

CONDITION NO. 12

PLANNING PERMISSION DM/26/0128

LIGHTING DESIGN STRATEGY FOR BIODIVERSITY

The following are the formal external lighting schedule and specification details, submitted to fully satisfy and discharge condition no. 12 of Planning Permission DM/26/0128.

To meet the strict requirements of ILP Guidance Note GN08/23 (*Bats and Artificial Lighting At Night*) and ensure that light spill across yard perimeters, field boundaries, and potential roof-level roosts remains strictly under 1.0 lux, the lighting scheme has been designed using a targeted, ultra-low-output architectural framework:

1. Under-Canopy Stable Lighting (Items EXT-01 to EXT-06)

- **Structural Shielding & 0% Upward Light:** The 6 external light fixtures will be fitted flat to the rear wall directly *underneath* the solid timber canopy overhang at a maximum mounting height of 2.2 metres. The stable hangover acts as a complete physical cut-off barrier, guaranteeing an Upward Light Output Ratio (ULOR) of exactly 0%. This entirely eliminates vertical light spill or skyglow toward the roof apex and eaves.
- **Directional Casing:** The chosen fixtures feature heavy-duty IP65-rated downward "eyelid" hoods (Zink Eyelid / Euston CE3X5). These solid cowls strictly constrain lateral light scatter, forcing 100% of the luminous intensity directly down toward the stable doors.
- **Strict Spectrum and Lumen Control:** To guarantee compliance, the scheme avoids integrated high-lumen LED arrays. Instead, empty E27 lampholders will be paired exclusively with ultra-low-power 2W–4W LED Gold/Pygmy filament lamps (Pro-Lite 2W / Energizer 4W Gold). These bulbs operate at an extra-warm 2200K spectrum, completely filtering out blue-light wavelengths and omitting 0% UV radiation.

2. Central Yard Courtesy Lighting (Item EXT-07)

- **Low-Profile Height:** To provide safe handler and equine navigation within the central courtyard without creating wide-area glare, a single, low-level architectural post light is proposed. This will utilize the Ansell Libra 1000mm Bollard (ALIB/100E27), restricting the total light height to just 1.0 metre.
- **Internal Louvre Deflection:** The Ansell Libra feature a solid, opaque top cap (0% upward light) paired with internal, downward-facing stainless steel louvres. These

louvres physically bend and deflect all light rays directly onto the gravel yard floor, completely eliminating horizontal glare toward nearby hedges or trees.

- **Wildlife Lamp Pairing:** The bollard will be fitted with the same matching Pro-Lite 2W LED Pygmy Lamp (2200K / 160lm). Operating at this ultra-low lumen threshold and extra-warm amber spectrum, horizontal illuminance levels exponentially degrade via the Inverse-Square Law ($E=I/d^2$) to <0.5 lux within 5 metres of the column, maintaining the outer yard as a completely dark commuting corridor.

3. Automated System Controls

- **Daylight Harvesting:** All 7 external yard fixtures will be controlled via IP65-rated Passive Infrared (PIR) sensors calibrated to a daylight threshold of <10 lux (Dusk setting). This prevents the lights from activating during daylight hours.

- **Restricted Runtime:** The internal automated timer modules will be locked to a maximum runtime of 60 to 120 seconds (1–2 minutes). The lights will shut off immediately after human or equine movement stops.

- **Zero Override Facility:** The system will be hardwired *without* a manual constant-on pulse override facility. This ensures the lights can never be left running continuously overnight by human error.

- **4. Automated System Controls (PIR Sensor Specifications)**

- **High-Accuracy Detection Boundaries:** All 7 external yard fixtures will be controlled via dedicated, high-sensitivity IP65-rated Passive Infrared (PIR) sensors. The detection zones will be physically angled and masked to trigger exclusively within the immediate courtyard footprint, preventing passing wildlife or off-site boundary movement from accidentally activating the system.

- **Ambient Light Restrictions (Daylight Harvesting):** The sensors will feature an integrated lux dial calibrated strictly to <10 lux (Dusk setting). This technical lock ensures the lighting system remains entirely inactive during daytime and twilight hours, preserving natural ambient light transitions.

- **Ultra-Short Restricted Runtime:** The internal automated timer modules will be hard-set to a mandatory maximum runtime of 60 seconds (1 minute). The lights will shut off immediately after human or equine movement exits the active detection zone, preventing prolonged or unnecessary illumination of the yard.

- **Absolute Overnight Lockout (Zero Override):** The system will be hardwired *without* a manual constant-on pulse override facility (eliminating standard domestic switches that lock lights 'on' when toggled twice). This guarantees by design that human error cannot leave the stable yard illuminated continuously overnight.