

Technical Submittal

Updated External Lighting

Project: Star Academy, Bury

Project Ref: MC1202

4P Reference: FS1013-AME-ZZ-ZZ-T-E-0023

4P Status: S3

Revision: P01

Date: 25/02/26

Revision	Date	Description	Issued By
P01	25-02-26	Updated to Sports England comments	AW

Technical Submittal

Technical Data

Please see data sheets below

Design Criteria

- 3G all weather pitch is designed for football & rugby and meets the lighting requirements for **BS EN 12193 Lights & Lighting sports pitches class 3**
- MUGA (new) is designed for basketball, netball & tennis and meets the lighting requirements for **BS EN 12193 Lights & Lighting sports pitches class 3**
- 2nd gen all weather pitch is designed for hockey & football and meets the lighting requirements for **BS EN 12193 Lights & Lighting sports pitches class 3**

See calculations below

Description of System / Operation

All pitches are controlled via manual switches located in staff workroom (premises) 1 4032. Switching groups as per the below.

- Switch 1 – 3G all weather pitch, all lights
- Switch 2 – MUGA (new) all lights
- Switch 3 – 2nd gen all weather pitch all lights

Star Academy

Installation : External Sports Pitch

Project number : 29704
Customer : ENGINEERING SERVICES DESIGN LTD
Processed by : C Lomers
Date : 24.02.2026

Project description:

Design Parameters:

3G All Weather Pitch 75lx 0.5Uo @ 10M
MUGA 200lx 0.7Uo @ 10M
2nd Gen All Weather 200lx 0.7Uo @ 12M

- REV 1 - 2nd Gen All Weather Re-design

CDM 2015 - Designers Risk Assessment:

Throughout the design process, consideration has been made for the installation, maintenance, use and decommissioning phases of the project. By adopting a best practice approach, it is judged that any inherent risks associated with the design of lighting systems are suitably mitigated. Through this process, no unusual or significant risks have been identified.

However, it should still be noted that:

- Installation of lighting and any associated systems may involve working at height. Contractor to prepare appropriate Risk assessment and method statements to establish safe method of works.
- Installation of electrical services to lighting. Contractor to prepare appropriate Risk assessment and method statements to establish safe method of works. Only demonstrably competent and qualified personnel to undertake electrical installation and testing.
- Installation of lighting equipment should adhere to the product specific installation details provided in order to ensure compliance with the requirements of BS EN 60598.

Lighting Design Calculations:

The information contained within this document may not necessarily convey all the required details, as such should be read in conjunction with all other documentation and/or drawings provided as part of Whitecroft Lighting's design submissions.

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 : Star Academy
Installation : External Sports Pitch
Project number : 29704
Date : 24.02.2026



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Object : Star Academy
Installation : External Sports Pitch
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1 Luminaire data

1.1 Whitecroft Lighting, Euroflood MaxiLED 1 module 400... (EFX1H34KA)

1.1.1 Data sheet

Manufacturer: Whitecroft Lighting

EFX1H34KA Euroflood MaxiLED 1 module 4000K asymmetric 456W

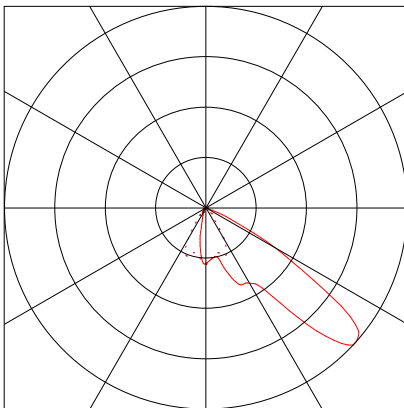
Luminaire data

Luminaire efficiency : 100%
Luminaire efficacy : 99.72 lm/W
Classification : A40 ↓100.0% ↑0.0%
CIE Flux Codes : 54 95 100 100 100
UGR 4H 8H : 41.2 / 18.5
Power : 456.8 W
Luminous flux : 45552 lm

Equipped with

Quantity : 1
Designation : LED
Colour : 4000
Luminous flux : 45552 lm
Colour reproduction : 70

Dimensions : 640 mm x 195 mm x 214 mm



Object : Star Academy
Installation : External Sports Pitch
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2 EXTERNAL PITCHES

