| Lee Valley Regional Park Authority | Agenda Item No: |
|---|---|
| **LEE VALLEY REGIONAL PARK AUTHORITY** | **7** |
| **EXECUTIVE COMMITTEE** | **Report No:** |
| **23 FEBRUARY 2023 AT 10:30** | **E/802/23** |

# PROPOSED CAPITAL LED LIGHTING INVESTMENT AT LEISURE SERVICE CONTRACT VENUES

Presented by Corporate Director

## EXECUTIVE SUMMARY

This paper provides Members with the background and specific information on the new Leisure Service Contract proposed LED Lighting Spend to Save investments at:

- Lee Valley Athletics Centre (LVAC);
- Lee Valley Hockey & Tennis Centre (LVHTC);
- Lee Valley White Water Centre (LVWWC); and
- Lee Valley Riding Centre (LVRC).

The project would reduce electricity consumption at these venues thereby reducing energy costs.

As part of Leisure Service Contract procurement process the Authority committed to continually invest in its world class Venues, encouraging bidders to propose innovative investment solutions over the initial 10 year contract duration.

Authority Officers have been working with its Leisure Service Contract operator, Greenwich Leisure Ltd (GLL) since contract commencement on the first phase of investments. These investments have undergone a rigorous process of due diligence to ensure these proposals meet with the priority outcomes as set out within the Leisure Service Contract:

- deliver a sustainable partnership with a forward thinking, adaptable contractor;
- ensure the long term viability of all facilities;
- reduce the reliance on the levy and tax payers within the Lee Valley region; and
- fulfil the requirements of the Authority's Strategic Aims.

Previous phase 1 investment projects at Lee Valley Athletics Centre and Lee Valley Riding Centre have already been approved by Members (Paper E/796/23) and the spend to save investments included within this report will close phase 1 of the investment projects at the Leisure Service Contract venues.

It is proposed that Members consider the Authority making a financial capital commitment into the project totalling £1,522,223 for refurbishment of the lighting systems at Lee Valley Athletics Centre (£537,770), Lee Valley Hockey & Tennis

Centre (£706,103), Lee Valley White Water Centre (£102,263) and Lee Valley Riding Centre (£61,374), the details of which are set out in this report.

## RECOMMENDATION

Members Approve: (1) inclusion within the capital programme of £1,522,223 for LED lighting upgrades at the Leisure Service Contract venues.

## BACKGROUND

1 During the Leisure Services Contract (LSC) procurement the Authority committed to invest into the venues in partnership with the eventual operator to maintain their world class status, their relevance and to continually improve the management fee position. Since the commencement of the LSC GLL have worked with Authority officers on the first phase of investment projects.

2 The Authority committed to upgrading the Lee Valley VeloPark indoor arena lighting to LED pre transfer ahead of the Commonwealth Games with works completed in May 2022.

3 Previous phase 1 investment projects at LVAC and LVRC have already been approved by Members (Paper E/796/23) and the spend to save investments included within this report will close phase 1 of the investment projects at the LSC venues.

4 The Authority has seen exceptional increases in the price of electricity (+100%) and gas (+400%) following the ending of its two year fixed agreement with Laser (public bodies energy procurement consortium) in October 2022. Given these rises and the potential for further rises in October 2023, when the current fixed price agreement expires, Authority officers have been working with GLL to secure reductions in energy consumption.

5 Alongside operational measures to reduce energy consumption the Authority asked GLL to identify spend to save schemes. The proposed spend to save schemes have been developed in consultation with the Authority.

6 The Authority holds the utilities tariff risk for the LSC venues for years 1 and 2. During the final 6 months of the open book cost arrangement the two parties will agree how to deal with years 3 to 10 in terms of utility risk (currently in the contract it is 100% GLL on Tariff).

7 The two year fixed term deal novated from the Authority, under which the average cost of electricity across Venues was about £0.13 per KWH, ended in September 2022. The cost of electricity in the new one year fixed term deal to September 2023 has increased to £0.27 per KWH which, based on current consumption, would cost an additional £0.8million per annum. The cost of electricity is forecast to increase to £0.32 per KWH from 1 October 2023 which, based on current consumption, will cost an additional £1.1million. These prices are currently being subsidised by the Government's Energy Bill Relief Scheme and from October 2023 by the Energy Bills Discount Scheme.

