

**Before the Expert Panel appointed  
under the Fast-track Approvals Act 2024**

**Under** the Fast-track Approvals Act 2024  
**(Act)**

**And**

**In the Matter of** an application for approvals by  
Matakanui Gold Limited to establish,  
operate, rehabilitate and ultimately  
close an open pit and underground  
gold mining operation known as the  
Bendigo-Ophir Gold Project

**Statement of Evidence of  
Timothy Kelvin White on behalf of  
Matakanui Gold Limited in response to  
Section 53 Feedback  
Exterior Lighting**

Dated: 17 April 2026

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## INTRODUCTION

1. My name is Timothy Kelvin White.
2. I am an electrical building services engineer with 18 years of industry experience, where lighting design is a major component of my role and technical expertise. My qualifications are a BSc (Electronics) and GCertSciTech (Lighting). I hold industry certification as CPEngNZ and TechIES.
3. This statement is given as part of Matakanui Gold Limited's (**MGL**) response to comments on the Bendigo-Ophir Gold Project (**BOGP**) made under Section 53 of the Fast-track Approvals Act 2024 (**FTA**). This statement responds to specific comments raised by:
  - (a) Central Otago District Council (**CODC**);
  - (b) Sustainable Tarras; and
  - (c) Chinamans Terrace Services Company.
4. My original findings are provided in full in B.31 Cosgroves Limited Exterior Lighting Report (Cosgroves 2025) (**Exterior Lighting Report**).
5. The Exterior Lighting Report should be read in conjunction with B.08 - Alliance Ecology Consulting - Assessment of Ecological Effects (Alliance 2025) and B.19 Boffa Miskell Landscape, Natural Character and Visual Effects Assessment (Boffa Miskell 2025).
6. I have prepared this statement in the limited time available for MGL to respond to comments under the FTA. If the Panel requires elaboration on any of the matters raised in this statement, I am available to provide further information on request.
7. Although this is not an Environment Court proceeding my confirmation of compliance with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023 is included in Substantive Application Document A0.2B.

## SPECIFIC RESPONSE TO COMMENTS

### Central Otago District Council

#### ***Dark Sky***

8. Mr Brown for CODC considers that artificial lighting from the mine will disrupt the area's valued "*dark sky*" qualities, with lighting from pits, engineered landforms, and other facilities creating glare and reducing the aesthetic appeal of the landscape. He recommends implementing stricter controls on lighting to preserve the dark sky qualities of the landscape and mitigating night-time impacts by controlling headlight wash and mobile lighting.
9. Whilst, I acknowledge that the Bendigo and Tarras locality is valued for its low ambient light environment, I note in B.31 Exterior Lighting Report that BOGP is not a listed dark sky reserve in the Central Otago District Plan. However, MGL recognises the value of the existing low-light environment and has committed to an approach that aims to minimise unnecessary exterior lighting and potential adverse effects. My assessment regarding compliance with Dark Sky requirements "*as far as reasonably practicable*" is included in the Exterior Lighting Report.
10. MGL is proposing to implement a number of mitigating factors which would significantly reduce the adverse effects of exterior lighting when compared to a 'typical' mining operation. These include the use of zero-uplight luminaires and 3000K light sources and lighting controls to avoid unnecessary night-time lighting to the extent practicable, as described in the report. The topography of the site also provides some natural screening.
11. The assessment and proposed mitigation measures are intended to set out a framework to reduce adverse effects. It is acknowledged that further calculations and modelling are needed to quantify expected upward light spill and sky glow. This will be addressed during detailed design and forms part of the proposed conditions for the BOGP. I also recommend the development of a Lighting Management Plan (**LMP**) through the detailed design process which has been adopted by MGL and reflected in the updated consent conditions provided in Part 4 of this Comment Response Package.

#### ***Environmental Zone for Light***

12. Ms Macdonald states that I have classified the site as Environmental Zone A2 (low district brightness) but considers it should be Zone A1 (Dark) due to its remote location and natural darkness. Zone A1 requires stricter limits, such as a maximum

13. Upward Light Ratio (ULR) of 0.00. She recommends reclassifying the site to Environmental Zone A1 (Dark) and enforce stricter lighting limits.
14. The classification of Environmental Zone as per AS/NZS 4282 is somewhat subjective particularly between category A1 and A2 and I therefore don't necessarily agree that the classification is wrong. I acknowledge the site's remote character and also account for the existing and consented activities in the area, including pastoral farming operations, the existing Thomson Gorge Road, and existing MGL exploration activities already authorised on site.
15. The Exterior Lighting Report sets out a design and assessment framework and includes proposed mitigation measures which are intended to mitigate adverse effects of exterior lighting as far as practicable including upward lighting, but it is noted that many of these requirements and mitigations are over and above the requirements of the Central Otago District Plan. Once full detailed design and lighting modelling/calculations have been completed, the results can be assessed against criteria for AS/NZS 4282 Environmental Zones.

