Appendix 9E

Night-time Assessment

Contents

E1 Introduction

This information has been produced to inform consultees of the potential night-time visual effects of the proposed development. It is intended that the recommendations at the end of this report will be taken forward as the design is developed beyond outline planning stage. It is assumed that a lighting assessment will be undertaken and a full lighting design developed as part of an iterative process at detailed design stage.

Policy context

Key policies within Powys Local Development Plan (2011-2026, adopted April 2018) relevant to the night-time assessment are as follows:

Policy DM7 – Dark Skies and External Lighting

"Development proposals involving external lighting will only be permitted when a lighting scheme has been provided that demonstrates that the lighting will not individually or cumulatively cause:

- Unacceptable levels of light pollution especially in the countryside.
- An unacceptable adverse effect on the visibility of the night sky.
- A nuisance or hazard to highway users including pedestrians, and local residents.
- An unacceptable disturbance to protected species."

The policy also states "The majority of Powys has some of the darkest skies in the country as evidenced from the Wales Tranquil Areas Map (2009). The BBNP has skies of a very similar nature and has become the world's 5th International Dark Sky Reserve. Therefore it is imperative that lighting proposals are treated as an important consideration with regard to their effect not only on the LDP area but also on the BBNP and adjoining areas."

Key policies within the Neath Port Talbot LDP (2011-2026, adopted January 2016) relevant to the night-time assessment are as follows:

Policy EN 8 Pollution and Land Stability

"Proposals which would be likely to have an unacceptable adverse effect on health, biodiversity and/or local amenity or would expose people to unacceptable risk due to the following will not be permitted:

- Air pollution;
- Noise pollution;
- Light pollution;

- Contamination;
- Land instability;
- Water (including groundwater) pollution.

Proposals which would create new problems or exacerbate existing problems detailed above will not be acceptable unless mitigation measures are included to reduce the risk of harm to public health, biodiversity and/or local amenity to an acceptable level."

Guidance

This assessment of the potential visual impacts of lighting is informed by the Brecon Beacons National Park Authority's 'Local Development Plan Policy 12 Light Pollution and Obtrusive Lighting – March 2015 SPG. Of particular relevance is the 'External Zone' which is the distinct region within which the proposed development is located.

The SPG describes the 'External Zone' as follows:

"*External Zone – (outside the NP park area) The NPA will utilise the contents of this guidance note as supported by the BBNP International Dark Sky Reserve Lighting Management Plan to provide the basis for discussion with neighbouring LPAs on lessening development proposals potential for light pollution*.''

This assessment of the visual impacts of lighting is also informed by the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Institution of Lighting Professionals. (2011)[1]. Of particular relevance are the Environmental Zones as set out in the table below extracted from this document:

Table 1 Environmental Zones

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc
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

[1] Institution of LIghting Professionals, "Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011," 2011.

Limitations

At this outline application stage, the known details of lighting required for the operational scheme are limited. This assessment therefore intends to outline the key considerations that will be taken into account when a full lighting scheme is prepared.

The types of trains and therefore height of headlights is unknown at the time of writing. These factors will determine the visibility of light from passing trains.

This assessment is based on the baseline conditions experienced on 30.09.20 between the hours of 19:30 and 22:00. Future baseline conditions assume that there will be no lighting from mining operations on Mynydd y Drum or from operation of the washery site.

Assumptions

It is assumed that a lighting assessment will be prepared once a full lighting scheme has been developed and this would take into account existing and future lux levels, beam orientation, light spill etc.

As a full lighting design is developed it will draw upon the recommendations made at the end of this report.

Night-time effects during construction have not been assessed because it is assumed that there will be no night-time working during the construction phase. Working hours would be 08.00-18.00 hours, Monday to Friday and 08.00-13.00 hours on Saturdays.

Surveys

A night-time survey to assess the potential effects due to lighting of the proposed development was undertaken on 30.09.20. This survey was undertaken between the hours of 19:30 and 22:00.

Residential viewpoints only were visited, however, observations on the potential effects on landscape character and the Brecon Beacons National Park's International Dark Sky Reserve status, were also made.

Lighting Description

Chapter 3 – Project Description (Section 3.1) outlines the current level of detail about the lighting design that is available, confirming:

- Test tracks would not be lit; and
- lighting will be required at the depot and potentially the test station platforms.

Design Mitigation

To mitigate night-time effects, a number of measures have already been incorporated into the design of the proposed development and are captured within the project description and LVIA chapter. These include:

- Train carriages are to be unlit during night-time operational hours. With train cabin and headlights only to be used.
- Construction hours shall be limited as outlined in the outline CEMP and Chapter 3 of the ES (i.e. 08.00-18.00 hours, Monday to Friday and 08.00-13.00 hours on Saturdays).
- Test tracks shall not be lit, and lighting shall be restricted to the depot site and potentially the test station platforms.
- Mitigation planting has been incorporated to act as a visual screen and filter views of train headlights and cabin lights.

