

External Lighting Report
GHX001 | Site Infrastructure
Garth Wymott 2

608623-0000-PEV-GHX001 | -XX-RP-E-001 |
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Document History

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P01	23/06/2021	First Issue S3 - Suitable for Review & Comment	AR	JA/AI
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P03	05/08/2021	Legal Comments incorporated	AI	JA

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1.0 Introduction

The new Garth Wymott 2 site will be developed on mainly undeveloped land adjacent to the existing men's prison at HMP Garth and HMP Wymott in Lancashire.

This report has been prepared to provide support and additional information to the following external lighting drawings.

- 608623-0000-PEV-GNX0011-ZZ-DR-E-6311 Sheet 1
- 608623-0000-PEV-GNX0011-ZZ-DR-E-6312 Sheet 2
- 608623-0000-PEV-GNX0011-ZZ-DR-E-6313 Sheet 3

Information provided within in this report has been done in conjunction with Kingfisher Lighting for the purpose of the hybrid planning stage.

Drawings at this stage are intended to show expected levels of lighting for the hybrid planning stages and not intended for scale measurements at this time. Scaled drawings for this project shall follow at stage 3.

The designs have been prepared in accordance with the MoJ Technical Standards Specifications and relevant British standards.

- Estates Directorate Technical Specification STD/SPEC/018
- Estates Directorate Design Guide STD/Z/DG/062
- Estates Directorate Design Guide STD/Z/DG/068
- BS 5489-1:2020 Design of Road Lighting

2.0 Description of Development

This report focuses on the main prison site only and shall be read in conjunction with the separate reports prepared for the Boiler House and Bowling Green that make up the full hybrid application information for the area.

The application site comprises 43.53 ha of land.

Individual site areas for each element:-

- New Prison = 18.4 ha
- Bowling Club = 0.63 ha
- Boiler House = 0.23 ha

Wider site area for Biodiversity Net Gain improvements within the RLB = 24.27 ha

The description of the proposed development is:-

Hybrid planning application seeking: Outline planning permission (with all matters reserved except for access, parking and landscaping) for a new prison (up to 74,531.71 sqm GEA) (Class C2A) within a secure perimeter fence following demolition of existing buildings and structures and together with associated engineering works; Outline planning permission for a replacement boiler house (with all matters reserved except for access); and Full planning permission for a replacement bowling green and club house (Class F2(c)).

The site address and description for the whole application scheme is: Land adjacent to HMP Garth and HMP Wymott, Leyland

Site location for each element is:

- New prison is: Land to the north of HMP Wymott
- New bowling green and club house is: Land to the south of HMP Wymott
- New boiler house is: Land between HMP Wymott and HMP Garth

The indicative site layout proposes a range of buildings and facilities typical of a Category C resettlement prison, including:

- Seven new houseblocks each accommodating up to 245 prisoners (1,715 prisoners in total), totalling c.53,472 sqm GEA

- Supporting development including kitchen, workshops, kennels, Entrance Resource Hub, Central Services Hub and support buildings, totalling c. 21,060 sqm GEA
- Ancillary development including car parking (c. 525 spaces), internal road layout and perimeter fencing totalling 1326 linear meters enclosing a secure perimeter area of 10.5 ha

The house blocks will be four storeys (plus pitched roof) in height, whilst the other buildings will range from one to three storeys.

The new prison will be designed and built to be highly sustainable and to exceed local and national planning policy requirements in terms of sustainability. MoJ's aspirations include targeting near zero carbon operations, 10% biodiversity net gain, and at least BREEAM 'Excellent' certification, with endeavours to achieving BREEAM 'Outstanding'.

