

Cliddesden Neighbourhood Plan

Dark Skies and Light Pollution Background Paper. Preserve the Dark Skies of the Parish

July 2023

Dark Skies and Light Pollution.



1. INTRODUCTION

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1. Introduction

Less than 100 years ago, everyone could look up and see a spectacular starry night sky. Now, millions of children across the globe will never experience the Milky Way where they live. The increased and widespread use of artificial light at night is not only impairing our view of the universe, it is adversely affecting our environment, our safety, our energy consumption and our health.

Part of the attractiveness of this area of the borough of Basingstoke & Deane is the peace and tranquility and calming effect afforded by dark skies. However, the rural character of the village is being damaged by avoidable light pollution. Dark skies are being compromised with a consequent negative impact on wildlife.

By allowing artificial lights to wash out our starry night skies, we are losing touch with our cultural and natural heritage.

An important element in appreciation of the natural environment is protection of the area's dark night skies. The good news is that light pollution can be reduced fairly easily by shielding lights properly, by only using light when and where it is needed, by only using the amount that is needed, by using energy efficient bulbs, and by using bulbs with appropriate spectral power distributions for the task at hand.

In 2019, following complaints made from residents in Cliddesden concerning light pollution from the Sony building in the Viabes area across the M3 motorway, to the north of Cliddesden. Sony initiated a project to replace some of its external lighting. This resulted in a reduction in light pollution and, as confirmed by Sony, a reduction in electricity consumption.

Street lighting (currently almost non-existent in the parish) will be discouraged, even within the core village. Security and other outside lighting that will adversely affect the amenities of other occupiers or habitats or which cause unnecessary light pollution which reduces the quality of the dark night sky will be refused.

Too much light pollution has consequences: it washes out starlight in the night sky, interferes with astronomical research, disrupts ecosystems, has adverse health effects and wastes energy.

There is no clear scientific evidence that increased outdoor lighting deters crimes. It may make us feel safer, but has not been shown to make us safer. Bad outdoor lighting can decrease safety by making victims and property easier to see. A 2015 study published in the *Journal of Epidemiology and Community Health* found that streetlights don't prevent accidents or crime, but do cost a lot of money. The researchers looked at data on road traffic collisions and crime in 62 local authorities in England and Wales and found that lighting had no effect, whether authorities had turned them off completely, dimmed them, turned them off at certain hours, or substituted low-power LED lamps.

In disrupting ecosystems, light pollution poses a serious threat in particular to nocturnal wildlife, having negative and deadly impacts on plant and animal physiology. It can confuse the migratory patterns of animals, alter competitive interactions of animals, change predator-prey relations, and cause physiological harm. The rhythm of life is orchestrated by the natural diurnal patterns of light and dark; so disruption to these patterns impacts the ecological dynamics. Many insects are drawn to light, but artificial lights can create a fatal attraction. Declining insect populations negatively impact all species that rely on insects for food or pollination. Some predators exploit this attraction to their advantage, affecting food webs in unanticipated ways.

With respect to adverse health effects, many species, especially humans, are dependent on natural body cycles called circadian rhythms and the production of melatonin, which are regulated by light and dark (e.g., day and night). If humans are exposed to light while sleeping,

melatonin production can be suppressed. This can lead to sleep disorders and other health problems such as increased headaches, worker fatigue, medically defined stress, some forms of obesity due to lack of sleep and increased anxiety. And ties are being found to a couple of types of cancer.

With respect to energy wastage, lighting is responsible for at least one quarter of all electricity consumption worldwide. Over illumination can constitute energy wastage, especially upward directed lighting at night. Energy wastage is also a waste in financial cost and carbon footprint.

***The Institution of Lighting Engineers:** *'The Institute of Lighting Professionals 'Guidance Notes for the Reduction of Obtrusive Light' (2011)'* provides lighting designers, planners, architects and environmental health officers with recognised technical limitations on stray light. Limits are provided for each environmental zone for each of the main sources of nuisance light pollution: sky glow, glare, spill and building luminance. All developments which require external lighting should have regard to the Institute of Lighting Professionals guidance for the environmental zone in which the development is set to take place. The guidance sets out recommended limits for the main sources of light pollution; sky glow, glare and spill. The Institution of Lighting Professionals Guidance on Obtrusive Light can be downloaded either by searching on those key words or from the ILP website: www.theilp.org.uk