2.1 Description, EXTERNAL PITCHES

2.1.1 Floor plan



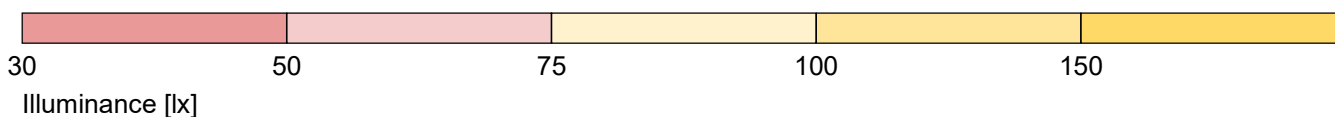
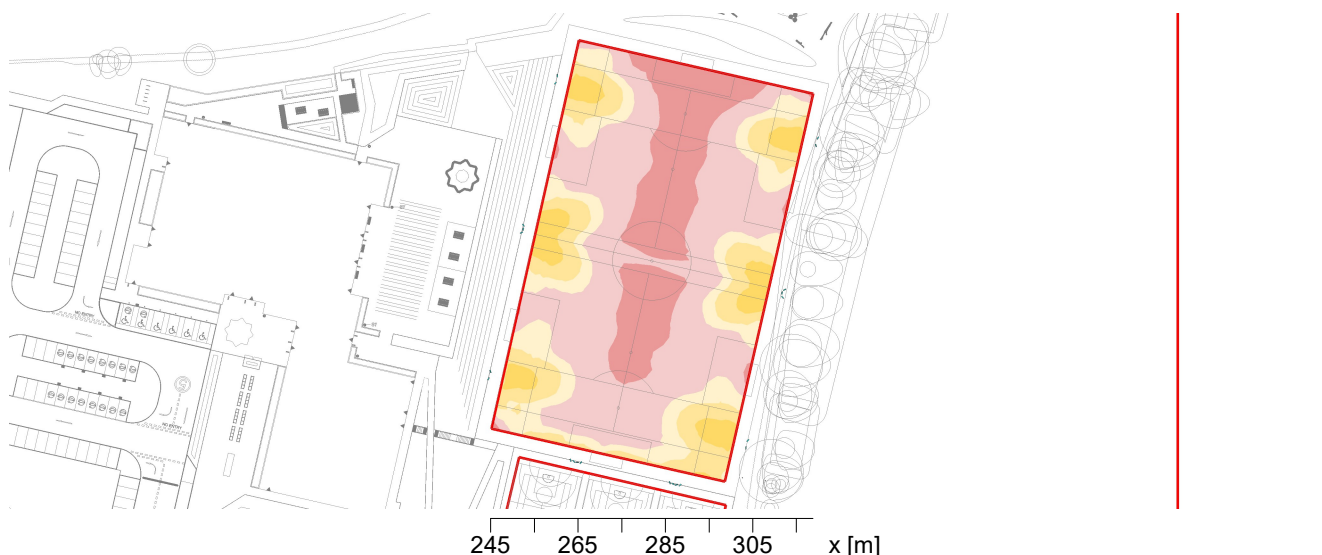
Object : Star Academy
 Installation : External Sports Pitch
 Project number : 29704
 Date : 24.02.2026



2 EXTERNAL PITCHES

2.2 Summary, EXTERNAL PITCHES

2.2.1 Result overview, 3G All Weather Pitch



General

Calculation algorithm used	High indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux	2095392 lm
Total power	21012.8 W
Total power per area (122484.33 m ²)	0.17 W/m ²

Illuminance

Average illuminance	$\bar{E}_m$	77.4 lx
Minimum illuminance	E_{min}	38.8 lx
Maximum illuminance	E_{max}	199 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:1.99 (0.5)
Diversity U_d	E_{min}/E_{max}	1:5.13 (0.19)