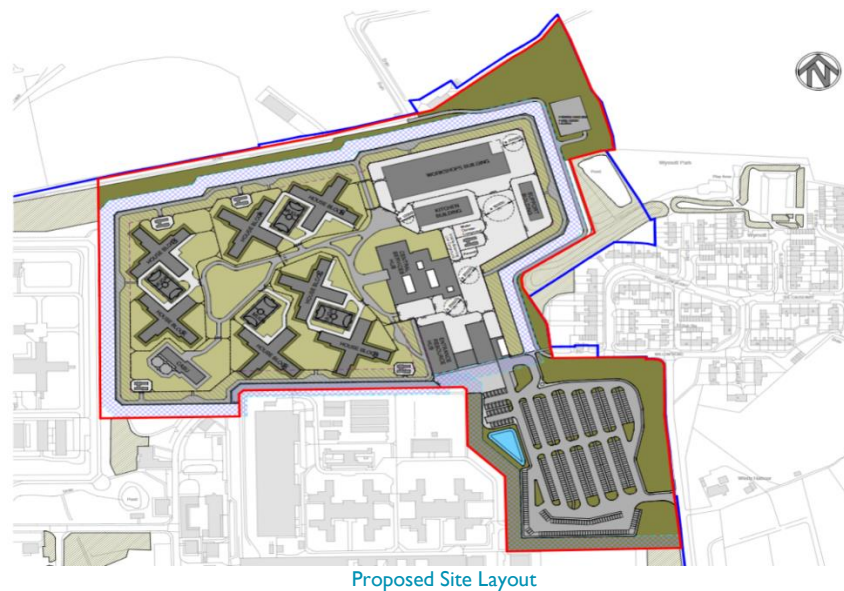
Parameters for the Bowling Club include:-

- Single storey in height
- Floor space = 72 sqm GEA
- Car parking spaces = 37 no

3.0 Proposed Site Design Strategy

The site is to be developed to provide a new Category C Re-Settlement prison, to provide facilities for 1715 residents and 700 staff. Accommodation will be provided in 7 houseblocks, with several additional support buildings providing all necessary facilities.

The proposed site is located to the north of the existing HMP Wymott and East of HMP Garth sites. The proposed site extends across several fields between these existing sites and with Ridley Lane boundary to the North and a diverted Pump House Lane to the East.



Garth Wymott 2 general area lighting will be designed so that prison officers, when patrolling at night, can see the outer wall, the inner fence, the sterile area; and all adjacent flanking spaces and buildings; so that these areas can be patrolled in safety.

The area lying between the inner perimeter road and buildings will also be illuminated. The inner and outer perimeter lighting will also be of such a standard that it will allow CCTV cameras and surveillance systems to operate to required performance levels.

Lighting levels, target areas and uniformity ratios shall comply with those requirements specified within the MoJ specification document STD/E/SPEC/018.

Lighting of the sterile area will be a circular, hemispheric, or other anti-hook shaped lamp fitting; this fitting to be of laminated polycarbonate, or other high impact and corrosion resistant material. Fittings will be mounted at a height of 4.0m, on the sterile area side of the inner perimeter fence.

Column mounted fittings will be mounted on 6.0m high, columns spaced at a maximum of 24.0m centres as a rule but the actual spacing/design will meet the illumination and uniformity requirements. Lighting levels for internal roads, around buildings, paths and flanking spaces will be 7.5 lux (minimum 5 lux).

Individual section switching will be required for the outer perimeter lighting, sterile area lighting and inner perimeter lighting and all external lighting shall be served by the standby generator.

Lighting column heights and luminaires will be specified and arranged to avoid glare to cameras, with areas covered by the CCTV designed to provide an adequate illumination level to meet the VDU image definition requirements and be sufficient to facilitate the safe passage of staff around the establishment.

As Garth Wymott 2 will be classified as a Category C prison the lighting will be required as follows: -

- Minimum illumination levels on vertical and horizontal target surfaces are 5 lux at commissioning and 3 lux in operation.
- Vertical targets include the secure side of the fence plus 1m above the top of that fence.
- Horizontal target surfaces include a 4m strip on the secure side of the fence (measured from the base of the fence).
- The non-secure side of Cat C perimeter fences/walls are not normally lit unless a roadway or pathway follows the perimeter, in which case normal street/pathway lighting standards will apply

Specific Area Overview.

Car Park and Access Road Lighting

The expected operating time for this area is expected to be from dusk till dawn, but also with the option to extinguish the area at a desired time if required.

