

TO: PLANNING & REGULATORY COMMITTEE **DATE:** 7 December 2016
BY: PLANNING DEVELOPMENT TEAM MANAGER
DISTRICT(S) MOLE VALLEY DISTRICT COUNCIL **ELECTORAL DIVISION(S):**
Dorking Hills
Mrs Watson
Dorking & The Holmwoods
Mr Cooksey

PURPOSE: FOR DECISION **GRID REF:** 515484 144822

TITLE: MINERALS/WASTE MO/2016/0981

SUMMARY REPORT

Land at Bury Hill Wood, off Coldharbour Lane, Holmwood, Surrey RH5 6HN

Details of a Light Management Plan submitted pursuant to Condition 11 of appeal decision APP/B3600/A/11/2166561 dated 7 August 2015.

Planning permission was granted on appeal (ref: APP/B3600/A/11/2166561) for the construction of an exploratory well site, including plant, buildings and equipment with preliminary short-term drill stem test for one exploratory borehole, the erection of security fencing and associated works to an existing track on 7 August 2015.

Condition 11 of the appeal decision sets out the requirement to submit a Light Management Plan (LMP) be in accordance with plan 0277-1300-001 Rev A prior to the commencement of development of the site. Condition 11 sets out five subsections to which the Light Management Plan must provide detail on. These include details of the siting of the temporary lighting for all phases of the development; the hours lights would be illuminated for and good practice measures to minimise the use of lights; measures to control and minimise light spill; measures for reviewing any unforeseen impacts; and practical measures to minimise the upward waste of light and to minimise light spill into the surrounding woodland.

The applicant has submitted a LMP pursuant to Condition 11. The lighting scheme makes provision for four x 2No. Philips Optiflood 400w luminaires at 9 on portable lighting rigs along the boundary of the rig area; seven Cooper Crouse-Hinds 400W luminaires mounted at approximately 6m on the drilling rig structure/ associated cabins; 12 Cooper Crouse-Hinds 42w luminaires mounted on cabins around the boundary of the rig area; and 18 Cooper Crouse-Hinds 60w luminaires on the working areas of the drilling rig. In addition to this the applicant proposes eight luminaires along the length of the rig at various heights. A red light would also be in place on the top of the rig as required by Condition 10 so that the rig can be seen by aircraft.

The LMP outlines that all lighting that is not associated with the drilling and/ or flaring would only be on in accordance with the requirements set out in Condition 5 (hours of operation) of the appeal decision. Condition 5 does allow for exceptions to the hours of operation these being for emergencies, drilling and flaring. The LMP sets out that to reduce the impact of the lighting on the environment and sensitive receptors, shields/ hoods will be used on the Cooper Crouse-Hinds 400w luminaires. The LMP sets out that once installed the lighting would be checked by a suitably qualified lighting engineer to ensure the lighting has been installed with the requirements of the LMP and that the lighting would be periodically checked throughout the life of the development proposal to ensure compliance with the scheme. The LMP provides plan 0277-1300-001 Rev A, which is appended to this report, which shows that lighting lux levels are

kept within the application site except where there are gaps in the conifer trees where there are tracks.

Concern has been raised by Leith Hill Action Group (LHAG) that the LMP does not adequately address the practical measures to minimise the upward waste of light and light spill into the surrounding woodland and the particular impact this could have on a bat roost identified within a tree in close proximity to the application site; that insufficient information has been provided as to how unforeseen impacts would be reviewed; and insufficient information on the measures to control and minimise light spill. Three letters of representation have been received on this proposal.

The proposal should seek to comply with prevailing standards and development plan policies to ensure protection of the local environment and amenities of local residents from any potential adverse effects with regard to light pollution and visual amenity.

No objection is raised to the LMP from Mole Valley District Council Planning department, Mole Valley District Council Environmental Health department, the County Biodiversity and Ecology Manager, Gatwick Airport or the Surrey Hills Area of Outstanding Natural Beauty (AONB) Office. The County Lighting Consultant has reviewed the LMP and is satisfied with the details of the luminaires, the information on the calculated illumination levels across the site together with the likely intensity values at the identified sensitive receptors. The County Lighting Consultant has commented that the LMP shows the lighting would be contained generally within the site boundary with minimal spill lighting external to the site boundary and negligible sky glow.

Officers, having reviewed the LMP and consultee comments alongside taking into consideration the concerns raised by LHAG and representations received; consider the submitted LMP meets the requirements of Condition 11.

The recommendation is to APPROVE

APPLICATION DETAILS

Applicant

Europa Oil & Gas Ltd

Date application valid

10 June 2016

Period for Determination

5 August 2016

Amending Documents

Email dated 17 August 2016 and attached Lighting Management Plan report no 70025157-011-REP1 dated August 2016 and accompanying plans 0277-1300-001 rev A "Rig lighting location plan and spill light isolux contour plan sheet 1 of 1" dated July 2009 and 0277-1300-002 rev A "Receptor Location Plan Sheet 1 of 1" dated July 2009; emails dated 6, 7 and 9 September 2016; revised Lighting Management Plan Revision 1 (22 September) revised Lighting Management Plan 2016 Revision 2 (7 October); amplifying email dated 19 October 2016 with specific regard to Gatwick Airport queries; amplifying email dated 26 October 2016 addressing concerns raised by Surrey Wildlife Trust; revised Lighting Management Plan 2016 Revision 3 (18 November 2016).

SUMMARY OF PLANNING ISSUES

This section identifies and summarises the main planning issues in the report. The full text should be considered before the meeting.

