Planning Panels Victoria

Avonbank Mineral Sands Project

Inquiry and Advisory Committee Report

Environment Effects Act 1978

Planning and Environment Act 1987

8 November 2023

VICTORIA State Government

Environment Effects Act 1978

Inquiry Report pursuant to section 9(1)

Planning and Environment Act 1987

Advisory Committee report pursuant to section 151

Avonbank Mineral Sands Project

8 November 2023

Lisa Kendal, Chair

Phil West, Member

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Planning Panels Victoria

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Glossary and abbreviations

AEP	Annual Exceedance Probability
AQIA	Air Quality Impact Assessment
AQMP	Air Quality Management Plan
AS/NZS Standard	*AS/NZS ISO 14001:2016 Standard 'Environmental management systems – Requirements with guidance for use*'
Assessor's Handbook	*Assessor's handbook – Applications to remove, destroy or lop native vegetation,* DELWP 2018
BDEC	Bendigo and District Environment Council
BGLC	Barengi Gadjin Land Council Aboriginal Corporation
CHMP	Cultural Heritage Management Plan
Committee; IAC	Avonbank Inquiry and Advisory Committee
Council	Horsham Rural City Council
D#	Document number
DEECA	Department of Energy, Environment and Climate Action
DELWP	Department of Environment, Land, Water and Planning
Demonstration Trial	Avonbank Demonstration Trial
Draft PSA	Draft Horsham Planning Scheme Amendment C84hors
DTP	Department of Transport and Planning
EE Act	*Environment Effects Act 1978*
EES	Environment Effects Statement
EIA	Economic Impact Assessment
EMF	Environmental Management Framework
EMM	Environmental Management Measures
EMP	Environmental Management Plan
EMS	Environmental Management System
EP Act	*Environment Protection Act 2017*
EPA	Environmental Protection Authority Victoria
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ERR	Earth Resources Regulation
ERS	Environmental Reference Standard
EVC	Ecological Vegetation Class
FFG Act	*Flora and Fauna Guarantee Act 1988*
FFIA	Flora and Fauna Impact Assessment
Flora and Fauna Peer Review	*Peer Review of Flora and Fauna Assessment*, Nature Advisory, July 2023 (attached to Brett Lane's Expert Witness Statement)

GDE	Groundwater dependent ecosystem
GED	General Environmental Duty
GHG	Greenhouse gas
HHRA	Human Health Risk Assessment
Historic Heritage Assessment	EES Appendix D - *Historic Cultural Heritage Impact Assessment Reform*, David Bannear, August 2022
HMC	Heavy Mineral Concentrate
Incorporated Document	Avonbank Mineral Sands Project Draft Incorporated Document
LACA	Land Access and Compensation Agreement
LVIA	EES Appendix F - Landscape and Visual Impact Assessment, Landform Architects, February 2023
the Minister	Minister for Planning
MIN area	Mining licence area
MNES	Matters of National Environmental Significance
MNES Significant Impact Guidelines	*Matters of National Environmental Significance: Significant impact guidelines 1.1*, *Environment Protection and Biodiversity Conservation Act 1999*
MOU	Memorandum of Understanding
MRSD Act	*Mineral Resources (Sustainable Development) Act 1990*
Native Vegetation Guidelines	*Guidelines for the removal, destruction or lopping of native vegetation* DELWP 2017
Noise Protocol	*Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* (EPA Publication 1826.4, March 2021)
NVIA	Noise and Vibration Impact Assessment
NVIA Peer Review	Resonate Consultants Pty Ltd Peer Review of the NVIA (D34)
NVMP	Noise and Vibration Management Plan
PE Act	*Planning and Environment Act 1987*
Planning Scheme	Horsham Planning Scheme
PoP	Port of Portland
the Project	Avonbank Mineral Sands Project
Proponent	WIM Resource Pty Ltd
R#	Sensitive receptor
RFI	Request for Information
ROMP	Rehabilitation Operations Management Plan
RRA	EES Appendix I – *Radiation Risk Assessment*, DBH Radiation Pty Ltd, January 2023
S#	Submission number

SCO	Specific Controls Overlay
Scoping Requirements	*Scoping Requirements for Avonbank Environment Effects Statement: Environment Effects Act 1987*, August 2020, State of Victoria
SIA	EES Appendix O – Social Impact Assessment, Public Place, February 2023
SUZ9	Special Use Zone Schedule 9
t/CO2-e	tonnes of carbon dioxide equivalence
TEC	threatened ecological communities
TMP	Traffic Management Plan
ToR	Terms of Reference
WBA	WIM Base Area
WIFT	Wimmera Intermodal Freight Terminal
µSv	microsieverts

Overview

Project summary	
The Project	Avonbank Mineral Sands Project
Brief description	The Project comprises: - mining of the Avonbank orebody and the primary and secondary processing of the resulting ore to produce a Heavy Mineral Concentrate (HMC) - 36 year project with one year construction, 30 years mining and progressive rehabilitation and five years final rehabilitation and decommissioning - road haulage of HMC to the Port of Portland (PoP) primarily via the Henty Highway - temporary storage of HMC in a leased bunker at the PoP prior to loading and shipping overseas - water and power supply for the mine and processing operations
Project location	The mining licence area (approximately 3,426 hectares) and WIM Base Area (approximately 90 hectares located within the Wimmera Intermodal Freight Terminal) is located approximately 15 kilometres north-east of Horsham, five kilometres north-east of Dooen and two kilometres south-west of Jung (see Figure 1)
The Proponent	WIM Resources Pty Ltd
EES	On 17 August 2019 the Minister for Planning determined an Environment Effects Statetement (EES) was required, and issued EES Soping Requirements in July 2020
Draft Planning Scheme Amendment	draft Horsham Planning Scheme Amendment C48hors
Exhibition	14 April to 26 May 2023
Submissions	Number of Submissions: 160 (see Appendix B)

Inquiry and Advisory Committee process	
The Committee	Lisa Kendal (Chair), Phil West and Catherine Wilson
Supported by Planning Panels Victoria (PPV)	Amy Selvaraj, Senior Project Officer/Acting Manager Major Projects Gabrielle Trouse, Project Officer
Directions Hearing	16 June 2023
Hearing	14 days: 31 July 2023, and 1, 2, 7, 8, 9, 10, 14, 15, 16, 17, 21, 22 and 24 August 2023
Site inspections	Unaccompanied, 30 July and 15 August 2023 Accompanied, 3 and 4 August 2023
Parties to the Hearing	See Appendix C
Citation	Avonbank Mineral Sands Project (EES) [2023] PPV
Date of this report	8 November 2023

Executive summary

(i) Avonbank Mineral Sands Project

The Avonbank Mineral Sands Project (Project) has an expressed aim to establish a world class mining operation and associated processing facilities to safely and efficiently produce premium quality Heavy Mineral Concentrate (HMC) for export. WIM Resources Pty Ltd is the Proponent for the Project.

The Project site is located approximately 15 kilometres north-east of Horsham, and consists of a mining licence area of 3,426 hectares (extraction and primary processing), a secondary processing area of 90 hectares (WIM Base area), and approximately 30 hectares of minor utilities corridor. The HMC will be transported to the Port of Portland using haulage trucks along the Henty Highway.

The mine will produce approximately 12.75 million tonnes of HMC over the Project life. The HMC includes mainly zircon, titanium-rich mineral concentrate and minor amounts of rare earth products. The Project will run over 36 years, including one year of construction, 30 years of mining and progressive rehabilitation and five years of final rehabilitation and decommissioning. The Project will operate 24 hours each day of the year.

(ii) Inquiry and Advisory Committee

The Minister for Planning determined an Environment Effects Statement (EES) was required for the Project on 17 August 2019.

The Avonbank Inquiry and Advisory Committee (Committee) was appointed by the Minster for Planning on 10 May 2023 to inquire into and report on the environmental effects of the Project. The Committee's Terms of Reference require it to:

- as an inquiry to:
  - review and consider the EES and submissions received
  - consider and report on potential environmental effects, their significance and acceptability
  - consider and report on environmental effects relevant to matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
  - identify measures necessary and effective to avoid, mitigate or manage effects
  - advise on how these measures relate to approvals
- as an advisory committee to consider issues raised in submissions and assess and advise on the draft Horsham Planning Scheme Amendment C84hors (draft PSA).

(iii) Exhibition and submissions

WIM Resources Pty Ltd (the Proponent) prepared an EES which was authorised to exhibit in April 2023. The EES and draft PSA was placed on public exhibition for 30 business days from 14 April to 26 May 2023.

Originally a total of 160 submissions were received, however this was revised to 157 submissions as three submitters advised they wished to withdraw their submission following the Hearing. These submissions were immediately withdrawn and were not considered by the Committee.

There were 118 supporting submissions which identified potential Project benefits and some submissions recommended changes. Identified Project benefits included:

- economic and employment benefits
- social benefits including job opportunities, upskilling local workers, investment in housing, infrastructure and services
- general support for mining projects in Australia.

There were 39 submissions opposing which identified potential disbenefits including:

- radiation
- land rehabilitation and soils
- traffic and transport
- air quality
- noise and vibration
- groundwater and surface water
- flora and fauna
- social and economic issues
- landscape and visual impacts
- energy and greenhouse gas emissions
- Aboriginal cultural heritage and historic heritage
- land use planning
- human health, including mental health
- the EES process.

In addition to many of above concerns, some directly affected landholders raised specific issues related to impacts on them, their families and properties.

The following government agencies made submissions including:

- Horsham Rural City Council which supported the Project given the significant economic benefits, on the basis any potentially adverse environmental impacts would be addressed through regulatory approvals
- Environment Protection Authority Victoria which made submissions in its capacity as an environmental regulator under the *Environment Protection Act* 2017 and made recommendations on proposed environmental management measures and conditions
- Department of Energy, Environment and Climate Action which made submissions on matters relating to native vegetation.

The Barengi Gadjin Land Council Aboriginal Corporation, the Registered Aboriginal Party representing the Traditional Owners of the land on which the Project is proposed, made a written submission following an invitation from the Committee to participate in the Hearing process. It was satisfied legislative obligations relating to tangible cultural heritage values in the Project area had been fulfilled, however it raised issues about values outside of the area and intangible values and effects on continuing cultural practices, rights and obligations.

Several submitters questioned whether the proposed regulatory arrangements were appropriate, and made recommendations on the Project Documentation, including the Environmental Management Framework (EMF) and the *Avonbank Mineral Sands Project Incorporated Document March 2023* (Incorporated Document).

(iv) Preliminary issues

The Committee based its assessment on its Terms of Reference and reached findings on several preliminary issues raised in submissions. Key findings were:

- there is clear strategy and policy support for the Project in local, regional and State plans
- the relevant legislation has been considered
- the issue of economic viability is not relevant to the Committee's consideration and assessment of effects, and this will be considered through the mining licence process
- regulation of the WIM Base area, located in the Wimmera Intermodal Freight Terminal, through the Horsham Planning Scheme is supported
- a condition should be included in the Incorporated Document to comply with the EMF
- it was not necessary for all draft management plans and work plan to be exhibited with the EES
- the temporal and moving nature of the Project means the impacts will change over time and the requirements and conditions in approvals must provide for continuous improvement and quality assurance.

The impact of the Project for directly affected landholders will be significant and for some will be experienced over extended timeframes. The Committee has considered and assessed effects and made specific recommendations to avoid or minimise the impacts on landholders. These recommendations are intended to complement any compensation arrangements that may be negotiated between the Proponent and individual landholders. The Committee has not addressed matters in the direct remit of the MRSD Act compensation agreements.

Where relevant, the Committee's preliminary findings provided the context for discussion of specific environmental effects.

(v) Overall assessment

Overall there are no significant environment effects that preclude the Project being approved or the EES Scoping Requirements evaluation objectives being achieved, subject to the Committee's recommendations.

The Project is strongly supported by national, regional and local mineral resources and economic development strategies and polices and is consistent with local policies relevant to environment and landscape, risks and amenity and natural resource management. The temporary loss of agricultural land will be offset by the benefits of resource recovery, noting the maximum disturbed area will average less than 300 to 400 hectares at any one time and the mine will be progressively rehabilitated and returned to productive farmland.

The Project is likely to deliver significant economic benefits to the local community, region and the State, and social benefits for the wider community.

The Committee is generally satisfied the Project aligns with principles of Ecologically Sustainable Development and provides a balanced approach to managing environmental effects for net community benefit. If delivered in line with recommended measures the Project should achieve its expressed commitment to best practice environmental and risk management.

The Committee is satisfied, subject to its recommendations, that the Project Documentation has adequately considered the General Environmental Duty.

Project implementation

The Committee supports the draft PSA subject to its recommendations. The Committee has recommended changes to the exhibited Incorporated Document to manage identified environmental effects. Concerns raised by Council about adequate resourcing for its role as responsible authority are important, and if necessary should be explored outside of the Committee process.

The Committee finds the Proponent's final 'Day 4' version of the EMF appropriate, subject to its recommendations.

The Committee is not aware of any matters that would require or preclude approval under the matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) and considers that matters of national environmental significance impacts can be acceptably managed.

(vi) Summary of environmental effects

Radiation

Radiation effects were assessed relating to assessment of radioactive pathways and exposure risk.

The Committee heard from three experts on radiation who all agreed the radiological impacts from the mining operations and the processing of the HMC will be significantly below the annual radiation dose limit and should not impact members of the public. The Project will require a Radiation Management Plan and approvals will be required under the *Radiation Act 2006*.

There are no radiation impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to ensure potential effects on residents returning to their properties soon after rehabilitation are adequately assessed and if necessary, managed and minimised, and HMC haulage trucks are sealed.

Soil and rehabilitation

Soil and rehabilitation effects were assessed relating to management of soils, land rehabilitation and productivity, rehabilitation of roads and unplanned closer of the mine.

Managing the soil stockpiles and bringing them back to commensurate productivity is one of the most important, if not the most important, determinant of the post-mining success of Project. The Committee heard from experts in soils and agronomy who generally agreed the impacts on soils can be managed and the Rehabilitation Plan can be achieved, in consultation with landholders.