8 The current lighting systems were installed as part of the original build and reflected modern technology at that time. Lighting technology and controls have improved greatly with the option of LED lighting, which provides longer life

lamps and requires lower wattage lamps to provide enhanced lighting levels. Alongside technological advances, a number of the lighting fittings and controls have become obsolete with difficulty in sourcing spares and servicing.

9 The ability to control lighting levels and to have different lighting in certain areas is also severely restricted. This means areas such as Hockey pitches are currently above spec in terms of lux levels for training/matches, which results in higher than necessary illumination and consumption. In addition, currently floodlights for individual outdoor tennis courts cannot be turned on without the lights on the two adjacent courts also coming on.

10 The LED lighting upgrades align with the Authority's commitment to becoming a greener organisation and ambition to work towards net zero for our buildings where possible.

**OUTLINE OF THE IMPROVEMENTS**

11 The improvements will consist of:

- replacing old high bay, high energy fittings with more energy efficient LED replacements utilising the latest technologies;
- ensuring lighting outputs are in line with Sport England guidance;
- ensuring guidance fittings meet the required IP and IK Protection (dust, dirt and moisture Ingress Protection & Impact Protection) for the intended purpose; and
- improving the existing switching or controls to minimise usage.

12 The areas to be considered at each venue are:

**LVHTC**

- Indoor Tennis Courts
- Outdoor Tennis Courts
- Hockey Pitches flood lighting

13 **LVWWC**

- External Floodlighting
- Ground Floor – Main Building
- First Floor – Main Building (excluding Meeting Room area which is currently being redeveloped and incorporates LED lighting)

14 **LVRC**

- Indoor Arena Lighting
- Outdoor Arena Lighting
- Car Park Lighting
- Livery Yard Lighting
- School Yard Lighting
- External Building Lighting

15 **LVAC**

- Outdoor Track Floodlights
- Car Park Lighting (outside of red line but runs off of LVAC main meter)
- East Wing (outside of red line but sub metered from main meter)
- Indoor Track and throws area
- Upper Sprint Straight

- (excludes areas covered by gym, access, studio and changing rooms investment project)

**PROJECT TIMELINE**

16 Works will be completed over the course of the summer around key event dates such as the Pro-League at LVHTC and the Slalom World Championships at LVWWC.

17 GLL's Regional Facilities Manager will project manage the works and liaise with local management teams to minimise disruption to service.

18 If Members approve the recommendation of this report a project team will be formed consisting of the key Authority and GLL officers from:

- Facility Management;
- Operations; and
- Maintenance.

This project team will ensure there is full agreement on proposed timescales and GANTT responsibility areas and set milestones. All drawings, decisions, sign off etc. associated with the project will be made by the Corporate Director.

**FINANCIAL**

19 As per the LSC agreement, the Authority will provide the capital investment for the project to GLL and can chose to either deliver the project directly or to require GLL to deliver the project under the LSC. It is recommended that GLL manage the installations and purchasing of equipment, but the Authority signs off the works before any orders are placed. The new LED systems will be owned by the Authority and GLL will have no right to remove LED systems at the end of the contract (or if the venue is removed from the LSC and GLL cease to be the operator for the venue sooner).

20 Total capital required is **£1,522,223** broken down as follows.

| Description | Cost (Net) |
|---|---|
| **Lee Valley Hockey & Tennis Centre Lighting Upgrade:**<br>Indoor Tennis Courts<br>Outdoor Tennis Courts<br>Hockey Pitches flood lighting | £706,103 |
| **Lee Valley White Water Centre Lighting Upgrade:**<br>External Floodlighting<br>Ground floor – Main Building<br>First Floor – Main Building (Excluding Meeting Room Area which is currently being redeveloped) | £102,263 |
| **Lee Valley Riding Centre**<br>Indoor Arena Lighting<br>Outdoor Arena Lighting<br>Car Park Lighting<br>Livery Yard Lighting<br>School Yard Lighting<br>External Building Lighting | £61,374 |

| | |
|---|---|
| **Lee Valley Athletics Centre**<br>Outdoor Track Floodlights<br>Car Park Lighting (Outside of red line but runs off of LVAC main meter)<br>East Wing (Outside of red line but sub metered from main meter)<br>Indoor Track and throws area<br>Upper Sprint Straight<br>Excludes areas covered by gym, access, studio and changing rooms investment project | £537,770 |
| Contingency 5% | £70,376 |
| **Subtotal** | **£1,477,886** |
| Project management charge (3%) | £44,337 |
| **Total** | **£1,522,223** |

21 The measured consumption reduction following the carrying out of the projects will be compared to 2022 consumption adjusted for any programme changes and used to determine the financial saving achieved in contract year 2023/24 onwards. If the calculated saving reduces the electricity cost below that stated in the Leisure Operator's Base Trading Account (LOBTA) then the annual payment under the LSC will be adjusted to reflect the saving.

