

McDonalds Merthyr Tydfil (Heads of Valley)

Report for Ecology & Night Sky Lighting Impact Assessment Car Park, Drive-Thru & Cycle/Pedestrian Path Areas

Associated Reference Documents:

Institute of Lighting Professionals Guidance Note 08/23

Institute of Lighting Professionals Guidance Note 01/21

Welsh Government – Good Practice Guidance Conservation of Dark Skies

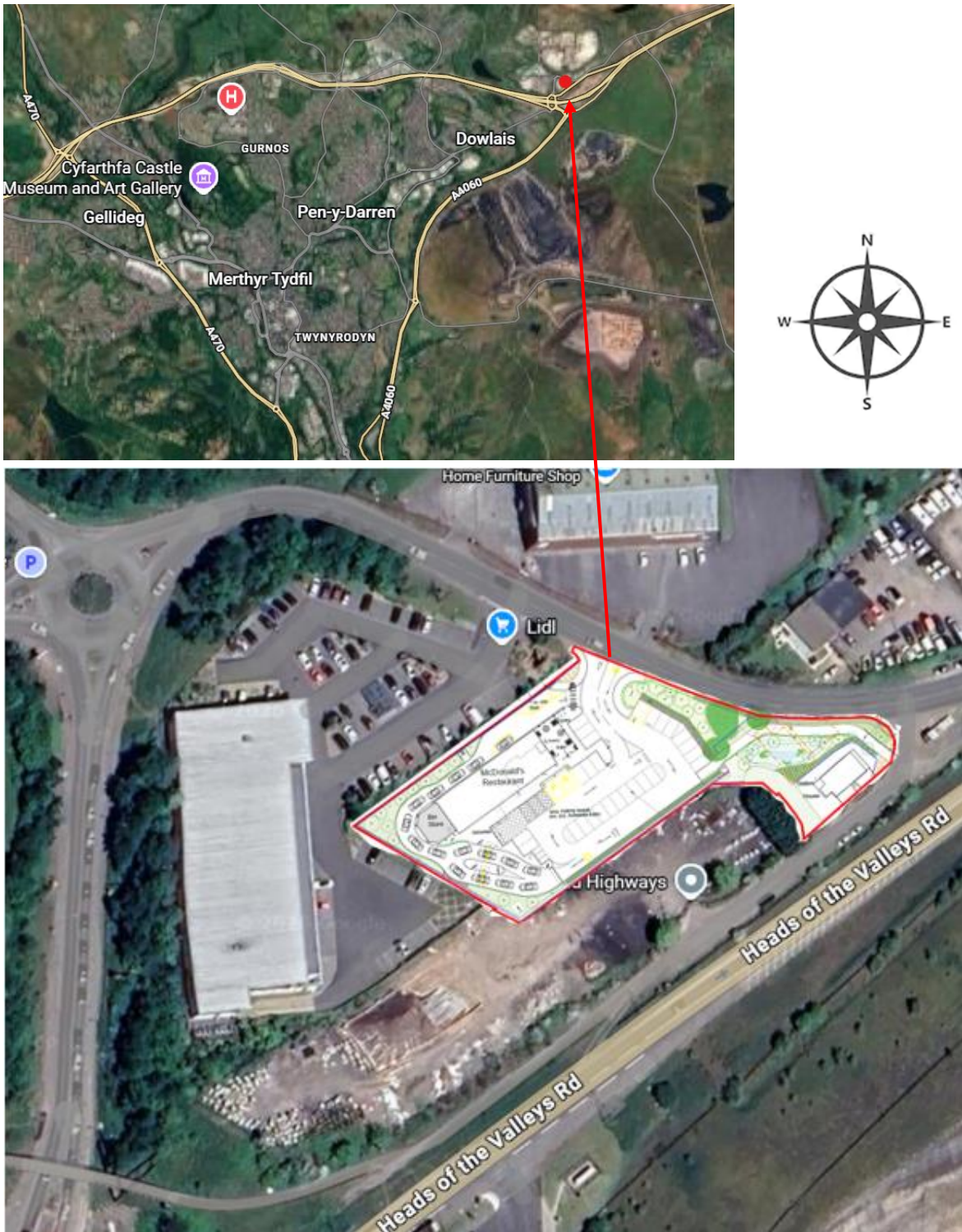
Signify Drawings 6807953 Rev 3

Signify Lighting Application Specialist Design Notes & Luminaire Schedule

25th March 2026

Site Location

The site comprises of approximately 0.39 hectares of unoccupied land. It is located within the area of the Penygarnnddu Industrial Estate regarded as part of the Asda Retail Park. The centre of Merthyr Tydfil is approximately 3km to the west. The northern and western boundaries abut the car park areas of Lidl. The eastern boundary abuts a service road which provides access from the A465, Heads of Valley Road, to a number of retail sites including the proposed McDonald's site.



