Appendix T

SIMCOA’s Offset Strategy

Simcoa Operations Pty Ltd

North Kiaka Proposal
Offset Strategy

GHD

May 2025

Executive summary

SIMCOA Operations Pty Ltd (the Proponent, (SIMCOA)) currently operates the Moora Quartzite Mine (Moora Mine), approximately 15 km north of Moora, in the Wheatbelt of Western Australia (WA) as shown in Figure 1. Moora Mine has been operating for 30 years and is located on tenements M70/191, G70/91, G70/92, G70/93 and M70/1292 (with activities on M70/1292 limited to mine dewater being discharged to Kyaka Brook). Quartzite ore from Moora Mine is currently transported via covered truck to SIMCOA's Kemerton Smelter (Kemerton Smelter) located in Kemerton Strategic Industrial Area (KSIA), approximately 17 km north-east of Bunbury in the South-West of WA. Existing activities at Moora Mine and Kemerton Smelter (**the Approved Proposal**) are approved under Part IV of the *Environmental Protection Act 1986* (EP Act) and Ministerial Statement 813 (MS 813). The Approved Proposal has been operating since 1989 and the Moora Mine approval included the clearing of 5 ha of vegetation at the Western Ridge.

SIMCOA is proposing to establish a new quartzite mine, referred to as North Kiaka Mine (the Project), immediately north of Moora Mine (with the mine pit located approximately 1.5 to 2 km north of Kiaka Road). The proposed development of the North Kiaka mine is located within tenement M70/1292.

As shown in Figure 2, the establishment of the North Kiaka Mine includes:

– One mine pit
– One waste rock landform (Tonkin waste dump)
– A new run of mine area (ROM)
– Hydrocarbon storage
– A linear infrastructure access corridor
– Associated infrastructure such as workshops, offices, ablutions, laydown and stockpile areas and a weighbridge.

SIMCOA also intend to build an abandonment bund around the Moora Mine pits, to comply with closure requirements for the existing operations. The Project and abandonment bund are being considered as a significant amendment to the Moora Mine (MS 813). Together the Project and the Approved Proposal (Moora Mine and Kemerton Smelter) comprise **the Revised Proposal**.

The Revised Proposal includes impacts to 18.12 ha of native vegetation. The Project comprises 44.59 ha disturbance footprint (DF) within the 216.42 ha North Kiaka Development Envelope (DE) and the Moora Mine has a 96 ha DF within the 239.10 ha DE. Much of the native vegetation within the North Kiaka DE and Moora Mine DE is representative of the Coomberdale Chert TEC "*Heath dominated by one or more Regelia megacephala, Kunzea praestans and Allocasuarina campestris on ridges and slopes of the chert hills of the Coomberdale Floristic Region*" (Coomberdale Chert TEC). The Coomberdale Chert TEC is geographically restricted to the exposed quartzite ridges of the Noondine Chert formation (previously the Coomberdale Chert formation) (DBCA, 2013) and is listed as Critically Endangered under the EP Act. Due to the Coomberdale TEC vegetation occurring solely on quartzite ridges, there is unavoidable direct impact from development of the Revised Proposal to the upper ridgeline of the Noondine Chert formation where the quartz resources are found.

The Revised Proposal will result in the following significant residual impact (SRI) to the Coomberdale TEC:

– Clearing of 17.05 ha of Coomberdale TEC [combined core and buffer vegetation alliances] in Degraded to Good/Very Good condition) (North Kiaka DF and Moora Mine DF)
– Clearing of vegetation within North Kiaka DF and Moora Mine DF which may contain *Acacia aristulata* seeds within the soil, two plants were recorded by GHD (2024a) however 17 *Acacia aristulata* [species listed Endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) were previously recorded (Trudgen, 2018)
– Clearing of vegetation within North Kiaka DF which may contain *Daviesia dielsii* seeds within the soil, no plants recorded by GHD (2024a) however 15 *Daviesia dielsii* [species listed Endangered under EPBC Act were previously recorded by Trudgen (2018)

The Revised Proposal may have a significant impact on Matters of National Environmental Significance (MNES) and was therefore determined to be a controlled action requiring assessment under the EPBC Act (EPBC Reference No. 2021/9089). The Revised Proposal was referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) in 2021 and was determined to be a controlled action, requiring assessment and approval under the EPBC Act. The impacts to MNES are being assessed under an Accredited Assessment by the WA EPA as determined in correspondence received on 10 October 2022.

The MNES relevant to the Revised Proposal include:

– Threatened Ecological Communities:
  - *Coomberdale Chert* Threatened Ecological Community (Critically Endangered under the EP Act)
– Threatened Fauna Species:
  - Carnaby's Cockatoo (*Zanda latirostris*) (Endangered under EPBC Act)
– Threatened Flora Species:
  - Watheroo Wattle (*Acacia aristulata*) [Endangered under EPBC Act]
  - Diels Daviesia (*Daviesia dielsii*) [Endangered under EPBC Act].

The principles of the *EPBC Offsets Policy* and WA *Environmental Offsets Policy* 2011, as described in the *EPBC Offsets Guideline* and WA *Environmental Offsets Guidelines* 2014, have been applied to the Offset Areas to justify the counterbalances to the SRI for significant communities and species. Associated calculations have been undertaken using the EPBC Offsets calculator.

Based on the vegetation surveys (Trudgen, Morgan, & Griffin, 2012; Trudgen, 2018) for the Revised Proposal (North Kiaka DF and Moora Mine DF), the vegetation representing the Coomberdale Chert TEC within the impact area ranges between Degraded and Good to Very Good condition. The quality score has been based on the HQS (DCCEEW, 2024) and has been amended to reflect the data collected during the April survey for Threatened Flora and Black Cockatoo foraging habitat within the impact area.

SIMCOA has an offset comprising two properties, Cairn Hill Reserve (managed by the Department of Biodiversity, Conservation and Attractions (DBCA)) and Cairn Hill North. Cairn Hill Reserve is a 152.01 ha site which was set aside (advanced offset) in 2001 as a Class-A reserve for nature conservation. It is located 600 m to the south of the Moora Mine and 2km south of the North Kiaka DE.

Cairn Hill North is a 58.34 ha site which was set aside in 2010 with the intent to add to the Cairn Hill Class-A reserve as an offset for the SIMCOA's future expansion (consistent with Condition 7 of MS 813). Cairn Hill North is located directly to the north of Cairn Hill nature reserve on Lot 52 (M70/191 and M70/424).

With the recent legislation (*Land and Public Works Legislation Amendment Act 2023* (LAPWLA Act)), the Revised Proposal will be managed under a whole of government approach. Once a letter is issued from DEMIRS confirming the transition to a Conservation Reserve, an application to approve under the *Land Administration Act 1997* can progress. Once the Revised Proposal is granted a Ministerial approval, land tenure will be changed to Reserve for the purposes of Conservation of Flora and Fauna.

Cairn Hill North has already been fenced in anticipation of becoming part of the Cairn Hill Reserve. The fencing has aided in preventing livestock access from the adjacent farmland and to assist in minimising weed spread through animal movement, two factors that could cause a decline in vegetation condition over time.

Six vegetation alliances in the Offset area were assessed to be representative of Coomberdale TEC which are:

– *Acacia acuminata* subsp. *acuminata* low woodlands [Alliance 11] - TEC Buffer alliance
– *Allocasuarina campestris* high shrublands to open or closed scrub [Alliance 13] - TEC Core alliance
– *Allocasuarina huegeliana* low woodlands to low open forests [Alliance 9] - TEC Buffer alliance
– *Kunzea praestans* high shrubland to open and closed scrub [Alliance 16] - TEC Core alliance
– *Melaleuca leuropoma* open to closed heath [Alliance 17] - TEC Core alliance
– *Regelia megacephala* high shrubland to open and closed scrub [Alliance 15] - TEC Core alliance

Vegetation alliances 13, 15, 16 and 17 comprise core TEC alliances and 9 and 11 comprise buffer vegetation alliances.

A Fauna habitat assessment was conducted in the impact area to delineate major habitat types, and to determine approximate percentage cover and species of foraging plants suitable for Black Cockatoos. Five broad fauna habitat types were identified:

– *Eucalyptus wandoo* and/ or *E. loxophleba* woodland along Kyaka Brook over mixed introduced grasses and herbs. *Allocasuarina huegeliana* is present surrounding the small dam.
– Mallee Woodland of *Eucalyptus loxophleba* over scattered shrubs and very open herb and grass lands in fine sandy soils.
– Mixed Shrublands of *Acacia, Banksia, Regelia, Kunzea, Allocasuarina, Hibbertia, Xanthorrhoea* and *Melaleuca* on rocky low hills.
– Mixed Shrublands of *Acacia, Banksia, Regelia, Kunzia* and *Allocasuarina*, amongst quartzite outcropping.

A Targeted assessment for was also undertaken by GHD (2024b) to further assess the foraging habitat suitability for Black Cockatoos. The combined area of foraging habitat suitable for Black Cockatoos in the Offset is 142.67 ha.

The EPBC Act Offsets assessment guide is a calculator/ tool that has been developed to assess the suitability of offset proposals with an assessment of site condition, site context and species stocking rate to determine the Start quality of the Offset Areas (score out of 10) to be a score of 9 for Coomberdale TEC and a score of 7 for the Black Cockatoo species. Based on this assessment it is considered that the survey area has high habitat values suitable to offset the residual impacts to Coomberdale TEC and the Black Cockatoo.

This Strategy confirms the values of these offsets through referencing detailed surveys to quantify SRI and offset gains, and by demonstrating consultation with DBCA and DCCEEW, and ongoing management measures. The implementation of the Moora Mine disturbance of the 5 ha of vegetation which was cleared in 2001, has been previously offset using approximately 18 ha of the Cairn Hill Class-A Reserve. Given 18 ha has previously been offset, the Offset Package presented in Table ES 1 shows the remaining area for offsetting SRI to Coomberdale Chert TEC as 134.01 ha (Cairn Hill) and 58.34 ha (Cairn Hill North). The remaining area to offset SRI to Carnaby's Cockatoo foraging habitat is 124.67 ha (Cairn Hill) and 58.05 ha (Cairn Hill North).

Table ES 1 Overview of the Offset Package

Aspects	Cairn Hill Reserve (Offset 1)	Cairn Hill North (Offset 2)	Combined area
Area of vegetation within Offset Areas considered suitable for offset of Black Cockatoo foraging habitat	124.67 ha	58.05 ha	182.72 ha
Area of vegetation within Offset Areas considered suitable for offset of Coomberdale TEC and Threatened Flora habitat	134.01 ha	58.34 ha	192.35 ha
Number of *Acacia aristulata* individuals recorded	27	6	33
Number of *Daviesia dielsii* individuals recorded	72	9	81
Total Area	**134.01 ha**	**58.34 ha**	**192.35 ha**

The Offset Areas meet State and Commonwealth requirements. The Offset Areas are considered suitable to counterbalance 100.59% of a total quantum of impact of 10.99 ha of residual impacts to Coomberdale Chert TEC and 100.43% of a total quantum of impact of 10.91 ha of foraging habitat for Carnaby's Black Cockatoo.

The Offset Areas will compensate 100% of the residual impacts with the establishment of the Cairn Hill North Conservation area when SIMCOA relinquishes mining rights over the area. The estimates presented in this Strategy are conservative, representing the full extent of MNES values within the 17.12 ha native vegetation clearing area.

This Strategy is subject to, and must be read in conjunction with, the limitations set out in section 1.5.1 and the assumptions and qualifications contained throughout the Report.

Defined Terms

Term	Definition
SIMCOA	SIMCOA Operations Pty Ltd
Coomberdale TEC	Remnant vegetation of the Threatened Ecological Community (TEC): "Health dominated by one or more *Regelia megacephala, Kunzea praestans* and *Allocasuarina campestris* on ridges and slopes of the chert hills of the Coomberdale Floristic Region".
Moora Mine	SIMCOA's operational quartzite mine located approximately 15 km north of Moora, in the Wheatbelt of Western Australia. Moora Mine which is located on tenements M70/191, G70/91, G70/92 and G70/93, is governed under Ministerial Statement 813.
Moora Mine Development Envelope (DE)	Moora Mine is located within an existing DE of 239.10 ha including: – Disturbance Footprint of not more than 96 ha
The Project	The development of a new quartzite mine, North Kiaka, approximately 2 km north of Moora Mine. The proposed mine at the North Kiaka DE, is located within tenement M70/1292, and is anticipated to produce up to 130,000 tpa of lump quartz (approximately 2.34 million tonnes over the life of the mine).
North Kiaka DE	The North Kiaka DE is 216.42 ha, including: – Disturbance Footprint of up to 44.59 ha – Native vegetation clearing up to 17.12 ha.
Kemerton Smelter	SIMCOA's existing Smelter located in Kemerton Strategic Industrial Area (KSIA). Kemerton Smelter commenced operation in 1989 and is currently authorised to produce up to 53,000 tonnes per annum (tpa) of silicon from four (4) submerged electric arc furnaces. Kemerton Smelter is governed by Ministerial Statement 813.
Approved Proposal	The activities at Moora Mine and Kemerton Smelter which are described and approved under Ministerial Statement 813 (MS 813)
The Proposal	The Proposal as referred under s38 of the *Environmental Protection Act 1986* to the EPA for assessment.
The Revised Proposal	The Project and Approved Proposal under MS 813 (Moora Mine and Kemerton Smelter) and the Moora Mine abandonment bund.

Acronyms

Term	Definition
AH Act	*Aboriginal Heritage Act 1972*
AS	Australian Standards
ASRIS	Australian Soil Resource Information System
ASS	Acid Sulfate Soils
BC Act	*Biodiversity Conservation Act 2016* (WA)
BoM	Bureau of Meteorology
CALM	Conservation and Land Management (former)
Coomberdale TEC	Heath dominated by one or more *Regelia megacephala, Kunzea praestans* and *Allocasuarina campestris* on ridges and slopes of the chert hills of the Coomberdale Floristic Region"
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DBCA	Department of Biodiversity, Conservation and Attractions
DBH >300mm	Diameter at breast height greater than 300 mm
DE	Development Envelope

Term	Definition
DJTSI	Department of Jobs, Tourism, Science and Innovation (WA)
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety (WA)
DMP	Department of Mines and Petroleum (WA)
DAWE	Department of Agriculture, Water and the Environment (Commonwealth) (former)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DoW	Department of Water (WA) (former)
DPaW	Department of Parks and Wildlife (WA)
DPLH	Department of Planning, Lands and Heritage (WA)
DSEWPAC	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth)
DWER	Department of Water, Environment and Regulation (WA)
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	Environmental Protection Regulations 1987 (WA)
EPA	Environmental Protection Authority (WA)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EPBC Regulations	Environmental Protection and Biodiversity Conservation Regulations (Commonwealth)
EPN Regulations	Environmental Protection (Noise) Regulations 1997 (WA)
EPP	Environmental Protection Policy (WA)
ESA	Environmentally Sensitive Area
GoWA	Government of Western Australia
HQS	DCCEEW Habitat Quality Scoring Tool
IBRA	Interim Biogeographic Regionalisation for Australia
KSIA	Kemerton Strategic Industrial Area
MCMPR	Ministerial Council on Mineral and Petroleum Resources
Mining Act	*Mining Act 1978* (WA)
MNES	Matters of National Environmental Significance
MS	Ministerial Statement
MS 813	Ministerial Statement 813
NEPM	National Environment Protection Measure
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
NOI	Notices of Intent
NR	Nature Reserve
NSW AMMAAP	New South Wales Approved Methods for the Modelling and Assessment of Air Pollutants
NTC	Native Title Claim
P1, P2, P3, P4	Priority 1, Priority 2, Priority 3, Priority 4
PCD	Proposal Content Document
PDWSA	Public Drinking Water Source Area
PMST	Protected Matters Search Tool
RiWI Act	*Rights in Water and Irrigation Act 1914* (WA)
ROM	Run of Mine
SMU	Soil Mapping Unit

Term	Definition
SPP	State Planning Policy
SRE	Short Range Endemic
SRI	Significant Residual Impact
SWALSC	South West Aboriginal Land and Sea Council
TEC	Threatened Ecological Communities
TSP	Total suspended particulates
Tonkin WRD	Tonkin Waste Rock Dump
WA	Western Australia
WQPN	Water Quality Protection Note

Units of measure

Term	Definition
%	percentage
<	Less than
°C	Degrees Celsius
bgl	Below ground level
ha	hectare
km	Kilometre
L	Litres
L/day	Litres per day
m	metres
m^3	Cubic metres
mm/year	Millimetres per year
mRL	Mean relative level
MT	Million tonnes
PM_{10}	Total suspended particulates with an aerodynamic diameter of 10 microns
$PM_{2.5}$	Total suspended particulates with an aerodynamic diameter of 2.5 microns
tpa	Tonnes per annum

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1. Introduction

1.1 Background

SIMCOA Operations Pty Ltd (the Proponent, (SIMCOA)) currently operates the Moora Quartzite Mine (Moora Mine), approximately 15 km north of Moora, in the Wheatbelt of Western Australia (WA). Moora Mine has been operating for 30 years and is located on tenements M70/191, G70/91, G70/92, G70/93 and M70/1292 (with activities on M70/1292 limited to mine dewater being discharged to Kyaka Brook). Quartzite ore from Moora Mine is currently transported via covered truck to SIMCOA's Kemerton Smelter (Kemerton Smelter) located in Kemerton Strategic Industrial Area (KSIA), approximately 17 km north-east of Bunbury in the South-West of WA. Existing activities at Moora Mine and Kemerton Smelter (**the Approved Proposal**) are approved under Part IV of the *Environmental Protection Act 1986* (EP Act) and Ministerial Statement 813 (MS 813). The Approved Proposal has been operating since 1989 and the Moora Mine approval included the clearing of 5 ha of vegetation at the Western Ridge. The Approved Proposal has been subject to the following Ministerial Statements (MS) conditions and procedures:

– MS027 (13 May 1988)
– MS279 (10 August 1992)
– MS575 (31 October 2001)
– MS813 (16 November 2009).

1.2 Description

SIMCOA is proposing to establish a new quartzite mine, referred to as North Kiaka Mine (the Project), immediately north of Moora Mine (with the mine pit located approximately 1.5 to 2 km north of Kiaka Road) as shown in Figure 1. The proposed development of the North Kiaka mine is located within tenement M70/1292. SIMCOA also intend to build an abandonment bund around the Moora Mine pits, to comply with closure requirements for the existing operations. The Project and abandonment bund are being considered as a significant amendment to the Moora Mine (MS 813). Together the Project and the Approved Proposal (Moora Mine and Kemerton Smelter) comprise **the Revised Proposal**.

As shown in Figure 2, the establishment of the North Kiaka Mine includes:

– One mine pit
– One waste rock landform (Tonkin waste dump)
– A new run of mine area (ROM)
– Hydrocarbon storage
– A linear infrastructure access corridor
– Associated infrastructure such as workshops, offices, ablutions, laydown and stockpile areas and a weighbridge.

The Project will replicate methods undertaken at the Moora Mine, with the ore body mined via drill and blast methods, to construct the open pit to a maximum depth of 46 m below ground level (bgl). Mining at the Project will remain above the groundwater table. The quartz material will be removed using excavators and haul trucks, transporting it to the ROM located at the Moora Mine where it will undergo processing via a crushing and wet screening process, prior to being stored in aggregate stockpiles. The processed ore will be transported via covered truck to the Kemerton Smelter located in Kemerton Strategic Industrial Area (KSIA), approximately 17 km

north-east of Bunbury in the South West of WA. It is anticipated the Existing Mine will be operational for another seven (7) years, during which SIMCOA will develop the Project.

SIMCOA referred the Revised Proposal to:

– WA Environmental Protection Authority (EPA) under Section 40 (a)(2) of the *Environmental Protection Act 1986* (EP Act) - Reference CMS18097.
– Commonwealth Department of Climate Change, Energy, Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) - Reference No. 2021/9089.

The Proposed Action as shown in Figure 2 (hereafter referred to as the Revised Proposal) entails clearing of approximately 17.05 ha of Coomberdale Chert Threatened Ecological Community (TEC) which includes 15.58 ha of Black Cockatoo Foraging Habitat.

1.3 Purpose of this Strategy

The purpose of this Offset Strategy is to describe the environmental value of each proposed offset site that will contribute towards offsetting the Significant Residual Impacts (SRI) of the Revised Proposal. This Strategy has been prepared to provide additional information on offsets requested by the WA Environmental Protection Authority (EPA) and Department of Climate Change, Energy, the Environment and Water (DCCEEW). This included provision of an offset package that consists of an offset proposal, key commitments, and management actions the Offset Areas.

The Offset Strategy has been prepared in accordance with the following legislation and advice at a WA State and Commonwealth:

– *Environmental Protection Act 1986* (EP Act)
– *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
– Environmental Offsets Policy (DSEWPaC, 2012a)
– Referral guideline for 3 WA threatened black cockatoo species (DCCEEW, 2022)
– Policy statement: Advanced environmental offsets under the Environment Protection and Biodiversity Conservation Act 1999 (DotEE, 2017)
– WA Environmental Offsets Policy (GoWA, 2011)
– Public Advice: Considering environmental offsets at a regional scale (EPA, 2024)
– NESP Threatened Species Recovery Project 5.1: Research findings factsheet - Better offsets for Western Australia's black-cockatoos (Maron, 2021).

Prior to approving the Offset Strategy, DCCEEW require that the strategy must first meet the eight offset principles that are described in Section 6.1. In addition, EPA require that the strategy must meet the six offset principles that are described in Section 6.2.

The proposed offset aims to satisfy both Commonwealth and State environmental compliance requirements. EPA, DCCEEW and other relevant DMAs will be notified if any changes are proposed to the Strategy.

1.4 Summary of offset requirements

The EPA (CMS 18097) determined the level of assessment for the Revised Proposal to be set at "referral information with additional information (required under s. 40(2)(a) of the *Environmental Protection Act 1986*) and public review (2 weeks)". This Offsets Strategy has been amended to reflect the comments received from Stakeholders and public regarding the proposed offsets.

1.5 Scope and limitations

The scope of this Strategy is to present SIMCOA's approach to offset delivery and provide a framework for further offset actions. It is envisaged that these will be delivered should the Revised Proposal be approved (post-approval). The Strategy provides:

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– The legislative context (Commonwealth and West Australian) with regard to environmental offsets and outlines the guiding principles which apply to this Strategy
– Documents the significant residual impacts to biodiversity (Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and State significant Threatened Ecological Communities and species
– Outlines the proposed avoidance and mitigation measures taken by SIMCOA as outlined in the Revised Proposal
– Identifies the preferred approach to selecting offsets, provides current and proposed properties as offsets, with supporting site assessments
– Provides the quantification for offset requirements
– Describes the next steps for the offsets, including management and monitoring

1.5.1 Limitations

This report: has been prepared by GHD for SIMCOA Pty Ltd and may only be used and relied on by SIMCOA Pty Ltd for the purpose agreed between GHD and SIMCOA Pty Ltd as set out in section 1.5 of this report.

GHD otherwise disclaims responsibility to any person other than SIMCOA Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.6 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

1.5.2 Assumptions

This Offset Strategy is based counterbalancing the residual impacts resulting from implementation of the Revised Proposal, as detailed in Figure 2. Any changes to the Revised Proposal that alter the predicted impacts to threatened species and communities would require revision of the Strategy.

2. Approvals and offset history

2.1 Approvals history

SIMCOA referred the Revised Proposal to the Western Australian Environmental Protection Authority (EPA) under section s. 38 of the EP Act on 03 November 2021. On the 10 May 2022 the EPA issued a notice requesting further information. The s38 Referral Supporting Document was revised to address the information request from the EPA and submitted on 22 June 2022, with a revised application form submitted on 28 July 2022. In July 2022, the EPA determined that the Revised Proposal would be assessed under s.40 (2)(a) of the EP Act. The level of assessment was set as Assessment on Referral Information (ARI) with additional information and a two (2) week public review (EPA, 2022). An Environmental Review Document was prepared in response to the EPA's additional information requests.

In 2022, SIMCOA received advice from the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) that construction of an abandonment bund around the Moora Mine pits would be required. The EPA advised via email on the 24 March 2023 that SIMCOA should submit a s43A application to amend the Revised Proposal (to reflect the construction of the abandonment bund). A s43A was submitted on 4 May 2023 and was approved on 18 September 2023.

The Revised Proposal was referred to the Commonwealth Department of Agriculture, Water and the Environment (DAWE, now Department of Climate Change, Environment, Energy and Water (DCCEEW)) in November 2021 and

on 23 December 2021, it was determined to be a controlled action, requiring assessment and approval under the EPBC Act (EPBC Reference No. 2021/9089).

The impacts of the Revised Proposal on MNES (listed Threatened species and communities) protected under the EPBC Act are being assessed via an Accredited Assessment under the EP Act, in accordance with an agreement between the WA and the Commonwealth Government as determined in correspondence received on 10 October 2022. On 22 May 2023, the EPA advised that construction of abandonment bund would require a discussion with DCCEEW regarding the Revised Proposal potentially having 'new or increased impact on MNES'.

A meeting with DCCEEW (1 June 2023) discussed the Revised Proposal and any changes to the impacts to MNES following the submission of the s43A to the EPA. DCCEEW provided SIMCOA advice via email on 9 June 2023, confirming that the impacts of the Project on MNES could still be assessed under an Accredited Assessment as part of the ERD for the Revised Proposal.

In July 2022 and December 2023, in accordance with s.40 (2)(a) of the EP Act, the EPA requested SIMCOA provide additional information to inform the environmental assessment (EPA, 2022; EPA, 2023). This additional information and amendments to the ERD were submitted on 15 February 2024. Following this submission, the ERD was made available for the public review period of 2 weeks from 10 April to 24 April 2024. On 10 May 2024, public comments and additional stakeholder comments were received from the EPA and these have been incorporated into the final ERD and this Strategy. Discussions since May 2024, with the EPA, DBCA and DCCEEW regarding the Offset areas and calculations have been undertaken in preparing this Offset Strategy and Offset Management Plan.

2.2 Offset history

Following establishment of the Moora Mine, SIMCOA intended to mine the Cairn Hill area. Detailed vegetation mapping undertaken by SIMCOA in the mid-1990s identified 'special vegetation' (later listed as the Coomberdale Threatened Ecological Community (TEC)) which occurred in association with the Coomberdale Chert (now the Noondine Chert) resource to be represented at Cairn Hill. Rather than mining this area, as previously intended, SIMCOA modified their mining plan to avoid Cairn Hill and instead expanded within the M70/191 tenement. To facilitate the modification, SIMCOA sought an amendment to the conditions of MS279 via a s46 application to the EPA. The revised mine plan involved mining the Western Ridge on tenement M70/191 which included clearing 5 ha of native vegetation.

Discussions with the EPA and Conservation and Land Management (CALM) at the time determined that the proposal would be supported if it included a conservation strategy to identify and secure environmental offsets. The conservation strategy was included in a document prepared by SIMCOA to outline the actions and commitments necessary to support the modified Mine plan. This document is entitled the Resource Access and Conservation Package (the Package). The offsets, as described in the Package were supported by the EPA, CALM / Department of Parks and Wildlife (DPaW)/ Department of Biodiversity Conservation and Attractions (DBCA) and the Department of Mines and Petroleum (DMP) (now Department of Energy, Mining, Industry Regulation and Safety (DEMIRS). A summary of what was included in the Package is provided in Section 2.2.1.

2.2.1 Resource Access and Conservation Package

The Package describes the agreement reached between the EPA and SIMCOA to allow the continuation of mining within the Moora area, as described in Bulletin 1027 and MS575. In 2001, to facilitate approval to mine the 5 ha Western Ridge site, SIMCOA made a commitment in the Package to relinquish its mining rights over 152.01 ha of vegetation representing the TEC at Cairn Hill to DBCA. This intent was to offset potential Significant Residual Impacts (SRI's) of ongoing mining activities and any future expansion of SIMCOA's operations (advanced offset against future mining impacts). Bulletin 1027 noted the Package (including the Cairn Hill offset of 152.01 ha and potential Cairn Hill North offset of an additional 58.34 ha) was being offered to provide SIMCOA with immediate access to the Western Ridge area and future access to the ridge north of Kiaka Rd (North Kiaka). The EPA supported both the environmental offset and the long-term strategic approach to mining.

The EPA's approval of the Package was also supported by other agencies, including CALM / DPaW/ DBCA and DEMIRS.

– CALM (now DBCA) provided support for the proposed mining and conservation package and approval to take threatened flora (formerly DRF) on Moora Western Ridge in August 2001
– DMP provided approval to transfer of Cairn Hill to an A-Class reserve in August 2001 (R 47694) to offset residual impacts of ongoing mining activities, including clearing of Threatened and Priority Flora at the Existing Mine.
– DPaW confirmed support for the Package on 23 August 2013 and again on 25 June 2014.
– DBCA noted the positive and cooperative approach to conservation being adopted by SIMCOA.
– Based on the commitments made in the Package, the support of DPaW, and the assessment by the EPA described in Bulletin 1027, the Minister granted approval of the variations to conditions in MS575.

The Package was put forward on the basis that:

– Approval was granted to mine the Western Ridge
– A commitment was made to guarantee long-term access to resources (ridge north of Kiaka Rd, now referred to as North Kiaka)
– An approval was granted from the Minister for Environment and Heritage to take Threatened Flora on the proposed Western Ridge.

The Package provided for:

– Possible additional conservation offsets, with the Cairn Hill North area and other significant areas of vegetation to form stepping stones or linkages with Cairn Hill and other ridges in the area.
– Conducting additional reconnaissance exploration to identify other parts of the Noondine Chert, both within and outside current lease areas, which may contain sufficiently high grade quartzite in areas where the chert-associated vegetation is already absent or degraded.
– Cost sharing (maximum amount to be agreed) with DBCA of regional flora surveys necessary to identify and map other part of the Noondine Chert formation which may contain the same or other significant flora associated with the chert.
– Developing in cooperation with DBCA, a strategy based on results of the geological and flora surveys, to secure access to the resource and conservation, in secure reserves, of the flora of the Noondine Chert.
– Conducting rehabilitation trials with any Threatened Flora species removed by their mining operations
– Conducting rehabilitation trials with other priority species, in addition to the successful germination and establishment demonstrated with *Regelia megacephala* to date.
– Funding (amount to be agreed) for fencing significant areas of vegetation, whether part of reserves or other properties, and possible support for ongoing management costs (to cease at the time mining ceases).

Requirements for offsets are currently described in Condition 7-1 of the approved Ministerial Statement (MS813) where Cairn Hill North is set aside as an additional conservation offset to counterbalance expansion of the SIMCOA mining operations. The offsets SIMCOA is proposing via this Strategy align with the 'legal' requirements of Condition 7 of MS813.

2.3 Offset confirmation for the Revised Proposal

Cairn Hill was relinquished by SIMCOA in 2001 to offset the SRI of ongoing mining at both Moora Mine and North Kiaka as detailed in the Package. In addition to Cairn Hill as a proposed advanced offset, the Package included Cairn Hill North as a proposed additional conservation offset for future mining activities in accordance with Condition 7 of MS 813). The original assessment of Cairn Hill Reserve and Cairn Hill North as suitable offsets was undertaken by the EPA in 2008 (see MS813). This assessment was undertaken prior to the offset guidance issued by the Commonwealth (DSEWPaC, 2012a; DSEWPAC, 2012b; DSEWPAC, 2012c) and WA State government (GoWA, 2011; EPA, 2014).

During the assessment of SIMCOA's expansion by way of the North Kiaka Mine (the Revised Proposal) the suitability of the Cairn Hill and Cairn Hill North properties as offsets was raised by the EPA in July 2022 in a RFI (EPA, 2022b).

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At a meeting held on 14 May 2024 with representatives from DCCEEW and EPA, both Cairn Hill and Cairn Hill North were determined to be suitable land parcels to offset the Revised Proposal SRI's, with Cairn Hill noted to meet the conditions of an advanced offset (EPA, 2024; DoEE, 2018). This Offset Strategy has been prepared on this basis of this determination.

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3. Background and approach to assessing significant residual impacts and offsets

3.1 Proposal description

The Revised Proposal includes impacts to 18.12 ha of native vegetation. The Project comprises 44.59 ha disturbance footprint (DF) within the 216.42 ha North Kiaka Development Envelope (DE)) and the Moora Mine has a 96 ha DF within the 239.10 ha DE). Much of the native vegetation within the North Kiaka DE and Moora Mine is representative of the Coomberdale Chert TEC "*Heath dominated by one or more Regelia megacephala, Kunzea praestans and Allocasuarina campestris on ridges and slopes of the chert hills of the Coomberdale Floristic Region*" (Coomberdale Chert TEC). The Coomberdale Chert TEC is geographically restricted to the exposed quartzite ridges of the Noondine Chert formation (previously the Coomberdale Chert formation) (DBCA, 2013) and is listed as Critically Endangered under the EP Act. The Revised Proposal SRI is 17.05 ha of Threatened Ecological Community and habitat for Threatened Flora species and 15.58 ha of Black Cockatoo Foraging habitat across the two DE's. Due to the Coomberdale TEC vegetation occurring solely on quartzite ridges, there is unavoidable direct impact from development of the Revised Proposal to the upper ridgeline of the Noondine Chert formation where the quartz resources are found.

3.2 Controlling Provisions

The Revised Proposal may have a significant impact on Matters of National Environmental Significance (MNES) and was therefore determined to be a controlled action requiring assessment under the EPBC Act (EPBC Reference No. 2021/9089). The Revised Proposal was referred to the Commonwealth Department of Climate Change, Environment, Energy and Water (DCCEEW) in November 2021 and on 23 December 2021, it was determined to be a controlled action, requiring assessment and approval under the EPBC Act. The impacts of the Project on MNES (listed Threatened species and communities) protected under the EPBC Act are being assessed under an Accredited Assessment by the WA EPA as determined in correspondence received on 10 October 2022.

The MNES relevant to the Revised Proposal include:

– Threatened Ecological Communities:
  - *Coomberdale Chert* Threatened Ecological Community (Critically Endangered under the EP Act)
– Threatened Fauna Species:
  - Carnaby's Cockatoo (*Zanda latirostris*) (Endangered under EPBC Act)
– Threatened Flora Species:
  - Watheroo Wattle (*Acacia aristulata*) [Endangered under EPBC Act]
  - Diels Daviesia (*Daviesia dielsii*) [Endangered under EPBC Act].

