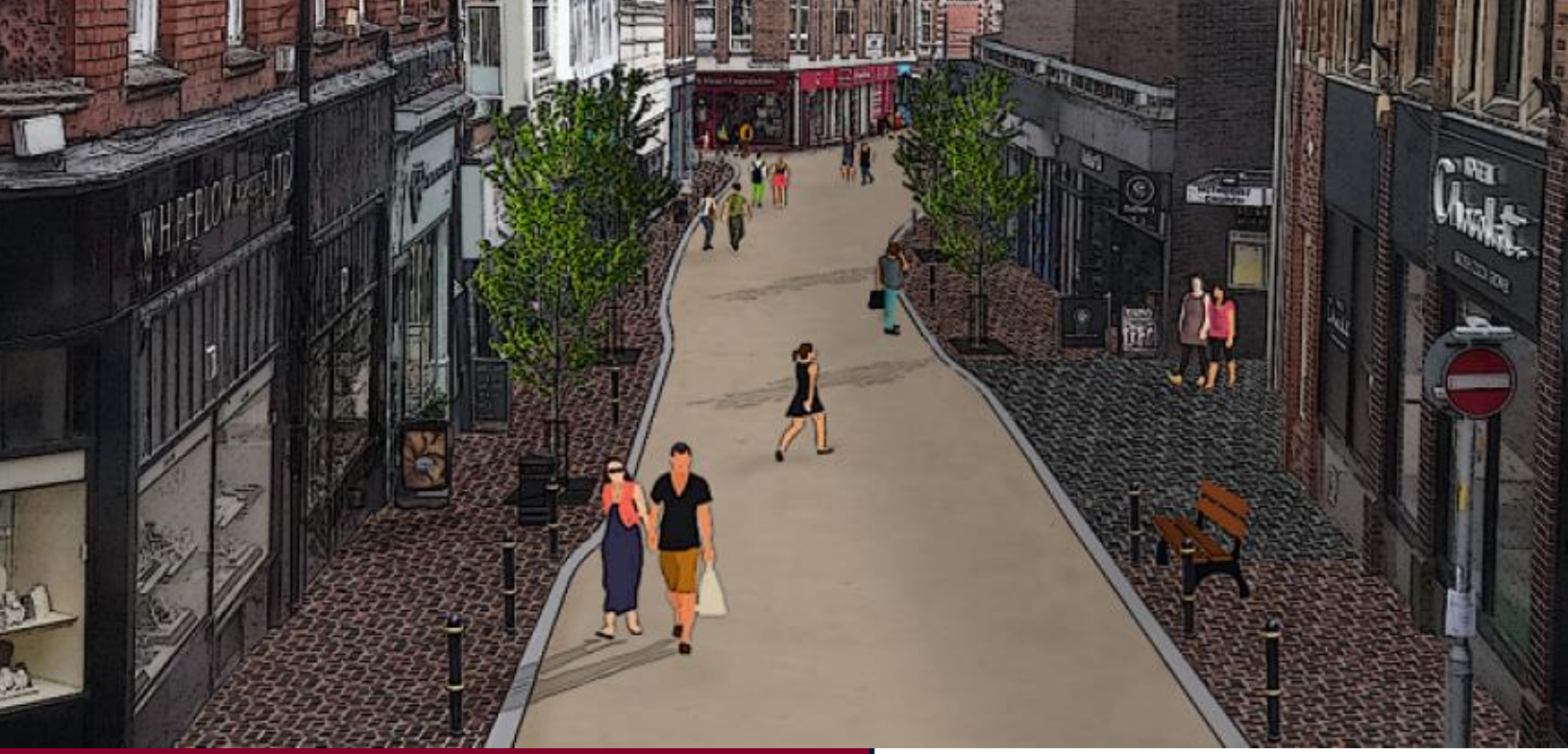


Chapter 9A: Annexes

Streetscape Design Guide 2025

Worcestershire County Council

worcestershire county council

Annex A- Project Information Table

Project Name	
Lighting Designer	
Principal Designer	
Developer	
Planning Application No.	
Area	
Date Completed	