Scope of the Report and Design Principles

The following report is to be read in conjunction with:

- Signify Proposed Lighting Layout DSR No. 6807953 Rev 3 – Ground level Isolux Plot
- Signify Proposed Lighting Layout DSR No. 6807953 Rev 3 – 4m AGL Isolux Plot

The following report specifically addresses a number of ecology and night sky protection requirements as follows:

1. Design compliance with the ILP Guidance Note 08/23 – Bats and Artificial Lighting at Night
2. Design compliance with the Welsh Government Good Practice Guidance – Planning for the Conservation and Enhancement of Dark Skies in Wales
3. The six proposed bat boxes must be located in dark zones with no direct illumination
4. The single proposed bird box must also be located in an area where there is no direct illumination
5. Design to include a horizontal 0.2 lux contour
6. Design to include a separate horizontal lighting plot at 4m AGL across the entire site to include the areas of the six bat boxes and the single bird box
7. Design compliance with an indicative lighting condition:

“Prior to the installation of any external lighting, a detailed lighting scheme that conforms to current best practice lighting guidance, shall be submitted to and approved in writing by the local planning authority. The details shall include, but not be limited to:

- *horizontal and vertical illuminance plans demonstrating dark corridors/routes and that the proposed wildlife boxes would be positioned in dark areas;*
- *details of the siting and type of external lighting to be used together with the proposed colour temperatures;*
- *Isolux drawings setting out the light spillage in key sensitive areas;*

The lighting scheme shall be carried out in accordance with the approved details.”

ILP Guidance Note 08/23 – Bats and Artificial Lighting at Night

- The Signify luminaires in the car park, drive-thru lane and cycle path use a CCT of 2700K
- The column heights in the car park and drive-thru lane are limited to 6m high and along the cycle path are 4m high
- The Signify luminaires are set to the horizontal (zero degrees) in order to eliminate any upward light. The ULR is negligible
- The Signify luminaires use an LED light source that does not have a UV component
- The Signify luminaire LED engines feature peak wavelengths higher than 550nm
- The luminaires located around the perimeter of the site incorporate sharp cut off back light louvres that minimise light spill. These are indexed as BL2 on the lighting plot



Optics+BL Optics+BL2



Limited
cut-off



Sharp
cut-off

Welsh Government Good Practice Guidance – Planning for the Conservation and Enhancement of Dark Skies in Wales

The Signify lighting design follows the principal requirements of the Welsh Government Good Practice Guidance in conjunction with the ILP Guidance Note 01/21 – The Reduction of Obtrusive Light.

 Summary of Good Practice Lighting Principles Don't light unless it's necessary. Light only where needs to be lit, avoiding over-lighting and clutter. Light should be no brighter than necessary. Use warm colour temperatures; 2,700K or lower. Use switch-off, dimming or PIR sensors. Use a lower mounting height where possible. Limit internal lighting spilling outside target area. Keep light away from wildlife.	The lighting plan must show: Where the site is. The need for the lighting. The standards to be used. The position of all proposed lighting. The installation details of all proposed lighting (angle, tilt, height). Technical specifications of the lighting including isolux, power, lumen output, colour temperature. A modelled illuminance plot of the proposal, detailing spill and average illuminance against lighting guidelines. Elevation plans showing lines of illumination from lights on walls. Baseline conditions, including details of any existing lighting, or any nearby lighting that is providing useful levels of ambient lighting. If the proposed lighting exceeds the limits described in this guidance.
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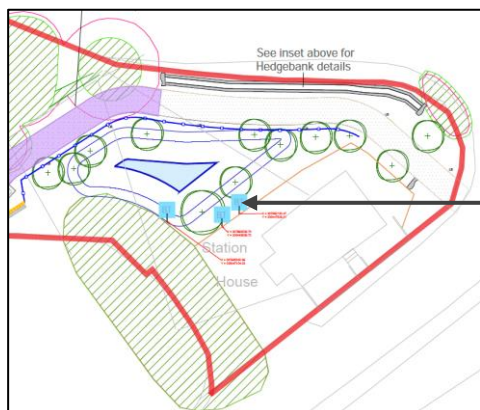
- Page 1 of this report shows where the site is located and the surrounding area
- The site is a McDonald's restaurant which requires lighting to meet BS 5489-1:2020 in conjunction with BS EN 12464. In addition, the Global McDonald's minimum standard is an average of 25 lux with a light uniformity (Uo) of 25%. This satisfies the mix of vehicular and pedestrian traffic and good quality CCTV coverage
- The locations of columns and luminaires are shown on the Signify drawing. All luminaires are set to a zero tilt (horizontal) in order to eliminate any upward light
- The luminaire information is shown on the Signify LiAS Design Notes. It details the CCT, the luminaire wattage, the lumen output and the mounting height (6m or 4m)
- The Signify drawing at ground level shows Isolux contours for 25, 6.25, 0.5 and 0.2 lux.
- The Signify drawing at 4m AGL shows Isolux contours for 25, 6.25, 0.5 and 0.2 lux. It is intended to demonstrate the areas of total darkness at 4m AGL
- Using the ILP Guidance Note 01/21 – Table 6 - Limitation of skyglow , it is assumed that the site is in an E3 Environmental Zone and the ULR of under 5% is achieved:

Table 6 (CIE 150 table 5): Maximum values of upward light ratio (ULR) of luminaires

Light technical parameter	Environmental zones				
	E0	E1	E2	E3	E4
Upward light ratio (ULR) / %	0	0	2.5	5	15

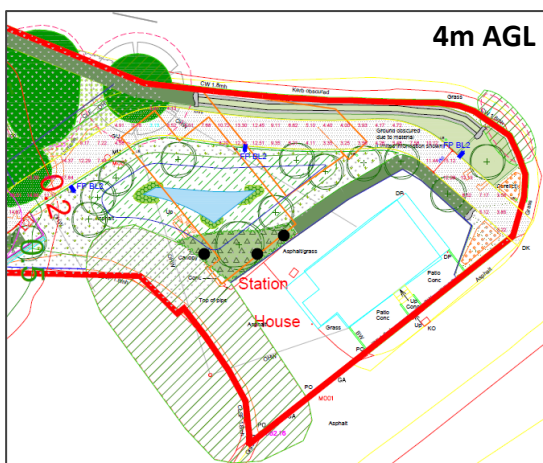
Bat Box Locations

There are six 1FF Scwhegler or similar type bat boxes being located in the area south of the attenuation pond adjacent to the cycle/pedestrian path. The bat boxes will be installed in pairs on posts at around 4m AGL, facing generally south in accordance with best practice guidance.

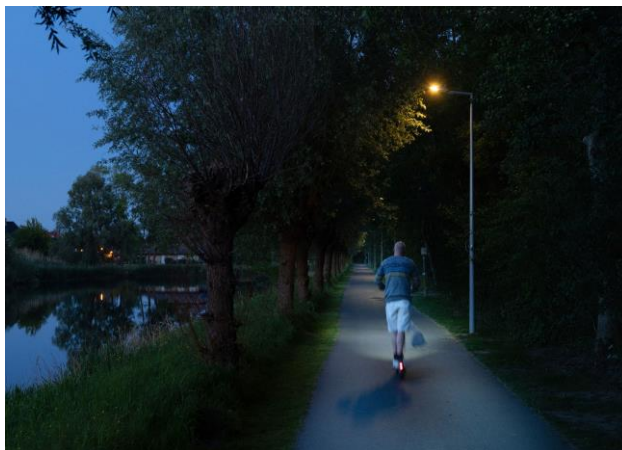
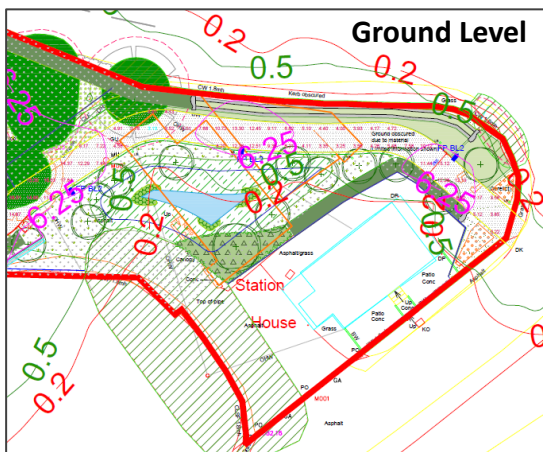


1FF Scwhegler bat box

The updated Signify lighting design utilises three Luma Gen 2 Micro 2700K luminaires that incorporate sharp cut off back light louvres and are mounted on 4m high columns pointing north. The optics specified direct light onto the cycle/pedestrian path providing an average illumination of 10 lux with negligible light spill at ground level and no upward light above 4m. The 4m AGL lighting plot shows the area of the bat boxes to be in complete darkness.

