

Technical Memo

CPS 4615 Amendment - Ten Clearing Principles Assessment

22 April 2026

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Technical Memo – CPS 4615 Amendment

1. Introduction

1.1 Project background

Mount Bruce Mining Pty Ltd (the Proponent) is applying to amend CPS 4615/8 to increase total clearing to 825 ha, an increase of 75 ha of clearing. The Clearing Permit Area (**Error! Reference source not found.**) is approximately 10,702 hectares and is located approximately 100 km northwest of Newman, largely on ML252SA (Gudai Darri, Pilbara). CPS 4615/8 is a Purpose Permit for mineral exploration, hydrogeological drilling, geotechnical investigations, construction camp and associated activities. The Proponent is a member of the Rio Tinto Group (Rio Tinto).

There are no other live clearing permits that overlap with the proposed Clearing Permit Area. However, Rio Tinto is also the developer of the Koodaideri Iron Ore Mine and Infrastructure Project which received approval on 10 March 2015 (Ministerial Statement 999) under Part IV of the *Environmental Protection Act 1986* (EP Act). CPS 4615/8 and Ministerial Statement 999 (MS 999) substantially overlap. Areas of existing or proposed disturbance area under the Part IV approval have been excised from the Clearing Permit Area to improve transparency regarding clearing mechanisms.

Approximately 941 ha (8.8 %) of the Clearing Permit Area is previously disturbed. Approximately 212 ha (23 %) of that disturbance has been rehabilitated. Rio Tinto is requesting an additional 75 ha of clearing in this amendment proposal. This would potentially result in total cumulative disturbance across the Clearing Permit Area of approximately 1,153 ha (9.5%), with rehabilitation undertaken on 18% of that disturbance already and progressive rehabilitation continuing.

This Technical Memo documents the assessment of the proposed clearing against the Ten Clearing Principles listed under Schedule 5 of the EP Act. The Clearing Permit Area and proposed clearing within that area has been substantially reduced from what was originally proposed based on heritage, environmental and business considerations. The avoidance and management measures, consistent with the mitigation hierarchy, are detailed in the assessment and summarised in Section 3.

1.2 Summary of proposed amendments

The Proponent requests the following amendments be made to CPS 4615/8:

- Extend the permit expiry date to 31 December 2041;
- Amendment to the Clearing Permit Area boundary to remove overlapping areas of proposed disturbance under MS 999, as well as a minor extension at the western extent for a proposed track (approximately 15.4 hectares);
- Remove all expired Exploration Licences (Condition 1);
- Amend clearing purposes to mineral exploration, hydrogeological and geotechnical investigations, flora and fauna monitoring, groundwater/ hydrogeological monitoring, infrastructure access, aboriginal heritage survey access and associated activities (Condition 2);
- Increase total clearing to 825 ha, being an increase of 75 ha (Condition 3); and
- No clearing after date changed to 31 December 2036 (Condition 5), with the permit duration extended to allow completion of rehabilitation and monitoring requirements.

Additional amendments are recommended to support improved conservation outcomes consistent with the contemporary understanding of the biodiversity and environmental values:

- Update 'Clearing Restricted' areas defined under Condition 4 to reflect significant vegetation, the locally significant wetland associated with Koodaideri Spring, updated significant fauna habitats and microhabitat features and heritage considerations (Figure 2);
- Remove Condition 8 as the record at this location is now confirmed as *Synostemon hamersleyensis* (EN) and is addressed under Condition 9;
- Remove or update Condition 9(i) to ensure consistency with recent listing of *Synostemon hamersleyensis* (EN) as a Threatened species under the *Biodiversity Conservation Act 2016* (BC Act); and
- Update Condition 9(ii) to state "No clearing within 10 m of identified Priority flora, unless first approved by the CEO".

1.3 Supporting data and assessment approach

The below assessment against the ten clearing principles is based on biological and environmental values identified from the below information sources:

- A reconnaissance level flora and vegetation survey undertaken in March 2025 (Stantec 2026; ISA-0001377) over the Clearing Permit Area including the minor extension area, consistent with EPA Technical Guidance (noting constraints with respect to Heritage exclusions);
- Desktop assessment of fauna habitat values within the Clearing Permit Area including the minor extension area using consolidated internal and consultant datasets, including records of State and Commonwealth listed Threatened fauna, Priority fauna, mapped significant habitats and significant microhabitat features within the Gudai Darri NVCP boundary; and
- Desktop review of existing Rio Tinto Iron Ore (RTIO), DBCA and publicly available datasets relevant to flora, vegetation and fauna values.

The *Gudai Darri Flora and Vegetation Survey* report (Stantec 2026) encompasses a larger area than the Clearing Permit Area. As noted above, the proposed clearing amount and the extent of the Clearing Permit Area has been reduced from that which was proposed. "Survey Area" refers to the area surveyed by Stantec (2026). "Clearing Permit Area" refers to the amended application area.

A detailed assessment against the Ten Clearing Principles is provided below. For each Principle, the assessment includes:

- a summary of the relevant biological or environmental values for that Principle;
- potential impacts from the proposed amendments on those values;
- commitments to avoid, minimise or manage impacts; and
- consideration of whether approval of the proposed amendment would result in residual impacts that would be at variance with that Principle.

2. Biological surveys and assessments

2.1 Flora and Vegetation

A reconnaissance level flora and vegetation survey was conducted by Stantec (2026) in accordance with the *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority 2016). Seasonal conditions for surveying at Gudai Darri were below average in 2025 compared to typical post-wet seasonal conditions. Access to some habitats was limited due to constraints imposed by Heritage exclusions.

Despite these on-ground survey limitations, the Stantec (2026) report builds on the many historical surveys undertaken for previous Part IV and V EP Act approvals to provide robust data for the Clearing Permit Area. Data from the previous surveys has been consolidated to ensure that there is adequate vegetation type mapping across the Clearing Permit Area to support this application. In addition, despite the sub-optimal seasonal conditions in 2025, a substantial proportion of flora taxa within the area are likely to have been identified in Stantec (2026) due to the consolidation of a large volume of historical survey work over many years.

Furthermore, it is proposed to include substantial areas of Heritage interest in the “Clearing Restricted” areas proposed to be incorporated under Condition 4. This not only protects potential heritage values from new clearing under this proposed amendment, but also protects any potentially unidentified flora values in these areas, which are lacking current targeted flora searches and vegetation sampling due to access constraints.

2.2 Fauna Habitats

Potentially significant fauna habitats have been compiled from numerous historical fauna surveys. These historical surveys were undertaken to support Part IV and Part V EP Act approvals.

The microhabitats and significant habitats mapped through these surveys have been used to add to the significant fauna habitats in the ‘Clearing Restricted’ areas defined under Condition 4 of CPS 4615/8. Where these surveys have increased the extent of the mapped habitat, the habitat recommended for protection under Condition 4 has been expanded. No previously conditioned habitat protected under Condition 4 has been reduced. The updated fauna habitat assessment work has only resulted in an increase to existing known areas, or the addition of new areas.

3. Environmental management

3.1 Exploration environmental management

Exploration and associated works are conducted in accordance with Rio Tinto’s Iron Ore (WA) Mineral Evaluation and Drilling Environmental Management Plan (EMP). This EMP includes commitments with respect to minimising clearing, avoiding high conservation value flora, fauna, vegetation and habitats and progressive rehabilitation. Exploration works are managed under Rio Tinto’s Land Access Management System (LAMS). LAMS has replaced the Approvals Request Co-ordination System (ARCS) referred to in the EMP. Significant biological and environmental features are spatially identified in LAMS with appropriate buffers. Any works that may impact on those identified significant values are avoided or referred to a subject matter expert who may authorise works with appropriate conditions, if the relevant regulatory environmental approvals are otherwise met.