Annex B- Feasibility- Supporting Documentation

The supporting documentation requirements detailed in the table below will facilitate the Designer's production of a compliant and meaningful lighting design and enable the recommended investigations and assessments in line with current guidance, such as BS5489-1 Code of Practice for the Design of Road Lighting, and ILP PLG02 The Application of Conflict Areas on the Highway. It is recommended that designers familiarise themselves with the requirements of these documents prior to any submission. In some instances, certain information and statistics may be unavailable or unnecessary for the type of scheme subject to design. A clear and valid reason for not providing the required information must be provided. Not applicable is not an acceptable response unless approved by Worcestershire County Council. Failure to provide the required information and statistics may result in the scheme's rejection.

Table 1. Deliverables – Supporting Documentation

Planning Application Conditions - Related to lighting including planning condition references.
Accident Data – To evidence the requirement to light and for lighting classification selection in accordance with BS5489-1 risk assessment requirements. Minimum 3-year history required, extending to at least 5 seconds driving distance from the scheme extent.
Crime Data – To evidence the requirement to light and for lighting classification selection in accordance with BS5489-1 risk assessment requirements. Minimum 3-year history required, extending to the local area surrounding the scheme.
85th Percentile Speeds - To evidence lighting extents in accordance with ILP PLG02 5 second rule or highlight any disparity.
Existing and Proposed Speed Limits - To evidence lighting extents and lighting classification selection in accordance with BS5489-1 requirements.
Existing and Proposed 24hr ADT- To evidence lighting extents and lighting classification selection in accordance with BS5489-1 requirements.
Existing and Proposed Statutory Undertakers Plans – To evidence safe construction.
Ecological / Environmental Constraints Including Current Survey / Study – Maximum 18 month old Ecology Survey / Study to evidence compliance with legislation. Indication of (not limited to) conservation species present, type of activity (breeding, hibernating, roosting, foraging etc.), habitat quality and connectivity, the presence of nearby known protected areas etc. Any mitigations proposed/required to ensure protection of light sensitive species should be declared. Survey / Study in accordance with Chartered Institute of Ecology and Environmental Management, Bat Conservation Trust guidance and ILP GN08/23: Bats and Artificial Lighting At Night guidance.
Tree Preservation or Root Protection Orders – To evidence compliance with legislation.

Landscaping Proposals – To evidence the impact of light pollution and maintainability of proposed assets e.g., impact on streetlighting due to retained or proposed trees.
Site Clearance Drawings – To evidence continuity of light and tie in with adjacent existing lighting.
General Arrangement / Adoptable Limits Drawings – To evidence adoptability.
Electrical Supply / Liaison with the DNO – To evidence proposed supply is viable and in accordance with DNO practice.

Annex C- Lighting Specification

The table below outlines the various equipment types widely in use and commonly accepted within Worcestershire. The developer is entitled to suggest any manufacturer or provider of the equipment specified. Such proposals, however, will be subject to approval by the Street Lighting Team.

Conservation Areas are unique in their lighting requirements, and it is expected that the developer will engage with the relevant conservation officer to determine the lighting requirements to suit that specific environment. These requirements will be subject to Worcestershire County Council approval.

