

Report

26 February 2025

To	Annarie Boer (EPA)	Contact No.	
Copy to	Anne Price, Greg Phyffer	Email	
From	Tristan Sleight	Project No.	12627587
Project Name	North Kiaka Project		
Subject	Additional information to support the North Kiaka s40 (2)(a) Environmental Assessment 2346		

1. Introduction

1.1 Background

SIMCOA Pty Ltd (SIMCOA) referred a Proposal to expand its mining operation in the Shire of Moora to the Environmental Protection Authority (EPA) for assessment. The Proposal includes development of a new quartzite pit at the North Kiaka mine located approximately 15 km north of Moora townsite in WA. The new pit is located approximately 1.5 to 2 km north northeast (NNE) of the existing Moora Quartzite Mine. The North Kiaka pit is expected to generate up to 130,000 tonnes per annum (tpa) of lump quartz for downstream processing at the Kemerton Silicon Smelter (Kemerton Smelter). The Kemerton Smelter is located in the Kemerton Strategic Industrial Area (KSIA) 17 km north-east of Bunbury, WA. The Proposal will be an open-cut mine operating above the water table and has a predicted Life of Mine of 20 years based on current resource estimates. Ore mined from the new mine will continue to be pre-processed (crushed and screened) using existing processing infrastructure located at the Moora Mine prior to being transported to the Kemerton Smelter, utilising the established network of power, water and roads at Moora Mine.

The EPA determined that the Proposal was to be formally assessed with the level of assessment at Referral Information with additional information required under s40(2)(a) of the *Environmental Protection Act 1986* (EP Act). The preliminary key environmental factors assessed were:

- Flora and vegetation
- Terrestrial fauna
- Social Surroundings, and
- Greenhouse gas emissions.

An Environmental Review Document (ERD) was prepared with a public review period of two (2) weeks. Decision Making Authorities (DMAs) including the Department of Biodiversity and Conservation (DBCA) and the Department of Climate Change, Energy, the Environment and Water (DCCEEW), provided a series of Requests for Further Information for SIMCOA to respond to, particularly regarding potential direct and indirect impacts to Flora and Vegetation and Terrestrial fauna and Offsets.

The EPA issued to SIMCOA, Requests for Further Information on 15th January 2025 (DCCEEW), 22nd January 2025 (DBCA) and 31st January (EPA Services). This document has been prepared to respond to these Requests.

1.2 Purpose of this Memorandum

The purpose of this document is to provide responses to the Requests for Further Information on Flora and Vegetation and Fauna to supplement the s40(2)(a) ERD. Comments were received from EPA Services, DCCEEW and DBCA.

The queries received from EPA Services are covered within Section 2, comments received from DCCEEW are covered in Section 3 within Table 5 and Table 6. The queries from DBCA have been responded to in Section 4 within Table 7.

1.3 Scope and limitations

This technical memorandum has been prepared by GHD for SIMCOA. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.

2. EPA Services

The following responses have been prepared in response to an email sent from EPA Services to SIMCOA on 31/1/2025.

QUESTION

1. Please provide a response to DCCEEW's comments forwarded to SIMCOA on 15/1/2025. Related to DCCEEW's comment 23 - Note that the quantification of the TEC as offset in Cairn Hill is also required, noting that restoration of degraded TEC does not appear possible

RESPONSE

Response to DCCEEW's comments are provided in Section 3 of this document.

QUESTION

2. Please provide a response to DBCA's comments forwarded to SIMCOA on 22/1/25 (comments attached). In summary, the comments and information required is as follows:
 - Item 1 – Limits of impacts to TEC – DBCA refers to indirect impacts to 145 ha of the TEC which is different to the 14.07 ha of indirect impacts referred to in the ERD (Table 5.24). SIMCOA is afforded the opportunity to provide any further comment on how potential further loss of connectivity between TEC occurrences and indirect impacts should be quantified, mitigated and monitored.
 - Item 2 – Limits of impacts to threatened flora – DBCA refers to quantifying seed bank for the Acacia and Daviesia as well as habitat for the *Goodenia*. SIMCOA is invited to provide comment on this matter noting our discussion earlier this week (i.e. SIMCOA's expert technical opinion on the practicality of regulatory limits and/or quantifying seed bank). For *Goodenia*, please provide an expert technical opinion view on the likelihood of occurrence in the North Kiaka development envelope (against the background of all available surveys). Should quantification of habitat be included provide both the impact site and offset sites to enable assessment of the adequacy of the offset.
 - Item 3 – Carnaby's foraging habitat scoring and indirect impacts. This matter somewhat aligns with DCCEEW comments – please clarify indirect impacts and reconsider foraging scores in proximity to several breeding sites within 12 kilometres of the proposal.
 - Items 4, 5 & 7 – management/mitigation of indirect impacts – please clarify SIMCOA's management/mitigation commitments in the context of DBCA's comments, noting potential baseline surveys (pre-clearance) and reference to management targets and potential quantifiable indicators for measurement (EPA Instructions: How to prepare EMPs). Note – see example of conditions 2-2 to 2-4 in MS 1730 **1730 Statement for publishing Earl Grey Lithium Project (Revised Proposal).pdf**

- Item 6 – research/restoration offset – DBCA requests this work be undertaken on a degraded area of the TEC and suggests a site be identified north of Kiaka Rd. Further to our discussions, please identify a site where this work could be undertaken and the characteristics of this site for research outcomes to address DBCA concerns. This should be supported by information demonstrating that the site is big enough to enable the suggested research/restoration to occur as well as information showing it is sufficiently similar to Cairn Hill/Cairn Hill north so that learnings could be applied at that location or other similar locations. For an example of how a research offset for an exclusion zone has been considered previously by the EPA, please refer to conditions B4-2 to B4-6 of MS 1228 for the Medcalf project ([Medcalf Vanadium Project | EPA Western Australia](#)).

RESPONSE

Section 4 of this Supporting Document provides responses to the above requests for further information. DBCA formally provided the Request for Further on 22 January 2025 that includes the above listed items. This supporting document has responded to the formal DBCA RFI.

QUESTION

3. Flora and vegetation - the predicted direct impact to *Diuris recurva* (Trudgen 2018 records) remains high and requires additional analysis. Although the predicted impacts to *Stylidium sp. Moora* (P2) are lower, expert comment would add to the rigour of the assessment and level of conditioning.

3a Please provide a short expert opinion (memo or letter) on the significance of the potential local and regional impacts of the proposal on *Diuris recurva* and the conservation of the species (e.g. a possibility of an increase in conservation listing), uncertainties and actions that may reduce uncertainties

RESPONSE

Expert commentary was sought from Robert Davis who is an identification botanist working for GHD (Pers comm, 22 January 2025). Andrew Brown has also been contacted regarding the *Diuris recurva*. Andrew was a Conservation Biologist and Taxonomist at the Western Australian Department of Biodiversity, Conservation and Attractions. Andrew is now a Research Associate at the Western Australian Herbarium, specialising in the *Orchidaceae*, *Colchicaceae* and *Scrophulariaceae*. Advice from Mr Davis and Mr Brown are provided in this response.

In addition to advice from the abovementioned botanists, botanist, Malcolm Trudgen was requested to provide a technical memo to SIMCOA (Trudgen, 2025) detailing technical information responding to these additional requests for information to support the assessment of the North Kiaka project. The memo has been attached to this Supporting Document (Attachment A). Mr Trudgen has undertaken botanic surveys in the Moora shire for over 40 years and is regarded as the leading expert on vegetation in this locality in particular the species assemblages that make up the Coomberdale TEC.

Trudgen recorded that *Diuris recurva* had a moderate distribution, with several disjunct small areas and a few outlying records. The species was referred to as *Diuris aff. recurva* in earlier reports (M Trudgen, pers comm, February 2024). *Diuris recurva* was recorded (as *Diuris aff. recurva*) in twenty-six quadrats from six TEC remnants in the data from Appendix 5 of Trudgen et al (2012) volume 2 (see Table 1). It was not recorded at mapping relevés as these were mostly visited in summer and orchids are generally not significant in vegetation description.

Locally, this species has been recorded within the conservation estate (Cairn Hill Reserve and Cairn Hill North) and the distribution of the population is well known regionally, as shown in Figure 1 (WA Herbarium dataset). There does however exist uncertainty around total population numbers at both local and regional scales. To decrease the uncertainty around this species populations, surveys during optimal flowering periods are proposed to be undertaken to provide an updated abundance of the local population. This may also inform longer term monitoring programs to measure changes to local populations of this species. Given the large regional extent over which this species occurs, total population numbers across the extent of occurrence will be difficult to define and will not inform any assessment of significance of regional impacts.

As a result of the Proposal, it is considered likely that this species will continue to meet the definition of a Priority 4 species as there is sufficient knowledge of this species' distribution, it is represented in conservation reserves, but it still requires monitoring to measure any changes to the populations.

Given the extent of which this species is known to occur, and the small local impacts, the impacts from the Revised Proposal are unlikely to cause a change to the species conservation listing.

QUESTION

3b) Include, if available, the following detail on information already provided for *Diuris recurva*:

- i. total number of individuals within the 11 populations that occur within the offset sites and within which of the two offsets sites they are located
- ii. source of the information for 104 total occurrences within the known range of 470 km north to south

RESPONSE

i) Not including the number of *Diuris recurva* recorded from the now mined Western Ridge of the Moora Mine, *Diuris recurva* was recorded (as *Diuris aff. recurva*) in 26 quadrats from six TEC remnants in the data from Appendix 5 of Trudgen et al (2012) volume 2 (see Table 1). Locally, this species has been recorded within the conservation estate (Cairn Hill Reserve and Cairn Hill North) and the distribution of the population is well known regionally, as shown in Figure 1 (WA Herbarium dataset). The 2012 survey reported the occurrences of *Diuris recurva* for all TEC remnants and that the total population of the *Diuris recurva* within the offsets is 11 plants across the 11 locations (refer Table 1).

The species was not recorded at mapping relevés as these were mostly visited in summer and orchids are generally not significant in vegetation descriptions. This species is also likely to be clonal, so counts of flowering stems (when in a cluster) can be misleading. The counts of the occurrence of this orchid species on the North Kiaka Mine impact area are from searches for significant flora, and are not comparable to data kept in herbarium records.

Extract from Appendix 5 of Trudgen et al 2012 Volume two. Apart from the first column, each relates to a particular TEC remnant. The numbers after the remnant abbreviations in the top row are the number of quadrats in that TEC remnant. The numbers in the second row signify the number of quadrats (q) where *Diuris recurva* was recorded in each TEC remnant.

Table 1 *Diuris recurva* found in TEC remnants (Trudgen, 2012)

Taxon	ART (11) A&R Tonkin	CAH (20) Cairn Hill Reserve	CHN (10) Cairn Hill North	EOR (3) Eastern Ore Body	ERG (23) Eastern Ridge	GH (10) Gardiner's Hill	JT (12) John Tonkin	WDM (3) Waste Dump Area	WOR (6) Western Ridge
<i>Diuris recurva</i> [as <i>Diuris aff. recurva</i>]	-	5q	6q	-	6q	5q	3q	1q	1q

As a result of the surveys undertaken for the Revised Proposal, 36 additional records have been identified within the impact area and conservation estate, adding to the 110 known records from the ALA and DBCA datasets. The total of 146 records across the extent of the species include a known abundance of more than 91 plants.

The proposed clearing of 65 individuals, as a result of implementing the Project, is unlikely to significantly impact the local population, as it will not decrease the extent across which the species occurs locally. The remaining uncleared areas represent vegetation condition in better condition than those within the North Kiaka DF, likely to support populations with less threatening processes present (weeds, disturbance from feral herbivores).

There is some uncertainty around total population numbers at both local and regional scales. To decrease the uncertainty around this species population, surveys during the 2025 flowering period are proposed to be undertaken to provide an updated abundance of the local population. This may also inform longer term monitoring

programs to measure changes to local populations of this species. Given the large regional extent over which this species occurs, total population numbers across the extent of occurrence will be difficult to define and will not inform any assessment of significance of regional impacts.

As a result of the Proposal, it is considered likely that this species will continue to meet the definition of a Priority 4 species as there is sufficient knowledge of this species' distribution, it is represented in conservation reserves, but it still requires monitoring to measure any changes to the populations.

Given the extent of which this species is known to occur, and the small local impacts, the impacts from the Revised Proposal are unlikely to cause a change to the species conservation listing.

ii) A range of sources were drawn from to determine the 104 total occurrences. These sources are summarised in Table 2.

The known records of *Diuris recurva* occur across a range of 470 km north to south (ALA 2025, WA Herbarium 2024) (refer Figure 1 and Table 1). The Revised Proposal lies within the central portion of the regional known extent of the species. The Revised Proposal will directly impact 33% of the records within the known extent of the species, which includes the North Kiaka Development Envelope (DE) and North Kiaka Disturbance Footprint (DF), Moora Mine Disturbance Footprint (DF) and Cairn Hill and North Cairn Hill offset areas (10km buffer showing local¹ occurrences). Within the 105 (updated from the 104 occurrences) regional records (500km range), sourced from ALA or the WA Herbarium (DBCA dataset), records do not include abundance data. The abundance data was not collected at the time of surveys, or the records are vague to avoid disturbance of remaining populations.

Advice from Andrew Brown (WA Herbarium) notes the current P4 listing for this species is likely highly precautionary as the species is widespread and occurs as far north as Kalbarri National Park and as far south as Dowerin and Goomalling.