### ***Lighting Modelling***

16. Ms Macdonald states that detailed lighting modelling has not been completed and is only described as an "intended methodology," with compliance deferred to the detailed design stage.
17. This statement is correct. I acknowledge that my Exterior Lighting Report presents an assessment framework and design principles but does not include completed photometric modelling. This is generally considered to be an appropriate and standard approach at the approvals stage for a project of this scale and complexity, where the final layout of buildings, plant, and operational areas is subject to detailed engineering design.
18. The proposed consent conditions include requirements to complete detailed lighting calculations and modelling to demonstrate compliance with District Plan spill lighting limits and any other agreed consent conditions, before any installations are present on site. I understand the potential adverse lighting effects of the Project and have recommended mitigation measures to manage and minimise them.
19. Following installation of lighting, post-commissioning monitoring will be required to verify compliance, as per recommended consent conditions.

## **Mitigation Measures**

20. Ms Macdonald considers that many proposed mitigation measures are not secured through enforceable provisions in the proposed consent conditions, including formal requirements for neighbour consultation and independent verification. She recommends:
- (a) Development of a formal Lighting Management Plan (**LMP**) to govern all fixed, mobile, and vehicle lighting, adopting a "*start dark, add light only where needed*" approach.
  - (b) Ensuring independent verification of the final lighting design by a qualified lighting engineer.
  - (c) Conducting compliance monitoring of light levels, spill, and glare within six months of commissioning permanent lighting.
21. As noted above, as part of the existing proposed consent conditions, it is intended that detailed lighting calculations and modelling are to be completed to demonstrate compliance with District Plan spill lighting limits and other agreed consent conditions, before any installations are present on site. In response to Ms McDonald, I recommend a formal LMP to be developed at this point as a suitable means of managing/governing lighting installations, and that this LMP is include in the proposed consent conditions.
22. The general philosophy/approach of "*start dark, add light only where needed*" is suitable and commentary within the B.31 Exterior Lighting Report regarding avoiding unnecessary night-time lighting via lighting controls aligns with this.
23. The report in Appendix G of CODC comments prepared by Pederson Read proposes a number of amendments to the proposed consent conditions submitted with the Substantive Application, including the development and implementation of an LMP. I have reviewed these conditions, and with the exception of Condition (c) (vi), MGL supports the adoption of the amendments proposed by CODC. In summary, the key amendments relate to:
- (a) ensuring the Consent Holder obtains written confirmation from CODC of the applicable AS/NZS 4282:2023 environmental zone, and the lighting design carried out in compliance with the requirements of the confirmed zone.
  - (b) amending the final lighting design modelling requirements to include a requirement demonstrate compliance with AS/NZS 4282:2023.

- (c) Ensuring the suitably qualified and experienced lighting engineer that models and reviews the lighting arrangements proposed is independent from the lighting engineer that prepared the lighting design for the project.
  - (d) Developing and implementing an LMP.
  - (e) Undertaking neighborhood engagement with potentially affected neighbours on the proposed lighting strategy prior to construction and implementing reasonable and practicable measures raised through that consultation.
24. I understand that these amended consent conditions are included in the revised consent conditions provided as Part 4 to this Comment Response Package.

### ***Visibility and Nuisance***

25. Ms MacDonald considers that while major plant areas are shielded by hills, camp and office areas on flat ground will be visible to local properties, potentially causing nuisance or glare. She recommends:
- (a) Use specific hardware and installation standards, such as flat-glass luminaires with zero upward light and warm-coloured LEDs ( $\leq 3000\text{K}$ ).
  - (b) Implement operational controls, including automated timers, motion sensors, and dimming to reduce light when areas are unoccupied.
  - (c) Engage with potentially affected neighbours before construction and establish a formal process to address complaints.
26. Mitigation measures (a) and (b) are already proposed in my B.31 Exterior Lighting Report and in general lighting associated with “*Ardgour Terraces*” (camp and office) buildings will not be operating for most hours of darkness (typically only late afternoon/evening and early morning).

### ***Lighting Ecological Risks***

27. Ms Macdonald considers vehicle lights and mobile rigs could disturb native fauna, altering their behaviour, increasing predation risk, or causing habitat avoidance. She recommends aligning all lighting with the National Light Pollution Guidelines for Wildlife (2023) to minimize ecological impact.
28. The B.31 Exterior Lighting Report includes considerations regarding ecological risks, with regards to placement/aiming of exterior lighting and with reference to Appendix 3 – Impact of Outdoor Lighting on Flora and Fauna of AS/NZS 4282:202.

29. Dr Barber's evidence addresses lighting effects on terrestrial ecology in more detail.
30. Further investigation and assessment would be needed to determine whether it is achievable for all lighting to align with the National Light Pollution Guidelines for Wildlife (2023).

## **Sustainable Tarras**

### ***Dark Sky Effects and District Plan Requirements***

31. Dr Boyle considers information on dark sky impacts is lacking and the BOGP cannot yet demonstrate compliance with District Plan spill limits.
32. Whilst, Dr Boyle's statement raises many valid considerations in relation to preserving sky darkness, it determines that Macraes mine in East Otago is a suitable point of reference and commentary beyond item 31 is made primarily in relation to Macraes mine. I do not agree with Dr Boyle's assessment.
33. The implementation of all recommendations within the B.31 Exterior Lighting Report – and the recommended amendments to conditions made by CODC - would notably improve (i.e. reduce) adverse lighting effects when compared to a typical mining operation, such as is observed at Macraes mine. It would be suitable to revisit the assessment of Dark Skies impact after detailed design and full lighting modelling/calculations have been completed.