Table 2. Approved Equipment and Installation List

Lantern	• TRT ECO or Aspect Range (including Gen2). • Holophane VMAX Range.
Lamps	• LED 3000K, 1750K or 1000K CCT depending on project requirements. • Where CCT is lower than 3000K, depending on local biodiversity, rear, side and front shields may be added upon agreement with t. street lighting team.
Ballast	• Philips Xitanium or OSRAM. • CLO is requested to be used wherever possible to reduce wasted light and energy.
Control	• Five pin Nema socket 1-part electronic cell. • Residential regime 20/20 (dim to 75% 00:00hrs to 05:00hrs). • Traffic Routes regime 35/18 (dim to 75% 00:00hrs to 05:00hrs). • Produced by Lucy Zodion or Royce Thompson. • Where variable levels are required, the Designer contacts Worcestershire County Council.
Maintenance Factors	• Typically, luminaires shall be at least L80 B50 with a longevity of at least 100,000 hours but Worcestershire County Council shall be consulted on a project-by-project basis as this area of technology is constantly evolving.
Sign illumination	• Simmon signs LUA or LUB (depending on sign size). • Portland Traffic sign lights. • Simmon signs global base light illuminated bollards. • Mallatite Duraflex bollards. • Solar proposals are subject to a Commuted Sum.

Columns & Posts	• Aluminium column type (A.L.C. or SAPA column), specifically no brackets produced to current Worcestershire County Council specification. • Columns and posts shall be installed in NAL sockets at locations of increased risk in accordance with clause 8.1.23. • Where explicitly agreed with a member of the street lighting team, Galvanised steel columns manufactured by C U Phosco or Mallatite produced to current Worcestershire County Council specification will be acceptable. • Where applicable any Raise and Lowering Column should be aluminium and only 5m or 6m height will be considered. • Lighting column setback and protection is to be as per relevant Standards and Codes of Practice. • Absolutely no additional attachments (such as IOT, electrical connections, hanging baskets or flags etc.) to columns unless agreed in writing with a member of the Street Lighting Team.
Brackets	• Where possible post top mounted columns are to be used, unless the use of brackets can be proven to significantly reduce the number of columns required or there is shadowing from Trees and other obstacles. • Where brackets are required, they shall be manufactured as one complete extrusion. • No bolt on brackets shall be used on passive safe columns with electrical disconnection systems installed. • All lanterns are to be mounted at 0^{o} tilt overall, to be clear where a bracket is used at 5^{o} tilt, the luminaire shall be set to -5^{o} tilt to allow a 0^{o} tilt overall. • *(Please note the current Worcestershire County Council ESPO specification does not allow for bracket arms on columns and if these are required, certificates of conformity will be required from the column manufacturer.)*
Retention Socket Systems	• NAL duck foot and tee bend retention socket systems • Installation and foundations shall be made in accordance with manufacturers' guidelines.
Service Arrangement	• Direct fed by DNO supply.

Annex D – Required Installation Notes for all Drawings.

Installation Notes

All lighting layout drawings are to have the following installation notes included as a minimum requirement, if these are not included the design will be rejected:

- All lighting elements for internal Worcestershire County Council schemes will be installed by Worcestershire County Council's appointed Lighting Contractor unless there are elements outside of their normal scope. Where the Designer proposes specialist equipment or installation, then Worcestershire County Council's lighting engineers must approve these.

- For external schemes (i.e., those proposed by private developers), only recognised lighting contractors shall be used for street lighting and illuminated signs and bollard installation works. They must also be members of HEA and HERS. Current membership numbers for these bodies must be provided to the supervising authority prior to approval by Worcestershire County Council's lighting engineers of the proposed Lighting Contractor. The approved Lighting contractor shall not sub-contract any part of the works.
- All materials shall be to the relevant British Standard. Site works shall comply in general with Department of Transport Specification for Highway Works, and shall also conform to: The Electricity at Work Regulations (1989) The Health and Safety at Work Act
    - Chapter 8 of the Traffic Signs Manual
    - The Control of Substances Hazardous to Health Regulations 2002
    - The Construction (Design and Management) (CDM) Regulations 2015

- Erection and installation works shall comply with the current issue and amendments of BS7671:18th Edition IET Wiring Regulation 2018 Requirements for Electrical Installations, the current editions of the ILP Code of Practice for Electrical Safety in Public Lighting Operations and the Code of Practice for the Erection of Street Lighting published by the Association of Street Lighting Electrical Contractors.

