

# Technical Report.

## Lydney RFC – PROPOSED NEW FLOODLIGHTING

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### SPORTS PITCH FLOODLIGHTING LOW LIGHT POLLUTION INSTALLATION

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Lydney RFC and Direct Sports Lighting are proposing the installation of purpose-built low energy LED floodlighting system to 1 x current grass pitches, which currently has lighting but not fit for purpose. The new lighting will be a tremendous asset for the club allowing more training facilities for the growing adult, junior, and female rugby sections and also provide a great rugby / sports training area for the wider community.

In designing a suitable floodlighting solution for the Rugby training pitch at Lydney RFC rec, the key specification issues had to be considered. These included the illuminance level required, the environmental zone category for the site, the minimum mast height & the number type of floodlights. Details of how these issues were resolved are as follows: -

1. To ascertain the illuminance level required we referred to the RFU requirements for training standard lighting which has is 100lux with a uniformity of 0.50, the lighting we require meets the RFU requirements.
2. For the relevant environmental zone reference was made The Institution of Lighting Engineers: *Guidance Notes for The Reduction of Light Pollution, 2000.* (as attached). This document categorises the environment into four zones ranging from National Parks to City Centres. The site would fall into a **E3** Suburban Medium district brightness, Well inhabited rural and urban settlements, small town centres of suburban locations. **Pre – curfew levels are 10lux.**
3. The mast height was calculated using the method detailed in the CIBSE guide LG4 “Sports Lighting”. This uses angles projected from the centre of the pitch & the touch line to produce a head frame location zone. When applied to this project the optimum mast height ranged from 15m to 18m for the Pitch. A 18m mounting height was chosen as it would allow the floodlights to be mounted horizontally. This will result in low vertical overspill & good uniformity on the playing surface, without compromising cost. The 18m mast will offer a slimline profile which will minimise daytime impact, and also the mast locations allow us to keep the elevations to a minimum causing less overspill on the surrounding areas.
4. In order to meet the requirements of The Institution of Lighting Engineers: *Guidance Notes for The Reduction of Light Pollution, 2000*, the APEX floodlight, was chosen as being suitable. Details of the main features of this product are highlighted below.
5. DSL have taken every care and consideration into the floodlighting design, this includes installing floodlight shields, front cowls and

positioning of the masts to reduce the impact of floodlights on the local properties. DSL appreciate that the floodlights and masts are going to be noticeable, however everything has been undertaken and designed to ensure that this provides minimal impact on the neighbours.

6. The floodlights requested would be used on Monday to Friday evenings between 5.00pm - 9.45pm between September and April with occasional use on a Saturday afternoon to finish a game should they be needed due to weather conditions on the day between the hours of 2-6pm. The lighting will be operated by way of automatic 7 day 24-hour timer to prevent human error that may arise, which will be set to the agreed times.

### **NOVA Floodlight.**

The APEX series floodlight has been specifically designed to fulfil the requirements of sports area lighting. It is particularly suited to applications where low light pollution is essential. The floodlight incorporates the **DSL Light Control** system to ensure that light pollution is minimised.

The APEX series floodlight features an **Asymmetric** reflector which produces full flow of light over the application area. The main beam of light is emitted at an angle of 60 degrees forward when the front glass is horizontal. This results in a 10-degree floodlight appearance & therefore reduces the area of reflector visible to residents outside the site.

For full details of dimensions & specification please see the colour brochure enclosed.

Please see pictures below of recent installations using the above floodlight.



The Direct Sports Lighting proposals are detailed on the design, these show the most locations, floodlight orientations, illuminance levels on the pitch & projected overspill values.

For the pitch the design achieves a maintained minimum illuminance value of just over 100 Lux with a uniformity of 0.50 which meets the requirements of the WRU. The maintained illuminance values are calculated using a maintenance factor of 0.90. This takes into account light losses due to dirt accumulation on the floodlight front glass & lamp lumen depreciation, ensuring that the minimum requirements for safe play are achieved.

### **Conclusion.**

The proposed system would be suitable for installing in an environmental zone E3, meeting the most stringent of light control parameters whilst maintaining the specified illuminance levels for the sports pitch.

The impact on residents will be minimised as overspill values into gardens will be no more than moonlight & vertical illuminance into windows before curfew are below the values recommended by the ILE. Daytime visual impact will also be minimised by using slimline masts & light grey floodlights which do not stand out against the skyline.

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

<b>Light Source</b>	<b>Horizontal Lux</b>
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

Once installed the APEX series light control system will provide the optimum sports lighting solution, ensuring that light reaches the sports surface & not into the sky or polluting the environment.

Direct Sports Lighting are world leaders in the design & manufacture of low pollution exterior lighting solutions. For further information regarding Direct Sports Lighting low light pollution products please contact our Head Office on 0845 643 0722 or visit our Web Site [www.directsportslighting.co.uk](http://www.directsportslighting.co.uk)

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