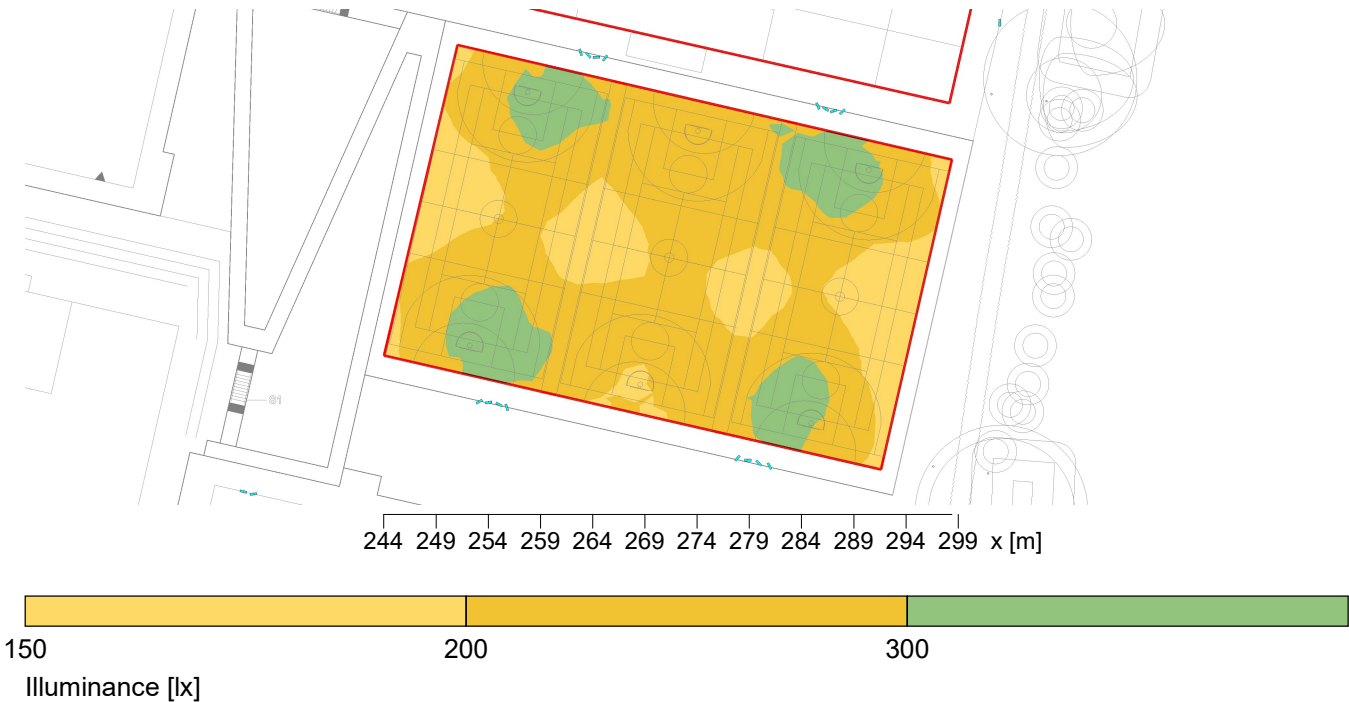
Type No. Make

Whitecroft Lighting	
1 46 x	Order No. : EFX1H34KA
	Luminaire name : Euroflood MaxiLED 1 module 4000K asymmetric 456W
	Equipment : 1 x LED 456.8 W / 45552 lm



2.2 Summary, EXTERNAL PITCHES

2.2.2 Result overview, Smaller MUGA x 3



General

Calculation algorithm used	High indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux	2095392 lm
Total power	21012.8 W
Total power per area (122484.33 m²)	0.17 W/m²

Illuminance

Average illuminance	$\bar{E}_m$	244 lx
Minimum illuminance	E_{min}	171 lx
Maximum illuminance	E_{max}	401 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:1.43 (0.7)
Diversity U_d	E_{min}/E_{max}	1:2.34 (0.43)