3.3 Impact avoidance

The WA *Environmental Offsets Policy* notes that environmental offsets will only be considered after avoidance and mitigation options have been pursued. The hierarchy of avoid, minimise, reduce, rehabilitate and offset environmental impacts has been applied to the Revised Proposal. Table 2 provides a summary of the key measures SIMCOA has implemented to avoid and mitigate potential impacts from this Revised Proposal to the environment, conservation significant communities and species.

Table 2 Summary of mitigation hierarchy application

Aspect	Summary	Outcome
Detailed ecological surveys to identify environmental constraints and opportunities for avoidance	Surveys have been carried out across multiple seasons (Trudgen, 2018; Trudgen, M. E and GHD, 2024; 2012) to identify and map out the locations of conservation significant communities, species and their habitat. Additional targeted surveys for the controlled actions have also been undertaken (GHD, 2024a; GHD, 2024b).	Conservation significant areas have been identified and discussed between SIMCOA and DBCA/EPA to determine how these areas can be avoided, where possible. The selection of the North Kiaka Mine was within an area with the least impact on conservation significant
Avoidance and minimisation through design / construction	Avoidance of direct impact to Coomberdale Chert TEC for landform locations and haul roads.	The design has avoided impacts of clearing by using cleared areas and lower quality areas where possible. Haul road and waste rock dumps have been located to avoid clearing wherever possible.
Minimisation through construction management	Environmental Management Plan (EMP) to be implemented	The EMP included in the ERD includes the following commitments: – Clearing management • Fauna spotter • Excavations managed to ensure egress – Hazardous materials contained and managed using MSDS – Waste management processes implemented – Dust management processes implemented – Noise mitigation – Stabilisation processes implemented to minimise erosion – ASS risk managed – Hygiene managed to avoid introduction and spread of dieback / weeds – Revegetation undertaken where possible – Fire management
Offsets for residual significant impacts	Surveys have been carried out across multiple seasons (Trudgen, 2018; Trudgen, M. E and GHD, 2024; Trudgen, Morgan, & Griffin, An extension of a flora survey, floristic analysis and vegetation survey of areas of the Coomberdale Chert TEC to include a further area, 2012) to identify and map out the locations of conservation significant communities, species and their habitat. Additional targeted surveys for the controlled actions have also been undertaken (GHD, 2024a; GHD, 2024b).	Two areas have been prosed as offsets (Cairn Hill and North Cairn Hill), both of which contain the conservation significant TEC, Threatened Flora species and habitat for Threatened Fauna foraging.

3.3.1 Threatened Ecological Communities

The Revised Proposal will remove up to 17.05 ha of Coomberdale Chert TEC across the North Kiaka and Moora Mine Development Footprints (DF), containing six of the ten vegetation alliances (VA) classed as core and buffer for the TEC (Figure 4). Vegetation alliances 13, 15, 16 and 17 comprise core TEC alliances and 9 and 11 comprise buffer vegetation alliances. These vegetation alliances were initially described by (Trudgen, Morgan, & Griffin, 2006).

Table 3 Vegetation Alliances from Trudgen et al. (2006) that reflect the "core" Coomberdale Chert TEC

Vegetation Alliance	Description
13	*Allocasuarina campestris* high shrublands to open and closed scrub
14	*Allocasuarina microstachya* open scrub
15	*Regelia megacephala* high shrubland to open and closed scrub
16	*Kunzea praestans* high shrubland to open and closed scrub
17	*Melaleuca calyptroides* open to closed heath
18	*Hibbertia subvaginata* low shrublands to low open heath
19	*Xanthorrhoea drummondii* shrubland

Table 4 Vegetation Alliances from Trudgen et al. (2006) identified as "buffer units" and included in the Coomberdale Chert TEC

Vegetation Alliance	Description
4	*Eucalyptus eudesmioides* mallee
9	*Allocasuarina huegeliana* woodlands
11	*Acacia acuminata* low woodlands

The Offset Areas (Cairn Hill and North Cairn Hill) will offset the entire 17.05 ha of TEC impacted from clearing. The vegetation condition of the 17.05 ha of Coomberdale TEC [combined core and buffer vegetation alliances] impacted ranged from Very Good to Degraded condition (North Kiaka DF), comprised 7.59 ha of Poor/ Good to Very Good condition and 9.46 ha of Degraded to Very Poor condition (Figure 5).

The Coomberdale TEC within the Revised Proposal has been assessed using the DCCEEW Habitat Quality Scoring (HQS) Tool and determined to have a habitat quality starting score of 6. As such the total quantum of impact to the TEC requiring to be offset is 10.99 ha. Further details and justification for the application of the HQS Tool for TEC quality is provided in Appendix C.

3.3.2 Threatened Species

The Revised Proposal will clear up to 15.58 ha of foraging habitat for the Carnaby's Black Cockatoo (*Zanda latirostris*) [species listed Endangered under EPBC Act] (Vegetation shown in Figure 4 and Figure 5, Threatened Flora species in Figure 6 and Black Cockatoo foraging habitat in Figure 7). The foraging habitat includes high priority food species such as Banksia, Eucalyptus, Corymbia and Hakea. The quality of foraging habitat for the Carnaby's Black Cockatoo has been assessed using DCCEEW's Habitat Quality Scoring (HQS) Tool. The foraging habitat has been assessed to have an average HQS of 7. The BC foraging habitat scoring takes into consideration the vegetation condition and structure, habitat features and proximity of the site in relation to other Black Cockatoo foraging habitat.

There are also Threatened Flora species recorded within the offset site representing the following species:

– *Acacia aristulata* (35 individuals recorded)
– *Daviesia dielsii* (81 individuals recorded)
– *Eucalyptus pruiniramis* (9 individuals recorded)

The most recent survey only recorded two *(2) Acacia aristulata* within the impact area and neither of the other threatened species, however both the *Acacia aristulata* and *Daviesia dielsii* seeds may still be present in the soil.

Table 5 Occurrences (plants) of Threatened Flora recorded in the Revised Proposal and Offset Areas (GHD, 2024a)

Taxon	Cairn Hill Reserve	Cairn Hill North	Moora Mine DF	North Kiaka DE	North Kiaka DF	Total
Acacia aristulata (EN)	27	6	0	2	2	**35**
Daviesia dielsii (EN)	72	9	0	0	0	**81**
Eucalyptus pruiniramis (EN)	9	0	0	0	0	**9**

Threatened Flora have been recorded in the impact area and the Offset Areas as shown in Figure 6**.** *Eucalyptus pruiniramis* was identified to be present in the Cairn Hill Reserve section of the offset site but no plants were recorded in the impact area (GHD, 2024a). This species will not be discussed further in this strategy.

3.4 Significant residual impacts

Significant residual impacts (SRI's) associated with the Revised Proposal have been determined through application of the residual impact significance model detailed in the WA Environmental Offsets Guidelines (GoWA, 2014) (Table 6). Due to SRI being related to threatened species or communities the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) Environmental Offsets Policy and DCCEEW Offset Assessment Guide calculator has been applied (DSEWPaC, 2012a). The implementation of the revised proposal will result in loss of 18.12 ha native vegetation comprised of 15.58 ha of Carnaby's Black Cockatoo foraging habitat that will require an offset. Targeted surveys and fauna habitat assessment undertaken by GHD in 2024 did not map the remaining vegetation of 2.54 ha as Carnaby's Black Cockatoo foraging habitat. Hence, the clearing of remaining 2.54 ha potential fauna habitat has been considered a residual impact area of non-significance in this document. The area which will be impacted by the Revised Proposal is shown in Figure 2 (Appendix A) and includes a TEC, Threatened Flora Species and foraging habitat for a conservation significant fauna species (Figure 4, Figure 5, Figure 6 and Figure 7).

Table 6 Significant residual impacts (modified from Page 11 of the GoWA Environmental Offsets Guidelines (2014)

EPA Factor	Flora and Vegetation			Terrestrial Fauna
Aspect	Native vegetation extent	Threatened ecological communities	Significant flora species	Fauna habitat
Residual impact that is environmentally unacceptable or cannot be offset	N/A	N/A	N/A	N/A
Significant residual impacts that will require an offset – All significant residual impacts to species and ecosystems protected by statute or where the cumulative impact is already at a critical level	18.12 ha native vegetation	Loss of 17.05 ha of Coomberdale TEC that is in Poor/ Good to Very Good condition (7.59 ha) Degraded to Very Poor condition (9.46 ha)	Habitat / individuals for the 17.05ha of Coomberdale TEC habitat for these species: – *Acacia aristulata (2)* – *Daviesia dielsii (0)*	Loss of: – Black Cockatoo habitat: 15.58 ha foraging habitat
Residual impacts that are not significant	A total impact area of North Kiaka DF (44.59 ha) and Moora DF (96ha) includes 18.12 ha of native vegetation Total cleared area 27.47 ha (61%) in North Kiaka DF and 95.05 ha (99%) Moora DF	Revised Proposal is adjacent to a single listed location of the Banksia Woodlands TEC. This TEC is outside of the North Kiaka DE, and the EMP will include management measures for hygiene (weeds and dieback), erosion and sedimentation and hydrocarbons / chemicals to mitigate indirect impacts.		Loss of: – 2.54 ha of potential fauna habitat

The Revised Proposal will result in the following residual impact to the TEC:

– Clearing of 17.05 ha of Coomberdale TEC [combined core and buffer vegetation alliances] in Degraded to Good/Very Good condition) (North Kiaka DF and Moora Mine DF)
– Clearing of vegetation within North Kiaka DF and Moora Mine DF which may contain *Acacia aristulata* seeds within the soil (two plants were recorded by GHD (2024a) however 17 *Acacia aristulata* [species listed Endangered under EPBC Act were previously recorded (Trudgen, 2018))
– Clearing of vegetation within North Kiaka DF which may contain *Daviesia dielsii* seeds within the soil (no plants recorded by GHD (2024a) however 15 *Daviesia dielsii* [species listed Endangered under EPBC Act were previously recorded by Trudgen (2018))

Suitability of the Offset package to counterbalance the potential impacts to Coomberdale Chert TEC vegetation has been described further in Section 8.

3.5 Surveys of the impact area

To identify the potential occurrence of conservation significant communities and species associated with the Proposal, biological surveys were undertaken across the Revised Proposal area. The surveys include:

– *Proposed Discharge Evaluation Coonderoo River Wetlands* (Actis, 2011)
– *An extension of a flora survey, floristic analysis and vegetation survey of areas of the Coomberdale Chert TEC to include a further area* (2012)
– *Comparison of the flora and vegetation of the proposed North Kiaka mine area to other parts of the Coomberdale Chert Threatened Ecological Community* (Trudgen, 2018)
– GHD (2024a)Targeted Threatened and Priority Flora survey for the Revised Proposal
– Bamford (2001), *Vertebrate Fauna of the Simcoa Operations Pty Ltd Moora Mine (Western Ridge)*
– GHD (2021a) North Kiaka Proposed Mine Expansion Fauna Assessment
– GHD (2024b) Black Cockatoo Foraging habitat assessment for the Revised Proposal

Ecological surveys have confirmed the presence of one threatened ecological community (TEC), one conservation significant fauna species and two conservation significant flora species within the Revised Proposal area (Table 7).

Table 7 Conservation significant communities and species

Community / Species	Short Description	Status EPBC Act	Status Western Australia
Coomberdale Chert TEC	Vegetation alliances on ridges and slopes of the chert hills of the Coomberdale floristic region with vegetation comprising "*Heath dominated by one or more Regelia megacephala, Kunzea praestans and Allocasuarina campestris on ridges and slopes of the chert hills of the Coomberdale Floristic Region*" (Coomberdale TEC). The Coomberdale TEC is geographically restricted to the exposed quartzite ridges of the Noondine Chert formation (previously the Coomberdale Chert formation) (DBCA, 2013).	N/A	Critically Endangered (TEC)
Black Cockatoo species	Black Cockatoos are large, black-feathered cockatoos that have loud, distinctive calls and are most often observed flying and feeding in small to large flocks. There are three threatened species of Black Cockatoo that are found in Western Australia.	Threatened (Carnaby's)	Endangered (Carnaby's)
Threatened Flora species	*Acacia aristulata*, is almost certainly a pyrosere species and the other threatened species recorded in the impact area *Daviesia dielsii*, may also be one. This means these species cycle between a seed storage stage in the absence of fire (or other disturbance that removes competition) and a shrub phase for a period after fire (with plants dying out over time, but seed being stored in the soil).	T-EN	T-EN

4. Legislative context for biodiversity offsets

4.1 Current legislation

The Commonwealth and Western Australian environmental offsets policies and guidelines have been considered throughout this Strategy. These guidelines are:

Commonwealth

– *Environmental Protection and Biodiversity Conservation Act 1999*
– Australian Government's EPBC Act Environmental Offset Policy (DSEWPaC, 2012a)
– Offsets assessment guide (excel spreadsheet) (DSEWPAC, 2012b) and "How to use the offsets assessment" guide (DSEWPAC, 2012c)
– Policy statement: Advanced environmental offsets under the *Environment Protection and Biodiversity Conservation Act 1999* (DotEE, 2017).
– Advanced offsets fact sheet (DoEE, 2018)
– EPBC Act Offset Policy Principles (DCCEEW, 2022).
– Habitat Quality Scoring Tool (DCCEEW, 2024)

Western Australia

– *Environmental Protection Act 1986*
– *Biodiversity Conservation Act 2016*
– WA Government's Environmental Offset Policy (GoWA, 2011)– outlines the principles for the use of offsets
– WA Environmental Offsets Register (2013) – Central public record of all offset agreements in WA, providing transparency and accountability
– WA Environmental Offsets Guidelines (GoWA, 2014) – complements the policy by clarifying how environmental offsets will be determined and applied
– Better offsets for Western Australia's black cockatoos. (Maron, 2021)
– Environmental offsets metric: Quantifying environmental offsets in Western Australia (DWER, 2021)
– Considering offsets at a regional scale (EPA, 2024)

4.1.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The Australian Government's approach in the application of environmental offsets under the EPBC Act is defined within their Environmental Offsets Policy (DSEWPaC, 2012a). Offsets under the EPBC Act are defined as *'measures that compensate for the residual adverse impacts of an action on the environment'*. The EPBC Act Environmental Offsets Policy has five aims:

1. Ensure the efficient, effective, timely, transparent, proportionate, scientifically robust and reasonable use of offsets under the EPBC Act
2. Provide proponents, the community and other stakeholders with greater certainty and guidance on how offsets are determined and when they may be considered under the EPBC Act
3. Deliver improved environmental outcomes by consistently applying the policy
4. Outline the appropriate nature and scale of offsets and how they are determined
5. Provide guidance on acceptable delivery mechanisms for offsets.

The Offset package is required to demonstrate consistency with the eight principles of the EPBC Act Environmental Offsets Policy. Consideration of the aims and principles under the EPBC Act Offsets Policy is provided in Section 6.2.

4.1.2 Western Australia Environmental Protection Act 1986

Environmental offsets in WA are designed to counterbalance the SRI of proposals and clearing regulated under the EP Act on biodiversity. The WA Government's Environmental Offset Policy (GoWA, 2011) aims to protect and conserve environmental and biodiversity values for present and future generations. The policy guides economic and social development, while supporting long term environmental and conservation values. Offsets will be used to compensate for residual environmental impacts and be designed to achieve long-term outcomes, building upon existing conservation programs and initiatives. The WA Environmental Offset Guidelines (GoWA, 2014) clarifies the determination and application of environmental offsets in WA.

The Western Australia Government's assessment and decision-making processes in relation to the use of environmental offsets are underpinned by six principles. Consideration of these principles is provided in Section 6.3.

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5. Proposal approach to determine and secure offsets

There are four types of offsets that are usually considered in an Offset Strategy. The type of offset depends on the predicted impact (e.g. broad clearing or effect on individual species), options for offsets in the vicinity of the impact area and state of knowledge of the environmental value being impacted. These options are:

– Land acquisition
– On ground management
– Research
– Contributing to offset funds

SIMCOA has sourced Offset Areas (Figure 3) through land acquisition (and relinquishment of mining rights) and will continue to work with DBCA to manage the Offset Areas as a conservation reserve, in addition to working with landowners to assist with other regional management measures around vegetation and habitat protection.

5.1 Land acquisition

Land acquisition of properties with remnant vegetation that provide environmental values similar to those in the impact area, i.e. like-for-like offset. Acquisition of freehold land and restoration (if native vegetation is present in a disturbed condition) or rehabilitation of cleared land to provide the values for the key communities, habitats and species has been accepted by both levels of government as a suitable offset. Restoration and rehabilitation align with the principles of additionality. SIMCOA has already relinquished mining rights over Cairn Hill which is now managed by DBCA as a reserve. To complement Cairn Hill, SIMCOA proposes to relinquish mining rights to Cairn Hill North and has agreed with DBCA that this area should be amalgamated with the existing Cairn Hill Conservation Reserve. To support this amalgamation, alternative agricultural land has been provided to the landholder that was farming the Cairn Hill North area (see Section 2.3). This arrangement is consistent with the requirements of Condition 7 in Ministerial Statement 813.

5.1.1 Cairn Hill Reserve

The Cairn Hill Reserve has already been provided as an advanced offset site. Extensive biological surveys over a 30 year period have been undertaken by ME Trudgen and Associates (Trudgen, 1985; Trudgen, Morgan, & Griffin, 2012; Trudgen, 2018; Trudgen, Morgan, & Griffin, 2006). A Targeted Threatened and Priority Flora search was undertaken in April 2024 (GHD, 2024a) to update the database on the threatened and priority flora population in the North Kiaka DE and offsets.

Surveys undertaken by SIMCOA determined the Coomberdale TEC vegetation within Cairn Hill Reserve to be in better condition than the impact area with 96.73 ha (63.63%) in Good to Excellent condition with 1.53 ha (1.01%) in Degraded to Poor/Good and the remaining 53.75 ha (35.36%) in Completely Degraded condition.

A targeted assessment of the offset area was conducted for Carnaby's Black-Cockatoo, including assessment of breeding, foraging and roosting habitat plus any sign of presence for the species (GHD, 2024b). A targeted assessment was also conducted for Threatened and Priority Flora species within the offset area (GHD, 2024a).

5.1.2 Cairn Hill North

Surveys undertaken by SIMCOA determined the Coomberdale TEC vegetation within Cairn Hill North identified the vegetation to be in equal condition as Cairn Hill Reserve with 56.63 ha (97.08%) in Good to Excellent condition, 1.37 ha (2.35%) and 0.33 ha (0.57%) in Completely Degraded condition.

The combined Cairn Hill Reserve / Cairn Hill North offset contains:

– Four threatened flora species known to occur in the area (*Acacia aristulata*, *Daviesii dielsii, Synaphea quartzitica and Eucalyptus pruiniramis*)
– The only known location of *Synaphea quartzitica* and *Eucalyptus pruiniramis* [not found in the Revised Proposal area]
– High species richness
– Very Good to Excellent vegetation condition reflective of the exclusion of grazing from the area (DPaW 2013).

Due to the similarity of the vegetation found in the offset area (Cairn Hill Reserve and Cairn Hill North combined), the offset vegetation description in Section 5.1.3, the fauna foraging habitat assessment in Section 5.1.4 and the Offset assessment in Section 5.1.5 apply equally to both sites.

5.1.3 Offset Vegetation

Vegetation alliances in the offset area were assessed to be representative of Threatened Ecological Community (TEC) 'Heath dominated by one or more *Regelia megacephala, Kunzea praestans* and *Allocasuarina campestris* on ridges and slopes of the chert hills of the Coomberdale Floristic Region' (DPAW, 2013b) (Coomberdale TEC). The biological surveys identified six alliances aligned with the broad landforms which make up the TEC in the offset area which are:

– *Acacia acuminata* subsp. *acuminata* low woodlands [Alliance 11] - TEC Buffer alliance
– *Allocasuarina campestris* high shrublands to open or closed scrub [Alliance 13] - TEC Core alliance
– *Allocasuarina huegeliana* low woodlands to low open forests [Alliance 9] - TEC Buffer alliance
– *Kunzea praestans* high shrubland to open and closed scrub [Alliance 16] - TEC Core alliance
– *Melaleuca leuropoma* open to closed heath [Alliance 17] - TEC Core alliance
– *Regelia megacephala* high shrubland to open and closed scrub [Alliance 15] - TEC Core alliance

Vegetation alliances 13, 15, 16 and 17 comprise core TEC alliances and 9 and 11 comprise buffer vegetation alliances. The other vegetation alliances (not attributed to the TEC) are:

– *Eucalyptus loxophleba* subsp. loxophleba low woodlands to low open forests [Alliance 3]
– *Eucalyptus wandoo* subsp. wandoo woodlands and open forests [Alliance 2]
– *Dryandra sessillis* high shrublands to open scrub [Allliance 20/1]
– *Eucalyptus eudesmoides subsp. eudesmoides* low mallee woodlands to low mallee open forests [Alliance 4]
– *Eucalyptus horistes* low woodlands to low open forests [Alliance 7]
– *Eucalyptus obtusiflora* low woodlands to low open forests [Alliance 6]
– *Eucalyptus salmonophloia* woodlands to open forests [Alliance 1]

The combined offset of 210.35 ha has 156.25 ha surveyed as Coomberdale TEC vegetation alliances. The remainder of the offset, 54.08 ha, was mapped as Completely Degraded within areas of remnant vegetation.

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5.1.4 Offset Fauna habitat

One habitat assessment was conducted in the impact area to delineate major habitat types, and to determine approximate percentage cover and species of foraging plants suitable for Black Cockatoos. Five broad fauna habitat types were identified:

– *Eucalyptus wandoo* and/ or *E. loxophleba* woodland along Kyaka Brook over mixed introduced grasses and herbs. *Allocasuarina huegeliana* is present surrounding the small dam.
– Mallee Woodland of *Eucalyptus loxophleba* over scattered shrubs and very open herb and grass lands in fine sandy soils.
– Mixed Shrublands of *Acacia, Banksia, Regelia, Kunzea, Allocasuarina, Hibbertia, Xanthorrhoea* and *Melaleuca* on rocky low hills.
– Mixed Shrublands of *Acacia, Banksia, Regelia, Kunzia* and *Allocasuarina*, amongst quartzite outcropping.

A targeted assessment was also undertaken by GHD (2024b) to further assess the habitat suitability for Black Cockatoos.

5.1.5 Offset assessment

The Australian Government's approach in the application of environmental offsets under the EPBC Act is defined within their Environmental Offsets Policy. Offsets under the EPBC Act are defined as *'measures that compensate for the residual adverse impacts of an action on the environment'* (DSEWPaC, 2012a).

The EPBC Act Offsets assessment guide is a calculator/ tool that has been developed to assess the suitability of offset proposals. GHD prepared habitat quality assessment of site condition, site context and species stocking rate for the Coomberdale TEC and habitat provided for Threatened Flora species to determine the start quality of the Offset Areas (score out of 10).

An updated habitat quality assessment of site condition, site context and species stocking rate was prepared for Black Cockatoo Species using collected data (GHD, 2024b) and the DCCEEW template with a HQS for the Offset Areas of 7 as shown in Table 8. The start quality of the Offset Areas (score out of 10) was determined to be a score of 9 for Coomberdale TEC and a score of 10 for Threatened Flora species habitat. Based on this assessment it is considered that the survey area has high habitat values suitable to offset the SRIs to Coomberdale TEC, Threatened Flora species and Black Cockatoo foraging habitat.

Table 8 Summary of DCCEEW Habitat scoring for Black Cockatoo species

Indicator	Foraging value	Site condition details	Impact site	Offset Start Quality	Without offset	With offset
Vegetation condition and structure. Habitat features	High	**Carnaby's Cockatoo** - Native kwongan heath and shrubland (>20% projected foliage cover), banksia and eucalypt woodlands with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).		5		5
	Moderate	**Carnaby's Cockatoo** - Native kwongan heath and shrubland, banksia or eucalypt woodlands with 20-30% projected foliage cover. Moderate percentage of tree deaths (30-40%)			4	
	Moderate - Low	**Carnaby's Cockatoo** - Native kwongan heath and shrubland, banksia or eucalypt woodlands with 10-20% projected foliage cover.	3			
	Site condition total (out of 7)		**3**	**5**	**4**	**5**
Site Context	Site is within 12km of known breeding site or Site is within 15km of other foraging resources with site condition of at least 4.		2	2	2	2
	Site context total (out of 3)		2	2	2	2
Combined site condition and context			**5**	**7**	**6**	**7**

Table 9 Species Stocking rate evidence of use

Indicator		Species Stocking Rate[1]	Impact Site			Offset Site		
			CBC	BBC	FRT	CBC	BBC	FRT
Confirm presence/ absence of species.	Yes	Species is seen or reported regularly and/or there is abundant foraging evidence, e.g. chewed nuts can be identified as this species. Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year.	Yes			Yes		
	No	Species is recorded or reported very infrequently and there is little or no foraging evidence.		No	No		No	No

6. Offset guide inputs and justification

The principles of the *EPBC Offsets Policy* and WA *Environmental Offsets Policy* 2011, as described in the *EPBC Offsets Guideline* and WA *Environmental Offsets Guidelines* 2014, have been applied to the Offset package to justify the counterbalances to the SRI for significant communities and species. Associated calculations have been undertaken using the EPBC Offsets calculator.

6.1 Consistency of the Revised Proposal with the principles of the Commonwealth Offsets Policy 2012

Table 10 demonstrates how the Revised Proposal and Offset Strategy is consistent with the eight principles identified in the Commonwealth *Environmental Offsets Policy* (DSEWPaC, 2012a).

Table 10 Consistency of the Revised Proposal to the principles of the Commonwealth Environmental Offsets Policy

Principle	Justification
1. Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	As outlined in Section 5.1, the proposed offset strategy will include a combination of land acquisition and rehabilitation. At a minimum, the conservation outcome will maintain (offset by 100%) and improve (any offset additional to 100%) the Black Cockatoo Foraging Habitat.
2. Be built around direct offsets but may include other compensatory measures	The offset strategy is based solely on direct offsets, with the direct offsets included within the strategy comprise a pair of offset properties to provide habitat for the Carnaby's Black Cockatoo.
3. Be in proportion to the level of statutory protection that applies to the protected matter	Offsets were calculated using the DCCEEW Offset Assessment Guide. This included an input for the current listing of the MNES to ensure that the offset size is in proportion to the level of statutory protection of the protected matter.
4. Be of a size and scale proportionate to the residual impacts on the protected matter	The provision of direct offsets is based on completed offset assessment guide calculations, incorporating evidence-based justification for all inputs.
5. Effectively account for and manage the risks of the offset not succeeding	The estimation of direct offsets is based on completed offset assessment guide calculations, incorporating a conservative assessment of confidence in results of the offset succeeding and SIMCOA's history of successfully handing over land into the conservation estate to be managed by DBCA.

[1] Species stocking rate is indicated by yes or no to confirm if any of the species is frequently present or not. If yes, the presence must be for the species being impacted by the proposal, not for a species that will not be impacted.

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Principle	Justification
	SIMCOA will work with DBCA as required to implement the following Management actions on the offset sites: – Access control – fencing and gates – Fire breaks – Fire management regime – Weed control where practicable (in areas where there are no Threatened or Priority species to be negatively impacted by the weed control) – Dieback assessment and management – Rubbish removal. These actions will prevent the decline or deterioration of the protected matters within the offset sites. Cairn Hill North is adjacent to a DBCA managed conservation area, which provides additional assurance in the implementation of land management actions as the property will be incorporated into the Cairn Hill Reserve once the Revised Proposal is approved as described in Section 2.3. The existing adjacent protected vegetation at Cairn Hill Reserve reduces the potential edge effects and unrestricted access impacts to Cairn Hill North. SIMCOA also propose to continue the existing management measures and Threatened and Priority Species propagation activities outlined in Section 0and have a set of contingency actions, should the applied management measures be unsuccessful including: – Evaluate the cause of propagation issues of revegetation failure – Determine the appropriate corrective actions, which may include: • Changes to species lists • Altered weed control scheduling or application areas • Altered herbicides or weed management techniques • Pest management methods
6. Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action, see section 7.6)	The proposed offsets have been selected specifically to counterbalance SRI, to meet the requirements of Commonwealth and State policy. These offsets are additional to any other requirements.
7. Be efficient, effective, timely, transparent, scientifically robust and reasonable	**Efficient and Effective** The offsets are deemed efficient as it can meet Commonwealth regulatory requirements and state offset requirements. The offset site has been set aside to reduce management requirements due to the proximity of the properties adjoining each other, making fencing, weed management and pest management very efficient. The offsets are also nearby the SIMCOA Operations. **Timely** Management actions including the installation of fences and weed control will be determined in collaboration with DBCA and be in accordance with the works schedule provided in a negotiated Offset Management Plan. In relation to the acquirement of land, a both properties have already been agreed as being suitable by SIMCOA and DBCA. Cairn Hill is already a DBCA managed conservation reserve. **Transparent and Scientifically Robust** Details for the offset has been detailed in Section 5.1. Information has been acquired from either pertinent literature including State Government papers or past environmental reports and surveys conducted by SIMCOA, or directly from biological reports or surveys conducted specifically to update the information on the impact site and offset site's characteristics and conservation values. All information has been presented in a clear and concise manner stating facts and summarising details as they are written in the referenced documents.

Principle	Justification
8. Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	This Offset Strategy has been developed to present a preliminary offset package, to demonstrate that SIMCOA is able to adequately counterbalance SRI of the Revised Proposal. The governance of the offset, including monitoring, auditing and reporting, will be documented within an Offset Management Plan after collaboration with DBCA, and will be refined over time based on the findings of any additional surveys and consultation with DBCA.

6.2 Consistency of the Revised Proposal with the principles of the WA EPA Offsets Policy

Table 11 provides that the Revised Proposal Offset package is consistent with the six principles in the WA *Environmental Offset Policy* (GoWA 2011).

Table 11 Assessment of offsets against the principles of the WA Environmental Offsets Policy (2011)

Principle	Assessment
Environmental offsets will only be considered after avoidance and mitigation options have been pursued	The potential impacts from the Revised Proposal have been significantly reduced during early planning phase to relocate and reduce the disturbance envelope (DE) and disturbance footprint (DF). This reduction has been added to through avoidance and mitigation measures that have been developed for the Revised Proposal.
Environmental offsets are not appropriate for all projects	The hierarchy of avoid, minimise, reduce, rehabilitate and offset environmental impacts has been applied to this Revised Proposal. This hierarchy is achieved primarily through changes in scope and design, implementation of mitigation measures and a EMP and finally, an offset proposal. SIMCOA has Offset Areas to counter-balance SRI to communities and species.
Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted	SIMCOA has identified two properties as part of the offsets to counterbalance residual impacts from the Revised Proposal that are relevant and appropriate for the locality and quantum of impact. Cairn Hill Reserve is currently managed by DBCA. This advanced offset site includes like-for-like Coomberdale Chert TEC and Black Cockatoo habitat. Cairn Hill North will be transferred to DBCA for inclusion in the Cairn Hill Reserve once approval is received for the Revised Proposal.
Environmental offsets will be based on sound environmental information and knowledge	The presence, extent and condition of the threatened communities and species has been assessed by a senior ecologist.
Environmental offsets will be applied within a framework of adaptive management	Cairn Hill Reserve is currently managed by DBCA. Cairn Hill North will be transferred to DBCA for inclusion in the Cairn Hill Reserve once approval is received. The approval will likely include an implementation plan, monitoring and corrective actions.
Environmental offsets will be focussed on longer term strategic outcomes.	Cairn Hill Reserve is currently managed by DBCA and has been in place for over 10 years and removed the threat of the property being mined or developed and is protected via the WA Class-A reserve management measures. Cairn Hill North will be transferred to DBCA for inclusion in the Cairn Hill Reserve and this will remove the area from being grazed by livestock in an area that would otherwise be utilised for agriculture or mined by SIMCOA. This will provide an important refuge site for local fauna and protects this property from future agricultural or mining development.

6.3 Application of the WA Environmental Offsets Guidelines

Table 12 provides a summary as to how the key concepts and requirements of the WA *Environmental Offsets Guidelines* (EPA, 2014) have been considered in the development of this Offset Strategy, such that the offsets are relevant and proportionate to the significance of the environmental values impacted.

Table 12 Evaluation of offset sites against WA Environmental Offset Guidelines

Concept		Application
Type		On-ground management and revegetation.
In proximity to the area of impact		The Offset site properties (Cairn Hill Reserve and Cairn Hill North) are within 2 km of the impact area.
Similar or better vegetation condition than the area impacted		TEC impact area: 17.05ha Coomberdale Chert TEC in offset area: 210.35ha Coomberdale Chert TEC vegetation in the offset area is in similar or better condition than those being impacted.
Similar habitat structure to undisturbed examples of impacted vegetation type		Offset contains Coomberdale Chert TEC – including areas that are in Good to Excellent condition. These have retained structure to undisturbed areas.
Has a better area to perimeter ratio than the area impacted		Cairn Hill is 152.01ha and adjoins Cairn Hill North on the northern boundary and agricultural land to the east, west and south. The perimeter ratio is better at offsets than the impact area. Cairn Hill North is 58.34ha and due to the shape of the site, there will remain the risk of ongoing edge effects from the surrounding properties, however given the size of the combined Offset it is expected that edge effects can be managed to retain the core areas of Coomberdale Chert vegetation.
Contains additional rare or otherwise significant species and threatened species or community compared with the impact site		No – the Coomberdale Chert TEC vegetation is similar between the impact and offset sites. The impact site has had two (2) Threatened species recorded (*Acacia aristulata, Daviesia dielsii*). The impact area also contains Carnaby's Black Cockatoo Foraging habitat. Threatened species *Acacia aristulata (33 individuals) and Daviesia dielsii (81 individuals*) have both been recorded in the Offset area in greater numbers than recorded in the impact area. Carnaby's Black Cockatoo Foraging habitat recorded in the Offset area in similar or better quality than the impact area.
Close to or contiguous with an existing conservation area (e.g. Bush Forever)		Cairn Hill Reserve meets this concept. Cairn Hill North adjoins Cairn Hill Reserve along the southern border.
Likely to enhance biological corridors or ecological linkages between conservation areas		Cairn Hill North will be added to the DBCA estate (forming part of Cairn Hill Reserve), which will remove the future risk of the land area being developed and further fragmenting the Coomberdale TEC.
It includes actions to address threatening processes		Cairn Hill North will be transferred to DBCA to be added to Cairn Hill Reserve in a conservation estate, which will remove the risk of future development. Further discussions with DBCA will be undertaken to develop an ongoing management plan. The Offset may undergo rehabilitation including infill planting and weed management, if DBCA determines that this is feasible
Allows for secure management arrangements in place that will provide for long term conservation		Cairn Hill North will be added to Cairn Hill Reserve which is already managed by DBCA.
Sound knowledge and adaptive management		SIMCOA will liaise with DBCA to finalise an Offset Management Plan (a draft Plan has been prepared) which will establish targets for the offset area and include implementation timing, monitoring and corrective actions.
	Can the values be defined and measured?	The vegetation type, condition and extent are measurable.