Clearing is required for mineral exploration, hydrogeological and geotechnical investigations, flora and fauna monitoring, groundwater monitoring, infrastructure access and Aboriginal heritage survey access. Clearing will be undertaken with a dozer. Blade down clearing will be required to provide a safe working environment. Maximum width of track disturbance, including windrows, is 6 m. This is to account for the width of the loader bucket (4.5 m) and potential windrows either side. Total disturbance for drill pads and sumps can range from approximately 500 m² for standard reverse circulation drilling to 3,000 m² for water resource production bores. All tracks are to be constructed and maintained to ensure minimal impact on natural surface drainage patterns and progressively rehabilitated as soon as practicable.

3.2 Additional environmental commitments

A summary of Rio Tinto's specific management commitments and recommendations to support the proposed amendment to CPS 4615/8, consistent with the application of the mitigation hierarchy, is provided below.

Management commitments

- **Management commitment 1:** All known populations of Priority flora will be avoided, as far as practicable. A 25 m restriction buffer will be applied to Priority flora in LAMS to further reduce the risk of indirect and inadvertent impacts. Existing cleared areas in proximity to Priority flora will be accessed and maintained, as necessary.
- **Management commitment 2:** In accordance with the EMP, minimise clearing and construct and maintain tracks to ensure minimal impact on natural surface drainage patterns, with regard for the Ecosystems at Risk (EARs) and D1 and D2 vegetation types.
- **Management commitment 3:** Clearing will be managed in accordance with the EMP to minimise impacts on significant fauna habitats and all activities with the potential to impact on Threatened fauna will be reviewed by a zoologist. Appropriate exclusions / restrictions in LAMS and management will be required to ensure compliance with the *Biodiversity Conservation Act 2016* (BC Act), EPBC Act and Traditional Owner (TO) expectations.
- **Management commitment 4:** No direct or indirect impacts to Threatened flora unless in accordance with an authorisation under s40 of the *BC Act*. A 50 m exclusion buffer will be applied to Threatened flora in LAMS to further reduce the risk of indirect and inadvertent impacts. A restriction area has been applied to the habitat in LAMS to ensure appropriate management of the habitat associated with *S. hamersleyensis* (EN). Existing cleared areas in proximity to Threatened flora may be accessed and maintained, in consultation with DBCA.

Recommended Clearing Permit condition updates:

- **Recommended condition update 1:** The existing Condition 9(ii) be updated to state "No clearing within 10 m of identified Priority flora, unless first approved by the CEO".
- **Recommended condition update 2:** Avoidance of the Koodaideri Spring and associated riparian / wetland vegetation to be enforced through inclusion within revised 'Clearing Restricted' areas under an updated Condition 4. Maintenance of existing cleared tracks is to be permitted.
- **Recommended condition update 3:** Avoidance of potentially significant Threatened fauna habitats, including microhabitats, to be enforced through inclusion within revised 'Clearing Restricted' areas under an updated Condition 4. Construction and maintenance of existing cleared tracks is to be permitted.
- **Recommended condition update 4:** Condition 9(i) could be removed and impacts to Threatened flora managed solely under a BC Act Authorisation. However, if additional controls are deemed to be required in addition to a BC Act Authorisation, the existing

Condition 9(i) could be updated to state “No clearing within 50 m of *Synostemon hamersleyensis* (EN), unless first approved by the CEO”.

The revised ‘Clearing Restricted’ areas committed to above have been supplied as Esri shapefiles. It is recommended that these data be used to update Condition 4 to embed the above commitments into the amended Permit conditions.

The polygon to support the update to Condition 4 merges several biological values, habitats and areas of Heritage interest which intersect. The relevant underlying biological and habitat data has been submitted to the *Index of biodiversity surveys for assessments* (IBSA). The Heritage interest area that could not be accessed for current on-ground survey has been incorporated into the Condition 4 area for avoidance, however the underlying data for the Heritage area has not been supplied.

4. **Statement addressing the 10 Clearing Principles**

A flora specialist has undertaken an assessment against the 10 Clearing Principles taking into consideration the biological values of the Clearing Permit Area, application of the mitigation hierarchy through the EMP and value specific environmental commitments and the residual impacts of the proposed Amendment on those values. Based on that assessment, the proposed clearing associated with the NVCP amendment is not likely to be at variance with eight and may be at variance with two of the Ten Clearing Principles.

The detailed assessment and justification against each Principle is provided below.

Principle (a): Biological diversity

Native vegetation should not be cleared if it comprises a high level of biological diversity.

Flora

A flora and vegetation assessment was undertaken consistent with EPA Technical Guidance (Stantec 2026). A total of 381 fully identified vascular flora (including species, subspecies, varieties, forms, hybrids, native and introduced species) have been recorded within the Survey Area, from current and historical survey data. As noted above, despite the sub-optimal seasonal conditions in 2025, a substantial proportion of flora taxa within the area are likely to have been identified in Stantec (2026) due to the consolidation of a large volume of historical survey work over many years.

One significant flora taxon listed under the BC Act has been recorded within the Survey Area; the Threatened species *Synostemon hamersleyensis* (EN). This species is discussed in detail under Principle (c): Rare Flora.

The Department of Biodiversity, Conservation and Attractions (DBCA) maintains a Priority Flora List. Priority flora is not specifically listed under the BC Act. These flora taxa are data deficient (Priorities 1-3) or otherwise in need of monitoring (Priority 4). Two Priority 3 flora (*Eremophila naaykensis* and *Rostellularia adscendens* var. *latifolia*) and three Priority 4 flora (*Acacia bromilowiana*, *Eremophila magnifica* subsp. *magnifica* and *Rhynchosia bungarensis*) have been recorded in the Survey Area.

The Priority flora recorded within the Clearing Permit Area are detailed in Table 1 and shown in **Error! Reference source not found.** Data from the Stantec (2026) survey, Rio Tinto database and DBCA databases were used to support this assessment. Only Rio Tinto records have been used to assess proportional impacts due to duplication of Rio Tinto records within the DBCA data. In addition, the DBCA data for Priority flora often lacks information on population size, so it has a limited contribution

to quantitative analysis. The proportional impacts stated in Table 1 are likely to represent an overestimate of proportional impacts due to the focus of surveys on areas proposed for development in environmental impact assessment relative to broader habitat extents.

Priority flora records are avoided as far as practicable in exploration. Priority flora is demarcated in LAMS with a 25 m restriction buffer to minimise the risk of indirect or inadvertent impacts. Potential impacts are assessed by a Rio Tinto Flora Advisor / Specialist and areas of habitat are excised for protection where these are known and can be delineated (e.g. exclusion of creekline, gorge / gully, calcrete habitats etc). Exploration impacts are fragmented by nature. Topsoil is pushed to the side for tracks and pads and then pulled back over the disturbed area, with progressive rehabilitation being undertaken as soon as practicable. Impacts to Priority flora are managed through a combination of compliance with Permit conditions, implementation of the EMP and management through LAMS. These management measures ensure the proposed exploration is unlikely to pose a threat to the Priority flora recorded or likely to occur at either the local or regional scale. It should be noted that impacts to local populations may occur within the Clearing Permit Area through implementation of the Koodaideri Iron Ore Mine and Infrastructure Project under the overlapping MS 999 approval. Such impacts are outside the scope of the management proposed under this Amendment. Further information on the Priority flora taxa recorded is included below.