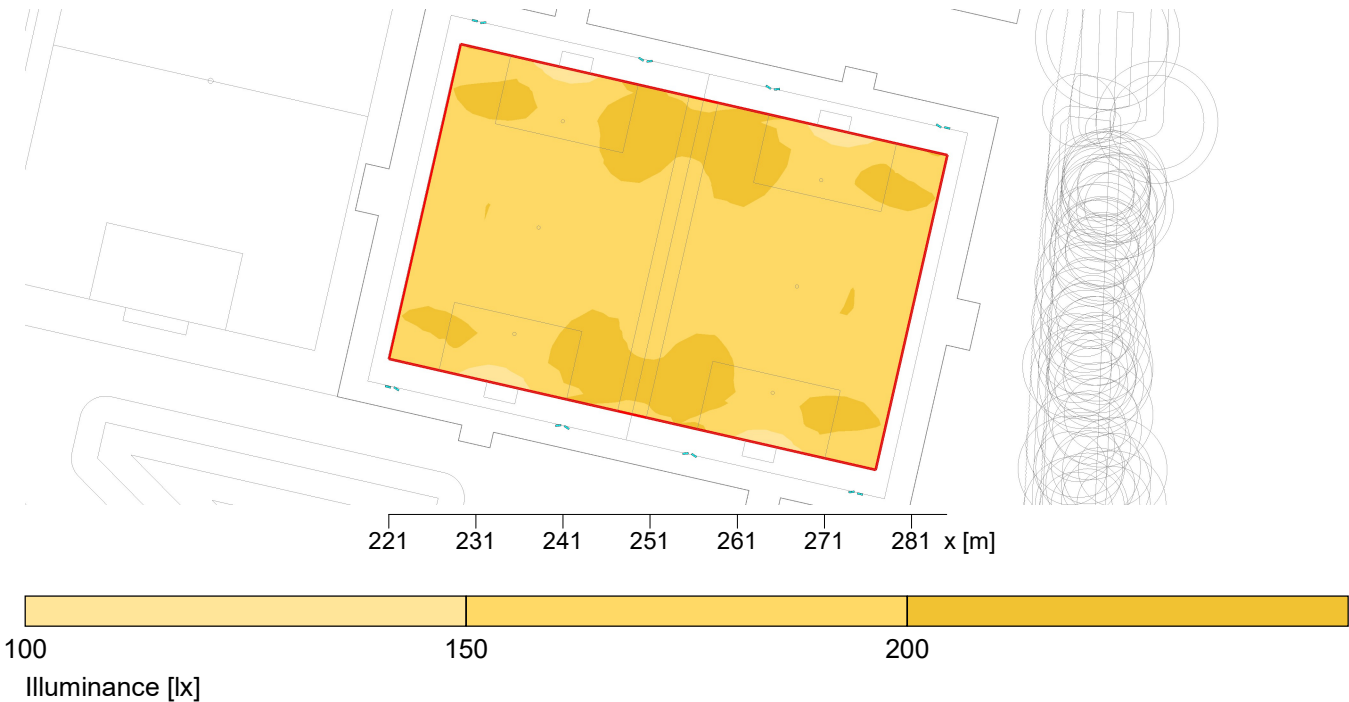
Type No.\Make

1		46 x		Whitecroft Lighting	
				Order No.	: EFX1H34KA
				Luminaire name	: Euroflood MaxiLED 1 module 4000K asymmetric 456W
				Equipment	: 1 x LED 456.8 W / 45552 lm



2.2 Summary, EXTERNAL PITCHES

2.2.3 Result overview, 2nd Gen All Weather



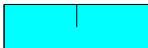
General

Calculation algorithm used	High indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux	2095392 lm
Total power	21012.8 W
Total power per area (122484.33 m²)	0.17 W/m²

