Project Name - David Lloyd Club – Northwood

Lighting - External Padel courts

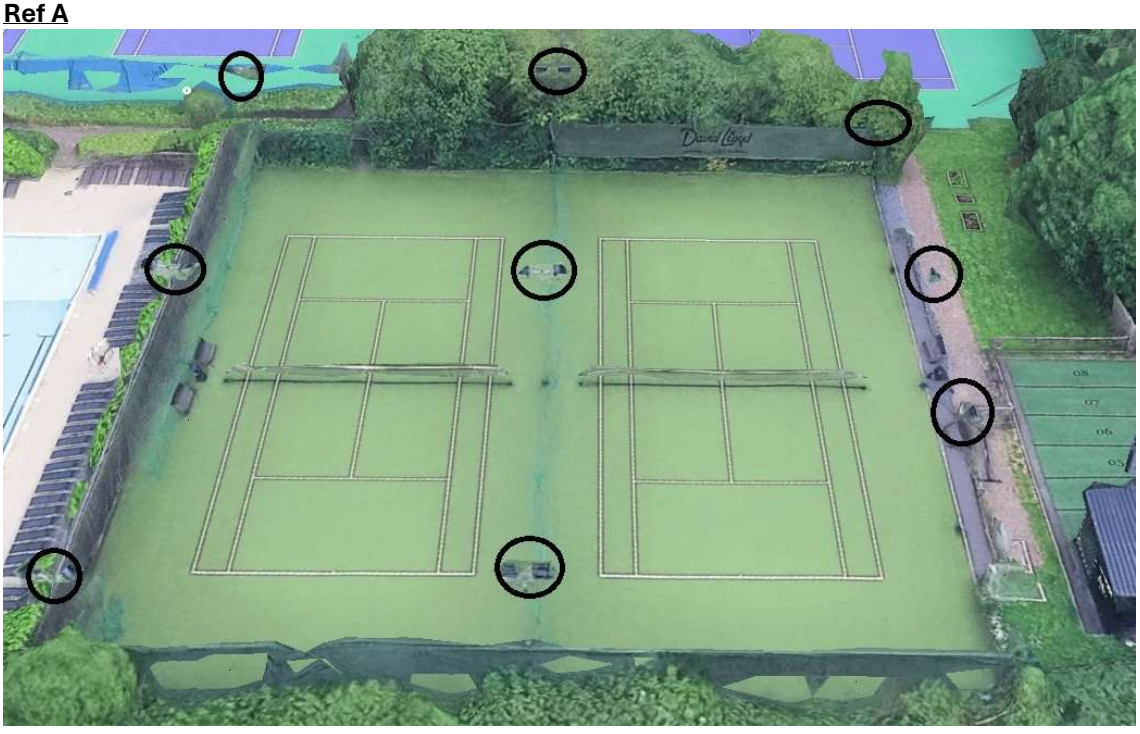
Date – 07th March 2024

Objective:

It is proposed to replace two existing tennis courts with three padel courts at the DLC Northwood site. Two open padel courts and one padel court covered by a polycarbonate canopy to the South of the site.

The proposals will involve removing the existing tennis court floodlighting infrastructure of twin head luminaires on tall (8m – 10m) columns. **Ref A** shows the existing tennis court column and floodlight arrangement and positions.

Ref A



The intention is to install 4 floodlights per padel court, on columns that are part of the court frame infrastructure at a height of 6m, the minimum height recommended by the Lawn tennis association. This is a widely used arrangement recommended by the LTA and successfully installed at many existing sites with no issues.
The floodlights will have asymmetric light distribution optics and installed in a flat glass mounting position with no tilt angle, avoiding direct view of the light source for remote observers and therefore providing no direct upward light distribution.

The padel courts have been designed to meet the recommendations of the Lawn Tennis Association guidance for padel, i.e. 300 lux maintained average and 0.5 uniformity – for regional competition, schools and recreation.
The British standard BS EN 12193:2018 Light and Lighting – Lighting for sports recommends 300 lux maintained average and 0.6 uniformity for outdoor padel courts, for class 3 local, training and recreational / school sports.
The provided calculations show that the court lighting designs achieve over 300 lux and 0.6 uniformity on each court.

BS EN 12193: 2018 also recommends a maximum permitted glare rating value (RG) of 55 for external padel courts. High brightness light sources can cause discomfort or even disability glare. These effects depend on the position of these sources in the player's field of view in the game.

The provided calculation based on 5 different positions on 1 court (all courts being the same) shows that a maximum RG value of 36.1 is achieved, well within the maximum permitted value of RG 55. However the metric for RG is only relevant to a height of over 10m. (See calculation: LS0807-DLC NORTHWOOD PADEL COURTS).

The floodlights are 4000k, 50,000 hour rated and a colour rendering index of Ra 80, well above the minimum recommendations of Ra 60 given in the British Standard.
The LTA padel court guidelines also recommend that a maintenance factor of 0.9 should be used in calculations to reduce the effects of over lighting.