	Is this aspect of the proposal in accordance with the development plan?	Paragraphs in the report where this has been discussed
Lighting	Yes	

ILLUSTRATIVE MATERIAL

Aerial Photographs

Aerial 1: Land at Bury Hill Wood, Coldharbour Lane, Holmwood

Aerial 2: Land at Bury Hill Wood, Coldharbour Lane, Holmwood

Site Plan

Plan 1

Site Photographs

Photograph 1 – entrance to land at Bury Hill Wood

Photograph 2 – access track to land at Bury Hill Wood

Photograph 3 – application site

Photograph 4 – application site

BACKGROUND

Site Description

1. The permitted drill site is located in a rural area at Bury Hill Wood, part of Abinger Forest, within the Metropolitan Green Belt and in the Surrey Hills Area of Outstanding Natural Beauty (AONB) and Area of Great Landscape Value (AGLV). The site lies some 3.5 kilometres (km) to the south west of Dorking, west of South Holmwood and approximately 700 metres (m) to the north of the Village of Coldharbour. The Anstiebury Camp, a Scheduled Monument, is found some 800m south of the site between Abinger Road and Anstie Lane.
2. The 0.79 hectare (ha) site is located within an elevated part of the Greensand Hills, which divide the North Downs from the Low Weald and is some 2.4km north east of Leith Hill. The site is defined on the southern and western boundaries by well established gravelled tracks. The proposed site contains uneven ground; it is situated at a height of 236m Above Ordnance Datum (AOD). The site is found within a plantation managed by the Forestry Commission, with rising land to the east and north. The western part of the site falls within the Abinger Forest Ancient Replanted Woodland. There are a number of 'dells', former quarries thought to date from the 18th or 19th century on, and in, the vicinity of the site. The land to the west drops to a valley that has Coldharbour Village at its southern end. The site would be situated at approximately the same elevation as Coldharbour Village. Although no public rights of way are directly affected by the proposal, the public has open access to the Forestry Commission land and the woods are used for informal recreational purposes.

3. Access to the site would be gained via Coldharbour Lane and utilise an existing Forestry Commission entrance and 250m of existing access track. The access with Coldharbour Lane (D289) is approximately 600m north of the junction with Anstie Lane (D297)/Abinger Road (D289) and 1.5km south of Logmore Lane (D288). Coldharbour Lane links to the A24 via Knoll Road (D2841) and Flint Hill (A2003) to the south of Dorking.
4. There is a residential property known as Lower Meriden some 520m north west of the site and about 35m lower in elevation. The properties known as White Cottage, Ranmore Cottage and Ivy Cottage at the eastern end of Coldharbour Village and within its Conservation Area are some 512m from the southernmost end of the site. The Coldharbour Village Conservation Area extends from the junction of Coldharbour Lane, Abinger Road and Anstie Lane in a band that includes the majority of the village properties and ends just short of The Landslip to the west of Coldharbour.
5. There are two important aquifers present in the Dorking area, the Chalk and the Lower Greensand. The primary aquifer, the Chalk, is not present in the proposed borehole location. The secondary aquifer, the Lower Greensand, is exposed at surface and would be penetrated by the upper part of the proposed exploratory borehole.

Planning History

6. Planning application ref: MO09/0110 was refused by Surrey County Council (SCC) on 30 June 2011 for the following development: "Construction of an exploratory drillsite to include plant, buildings and equipment; the use of the drillsite for the drilling of one exploratory borehole and the subsequent short term testing for hydrocarbons; the erection of security fencing and the carrying out of associated works to an existing access and track all on 0.79 ha, for a temporary period of up to 3 years, with restoration to forestry." At the Planning and Regulatory Committee on 25 May 2011, Members had earlier resolved to refuse the application for the following reasons:
 - (1) *The proposed exploratory drilling development will have a significant adverse impact on the Area of Outstanding Natural Beauty (AONB) in the setting of Leith Hill which cannot be mitigated and where exceptional circumstances including the public interest have not been demonstrated to justify the grant of planning permission. The proposal is therefore contrary to Government Planning Policy as set out in Minerals Policy Statement 1 (Planning and Minerals) November 2006 and Planning Policy Statement 7 (Sustainable Development in Rural Areas) August 2004, The South East Plan May 2009 Policy C3 (Areas of Outstanding Natural Beauty); the Surrey Minerals Plan 1993 Policy 1 (Environmental and Amenity Protection) and the Mole Valley Local Development Framework Core Strategy 2009 Policy CS13 (Area of Outstanding Natural Beauty and Area of Great Landscape Value).*
 - (2) *There is insufficient evidence to demonstrate why the proposed exploratory drilling development cannot be located beyond the boundary of the Area of Outstanding Natural Beauty (AONB) designation. The proposal is therefore contrary to Government Planning Policy as set out in Minerals Policy Statement 1 (Planning and Minerals) November 2006 and Planning Policy Statement 7 (Sustainable Development in Rural Areas) August 2004 and Surrey Minerals Local Plan 1993 Policy 15 (Environmental & Ecological Impact of Hydrocarbon Development).*
 - (3) *It has not been demonstrated to the satisfaction of the County Planning Authority that the proposed traffic management measures are adequate to protect the character of Coldharbour Lane; where the nature of the traffic activity would have the potential to irreversibly damage the historic banks and trees and lead to the industrialisation of the character of a quiet rural road; or adequate to protect the amenity of highway users and residents in Knoll Road, Coldharbour Lane and the broader vicinity; contrary to the Mole*

7. The applicant then made an appeal to the Secretary of State against the refusal. The above reasons for refusal were subsequently amended by Surrey County Council in the run up to the first appeal Public Inquiry, with the second reason for refusal withdrawn and the third amended to read as follows: *‘It has not been demonstrated to the satisfaction of the County Planning Authority that the proposed traffic management measures are adequate to protect the character of Coldharbour Lane; where the nature of the traffic activity would lead to the industrialisation of the character of a quiet rural road; or adequate to protect the amenity of highway users and residents in Knoll Road, Coldharbour Lane and the broader vicinity; contrary to the Mole Valley Local Plan 2000 Policy MOV2 (The Movement Implications of Development) and Surrey Minerals local Plan 1993 Policy 1 (Environmental and Amenity Protection).’*

8. The appeal was subsequently dismissed by the Secretary of State’s Inspector on 26 September 2012. However, Europa Oil and Gas Ltd then successfully challenged the Inspector’s decision in the High Court, and on 25 July 2013 the judge quashed the earlier appeal decision. Leith Hill Action Group, which was a defendant to the proceedings in the High Court, then appealed against the judge’s decision. This appeal was dismissed by the High Court on 19 June 2014 and a new Public Inquiry was held in the spring of 2015. The Inspector issued his decision (ref: APP/B3600/A/11/2166561) on 7 August 2015 and allowed the appeal with the following formal decision reason: *‘Having regard to the evidence presented to the inquiry, the written representations and visits to the appeal site and surroundings, I am convinced that the short-term harm to the identified interests of acknowledged importance would be clearly and demonstrably outweighed by the fully reversible nature and the benefits of the scheme in national and local terms...Accordingly, and having taken into account all other matters raised, this appeal succeeds’*. This Appeal Decision has 23 Conditions which are required to be complied with, some of which require the submission of detail for approval by the County Planning Authority.

