ALCOA OF AUSTRALIA LIMITED

Western Australia Mining Operations

MEMORANDUM

DATE: 19/03/2025

SUBJECT: Survey methodology for assessing *Empodisma* peatland of southwestern Australia TEC across Larego and Myara, McCoy, and O'Neil mine regions

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The purpose of this memorandum is to provide an overview of the activities Alcoa undertakes during the study period for a project, specifically for targeted surveys concerning potential occurrences of *Empodisma peatlands* of southwestern Australia across its WA Mine regions.

Background

Empodisma peatlands of southwestern Australia were listed in the Endangered category as a Threatened Ecological Community (TEC) effective from September, 2023, and is under the Commonwealth E*nvironmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is a Matter of National Environmental Significance (MNES).

Sampling methodology and vegetation condition assessment are designed as per the Approved Conservation Advice (DCCEWW 2023), where survey findings are assessed against the four key diagnostic features (DCCEEW, 2023) including:

- occurs in south-west Australia, including the Jarrah Forest subregion.
- the presence of *Empodisma gracillimum* (almost always) and other characteristic reed/sedge and shrub species;
- the presence of peat (or organosols); and
- must be in at least good condition (as determined by native vegetation cover and peat extent).

This community was previously restricted almost exclusively to the Warren bioregion region of southwest Australia, however pre-liminary modelling showed the Jarrah Forest as having a potential of the community occurring within it (Blake, Winkle & Horwitz, 2021). The potential for the occurrence of the *Empodisma* TEC/ Groundwater dependent ecosystem (GDE) within Huntly Mine was noted in a likelihood of occurrence of TECs in a desktop summary for the MMP Environmental Review Document (ERD) by Mattiske Consulting (Mattiske, 2024). The report stated that *Empodisma gracillimum* had been recorded historically in the Huntly Mine and that it is likely associated with the A or AC[1] site-vegetation types which are associated with

[1] A: Tall shrubland of *Melaleuca lateritia*, *Hakea varia*, *Melaleuca viminea* and *Melaleuca incana* subsp. *incana* on clay-loams in seasonally wet valley floors
AC: Open Woodland of *Eucalyptus rudis – Melaleuca preissiana - Eucalyptus patens - Banksia littoralis* with dense *Taxandria linearifolia* and *Astartea scoparia* in understorey on broad swamps and water-courses.

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swamps, water-courses and valley floors. Further interrogation internally by Alcoa's flora research scientist noted that the species had also been recorded historically in Larego, near the Flinders Creek Crossing, and at McCoy in historical operational areas.

Consultant confirmation of presence of *Empodisma* peatlands TEC

The confirmed presence of one occurrence of the *Empodisma* peatland TEC at one location in Larego mine region near Flinders' Crossing occurred in January, 2025 (Western Environmental, 2025) with vegetation condition being in Very Good condition. Given the potential of this community to have further discrete occurrences present in the Northern Jarrah Forest including advice from previous assessments a wider regional assessment and study is recommended. a regional study was recommended.

Internal Mapping and Field Verification

Mapping of potential occurrences of *Empodisma* peatlands TEC has been undertaken internally across Alcoa operational areas in within mine regions such as Larego, Myara, McCoy and O'Neil. The internal desktop assessment was based on aerial imagery, delineating areas with similar features to the known location, and with consideration of vegetation mapping (A and AC site vegetation types). Some mapped locations have been visited by Alcoa botanists and potential occurrences have been assessed as likely, possible or not likely as per Table 1.

Table 1: Field verification assessment

Likelihood category	Indicator Criteria*
Likely	• *Empodisma gracillimum* likely to be present • Some indicator species present as per (DCCEWW, 2023) • Peat present
Possible	Two of the three above indicator criteria met
Not likely	Only indicator species present or no criteria met.

*Internal assessment undertaken by Alcoa is intended to be conservative. Peat was assessed as presence/absence only- depths were not assessed, and flora collections were not made.

Areas identified in the desktop assessment as potential *Empodisma* peatlands TEC locations, and field verified likely and possible will be treated as a known occurrence until they can be assessed by a consultant.

Likelihood of Occurrence & Survey Methodology

Continued targeted *Empodisma* peatlands TEC/GDE surveys will be undertaken by external consultant/s in March and April 2025 across Larego and Myara, McCoy, and O'Neil mine regions. This assessment is proceding the previous survey undertaken in January 2025 confirming one occurrence of the *Empodisma* peatland TEC. These surveys will include:

1. A desktop assessment of the likelihood of occurrence of the potential *Empodisma* peatlands TEC, using aerial imagery, vegetation mapping and stream mapping across all operational areas.

2. On-ground field assessment of potential occurrences of the *Empodisma* peatlands TEC highlighted in the consultant's desktop assessment and Alcoa's mapping to determine if they are confirmed,

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likely, possible or not the *Empodisma* peatlands TEC, following the guidelines in the Conservation Advice (DCCEEW, 2023).

3. Studies and field assessments to align with current knowledge from the confirmed TEC (WE 2025)

4. An assessment of the validity of mapping the *Empodisma* peatlands TEC by aerial imagery and vegetation mapping and recommendations on further modelling work to increase the ability to predict occurrences within Alcoa's lease.

References

Blake, D., Winkle, H., and Horwitz, P., 2021. Predictive Mapping of *Empodisma* gracillimum based peatlands of southwestern Australia - Technical Document.

Department of Climate Change, Energy, the Environment and Water, 2023, Conservation Advice for Empodisma peatlands of southwestern Australia, Canberra.

Mattiske Consulting Pty Ltd, 2024. Summary of Flora and Vegetation Values on Huntly and Larego Areas. Unpublished Report prepared for Alcoa of Australia Limited.

Western Environmental, 2025. Empodisma peatland of Southwestern Australia: Targeted Vegetation Survey Alcoa Larego Mine Site. Unpublished Report prepared for Alcoa of Australia Limited.

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