- All Material and equipment shall comply with the Worcestershire County Council Specifications. Any material or equipment proposed by the contractor shall be submitted to Worcestershire County Council for approval before any purchase agreement is entered into. Exact location of lighting columns to be agreed with Worcestershire County Council's Street Lighting or representative before erection. Ducting to comply with the requirements of the DNO or Worcestershire County Council where required.

- Contractor to liaise directly with the DNO or other DNO approved supplier regarding electrical connection requirements.

- Photocell control residential regime 20/20 (dim to 75% output 00:00hrs to 05:00hrs). Traffic Routes regime 35/18 (dim to 75% output 00:00hrs to 05:00hrs).

Annex E – Project Checklist for consideration by Designers

Table 3: PROJECT CHECKLIST

Question	Y	N
Has your developer managed a street lighting project in Worcestershire County before?		
Are Worcestershire County Council Street Lighting team aware of the project?		
Does your project interact with land owned by 3rd parties i.e., not owned by Worcestershire County Council?		
Is there any political interest in the project?		
Is there any public interest in the project?		
Is your project team aware of the interdependence of working with Street Lighting?		
Is your site currently lit? **If the site is lit, speak to Worcestershire County Council Street Lighting and Ecology for further advice.**		
Are there power cables nearby to power lighting assets?		
Have you raised power supply ownership with your developer? **Worcestershire County Council do not arrange power supplies unless they are instructed.**		
Is your lead in time for power supply greater than 12 weeks? **New or renovated supplies and disconnection / reconnections.**		
Do you have stats drawings and any swing and sag for overhead cables?		
Are there ecological constraints present?		
Do you have verge space for lighting columns?		
Have you surveyed the conditions of assets to remain or to be re-used?		
Are there any Tree Preservation Orders (TPO's) or Root Protection Orders (RPO's)?		
Are there any cycleway facilities within your scheme?		
Are there any pedestrian crossing facilities within your scheme?		
Are you designing a roundabout or any roads that require passive safe lighting?		
Are there any sign illumination requirements?		
Are the existing and proposed 24hr Annual average daily traffic (AADT's) known?		
Are the existing and proposed speed limits known?		
Do you have the 85th percentile for all roads found within the project?		
Have there been any night-time Road Traffic Collisions (RTC's) near the project?		

Annex F – Departures from DMRB and MHCW Template

SUBMISSION FOR DEPARTURE FROM STANDARDS TEMPLATE

PROJECT NAME	
APPLICANT ORGANISATION:	
APPLICANT REF No	
HIGHWAY AUTHORITY REF	
PREPARED BY	
CHECKED BY	
DATE SUBMITTED	

1. PROJECT DETAILS

A	Description	
B	Location	
C	Road Category and type	
D	Design speed and speed limit	
E	Traffic and NMU flows	

2. DEPARTURES DETAILS

A	Discipline / Type	
B	Relevant standard(s)	
	Clause	
C	Difference between Standard(s) and Proposed Design	
D	Reason for Departure (overview)	

E	Associated Project Departures	
F	Other options considered	

3. JUSTIFICATION (POTENTIAL POSITIVE AND NEGATIVE IMPACTS)

A	Safety	
B	Congestion/ delay	
C	Environmental/ Sustainability	
D	Capital and Whole Life Cost/Value	
E	Accessibility	
F	Integration	
G	Structural	
H	Network Resilience and Maintenance	

