Before a panel appointed under the Fast-track Approvals Act 2024 **FTAA-2504-1046**

UNDER	the Fast-track Approvals Act 2024 (**Act**)
IN THE MATTER	an application for approvals for the Waihi North Project (**WNP**) – a listed project described in Schedule 2 of the Act
BY	**OCEANA GOLD (NEW ZEALAND) LIMITED Applicant**

STATEMENT OF EVIDENCE BY TREVOR MATUSCHKA ON BEHALF OF OCEANA GOLD (NEW ZEALAND) LIMITED

Geotechnical matters

Dated 1 September 2025

Counsel acting:
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Introduction

1. My full name is Trevor Matuschka.

I hold a BE(Hons) in Civil Engineering, a PhD in Civil Engineering. I am a Chartered Professional Engineer and International Professional Engineer. I am also a Recognised Engineer for both Potential Impact Classification and Dam Safety Assurance Programmes. I am currently employed as Director of Engineering Geology Ltd and have held that position since 1989.

2. My previous work experience includes:

a. Project Engineer for Martha Gold Mine, Waihi (1985 to present) - responsible for geotechnical investigation, feasibility studies, consenting, including evidence at hearings, design, specifications, assistance with construction supervision, monitoring and surveillance and annual safety audits of tailings storage facilities.
b. Design Engineer and Technical Reviewer for Macraes Gold Mine, Otago (1988 to present) – responsible for geotechnical investigation, feasibility studies, consenting, including evidence at hearings, design, specifications, supervision during construction, monitoring and surveillance and annual safety audits of tailings storage facilities.
c. Design Engineer and Technical Reviewer for Stawell Gold Mine, Victoria, Australia (1993 to present) - responsible for design, documentations to obtain regulatory approvals, preparation of contract documents, assistance with contract supervision of tailings storage facilities, monitoring and surveillance and annual safety and performance reviews.
d. Design Engineer and Technical Reviewer for Reefton Gold Mine, West Coast, New Zealand (1994 to present) - responsible for geotechnical investigation, feasibility studies, consenting, including evidence at hearings, design, specifications, assistance with contract supervision of tailings storage facility.
e. Design Engineer and Technical Reviewer for Golden Cross Mine, Waitekauri Valley - Coeur Gold (1986-1989) – Including seismic hazard study and preliminary design of tailings retention embankment, waste stock and silt detention ponds. Statement of evidence at Planning Tribunal.
f. Design Engineer and/or Technical Reviewer for multiple international mine sites across Australia, New Caledonia, Bulgaria, Romania, Indonesia, Papua New Guinea, Philippines,

UK, Peru, Mali, Côte d'Ivoire, and Democratic Republic of Congo. – this has included developing design concepts, undertaking scoping studies, peer review work, feasibility designs, and being a member of International Tailings Review Boards.

3. I have been asked by OceanaGold (New Zealand) Limited (**OceanaGold**) to provide a response to geotechnical matters contained in written comments on the WNP application from persons invited by the Panel to comment under section 53 of the Act. In particular, I address:

   a. The design of the new Tailings Storage Facility (**TSF3**) for latest seismic hazard information;

   b. Long-term safe closure capping for the tailings on TSF3;

   c. Long term safety and stability of TSF3 as a landform;

   d. Landslide and foundation considerations; and

   e. The proposed lining of the Gladstone Open Pit (**GOP**).

4. I have prepared this statement within the limited time available to me. Consequently, it is necessarily at a high level. I am able to provide a more fulsome response to the issues covered in this statement if the Panel requires further assistance from me.

Code of conduct

5. I confirm that I have read the code of conduct for expert witnesses contained in section 9 of the Environment Court Practice Note 2023 and have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise, and I have not omitted material facts known to me that might alter or detract from my evidence.

Design for latest seismic hazard information

6. Coromandel Watchdog have raised concerns regarding the design of TSF3 in regard to the seismic hazard assessment, commenting that it is inadequate and outdated. However, the latest seismic hazard information will be adequately addressed in the final design of TSF3.

7. TSF3 will be designed and constructed in accordance with the New Zealand Dam Safety Guidelines published by the New Zealand Society on Large Dams. These guidelines are based on international best practice. As part of this process the design will also undergo an engineering peer review under the Building Act to obtain the required building consents.

8. The New Zealand Dam Safety Guidelines require the design to consider the latest seismic hazard information, which will include the extensive national update to the New Zealand Seismic Hazard Model in 2022. Any subsequent information from studies after 2022 will be incorporated into the seismic hazard loading for the TSF and considered in the design. This is a normal part of the detailed design process for High Potential Impact dams undertaken under the Building Consent Process in New Zealand. The Waihi TSFs (including TSF3) are designed as High Potential Impact dams.

Long-term safe closure capping for the tailings on TSF3

9. Coromandel Watchdog have raised concerns regarding the long-term safe closure capping for the tailings on TSF3. I do not share these concerns and consider that the tailings on TSF3 may be safely closed and capped in the long-term.