22 The projected financial savings have been calculated on the basis of the annual consumption savings for each venue (as detailed in Appendix A to this report) multiplied by the electricity tariff rates (as detailed in Appendix B to this report). The projected payback period of these projects has been calculated as 8.1 years based on net capital costs and at current and known future prices/kwh. It is noted that should energy costs fall by say 50% then payback periods will increase by 100% (16.2 years) this is broken down as follows:

| Venue | Capital Cost (Net) | 2023/24 Projected Saving | Future Years Projected Saving | Payback Period |
|---|---|---|---|---|
| Lee Valley Hockey and Tennis Centre | £706,103 | £94,388 | £102,387 | 7 years |
| Lee Valley White Water Centre | £102,263 | £15,452 | £16,762 | 6.2 years |
| Lee Valley Riding Centre | £61,374 | £17,361 | £18,832 | 3.3 years |
| Lee Valley Athletics Centre | £537,770 | £33,872 | £36,743 | 14.7 years |
| **TOTAL** | **£1,407,510** | **£161,073** | **£174,724** | **8.1 years** |

23 Appendices A and B to this report provide further detail on the projected savings.

24 Financing of the project can come from a number of different sources:

- existing Authority capital receipts;
- internal borrowing;
- external borrowing;
- external support funding and/or grants;
- or a combination of the above.

In the absence of support grants, with support from GLL being restricted to savings in the LSC Management Fee, then other options need to be considered.

Both internal and external borrowing will result in an annual charge to revenue in the form of Minimum Revenue Provision (MRP), to cover the cost of capital, plus in the case of external borrowing, interest.

Funding from capital receipts will not result in a charge to revenue, but will see a reduction in capital receipts available to finance future projects.

Both internal borrowing and use of capital receipts will result in a reduction to available cash the Authority holds and the opportunity to generate investment income.

25 The cost of borrowing the full £1.522million is calculated with interest at £1.776million over 8 years, based on Public Works Loan Board (PWLB) rates on 6 February 2023.

Two of the other projects individually could also be financed by external borrowing – LVHTC £0.810million over 7 years, and LVAC £0.696m over 14.5 years.

The following table displays the revenue implications of external borrowing for 2023/24, none of which has been included in the approved budget.

| | Loan £m | Term Years | Total Charge £m | Minimum Revenue Provision £000s | Interest £000s |
|---|---|---|---|---|---|
| Total | 1.522 | 8 | 1.776 | 190 | 58 |
| LVHTC | 0.706 | 7 | 0.810 | 101 | 27 |
| LVAC | 0.538 | 14.5 | 0.696 | 37 | 21 |

Internal borrowing would attract MRP only.

26 It is officer's recommendation that the project is financed from existing capital receipts, to prevent the need for any charge to revenue. However, as identified in the Capital Budget report (Paper E/793/23), Members should consider that direct capital financing from revenue will be required to support the future capital, either in the form of contributions, or internal and external borrowing.

27 Authority officers are currently conducting further analysis of the specific venue consumption and savings. The outcome of this analysis may mean that a reduction of works is agreed to be the best use of Authority resources.

## ENVIRONMENTAL IMPLICATIONS

28 The environmental implications of this project directly relate to the reduction in

the venues' electricity consumption and consequently the carbon footprint reduction.

The estimated figures in Appendix A to this report show the carbon emissions reduction and it can be seen that in the case of LVHTC alone there is a reduction of nearly 400 tonnes/year. Across all four venues the total reduction is approximately 670 tonnes/year. In terms of energy reduction, based on the early performance of the new LED lights at Lee Valley VeloPark there could be up to 50% reduction in consumption. This will not be fully understood until the projects are installed and monitoring of performance starts to take place. As part of the re-benchmarking exercise monthly consumption figures are submitted and analysed by Authority officers, which will form the basis of the figures used to set the level on consumption and spend for years 3-10 of the LSC.

