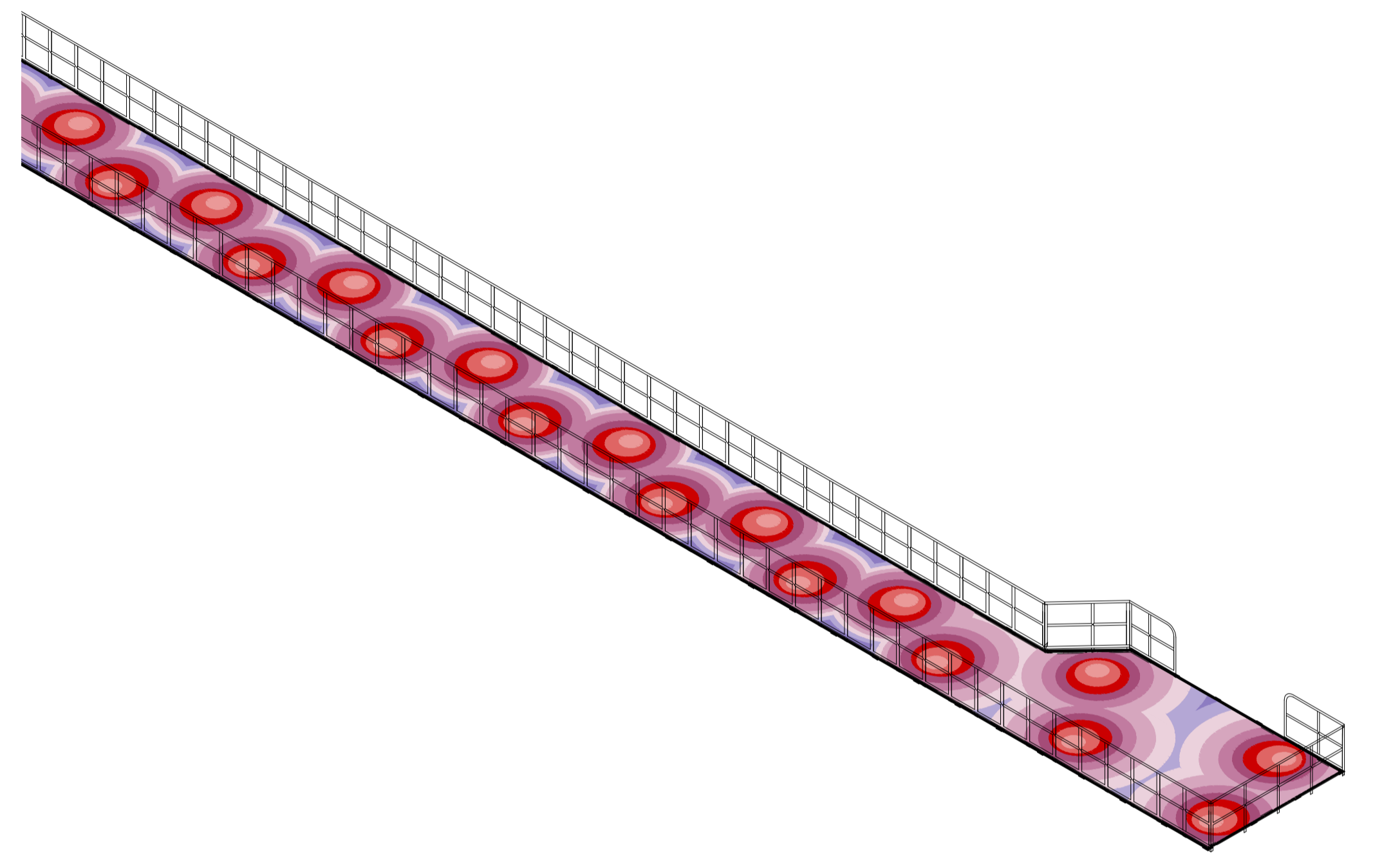
**LIGHTING LOCATIONS**  
(SCALE 1:100)

- NOTES:**
1. DIMENSIONS ARE NOT TO BE SCALED FROM THIS DRAWING. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
  2. ALL COORDINATES ARE IN METRES TO THE OSGB36 GRID SYSTEM.
  3. OFFICIAL ISSUES OF THIS DRAWING ARE IN PAPER OR PDF FORMAT ONLY. DWG FORMAT FILES ARE FOR REFERENCE ONLY.
  4. THE DESIGN PRESENTED IS CONCEPT LEVEL, FOR DISCUSSION ONLY AND SUBJECT TO CHANGE.