Concept		Application
Likely offset success	Operator experience / evidence?	SIMCOA will liaise with DBCA to will engage suitably qualified contractors to undertake management actions and rehabilitation works where appropriate.
Time lag		The establishment of Cairn Hill North as a conservation reserve has in-principal agreement with DBCA and it is expected that the transfer into the Cairn Hill Reserve could occur within 12 months of the project being approved. There is no time lag for ecological benefit. Cairn Hill Reserve is already managed by DBCA.
Long term strategic outcomes		Cairn Hill North adjoins Cairn Hill Reserve along the southern border and including this in the Offset removes the risk of the land area being developed for agricultural or mining purposes.
Offset quantification		The Offset has been quantified using the Commonwealth Offsets Assessment Guide.

6.4 Consideration of community and species management and recovery plans

One community and three species (two flora species and one fauna species), occurring within the Revised Proposal are protected under the *EPBC Act (1999)*. The Commonwealth Government publish Recovery Plans and Conservation Advice that outline actions and/or objectives required to address threatening processes affecting survival of threatened taxa and ecological communities. The relevant publications have been used to inform the development of this Strategy.

6.5 Carnaby's Black Cockatoo

The Revised Proposal will clear 15.58 ha of foraging habitat for the Threatened Carnaby's Black Cockatoo. The foraging habitat includes high priority food species such as *Banksia, Eucalyptus, Corymbia* and *Hakea.* The foraging habitat for the Carnaby's Cockatoo has been assessed using DCCEEW's Habitat Quality Scoring (HQS) Tool to have a quality score of 5 (as detailed in Appendix C1).

6.5.1 Conservation advice

This Strategy considers the following EPBC Act approved conservation advice for each of the MNES relevant to the Revised Proposal:

- *NESP Threatened Species Recovery Project 5.1 : Research findings factsheet - Better offsets for Western Australia's black-cockatoos*. (Maron, 2021)
- *Referral guideline for 3 WA threatened black cockatoo species* (DCCEEW, 2022).
- *Carnaby's Cockatoo (Zanda latirostris) Recovery Plan* (DPAW, 2013).

Carnaby's cockatoo *Calyptorhynchus latirostris* are considered under two Recovery Plans (DPAW, 2013). Threats and recovery actions from these plans are considered together in this Strategy.

Activities that may have an impact on Carnaby's cockatoo, or its habitat include:

- Any activity or action that leads to the permanent loss of eucalypt woodlands within the species range that currently or potentially provide nest hollows for breeding, along with nearby areas that provide important feeding and watering habitat that supports breeding of Carnaby's cockatoo.
- Any activity or action that leads to the permanent loss of native vegetation that forms habitat of Carnaby's cockatoo during the non-breeding season, that provides for feeding, night roosting and watering.
- Any activity or action that leads to temporary loss of native vegetation related to breeding, feeding, watering or night roosting habitat for Carnaby's cockatoo.
- Any action, including changes in land use and hydrology within catchments, that leads to the cumulative loss or degradation of areas currently or potentially used as breeding feeding, watering or night roosting habitat.

– The removal, without adequate replacement, of extensive areas of commercial pine plantations on the Swan Coastal Plain, and elsewhere, on which major flocks now depend for food.
– Clearing of areas of habitat (feeding, roosting and breeding) that have been established through revegetation or restoration, and are successful in providing resources for Carnaby's Cockatoo (e.g. offsets).

Table 13 outlines actions published in the Carnaby's Cockatoo Recovery Plan and Conservation Advice and demonstrates how this Offset Strategy aligns with each recovery action (DPAW, 2013).

Table 13 Offset strategy alignment with Carnaby's Cockatoo recovery actions (DPAW, 2013)

Recovery action	How this Strategy aligns with recovery actions
Protect and Manage Important Habitat	SIMCOA will continue to undertake its activities to minimise the impact on the Carnaby's cockatoos and support DBCA to manage the Cairn Hill Reserve to identify, protect and manage habitat critical for survival (nesting, foraging and roosting) for Carnaby's cockatoos. The three (3) potential roosting or nesting hollows identified within the Offset Area will be protected (GHD, 2024b).
Undertake Regular Monitoring	SIMCOA will continue to undertake its activities to minimise the impact on the Carnaby's cockatoos and support DBCA to manage and undertake monitoring of the species within the Cairn Hill Reserve.
Conduct Research to Inform Management	Provide funding for research into the biology, ecology, and conservation management of Carnaby's cockatoo.
Manage Other Impacts	SIMCOA will continue to undertake its activities to implement strategies to reduce other factors detrimentally affecting Carnaby's cockatoos, and support rehabilitation programs.
Engage with the Broader Community	SIMCOA will continue support engagement with and involvement with people across the community in the conservation of Carnaby's cockatoo.
Undertake Information and Communication Activities	SIMCOA will continue to contribute to raising awareness and sharing information with decisionmakers.

6.6 Coomberdale TEC

The vegetation condition of the 17.05 ha of Coomberdale Chert TEC [combined core and buffer vegetation alliances] to be impacted ranged from Very Good to Degraded condition (North Kiaka DF and Moora Mine DF), comprised 7.59 ha of Poor/ Good to Very Good condition and 9.46 ha of Degraded to Very Poor condition. The Offset Areas will counterbalance 100% of the impacts of clearing 17.05 ha of Coomberdale Chert TEC in Degraded to Very Good condition.

6.6.1 Conservation advice – TEC

This Strategy considers the following EP Act approved conservation advice for Revised Proposal:

– 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 Regelia megacephala, Kunzea praestans and Allocasuarina campestris on ridges and slopes of the chert hills of the Coomberdale Floristic Region* (DPaW, 2013)

Table 14 Offset strategy alignment with Coomberdale Chert TEC recovery actions

Recovery Plan action	How this Strategy aligns with Recovery Plan actions
Coordinate recovery actions	SIMCOA will liaise with DBCA on management of the offsets once all incorporated into Cairn Hill Reserve.
Support private land managers to conserve the community	SIMCOA will continue to support landowners of the surrounding properties containing vegetation determined to represent the TEC to protect these areas.
Clarify extent, and habitat critical to survival of the community	Flora and vegetation surveys undertaken in the Project area have been uploaded to IBSA. This information continues to grow the knowledge about this community and maintain and protect the remnant vegetation within the area.

Recovery Plan action	How this Strategy aligns with Recovery Plan actions
Seek to acquire occurrences to help protect the diversity of the community	SIMCOA will continue to support landowners of the surrounding properties containing vegetation determined to represent the TEC to assist with the protection of the diversity of the TEC.
Design and implement a monitoring program	SIMCOA will continue to monitor the flora and vegetation within their current mining footprint particularly on the Waste Rock Dumps when each landform is completed.
Design and implement a weed control program	SIMCOA will continue to manage weeds within their current mining footprint to minimise the transport of weeds into other areas through the implementation if clean on entry procedures. Offsets will be fenced to prevent livestock grazing and other diseases from entering these offset areas.
Implement a fire regime within an adaptive management framework	SIMCOA will investigate the potential fire regime for the area in cooperation with relevant agencies.
Develop and implement a fire management strategy	SIMCOA will investigate the development and implementation of a fire management strategy in cooperation with relevant agencies.
Implement replanting and rehabilitation where necessary	SIMCOA will continue to undertake replanting and rehabilitation activities within its mining area and will liaise with DBCA to develop a MOU for the ongoing management of the offsets. This may include replanting and rehabilitation activities within the Cairn Hill Reserve extents.
Determine the community's hydrological requirements	SIMCOA will continue to monitor the hydrological requirements of the community.
Obtain biological and ecological information	SIMCOA will continue to undertake surveys to collect information on the TEC flora and vegetation and associated communities.
Seek to amend community name	N/A
Report on recovery plan implementation	Simcoa will liaise with DBCA to support the preparation of a report on the implementation actions of the 2013 recovery plan.

7. Residual Impacts

7.1 Coomberdale Chert TEC Description

Much of the native vegetation within the Revised Proposal including the North Kiaka DE and Moora Mine DE is representative of the Coomberdale TEC being Vegetation alliances on ridges and slopes of the chert hills of the Coomberdale floristic region with vegetation comprising "*Heath dominated by one or more Regelia megacephala, Kunzea praestans and Allocasuarina campestris on ridges and slopes of the chert hills of the Coomberdale Floristic Region*" (Coomberdale TEC). The Coomberdale TEC is geographically restricted to the exposed quartzite ridges of the Noondine Chert formation (previously the Coomberdale Chert formation) (DBCA, 2013). Therefore, direct impact to the upper ridgeline of the Noondine Chert formation and the Coomberdale TEC vegetation from development of the Revised Proposal is unavoidable.

All the known occurrences of the TEC are located in the Shire of Moora along the Noondine chert hills that extend discontinuously from Jingemia south to Moora and make up the Coomberdale Floristic Region. There is a total of approximately 785 hectares of the community recorded on the DPAW"s TEC database, in 65 occurrences. Of the area of the community mapped on the TEC database at the time of writing this strategy:

– About 192 ha (~24%) occurs on land managed for conservation (National Park and Nature Reserve)
– About 382.6 ha (~49%) occurs on private land covered by mineral tenements
– About 183 ha (~23%) occurs on private freehold land not within mineral tenements
– About 15.6 ha (~2%) occurs on a water reserve
– About 11.8 ha (~1.5%) occurs on Unallocated Crown Lands (UCL) – currently under pastoral/grazing lease

The Factsheet (DBCA, 2013) and Interim Recovery Plan (DPaW, 2013) for Coomberdale Chert TEC defines the features required for vegetation to be listed as part of the TEC.

– The community is restricted to exposed quartzite ridges of the Noondine chert geological formation.

7.1.1 Quantifying impacts to TEC

Based on the vegetation surveys (Trudgen, Morgan, & Griffin, 2012; Trudgen, 2018) for the Revised Proposal (North Kiaka DF and Moora Mine DF), the vegetation representing the Coomberdale Chert TEC within the impact area ranges between Degraded and Good to Very Good condition as shown in Table 15. The quantum of impact for the clearing of the TEC is also shown in Table 15. The quality score has been based on the HQS (DCCEEW 2024) which has been amended to reflect the data collected during the April survey of the impact area (GHD, 2024a).

Table 15 Impact calculator –Coomberdale TEC – the Revised Proposal (North Kiaka DF and Moora Mine DF)

Attribute	Value	Justification
Area of impact	17.05 ha	Trudgen et al (2012, 2018) and Trudgen and GHD (2024) confirmed TEC
Quality	7	7.59 ha of Poor/ Good to Very Good condition
	6	9.46 ha of Degraded to Very Poor condition
Quantum of impact	5.31 ha	EPBC calculator – Poor/ Good to Very Good condition in the clearing area.
	5.68 ha	EPBC calculator – Degraded to Very Poor condition in the clearing area.

7.2 Carnaby's Cockatoos foraging habitat description

Carnaby's Black Cockatoos nest in hollows of live or dead eucalypts, primarily smooth-barked Salmon Gum and Wandoo (Saunders D. , 1977; 1982; 1986) though breeding has been reported in other wheatbelt tree species and some tree species on the Swan Coastal Plain and jarrah forest (Storr, 1991). Success in breeding is dependent on the quality and proximity of feeding habitat within 12 km of nesting sites (Saunders D. , 1977; Saunders, 1986; Saunders, D.A and Ingram, J.A., 1987) Along with the trees that provide nest hollows, the protection, management and increase of the feeding habitat that supports the breeding of Carnaby's Black Cockatoo is a critical requirement for the conservation of the species.

The estimated foraging habitat for Carnaby's Cockatoos within 20 km of the Revised Proposal is:

– 31,431 ha of estimated foraging habitat available
– 13,289 ha (40%) is within available freehold land
– 1,654 ha (5%) is protected as a DBCA managed land
– 12,152 ha (37%) is within crown land.

The Black Cockatoo potential habitat within 20km of the North Kiaka DE is described in Table 16.

Table 16 Black Cockatoo potential habitat within a 20 km radius of North Kiaka DE

Association	Description	Black Cockatoo suitability	Potential habitat within a 20 km radius of North Kiaka DE (ha)
7	Wheatbelt; York gum, salmon gum etc. Eucalyptus	Breeding	1,790.46
31	Teatree with York gum, wandoo or *Casuarina* and *Melaleuca*	Breeding	2,439.85
142	Wheatbelt; York gum, salmon gum etc. Eucalyptus	Breeding	11,057.30
352	Wheatbelt; York gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolybush	Breeding	43.04

Association	Description	Black Cockatoo suitability	Potential habitat within a 20 km radius of North Kiaka DE (ha)
694	Mixed heath with scattered tall shrubs *Acacia* spp., Proteaceae and Myrtaceae.	Foraging	704.75
999	Jarrah, marri and wandoo *Eucalyptus marginata, Corymbia calophylla, E. wandoo*.	Breeding	35.46
1031	Mosaic: Shrublands; hakea scrub-heath / Shrublands; dryandra heath	Foraging	19.71
1036	Other acacia, banksia, peppermint, cypress pine, casuarina, York gum Acacia spp., *Banksia* spp., *Agonis flexuosa*, *Callitris* spp., *Allocasuarina* spp., *Eucalyptus loxophleba*	Foraging	11,745.06
1039	Wattle with York gum, casuarina, mulga *Acacia* spp. with *Eucalyptus loxophleba*, *Allocasuarina* spp. *Acacia aneura*.	Breeding	661.60
1040	Wheatbelt; York gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolybush	Breeding	1,630.40
1041	Other acacia, banksia, peppermint, cypress pine, casuarina, York gum *Acacia* spp., *Banksia* spp., *Agonis flexuosa*, *Callitris* spp., *Allocasuarina* spp., *Eucalyptus loxophleba*.	Foraging	1,302.62
Total breeding:			**17,658.11**
Total foraging:			**13,772.14**
GRAND TOTAL:			**31,430.25**

7.2.1 Quantifying impacts to foraging habitat

The Revised Proposal will clear up to 15.58 ha of Carnaby's Cockatoo foraging habitat with an average HQS score of five. The quantum of impact for the clearing of the Black Cockatoo foraging habitat is shown in Table 17.

Table 17 Impact calculator – Black Cockatoo

Attribute	Value	Justification
Area of impact	15.58 ha	Potential high value Black Cockatoo foraging habitat (GHD, 2021a).
Quality	5	Quality based on DAWE (2022) foraging assessment tool in DCCEEW Referral guideline for 3 WA threatened black cockatoo species and DCCEEW BC habitat quality scoring tool.
Quantum of impact	10.91 ha	EPBC calculator

8. Offsets

8.1 Offset : Cairn Hill Reserve and Cairn Hill North

8.1.1 Site description

The Offset site comprises Cairn Hill Reserve and Cairn Hill North and contains vegetation representing the Coomberdale Chert TEC (Figure 5), Threatened Flora Species (Figure 6) and Black Cockatoo Foraging Habitat (Figure 7). The offset area has been covered by several Flora and Vegetation Surveys (Trudgen, 2018) and Targeted Threatened and Priority Flora Survey (GHD, 2024a) and Cockatoo Foraging Habitat Assessment (GHD, 2024b).

Cairn Hill is a 152.01 ha site which was set aside (advanced offset) in 2001 as a Class-A reserve for nature conservation. It is located 600 m to the south of the Moora Mine and 2 km south of the North Kiaka DE.

Cairn Hill North is a 58.34 ha site which was set aside in 2010 (after agreement was reached between DBCA, Simcoa and the land owner) with the intent to add to the Cairn Hill Class-A Reserve, as an offset for the SIMCOA's future expansion (consistent with Condition 7 of MS 813). Cairn Hill North is located directly north of the Cairn Hill nature reserve on Lot 52 (M70/191 and M70/424). The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) on behalf of DBCA proposed a land exchange whereby the landowner (Gardiner) would relinquish the land outlined as Cairn Hill North and in return would be granted grazing access to Lot 4358 (57 ha) located to the east of Cairn Hill (30 January 2020). The land exchange arrangement has been agreed upon by SIMCOA and the landowner.

With the recent legislation (*Land and Public Works Legislation Amendment Act 2023* (LAPWLA Act)), the Revised Proposal will be managed under a whole of government approach. Once a letter is received from DEMIRS which states that they support of the transition to a Conservation Reserve, an application to approve under the *Land Administration Act* can progress. When the Revised Proposal is approved by the Minister, land tenure will be changed to Reserve for the purposes of Conservation of Flora and Fauna.

Cairn Hill North has already been fenced in anticipation of becoming part of the Cairn Hill Reserve. Fencing has prevented livestock access from the adjacent farmland and assists in minimising weed spread through animal movement, two factors known to impact vegetation condition and populations. Once the whole of government approval is received, the combined Cairn Hill Reserve will total 210.35 ha and be managed by DBCA in perpetuity.

A total of 130 ha is required to counterbalance impacts to Coomberdale TEC and Threatened Flora which will be located within the Cairn Hill Reserve. A total of 129 ha including 124.67 ha within Cairn Hill Reserve and 4.33 ha within Cairn Hill North is required to counterbalance impacts to Carnaby's Black Cockatoos.

Table 18 Offset Package – North Kiaka Project

Aspects	Cairn Hill Reserve (Offset 1)	Cairn Hill Reserve Committed for North Kiaka Project	Cairn Hill North (Offset 2)	Cairn Hill North Committed for North Kiaka Project	Remaining Offset Area for future use
Area of vegetation within Offset Areas considered suitable for offset of Coomberdale TEC and Threatened Flora habitat	134.01 ha	130 ha	58.34 ha	0	62.35 ha
Area of vegetation within Offset Areas considered suitable for offset of Black Cockatoo foraging habitat	124.66 ha	124.67 ha	58.05 ha	4.33 ha	53.72 ha

Due to the type and quality of the vegetation within the Offset Areas, 62.35 ha is suitable to offset future impacts to the TEC (combined Cairn Hill Reserve and Cairn Hill North) and within this area, 53.72 ha is suitable to offset future impacts to Carnaby's Cockatoo foraging habitat (Cairn Hill North). Foraging habitat can be found within disturbed areas of vegetation within the Cairn Hill Reserve due to:

– Resource Availability: Disturbed areas may have a mix of native and non-native plant species.
– Edge Effects: Disturbed areas often create edge habitats, which have less competition for space.

These factors make the area within Cairn Hill which is shown as disturbed (Figure 7) to have foraging habitat value for Carnaby's Cockatoo, as they are able adapt to different conditions. Other areas within Cairn Hill Reserve which contain higher quality vegetation representing the Coomberdale TEC, are not as valuable for Carnaby's Cockatoo foraging purposes.

8.1.2 Suitability of site as an offset

The vegetation in this offset site (Cairn Hill Class-A Reserve and Cairn Hill North) is representative of Coomberdale Chert TEC and has been assessed as being predominantly (71%) in Good to Excellent condition.

There are also Threatened Flora species recorded within the offset site representing the flowering species:

– *Acacia aristulata* (35 individuals recorded)
– *Daviesia dielsii* (81 individuals recorded)
– *Eucalyptus pruiniramis* (9 individuals recorded)

The most recent survey only recorded two *(2) Acacia aristulata* within the impact area and neither of the other threatened species, however both the *Acacia aristulata* and *Daviesia dielsii* seeds may still be present in the soil.

Table 19 Occurrences (plants) of Threatened Flora recorded in the Revised Proposal and Offset Areas (GHD, 2024a)

Taxon	Cairn Hill Reserve	Cairn Hill North	Moora Mine DF	North Kiaka DE	North Kiaka DF	Total
Acacia aristulata (EN)	27	6	0	2	2	**35**
Daviesia dielsii (EN)	72	9	0	0	0	**81**
Eucalyptus pruiniramis (EN)	9	0	0	0	0	**9**

The value of the offset site for both Coomberdale Chert TEC (HQS 9) and Carnaby's Cockatoo (HQS 7) is higher than the quality score of the impact site (HQS 6-7 for the TEC and 5 for Carnaby's Cockatoo). Figure 5 and Figure 7 illustrate the extent of Coomberdale Chert TEC and Black Cockatoo Foraging Habitat at the Offset.

The Offsets meets the relevant requirements for the TEC as set out in the WA Offsets Policy (GoWA, 2011) and Offsets Guidelines (EPA, 2014) and for the Carnaby's Black Cockatoo as set out in DCCEEW Offsets Policy and Guidelines (DSEWPaC, 2012a; DSEWPAC, 2012b; DSEWPAC, 2012c).

8.1.3 Offset values to counterbalance residual impacts

The Offset is considered suitable to counterbalance 100.59% of a total quantum of impact of 10.99 ha of residual impacts to Coomberdale Chert TEC and 100.44% of a total quantum of impact of 10.91 ha of foraging habitat for Carnaby's Black Cockatoo for the following reasons:

– Vegetation representative of the Coomberdale Chert TEC in better condition than vegetation recorded at the impact site.
– Threatened and Priority Flora found in greater numbers than recorded at the impact site
– Black Cockatoo Foraging Habitat in better condition than recorded at the impact site

8.1.3.1 Coomberdale Chert TEC

The total area of the offset is 210.35 ha of which 192.35 ha represents Coomberdale Chert TEC. 134.01 ha is available at Cairn Hill Class-A Reserve (after 18 ha to offset the clearing at Moora Mine) and 58.34 ha at Cairn Hill North. The combined offset site contains vegetation representing the Coomberdale Chert TEC in Completely Degraded to Excellent condition with species composition similar to the impact site. More than 73% of the vegetation in the offset has been determined to be in Good/Very Good to Excellent Condition.

The 152.01 ha Cairn Hill Class-A Reserve is already managed by DBCA in perpetuity and will be protected from development and continue to hold the value for the protected matters in the future. The Cairn Hill North Offset Area will also be incorporated into the Cairn Hill Class-A Reserve and managed by DBCA.

8.1.3.2 Carnaby's Cockatoo

The Offset package has been set aside to offset the foraging habitat for Carnaby's Black Cockatoo (Cairn Hill Reserve and Cairn Hill North). The total area of the offset is 210.35 ha of which 182.72 ha represents Carnaby's Cockatoo foraging vegetation. 120.03 ha is available at Cairn Hill Class-A Reserve (after 18 ha to offset the clearing at Moora Mine) and 58.05 ha at Cairn Hill North. The combined offset site contains vegetation representing the Carnaby's Cockatoo foraging habitat in Completely Degraded to Excellent condition with foraging species similar to the impact site. The area set aside as a Conservation Reserve to offset residual impacts to Carnaby's Cockatoo Habitat has been illustrated in Figure 5 and Figure 7.

The recent survey of the impact area and Offset site (GHD, 2024b) used the information contained in the Referral Guidelines (DCCEEW, 2022), and the flora species were identified and compared with a list of known Black

Cockatoo foraging species (Valentine and Stock 2008). The information gathered on foraging habitat in the field was then used in the scoring tool in Table A1 of the Referral Guidelines (DCCEEW, 2022).

A foraging score was calculated (out of 10) for the quality of the habitat. The following information was utilised to complete the foraging habitat assessment:

– Known usage (evidence of foraging or observations of foraging)
– Proximity to roosting or nesting areas – DBCA spatial data (GoWA, 2023)
– Amount of foraging habitat within the local region
– Numbers of birds known to forage in the area
– Vegetation type, especially high priority food species such as Banksia, Eucalyptus, Corymbia and Hakea.

The HQS for the offset is based on the Habitat Scoring Tool (DCCEEW, 2024)

8.1.4 Conservation gain for the protected matters

The Cairn Hill Reserve was protected in 2001 when SIMCOA made a commitment during assessment of the potential expansion into the 5 ha Western Ridge within the Moora Mine, to relinquish the 152.01 ha Cairn Hill as an offset. The property was protected, to be managed by DBCA to offset significant residual impacts of ongoing and future SIMCOA mining activities, including clearing of Threatened and Priority Flora at the existing Mine. The Cairn Hill Reserve has been protected by fencing and the vegetation quality has been noted to be improving as a result of management measures. Cairn Hill North (58.34 ha) combined with the Cairn Hill nature reserve (152.01 ha) will protect 210.35 ha which contains 182.72 ha Carnaby's Cockatoo foraging habitat assessed by GHD (2024b) and Threatened Flora recorded by GHD (2024a). The conservation gain has been observed for the protected matters at Cairn Hill, and the larger offset area is likely to do so further due to the reduced impacts of edge effects, weed invasion and vehicle impacts, due to fencing.

8.1.5 Offset calculator values

Cairn Hill has been protected as a Reserve, therefore a conservative time frame of zero years has been allowed for Time Until Ecological Benefit. This Strategy also notes that the Reserve has shown ecological improvement in the 10+ years since DBCA began actively managing the Reserve.

The values for the offsets required to counterbalance the SRI to TEC and Black Cockatoos have been calculated using the DCCEEW Offset Calculator and are summarised in Table 20. Management actions including weed control and fencing to mitigate herbivore grazing, weed infestation, are proposed to be continued to encourage the regeneration of preferred foraging trees and threatened flora species. The habitat quality of the foraging vegetation for the Black Cockatoos, TEC vegetation and threatened flora species is expected to increase over time. With the increased future quality values (with offset) for Black Cockatoo Habitat, the total quantum of impact offset for foraging habitat is 10.91 ha for Carnaby's Cockatoo.

Total quantum of impact offset for the TEC (Poor/ Good to Very Good condition) is 5.31 ha and (Degraded to Very Poor condition) is 5.68 ha.

Table 20 Offset Calculator Values

MNES	Description	Time until Ecological Benefit	Start Quality	Future Quality without Offset	Future Quality with Offset	Offset Value (ha)	Offset Value (%)
BC habitat	Carnaby's Cockatoo foraging habitat – high quality	0	7	6	7	10.91 ha	100.44%
Coomberdale Chert TEC CR under the BC Act (WA)	Coomberdale Chert TEC Poor/ Good to Very Good condition	0	9	8	9	5.31 ha	100.79%
	Coomberdale Chert TEC Degraded to Very Poor condition	0	9	8	9	5.68 ha	100.33%

8.1.5.1 Coomberdale Chert TEC– Quantum of impact and offsets

Based on the EPA guidance, if vegetation quality varies across the impact site, separate calculations should be used rather than applying an average quality across the entire area (Table 21). The condition of the Coomberdale TEC varies across the impact site, an offset calculation has been made for the portion of vegetation in Poor / Good to Very Good condition and a separate calculation for the portion of vegetation in Degraded to Very Poor condition (Table 22).

Table 21 Impact calculator – Coomberdale Chert TEC

Attribute	Value	Justification
Area of impact	17.05 ha	Trudgen (2012) confirmed TEC
Quality	7	7.59 ha of Poor/ Good to Very Good condition
	6	9.46 ha of Degraded to Very Poor condition
Quantum of impact	5.31 ha	EPBC calculator – Poor/ Good to Very Good condition in the clearing area.
	5.68 ha	EPBC calculator – Degraded to Very Poor condition in the clearing area.

Table 22 Offset calculator – Coomberdale TEC

Attribute	Offset area 1 (Cairn Hill Reserve)	Offset area 2 (Cairn Hill North)	Justification	
Proposed offset area	63 ha	0	For residual impact of Poor/ Good to Very Good condition vegetation and Threatened Flora habitat in area to be cleared.	
	67 ha	0	For residual impact of Degraded to Very Poor condition vegetation and Threatened Flora habitat in area to be cleared	
	130 ha	0	Cairn Hill was set aside as an Advanced Offset in 2001 and the tenure was changed from Rural to Reserve and fenced. Cairn Hill North will be changed from exploratory mining to Reserve with the Mining Tenement (M70/424) relinquished by SIMCOA.	
Start quality	9	9	TEC Habitat and Threatened Flora quality score for the offset area based on surveys by Trudgen (2012) and GHD (2024a) and GHD's assessment (DCCEEW, 2024).	
Future quality without offset	8	8	Potential reduced vegetation quality over time due to impacts from grazing, weeds and vehicle impacts.	
Future quality with offset	9	9	With offset management measures it is considered reasonable to see the quality of the site to remain consistent or improve over time.	
% of impact offset	100.79%	0	Poor/ Good to Very Good condition.	Offset requirement met fully by Offset 1 (Cairn Hill Reserve)
	100.33%	0	Degraded to Very Poor condition.	

8.1.5.2 Black Cockatoo – Quantum of impact and offsets

Table 23 and Table 24 provide the values and justification for assessment of the Revised Proposal residual impacts to Black Cockatoo habitat using the Commonwealth EPBC Offset Calculator. There are no residual impacts for the abandonment bund at Moora Mine due to the limited clearing required. As shown in these tables, the 15.58 ha of high value Black Cockatoo foraging habitat loss within the impact area is offset by 100.44% by Cairn Hill Reserve and Cairn Hill North is still available to offset future impacts.

Table 23 Impact calculator – Black Cockatoo

Attribute	Value	Justification
Area of impact	15.58 ha	Potential high value Black Cockatoo foraging habitat (GHD, 2021a).
Quality	5	Quality based on DAWE (2022) foraging assessment tool in DCCEEW Referral guideline for 3 WA threatened black cockatoo species.

Attribute	Value	Justification
Quantum of impact	10.91 ha	EPBC calculator

Table 24 Offset calculator – Black Cockatoo

Attribute	Offset area 1 (Cairn Hill Reserve)	Offset area 2 (Cairn Hill North)	Justification
Proposed offset area	124.67 ha	4.33 ha	Cairn Hill was set aside as an Advanced Offset in 2001 and the tenure was changed from Rural to Reserve and fenced. Cairn Hill North will be changed from exploratory mining to Reserve, once the SIMCOA relinquishes their Mining Tenement (M70/424).
Start quality	7	7	Quality of foraging quality is based on DAWE foraging assessment tool *Referral guideline for 3 WA threatened black cockatoo species* (DCCEEW, 2022). DCCEEW updated BC habitat quality assessment (DCCEEW, 2024) has scored the offset site as a HQS start value of 7 based upon the vegetation condition and structure, habitat features and site context.
Future quality without offset	6	6	Potential reduced foraging quality over time due to impacts from rural activities including grazing, vehicle access, climate change, spray drift and weed incursion. The foraging quality is shown to decrease as the whole area is impacted by those impacts and would have decreased in quality over the past 10 years if Cairn Hill Reserve had not been set aside as a Class A Reserve.
Future quality with offset	7	7	With offset and management, it is considered reasonable to expect over time the site to remain consistent, conservatively, or improve with management. The quality should be maintained in the areas of existing foraging vegetation with increases in quality in the fringes due to fencing of the area, preventing stock access and weed intrusion.
% of impact offset	97.17%	3.37%	Offset requirement met with a total of 100.44% of the impact offset by the combined Offset Areas

9. Adaptive Management

The adaptive management approach (Diagram 1) aims to reduce impacts by embedding a cycle of monitoring, reporting and implementing change (where required). As previously described, DBCA will manage the Offset Area as a conservation reserve, but SIMCOA will liaise with DBCA to apply the adaptive management principles. DBCA and SIMCOA will apply the principles of adaptive management through monitoring, adaptive management actions and implementing changes necessary to effectively meet the offset targets. The implementation measures included in the Offset Management Plans (OMP) are intended to be dynamic and will be updated to reflect monitoring and corrective actions. This will also allow for flexibility to respond to changing environmental conditions and adopt new technologies / management measures.

In addition, review and reporting schedules are necessary to embed a formal process to identify and consider any need to update the Implementation Plans and report against performance. These review and reporting requirements will be determined through consultation with regulators agencies.

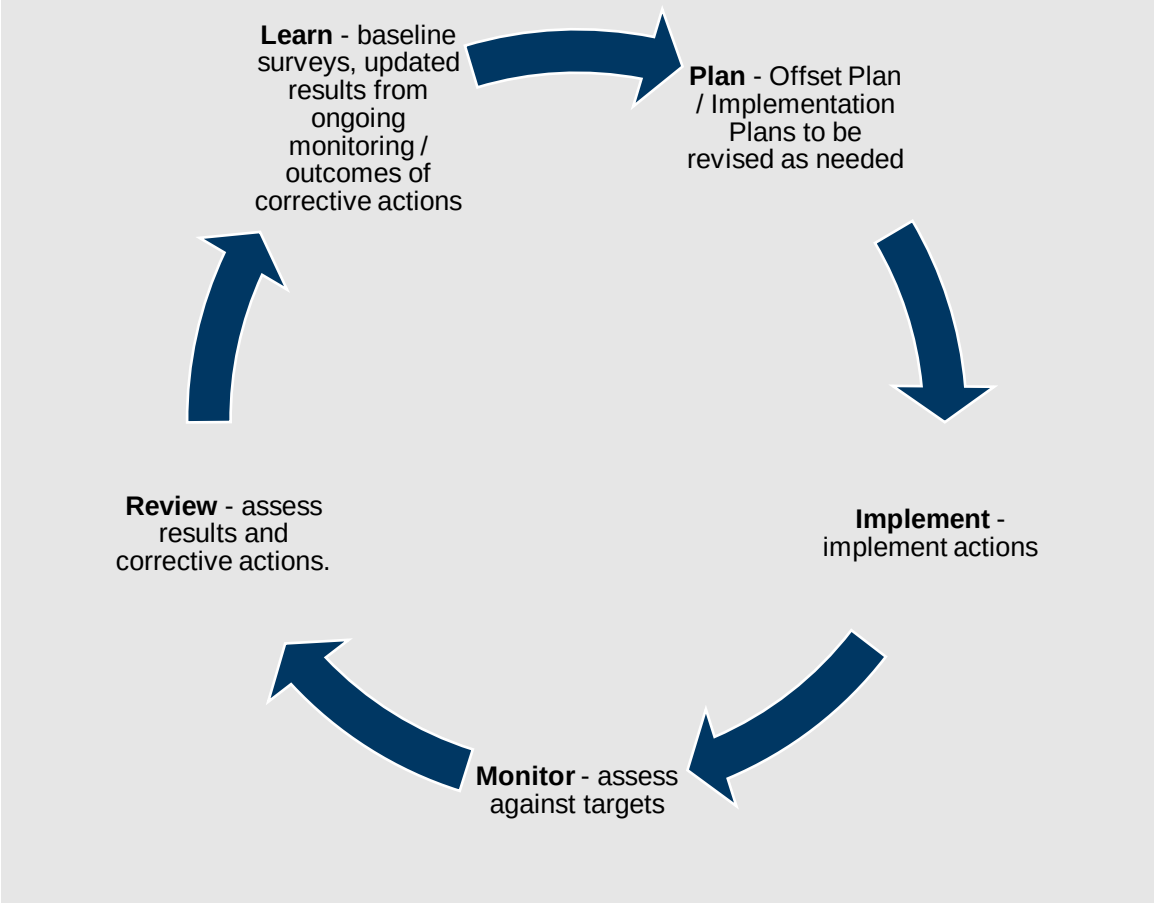

Diagram 1 ***Flow diagram of the adaptive management process***

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9.1 Offset management

Once the Cairn Hill North offset has been incorporated into Cairn Hill Reserve, DBCA will be responsible for its ongoing management. The Offset Management Plan describes the monitoring and management actions proposed for the Offset Areas including:

- Description of the Offset areas
- Specific management actions
  - Restricting entry
  - Signage
  - Avoidance of habitat clearing
  - Fire, pest and weed management
  - Dieback assessment and management
  - Climate change mitigation
- Risk management
- Monitoring
- Adaptive management and review
  - Contingency measures

The Offset Management Plan is being developed with DBCA for implementation in the current Cairn Hill Reserve, in addition to the Cairn Hill North offset. An MOU will accompany the final OMP to detail the management responsibilities for the Offset Areas. Finalisation of the Offset Management Plan will confirm that all legal and procedural requirements are met as well as its environmental intent.