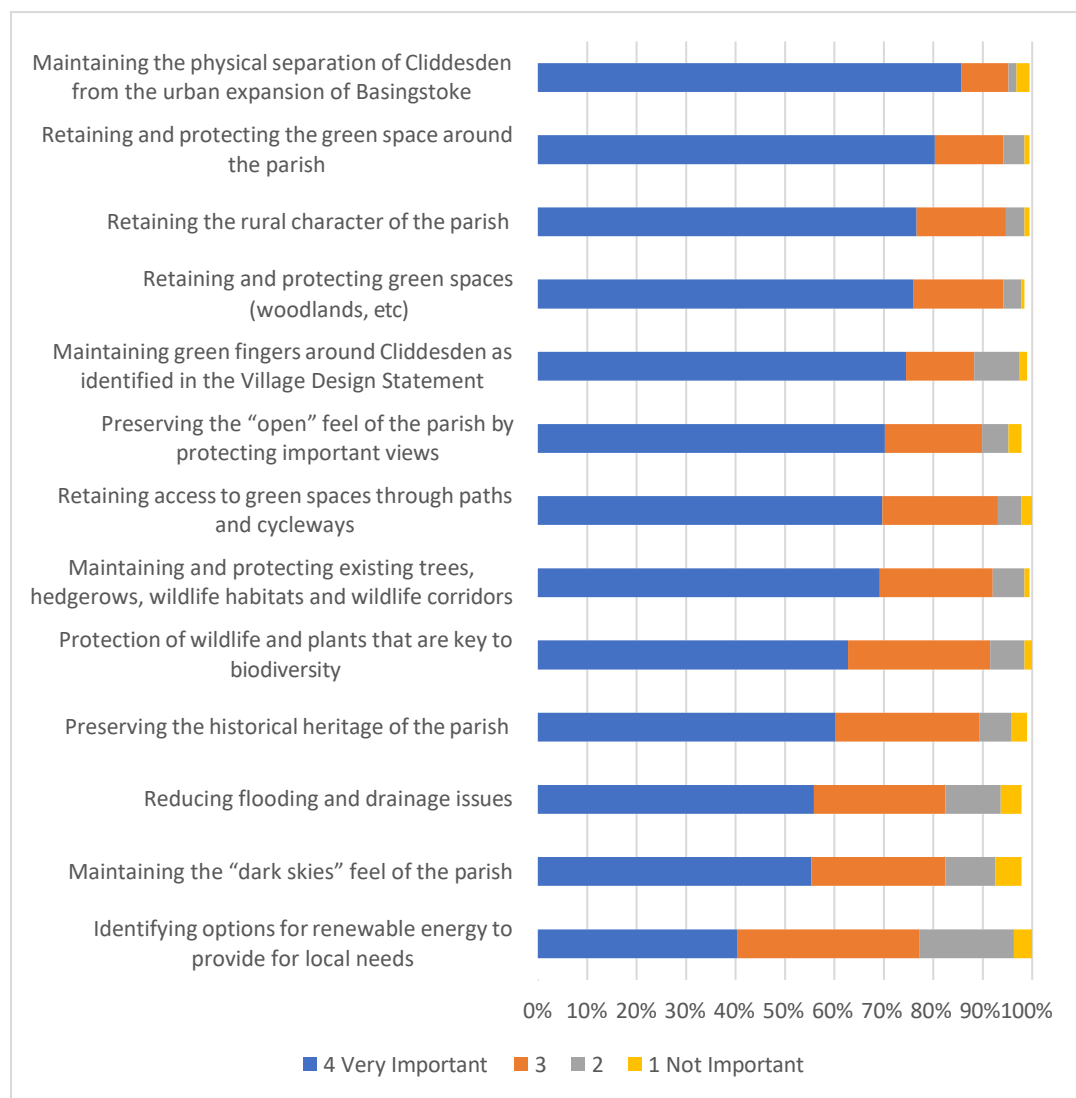


2. EVIDENCE from COMMUNITY CONSULTATIONS

2019 community questionnaire

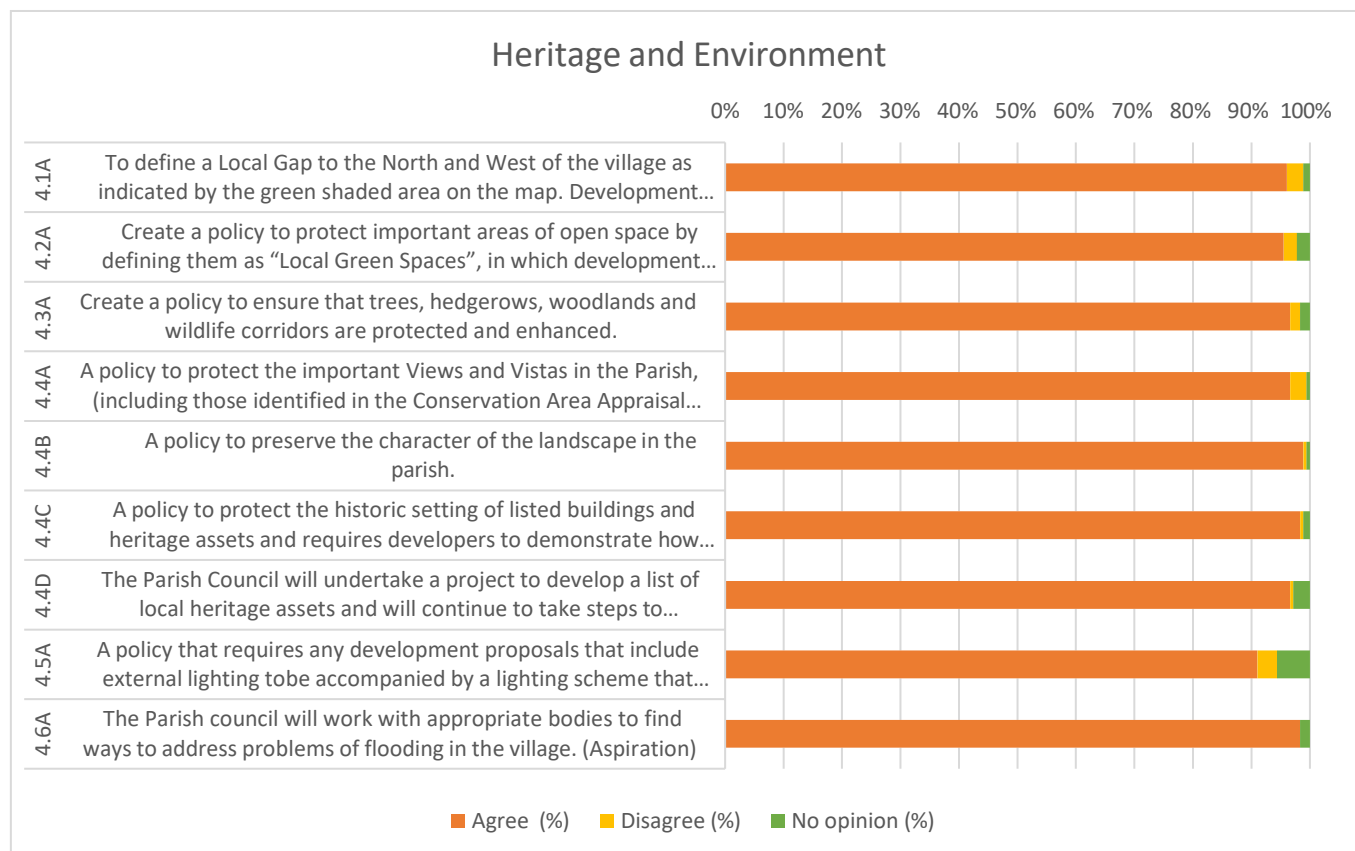
Question 2 of the community questionnaire from 2019 asked “how important do you feel the following environmental issues are for Cliddesden?” Responses indicated:

82% agree or strongly agree to “maintaining the “dark skies” feel of the parish.”



2020 Issues and Options Consultation

In response to the 2020 Issues and Options consultation, 91.9% of respondents agreed with the option 4.5A to create “a policy that requires development proposals that include external lighting to be accompanied by a lighting scheme that has regard to national design guidance. Lighting that reduces the quality of the dark night sky will be refused. Street lighting will be discouraged.”



2. EVIDENCE from OTHER SOURCES

CLIDDESSEN DESIGN CODE DOCUMENT

Section 3.8 highlights issues to be addressed in Design Codes, one issue being:

“Light pollution from new developments (e.g. street lighting, security lighting and upward illumination for skylights) could change the rural character.”

Section 4.2, General Design considerations states:

“Minimise urbanizing features such as close-boarded fencing, footpaths alongside roads and street/security lighting.”