E2 Assessment

Six viewpoints were selected to form the basis of the night-time assessment based on the viewpoint selection process that was undertaken for the daytime visual assessment. For each of these viewpoints the following is described:

- baseline and future baseline;
- potential sources of light due to the proposed development at Year 1 and Year 15; and
- a summary of the effects and commentary on whether this contributes to an increased magnitude of change or significance of effect to that already reported within the Chapter 9 LVIA.

Due to the limited sources of lighting beyond the immediate built-up area that the selected viewpoints are located within, all six viewpoints are considered to sit within 'Zone E2 – Low district brightness' according to Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011[2].

Viewpoint 13 - View from School Road, Ystalyfera

Baseline

Viewpoint 13 receptors' immediate surroundings are urban and therefore well lit. Traditional street lighting, vehicle headlights from passing traffic and lighting from within properties provide the sources of light.

[2] Institution of LIghting Professionals, "Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01:2011," 2011.

Future Baseline

There future baseline is expected to be the same as the baseline.

Year 1 Assessment

Glimpses of headlights and cabin lights from passing trains would be visible within the surrounding landscape. These impacts would result in a slight increase in the perception of development within the wider landscape during darkness hours. Whilst passing trains would be perceptible, it is not anticipated that light from train headlights would have any impact upon the local levels of light within this well-lit environment.

Year 15 Assessment

By year 15, mitigation planting would provide filtering of train headlights, but glimpsed views may remain. This would appear as a flickering of light as headlights are filtered by fencing and mitigation planting.

Summary

Lighting impacts from the proposed development would not contribute to an overall change to the significance of effects for these residential receptors. See Appendix D – Assessment Tables for magnitude of change and significance of effect.

Viewpoint 7 - View from Pen-Rhiwfawr

Baseline

Sources of light from streetlights and urban development are existing features of the view to the south-east. To the east, sources of light are limited to the Celtic Minor Golf Course club house and scattered lighting across the operational mining site.

Future Baseline

The restoration of the site would eliminate sources of light from the operational mining site. This would result in very few sources of light remaining within the view to the east.

Year 1 Assessment

Train headlights and cabin lights would be visible in the long-distance view. Due to the distance (approximately 7km) from the proposed development, it is not anticipated that local light levels would be affected. The proposed development would be perceptible within the landscape due to movement from passing trains during operation at night. The light source would be visible intermittently as trains passed across a small proportion of the wide views available.

Year 15 Assessment

By year 15, mitigation planting would provide filtering of train headlights, but glimpsed views may remain. This would appear as a flickering of light as headlights are filtered by fencing and mitigation planting. Due to the distance from the receptors and intermittent nature of the trains passing, the proposed development would be barely perceptible.

Summary

Lighting impacts from the proposed development would not contribute to an overall change to the significance of effects for these residential receptors. See Appendix D – Assessment Tables for magnitude of change and significance of effect.

Viewpoint 10 - View from Station Road, Coelbren

Baseline

Sources of light within Coelbren are limited to occasional street lights on telegraph poles, lighting from properties and passing traffic which is infrequent. Within the wider landscape to the south, light sources from the washery and Dyffryn Cellwen are visible as well as occasional glimpses of traffic travelling along the A4221. To the west, lighting from mining operations on Mynydd y drum is visible. The overall view is of low brightness.

Future Baseline

The restoration of the mining site and the defunct washer would eliminate these sources of light from views.

Year 1 Assessment

Glimpsed views of train headlights may be visible to the west on the shallowest sections of the cuttings. This would be viewed as intermittent flickers of light and would be barely perceptible.

To the south, lighting at the washery would be visible (dependant on the exact location, specification and direction of lighting), though this would be difficult to differentiate from existing lighting sources at Dyffryn Cellwen.

Year 15 Assessment

By year 15, mitigation planting would screen any potential flickers of light from passing trains in views to the west. In views to the south, mitigation planting would contribute to the filtering of light sources from the buildings and operational use of the proposed development at night.

Summary

Lighting impacts from the proposed development would not contribute to an overall change to the significance of effects for these

residential receptors. See Appendix D – Assessment Tables for magnitude of change and significance of effect. It is anticipated that the overall view would remain of low brightness.

Viewpoint 5 – View from western edge Ynyswen

Baseline

Existing lighting sources include low level street lighting in the foreground and a slight glow from street lighting and passing vehicles on the A4067 to the south. The outline of Mynydd y Drum is accentuated by a slight sky glow attributed to lighting from mining operations to the south. The overall view is of low brightness.

Future Baseline

The slight sky glow attributed to lighting from mining operations to the south would be eliminated from views. The overall view would be of low brightness with limited sources of light beyond the built-up environment.

Year 1 Assessment

Headlights and cabin lights of trains travelling along the northern embankment may be visible above the proposed 3m acoustic fencing (dependent on model of train in operation). This would appear as a slight glow due to any light spill above the 3m acoustic fencing and views of lighting would be intermittent as trains pass. The proposed development would be slightly perceptible when in use at night.

Year 15 Assessment

Mitigation planting on the northern embankment would provide filtering of any light spill above the 3m acoustic fencing. There may be a slight perception of flickering light as trains pass along the embankment behind intervening mitigation planting and acoustic fencing.