29 Members will be aware that the Authority is seeking to adopt an Environmental Policy and reducing the Authority's energy consumption and carbon footprint is key for which this proposed project would greatly contribute towards.

## FINANCIAL IMPLICATIONS

30 The financial implications of this project are covered in the Financial section of this report.

## HUMAN RESOURCE IMPLICATIONS

31 Authority officers will be required to sit on the project team and Authority sign-off of any decision will be required by the Authority's Representative as per the LSC.

## LEGAL IMPLICATIONS

32 These investment projects will be subject to Schedule 21 of the LSC Control Change Protocol and this will allow the agreed financial arrangements to be formally documented. The Authority will also need to grant its consent to internal alterations under the leases.

## RISK MANAGEMENT IMPLICATIONS

33 There are no risk management implications arising directly from the recommendations in this report.

## EQUALITY IMPLICATIONS

34 There are no equality implications arising directly from the recommendations in this report.

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## BACKGROUND REPORTS

None

## APPENDICES ATTACHED

| | |
|---|---|
| Appendix A | Projected Consumption Reduction and Key Assumptions – Venue by Venue |
| Appendix B | Projected Consumption Saving |

## LIST OF ABBREVIATIONS

| | |
|---|---|
| the Authority | Lee Valley Regional Park Authority |
| GLL | Greenwich Leisure Limited |
| Leisure Services Contract (LSC) | Leisure Operating Contract between the Lee Valley Regional Park Authority and Greenwich Leisure Limited dated 31 March 2022 |
| LOBTA | Leisure Operator's Base Trading Account, the financial model agreed to in the LSC. |
| LVAC | Lee Valley Athletics Centre |
| LVHTC | Lee Valley Hockey & Tennis Centre |
| LVWWC | Lee Valley White Water Centre |
| LVRC | Lee Valley Riding Centre |

# Projected Consumption Reduction and Key Assumptions

**Lee Valley Hockey & Tennis** — **LIGHTING AUDIT ANALYSIS**

## EXISTING LIGHTING INSTALLATION

| Facility Area | Burning Hours per Day | Burning Days per week | Existing Fittings | Existing Connected Load per fitting (W) | No. of fittings | Total Existing Connected Load (kW) | Total existing kWh p.a. | Existing Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. existing fittings |
|---|---|---|---|---|---|---|---|---|---|
| External Tennis Courts | 1.6 | 7 | 2KW Metal Halide | 2400 | 36 | 86 | 50919.36 | £ 2,000 | £ 13,586 |
| Hockey Pitch 2 | 2.5 | 7 | 2KW Metal Halide | 2400 | 48 | 115 | 104832 | £ 2,000 | £ 28,305 |
| Indoor Tennis Courts | 4.0 | 7 | 4x80w Fluorescent | 384 | 88 | 34 | 49201.152 | £ 1,000 | £ 13,284 |
| Hockey Pitch 1 | 2.5 | 7 | 2KW Metal Halide | 2400 | 160 | 384 | 349440 | £ 2,000 | £ 94,349 |
| TOTAL | | | | | 332 | 619 | 553793 | £ 7,000.00 | £ 149,524 |

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## PROPOSED LED LUMINEUX SOLUTION

| Facility Area | Burning Hours per Day | Burning Days per week | Proposed Fitting | Connected Load per fitting (W) | Proposed No. of fittings | Total Proposed Connected Load (kW) | % Saving Benefit from Occupancy | Total Proposed kWh p.a | Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. |
|---|---|---|---|---|---|---|---|---|---|---|
| External Tennis Courts Fitting 1 | 1.6 | 7 | 1650w Carslogton Plus | 1650 | 8 | 13.2 | 30 | 5381 | | £ 1,453 |
| External Tennis Courts Fitting 2 | 1.6 | 7 | 1360w Carslogton Plus | 1360 | 16 | 21.8 | 30 | 8871 | | £ 2,395 |
| Hockey Pitch 2 | 2.5 | 7 | 2600w Carslogton Plus | 2600 | 24 | 62.4 | 0 | 56784 | | £ 15,332 |
| Indoor Tennis Courts | 4.0 | 7 | 180w Belmont Tri-Smart | 180 | 62 | 11.2 | 30 | 11374 | | £ 3,071 |
| Hockey Pitch 1 | 2.5 | 7 | 2600w Carslogton Plus | 2600 | 64 | 166.4 | 0 | 151424 | | £ 40,884 |
| TOTAL | | | | | 174 | 275 | | 233835 | £ - | £ 63,135 |