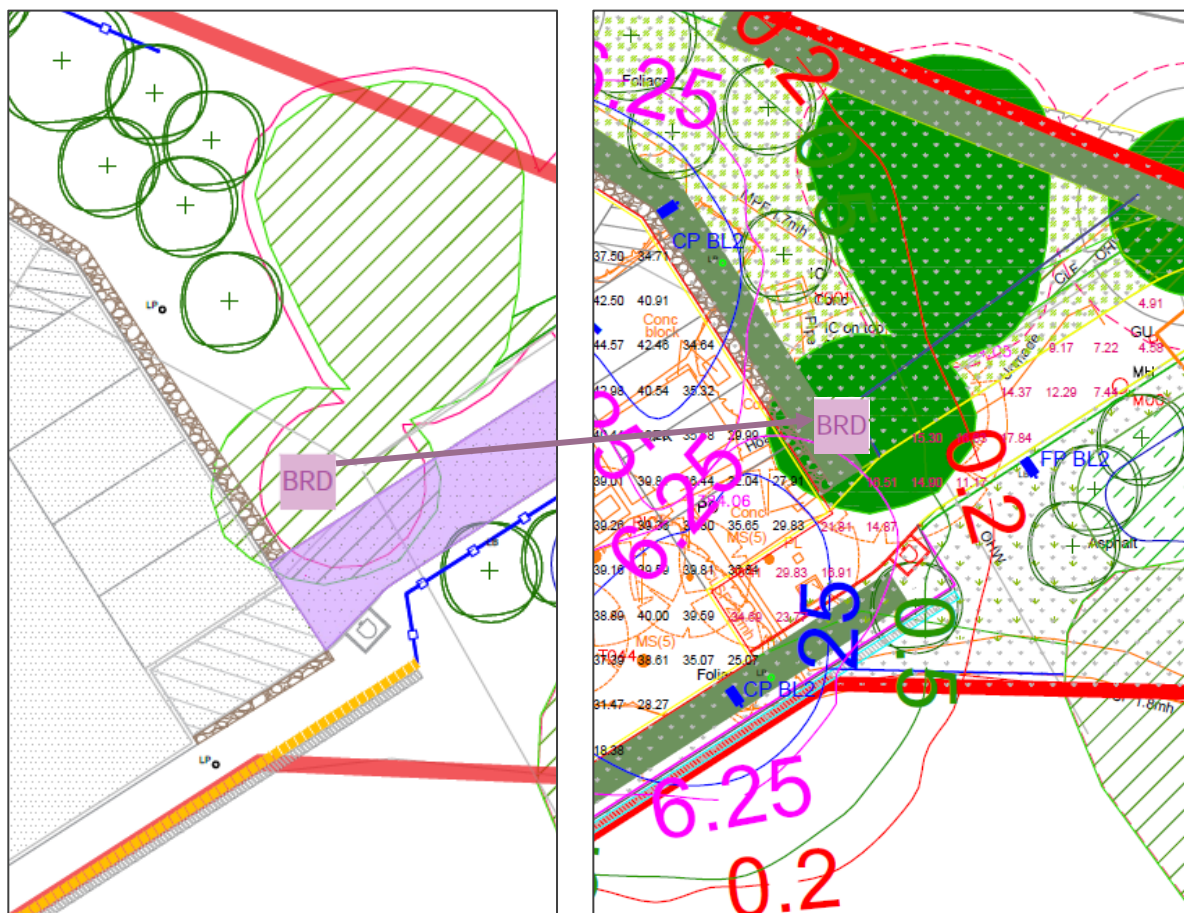


Example photograph of a cycle/pedestrian path illuminated to an average of 10 lux



Bird Box Location

There is a single bird box mounted at between 4m and 5m AGL. It will be fixed to the trunk of an existing mature tree in the eastern area of the site:



- The two luminaires in the proximity of the bird box have been moved away in order to reduce the light ingress into the tree canopy.
- The illumination level at 4m AGL in the general area of the bird box will be between 0.5 lux and 1.0 lux. At 5m AGL it will reduce further and at 6m AGL it will be zero

Conclusion

- The report addresses and satisfies all of the ecology mitigation requirements
- The lighting design complies with the Welsh Government Good Practice Guidance in order to protect the night sky.
- The lighting design complies with the ILP Guidance Note 01/21 – Limitation of sky glow

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