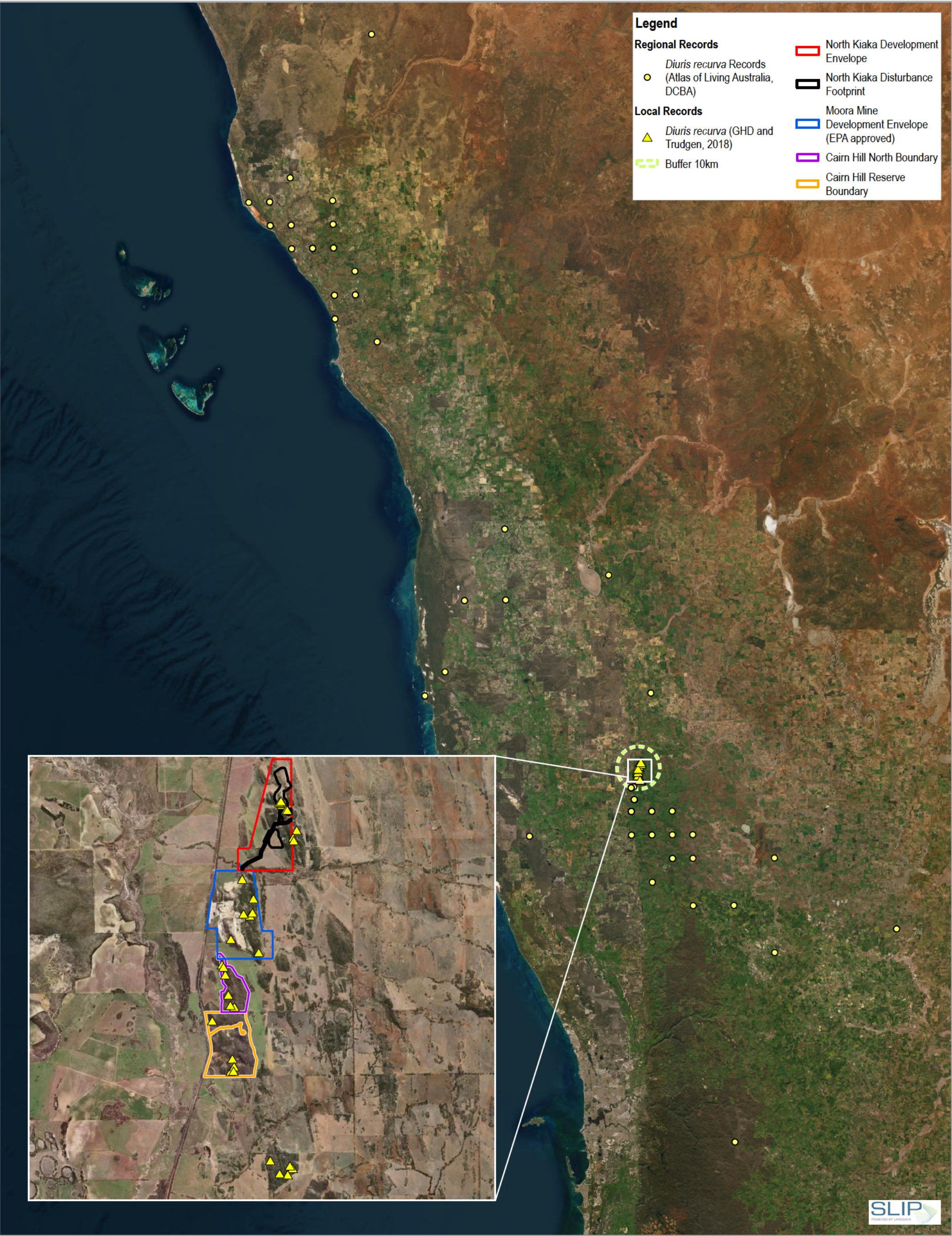
¹ For the purposes of this memorandum, GHD considers local occurrences to be within a 10km radius around the Revised Proposal. Regional extent is considered to be outside of that 10km radius, to the maximum range that the species has been observed.

Table 2 *Local and regional records – Diuris recurva (occurrences)*

Taxon	ALA records (within 500km)	Local records (within 10km outside DE and offsets)	Cairn Hill Reserve	Cairn Hill North	Moora Mine DE	North Kiaka DE	North Kiaka DF²	Total records (ALA, DBCA &Trudgen)
<i>Diuris recurva</i>	105³ records Abundance: N/A	14 Records: 5 Records N/A Abundance (ALA) 1 Record N/A Abundance (DCBA) 8 Records 8 Abundance (Trudgen)	5 Records 5 Abundance	6 Records 6 Abundance	7 Records 7 Abundance	10 Records 65 Abundance (Trudgen)	10 Records 65 Abundance (Trudgen)	146 Records: 105 ALA 5 DCBA 36 Trudgen

² North Kiaka DF is a subset of the DE

³ Not all of these 105 records are shown in Figure 1 as they are not georeferenced



QUESTION

(3c) Provide expert opinion/comment on the significance of the potential local and regional impacts of the proposal on *Stylidium sp. Moora* (P2) and the conservation of this species and uncertainties.

RESPONSE

Expert commentary on the significance of the potential local and regional impacts of the proposal on *Stylidium sp. Moora* (P2) was provided by Robert Davis (Pers comm, 22 January 2025) and Malcolm Trudgeon (Refer Attachment A).

Potential regional impacts

The previously known records of *Stylidium sp. Moora* occur across a range of 57 km north to south (ALA 2025, WA Herbarium 2024) (refer Figure 2 and Table 3). The Revised Proposal represents the northern extent of the known records of this species. The Revised Proposal will directly impact 4.5% of the occurrences within the known extent of the species, which includes the North Kiaka Development Envelope (DE) and North Kiaka Disturbance Footprint (DF), Moora Mine Disturbance Footprint (DF) and Cairn Hill and North Cairn Hill offset areas.

Within the regional records (500km range), sourced from ALA or the WA Herbarium (DBCA dataset), records do not include abundance data. The abundance data was not collected at the time of surveys, or the records are vague to avoid disturbance of remaining populations.

As a result of the surveys undertaken for the Revised Proposal, 17 records have been identified within the impact area and conservation estate, adding to the 23 known records from the ALA and DBCA datasets. The total of 40 records across the range of the species includes a known abundance of 110 plants.

Potential local impacts

The proposed clearing of five individuals as a result of implementing the Project, is unlikely to significantly impact the local population, as it will not decrease the extent across which the species occurs locally. The remaining uncleared areas represent vegetation condition in better condition than those within the North Kiaka DF, likely to support populations with less threatening processes present (weeds, disturbance from feral herbivores).

Locally, this species has been recorded within the conservation estate (Cairn Hill Reserve and Cairn Hill North) and the distribution of the population is well known regionally, as shown in Figure 2 (WA Herbarium dataset⁴).

Trudgen did not specifically search for *Stylidium sp. Moora* in 2016, but noted the occurrence of *Stylidium* as occurring, while walking the transects. (M Trudgen, pers com. Feb 2024). As a result of the Revised Proposal, it is considered likely that this species will continue to meet the definition of a Priority 2 species as there is a limited number of locations known, some of which are located within the conservation estate.

There are currently 53 Records of this species, from the Avon Wheatbelt, Jarrah Forest and Swan Coastal Plain, the contained within the ALA, WA Herbarium (DBCA) datasets and collected by Trudgen through the surveys for the Revised Proposal. Of these records, nine records are located within Cairn Hill Reserve and Cairn Hill North (100 plants) and an additional 2 records (2 plants) were found in Koodjee Nature Reserve in 2018 (Mattiske, 2022) taking the total known protected within conservation estate to 104 plants.

Memo received from M Trudgen (Trudgen, 2025) describes the findings of surveys undertaken in 2018 (Attachment A). The taxon given the geographic name *Stylidium sp. Moora* was included in the concept of *Stylidium septentrionale* when most vegetation and flora surveys in the Coomberdale Chert TEC were carried out. Four specimens from those surveys that were vouchered as *Stylidium septentrionale* have been redetermined as *Stylidium sp. Moora* at the Western Australian Herbarium. Any assessment of the population status of this species is complicated by the fact that it is clonal, spreading by runners. Data from Appendix 5 of Trudgen et al (2012) volume 2 (Table 4) show that this species was recorded in seven TEC remnants in that report. Excluding the data from the Western Ridge of the Moora Mine (now mined) it was recorded in thirty-four quadrats (of the ninety-nine installed) and at forty-four vegetation mapping relevés.

Data from the vegetation relevés (not all species were recorded at all such sites and covers were not always recorded) show a similar mix of presence and cover of a few percent. These data report that *Stylidium sp. Moora*

⁴ ALA data points buffered to protect precise location

is common in the Coomberdale Chert TEC and the difference between data from detailed surveys and the data from collection records in herbaria needs to be well understood; they are not directly comparable.

Uncertainties

There is some uncertainty around this species populations, and to address this uncertainty SIMCOA propose to undertake surveys at optimal flowering periods. These surveys would update the knowledge of the species distribution and provide an updated abundance of the local population.

This may also inform longer term monitoring programs to measure changes to local populations of this species and provide data to further understand the conservation status of this species. This commitment to undertake targeted searches for the species will reduce uncertainties in monitoring and managing potential direct and indirect impacts to the species.

Table 3 Local and regional records – *Stylidium sp. Moora* (occurrences)

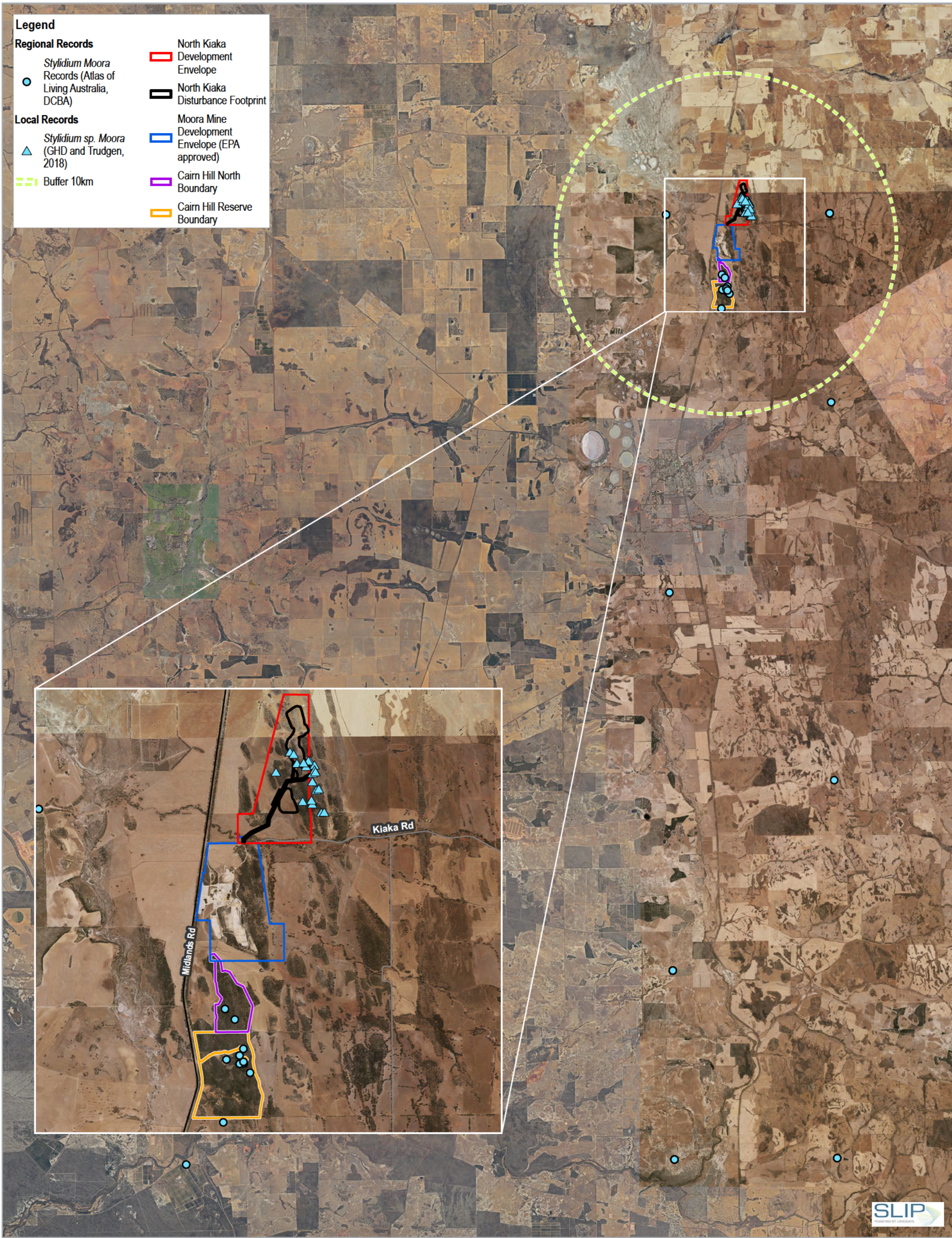
Taxon	ALA records	Local records (within 10km outside DE and offsets)	Cairn Hill Reserve	Cairn Hill North	Moora Mine DE	North Kiaka DE	North Kiaka DF ⁵	Total records (ALA, DBCA & Trudgen)
<i>Stylidium sp. Moora</i>	23 Records Abundance: N/A	15 Records 2 Records N/A Abundance (ALA) 1 Record- N/A Abundance (DCBA) 12 Records- 12 Abundance (Trudgen)	7 Records: (DCBA) ≥ 100 Abundance	2 Records: (DCBA) N/A Abundance	0 Records	8 Records 8 Abundance	5 Records 5 Abundance	53 Records 23 ALA 10 DCBA 20 Trudgen

Extract from Appendix 5 of Trudgen et al 2012 Volume two. Apart from the first column, each relates to a particular TEC remnant. The numbers after the remnant abbreviations in the top row are the number of quadrats in that TEC remnant. The numbers in the second row signify the number of quadrats (q) and relevés (r) *Stylidium sp. Moora* was recorded in for each TEC remnant.

Table 4 *Stylidium sp. Moora* found in TEC remnants (Trudgen, 2012)

Taxon	ART (11) A&R Tonkin	CAH (20) Cairn Hill Reserve	CHN (10) Cairn Hill North	EOR (3) Eastern Ore Body	ERG (23) Eastern Ridge	GH (10) Gardiner's Hill	JT (12) John Tonkin	WDM (3) Waste Dump Area	WOR (6) Western Ridge
<i>Stylidium sp. Moora</i> [as <i>Stylidium septentrionale</i>]	2q	13q, 28r	9q, 7r		1q, 2r	6r	9q, 1r		1q

⁵ North Kiaka DF is a subset of the DE



QUESTION

4. Terrestrial fauna – There is reference to restoration of black cockatoo foraging habitat (s 7.2.1) and improvement of foraging habitat quality for Carnaby's Black Cockatoo (s 7.11.1). For clarification, please confirm whether restoration planting is included in the Offset for the North Kiaka project or is potentially included.

RESPONSE

SIMCOA commits to include TEC flora species known to be Black Cockatoo foraging sources in rehabilitation of degraded TEC remnants, buffer belts and mine waste. *Banksia sessilis* will be the predominant taxon to be used.

The Offset Management Plan (GHD 2024) details the options proposed to maintain and improve the quality of foraging vegetation within the Offset for the North Kiaka project. The OMP includes management measures to protect the existing foraging vegetation within the Offset area. The measures contained in the draft OMP are proposed at this stage, as SIMCOA commits to consult with DBCA on the agreed management and actions of the Offset following approval of the Proposal.

3. DCCEEW comments

Table 5 The proposal – General comments

No.	Submitter	Advice or comments previously provided (14 August 2024)	Comment	Response Jan 2025
1	DCCEEW	<p>Documentation quality – partially addressed Noted – Documents previously referred to as 'unpublished reports' as appendices were provided.</p> <p>Please include links in the table of contents and/or bookmarks in the ERD. As these documents are in some cases >1000 pages long, it is very difficult to cross reference and quality check the information that has been submitted.</p> <p>Please submit appendices as separate files, not as combined documents.</p> <p><u>Please remove all offset assessment guidance calculations from the ERD, including confidence interval and risk of loss values. This is an internal DCCEEW assessment tool, and the Department sets these values.</u></p>	Calculators included in Appendix D of the offset strategy are still yet to be removed.	The DCCEEW calculators have been removed from the Offset section of the ERD, and the Offset Strategy and Offset Management Plan appendices and won't be reflected in the final documents.