9. In addition to the above, the applicant submitted a planning application for an underground drilling corridor of an exploratory hydrocarbon borehole (ref: MO/2014/1006) which was permitted, subject to four conditions, on 25 September 2015. This application will include the drilling of an underground drilling corridor from land at Bury Hill Wood (the land which is the subject of this planning application) to land under Coldharbour Village. The borehole would be drilled to an anticipated total depth of 1,450m true vertical measured depth in order to target the Downdip Portland Target, with a ‘deviation tolerance zone’ of 8.5 hectares. The underground route of the drilling operation was not included within the earlier planning application refused by SCC (see above, ref: MO09/0110 – allowed at appeal), which sought planning permission for the over ground exploratory drill-site operations.

THE PROPOSAL

10. The applicant has submitted a planning application to discharge Condition 11 from appeal decision ref: APP/B3600/A/11/2166561. This condition states:

<p><i>Condition 11 Details of a Light Management Plan</i></p>	<p><i>No development hereby permitted (save for anything done pursuant to Condition 15 (Ground and surface water monitoring) shall commence until a Light Management Plan has been submitted to the County Planning Authority and approved in writing. The Light Management Plan shall be in accordance with drawing no. 0277-1300-001 Rev A and shall include details of:</i></p> <p style="margin-left: 20px;"><i>i. the siting of temporary security lighting for all phases of the development, taking into account the location of sensitive receptors;</i></p>
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	<p><i>ii. the hours lights would be illuminated and good practice measures to minimise the use of lights;</i></p> <p><i>iii. measures to control and minimise light spill;</i></p> <p><i>iv. measures for reviewing any unforeseen impacts;</i></p> <p><i>v. Practical measures to minimise upward waste of light from site luminaries and to minimise light spill into the surrounding woodland.</i></p> <p><i>The approved Light Management Plan shall be implemented for the duration of the development.</i></p>
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11. The applicant originally provided a lighting plan showing the positions and types of lighting that would be used on the application site for the drilling phase. The applicant confirmed that lighting on site during the construction and restoration phases would be from the machinery itself and work would be carried out during daylight hours. Following the receipt of comments from statutory and non-statutory consultees on this submitted scheme, the applicant chose to revise the scheme and resubmitted a Light Management Plan document and two plans (twice). The content of these are as follows.

Light Management Plan document (November 2016 rev 3)

12. Considers:
- What the artificial lighting generating activities are
 - What the light spill concerns are
 - What the mitigation measures can be
 - The management procedures for potential impacts from the artificial lighting
13. With regards to lighting the document outlines there are two main phases these being the commissioning and decommissioning phase and the operation phase.

Commissioning and Decommissioning Phase

14. During these phases of the works the areas to be illuminated temporarily would be area lighting associated with the installation of the rig and site compound, and security lighting for the rig and compound. The lighting during these phases would include
- Four portable lighting towers/ rigs with twin Philips optiflood MVP506 A/61 complete with 400w SON-TP lamp mounted at 9m. All luminaires will have a zero degree tilt on the luminaire
 - eight fixed Cooper Crouse – Hinds CPMVF Champ Pak luminaire complete with 2No Philips PL-T 42w lamps mounted at approximately 3m on compound cabins generally facing into the site working area from the perimeter cabins.
15. The hours of operation for the construction lighting would be in accordance with those proposed in chapter 5 table 5.2 – 5.4 of the ES¹ except in an emergency² and for the

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HGV construction delivery hours	Monday – Friday	09:30 – 15:00
	Saturday	09:30 – 13:00
	Sunday	None
Construction and site preparation working hours	Monday – Friday	07:00 – 18:00
	Saturday	07:00 – 13:00
	Sunday	None
Equipment assembly working hours	Monday – Friday	07:00 – 18:00
	Saturday	07:00 – 13:00
	Sunday	None

² The applicant has defined an 'emergency' as "due to protesters breaching the Site, or such instances where there may be mechanical failures". Officers have the opinion the term 'emergency' should take the plain English dictionary definition of "an unexpected and serious happening which calls for immediate and determined action".

ingress and egress of relevant HGVs that are in accordance with Condition 17 of the appeal decision³.

Operational Phase

16. During the drilling phase there will be a need for lighting of the site for 24 hours a day for health and safety reasons. As a working rig floor is defined as a work area and requires strict safety systems to make it safe for employees, the applicant states that there is a duty to light the area clearly and to the correct levels. The applicant states that to provide the safest working environment the luminaires would be white light and would have to meet specific lux requirements. The drilling rig has an overall height of 35m with lighting units located along its length at the following heights (there would be eight luminaires in total with a red strobe light on the top of the rig):
 - 32.64m – CEAG ELLK 18 watt luminaire
 - 30.78m – CEAG ELLK 18 watt luminaire
 - 26.18m – CEAG ELLK 36 watt luminaire
 - 22.22m – CEAG ELLK 36 watt luminaire (1 no. either side)
 - 18.25m – Victor Viscount VL51A 18 watt luminaire
 - 13.32m - Victor Viscount VL51A 36 watt luminaire
 - 7.44m – CEAG ELLK 36 watt luminaire
17. The drilling rig has further operational areas which are to be lit utilising the following fixed luminaires:
 - 7No. Cooper Crouse-Hinds EVM Series luminaire complete with 400 watt SON lamp
 - 18No. Cooper Crouse-Hinds FVN Series luminaires complete with 2 x 60 watt T-12HO fluorescent lamps
 - 4No. Cooper Crouse-Hinds CPMVF Champ Pak luminaires complete with 2 x 42 Watt Philips PL-T lamps
18. The scheme identifies that due to the topography of the land and the existing intervening coniferous trees the residential dwellings will not have direct views of the derrick during the operational phase. Therefore the key area of concern would be potential for sky glow. However the applicant has, as part of the lighting assessment included 11 residential receptors in Coldharbour. As part of the plan a spill light isolux contour plan has been provided to show the spread of lighting in the site and beyond.
19. The submitted plan shows that the spill light level is contained within the site. However the light management plan does recognise that 15m of the mast would protrude above the conifer plantation and therefore the light fittings would be seen as well as the vertical illuminated surfaces of the rig.
20. Specific task lighting will be switched off when not required and would revert back to a base security level. All lighting would be controlled by photoelectric control cells or timers such that the lighting is only operational during the hours of darkness or when natural lighting levels fall below the required operational levels. All luminaires would be mounted with a zero degree tilt to the horizontal. Prior to the use of any lighting during the various phases the lighting will be inspected and signed off by the designers to ensure they have been installed in accordance with the design. The lighting would also be periodically inspected during the site operations to ensure the correct tilt angles.