Eremophila naaykensis (Priority 3) has a known range of approximately 260 km, based on DBCA and Rio Tinto records, extending from Brockman Syncline 2 in the northwest to east of Newman. This species is recorded high in the landscape, on steep slopes, scree, skeletal brown-red soil in banded ironstone. Both DBCA and Rio Tinto have records of populations within Karijini National Park. This species was not recorded by Stantec (2026), but there is an historical Rio Tinto record of a population of 100 individuals within the Clearing Permit Area. This population is within the MS 999 approval area, approximately 30 m from the approved disturbance footprint. This record represents 0.23 % of the known number of individuals regionally using Rio Tinto records only.

Rostellularia adscendens var. *latifolia* (Priority 3) has a known range of approximately 400 km, based on DBCA and Rio Tinto records, extending from near Karratha in the northwest to near Newman in the southeast. Recent email advice from DBCA indicates that this taxon will be delisted (Leticia Povh, email, 9 April 2026). This taxon is largely recorded on ironstone soils, along drainage lines. Drainage lines are avoided as far as practicable during exploration. The existing Condition 10 under CPS 4615/8 requires avoidance of riparian vegetation and maintenance surface hydrology. Direct and indirect impacts are likely adequately managed under the existing Condition 10. It is recommended that this condition remain on the amended Permit. Rio Tinto has records within Millstream-Chichester National Park and both DBCA and Rio Tinto have records within Karijini National Park. Two individuals were recorded by Stantec (2026) within the Clearing Permit Area in the current survey, with one additional individual recorded previously in the Rio Tinto database. The total number of individuals recorded within the Application Area represents 0.11 % of the known number of individuals regionally using Rio Tinto records only.

Acacia bromilowiana (Priority 4) has a known range of approximately 440 km, based on Rio Tinto and DBCA records, extending from near Pannawonica to just east of Newman. *A. bromilowiana* is recorded from banded ironstone and basalt on rocky hills, breakaways, scree slopes, gorges and creekbeds. Both DBCA and Rio Tinto have records of populations within Karijini National Park. No plants were recorded by Stantec (2026) within the Clearing Permit Area in the current survey. However, two records totalling 5 individuals have been recorded historically. The total number of individuals recorded within the Application Area represents 0.03 % of the known number of individuals regionally using Rio Tinto records only.

Eremophila magnifica subsp. *magnifica* (Priority 4) has a known range of approximately 340 km, based on Rio Tinto and DBCA records, extending from Metawandy to Hope Downs, northeast of Newman. This taxon is recorded from skeletal soils over ironstone and rocky screes. There are both DBCA and Rio Tinto records within Karijini National Park. Stantec (2026) recorded three populations, totalling 13 individuals within the Clearing Permit Area. Rio Tinto has additional historical records of five populations totalling 24 plants. The total number of individuals recorded within the Application Area represents 0.2 % of the known number of individuals regionally using Rio Tinto records only.

Rhynchosia bungarensis (Priority 4) has a known range of approximately 1,410 km, based on Rio Tinto and DBCA records, extending from near Exmouth to Werriado Well (Well 51) on the Canning Stock Route, south of Halls Creek. Recent email advice from DBCA indicates that this taxon will be delisted (Leticia Povh, email, 9 April 2026). This species is largely recorded from pebbly, coarse sand amongst boulders and banks of drainage lines. Most records within the Clearing Permit Area and on Rio Tinto tenure more broadly are associated with drainage lines. As noted above, the existing Condition 10 under CPS 4615/8 requires avoidance of riparian vegetation and maintenance surface hydrology. Direct and indirect impacts are likely adequately managed under the existing Permit conditions, expected to be retained. There are both DBCA and Rio Tinto records within Millstream-Chichester National Park and Karijini National Park. Stantec (2026) recorded seven populations, totalling 22 individuals within the Clearing Permit Area. Rio Tinto has additional historical records of 368 populations totalling 2,527 plants. The total number of individuals recorded within the Application Area represents 7.27 % of the known number of individuals regionally using Rio Tinto records only. Most records within the Clearing Permit Area (97.39 %) fall within the proposed updated 'Clearing Restricted' area and would not be impacted.

One individual of *Solanum* ? sp. Red Hill (S. van Leeuwen et al. PBS 5415) was recorded at one location within the Clearing Permit Area in a previous survey. This record may represent the Priority 3 taxon, *S. sp. Red Hill* (S. van Leeuwen et al. PBS 5415) (SLR Consulting Australia 2025). However, the lack of mature fruit meant that this collection could not be identified to species level. None of the *Solanum* records collected during the Stantec survey or presented in reports included in the literature review represent *S. sp. Red Hill* (S. van Leeuwen et al. PBS 5415). The nearest vouchered record of *S. sp. Red Hill* (S. van Leeuwen et al. PBS 5415) (P3) is located west of Karijini National Park, approximately 250 km northwest of the Survey Area (WAH 2025). If this collection were to represent *S. sp. Red Hill* (S. van Leeuwen et al. PBS 5415), the record within the Clearing Permit Area would represent a significant eastern range extension. However, in the absence of mature fruit to enable identification and absence of other records of *S. sp. Red Hill* (S. van Leeuwen et al. PBS 5415) in this location, despite numerous historical surveys and current targeted searches, it is also possible that this collection represents another *Solanum* species. The record of *Solanum* ? sp. Red Hill (S. van Leeuwen et al. PBS 5415) within the Clearing Permit Area falls within the proposed updated 'Clearing Restricted' area and would not be impacted. *S. sp. Red Hill* (S. van Leeuwen et al. PBS 5415) is associated with gorge / gully habitats. Significant areas of gorge / gully habitats are proposed to be protect under the updated 'Clearing Restricted' area.

Four significant flora records that were identified during the desktop assessment were considered likely to occur within the Survey Area in the post-survey assessment: *Dicladanthera glabra* (Priority 3), *Gymnanthera cunninghamii* (Priority 3), *Indigofera gilesii* (Priority 3) and *Isotropis parviflora* (Priority 3). All these taxa have regional distributions of over 200 km, with *I. gilesii* having a range greater than 1,000 km. All but *I. parviflora* have been recorded within Karijini National Park. *I. parviflora* is known to respond to disturbance, as it is recorded in very high numbers post-fire and in windrows along tracks. *I. parviflora* is unlikely to be threatened by the type of fragmented disturbance caused by exploration. The Clearing Permit Area falls within the known distribution for all but *D. glabra*. If *D. glabra* were to

be recorded in the eastern portion of the Clearing Permit Area, there is possibility it could represent the eastern-most extent of the species. However, *D. glabra* is associated with drainage lines and pools. As noted above, the existing Condition 10 manages direct and indirect impacts to riparian vegetation, as does the exploration EMP. The proposed exploration is unlikely to pose a threat to any of these taxa at either the local or regional scale.