There are no soil and rehabilitation impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to:

- ensure requirements for soil testing, baseline assessment and stockpile management is adequate
- require a weed and pathogen plan for the whole Project
- require a Wind Erosion Plan
- include a mitigation measure for progressive rehabilitation of roads
- include a new mitigation measure for a contingency plan in the event of unplanned closure.

Air quality

Air quality effects were assessed relating to whether the impact assessment methodology was appropriate and whether air quality will be acceptable.

There are no air quality impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to ensure monitoring measures are adequate and mitigation measures are maintained and implemented for the duration of the Project. The Incorporated Document should be amended to include a condition requiring an Air Quality Management Plan for the WIM Base area.

Traffic and transport

Traffic and transport effects were assessed relating to haulage road impacts, including at night, management of the local road network and transport of HMC by rail.

Local road closure is a critical impact on the local community and landholders. The Committee has made recommendations to require adequate consultation, engagement and communication with stakeholders to appropriately manage impacts of local road closures.

The issue of potential use of rail rather than road for HMC haulage was discussed in depth at the Hearing. Existing rail infrastructure is not currently fit for this purpose, and significant upgrade is required beyond the scope of the Project. The Committee recommends the option continue to be investigated and its feasibility assessed should funding be committed to upgrade the rail infrastructure. There should be provision for future rail infrastructure at the WIM Base area.

There are no traffic and transport impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to ensure there is adequate communication with the Department of Transport and Planning about the condition of the HMC haulage route and the development of a consultation process regarding the local road closures. The Incorporated Document should be amended to include a condition requiring the Development Plan to allow for provision of infrastructure for future rail use if feasible.

Noise and vibration

Noise and vibration effects were assessed relating to whether existing noise levels had been adequately assessed and whether construction, operational and road traffic noise and vibration impacts are acceptable.

In addition to the proposed mitigation measures to manage haulage truck noise, such as the driver code of practice, night-time truck movements should be regulated to two per hour during the 10pm to 6am period.

There are no noise and vibration impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure use of the haulage route between WIM Base and the Port of Portland during the night-time period is regulated and noise impacts further assessed.

Water

Water effects were assessed relating to surface water, water supply and groundwater impacts.

There are no surface water or ground water impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure the

Surface Water Management Plan is comprehensive with regard to regulations, consultation and review requirements.

Flora and fauna

Flora and fauna effects were assessed relating to 'avoid and minimise' removal of native vegetation, listed flora and fauna, rehabilitation of native vegetation, groundwater dependent ecosystems and fauna.

The EES adequately assessed the likelihood of the presence of native vegetation, however survey efforts were not comprehensive or conclusive. Further survey work and monitoring is required before and during delivery of the Project in relation to native vegetation, threatened flora, fauna and ecological communities. Further efforts should be made to avoid and minimise native vegetation removal in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*, DELWP, 2017.

The proposed environmental objectives relating to groundwater dependent ecosystems are appropriately stringent, noting the ecological and cultural significance of these values. It is appropriate and important to verify the groundwater model as proposed for mining Block A. The Committee has recommended measures to strengthen and clarify those requirements.

There are no flora and fauna impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to require further surveys and monitoring related to flora, fauna and groundwater, and further efforts made to avoid and minimise native vegetation removal.

Socio economics

Socioeconomic effects were considered including economic benefits, workforce, housing and community services. The Project is likely to bring significant employment opportunities.

There are no socioeconomic impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure workforce, housing and community services impacts are appropriately managed and minimised.

Human Health

Human health effects were considered relating to general human health and mental health.

There are no human health impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to require the preparation and implementation of a Wellbeing Plan focussed on supporting landholders and families. The Wellbeing Plan should endure to the end of the Project and to such time as the families have a chance to re-establish their farms.

Other issues

The Committee considers impacts to the following effects can be effectively managed to meet the evaluation objectives, subject to its recommendations:

- historical and cultural heritage
- landscape and visual amenity
- wastes and emissions
- land use planning.

(vii) Consolidated recommendations

The Committee recommends various changes to the EMF and Incorporated Document to better address the environmental effects of the Project. The Committee's recommended versions of Project documents at Appendices G and H of this Report are based on the Proponent's 'Day 4' versions.

The Committee's detailed recommendations have been consolidated and reordered into recommendations to amend the EMF and to update the Incorporated Document before approving the draft PSA.

The Committee makes the following recommendations:

Environmental Management Framework

1. **Amend the Environmental Management Framework as shown at Appendix G of this Report.**

Draft Planning Scheme Amendment and Incorporated Document

2. **Approve the draft Horsham Planning Scheme Amendment C84hors, subject to amending the Avonbank Mineral Sands Project Incorporated Document in line with the Committee's recommended version shown at Appendix H of this Report.**

PART A: INTRODUCTION AND CONTEXT

1 The Committee process

1.1 The Inquiry and Advisory Committee

WIM Resources Pty Ltd (the Proponent) proposes to develop the Avonbank Mineral Sands Project (the Project). The Minister for Planning (the Minister) determined an Environment Effects Statement (EES) was required on 17 August 2019 and published *Scoping Requirements for Avonbank Environment Effects Statement: Environment Effects Act 1987*, August 2020, State of Victoria (Scoping Requirements). The Proponent prepared an EES which was authorised to exhibit in April 2023.

The Minister appointed the Avonbank Inquiry and Advisory Committee (Committee) on 10 May 2023 to inquire into and report on the environmental effects of the Project. The Committee is appointed as an:

- inquiry pursuant to section 9 of the *Environment Effects Act 1978* (EE Act)
- advisory committee pursuant to section 151 of the *Planning and Environment Act 1987* (PE Act).

The Minister signed Terms of Reference (ToR) for the Committee on 6 February 2023 (see Appendix A). The ToR set out the scope of the Committee's purpose and how it is to conduct its process.

(i) Terms of Reference

Clause 4 of the ToR requires the Committee as the Inquiry to:

a. review and consider the environment effect statement (EES), submissions received in relation to the project, the predicted environmental effects, and the other exhibited documents;

b. consider and report on the potential environmental effects of the project, their significance and acceptability, and in so doing have regard to the evaluation objectives in the EES scoping requirements and relevant policy and legislation;

c. consider and report on potential environmental effects on relevant matters of national environmental significance protected under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act);

d. identify any measures is considers necessary and effective to avoid, mitigate or manage the environmental effects of the project, including any necessary project modifications; and

e. advise on how this relates to relevant conditions, controls and requirements that could form part of the necessary approvals and consents for the project.

Clause 5 of the ToR requires the Committee as the Advisory Committee to:

a. review draft planning scheme amendment (PSA) C84hors, which has been prepared to apply a Special Controls Overlay (SCO) and establish planning approval for the project under an incorporated document;[1]

b. consider issues raised in public submissions received in relation to the draft PSA; and

c. recommend any changes to the draft PSA that it considers necessary.

[1] The ToR refers to *Special* Controls Overlay, however the Victoria Planning Provision is Clause 45.12 *Specific* Controls Overlay

Clause 6 of the ToR requires the Committee to produce a report of its findings and recommendations to the Minister to inform her assessment under the EE Act, which will be considered by statutory decision makers for the Project.

Clauses 13 and 14 of the ToR identify the Project was determined to be a controlled action under the EPBC Act. Controlled actions are identified as likely to have a significant impact on Matters of National Environmental Significance (MNES). The relevant controlling provisions of the EPBC Act are:

- listed threatened species and communities (section 18 and 18A); and
- protection of the environment from nuclear actions (sections 21 and 22A).

Under the Bilateral Assessment Agreement between the Commonwealth and the State of Victoria the EES process is accredited to assess impacts on MNES under the EPBC Act.

Clause 27 of the ToR sets out how the Committee may inform itself:

> The Committee may inform itself in any way it sees fit, but must review and consider:
>
> a. the exhibited EES and draft PSA;
>
> b. the views of the Barengi Gadjin Land Council Aboriginal Corporation (if known);
>
> c. all submissions and evidence provided to the Committee by the Proponent, state agencies, local councils and submitters;
>
> d. any information provided by the Proponent and parties that responds to submissions or directions of the IAC; and
>
> e. any other relevant information that is provided to, or obtained by, the IAC.

Clause 34 of the ToR sets out what the Committee must report on:

a. analysis and conclusions with respect to the environmental effects of the project and their significance and acceptability;

b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;

c. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects;

d. recommendations as to any feasible modifications to the design or management of the project that would offer improved environmental outcomes;

e. recommendations for any appropriate conditions that may be lawfully imposed on any approval for the project, including with respect to the content of a work plan or conditions that might appropriately be attached to approval of a work plan if issued under the MRSD Act or changes that should be made to the draft PSA;

f. recommendations as to the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects, contingency plans and site rehabilitation;

g. recommendations with respect to the structure and content of the draft PSA; and

h. specific findings and recommendations about the predicted impacts on matters of national environmental significance and their acceptability, including appropriate controls and environmental management.

1.2 Exhibition and submissions

(i) Public exhibition

Clause 12 of the Committee's ToR require the EES and draft PSA to be exhibited for 30 business days. The Proponent was responsible for giving public notice of the EES.

The EES and draft PSA were placed on public exhibition for 30 business days from 14 April to 26 May 2023. The ToR provided for written submissions to be lodged through the Engage Victoria website and collected by Planning Panels Victoria (Clause 17).

A total of 157 submissions were received. Submissions were received from:

- government agencies including Horsham Rural City Council (Council), Environment Protection Authority Victoria (EPA), Department of Energy, Environment and Climate Action (DEECA)
- specific interest groups or organisations
- commercial and business operators
- community members and individuals.

A full list of submitters is provided in Appendix B. Three submitters withdrew following the Hearing and these are noted in Appendix B with the submission number and 'Withdrawn'. The issues raised in these submissions have not been considered by the Committee.

Appendix D includes details of procedural matters relating to the EES exhibition period and submissions.

(ii) Key issues raised in submissions

Supporting submissions

There were 118 supporting submissions which identified potential Project benefits including:

- economic and employment benefits
- social benefits including job opportunities, upskilling local workers, investment in housing, infrastructure and services
- general support for mining projects in Australia.

Council (S74) expressed support for the Project given the significant economic benefits. It submitted "*Council supports progression of a carefully regulated mine project in which any potentially adverse environmental impacts are addressed via the relevant regulatory instruments*".

Issues raised in submissions

Key issues raised in submissions relate to:

- radiation
- land rehabilitation and soils
- traffic and transport
- air quality
- noise and vibration
- groundwater and surface water
- flora and fauna
- social and economic issues
- landscape and visual impacts

- waste and greenhouse gas emissions
- Aboriginal cultural heritage and historic heritage
- land use planning
- human health, including mental health
- the EES process.

Several submitters questioned whether the proposed regulatory arrangements were appropriate, and made recommendations on the proposed Environmental Management Framework (EMF) and the *Avonbank Mineral Sands Project Incorporated Document March 2023* (Incorporated Document).

Landholder issues

Several landholder submitters raised many of the issues identified above, and specific issues relating to:

- lack of clarity about the proposed landholder compensation
- whether their land will be successfully rehabilitated
- whether the rehabilitation bond will be adequate?
- impacts of the stockpiles
- movement of farm machinery and loss of productivity resulting from local road closures
- impact on property values
- loss of earning capacity
- amenity, including noise and light pollution and visual impacts
- concern with the information provided and consultation process to date
- generational impacts and displacement from family farms and houses
- wellbeing, stress and mental health.

Government agencies

Council submitted it was unclear why the Proponent sought to regulate the secondary processing plant through the Horsham Planning Scheme (Planning Scheme), and proposed the whole mine and processing area should be included in the work authority under the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act). However, it considered there were no impacts of the Project that could not be appropriately managed through the proposed regulatory framework. It raised issues relating to radiation, noise and vibration, transport, haulage and the road network, air quality and dust and social impacts.

EPA made submissions in its capacity as an environmental regulator under the *Environment Protection Act* 2017 (EP Act). It submitted there were deficiencies in the EES and it made recommendations relating to the drafting of the Project Documents and specific mitigation measures relating to contaminated land, groundwater, noise and vibration, human health, waste, air quality and surface water.

DEECA submitted the EES largely provided adequate assessment of issues relating to flora and fauna, however considered further demonstration of the avoid and minimise requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (Native Vegetation Guidelines) was required.

Barengi Gadjin Land Council Aboriginal Corporation

The Barengi Gadjin Land Council Aboriginal Corporation (BGLC) is the Registered Aboriginal Party representing the Traditional Owners of the land on which the Project is proposed. BGLC represents the rights and interests of the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk Peoples. BGLC provided a written submission following an invitation by the Committee to participate in the Hearing process (D127).

Details of the BGLC submissions are included at Chapter 15.1. BGLC was satisfied the Proponent had fulfilled legislative obligations relating to tangible cultural heritage values in the mining licence (MIN) Area. It raised issues relating to tangible values outside of the MIN, intangible values and effects on continuing cultural practices, rights and obligations.

1.3 Committee process and approach

(i) Hearings

The Committee held a Directions Hearing by video conference on 16 June 2023, and issued written directions on 20 June 2023.

The main Hearing was conducted over 14 days from 31 July to 24 August 2023, which was held as:

- a hybrid Hearing in Weeks 1 and 3
- an online Hearing in Weeks 2 and 4.

For the hybrid Hearing days parties could participate either in-person or online. The in-person Hearing days were held in Horsham.

All documents and materials circulated during the Committee process were assigned a document number (D#), recorded on the Committee's document list and published on the Engage Victoria website (see Appendix E).

Audio recordings were made on all Hearing days and made available on the Engage Victoria website.

Procedural issues are documented in Appendix D.

The Committee invited a representative of the Department of Transport and Planning's (DTP) Impact Assessment Unit to provide an overview of the EES process on Day 1 of the Hearing (D65).

(ii) Site inspections

The Committee undertook comprehensive accompanied and unaccompanied site inspections of the Project site and surrounding area, along the Henty Highway and the PoP. The locations and features included on the site inspections were informed by suggestions from the Proponent and parties.

The Proponent prepared an itinerary (D16) for the accompanied site inspection, which included:

- Avonbank development extent and surrounding area (on Thursday 3 August) attended by representatives of the Proponent, Council and individual submitters
- PoP (on Friday 4 August) attended by representatives of the Proponent and Council.