³ Condition 17 - With the exception of the 2No. three day road closures, no relevant vehicle shall enter or leave the application site other than between the hours of 0930 to 1500 hours Monday to Friday and 0930 to 1300 hours on Saturdays; no relevant vehicles (as defined in Condition 16) shall enter or leave the site at any time on Sundays, Bank or National Holidays. The developer shall notify the County Planning Authority in writing of the dates of any road closures at least seven working days prior to the road closure.

CONSULTATIONS AND PUBLICITY

District Council

Mole Valley District Council

- | | | | |
|-----|----------------------|---|--------------|
| 21. | Planning | : | No objection |
| 22. | Environmental Health | : | No objection |

Consultees (Statutory and Non-Statutory)

- | | | | |
|-----|--|---|---|
| 23. | Countryside Management and Biodiversity Manager | : | No objection |
| 24. | Area of Outstanding Natural Beauty (AONB) Office | : | No objection |
| 25. | Natural England | : | the Standing Advice should be used and the views of the councils own ecologist be sought. |
| 26. | County Lighting Consultant | : | No objection |
| 27. | National Trust | : | No objection |
| 28. | Surrey Wildlife Trust | : | Request the tree which has been identified as having potential for roosting bats, be monitored during the duration of the development for presence of bats and mitigation measures be provided. |

Parish/Town Council and Amenity Groups

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|-----|--------------------------------|---|---|
| 29. | Capel Parish Council | : | No objection |
| 30. | Holmwood Parish Council | : | No comments received |
| 31. | Wotton Parish Council | : | No comments received |
| 32. | CPRE | : | No comments received |
| 33. | Leith Hill Action Group (LHAG) | : | Do not agree with the applicants definition of an 'emergency', consider the LMP is ambiguous with regards to lighting for the rig in terms of installing the lighting on the rig whether it would only be done during the daytime; that mitigation measures with regards to any potential bats within the tree identified as having potential for roosting be provided. |
| 34. | Westcott Village Association | : | No comments received |
| 35. | Frack Free Surrey | : | No comments received |

Summary of publicity undertaken and key issues raised by public

36. The application was publicised by the posting of six site notices. A total of 216 owner/occupiers of neighbouring properties were directly notified by letter. Three letters of representation were received following this publicity raising the following concerns:
- Bringing attention to the fact historically there has been a large amount of objection to the original proposal [now permitted by appeal ref: APP/B3600/A/11/2166561]
 - Objecting to inappropriate development taking place within the Green Belt and AONB alongside the roads not being able to cope with the traffic.
 - That light spill in the AONB is unacceptable at any time and although it is stated work would only be undertaken in daylight hours natural daylight is gone by 3:30pm in the winter afternoons.
37. Following this, amending information to the application was submitted in August 2016 in the form of a revised LMP. Those who had made representations on the first round of publicity were notified of the amending information. No further letters of representation have been received.
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PLANNING CONSIDERATIONS

Introduction

38. The guidance on the determination of planning applications, found at the end of this report, is expressly incorporated into this report and must be read in conjunction with the following paragraphs. In this case the statutory development plan for consideration of the application consists of the Surrey Minerals Local Plan 2011, the Mole Valley Local Plan 2000 and the Mole Valley Core Strategy 2009. In considering this application the acceptability of the proposed development will be assessed against relevant development plan policies and material considerations.
39. In assessing the application against development plan policy it will be necessary to determine whether the proposed measures for mitigating any environmental impact of the development are satisfactory. In this case the main planning considerations are whether the proposed lighting scheme would cause sky glow, glare and intrusion into both the AONB and any residential properties.

LIGHTING

Surrey Minerals Plan 2011

Policy MC14 – Reducing adverse impacts of mineral development

Mole Valley Local Plan 2000

Policy ENV57 – Lighting Proposals

Mole Valley Core Strategy 2009

Policy CS13 – Landscape Character

40. The application site is located within the Surrey Hills AONB, an area where the NPPF places great weight to conserving the landscape and its scenic beauty. Para 115 of the NPPF states that AONBs (alongside National Parks and the Broads) “*have the highest status of protection in relation to landscape and scenic beauty*”. With regards to lighting specifically, para 125 of the NPPF states that good design, planning policies and decisions should “*limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation*”.
41. With regards to the Development Plan, Policy MC14 of the SMP2011 requires in the consideration of applications for minerals development that the potential impacts from illumination be considered. The MVLP2000 Policy ENV57 recognises that lighting proposals, unless controlled, can have a significant adverse effect on residential amenities or the character of the countryside in the form of light spillage and sky glow recognising it is a form of light pollution. The policy supporting text states where lighting proposals are approved, lights should be appropriately shielded, directed to the ground and sited to minimise the impact on adjoining areas, and be of a height and illumination level reasonably required to serve their purpose. The text also says that conditions can be imposed to control the hours of illumination. MVLP2000 Policy ENV57 states that proposals for illumination of other facilities [to those listed in the policy which this application does not fall within] will not be permitted where they would significantly and adversely affect the amenities of residential properties, Conservation Areas or Listed Buildings, or the character and appearance of the countryside. Where permission is granted, the policy requires consideration to be given to imposing conditions to limit the impact of the illumination. Policy CS13 of the MVCS2009 seeks to protect the Surrey Hills AONB stating that particular focus will be given on levels of artificial light.
42. The Surrey Hills AONB Management Plan 2014 – 2019 also sets out policies with regards to land use planning with the aim of enhancing the local character and environmental quality of the AONB. The Surrey Hills AONB Management Plan and its policies are material considerations in the planning decisions. Policy LU1 of the Management Plan requires great weight to be attached to any adverse impact that a

development proposal would have on the amenity, landscape and scenic beauty of the AONB. Policy LU2 states that development should respect the special landscape character of the locality giving particular attention to potential impacts on light pollution. Policies LU3 and LU4 are no relevant to this proposal. Policy LU5 states that development that would spoil the setting of the AONB, by harming public views into or out of the AONB, will be resisted.