Eight specimens collected during the Stantec survey were identified as *Corchorus* aff. *tectus*, following taxonomist assessment indicating affinity to *C. tectus*, however diagnostic characters differed from typical *C. tectus*. *C. aff. tectus* was recorded at 10 locations during the Stantec survey, however it is likely to be more widespread than the records suggest. It is also likely to extend beyond the Survey Area, in association with PIL02 subregion and potentially correlates with the Fortescue Valley shrub-steppe pre-European vegetation association (Stantec 2026). This taxon was also recorded during surveys for the Mindy South Iron Ore Project and was noted to be locally common from the plains to the north of the Survey Area (Fortescue 2024). This taxon is likely to represent an undescribed taxon, and a phrase-name will be applied following the completion of a genetic study. Rio Tinto has placed these records under restriction buffers (25 m), as per the Priority flora. These records will be managed similarly in LAMS, with habitat excluded from exploration areas as far as practicable while its conservation status is clarified.

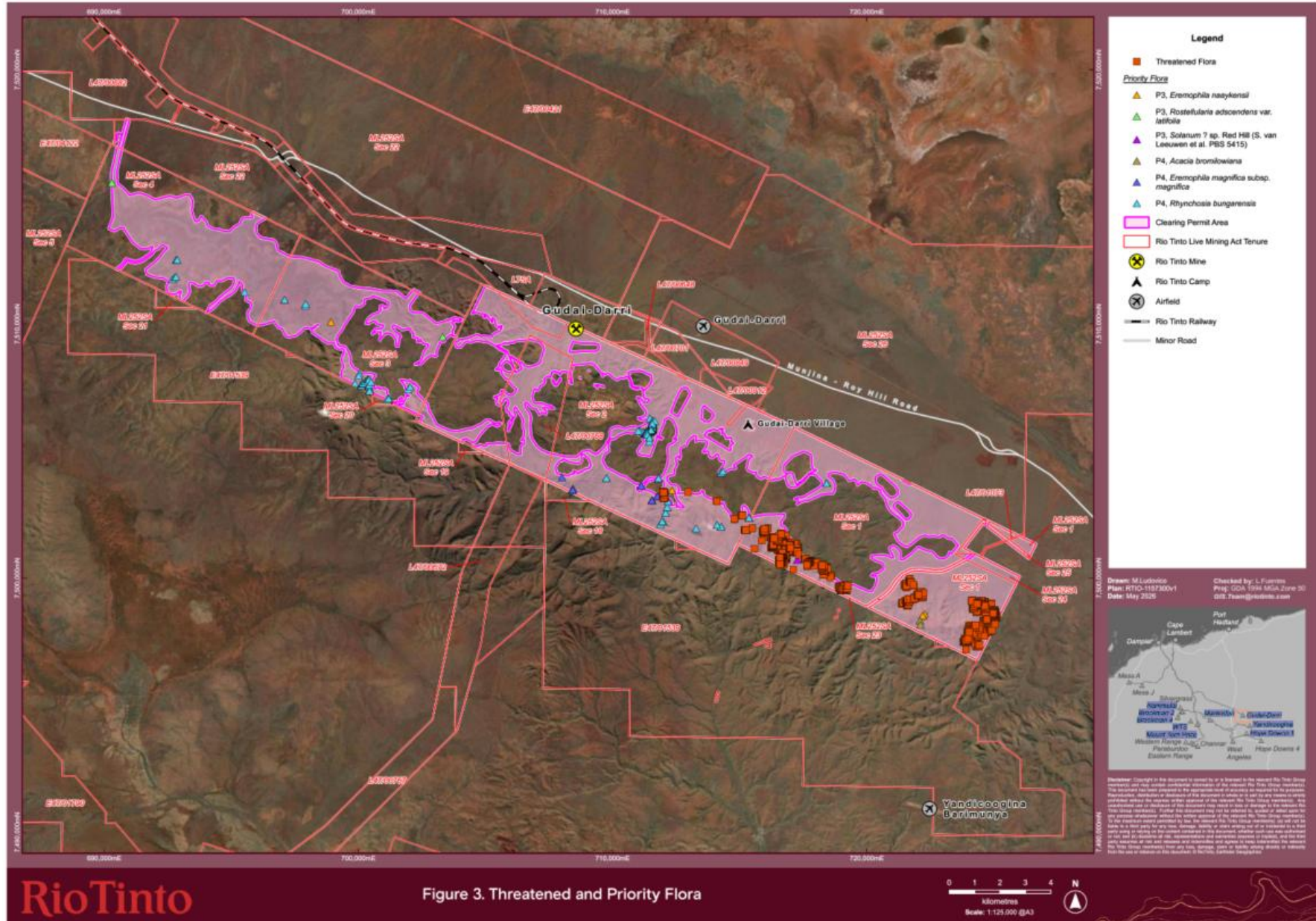
Management commitment 1: *All known populations of Priority flora will be avoided, as far as practicable. A 25 m restriction buffer will be applied to Priority flora in LAMS to further reduce the risk of indirect and inadvertent impacts. Existing cleared areas in proximity to Priority flora will be accessed and maintained, as necessary.*

Recommended condition update 1: *The existing Condition 9 be updated to state “No clearing within 10 m of identified Priority flora, unless first approved by the CEO”.*

Table 1. Priority flora recorded within the Clearing Permit Area, Rio Tinto regional database and DBCA databases.

Significant Flora	Clearing Permit Area (Stantec 2026)		Clearing Permit Area Rio Tinto Database		Clearing Restricted Area Rio Tinto Database		% population within the "Clearing Restricted" area relative the Clearing Permit Area	Regional records Rio Tinto Database (duplicates removed)	% population within the Clearing Permit Area relative the regional population*	Clearing Permit Area DBCA data*	
	Records	Abundance	Records	Abundance	Records	Abundance				Abundance	Records
<i>Synostemon hamersleyensis</i> (T: EN)*	2	2	4,640	4,651	2,152	2,160	46.44	23,487	19.80	8	3,000
<i>Eremophila naaykensis</i> (P3)	-	-	1	100	0	0	0	44,121	0.23	-	-
<i>Rostellularia adscendens</i> var. <i>latifolia</i> (P3)	2	2	1	1	0	0	0	12,304	0.01	-	-
<i>Acacia bromilowiana</i> (P4)	-	-	2	5	1	1	20.00	14,317	0.03	-	-
<i>Eremophila magnifica</i> subsp. <i>magnifica</i> (P4)	3	13	5	24	0	0	0	12,032	0.20	1	1
<i>Rhynchosia bungarensis</i> (P4)	7	22	368	2,527	349	2,461	97.39	34,660	7.27	2	2

* Note that only Rio Tinto Flora database was used to calculate proportion of the population within the Clearing Permit Area relative to the regional extent. The Rio Tinto data for *S. hamersleyensis* is recorded at a finer scale and the centroids of the DBCA TPFL populations largely reflect those populations recorded by Rio Tinto. Using both data sets would result in significant duplication of *S. hamersleyensis* data and inflation of the population size. For Priority flora, the DBCA records within the Clearing Permit Area do not contribute meaningfully to the quantitative analysis. The DBCA data has been included for regulator information only. Where abundances were not available for DBCA records, one individual was assumed.



Vegetation

The Clearing Permit Area lies largely within the Hamersley (PIL3) subregion of the Pilbara IBRA bioregion of Western Australia (Kendrick 2001), with 88 % of the Clearing Permit Area falling within this subregion. There is a small portion of the Clearing Permit Area to the north that falls within the Fortescue Plains (PIL2) subregion (approximately 12 %). Native vegetation within the survey area is typical of the Hamersley and Fortescue Plains subregions and is well represented at local and regional scales.