National Planning Policy Framework 2021 – Ground conditions and pollution

Paragraph 185 *Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

DEFRA - The first UK law tackling light pollution came into force in 2006 under Section 102 of the Clean Neighbourhoods and Environment Act (2005) Exterior lighting can be treated as a Statutory Nuisance.
Ref: DEFRA

UK PLANNING INSPECTORATE

'Light pollution and dark skies' was a factor the Planning Inspectorate referred to in his dismissal of the Oakdown Farm warehousing appeal near Dummer, a village close to Cliddesden, in December 2022 as follows:

Dark skies

58. Beyond Basingstoke the wider area, including the A30, M3 and Dummer Village are unlit at night.
59. Lighting is required throughout the site in order to maintain 24/7 operations. A lighting strategy²⁰ includes controls to reduce luminosity during periods of low activity, with no lighting on the south east elevations of Plots 1 and 2 and with lighting on the north east elevation of Plot 1 set at a lower level to reduce impacts on Dummer.
60. Notwithstanding these measures given the height of the building and the extent of its visibility within the surrounding area, I find that the scheme would emit light to the surrounding areas in breach of the area's existing dark skies. I do not consider that the suggested condition could adequately address this matter.
61. However, I am satisfied that there would be no adverse impacts from light spillage on the Wessex Downs AONB due to the extent of topography and distance from the appeal site.
62. The scheme would conflict with Policy EM1f).

Summary of Visual Effects

²⁰ CD A8 and plans A13 & A14

SOUTH DOWNS LIGHTSCAPE MANAGEMENT POLICY

"... the spill of lights from large open glass windows and sky lights often present a greater source of light pollution than externally mounted lights. Consequently, it is important to control the lighting coming from these types of developments. The design of buildings should reduce the impact of light spill from internal lighting or suitable mitigation measures should be put in place." (SDNPA Local Plan: 5.64 – South Downs Lightscape Management Policy)

THE BASINGSTOKE ASTRONOMICAL Society meets at the Cliddesden School. According to the society, this location is estimated to have light pollution levels similar to a suburban setting based on satellite data from CPRE.



PARLIAMENTARY BILLS: AMENDMENT 10 TO THE ENVIRONMENT BILL RE LIGHT POLLUTION

Member's explanatory statement:

"This amendment aims to set a commitment to act on matters which relate to light pollution that are currently omitted from this Bill. It aims to ensure that the Government must produce targets to reduce levels of light pollution in England.]"

"Amendment 10 on light pollution has been tabled by Lord Randall of Uxbridge and would require the Government to set a national target on reducing light pollution. In recent years evidence of the impacts of light pollution on species and ecosystems has grown and consolidated. Increased Artificial Light at Night is now directly linked to measurable negative impacts on energy consumption, human health, and wildlife such as bats, birds, insects, and plants. Unnecessary artificial light increases financial costs and contributes to greenhouse emissions. Light pollution should be treated with the same disdain with which we treat all other forms of pollution and as others set out in the draft version of the Bill."

Lead member: Lord Randall of Uxbridge

Sponsors: Lord Carrington, Baroness Bakewell of Hardington Mandeville, Lord Taylor of Holbeach

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Environment Bill

LORD RANDALL OF UXBRIDGE
LORD CARRINGTON
BARONESS BAKEWELL OF HARDINGTON MANDEVILLE
LORD TAYLOR OF HOLBEACH

- 10 Page 2, line 1, at end insert—
“(e) light pollution.”

Member’s explanatory statement

This amendment aims to set a commitment to act on matters which relate to light pollution that are currently omitted from this Bill. It aims to ensure that the Government must produce targets to reduce levels of light pollution in England.

BARONESS BENNETT OF MANOR CASTLE
LORD WHITTY

- 11 Page 2, line 1, at end insert—
“(e) soil quality.”

Member’s explanatory statement

This amendment indicates that soil quality is a priority area for environmental improvement.

LORD HARRIES OF PENTREGARTH

- 12 Page 2, line 1, at end insert—
“(e) the planting of new trees.

(3A) The Secretary of State must lay before Parliament, and publish, a statement containing information about progress towards meeting any targets set under subsection (3)(e) on an annual basis after any initial target is set (in addition to the requirements under section 5).”

BARONESS BAKEWELL OF HARDINGTON MANDEVILLE

- 13 Page 2, line 1, at end insert—

APPG ALL-PARTY PARLIAMENTARY GROUP FOR DARK SKIES

Now British MPs have formed a new [All-Party Parliamentary Group for Dark Skies](#) (APPG) in the UK Parliament, dedicated to reducing [light pollution](#) across the country.

The APPG for Dark Skies’ aim is to put light pollution on a par with noise pollution.