43. The Institute of Lighting Professionals have published “Guidance Notes for the Reduction of Obtrusive Light” to assist in the understanding of how artificial light can be designed so not to cause obtrusive light. Sky glow (the brightening of the night sky), glare (the uncomfortable brightness of a light source when viewed against a darker background) and light intrusion (trespass – the spilling of light beyond the boundary of the property or area being lit) are all forms of obtrusive light. Obtrusive light is a nuisance. The guidance recognises that in areas with low ambient lighting levels, glare can be very obtrusive with extra care being taken with regards to positioning and aiming of lighting equipment.
44. The guidance outlines that to minimise glare and sky glow lighting equipment should be installed near to and above the horizontal. In rural areas the use of full horizontal cut off luminaires installed at 0° uplift will, in addition to reducing sky glow, also help to minimise visual intrusion within the open landscape. The higher the mounting height of the luminaire the better the main beam angle of light will be so that it is pointing downwards and reducing glare. The guidance outlines that if there is no alternative to up-lighting, then shields, baffles and louvers should be considered to help reduce spill light around and over the structure to a minimum. Care should always be taken to minimise any upward waste light by the proper application not suitably directional luminaires and light controlling attachments.
45. The ILP have produced Environmental Zones that it is recommended that Local Planning Authorities specify for exterior lighting control and in development control decision-making. These lighting zones are:

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves
E1	Natural	Intrinsically dark	National Parks, AONB
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/ city centres with high levels of night time activity

The application site falls within Environmental Zone E1 which is an intrinsically dark environment within the AONB. The ILP guidance then provides design guidance for each Environmental Zone setting out limitations for sky glow, light intrusion and luminaire intensity (in candelas) that are advised to be adhered to in designing exterior lighting. For Environmental Zone E1 these are:

Environmental Zone	Sky Glow ULR ⁴ [Max %]	Light Intrusion (into Windows) Ev ⁵ [lux]		Luminaire Intensity I ⁶ [candelas]		Building Luminescence Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average L ⁷ [cd/m ²]
E1	0	2	0 (1*)	2,500	0	0

⁴ ULR – Upward Light Ratio of the Installation is the maximum permitted percentage of luminaire flux that goes directly into the sky.

⁵ Ev – Vertical Illuminance in Lux measured flat on the glazing at the centre of the window

⁶ I – Light Intensity in Candelas (cd). This applies to each luminaire in the potentially obtrusive direction.

⁷ L – Luminescence in Candelas per square metre

* = permitted only from public road lighting installations

46. As can be seen from the ILP guidance above, any lighting that is to be installed at the application site should have no upward sky glow with no light intrusion into windows at night and no luminaire intensity at night time. Following the submission of the original light management scheme, consultees requested further information and clarification in particular that a post installation validation visit be conducted to measure the luminaires installed and to allow for measuring of any unforeseen impacts (Mole Valley EHO), that no specific lighting calculations were provided (the County Lighting Consultant) and that there was insufficient information to demonstrate practical measures to minimise the light spill into the surrounding woodland (Countryside Management and Biodiversity Manager).
47. In addition to the ILP guidance, the Bat Conservation Trust and ILE (now ILP) produced guidance to raise awareness of the impacts of lighting on bats and mitigation. The guidance says that it is an offence to kill, injure, capture or disturb bats, obstruct access to bat roosts or damage/destroy bat roosts; and that lighting in the vicinity of a bat roost causing disturbance could constitute an offence. The guidance outlines that illumination of a bat roost can create disturbance and may cause bats to desert the roost and any lights falling on roosts could delay them emerging to forage thereby reducing their time available for foraging. Additionally the insects bats feed upon may be affected by lighting. The guidance advises that no bat roost should be directly illuminated and to reduce the impact on foraging and commuting that low pressure sodium lamps should be used. The guidance advises that lighting should be directed to where it is needed and light spillage avoided through the use of hoods and/ or shields.
48. Following this, the applicant revised the light management plan and it was resubmitted. It will be reviewed against each of the criteria set out in Condition 11.
- i. the siting of temporary security lighting for all phases of the development, taking into account the location of sensitive receptors*
49. The applicant has provided drawing no. 277-1300-001 rev A which shows the positioning of all lighting to be used at the application site for the duration of the development. This drawing outlines that there would be:
- four sets of Phillips Optiflood luminaires with 400 watt lamps being mounted at 9m on portable rigs with three of these being positioned along the northern boundary and one on the south eastern boundary; and
 - 12 Cooper Crouse-Hinds luminaires with 42 watt lamps mounted at the height of approximately 3m on the cabins within the compound site
50. With regards to the rig, the applicant states there would be:
- seven Cooper Crouse-Hinds luminaires with 400 watt lamps mounted on 6m cabins associated with the rig itself
 - 16 Cooper Crouse-Hinds luminaires with 60 watt lamps mounted at a height of approximately 3m on various working areas of the drilling rig
 - The specific lighting at various heights on the rig itself as listed above in paragraph X
 - A red warning light on top to warn any aircraft flying in the locality of the rig.
51. The drawing not only shows the positioning of the proposed lights and what type of lights would be used; it also shows Lux contour lines for the whole site to show what the lighting levels would be across the site and to show that the lighting levels diminish moving away from the light sources.
52. Officers are satisfied that drawing 277-1300-001 rev A clearly shows the siting of all the lighting to be used throughout the development proposal. The positioning of the lighting shows that it is to be based on structures and cabins that require lighting for health and safety reasons and to be facing inwards into the application site thereby taking into

account the location of sensitive receptors. The County Lighting Consultant having reviewed the amended information states he is satisfied with the details provided of the luminaires, such as height and lamp source and their intended hours of operation. The Surrey Hills Officers are satisfied that this aspect of the condition has been satisfied.