Two pre-European vegetation associations (Beard 1975) are mapped within the survey area, being Hamersley 82 and Fortescue Valley 111 (Stantec 2026). The significance of clearing a specific vegetation association can be assessed by comparing its current extent with its pre-European distribution. At the State-wide, bioregional, subregional, and local government authority levels, these pre-European vegetation associations currently retain more than 99% of their original extent (Government of Western Australia 2019).

Thirty-two vegetation types were mapped within the Clearing Permit Area (Table 1).

- No Threatened Ecological Communities were recorded.
- Vegetation that may represent a Priority Ecological Community was recorded.
- Two vegetation types considered analogous to Ecosystems at Risk (EARs) within the Hamersley subregion (PIL03) were recorded.

The vegetation associated with the Koodaideri Spring (EcrFvvCvTdCcTt) is analogous to the Priority 2 PEC '*Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region*' (Stantec 2026). This vegetation unit occurs within the Clearing Permit Area. This feature is already identified and recognised as a sensitive environmental value under Condition 11 of MS 999 and Condition 4 of CPS 4615/8. This Koodaideri Spring area has been carried forward in the recommended update to the 'Clearing Restricted' area under Condition 4.

This vegetation associated with the Koodaideri Spring (EcrFvvCvTdCcTt) is within the area protected under Condition 11 of Ministerial Statement 999 and within areas of potentially significant fauna habitat which are all proposed to be included in the 'Clearing Restricted' areas. This will provide an appropriate buffer for the Koodaideri Spring vegetation identified by Stantec (2026). The minimum width of the buffer is approximately 75 m, with much larger buffer in some areas. The existing track to the Koodaideri Spring extends through this proposed buffer for the Koodaideri Spring vegetation. There are no existing tracks within the vegetation associated with the Koodaideri Spring (EcrFvvCvTdCcTt) that is analogous to the Priority 2 PEC. The track through the buffer may require maintenance under the Permit.

Two vegetation types within the Clearing Permit Area are considered analogous to Ecosystems at Risk (EARs) within the Hamersley subregion (PIL03), being 'Lower slope Mulga' (AaAprTwTv) and 'Hill-top florals, Hamersley Range' (EIIeGekGwMvTw). These vegetation types represent small areas within the Clearing Permit Area, totalling approximately 6 ha and 145 ha respectively. Given the small amount of additional clearing and fragmented nature of the clearing proposed under this amendment, direct clearing for exploration purposes undertaken in accordance with the EMP is not likely to result in a reduction in distribution, disruption of ecological process or significant degradation of these

vegetation types. Exploration will be undertaken in accordance with the EMP to ensure minimal disruption to surface hydrology, management of weeds and progressive rehabilitation. The primary threatening process listed for these EARs is frequent fires preventing regeneration (Kendrick 2001). Rio Tinto complies with *State Planning Policy 3.7: Planning in Bushfire Prone Areas*. It has well-established strategies for fire management to minimise the likelihood of activities resulting in the outbreak of bushfires, and for management of fires should they start. Appropriate training on fire prevention and management is provided to all personnel. Following implementation of the abovementioned management strategies, fire risk from the proposed amendment and associated activities is not considered to present a significant additional indirect impact risk to flora or vegetation above background fire risk.

Approximately 27% of the vegetation associated with drainage lines falls within the proposed 'Clearing Restricted' area. The EvAtpAppGrCc (D1) and ChAtpPITp (D2) vegetation types have substantial overlap with significant fauna habitat and Heritage areas proposed to be incorporated, with 77% and 84% of those vegetation types respectively falling within the 'Clearing Restricted' area. Existing tracks will be used where possible. Any track construction or maintenance in the 'Clearing Restricted' area will be undertaken in accordance with the EMP to ensure minimal impact on natural surface drainage. Existing Condition 10 also ensures impacts to areas of vegetation growing in association with a watercourse or wetland are managed and clearing is minimised. It is recommended that this condition remain on the amended Permit.

Management commitment 2: *In accordance with the EMP, minimise clearing and construct and maintain tracks to ensure minimal impact on natural surface drainage patterns, with particular regard for the EARs and D1 and D2 vegetation types.*

Recommended condition update 2: *Avoidance of the Koodaideri Spring and associated riparian / wetland vegetation to be enforced through inclusion within revised 'Clearing Restricted' areas under an updated Condition 4. Maintenance of existing cleared tracks is to be permitted.*

Table 2: Vegetation types recorded within the Application Area and proportion within the proposed 'Clearing Restricted' (Condition 4) area.

Vegetation Code	Species Code	Vegetation Condition	Extent within Clearing Permit Area (ha)	Extent within Clearing Restricted area	% within Clearing Restricted area
Hilltops and Hillslopes					
H1*	EIIChGwAhiAspoTwTv	Excellent	1,752.58	333.91	19.05
H8	EIIgWAbTwTv	Very Good to Excellent	1,473.22	40.11	2.72
H6*	EIIgWAaridAspoMvTvTw	Excellent	773.61	150.14	19.41
H10	EIIHcAmaiAprAbTv	Excellent	641.70	124.75	19.44
H5	EIIeGwHcAspoAhiTv	Excellent	504.66	58.30	11.55
H3	EIIChGwAspoTw	Excellent	395.74	60.17	15.20
H9	EIIteTp	Excellent	403.81	196.44	48.65
H7	EIIsgpSggGwTbriz	Excellent	366.10	124.44	33.99
H4	EIIgWAspoAhiTv	Very Good to Excellent	286.38	41.34	14.44

Vegetation Code	Species Code	Vegetation Condition	Extent within Clearing Permit Area (ha)	Extent within Clearing Restricted area	% within Clearing Restricted area
H2	EIIeGAhiTvTw	Excellent	207.81	63.18	30.40
H11	Ch/CddTvTw	Excellent	48.89	7.55	15.44
H12	AaAprTwTv	Excellent	6.11	0.85	13.91
Plains					
P7	EgGwTv	Excellent	235.29	0.49	0.21
P4	EgAancGwApacAppTb	Very Good to Excellent	194.65	0.00	0.00
P8	GwhAiTI	Excellent	190.99	0.00	0.00
P2	ChEgAiTeTb	Very good to Excellent	96.77	0.00	0.00
P5	GwAserAdTb	Very Good	96.78	0.02	0.02
P3	EgAancTb	Very Good to Excellent	8.77	0.00	0.00
Drainage					
D6	GrGwAtpSIAppSaoPooCcTpTe	Poor to Very Good	277.32	19.59	7.06
D4	ChAtpGwGrTeCc	Poor to Excellent	222.86	12.84	5.76
D2	ChAtpPITp	Good to Excellent	140.34	117.81	83.95
D5	AtpGwCcTp	Poor to Very Good	47.35	10.24	21.63
D1	EvAtpAppGrCc	Poor to Good	59.54	46.09	77.41
D3	ChGwGrAmaiAmonTp	Good to Excellent	34.13	2.12	6.21
D7	ChAtpGwGrTsp.Tv	Very Good to Excellent	5.04	0.79	15.67
Undulating plains and footslopes					
P9	ChEgGw/AITp	Good to Excellent	539.13	53.80	9.98
P6	ChEgAiGwTVTw	Excellent	86.40	0.29	0.34
H14	AxEcTwTv	Very Good to Excellent	6.39	0.37	5.79
Floodplain					
F1	ChGwAppSaoCcTp	Poor to Very Good	441.18	175.32	39.74
High hilltops and crests					
H13	EIIeGEkGwMvTw	Excellent	144.68	40.11	27.72
Gorge/gully					
G1	CfEIIAtpGwAprAhTtTeTp	Very Good to Excellent	38.05	1.57	4.13
Spring					
S1	EcrFvvCvTdCcTt	Good	4.30	4.30	100.00

*Vegetation types supporting the highest proportion of the *Synostemon hamersleyensis* (EN) population.