9.2 Restoration Success

The Offset Areas (Cairn Hill Reserve and Cairn Hill North) is in relatively good condition as noted in previous vegetation surveys and recent targeted surveys. The vegetation condition of Cairn Hill Reserve has improved in the ten (10) years since the property was set aside as a Reserve with around 55 ha of vegetation which was previously assessed as completely degraded has been recorded as containing Threatened Flora species during the Targeted Threatened and Priority Flora Searches (GHD, 2024a) and Black Cockatoo foraging species during the Black Cockatoo Foraging Habitat Assessment (GHD, 2024b).

SIMCOA will work with DBCA to implement actions to further improve the Cairn Hill Offset through measures contained in an OMP, as outlined in Section 9.1.

SIMCOA has undertaken rehabilitation of disturbed areas of the Moora Mine progressively since initial rehabilitation trials commenced in 1991 (Trudgen, 2011), and currently monitor 47 distinct rehabilitation areas (Trudgen, 2023). All seed is harvested on site and vegetation trash (where available) is applied to these rehabilitation areas to promote plant growth as described in the rehabilitation plan for Moora Mine (Ecoscape, 2012).

SIMCOA has undertaken long-term rehabilitation trials and monitoring at Moora Mine and has developed a rehabilitation method which achieves successful re-establishment of flora species contiguous with the Coomberdale TEC. These successful rehabilitation methods which are being trialled at Moora Mine would be implemented within the Offset area where appropriate.

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10. Conclusion

The Revised Proposal includes the North Kiaka DE of 216.42 ha containing a 44.59 ha DF and the Moora Mine DE of 239.10 ha containing a 96 ha DF. The Revised Proposal includes impacts to 18.12 ha of native vegetation. Much of the native vegetation within the North Kiaka DE and Moora Mine DE is representative of the Coomberdale Chert TEC "*Heath dominated by one or more Regelia megacephala, Kunzea praestans and Allocasuarina campestris on ridges and slopes of the chert hills of the Coomberdale Floristic Region*" (Coomberdale Chert TEC). The Coomberdale Chert TEC is geographically restricted to the exposed quartzite ridges of the Noondine Chert formation (previously the Coomberdale Chert formation) (DBCA, 2013) and is listed as Critically Endangered under the EP Act. Due to the Coomberdale TEC vegetation occurring solely on quartzite ridges, there is unavoidable direct impact from development of the Revised Proposal to the upper ridgeline of the Noondine Chert formation where the quartz resources are found.

The Revised Proposal will result in the following significant residual impact (SRI) to the Coomberdale TEC:

– Clearing of 17.05 ha of Coomberdale TEC [combined core and buffer vegetation alliances] in Degraded to Good/Very Good condition) (North Kiaka DF and Moora Mine DF)
– Clearing of vegetation within North Kiaka DF and Moora Mine DF which may contain *Acacia aristulata* seeds within the soil (two plants were recorded by GHD (2024a) however 17 *Acacia aristulata* [species listed Endangered under EPBC Act were previously recorded (Trudgen, 2018))
– Clearing of vegetation within North Kiaka DF which may contain *Daviesia dielsii* seeds within the soil (no plants recorded by GHD (2024a) however 15 *Daviesia dielsii* [species listed Endangered under EPBC Act were previously recorded by Trudgen (2018))

The Revised Proposal may also result in SRI's to MNES which is being assessed under an Accredited Assessment by the WA EPA.

The MNES relevant to the Revised Proposal include:

– Threatened Ecological Communities:
  - *Coomberdale Chert* Threatened Ecological Community (Critically Endangered under the EP Act)
– Threatened Fauna Species:
  - Carnaby's Cockatoo (*Zanda latirostris*) (Endangered under EPBC Act)
– Threatened Flora Species:
  - Watheroo Wattle (*Acacia aristulata*) [Endangered under EPBC Act]
  - Diels Daviesia (*Daviesia dielsii*) [Endangered under EPBC Act].

The principles of the *EPBC Offsets Policy* and WA *Environmental Offsets Policy* 2011, as described in the *EPBC Offsets Guideline* and WA *Environmental Offsets Guidelines* 2014, have been applied to the Offset Areas to justify the counterbalances to the SRI for significant communities and species. Associated calculations have been undertaken using the EPBC Offsets calculator.

Based on the vegetation surveys (Trudgen, Morgan, & Griffin, 2012; Trudgen, 2018) for the Revised Proposal (North Kiaka DF and Moora Mine DF), the vegetation representing the Coomberdale Chert TEC within the impact area ranges between Degraded and Good to Very Good condition. The quality score has been based on the HQS (DCCEEW, 2024) and has been amended to reflect the data collected during the April survey for Threatened Flora and Targeted Black Cockatoo Habitat within the impact area.

SIMCOA has an offset comprising two properties, Cairn Hill Reserve (managed by DBCA) and Cairn Hill North. Cairn Hill is a 152.01 ha site which was set aside (advanced offset) in 2001 as a Class-A reserve for nature conservation. It is located 600m to the south of the Moora Mine and 2km south of the North Kiaka DE.

Cairn Hill North is a 58.34 ha site which was set aside in 2010 with the intent to add to the Cairn Hill Class-A reserve as an offset for the SIMCOA's future expansion (consistent with Condition 7 of MS 813). Cairn Hill North is located directly to the north of Cairn Hill nature reserve on Lot 52 (M70/191 and M70/424).

With the recent legislation (Land and Public Works Legislation Amendment Act 2023 (LAPWLA Act)), the Revised Proposal will be managed under a whole of government approach. Once a letter is issued from DEMIRS

confirming the transition to a Conservation Reserve, an application to approve under the Land Administration Act 1997 can progress. Once the Revised Proposal is granted Ministerial approval, land tenure will be changed to Reserve for the purposes of Conservation of Flora and Fauna.

Cairn Hill North has already been fenced in anticipation of becoming part of the Cairn Hill Reserve. The fencing has aided in preventing livestock access from the adjacent farmland and to assist in minimising weed spread through animal movement, two factors that could cause a decline in vegetation condition over time.

Six vegetation alliances in the Offset area were assessed to be representative of Coomberdale TEC which are:

– *Acacia acuminata* subsp. *acuminata* low woodlands [Alliance 11] - TEC Buffer alliance
– *Allocasuarina campestris* high shrublands to open or closed scrub [Alliance 13] - TEC Core alliance
– *Allocasuarina huegeliana* low woodlands to low open forests [Alliance 9] - TEC Buffer alliance
– *Kunzea praestans* high shrubland to open and closed scrub [Alliance 16] - TEC Core alliance
– *Melaleuca leuropoma* open to closed heath [Alliance 17] - TEC Core alliance
– *Regelia megacephala* high shrubland to open and closed scrub [Alliance 15] - TEC Core alliance

Vegetation alliances 13, 15, 16 and 17 comprise core TEC alliances and 9 and 11 comprise buffer vegetation alliances.

A Fauna habitat assessment was conducted across the impact area to map major habitat types, and to determine approximate percentage cover and species of foraging plants suitable for Black Cockatoos. Five broad fauna habitat types were identified:

– *Eucalyptus wandoo* and/ or *E. loxophleba* woodland along Kyaka Brook over mixed introduced grasses and herbs. *Allocasuarina huegeliana* is present surrounding the small dam.
– Mallee Woodland of *Eucalyptus loxophleba* over scattered shrubs and very open herb and grass lands in fine sandy soils.
– Mixed Shrublands of *Acacia, Banksia, Regelia, Kunzea, Allocasuarina, Hibbertia, Xanthorrhoea* and *Melaleuca* on rocky low hills.
– Mixed Shrublands of *Acacia, Banksia, Regelia, Kunzia* and *Allocasuarina*, amongst quartzite outcropping.

A Targeted assessment was undertaken by GHD (2024b) to assess the foraging habitat suitability for Black Cockatoos.

The EPBC Act Offsets assessment guide is a calculator/ tool that has been developed to assess the suitability of offset proposals with an assessment of site condition, site context and species stocking rate to determine the start quality of the Offset Areas (score out of 10). The scoring of the Cairn Hill Reserve and Cairn Hill North Offset Areas is a starting quality score of 9 for the Coomberdale TEC, 10 for Threatened Flora Habitat and a starting score of 7 for the Black Cockatoo species. Based on this assessment it is considered that the Offset Areas have high habitat values suitable to offset the residual impacts to Coomberdale TEC and the Black Cockatoo.

This Strategy confirms the values of these offsets through referencing detailed surveys to quantify SRI and offset gains, and by demonstrating consultation with DBCA and DCCEEW, and ongoing management measures. The implementation of the Moora Mine disturbance of the 5 ha of vegetation which was cleared in 2001, has been previously offset using approximately ~18 ha of the Cairn Hill Class-A reserve.

A total of 130 ha is required to counterbalance impacts to TEC and Threatened Flora which will be within the combined Offset Area. Of this 130 ha, 129 ha is required to counterbalance impacts to Black Cockatoos.

The remaining area across the Offset Area for future offsets is 53.72 ha suitable to offset impacts to Carnaby's Cockatoo foraging habitat (Cairn Hill North) and 62.35 ha is suitable to offset impacts to the TEC (combined Cairn Hill Reserve and Cairn Hill North). The Offset Areas meet State and Commonwealth requirements. The Offset package is considered suitable to counterbalance 100.56% of a total quantum of impact of 10.99 ha of residual impacts to Coomberdale Chert TEC and 100.44% of a total quantum of impact of 10.91 ha of foraging habitat for Carnaby's Black Cockatoo. The Offsets package will compensate at least 100% of the SRIs through land already in SIMCOA's mining rights or managed as a Reserve by DBCA. The estimates presented are conservative, representing the full extent of MNES values within the 17.12 ha native vegetation clearing area.

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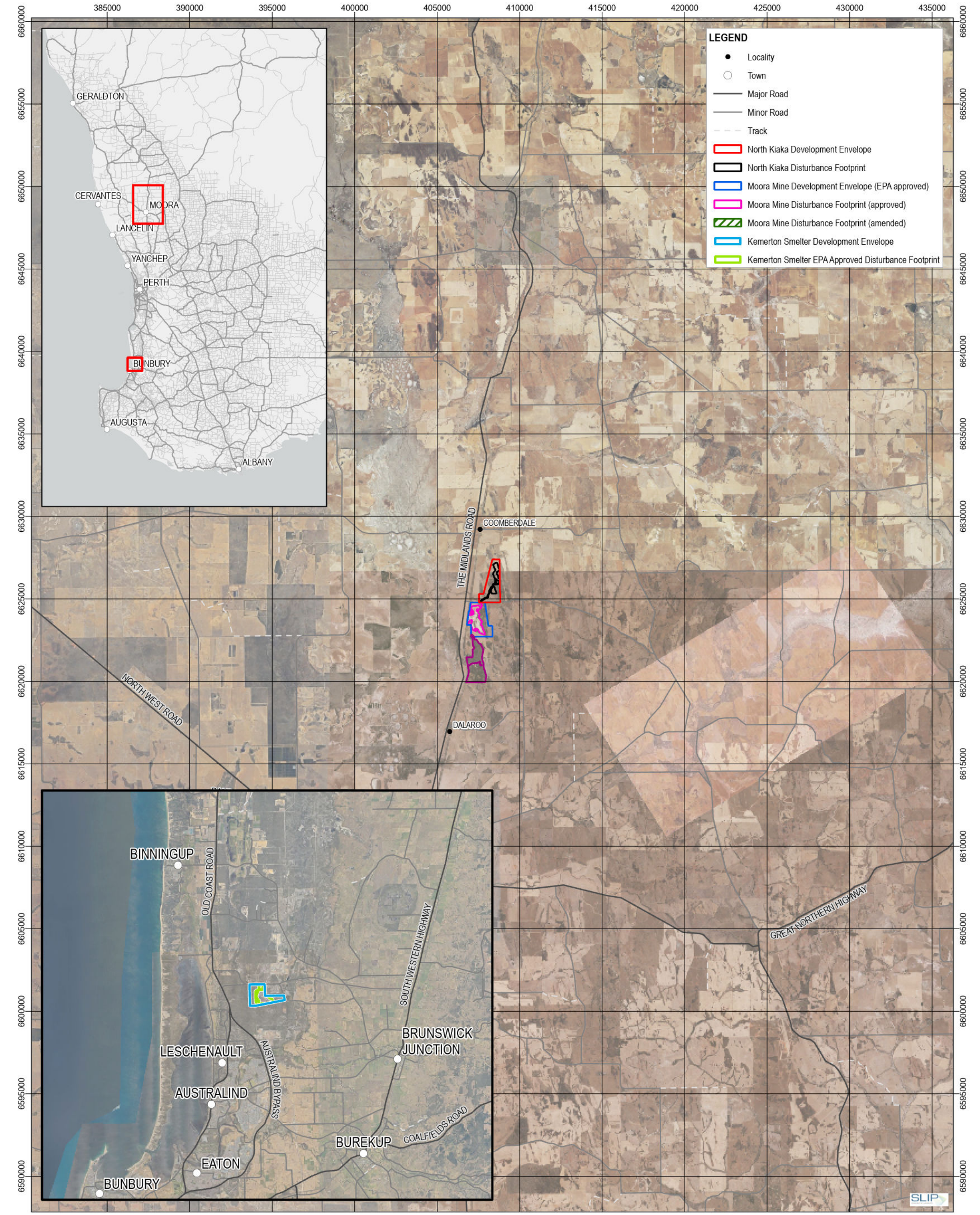
Appendices

Appendix A

Figures



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Map Projection: Transverse Mercator
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Simcoa Operations Pty Ltd
North Kiaka Project Approval
Support - Sites Assets

Revised Proposal Location

Project No. **12627587**
Revision No. **A**
Date **12/05/2025**

FIGURE 1

\\ghdnet\ghd\AU\Perth\Projects\61\12518217\GIS\Maps\Working\12518217_Figures\12518217_Figures.aprx
Print date: 12 May 2025 - 15:16

Data source: Simcoa: Mining Development Shape Areas is derived from client recieved 2020; Landgate: Slip Imagery - April 2017 to November 2018 (accessed - 20191023), Cadastre, Road - 20180601; GA: Natmap Geodata Topo 250k Series 3. Created by: rbrown3

406800 407000 407200 407400 407600 407800 408000 408200 408400 408600 408800 409000 409200 409400

6627800 6627600 6627400 6627200 6627000 6626800 6626600 6626400 6626200 6626000 6625800 6625600 6625400 6625200 6625000 6624800 6624600 6624400

Midlands Rd

Kiaka Rd

LEGEND

- Road
- Watercourse
- Haul road
- Cadastre
- North Kiaka Development Envelope
- North Kiaka Disturbance Footprint
- Moora Mine Development Envelope (EPA approved)
- Moora Mine Disturbance Footprint (approved)
- Moora Mine Disturbance Footprint (amended)
- Easement
- Infrastructure
- Infrastructure/Laydown
- Mine pit
- Tonkin waste
- North Dump
- North Dump (Current)

Paper Size ISO A3

0 100 200 300

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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

North Kiaka DE and Disturbance Footprint

Project No. **12627587**
Revision No. **A**
Date **12/05/2025**

FIGURE 2 Part 1

\\ghdnet\ghd\AU\Perth\Projects\61\12518217\GIS\Maps\Working\12518217_Figures\12518217_Figures.aprx
Print date: 12 May 2025 - 16:08

Data source: Simcoa: Mining Development Shape Areas is derived from client recieved 2020; Landgate: Slip Imagery - April 2017 to November 2018 (accessed - 20191023), Cadastre, Road - 20180601; DMIRS: Mining Tenements - 20180601; DoW: River - 201108. Created by: rbrown3

406000 406200 406400 406600 406800 407000 407200 407400 407600 407800 408000 408200 408400 408600

6625400 6625200 6625000 6624800 6624600 6624400 6624200 6624000 6623800 6623600 6623400 6623200 6623000 6622800 6622600 6622400 6622200 6622000

Kiaka Rd

Midlands Rd

LEGEND

- Road
- Watercourse
- Haul road
- Cadastre
- North Kiaka Development Envelope
- North Kiaka Disturbance Footprint
- Moora Mine Development Envelope (EPA approved)
- Moora Mine Disturbance Footprint (approved)
- Moora Mine Disturbance Footprint (amended)
- Easement
- Infrastructure/Laydown
- Tonkin waste
- Main Pit
- North Dump
- Haul Roads
- Refuelling Area
- West Pit
- ROM Pad
- Crusher
- North Dump (Current)
- Main Waste Dump
- Old North Dump
- South East Waste Dump
- West Pit Dump
- Workshop
- Settling Dams
- Offices/Buildings
- Weighbridge
- OPS Area
- Railway Stockpile Pad
- Fines Stockpiles
- Intermediate Stockpiles
- Scalps Stockpiles

Paper Size ISO A3

0 100 200 300

Metres

N

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

GHD

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

Moora Mine EPA Approved Disturbance Footprint

Project No. **12627587**
Revision No. **A**
Date **12/05/2025**

FIGURE 2 Part 2

\\ghdnet\ghd\AU\Perth\Projects\61\12518217\GIS\Maps\Working\12518217_Figures\12518217_Figures.aprx
Print date: 12 May 2025 - 16:05

Data source: Simcoa: Mining Development Shape Areas is derived from client recieved 2020; Langate: Slip Imagery - April 2017 to November 2018 (accessed - 20191023), Cadastre, Road - 20180601; DMIRS: Mining Tenements - 20180601; DoW: River - 201108. Created by: rbrown3

382400 382600 382800 383000 383200 383400 383600 383800 384000 384200 384400 384600 384800 385000

6325400 6325200 6325000 6324800 6324600 6324400 6324200 6324000 6323800 6323600 6323400 6323200 6323000 6322800 6322600 6322400 6322200 6322000

Arber Rd

LEGEND

- Road
- Kemerton Smelter EPA Approved Disturbance Footprint
- Kemerton Smelter Development Envelope

Paper Size ISO A3

0 100 200 300

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

N

GHD

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

Kemerton Smelter EPA Approved Disturbance Footprint

Project No. **12627587**
Revision No. **A**
Date **12/05/2025**

FIGURE 2 Part 3

\\ghdnet\ghd\AU\Perth\Projects\61\12518217\GIS\Maps\Working\12518217_Figures\12518217_Figures.aprx
Print date: 12 May 2025 - 16:10

Data source: Simcoa: Mining Development Shape Areas is derived from client recieved 2020; Langate: Slip Imagery - April 2017 to November 2018 (accessed - 20191023), Cadastre, Road - 20180601; DMIRS: Mining Tenements - 20180601; DoW: River - 201108. Created by: rbrown3

405000 405500 406000 406500 407000 407500 408000 408500 409000 409500 410000 410500

6627500 6627000 6626500 6626000 6625500 6625000 6624500 6624000 6623500 6623000 6622500 6622000 6621500 6621000 6620500 6620000

Midlands Rd

Kiaka Rd

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
- Moora Mine Western Ridge Offset
- North Kiaka Offset (BC and TEC)

DCCEW Carnaby's Cockatoo Score

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

SLIP

Paper Size ISO A3

0 150 300 450 600

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

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GHD

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

Project No. 12627587
Revision No. A
Date 07/05/2025

Proposed Offset Areas

FIGURE 3

lightstone\gis\AU\Perth\Projects\61\12627\GIS\Maps\Working\12627217_Figure\12627217_Figures_RBL.aprx
Print date: 07 May 2025 - 14:19

Data source: World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS | WA Now: Landgate | SLIP. Created by: kmacanpac

405800 406000 406200 406400 406600 406800 407000 407200 407400 407600 407800 408000 408200 408400 408600 408800 409000

6623400 6623200 6623000 6622800 6622600 6622400 6622200 6622000 6621800 6621600 6621400 6621200 6621000 6620800 6620600 6620400 6620200 6620000 6619800 6619600 6619400 6619200

LEGEND

- DRF & Priority Species (Trudgen 2012)
- Road
- Watercourse
- Moora Mine Development Envelope (EPA approved)
- Moora Mine Disturbance Footprint (approved)
- Cairn Hill North Boundary
- Cairn Hill Reserve Boundary

Vegetation Alliances and Associations (Trudgen 2012 & 2018)

Aa1, Aa2, Aa3, AaAc2, AaDs2, AaHs1, AaMr1, AaMr2, Ac1, Ac2, Ac3, Ac4, Ac4/AaAc3, Ac4/KpAh1/AhXd3, Ac5, Ac6, Ac7, Ac8, AcAa1, AcAh2, AcAhu1, AcAs1, AcB1, AcB1/AcMr2/AcB3, AcB2, AcB2/RmKpMc3/AcB4/Ac, AcB3, AcB4, AcB5/B1, AcCq2, AcCq3/KpAhB1, AcDs1, AcDs2, AcDs3, AcDs4, AcEe1, AcEe1/EeRm1, AcEe2, AcEe2/AcB3, AcEl1, AcEl2, AcEw2, AcEw3, AcEw4, AcHs1, AcHs2, AcId1, AcId2, AcId3, AcMr1, AcMr2, AcMr3, AcRm1, AcRm2, AcRm3, Ah2, Ah4, AhAc1, AhAc2/AhKp2, AhAc3, AhAc4, AhDf1, AhDp1, AhDp2, AhDs1, AhDsKp1, AhDsKp2, AhDsKp4, AhDsKp4/KpAhB2/(AcB4, AhHs1, AhKp1, AhKp1/AhAc3/Ac4, AhKp2, AhKp3, AhRm1, AhRm2, AhTl1, AhXd1, AhXd3, AhXd4, B1, Bp1, Bp2, ClAh2, D, Ds1, DsHs1, DsKp1

LEGEND

Vegetation Alliances and Associations (Trudgen 2012 & 2018)

Ec1, Ee1, EeDs1, EeId1, EeKp1, EeKp2, EeKp3, EhAh1, EhEe1, EhEe2, El1, El2, El2/Ac4, El3, El5, El6, ElEo1/AcDs3, ElXd1, Elo1, Elo2, Elo3, Eo1, EoTd1, Ep1, Es1, EsEl1, Ew1, Ew1/Ew2, Ew3, EwDi1, EwTl2, Hs1, HsAh1, KpAh1, KpAhB1, KpAhB2, KpAhB3, KpAhDs1, KpAhDs1/(KpAhB2), KpAhDs1/Mc/B, KpAhDs2, KpAhDs3, KpAhMc1, KpDs1, KpDs1/KpAhDs1, KpDsMc1, KpEe1, KpHs1, KpHs2, Mc3, Mco1, Mr1, Mr1/Ao4, Rm1, RmAh1, RmAh1/KpHs1/AhKp2, RmAh2, RmAh3, RmAh3/AhDs1, RmAh4, RmB1, RmDs1, RmEe1, RmEe2, RmEe2/RmAh1, RmEe2/RmAh3, RmHs1, RmHs2, RmKp1, RmKp2, RmKpMc1, RmKpMc2, RmKpMc3, RmKpMc3/KpAh4, RvAh1, Xd1

Midlands Rd

Moore River Catchment to Arrowsmith River

SLIP

Paper Size ISO A3

0 100 200 300 400 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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

Project No. 12627587
Revision No. A
Date 07/05/2025

Vegetation Alliances

FIGURE 4

lghdswl ghdAUPerth Projects\12\12627\GIS\Maps\Working\12627_Figure4_12627_Figures_R0.aprx
Print date: 07 May 2025 - 14:17

Data source: Simcoa Mining Development Shape Areas is derived from client received 2020; Trudgen Vegetation mapping - 2012 and 2018; Landgate Slip Imagery - April 2017 to November 2018 (accessed - 2019123); Road - 23186801. Created by: kmacarayan

405500 406000 406500 407000 407500 408000 408500 409000 409500 410000 410500 411000

6627500 6627000 6626500 6626000 6625500 6625000 6624500 6624000 6623500 6623000 6622500 6622000 6621500 6621000 6620500 6620000

Coondewa River

Kiaka Brook

Midlands Rd

Kiaka Rd

Cattady Rd

Noondine Rd

Legend

- Road
- Watercourse
- North Kiaka Development Envelope
- North Kiaka Disturbance Footprint
- Moora Mine Development Envelope (EPA approved)
- Cairn Hill North Boundary
- Cairn Hill Reserve Boundary

Vegetation Condition (Trudgen 2018)

- Excellent
- Very Good to Excellent
- Very Good
- Good to Very Good
- Good
- Poor to Good
- Poor
- Poor to Very Poor
- Very Poor
- Degraded to Very Poor
- Degraded

Paper Size ISO A3

0 200 400 600 800

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

N

GHD

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

Vegetation Condition

Project No. 12627587
Revision No. A
Date 07/05/2025

FIGURE 5

Data source: Simcoa Mining Development Shape Areas is derived from client received 2020; Landgate: Slip Imagery - April 2017 to November 2018 (accessed - 30/01/2020), River, Road - 30/08/01. Created by: kmacanpac

405000 405500 406000 406500 407000 407500 408000 408500 409000 409500 410000 410500 411000

6627500 6627000 6626500 6626000 6625500 6625000 6624500 6624000 6623500 6623000 6622500 6622000 6621500 6621000 6620500 6620000 6619500

Kiaka Rd

Midlands Rd

Cattady Rd

Legend

- *Acacia aristulata*
- *Daviesia dielsii*
- *Babingtonia cherticola*
- *Diuris recurva*
- *Stylidium sp. Moora*
- *Regelia megacephala*
- *Eucalyptus pruiniramis*
- Minor Roads
- Main Roads
- Cairn Hill Reserve Boundary
- Cairn Hill North Boundary
- Moora Mine Development Envelope (EPA approved)
- North Kiaka Development Envelope
- North Kiaka Disturbance Footprint

SLIP

Paper Size ISO A3

0 200 400 600 800

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

GHD

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

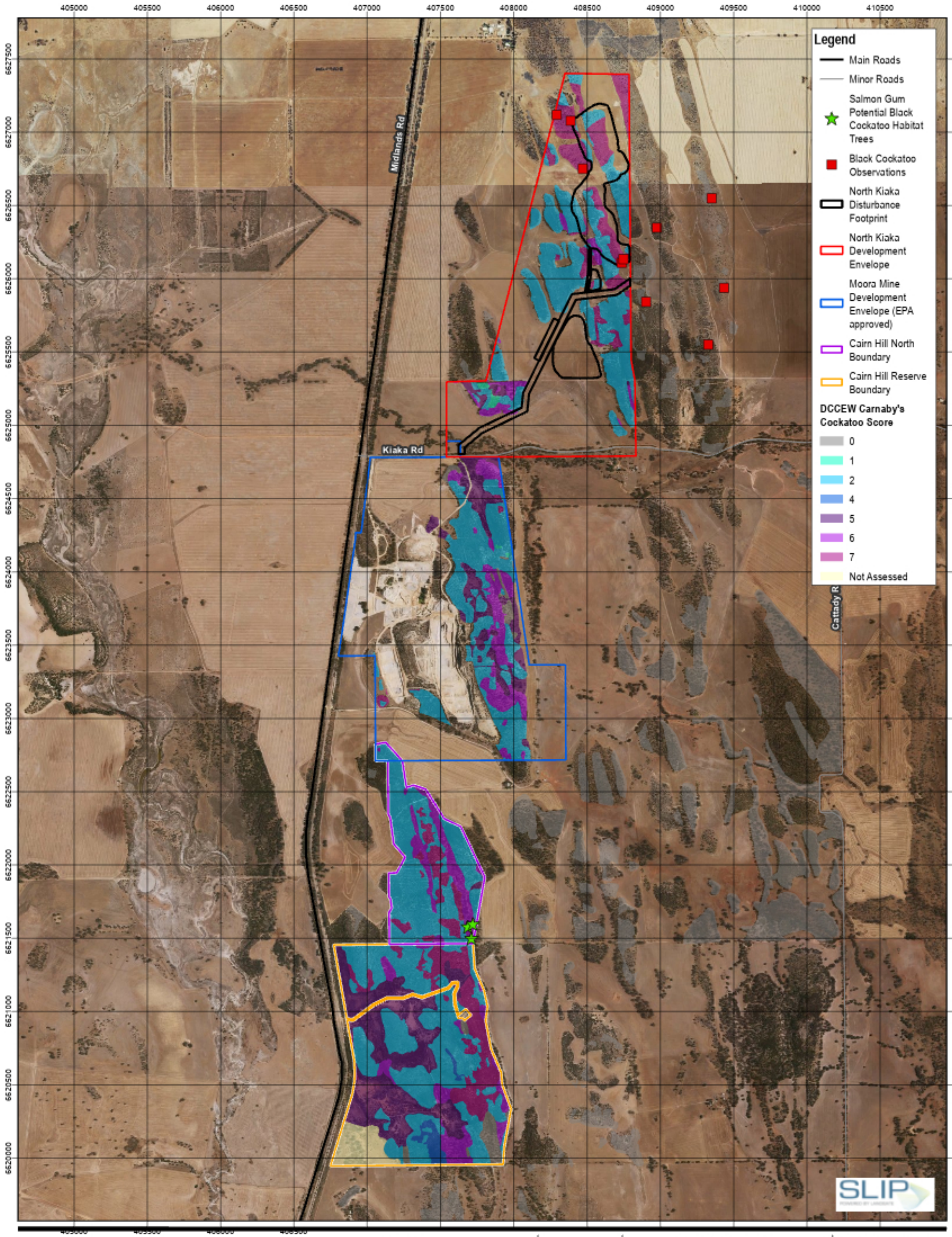
Project No. 12627587
Revision No. A
Date 07/05/2025

Threatened Flora Species

FIGURE 6

lghdnet\ghdAU\Perth\Projects\61\12627\GIS\Maps\Working\12627_Figures\12627_Figures_R8.aprx
Print date: 07 May 2025 - 14:19

Data source: Nbrkl Topographic Map Esri, HERE, Garmin, FAO, NOAA, USGS
RMS . Created by: kmacaspac



Paper Size ISO A3

0 150 300 450 600

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 2020
Grid: GDA2020 MGA Zone 50

N

GHD

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

Project No. 12627587
Revision No. A
Date 07/05/2025

Black Cockatoo Foraging Habitat

FIGURE 7

Appendix B

History of Offsets

Department of Energy, Mines, Industry Regulation and Safety
GOVERNMENT OF WESTERN AUSTRALIA

Our ref A2826/201901; FNA 14966
Enquiries Milan Nathoo
P: 9222 3328
E: milan.nathoo@demirs.wa.gov.au

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.

Locked Bag 100 East Perth WA 6892
www.demirs.wa.gov.au
ABN 69 410 335 356

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
dan.endacott@dwer.wa.gov.au

CC: Robert Baker – Assistant Manager, Land Management Central, Department of Planning, Lands and Heritage
robert.baker@dplh.wa.gov.au

Locked Bag 100 East Perth WA 6892
www.demirs.wa.gov.au
ABN 69 410 335 356

Attachment 2

SUMMARY APPROVALS HISTORY OF THE SIMCOA MINE AT MOORA

The source of Silica at Moora used by Simcoa at its furnaces at Kemerton has been subjected to various forms of assessment over the years, most recently in 2001 when Simcoa sought a change to the Environmental Conditions via referral to EPA under s46 to enable it to access high-quality resource in an additional area on its Leases known as the Western Ridge and to obtain EPA support to the development of a long-term strategic approach to mining on Leases held by Simcoa. There is a complex history prior to this, affected by Government requiring the company at the time to move their proposed plant to other locations, which is summarised below, but it is important as it demonstrates the scope of the approvals the Company has held over the Moora quartzite leases since the EPA assessment of 1986. In addition, the project is covered by the Silicon (Kemerton) Agreement Act 1987 and has to meet those requirements.

1. The quarry site at Moora was first documented in 1986 in an ERMP for a proposal for a Silicon Plant at Wundowie (ERMP, 1986. The WA Silicon Project ERMP (for Wundowie site and Moora silica on M70/191 about 205 ha) proposed a 12 ha quarry over the 20 years of project life (mining at around 100,000 t/yr). Although this ERMP contained very little information at all about the proposed quarry at Moora it was still more information than contained in any other subsequent documentation until 2001. The ERMP contained a map annotated as "Annual Quarry Areas (Fig 4.8 of ERMP, 1986) which formed a conceptual plan of how mining would progress over the life of the mine on M70/191, with further detail to be provided via the Annual and Triennial Reports to the Minister for Resources Development as required under the Agreement Act (Silicon (Kemerton) Agreement Act 1987). This map (Figure 4.8 in ERMP, 1986) is the earliest map showing the proposed quarry.