Membership includes parliamentarians of all parties from both the House of Commons and House of Lords who work with major organisations, experts and communities to identify political priorities on dark sky issues, discuss lighting and planning policies and advocate for them in the UK Parliament.

Objectives are to:

- Highlight the importance of preserving the ability for citizens to see a dark sky at night;
- Promote the adoption of dark sky friendly lighting and planning policies;
- Protect existing UK Dark Sky reserves and support potential new reserves

<https://appgdarksbies.co.uk/>

Council for the Protection of Rural England (CPRE)

<https://www.nightblight.cpre.org.uk/take-action-about-local-light-pollution>

Regarding street lighting, CPRE states:

“The council will have several possible solutions available to tackle your problem, including:

- *installing shields to the streetlights (a common solution)*
- *replacing the light fitting*
- *install dimming technology (an expensive option that would apply to an area instead of an individual light and could ultimately save the council money)”*

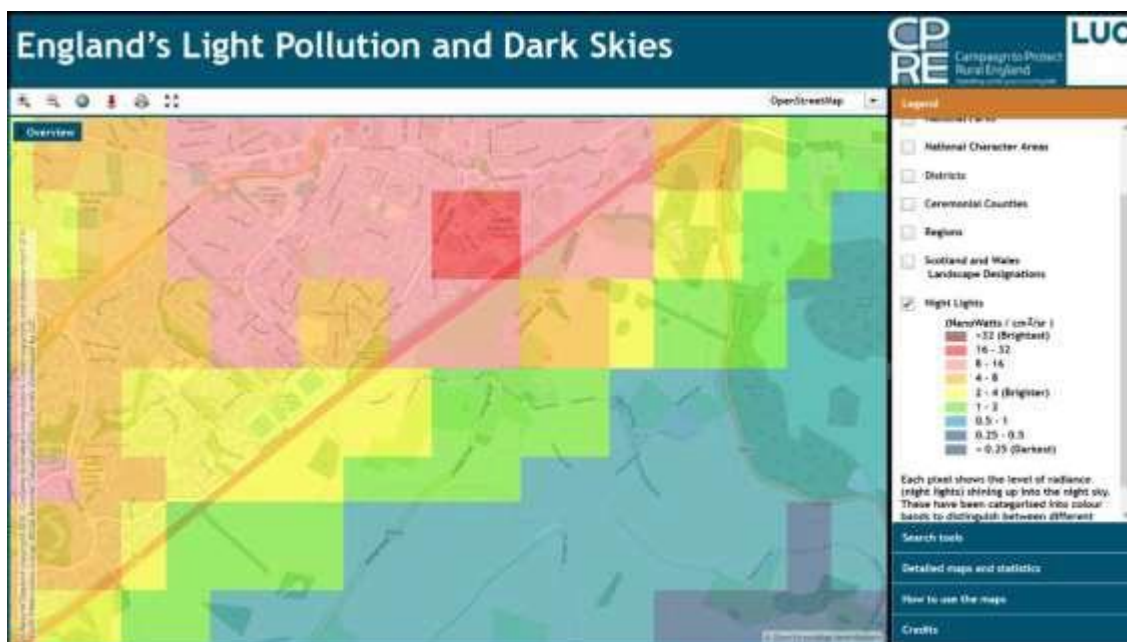


Fig 1 This map from the CPRE shows how Cliddesden has been negatively affected by lighting from Basingstoke. It also shows the dramatic difference in light pollution created by the urban area combined with the rural area around Cliddesden. The map also shows the high level of light pollution in the Viables area.

The **NASA** map below also clearly shows the skyglow of the Basingstoke conurbation that negatively affects Cliddesden parish's night skies south of the M3 motorway.

Fig 2 NASA World View Nighttime map 2016



The negative impact of artificial light on moths and other nocturnal insects

Research into the impacts of artificial light at night on moths has proliferated in recent years, revealing effects on behaviour and development throughout the life cycle². However, until now there has only been very limited evidence for a direct link between light pollution and population change in any moth species or communities³ and none in real-world situations.

A new study from **Butterfly Conservation, the UK Centre for Ecology & Hydrology and Newcastle University**, has changed all that. The research, led by PhD student Douglas Boyes, shows that streetlights in southern England reduce the abundance of moth caterpillars in grass verges by one-third (33%) and in hedgerows by almost a half (47%) compared to comparable unlit roadside habitat⁴.

Richard Fox, Associate Director Recording and Monitoring, Butterfly Conservation



<https://www.science.org/doi/10.1126/sciadv.abi8322>