Illuminance

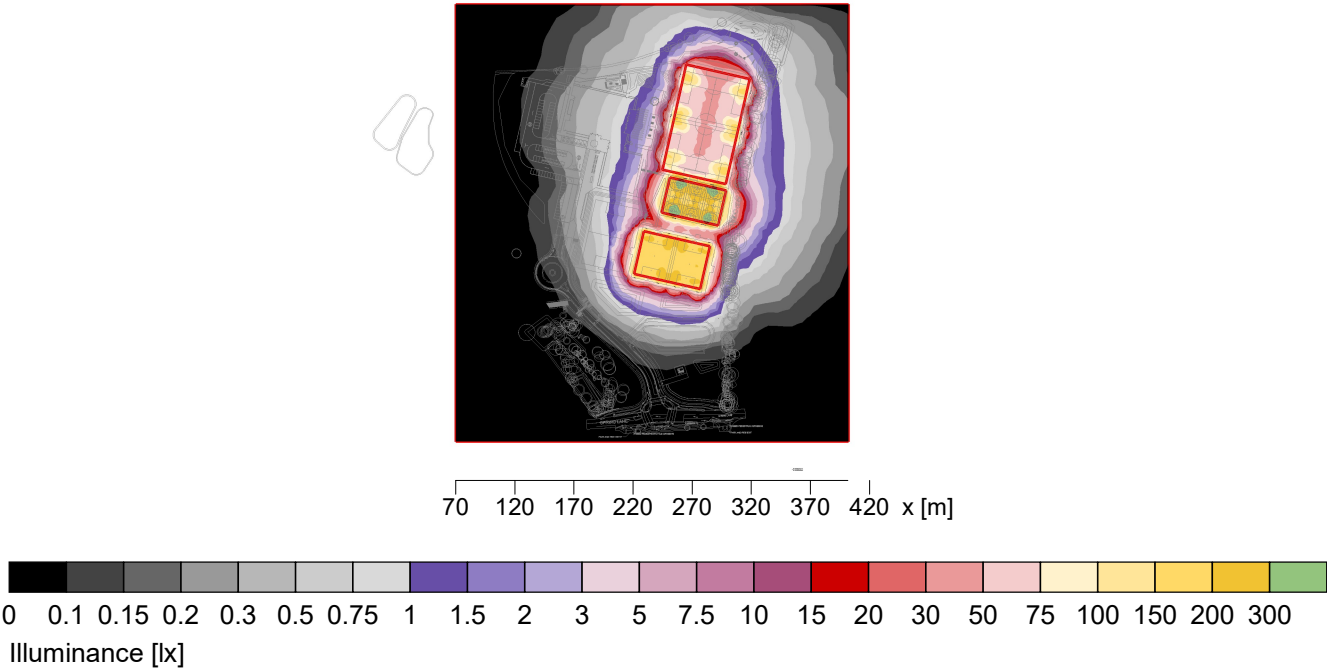
Average illuminance	$\bar{E}_m$	191 lx
Minimum illuminance	E_{min}	135 lx
Maximum illuminance	E_{max}	252 lx
Uniformity U_o	$E_{min}/\bar{E}_m$	1:1.42 (0.71)
Diversity U_d	E_{min}/E_{max}	1:1.87 (0.54)

Type No.\Make

Whitecroft Lighting		
1 46 x	Order No.	: EFX1H34KA
	Luminaire name	: Euroflood MaxiLED 1 module 4000K asymmetric 456W
	Equipment	: 1 x LED 456.8 W / 45552 lm

2.2 Summary, EXTERNAL PITCHES

2.2.4 Result overview, Evaluation area 1



General

Calculation algorithm used	High indirect fraction
Maintenance factor	0.80
Total luminous flux	2095392.00 lm
Total power	21012.8 W
Total power per area (122484.33 m²)	0.17 W/m² (1.25 W/m²/100lx)