(iii) Project Documentation

The Project Documentation consists of the EMF and the Incorporated Document. The Committee issued directions for the Proponent to circulate 'Day 1' versions of the Project Documentation before the Hearing started and 'Final day' versions with its closing submissions.

Following the Hearing:

- parties were given the opportunity to provide comment on the 'Final day' Project Documentation
- the Proponent was given the opportunity to respond to comments.

The Proponent submitted 'Day 4' versions on 4 September 2023. The Committee's recommendations are based on the Proponent's 'Day 4' versions of the EMF (D146) and Incorporated Document (D148).

The process of exchange of comments on versions of Project Documentation is explained in Appendix D.

1.4 Committee Report

The Committee Report consists of three parts and appendices:

- Part A – Introduction and Context
- Part B – Assessment of Environmental Effects
- Part C – Implementation and Integrated Assessment
- Part D – Appendices, including Committee preferred versions of Project Documentation.

The Committee has based its Report structure around the requirements of the ToR and with regard to the evaluation objectives in the Scoping Requirements.

The Committee has considered all issues put to it, but has not explicitly responded to every written submission or further submission in this Report. The Report focuses on key matters and what the Committee considers to be the significant issues.

The EE Act refers to 'significant effects' on the environment, while the EPBC Act refers to 'significant impacts'. The Committee uses these terms interchangeably.

2 The Project

2.1 Project overview

EES Chapter 1 states the Project objective is:

> to establish a world class mining operation and concentration plant which will safely and efficiently produce a premium quality mineral concentrate for export overseas.[2]

The mine will produce approximately 12.75 million tonnes of Heavy Mineral Concentrate (HMC) over the full life of the Project. The mineral sands products include mainly zircon, titanium-rich mineral concentrate and minor amounts of rare earth products.

The Project will run over 36 years, including one year construction, 30 years mining and progressive rehabilitation and five years final rehabilitation and decommissioning. It is proposed to operate 24 hours every day of the year.

2.2 Project location and activity areas

The Project site is in the municipality of Horsham in western Victoria, approximately 5 kilometres north-east of the township of Dooen and 15 kilometres north-east of Horsham (see Figure 1).

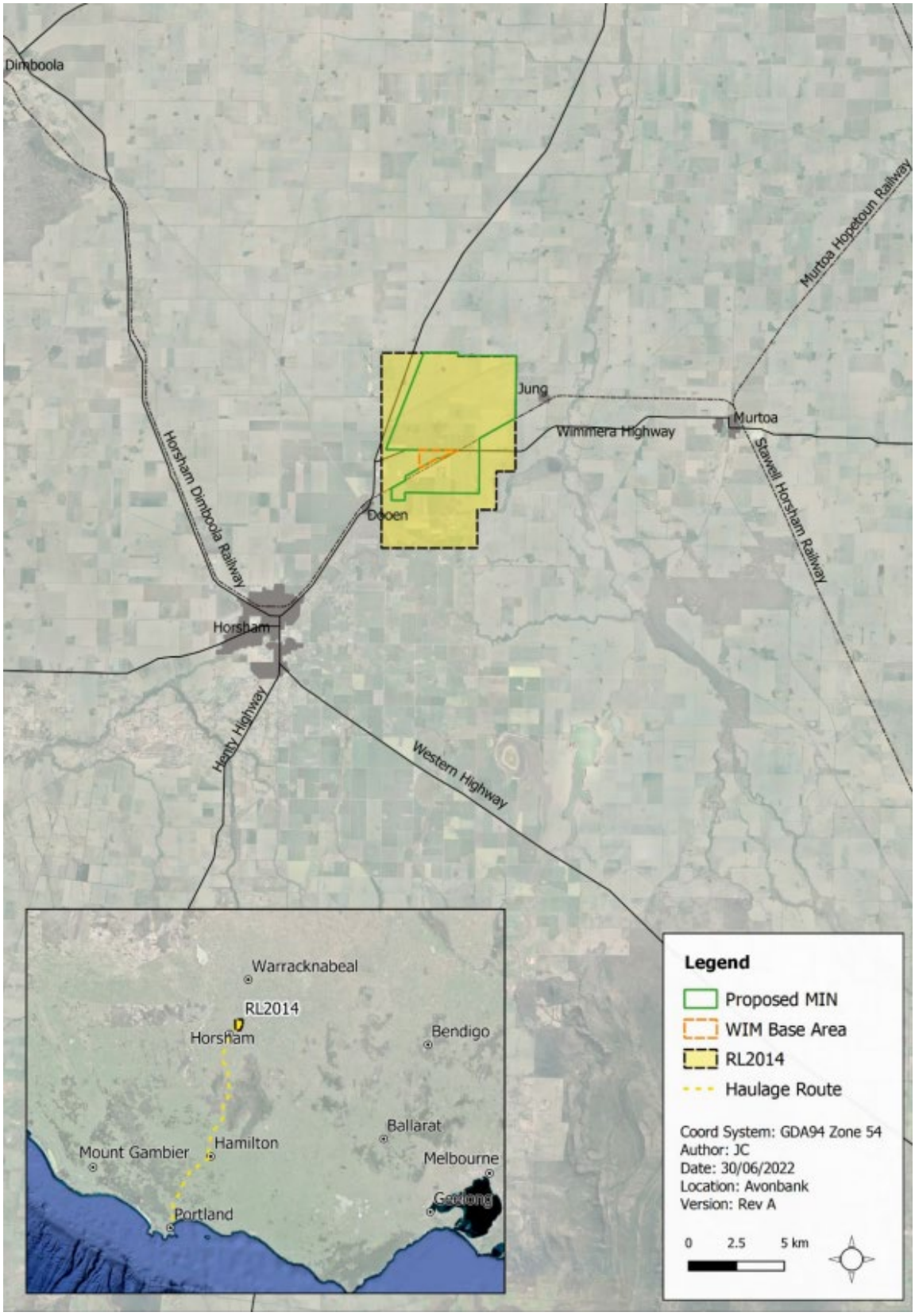
The Project consists of:

- MIN area - mining and primary processing will be located within the existing mining retention licence area (shown as RL2014 on Figure 1) (3,426 hectares)
- WIM Base Area (WBA) - secondary processing and loading activities (90 hectares) in the existing Wimmera Intermodal Freight Terminal (WIFT)
- minor utilities corridor (approximately 30 hectares)
- transportation of HMC from the WBA to the PoP.

Broadly the mining and processing areas are bound by private property to the north, Drung-Jung Road to the east, Longerenong Road to the south and Henty Highway to the west (Figure 2).

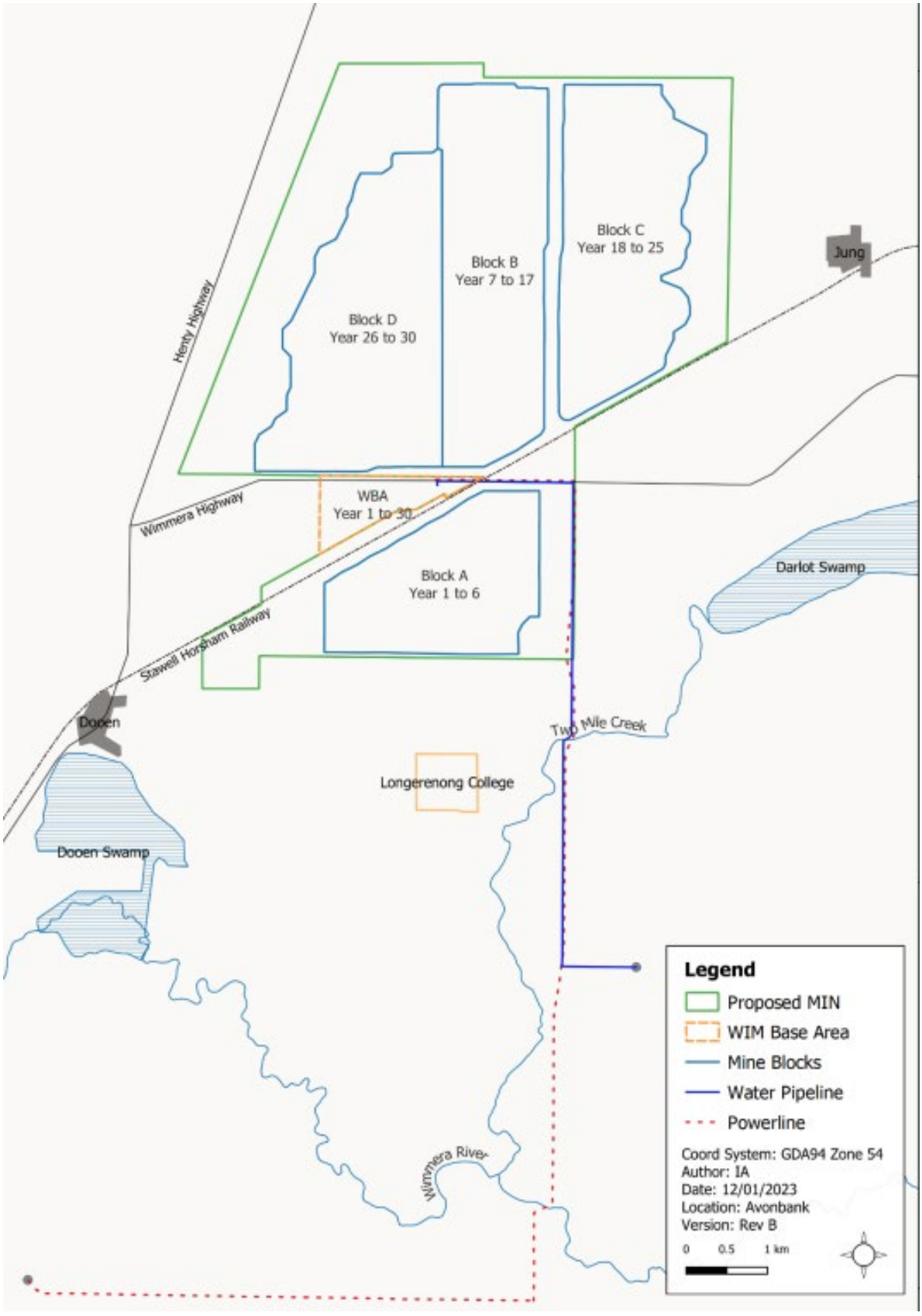
[2] EES Chapter 1, page 1-5

Figure 1 Project site



Source: EES Chapter 2, page 2-4

Figure 2 Project area and mine path



Source: EES Chapter 2, Figure 1.2

(i) Mining Licence Area

The MIN area includes a total mining footprint of 2,215 hectares across four mining blocks (Blocks A, B, C and D) that will be mined sequentially (see Figure 2 above).

Table 1 summarises the activities and infrastructure proposed for the MIN.

Table 1 MIN activities and infrastructure

	Processing activities	Infrastructure proposed
MIN	- Subsoil stripping and excavation of overburden - Stockpiling soils and overburden - Active mining of the mineral sand ore body - Ancillary activities associated with mining and rehabilitation - Primary processing at the screen and trommel - Pumping slurried ore to the WBA - Pumping tails to the mine void - Placement of sand tailings to the in-pit void - Backfilling overburden - Placement of topsoil and subsoil	- Unsealed roads and haul roads - Process water, slurry, and freshwater pipelines - Laydown area/contractor facility - Powerlines - Workshop - Mining unit plant and screen/trommel - Stockpiles - Drainage infrastructure - Crib room and ablutions

Source: modified from EES Chapter 2

(ii) WIM Base Area

The WBA is located in the WIFT. The WIFT is zoned Special Use Zone 9 – Wimmera Intermodal Freight Terminal Precinct (SUZ9) and consists of six sub-precincts (see Figure 3). In addition, the WBA includes a small area of land zoned Farming Zone to the east of the WIFT.

In response to Committee questions in the Request for Information (RFI) and directions, the Proponent and Council provided extensive submissions on the background and purpose of the WIFT.[3] Council submitted:

- The "*WIFT provides for a key industrial and logistics area involving the storage and distribution of primary produce and raw materials and associated industry, warehouse, manufacturing, mineral sands processing and storage handling, office and retail uses*".
- While the WIFT supports mineral sands activities, the purpose of the sub-precinct 2 is also to "*ensure appropriate separation between industry and warehousing involved in the storage and transfer of mineral sands and other earth resources from food related industries and warehouses*".[4]

The Proponent submitted the proposed WBA is located across three sub-precincts in the eastern part of the WIFT (see Figure 3):

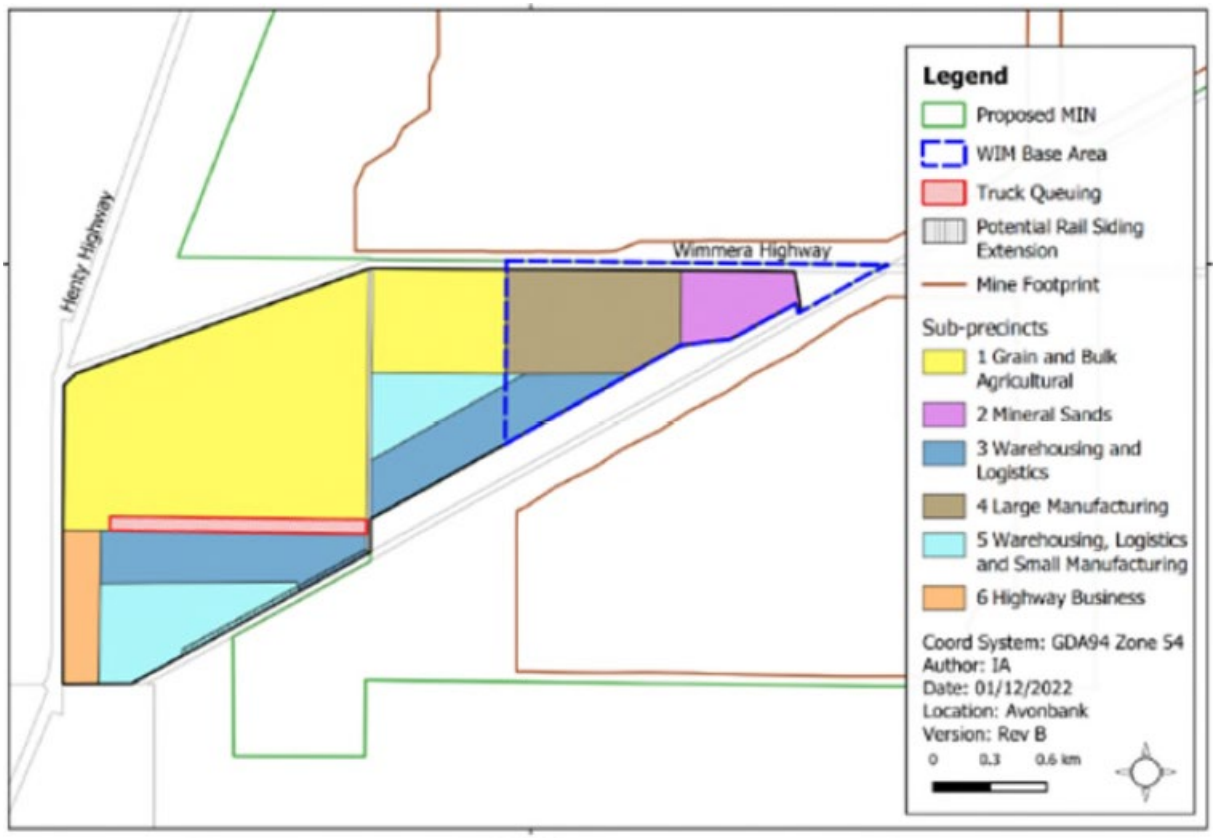
- Sub-precinct 2 – Mineral Sands
- Sub-precinct 3 – Warehousing and logistics
- Sub-precinct 4 – Large manufacturing.