3.1 Offsets

Table 6 Offsets

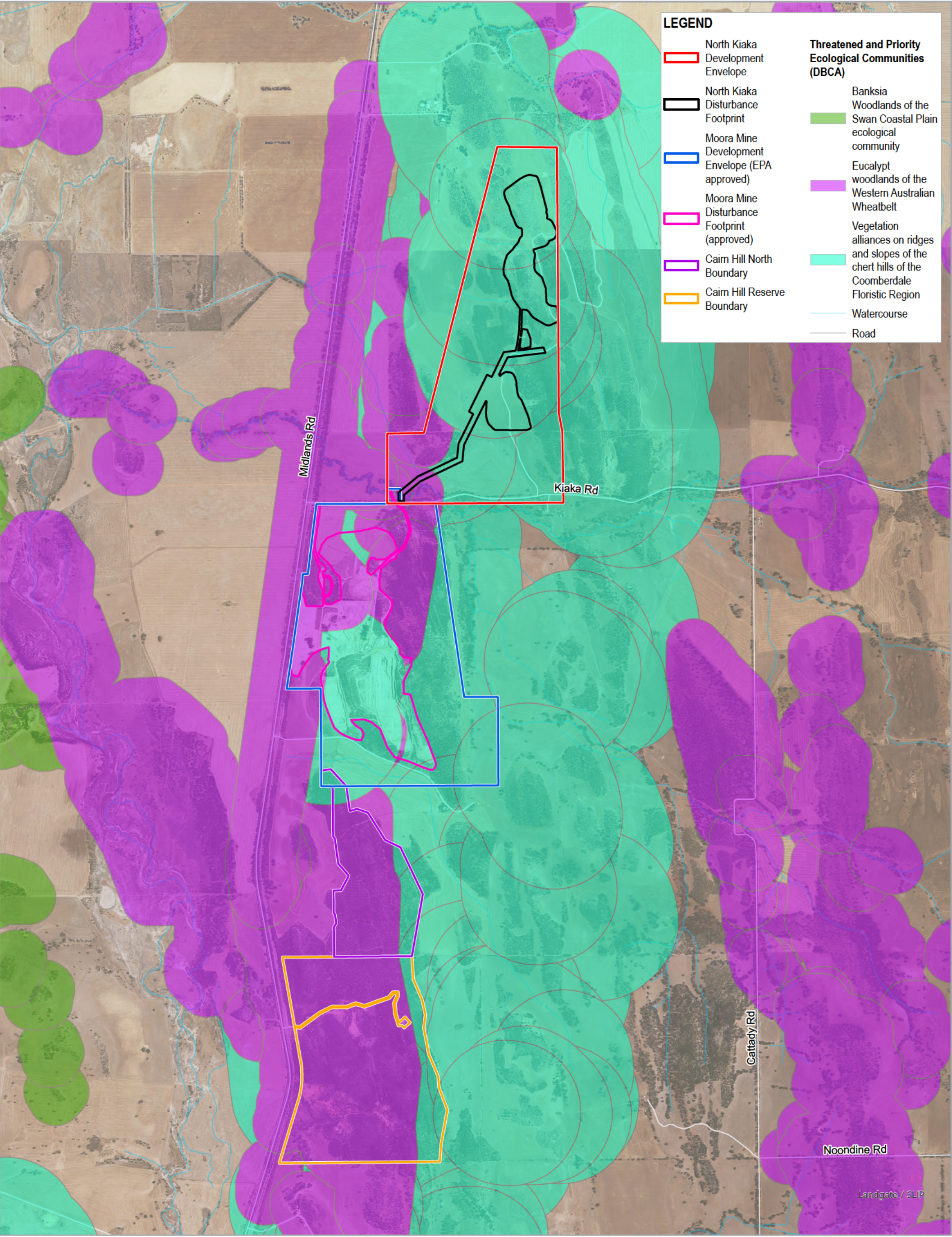
No.	Submitter	Advice or comments previously provided (14 August 2024)	Comment	Response January 2025
23	DCCEEW (Offset strategy)	<p>Not met</p> <p><u>As requested in Impact site (ii) below, please provide information and discussion which clarifies the total residual impacts for CBC foraging habitat. Based on the current information the residual impact amount for CBC is 83.48 ha.</u></p> <p>If the residual impact is greater than 15.58 ha, a larger offset offer will be required which may necessitate an additional site, additional management measures or an indirect offset.</p> <p>Please provide a more detailed discussion on the threats that were present at the Cairn Hill</p>	It is not clear how the proponent has derived the foliage cover value figure used when determining habitat quality (using the department's habitat quality scoring tool). Evidence as to how they determined these scores is not provided in the surveys. The proponent should be required to provide evidence of the foliage cover density at the impact and offset sites to support their scoring method.	<p>GHD completed a survey in April 2024 to assess foraging habitat for Black Cockatoo's across the North Kiaka DE and offset areas. Results from the survey assessment were combined with the vegetation type and quality data reported in the Trudgen, (2012) flora and vegetation survey.</p> <p>Foliage cover values used to determine habitat quality were based on the vegetation assessment data and vegetation association classification of the combined dataset.</p>

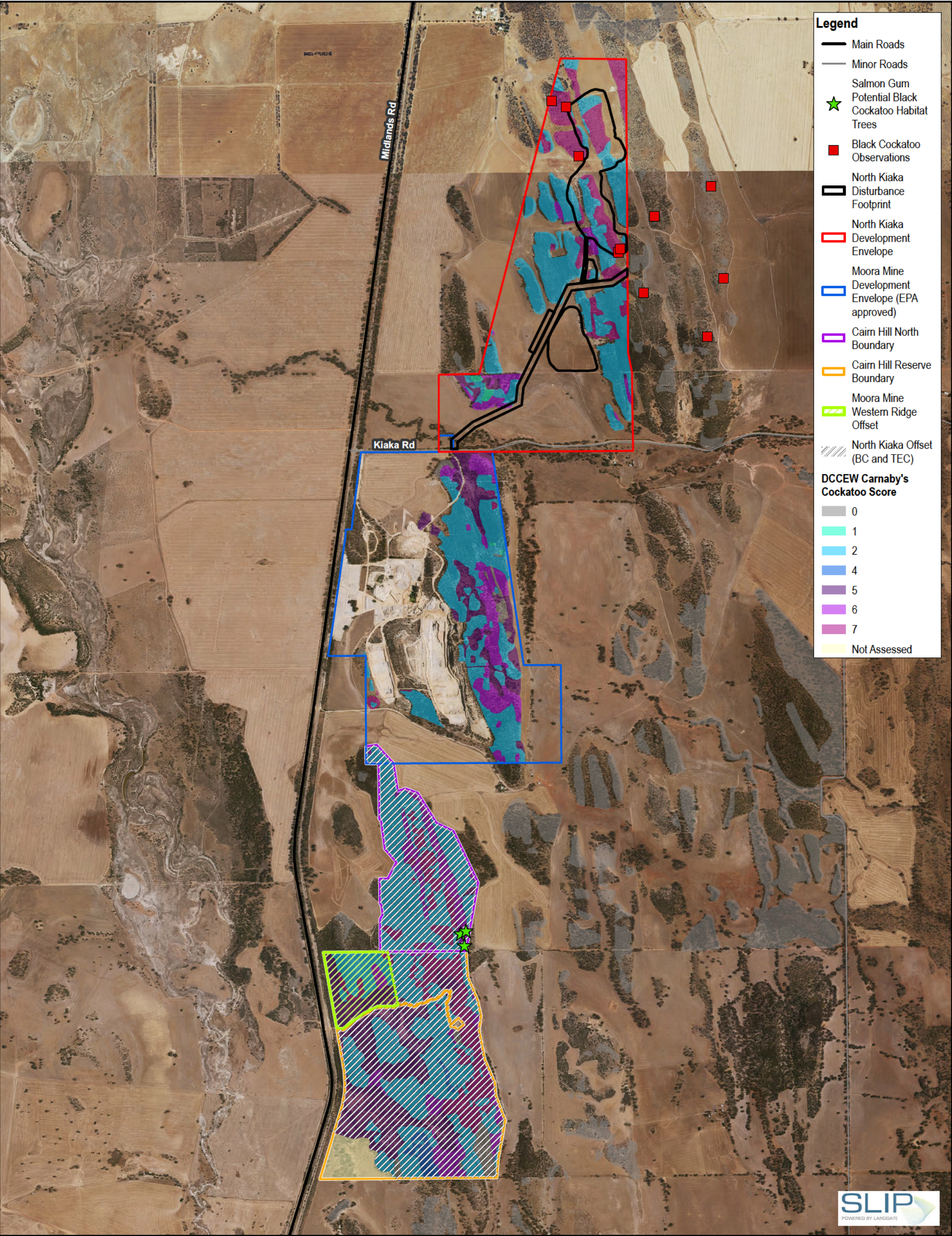
No.	Submitter	Advice or comments previously provided (14 August 2024)	Comment	Response January 2025
		<p>Reserve for CBC foraging habitat, and an explanation as to why these were likely to continue without management. Please provide evidence (i.e. surveys, historical trends, and/or academic literature), to back up this discussion.</p> <p>Please provide a more detailed discussion on the management actions that were carried out at the Cairn Hill Reserve, and how these management actions reduced the pressures to CBC foraging habitat that would have otherwise occurred. Please provide evidence (i.e. surveys, historical trends, and/or academic literature), to back up this discussion.</p> <p>Please provide a separate description of the management actions and threats at Cairn Hill North, not just combined with Cairn Hill Reserve. These are considered two different offset offerings and will be assessed as such.</p> <p>It is noted that the proponent considers that 100% of the residual impacts to CBC foraging habitat can be offset by Cairn Reserve alone. Based on the information at hand, the Department does not agree with this and considers that under the proposed management, both sites will be required in order to meet the requirements of the <i>EPBC Environmental Offset Policy, 2012</i>.</p> <p>Impact site</p> <p>Are the significant residual impacts for CBCs (15.58 ha high quality foraging) inclusive of the 2.54 ha Banksia TEC that will be lost through indirect impacts? (Section 3.4 of the Offset Strategy). If not, these should be included as part of the overall impact.</p> <p>Please ensure that all viable CBC foraging habitat (i.e. with a habitat quality score ≥ 1 using the DCCEEW Habitat Scoring System for WA black cockatoo foraging habitat) is included in the calculation of the residual impacts of the proposed action, not just the high value foraging habitat. <u>Based upon the information currently available in the ERD, 83.48 ha (with an average HQS of 3.41/10) would be the total residual</u></p>	<p>Trudgen, (2012) described the structure and dominance of the defined vegetation associations using Aplins's (1979⁶) modification of Specht's table. The foliage cover range, detailed by each structural description, was then aligned with the department's habitat scoring tool. This was supplemented with onsite observations during the GHD (2024) habitat assessment.</p> <p>Table 6 of the Offset Strategy states that 2.54 ha of 'fauna habitat' will be lost. This fauna habitat is located adjacent to the development envelope and if this patch is CBC foraging habitat it would be considered by DCCEEW under the EPBC Act as an offsite impact to be added to the total impact calculation of 15.58 ha.</p> <p>Clarification is sought on this issue. The patch should be included in the total area calculation for offsetting if it is foraging habitat and the ERD amended if this is required.</p> <p>Figure 6 of the Offset strategy contains an area that is outlined as "not assessed" within the Cairn Hill Reserve Boundary. It is unclear whether this area has been included in the proposed offset area calculations. A map that clearly outlines the areas to be used as an offset needs to be provided.</p>	<p>2.54 ha of potential fauna habitat described in Table 6 of the Offset Strategy is not considered CBC foraging habitat. The targeted Black Cockatoo survey (GHD 2024) did not map the 2.54 ha as CBC foraging habitat. The targeted survey reported that the total area of CBC habitat impacted is 15.58 ha.</p> <p>The areas shown as 'not assessed' in Figure 6 have not been included in the proposed offset area calculations. The area was reported as 'not assessed' as it was outside the flora survey footprint.</p> <p>Future flora surveys will include this area to confirm any environmental values that may occur in the 'not assessed' areas.</p> <p>Figure 6 of the Offset Strategy has been updated to show the areas to be used as offset needs. The figure has been amended to show the area which is being considered as an offset (TEC and BC) and those areas</p>

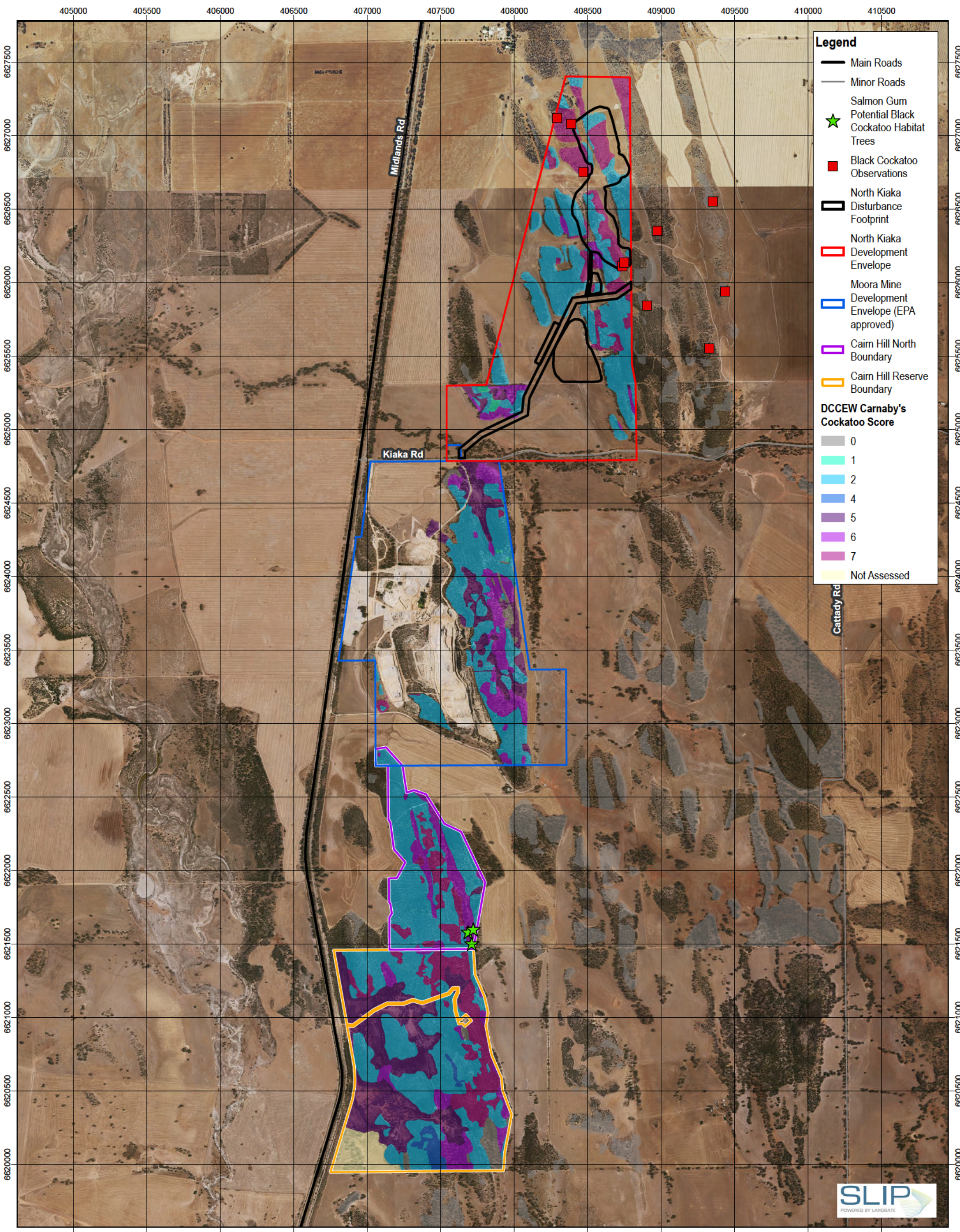
⁶ Aplin, T.E.H. (1979). 'The Flora' in Environment and Science. B J O'Brien (ed.) University of Western Australia Press. Perth.