4. COMPENSATORY MEASURES

A	Included Measures	
B	Rejected Options	

5. DESIGN ORGANISATION'S CONCLUDING REMARKS

6. ATTACHMENTS and OTHER INFORMATION

A	List of Attachments	
B	Consultations	N/A
C	Other information	N/A

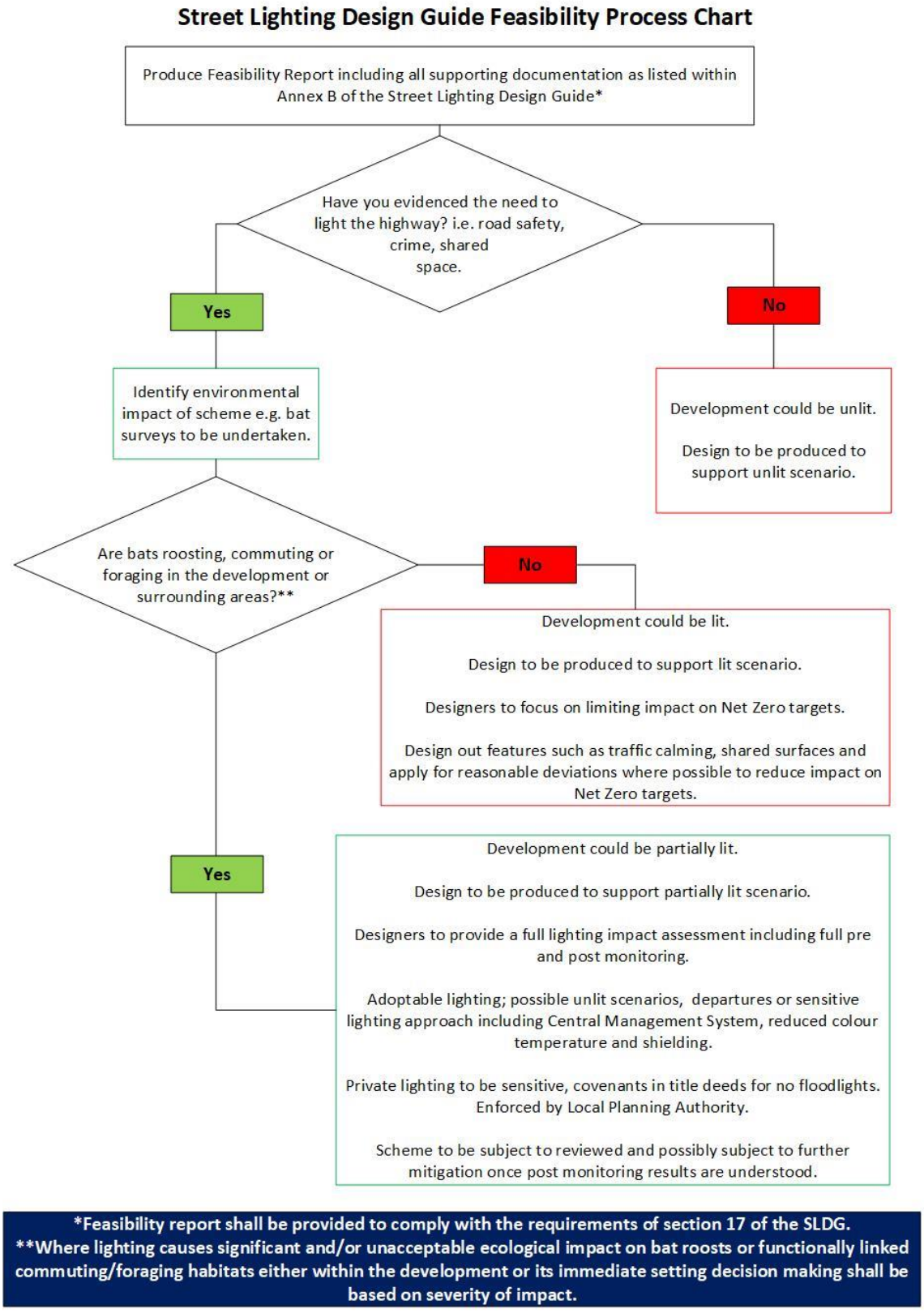
7. SIGNED

NAME 1	ROLE	SIGNED	DATE
NAME 2	ROLE	SIGNED	DATE

8. DECISION

DECISION TICK ONE BOX and COMMENT	Tick Box
APPROVED	
APPROVED WITH COMMENTS	
REJECTED	
COMMENTS OR REASON FOR REJECTION	

Annex G- Feasibility Process



***Feasibility report shall be provided to comply with the requirements of section 17 of the SLDG.**
****Where lighting causes significant and/or unacceptable ecological impact on bat roosts or functionally linked commuting/foraging habitats either within the development or its immediate setting decision making shall be based on severity of impact.**

Annex H- Case Studies

Case studies are included in relevant ILP documents and the street lighting design guide as examples of some of the excellent work undertaken by the developers and their lighting Designers in Worcestershire.