[3] Proponent TN-02 (D51), Council submission (D100)
[4] Council submission (D100), page 3-4

Council's submission noted the WBA also affected part of Sub-precinct 5 – Warehousing, logistics and small manufacturing.

Details of planning provisions for the WIFT are included in Appendix F.

Figure 3 SUZ9 precincts and WBA



Source: Proponent TN-02 (D51)

Table 2 summarises the activities and infrastructure proposed for the WBA and Figure 4 shows a conceptual image of the WBA.

Table 2 WBA activities and infrastructure

	Processing activities	Infrastructure proposed
WBA	- Secondary processing of ore and separation of HMC at the Wet Concentrator Plant - Management of tailings and process water - Loading of HMC onto haulage trucks - Ancillary activities associated with the processing and production of HMC product	- Wet Concentrator Plant - Process water dams - Powerlines - Pipework for the movement water, mine slurry and tails - HMC stockpiles, product loading area - Offices and crib rooms - Workshop and laboratory - Laydown area - Road works on Wimmera Highway to establish site access - Drainage infrastructure - Ablutions - Bunds and tree screens

Source: modified from EES Chapter 2

Figure 4 Conceptual image of the WBA

Source: EES Chapter 2, page 2-12

(iii) Minor utilities corridor

EES Chapter 2 explains:

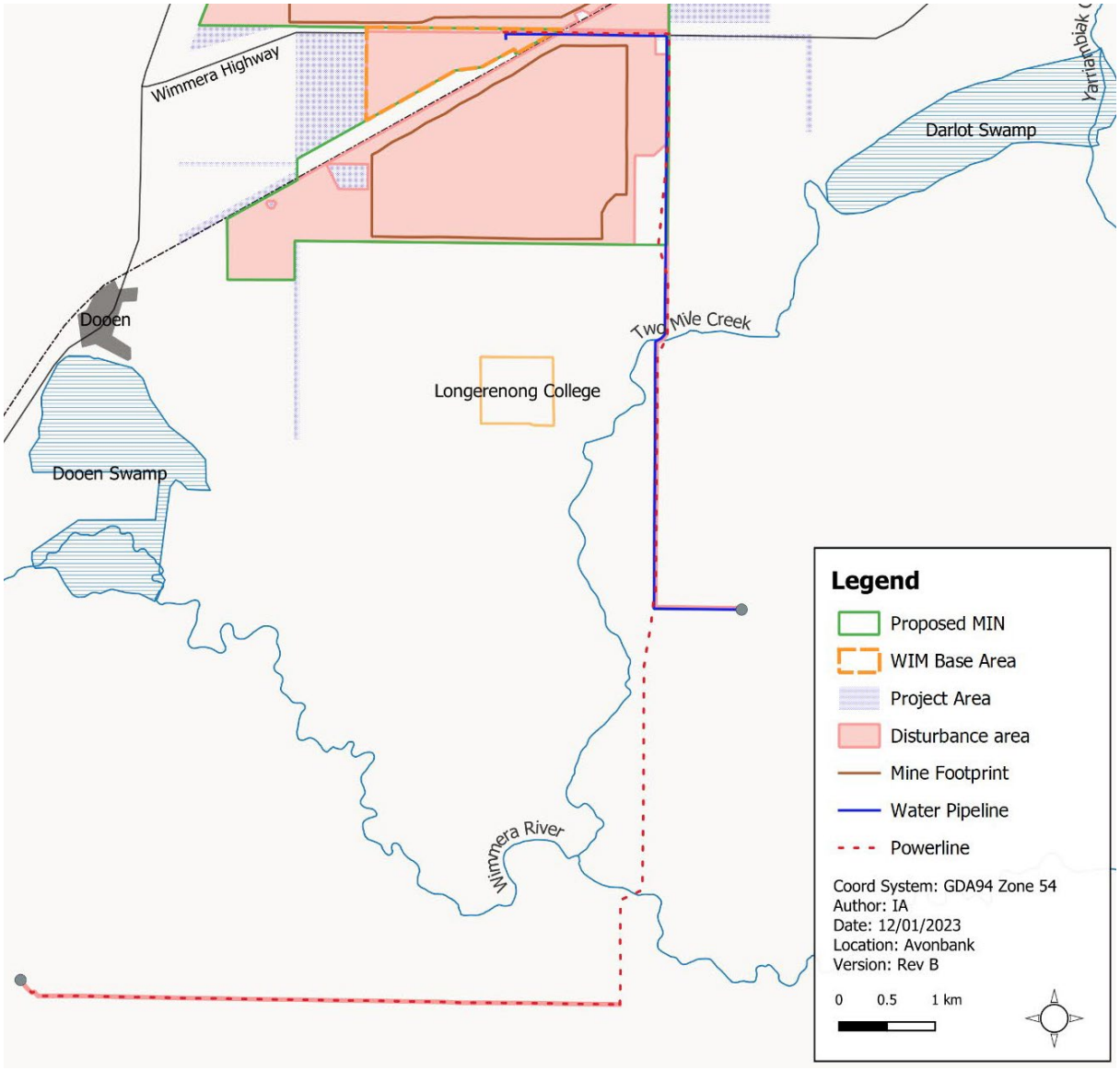
> Power and water minor utilities from the respective terminal stations to the WBA will be located within areas of road reserve and private properties. The infrastructure will extend across areas within and outside the mining licence and will terminate at the WBA.[5]

Infrastructure to the WBA will include:

- 8.5 kilometres of underground pipeline from the Longerenong Pump Station
- 66 kilometres of powerline from the Horsham Terminal Station.

Figure 5 shows the location of proposed power and water infrastructure.

Figure 5 Minor utilities corridor



Source: EES Chapter 2, page 2-9 (excerpt)

[5] EES Chapter 2, page 2-12

(iv) Transport corridors and Port of Portland

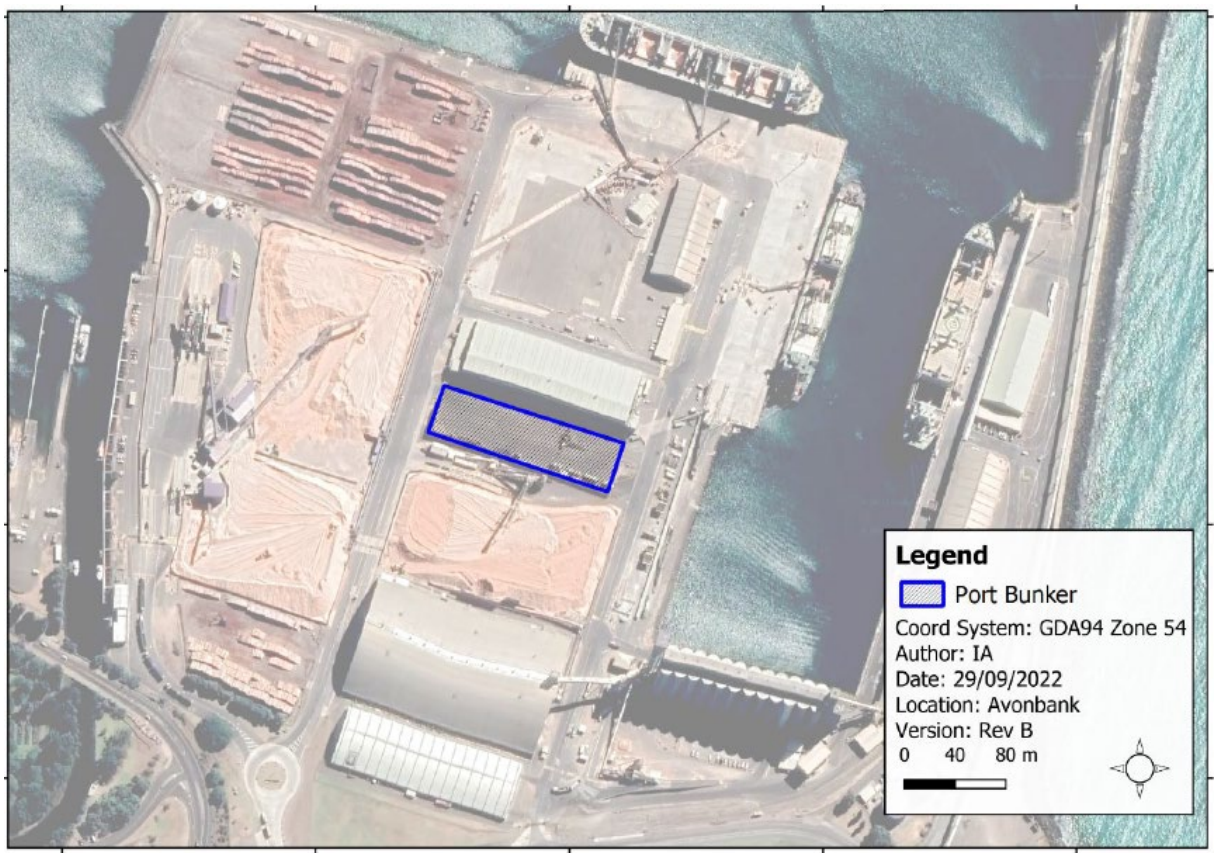
HMC will be transported approximately 230 kilometres from the WBA to the PoP along the Henty Highway through Horsham, Cavendish, Hamilton, Heywood to Portland. HMC will be stored temporarily at the PoP before being loaded and shipped overseas.

HMC will be stored in a purpose built storage shed, with approximate capacity of 70,000 tonnes, and transferred to the ship's bulk hold using a closed circuit bulk loading system.

The Proponent explained:

> The Project includes the construction of a bunker leased from the Port of Portland to store HMC prior to export. The site of the proposed bunker is on RB Anderson Road, and is located within the Port Zone in the Glenelg planning scheme.[6]

Figure 6 Port of Portland bunker and shed



Source: EES Chapter 2, page 2-7

2.3 Project development and operations

(i) Construction

Construction will take approximately one year and will comprise five phases:

- site establishment
  - site access
  - site offices, facilities and laydown areas

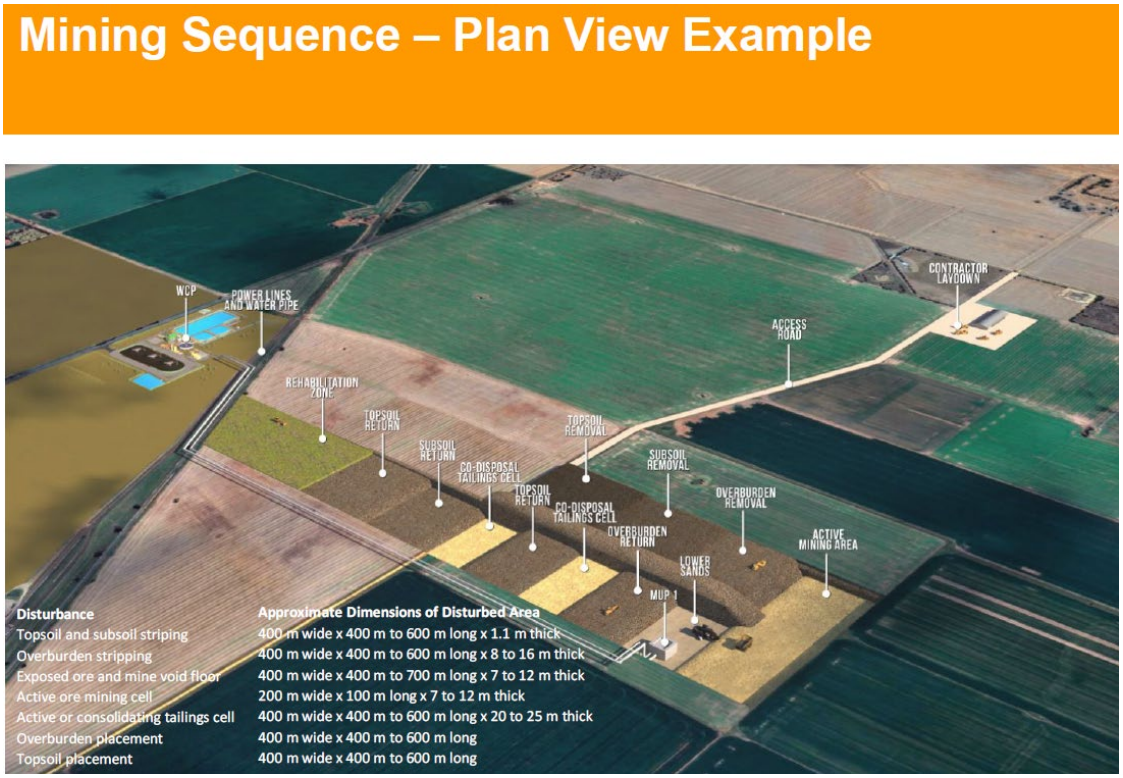
[6] Proponent Part A submission (D23), page 35

- earthworks and civil works
  - clearing, stripping of topsoils and filling to design level
  - upgrade powerline and water pipeline
- structural, mechanical and piping construction
  - construction of substation in the WBA and installation of underground high-voltage and overhead lines to the mining area
  - construction of the wet concentrator plant
- electrical and instrumentation construction
  - installation of low-voltage electrical infrastructure
- construction demobilisation
  - commissioning and identification of any construction elements that require rectification.

