

AS4282 External Lighting Report

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Executive Summary

CR Engineering was engaged by Wilpinjong Peabody to carry out an External Lighting Compliance Audit in line with AS4282.2019, Control of the Obtrusive Effects of Outside Lighting.

The audit was carried out on the 2nd December 2021. The mine perimeter was inspected, and areas of visible lighting was documented, GPS located, photographed and a lux light sample was taken. The audit did find one instance of non-conformance, which a lux meter reading exceeding Zone A4 (AS4282.2019, Table 3.1) of 5 Lux limit (AS4282.2019, Table 3.2) with a reading of 10.4 Lux from the Northern side of the road.

Introduction

The follow audit was carried out in line with AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting. AS/NZS4282:2019 seeks to limit the impact of proposed and exciting lighting on neighboring land uses. Potential lighting impacts including:

- Changes to the amenity of an area due to the intrusion of light spill into otherwise dark areas, both outdoors and indoors, and to the direct view of bright luminaires.
- A reduction in the ability of transport system users to see essential details of the route ahead, including signaling systems, due to glare from bright luminaires.
- Changes to night sky viewing conditions due to general luminous glow, i.e., skyglow, caused by the scattering of light in the atmosphere.

AS/NZS 4282:2019 breaks up the timeframes, setting different levels of light spillage stating as Non-Curfew and Curfew. The times that the two states are set at are non-Curfew 6am to 11pm and Curfew 11pm to 6am.

Two inspections were carried out to complete the audit. A night audit during the hours of 09:00pm and 12:30pm and a day audit during the hours of 09:30am and 11:30am. All findings have been documented in Appendix 2 AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting – External Lighting Audit.

Night Audit

The night audit was carried out on the 2nd of December 2021 between the hours of 09:00pm and 12:30pm. The audit involves traveling by car along the Ulan-Wollar rd. around to Wollar rd., excluding sample point 1, taking a sample each time lighting Glare and/or Spillage was evident. Sample point 1 had no evident of light impact but was taken as a base line for the level of night light. The Lux Meter used to carry out lux level samples at this point is a YFE YF-172 Digital Light Meter.

All results have been documented in the Appendix AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting – External Lighting Audit. Along Ulan-Wollar Rd there is multiple points where the Glare is to the subjective level of discomfort, such as the mobile lighting plant in sample point 3, RO Plant in sample point 6 and on the approach to East Pit MIA. At no point during the audit was it subjectively determine to have created a obtrusive effect which would be deemed to conflict the requirements of AS/NZS 4282:2019.

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An exceedance was found in line with the allowable level of light spillage established in AS/NZS 4282:2019 for the Zone Curfew. The zones can be defined in either zone A2, 'Sparsely inhabited rural and semi-rural areas' or A4, 'Town and city Centre and other commercial areas, residential areas abutting commercial areas. Using the two zones in line with Table 3.2 in AS4282.2019, the Curfew limits of A2 1 lux and A4 5 lux.

The exceedance found during the audit was found to be sample point 8 – entry point to East Pit MIA carpark and administration around. The Lux meter reading was found to be 10.6 lux, exceeding the Zone A4 limit by 5.6 lux.

Artificial sky glow generated from the mine site although was event at some points during the audit. The level of the lighting is hard to quantify and the source of the lighting is hard to determine due to the surrounding/neighbors mines. Considering this, the sky glow generated, subjectively was not excessive and did not cause any distraction or major change to the night sky.

Recommendation

1. Lighting fitting adjustment.

Multiple areas, including the exceedance area of the East Pit MIA, would reduce the level of lighting spillage and discomfort glare by adjusting the light fittings away from the direction of the road. Fix lighting adjustments are:

- East Pit MIA
- RO Plant

2. Review/Develop mobile plant positioning site standards

Either develop or review the mobile plant positioning site standard to incorporate the direction of lighting in relation to the public roads.

3. Carry out secondary audit on the completion of exceedance rectification

Carry out a secondary external lighting audit after the rectification of the exceedance has been carried out to ensure the light spillage is within the allowable limits.

Conclusion

In a whole, the compliance of the external light of the Wilpinjong Peabody Mine Site is in line with AS/NZS 4282:2019, with the only exception of the light spill of the East Pit MIA. This exceedance should be acted on to rectify the spillage.

Although the classification of level of Glare in AS/NZS 4282:2019 is somewhat subjective. The auditors preserved the glare levels being no more a discomfort level and not exceeding the level of debilitating.

The last completion of the lighting audit was October 2017 based on AS 4282:1997. It is recommended to carry out the lighting audit on a yearly basis or in the event of a standards change.

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Appendix

Appendix 1 – Audit Sample Location



Appendix 2 – External Lighting Audit

Attached as AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting – External Lighting Audit

If you have any questions or require anymore assistance please feel free to contact either myself or another member of the CR Engineering team.

Yours sincerely

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