## SUMMARY INFORMATION

Carbon emission calculations are based on the Carbon Trusts recommendations 0.54kg/CO2/Kwh of electricity produced

| UNIT PRICE PER kWh | PROJECTED % kWh SAVINGS | PROJECTED % COST SAVINGS | CO2 SAVING TONNES |
|---|---|---|---|
| £0.27000 | 69% | 70% | 396.8 |

**Lee Valley White Water Rafting** **LIGHTING AUDIT ANALYSIS**

## EXISTING LIGHTING INSTALLATION

| Facility Area | Burning Hours per Day | Burning Days per week | Existing Fittings | Existing Connected Load per fitting (W) | No. of fittings | Total Existing Connected Load (kW) | Total existing kWh p.a. | Existing Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. existing fittings |
|---|---|---|---|---|---|---|---|---|---|
| Car Park & Street Lighting | 3 | 7 | 1x70w Sox | 84 | 62 | 5 | 5887.136 | £ 500 | £ 1,536 |
| Marina Floodlights | 1 | 7 | 400w MH | 480 | 14 | 7 | 2446.08 | £ 500 | £ 650 |
| Main Building Internal | 6 | 7 | 2x26w | 64 | 120 | 8 | 16773.12 | £ 500 | £ 4,529 |
| Deck Area | 1 | 7 | 150w TH | 150 | 6 | 1 | 327.6 | £ 100 | £ 88 |
| Yard Area | 3 | 7 | 4x42w CFL | 201.6 | 10 | 2 | 2201.472 | £ 100 | £ 594 |
| Changing Rooms 1-8 | 6 | 7 | 4x40w CFL | 192 | 48 | 9 | 20127.744 | £ 500 | £ 5,434 |
| Drying Room | 4 | 7 | 2x80 FL | 192 | 3 | 1 | 839.686 | | £ 226 |
| Courtyard | 2 | 7 | 1x70w FL | 84 | 9 | 1 | 550.368 | £ 100 | £ 149 |
| Rafting Course | 1 | 7 | 1000w MH | 1200 | 32 | 38 | 13977.6 | £ 1,000 | £ 3,774 |
| Batcave | 3 | 7 | 2x49w FL | 117.6 | 14 | 2 | 1797.8688 | £ 200 | £ 486 |
| Storage Area Bins | 4 | 7 | 2x49w CFL | 117.6 | 2 | 0 | 342.4512 | | £ 92 |
| Catering Store | 4 | 7 | 2x49wCFL | 117.6 | 2 | 0 | 342.4512 | | £ 92 |
| Undertiang Perimeter | 2 | 7 | 1x42wCFL FL | 50.4 | 24 | 1 | 880.6848 | £ 200 | £ 238 |
| TOTAL | | | | | 348 | 75 | 66219 | £ 3,700.00 | £ 17,899 |

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## PROPOSED LED LUMINEUX SOLUTION

| Facility Area | Burning Hours per Day | Burning Days per week | Proposed Fitting | Connected Load per fitting (W) | Proposed No. of fittings | Total Proposed Connected Load (kW) | % Saving Benefit from Occupancy | Total Proposed kWh p.a | Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. |
|---|---|---|---|---|---|---|---|---|---|---|
| Car Park & Street Lighting | 3 | 7 | LED Streetlight | 30 | 62 | 1.9 | 0 | 2031 | | £ 551 |
| Marina Floodlights | 1 | 7 | 200w Flood | 200 | 14 | 2.8 | | 1019 | | £ 275 |
| Main Building Internal | 6 | 7 | 16w BL DL | 10 | 120 | 1.2 | 30 | 1835 | | £ 495 |
| Deck Area | 1 | 7 | 50w FP | 50 | 6 | 0.3 | | 109 | | £ 29 |
| Yard Area | 3 | 7 | 50w FP PIR | 50 | 10 | 0.5 | 0 | 546 | | £ 147 |
| Changing Rooms 1-8 | 6 | 7 | 43w HC MW | 43 | 48 | 2.1 | 30 | 3155 | | £ 852 |
| Drying Room | 4 | 7 | 43w HC MW | 43 | 3 | 0.1 | 30 | 131 | | £ 35 |
| Courtyard | 2 | 7 | 28w HC | 28 | 9 | 0.2 | 0 | 131 | | £ 35 |
| Rafting Course | 1 | 7 | 400w Flood | 400 | 32 | 12.8 | | 4659 | | £ 1,259 |
| Batcave | 3 | 7 | 28w HC | 28 | 14 | 0.3 | 30 | 214 | | £ 58 |
| Storage Area Bins | 4 | 7 | 28w HC | 28 | 2 | 0.0 | 30 | 41 | | £ 11 |
| Catering Store | 4 | 7 | 28w HC | 28 | 2 | 0.0 | 30 | 41 | | £ 11 |
| Underhang Perimeter | 2 | 7 | 28w HC | 28 | 24 | 0.5 | 0 | 349 | | £ 94 |
| TOTAL | | | | | 322 | 22 | | 13918 | £ - | £ 3,759 |