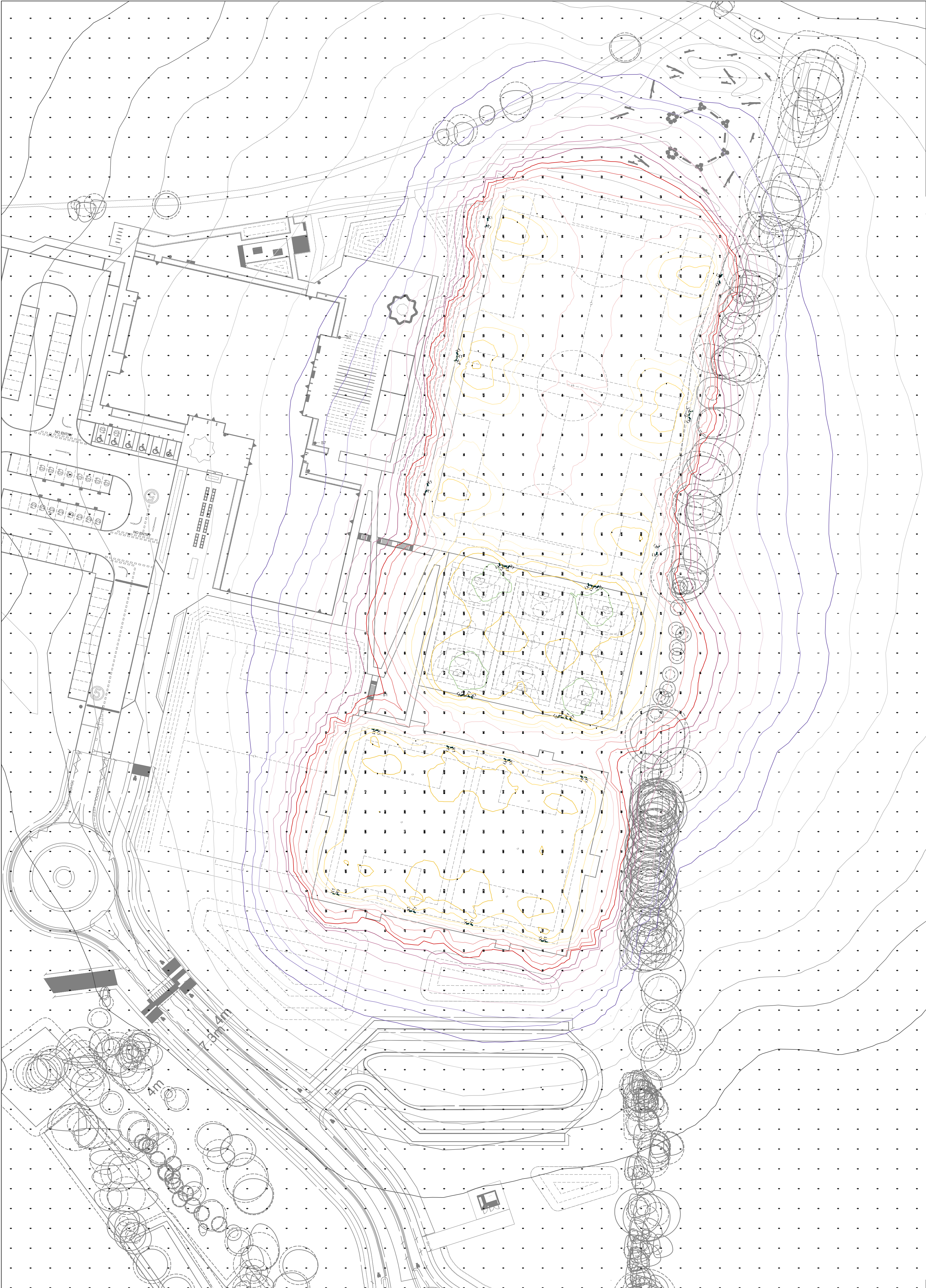
Evaluation area 1

Reference plane 1.1

$\bar{E}_m$	Horizontal
E_{min}	13.8 lx
$E_{min}/\bar{E}_m (U_o)$	0 lx
$E_{min}/E_{max} (U_d)$	0.00
Position	0.00 m

Type No.\Make

Whitecroft Lighting	
1 46 x	Order No. : EFX1H34KA
	Luminaire name : Euroflood MaxiLED 1 module 4000K asymmetric 456W
	Equipment : 1 x LED 456.8 W / 45552 lm



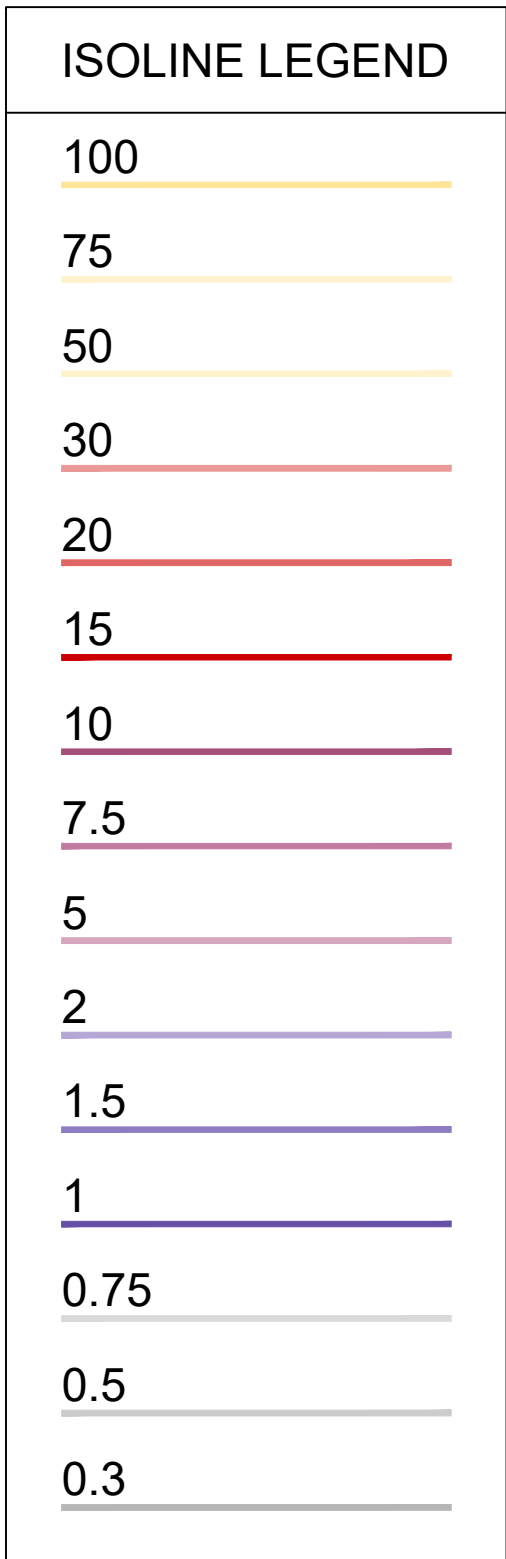
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CDM 2015 - Designers Risk Assessment

