



Project No	LL1646/001
Sheet	1 of 2
Engineer	A. Loveday
Date	29/02/2024
Revision	-

DESIGN REPORT

SCHEME	Arbourfield Garrison, Wokingham – S38																						
CLIENT	Shape Consulting Engineers																						
ASPECTS OF SCHEME TO BE DESIGNED	Street lighting for Adoptable Roads																						
ENVIRONMENTAL REPORT	It has been assessed that the lighting levels shall be as per the British Standard BS5489-1:2020 and BS EN 13201-2:2015 recommendations: <u>Arbourfield Garrison, Wokingham: - Lighting Class – P4 from BS5489-1:2020 Table A.5</u> Minimum maintained illuminance (Eav) = 5.00 – 7.50 Lux Minimum illuminance (Emin) = 1.00 Lux The above has been made on the assumption that the proposed street lighting installation will be in a ‘Normal Traffic Flow’ area, where traffic usage is of a level equivalent to a residential subsidiary road and solely associated with the adjacent properties. The ‘Environmental Zone’ has been selected as an ‘E3’ denoting a ‘Medium District Brightness’ area, and the ‘Crime Rate’ can be viewed via the link, https://www.police.uk/your-area/west-mercias-police/broadwaters/?tab=CrimeMap. The below table recommends a lighting classification of P4 for an E3 Zone: Table A.5 — Lighting classes for subsidiary roads <table><tr><th rowspan="3">Traffic flow</th><th colspan="3">Lighting class</th></tr><tr><th>E1 to E4⁽¹⁾</th><th>E1 to E2⁽¹⁾</th><th>E3 to E4⁽¹⁾</th></tr><tr><th>Pedestrian and cyclists only</th><th>Speed limit v ≤ 30 mph</th><th>Speed limit v ≤ 30 mph</th></tr><tr><td>Busy ⁽²⁾</td><td>P5</td><td>P4</td><td>P3</td></tr><tr><td>Normal ⁽³⁾</td><td>P5</td><td>P5</td><td>P4</td></tr><tr><td>Quiet ⁽⁴⁾</td><td>P6</td><td>P5</td><td>P4</td></tr></table> <i>NOTE 1 Table A.5 assumes no parked vehicles; see risk assessment in A.3.3.2.</i> <i>NOTE 2 An EV lighting class using vertical illuminance, from BS EN 13201-2:2015, Table 6, can be specified in addition to the general lighting class when there are particular concerns about crime and personal safety. EV is calculated at the typical height of a human face (1.5 m) and in relevant viewing orientations.</i> <i>NOTE 3 To ensure adequate uniformity, the actual value of the maintained average illuminance is not to exceed 1.5 times the value indicated for the class.</i> <i>NOTE 4 The actual overall uniformity of illuminance, U_a, needs to be as high as reasonably practicable (see 7.2.6).</i> <i>NOTE 5 The ambient luminance descriptions E1 to E4 refer to the environmental zone as defined in ILP GN01 [N2].</i> <i>NOTE 6 The illuminance classes are suggested minimum levels. A risk assessment needs to be carried out to ensure that the light levels are adequate, particularly for pedestrians and cyclists.</i> The street lighting proposals for the S38 works have been submitted using a total of: • Thirty-four Philips Luma Gen2 Micro DM10 3.00klm 4000k LED luminaires to be post top mounted on 6m Wokingham Borough Council specification street lighting columns.	Traffic flow	Lighting class			E1 to E4 ⁽¹⁾	E1 to E2 ⁽¹⁾	E3 to E4 ⁽¹⁾	Pedestrian and cyclists only	Speed limit v ≤ 30 mph	Speed limit v ≤ 30 mph	Busy ⁽²⁾	P5	P4	P3	Normal ⁽³⁾	P5	P5	P4	Quiet ⁽⁴⁾	P6	P5	P4
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Quiet ⁽⁴⁾	P6	P5	P4																				

	• Two Philips Luma Gen2 Micro DM10 2.00klm 4000k LED luminaires to be post top mounted on 5m mid-hinged Wokingham Borough Council specification street lighting columns. All luminaires are to be installed with a 0-degree tilt, complete with a 5 pin NEMA socket and compatible with CMS. This development will require external adoptable lighting for all areas of the development. The safety of the pedestrians and vehicles within this new development should be considered as one of the priorities along with minimising the impact of the artificial lighting on the 'Dark Skies' and the local wildlife. As such a good quality sustainable external lighting solution will be required to ensure the safety and security of users whilst very carefully considering the wildlife and local residents. The proposed lighting scheme will ensure that the neighbouring residences do not have light spillage into their property as that would be deemed to be unacceptable in line with current guidelines. It is proposed that the lighting impact can be minimised by using accepted methods of lighting control, essentially limiting illuminance and controlling light spill. It is proposed the external lighting shall be installed on 6m columns. Generally lighting shall be selected to provide safety and security without polluting the boundary site residents. In order to minimise the impact of light spill onto the site boundary and any sensitive areas, rear light shields should be specified on lighting units proposed for the development. All luminaires are to have electronic control gear. The light source specified for this lighting scheme is LEDs, this is a low lumen output, high efficiency light source. The electronic drivers and LEDs running together produce a very efficient street lighting system, which reduces overall energy usage and environmental impact on natural resources. The effects on sensitive receptors will be mitigated through the implementation of a stringent lighting design, which will include the use of low light pollution fittings which retain light spill within the development area, minimising the loss of light to the night sky and glare discomfort to on-site or neighbouring receptors. In summary it is our considered opinion that the proposed street lighting installed will not have any significant negative impact on the immediate environment with respect to lighting pollution or energy usage and that all sensible steps have been taken within the design stage of this lighting scheme to keep the impact to the environment to a minimum.
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