## SUMMARY INFORMATION

Carbon emission calculations are based on the Carbon Trusts recommendations 0 54kg/CO2/Kwh of electricity produced

| UNIT PRICE PER kWh | PROJECTED % kWh SAVINGS | PROJECTED % COST SAVINGS | CO2 SAVING TONNES |
|---|---|---|---|
| £0.27000 | 81% | 84% | 39.3 |

**Lee Valley Riding Centre** — **LIGHTING AUDIT ANALYSIS**

## EXISTING LIGHTING INSTALLATION

| Facility Area | Burning Hours per Day | Burning Days per week | Existing Fittings | Existing Connected Load per fitting (W) | No. of fittings | Total Existing Connected Load (kW) | Total existing kWh p.a. | Existing Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. existing fittings |
|---|---|---|---|---|---|---|---|---|---|
| Arena 2 | 4.0 | 7 | 1000w HID | 1200 | 12 | 14.4 | 20966.4 | £ 500 | £ 5,861 |
| Arena 1 | 4.0 | 7 | 1000w HID | 1200 | 16 | 19.2 | 27955.2 | £ 500 | £ 7,548 |
| Car Park Fitting 1 | 4.0 | 7 | 400w Son | 480 | 8 | 3.8 | 5591.04 | £ 100 | £ 1,510 |
| Car Park Fitting 2 | 4.0 | 7 | 70w Son | 84 | 4 | 0.3 | 489.216 | £ 100 | £ 132 |
| Building Front External Fitting 1 | 4.0 | 7 | 70w Son | 84 | 5 | 0 | 611.52 | £ - | £ 165 |
| Building Front External Fitting 2 | 4.0 | 7 | 500w Halogen | 500 | 1 | 0.6 | 728 | £ - | £ 197 |
| Hayban | 8.0 | 7 | 400w Son | 480 | 1 | 0.5 | 1397.76 | £ - | £ 377 |
| Solarium & Wash Area | 8.0 | 7 | 2x58w Fluorescent | 139.2 | 4 | 0.6 | 1621.4016 | £ - | £ 438 |
| American Barn | 8.0 | 7 | 1x70w Fluorescent | 84 | 30 | 2.5 | 7338.24 | £ 500 | £ 1,981 |
| Livery Yard Stables 1-30 | 8.0 | 7 | 2x58w Fluorescent | 139.2 | 30 | 4 | 12160.512 | £ 250 | £ 3,283 |
| Troogers Wing Stables 1-5 | 8.0 | 7 | 1x70w Fluorescent | 84 | 5 | 0 | 1223.04 | £ - | £ 330 |
| Wooden Yard Stables 1-15 | 8.0 | 7 | 1x70w Fluorescent | 84 | 16 | 1.3 | 3913.728 | £ 250 | £ 1,057 |
| TOTAL | | | | | 132 | 46 | 83956 | £ 2,200.00 | £ 22,679 |