Summary

Lighting impacts from the proposed development would not contribute to an overall change to the significance of effects for these residential receptors. See Appendix D – Assessment Tables for magnitude of change and significance of effect. It is anticipated that the overall view would remain of low brightness.

Viewpoint 6 - View from Tanygarth, Abercraf

Baseline

Existing light sources include low level street lighting in the foreground. There are few visible light sources in the surrounding landscape. The outline of Mynydd y Drum is accentuated by a slight

sky glow attributed to lighting from mining operations to the south. The overall view is of low brightness.

Future Baseline

The slight sky glow attributed to lighting from mining operations to the south would be eliminated from views. The overall view would be of low brightness with limited sources of light beyond the built-up residential area.

Year 1 Assessment

Dependent on the direction of travel, train headlights and cabin lights would be visible across a short section of the view as trains transition onto the northern embankment from the west. Across the northern embankment, the proposed 3m acoustic fencing would provide partial screening of train headlights and cabin lights. There may be a slight glow due to any light spill above the 3m acoustic fencing and views of lighting would be intermittent as trains pass (dependent on model of train in operation). The proposed development would be slightly perceptible when in use at night.

Year 15 Assessment

Mitigation planting on the northern embankment would provide filtering of any light spill above the 3m acoustic fencing. However, the slight perception of flickering light as trains pass along the embankment behind intervening mitigation planting and acoustic fencing may remain. Mitigation planting would also contribute to the filtering of light as trains transition onto the northern embankment from the west.

Summary

Lighting impacts from the proposed development would not contribute to an overall change to the significance of effects for these residential receptors. See Appendix D – Assessment Tables for magnitude of change and significance of effect. It is anticipated that the overall view would remain of low brightness.

Viewpoint 16 - View from properties on A4109

(see Figure 9.16 for additional context)

Baseline

Street lighting; passing traffic on A4109; and mining operations on Mynydd y Drum are existing sources of light within the view. The foreground of the view is well lit due to the A4109.

Future Baseline

Sources of light within the view from mining operations on Mynydd y Drum and activity at the washery would be eliminated from the view.

Light sources would be limited to the foreground from street lighting on the A4109 and headlights of passing vehicles.

Year 1 Assessment

A slight glow may be visible above the proposed 3m acoustic fencing (dependent on the model of train in operation) as trains pass. This would be visible across the small embankment and shallow areas of the cutting at the southern edge of the proposed development. To the west, train headlights and cabin lights would be intermittently visible across a short section of the view where there are no acoustic barriers.

Year 15 Assessment

Mitigation planting would provide filtering of the potential light glow across much of the view when trains pass. To the west, headlights and cabin lights would remain intermittently visible across a short section of the view where there are no acoustic barriers.

Summary

Lighting impacts from the proposed development would not contribute to an overall change to the significance of effects for these residential receptors. See Appendix D – Assessment Tables for magnitude of change and significance of effect. The intermittent passing of lights from traffic is an existing characteristic of views from these properties. The intermittent passing of trains would result in a perceived widening of the infrastructure corridor, but it is not anticipated that additional sources of light within the view would result in a perceived increase in levels of light due to the existing well-lit foreground of views.

Landscape Character and Brecon Beacons National Park Dark Skies Reserve Status

Based on the information known about lighting, design mitigation measures, and with recommendations outlined at the end of this report carried through to the full lighting design of the proposed development. The proposed development would not impact on the Brecon Beacons National Park's Dark Sky Reserve Status or the character of the 19 landscape character areas (this excludes the Nant Helen Reclaimed Uplands LCA within which the proposed development is located).

For the Brecon Beacons National Park's Dark Sky Reserve Status and the 19 landscape character areas, lighting at the depot and from passing trains would form part of the wider contextual landscape for which the existing baseline contains:

- scattered settlements;
- road infrastructure with street lighting; and

- occasional views of headlights from moving traffic.

The proposed development would be located adjacent to existing road infrastructure (A4109, A4221, B4599) and settlements (depot located adjacent Onllwyn / Dyffryn Cellwen). On the basis of fully shielded, low lux directional lighting being used at the depot site, it is not anticipated that the proposed development would contribute to increased lux levels or light pollution within the Brecon Beacons National Park nor would sources of light contribute to an increase in the significance of effect as reported within the ES (Chapter 9 LVIA). These initial findings should be confirmed by a lighting assessment at detailed design.

E3 Recommendations for detailed design

A lighting assessment will likely be prepared once a full lighting scheme has been developed taking into account existing and future lux levels, beam orientation, light spill etc. The lighting design will follow an iterative process whereby potential impacts due to lighting are considered throughout the design process and therefore minimised.

The 'night-time operational area' will be kept to a minimum. Options will be explored to restrict the night-time working area and minimise lighting requirements across the depot site.

The detailed design will seek to use directional low lux lighting to minimise outward light spill.

Fully shielded light fixtures only will be used to minimise adverse light pollution effects on the night-time environment.