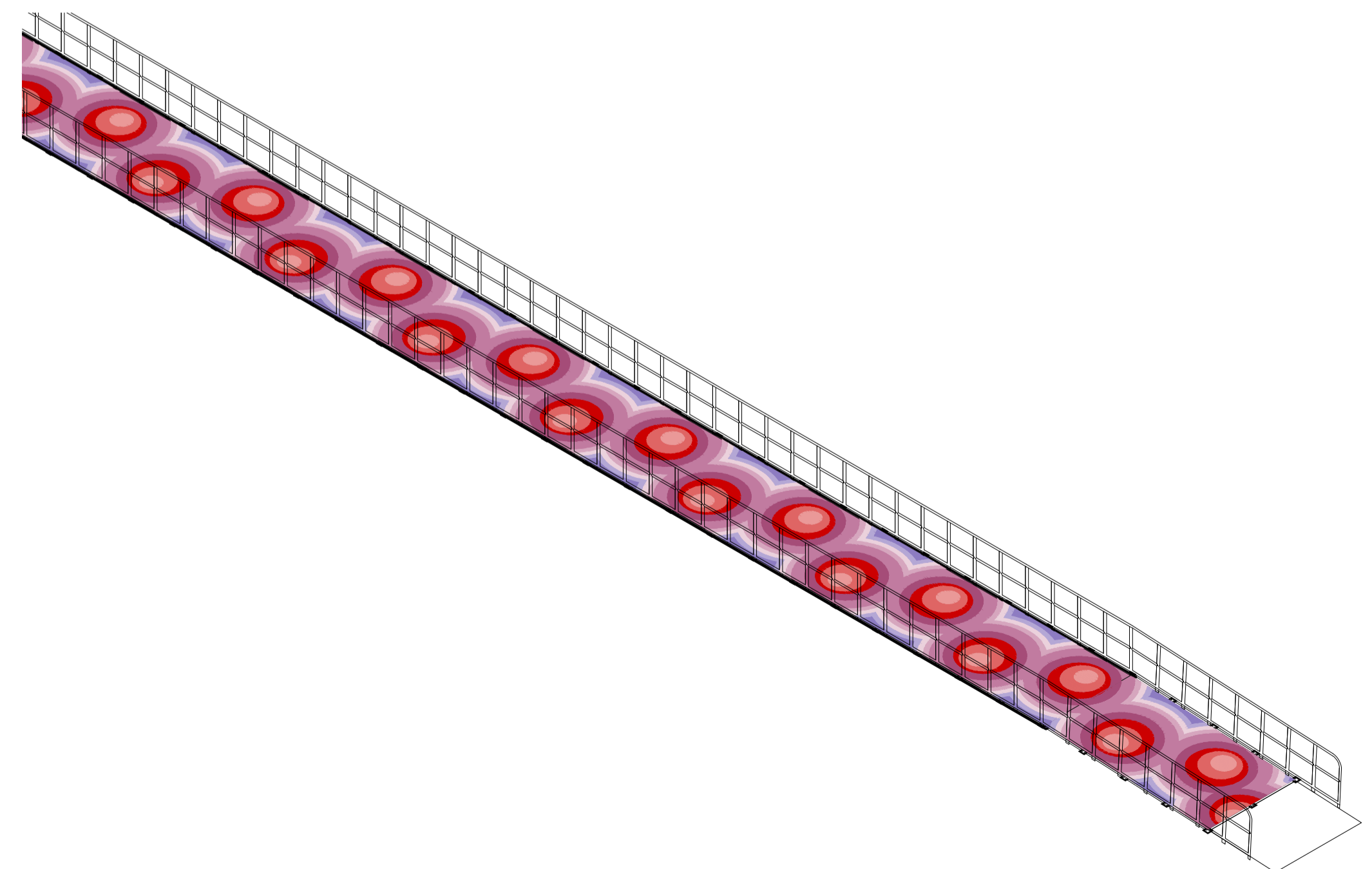
**ILLUMINANCE (LX)**



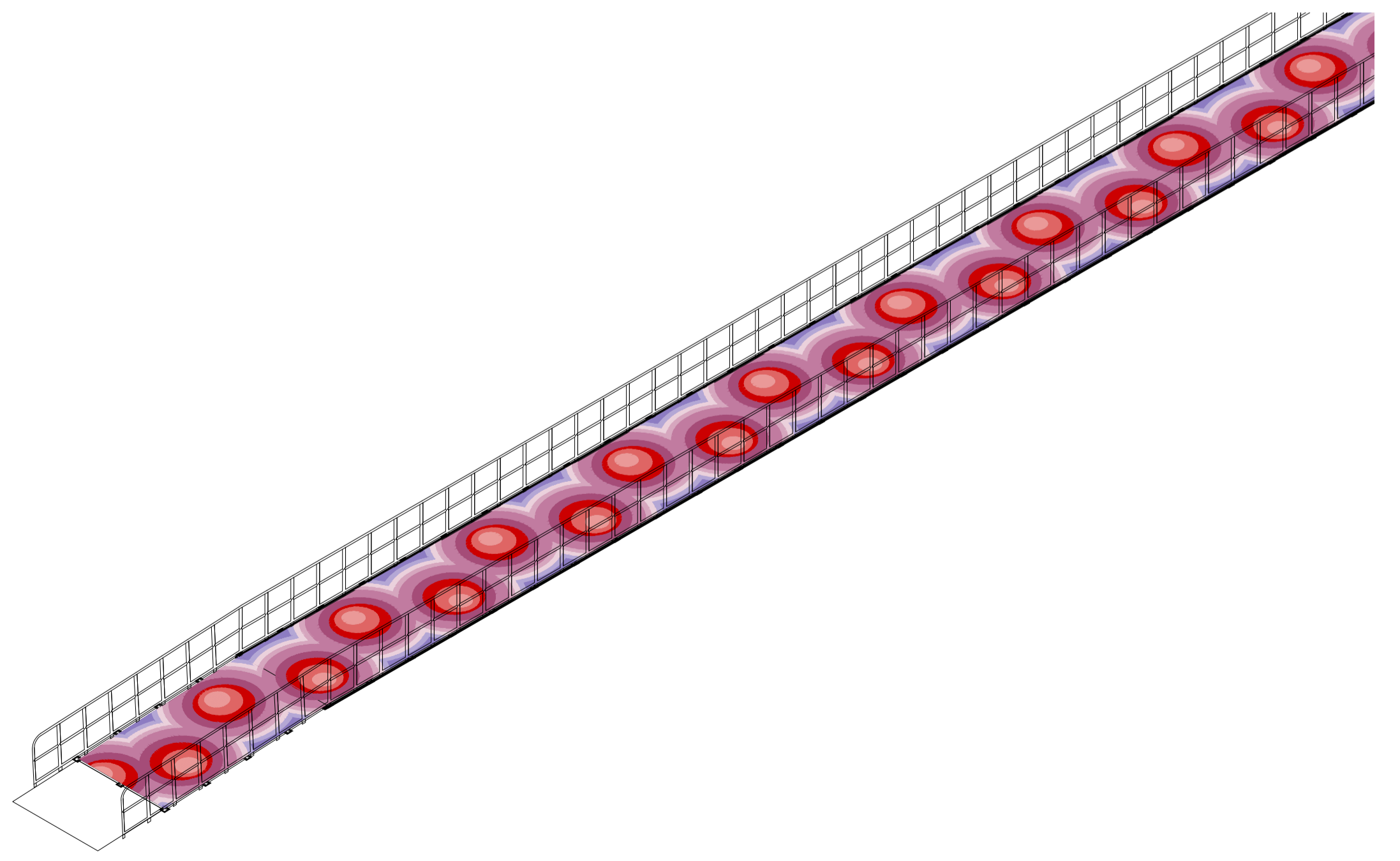
**VIEW FACING EAST**  
(SCALE 1:100)



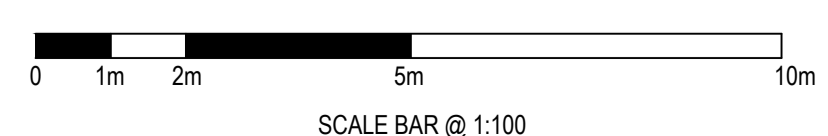
**VIEW FACING SOUTH**  
(SCALE 1:100)



**VIEW FACING NORTH**  
(SCALE 1:100)



**VIEW FACING WEST**  
(SCALE 1:100)



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**Uber Boat**  
by **thames clippers**

REV	DATE	DRN	DocChk	EngChk	APP	DESCRIPTION
P01	08.06.21	GG	GG	TKB	TKB	ISSUED FOR INFORMATION
REVISION						



**TITLE**  
HAMMERSMITH TEMPORARY FERRY  
BARNES PIER  
LANDWARD WALKWAY LIGHTING LAYOUT

PROJECT DRAWING No.	SCALE	S. CODE	REV
2048-BRL-02-XX-DR-C-3217	AS NOTED	S4	P01