- ii. *the hours lights would be illuminated and good practice measures to minimise the use of lights;*
53. The applicant sets out that for the construction and decommissioning phase, the hours of operation for the lighting would be in accordance with table 5.2 – 5.4 of the Environmental Statement which is set out above at footnote 1. Furthermore, Condition 5⁸ of appeal reference APP/B3600/A/11/2166561 is explicit that the hours of operation for the site (except in emergencies, drilling, gas flaring and ingress and egress by relevant HGVs) is 0700 – 1800 hours Monday to Friday; and 0700 – 1300 hours Saturdays. Consequently lighting for cabins would be restricted to these hours and lighting for any activities on site during the construction and decommissioning phase would also be restricted to these hours. With regards to an emergency, the applicant has described an emergency as being due to a breach of the site or a mechanical failure. Officers also consider the term emergency should be taken as the plain English dictionary definition of “*an unexpected and serious happening which calls for immediate and determined action*”. LHAG have commented that they are not happy with the applicant’s explanation of what they (the applicant) deem to be an emergency and that they do not view a mechanical failure as an emergency unless there is a threat to life. LHAG request an informative is placed on any decision made for the LMP setting out what constitutes an emergency. Officers agree with this request and an Informative is proposed setting out what Officers consider to constitute an emergency.
54. LHAG had raised concerns that the LMP had originally said that some low level security lighting would be used during the hours of darkness outside of the hours stipulated in Condition 5. This was drawn to the applicant’s attention and the LMP has subsequently been amended to remove that requirement and to recognise the restraints imposed by Condition 5 to address this point.
55. During the operational phase, as this is a 24 hour operation, lighting will be required during the hours of darkness. The applicant has outlined that lighting during this phase will not only need to meet health and safety requirements in the working areas and be suitable for the area i.e. explosion proof; but will also need to be sensitive to the area of the application site. As such the applicant states the lighting on the rig would be white light and the Light Management Scheme sets out lux levels for each working area of the rig. In addition to this, as outlined above, there would be a red light fixed on top of the top of the rig as a warning device to flying aircraft during the operational phase and it would be present throughout that phase.
56. The County Lighting Consultant has reviewed the revised Light Management Plan and is satisfied that the applicant has clearly said when the lighting would be used and why; and is satisfied that the lighting proposed has been minimised in terms of the number of lights and the use of shields. The AONB office have raised no objection to this part of the condition with regards to protection of the AONB saying they have taken into account the relatively short period of time there would be lighting on the site.

iii. *measures to control and minimise light spill;*

⁸ With the exception of emergencies, drilling, gas flaring and ingress and egress by relevant HGVs as specified in Condition 17, no lights shall be illuminated nor shall any operations or activities authorised or required by this permission, take place other than during the hours of:

0700 to 1800 hours Monday to Friday

0700 to 1300 hours on Saturday

Apart from the exceptions referred to above, there shall be no working at any time on Sundays, Bank or National Holidays.

57. The submitted scheme shows that the calculated Sky Glow levels would be 0.15 which would marginally fail to meet the requirements of the ILP requirements for Environmental Zone E1 which is for a maximum level of 0. However, this exceedence would be for the operational phase when the rig is in place and needs to be lit for health and safety reasons, being for a limited period of 4 – 6 weeks. The submitted lighting drawing as part of the LMP (no. 277-1300-001) shows the spill light in lux levels and shows the 1 lux contour line going beyond the operational site boundary. Again this is when all the lighting is operational during the operational phase and the 1 lux contour line predominantly remains within the application site except for a gap in the tree barrier where the access road goes into the site.
58. To control this and minimise the Sky Glow from the application site, the applicant proposes that shields are fitted to the seven Cooper Crouse-Hinds EVM 400 Watt luminaires which would be fitted on the drilling rig. LHAG have commented that they assume the use of the shields would form part of the LMP and this is correct.
59. In addition to the use of shields, the LMP proposes the following mitigation:
- specific task lighting will be switched off when not required and will revert back to a base security level
 - all lighting on the site will be controlled by photoelectric control cells or timers such that lighting is only operational during the hours of darkness or when natural lighting levels fall below the required operational levels but in accordance with Condition 5 requirements
 - all luminaires (with the exception of those mounted vertically on the derrick) shall be mounted with a zero degree tilt to the horizontal
 - and where required the luminaires shall have additional hoods/ shields to further minimise light spill.
60. The applicant also proposes that prior to the use of any lighting on site during the various phases that the lighting be inspected by an experienced lighting designer who meets the ILP competency requirements otherwise a Member of the ILP and is I.Eng or greater and signed off.
61. Having reviewed the submitted information the County Lighting Consultant states that based on the information submitted he would not expect there to be any issues with light pollution or nuisance glare to nearby sensitive receptors. The County Lighting Consultant comments that based on the submitted drawing the illumination is contained generally within the site boundary with minimal spill lighting external to the site boundary and negligible sky glow. The County Lighting Consultant raises no objection to the scheme and is satisfied with this aspect of the proposal.
62. The AONB office have reviewed the amended details and have commented that they note that there are worker safety issues that are to be respected. The AONB office go on to comment that from the submitted scheme, they are satisfied the applicant has tried to restrict any light spillage and light pollution in this remote area which also falls within the category of dark skies. The AONB office also acknowledge that the development proposal is for a short duration of time and that this matter forms part of the balancing exercise.
- iv. measures for reviewing any unforeseen impacts;*
63. The LMP states the lighting would be checked prior to the use of any one phase to ensure compliance with this scheme. In addition to this, the lighting installation would be periodically inspected during the site operations to ensure the correct tilt angles and aiming directions are maintained throughout the development proposal again to comply with the scheme. The applicant has stated that if any equipment is found to be incorrectly

aligned that modifications will be made so that the lighting is returned to as it is designed to be. The lighting would then be re-inspected if required. The applicant states that this monitoring will ensure that if there are any unforeseen impacts they are dealt with and that the lighting is corrected and the lighting is minimised as much as possible.

64. Mole Valley Environmental Health Officer (EHO) had raised concerns that the submitted LMP did not include specific information as to how, once the lighting scheme is in place, it would be verified and that this information should be submitted to the County Planning Authority for verification if it is requested. The LMP outlines that at each phase the lighting would be checked to ensure it is in compliance with the approved scheme and that it would be periodically checked to ensure compliance. The applicant has also confirmed that should the County Planning Authority request to see evidence of the checking of the lighting (for example if a complaint is received) that it would be provided within 3 working days of the request. The EHO has confirmed this has addressed his concerns and he raises no objection to the scheme.
65. LHAG have also raised concerns that they cannot identify within the LMP measures for reviewing any unforeseen impacts a requirement of Condition 11(iv). Officers consider that the details provided in paragraphs 6.1.7 and 6.1.8 of the LMP which are described above in paragraph 59 set out measures for addressing unforeseen impacts through the periodic checking of the lighting. In addition to this the LMP outlines that there will be a direct point of contact for residents whilst works are ongoing and that if a complaint were to arise with regards to lighting or an unforeseen matter arises with the lighting, they will use best endeavours to deal with it promptly. Therefore with this in regard, Officers consider that the requirements of Condition 11(iv) have been met.

v. Practical measures to minimise upward waste of light from site luminaires and to minimise light spill into the surrounding woodland.

