



Memorandum

To: Bendigo-Ophir Gold Project Expert Panel

From: Santana Minerals, EGL

Date: 14 September 2026

Re: Response to Submission regarding Minute 40 – Geotechnical Matters

Matakanui Gold Ltd (MGL) received the following feedback from Section 53 invited parties on Minute 40 which addressed geotechnical matters raised by Commissioner Johnson.

- Statement of evidence of Dr Alexander McAlpine on behalf of Sustainable Tarras dated 07 September 2026
- Statement of evidence of Professor Steven Emerman on behalf of Sustainable Tarras dated 7 August 2026

MGL's response to Dr Alexander McAlpine

- The geotechnical assessment of the Bendigo-Ophir Gold Project (BOGP) is reported in Document B.28.
- The recommended open pit parameters are neither conservative nor overly aggressive. They are recommended by our technical advisors with an expectation that initial mining will allow use of standard industry observational techniques to refine slope parameters for final walls.
- This technique will be governed by the proposed conditions of consent D.03 C18 (c) and the Open Pit Ground Control Management Plan.

Key Geotechnical Concerns raised by Dr McAlpine

- There are two separate stress regimes that operate at different scales;
 - Regional tectonic stress is the broad pattern of crustal stress caused by plate motion and assessed across hundreds of kilometres and years as described in William et al. (2026).
 - Site specific in-situ stress is the actual stress conditions of the rock mass in the open cut and underground at BOGP that is governed by depth of cover and local geology.
- The regional stress map describes an average condition across a wide area and cannot be substituted for the specific geotechnical conditions at the BOGP Site that determine slope stability.



- Assessment of the BOGP site specific geotechnical conditions is undertaken in Document B.28 identified both structures (eg. Thomsons Gorge Fault) and hydrologic conditions to be the principal mechanisms for slope stability.
- The geotechnical investigations and back analyses of the Macraes failures (PSM71-285R Rev 1, 2024) have identified that the actual controlling mechanisms are not stress related but are due to structural and hydrogeologic conditions.
- There is no analytical basis to support the claim that regional stress conditions control slope stability at the BOGP Site.

MGL's response to Professor Steven Emerman

MGL's experience:

- The Ok Tedi paper (Kennedy & Casagrande, 2020) does not document failure but the successful management of slope instability in a structurally complex, high rainfall environment. The paper's conclusion is *"Successful management of the pit slope movements has been achieved..."*
- MGL's Technical Services Manager was an employee of Ok Tedi Mining Limited from 2017 until 2024 and was directly involved in response to the West Wall instability which included a Ground Control Management Plan, Trigger Action Response Plans, slope monitoring and surface water management.
- The lessons from this experience will apply to BOGP including;
 - Structural geology as a primary design driver. Pit designs are built from site specific structural modelling (fault and joint orientation, persistence and shear strength);
 - Weak zone and rock mass characterisation;
 - Hydrogeological management; and
 - Trigger Action Response Plans allowing early slope movements to be identified and managed.
- The lessons above are all captured in D.03 C18(c) – Open Pit Ground Control Management Plan.
- The Ok Tedi paper (Kennedy & Casagrande, 2020) is a published account of successful management through real time monitoring and a structured response to prevent failure. This is exactly the experience the Applicant brings to the geotechnical design basis for the BOGP.

EGL's response to Professor Steven Emerman prepared by Eric Torvelainen

For Engineered Landforms, the interim FOS equal or greater than 1.3 relates to temporary operational slopes that only effect the Engineered Landform stability. Where a slope includes a mechanism which includes the retention of tailings, design criteria for the tailings storage facilities will apply. In New Zealand this is New Zealand Dam Safety Guidelines. These require a FOS greater or equal to 1.5 when retaining tailings.

References

- Kennedy, G & Casagrande, D (2020). 'Evolution and management of large-scale instability: a case study from Ok Tedi', in PM Dight (ed.), *Slope Stability 2020: Proceedings of the 2020 International Symposium on Slope Stability in Open Pit Mining and Civil Engineering*, Australian Centre for Geomechanics, Perth, pp. 265-280, https://doi.org/10.36487/ACG_repo/2025_13
- PSM71-285R Rev 1 (2024). Macraes MP4 Consenting Project. Project Element 4.3.2: Open Pit Stability Assessment for Frasers TSF. <https://www.orc.govt.nz/media/jrendyh2/appendix-7-psm-2024b-macraes-phase-4-consenting-project-element-432-open-pit-stability-assessment-for-frasers-tsfs.pdf>
- Williams, J., Eberhart-Phillips, D., Bourguignon, S., Stirling, M., Reyners, M., & Upton, P. (2026). Focal mechanisms in the southeastern South Island of Aotearoa New Zealand indicate scale-dependent partitioning of transpressional strain. *Seismica*, 5(1). <https://doi.org/10.26443/seismica.v5i1.1839>