Fauna

Fauna values were assessed using consolidated internal and consultant datasets (including those in preparation for a proposed future Part IV referral) within the Gudai Darri NVCP boundary. This includes records of State and Commonwealth listed Threatened fauna, Priority fauna, defined microhabitat features and mapped critical habitat polygons. The fauna dataset comprises a large number of existing records derived from multiple surveys and assessments undertaken over time, providing a robust understanding of fauna values and habitat distribution across the Clearing Permit Area. Identified fauna habitats and microhabitats are typical of the Pilbara and are well represented locally and regionally.

Seven significant fauna species listed under the BC Act and/or EPBC Act have been recorded within the Clearing Permit Area. These significant fauna species comprise the Northern Quoll (*Dasyurus hallucatus* (En; En)), Pilbara Leaf-nosed Bat (*Rhinonictoris aurantia* [Pilbara Form] (Vu; Vu)) (PLNB), Ghost Bat (*Macroderma gigas* (Vu; Vu)), Grey Falcon (*Falco hypoleucos* (Vu; Vu)), Pilbara Olive Python (*Liasis olivaceus barroni* (Vu; Vu)), Peregrine Falcon (*Falco peregrinus* (OS)), and Western Pebble-mound Mouse (*Pseudomys champani* (P4)). An additional two significant vertebrate fauna species are considered likely to occur: Fork-tailed Swift (*Apus pacificus* (Mi; Mi)) and Gane's Blind Snake (*Anilos ganeii* (P1)). These species are associated with a range of habitat types within the Clearing Permit Area:

- the Northern Quoll has been frequently recorded in Gorge/Gully, Breakaway/Cliff, Rocky Hill, Alluvial Plain and Minor Drainage Habitat within the Clearing Permit Area.
- the PLNB has been recorded on multiple occasions in Rocky Hill, Gorge/Gully, Minor Drainage, Alluvial Plain, Low Hills and Slopes, Breakaway/Cliff and Stony Plain habitat within the Application Area. The Clearing Permit Area contains one known Category 1 roost, two potential Category 2 roosts and two potential Category 3 roosts, which constitute critical habitat for PLNB.
- the Ghost Bat has frequently been recorded within Gorge/Gully, Alluvial Plain, Breakaway/Cliff and Rocky Hill habitats within the Clearing Permit Area. The Clearing Permit Area contains two confirmed and two potential Category 2 roosts, which constitute critical habitat for Ghost Bat.
- the Pilbara Olive Python has been recorded in Gorge/Gully habitat on multiple occasions within the Clearing Permit Area.
- a pair of Grey Falcons were recorded opportunistically in Rocky Hill habitat within the Clearing Permit Area.
- the Peregrine Falcon has been recorded on multiple occasions in Alluvial Plain, Gorge/Gully, Rocky Hill and Stony Plain habitat within the Clearing Permit Area.
- the Western Pebble-mound Mouse has been frequently recorded within Rocky Hill, Minor Drainage, Alluvial Plain, Low Hills and Slopes and Stony Plain habitat within the Clearing Permit Area.

Eight broad fauna habitats were identified within the Clearing Permit Area, being:

- Rocky Hill;
- Low Hills and Slopes;
- Gorge/Gully;
- Breakaway/Cliff;
- Stony Plain;

- Alluvial Plain;
- Minor Drainage; and
- Mulga Woodland.

These habitats are broadly represented across the Pilbara bioregion. The habitats mapped within the Clearing Permit Area are unlikely to support significantly greater faunal biodiversity than similar habitats found elsewhere in the bioregion.

In addition to the broad fauna habitats listed above, significant microhabitat features have been identified within the Clearing Permit Area. Microhabitat features may provide foraging, denning or roosting habitats. These include caves/overhangs and permanent pools (Koodaideri Spring and KBH25 monitoring site).

Potentially significant habitats for Threatened fauna are spatially defined within the Clearing Permit Area. These potentially significant habitats, including microhabitats, have been incorporated into revised 'Clearing Restricted' areas with appropriate buffers, depending on the significance of the habitat and Threatened fauna being protected (e.g. adit has a 150 m buffer applied while overhangs have a 20-30m buffer applied). Construction and maintenance of access tracks may be required through buffers where avoidance is not practicable. In such cases, clearing will be minimised and managed in accordance with the EPBC Act, BC Act, EMP, LAMS and any relevant Clearing Permit conditions. For example, track maintenance may not be permitted if noise or vibration is likely to significantly disturb Threatened fauna, irrespective of whether vegetation clearing is required.

The EPBC Act and BC Act are the primary regulatory mechanisms for managing impacts to Threatened fauna and associated significant habitats. To ensure compliance with the relevant legislation, any clearing or other proposed works which may potentially impact on Threatened fauna and/or their associated habitats are reviewed by a Specialist or Senior Zoologist. Exclusion areas and/or management conditions are applied on internal works approvals through LAMS in relation to management of Threatened fauna e.g. conditions relating fencing standards, appropriate vehicle speed, lighting management, stopping work if Threatened fauna is observed etc.

Western Pebble-mound Mouse (P4) has been recorded from active and inactive mounds within Rocky Hill, Minor Drainage, Alluvial Plain, Low Hills and Slopes and Stony Plain habitat within the Clearing Permit Area. These habitats are widespread and common within the vicinity of the Clearing Permit Area and the wider Pilbara region. Mounds have been identified through multiple surveys and these are identified as restriction areas with a 20 m buffer in LAMS. A condition is placed on internal approvals for all works within areas of Western Pebble-mound Mouse habitat with known mounds. The condition notes the cultural significance of both active and inactive mounds to Traditional Owners and requires avoidance of impacts to pebble-mounds as far as practicable. The EMP also states that such features of elevated conservation significance will be avoided (where practicable). In cases where avoidance of mounds is not practicable, fauna management advice is included on the internal approval.

Management commitment 3: Clearing will be managed in accordance with the EMP to minimise impacts on significant fauna habitats and all activities with the potential to impact on Threatened fauna will be reviewed by a zoologist. Appropriate exclusions / restrictions in LAMS and management will be required to ensure compliance with the BC Act, EPBC Act and TO expectations.

Recommended condition update 3: *Avoidance of potentially significant Threatened fauna habitats, including microhabitats, to be enforced through inclusion within revised 'Clearing Restricted' areas under an updated Condition 4. Maintenance of existing cleared tracks is to be permitted.*

In summary, the flora, vegetation and fauna habitats within the Clearing Permit Area are largely typical of the Pilbara. Flora, vegetation and fauna habitat values that are considered to be of elevated biodiversity conservation value and may potentially be significant in respect conservation of biodiversity locally or regionally have been placed in the proposed 'Clearing Restricted' areas under a proposed up-dated Condition 4.

Assessment outcome: *Based on Rio Tinto's management commitments and recommended Clearing Permit condition updates, the proposed clearing is not likely to result in a significant impact on biological diversity at a local or regional scale and **not likely to be at variance** to this Principle.*

Principle (b): Significant fauna

Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Significant fauna species identified as occurring within the Clearing Permit Area have been listed and considered in the above assessment against Principle (a).

