In the matter an application for approvals under the Fast Track Approvals Act 2024

By **Tāiko Critical Minerals Limited**

Applicant

Statement of evidence of Pier Federici in relation to Mine Planning

24 March 2026

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Introduction

1 My name is Pier Federici.

2 My role in relation to the application by Tāiko Critical Minerals Ltd (**Tāiko**) (**the application**) for approvals relating to the Barrytown Mineral Sands – Southern Block Project (**the Project**) has been to provide expert advice in relation to Mine Planning.

Qualifications and experience

3 With over 35 years' experience in mining, I hold a Bachelor of Engineering (Mining) from the Kalgoorlie School of Mines. I am a Fellow of the AusIMM with a post-nominal CP(Mining) and my current role at AMC Consultants Pty. Ltd is Principal Mining Engineer. Over my career I have worked at mineral sands operations and been involved in many mineral sands projects at sites including Eneabba, Cooljarloo, North Stradbroke Island, Douglas, Grande Cote (Senegal) and Taharoa.

Expert witness Code of Conduct

4 While this application is not being considered by the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that I have complied with it when preparing this evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

5 The purpose of this evidence is to:

(a) provide an overview of work undertaken that demonstrates the presence of the resource;

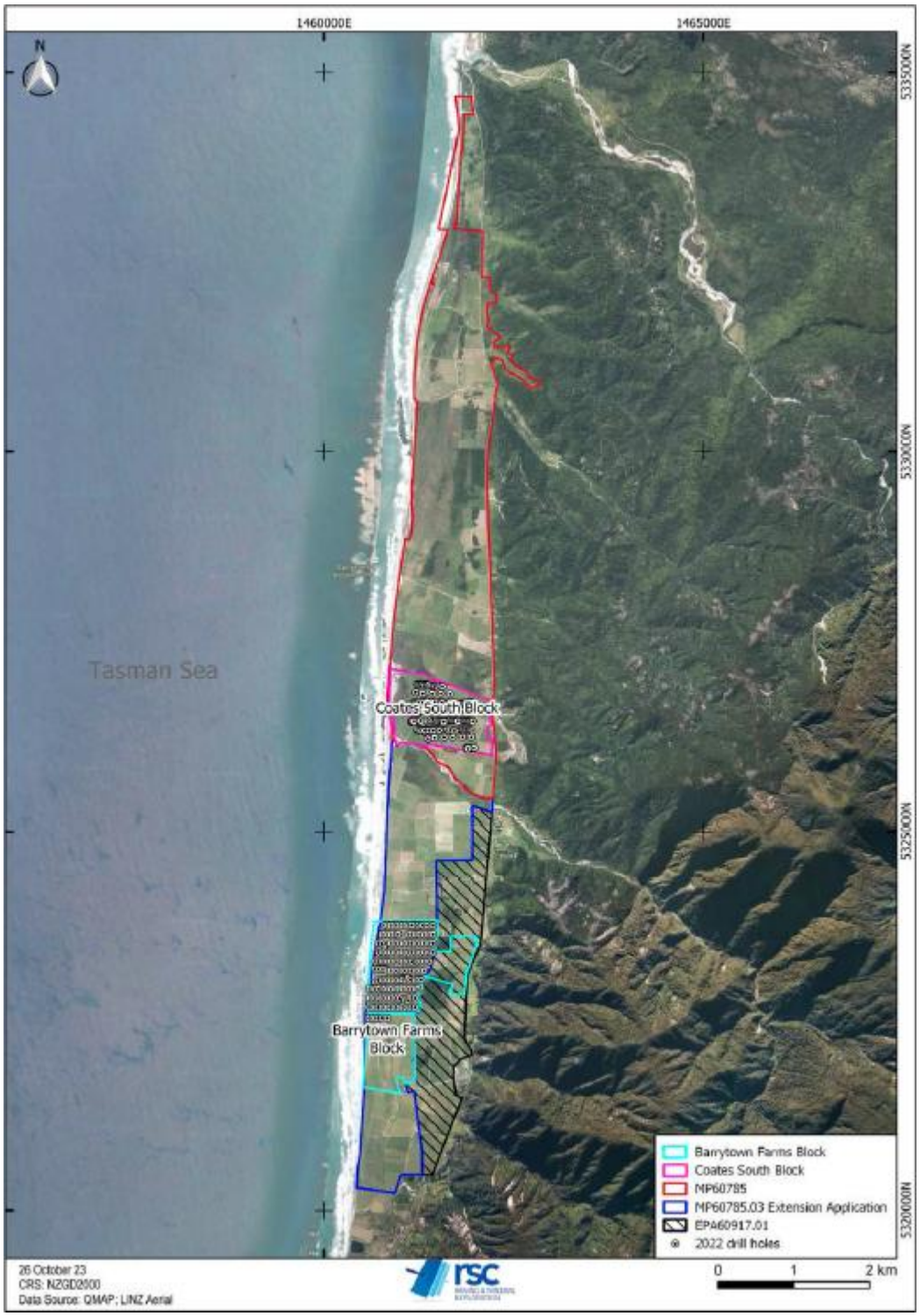
(b) provide an outline of the mining methodology proposed to be used; and