10. At closure the tailings surface will be capped using a combination of a dry cap and wet cap. The dry cap will be formed against the embankment by placing rockfill and rehabilitation material over the tailings beach against the

embankment. This dry capping will keep the central wet cap (i.e. ponded water) off the embankment.

11. A closure spillway will convey clean ponded water off the TSF, again keeping ponded water away from the embankment. Keeping the water off the embankment removes the risk of internal erosion failure modes that may be of concern in closure.

12. The closure spillway will be designed for the extreme case of a probable maximum precipitation rain event. The closure spillway and associated capping arrangement will be subject to detailed design and building consent, including peer review.

13. In closure, maintenance and surveillance of the TSF will continue, as recommended by the New Zealand Dam Safety Guidelines 2024 and required by the Building (Dam Safety) Regulations 2022. Financial provisions to allow for maintenance and surveillance of the TSF in the form of a trust are in place for the existing TSFs at Waihi and will be extended to include TSF3

Long term safe and stable landform

14. Coromandel Watchdog have raised concerns regarding the long-term safety and stability of TSF3. However, in my opinion, a successful closure outcome is both practical and feasible to achieve for TSF3.

15. TSF3 will be designed, constructed and closed in accordance with the New Zealand Dam Safety Guidelines. TSF3 will be designed for extreme earthquake and flood conditions, including in closure. It will form a safe and stable landform in closure with minimal maintenance and surveillance requirements.

16. The existing Tailings Storage Facilities 1A (**TSF1A**) and 2 (**TSF2**) present on the site are examples of the landforms that will be established. TSF2

construction started in 1988 and operation finished in 2005. TSF2 has been in an interim closure condition for 20 years. TSF1A construction started in 1998 and has been progressively rehabilitated towards closure.

17. The good performance of these facilities demonstrates that a successful closure outcome is practical and feasible to achieve for TSF3.

Landslide and foundation considerations

18. Coromandel Watchdog have raised concerns regarding learnings from Golden Cross TSF, which relates to geotechnical foundation considerations and landslide risk. However, I do not consider there is any significant risk of landslide compromising the safety and stability of TSF3.

19. The Golden Cross TSF was constructed on a large landslide. This landslide mechanism was not identified as an issue until movement occurred resulting in the eventual closure of the mine and TSF site. Geomorphic evidence of the large landslide is visible within the landscape as a large head scarp feature. This was either not identified or not given relevant consideration in the scoping and design of the site.

20. The potential for a large landslide feature has been investigated at TSF3 site through an extensive ground investigation programme, which included an extensive borehole drilling programme and field mapping. There are no large landslide features on the TSF3 site, which could be comparable to Golden Cross. This investigation and characterisation of the TSF3 site will also be subject to peer review as part of the building consent process.

21. The adjacent existing TSF1A and TSF2 on similar rock conditions demonstrate TSF3 will be able to be designed and constructed to be safe and stable.

Gladstone Open Pit Tailings Storage Facility lining

22. Ngāti Tara Tokanui have requested Gladstone Open Pit Tailings Storage Facility (GOP TSF) be lined to prevent seepage into groundwater, with ongoing monitoring post closure to ensure liner integrity. I can confirm the application includes full lining of GOP TSF with a geosynthetic liner and an underdrainage system to manage seepage. Groundwater quality monitoring will continue post closure to confirm long-term groundwater quality outcomes are met.

Ground Settlement above Wharekirauponga Underground

23. Coromandel Watchdog have raised concerns regarding the settlement of the ground at the Wharekirauponga Underground (WUG) area and the need for ecological assessment. However, it is my opinion that the settlement of the ground reported is only a gentle depression over a wide area therefore there is no material effect on ecology. It has been discussed this with the project ecologists, and they agree that a gentle wide depression area is of no ecological effect.

24. Ground surface settlement will be caused by ground dewatering at depth in the rock around the mine. Physically the dewatering causes a change in stress and resulting consolidation of rock materials at depth which subsequently causes settlement at the ground surface. This will occur over a wide area above and around the WUG. At the surface this will be indistinguishable, as on scale, it is expressed as a gentle depression.

25. Ground settlements at the WUG area are estimated to reach up to 300 mm to 1,000 mm in the centre of the depression. The settlement magnitude will reduce gradually from the centre of the depression over hundreds of metres or kilometres to the point of no change. This depression would be indistinguishable on the surface. The effect of this depression is referred to as differential settlement or tilt. As a conservative estimate of the differential settlement or tilt, 1 m differential settlement over a 200 m distance was

reported in the EGL Ground Settlement Report provided as part of the submission. This is a tilt of 1 in 200. This would be indistinguishable on the surface and this tilt will simply have no effect on forest vegetation, particularly in a forest environment. The only potential effect in the forest environmental is to check the gradient of the streams. Simply the flattest stream grade is approximately 1 in 30 over a 500 m length at the north end of the East Graben Vein, based on available topographic information. For a stream at 1 in 30, a 1 in 200 grade change is minor in terms of flow.

26. Generally, the effect of tilt is only a concern for the built environmental where structures can be sensitive to differential settlements.

27. Potential ground subsidence from mine stopes is mitigated by back backfilling the stopes during mining.

Dated: 1 September 2025

Trevor Matuschka