

Technical Report.

Seven Sisters RFC – PROPOSED NEW FLOODLIGHTING

24/03/2026

SPORTS PITCH FLOODLIGHTING LOW LIGHT POLLUTION INSTALLATION

Michael Butterill DSL.

Proposed LED Floodlighting Installation – Seven Sisters RFC

Seven Sisters RFC, in partnership with Direct Sports Lighting, is proposing the installation of a purpose-built, low-energy LED floodlighting system on the club's existing 1st team grass pitch, which currently has no lighting infrastructure.

This new system will be a significant asset for the club, enabling extended training hours for the quickly growing adult and junior sections. It will also provide a high-quality Rugby union and multi-sport training facility for the wider community, supporting increased participation and development across all age groups.

Technical Design Details and Specification Resolutions

In developing the proposed floodlighting system for Seven Sisters RFC, the following key considerations were addressed to ensure compliance with relevant standards, environmental sensitivity, and performance expectations:

1. Illuminance Level Compliance

To determine the appropriate illuminance levels, we referred to the **The Welsh Rugby union** standards for match & training level floodlighting. These require:

- **Average illuminance:** 100 lux
- **Uniformity ratio:** 0.50

The proposed lighting design fully complies with these requirements, ensuring suitable visibility, safety, and functionality for football training sessions.

2. Environmental Zone Classification

The environmental context of the site was assessed using the *Institution of Lighting Engineers' Guidance Notes for the Reduction of Light Pollution (2000)*. This document classifies land into four environmental zones, from National Parks to urban city centres.

- The proposed Seven Sisters RFC site falls under **Environmental Zone E3:**
- **Category:** Medium district brightness
- **Typical setting:** Suburban areas, small towns, or village environments with moderate levels of night-time activity and lighting

- **Design implication:** This classification informs the lighting design to control light spill, glare, and sky glow while accommodating the functional requirements of a community sports facility and minimising impact on nearby residential receptors
- This classification influenced the design approach to ensure minimal light pollution and disruption to the surrounding community.

3. Mast Height Determination

Mast height was calculated using guidance from **CIBSE LG4: Sports Lighting**. The method involves projecting sight lines from the centre of the pitch and the touchlines to determine optimal headframe positions.

- **Resulting height range:** 15m to 18m
- **Selected height:** 15 metres

The 15m height allows for **horizontal mounting of the floodlights**, which offers:

- Improved **light uniformity**
- Reduced **vertical overspill**
- A **slimmer mast profile**, reducing visual daytime impact
- Strategic positioning that limits overspill onto surrounding areas

4. Floodlight Selection

To meet the E3 zone environmental guidelines, the **SP04 floodlight** was selected due to its:

- High-efficiency optical system
- Low upward light output ratio (ULOR)
- Excellent cut-off control to reduce light spill

This luminaire aligns with recommendations in the *Guidance Notes for the Reduction of Light Pollution* (2000) and supports the project's low-impact lighting goals.

5. Design Mitigation Measures

Direct Sports Lighting (DSL) has incorporated several measures to minimise the impact on local properties, including:

- Installation of **floodlight shields and front cowls**
- **Careful mast positioning** to control beam angles and direction
- Design efforts to ensure all lighting effects remain **within acceptable thresholds** for nearby residents

DSL recognises that the presence of floodlights and masts will be visible, but every effort has been made to ensure a minimal aesthetic and environmental footprint.

6. Operational Hours and Control Measures

The proposed lighting will be used during the following periods:

- **Monday to Friday:** 4:00 PM – 9:30 PM (September to April)
- **Saturday use** (winter only): 2:00 PM – 6:00 PM

To ensure responsible operation:

- Lighting will be controlled via an **automated 7-day / 24-hour timer**
- This will **eliminate human error** and ensure operation is strictly within agreed timeframes

APEX Floodlight – SP04 PRO Series

The SP04 PRO Series floodlight has been specifically engineered to meet the stringent requirements of modern sports area lighting, with a strong focus on minimising light pollution — making it ideal for installations in environmentally sensitive locations.

This model integrates Direct Sports Lighting's (DSL) proprietary Light Control System, which ensures accurate beam control and minimises upward light spill, keeping illumination focused where it's needed most.

Key Features:

Asymmetric Reflector Design:

The reflector is designed to project the full light output across the target area with precision, optimising coverage for sports applications.

Forward Light Beam Projection:

The main beam is directed 60 degrees forward when the front glass is in a horizontal position. This geometry results in only a 20-degree visible floodlight angle, significantly reducing the exposed reflector surface as seen from outside the installation area — a critical factor in reducing light intrusion for surrounding residents.

Low Light Pollution Performance:

Ideal for sites within Environmental Zone E3 (Medium district brightness), the SP04 PRO helps meet planning and compliance requirements while delivering high-quality lighting performance.

For full technical specifications, dimensions, and performance data, please refer to the enclosed colour brochure.

Example Installations:

Please see below examples of recent projects that have successfully utilised the SP04 PRO floodlight, demonstrating its application and aesthetic in real-world environments.



DSL Lighting Design

The floodlighting proposal by Direct Sports Lighting (DSL) is supported by a comprehensive lighting design, detailing:

- ***Mast locations***
- ***Floodlight orientations***
- ***Illuminance levels across the pitch***
- ***Projected overspill values***

For the proposed pitch, the design achieves a maintained minimum illuminance level of just over 100 lux, with a uniformity ratio of 0.50, fully compliant with WRU trainings standards.

These values are calculated using a maintenance factor of 0.95, which accounts for:

- ***Light reduction due to dirt accumulation on the floodlight lens***
- ***Lamp lumen depreciation over time***

This approach ensures that the pitch lighting consistently meets the minimum performance requirements necessary for safe and effective training.

For reference, please see below a description of lighting levels.

Light Source	Horizontal Lux
Full Moon	0.3 to 0.5
Streetlights – Footpath	3 to 10
Streetlights – Residential Area	5 to 15
Typical City Centre Car Park (non-retail)	20 to 30
Office/Classroom	250 to 750
Professional Stadium	800 to 2500
Sunny Day	80,000 to 120,000

Final Note: SP04 PRO Series & Direct Sports Lighting

Once installed, the SP04 PRO Series—with its advanced light control system—will deliver an optimal sports lighting solution, ensuring that light is directed precisely onto the playing surface, rather than spilling into the sky or surrounding environment. This results in high-performance illumination with minimal environmental impact.

Direct Sports Lighting is a recognised global leader in the design and manufacture of low-pollution exterior lighting solutions. Our products are developed with precision and sustainability in mind, making them ideal for community and professional sports facilities alike.

For more information about our low light pollution lighting systems or to speak with a member of our team, please contact:

Direct Sports Lighting

Head Office: 0845 643 0722

Website: www.directsportslighting.co.uk