66. As outlined above, the applicant proposes to place shields/ hoods on the Cooper Crouse-Hinds 400 watt luminaires to minimise the light spill from these luminaires. Also as outlined above the applicant proposes measures such as having task specific lighting turned off when not required, lighting being controlled by photoelectric control cells so they would only come on when natural lighting levels were such that they fall below operational levels; and lights being mounted such that they have zero degree tilt.
67. LHAG have commented that the LMP relies too much on the screening effect of the surrounding conifers to provide mitigation for the proposal and that the Inspector would have been aware of the conifers and yet still included the requirement for practical measures. The LMP does acknowledge that the surrounding conifers provide some screening effect providing a transparency factor of 20% (i.e. the amount of light that shines through the live portion of a tree's crown). Officers recognise that the LMP does state that the conifers would provide some screening to the application site and this is acknowledged within paragraph 44 of the Inspectors report which stated "*The noise and lighting associated with the compound and drilling operation would impact on those closest to the site and the Lane, but from the information submitted, I do not anticipate that any would be affected inordinately*". However the LMP does not rely solely on the conifers to provide mitigation or practical measures for minimising the upward waste of light and light spill into the woodland. As can be seen in paragraph 56 of this report, the LMP sets out a number of mitigation measures to reduce glow and spill; and as outlined above in paragraph 55 the LMP proposes the use of shields on the seven Cooper Crouse-Hinds EVM 400 Watt luminaires to be fitted on the drilling rig. Officers consider the LMP has set out a number of mitigation measures to minimise sky glow and spill as required by Condition 11(v) and this can be seen by the lux contour lines shown on the submitted plan (no. 277-1300-001) that are within the confines of the conifer plantation.
68. The Countryside Management and Biodiversity Manager originally raised concern that there was insufficient information provided as to how the scheme had been designed to

have minimal impact on the surrounding ecology of the application site. Following the submission of the revised scheme which includes details of how hoods/ shields would be fitted and detail on how lights would be switched off and be fitted to the vertical level, alongside the provision of the drawing; the Countryside Management and Biodiversity Manager has confirmed that he raises no objection and is satisfied with the detail provided to satisfy the requirements of part v of the condition.

69. Surrey Wildlife Trust (SWT) have commented that there is a tree that has been identified within the Ecological Management and Monitoring Plan (EMMP) submitted to comply with the requirements of Condition 9, which has been identified as having the potential as a possible bat roost. SWT have requested that further information be provided on mitigation measures to prevent roost disturbance. SWT have also requested information on the risk of foraging or commuting bats that could be affected by the lighting. LHAG have also raised similar concerns.
70. Natural England has standing advice on how planning applications should consider their impacts on bats. This standing advice sets out examples of types of development that could impact on bats of which none of the categories fall within the LMP remit. The standing advice sets out when surveys would be required and how they should be carried out and this has been done as part of the EMMP. The standing advice states that the long term impacts of the development proposal should be considered and this can include 'external lighting near flight paths' which is relevant to this proposal. The standing advice has a Scale of Impact table for impacts on roosts and the impact should be considered in light of what is proposed and the timing of the development.
71. The tree that has been identified in the EMMP is to the west of the identified rig area of the application site beyond path that is used by walkers (please note this path is not a definitive or permissive footpath) and just within the 1 lux level identified on the submitted plan.
72. The applicant has stated that the tree having been assessed as having moderate bat roost potential was adjudged to be suitable for summer roosting only with no potential for hibernation since the heartwood is gone thus offering no thermal stability and completely open to the elements. This is stated within the EMMP Appendix 3⁹. The applicant has stated that due to current proposed timing of the development, the exploratory operational works would not be carried out during the summer period therefore the proposal would not disturb summer roosting bats. Given the tree has no winter hibernation potential the works would also not impact on bats hibernating in the tree over the period when the applicant proposes operational development would take place. The standing advice does say that appropriate mitigation for bats is changing the timing of the works to avoid harm to bats and by the operations taking place during the hibernation months this would meet this advice.
73. With regards to foraging and commuting bats, the applicant states that the bat species recorded is pipistrelles and such species are not particularly light sensitive. The applicant states that the bat surveys carried out have identified low level of bat activity within and close to the site. On reviewing this information against the Scale of Impact tables in the standing advice, Officers consider that that the LMP would have a 'low impact' on bats particularly given the identified tree has no potential for winter hibernation and that the applicant is proposing the commence development outside of summer months. The standing advice says that even for low impacts mitigation measures should be considered and Officers are satisfied that the mitigation measures proposed meet the standing advice requirements. SWT have reviewed the LMP and the information provided from the applicant on bat and have commented that the information provided has addressed their concerns regarding the tree roost and potential effect of lighting on

⁹ The EMMP has been submitted to the County Planning Authority but has yet to be approved.

bats. LHAG have been provided with the revised LMP and any further comments from LHAG will be provided to the committee via an Update Sheet.

74. Natural England have also produced standing advice for wild birds. In this standing advice it sets out if surveys are required and when they should be carried out. The standing advice sets out mitigation measures which include siting the site away from breeding birds, avoiding parts of the site, carrying the operations out outside of bird nesting season, ensuring habitats are protected, removing habitat features; and providing replacement nesting. Officers recognise that the applicant is proposing to carry the works outside of bird nesting season (March – August) so to avoid nesting. Therefore with regards to this particular application and the LMP, Officers are satisfied that the applicant has provided mitigation through the timing of the works. Furthermore as outlined above, the lighting would be directional and focused towards the rig area and would not be on during night time hours elsewhere on the site, i.e. the cabins/ access track, thereby minimising any potential for disturbance to wild birds.
75. Officers are satisfied that the applicant has outlined in the submitted LMP measures to minimise upward lighting and minimise light spill through the use of directional lighting, shields and timers to switch the lighting off. Officers recognise SWT and LHAG concerns regarding bats but note that the tree identified as having roosting potential would only be for the summer months which the applicant does not intend to commence development due to other restrictions such as the bird nesting season. Officers consider the LMP addresses this requirement of Condition 11 (v).