As noted above, within the Clearing Permit Area, eight broad fauna habitats were mapped: Rocky Hill, Low Hills and Slopes, Gorge/Gully, Breakaway Cliff, Stony Plain, Alluvial Plain, Minor Drainage and Mulga Woodland. Identified fauna habitats and microhabitats are typical of the Pilbara and are well represented locally and regionally. In addition, significant microhabitat features have been identified and assessed within the Clearing Permit Area, including permanent pools and cave / overhang habitats.

Rio Tinto has made a formal commitment to avoid areas of potentially significant fauna habitat identified within the Clearing Permit Area. It is recommended that these habitats and microhabitat features are incorporated into updated 'Clearing Restricted' areas, which will be enforced through Condition 4 of the amended Permit. The extent of each 'Clearing Restricted' area assigned to individual microhabitat features and significant habitat zones has been determined based on a scientific assessment of the ecological importance of each feature for Matters of National Environmental Significance (MNES) fauna. This process also considered the spatial requirements necessary to ensure the ongoing protection of these habitats and their associated biodiversity values.

Assessment outcome: *Based on Rio Tinto's management commitments and recommended Clearing Permit condition updates detailed under Principle (a) above, the proposed clearing is **not likely to be at variance** to this Principle.*

Principle (c): Rare flora

Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

One significant flora taxon listed under the BC Act has been recorded within the Survey Area; the Threatened species *Synostemon hamersleyensis* (EN). This species was listed as Threatened in 2023, after CPS 4615/8 was granted. This species is not listed under the Federal *Environment*

Protection and Biodiversity Conservation Act 1999. Threatened (rare) flora locations are shown in Figure 3.

S. hamersleyensis is limited to the southeastern portion of the Clearing Permit Area. This perennial species typically occurs in incised rocky gullies and ridge lines, within an elevation range of approximately 500 to 700 m above sea level. Previous studies also indicate that *S. hamersleyensis* is likely to have a geological correlation with the Joffre member of the Brockman Iron Formation (Naaykens and Telford 2015).

Extensive targeted surveys for *S. hamersleyensis* have been conducted across the mapped extent of suitable habitat between 2013 and 2025. A total of 23,487 plants has been recorded during these surveys, of which 4,651 occur within the Clearing Permit Area.

Impacts to *S. hamersleyensis* have been avoided since the species was listed as Threatened. A single plant is known to have been impacted, and this plant was impacted in 2013, prior to the species being listed.

Direct and/or indirect impacts to *S. hamersleyensis* will require s40 Authorisation under the BC Act. For any activities within suitable habitat for *S. hamersleyensis*, with the potential to directly or indirectly impact on the species, pre-clearance targeted surveys are conducted to ensure compliance with the BC Act. This species will be avoided as far as practicable, and any potential direct or indirect impacts to this Threatened species will be managed in accordance with a BC Act Authorisation.

The purpose of this Clearing Permit amendment is for exploration and associated activities. The circumstances where Threatened flora cannot be avoided are likely to be very limited. Previous discussions with DBCA regarding s40 Authorisations have been about potential indirect impacts associated with track maintenance within the mapped habitat extent. *S. hamersleyensis* plants have been recorded on windrows. There is the potential for further plants to regenerate on windrows after track construction or maintenance. Direct impacts under the Clearing Permit may be required to enable track maintenance and rehabilitation of tracks.

A 50 m exclusion buffer is applied to all Threatened flora in LAMS. To further reduce the risk of direct, indirect and inadvertent impacts, the mapped extent of the suitable habitat is managed under a restriction area in LAMS. Maintenance of existing cleared tracks within the suitable habitat has been discussed with DBCA to avoid any potential risk of indirect impacts.

An Application for a Section 40 Authorisation under the BC Act is being sought to cover potential direct and indirect impacts from track maintenance. Any unavoidable impacts to Threatened flora will be managed in accordance with an authorisation under s40 of the BC Act, where required. This is the primary regulatory mechanism for managing impacts to Threatened flora. Ideally, Threatened flora would be managed under a s40 Authorisation under the BC Act and there would be no duplicated condition on the Clearing Permit.

The existing Condition 9 for flora management is no longer consistent with *S. hamersleyensis* Threatened status. If a condition on the Permit is required in addition to the requirement for an Authorisation under the BC Act, then it is recommended that Condition 9 be updated to state “no clearing within 50 m of identified *Synostemon hamersleyensis* unless first approved by the CEO”. The proposed 50 m buffer is consistent with other granted clearing permits in relation to Threatened flora. It is also consistent with the recommendation in EPA’s Report on the Koodaideri Iron Ore and Infrastructure Project (Report 1533, 2014) that the buffer should be increased to 50 m if the species is

listed as Threatened. However, the primary regulatory mechanism for managing impacts on Threatened flora is the BC Act. Rio Tinto liaises with DBCA regarding the need for an Authorisation under that Act.

Management commitment 4: No direct or indirect impacts to Threatened flora unless in accordance with an authorisation under s40 of the *Biodiversity Conservation Act 2016*. A 50 m exclusion buffer will be applied to Threatened flora in LAMS to further reduce the risk of indirect and inadvertent impacts. A restriction area has been applied to the habitat in LAMS to ensure appropriate management of the habitat associated with *S. hamersleyensis* (EN). Existing cleared areas in proximity to Threatened flora may be accessed and maintained, in consultation with DBCA.

Recommended condition update 4: If additional controls are deemed to be required in addition to a BC Act Authorisation, the existing Condition 9 could be updated to state “No clearing within 50 m of *Synostemon hamersleyensis* (EN), unless first approved by the CEO”.

Assessment outcome: The proposed clearing **may be at variance** to this Principle. Any potential direct and/or indirect impacts on *S. hamersleyensis* will be avoided as far as practicable and any unavoidable impacts can be appropriately managed under the BC Act.

Principle (d): Threatened Ecological Communities

Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

No TECs listed under the EPBC Act or BC Act have been located within or adjacent to the Clearing Permit Area. The vegetation types described and mapped within the Clearing Permit Area are not considered analogous with any of the listed TECs of the Pilbara region.

Assessment outcome: The vegetation within the Clearing Permit Area is not analogous to any of the listed TECs of the Pilbara Region and the proposed clearing is **not at variance** to this Principle.

Principle (e): Significant remnant vegetation

Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

The Clearing Permit Area lies largely within the Hamersley (PIL3) subregion of the Pilbara IBRA bioregion of Western Australia (Kendrick 2001), with 88 % of the Clearing Permit Area falling within this subregion. There is a small portion of the Clearing Permit Area to the north that falls within the Fortescue Plains (PIL2) subregion (approximately 12 %). Native vegetation within the survey area is typical of the Hamersley and Fortescue Plains subregions and is well represented at local and regional scales.

Two pre-European vegetation associations are mapped within the survey area, being Hamersley 82 and Fortescue Valley 111 (Stantec 2026). The significance of clearing a specific vegetation association can be assessed by comparing its current extent with its pre-European distribution. At the state-wide, bioregional, subregional, and local government authority levels, these pre-European vegetation associations currently retain more than 99% of their original extent (Government of Western Australia 2019). The Clearing Permit Area is not within a highly cleared landscape.

Assessment outcome: The Clearing Permit Area is not within a highly cleared landscape and the proposed clearing is **not at variance** to this Principle.

Principle (f): Watercourses and wetlands

Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Weeli Wolli Creek is the nearest named watercourse to the Application Area, located approximately 3 km east of the Application Area. Several unnamed ephemeral drainage lines occur within the Application Area, which are likely to have surface water flows only after significant rainfall in the local area. Tracks through ephemeral drainage lines may be required to enable access. The EMP and Condition 10 ensures impacts to areas of vegetation growing in association with a watercourse or wetland are managed and clearing is minimised. It is recommended that Condition 10 remain on the amended Permit.