2. In May 1987 the EPA issued its assessment report (Bulletin 279) on the above ERMP (EPA, 1987). The assessment focus was on the proposed silicon smelter with the source of silica being secondary and not addressed in any detail, the quartz being seen just as necessary feedstock to the proposed silicon smelter. The assessment barely mentions the quarry and approves "mining on M70/191" presumably covering mining over the whole lease.

Following this assessment, the Government (under Brian Burke) then moved the silicon smelter area from Wundowie to Picton. The quarry side of the development remained unchanged in all subsequent reports considered by the EPA until 2001 (see note #12 later).

3. In 1988 the EPA did a full assessment for the Silicon Project at the Picton site and reported on that in full. The EPA's advice on the quarry part of the proposal was minimal and it was clearly regarded as a small issue in comparison with the emissions from the proposed silicon smelter. The only issue covered by the EPA in its assessment of the quarry was the occurrence of *Regelia megacephala*. No other vegetation issues were mentioned. At this time the neither CALM nor the EPA put forward any concerns about DRF, Priority species, or Threatened Ecological Communities.

Following this assessment, the Government (under Brian Burke) then required the proponent to move the Silicon Project from Picton (where it was constrained and where there were air quality concerns) to the new industrial site at Kemerton. The establishment of an industrial site at Kemerton was controversial and the Government was keen to have some industries begin to establish at the site, given that the Aluminium Smelter project (for which the industrial area had been formed) had been abandoned. There was concern at the time that if this did not happen quickly then the Kemerton Industrial area might revert to its previous rural status.

4. The EPA then did a brief assessment of the Silicon Smelter Proposal for the Kemerton site without requiring the proponent (Barrack Silicon, later Simcoa) to do any further work or public consultation. The EPA did not require the proponent to prepare a new PER for Kemerton, instead taking the Picton information and EPA assessment and applying it to the Kemerton location. The EPA advice on the quarry remained unchanged from the earliest advice (for Wundowie).

Therefore, by mid 1988, the Silicon Project at Kemerton with the quarry at Moora had been approved by the EPA and Minister for the Environment as follows:

a) EPA Bulletin 279, May 1987 (for the Wundowie plant site)
b) EPA Bulletin 326, March 1988 (for the Picton plant site)
c) EPA Bulletin 328, April 1988 (for the Kemerton plant site)
d) in all of the above, the quarry was to be located at Moora but it was all very notional and with no detail being provided. This was reasonable given that the development of the quarry could be well managed via the Simcoa Agreement Act 1987 and the Mining Act.
e) Ministerial Statement No 027 of May 1988 which covers the Kemerton project and mining in Moora. Only 1 Condition (#12) applies to the mine site relating to *Regelia megacephala* only.

The EPA Assessment Report for the Kemerton site (Bulletin 328, p.21) refers to "*Other considerations regarded as of lesser environmental significance*" which includes the minesite at Moora and the recommendation on the rare plant (*Regelia megacephala*) at the minesite. This is the only issue on M70/191 considered or reported on by the EPA.

Therefore, mining activities on the whole of M70/191 were already fully approved as at May 1988 when the EPA carried out its assessment in accordance with the Environmental Protection Act, 1986, and reported that the Silicon Smelter at Kemerton and the quarry on the Moora leases were environmentally acceptable. The Minister for the Environment then issued Statement No 027 on the EPA's advice.

5. In the above approvals the Minesite consists of (at least) M70/191 plus General Purpose Leases G70/91, G70/92 and G70/93 plus M70/425, M70/424, and MLA70/1055 as shown on the map of the Moora leases. No other details about the quarry were provided or asked for as the assessment focus was on the silicon smelting plant at Picton/Kemerton with the quarry being regarded by the EPA as being "*of lesser environmental significance"* (EPA"s own words in its assessment).

The minesite/quarry map in #1 above (dated 1986) was formally submitted to the Minister for Resources Development, in accordance with the Simcoa Agreement Act requirements, and the environmental approvals obtained in May 1988 therefore cover all quarrying activities on the Moora leases associated with providing the quartz resource to the silicon smelter at Kemerton.

The definitions in the Agreement Act under which the project is managed include:

""approved proposal" means any proposal approved under this Agreement;" and

""Mining Lease" means mining Lease No. 70/191 and any mining lease or mining leases that be granted in respect of lands the subject of the Prospecting Licences pursuant to application by the Company under section 49 of the Mining Act and includes any extension or variation of such leases from time to time and any replacements thereof."

These definitions allow for new or additional leases to be added in as part of the same already approved project. Therefore new areas such as north of Kiaka Road can be added in without further EPA assessment but would be subjected to the same conditions as imposed on the leases approved in May 1988. The later s46 assessment initiated by Simcoa in 2001 also set to formalize a strategic long-term approach incorporating the advice of the EPA and Commonwealth departments in 2001 (see under # 12 later).

6. In May 1991 a report on a 25-year mine plan for the Moora Mine (1991 – 2015) was submitted to the Minister for Resources Development and Minister for Mines in keeping with the requirements under the Silicon (Kemerton) Agreement Act 1987 (Simcoa, 1991). Figure 3 of January 1991 (called Plan No 3 in Simcoa, 1991) shows the planned open pits belonging to the 25-year mine plan and native vegetation areas on M70/191 (also known as Ted Griffin's Map (see Griffin, 1992)). This plan was approved by the Mines Department.

The 25 year Mining Plan foreshadows mining below the water table in the above Mining Lease (M70/191). That report states:

"*Deep drilling is planned at the end of 1991 to explore for high quality quartzite below the planned depth (at 217m) of the current open pit*." (ie the Main Pit)

"*Successful mining at depth will depend on the movement of groundwater. Successful exploration and mining at depth will obviously extend the life of the current pit*" (see Section 4.1 of the above Report).

As the whole area of M70/191 was already fully approved by the EPA for mining in 1988, clearly the above statements would apply to any pit developed anywhere on M70/191 at any time. Additionally, the plan approved by the Mines Department in 1991 was for mining development up to 2015, a date that we have not yet reached.

7. In March 1992 a report on pit expansion and future mine development (Simcoa, 1992) was submitted to the Mines Department as required under the Silicon (Kemerton) Agreement Act 1987. (It should be noted that the Notice of Intent referred

to here is under the Agreement Act and not the Environmental Protection Act which had a document using the same name at the time). The report covered mining on M70/191and especially focused on the "Main Pit Area" which included areas identified as:

Main Pit
Open Pit West
South Extension
South East Pit
Eastern Extension

As the leases contain quartzite of varying quality, better overall use of the resource is obtained by blending material from several pit areas. Page 13 (Section 7.1) of Simcoa, 1992 states that significant quantities of waste will be generated before any backfilling of open pits is possible. In total, the above pit areas covered a very substantial area on the lease (see Simcoa, 1992, Section 3, p.7). The report outlines a mining plan that includes mining below the water table and there was a general presumption by Mines Department and Department of Resources Development, in administering mine development at Moora, that mining below the water table was just a matter of cost only, and a decision for Simcoa to make at the appropriate time. Page 10 of the report describes ore-grade quartzite occurring down to 185mRL and to 165mRL.

If protection/conservation of the Threatened Ecological Community is the environmental priority at the Moora site, which all later assessments have stated, there is obvious merit in Simcoa mining deeper within its existing pits as this will reduce the overall footprint of the mine, minimise overall surface disturbance within M70/191 and other leases, and thereby increase the area of the TEC protected from mining and remaining undisturbed.

8. In August 1992 the Minister for the Environment's Statement (Statement No 027 of May 1988) was amended to include new standard conditions then being applied to new assessments by the EPA "system". The change was initiated by the EPA under s46 apparently because the proposed change was "*in direct conflict with Condition #3*" of Statement 027 (see EPA Bulletin 631). The change to Conditions meant that changes to a proposal could be made by a proponent and would be regarded by the EPA as "not substantial" as long as a Company to continued to operate within its Ministerial approval. In Simcoa's case this meant continuing to operate in accordance with the requirements of Statement 027 and the revisions in Statement 279 and associated EPA assessment reports.

A new Ministerial Statement No 279 was published by the Minister for the Environment on 10 August 1992.

9. In January 1993 AGC Woodward Clyde prepared a report on dewatering for Simcoa with the upfront stated assumption being that the mining strategy is to mine to 201mRL and possibly deeper (ie to the 185/165mRL already approved by Mines and Department of Resources Development in the 1992 report of Simcoa (Simcoa, 1992)).

10. An internal Simcoa report dated 30 June 1995 shows the status of reserves and includes a statement that shows areas for mining below the water table as included areas. The internal report states:

"*Possible reserves within the pit expansion below the water table (shown as extending down below the water table for around 50m, from approx 23mRL down to 75mRL)*"

11. Under the Agreement Act requirements, Simcoa sought to change from the No 2 Pit foreshadowed in point #4 above, to a different pit location but still within M70/191. At the time this request was routinely sent from the Department of Resources Development (DRD) to the Department of Conservation and Land Management (CALM), the Department of Environmental Protection/EPA and other agencies for comment. As the document had been called a "Notice of Intent" to comply with Agreement Act requirements, it was picked up into the EPA "system" and misinterpreted as being a Notice of Intent (NoI) for a new "proposal" under the Environmental Protection Act, 1986. EPA officers did not investigate the history of the approvals in place for the quarry before doing this. This is when Sally Robinson first became involved as a Consultant with the Simcoa project and looked at the whole approvals history which demonstrated that this was not a new proposal but a continuation of an existing approved project. Amendments to the mine plan were being put forward on the same lease as had already approved in full for mining in accordance with approved mine plans under the Mines and Agreement Act as well as full assessment by the EPA in 1986. Furthermore, the definitions in the Agreement Act permitted what was being put forward without any further assessment being required.

Detailed vegetation mapping by Simcoa had shown that special vegetation occurred in association with the Coomberdale Chert resource (the source of the quartzite it was mining) and the Company decided to seek amendment of the environmental conditions for the quarry to obtain EPA's approval of a long-term mining and conservation strategy involving environmental offsets as the best means of achieving ongoing access to the resource over the long-term, as well as significant conservation outcomes.

The Simcoa WA Agreement Act and Mining Act allow for flexibility in the actual location of quarry areas within the leases via the submission of mine plans, as long as they are consistent with approvals already gained through the Environmental Protection Act. Simcoa was keen to have certainty into the future over continuing access to the high-grade quartz it requires and therefore sought EPA approval on the environmental acceptability of the package offered by Simcoa as an environmental offset to achieve approval to develop a long-term strategic approach to mining and conservation between Simcoa and CALM, as well as immediate access to the high grade resource in the Western Ridge within the Simcoa Leases.

Simcoa also wanted the EPA involved because of the potential for involvement by the Commonwealth under the Environmental Protection and Biodiversity Conservation Act (EPBC Act) over the Coomberdale Chert Threatened Ecological Community which occurs on the leases (see point #15 later).

Simcoa put forward a package of measures to ensure long-term access to resources and immediate access to the high-grade quartzite deposit in the Western Ridge area at Moora on the lease already assessed by the EPA in 1986. This package included relinquishing its lease over Cairn Hill to enable conservation of that area to occur (see Appendix 2 in EPA, 2001).

Simcoa also invited the EPA to amend or add several Conditions to properly reflect the conservation values of the area, Simcoa providing the draft Conditions in its report. In effect this would bring the first (1986) assessment fully up to date on the vegetation issues. In 2001, at the time of this work, none of the Coomberdale Chert Threatened Ecological Community types from the Moora area was held within secure conservation reserve.

What Simcoa sought to do in opening the West Ridge Pit was in accordance with approvals that it already held, and EPA's involvement in 2000/01 was on the issue of the long-term strategic approach and offset package, and to address the possible involvement of the Commonwealth via the EPBC Act.

The EPA Chairman agreed with the approach put forward by Simcoa and to deal with the issue as a s46 to amend the Conditions, as this would also provide the EPA with the opportunity to report to the Commonwealth on the Coomberdale Chert Threatened Ecological Community under the EPBC Act.

12. In May 2001 Simcoa submitted a report on the amendments under s46 of the Environmental Protection Act (Robinson, 2001).

This report was not a referral of a new "Proposal" under the Environmental Protection Act, 1986 and sought a change to the Environmental Conditions only, to accommodate an environmental offset approach to ongoing mining on the previously approved Moora leases.

Simcoa gave a commitment that it would relinquish its interests in Cairn Hill if approvals to mine the Western Ridge and a commitment to guarantee long-term access to resource were provided.

The offset approach was proposed by Simcoa to address the fact that it had identified that there was significant vegetation on the leases (the TEC) and that once disturbed the vegetation association and certain species could not be used in conventional rehabilitation because of their particular adaptations to growing in fractured rock crevices. In waste rock situations they are out-competed by other species that are unable to thrive on the undisturbed fractured rock. Knowing this, Simcoa's approach was to offer a large area of the Threatened Ecological Community for secure reservation rather than wasting resources on rehabilitation that was destined not to work. This issue is addressed in more detail later (see #19 on "Completion Criteria").

13. In September 2001 EPA issued its report on the above strategic approach to mining over the long term titled "Extension of Quartz Mining and Strategy for Resource Access and Biodiversity Conservation: Simcoa Operations Pty Ltd" (EPA Bulletin 1027). This report recognised that the offset was very generous and was being offered against both immediate access to the Western Ridge area and to

additional areas to be identified as part of the long-term mining strategy. Some aspects particularly relevant to understanding the intention of the EPA in this assessment are stated below.

The EPA supported both the environmental offset approach and the long-term strategic approach to mining, recognising that the offset would only occur when Simcoa was assured of guaranteed long-term access to the quartz resource in the Moora leases. In fact it was made clear at all times that Simcoa should not relinquish its interest in Cairn Hill until such time as the long-term strategy was in place.

The EPA report recognised that the land affected by mining would return to its previous use of grazing and hence that extensive rehabilitation with the native species was not expected when it said:

"Recognising its responsibility to manage mining impacts on flora of conservation significance and that ultimately, when mining operations are concluded, the land would probably be returned to its previous use of grazing (also destructive to rare and priority flora), Simcoa is seeking to work in cooperation with Department of Conservation and Land Management to identify areas that would be most valuable for transfer to conservation estate in return for securing access to additional areas on their mining leases." (EPA, 2001, p.1).

The EPA report clearly outlines that the variation to conditions *"is to underpin mining on the Western Ridge within M70/191 (in the short term) and secure development of a strategy to guarantee mining and conservation in the long term."* (EPA, 2001, p.2).

The EPA report (Bulletin 1027) stated the scope of the report and the proposed variation to the Conditions as being:

"This report and proposed variation apply to Simcoa's mining leases as defined under the Silicon (Kemerton) Agreement Act 1987 (as amended*)."* (EPA, 2001, p.i)

The Silicon (Kemerton) Agreement Act 1987 defines the mining leases as those being held by the company from time to time and includes additions and replacements within the definition of "the Leases". Therefore the scope of the 2001 assessment by the EPA covers the Leases held in 2001 as well as those necessary to give effect to the assessment by the EPA in terms of the agreed strategic mining and conservation approach. The latter include the lease areas to the north of Kiaka Road.

In section 3 of its report, under "relevant environmental factor", the EPA report states:

"*Having considered Simcoa's documentation, independent expert opinion, appropriate references and advice from the Department of Mineral and Petroleum Resources (MPR; formerly the Department of Resources Development and Department of Minerals and Energy) and the Department of Conservation and Land Management (CALM), it is the EPA's opinion that its report only needs to address the following relevant environmental factor:*

- *Conservation of Threatened Ecological Community and Declared Rare and Priority Flora."* (EPA, 2001, p.2).

The area considered by the EPA for its assessment of this factor was the whole of the Coomberdale Chert (EPA, 2001, p.2). The Coomberdale Chert is linearly extensive running north into the Watheroo national Park, and includes the areas to the north of Kiaka Road.

The EPA supported the proposed offset strategy as well as co-operation between Simcoa and CALM in developing a long-term strategic approach to maximizing access to the resource whilst also achieving conservation outcomes for the TEC in the area. CALM at the time recognised that without the mining at Moora there would be no conservation of the TEC and that Simcoa's activities were providing a unique opportunity to secure for the State, conservation of the Coomberdale Chert vegetation (TEC), of which none of that type was in secure reserve at the time. This included Cairn Hill which CALM regarded as the conservation "jewels in the crown" of the TEC.

The offset package put forward by Simcoa was included as a statement in the EPA's report and the main feature was that in exchange for being able to mine the West Ridge pit and guaranteed long-term secure access to quartzite at the Moora mine, Simcoa would relinquish its lease over the Cairn Hill area so that it could become a Nature Reserve. Cairn Hill was an offset that was to apply to both the agreement to mine the West Ridge pit within the leases and the development between CALM and Simcoa of a strategic approach to mining over the long-term, to achieve both mining and conservation outcomes.

The EPA Assessment Report on the s46 and its media release stated the following:

"*The EPA has concluded that Simcoa has proposed an approach to its mining requirements which would provide both access to resources and improved conservation outcomes."* (see EPA Bulletin 1027); and

"*In supporting the proposal, EPA Chairman Bernard Bowen said that the EPA had concluded that Simcoa had proposed an approach to its mining requirements which would provide both long-term access to resources and improved conservation outcomes for the community and the State. The EPA report sets out a way forward covering all of the mining leases held by Simcoa in the area*." (see EPA News Release document of September 2001).

The EPA submitted 3 recommendations to the Minister for the Environment as follows:

1. *That the Minister for the Environment and Heritage note that this report is pursuant to Section 46 of the Environmental Protection Act 1986 and is about providing Simcoa with access to resources, both in the short and longer term, while at the same time achieving beneficial conservation outcomes for the community and the State;*

2. *That the Minister for the Environment and Heritage note that the EPA has concluded that, if implemented according to the EPA's recommended conditions and procedures (Appendix 7) and the proponent's environmental*

commitments, the environmental objectives, including CALM's conservation objectives, can be achieved;

3. That the Minister for the Environment and Heritage;

- *amends the conditions as set out in Appendix 7;*
- *provides permission to take the Declared Rare Flora in accordance with the advice of CALM; and*
- *advises the Minister for State development that there is no objection to access to additional resources, both in the short and longer term, under Silicon (Kemerton) Agreement Act 1987 (as amended) provided that such access is consistent with the amended environmental conditions and procedures and the proponent's commitments."* (EPA, 2001, p.i & 5).

14. EPA Bulletin 1027 included several significant Appendices, including:

- Appendix 2, Proponent's mining and conservation package for mining in the short-term (Western Ridge) and long-term;
- Appendix 3, CALM's response to the proposed mining and conservation package (letter dated 6 August 2001 and signed by John Blyth);
- Appendix 4, CALM's response to application to take declared rare flora (letter dated 22 August 2001 and signed by Dr Keiran McNamara); and
- Appendix 5, Letter from the Department of Mineral and Petroleum Resources regarding proposed A-Class Nature Reserve.

Of particular note are statements in the CALM letter (Appendix 4 above) as follows:

"*I am of the view that the overall proposal from Simcoa will result in considerable benefit for biodiversity conservation in the Moora area, while providing greater certainty to long-term access for Simcoa*." (page 1 of letter).

"*the department …. commits itself to co-operating with Simcoa in developing and implementing strategies designed to ensure ongoing access to resource, while at the same time achieving desired nature conservation goals, in the long-term."* (page 2 of CALM letter).

The letter also "*strongly supports*" the commitment by Simcoa to *"..carry out further reconnaissance exploration to try and identify other parts of the Coomberdale Chert formation both within and outside current lease areas which may contain sufficiently high-grade quartz in areas where the chert-associated vegetation is already degraded or absent."* (page 2 of CALM letter).

CALM also agreed to co-fund the detailed vegetation surveys with Simcoa.

The CALM letter also supported Simcoa's commitment to rehabilitation trials using DRF plants and Priority species removed by their mining operation and acknowledged that *"it is possible that, following the completion of mining, the site will revert to farmland that will be grazed by domestic stock, these trials will be of value in terms of learning more about, and providing seed nurseries for, some rare species."* (page 3) *Acacia aristulata* was a target species. Full rehabilitation using local flora species was never envisaged or required.

The CALM letter concluded by saying that:

*"Thus there is the potential for considerable conflict between Simcoa's needs and those of biodiversity conservation. The proposal by Simcoa is a progressive and responsible attempt to solve this problem by concentrating on quartz resources where the native vegetation is highly degraded, and by relinquishing their leases over areas where the vegetation is in good condition." (*page 3)

"*Officers of the Department have spent considerable time and effort negotiating these arrangements with Simcoa, and have been impressed by the company's commitment to conserve the biodiversity of the Coomberdale Hills."* (page 3)

15. On 13 August 2001, Simcoa notified the Commonwealth (in accordance with the EPBC Act) of the vegetation issues at the minesite and the EPA's assessment and advice.

The EPA Chairman (Bowen) decided to inform the Commonwealth after the EPA had completed its assessment of the environmental offset package and on 20 September 2001 the EPA Chairman wrote to Mr Gerard Early attaching the EPA report on the above (Bulletin 1027, EPA, 2001) and recommending that no further assessment would be required. He also specifically discussed the vegetation matter with Mr Early by phone.

Simcoa has met the requirements of the Commonwealth EPBC Act by advising the Department of Environment & Heritage of Simcoa's operations on its Moora leases and the impacts on the TEC. Additionally the EPA directly managed the issue of the EPBC Act with the Commonwealth and no further Commonwealth involvement was required.

16. On 6 November 2001 the Minister for Environment issued the amended Conditions based on the above EPA Bulletin (Statement No 575).

17. Therefore, by November 2001 the environmental approvals already granted relating to the Moora leases include the following:

a) full approval for mining on any part of M70/191 and for the Main Pit (Pit No 1) and South Hill Areas (Pit No 2) granted without limitations in the Ministerial Statement of May 1988 (14 Conditions were applied, only one of which relates to the mine site – *Regelia megacephala*) and EPA Bulletin 328 of April 1988.

b) Approval to include mining in the West Ridge pit and of the offset approach to developing a strategic long-term mining strategy favouring areas of absent or degraded vegetation;

c) mining at depth in all areas of M70/191 covered by the statement in the 25 year Mining Plan document (see #6 earlier) with a depth down to 165mRL being approved in 1992;

d) the map in the West Ridge Report (Map 4, in Robinson, 2001) shows the pit design boundary. This map shows the proposed open pit on the West Ridge as well as the development envelope for the Main Pit mining area. It shows the pit design boundary as going around the South Hill area and it is therefore reasonable to assume that the South Hill area will also be mined at some time.

e) the media release for EPA Bulletin 1027 states:

"The EPA report sets out a way forward covering all of the mining leases held by Simcoa in the area."

The above statement makes very clear what the EPA's understanding and intention was at this time. The Agreement Act definition of Leases covers any leases that Simcoa may hold from time to time, including replacements and additions, therefore the above statement by the EPA also covers any leases that are or may be involved in the strategic mining/conservation approach to be developed by Simcoa in consultation with CALM (the conservation agency at the time) such as those areas north of Kiaka Road. Simcoa moving into this area ahead of (say) Cairn Hill North or the Eastern Ridge has been done with the full support of CALM <u>as being the best way forward to achieve both mining and conservation outcomes over the long term</u> as required by the EPA in its assessment and by the Minister's Conditions in Ministerial Statement No 575.

18. A Minister for Resources Development letter of 8 January 2002 provides unconditional approval to mine the West Ridge area, accepting it formally as an "Additional Proposal" under Clause 8 of the Agreement Act. The Minister's letter states that his approval is under the provisions of Clause 8(3)(a) of the Agreement. This Clause provides for approval "either wholly or in part without qualification or reservation". The letter provided approval "in whole" as submitted and did not excise any of the areas from mining that were shown on the original 1991 25-year mining plan as being subject to future mining.

19. On various dates through 2002 Simcoa met with relevant key people to discuss the issue of "Completion criteria" for the Moora Quarry leases and reach agreement on what should occur. There are numerous memos that can be provided to support this. Meetings included Simcoa, officers from CALM (John Blyth, Andrew Burbidge, Ken Atkins and others), DEC/EPA (Tim Gentle), Mines (DMP), DRD, vegetation specialists and other consultants.

Dr Andrew Burbidge (at that time with CALM) made it very clear that CALM's view is that rehabilitation back to pasture is what is required, with conservation outcomes to be achieved through environmental offsets (this view reflects that in the CALM

letter forming Appendix 4 of EPA Bulletin 1027, quoted above in #4). It was recognised by all present that while trials should continue to try and germinate, grow and establish species of the DRF and Priority flora removed by mining, they are unlikely to be successful (persist) in broad scale rehabilitation and that rehabilitation back to original species is not what is being expected on any of the disturbed areas.

In terms of "completion criteria" the end use of the quarry could not be determined as the local government had indicated that it may want the area left open as an ongoing source of material for road building. Others had suggested that the void(s) should be left and used to store water for the district as the quality of the water is very good and suitable for human consumptive use.

All present agreed on the above outcomes as the way forward, however, these agreements have not been picked up or properly followed through in the EPA audit "system" by EPA officers and also have not been reflected accurately in the Audit Elements associated with the Minister's Conditions.

20. On 5 June 2002 Ministerial Statement No 593 was issued. This Statement deleted Condition No 13 of Statement No 027 and inserted a new Condition No 13-1 and Table 1 relating to sulphur dioxide emissions at the Kemerton baghouse.

No other changes were made.

21. In November 2002 Simcoa noticed some discrepancies had been introduced between what the EPA had said in its assessment report (Bulletin 1027) and the Minister's Conditions, and in particular how these statements had been interpreted by the EPA's Audit Branch. At the time of the assessment the then EPA Chairman (Bernard Bowen) was keen to change the approach to auditing so that Audit Tables would be initially put forward by the Proponent and then the Audit Branch would liaise with the Proponent on an agreed set of audit elements. Unfortunately this did not occur for Simcoa and as a result some problems were introduced, arising from misinterpretation, lack of knowledge of the assessment, its purpose and the EPA's intent in providing its advice to the Minister (clear from Bulletin 1027) as well as the agreements reached later with other agency people on the practicalities or otherwise of rehabilitation with native species (see point #19).

The new audit elements required Simcoa to carry out re-vegetation actions or to meet coverage requirements that were in clear conflict with what had been agreed elsewhere (rehabilitation back to pasture, not native vegetation). It was inevitable that at some point, if not fixed, this would cause Simcoa significant problems in terms of technical compliance.

A letter was sent to the EPA Chairman addressing these problems and asking for the audit elements and Conditions to be amended via a s46 to properly reflect what had actually been assessed and agreed. The purpose was to bring in line the audit elements relating to the offset package, rehabilitation and completion criteria.

EPA Chairman (Bowen) proposed handling these issues "administratively" just by adjustments to the Audit Table but there were concerns about this approach as it would leave the problem Conditions as worded and result in a lack of legal certainty

for Simcoa into the future, especially as staff are lost or change jobs and there is a loss of corporate knowledge within the EPA "system" about the "understandings" reached, and the rationale behind them.

Because of this a s46 "non substantial Change to Conditions" was initiated by Simcoa but was not completed by the EPA at the time, instead EPA used the administrative approach. Several of the Conditions remain problematic and are now inconsistent with the intent of the EPA in its 2001 assessment, with the result being that expectations now differ from what was put forward by the EPA at that time.

22. On 11 May 2006 Simcoa referred the addition of a 3rd furnace at Kemerton to the EPA.

On 17 May 2006 the EPA Chairman (Wally Cox) approved this change to proposal and wrote to Simcoa stating:

"Under Section 45C of the Environmental Protection Act I am able to approve a change to a Proposal, without a Revised Proposal being submitted to the EPA, when it is considered that the change will not have a significant detrimental effect in addition to, or different from, the effect of the original Proposal."

The Simcoa referral document showed an increase in mining of quartzite from 80,000 to 120,000 tonnes/yr at the Moora mine as being the only change at the minesite. Therefore the EPA's statement includes that the foreshadowed increased mining also would "*not have a significant detrimental effect in addition to, or different from, the effect of the original Proposal*."

An increase in the annual output of the mining operation from 80,000 to 120,000 tonnes/year (including increased trucking movements) has therefore also been assessed and found to be environmentally acceptable as part of the 3rd furnace application. This rate of mining is only slightly higher than the 100,000 tonnes/year initially sought by the Company and approved in 1986.

23. In early 2009, Simcoa referred the addition of a 4th Submerged Arc Furnace at the Kemerton Smelter site to the EPA. There is no mention of the quarry operations anywhere in the document and no changes to tonnages are sought. All necessary actions for the quarry "on the leases" had already already been fully approved.

The EPA carried out an assessment of the 4th furnace on referral information (ARI) and in April 2009 EPA issued its Bulletin (No 1317). In its report the EPA described the "proposal" as follows:

"*This is a proposal for an increase from the currently approved three submerged electric arc furnaces to four submerged electric arc furnaces at Simcoa's Kemerton site, and the associated increase in silicon production. Section 45B(b) of the EP Act makes provision for revised conditions and procedures following the referral of a revised proposal to the EPA."* (EPA Bulletin 1317, page 1)

Note that the above description of the "proposal" by the EPA correctly does not include any mention of the minesite at Moora or the quartz resource, as no changes at

Moora were being sought or were required. The Moora quarry was not part of the proposal as it was already established and operating fully in accordance with its earlier approvals, including the approval to increase the rate of mining to 120,000 tonnes/year which is adequate to supply the 4 furnaces, and its approval to mine below the water table to 165mRL.

In addition to assessing the 4th furnace at Kemerton, the EPA decided to use the referral to consolidate all the prior Ministerial Statements. A new Ministerial Statement No 813 is issued in November 2009. Unfortunately, instead of just consolidating all the previous Ministerial Statements (No 027 (of 1988), No 279 (of 1992), No 575 (of 2001) and No 593 (of 2002)) and amending them (if necessary) to include the 4th furnace, the EPA developed and added in new tables of characteristics of the proposal for both the Kemerton site and the Moora mining area that conflict with approvals already gained by the Company. The mining area has never had such a table before, and the characteristics for the minesite used by the EPA are not based on any documentation on the quarry provided to the EPA at any time and no assessment by the EPA to justify them. Some of these "characteristics" are in conflict with longstanding approvals already held and are likely to cause uncertainty and operational problems for Simcoa as it tries to move ahead within the approvals already held. The EPA and Simcoa need to revisit the Conditions in Statement 813 to correct the conflicts introduced in that Statement. These include taking into account that Simcoa already held approvals to mine below the water table to a depth of 165mRL, at the time that Statement 813 was issued by the Minister.

24. On 30 September 2011, Department of Mining and Petroleum attached a Schedule to M70/191 varying the existing Condition of Grant by requiring a "Mine Closure Plan" be submitted in the Annual Environmental Report (AER) for the 2012 year.

Simcoa contracted this out to Mine Earth and a report was prepared. Simcoa also contracted out development of a Rehabilitation Plan to Ecoscape. Both reports use Ministerial Statement No 813 as the basis for their undertakings, thereby compounding the problems caused by the addition of the new (and inappropriate) Conditions in November 2009.

25. On 6 September 2012 Simcoa was issued with a Licence to dewater by the Department of Water. Earlier documentation by Simcoa had indicated that dewatering would occur (see earlier points #6, #7, and #10).

The Department of Water in its Licence defined the aquifer as being a "fractured rock aquifer". It is reasonable to assume that as the Department issued the Licence it had no concerns about the movement of the groundwater, thereby satisfying the conditionality in the Simcoa statement made in 1991, and that there were no other concerns over dewatering that might prevent deepening within the existing pit footprints. Simcoa's 1991 Report on the 25 year Mining Plan states:

"*Successful mining at depth will depend on the movement of groundwater. Successful exploration and mining at depth will obviously extend the life of the current pit*" (see Section 4.1).

In terms of achieving maximum protection the Threatened Ecological Community the issue of mining at depth is an important one. Going deeper within the existing pits will minimise the area of land disturbance and hence enhance protection of the TEC as a smaller footprint within ML70/191 and other leases will be the result. Even a few metres of additional depth would enable mining of several additional benches within the existing pit areas.

26. On 23 August 2013 Simcoa's and DPAW reached agreement on the ore body areas to be mined north of Kiaka Road and the areas of vegetation to be protected (see DPAW letter date 23 August 2013). DPAW strongly supports Simcoa's approach and requests Simcoa to relinquish Cairn Hill North to be made into a reserve to be contiguous with Cairn Hill. Simcoa agrees to do this.

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Prepared May 2014 by Ms Sally J Robinson, Environmental Consultant to Simcoa from 2000

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Extension of Quartz Mining and Strategy for Resource Access and Biodiversity Conservation

Simcoa Operations Pty Ltd

Section 46 Report and Recommendations of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 1027
September 2001

ISBN. 0 7307 6652 7
ISSN. 1030 - 0120
Assessment No. 1383

Summary and recommendations

Section 46(1) of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment and Heritage on whether or not the proposed changes to conditions and procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

This report provides the EPA's advice and recommendations to the Minister for the Environment and Heritage on the environmental factor, conditions and procedures relevant to the proposed variation to conditions.

Scope of report and proposed variation

This report and proposed variation apply to Simcoa's mining leases as defined under the *Silicon (Kemerton) Agreement Act 1987* (as amended).

Relevant environmental factor

It is the EPA's opinion that the following is the environmental factor relevant to the proposed variation, which requires detailed evaluation in the report:

- Conservation of Threatened Ecological Community and Declared Rare and Priority Flora.

Conclusion

The EPA has concluded that Simcoa has proposed an approach to its mining requirements which would provide both access to resources and improved conservation outcomes.

The EPA considers that conditions attaching to the environmental approval should be updated. It has therefore reported also on the updating of conditions.

Recommendations

The EPA submits the following recommendations:

1. That the Minister for the Environment and Heritage note that this report is pursuant to Section 46 of the *Environmental Protection Act 1986* and is about providing Simcoa with access to resources, both in the short and longer term, while at the same time achieving beneficial conservation outcomes for the community and the State;
2. That the Minister for the Environment and Heritage note that the EPA has concluded that, if implemented according to the EPA's recommended conditions and procedures (Appendix 7) and the proponent's environmental commitments, the environmental objectives, including CALM's conservation objectives, can be achieved;
3. That the Minister for the Environment and Heritage:
    - amends the conditions as set out in Appendix 7;
    - provides permission to take the Declared Rare Flora in accordance with the advice of CALM; and
    - advises the Minister for State Development that there is no objection to access to additional resources, both in the short and longer term, under the *Silicon (Kemerton) Agreement Act 1987* (as amended) provided that such access is consistent with the amended environmental conditions and procedures and the proponent's commitments.