The car park and access road lighting luminaires will be electrically supplied from an external feeder pillar with their operation controlled via individual local photocell/contactor arrangement. There will also be a manual override facility within the new control room with the capability to switch the lighting on/off if required for emergency, testing and maintenance.

The car park and road lighting will consist of column mounted luminaires. The columns will comprise of 6 metre galvanised steel flange mounted columns.

The new car park lighting will be designed to provide an external illuminance averaging 20 lux at ground level, while the access road lighting will be designed to provide an external illuminance averaging 7.5 lux (minimum 5 lux) at ground level. For security reasons the car park and access road lighting will be illuminated from dusk to dawn.

The luminaires themselves will be of the same type and manufacturer as the general and perimeter lighting consisting of dark sky compliant zero upward light ratio flat glass metal halide lantern luminaires.

Sports Pitch & MUGA Lighting

Floodlighting will be installed to the new sports pitches to enable their use during low light conditions. The areas themselves will not be used at night and would not be illuminated past 20.00 hours.

The new floodlighting will consist of LED floodlights mounted on 8 metre galvanised steel flange mounted columns, positioned locally to the areas. The floodlighting will be controlled manually via a local override facility within each of the relevant House Blocks.

The new sports external lighting will be designed to provide an external illuminance averaging 120 lux at ground level, when operational.

A control system shall be incorporated into the final designs of the All-weather pitch that will further enable the reduction of lighting to this area down to 7.5 Lux and to enable the lighting to be extinguished when the pitch is not in use. Control systems will be developed through stage 3 and 4.

General Lighting - Service Roads and Free Flow Areas

The expected operating time for this area is expected to be from dusk till dawn due to security reasons.

The general external lighting shall consist of a mixture of column mounted and building mounted luminaires mounted at a height of 6 metres.

The general building mounted luminaires will be electrically supplied on a building, by building basis with their operation controlled via individual local photocell/contactor arrangements. There will also be a manual override facility within the new control room with the capability to switch the general building mounted luminaires on/off if required for emergency, testing and maintenance.

The general column mounted external luminaires will be electrically supplied from a secure 3 phase circuit, via external feeder pillars, with adjacent luminaires wired sequentially across each of the phases. Their operation will be controlled via individual photocell/contactor arrangements for each of the phases.

The general column mounted external lighting to Internal site footpaths, internal roads, around buildings and general circulation areas will be designed to provide an external illuminance averaging 7.5 lux (minimum 5 lux) at ground level. For security reasons the general lighting will be illuminated from dusk to dawn.

The luminaires themselves will be of the same type and manufacturer as the perimeter lighting consisting of dark sky compliant zero upward light ratio flat glass metal halide lantern luminaires mounted at 0°

General Lighting - Restricted Compound and Inmate Areas

The expected operating time for this area is expected to be from dusk till dawn due to security reasons

The general external lighting shall consist of a mixture of column mounted and building mounted luminaires mounted at a height of 6 metres.

The general building mounted luminaires will be electrically supplied on a building, by building basis with their operation controlled via individual local photocell/contactor arrangements. There will also be a manual override facility within the new control room with the capability to switch the general building mounted luminaires on/off if required for emergency, testing and lamp replacement etc.

The general column mounted external luminaires will be electrically supplied from a secure 3 phase ring main circuit, via external feeder pillars, with adjacent luminaires wired sequentially across each of the phases. Their operation will be controlled via individual photocell/contactor arrangements for each of the phases.

4.0 Equipment Technical Specification Details

Project 42663 HMP Garth & Wymott							
Page 1							
Reference	Image	Description	Product Code	Output (W)	Light Source	Dimensions (LxWxH or Dia)xlum	Mounting Details
X1		halo 1.4 mod 85w 10380 lum 2700K	IT1-S05-2.7-4M1F	93W	LED	615 x 343	Column mounted at 6m
X2		halo 1.4 mod 85w 10380 lum 2700K	IT1-S05-2.7-4M1F	93W	LED	615 x 343	Twin Heads column mounted at 6 m
X3		halo 1-2 mod 40w 4720 Lum 2700K	IT1-S05-2.7-2M1F	40W	LED	615 x 343	Column mounted at 6m