No.	Submitter	Advice or comments previously provided (14 August 2024)	Comment	Response January 2025
		<p><u>impact for CBC foraging habitat</u>. Please clarify this.</p> <p>The residual impacts to CBCs are inconsistently referenced throughout the documentation (both the hectare amount, and quality). Please ensure these impacts are consistently referenced.</p>		<p>which do not contain suitable values to be an offset. The areas not being considered could be rehabilitated with suitable species under the proposed measures in the draft OMP.</p> <p>The Offset Strategy and OMP have been prepared to meet the requirements of the current conservation advice</p> <ul style="list-style-type: none"> – Coomberdale Chert TEC: Threatened Ecological Community Fact Sheet: Vegetation alliances on ridges and slopes of the chert hills of the Coomberdale floristic region (DBCA, 2013). – Interim Recovery Plan 2013 – 2018, Interim Recovery Plan No. 338 – Heath dominated by one or more of <i>Regelia megacephala</i>, <i>Kunzea praestans</i> and <i>Allocasuarina campestris</i> on ridges and slopes of the chert hills of the Coomberdale Floristic Region (DPaW, 2013). <p>A calculation of the foraging values of the 18 ha set aside for Moora Mine has been included in Table 6. The offset area for Moora Mine impacts includes vegetation representative of the Coomberdale TEC and CBC foraging habitat. The offset area calculations have been made for the Moora Mine offset and the remaining areas which are available for North Kiaka. The remaining areas in Cairn Hill Reserve and Cairn Hill North for the North Kiaka impacts are included in Table 7 and Table 8.</p> <p>The OMP and Offset Strategy have also been amended to refer to the same calculations.</p> <p>This figure has been attached as Figure 4 in this Supporting Document.</p>

No.	Submitter	Advice or comments previously provided (14 August 2024)	Comment	Response January 2025
25	DCCEEW (offset site duplication)	<p>Not met</p> <p>It is unclear which areas are still allocated to the old conditions of approval for Cairn Hill, what areas are available to form a portion of the new offset package, and what of that area is CBC foraging habitat.</p> <p>Please describe and provide supporting documentation to explain how 18 ha has been calculated to offset a 5 ha impact to CBC foraging habitat in the previous conditions of approval at the Cairn Hill North offset site.</p>	<p>The previous area of approval in the Cairn Hill offset site needs to be clearly outlined. Maps and/or shapefiles outlining the boundaries of the previous approval conditions for Cairn Hill, mentioned in section 8.1.3.2 of the Offset Strategy, and the proposed offset areas for the current project need to be provided to discount any area overlap.</p>	<p>Mapping showing the previously approved area of Cairn Hill is provided in Figure 4, attached to this Supporting Document. Specifically, the Figure shows the previously approved area in green hatching and is described as the area set aside to offset the Moora Mine ridge clearing. There is no overlap of area between the previously allocated offset area and the area which is being proposed as part of the North Kiaka Proposal offset package.</p> <p>Updated spatial data (.shp files) clearly showing the previously approved Cairn Hill Offset site accompany this Supporting Document. Spatial data confirms the calculated areas of proposed areas and previously approved areas and that these do not overlap.</p>
27	Maps	<p>Partially Met</p> <p>Please provide shapefiles and maps that show CBC habitat within the proposed action area and that are consistent with the Department's <i>Guide to providing maps and boundary data for EPBC Act projects</i>. These maps should make it clear which areas are proposed to be cleared as part of the action, and what the foraging value of these areas are.</p>	<p>All maps and figures need to incorporate coordinates – either in the form of standalone feature labels or by including a 'graticule' or 'grid' – to make the location of the project clear as outlined in the Department's <i>Guide to providing maps and boundary data for EPBC Act projects</i>.</p>	<p>SIMCOA confirms that all maps and figures in the relevant approval documents will be updated to meeting the Department's <i>Guide to providing maps and boundary data for EPBC Act projects</i>.</p> <p>These updated Figures will be provided in the Final Approval documents.</p> <p>Updated spatial data (.shp files) will also be provided.</p> <p>Figure 5 of this Supporting Document has been provided for DCCEEW's review that the Guide has been met.</p>







Legend

- Main Roads
- Minor Roads
- Salmon Gum
- Potential Black Cockatoo Habitat Trees
- Black Cockatoo Observations
- North Kiaka Disturbance Footprint
- North Kiaka Development Envelope
- Moora Mine Development Envelope (EPA approved)
- Cairn Hill North Boundary
- Cairn Hill Reserve Boundary

DCCEW Carnaby's Cockatoo Score

- 0
- 1
- 2
- 4
- 5
- 6
- 7
- Not Assessed

Paper Size ISO A3
0 150 300 450 600
Meters
Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

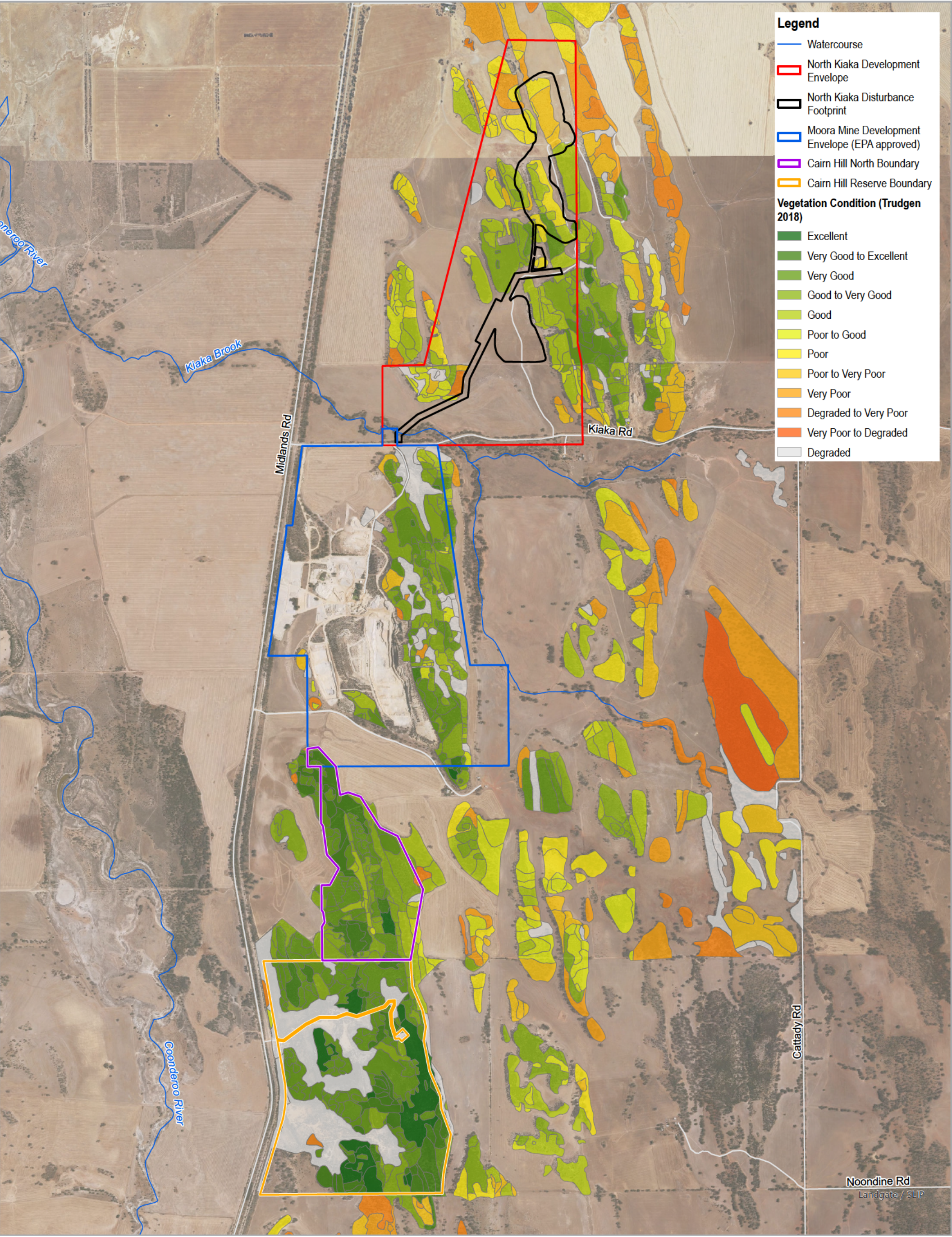


Simcoa Operations Pty Ltd
North Kiaka Project Approval
Support - Sites Assets

Project No. 12627587
Revision No. 0
Date 30/01/2025

Black Cockatoo Foraging Assessment

FIGURE 5



4. DBCA comments

The responses provided in Table 2 have been prepared from the RFI received on 23 January 2025.

Table 7 The proposal – General comments

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
1	Threatened Ecological Community (ranked critically endangered) Coomberdale Chert Hills	Recommendation 1: That the Department of Water and Environmental Regulation (DWER) drafts a condition of approval requiring clear limits of impacts (direct and indirect) on the Coomberdale Chert Hills Threatened Ecological Community (TEC), resulting from the implementation of the proposal.	<p>Discussion: The Coomberdale Chert Hills TEC (ranked critically endangered) is highly restricted, occurring on the ridges and slopes of the chert hills of the Coomberdale floristic region. The TEC also provides important habitat for threatened and Priority flora that have highly restricted distributions. Clearing from mining and agriculture has resulted in an estimated 60 per cent decline in the TEC. Considering the cumulative impacts and other threatening processes on the Coomberdale Chert Hills TEC, any incremental loss and degradation of the ecological community and its associated conservation values is considered significant. The implementation of the proposal will result in the permanent loss of the TEC directly impacted due to the difficulties in rehabilitating areas with modified substrates. Noting that rehabilitation efforts to date having shown limited success in reestablishing the community.</p> <p>In addition, the areas of the TEC north of Kiaka Road are floristically different to the TEC occurrences which are currently reserved under the <i>Conservation and Land Management Act 1984</i> or proposed to be reserved as part of the offset. Therefore, it is also important to protect the occurrences of the TEC at its northern extent, as it is not represented elsewhere. There has been a continued decline in the condition of remaining occurrences in the proposal area due to weed incursion and grazing impacts, reducing the diversity of key functional biota and modifying the TEC structure.</p> <p>Indirect impacts may be exacerbated by further fragmentation of the TEC resulting from the</p>	<p>SIMCOA has made several commitments within the ERD related to minimising impact on the TEC. SIMCOA has, as far as practicable, located elements of the North Kiaka DF (including WRD, ancillary infrastructure and access roads) to minimise potential impacts to native vegetation, in particular the vegetation comprising the Coomberdale TEC and the Threatened flora (ERD Section 5.2.5).</p> <p>Mining by SIMCOA will cause direct and definable loss of small areas of the TEC. However, fragmentation, climate change (rainfall decrease, increased temperature, increased wind speeds), grazing, herbicide spray drift and weed invasion have caused, and are causing, widespread impact and it is often difficult to define changes to the TEC vegetation, flora and fauna attributable to direct and indirect impacts from SIMCOA's operations (Trudgen, 2025).</p> <p>Such changes are difficult to mitigate. The best options are ceasing grazing, establishment of buffer zones (of TEC flora species) around remnants, linking of remnants by rehabilitation and rehabilitation of degraded TEC remnants and control of weeds. However, it should be realised that there are practical limits to weed control. SIMCOA will undertake a weed control around the remnant TEC areas on SIMCOA landholdings as the areas are rehabilitated.</p> <p>The memo received from M Trudgen (Trudgen, 2025) describes the findings of surveys undertaken in 2018. Trudgen notes that there are less species and fewer records of Declared Rare Flora (and Priority Flora) north of Kiaka Road. This is due to a combination of factors other than just the size of the respective areas. Firstly, there is some difference in flora distribution north of Kiaka Road compared to south of it (see floristic analysis in Attachment A). The differences appear to be a combination of natural variation and a reflection of different grazing history. However, for some species the apparent absence may partly reflect fire history (that is they may be present as seeds, requiring fire or other disturbance to appear).</p> <p>Secondly, the very northern part of A. & R Tonkin's property has woodland of <i>Allocasuarina huegelii</i>, which has fewer shrub species and herbs in the understorey than other vegetation types in the Coomberdale Chert Threatened Ecological Community.</p>

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
			<p>implementation of the proposal, which is likely to result in the further loss of connectivity between the TEC occurrences. Fragmentation contributes to a reduction in the likelihood of persistence, particularly for the smaller, degraded occurrences. In the absence of clear limits and mitigation measures to reduce indirect impacts, proposal implementation may indirectly impact up to 145 hectares of the TEC (18 per cent of the total TEC occurrence), representing a high risk to the TEC. Given unique floristic diversity of the TEC within the proposal area and the risk of indirect impacts on the persistence of the TEC, DBCA considers it important that, if the proposal is considered acceptable, clear limits of both direct and indirect impacts from proposal implementation are applied.</p>	<p>Thirdly, the area adjacent to the north side of Kiaka Road has areas of <i>Acacia acuminata</i> ("Jam") woodland that also has fewer shrub species.</p> <p>Fourthly, parts of the area north of Kiaka Road (e.g. the easternmost ridge on J. Tonkin's property) are quite degraded. (Trudgen 2018, section 3.2).</p> <p>While the vegetation complexes found within the DE and DF are different (and less diverse) than those south of Kiaka Road, the vegetation complexes and flora species from the North Kiaka DE are represented in the Offset area.</p> <p>As described in Section 10 of the ERD the clearing within the DF will result in less than 0.3% loss of native vegetation in the surrounding 10 km. This represents 0.82 % reduction of Beard Association 1041 (Coomberdale TEC) within the 10 km buffer area.</p> <p>Table 5.24 of the ERD notes that up to 11.88 ha of the overall Coomberdale TEC may be indirectly impacted by the Proposal.</p> <p>Commitments</p> <p>To address potential direct and indirect impacts to the TEC, SIMCOA commit to the following actions.</p> <ul style="list-style-type: none"> - Undertake surveys to update baseline survey data of the Cairn Hill Nature Reserve/ Cairn Hill North TEC remnant, the Eastern Ridge TEC remnant and resurvey of the North Kiaka Mine project area. Resurveying remnants of the TEC (the data for some parts of which is some 20 years old) where there is a need for more up to date information will provide: <ul style="list-style-type: none"> • Improved baseline information on areas that need rehabilitation • Distribution and population size of declared rarer and priority flora, and • Vegetation condition, including weed levels. <p>The improved datasets will further inform the rehabilitation targets for the Offset Area and TEC remnants on SIMCOA landholdings in conjunction with DBCA and the EPA.</p> <ul style="list-style-type: none"> - Increase the knowledge and understanding of the TEC population structures (genetic diversity) through DNA surveys (for those species as recommended by Mr Trudgeon). These surveys will to not only define taxa properly, but also confirm that genetic variation in taxa is included in rehabilitation plans (by informed collection of seed or cuttings) to improve success rates of establishment and maintain genetic diversity.