Contents

1. Introduction and background

Simcoa Operations Pty Ltd (the proponent) has two operations in Western Australia:

- a minesite at Moora (mineral lease ML70/191); and
- an industrial plant at Kemerton that produces silica from the chert mined at Moora.

The regional setting of the industrial plant and minesite are shown in Figures 1 and 2 in the proponent's document (Robinson 2001).

The industrial plant and minesite have been assessed and reported on by the EPA previously and the Statement was issued by the Minister for the Environment in May 1988 and amended in August 1992 to incorporate standard Conditions at the time.

The single condition relating to the minesite states:

"The proponent shall monitor the effect of mining activities on the population of Regelia megacephala on the minesite with a monitoring programme approved by the Environmental Protection Authority before mining commences and to manage the effects of mining activities on this species to the satisfaction of the Environmental Protection Authority."

This condition does not actually restrict Simcoa from mining in areas containing *Regelia megacephala* on ML 70/191 but does require that Simcoa manage the effects of mining operations on the *Regelia megacephala* population.

Regelia megacephala (a Priority species in its own right and part of a Threatened Ecological Community) is closely associated with the Coomberdale Chert of the Moora region. Whilst chert is not rare, the chemical and physical characteristics of chert that is suitable for processing at Kemerton are critical and there are no other known chert resources in Western Australia with the required characteristics.

Simcoa would now like to mine a small area on ML70/191 known as the Western Ridge[1] (see plans 3 and 5 in Robinson 2001). The vegetation on this ridge is dominated by *Regelia megacephala.* Furthermore, recent vegetation surveys have identified other species of conservation significance (including one species of Declared Rare Flora) to be present. Rehabilitation trials thus far have shown that *Regelia* can be successfully regenerated but individual plants are unlikely to survive in the long term in the modified environment after mining, although the seed can be sustained. When the above environmental condition was framed there was no knowledge of the presence of the DRF species or the sustainability of *Regelia* regeneration.

Recognizing its responsibility to manage mining impacts on flora of conservation significance and that ultimately, when mining operations are concluded, the land would probably be returned to its previous use of grazing (also destructive to rare and priority flora), Simcoa is seeking to work in cooperation with the Department of Conservation and Land Management to identify areas that would be most valuable to transfer to conservation estate in return for securing access to additional areas on their mining leases. This arrangement would need to be formalised and included in Simcoa's Environmental Conditions. The opportunity could also be used to include other Conditions that have now become standard.

The Simcoa operations are also covered by the *Silicon (Kemerton) Agreement Act 1987*. The matters that are the subject of this report also require the approval of the Minister for State Development.

[1] There are two areas of interest for mining on ML 70/191 that contain uncleared native vegetation; the Eastern Ridge being the largest and the Western Ridge which is comparatively small (see plans 3 and 5 in Robinson 2001).

2. Proposed variation to conditions

The proposed variation to conditions is to underpin mining on the Western Ridge within Mining Lease ML70/191 (in the short term) and secure development of a strategy to guarantee mining and conservation in the long term. ML70/191 is the location of the existing Moora Quartz Mine, which is on private freehold farmland. The Western Ridge lies between the current open pit and the Midlands Road (Figure 2 in Robinson 2001).

The mined chert material is crushed and sieved on site and stockpiled during winter campaigns for subsequent rail transport to the Simcoa processing plant at Kemerton. This variation will not increase production or change existing operations. Its intent is to gain access to additional high-grade resources on the Western Ridge and elsewhere while also providing biodiversity conservation benefits for the community and the State.

The initial mining area, the Western Ridge pit area, will be progressively cleared of vegetation and mined in five stages over five to ten years.

3. Relevant environmental factor

Having considered Simcoa's documentation, independent expert opinion, appropriate references and advice from the Department of Mineral and Petroleum Resources (MPR; formerly the Department of Resources Development and Department of Minerals and Energy) and the Department of Conservation and Land Management (CALM), it is the EPA's opinion that its report only needs to address the following relevant environmental factor:

- Conservation of Threatened Ecological Community and Declared Rare and Priority Flora.

Description

The current mine, Western Ridge pit area and other prospective areas located in leases held by Simcoa lie in a group of vegetation types that is listed by CALM as a Threatened Ecological Community (Hamilton-Brown, 2000). Furthermore, a number of species of Declared Rare Flora (DRF) have been identified in these areas.

The scope of this variation is the Western Ridge and consideration of a package to achieve both long-term access to further resources and improved conservation outcomes for the benefit of the State. The Western Ridge is part of the Coomberdale (also known as Noondine) Threatened Ecological Community (TEC) listed by CALM. The area also contains the DRF species *Acacia aristulata*, the Priority 2 species *Cryptandra glabriflora* and the Priority 4 species *Regelia megacephala* (Trudgen, 2001). All of these species also occur in other areas on the Coomberdale chert. Some of these other areas are also within Simcoa's mining or exploration leases.

The Western Ridge pit would cover approximately 5 hectares and would require complete removal of vegetation. The pit is to have a maximum depth of 20 m (just above the water table), maximum length of 530 m and a maximum width of 130 m. The proposed mining waste dump has been located to prevent any additional impact on native vegetation (i.e. on previously cleared land).

Assessment

The area considered for assessment of this factor is the Coomberdale Chert.

CALM has indicated (*pers.comm*. cited in Trudgen, 2001) that it would regard the full extent of the Coomberdale Chert as being the unit of interest in terms of the occurrence of the Threatened Ecological Community for assessment purposes.

The EPA's environmental objective for this factor is conservation of the Coomberdale (Noondine) Threatened Ecological Community and Declared Rare and Priority Flora of the Coomberdale Chert.

Detailed information about the Coomberdale (Noondine) Threatened Ecological Community and about the Declared Rare and Priority Flora of the Coomberdale Chert is provided in Robinson (2001).

Proposed Resource Access and Conservation Package

Simcoa has proposed a Resource Access and Conservation Package as outlined below (from Robinson 2001).

Mine site rehabilitation plans have in the past been prepared and executed for the existing mining operation, but rehabilitation at the site represents a considerable challenge and it is almost certainly not possible to rehabilitate back to the original species and assemblages (Robinson 2001).

Regelia megacephala has been successfully regenerated in waste rock material but over a period of years has been out-competed by *Allocasuarina,* which also occurs on site. This is because *Regelia megacephala* is specifically adapted to growing in the very fine joints of the unmined chert rock and can send its roots for a long distance into very fine spaces. When grown on waste rock, other plants, which are not able to grow on the undisturbed rock, can grow more rapidly and grow over the *Regelia.* Expert opinion suggests, however, that the regeneration of *Regelia megacephala* is still valuable as it generates an ongoing source of seed and maximises maintenance of genetic diversity within *Regelia* populations (Robinson 2001)

Since it is not possible to replace the massive fractured rock, a more realistic approach to achieve long term conservation of chert-associated vegetation is for Simcoa to provide assistance through appropriate conservation initiatives which will protect areas from disturbance and lead to secure reservation of parts of the quartz material and its associated vegetation (Robinson 2001).

The EPA welcomes the proponent's statement of intentions in this regard as a strategy for ongoing management of the area in cooperation with CALM. The proponent's strategy is set out in Appendix 2 and summarised below (Robinson 2001).

- Simcoa is prepared to relinquish its interests in Cairn Hill if approvals to mine the Western Ridge and a commitment to guarantee long-term access to resource are provided;
- Simcoa will carry out additional reconnaissance exploration to identify other parts of the Coomberdale chert, both within and outside current lease areas, which may contain sufficiently high grade quartz in areas where the chert-associated vegetation is already absent or degraded;
- Simcoa is committed to cost sharing (maximum amount to be agreed) with the Department of Conservation and Land Management of regional flora surveys necessary to identify and map other parts of the Coomberdale Chert formation which may contain the same or other significant flora associated with the chert;
- Based on results of the geological and flora surveys, Simcoa is committed to development, in cooperation with the Department of Conservation and Land Management, of the best strategy to ensure access to the resource and conservation, in secure reserves, of the flora of the Coomberdale Chert;
- Simcoa is committed to carrying out rehabilitation trials with any DRF species removed by their mining operations. Rehabilitation trials with other priority species will also be established, in addition to the successful germination and establishment demonstrated with *Regelia megacephala* to date;
- Possible additional conservation offsets, such as the Cairn Hill North area and other significant areas of vegetation to form stepping stones or linkages with Cairn Hill and other ridges in the area;

- Funding (amount to be agreed) for fencing of significant areas of vegetation, whether part of reserves or other properties, and possible support for ongoing management costs (to cease at the time mining ceases).

A key aspect of the proponent's strategy is to relinquish its rights to Cairn Hill (see Figure 2 in Robinson 2001) to allow it to be transferred to an A-Class reserve for nature conservation. Simcoa offers this in return for access to the Western Ridge and Government commitment to long-term access to the chert resource through the establishment of a process whereby CALM and Simcoa work together to prepare a management plan for Simcoa's mining leases on the Coomberdale Chert. Simcoa would share costs with CALM for regional flora surveys on the Coomberdale Chert formation and provide some money for fencing of significant areas of vegetation for their protection from grazing by stock (Robinson 2001). The amount of financial assistance to be provided for these purposes has yet to be discussed and agreed.

The intention would be to identify other areas on the Simcoa leases or elsewhere on the Coomberdale chert that are suitable for mining and which have degraded or partially degraded vegetation. There may be cases where further offsets would be possible. In time, the Cairn Hill North area may also be able to be offered for reservation and provide a contiguous reserve with Cairn Hill. Other areas may be acquired that provide stepping-stones and linkages with Cairn Hill and other ridges in the area (Robinson 2001). None of the vegetation of the Coomberdale Chert in the Moora area is in secure reserves.

Cairn Hill is considered by CALM to be the "jewel in the crown" of the Coomberdale Chert area (A.Burbidge, *pers. comm*.). It contains all three DRF species known in the area (*Acacia aristulata, Daviesii dielsii* and *Synaphaea quartzitaca)* and is the only location where *Synaphaea quartzitaca* has been found. Cairn Hill also stands out from other areas for its species richness. This may reflect the exclusion of grazing from the area as well as the wide range of habitat. Cairn Hill is currently owned freehold by Westrail and most of the area is undisturbed native vegetation in very good to excellent condition, although there have been significant areas of disturbance for gravel extraction by the local Shire (Trudgen, 2001), most recently during the Moora floods when gravel was removed without permission to "take" being sought. Westrail is in the process of transferring the Cairn Hill land to CALM.

This conservation solution is dependent on Ministerial approval to 'take' DRF on the proposed Western Ridge mine extension. CALM has advised that the proponent's request for Ministerial 'approval to take' is being forwarded to the Minister, with a recommendation that it be approved as part of the overall package being proposed (see Appendix 3 and 4). The EPA endorses this proposed "approval to take".

The EPA would like to commend Westrail as the owner of Cairn Hill for agreeing with CALM to transfer it, at no cost, to the conservation estate in order to effect this solution. The relinquishment of the mining lease would need to take place in a timely manner and such that A Class Reserve status can be formalised with no opportunity for other tenements being pegged over the area in the interim. The EPA has proposed a new environmental condition and procedure to provide a mechanism for this purpose (see Appendix 7). The Department of Mineral and Petroleum Resources has confirmed that it has no objection to the proposal to gazette Cairn Hill as an A-Class Reserve for nature conservation (Appendix 5).

Summary

The vegetation on the Western Ridge and on the Coomberdale chert in general has high conservation value. None of it is currently in reserves and in the long term there is potential for further degradation from grazing even if mining were to cease.

The proposed action by Simcoa to mine the 5 hectare Western Ridge on ML 70/191 would not have a significant impact on the environment and in particular the DRF species *Acacia aristulata* and the Coomberdale TEC because:

- *Acacia aristulata* and the Coomberdale TEC are well represented in numerous areas outside the Western Ridge mining area as well as outside of ML 70/191.

- Simcoa would relinquish its Mining Lease over Cairn Hill in order to:
    1. ensure that *Acacia aristulata* and other Declared Rare and Priority Flora species are protected in secure conservation reserves; and
    2. obtain Government commitment to work co-operatively with Simcoa on a long-term strategy to meet the twin objectives of guaranteed mining access to the chert resources (for the Company) and conservation of representative examples of the Coomberdale TEC (for the State and community) in secure reserves.
- Simcoa would be providing a package of other conservation benefits including botanical surveys, developing a strategic approach to mining to protect flora, possible purchase of land with significant conservation values, and some fencing and management of protected areas as outlined above.

The EPA's recommended amendments to Environmental Conditions are given in Appendix 7.

The EPA has concluded that Simcoa has proposed an approach to its mining requirements which would provide both access to resources and improved conservation outcomes.

4. Recommendations

The EPA submits the following recommendations:

1. That the Minister for the Environment and Heritage note that this report is pursuant to Section 46 of the *Environmental Protection Act 1986* and is about providing Simcoa with access to resources, both in the short and longer term, while at the same time achieving beneficial conservation outcomes for the community and the State;
2. That the Minister for the Environment and Heritage note that the EPA has concluded that, if implemented according to the EPA's recommended conditions and procedures (Appendix 7) and the proponent's environmental commitments, the environmental objectives, including CALM's conservation objectives, can be achieved;
3. That the Minister for the Environment and Heritage:
    - amends the conditions as set out in Appendix 7;
    - provides permission to take the Declared Rare Flora in accordance with the advice of CALM; and
    - advises the Minister for State Development that there is no objection to access to additional resources, both in the short and longer term, under the *Silicon (Kemerton) Agreement Act 1987* (as amended) provided that such access is consistent with the amended environmental conditions and procedures and the proponent's commitments.

Appendix 1

References

Griffin, E.A., 1991. Letter to T. Parker, Simcoa Operations Pty Ltd, 10 April 1991.

Griffin, E.A., 1992. *Floristic survey of remnant vegetation in the Bindoon to Moora area, Western Australia.* Resource Management Technical Report 142, Department of Agriculture Western Australia.

Hamilton-Brown, S., 2000. Heath dominated by one or more of *Regelia megacephala*, *Kinzea praestans* and *Allocasuarina campestris* on ridges and slopes of the chert hills of the Coomberdale Floristic Region. Interim Recovery Plan No. 65, Department of Conservation and Land Management, Western Australia.

Robinson, S., 2001. *Variation to the Moora Quartz Mine on M70/191 (Western Ridge pit): Amendment to Conditions under s.46 of the Environmental Protection Act.* Consultant's report prepared for Simcoa Operations Pty Ltd.

Trudgen, M.E., 1985. *A report on the vegetation and flora of the proposed Moora silica mine site.* Prepared for Cliffs International Inc.

Trudgen, M.E., 2001. *A flora survey, floristic analysis and vegetation survey of the Coomberdale Chert TEC.* Prepared for Simcoa Operations Pty Ltd.

Appendix 2

Proponent's mining and conservation package for mining in the short term (Western Ridge) and long-term

(Extract from Robinson 2001)

5. ACHIEVING A BALANCE BETWEEN ACCESSING THE RESOURCE AND CONSERVATION IN THE SHORT AND LONG TERMS

With the proposed off-set arrangements being put forward by Simcoa, over 30% of the original area of the above species and communities would remain and furthermore a significant portion, (that most desired for conservation purposes) would become protected in secure reservation where under current land tenure and use none is secure.

5.1 A Strategy for the Short Term: Mining of the West Ridge

Mining of the West Ridge deposit would potentially affect an area of 5 ha of direct disturbance for the quarry, with an additional area for the waste dump.

To gain access to the West Ridge for mining would require permission to "take" the DRF, specifically the *Acacia aristulata*. CALM (pers. comm.) has indicated that removal of some 80 plants would be required.

Simcoa is committed to carrying out rehabilitation trials with any DRF plants removed by their mining operations. Rehabilitation trials with other Priority species will also be established, in addition to the successful germination and establishment demonstrated with the *Regelia megacephala*, to date. Although the *Regelia* is later out-competed by *Allocasuarina* when rehabilitation is carried out on fractured waste rock, the successful germination and re-establishment of the *Regelia* has still proved to be very valuable as a seed source and for maintaining genetic diversity.

Simcoa is prepared to relinquish its interests in Cairn Hill (ML70/1055) if approval to mine the Western Ridge is forthcoming as a matter of urgency, as well as a commitment which guarantees Simcoa ongoing, long-term access to resource, subject to other components of the off-set package. Additional off-sets for the longer term are addressed in Section 5.2.

The off-set proposals are contingent upon approval to mine being obtained within the timeframes required by Simcoa and will lapse if approval is not provided. If these circumstances were to eventuate, it would be Simcoa's intention to retain ML70/1055 and other lease areas.

5.2 A Strategy for the Long Term

To secure silica material of the required grade over the long term, Simcoa will need to have access to other sites within the Coomberdale (Noondine) Chert formation. The most prospective areas within existing Simcoa leases are the Cairn Hill area, Eastern Ridge and the ridge north of Kiaka Road.

Simcoa is prepared to relinquish its interests in Cairn Hill if approvals to mine the Western Ridge and a commitment to guarantee long-term access to resource are provided.

In addition to relinquishing its interests in the lease over Cairn Hill, Simcoa would do the following to secure long-term resources:

1. Simcoa will carry out further reconnaissance exploration to try and identify other parts of the Coomberdale Chert formation both within and outside current lease areas which may contain sufficiently high grade quartz in areas where the chert-associated vegetation is already absent or degraded.

2. Simcoa will commit to sharing the costs with CALM, of regional flora surveys necessary to identify and map other parts of the Coomberdale Chert formation which may contain the same, or other significant flora associated with the chert. An agreement on an appropriate maximum amount to carry out required reconnaissance surveys will have to be reached.

3. Using the results of (1) and (2) above, work closely with the Department of Conservation and Land Management to identify the best strategy that will ensure both access to resource, and the conservation, in secure reserves, of the flora of the Coomberdale Chert formation.

4. Simcoa is committed to carrying out rehabilitation trials with any DRF plants removed by their mining operations. Rehabilitation trials with other Priority species will also be established, in addition to the successful germination and establishment demonstrated with the *Regelia megacephala*, to date.

5. Over time, Simcoa will work with CALM and others, to try and secure additional off-sets, in particular the Cairn Hill North area, to enable this area to be managed as a single contiguous reserve with Cairn Hill.

6. Over time, Simcoa will work with CALM and others, to try and secure additional off-sets, for example significant areas of vegetation that would form stepping stones and linkages with Cairn Hill and other ridges in the area.

7. Simcoa is also willing to provide some money for fencing significant areas of vegetation, whether part of reserves or on other properties, and may be able to

assist with some ongoing management costs. The latter would cease at the time that mining ceased.

Appendix 3

CALM's response to the proposed mining and conservation package

Western Australian Threatened Species and Communities Unit

DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA

[Click here and type your title]
WA Wildlife Research Centre, Wildlife Place, Woodvale
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The Chairman
Environmental Protection Authority
PO Box K822
Perth WA 6842

Attention Mr Tim Gentle

Dear Bernard

PROPOSED s46 AMENDMENT TO CONDITIONS ON SIMCOA'S MOORA QUARTZ MINE (WEST RIDGE PIT)

As noted during discussions at the meeting held in Moora on 30/7/2001, the Department of Conservation and Land Management acknowledges the positive and cooperative approach adopted by Simcoa. The Department will be pleased to cooperate in developing and implementing strategies designed to ensure ongoing access to resource for Simcoa, while at the same time achieving desired nature conservation goals, in the long-term. Several specific commitments by the proponent, as listed in the document "Variation to Moora Quartz Mine on M70/191 (West Ridge Pit)" dated May 2001, are discussed below.

Commitment 1. "Simcoa is prepared to relinquish its interests in Cairn Hill if approvals to mine the Western Ridge and a commitment to guarantee long-term access to resource are provided."

This Department strongly supports this commitment, but notes the following caveats.

- The Department cannot guarantee that approval to mine the West Ridge will be given, or that approval to take the declared rare species occurring in the proposed mining area will be granted. However, the proponent's request for Ministerial 'approval to take' is being forwarded to the Minister, with a recommendation that it be approved as part of the overall package being proposed. I will forward you a copy of this Department's advice to the Minister when it is sent.
- Similarly, the Department cannot guarantee long-term access to resource for Simcoa, but commits itself to cooperating with Simcoa in developing and implementing strategies designed to ensure ongoing access to resource, while at the same time achieving desired nature conservation goals, in the long-term. The details of the Department's commitment are outlined against the appropriate other Simcoa commitments below.
- Finally, relinquishment of ML 70/1055 over Cairn Hill should occur at the same time as Class A reservation of the uncleared portion of Melbourne Location 909, Lot M574 is achieved. The timing of relinquishment also needs to be coordinated with the establishment of a Mining Act Section 19 reserve. The Department seeks non-Class A reservation of the cleared portion of Melbourne Location 909, Lot M574 to allow future land swaps in order to improve the conservation status of the threatened ecological community and threatened flora occurring on the Noondine/Coomberdale Chert.

I attach correspondence between Westrail and this Department agreeing to the transfer of the Cairn Hill Area to this Department for no consideration. Westrail should be congratulated for this generous donation.

Commitment 4 " Simcoa will carry out further reconnaissance exploration to try and identify other parts of the Coomberdale Chert formation both within and outside current lease areas which may contain sufficiently high grade quartz in areas where the chert-associated vegetation is already absent or degraded."

This commitment is central to the achievement of long term security of resource for Simcoa while also providing better protection for biological diversity and is strongly supported.

Commitment 5. "Simcoa will commit to sharing the costs with CALM, of regional flora surveys necessary to identify and map other parts of the Coomberdale Chert formation which may contain the same, or other significant flora associated with the chert. An agreement on an appropriate maximum amount to carry out required reconnaissance surveys will have to be reached."

This Department supports this commitment, and agrees to a cost sharing arrangement as suggested. I believe that agreement on the design, probable cost and funding of such survey can be reached quickly.

Commitment 6. "using the results of 4 and 5 above, work closely with the Department of Conservation and Land Management to identify the best strategy that will ensure both access to resource, and the conservation, in secure reserves, of the flora of the Coomberdale Chert formation."

This Department commits itself to the liaison and cooperation required to make this commitment work.

Commitment 7. "Simcoa is committed to carrying out rehabilitation trials with any DRF plants removed by their mining operations. Rehabilitation trials with other Priority species will also be established, in addition to the successful germination and establishment demonstrated with the *Regelia megacephala*, to date."

Although it is likely that, following the completion of mining, the site will revert to farmland that will be grazed by domestic stock, these trials will be of value in terms of learning more about, and providing seed nurseries for, some rare species. This Department supports the commitment, especially in relation to *Acacia aristulata*.

Commitments 8 and 9 refer to Simcoa working with this Department to try to secure additional areas of the Noondine Chert formation, such as Cairn Hill North, for inclusion in the conservation system. The Department is strongly supportive of these commitments and will be pleased to continue negotiations over these matters in the light of results gained under commitments 4, 5 and 6.

Please contact me if you have any further queries.

Yours sincerely

John Blyth

John Blyth
WA Threatened Species and Communities Unit
For Keiran McNamara
Acting Executive Director

6/8/2001

Appendix 4

CALM's response to application to take declared rare flora

Your Ref:
Our Ref: 1998F002098
Enquires: Mr Mike O'Donoghue
Phone: (08) 9334 0422
Fax: (08) 9334 0278
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DEPARTMENT OF
Conservation
AND LAND MANAGEMENT
Conserving the nature of WA

MINISTER FOR THE ENVIRONMENT AND HERITAGE

APPLICATION FOR A PERMIT TO TAKE DECLARED RARE FLORA (DRF)

The *Wildlife Conservation Act 1950* provides for flora to be declared rare, and that such flora may not be taken without the written consent of the Minister for the Environment.

The power to grant consent has, been delegated to the Department's Executive Director and Director of Nature Conservation where the conservation impact of taking is minimal, e.g. where the taking is for research and survey, often involving taking parts of plants, or where only a small proportion of a population is to be destroyed. More contentious situations, such as the permanent destruction of plants that will affect the viability of a rare flora population, are referred to you for approval.

Simcoa Operations Pty Ltd have sought approval to take up to 72 *Acacia aristulata* ms, a species of DRF which is currently listed as Endangered under IUCN criteria, to enable them to extend their quartz mine near Moora.

Simcoa propose to offset the loss of these plants by a variety of mechanisms designed to significantly improve the conservation of the species, and the Endangered "heath community on chert hills of the Coomberdale floristic region", with which it is associated.

The Company is prepared to relinquish its recently acquired mining lease over the nearby Cairn Hill area, which the Department is seeking to acquire as a nature reserve.

The Cairn Hill area is freehold land currently owned by Westrail, which has agreed to cede the land to the Department for no consideration, to enable this important conservation area to become a nature reserve. The relinquishment of the mining lease by Simcoa is conditional upon them being given approval to extend the mining within their existing lease, for approval to take *A. aristulata* ms, and for a commitment from the Department to co-operate with them in attaining long-term access to the high grade chert resource.

I am of the view that the overall proposal from Simcoa will result in considerable benefits for biodiversity conservation in the Moora area, while providing greater certainty to long-term access for Simcoa.

As noted in the application to take, the Environmental Protection Authority is currently assessing a proposal from Simcoa to amend the conditions, under Section 46 of the Environmental Protection Act, relating to the company's Moora quartz mine on Mining Lease 70/191.

A copy of the document proposing the variation is attached. Sections 5 and 6 (pages 29 to 33) in this document, outline the overall strategy and commitments made by the company to ensure ongoing access to resource for the company, while at the same time achieving nature conservation goals, in the long-term.

For your information, the Simcoa proposal seeks to take approximately 10% of the known plants of *A. aristulata* ms. Although this appears to be a significant proportion of the population, there will be approximately twice the number of plants left on the tenement area, and hence the local population/genotype should be retained. The conservation offsets in relation to this species include improved security of tenure over other populations, and its use in revegetation at the site. These offsets are described in the proponent's commitments outlined in the proposal for variation under Section 46 of the Environmental Protection Act, and are presented below, with the Department's response.

Commitment 1

"Simcoa is prepared to relinquish its interests in Cairn Hill if approvals to mine the Western Ridge and a commitment to guarantee long-term access to resource are provided."

The Department's response to the EPA in relation to Simcoa's proposal to amend conditions under Section 46 of the Environmental Protection Act was strongly in favour of this commitment, but suggested the following caveats:

- The Department cannot guarantee that approval to mine the West Ridge will be given, or that approval to take the DRF occurring in the proposed mining area will be granted. However, the proponent's request for 'approval to take' is being forwarded to the Minister, with a recommendation that it be approved as part of the overall package being proposed;

- Similarly, the Department cannot guarantee long-term access to resource for Simcoa, but commits itself to co-operating with Simcoa in developing and implementing strategies designed to ensure ongoing access to resource, while at the same time achieving desired nature conservation goals, in the long-term. The details of the Department's commitment are outlined against the appropriate other Simcoa commitments below; and

- Finally, relinquishment of ML 70/1055 over Cairn Hill should not occur until the A Class reservation of the uncleared portion is achieved. The timing of relinquishment needs to be co-ordinated with the establishment of a Mining Act Section 19 reserve.

(Commitments 2 and 3 are not relevant to this application to take).

Commitment 4

"Simcoa will carry out further reconnaissance exploration to try and identify other parts of the Coomberdale Chert formation both within and outside current lease areas which may contain sufficiently high grade quartz in areas where the chert-associated vegetation is already absent or degraded."

This commitment is central to the achievement of long-term security of resource for Simcoa, while providing better protection for biological diversity. The commitment is strongly supported.

Commitment 5

"Simcoa will commit to sharing the costs with the Department, of regional flora surveys necessary to identify and map other parts of the Coomberdale Chert formation which may contain the same, or other significant flora associated with the chert. An agreement on an appropriate maximum amount to carry out required reconnaissance surveys will have to be reached."

The Department supports this commitment, and agrees to a cost sharing arrangement as suggested. I believe that an agreement on the design, probable cost and funding of such survey can be reached quickly.

Commitment 6

"Using the results of 4 and 5 above, work closely with the Department of Conservation and Land Management to identify the best strategy that will ensure both access to resource, and the conservation, in secure reserves, of the flora of the Coomberdale Chert formation."

The Department commits itself to the liaison and co-operation required to make this commitment work.

Commitment 7

"Simcoa is committed to carrying out rehabilitation trials with any DRF plants removed by their mining operations. Rehabilitation trials with other Priority species will also be established, in addition to the successful germination and establishment demonstrated with the *Regelia megacephala*, to date."

Although it is possible that, following the completion of mining, the site will revert to farmland that will be grazed by domestic stock, these trials will be of value in terms of learning more about, and providing seed nurseries for, some rare species. The Department supports the commitment, especially in relation to *A. aristulata* ms.

Commitments 8 and 9

Refers to Simcoa working with this Department to try to secure additional areas of the Coomberdale Chert formation, such as Cairn Hill North, for inclusion in the conservation estate. The Department is strongly supportive of these commitments and will be pleased to continue negotiations over these matters in the light of results gained under commitments 4, 5 and 6.

A. aristulata ms, the Endangered Coomberdale Chert community, plus two other DRF species and seven priority flora species are all restricted to the Coomberdale Chert formation. Of the total area of 650 ha. of this community known, only about 40 ha. are on a conservation reserve, which is a different sub-type to that in the Moora area, and is not known to support the rare and priority species known at Moora.

The geological material that support this very distinctive and restricted assemblage of plants also contains what is currently the State's best supply of high quality quartz needed by Simcoa for its silicon production plant at Kemerton. Currently, most of the known occurrences of the Endangered community in the Moora area have mining tenements owned by Simcoa.

Thus, there is the potential for considerable conflict between Simcoa's needs and those of biodiversity conservation. The proposal by Simcoa is a progressive and responsible attempt to solve this problem by concentrating on quartz resources where the native vegetation is highly degraded, and by relinquishing their leases over areas where the vegetation is in good condition. The first step in this direction would come with the relinquishment of the Cairn Hill lease (ML 70/1055) if the proposed extension to mining at their existing lease (ML 70/191) is approved.

Officers of the Department have spent considerably time and effort negotiating these arrangements with Simcoa, and have been impressed with the company's commitment to conserve the biodiversity of the Coomberdale Hills.

In view of the above, I recommend that you approve the application from Simcoa Operations Pty Ltd for permission to take *A. aristulata* ms.

If you agree, please sign and return the attached permit to the Department.

Keiran McNamara

Keiran McNamara
ACTING EXECUTIVE DIRECTOR

22 August 2001

DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA

WILDLIFE CONSERVATION ACT 1950 AS AMENDED - SECTION 23F

PERMIT TO TAKE DECLARED RARE FLORA

The undermentioned person may take declared rare flora for the purpose described, subject to the terms and conditions of this permit. Please note: DRF in this permit = Declared Rare Flora.

1. PERMIT NO: 52/2001

2. PERMIT HOLDER: General Manager Operations
ADDRESS: Simcoa Operations Pty Ltd
PO Box 1389
BUNBURY WA 6231

3. DESCRIPTION OF PLANT

3.1 SCIENTIFIC NAME: *Acacia aristulata* ms
3.2 PARTS TO BE TAKEN: Whole plants, seed (plant borne and soil stored)
3.3 QUANTITY: No more than seventy two whole plants, and an indeterminate number of seeds

4. METHOD OF TAKING: Machine operation

5. PURPOSE OF TAKING: Extension of Mining Lease 70/191 and species regeneration trials

6. AREA TO WHICH PERMIT RELATES: Mining Lease 70/191 (north of Moora)

7. PERIOD FOR WHICH PERMIT IS VALID: From date of the signature below, until the completion of works.

8. CONDITIONS:

8.1 This approval is subject to compliance with Simcoa Operations Pty Ltd commitments contained in the report prepared by Strategic Environmental Solutions in May 2001 entitled "Variation to Moora Quartz Mine on M70/191 (West Ridge pit) - Amendment to Conditions under S. 46 of the Environmental Protection Act".

8.2 *Phytophthora* dieback hygiene measures are to be undertaken when entering DRF habitat.

8.3 Copies of any report or publication on the DRF covered by this permit shall be provided to the Executive Director, Department of Conservation and Land Management.

8.4 The taking of DRF shall be limited to material detailed in 3.3 above. If a larger quantity of material is required a further application shall be made to the Executive Director Department of Conservation and Land Management.

8.5 DRF voucher specimens to be lodged at the WA Herbarium if necessary.

8.6 Annual reports detailing the quantity of DRF taken shall be provided to the Executive Director, Department of Conservation and Land Management, via the Administrative Officer Wildlife Branch.

8.7 No original DRF material "taken" during the activities shall be used for commercial purposes other than for minesite revegetation.

8.8 The location of DRF populations shall be treated as confidential and under no circumstances disclosed to other persons without the written permission of the Executive Director, Department of Conservation and Land Management.

8.9 This permit also covers the activities of other persons involved in mine site development under the supervision of the permit holder.

8.10 The Executive Director Department of Conservation and Land Management reserves the right to remove material from DRF from the site prior to the commencement of the work.

8.11 The permit holder shall produce this permit whenever requested to do so by a Wildlife Officer, or by any person appointed by the body or authority which has the care or control of the land from where the DRF is taken, together with any other approval letters that may be in force during the period of this permit.

8.12 In addition to this Permit, the Permittee may require Commonwealth approval under the Environmental Protection and Biodiversity Conservation Act 1999, for the actions covered by this Permit. It is the responsibility of the Permittee to determine whether such approval is required, and if so, to obtain such approval before undertaking the actions covered by this Permit.

.....
MINISTER FOR THE ENVIRONMENT

DATE...../...../2001

Appendix 5

Letter from the Department of Mineral and Petroleum Resources regarding proposed A-Class Nature Reserve

DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA

Mineral House
100 Plain Street
East Perth
Western Australia 6004

Telephone (08) 9222 3333
Facsimile (08) 9222 3430
www.dme.wa.gov.au

ABN: 69 410 335 356

Your Ref
Our Ref 207-01
Enquiries to Mr Dawson
Telephone 9222 3235
Facsimile 9222 3510

Mr Kim Taylor, Director
Environmental Impact Assessment
Department of Environmental Protection
Westralia Square
141 St George's Terrace
PERTH WA 6000

Attention: Mr Tim Gentle

SIMCOA QUARTZ MINE: PROPOSED A- CLASS NATURE RESERVE

I refer to your letter dated 27 August 2001 regarding the relinquishment of Mining Lease 70/1055 (known as the "Cairn Hill area") by Simcoa Operations Pty Ltd in favour of the establishment of an A-Class Nature Reserve.