Project 42663 HMP Garth & Wymott							
Page 2							
Reference	Image	Description	Product Code	Output (W)	Light Source	Dimensions (LxWxH or Dia)xlum	Mounting Details
X4		halo 1-3 module 58w	IT1-S05-2.7-3MF	58W	LED	615 x 343	Column mounted at 6m
X4 Wall		halo 1.3 Mod. 7000 lum in. 58w, 700mA, 120mA, 4000K, Asym Street Optic (SOC), DALI Drive no. Class 1, Semi-Class Satin Grey, 60/70mm Prop & Sentry, 76mm second Sentry, IP66, IK09, 7kg max. Windage 0.06-0.18m, Fixed with no dim profile.	IT1-S05-4.7-3MF	58W	LED	615 x 343	Wall mounted at 6m
X5 Turn		halo 1.3 Mod. 7000 lum in. 58w, 700mA, 120mA, 4000K, Asym Street Optic (SOC), DALI Drive no. Class 1, Semi-Class Satin Grey, 60/70mm Prop & Sentry, 76mm second Sentry, IP66, IK09, 7kg max. Windage 0.06-0.18m, Fixed with no dim profile.	IT1-S05-4.7-3MF	58W	LED	615 x 343	Twin column mounted 6m

Project 42663 HMP Garth & Wymott 2							
Page 2							
Reference	Image	Description	Product Code	Output (W)	Light Source	Dimensions (LxWxH or Dia)xlum	Mounting Details
X5 Fence		halo 1.3 Mod. 7000 lum in. 58w, 700mA, 120mA, 4000K, Asym Street Optic (SOC), DALI Drive no. Class 1, Semi-Class Satin Grey, 60/70mm Prop & Sentry, 76mm second Sentry, IP66, IK09, 7kg max. Windage 0.06-0.18m, Fixed with no dim profile.	IT1-S05-4.7-3MF	58W	LED	615 x 343	Fence mounted at 5m
X6 Twin		halo 1.3 Mod. 7000 lum in. 58w, 700mA, 120mA, 4000K, Asym Street Optic (SOC), DALI Drive no. Class 1, Semi-Class Satin Grey, 60/70mm Prop & Sentry, 76mm second Sentry, IP66, IK09, 7kg max. Windage 0.06-0.18m, Fixed with no dim profile.	IT1-S05-2.7-4M1F	93W	LED	615 x 343	Twin Heads column mounted at 6 m
Y1		Viva-City Flood, 9,780 lum in, 100w, 300mA, 180mA, 4000K, Asym. Flood Optic -50°, Drive no. Class 1, IP66, IK08,RAL 7016 Anthracite Grey Finish, 8.3kg. Surface mount bracket. Dimmable	VCYF-FL50-4.8-120D	120W	LED	386 x 416	Column mounted at 6m

Project 42663 HMP Garth & Wymott 2							
Page 2							
Reference	Image	Description	Product Code	Output (W)	Light Source	Dimensions (LxWxH or Dia)xlum	Mounting Details
Y2		Viva-City Flood, 7,001 lum in, 60w, 805mA, 117mA, 4000K, Asym. Flood Optic -50°, Drive no. Class 1, IP66, IK08, RAL 7016 Anthracite Grey Finish, 7.9kg. Surface mount bracket. Dimmable	VCYF-FV70-4.6-60D	60W	LED	386 x 416	Wall mounted at Various heights
Z1		Arnie Flood, 97,000 lum in, 1500w, 130mA, 6 Row, Remote New Standard Drive 1-10V Dimmable, Remote Control Thru Optic, 2700K, IP66, IK08, RAL 7016 Anthracite Grey Finish, 11.3kg. Surface mount bracket. Dimmable	LAF1-87NFS6821727	1350W	led	800 x 481	Column mounted at 12m

5.0 Site BREEAM Information

The Site BREEAM Information is confirmed on the following external lighting drawings.

- 608623-0000-PEV-GNX0011-ZZ-DR-E-6311 Sheet 1
- 608623-0000-PEV-GNX0011-ZZ-DR-E-6312 Sheet 2
- 608623-0000-PEV-GNX0011-ZZ-DR-E-6313 Sheet 3