### ***Effects of Exterior Lighting***

34. Mr Simpson considers that the B.31 Exterior Lighting Report does not include an impact analysis of exterior lighting during darkness hours and makes recommendations to complete full photometric modelling for all fixed and mobile lighting.
35. The B.31 Exterior Lighting Report has been prepared to provide explanation and commentary regarding expected and potential adverse effects of exterior lighting for the BOGP and to set out a framework to mitigate these adverse effects.
36. It is acknowledged that a full impact analysis requested by Mr Simpson would require further modelling and calculations to present measurable values for adverse effects such as upward and horizontal light spill, sky glow and distant observer glare. Lighting controls are also proposed to ensure that exterior lighting is not directly required for components of BOGP that are not operational overnight, such as buildings at the 'Ardgour Terrace Site' area. This will be addressed in detail as part of the proposed conditions and development of an LMP, which is reflected in the amended consent conditions for lighting.

### ***Mock Night Lighting Trial***

37. Mr Simpson's evidence and associated photos in Appendix E outline effects of external lighting in Queensbury. Mr Simpson considers external lighting will be visible from significant distances, impact a large number of properties and be visible to transiting visitors and flights.
38. Appendix E and the associated lighting report/statement by Mr Simpson refer to a mock-up night lighting trial which was completed to consider the possible impacts of exterior lighting.
39. The lighting plant used, the placement and associated visibility of these within the project area may not have accurately reflected the proposed operation. As per section 6.6 of the B.31 Exterior Lighting Report, visibility of lighting from mining trucks will be at least partially obscured via bunding to haul roads and other engineered landforms.

The parameters of the trial and commentary within Mr Simpson's report in general appear to assume that the recommendations and proposed mitigation measures described within the Exterior Lighting Report for fixed lighting and mobile lighting towers will not be followed, for example:

- (a) The trial used standard mobile lighting towers, with wide area flood lighting at a colour temperature of 4000-6000K.
  - (i) As per section 6.5 of the B.31 Exterior Lighting Report, it is proposed that lighting towers are custom-supplied/retro-fitted with optically controlled sharp cut-off (zero-uplight) lighting to limit light spill to surrounding areas outside of active work zones.
  - (ii) 3000K light sources may also be used, subject to review of suitability for operational health and safety.
- (b) The report (item 49) and trial suggest 150W wide area flood light fittings to simulate building and yard illumination.
  - (i) As per section 6.2 of the B.31 Exterior Lighting Report, fixed lighting associated with buildings is to be discrete, low-output wall mounted and bollard lighting (I provide examples at Appendix A of my report). Further, lighting controls are proposed so that this lighting is generally not operational during night-time hours (only late-afternoon/evening and early morning when buildings are occupied).

- (ii) Similarly to mobile lighting towers, yard/area lighting is proposed to use optically controlled sharp cut-off (zero-uplight) lighting fixtures (I provide examples of my report at Appendix A).
40. Mr Simpson states *“The claim that mobile lighting will be “aimed inward” is not a mitigation unless supported by enforceable installation standards.”*
41. This is a valid comment, and the intent of the B.31 Exterior Lighting Report is that an installation methodology is developed, along with the detailed design and LMP, to ensure that mitigation measures are followed on site. This is reflected in the proposed consent conditions which includes a suitably qualified and experienced lighting engineer to model and review all proposed lighting arrangements to ensure they comply with the proposed conditions of consent.
42. The report (item 65) also notes: *“...no lighting towers are available on the market with 3000K warm white light sources, it seems unlikely that towers would be custom manufactured or retrofitted with such luminaires to achieve the above suggested approach to light pollution.”*
43. The custom-supply or retro-fitting of standard lighting towers is exactly what is proposed as a key mitigation measure, because it is acknowledged that standard lighting towers would result in adverse lighting effects.
44. The use of a night lighting trial is helpful to assess and observe expected adverse lighting effects, however it should be conducted to reflect the specific details of the intended installation. The lighting trial undertaken as described and photographed in Appendix E of Mr Simpson's report does not reflect the specific details of the intended installation, which are to incorporate the proposed mitigation measures.

### **Chinamans Terrace Services Company**

45. Comments from Chinamans Terrace Services Company consider Bendigo currently has extremely low baseline levels of noise and light pollution, and while effects may be within rurally permitted levels is concerned that these impacts will significantly affect daily amenity values.

46. This comment is accepted and acknowledged. The proposed mitigation measures for exterior lighting as outlined in the B.311 Exterior Lighting Report will assist in minimising any adverse lighting effects compared to what would be observed from a typical mining operation. It shall also be ensured that any light spill is under the District Plan limit of 10 lux.

**Timothy Kelvin White**

**17 April 2026**

A handwritten signature in black ink, appearing to read 'TK White', written in a cursive style.