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
				<p>The proposed DNA (for those species as recommended by Mr Trudgeon), studies should be limited in scope to answering the questions relevant to the understanding of the taxonomy and population structures needed for management of the species concerned in the TEC.</p> <ul style="list-style-type: none"> - Establishing a seed collection and storage program for use in rehabilitation of degraded TEC areas, buffer zones and mine waste. Where it is not practical to collect seed of species for rehabilitation, cutting material will be used. All seed and cutting material will be collected under the appropriate licences. - Undertake a pre-clearing survey to confirm the number of threatened flora being impacted. They will also establish the vegetation exclusion zone prior to clearing and demarcating any significant plants prior to clearing. SIMCOA commits an exclusion zone covering all vegetation within the DE, outside of the DF as shown in Figure 6 (Vegetation Condition). <p>Threatened flora species are all found within the Offset area. Rehabilitation of degraded areas in Cairn Hill Reserve (as committed to in the OMP) could include these species and further research on the species could be undertaken.</p> <ul style="list-style-type: none"> - That no more than 17.12 ha within the DF will be disturbed, including no more than 17.05 ha of vegetation representing the Coomberdale Chert TEC and no more than 7.29 ha of native vegetation in 'Poor - Good - Very Good condition within a 44.59 ha development footprint.
2	Threatened flora	Recommendation 2: That DWER drafts a condition of approval requiring clear limits of impacts (direct and indirect) on threatened flora individuals and their associated seedbanks, resulting from the implementation of the proposal.	Discussion: The cumulative impact of successive mining operations on threatened flora <i>Acacia aristulata</i> (ranked endangered) and <i>Daviesia dielsii</i> (ranked endangered) is significant. There has been a continuing decline due to the direct take of individual plants and degradation of habitat, primarily from mining activities, weed invasion and grazing. As these two species are fire responsive and as the area is long unburnt there is potential for recruitment from soil stored seed following fire or other disturbance. Therefore, direct impacts from clearing individuals, soil seedbank and habitat, and indirect impact from further fragmentation of the populations and continued exclusion of fire, is considered significant and may impact the viability of the population through reduced genetic and functional connectivity.	<p>SIMCOA has made several commitments within the ERD related to minimising impact on Threatened Flora. SIMCOA has, as far as practicable, located elements of the North Kiaka DF (including WRD, ancillary infrastructure and access roads) to minimise potential impacts to native vegetation, in particular the vegetation comprising the Coomberdale TEC and the Threatened flora (ERD Section 5.2.5).</p> <p>The technical memo received from M Trudgen (2025) describes the findings of surveys undertaken in 2018. <i>Goodenia arthrotricha</i> has a pyrosere/gap phase life strategy, with germination and presence of suitable habitat subject to disturbance (burnt, is drought affected etc.). This means that the population status of the species is extremely difficult to define as the areas of the TEC under consideration have not been burnt for a very long time. This species occurs in a range of habitat, some of which occurs in the North Kiaka Mine disturbance area. The degree of weed invasion in a significant part of that area reduces the likelihood of <i>Goodenia arthrotricha</i> occurring there.</p>

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025						
			<p>Although <i>Goodenia arthrotricha</i> (ranked endangered) has not been recorded within the proposal area, it also has not been recently surveyed at an appropriate time of year. Due to the location of individuals of the species in proximity to the proposal area (i.e. approximately 450 metres south of the development envelope), and the presence of suitable habitat, this species should be considered potentially present, and suitable habitat may contain soil stored seed. However, without appropriately timed, targeted surveys, the significance of potential impacts on this species remains unclear. In the absence of further information, clear limits of impacts for this species could be based on suitable habitat.</p> <p>Comment: It should be noted that, due to the restricted extent of occurrence, and the decline in habitat quality and the number of mature individuals, <i>Acacia aristulata</i> is considered to be under increasing threat, primarily as a result of mining and grazing impacts, as only two of the fifteen subpopulations are within the conservation reserve system. The conservation status of this species is currently under review by the Department of Biodiversity, Conservation and Attractions (DBCA), as it meets the criteria for listing as critically endangered.</p>	<p>Commitments</p> <p>SIMCOA commits to undertake a pre clearing survey to confirm the number of threatened flora being impacted. They will also establish the vegetation exclusion zone prior to clearing and demarcate any significant plants prior to clearing.</p> <p>Threatened flora species are all found within the Offset area. Rehabilitation of degraded areas in Cairn Hill Reserve (as committed to in the OMP) could include these species and further research on the species could be undertaken.</p> <p>SIMCOA commits to establishing a seed collection and storage program for use in rehabilitation of degraded TEC areas, buffer zones and mine waste. Where it is not practical to collect seed of species for rehabilitation, cutting material will be used. All seed and cutting material will be collected under the appropriate licences.</p> <p>Threatened flora species are all found within the Offset area. Rehabilitation of degraded areas in Cairn Hill Reserve (as committed to in the OMP) could include these species and further research on the species could be undertaken.</p> <p>SIMCOA commits to directly disturb no more than the extents of the following environmental values:</p> <p><i>Known populations of significant flora species as described (TBC from pre clearing survey):</i></p> <table><tr><th>Species</th><th>Disturbance</th></tr><tr><td><i>Acacia aristulata</i> (Threatened)</td><td>Up to 17 individuals</td></tr><tr><td><i>Daviesia dielsii</i> (Threatened)</td><td>Up to 15 individuals</td></tr></table>	Species	Disturbance	<i>Acacia aristulata</i> (Threatened)	Up to 17 individuals	<i>Daviesia dielsii</i> (Threatened)	Up to 15 individuals
Species	Disturbance									
<i>Acacia aristulata</i> (Threatened)	Up to 17 individuals									
<i>Daviesia dielsii</i> (Threatened)	Up to 15 individuals									
3	Threatened fauna (ranked endangered) Zanda latirostris (Carnaby's cockatoo)	Recommendation 3: That DWER drafts a condition of approval requiring clear limits of impacts (direct and indirect) on foraging habitat for threatened fauna Zanda latirostris (Carnaby's cockatoo, ranked endangered), resulting from the implementation of the proposal.	Discussion: The proposal exists within a known breeding area of Carnaby's cockatoo. Carnaby's cockatoos require sufficient foraging habitat close to breeding trees (i.e., within approximately 12 kilometres), to successfully rear nestlings. There are numerous confirmed and potential breeding trees within 12 kilometres of the proposal area, including three trees with hollows and chew marks indicating potential breeding within approximately 100 metres of the development envelope. An inappropriate assessment of the importance of foraging habitat proposed to be impacted has been undertaken, with habitat scoring indicating	<p>SIMCOA has made several commitments within the ERD related to minimising impact on CBC foraging vegetation. SIMCOA has, as far as practicable, located elements of the North Kiaka DF (including WRD, ancillary infrastructure and access roads) to minimise potential impacts to native vegetation, in particular the vegetation comprising the Coomberdale TEC (Section 5.2.5).</p> <p>The Significant Residual Impacts (SRIs) for the Proposal are shown in Table 7.2 of the ERD (Significant residual impacts (modified from Page 11 of the GoWA Environmental Offsets Guidelines (2014))</p> <p>Table 3.2 of the Project EMP includes detail of SIMCOA's proposed management actions for vegetation clearing procedures and marking of exclusion zones and management of vehicle access. Table 3.12 of the Project EMP describes management measures</p>						

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
			<p>that the area is not in proximity to breeding trees, resulting in a reduced foraging score.</p> <p>DBCA considers the area as a significant foraging area due to its proximity to Carnaby's cockatoo breeding trees, the highly fragmented nature of the local landscape and the foraging evidence observed. There is evidence of systematic feeding throughout the entire site and evidence of clippings of <i>Banksia sessilis</i> in 2023 reflects Carnaby's cockatoos use of the area for foraging during the short fruiting time of <i>Banksia sessilis</i>. The cumulative impacts from clearing, plant disease, degradation and climate change on foraging resources for Carnaby's cockatoo has resulted in an increased number of underweight individuals being admitted for care and rehabilitation in 2024, compared to previous years. The removal of foraging habitat in proximity to breeding sites is considered to be significant and may detrimentally impact the survival and breeding success of the local population of Carnaby's cockatoo.</p>	<p>that SIMCOA will be undertaking to minimise indirect impacts on flora and vegetation including dust management.</p> <p>Table 3.8 of the Project EMP includes detail of SIMCOA's proposed management actions for fauna.</p> <p>Section 3 of the OMP outlines specific management actions in line with the WA and Commonwealth Conservation Advice and Recovery Plans. The measures include:</p> <ul style="list-style-type: none"> – Restricting entry into the Offset Areas – Avoidance of habitat clearing or disturbance – Fire management – Weed control – Dieback assessment and management <p>The technical memo received from M Trudgen (Trudgen, 2025) notes that <i>Banksia sessilis</i> is found in the TEC and is known to be foraged there by Black Cockatoos. In the TEC (likely because it has not been burnt for a long time) it becomes quite large and therefore significant rehabilitation of this species in the TEC area would provide a good foraging base. Trudgen also outlines recommendations for Carnaby's Cockatoo foraging habitat offsets.</p> <p>Commitments</p> <p>SIMCOA commits to carry out updated baseline surveys of the Cairn Hill Nature Reserve/ Cairn Hill North TEC remnant, the Eastern Ridge TEC remnant and resurvey of the North Kiaka Mine project area. This will assist the development of rehabilitation targets for the Offset Area and TEC remnants on SIMCOA landholdings in conjunction with DBCA and the EPA.</p> <p>SIMCOA commits to undertake a pre clearing survey to confirm the area of foraging vegetation being impacted. They will also establish the vegetation exclusion zone prior to clearing and demarcating any significant vegetation prior to clearing.</p> <p>SIMCOA commits to include TEC flora species known to be Black Cockatoo foraging sources in rehabilitation of degraded TEC remnants, buffer belts and mine waste. <i>Banksia sessilis</i> would be the predominant taxon to be used. Further, SIMCOA commits to fund a DNA study, (for those species as recommended by Mr Trudgeon) to define the taxonomic status of <i>Banksia aff. sphaerocarpa</i>.</p> <p>SIMCOA commits to undertake trial rehabilitation in disturbed areas with species representing the Coomberdale Chert TEC and trial the propagation and revegetation of Threatened Flora species including <i>Daviesia dielsii</i> and <i>Acacia aristulata</i> and Carnaby's Cockatoo foraging species.</p>

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
				<p>SIMCOA commits to clear no more than 15.58 ha of Black Cockatoo foraging habitat within the 44.59 ha development footprint as described in section 5.5 in ERD.</p> <p>GHD undertook a survey in April 2024 to assess foraging habitat for Black Cockatoo's across the North Kiaka DE and offset areas. The survey assessment was combined with the vegetation type and quality data from Trudgen, (2012) flora and vegetation survey.</p> <p>Foliage cover values used to determine habitat quality were based on the vegetation assessment data and vegetation association classification. Trudgen, (2012) described the structure and dominance of the defined vegetation associations using Aplins's (1979⁷) modification of Specht's table. The foliage cover range, detailed by each structural description, was then aligned with the DCCEEW's habitat scoring tool. . This was then supplemented with onsite observations following the GHD (2024) habitat assessment.</p>
		Recommendation 4: That Carnaby's cockatoo habitat scoring is updated to reflect the proximity to breeding sites, and that the offset calculation is amended accordingly.		
4	Priority flora	Recommendation 5: That DWER drafts a condition of approval requiring clear limits of impacts (direct and indirect) on Priority flora, resulting from the implementation of the proposal.	<p>Discussion: Based on the information presented, it appears that two Priority flora may be subject to significant local and/or regional impacts. Priority 2 flora <i>Stylidium sp. Moora</i> (J.A. Wege 713) is a restricted species known from six locations. The direct impact on five individuals, representing 11.9 per cent of the local population, and removal of habitat connectivity causing further fragmentation of the local population, is potentially significant. The population proposed to be impacted represents the most northern extent of the species range. If project implementation results in the loss of this population, this would result in a reduction in the species extent of occurrence. A reduction in extent of occurrence would result in increased risk to the conservation of the species.</p> <p>In addition, Priority 4 flora <i>Diuris recurva</i>, although having a broader distribution regionally, may be significantly impacted at a local scale from proposal implementation, with direct impacts on 65 individuals representing 33 per cent of the known local population.</p> <p>It is important that best practice management is implemented by the proponent to maintain viable populations of Priority flora wherever</p>	<p>SIMCOA has made several commitments within the ERD related to minimising impact on habitat for Priority flora. SIMCOA has, as far as practicable, located elements of the North Kiaka DF (including WRD, ancillary infrastructure and access roads) to minimise potential impacts to native vegetation, in particular the vegetation comprising Coomberdale TEC (Section 5.2.5).</p> <p><i>Stylidium sp. Moora</i> is clonal, spreading by runners and this makes assessment of actual numbers of genetically different individuals extremely problematic. A DNA study of the species, for those species as recommended by Mr Trudgeon, is needed to define what variation there is between populations (such as between north of Kiaka Road and south of it) and within populations in remnants where it is more abundant (e.g. Cairn Hill). Bearing the clonality issue in mind, <i>Stylidium sp. Moora</i> has been recorded at 34 quadrats (from five TEC remnants) of the 99 quadrats established in the TEC in earlier surveys (Trudgen, 2025) and at 44 vegetation mapping relevés. This indicates that the species is significantly more abundant in the TEC than herbarium records indicate. Note that <i>Stylidium sp. Moora</i> was segregated from the widespread <i>Stylidium septentrionale</i> and was recorded under the latter name in earlier surveys.</p> <p>A DNA study of <i>Diuris recurva</i> is needed firstly because its distribution (see AVH) suggests that the name is applied to more than one entity. The second need is that it is very probably clonal, and knowledge of the extent of this factor is needed before more accurate counts of the taxon can be made.</p>

⁷ Aplin, T.E.H. (1979). 'The Flora' in Environment and Science. B J O'Brien (ed.) University of Western Australia Press. Perth.