(c) confirm the feasibility of proposed conditions with the mining methodology.

Mineral resource

6 Historical drilling and sampling has been undertaken since the 1960s.The most recent drilling of the deposit was undertaken by Tāiko in 2022 as shown in **Figure 1**.

Figure 1 – 2022 drillhole locations



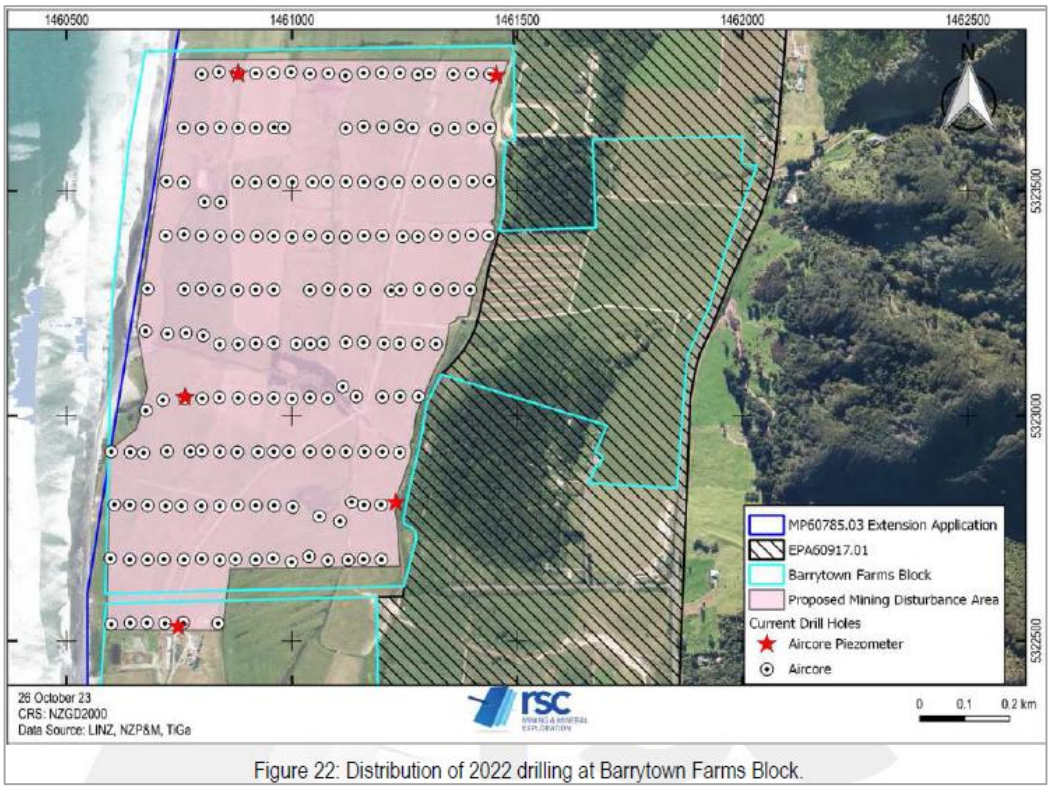


Figure 22: Distribution of 2022 drilling at Barrytown Farms Block.

Source: BARRYTOWN FARMS MINERAL RESOURCE ESTIMATE. RSG Mining & Minerals Exploration

7 The current resource model for the Barrytown Farms Block, was prepared by RSC Mining & Mineral Exploration in October 2023. This model is the basis of the most recent mineral resource estimate released on 6 October 2023. AMC did not undertake a detailed review or audit of the resource model, however once the model was imported into Datamine, AMC was able to replicate the measured and indicated tonnes and grades.