The Department of Mineral and Petroleum Resources has no objection to the Cairn Hill area being added to the State's conservation estate, as an A-Class Nature Reserve, as part of the agreed package for Simcoa to undertake mining of the West Pit quartz deposit within Mining Lease 70/191.

for Jim Limerick
DIRECTOR GENERAL
Department of Mineral and Petroleum Resources

28 August 2001

Appendix 6

Statements of Environmental Approval (May 1988, August 1992).

Ass # 165

Bull # 328

State # 027

MINISTER FOR ENVIRONMENT

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

PROPOSED SILICON PROJECT
KEMERTON AND MINE AT MOORA

BARRACK MINES LIMITED

This proposal may be implemented subject to the following conditions:

1. The proponent shall adhere to the proposal as assessed by the Environmental Protection Authority and shall fulfil the commitments made in the revised list of commitments dated 4 May 1988 (copy of commitments attached).

2. Any proposal to upgrade significantly or re-route road access to the Kemerton plant site shall be to the satisfaction of the Local Authority and the Environmental Protection Authority.

3. The proponent shall not cause or allow the direct venting of furnace off-gases to the atmosphere. All furnace off-gases shall be passed through the baghouse.

4. The proponent shall ensure that ground level concentrations of silica fume in the surrounding 'special residential' and 'special rural' areas do not exceed an annual average of 0.07 mg/m^3 and a 24-hour average of 0.10 mg/m^3 at any time.

5. The proponent shall ensure that the introduced noise from the project does not cause the noise in the surrounding 'special residential' or 'special rural' areas to exceed 50dB(A) from 0700 to 1900 hours, 45dB(A) from 1900 to 2200 hours, and 40dB(A) from 2200 to 0700 hours. These levels should not be viewed as normal operating levels for the plant. They are the legal upper limits above which action will be taken by the Environmental Protection Authority. These levels should be reviewed after 12 month's normal

Published on 13-5-88

7th Floor, May Holman Centre,

Phone (09) 325 4133

8. The proponent shall install and operate the charcoal retorts, the retort off-gas incinerator and the wood waste incinerator so as to ensure that no offensive vapours or odours are detectable in 'special residential' or 'special rural' areas adjacent to the project site to the satisfaction of the Environmental Protection Authority.

9. The proponent shall ensure that at least four regular meetings are convened in the first year including the local authority for the purpose of promoting communication. The frequency of meetings after the first year shall be as mutually agreed between the proponent and the Local Authority. These meetings shall commence before commissioning.

10. The proponent shall obtain a Works Approval (prior to construction) and a Licence (prior to commissioning) for the proposed facility under the provisions of Part V of the Environmental Protection Act 1986.

11. During construction of the plant, the proponent shall:

    - stabilise disturbed soil and take other appropriate measures to ensure that dust levels at the plant boundary do not exceed a 15 minute average of 1 mg/m^3; and

    - take appropriate short term measures to control run-off and oil spills to the satisfaction of the Environmental Protection Authority.

12. The proponent shall monitor the effect of mining activities on the population of Regelia megacephala on the minesite with a monitoring programme approved by the Environmental Protection Authority before mining commences and to manage the effects of mining activities on this species to the satisfaction of the Environmental Protection Authority.

13. Should the proponent wish to alter its operations to use reductants other than jarrah charcoal and jarrah woodchips in a proportion greater than 15% of the total reductant charge, it shall, prior to such alterations present detailed management plans to the satisfaction of the Environmental Protection Authority, outlining the likely changes in emissions and proposed control procedures.

14. The proponent shall prepare and implement a detailed plan for the supply of water for the project at Kemerton and at the Moora minesite to the satisfaction of the Environmental Protection Authority, the Water Authority of WA and the Department of Conservation and Land Management before the commissioning of the plant. An objective of the water supply plan and the assessment of its impact shall be the protection of wetlands in the Kemerton locality.

BARRACK SILICON PROJECT

ENVIRONMENTAL COMMITMENTS

MAY 1988

BARRACK SILICON PROJECT COMMITMENTS

3.1 KEMERTON SITE GENERAL

3.1.1 The proponent is committed to being a good corporate citizen and to complying with reasonable and justifiable EPA requirements, but in particular to the two main environmental issues of the project, dust emission and noise control.

3.1.2 A site specific landscaping plan capable of tolerating the local environment adjacent to a chloride plant and opposite the future Aluminium Smelter, will be developed in consultation with CALM.

3.1.3 The proponent expects to draw water from the "Yarragadee" aquifer and is committed to monitor/test bore water as required by WAWA. Adoption of a closed circuit water cooling circuits in the silicon process greatly help to conserve water usage. The proponent will optimize usage of plant water to its fullest practical extent.

3.1.4 In the event that runoff water is required to be treated, application will be made with EPA prior to discharge into nearby water courses. As appropriate the local authority and WAWA will be consulted should existing drains be used.

3.1.5 The wood stockpile and the plant site in general has a ground level graded to drainage falls into surface drains which in turn are routed to a stormwater sedimentation pond designed to cater for a one in five year return period storm.

3.1.6 The proponent is committed to the installation and maintenance of a first-aid vehicle, a fire tender, appropriate trained personnel and developing safety and contingency planning both during construction and operation of the project. Application annually will be made to the Minister for Emergency Services through the Bush Fires Board of Western Australia to operate fire risk areas of the plant during the high risk summer months of November through to March.

3.1.7 The proponent will develop a comprehensive air emission and atmospheric monitoring programme in consultation with the EPA, to establish the environmental impacts from the project's operation.

3.2 QUARTZITE SUPPLY

3.2.1 Quarrying operations will be managed to ensure minimum practicable noise disturbance to the surrounding environment and to that end quarrying operations will generally be restricted to the hours of 0600 to 1700 Monday to Friday, during annual mining campaigns not expected to exceed three to five months each year.

3.2.2 The contract quarry operators will be required to implement appropriate blasting techniques to achieve a maximum 115 dB peak linear limit. This may include the use of sequential timers or alternative approved methods of blast initiation.

3.2.3 Blasting activities will not proceed during periods when wind conditions would result in the transport of significant dust from such blasting operations towards the nearby vicinity of neighbouring farms.

3.2.4 With the exception of the first year of operations when the delayed timetable for the Project may necessitate a summer/autumn mining campaign, quarrying operations will be scheduled for the period mid August through mid-December when post winter moist soil conditions should assist in dust suppression and dust control around the mine site.

3.2.5 The proponent is committed to mine site rehabilitation in accordance with the requirements of the Department of Mines. This plan will include rehabilitation where practicable using local native vegetation. In addition the proponent will seek advice from CALM on the management of Regelia megacephala populations, including the practicality of establishing trial experimental plots to determine criteria for successful regrowth. Where there is a risk of direct impact of mining or service equipment on populations of Regelia megacephela these populations will be fenced off.

3.2.6 Haul roads will be selectively routed by the proponent to provide minimum disturbance to the environment. Dust suppression by water spray on haul roads and at the crushing plant will be implemented should significant dust occur. Tree-planting for screening purposes will be undertaken, in consultation with the farmer/landowner, where necessary and practicable.

3.2.7 Mining operations will leave some areas of inferior grade ore thereby preserving to some degree the visual amenity of the quartzite hills to the north of Moora.

3.3 WOOD SUPPLY

Wood supply to the Silicon Plant at Kemerton is a responsibility of the W.A. Department of Conservation and Land Management through its contract with the proponents to fall, extract, load, transport and deliver log timber onto the Kemerton site. The proponent will rely on CALM to meet its contractual obligations in relation to the following commitments.

3.3.1 Wood will be transported on 20m long articulated 70 tonne log haulage trucks. Proposed routes for the period 1989 - 1992 and for the period 1993 - 1998 are shown in the attached figure. These routes are presently used by log haulage trucks.

Major transport corridors for the first 5 years will be developed in consultation with MRD and CALM subject to EPA approval.

3.3.2 Log haulage vehicles, immediately after entrance to the site, will be specifically diverted away from day to day traffic primarily for safety reasons. Timber will only be received at the plant site during daylight hours Monday to Friday, with possible extensions to Saturday if agreed between CALM and the proponents.

3.3.3 The proponent intends to purchase wood to produce charcoal from the Department of Conservation and Land Management (CALM) under the Government approved Department's General Working Plan No. 87. CALM has developed and is committed as is the proponent to the quarantine and hygiene procedures designed to minimize and reduce the risk of spreading jarrah dieback.

3.3.4 The proponent recognizes that the maintenance of flora and fauna within the State Forest is highly desirable. Currently there is no information on the use of tree hollows by fauna in the Jarrah forest so the proponent will fund and supervise with CALM a post graduate research project to evaluate these predictions and the effects of silvicultural practices specifically for the project. Information from this project will be made available to EPA within 3 years of the start of plant production.

3.4 CHARCOAL PRODUCTION

3.4.1 The design of the overall docking mill complex is under review. The concept selected will incorporate systems designed to reduce noise levels in the vicinity of the complex, consistent with the proponents overall undertakings for control of noise as contained with the PER.

3.4.2 An incinerator will be incorporated by the proponent in the retort complex to combust volatile material in the rinse gas and pyroligneous vapour.

3.4.3 Retort loading arrangement consists of:

1) Upper retort door (swing gate design).
2) Lower retort door (slide gate design).

The system is designed to minimise gas release during charging of the retort.

3.4.4 The retort upper compartment will be operated slightly below atmospheric pressure as a further safeguard against accidental release of retort vapours.

3.4.5 Charcoal dust generated at the belt discharge chute into the furnace bins will be contained by a suppression system or dust collector and re-cycled back to the bin.

3.4.6 Transfer points on belt conveyors transporting charcoal will be fitted with dust suppression systems. The charcoal screen will be fitted with a dust collector, collected dust will be combined with charcoal fines from the screening operation.

3.4.7 The design of the waste wood handling system is under review; should an incinerator be utilised for burning wastes it will be of the "smokeless" refractory silo type.

3.4.8 The comprehensive fire suppression system for the charcoal process will consist of a water tank and pumping station which will feed a ring main and hydrant system around the charcoal retorts and docking mill area as well as the remainder of the plant. A sprinkler system will be installed for fire protection in the docking mill.

Personnel will be trained in fire-fighting procedures, equipment locations clearly marked and a fully operational fire tender will be maintained on site. Portable fire extinguishers and serviced hose reels will be located within the buildings as required.

3.5 SILICON PRODUCTION

3.5.1 The quartzite hopper, transfer point and conveyor system will be fitted with water mist sprays for dust suppression.

3.5.2 Each charcoal bin will be fitted with an emergency dumping gate, fitted to the lower section of bin, for use in case of spontaneous combustion of the charcoal.

3.5.3 The proponent will be exerting its best efforts to minimise and if practicable, eliminate the use of petcoke in its furnaces consistent with its commitment for safe and economical operations. The operation will be both environmentally and quality conscious.

3.5.4 The exhaust gas from each furnace and the entrained amorphous silica fume will be collected by the furnace and tapping area hoods and ducted through pre-collector/spark arrester units and a baghouse.

3.5.5 The fume will be discharged from the filter bags into sealed collection hoppers from where it will be pneumatically conveyed to storage silos. The fume will be discharged into sealed road vehicles or pelletised.

3.5.6 The proponent will introduce a programme for regularly sampling the fume and submitting the samples to X-ray diffraction analysis to detect any contamination by crystalline silica. (Public Health Implications Study p15).

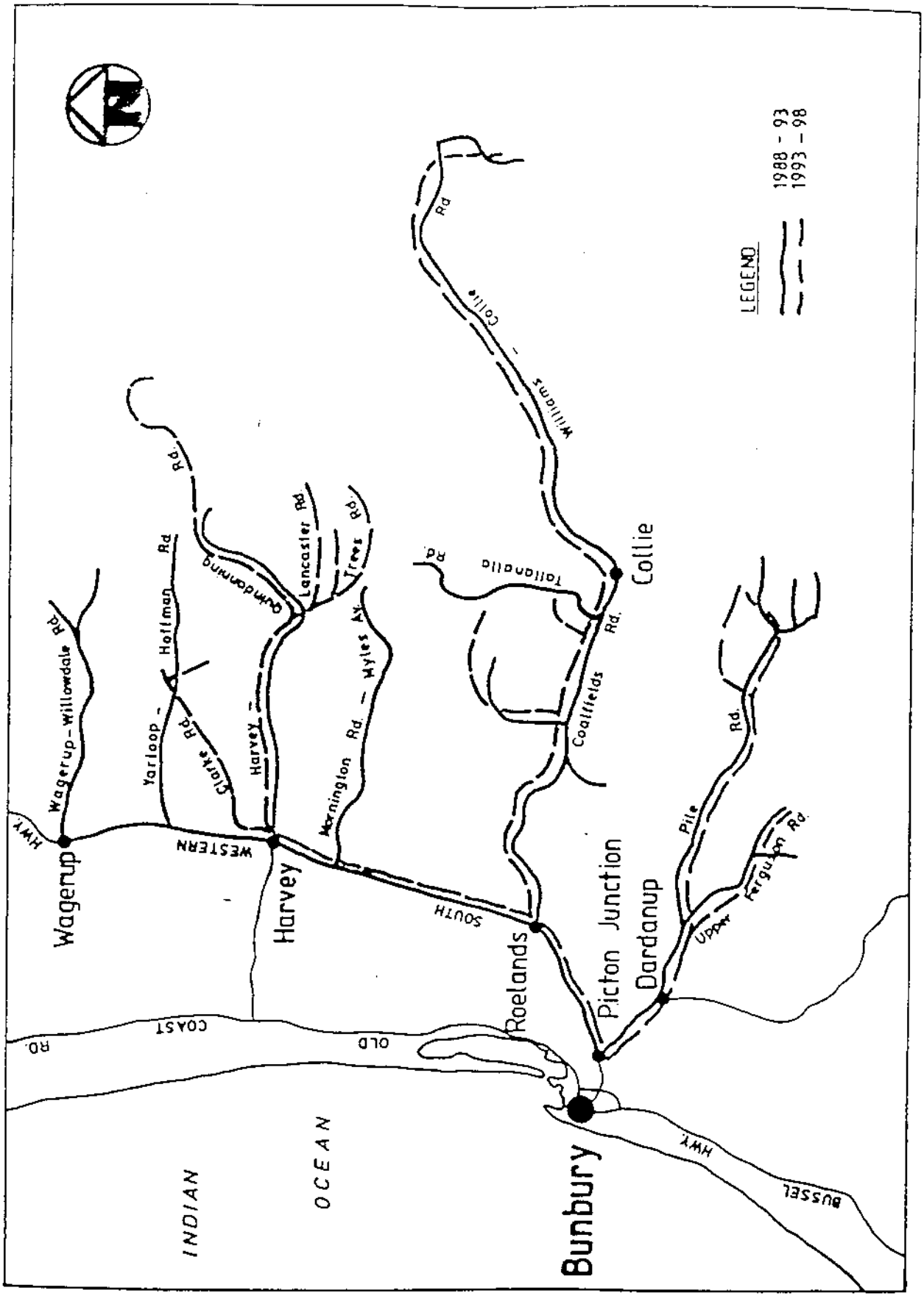
3.5.7 The building housing the electric furnaces will be steel-clad. Appropriate ventilation and housekeeping measures will be adopted to ensure control and containment of dust within this building.

3.5.8 Waste water system is being reviewed. A disposal strategy for this waste water will be developed in consultation with the EPA after chemical analyses have been made.

3.5.9 The oxygen storage facility of approximately 6000 litres will be isolated from the heat of the furnace, and fire hydrants will be installed in the general area.

3.5.10 The baghouse system will have reserve capacity to deal with abnormal dust burdens.

3.5.11 A monitoring programme will be established around the plant. That programme will be designed after consultation with the EPA.



WOOD TRANSPORT CORRIDORS FIGURE 6.2

Ass # 737

Bull # 631

State # 279

WESTERN AUSTRALIA

MINISTER FOR THE ENVIRONMENT

STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL (PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE ENVIRONMENTAL PROTECTION ACT 1986)

PROPOSAL: SILICON PROJECT, KEMERTON (165/737)

CURRENT PROPONENT: SIMCOA OPERATIONS PTY LTD

CONDITIONS SET ON: 13 MAY 1988

Condition 1 has been amended to read as follows:

1A In implementing the proposal, including the proposed amendment reported on in Environmental Protection Authority Bulletin 631, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made on 4 May 1988 (copy attached).

1B Subject to the conditions in this amended statement, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal. Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that the Minister for the Environment determines on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

The original condition 3 is deleted and a new condition 3 is inserted as follows:

3A The proponent shall pass all furnace off-gases through an approved dust collection facility except as otherwise permitted by the Environmental Protection Authority during planned maintenance or emergencies.

3B Within three months of the date of this statement, the proponent shall prepare and subsequently implement a contingency plan as an additional part of the environmental monitoring and management plan required by condition 19, with the specific objective of minimising the periods of direct venting, to meet the requirements of the Environmental Protection Authority.

Published on

10 AUG 1992

18th FLOOR, ALLENDALE SQUARE, 77 ST GEORGE'S TERRACE, PERTH, W A 6000 TELEPHONE 325 9422 FAX. 325 5621

BARRACK SILICON PROJECT

ENVIRONMENTAL COMMITMENTS

MAY 1988

3.1 KEMERTON SITE GENERAL

3.1.1 The proponent is committed to being a good corporate citizen and to complying with reasonable and justifiable EPA requirements, but in particular to the two main environmental issues of the project, dust emission and noise control.

3.1.2 A site specific landscaping plan capable of tolerating the local environment adjacent to a chloride plant and opposite the future Aluminium Smelter, will be developed in consultation with CALM.

3.1.3 The proponent expects to draw water from the "Yarragadee" aquifer and is committed to monitor/test bore water as required by WAWA. Adoption of a closed circuit water cooling circuits in the silicon process greatly help to conserve water usage. The proponent will optimize usage of plant water to its fullest practical extent.

3.1.4 In the event that runoff water is required to be treated, application will be made with EPA prior to discharge into nearby water courses. As appropriate the local authority and WAWA will be consulted should existing drains be used.

3.1.5 The wood stockpile and the plant site in general has a ground level graded to drainage falls into surface drains which in turn are routed to a stormwater sedimentation pond designed to cater for a one in five year return period storm.

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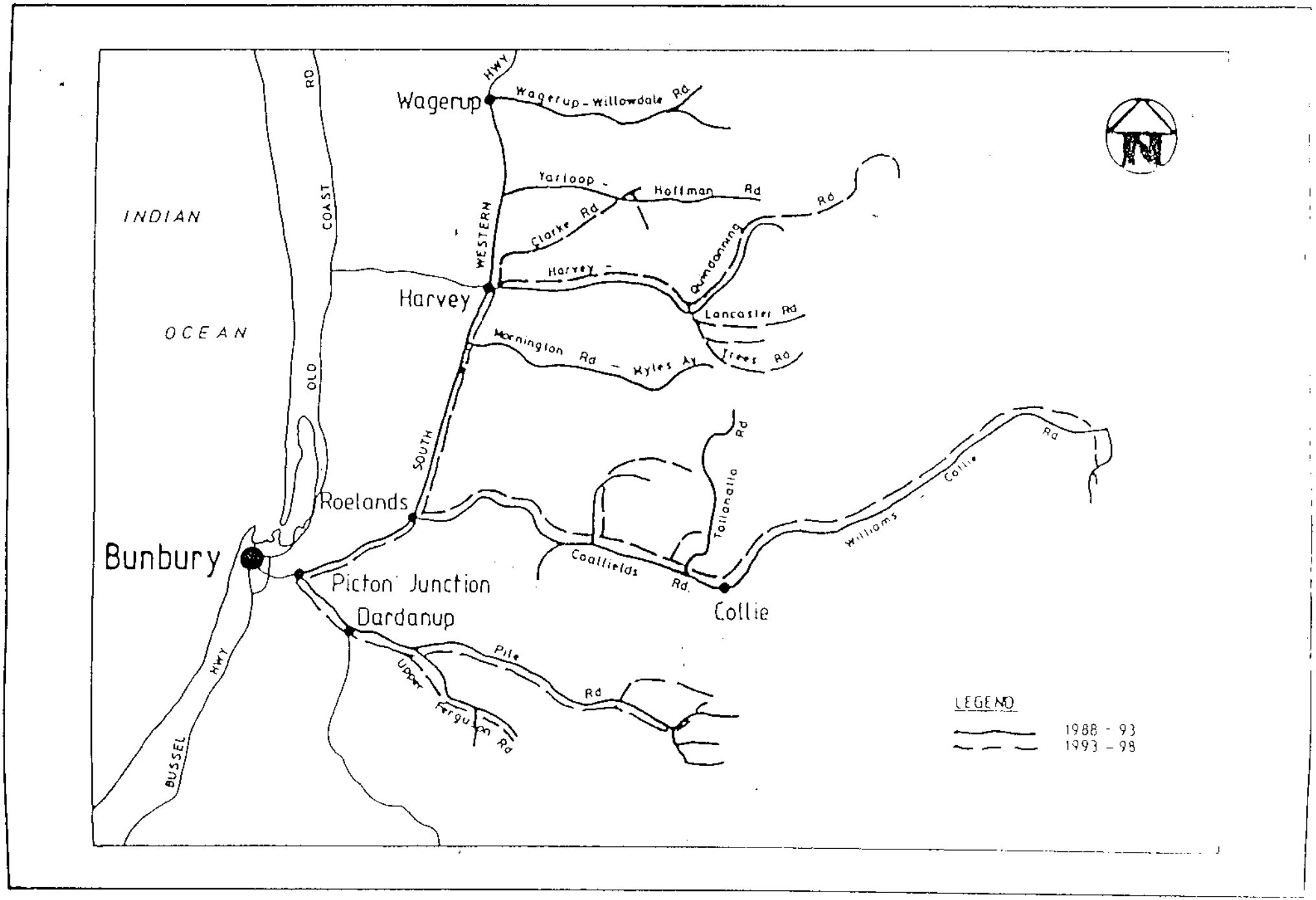


WOOD TRANSPORT CORRIDORS

Appendix 7

Recommended Environmental Statement to Amend Conditions

Statement No.

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL (PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE ENVIRONMENTAL PROTECTION ACT 1986)

SILICON PROJECT, KEMERTON AND MINE AT MOORA

Proponent: Simcoa Operations Pty Ltd

Proponent Address: PO Box 1389, BUNBURY WA 6231

Assessment Number: 1383

Previous Assessment Numbers: 165 and 737

Previous Statement Numbers: Statement No. 027 published on 13 May 1988
Statement No. 279 published on 10 August 1992

Report of the Environmental Protection Authority: Bulletin 1027

Previous Reports of the Environmental Protection Authority: Bulletins 328 and 631.

The implementation of the proposal to which the above reports of the Environmental Protection Authority relate is subject to the conditions and procedures contained in Ministerial Statements Nos. 027 (13 May 1988) and 279 (10 August 1992), as amended by the following:

Conditions 1A and 1B (Commitments and Implementation) of Statement No. 279 are deleted and the following conditions are inserted:

Commitments and Implementation

1-1 In implementing the proposal, including the proposed amendment reported on in Environmental Protection Authority Bulletin 631, the proponent shall fulfil the commitments of statement no. 027 (13 May 1988).

1-2 The proponent shall implement subsequent commitments which the proponent makes as part of the fulfilment of the conditions in this and previous statements.

1-3 Where the proponent seeks to change any aspect of the proposal in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

1-4 Where the proponent seeks to change any aspect of the proposal in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is not substantial, the proponent may implement those changes upon receipt of written advice.

Condition 12 (Monitoring of Regelia megacephala) of Statement No. 027 is deleted and the following condition is inserted:

12-1 Within one year following the formal authority issued to the decision-making authorities under Section 45(7) of the *Environmental Protection Act 1986,* the proponent shall prepare a monitoring and management programme to manage the effect of mining activities on the Coomberdale Chert Threatened Ecological Community, and on populations of *Regelia megacephala* and other priority and declared rare flora species, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

12-2 The proponent shall implement the monitoring and management programme required by Condition 12.1 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

New conditions No. 20 (Mining and Conservation Strategy), No. 21 (Surrender of mining lease) and No. 22 (Rehabilitation) are inserted immediately following condition No. 19 of Statement No. 027:

20 Prior to expansion of mining into the Eastern Ridge area, the proponent shall prepare, and then subsequently implement, a Mining and Conservation Strategy, in co-operation with the Department of Conservation and Land Management, and to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority. The objective of this strategy is to ensure that conservation of biodiversity values is achieved whilst maintaining long-term access to the chert resource.

The Mining and Conservation Strategy shall address the following matters:

a) Additional reconnaissance exploration to identify other parts of the Coomberdale chert formation, both within and outside current lease areas, which may contain sufficiently high grade quartz in areas where the chert-associated vegetation is already absent or degraded;

b) Provision of support (subject to negotiation) to the Department of Conservation and Land Management for regional flora surveys to identify and map other parts of the Coomberdale Chert formation which may contain the same or other significant flora associated with the chert;

c) Based on the outcomes of (a) and (b), and in cooperation with the Department of Conservation and Land Management, development of the best strategy to ensure both access to the resource and conservation, in secure reserves, of the flora of the Coomberdale Chert formation;

d) Additional conservation offsets, if required, such as the Cairn Hill North area and other significant areas of vegetation to form "stepping stones" or "linkages" with Cairn Hill and other ridges in the area;

e) Provision for fencing of significant areas of vegetation, whether part of reserves or other properties, and, during the operational life of the mine, provision of resources for conservation management.

21. The proponent shall surrender Mining Lease no. M70/1055 covering Cairn Hill at such time as requested by the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management. The Mining lease shall be surrendered in accordance with Procedure 3 below.

22. Within one year following the formal authority issued to the decision-making authorities under Section 45(7) of the *Environmental Protection Act 1986*, the proponent shall prepare a Rehabilitation Plan and commence rehabilitation trials, using local native flora species, including priority and declared rare flora species, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

Procedure *(to follow existing procedures)*

3. Surrender of Mining Lease number M70/1055 covering Cairn Hill. (See condition 21).

The proponent will effect surrender of Mining Lease M70/1055 immediately following gazettal of the A-Class Reserve at Cairn Hill. The Department of Mineral and Petroleum Resources has confirmed that it has no objection to the establishment of the A-Class Reserve.

Government of **Western Australia**
Department of ~~Environment and Conservation~~
Parks and Wildlife

Your ref:
Our ref: 2010/010629-1
Enquiries: Dr K Atkins
Phone: 08 9334 0425
Fax: 08 9334 0199
Email: Ken.atkins@dpaw.wa.gov.au

Mr Daniel Mance
Environmental and Laboratory Coordinator
Simcoa Operations
PO Box 1389
BUNBURY WA 6231

Dear Mr Mance

SIMCOA OPERATIONS MOORA QUARRY – COOMBERDALE CHERT TEC

I refer to your letter dated 9 July 2013 regarding the future operations of the Simcoa Moora Quarry and various nature conservation matters.

I thank you for the detailed background information which provides a valuable chronological summary of what has been a long period of consultation.

At the meeting of 6 May 2013 to which you refer, I concur that agreement was made in principle for the identification of areas of chert deposit north of Kiaka Road that was prospective for your company, which occurred in association with areas of the threatened ecological community (TEC), that were in general of poorer vegetation condition and thus lower conservation value for the department. These areas were agreed to be potential sites for mutual agreement for facilitating development for future expansion of Simcoa's quarrying activities, whilst minimising environmental impact.

I am prepared to support this proposed future development plan as outlined in your letter.

Your letter also refers to commitments associated with the past and proposed quarry activity by Simcoa. I note in particular section 3 of your letter – 'New Simcoa Commitments for Mining in the Areas North of Kiaka Road'.

Part A refers to activities for the better management of the Cairn Hill reserve. I understand that these activities were extracted from the draft recovery plan for the 'Coomberdale Chert' TEC, and are activities for which Simcoa has appropriate expertise and equipment to undertake on-site. It is agreed that these are appropriate management actions for the benefit of the TEC on Cairn Hill, and their implementation is supported.

Part C refers to management actions that will be undertaken with respect to the development and operation of new quarry sites north of Kiaka Road. The department is supportive of this proposed management approach, and encourages Simcoa to implement appropriate on-site marking in conjunction with staff induction and training to ensure disturbance minimisation is achieved.

It was thus our understanding that all parties supported this outcome, provided a suitable resolution was reached for access to deposits north of Kiaka Road, and a suitable reservation status applied to Cairn Hill North.

Given this background, I propose that Part B of your commitments be amended to supporting the reservation of Cairn Hill North for the purpose of conservation in a reserve to be managed as a single contiguous reserve with Cairn Hill (as per Robinson 2001).

I am also aware that Simcoa are also now wishing to retain tenements over North Cairn Hill to ensure other companies are not able to take up tenements over this area. This department would not oppose Simcoa retaining these tenements as a temporary measure to allow creation of a conservation reserve over Cairn Hill North, with the expectation that Simcoa would relinquish these tenements in the future as per the email dated 20 January 2010. The department seeks Simcoa's agreement to this effect.

If agreed by Simcoa, the department would like to pursue this reservation by seeking Department of Mines and Petroleum concurrence, with Simcoa's support, so that a strategic outcome for resource access and conservation of the Coomberdale Chert TEC and associated declared rare flora can be established for this region. I am sure that such a strategic outcome would meet the requirements of the EPA. This will also provide a resolution to lease issues for Mr Manning.

I look forward to a mutually agreeable resolution to this matter.

Yours sincerely

Dr Ken Atkins
MANAGER, SPECIES AND COMMUNITIES BRANCH
for Director General

23 August 2013

encl

Atkins, Ken

From: Andrew Obal [AndrewObal@simcoa.com.au]
Sent: Wednesday, 20 January 2010 1:38 PM
To: Ho, Bok
Cc: Atkins, Ken; Jim Brosnan; Kees Visser
Subject: RE: Proposed excision from Lot 52 Cairn Hill

RE: Proposed excision from Lot 52 Cairn Hill

Hi Bok,

I have met with Simcoa's Mine Manger (Kees Visser) and VP (Jim Brosnan) and we have agreed that while not all of Simcoa's exploration work is completed, we are in a position to relinquish the lease if we could get "in principle" support from CALM for a new mining lease over a degraded area of the Coomberdale Chert TEC. This is something that has been discussed in meetings with the DEC in November 2006 and was the ultimate objective of the extensive botanical work done in cooperation with CALM and Simcoa's drilling program - so no surprises there, I hope.

Simcoa would like to meet to discuss the issue in the second half of February (I have some information that I need to pull together prior to the meeting, so sooner doesn't work for me). What's your and Ken's availability in the coming weeks? I was thinking about a meeting in Perth.

Best regards,

Andrew Obal
Safety, Health & Environment Superintendent Simcoa Operations Pty Ltd Lot 22 Marriott Road Wellesley WA 6233 PO Box 1389 Bunbury WA 6231
Tel: (+61 8) 9780 6761
Fax: (+61 8) 9780 6616
Email: andrewobal@simcoa.com.au

-----Original Message-----
From: Ho, Bok [mailto:Bok.Ho@dec.wa.gov.au]
Sent: Wednesday, 6 January 2010 2:47 PM
To: Andrew Obal
Cc: Atkins, Ken
Subject: Proposed excision from Lot 52 Cairn Hill

Our ref: 2005F002097V01

Dear Andrew,

I write to you in regard to the proposed excision of the vegetated peninsular from Lot 52 - Cairn Hill, which is owned by Mr Gardiner and which Simcoa hold a mining tenement over (see attached PDF). An arrangement has been made between Mr Gardiner, the Department of Environment and Conservation (DEC), and Simcoa whereby Simcoa would relinquish the tenement and Mr Gardiner would swap the vegetated portion of Lot 52 for land owned by DEC. Relinquishment of the tenement has been delayed whilst further drilling for mineral prospectivity can be completed by Simcoa. Currently Mr Gardiner has been issued a lease to graze the land DEC proposes to swap, with the lease payments set at a nominal sum.

I therefore enquire if Simcoa has completed its drilling program and is now in a position to advise on a timeframe for relinquishment of the mining tenement? The matter has gained some urgency because the Department of Regional Development and Lands (DRDL) has advised Mr Gardiner and DEC that DRDL is no longer willing to continue issuing leases at a nominal sum. Instead DRDL have decided to issue the next lease to Mr Gardiner at a commercial rate and this will come into effect when the lease is renewed in July 2010.

Andrew, I seek your advise on how to resolve this matter without further undue inconvenience to Mr Gardiner? Please contact me if you require any further information.

Government of **Western Australia**
Department of **Parks and Wildlife**
Science and Conservation Division

Your ref:
Our ref: 2010/010629-1
Enquiries: Dr Ken Atkins
Phone: 08 9334 0425
Email: ken.atkins@dpaw.wa.gov.au

Mr Kees Visser
Mining and Raw Materials Manager
Simcoa Operations
PO Box 1389
BUNBURY WA 6231

SIMCOA OPERATIONS MOORA QUARRY – COOMBERDALE CHERT TEC

I refer to your letter dated 11 June 2014 regarding the agreement for relinquishing Cairn Hill North and resource access north of Kiaka Road.

I can advise that the department is agreeable to the two requests that you have included in your letter of support. Specifically, the department will:

- meet with representatives of Simcoa on site, or where mutually agreed, to discuss practical conservation and environmental matters associated with flora, vegetation and other conservation matters annually, or as required; and
- attend a briefing of the EPA, if invited, on the mining and conservation issues in the area to the north of Kiaka Road.

The department will now progress this matter, initially through seeking the support of the Department of Mines and Petroleum.

I would like to thank Simcoa Operations for your cooperation in this matter to seek a mutually agreeable outcome to the issue of conservation and resource access at the Moora quarry operations.

Yours sincerely

Dr Ken Atkins
Manager, Species and Communities Branch
for Director General

25 June 2014

Species and Communities Branch
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
Phone: (08) 93340455 Email: ken.atkins@dpaw.wa.gov.au
www.dpaw.wa.gov.au

Statement No.