Comments from Gatwick Airport

76. The application site is some 10km north west of Gatwick Airport. Gatwick Airport state that in order to safeguard the site, they operate a policy that no development within the 15km safeguarding zone should have an adverse effect on the airport's operation. Aerodrome safeguarding covers a number of aspects of which that which is relevant to this application is protecting aircraft from the risk of collision with obstacles through appropriate lighting. The Airports Operators Association (AOA), Safeguarding Advice Note 1 (2016) outlines that additional warning lights to obstacles can be added to indicate the presence of hazards to aircraft operating visually at low levels particularly at night or in conditions of poor daylight visibility. The advice note says this is applicable to temporary obstacles, such as cranes, as well as to permanent structures.
77. In addition to the potential need for placing a warning light on the temporary rig, AOA Safeguarding Advice Note 2 (2016) provides advice on lighting near aerodromes including temporary lighting. The advice note outlines that any proposed lighting as part of a proposal have full cut off and are mounted horizontally so that light is not emitted above the horizontal.
78. Condition 10 of the appeal decision states that obstacle lighting should be placed on top of the drill rig for the duration that the drill rig is on site. As part of the requirements set out in Circular 1/2003¹⁰, Gatwick Airport (GAL) were consulted on this planning application. GAL noted that a red strobe light is proposed on top of the rig and requested that the red light must be in operation 24 hours a day as the rig would need to be clearly visible to aircraft and helicopters both at night and in times of low visibility in the day time, that the light must be in operation all the time the rig is in place; and that if the light should fail that it should be replaced as soon as practicable.

¹⁰ Circular 1/2003: Safeguarding Aerodromes, Technical Sites and Military Explosives Storage Areas: The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002

79. The applicant has responded confirming that all of the requirements that GAL raise would be met. As such GAL confirm that they have all the assurances they require and raise no objection.

HUMAN RIGHTS IMPLICATIONS

80. The Human Rights Act Guidance for Interpretation, contained in the Preamble to the Agenda is expressly incorporated into this report and must be read in conjunction with the following paragraph.
81. In this case, it is the Officers view is that while the rig is in position the 1 lux level would be above the ILP guidance recommendation for AONBs, due to the very short term and temporary duration of the development proposal, the impact on amenity and wildlife are acknowledged and discussed in the body of the report, the scale of such impacts is not considered sufficient to engage Article 8 or Article 1 of Protocol 1. As such, this proposal is not considered to interfere with any Convention right.

CONCLUSION

82. The applicant has submitted a LMP to address the requirements of Condition 11 of the appeal decision. Officers are satisfied that the LMP, as amended, provides the information required from the five subheadings of Condition 11. The LMP and its accompanying plans show that the lighting from the site will predominantly be contained within the boundaries of the application site except for where there are gaps in the conifer plantation due to trackways. And that the LMP acknowledges that the 1 lux level, which is above the ILP guidance of 0 lux for AONBs, would only occur during the drilling phase when the rig is present and lit as during the commissioning and decommissioning phases the lighting would accord with the hours specified in Condition 5 which prohibits lighting being on after 1800 hours.
83. Officers recognise that concern has been raised by LHAG and SWT with regards to a tree which was identified within the EMMP as having potential for summer roosting for bats and these bodies requested further information on mitigation measures. It should be noted that the EMMP outlines that this tree offers no opportunity for winter hibernation due to its condition and as the applicant proposes to carry out the development proposal during the winter months due to other constraints on the development proposal; there would be no opportunity for bats to be roosting/ hibernating within that identified tree which would warrant mitigation measures. Nevertheless, the applicant is proposing mitigation measures such as the use of shields/ hoods on some of the lighting and ensuring the lighting is directional and downward facing to avoid sky glow and light spill but also to reduce any potential impact on foraging/ commuting.
84. In addition to the above it should be borne in mind that in the Inspectors concluding remarks for this development proposal that he stated that any short term harm to the identified interests of acknowledge importance, would be clearly and demonstrably outweighed by the fully reversible nature and the benefits of the scheme in national and local terms. Officers acknowledge that the application site is within the AONB which is a protected landscape for its dark skies and tranquillity and the Surrey Hills AONB Management Plan seeks to protect this. However Officers also acknowledge that the development proposal, in particular the drilling and flaring components, are of a very short limited duration of 4-6 weeks after which time the lighting would be removed. As such, Officers consider that the proposal meets the requirements of Surrey Minerals Plan Policy MC14 that the proposal would not have a significant adverse impact on environment or amenity; or Policy CS13 of the Mole Valley Core Strategy in terms of landscape character. With regards to the Mole Valley Local Plan Policy ENV57 Officers consider that the LMP meets the requirements of that policy given the lighting would be

directional and is identified for a purpose. Officers have taken into consideration material considerations and do not consider these would result in the LMP not being approved.

RECOMMENDATION

That application **MO/2016/0981** be approved.

Informatives:

1. For the avoidance of doubt and for the purposes of this application, an emergency is defined as an unexpected and serious happening which calls for immediate and determined action in accordance with plan Oxford English Dictionary definition.
2. The County Planning Authority confirms that in assessing this planning application it has worked with the applicant in a positive and proactive way, in line with the requirements of paragraph 186-187 of the National Planning Policy Framework 2012.

CONTACT

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BACKGROUND PAPERS

The deposited application documents and plans, including those amending or clarifying the proposal, responses to consultations and representations received as referred to in the report and included in the application file and the following:

Government Guidance

[National Planning Policy Framework 2012](#)

[Planning Practice Guidance](#)

The Development Plan

[Surrey Minerals Plan Core Strategy Development Plan Document \(DPD\) 2011](#)

Mole Valley District Local Plan 2000

Mole Valley District Core Strategy 2009

Other Documents

“Guidance Notes for the Reduction of Obtrusive Light GN01:2011” Institute of Lighting Professionals, 2011

Natural England Standing Advice on Protected sites and species: bats and wild birds

“Bat and Lighting in the UK: Bats and the Built Environment Series”, Bat Conservation Trust and ILE, 2009

Circular 1/2003: Safeguarding Aerodromes, Technical Sites and Military Explosives Storage Areas: The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002

“Surrey Hills Management Plan 2014 – 2019”, Surrey Hills Board,