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
			possible, through avoiding/minimising impacts and/or applying specific mitigation actions. As an example of mitigation, seed collection from Priority flora populations impacted and the propagation or direct reinstatement of species in rehabilitation may be beneficial if removal of a significant proportion of Priority flora population(s) is unavoidable.	<p><i>Diuris recurva</i> was recorded in 27 quadrats (from six TEC remnants) of the 99 quadrats established in the TEC in earlier surveys. This suggests that the species has higher occurrence in the TEC than available "counts" indicate. AVH data for <i>Diuris recurva</i> would similarly underestimate numbers as they are based on collections, not on searches.</p> <p>In the North Kiaka Mine area <i>Diuris recurva</i> was found in weedy grazed areas, suggesting that it may be successfully established in rehabilitated areas (and possibly that it is invading such areas). Both priority species which will be cleared in the impact area have been found in the Offset area.</p> <p>Table 3.2 of the Project EMP includes detail of SIMCOA's proposed management actions for vegetation clearing procedures and marking of exclusion zones and management of vehicle access. Table 3.12 of the Project EMP describes management measures that SIMCOA will be undertaking to minimise indirect impacts on flora and vegetation including dust management.</p> <p>Section 3 of the OMP outlines specific management actions in line with the WA and Commonwealth Conservation Advice and Recovery Plans. The measures include:</p> <ul style="list-style-type: none"> – Restricting entry into the Offset Areas – Avoidance of habitat clearing or disturbance – Fire management – Weed control – Dieback assessment and management <p>Commitments</p> <p>SIMCOA commits to carry out updated baseline surveys of the Cairn Hill Nature Reserve/ Cairn Hill North TEC remnant, the Eastern Ridge TEC remnant and resurvey of the North Kiaka Mine project area. This will assist the development of rehabilitation targets for the Offset Area and TEC remnants on SIMCOA landholdings in conjunction with DBCA and the EPA.</p> <p>SIMCOA commits to undertake a preclearing survey to confirm the habitat for Priority flora, and priority flora plants being impacted. They will also establish the vegetation exclusion zone prior to clearing and demarcating any significant plants prior to clearing.</p> <p>SIMCOA commits to improving knowledge and understanding of the population structures (genetic diversity) through DNA surveys, (for those species as recommended by Mr Trudgeon). It is useful to not only define taxa properly, but also to ensure that genetic variation in taxa is included in rehabilitation (by informed collection of seed or cuttings) to improve the likelihood of success of establishment and</p>

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025						
				<p>maintain genetic diversity. The DNA studies suggested should be limited in scope to answering the questions relevant to the understanding of the taxonomy and population structures needed for management of the priority species impacted by the proposal.</p> <p>SIMCOA commits to directly disturb no more than known populations of significant flora species (TBC from pre clearing survey):</p> <table><tr><th>Species</th><th>Disturbance</th></tr><tr><td><i>Stylidium</i> sp. <i>Moora</i> (P2)</td><td>No more than 5 individuals</td></tr><tr><td><i>Diuris recurva</i></td><td>No more than known number of individuals</td></tr></table> <p>Seed collection from species of interest could be undertaken within the North Kiaka DE prior to clearing should they be identified during the pre-clearing survey.</p>	Species	Disturbance	<i>Stylidium</i> sp. <i>Moora</i> (P2)	No more than 5 individuals	<i>Diuris recurva</i>	No more than known number of individuals
Species	Disturbance									
<i>Stylidium</i> sp. <i>Moora</i> (P2)	No more than 5 individuals									
<i>Diuris recurva</i>	No more than known number of individuals									
5	Environmental management plan	Recommendation 6: That DWER drafts a condition of approval requiring the development and implementation of an environmental management plan to mitigate and monitor impacts on the Coomberdale Chert Hills TEC, threatened flora, threatened fauna and Priority flora.	<p>Discussion: In addition to direct impacts, there is the potential for indirect impacts from the proposal on significant conservation values (i.e., individuals/populations of threatened and Priority flora, foraging habitat for threatened fauna and the TEC), including the disruption of genetic flow, fragmentation, altered hydrology, dust deposition, weeds and grazing. The proposal is located in the centre of an already fragmented TEC occurrence and indirect impacts may be further exacerbated by the continued fragmentation of this area.</p> <p>It is important that any potential for indirect impacts on significant conservation values are addressed by the proponent, and minimisation, mitigation and appropriate monitoring should be outlined in an environmental management plan. It is important that the management plan is developed in consultation with DBCA and relevant technical experts. The plan should clearly outline monitoring locations, methodologies and timing and monitoring should be conducted regularly for the life of the project. The early development of an agreed plan, including baseline and ongoing monitoring programs, would ensure that any annual and seasonal change to significant conservation</p>	<p>A Project EMP has been drafted and appended to the ERD submitted to support the Revised Proposal.</p> <p>SIMCOA has, as far as practicable, located elements of the North Kiaka DF (including WRD, ancillary infrastructure and access roads) to minimise potential direct and indirect impacts to native vegetation, in particular the vegetation comprising the Coomberdale TEC (Section 5.2.5).</p> <p>Commitments</p> <p>SIMCOA commits to review and revise the North Kiaka Project Environmental Management Plan that demonstrates how the environmental outcomes and objectives will be achieved, and how this achievement will be substantiated.</p> <p>Table 3.2 of the Project EMP includes detail of SIMCOA's proposed management actions for vegetation clearing procedures and marking of exclusion zones and management of vehicle access.</p> <p>Table 3.12 of the Project EMP describes management measures that SIMCOA will be undertaking to minimise indirect impacts on flora and vegetation including dust management.</p> <p>Should it be required, SIMCOA commits to developing additional Flora and Vegetation Environmental Management measures to be included in the Environmental Management Plan and/or the Offset Management Plan. These additional measures will be prepared in accordance with the relevant guidance (<i>EPA Instructions: How to prepare EMP's</i>).</p>						

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
			values are documented prior to project implementation.	<p>SIMCOA commits to carry out updated baseline surveys of the Cairn Hill Nature Reserve/ Cairn Hill North TEC remnant, the Eastern Ridge TEC remnant and resurvey of the North Kiaka Mine project area. This will assist the development of rehabilitation targets for the Offset Area and TEC remnants on SIMCOA landholdings in conjunction with DBCA and the EPA.</p> <p>SIMCOA commits to undertake a pre-clearing survey to confirm the habitat for Priority flora, and priority flora plants being impacted. They will also establish the vegetation exclusion zone prior to clearing and demarcating any significant plants prior to clearing.</p> <p>SIMCOA commits to improving knowledge and understanding of the population structures (genetic diversity) through DNA surveys, (for those species as recommended by Mr Trudgeon). It is useful to not only define taxa properly, but also to ensure that genetic variation in taxa is included in rehabilitation (by informed collection of seed or cuttings) to improve the likelihood of success of establishment and maintain genetic diversity. The DNA studies suggested should be limited in scope to answering the questions relevant to the understanding of the taxonomy and population structures needed for management of the species concerned in the TEC.</p>
6	Research and restoration plan	Recommendation 7: That DWER drafts a condition of approval requiring the development and implementation of a research and restoration plan to mitigate impacts on the Coomberdale Chert Hills TEC, threatened flora, threatened fauna and Priority flora.	<p>Discussion: A research and restoration plan is recommended to gain a better understanding and ensure the continued persistence of the Coomberdale Chert Hills TEC, threatened flora, threatened fauna and Priority flora affected by the implementation of the proposal. It is important that the research and restoration plan is developed in consultation with DBCA and relevant technical experts.</p> <p>Potential areas of research may include, but are not limited to:</p> <p>Restoration of the TEC, including conservation and management of degraded areas by fencing and weed control, and a monitoring program of the TEC recovery to assist and inform restoration efforts.</p> <p>Ecology of threatened flora, including reproductive ecology (seed viability and longevity, seed germination and propagation), genetic diversity and gene flow, susceptibility to dieback, response to fire and disturbance, and disturbance intervals (e.g., the intensity and</p>	<p>A research and restoration plan will be developed by SIMCOA in cooperation with DBCA. This plan will increase understanding of ecological values associated with the Coomberdale TEC. This plan will focus on research within SIMCOA land holdings and associated Offset areas with a focus on enhancing the Coomberdale Chert Hills TEC, Threatened and Priority flora and improving foraging habitat for threatened fauna. This plan will identify suitable areas of TEC on SIMCOA properties for rehabilitation trials to be undertaken and methods based upon previous trials.</p> <p>Much of the Coomberdale Chert Threatened Ecological community grows on very thin soil on massive Chert rock, or on chert derived soil (with chert gravel) over such rock. It was recognised in earlier environmental impact assessments that rehabilitation of the waste produced by mining such rock was not likely to be able to regenerate self-sustaining vegetation similar to the TEC communities due to the change in structure (EPA 2001).</p> <p>SIMCOA has carried out rehabilitation trials and rehabilitation of mine waste areas for some 28 years (Trudgen, 2025). While initial post rehabilitation treatment growth is reasonable, over time diversity declines and dominance changes from the desired main species to other species. It is evident that due to the characteristics of the waste, rehabilitation on it will not lead to the desired environmental benefit of a vegetation similar to the TEC vegetation with populations of TEC flora with similar diversity to natural stands.</p>

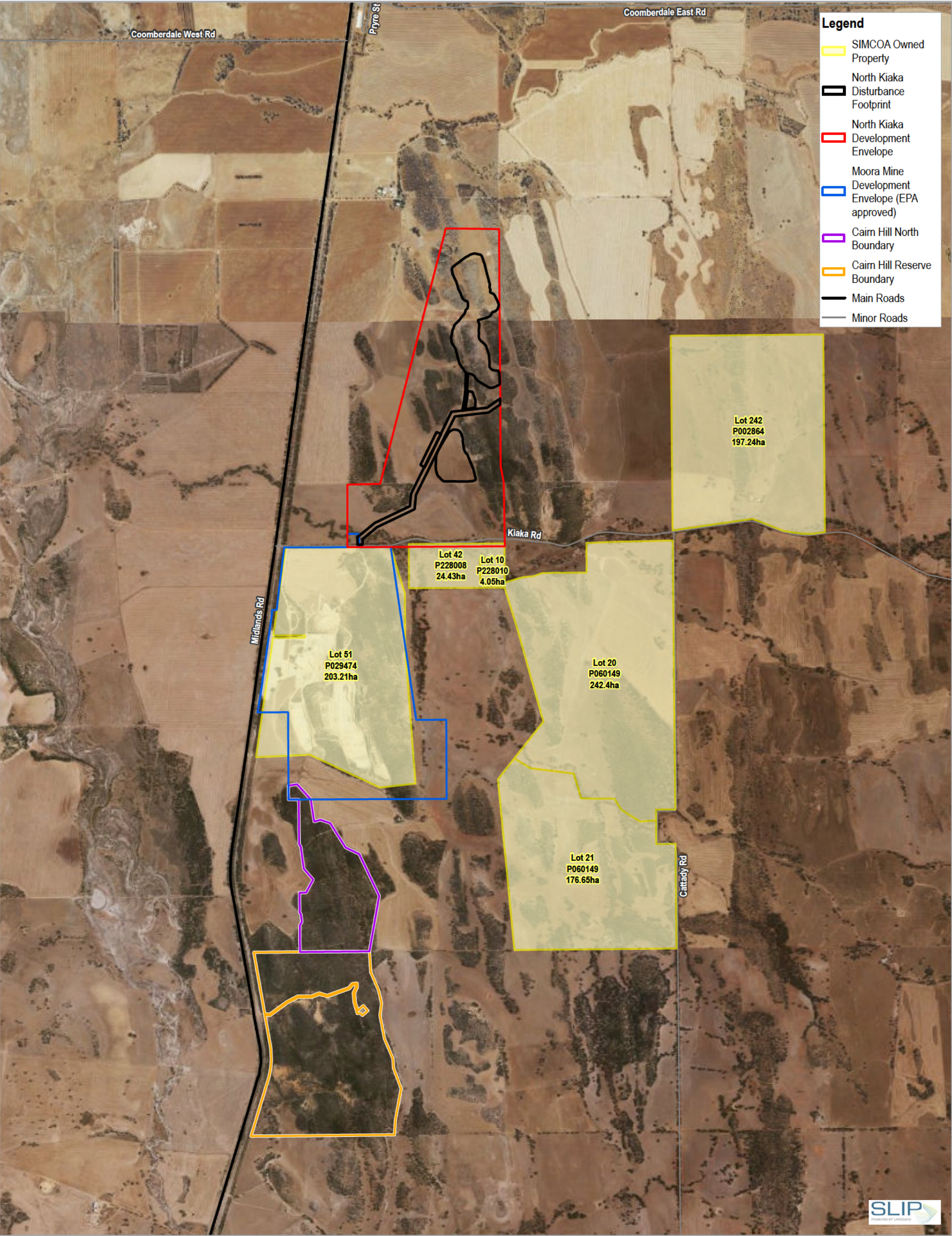
No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
			<p>interval of fire that maximises threatened flora population health and promotes recruitment).</p> <p>Carnaby's cockatoo foraging habitat/resources, including the carrying capacity and seasonal availability of foraging vegetation, floristic composition, preferential feeding species and how this information can be used to inform any rehabilitation trials or restoration efforts to support the species.</p> <p>Restoration efforts should be informed by research results and should focus on restoring the values of the TEC, including threatened and Priority flora, in degraded areas and Carnaby's cockatoo foraging habitat. For example, there is the potential for infill planting/revegetation with species representative of the TEC, weed control and fencing of degraded areas of the TEC in the northern occurrences to achieve greater continuity of the vegetation between remnants. In addition, infill or edge plantings may provide a buffer from further grazing, dust deposition and weed invasion, helping to protect the TEC and threatened flora from further degradation.</p>	<p>Trudgen (2025) suggests a solution that is more practicable than attempting to rehabilitate Chert mine waste with added environmental benefits, to rehabilitate degraded TEC remnants on farmland with rehabilitated buffers of TEC species. This is likely to be more successful than rehabilitating mine waste as the soil structure is natural for the TEC and there are still TEC species present. Rehabilitating degraded remnants is still likely to attain less diversity and cover than undisturbed TEC vegetation because of weed invasion from the surrounding farmland. The overall aim is to have achievable rehabilitation objectives that benefit the TEC vegetation and flora in a way that has a likelihood of success, protects genetic diversity that otherwise would be lost to gradual degradation and improves connection of TEC vegetation in the landscape (by expanding the remnants with buffers and having populations of more flora species in remnants). The buffers should prevent edge migration by reducing wind speed and preventing (or at least reducing) herbicide spray drift from reaching the TEC remnants, while expanding vegetation and flora populations of TEC species. One of the species which could be included in this buffer revegetation is <i>Banksia sessilis</i>, which is found in the TEC and is known to be foraged there by Black Cockatoos. In the TEC (probably because it has not been burnt for a long time) it becomes quite large and therefore significant rehabilitation of this species in the TEC remnants would provide a good foraging base.</p> <p>Commitments</p> <p>SIMCOA commits to develop a research and restoration plan in cooperation with DBCA. The restoration trials would be undertaken in TEC remnants on SIMCOA properties.</p> <p>SIMCOA commits to establishing a seed collection and storage program for use in rehabilitation of degraded TEC areas, buffer zones and mine waste. Where it is not practical to collect seed of species for rehabilitation, cutting material will be used. All seed and cutting material will be collected under the appropriate licences. Further, SIMCOA commits to fund a DNA study to define the taxonomic status of <i>Banksia aff. sphaerocarpa</i>.</p> <p>SIMCOA commits to include TEC flora species known to be Black Cockatoo foraging sources in rehabilitation of degraded TEC remnants, buffer belts and mine waste. <i>Banksia sessilis</i> would be the predominant taxon used.</p> <p>SIMCOA commits to updating the Offset Management Plan in cooperation with DBCA. The OMP contains several items which overlap with a Research and restoration plan. Section 3 of the OMP outlines specific management actions in line with the WA and</p>