000575

MINISTER FOR THE ENVIRONMENT AND HERITAGE;
~~WATER RESOURCES~~

STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL (PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE ENVIRONMENTAL PROTECTION ACT 1986)

SILICON PROJECT, KEMERTON AND MINE AT MOORA

Proponent: Simcoa Operations Pty Ltd

Proponent Address: PO Box 1389, BUNBURY WA 6231

Assessment Number: 1383

Previous Assessment Numbers: 165 and 737

Previous Statement Numbers: Statement No. 027 published on 13 May 1988
Statement No. 279 published on 10 August 1992

Report of the Environmental Protection Authority: Bulletin 1027

Previous Reports of the Environmental Protection Authority: Bulletins 328 and 631.

The implementation of the proposal to which the above reports of the Environmental Protection Authority relate is subject to the conditions and procedures contained in Ministerial Statements Nos. 027 (13 May 1988) and 279 (10 August 1992), as amended by the following:

Conditions 1A and 1B (Commitments and Implementation) of Statement No. 279 are deleted and the following conditions are inserted:

Commitments and Implementation

1-1 In implementing the proposal, including the proposed amendment reported on in Environmental Protection Authority Bulletin 631, the proponent shall fulfil the commitments of statement no. 027 (13 May 1988).

Published on

31 OCT 2001

29th FLOOR, ALLENDALE SQUARE, 77 ST. GEORGE'S TERRACE, PERTH 6000 TELEPHONE: (08) 9421 7777 FACSIMILE: (08) 9221 4665/8
E-MAIL: siteco-ordinator@mpc.wa.gov.au

1-2 The proponent shall implement subsequent commitments which the proponent makes as part of the fulfilment of the conditions in this and previous statements.

1-3 Where the proponent seeks to change any aspect of the proposal in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

1-4 Where the proponent seeks to change any aspect of the proposal in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is not substantial, the proponent may implement those changes upon receipt of written advice.

Condition 12 (Monitoring of Regelia megacephala) of Statement No. 027 is deleted and the following conditions are inserted:

12-1 Within one year following the formal authority issued to the decision-making authorities under Section 45(7) of the *Environmental Protection Act 1986,* the proponent shall prepare a monitoring and management programme to manage the effect of mining activities on the Coomberdale Chert Threatened Ecological Community, and on populations of *Regelia megacephala* and other priority and declared rare flora species, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

12-2 The proponent shall implement the monitoring and management programme required by condition 12-1 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

The following conditions 20 (Mining and Conservation Strategy), 21 (Surrender of mining lease) and 22 (Rehabilitation) are inserted immediately following condition 19 of Statement No. 027:

20. Prior to expansion of mining into the Eastern Ridge area, the proponent shall prepare, and then subsequently implement, a Mining and Conservation Strategy, in co-operation with the Department of Conservation and Land Management, and to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

The objective of this strategy is to ensure that conservation of biodiversity values is achieved whilst maintaining long-term access to the chert resource.

The Mining and Conservation Strategy shall address the following matters:

(1) Additional reconnaissance exploration to identify other parts of the Coomberdale Chert formation, both within and outside current lease areas, which may contain sufficiently high grade quartz in areas where the chert-associated vegetation is already absent or degraded;

(2) Provision of support (subject to negotiation) to the Department of Conservation and Land Management for regional flora surveys to identify and map other parts of the Coomberdale Chert formation which may contain the same or other significant flora associated with the chert;

(3) Based on the outcomes of (1) and (2) above, and in cooperation with the Department of Conservation and Land Management, development of the best strategy to ensure both access to the resource and conservation, in secure reserves, of the flora of the Coomberdale Chert formation;

(4) Additional conservation offsets, if required, such as the Cairn Hill North area and other significant areas of vegetation to form "stepping stones" or "linkages" with Cairn Hill and other ridges in the area; and

(5) Provision for fencing of significant areas of vegetation, whether part of reserves or other properties, and, during the operational life of the mine, provision of resources for conservation management.

21. The proponent shall surrender Mining Lease no. M70/1055 covering Cairn Hill at such time as requested by the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management. The Mining lease shall be surrendered in accordance with procedure 3 below.

22. Within one year following the formal authority issued to the decision-making authorities under Section 45(7) of the *Environmental Protection Act 1986*, the proponent shall prepare a Rehabilitation Plan and commence rehabilitation trials, using local native flora species, including priority and declared rare flora species, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

The following procedure is inserted immediately following the two procedures of Statement No. 279:

3. Surrender of Mining Lease no. M70/1055 covering Cairn Hill (See condition 21).

   The proponent will effect surrender of Mining Lease no. M70/1055 immediately following gazettal of the A-Class Reserve at Cairn Hill. The Department of Mineral and Petroleum Resources has confirmed that it has no objection to the establishment of the A-Class Reserve.

DR JUDY EDWARDS MLA
MINISTER FOR THE ENVIRONMENT AND HERITAGE

31 OCT 2001

Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**

Your ref:
Our ref: A2826/201901:23058
Enquiries: Mark FLEMING – 922 23624
Email: Mark.FLEMING@dmirs.wa.gov.au

Attention: Drew Harris

SIMCOA OPERATIONS PTY LTD
973 Marriott Road
WELLESLEY WA 6233

Dear Sir/Madam

DBCA PROPOSED ACQUISITION OF 71HA OF LOT 52 FOR INCLUSION INTO THE CAIRN HILL NATURE RESERVE (R 47694)

The Department of Biodiversity Conservation and Attractions has asked for the Minister for Mines and Petroleum's approval for a land tenure change under Section 16(3) of the *Mining Act 1978* to proposed land tenure Reserve for the purpose of Conservation of Flora and Fauna, under the management of Conservation Commission of WA with a reserve class of Class A for the parcel of land shown as FNA0014966 in TENGRAPH® and on the attached plan.

The proposal affects the following mining tenement(s) M70/191, M70/424.

DBCA are proposing a land exchange, whereby 71ha of Lot 52 owned by Gardiner, affecting both M70/191 and M70/424, will be added to the adjacent Cairn Hill Nature Reserve (R 47694). Gardiner will then be granted grazing access to Lot 4358 (57ha) to the east of Cairn Hill to offset the loss of the 71ha. DBCA has indicated that negotiations have been conducted with both Gardiner and Simcoa, with the latter supporting the land exchange proposal subject to "… a strategic outcome for resource access and conservation of the Coomberdale Chert TEC and associated Declared Rare Fauna can be established at the Moora mine site" (letter from Simcoa to the Department of Parks and Wildlife - 11 June 2014).

If the proposed reserve is created Section 24 of the *Mining Act 1978* will apply.

The Geoscience and Resource Strategy Division is assessing the impact that the proposal may have on access to potential or defined mineral resources and mining-related infrastructure within this tenement and the surrounding area.

If you have any concerns regarding the impact this proposal may have on such access, Mark FLEMING would appreciate your comments and relevant information by 13/02/2020. If no comments are received by this date, it may be assumed that your company has no concerns and the proposal will be assessed with the information on hand at the Department.

If you have concerns, please state them in your response. If you have no concerns, please respond with "no comments".

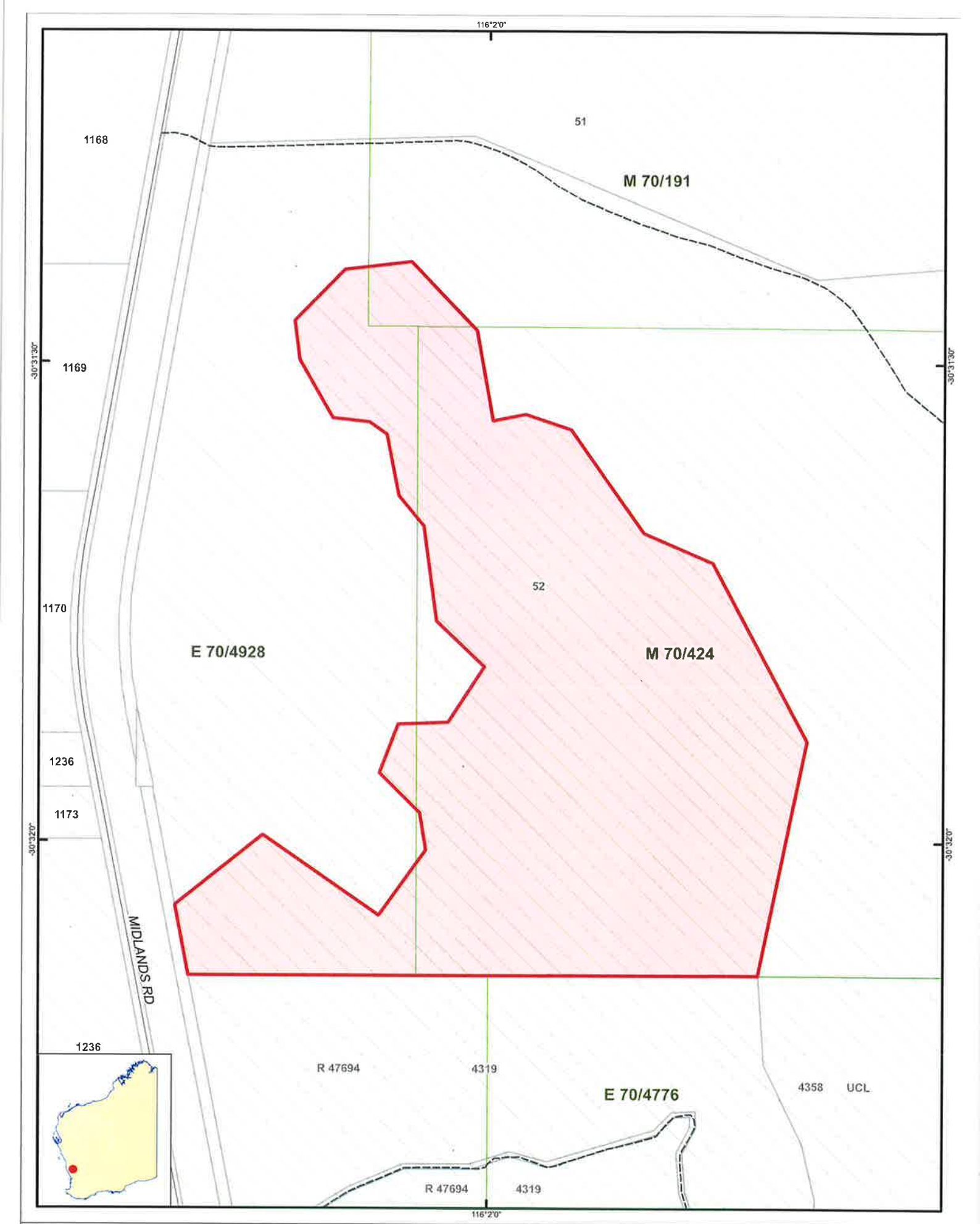
Mineral House 100 Plain Street East Perth Western Australia 6004
Telephone +61 8 9222 3333 Facsimile +61 8 9222 3862
www.dmirs.wa.gov.au
www.wa.gov.au
ABN 69 410 335 356

Please use the **Communications Manager** web page for your response. This can be accessed from the email message you received for A2826/201901:23058.

Yours sincerely

Jeffrey Haworth
EXECUTIVE DIRECTOR
GEOSCIENCE AND RESOURCE STRATEGY DIVISION

30 January 2020



Legend

- Proposal Area
- Main Road
- Track
- Tenements - Live
- Cadastre
- Coastline

Government of **Western Australia**
Department of **Mines and Petroleum**

Geological Survey of Western Australia

Scale: 1:9,059

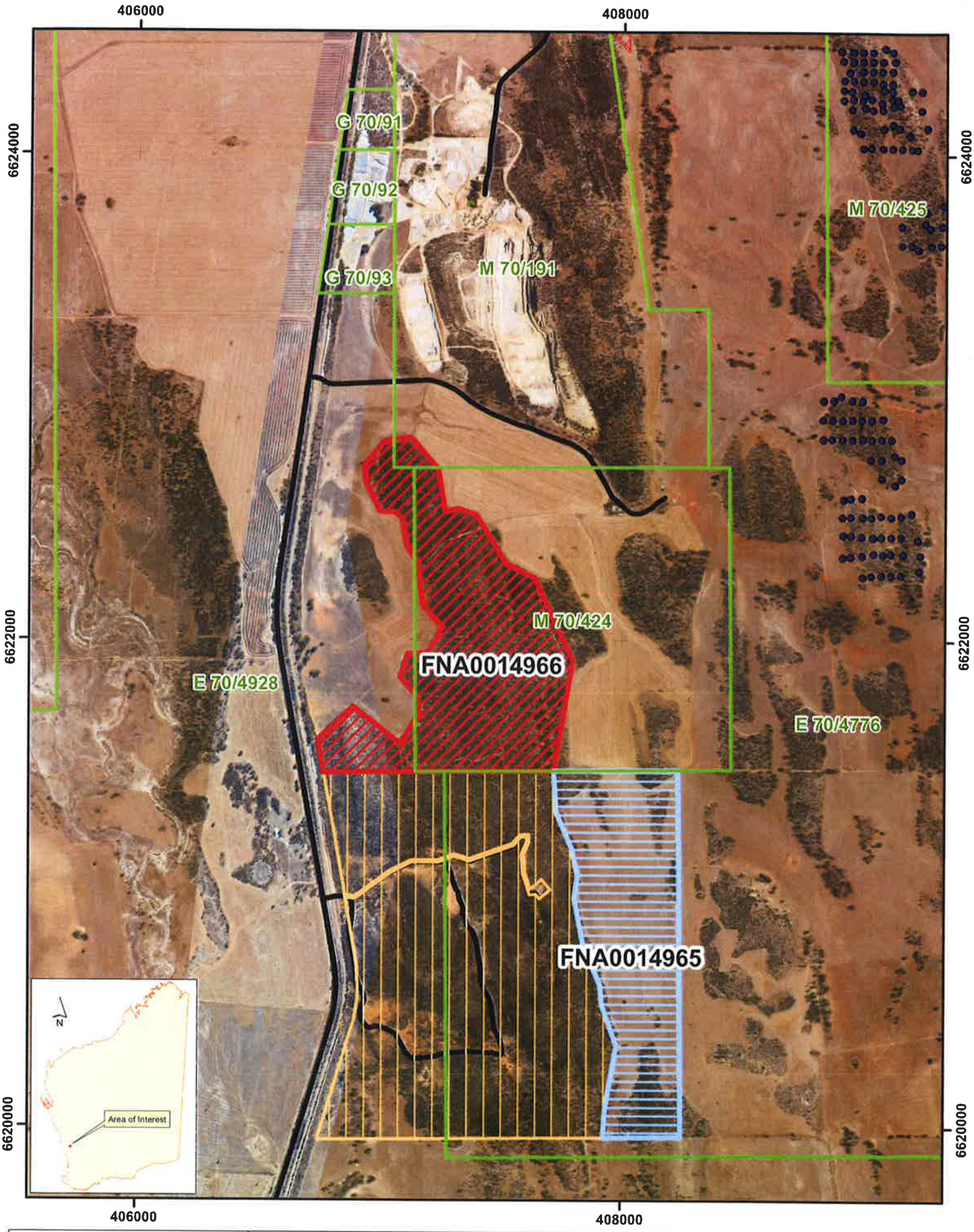
0 90 180 Metres

Latitude/Longitude
GEOCENTRIC DATUM OF AUSTRALIA 1994

Map created: 22/01/2020, 02:46 PM

Proposal
Ref: A2826/201901:23058

Centroid lat/long
-30.5310, 116.0341



Legend

- FNA0014965 *Lot 4358 57ha*
- FNA0014966 *71ha Part of Lot 52*
- CLASS 'A' NATURE RESERVE *R 47694*

Data Source:

Date: 30 January 2020

Reference: A2825/201901

Government of Western Australia
Department of Mines, Industry Regulation and Safety

1:20,000 @ A4

0 0.2 0.4 0.6 0.8 1
Kilometers

GEOCENTRIC DATUM OF AUSTRALIA 1994
Map Grid of Australia Zone 50 / Latitude Longitude

DBCA PROPOSED LAND EXCHANGE

Cairn Hill, Shire of Moora

Appendix C

Habitat Scoring Tool Outputs and Justification

Coomberdale Chert TEC
Threatened Flora

Black Cockatoo

DCCEEW Habitat Scoring System for WA black cockatoo foraging habitat

This habitat scoring system describes elements indicative of suitable foraging habitat[1] for the three WA black cockatoo species (Carnaby's Black Cockatoo, Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo) in WA. Its use must be supported by survey information and reporting, undertaken by suitably qualified and experienced ecologists. Appropriate scores will best fit a description. Where all components of the 'detail' column description are not met, this must be specified, and justification provided for that score to be accepted by the Department. For an offset site to be considered by the Department, the offset site must have a start score of 1 for each indicator (e.g., there must be a species stocking rate score of at least 1).

Indicator	Score	Detail		Impact site	Offset start quality	Without offset	With offset
Site Condition		Foraging value	Details				
Vegetation condition and structure. Habitat features	7	Very High	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>30% projected foliage cover), banksia and eucalypt woodlands with >50% projected foliage cover. Low percentage (< 5%) of tree deaths2.	x	x	x	x
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest and woodlands with >50% projected foliage cover. Low percentage (< 5%) of tree deaths.	x	x	x	x
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with >50% projected foliage cover. Low percentage (< 5%) of tree deaths.	x	x	x	x
	6	High	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>25% projected foliage cover), banksia and eucalypt woodlands with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.	x	x	x	x
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest and woodlands with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.	x	x	x	x
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.				
			Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>20% projected foliage cover), banksia and eucalypt woodlands with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).	x	5	x	5
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).	x	x	x	x
	5	Moderate to high	Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).	x	x	x	x
	4	Moderate	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia or eucalypt woodlands with 20-30% projected foliage cover. Moderate percentage of tree deaths (30-40%).	x	x	4	x
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 20-30% projected foliage cover; OR Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to tree deaths (up to 30-40%).	x	x	x	x
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with: 20-30% projected foliage cover; OR 40-60% projected foliage cover but veg. condition reduced due to tree deaths (up to 30-40%).	x	x	x	x
	3		Carnaby's Black Cockatoo				

[1] In some cases, an impact or offset site may contain or require both foraging and breeding habitat for one or more black cockatoos. Breeding habitat is species of trees known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most species of trees, suitable DBH is 500 mm. For salmon gum and wandoo, suitable DBH is 300 mm.
[2]No tree deaths indicate robustness of habitat, unlikely for the habitat to decline in the medium-term. Tree deaths may be owing to disease, water stress, fire, etc.

Indicator	Score	Detail		Impact site	Offset start quality	Without offset	With offset
Vegetation condition and structure. Habitat features		Low to moderate	Native kwongan heath and shrubland, banksia or eucalypt woodlands with 10-20% projected foliage cover.	3	x	x	x
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 5-20% projected foliage cover.	x	x	x	x
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with 5-20% projected foliage cover.	x	x	x	x
	2	Low	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia and eucalypt woodlands with <10% projected foliage cover; OR Paddocks and/or urban areas with scattered foraging trees such as banksias, marri.	x	x	x	x
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 1-5% projected foliage cover; OR Paddocks and/or urban areas with scattered foraging trees such as banksia, hakea, dryandra.				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with 1-5% projected foliage cover; OR Paddocks and/or urban areas with scattered food plants such as Cape Lilac, Eucalyptus caesia and E. erythrocorys.				
	1	Negligible to low	All species				
			Scattered specimens of known food plants but projected foliage cover of these is <2%. May include: paddocks or urban areas with scattered foraging trees.	x	x	x	x
	0	None	All species				
			No Proteaceae, eucalypts or other potential sources of food. May include bare ground or developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).	x	x	x	x
Total (out of 7)				**3**	**5**	**4**	**5**

Site Context					Impact site	Offset Start Quality	Without offset	With offset
Proximity of the site in relation to other habitat.	3	Site is within 6km of known breeding site.	or	Site is within 12km of other foraging resources with site condition of at least 3.	x	x	x	x
	2	Site is within 12km of known breeding site	or	Site is within 15km of other foraging resources with site condition of at least 4.	2	2	2	2
	1	Site is within 15km of known breeding site.	or	Site is between 15km and 20km of other foraging resources with site condition of at least 5.	x	x	x	x
	0	Site is further than 15km from known breeding site.	or	Site is further than 20km from other foraging resources.	x	x	x	x
Total (out of 3)					**2**	**2**	**2**	**2**

Final Totals	5	7	6	7

Indicator		Species Stocking Rate[3]	Impact Site			Offset Site		
			CBC	BBC	FRT	CBC	BBC	FRT
Confirm presence/ absence of species.	Yes	Species is seen or reported regularly and/or there is abundant foraging evidence, e.g. chewed nuts can be identified as this species. Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year.	YES			YES		
	No	Species is recorded or reported very infrequently and there is little or no foraging evidence.		NO	NO		NO	NO

The metrics used to determine Site Condition, Site Context, and Species Stocking Rate were developed by the Department of Climate Change, Energy, the Environment, and Water in consultation with species experts in WA.

A standard habitat quality scoring system for a species allocates scores out of 3 for both site condition and site context, and out of 4 for species stocking rate. However, as black cockatoos are very mobile, this HQS uses a score out of 7 for site condition and a score out of 3 for site context. Site condition is considered the key factor in determining the quality of habitat for these black cockatoo species. Species stocking rate is considered only in terms of presence or absence of the species and does not add to the total score. Note that the species, or strong indicators of the species, must be present, consistent with the presence/usage description above, for an offset to be considered suitable.

[3] Species stocking rate is indicated by yes or no to confirm if any of the species is frequently present or not. If yes, the presence must be for the species being impacted by the proposal, not for a species that will not be impacted.

A2. Quality score assessment

The Commonwealth Government's approach in the application of environmental offsets under the EPBC Act is defined within their Environmental Offsets Policy (DSEWPaC, 2012a). Offsets under the EPBC Act are defined as *'measures that compensate for the residual adverse impacts of an action on the environment'* (DSEWPaC, 2012a). The EPBC Act Environmental Offsets Policy has five aims:

– Ensure the efficient, effective, timely, transparent, proportionate, scientifically robust and reasonable use of offsets under the EPBC Act
– Provide proponents, the community and other stakeholders with greater certainty and guidance on how offsets are determined and when they may be considered under the EPBC Act
– Deliver improved environmental outcomes by consistently applying the policy
– Outline the appropriate nature and scale of offsets and how they are determined
– Provide guidance on acceptable delivery mechanisms for offsets.

The EPBC Act Offsets assessment guide is a tool that has been developed to assess the suitability of offset proposals. The guide assists proponents with planning and estimating future offset requirements. The "*How to use the offsets assessment guide*" (DSEWPaC, 2012b) outlines the three components considered to contribute to the calculation of starting/ baseline habitat quality of a proposed offset site including:

– Site condition: This is the condition of a site in relation to the ecological requirements of a threatened species or ecological community. This includes considerations such as vegetation condition and structure, the diversity of habitat species present, and the number of relevant habitat features.
– Site context: This is the relative importance of a site in terms of its position in the landscape, taking into account the connectivity needs of a threatened species or ecological community. This includes considerations such as movement patterns of the species, the proximity of the site in relation to other areas of suitable habitat, and the role of the site in relation to the overall population or extent of a species or community.
– Species stocking rate: This is the usage and/or density of a species at a particular site. The principle acknowledges that a particular site may have a high value for a particular threatened species, despite appearing to have poor condition and/or context. It includes considerations such as survey data for a site in regards to a particular species population or, in the case of a threatened ecological community this may be a number of different populations. It also includes consideration of the role of the site population in regards to the overall species population viability or community extent.
– The combination of these three components contribute to the sum of the habitat quality score. However components may have different weighting depending on the ecological requirements of a particular threatened species or ecological community (DSEWPaC, 2012b), and are determined based on the findings of the desktop and field assessment. The habitat quality score is entered into the DCCEEW offset assessment guide spreadsheet as the 'Start Quality' on a scale of 0-10.

GHD has developed specific weightings (scores) for each of the three quality components for the Revised Proposal. These scores and the corresponding justification for the score has been included in Table A5. The values present at the Offset site have been considered against these scores to provide an indicative assessment of the overall offset quality (scale of 0-10) for Coomberdale Chert TEC and habitat for Threatened Flora species. The Black Cockatoo foraging habitat is using the recently updated scoring system provided by DCCEEW (Appendix A1).

Table** Error! No text of specified style in document..**1** **Indicative offset habitat quality score weighting

Aspect	Coomberdale Chert TEC	Threatened Flora Habitat (*Daviesia Dielsii* and *Acacia Aristulata)*
Site condition	**Score out of 4:**	**Score out of 4:**
	The site condition score has been based on a combination of vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA, 2016) and the key criteria to meet the TEC (DBCA, 2013; DPaW, 2013).	The site condition score has been based on a combination of vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA, 2016) and the key criteria to meet the TEC where the Threatened Flora Species occur (DBCA, 2013; DPaW, 2013).
	High 4 – 'Pristine' to 'Excellent' vegetation condition, large patch size and/ or good connectivity to well reserved/ protected TEC, diversity of key indicator species, diverse vegetation age classes (recruitment through to mature trees), no known disease/ dieback	High 4 – 'Pristine' to 'Very Good' vegetation condition, large patch size, habitat present for *Daviesia Dielsii* and *Acacia Aristulata*, presence of other key species that typically are found in association, no recent disturbances
	Moderate 3 – 'Very Good' to 'Good' vegetation condition, lower diversity of key indicator species, disease may be present	Moderate 2-3 – 'Good' condition, weeds present, some scattered habitat for *Daviesia Dielsii* and *Acacia Aristulata*, recent disturbances such as grazing or fire
	Low 2 – Does not meet the condition/ patch size for TEC but may be in the buffer of a known TEC, known disease/ dieback presence	
	Very Low 1 – Cleared/ Completely Degraded to Degraded condition with no connectivity to adjacent TEC patches. However, may have potential to rehabilitate the Coomberdale Chert TEC within the site (suitable habitat features such as soil type and land systems present)	Low 1 – Degraded vegetation, TEC community but no current suitable habitat for Daviesia Dielsii and *Acacia Aristulata*
	0 – Site no potential for rehabilitation of Coomberdale Chert TEC (unsuitable habitat features such as soil type and land systems)	0 –no potential Daviesia Dielsii and *Acacia Aristulata* presence
Site context	**Score out of 4:**	**Score out of 3:**
	Use DBCA TEC/ PEC mapping to assist with determining site context during the desktop assessment.	Use DBCA TPFL / WA Herb mapping to assist with determining site context during the desktop assessment.
	Quality score out of 4:	**Quality score out of 3:**
	3 - 4 – High connectivity with known Coomberdale Chert TEC/PEC, previously recorded within or adjacent to the site, low threats surrounding the site i.e. reserved vegetation surrounding the site, important ecological linkage	3 – Known *Daviesia Dielsii* and *Acacia Aristulata* records within 200 m of the area, and good connectivity to well reserved/ protected areas with potential habitat, in known distribution of the species
	2 – Medium level of connectivity with known Coomberdale Chert TEC/ PEC	2 – Medium level of connectivity with known *Daviesia Dielsii* and *Acacia Aristulata* habitat in known distribution of the species

Aspect	Coomberdale Chert TEC	Threatened Flora Habitat (*Daviesia Dielsii* and *Acacia Aristulata)*
	1 – Limited level of connectivity with known Coomberdale Chert TEC/ PEC	1 – No current suitable habitat due to disturbance, but potential to re-establish habitat
	0 – Unsuitable habitat surrounding the site	0 – Unsuitable habitat surrounding the site
Species stocking rate	**Score out of 2:**	**Score out of 3:**
	Presence (2)/ absence (0) – determined from onsite TEC assessment against the key components for identifying the Coomberdale Chert TEC (DBCA, 2013; DPaW, 2013).	*Daviesia Dielsii* and *Acacia Aristulata* – 3 - Recorded in recent survey (within past 4 years) – 2 – Absent in recent survey but historically recorded from database searches within Proposal area or recently recorded within 100 m of Proposal area – 1 – Not known to occur within the survey area but records from within 200 m 0 – No records within survey area of 200 m

Table** Error! No text of specified style in document..**2** **Coomberdale Chert TEC habitat scoring

Aspect	Coomberdale Chert TEC	Impact Site (North Kiaka DF and Moora DF) Poor / Good to Very Good condition	Impact Site (North Kiaka DF and Moora DF) Degraded to Very Poor condition	Offset Site (Cairn Hill and Cairn Hill North)
Site condition	**Score out of 4:**	7.59 ha of Poor/ Good to Very Good condition **3 out of 4**	9.46 ha of Degraded to Very Poor condition **2 out of 4**	136.143 Poor/Good to Excellent 56.19 Degraded to VP condition **3 out of 4**
	The site condition score has been based on a combination of vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA, 2016) and the key criteria to meet the TEC (DBCA, 2013; DPaW, 2013).			
	High 4 – 'Pristine' to 'Excellent' vegetation condition, large patch size and/ or good connectivity to well reserved/ protected TEC, diversity of key indicator species, diverse vegetation age classes (recruitment through to mature trees), no known disease/ dieback			
	Moderate 3 – 'Very Good' to 'Good' vegetation condition, lower diversity of key indicator species, disease may be present	7.59 ha of Poor/ Good to Very Good condition		136.143 Good to Excellent (71%) 56.19 Degraded to Poor condition (29%)
	Low 2 – Does not meet the condition/ patch size for TEC but may be in the buffer of a known TEC, known disease/ dieback presence		9.46 ha of Degraded to Very Poor condition	
	Very Low 1 – Cleared/ Completely Degraded to Degraded condition with no connectivity to adjacent TEC patches. However, may have potential to rehabilitate the Coomberdale Chert TEC within the site (suitable habitat features such as soil type and land systems present)			
	0 – Site no potential for rehabilitation of Coomberdale Chert TEC (unsuitable habitat features such as soil type and land systems)			
Site context	**Score out of 4:**	**2 out of 4**	**2 out of 4**	**4 out of 4**
	Use DBCA TEC/ PEC mapping to assist with determining site context during the desktop assessment.			
	3 - 4 – High connectivity with known Coomberdale Chert TEC/PEC, previously recorded within or adjacent to the site, low threats surrounding the site i.e. reserved vegetation surrounding the site, important ecological linkage			TEC previously recorded within and adjacent to the Offset Areas, low threats surrounding the site i.e. reserved vegetation surrounding the site, important ecological linkage
	2 – Medium level of connectivity with known Coomberdale Chert TEC/ PEC	Medium connectivity with known TEC, recorded within and adjoining the impact site	Medium connectivity with known TEC, recorded within and adjoining the impact site	
	1 – Limited level of connectivity with known Coomberdale Chert TEC/ PEC			
	0 – Unsuitable habitat surrounding the site			
Species stocking rate	**Score out of 2:**	**2 out of 2**	**2 out of 2**	**2 out of 2**
	Presence (2)/ absence (0) – determined from onsite TEC assessment against the key components for identifying the Coomberdale Chert TEC (DBCA, 2013; DPaW, 2013).	TEC present at the impact site	TEC present at the impact site	TEC present at the Offset
Total Habitat Quality Score		**7 out of 10**	**6 out of 10**	**9 out of 10**

Table** Error! No text of specified style in document..**3** **Threatened Flora Habitat scoring

Aspect	Habitat for *Daviesia Dielsii* and *Acacia Aristulata*	Impact Site (North Kiaka and Moora)	Offset Site (Cairn Hill and Cairn Hill North)
Site condition	**Score out of 4:**	**2 out of 4**	**4 out of 4**
	The site condition score has been based on a combination of vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA, 2016) and the key criteria to meet the TEC (DBCA, 2013; DPaW, 2013).		
	– High 4 – 'Pristine' to 'Very Good' vegetation condition, large patch size, habitat present for *Daviesia Dielsii* and *Acacia Aristulata*, presence of other key species that typically are found in association, no recent disturbances		Very Good' vegetation condition, large patch size, habitat present for both species, presence of other key species that typically are found in association, no recent disturbances
	– Moderate 2-3– 'Good' condition, weeds present, some scattered habitat for *Daviesia Dielsii* and *Acacia Aristulata*, recent disturbances such as fire	Moderate condition, weeds present, scattered habitat for both species	
	– Low 1 – Degraded vegetation, TEC community but no current suitable habitat for Daviesia Dielsii and *Acacia Aristulata*		
	– 0 –no potential Daviesia Dielsii and *Acacia Aristulata* presence		
Site context	**Score out of 3:**	**2 out of 3**	**3 out of 3**
	Use DBCA TPFL / WA Herb mapping to assist with determining site context during the desktop assessment.		
	– 3 – Known *Daviesia Dielsii* and *Acacia Aristulata* records within 200 m of the area, and good connectivity to well reserved/ protected areas with potential habitat, in known distribution of the species		Known *Daviesia Dielsii* and *Acacia Aristulata* records within 200 m of the area, and good connectivity to well reserved/ protected areas with potential habitat, in known distribution of the species
	– 2 – Medium level of connectivity with known *Daviesia Dielsii* and *Acacia Aristulata* habitat in known distribution of the species	Known records for both species within 200 m of the area (Trudgen 2012), and good connectivity to well reserved/ protected areas with potential habitat, in known distribution of the species	
	– 1 – No current suitable habitat due to disturbance, but potential to re-establish habitat		
	– 0 – Unsuitable habitat surrounding the site		
Species stocking rate	**Score out of 3:** *Daviesia Dielsii* and *Acacia Aristulata* – 3 - Recorded in recent survey (within past 4 years) – 2 – Absent in recent survey but historically recorded from database searches within Proposal area or recently recorded within 100 m of Proposal area – 1 – Not known to occur within the survey area but records from within 200 m – 0 – No records within survey area of 200 m	**3 out of 3** – *Acacia Aristulata* recorded in recent survey (within past 4 years) – *Daviesia Dielsii* absent in recent survey but historically recorded from previous surveys of the area or recently recorded within 100 m of Proposal area	**3 out of 3** Both species recorded significant numbers in recent survey
		7 out of 10	**10 out of 10**

Project name	North Kiaka Project Approval Support						
Document title	North Kiaka Approvals | Offset Strategy						
Project number	12627587						
File name	12627587 REP 2 Offset Strategy North Kiaka Approvals_NEW.docx						
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S3	2	B Neville	F Hannon		F Hannon		4.12.2024
S4	3	B Neville	T Sleigh		F Hannon		12.05.2025
[Status code]							
[Status code]							
[Status code]							

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