No Lighting - Case Study, S38 Lower Howsell Road, Malvern.

Figure 1. S38 Lower Howsell Road, Malvern

Introduction

The developer engaged a lighting designer to provide a street lighting design.

The scheme comprised of 110 properties, located near to the Malvern Hills National Landscape formerly known as 'Outstanding Natural Beauty'. Malvern Hills National Landscape has published guidance on lighting, intended to "minimise impacts of lighting on wildlife, people and on natural landscapes." Prior to being developed the land was a greenfield site and had no lighting / dark baseline. This would be classed as dark district brightness as per Institution of Lighting Professionals Guidance Note 1, (ILP GN01/21) the reduction of obtrusive light.

The development is accessed from Lower Howsell Road, which has limited lighting provision. Many adjacent side roads also have limited lighting provision, typical of semi-rural areas of Worcestershire.

The road layout is in line with the Streetscape Design Guide. There were no features that should be illuminated in line with Manual For Streets.

Ecological surveys determined bats were using peripheral hedge lines as linear commuting and foraging features. The project ecologist recommended this feature should remain unlit to avoid impacting light sensitive fauna.

Bats and their roosts are afforded legal protection under international and national legislation. In certain circumstances, such as where foraging or commuting routes are deemed to be 'functionally linked' to a bat roost (and hence important in supporting the favourable conservation status of that bat population) these features may also benefit from strict legal protection.

Challenge

Subsequently, during design it became apparent that the entire site was used by Lesser and Greater Horseshoe bats, no longer confined to the extremity of the site as advised during planning.
The species of bats found within the development are highly light averse, if lighting were provided it could fragment or disrupt commuting and foraging habitat.
Due to its location and dark baseline, the site has a semi-rural context and additionally is located within the setting of a National Landscape. Artificial lighting would therefore need to be sensitively controlled. Institute of Lighting Professionals (ILP) GN01/21-the reduction of obtrusive light states: "*lighting should limit the impact of light pollution on intrinsically dark landscapes".*

Solution

Due to the significance of the ecological findings, the dark baseline, the semi-rural nature and the provision of a standard road layout, an unilluminated approach was the best option to move forward.

Benefits

By not providing Street Lighting, the developer has avoided causing an ecological impact by removing risk to severance effects on an identified linear commuting/foraging feature, thus reducing risk of contravening legislation by un-intentionally disrupting features which might be considered as functionally linked to a bat roost.

- The scheme is in line with national planning policy framework and lighting guidance.
- The scheme has removed maintenance liability and risk to energy revenue budgets.
- Additionally, this removes the carbon burden from the Net Zero plan.

Lighting - Case Study, S38 Churchfields, Kidderminster.

Figure 1. S38 Churchfields, Kidderminster

Introduction

The developer engaged a lighting Designer to provide a street lighting design.

The scheme comprised of 246 properties, located in Kidderminster Town Centre. Prior to being developed the land was a brownfield site. Due to its low to medium lighting baseline, the site would be classed as medium District brightness as per ILP GN01/21- the reduction of obtrusive light.

The development is accessed from Broad Street and Churchfields, which has full lighting provision. Many of the adjacent side roads also have full lighting provision, this is typical of an urbanised area of Worcestershire. The road layout is in line with the Streetscape Design Guide. There were no features that should be illuminated in line with Manual for Streets.