8 The mine design and sequence for the Application is based on the resource model. The initial dredge path was designed and scheduled to maximise project value and cashflow, while avoiding those areas identified as of highest environment value (by the project ecology and hydrology consultants). Mine optimisation and refinement of the design, is continuing to progress the mine plan for implementation. AMC has commenced detailed mine planning.

9 I have been asked to, and can confirm that the resource required to be recovered is in and around the areas of the following creeks requiring diversion in **Figure 2**:

(a) Northern Creek;

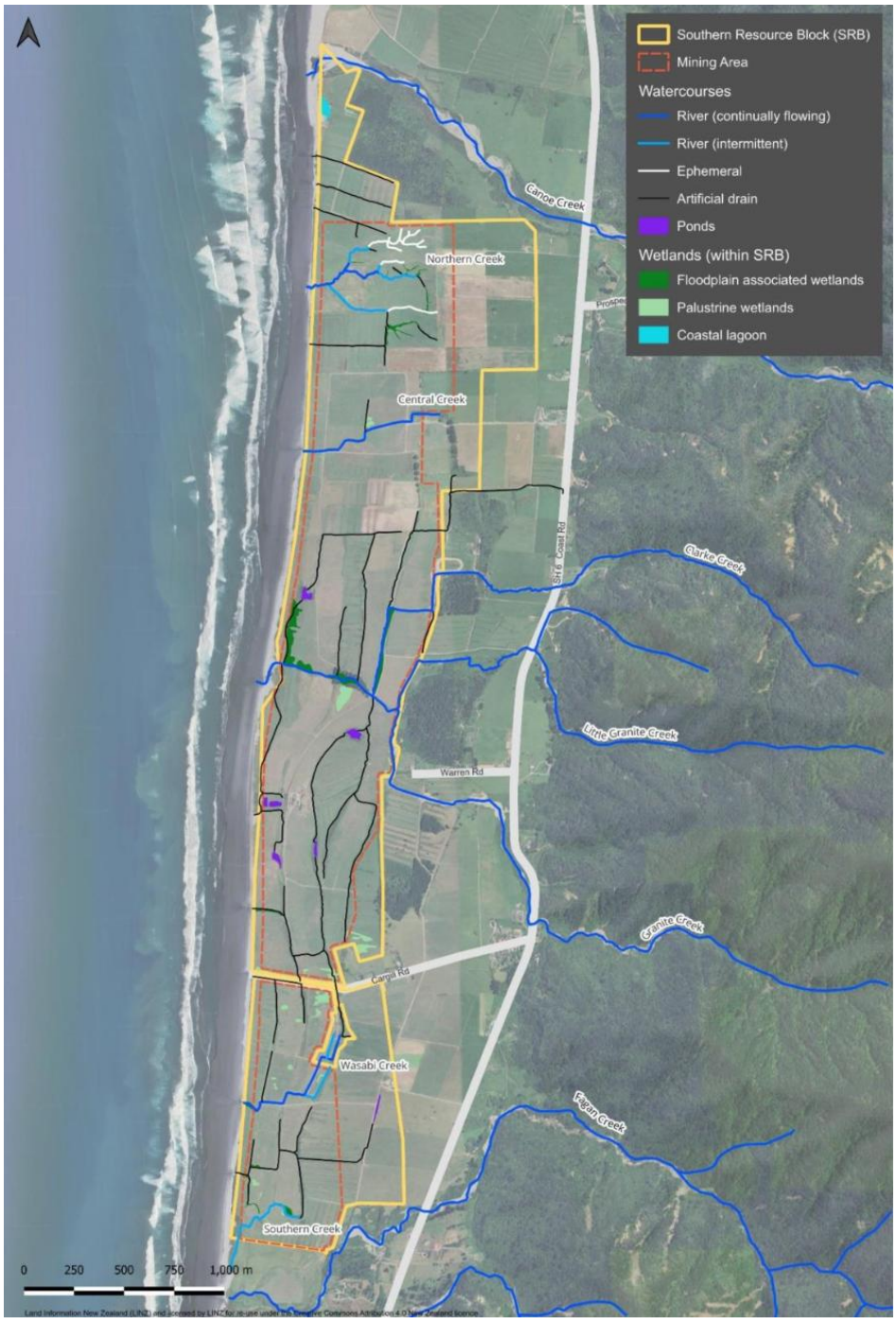
(b) Central Creek;