(ii) Mining

The mine will be an open-cut operation using a 'moving mine' method with progressive rehabilitation (see Figure 7). Mining will be to a depth of approximately 24 to 30 metres using conventional heavy earth moving methods and equipment.

Figure 7 Moving mine method



Source: D88

Starter pits will be established for Blocks A and B. Overburden from the starter pits will be stockpiled at the final location of mining as follows:

- Overburden stockpile A
  - adjacent to Block A, approximately 670 metres long by 430 metres wide by 30 metres high and to remain in place for approximately eight years
- Overburden stockpile B

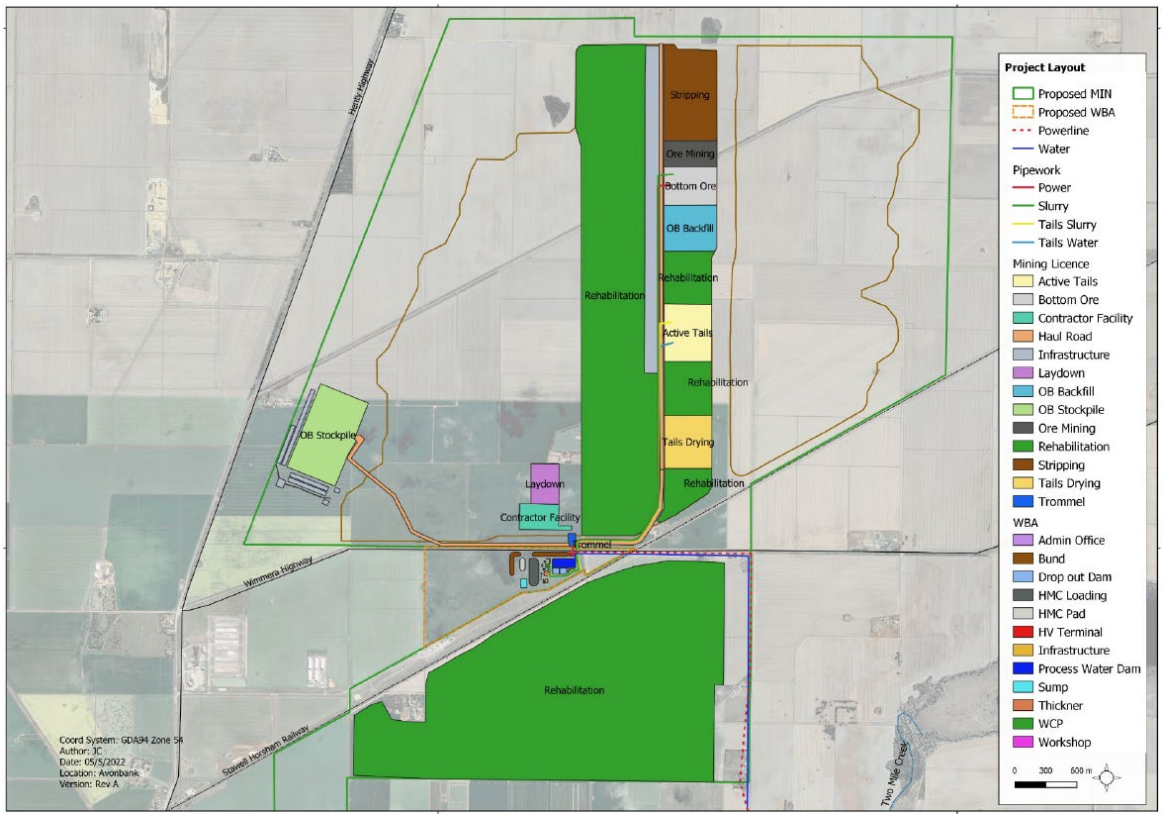
- adjacent to Block D, approximately 860 metres long by 500 metres wide by 30 metres high and to remain in place for approximately 23 years.

The locations of overburden stockpiles for Blocks A and B are shown in Figures 8 and 9.

Figure 8 Operational plan and overburden stockpile for Block A

Source: EES Chapter 2, page 2-13

Figure 9 Operational plan and overburden stockpile for Block B



Source: EES Chapter 2, page 2-14

During mining:

- the maximum disturbed area will average less than 400 hectares at any one time
- topsoil and subsoils will be stockpiled adjacent to the active mining cell for use in rehabilitation
- after the start up phases for Blocks A and B, tailings and overburden will be returned to the mine cells as the mining front advances
- mining cells will be backfilled with a combination of overburden (60 per cent of cells), or tailings and overburden (40 per cent of cells), and then covered with subsoil and topsoil.

(iii) Ore processing and transport

The processing includes:

- feeding the ore into a Mining Unit Plant in the mine pit and mixing with water to form a slurry
- pumping the slurry to the wet concentrator plant for mineral separation
- separating target minerals from fine and coarse sand by a simple wet gravity circuit
- loading the HMC onto B-double articulated trucks for transport to the PoP.

Approximately 26 loads of HMC will be taken to the PoP each day, with shipments of 30,000 to 50,000 tonnes of HMC exported every two to three weeks.

(iv) Rehabilitation and closure

Progressive rehabilitation of each mine cell will be conducted as soon as possible to enable the return of disturbed areas to its previous productive land use and capability. The Project aims to:

- ensure all mining areas will be progressively rehabilitated within four years after the initial disturbance
- return all stockpiled overburden to the pit void as part of final rehabilitation activities
- provide a safe, stable and sustainable post-closure landform that supports pre-mining land use.

The land will be handed back to land holders once it has been suitably rehabilitated and end land use objectives have been achieved.

(v) Indicative project schedule

The total life of the Project is expected to be 36 years, commencing in 2024 and comprising one year construction, 30 years active mining and up to five years decommissioning (see Table 3).

Table 3 Indicative project schedule

	Year																																	
Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Site establishment																																				
Construction																																				
Active mining - Block A																																				
Active mining - Block B																																				
Active mining - Block C																																				
Active mining - Block D																																				
Plant operation																																				
Progressive rehab - Block A																																				
Progressive rehab - Block B																																				
Progressive rehab - Block C																																				
Progressive rehab - Block D																																				
WBA Decommissioning																																				
Rehab WBA																																				
Rehab monitoring/maintenance																																				

Source: EES Chapter 2, page 2-17

2.4 Demonstration Trial

The Project development was informed by assessments undertaken in preparing for the EES and the Avonbank demonstration yest pit and trial (Demonstration Trial). The Demonstration Trial was undertaken from 2019 to 2022 to ensure the geological model, grade and ore characteristics were well understood, and to confirm the proposed mining and processing techniques (see Figure 10).

The Demonstration Trial involved:

- stripping and stockpiling topsoil, subsoils and overburden
- excavating approximately 5,000 bank cubic metres from between 13 – 20 metres below ground
- confirming mine design parameters and suitability of equipment
- processing excavated ore by separating the HMC from coarse and fine sand tailings
- dewatering and co-disposal of tailings back into the pit for consolidation (9 months)
- reapplying overburden and soils
- seeding with barley in 2021 and harvesting.

Figure 10 Avonbank Demonstration Trial showing mining pit, stockpiles and wet concentrator plant

Source: EES Chapter 22, page 22-5

2.5 Memorandum of Understanding

Council and the Proponent entered into a Memorandum of Understanding (MOU) (D18) in July 2022 with purposes:

> …to confirm the principles of a collaborative approach, recognising the specific roles and obligations of each of the parties
>
> …to develop processes to support working cooperatively and collaboratively, to maximise mutually beneficial community and economic outcomes, and ensure best environmental practice from the development and operation of the Avonbank Mineral Sands Project (Avonbank Project), within the Rural City of Horsham.

The MOU contains schedules which identify actions relating to:

- Schedule 1 – optimising economic and social outcomes
- Schedule 2 – building relationships to support the project.

The MOU notes that it:

- is a continuous agreement that will be reviewed each year
- is not a contract between the parties and is based on good will and bound by honour only
- does not replace any statutory obligations for either party
- does not preclude Council making a submission on the EES.

3 Environment Effects Statement

3.1 Scoping requirements and evaluation objectives

The Scoping Requirements set out the assessment process and required approvals, matters that must be addressed in the EES and requirements for assessment of specific environmental effects.

Table 4 shows the evaluation objectives.

Table 4 Evaluation objectives

Environmental effect	Evaluation objective
Resource development	Achieve the best use of available mineral sands resources, in an economically and environmentally sustainable way
Social, land use and infrastructure	Minimise adverse social, land use and infrastructure effects
Amenity and environmental quality	Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity
Cultural heritage	Avoid or minimise adverse effects on Aboriginal and historic cultural heritage
Biodiversity and habitat	Avoid, minimise or offset adverse effects of the project on biodiversity values including native vegetation, listed threatened species and communities and habitat for these species consistent with state and commonwealth policies
Catchment values	Minimise effects on water resources and on existing and potential future beneficial and licensed uses of surface water, groundwater and related catchment values over the short and long-term

3.2 Structure of the EES

The exhibited EES contains:

- description of the Project and relevant context (EES Chapters 1 – 7)
- summary of environmental impact assessments and management measures (EES Chapters 8 – 23)
- EMF, MNES assessment and conclusions (EES Chapters 24 – 27)
- technical reports (EES Appendices A - Q)
- additional information including the draft PSA and Rehabilitation Plan (EES Attachments 1 - 5).

Figure 11 shows the structure of the EES.

Figure 11 Structure of EES

STRUCTURE OF THE EES

Executive Summary
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APPENDIX O Social Impact Assessment
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ATTACHMENTS

ATTACHMENT 1 Stakeholder Engagement Report
ATTACHMENT 2 Draft Planning Scheme Amendment
ATTACHMENT 3 Rehabilitation Plan
ATTACHMENT 4 Work Plan Framework
ATTACHMENT 5 Aspects and Risks

Source: Navigating the EES – Avonbank Mineral Sands Project

3.3 Project alternatives

The Scoping Requirements require the EES to include:

- a description of feasible alternatives capable of substantially meeting the project's objectives that may also offer environmental or other benefits (as well as the basis for a preferred alternative if nominated).

EES Chapter 3 sets out a range of alternative approaches to Project components that were considered during development of the Project. It includes consideration of:

- scheduling and start up location
- mining layout
- location of the wet concentrator plant
- mining techniques
- overburden movement methods
- subsoil movement methods
- tailings management
- transport access to the WBA
- HMC transport methods
- power supply options
- water supply options.

It also includes a 'no development option'.

3.4 Environmental Management Framework

EES Chapter 24 includes the proposed EMF.

The exhibited EMF:

- reflects the requirements of the *AS/NZS ISO 14001:2016 Standard 'Environmental management systems – Requirements with guidance for use*' (AS/NZS Standard)
- sets out the regulatory context and key approvals
- sets out the scope of the Environmental Management System (EMS), its requirements and processes relating to leadership, policy, risk assessment and planning, and resources, training and communication
- sets out the management plan requirements, including review and operational requirements
- sets out requirements for monitoring, performance evaluation and improvement, including audit requirements, review of the EMS, documentation, community engagement and continual improvement
- includes Environmental Management Measures (EMMs) to avoid and minimise impacts and to monitor environmental performance.

Aspects of the continual improvement program are described in the preliminary Rehabilitation Plan (EES Attachment 3). A summary of this plan is included in Chapter 3.6 of this Report.

EES Chapter 5 – Community Engagement provides an overview of the community engagement strategy for the Project.

The exhibited EMF states it reflects EMS the requirements set out in the AS/NZS Standard.[7] It includes measures to avoid and minimise impacts and risks to the environment, as identified in other chapters of the EES. It notes that the measures will evolve over time in line with the EMS and requirements of the General Environmental Duty (GED).

The EMF says an Aspects and Risk Register will be integrated into the EMS. EES Attachment 5 includes an Aspects and Risk Register.

3.5 Draft Horsham Planning Scheme Amendment C84hors

EES Attachment 2 includes the draft PSA. The draft PSA proposes to introduce an Incorporated Document through a schedule to the Specific Controls Overlay (SCO). The SCO would be applied to land in the WBA to permit use and development for mineral sands processing and associated infrastructure (see Figure 12).