The following information is provided in accordance with Regulation 9 of the Construction (Design Management) Regulations 2015:

- No unusual or significant risks have been identified.
- Installation of electrical services to lighting, contractor to prepare appropriate Risk assessment and method statements to establish safe method of works.
- Installation of lighting may involve working at height, contractor to prepare appropriate Risk assessment and method statements to establish safe method of works.
- Product specific Installation instructions should be adhered to, in order to ensure compliance with the requirements of BS EN 60598 with regards to electrical and mechanical safety of the luminaire.
- Refer to the Principal Designer for any project specific Health & Safety information.

- GENERAL NOTES:**
- Do not scale from this drawing.
 - All dimensions are in millimeters unless otherwise noted.
 - All dimensions are to be confirmed.
 - This drawing does not necessarily contain all the required information required to communicate the overall design intent or construction detail - therefore drawings should be read in conjunction with all other relevant documentation and specifications.
 - Any apparent errors or differences shall be brought to the attention of Whitecroft Lighting as soon as practicable.



BREEAM Pol 4 - Reduction of Night Time Light Pollution Non-Domestic Buildings
One BREEAM credit is available where the lighting design is in compliance with the criteria below.
Demonstrate compliance with B.P. Guidance Notes for the Reduction of Obtrusive Light (2021)
Select Environmental Zone from table below:

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO World Heritage Sites, Dark Sky Reserves, National Parks, Areas of Outstanding Natural Beauty etc.
E1	Natural	Irregularly dark	Wildlife or relatively dark outer suburban locations
E2	Rural	Low electric brightness	Small town centres or suburban locations
E3	Suburban	Medium electric brightness	Township centres with high levels of night-time activity
E4	Urban	High electric brightness	

- General notes relating to this B.P. Guidance
- * Values for Light Trespass into windows can only be demonstrated with full detailed drawings showing adjacent properties. Please see Lighting Calculation for further details.
 - No building is lit directly as a night time feature so Building Luminaire requirements are not exceeded
 - This applies to each luminaire in the potentially obtrusive direction, outside of the area being lit. The figures given are for general guidance only and for some applications with limited mounting heights, may be difficult to achieve
 - External lighting (except for safety and security) should be automatically switched off between 11pm and 7am (Post curfew) to gain the BREEAM credit
 - Safety and security lighting between 11pm and 7am should meet the 'Post curfew' targets in Table 2
 - Night time switching control is recommended to achieve compliance post curfew
 - Lumen outputs reduced by 50% where 'Dual Power' feature is used

E3 Project Environmental Zone

Reference	Part Number	Product Type	Time of Operation	Lamps	Lumen	Qty	Light Output Ratio % (LOR)	Upward Light Ratio % (ULR)	Total Upward Lumens	Total Available Lumens	Max. source Intensity (cd/1000 ft²)	Max. source Intensity (cd) Pre-Curfew	Max. source Intensity (cd) Post-Curfew	Circuit Watts	Total Watts
X1	EFX1H34KA	EUROFLOOD MAXI LED	Pre-Curfew	LED	45524	48	100.00%	0.00%	0.0	2093292.0	1807	73.252		487.9	21022.0