The Fortescue Marsh is the Pilbara's largest seasonal wetland and represents the terminus for the upper Fortescue catchment area (DBCA 2018). Several important flora assemblages, (including significant flora and halophytes) and vegetation communities are found within and surrounding the Fortescue Marsh. The nearest delineation of the Fortescue Marsh to the Application Area is the proposed Ramsar wetland, located 2.8 km to the north. Additionally, the Directory of Important Wetlands delineates the Fortescue Marsh as being 3.6 km north of the Application Area.

The Koodaideri Spring is considered to be a locally significant wetland and is located within the Application Area. The Koodaideri Spring is located within an unnamed creek where groundwater seeps from a rock wall extending across a narrow gorge and discharges into a narrow valley with a series of small channels and pools downstream of the spring (Eco Logical 2013). The water supply is provided by a combination of the shallow groundwater in the colluvium/alluvial fill of the gorge to the west of the spring and by discharge from the regional fractured rock aquifer. The surface discharge comes from a small spring in a rockface/boulder field and flows north before intersecting the larger gorge and flowing north-east (Bennelongia 2013).

As noted above, the vegetation type (EcrFvvCvTdCcTt) and ecological features associated with the Koodaideri Spring are likely to represent an occurrence of the Priority 3 'Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region' PEC. The EcrFvvCvTdCcTt vegetation type was mapped over 4.3 ha (0.04% of the Application Area). Rio Tinto has committed to avoid the Koodaideri Spring through inclusion within the 'Clearing Restricted' area under Condition 4.

Assessment outcome: The proposed clearing **may be at variance** to this Principle. Impacts to the Koodaideri Spring and associated riparian / wetland vegetation will be avoided through inclusion within the revised 'Clearing Restricted' areas under Condition 4. Impacts to vegetation growing in association ephemeral drainage lines will be managed through the EMP and Condition 10.

Principle (g): Land degradation

Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

The majority of the Application Area is comprised of two land systems; Newman (9,433.8 ha, 78%) and Boolgeeda (2,555.0 ha, 21%), which are described as:

- Newman – Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands; and
- Boolgeeda – Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands. *An inventory and condition survey of the Pilbara region, Western Australia* (van Vreeswyk et. al. 2004) states that this system is not prone to degradation and the system is not susceptible to erosion.

Four soil types have been mapped across the Application Area; two of these soil types collectively comprise over 99% of the Application Area (My55 and Fa13), both of which are associated with, and adjacent to the Hamersley Ranges (BRS 2009):

- the my55 soil type is described as gently sloping outwash plains generally flanking the northern face of the Hamersley Range; coarse surface gravels are extensive: chief soils are neutral red earths; and
- the Fa13 soil type is described as ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations; some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams.

Due to the relatively small scale of proposed clearing for exploration purposes, the disturbance involved is unlikely to substantially exacerbate land degradation. No habitats associated with sheet flow drainage were identified during the survey. The proposal is unlikely to increase soil acidity, salinity, waterlogging and/or nutrient export. Exploration will be undertaken in accordance with the EMP to ensure minimal disruption to surface hydrology, management of weeds and progressive rehabilitation.

A total of 14 introduced flora (weeds) have been recorded within the Survey Area, inclusive of records from previous surveys, none of which represent a Weed of National Significance or a Declared Pest. The diversity of introduced flora within the Survey Area was considered typical for the Pilbara bioregion, with the majority of weed records occurring in drainage lines, or in association with disturbed vegetation or infrastructure. Weeds will be managed in accordance with Section 4.4 Weed Management in the EMP.

Assessment outcome: Minimizing disruption to surface hydrology, progressive rehabilitation and management of weeds in accordance with the EMP will ensure the proposed clearing is **not likely to be at variance** to this Principle.

Principle (h): Conservation Areas

Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

The Clearing Permit Area is not located within or adjacent to any conservation areas. The nearest conservation areas to the Clearing Permit Area are Karijini National Park (located approximately 8 km northwest) and the Fortescue Marsh Nature Reserve (located approximately 9 km northeast). Given these distances, it is unlikely that the proposed clearing will impact the environmental values of these conservation areas.

Assessment outcome: Given the distance from any conservation areas, the proposed clearing is **not at variance** to this Principle.

Principle (i): Surface or underground water

Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

The Clearing Permit Area is not located within a Public Drinking Water Source Area. The nearest Public Drinking Water Source Area is the Southern Fortescue and Marandoo Water Reserves, located approximately 68 km southwest of the Clearing Permit Area. The quality of public drinking water is unlikely to be impacted by the proposal.

Surface water quality associated with Koodaideri Spring has the potential to be impacted by native vegetation clearance within or in proximity to the watercourse, in particular by increasing sedimentation. The Koodaideri Spring is protected under an exclusion zone implemented under Condition 6-1(2) of Ministerial Statement 999. As noted above, it also falls within a broader area of significant fauna habitat which is recommended to be included in the updated 'Clearing Restricted' area under Condition 4. These protections are already applied as development exclusions within LAMS to ensure the protection of this area of ecological significance.

Assessment outcome: Based on the inclusion of the Koodaideri Spring and associated riparian / wetland vegetation within revised 'Clearing Restricted' areas (as per *Recommended condition update 2*), the proposed clearing is **not likely to be at variance** to this Principle.

Principle (j): Flooding

Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

The majority of the Clearing Permit Area is comprised of hilltops, rocky hillslopes and other landforms that are unlikely to be susceptible to flooding. Large floodplains associated with the Fortescue Marsh located to the north of the Clearing Permit Area occasionally flood naturally during the wet season. Due to the nature of the landscape within the Clearing Permit Area, the proposed clearing is unlikely to exacerbate the incidence or intensity of flooding in the local region.

Total cumulative impacts, including this proposal, could potentially impact approximately 9.5 % of the Clearing Permit Area. The proposed increase in clearing of 75 ha represents a 0.7 % increase on disturbance previously approved within the Clearing Permit Area. In accordance with the EMP, tracks will be constructed and maintained to ensure minimal impact on natural surface drainage patterns and to ensure surface run-off does not impact surrounding lands. Areas cleared for exploration will be progressively rehabilitated. Given the small and fragmented nature of the additional clearing and proposed management, the additional clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

Assessment outcome: Based on the nature of the landforms within the Clearing Permit Area, the small increase in area proposed to be cleared, the proposed management measures and commitment to progressive rehabilitation, the proposed clearing is **not likely to be at variance** to this Principle.

5. Conclusion

The proposal to clear an additional 75 ha of vegetation within the Clearing Permit Area is unlikely to be at variance with eight of the Ten Clearing Principles taking into consideration the known biological and environmental values of the Clearing Permit Area and Rio Tinto's commitments to avoid, minimise and/or manage impacts on any significant biological and environmental values.

The proposed clearing may potentially be at variance to Principles (c) and (f). Any potential direct and/or indirect impacts on the Threatened flora *S. hamersleyensis* will be avoided as far as practicable and any unavoidable impacts can be appropriately managed under the BC Act. Tracks through ephemeral drainage lines may be required to enable access. However, the proposed clearing through ephemeral drainage lines can be appropriately managed through avoidance of identified sensitive environmental values, management implemented through the EMP and the recommended Permit conditions.

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