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
				<p>Commonwealth Conservation Advice and Recovery Plans. The measures include:</p> <ul style="list-style-type: none"> – Restricting entry into the Offset Areas – Avoidance of habitat clearing or disturbance – Fire management – Weed control – Dieback assessment and management <p>Table 11 of the OMP also outlines SIMCOA's commitment to undertake trial rehabilitation in disturbed areas with species representing the Coomberdale Chert TEC and trial the propagation and revegetation of Threatened Flora species including <i>Daviesia dielsii</i> and <i>Acacia aristulata</i> and Carnaby's Cockatoo foraging species.</p> <p>The SIMCOA properties are shown in Figure 7 and Table 8.</p>
7	Phytophthora (dieback)	<p>Recommendation 8: That DWER drafts a condition of approval requiring the revision and implementation of the Phytophthora dieback management plan (including a comprehensive dieback assessment) in alignment with the current "Phytophthora Dieback Management Manual, October 2020 (minor revision 1.3 dated December 2023)"</p>	<p>Discussion: The Coomberdale Chert Hills TEC, threatened flora, foraging species for threatened fauna and Priority flora may be adversely impacted by the introduction and spread of Phytophthora dieback from proposal implementation. The current Phytophthora dieback management plan states that the proposal area is unprotectable, however DBCA's assessment of the area is that it is likely to be dieback free and exists within the vulnerable zone, it would therefore be considered protectable. The management plan should be updated to include a management map with control points (i.e., clean on entry and clean on exit) at project access points and between uninterpretable and uninfested areas. In addition, the dieback survey and mapping are not considered current, as the survey work was undertaken over 12 months ago.</p> <p>Ongoing adaptive management should be implemented as part of the proposal to ensure the management of dieback is updated to reflect any new survey findings over the life of the proposal (i.e., construction, operation and closure).</p>	<p>As committed in section 5.2.3.5.8.1 of the ERD, SIMCOA will provide an updated Dieback Survey and associated Dieback Management Plan prior to groundworks commencing.</p> <p>The DMP will include adaptive management measures for the life of the proposal.</p>
9	Biodiversity Conservation Act 2016		<p>Comment: Based on the information provided, a section 40 authorisation under the BC Act will be required for the take of threatened flora (i.e.,</p>	<p>A draft s40 and s45 form and supporting information will be prepared and submitted to DBCA for review.</p>

No.	Issue	Recommendation	Comment / Advice	Response Jan 2025
			<p><i>Acacia aristulata</i>, <i>Daviesia dielsii</i> and <i>Goodenia arthrotricha</i>) and a section 45 authorisation under the BC Act will be required for the modification of a TEC. DBCA endeavours to work in a collaborative and coordinated manner to implement parallel processing, relevant to DBCA's BC Act related responsibilities. On this basis, when valid applications for authorisation under section 40 and section 45 of the BC Act are provided to DBCA by a proponent, parallel processing of an application may commence.</p> <p>DBCA seeks to ensure alignment of assessment and approvals under the Environmental Protection Act 1986 and BC Act. In this regard, DBCA welcomes early consultation with DWER on the drafting of potential implementation conditions for the proposal.</p>	

Table 8 *SIMCOA property details*

Lot	Address	Proprietor	Label	Area (ha)
242	381 Kiaka Road, COOMBERDALE 6512	SIMCOA OPERATIONS PTY LTD	P002864	197.24
10		SIMCOA OPERATIONS PTY LTD	P228010	4.05
42	180 Kiaka Road, MOORA 6510	SIMCOA OPERATIONS PTY LTD	P228008	24.43
20		SIMCOA OPERATIONS PTY LTD	P060149	242.40
21		SIMCOA OPERATIONS PTY LTD	P060149	176.65



Attachments

Attachment 1

Memo from M Trudgen

**Malcolm Trudgen
Consultant Botanist**

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Environmental Specialist,
Simcoa Operations PTY LTD
973 Marriott Road
Wellesley WA 6233
PO Box 1389,
Bunbury WA 6231

Midland,
W.A. 6056
PO Box 3174
Midland Post
Midland, W.A 6056
21st February 2025

Dear Anne,

Response to Simcoa Operations request for suggested EIA commitments

Thank you for the request to suggest appropriate commitments for Simcoa Operations (“Simcoa”) to make in regard to your company’s environmental impact process for the proposed North Kiaka Mine, which is located in the Coomberdale Chert Threatened Ecological Community (TEC). I would like to make such suggestions in relation to rehabilitation and Declared Rare and Priority Flora and clarify the floristic relationship of the area north of Kiaka Road to areas south of that road. Of course, unless and until accepted and put forward by Simcoa Operations as theirs, the suggested commitments below are only suggestions by myself.

Rehabilitation

Much of the Coomberdale Chert Threatened Ecological community grows on very thin soil on massive Chert rock, or on chert derived soil (with chert gravel) over such rock. It was recognised in earlier environmental impact assessments that rehabilitation of the waste produced by mining such rock was not likely to be able to regenerate self sustaining vegetation similar to the TEC communities due to the change in structure (EPA 2001).

Simcoa has carried out rehabilitation trials and rehabilitation of mine waste areas for some twenty eight years. While initial post rehabilitation treatment growth is reasonable, over time diversity declines and dominance changes from the desired main species to other species. It is evident that due to the characteristics of the waste, rehabilitation on it will not lead to the desired environmental benefit of a vegetation similar to the TEC vegetation with populations of TEC flora with similar diversity to natural stands.

A solution that is more practicable than attempting to rehabilitate Chert mine waste and has additional environmental benefits would be to rehabilitate degraded TEC remnants on farmland with rehabilitated buffers around them of TEC species. This is likely to be more successful than rehabilitating mine waste as the soil structure is natural for the TEC and there are still TEC species present. Rehabilitating degraded remnants is still likely to attain less diversity and cover than undisturbed TEC vegetation because of weed invasion from the surrounding farmland. The solution to compensate for this would be to rehabilitate at least four times the area of TEC vegetation lost to mining of degraded TEC remnants. The ratio is partly to reflect the fact that such stands already have some TEC flora and degraded vegetation. Also, when such rehabilitation reaches a self sustaining state it will be less diverse than TEC vegetation and less diverse than when first rehabilitated as some taxa will die out over time due to various causes. The overall aim of the proposal put forward here is to have achievable rehabilitation objectives that benefit the TEC

vegetation and flora in a way that has a likelihood of success, protects genetic diversity that otherwise would be lost to gradual degradation and improves connection of TEC vegetation in the landscape (by expanding the remnants with buffers and having populations of more flora species in remnants). The buffers should prevent edge migration by reducing wind speed and preventing (or at least reducing) herbicide spray drift from reaching the TEC remnants, while expanding vegetation and flora populations of TEC species.

Declared rare and priority flora

The Coomberdale Chert TEC has species of both declared rare and priority flora. Ideally, all such species will be given consideration in the rehabilitation discussed above. However, here I want to provide some analysis to clarify the appropriate assessment of two priority flora species, as the implications of available data for the population status of these two species needs to be carefully understood.

Stylidium sp. Moora (J.A. Wege 713)

The taxon given the geographic name *Stylidium* sp. Moora was included in the concept of *Stylidium septentrionale* when most vegetation and flora surveys in the Coomberdale Chert TEC were carried out by my consultancy. Four specimens from those surveys that were vouchered as *Stylidium septentrionale* have been redetermined as *Stylidium* sp. Moora at the Western Australian Herbarium. Any assessment of the population status of this species is complicated by the fact that it is clonal, spreading by runners. Bearing the latter point in mind, data from Appendix 5 of Trudgen *et al* (2012) volume 2 reproduced below show that this species was recorded in seven TEC remnants in that report. Excluding the data from the Western Ridge of the Moora Mine (now mined) it was recorded in thirty-four quadrats (of the ninety-nine installed) and at forty-four vegetation mapping relevés.

Most occurrences in quadrats were recorded as “+” which means less than 1%, however, it was recorded as having cover of 2%, 2-3%, 1-2%, +/- 10%, 2%, 1%, <= 1%, +/- 1%, 2-3% and < 5% at ten quadrats respectively (although those numbers do not necessarily indicate many genetically different individuals). Data from the vegetation relevés (not all species were recorded at all such sites and covers were not always recorded) show a similar mix of present (“+”) and cover of a few percent. Clearly, *Stylidium* sp. Moora is not uncommon in the Coomberdale Chert TEC and the difference between data from detailed surveys and the data from collection records in herbaria needs to be well understood; they are not directly comparable.

Extract from Appendix 5 of Trudgen *et al* 2012 Volume two. Apart from the first two columns, each relates to a particular TEC remnant. The numbers after the remnant abbreviations in the top row are the number of quadrats in that TEC remnant.

Family	NAME	ART (11) A&R Tonkin	CAH (20) Cairn Hill Reserve	CHN (10) Cairn Hill North	EOR (3) Eastern Ore Body	ERG (23) Eastern Ridge	GH (10) Gardiner 's Hill	JT (12) John Tonkin	WDM (3) Waste Dump Area	WOR (6) Wester n Ridge
Stylidiaceae	<i>Stylidium</i> sp. Moora [as <i>Stylidium</i> <i>septentrionale</i>]	2q	13q, 28r	9q, 7r		1q, 2r	6r	9q, 1r		1q
Orchidaceae	<i>Diuris recurva</i> [as <i>Diuris</i> aff. <i>recurva</i>]		5q	6q		6q	5q	3q	1q	1q

Diuris recurva

Apart from the now mined Western Ridge of the Moora Mine, *Diuris recurva* was recorded (as *Diuris* aff. *recurva*) in twenty-six quadrats from six TEC remnants in the data from Appendix 5 of Trudgen *et al* (2012) volume 2 (see extract above). It was not recorded at mapping releve sites as these were mostly visited in summer and orchids are generally not significant in vegetation description. This species is also likely to be clonal, so counts of flowering stems (when in a cluster) can be misleading. The counts of the occurrence of this orchid species on the North Kiaka Mine impact area are from searches for significant flora, and are not comparable to data from herbarium records.

The level of floristic difference of TEC vegetation north of Kiaka Road to south of that road

I understand that there has been some interest in the fact that there is some difference between the TEC areas north of Kiaka Road and south of it. The following paragraph is a quote from the flora and vegetation report for the North Kiaka Mine:

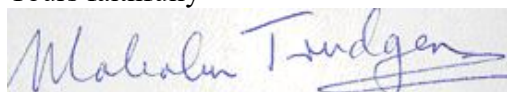
“The fewer species and lesser number of records of Declared Rare Flora (and Priority Flora) north of Kiaka Road are apparently due to a combination of factors other than just the size of the respective areas. Firstly, there seems to be some difference in flora distribution north of Kiaka Road compared to south of it (see floristic analysis section below). The differences seem to be a combination of natural differences and a reflection of different grazing history. However, for some species the apparent absence may partly reflect fire history (that is they may be present as seeds, requiring fire or other disturbance to appear). Secondly, the very northern part of A. & R Tonkin's property has woodland of *Allocasuarina huegelii*, which has fewer shrub species and herbs in the understorey than other vegetation types in the Coomberdale Chert Threatened Ecological Community. Thirdly, the area adjacent to the north side of Kiaka Road has areas of *Acacia acuminata* (“Jam”) woodland that also has fewer shrub species. Fourthly, parts of the area north of Kiaka Road (e.g. the easternmost ridge on J. Tonkin's property) are quite degraded.” (Trudgen 2018, section 3.2)

Examination of the dendrogram in Trudgen 2018 will show that there are differences between various parts of the TEC (some part of Cairn Hill for example are very different to other parts of Cairn Hill and other remnants).

Suggested commitments

My suggestions for commitments and some discussion of them are given in the table below.

Yours faithfully



Malcolm Trudgen

Issue	Draft commitments	Discussion
<p>1. Simcoa operating in the Coomberdale Chert Threatened Ecological Community (the TEC).</p>	<p>Simcoa commits to minimising where practicable direct impacts of the North Kiaka Mine and, where there are practical methods to minimising non-mining impacts on the TEC on land it owns. Simcoa expresses a willingness to contribute to DBCA management of areas of the TEC where it has surrendered mining tenements on land that that has (or will) become part of the conservation estate (Cairn Hill and Cairn Hill North Offset areas.).</p>	<p>Continued mining in the TEC undoubtedly has environmental impacts and by definition the TEC is a limited resource so there is no opportunity to create large reserves for its conservation. Therefore, environmental management procedures that mitigate the various non mining impacts on areas of the TEC and increase TEC flora populations are offsets that can help balance the direct loss caused by further mining. In conjunction with facilitating some TEC remnants to become part of the conservation estate such management procedures are cumulatively significant environmental offsets. “Flora populations” are specified rather than vegetation, as reconstructing a TEC vegetation type is very much more difficult than establishing a stand of local flora species (particularly on bare areas of farmland with heavy weed invasion).</p> <p>Some non mining impacts can be addressed by straightforward methods. Grazing can be restricted by fencing. Edge migration can be at least reduced by buffers around rehabilitated areas. However others are much more difficult. For example, the effect of spray drift is unknown and not all under Simcoa’s control. Weed invasion is particularly problematic due to the number of weed species and the lack of control methods. Consequently Simcoa could not be expected to minimise all not mining impacts.</p> <p>Given the number of commitments made and the significant cost of them it is appropriate for Simcoa to negotiate with DWER, EPA and DBCA a timetable that spreads the work and cost over a suitable time period. This would also allow experience gained in earlier rehabilitation of areas and establishment of individual species to be used to inform improvements in later such efforts.</p>
<p>2. The major environmental processes affecting the TEC.</p>	<p>Simcoa commits to working with DBCA and other stakeholders with interest in the TEC to mitigate where practicable environmental processes causing decline in the TEC vegetation, flora and fauna on land it owns and, in conjunction with DBCA in the</p>	<p>Mining by Simcoa will cause direct and definable loss of areas of the TEC. However, fragmentation, climate change (rainfall decrease, increased temperature, increased wind speeds), grazing, herbicide spray drift and weed invasion have caused, and are causing, widespread impact and it is often difficult to define changes to the TEC vegetation, flora and fauna. Such changes are difficult to mitigate. The best options are ceasing grazing, establishment of buffer zones (of</p>