## PROPOSED LED LUMINEUX SOLUTION

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| Facility Area | Burning Hours per Day | Burning Days per week | Proposed Fitting | Connected Load per fitting (W) | Proposed No. of fittings | Total Proposed Connected Load (kW) | % Saving Benefit from Occupancy | Total Proposed kWh p.a | Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. |
|---|---|---|---|---|---|---|---|---|---|---|
| Arena 2 | 4.0 | 7 | 600w Carsington Plus | 600 | 12 | 7.2 | 0 | 10483 | | £ 2,830 |
| Arena 1 Fitting 1 | 4.0 | 7 | 300w Frenby Plus | 300 | 12 | 3.6 | 0 | 5242 | | £ 1,415 |
| Arena 1 Fitting 2 | 4.0 | 7 | 400w Frenby Plus | 400 | 4 | 1.6 | 0 | 2330 | | £ 629 |
| Car Park Fitting 1 | 4.0 | 7 | 150w Frenby Plus | 150 | 8 | 1.2 | 0 | 1747 | | £ 472 |
| Car Park Fitting 2 | 4.0 | 7 | 30w Streetlight | 30 | 4 | 0.1 | 0 | 175 | | £ 47 |
| Building Front External Fitting 1 | 4.0 | 7 | 22w Harworth Wall Pack | 22 | 5 | 0.1 | 0 | 160 | | £ 43 |
| Building Front External Fitting 2 | 8.0 | 7 | 50w Frenby PIR | 50 | 1 | 0.1 | 0 | 146 | | £ 39 |
| Hayban | 8.0 | 7 | 30w Typhoon NIC | 30 | 3 | 0.1 | 0 | 262 | | £ 71 |
| Solarium & Wash Area | 8.0 | 7 | 20w Typhoon NIC PIR | 20 | 4 | 0.1 | 30 | 163 | | £ 44 |
| American Barn | 8.0 | 7 | 20w Typhoon NIC | 20 | 30 | 0.6 | 0 | 1747 | | £ 472 |
| Livery Yard Stables 1-30 | 8.0 | 7 | 30w Typhoon NIC Switched | 30 | 30 | 0.9 | 30 | 1835 | | £ 495 |
| Troogers Wing Stables 1-5 | 8.0 | 7 | 20w Typhoon NIC Switched | 20 | 5 | 0.1 | 30 | 204 | | £ 55 |
| Wooden Yard Stables 1-15 | 8.0 | 7 | 20w Typhoon NIC Switched | 20 | 16 | 0.3 | 30 | 652 | | £ 176 |
| TOTAL | | | | | 134 | 16 | | 25143 | £ | £ 6,789 |

## SUMMARY INFORMATION

Carbon emission calculations are based on the Carbon Trusts recommendations 0.54kg/CO2/Kwh of electricity produced

| UNIT PRICE PER kWh | PROJECTED % kWh SAVINGS | PROJECTED % COST SAVINGS | CO2 SAVING TONNES |
|---|---|---|---|
| £0.27000 | 73% | 75% | 42.0 |

**Lee Valley Athletics Centre** — **LIGHTING AUDIT ANALYSIS**

## EXISTING LIGHTING INSTALLATION

| Facility Area | Burning Hours per Day | Burning Days per week | Existing Fittings | Existing Connected Load per fitting (W) | No. of fittings | Total Existing Connected Load (kW) | Total existing kWh p.a. | Existing Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. existing fittings |
|---|---|---|---|---|---|---|---|---|---|
| Main Walkway | 28 | 7 | 1x36w 2D | 45.6 | 52 | 2.4 | 3416.72704 | £ 300 | £ 653 |
| East Wing | 28 | 7 | 2x36w | 84 | 22 | 1.8 | 1883.4816 | £ 200 | £ 809 |
| Gold Medal Room Fitting 1 | 28 | 7 | 50w GU10 | 58 | 7 | 0.4 | 358.72 | £ 50 | £ 96 |
| Gold Medal Room Fitting 1 | 28 | 7 | 28w 2D | 33.6 | 1 | 0.0 | 34.24512 | | £ 9 |
| Outdoor Running Track | 17 | 7 | 2000w HID | 2400 | 36 | 86 | 53464.32 | £ 1,000 | £ 14,435 |
| Gold Room | 28 | 7 | 60w | 80 | 24 | 1.2 | 1229.04 | £ 200 | £ 330 |
| Entrance | 28 | 7 | 1x80 | 96 | 9 | 0.9 | 880.5888 | £ 200 | £ 238 |
| Car Park | 80 | 7 | 70w Son | 84 | 72 | 6.0 | 17611.776 | £ 500 | £ 4,755 |
| Canteen | 28 | 7 | 1x58w | 69.6 | 2 | 0.1 | 141.87264 | | £ 38 |
| 1st Floor Spare Track | 28 | 7 | 2x70w Fluorescent | 168 | 120 | 20 | 20547.072 | £ 1,000 | £ 5,548 |
| Indoor Running Track | 28 | 7 | 3x70w Fluorescent | 252 | 238 | 60 | 61127.5392 | £ 1,000 | £ 16,504 |
| Refuge Area | 28 | 7 | 1x36w 2D | 45.6 | 4 | 0.2 | 185.90208 | | £ 50 |
| TOTAL | | | | | 587 | 199 | 199873 | £ 4,350.00 | £ 43,166 |