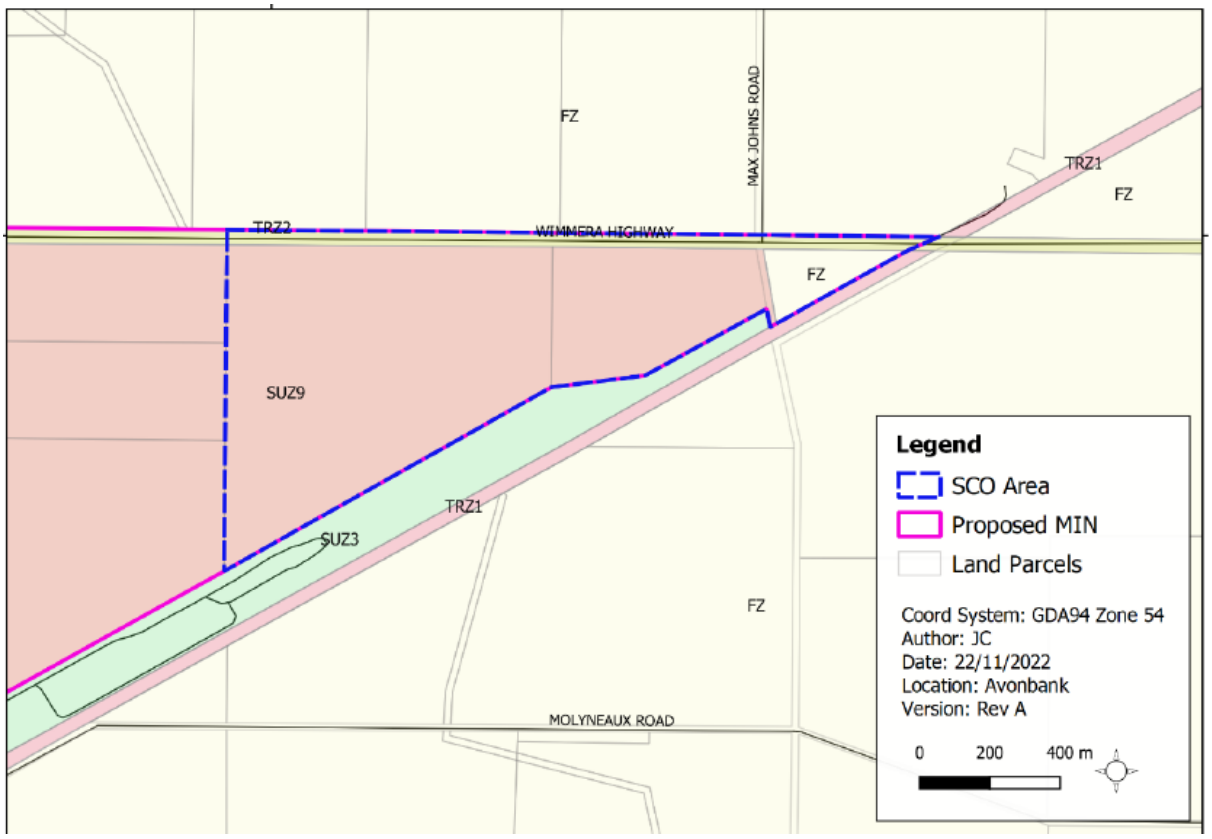
The Incorporated Document requires the Proponent to develop and submit the following plans to the Responsible Authority for approval:

- Development Plans
- Construction Management Plan
- Environmental Management Plan (EMP)
- Noise and Vibration Management Plan (NVMP)
- Native Vegetation Management Plan
- Traffic Management Plan (TMP)
- Fire Management Plan.

The Incorporated Document will expire if development and use has not commenced within four years of the approval date, and if the Project is not completed within 37 years of its commencement.

[7] EES Chapter 24, page 24-1

Figure 12 Proposed SCO area



Source: EES Attachment 2

3.6 Rehabilitation Plan

EES Attachment 3 includes a preliminary Rehabilitation Plan. It addresses all matters related to progressive rehabilitation, decommissioning and closure across all Project activity areas.

The Rehabilitation Plan includes:

- criteria, principles or standards used to measure whether an objective has been met
- key rehabilitation objectives
- a framework for the Rehabilitation Operations Management Plan (ROMP), Rehabilitation Research Plan and Ground Control Management Plan
- requirements for unplanned closure
- post closure and post rehabilitation risks.

The Rehabilitation Plan explains the rehabilitation bond required by Earth Resources Regulation (ERR) "*reflects 100 per cent of the estimated rehabilitation cost and is in place to ensure that rehabilitation can be undertaken by the regulator should the operator be unable to meet their rehabilitation obligations*".[8]

[8] EES Attachment 3, page 80

3.7 Work Plan Framework

EES Attachment 4 includes the Work Plan Framework. It outlines the framework for development of a mine work plan, which is the primary approval mechanism under the MRSD Act. The requirements for the work plan include:

- description of the mining operations
- identification of hazards and risks
- risk management plan
- rehabilitation plan
- community engagement plan
- work plan preparation.

3.8 Changes after the EES was exhibited

The Proponent made changes to its 'Day 1 versions' of the Project documentation, stating (D46):

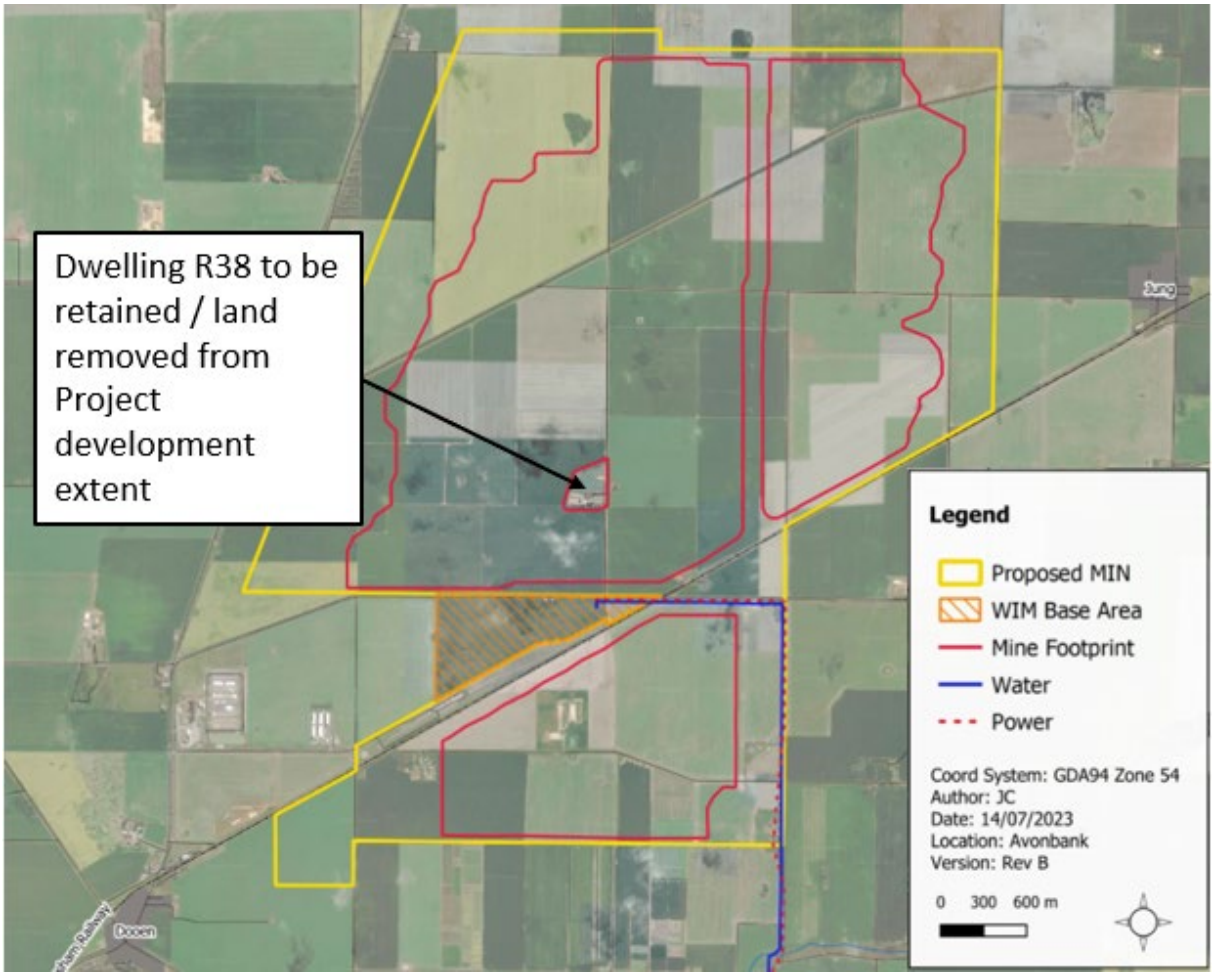
> The changes made to the Day 1 EMF reflect changes requested by EPA and recommendations made by the Proponent's expert witnesses, as well as the fact that the EMF is now proposed as a statutory control document as requested by EPA. An itemised response to each of the EPA recommendations is appended to the Part B submissions. We envisage that further revisions will likely be proposed to these documents as the hearing progresses.

In its Part B submission (D50), the Proponent advised that in addition to changes proposed to the 'Day 1' versions of Project Documentation it proposed changes to the Project to further reduce impacts. Changes relate to:

- an agreement with the owner of the dwelling at receptor R38 to retain the dwelling, stating "*while this will involve foregoing some ore recovery, it will enable the retention of the dwelling, reducing the impact of the Project on that landowner as well as the overall disturbance that will occur*" (see Figure 13)
- advice from Powercor that the existing 22 kilovolt powerline along Horsham-Lubeck Road would not need to be ungrounded as previously advised
- inclusion of changes to the Incorporated Document following consultation with the Country Fire Authority (see TN-11, D60).

The Proponent made further changes to the Project Documentation in response to issues raised through the Hearing process, and submitted these to the Committee as 'Final day' versions (D146 – D149).

Figure 13 Proposed amendment to Project development extent



Source: D79 with notations by the Committee

4 Strategic context and Project approvals

4.1 Legislative and policy context

Relevant legislation, policies and strategies are set out in the Committee's ToR, EES Chapter 4 (Regulatory Framework) and the Proponent's Part A submission.

As required by relevant legislation and policy, the following key principles underpin the Committee's findings and recommendations include:

- ecologically sustainable development
- integrated decision making and net community benefit
- precautionary principle
- GED.

A summary of the legislative and policy context, and key principles is included in Appendix F.

4.2 Project approvals

EES Chapter 4 (Regulatory Framework) explains:

- mining and primary processing activities in the MIN area are proposed to be regulated by a mining licence under the MRSD Act
- secondary processing and loading activities in the WBA are proposed to be regulated by the Planning Scheme (see Chapter 3.5).

Table 5 includes a summary of the regulatory framework, approvals, permits and licences. The table is based on the statutory approvals and consents identified in EES Chapter 4, with changes noted to reflect updates and additions.

In response to a request from the Committee, the Proponent provided a chart showing how each of the approvals relates to the different Project activity areas, consistent with its 'final day' versions of the Project Documentation (see Figure 14).

Table 5 Statutory approvals and consents

Legislation	Relevant authority	Approvals/ assessment required	Reason/activity
Environment Protection and Biodiversity Conservation Act 1999 (Cth)	Department of Climate Change, Energy, the Environment and Water (Cth)	Approval is required under the EPBC Act Environmental assessment under an accredited Victorian process. Commonwealth Minister of Environment and Water's decision on assessment.	The Project has been determined to be a 'controlled action'
Mineral Resources (Sustainable Development) Act 1990	Department of Jobs, Precincts and Regions	Mining licence Mining work plan Restricted Crown land consent Rehabilitation bond	Required for mining works and related activities within the area covered by the proposed mining licence A planning permit is not required for works and

Legislation	Relevant authority	Approvals/ assessment required	Reason/activity
		Consent from landholders	activities within a mining licence area as per s42(7) of the MRSD Act
Environment Effects Act 1978	Department of Transport and Planning [A]	Assessment of the environmental effects of the Project by the Minister for Planning	Assessment by the Minister for Planning
Planning and Environment Act 1987	Horsham Rural City Council Department of Transport and Planning [A]	Planning scheme amendment Planning permit for the removal of native vegetation [D]	Development of infrastructure or activities within and outside of the WBA, as per Clause 45.12 of the PE Act
Environment Protection Act 2017 and *Environment Protection Regulations 2021*	Environment Protection Authority Victoria	Permissions required, including A18 discharge for deposit of waste to an aquifer	Discharge to an aquifer
Environment Protection Act 2017 and *Environment Protection Regulations 2021*	Horsham Rural City Council	A20 on-site wastewater management system permit	Wastewater management system installation
Crown Land (Reserves) Act 1978	Department of Energy, Environment and Climate Change [A]	Ministerial consent	Mining on Crown land
Land Act 1958	Department of Energy, Environment and Climate Change [A]	Ministerial consent	Mining on Crown land
Radiation Act 2005	Department of Health [B]	Approved radiation management plan and radioactive waste management plan Radiation licence	Compliance with the *Australian Radiation Protection and Nuclear Safety Agency code of practice for mining and mineral processing* (ARPANSA 2015)
Customs Act 1901 (Cth) and Customs (Prohibited Exports) Regulations 1958	Department of Home Affairs	An export permit under the Customs (Prohibited Exports) Regulations 1958	Export of radioactive material

Legislation	Relevant authority	Approvals/ assessment required	Reason/activity
Aboriginal Heritage Act 2006	Registered Aboriginal Party First Peoples State Relations	Approved Cultural Heritage Management Plan (CHMP)	Impacts on Aboriginal cultural heritage values
Heritage Act 2017	Heritage Victoria	Consent to disturb known/ registered historic sites if found	Disturbance of historic sites
Flora and Fauna Guarantee Act 1988	Department of Energy, Environment and Climate Change [A]	Permit to take protected flora Approved offset management plan	Removal or destruction of native vegetation and protected flora
Wildlife Act 1975	Department of Energy, Environment and Climate Change [A]	Wildlife Act permit	Fauna surveys, salvage and translocation activities
Catchment and Land Protection Act 1994	Wimmera Catchment Management Authority	Pest plant and animal assessment	Required for mining Potential for the Project to introduce and/or spread the distribution of pest plants and pest animals
Water Act 1989	Department of Energy, Environment and Climate Change [A] Grampians Wimmera Mallee Water Authority Wimmera Catchment Management Authority	Bore construction licence Groundwater extraction licence Bulk Entitlement Works on waterways permit [D]	Groundwater extraction Water pipeline construction and operation
Road Management Act 2004	Department of Transport and Planning [C] Horsham Rural City Council	Written consent Road closure, diversion and/or opening permits	Mining through road reserves. Road closure, diversion and/or upgrade
Transport Integration Act 2010	Department of Transport and Planning [C] VicTrack	Permit to Work	Installation of [high-voltage] cables and piping across the existing railway line easement

Source: EES Chapter 4, modified by the Committee as follows:

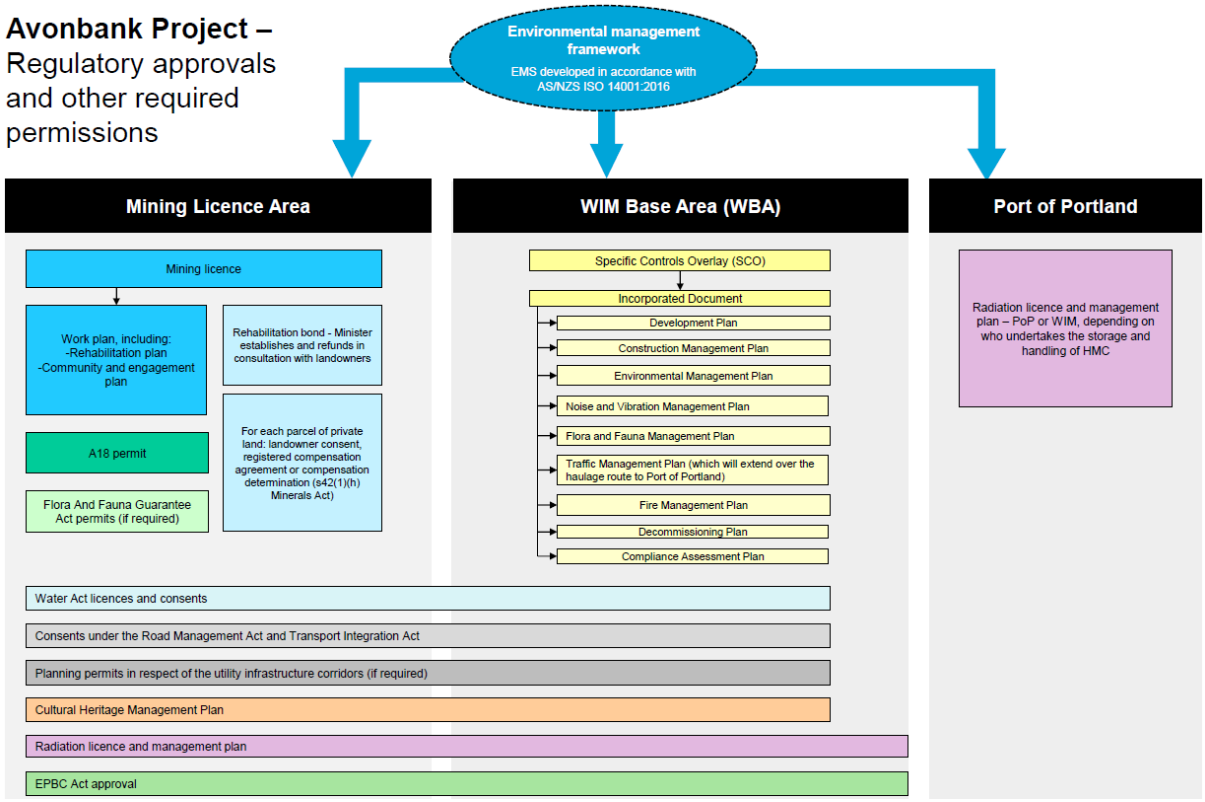
[A] Previously Department of Environment, Land, Water and Planning

[B] Previously Department of Health and Human Services

[C] Previously Department of Transport

[D] Identified as required during the Hearing/Committee

Figure 14 Avonbank approvals and other permissions



Source: Attachment to Proponent's closing submission (D129a)

5 Preliminary issues

Submissions raised various preliminary issues relating to the EES process, the scope of the Committee's role and what it should consider. The Committee's responses to these issues are provided below, and have informed the discussion of relevant matters in Part B of this Report.

The issues include whether:

- the Project has policy support
- all the relevant legislation has been considered
- landowner impacts are adequately considered and addressed
- the Project is economically viable
- the proposed regulatory framework for WBA is appropriate
- the EMF should be enforceable and EMMs are adequately detailed
- the EES should have included a draft work plan and all management plans/subplans.

This chapter also includes a summary of issues not addressed by the Committee.

(i) Policy support

Submissions

Some submitters raised issues that the Project was not supported by policy, including:

- concern that mineral extraction policies should not override higher strategic priorities, such as those relating to agriculture, contaminated land, environment, amenity and human health
- the Project did not comply with the objectives of planning
- the Project did not align with the Commonwealth Critical Minerals Strategy as it does not strengthen domestic supply chains.

Several submitters considered the Project aligned with relevant strategies and policies.

The Proponent submitted in closing:

- no credible arguments had been put that the Project was inconsistent with policy
- there is emphatic policy support for the Project, as described in its Part A submissions.

Discussion and findings

Appendix F includes a summary of strategic context and legislation. It is not the role of the Committee to assess whether the Project is strategically justified, however it notes there is clear strategy and policy support for the Project in local, regional and State plans.

The Committee is required to inquire into and report on the environmental effects, with regard to the evaluation objectives and relevant legislation and policy. Accordingly, the Committee has focussed its assessment on the identified environmental effects, including an integrated assessment of effects and making recommendations on necessary measures to sufficiently avoid, mitigate or manage effects. Policy has been taken into consideration as relevant to the environmental effects, as discussed in other chapters of this Report.

(ii) Relevant legislation

Submissions

Some submitters, including Bendigo and District Environment Council (BDEC) (S132), were concerned the Proponent had not adequately identified or responded to the requirements the Ramsar Convention legislated under the EPBC Act and the *Heritage Rivers Act 1992*.[9]

The Proponent explained the *Mineral Resources (Sustainable Development) Bill 2023* is currently before Parliament, and this was relevant to the Committee:

> …because it reflects an intention to move away from a more prescriptive and granular approach to regulation to a more explicitly performance-based approach. This in turn may influence how any conditions that the IAC considers should be imposed are implemented.[10]

It submitted there are two aspects of the bill of particular relevance to the Project:

- the bill would impose a general duty on the holders of mining licences to eliminate or minimise the risk of harm
- the bill removes the need to submit and comply with an approved work plan, however rehabilitation plans will continue to be a requirement.

Discussion and findings

As identified in Chapter 1.1, the Project was determined to be a controlled action under the EPBC Act. The EPBC Act regulates actions that will or are likely to have a significant impact on any MNES, including Ramsar wetlands. This includes actions that occur outside the boundaries of a Ramsar wetland. The controlling provisions under the EPBC Act determined to be relevant to the Project are 'listed threatened species and communities' and 'protection of the environment from nuclear actions'. The determination was not related to 'wetlands or international importance' or Ramsar wetlands. Issues relating to MNES have been addressed in Chapter 16.3 of this Report.

The *Heritage Rivers Act 1992* purpose relates to the protection of public land "*in particular parts of rivers and river catchment areas in Victoria which have significant nature conservation, recreation, scenic or cultural heritage attributes and to make related amendments to other Act…".* It is not relevant to the Project.

The Committee notes the *Mineral Resources (Sustainable Development) Amendment Bill 2023* was passed by both houses on 17 August 2023. At the time of writing this Report, the legislation had not yet been approved by the Governor of Victoria.

The Explanatory Memorandum explains the MRSD Act is amended to:

- be named the *Mineral Resources and Extractive Industries Act 1990*
- establish a modern, general duty and risk tiered regulatory framework for mineral and extractive industries
- remove reference to work plans, and the work plan approval process
- retain rehabilitation plans with similar approval mechanisms.

Consequential amendments are required for other legislation, including the *Aboriginal Heritage Act 2006*. The *Mineral Resources and Extractive Industries Act 1990* includes transitional arrangements for existing licence and work authority holders.

[9] BDEC submission (D119), page 10
[10] Proponent Part A submission (D23), page 47

In making recommendations on environmental effects related to the MIN area, the Committee has recommended conditions for the appropriate regulatory authority to determine how they may be implemented through relevant approval documents, which may or may not include a work plan depending on the status of the *Mineral Resources and Extractive Industries Act 1990*.

(iii) Landholder impacts

Background

EES Appendix O (Social Impact Assessment) (SIA) identifies:

- there are 24 privately owned farms located wholly or partly in the MIN area and WBA
- occupants of a number of dwellings would be displaced by the Project for periods of time due to proximity to the Project operations
- the timing, extent and duration of displacement (between 6 to 30 years) varies considerably across the Project area
- compensation arrangements are being negotiated with each landholder, which may include purchasing the farm land
- landholders retaining land ownership would negotiate a Land Access and Compensation Agreement (LACA) which may include "*direct financial compensation, land swap arrangements or targeted mitigation measures, such as the protection of valued structures including residential dwellings*"[11]
- if a LACA cannot be successfully negotiated, the Proponent may use legal avenues to gain access to the land.

As identified in Chapter 3.8, following exhibition of the EES the one house originally proposed to be removed (Dwelling R38) is proposed to be retained.

The SIA states:

> While the disruption caused by direct displacement of land uses including the displacement of residential homes affects a small cohort, the minimum duration of displacement is long and for land holders who have a strong emotional tie to their land, the impact of displacement cannot necessarily be fully ameliorated through financial compensation. Consequently, for some landholders (including a minority of those who been prepared to negotiate with the Proponent to date), the planning process has been a source of emotional strain.
>
> Not ignoring the above, the Proponent's approach to managing displacement to date has been highly flexible and allows for an individually tailored solution to be conceived, in the context of practical limits set by the Project's nature and extent. That is, the management approach being employed would allow for unavoidable disruption to be well managed and for intergenerational familial ties to land to be preserved.[12]

Evidence and submissions

The Committee received several submissions from landholders directly impacted by the Project. Issues raised are summarised in Chapter 1.2.

The Scanlan Carroll submitters said the landholder properties had tangible and intangible values that should be considered and where possible protected. They submitted a range of suggestions

[11] EES Appendix O, page 50
[12] EES Appendix O, page 51

such as delivering meaningful consultation, involving landholders in rehabilitation and protecting valued objects, for example treasured items may be relocated.

Mr Weston gave evidence that negative social impacts would arise due to the displacement of existing agricultural land uses, alteration to access and amenity in vicinity of the Project. Mr Weston said while the impacts of displacement were of greatest concern, individual circumstances vary and not all are averse to displacement. He explained the Proponent's approach to displacement is being tailored to meet the specific needs. For landholders who have expressed resistance to displacement for a range of practical/tangible and intangible reasons, Mr Weston gave evidence the impact cannot be "*fully ameliorated through financial compensation and may be a source of notable emotional strain*".[13]

Mr Weston concluded:

> The Project would displace rural land uses and affect the amenity of an existing rural area. While these changes affect a relatively small number of landholders, the changes have notable implications for this cohort, which some may find difficult to adapt to and come to terms with.[14]

The Proponent submitted in closing:

> It is acknowledged that, for some landowners, there is a unique impact, for a period of years while they are displaced, and there will be impacts that cannot fully be mitigated through the imposition of mitigation measures. These were eloquently put by a number of submitters. The existence of such residual impacts is, however, only one factor that needs to be weighed in the balance in deciding whether to recommend that the approvals be granted, noting that landowners affected by the Project will be entitled to compensation under section 85 of the *Mineral Resources (Sustainable Development) Act 1990* (**Minerals Act**).[15]

Discussion and findings

The Committee acknowledges the heartfelt submissions from some landholder submitters. It understands the impact of the Project for directly affected landholders will be significant, and for some will be experienced over extended timeframes.

While many of the issues relevant to the wider community also impact landholders, there are a number of unique impacts. For some landholders, not all impacts can be mitigated through the compensation package. Further, the temporal and moving nature of the Project means the impacts will change over time and the process of managing impacts is critical.

In the context of the compensation agreements that will be negotiated under the MRSD Act, where appropriate and practicable, the Committee has considered and assessed effects and made specific recommendations to avoid or minimise the impacts on landholders. These recommendations are intended to complement any compensation arrangements that may be negotiated between the Proponent and individual landholders.

Issues relevant to directly affected landholders need to be handled sensitively and appropriately, and the Committee strongly supports the mitigation measures related to facilitating access to counselling services and training for staff.

The Committee has not addressed matters in the direct remit of the MRSD Act compensation agreements.

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[13] Mr Weston expert witness statement (D35), page 3

[14] Mr Weston expert witness statement (D35), page 9

[15] Proponent closing submission (D129), page 2

Key landholder issues addressed by the Committee in other chapters of this Report relate to:

- soils and rehabilitation (see Chapter 7)
- local road network (see Chapter 9.3)
- noise and vibration (see Chapter 10)
- socioeconomics (see Chapter 13)
- human health, including mental health (see Chapter 14)
- historic heritage (see Chapter 15.1)
- landscape and visual amenity (see Chapter 15.2).

(iv) Economic viability

Submissions

Some submissions raised concerns about the economic viability of the Project, suggesting the Project must demonstrate it will be economically sustainable as required by the MRSD Act.

The Proponent referred to section 15 (6B) of MRSD Act which states:

> Without limiting subsection (6), an applicant for a mining licence (other than an infrastructure mining licence) or a retention licence must satisfy the Minister that there is a reasonable prospect that the mining of the mineral resource described in the application will be economically viable.[16]

The Proponent submitted:

- there is no reason to doubt the economic viability of the Project (noting the MRSD Act does not require it demonstrate it will be economically sustainable as suggested by submitters)
- a JORC Code compliant 'Ore Reserve' statement had been issued for the Project[17]
- classification of a resource as an 'Ore Reserve' requires an assessment of the economic viability of an ore's recovery
- the 'Ore Reserve' statement identifies the mining and processing methodology adopted for estimating the reserve
- the Demonstration Trial further verified the economic and physical viability of the proposed mining methodology
- an economic impact assessment has been provided as part of the EES.

The Proponent submitted that issues raised relating to economic viability were based largely on speculation, and no experts were cross examined on the matter. It said:

> It is self-evident that there is a difference between requiring a person to show a 'reasonable prospect' that mining will be economically viable – which is what is required by the Minerals Act – and requiring a person to demonstrate that the mining of that resource 'is' economically viable – which is what BDEC asserts is required. This is leaving aside any distinction that might be drawn between 'viability' and 'sustainability'.[18]

[16] Proponent closing submission (D129), page 7

[17] *Australian Code for Reporting of Exploration Results, Mineral Resources, and Ore* Reserves prepared by the Joint Ore Reserve Committee of the Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists, and the Minerals Council of Australia

[18] Proponent closing submission (D129), page 7

Discussion and findings

The MRSD Act's purpose includes to encourage economically viable mining and extractive industries. EES Appendix N does not assess economic viability of the Project, however notes the Project is "*at a Bankable Feasibility and approvals stage*".[19]

There was no evidence before the Committee that the Project may not be economically viable. The Committee accepts the Proponent's submissions that to obtain a mining licence under the MRSD Act, the Proponent must satisfy the Minster the Project is economically viable. The issue is not relevant to the Committee's consideration and assessment of effects.