(c) Clarke Creek;

(d) Wasabi Creek; and

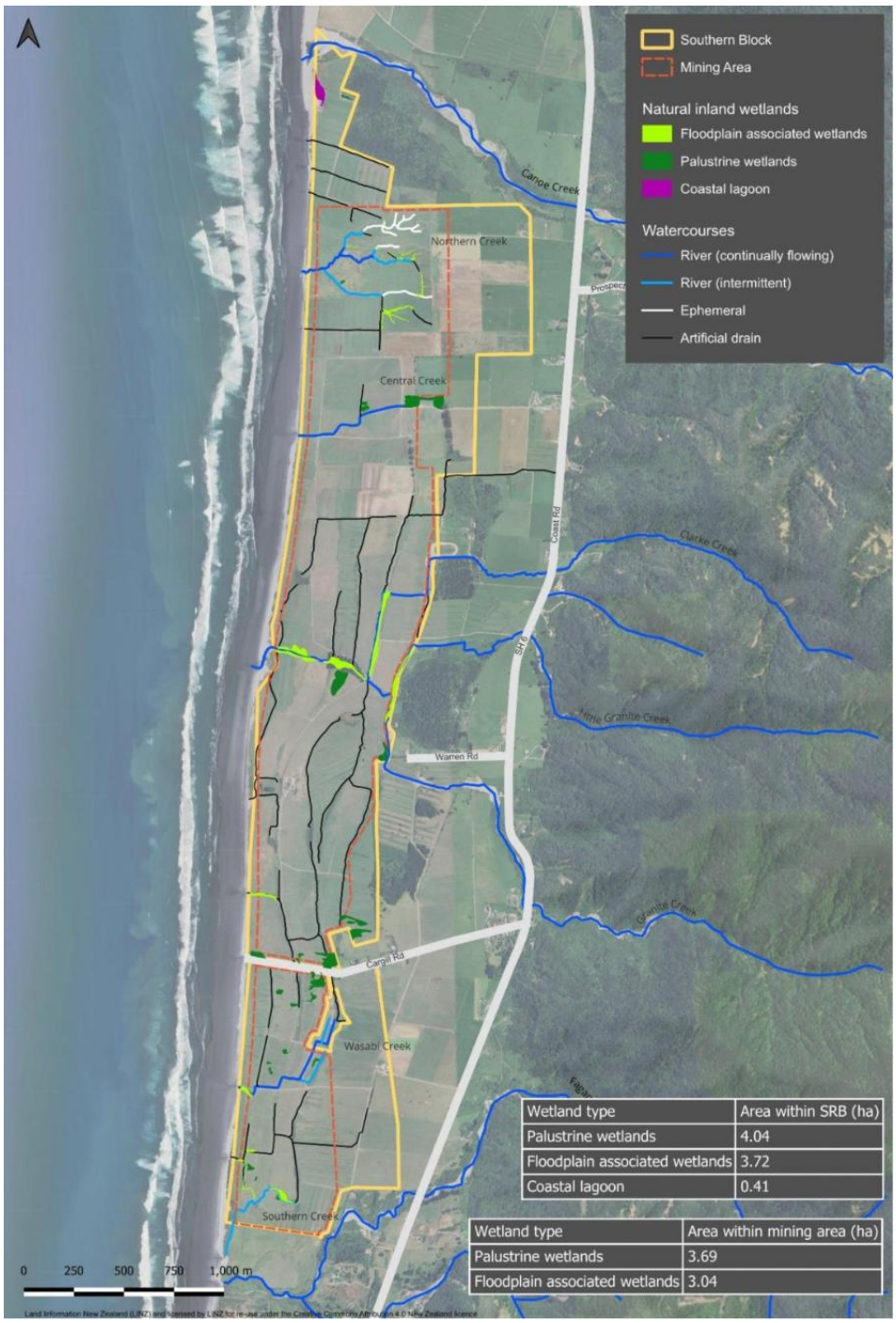
(e) Southern Creek.