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## PROPOSED LED LUMINEUX SOLUTION

| Facility Area | Burning Hours per Day | Burning Days per week | Proposed Fitting | Connected Load per fitting (W) | Proposed No. of fittings | Total Proposed Connected Load (kW) | % Saving Benefit from Occupancy | Total Proposed kWh p.a | Maintenance Cost (Lamps/ Labour) | Total Running Cost £ p.a. |
|---|---|---|---|---|---|---|---|---|---|---|
| Main Walkway | 28 | 7 | 16w Helvetian NW | 16 | 52 | 0.8 | 0 | 649 | | £ 329 |
| East Wing | 28 | 7 | 27w Glim NW | 27 | 22 | 0.6 | 30 | 424 | | £ 114 |
| Gold Medal Room | 28 | 7 | 14w Ringgle | 14 | 5 | 0.1 | 30 | 50 | | £ 13 |
| Outdoor Running Track | 17 | 7 | 136w Carnegie Plus | 136 | 36 | 49.0 | | 30296 | | £ 8,169 |
| Gold Room | 28 | 7 | 58w Glim NW | 58 | 2 | 0.1 | 20 | 82 | | £ 22 |
| Entrance | 28 | 7 | 27w Sutton NW | 27 | 9 | 0.2 | 30 | 173 | | £ 47 |
| Car Park | 80 | 7 | 90w Streetlight | 90 | 72 | 2.2 | 0 | 6290 | | £ 1,698 |
| Canteen | 28 | 7 | 58w Glim NW | 58 | 1 | 0.1 | 30 | 36 | | £ 10 |
| 1st Floor Spare Track | 28 | 7 | 50w Glim Step Dw | 59 | 120 | 6.9 | 30 | 4281 | | £ 1,155 |
| Indoor Running Track | 28 | 7 | 180w Belvard LED | 180 | 168 | 30.2 | 30 | 21574 | | £ 5,825 |
| Refuge Area | 28 | 7 | 16w Helvetian NW | 16 | 4 | 0.1 | 30 | 45 | | £ 12 |
| TOTAL | | | | | 491 | 89 | | 64899 | £ - | £ 17,387 |

## SUMMARY INFORMATION

Carbon emission calculations are based on the Carbon Trusts recommendations 0.54kg/CO2/Kwh of electricity produced

| UNIT PRICE PER kWh | PROJECTED % kWh SAVINGS | PROJECTED % COST SAVINGS | CO2 SAVING TONNES |
|---|---|---|---|
| 0.27000 | 67% | 64% | 189.3 |

## Contract Year 2023/24 Projected Consumption Saving

| | Annual Consumption Saving (KWH) | April to Sept 2023 Tariff | Sept to March 2024 Tariff | April to Sept 2023 Projected Saving | Sept to March 2024 Projected Saving | April 2023 to March 2024 Projected Saving | Future Years Projected Saving |
|---|---|---|---|---|---|---|---|
| LV Hockey and Tennis Centre | 319,958 | £0.27 | £0.32 | £43,194 | £51,193 | £94,388 | £102,387 |
| LV White Water Centre | 52,380 | £0.27 | £0.32 | £7,071 | £8,381 | £15,452 | £16,762 |
| Lee Valley Riding Centre | 58,851 | £0.27 | £0.32 | £7,945 | £9,416 | £17,361 | £18,832 |
| Lee Valley Athletics Centre | 114,822 | £0.27 | £0.32 | £15,501 | £18,372 | £33,872 | £36,743 |
| TOTAL | 546,011 | | | £73,711 | £87,362 | £161,073 | £174,724 |

## Contract Term Projected Saving (assuming £0.32 per KWH contract Years 3-10)

| | Contract Year 2 | Contract Year 3 | Contract Year 4 | Contract Year 5 | Contract Year 6 | Contract Year 7 | Contract Year 8 | Contract Year 9 | Contract Year 10 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| Project Saving | £161,073 | £174,724 | £174,724 | £174,724 | £174,724 | £174,724 | £174,724 | £174,724 | £174,724 | £1,558,861 |

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