All buildings were demolished during development removing suitability to support roosting bats but an area of woodland to the north of the scheme provides potential for foraging and commuting bats.

Challenge

The site is located adjacent to an area with a reasonable amount of localised crime of various severity, so it is unsuitable for a no light scenario. In line with BS5489-1-2020 A.3.3.2 a risk assessment was undertaken that indicated if lighting is provided, to deter crime, lighting levels should be increased to a higher level than that of a typical Worcestershire development.

Ecological assessment requested that the woodland area remains dark but adjacent roads must be illuminated.

Solution

On evaluating historic incidences of crime which have been recorded in the scheme's locality, it was determined that provision of lighting was the best option to move forward. However, it must be noted that due to historic incidents of crime, lighting level requirements are 60% higher than what is typically installed within a Worcestershire housing development.

Luminaires installed on roads adjacent to woodland are fitted with shields to reduce illumination in line with the ecological requests.

Benefits

The scheme is in line with British Standards but at the time of writing Worcestershire County Council cannot evidence if crime has remained steady, decreased, or increased due to the enhanced lighting provision of the scheme.

Sensitive Lighting - Case Study, S38 Lea Castle (Phase 1), Kidderminster.

Figure 1. S38 Lea Castle (Phase 1), Kidderminster

Introduction

The developer engaged a lighting designer to provide a street lighting design.

The scheme comprised of over 600 properties, based on the former Lea Castle Hospital site, located within Wolverley Parish. It is located north of Kidderminster between Stour Vale Marsh Site of Special Scientific Interest (SSSI) & Puxton Marsh SSSI to the West, and Hurcott Pasture SSSI and Hurcott and Podmore Pools SSSI to the East.

Prior to being developed the land was mostly a greenfield site, with limited private lighting. The lighting designer estimated the site to have an existing very low / almost dark lighting baseline. As

per ILP GN01/21-the reduction of obtrusive light, this site would be classed as mix of dark district brightness and low district brightness.
The development is accessed from Park Gate Road, which has no lighting provision, and Wolverhampton Road (A449), which has a high level of lighting provision associated with a busy A class road. Many of the comparable roads in Wolverley have no lighting provision and are typical of rural areas of Worcestershire.

The road design is in line with the Streetscape Design Guide. There were no features that should be illuminated in line with Manual For Streets, but the main spine road was to be used by a bus service, cyclists, access to shops and be used by schoolchildren.

During planning it was advised that a variety of bat species were using the site. In compensation for licensed destruction of existing roosts, several bat barns were constructed on site. Lesser Horseshoe bats were subsequently understood to be both roosting, foraging and commuting within site boundaries as well as commuting to the nearby network of sites considered to be of conservation significance to forage.

Challenge
Bats and their roosts are afforded legal protection under international and national legislation. In certain circumstances, such as where foraging or commuting routes are deemed to be 'functionally linked' or key in supporting the favourable conservation status of the population, these features may also benefit from strict legal protection.
The species of bats found within the development are highly light averse, if insensitive lighting was provided it was deemed likely to risk fragmentation or disruption of bat commuting and foraging features, particularly hedgerow and blocks of linear woodland which were identified in the project ecologist's 'dark corridor' maps.

The developer's ecologist proposed dark corridors on the spine road, but these interacted with sharp bends and were in proximity to junctions and bus stops. Therefore, the dark corridors would not be endorsed by the Highways Authority Development Control team, due to perceived safety issues.

Solution
Due to the significance of the ecology, rural nature, use of the spine road and un-endorsed dark corridors for the spine road and provision of a standard road layout for side roads it was decided to masterplan the lighting for the entire development.
The spine road was to be lit in its entirety, but all side roads were to be unilluminated.
The spine road lighting was to include heavy mitigation:

- Red lighting (to reduce potential impact),

- Low levels of lighting during quiet periods of the night,
- Post monitoring of the bats on site to understand impact of lighting,
- Implementation of a Central Management System (CMS) to amend the lighting levels if necessary.