Figure 2 – Creek locations



10 I have been asked to, and can confirm that the resource required to be recovered is in and around the areas identified as natural inland wetlands in **Figure 3** below:

Figure 3 – Natural Inland Wetland locations



Wetland type	Area within SRB (ha)
Palustrine wetlands	4.04
Floodplain associated wetlands	3.72
Coastal lagoon	0.41

Wetland type	Area within mining area (ha)
Palustrine wetlands	3.69
Floodplain associated wetlands	3.04

Mining method

11 The mining method has been implemented to maintain the hydrological functioning of the waterbodies surrounding the site and mining activities. This has necessitated the use of a dredge with a closed loop mining method which means that water is largely contained within the mining process whereby it travels between the mine pond and Wet Concentrator Plant by slurry pump. The operation of the dredging system requires long smooth runs. The process has the dredge and pond moving forward in a linear way (dredge path) with pre-stripping and progressive rehabilitation.

12 Turning corners, particularly sharply, is time consuming and more complex than moving straight forward. Turning the system is necessary at the end of each run, and this is minimised through longer north to south strips across the site. It necessitates a large width of area to move through and can only occur in the locations which are proposed on the application site.

13 Given the nature of the mineralised resource (width and depth) and the limited manoeuvrability of dredge mining, mining will proceed across creeks and wetland areas to recover the mineralisation below.

14 Temporary waterway diversions will preserve the natural water flow around the mining excavation. Creeks and waterways will be re-established after dredging.

15 The dredge is likely to be either a IHC Beaver® 45E, or something similar which can mine at 2 Mtpa to a depth of up to 10 m below the phreatic surface.

(a) The dredge will be positioned by spuds and shore-based anchors.

(b) The dredge will advance from mining Section 1 to Section 3.

16 The proposed mining approach includes:

(a) Soil stripping of topsoil 0.2-0.6 m.

(b) Dredging all material below topsoil at a 2 Mtpa production rate of the wet concentrate plant.

(c) A minimum pond depth of 4 m.

(d) Material below the maximum dredging pond depth of 10 m was excluded from the optimization.

(e) The width of the dredge path is limited by the winch ropes used to control the position of the dredge cutter. 100 m has been used in the design.

(f) Adjacent paths will be separated, at the pond level, to maintain an intersecting batter, so that tailings are contained and prevented from flowing into the active mining area. Where the dredge path does a U-turn, an island, on the inside edge, must be maintained for the dredge anchors. The island must have a perimeter of sufficient length to maintain access on the backfilled tails. The length of the perimeter is dependent on the pond length and the tailings beach reaching above the pond level.

(g) Once sufficient mining in-pit void is created, tailings can be deposited at the rear of the dredge path. The in-pit void for storage of tailings is created by dredging. The pond length is of sufficient length to accommodate the operating dredge and the tailings beach. As there is no floating wet concentrator the pond length can extend to accommodate changing mining widths and the imbalance between void and fill. There will be no need for additional off-path tailings once in-pit tailing is commenced.

17 The mine schedule is based on a dredging rate of 2 Mtpa (generating 6.2 Mt of feed to the wet concentrate plant (WCP)) and subsequent mineral separation plant (MSP) with Ilmenite, Garnet, and Zircon products.

18 Risk of slope instability can be managed to ensure no adverse impacts on neighbouring properties, Fagan and Granite Creeks and on sensitive environment areas proximate to the mining areas. Stability is provided by cutting batter slopes in undisturbed ground as set out below, along with the setbacks from boundaries not within the consent area and creeks of at least 20 m.

(a) The mine design parameters used included:

(i) Slope below the pond level: 17°

(ii) Slope above the pond level: 40°

(iii) Pond width at pond level: 100 m

(iv) Topsoil stockpile height: 2 m

(v) Inpit tails slope: 4°

(b) Parameters are based on similar past projects undertaken by AMC and knowledge of the geotechnical properties of the material mined.

(c) The slope height is mainly below pond level. Any uncontrolled movement will be contained within the pond.

19 The critical circumstance is when the mine pit is progressing adjacent to any boundary or creek boundary, before the pit is backfilled with tailings. The mine periods of exposure will likely range from 8 to 12 weeks.

Proposed conditions

20 I have reviewed the proposed conditions described in section 5 of the application as they relate to my area of expertise. I consider that:

(a) The mining process described is appropriate for this location and style of deposit.

(b) Setbacks have been applied from all relevant boundaries, and these are appropriate for the slope and geotechnical properties of the material mined.

(c) Maximum site disturbance will not exceed restrictions.

(d) The mining method supports the rehabilitation approach required.

(e) The mining method supports restrictions on hours of operation, noise and lighting limits.

Pier Federici