	conservation estate (Cairn Hill and Cairn Hill North Offset areas.).	TEC flora species) around remnants, linking of remnants by rehabilitation and rehabilitation of degraded TEC remnants and control of weeds. However, it should be realised that there are practical limits to weed control. Where practical and reasonable, Simcoa will also work with private landholders to mitigate deleterious impacts on the TEC.
3. Rehabilitation of mine waste, degraded TEC remnants on Simcoa owned land and buffer vegetation belts around such remnants	Simcoa commits to a rehabilitation program that includes mine waste, degraded TEC remnants on land that it owns, and 25 metre vegetation buffer belts of TEC flora species around those remnants. The TEC remnants and buffer belts will be fenced off to exclude grazing by stock.	<p>It was recognised in earlier environmental impact assessments (EPA 2001) that rehabilitation of chert mine waste to vegetation similar to vegetation of the TEC was not likely to be possible because of the change from a massive substrate to a broken up waste substrate. This has proven to be the case and mine waste vegetation when stabilised (i.e. when it comes to some self sustaining state) will have limited contribution to maintenance of TEC flora populations and little contribution to TEC vegetation types. This is unlikely to be much changed by further intervention.</p> <p>A solution that benefits the TEC flora and vegetation is needed. While still requiring rehabilitation of the mine waste to blend into the landscape, fencing off of and rehabilitation of degraded TEC remnants and rehabilitation of protective vegetation buffer belts around them is of much higher environmental value than pursuing unattainable completion criteria on mine waste. It should be noted that currently no such interventions are being carried out in degraded (and degrading) TEC remnants.</p> <p>Given the fragmentation of the TEC and the degradation of many remnants of it, establishing buffer zones of TEC species around TEC remnants and rehabilitating degraded TEC remnants are very significant steps towards maintaining areas of the TEC vegetation and flora in the long term. Whilst it would be desirable for buffer zone vegetation to have similar vegetation characteristics (structure, dominance, floristics) to TEC vegetation, this would be <u>extremely</u> difficult to achieve and in scale not practical due to weed invasion and other factors. The primary aim should be ameliorating impacts on remnants through buffering of environmental impacts (see list of these in row above this one). It should also be noted that many of the degraded TEC remnants are on habitat not well, or not, represented in Cairn Hill Nature Reserve or other areas likely to be added to the</p>

		<p>conservation estate, making their rehabilitation particularly desirable.</p> <p>Under this suggested commitment, completion criteria for mine waste to be acceptable cover and structure for landscape amelioration. Completion criteria for buffers around TEC remnants 60% of cover and 30% flora diversity of similar habitat TEC vegetation. Completion criteria for criteria for degraded TEC remnants to be 60% cover and 40% flora diversity of similar habitat TEC vegetation, with flora species used appropriate for the habitat type. The completion criteria to be reviewed after trials and a suitable period to ensure they are attainable in the agricultural environment. Rehabilitation of remnants to be carried out over a period of time to be negotiated with DBCA, DWER and the EPA.</p>
4. Black Cockatoo foraging species in rehabilitation.	<p>Simcoa commits to including TEC flora species known to be Black Cockatoo food foraging sources in rehabilitation of degraded TEC remnants, buffer belts and mine waste. <i>Banksia sessilis</i> would be the predominant taxon to be used.</p>	<p><i>Banksia sessilis</i> is found in the TEC and is known to be foraged there by Black Cockatoos. In the TEC (probably because it has not been burnt for a long time) it becomes quite large and therefore significant rehabilitation of this species in the TEC area would provide a good foraging base.</p>
5. Sourcing seed and cutting material for rehabilitation and buffer zones	<p>Simcoa commits to establishing a seed collection and storage program for use in rehabilitation of degraded TEC areas, buffer zones and mine waste. Where it is not practical to collect seed of species for rehabilitation cuttings material will be used. All seed and cutting material to be collected under the appropriate licences.</p>	<p>A proper seed collecting program (undertaken by reputable, experienced seed collectors) to accumulate a stock of seeds is essential to be able to rehabilitate degraded TEC areas, buffer zones around TEC areas and mine waste. Where it is desirable to use nursery grown plants a nursery experienced with native flora and with appropriate dieback precautions will be used.</p>
6. Declared rare and priority flora	<p>Simcoa commits to partially mitigate its impact (in addition to the proposed Offset Package) on declared rare and priority flora through including these species in rehabilitation of TEC remnants on land it owns either by propagation from seed or</p>	<p>There are more declared rare and priority species in the TEC than those impacted by the proposed North Kiaka Mine. Some have quite small populations and it is sensible that if rehabilitation of degraded areas of the TEC is being carried out that declared rare and priority species should be included in that rehabilitation and that this include species other than those directly impacted by the proposed North Kiaka Mine.</p>

	cuttings or by translocation. Also, where appropriate, in conjunction with DBCA, to assist with inclusion of such species in rehabilitation in the Cairn Hill and Cairn Hill North Offset areas.	
7. Declared rare, priority, and poorly known species to be affected by the proposed North Kiaka Mine.	<p><u>Diuris recurva</u> Simcoa commits to trial establishing <i>Diuris recurva</i> in areas of land it owns that were or are TEC that it rehabilitates. Further, it undertakes to fund a DNA study to gain an understanding of the population structure of this species.</p> <p><u>Stylidium sp. Moora</u> Simcoa commits to investigate establishing <i>Stylidium sp. Moora</i> in degraded areas of TEC on land it owns that it rehabilitates. Further, it undertakes to fund a DNA study to gain an understanding of the population structure of this species.</p> <p><u>Banksia aff. sphaerocarpa</u> Simcoa commits to investigate establishing <i>Banksia aff. sphaerocarpa</i> in areas of degraded TEC on land it owns that it rehabilitates. Further, it undertakes to fund a DNA study to define the taxonomic status of this taxon.</p> <p><u>Acacia aristulata</u> Simcoa commits to investigate establishing <i>Acacia aristulata</i> in areas of degraded TEC on land that it owns that it rehabilitates.</p>	<p>Improved knowledge of the population sizes of the species considered in this section will become available through commitments by Simcoa to carry out updated baseline surveys (see below) of the Cairn Hill Nature Reserve/North Cairn Hill TEC remnant, the Eastern Ridge TEC remnant and resurvey of the North Kiaka Mine project area.</p> <p>Establishing populations of a species in degraded areas or cleared areas being rehabilitated has significant practical issues that need to be borne in mind with the commitments in this section. A population may be established then die out for various reasons (drought, dieback, invasion or persistence of allelopathic weeds) so there should be some realism about how long success of establishment is defined as. In areas that have high weed levels (depending on the weed species, but particularly allelopathic grasses) it may not be realistic to attempt to establish smaller species at all. There should also be some limit on how many populations of each declared rare and priority species Simcoa should be required to commit to. As some establishment will fail, it should be more than an equivalent number of plants to those lost to mining, with a minimum of establishment in three areas with at least twice the number to be lost in each area, with persistence for at least five years. Understanding of the population structures (genetic diversity) through DNA surveys is useful to not only define taxa properly, but also to ensure that genetic variation in taxa is included in rehabilitation (by informed collection of seed or cuttings) to improve the likelihood of success of establishment and maintain genetic diversity. The DNA studies suggested should be limited in scope to answering the questions relevant to the understanding of the taxonomy and population structures needed for management of the species concerned in the TEC.</p> <p><u>Diuris recurva</u></p>

	<p><u><i>Daviesia dielsii</i>.</u> Simcoa commits to investigate establishing <i>Daviesia dielsii</i> in areas of degraded TEC on land that it owns that it rehabilitates.</p> <p><u><i>Goodenia arthrotricha</i>.</u> Simcoa commits to investigate establishing <i>Goodenia arthrotricha</i> in areas of degraded TEC on land that it owns that it rehabilitates.</p>	<p>A DNA study of <i>Diuris recurva</i> is needed firstly because its distribution (see AVH) suggests that the name is applied to more than one entity. The second need is that it is very probably clonal, and knowledge of the extent of this factor is needed before more accurate counts of the taxon can be made.</p> <p>The count numbers of <i>Diuris recurva</i> from the TEC are at best “woolly” in different ways. The counts of <i>Diuris recurva</i> in the proposed North Kiaka Mine area are mainly of individual flowering stems (at times in probably clonal clumps of 2 to several stems) and sterile occurrences, the clonal life strategy of <i>Diuris</i> species suggests the counts probably overestimate the number of genetically different individuals in the North Kiaka Mine area. Records elsewhere in the TEC are from quadrat data and therefore are not comparable (they would mostly underestimate the number of plants in a quadrat). <i>Diuris recurva</i> was recorded in 27 quadrats (from six TEC remnants) of the 99 quadrats established in the TEC in earlier surveys. This suggests that the species has higher occurrence in the TEC than available “counts” indicate. AVH data for <i>Diuris recurva</i> would similarly underestimate numbers as they are based on collections, not on searches. In the North Kiaka Mine area <i>Diuris recurva</i> was found in weedy grazed areas, suggesting that it may be successfully established in rehabilitated areas (and possibly that it is invading such areas).</p> <p><u><i>Stylidium</i> sp. Moora</u> <i>Stylidium</i> sp. Moora is clonal, spreading by runners and this makes assessment of actual numbers of genetically different individuals extremely problematic. A DNA study of the species is needed to define what variation there is between populations (such as between north of Kiaka Road and south of it) and within populations in remnants where it is more abundant (e.g. Cairn Hill). Bearing the clonality issue in mind, <i>Stylidium</i> sp. Moora has been recorded at thirty four quadrats (from five TEC remnants) of the 99 quadrats established in the TEC in earlier surveys and at forty-four vegetation mapping relevés. This indicates that the species is significantly more abundant in the TEC than herbarium records indicate. Note that <i>Stylidium</i> sp. Moora was segregated from the widespread <i>Stylidium septentrionale</i> and was recorded under the latter name in earlier surveys.</p>
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		<p><u><i>Banksia</i> aff. <i>sphaerocarpa</i></u> This taxon has a few plants in the North Kiaka Mine area and about sixty in a TEC remnant on private land that is grazed. Its relationship to surrounding populations of the <i>Banksia sphaerocarpa</i> complex needs elucidation to assess its proper status (both taxonomic and conservation ranking).</p> <p><u><i>Goodenia arthrotricha</i></u> <i>Goodenia arthrotricha</i> apparently has a pyrosere/gap phase life strategy, that is it <i>mostly</i> comes up when the habitat it is found in is disturbed (burnt, is drought affected etc.). This means that the population status of the species is extremely difficult to define as the areas of the TEC under consideration have not been burnt for a very long time. It can be presumed that as past mining has removed suitable habitat that part of the population in the TEC has been lost. This species occurs in a range of habit (see below table) only some of which occurs in the North Kiaka Mine disturbance area. The degree of weed invasion in a significant part of that area reduces the likelihood of <i>Goodenia arthrotricha</i> occurring there.</p>
8. Need for resurvey of some areas in the TEC to provide updated information on vegetation condition and flora populations.	Simcoa commits to resurveying for flora and vegetation in some areas of the TEC using appropriate botanical consultants where, or as there is a need for, updated data. This includes the North Kiaka Mine area, Cairn Hill Nature Reserve, North Cairn Hill (the TEC remnant adjoining the north boundary of Cairn Hill NR), the Eastern Ridge (the large remnant east of the current Moora mine) and, prior to rehabilitation, degraded TEC areas on land that Simcoa owns.	<p>Resurveying remnants of the TEC (the data for some parts of which is some 20 years old) where there is a need for more up to date information will provide improved baseline information on</p> <ul style="list-style-type: none"> • areas that need rehabilitation; • the distribution and population size of declared rarer and priority flora; • vegetation condition, including weed levels;

References

EPA (2001). Extension of quartz mining and strategy for resource access abd biodiversity conservation. EPA Bulletin

Trudgen, M.E., E.A. Griffin, B. Morgan (2012). *An extension of a flora survey, floristic analysis and vegetation survey of areas of the Coomberdale Chert to include a further area*. Volumes 1 and 2. Unpublished report prepared for Simcoa Operations Pty. Ltd.

Trudgen, M.E. (2018) Comparison of the flora and vegetation of the proposed North Kiaka Mine area to other parts of the Coomberdale Chert Threatened Ecological Community. Unpublished report prepared for Simcoa Operations Pty. Ltd.

Attachment 2

**DEMIRS support for extending Cairn Hill
Reserve for North Kiaka project**



Mining Manager
Simcoa Operations Pty Ltd
Sent by Email

Attention: Greg Phyffer

Dear Greg

**ADDITION OF LOT 52 ON DEPOSITED PLAN 29474 TO CAIRN HILL CLASS A
'CONSERVATION OF FLORA AND FAUNA' RESERVE 47694**

I refer to your correspondence dated 12 December 2024 requesting comments on a proposal for a portion of freehold Lot 52 on Deposited Plan 29474 to be added to Cairn Hill Class A 'Conservation of Flora and Fauna' Reserve 47694.

It is understood Simcoa Operations Pty Ltd (Simcoa) are currently seeking Environmental Protection Authority approval for the North Kiaka quartzite mine, located 15km north of Moora. As part of the North Kiaka mine, Simcoa are proposing a conservation offset that involves the extension of Cairn Hill Class A Nature Reserve into Lot 52 which contains remnant native vegetation.

This proposal is represented in Tengraph as FNA 14966. It does not intersect any geothermal energy title, however intersects Petroleum Special Prospecting Authority applications STP-SPA-0106 held by Buru Energy Limited and STP-SPA-0109 held by H2EX Ltd, exploration licence E 70/4776 and Mining Leases M70/191 and M70/424 held by Simcoa Operations Pty Ltd.

A review of historic exploration drilling undertaken by Simcoa on M70/424 (overlapping Lot 52) found the area contained low grade and sub grade quartz with high contaminants, which requires substantial beneficiation to be suitable for silicon production and is therefore currently uneconomic to mine. Thus, Simcoa are willing to relinquish M70/424 for the abovementioned environmental offset in exchange for guaranteed access to remaining resources on M70/191 and the development of the North Kiaka mine on M70/1292.

Considering the viability of extracting the resource on Lot 52, Department of Energy, Mines, Industry Regulation and Safety provides no objections to the portion of Lot 52 shown as FNA 14966 to be added to Cairn Hill Class A Reserve 47694 to allow Simcoa to expand its operations.

Yours sincerely

Patrick Dawson

Patrick Dawson | Acting General Manager Land Use Planning
Resource Security Directorate
19 February 2025

**CC: Dan Endacott – Director Major Project Assessments, EPA Services,
Department of Water and Environmental Regulation**

[REDACTED]

**CC: Robert Baker – Assistant Manager, Land Management Central, Department of
Planning, Lands and Heritage**

[REDACTED]

Project name		North Kiaka Project					
Document title		Report Additional information to support the North Kiaka s40 (AA) Environmental Assessment					
Project number		12627587					
File name		12627587 Rep A EPA Additional Information.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
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[Status code]							

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