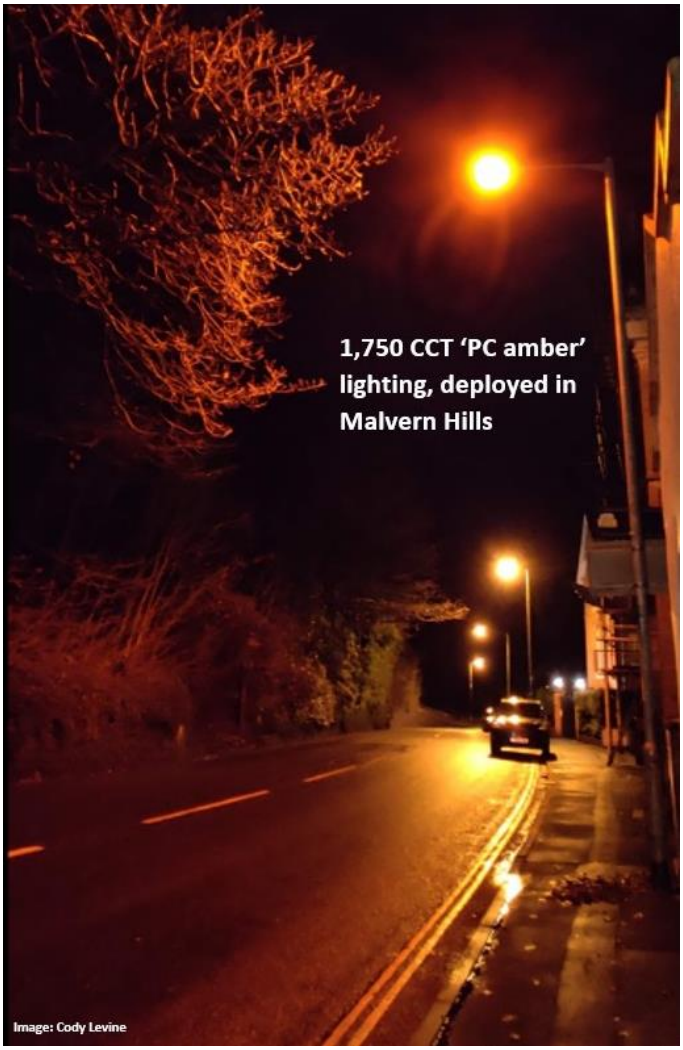
The local planning authority, highway authority development control team and scheme designers felt this was the best option to move the development forward.

Benefits

- By providing street lighting on the main spine road, the developer has focused on providing safe usage for the major risk factors; interactions between motorised users incl. buses and non-motorised users enables a safer night-time environment.
- By not providing street lighting on the side roads, the developer has avoided potential for ecological impact to protected bat species by un-intentionally disrupting and severing commuting and foraging routes functionally linked to a known roost. This has the added bonus of being comparable to the lighting status of many roads within the Parish of Wolverley and will help the development feel rural at night.
- The scheme is in line with the national planning policy framework and lighting guidance.
- The scheme has partially removed maintenance liability and risk to energy revenue budgets with its careful approach to lighting. Additionally, this partially removes the carbon burden from the Net Zero plan.
- By securing a period of post-installation bat and lighting monitoring, related to the predicted scale of impact, a refined insight will be gained into the effectiveness of the lighting mitigation strategy for bats.

Rapid LED Roll-out (RLR) – Case Study.

The Worcestershire County Council Rapid LED Roll-out Case Study is published in 'ILP Guidance Note 08/23: Bats and Artificial Lighting At Night'. It demonstrates how safety and carbon/energy reduction can be balanced alongside biodiversity conservation.



ADDENDUM 1 – Technological Innovation

Where new technological advances are adopted by Worcestershire County Council as best practice, these will be made apparent to Designers at the relevant stage of the process.