Considerations:
Drawing: **LS0786-DLC-N-EX-DWG-P01** shows the illuminance values and isolines both on and off site from the proposed padel court floodlight luminaires. The values do not allow for barriers to the light distribution from barriers such as fences, trees or shrubbery.

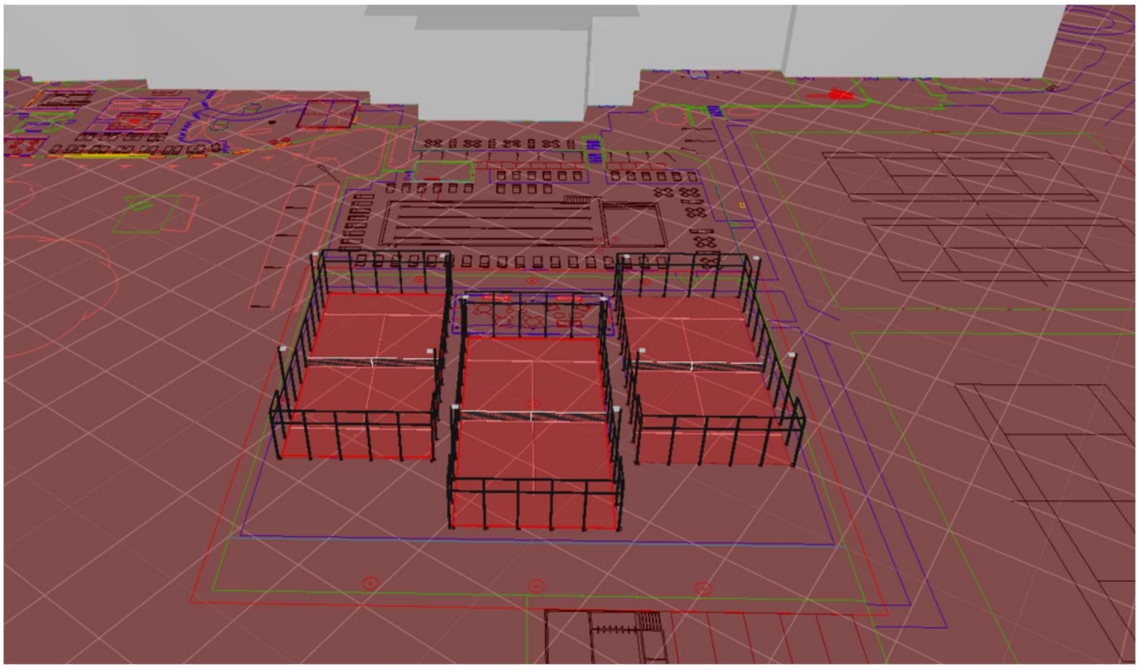
As a comparison, drawing: **LS0807-DLC-N-EXT-DWG-P01** indicates the illuminance distribution on and off site from the existing tennis court flood lighting. The proposed padel court lighting will offer lower column heights, reduced wattage floodlights, LED light sources to negate UV elements harmful to insects, reduced colour temperature of the light source and is expected to reduce and have minimal negative impacts to the surrounding landscape.

The David Lloyd site is predominantly flat. The South side where the courts are to be positioned is shielded by dense rows of mature trees and hedgerows which will further mitigate any light spill off site, see **Ref A**

Ref A

There are four luminaires per court and these are mounted on 6m columns to the padel frame. The luminaires are mounted with no tilt angle using the latest asymmetric sports led flood lights with a colour temperature of 4000k, using 225watts power per fitting making a total of 900w per court. For reference the luminaires are wattage switchable and can be pre-set to 150watt, 225watt (as designed) or 300watt, allowing lux level changes to be made, if required, see **Ref C**

Ref C



The padel courts have been designed sensitively to minimise any impact from the lighting to the surrounding areas, using the asymmetric flood lights, minimising light spill off site and no direct upwards light (ULOR) with the luminaires being mounted horizontally with no upwards tilt.

The illuminance values and isolines on the drawings **LS0786-DLC-N-EX-DWG-P01** do not take into account any barriers to the light distribution from fencing, dense trees or undergrowth which exist on site.

The lighting would also be subject to a curfew so that there would be no operation past an agreed time and the lighting would be switched off, minimising any impact to bats which in the main are night feeders.

Summary

In summary, the lighting design has been undertaken in accordance to current guidelines and to accepted procedures for padel court lighting, minimising the impact to the adjacent Fauna & Flora and landscape and much reduced impact when compared to the existing tennis court installation.

The Luminaires are producing 4000k as recommended in the external sports lighting guidelines (Min 3000k – Ref CIBSE / Society of Light and Lighting LG04 – Lighting for sports) to maximise the players visibility. Glare limits achieved and maintenance factors used in the calculations follow guidelines. Curfew times will further restrict any impact of the lighting.