(v) WIM Base area approvals and the WIFT

Submissions

Several submitters submitted the WBA and secondary processing facility should be regulated under the mining licence rather than under an Incorporated Document through the Planning Scheme. In summary, issues included:

- the proposal is in conflict with the PE Act and MRSD Act
- it was highly unusual to separate the WBA from the mining licence
- Council was not the appropriate regulator and did not have the resources or capacity to oversee the proposed activities in the WBA
- the proposal is not aligned with the precincts in the WIFT, would allow activities that would otherwise be prohibited or restricted and could compromise use and development of the WIFT
- processing ore on the WIFT would cause harm to human health.

Council submitted it supported "*the Project subject to appropriate regulatory consideration/controls*".[20]

Council's primary submission was that the whole of the mine site and processing area be included in the work authority under the provisions of the MRSD Act, stating:

- it was unclear why the Proponent was seeking to separate the processing from the mine area
- it preferred one authority to have responsibility for oversight of the whole Project and to avoid duplication of regulatory documents
- regulation of mining activity is not a core competency of Council and ongoing compliance and enforcement presented some challenges with regards to resourcing, skills and expertise.

However, it could see benefits of the proposed regulatory framework as exhibited, including:

- ensuring activities in the economically important WIFT were subject to Council oversight
- avoiding having two authorities responsible for different parts of the WIFT is sensible.

Council submitted:

> The orderly development of the WIFT is critical to the future of the Horsham as centre for freight and logistics associated with agricultural in the region and the submission is focused

[19] EES Appendix N, page ii
[20] Council submission (D100), page 1

> on ensuring the precinct reaches its full potential and appropriate planning controls are in place for the mineral sands mining, processing and transport.[21]

If the Project is to be regulated as exhibited, Council submitted:

- there are no impacts of the Project that cannot be managed by an appropriate legal framework using the SCO and Incorporated Document for the WBA
- it sought for the Incorporated Document to provide a clear framework for approval and ongoing compliance.

In order to take a constructive approach, Council proceeded with submissions on the assumption the Project will use the SCO with Council as the responsible authority. It focussed its submissions on ensuring the Incorporated Document is 'fit for purpose' and appropriately addresses the matters dealt with through the EES, and recommended certification and audit processes to assist it with its regulatory responsibilities.[22]

Council was not concerned about the extension of the mineral sands area to the west in the WIFT "*provided the activities that are permitted are regulated in a manner that will not prejudice the anticipated range of activities in the other existing precincts and the mineral sands activities makes the best use of the WIFT given its intermodal capability and access to rail*".[23]

The EPA submitted it had reviewed the exhibited draft PSA and that the scope "*is such that it presents a low risk of harm to the environment, amenity and human health as a result of pollution and waste*".[24] The EPA notes the Incorporated Document provides a framework for preparation of a range of management plans to the satisfaction of the responsible authority. It raised issues that the EMF and EMMs are not referenced in the Incorporated Document.

The Proponent considered that while there were regulatory options available, it rejected any suggestion the exhibited proposal was not appropriate or lawful, or unusual as suggested by Council. In particular:

- the SCO and Incorporated Document are accepted mechanisms for major projects in Victoria
- section 8 of the MRSD Act does not prohibit the processing of lawfully extracted ore outside of a mining licence area
- there is nothing improper about using a planning control to regulate mining processing.

In response to the Committee's RFI, the Proponent submitted TN-16 Regulatory Framework (D98) which explained:

- the MRSD Act regulates mining in Victoria, and mining is defined to mean "*extracting minerals from land for the purpose of producing them commercially, and includes processing and treating ore*"
- the MRSD Act does not demarcate between primary and secondary processing and these terms have been adopted by the Proponent
- the EES describes the activities proposed as primary and secondary processing in the MIN area and WBA

[21] Council submission (D100), page 4
[22] Council submission (D100), page 14
[23] Council submission (D100), page 10
[24] EPA submission (S114), page 30

- it was thought appropriate to regulate operations in the WBA through the Planning Scheme as it designates the area suitable for mineral sands activities
- the approach has the benefit of third party enforcement for alleged breaches under the PE Act, such as through Victorian Civil and Administrative Tribunal
- ERR was a member of the Technical Reference Group and the exhibited EES responded to all issues raised by the Technical Reference Group
- the Proponent had met with ERR on two separate occasions; at the first meeting no concerns were raised and at the second meeting the ERR representative noted precedent examples and "*no significant objection*" was made.

The Proponent provided precedent examples of other mine-related infrastructure regulated through the planning system.

The Proponent submitted that Horsham Planning Scheme Amendment C64, which introduced SUZ9 to the Planning Scheme, and the associated Council minutes "*expressly contemplates the use of land in the WIFT for mineral sands processing and that the Council willingly adopted those controls*".[25] Further:

- the EPA considered the scope of the PSA presented a low risk of harm to the environment, amenity and human health
- any controls required under the Incorporated Document could be incorporated into the work plan required by the MRSD Act.

In closing the Proponent submitted:

- it acknowledged "*the choice of tools by government, noting that the critical difference is one of regulation and administration rather than environmental outcomes*"
- while not critical, it saw merit in a single approval with a single set of management plans to provide efficiencies and potentially avoid inconsistencies, multiple approvals and multiple decisions.[26]

Discussion and findings

The proposed regulatory framework which applies separate regulatory tools to the WBA and the MIN area has created some confusion and complexity. In considering whether the proposed regulatory framework is appropriate, the Committee has turned its mind to whether:

- the activities (use and development) in the WBA can be regulated by the Planning Scheme
- environmental effects of the WBA can be appropriately managed by controls in the Planning Scheme.

The Committee supports regulation of the WBA, located in the WIFT, through the Planning Scheme. There is nothing in the MRSD Act which prohibits processing of ore outside of an approved mining licence area.

Appendix F of this Report includes details of the SUZ9 and Farming Zone planning controls. The Project is aligned with the use and development envisaged for the WIFT in the existing planning controls. Specifically:

- the general purpose of SUZ9 includes mineral sands processing and storage handling

[25] Proponent Part B submission (D50), page 9
[26] Proponent Part C submission (D129), page 4

- the purposes of sub-precincts 2, 3 and 4 include reference to storage and transfer of mineral sands, and minerals sands processing and storage
- use of the land for industry is a section 1 (as of right) or section 2 (permit required) use in all affected sub-precincts, including sub-precinct 5.

It is not clear to the Committee whether the WBA is located on part of sub-precinct 5 of the WIFT, as submitted by Council (see Chapter 2.2). While the Committee is of the view this should be clarified, it notes:

- Council did not object to inclusion of part of sub-precinct 5, and in fact submitted it was not concerned with extension of the mineral sands area to the west within the WIFT
- while sub-precinct 5 does not include a purpose relating to mineral sands activities, industry is not a prohibited use
- the SCO would exempt the Project from all other requirements of the Planning Scheme.

While the Committee can see merit in one approval for the whole Project, there is no fundamental flaw in the structure of the proposed approvals. It is significant that the EES has been exhibited with the draft PSA and submitters have made comment on the exhibited Project Documentation including the Incorporated Document. The Committee has the benefit of submissions on these documents in making its assessment, findings and recommendations.

The Committee acknowledges that regulating the WBA under the mining licence would result in one authority with oversight for the entire project, and may reduce repetition in regulatory approvals. However the Committee agrees with Council there are no impacts that cannot be managed by an appropriate regulatory framework administered through an SCO and Incorporated Document. The Committee agrees with the Proponent the choice of tools is one of regulation and administration and not environmental outcomes.

Further, the Committee accepts the benefits suggested by Council for it to be responsible authority across the WIFT. In this regard, Council will be able to play a role in coordinating development of the WIFT. The approach also has the benefit of potential third party initiated enforcement if an alleged breach occurs.

The Committee acknowledges Council's concerns relating to resources and capacity to oversee the proposed activities, however it notes Council's role as responsible authority is pre-existing in the context of planning controls which provide for consideration of mineral sands activities. Ensuring the Incorporated Document provides a clear framework for approval and ongoing compliance is critical, with conditions that adequately regulate use and development and appropriate certification and audit requirements. The following chapters discuss issues related to:

- giving effect to the EMF in Chapter 5(vi)
- continuous improvement and quality assurance in Chapter 5(viii).

While issues relating to Council's access to skills and resources to deliver its responsible authority role sit outside of the Committee process, the Committee notes that adequate skills and resources for Council are critical for it to deliver its role effectively.

There must be appropriate separation between mineral sands activities from food related activities. Mineral sands processing is envisaged as part of the WIFT and appropriate separation is required by existing planning controls. The Committee notes no existing food related industries operating in the WIFT made submissions on the EES. Issues relating to land use separation, air quality and human health are addressed in other chapters of this Report. In these chapters the Committee has concluded, subject to its recommendations:

- dust impacts can be acceptably managed (see Chapter 8)
- human health impacts can be acceptably managed (see Chapter 14)
- land use conflicts can be acceptably managed (see Chapter 15.4).

The Committee has discussed content and drafting of Project Documentation in Chapter 16.1.

(vi) Giving effect to the Environmental Management Framework

Submissions

The EPA submitted it was essential the EMF was enforceable and recommended:

- amending the Incorporated Document to require the use and development of the WBA to be carried out in accordance with the EMF
- the Work Plan/mining licence require the use and development of the mining area be carried out in accordance with the EMF.

The EPA submitted the management measures in the EMF are "*extremely brief and high level*", and limited in their ability to ensure the risk of harm is minimised, as required by the GED and other obligations under the EP Act. While detail of the proposed EMMs is included in the EES Chapters, these will not form legal requirements on the Project. The EPA recommended the EMMs should be redrafted to be specific and measurable.

The EPA further recommended that all of the changes made to the EMF should also be made to the Incorporated Document, and EES Attachment 5 (Aspects and Risks) noting this document is not enforceable.

Council submitted the EMF should not be approved by Council, but should be incorporated into the management plans/subplans required under the Incorporated Document. Further, it should be clear which sections of the EMF apply to which parts of the Project.

The Proponent accepted the EPA's submission that:

- the EMF should be enforceable under the Incorporated Document and as a condition of a mining licence or approval of a work plan, and this was reflected in its changes to the Project Documentation submitted through the Hearing process
- EES Attachment 5 (Aspects and Risks) would need to be updated prior to submitting a work plan and requests for secondary consent approvals under the Incorporated Document, noting its 'Day 1' version of the EMF included risk assessment obligations.

The Proponent submitted it saw merit in Council's desire to avoid having responsibility to evaluate and approve the EMF under the Incorporated Document and:

> The Proponent is also anxious to avoid the possibility of the Council, as responsible authority, and Earth Resources Regulation, as mining regulator, not seeing eye-to-eye on the EMF and approving two forms of the EMF for one project.[27]

The Proponent submitted versions of the Project Documentation in response to Committee directions and issues raised in submissions, including the EPA and Council.

The Proponent proposed wording in its 'Day 4' version of the Incorporated Document for any plan required by the Incorporated Document be consistent with the EMF, except to the extent of inconsistency with the Minister's EES assessment. This would give statutory effect to the EMF

[27] Proponent closing submission (D129), page 28

while avoiding the need for Council approval by way of secondary consent. It suggested this approach could also be applied to the mining operations by way of condition of a mining licence.

The Proponent's 'Day 4' version of the EMF also identifies the Project activity area each EMM applies to.

Discussion and findings

The Scoping Requirements state the EMF will "*articulate clear accountabilities for managing and monitoring environmental effects and risks associated with all project elements and phases*" and should include the required approvals and consents post-EES and any EMS to be adopted. The EMF is not in itself intended to be approved and enforced, but to establish the framework for approvals of a project.

The components of EMF should be implemented through the relevant regulatory tools. To be enforceable, a requirement to comply with the EMF must be included in the Incorporated Document and as a condition of the MIN, subject to changes or refinements resulting from the Minister's assessment.

The Committee accepts the Proponent's suggested wording of condition 5.2 as follows:

> 5.2 Any plan required by the conditions of this Incorporated Document must be:
>
> a) generally in accordance with the Minister's assessment of the environmental effects of the Avonbank Mineral Sands Project dated [INSERT] under the Environment Effects Act 1978 (Minister's Assessment) unless otherwise approved by the responsible authority; and
>
> b) address the requirements of, and be consistent with, the 'Day 4' Environmental Management Framework dated 1 September 2023 tabled before the inquiry and advisory committee for the Avonbank Mineral Sands Project environment effects statement (Day 4 EMF).
>
> 5.3 To the extent of any inconsistency between the Minister's Assessment and the Day 4 EMF, the Minister's Assessment prevails.

This is reflected in the Committee's recommended version of the Incorporated Document at Appendix H, subject to minor drafting changes.

The various versions of the EMF provided by the Proponent through the Hearing process expands on the requirements of the EMMs and includes the details of requirements found in various chapters of the EES. The Committee has considered the requirements of each EMM as it relates to issues discussed in other Chapters of this Report. It agrees with the EPA the EMMs should be specific and measurable. Subject to its recommendations, the Committee accepts the level of detail of the EMMs as shown in its recommended version of the EMF at Appendix G.

The Committee agrees with Council that it is not clear in the exhibited EMF which parts of the Project the EMMs apply to. It accepts the Proponent's suggested changes to Table 24-2: Avoidance and mitigation, to include a column which clearly shows which Project component each EMM relates to. This is reflected in the Committee's recommended version of the EMF at Appendix G.

(vii) Exhibition of draft work plan and management plans/subplans

Submissions

Some submitters were concerned the exhibited EES did not include a draft work plan or other draft management/subplans.

Council submitted that while the EES has provided a draft of the approval documents required under the PE Act, including the Incorporated Document, it has not provided a draft mining licence or works approval under the MRSD Act. It considered this left the Committee relying:

> …on a hope that the responsible Department will ensure that each relevant aspect of the EES that is required to be the subject of some form of regulation is properly captured in a document or documents that are yet to be prepared even in a draft form.[28]

Council submitted the interrelationship between the project documents and approvals was not clear and the lack of detail in the exhibited Incorporated Document had given it very little to consider. Further, while granting approval of plans by secondary consent is not a new concept, it is unusual that no draft plans have been exhibited or prepared. It was concerned that:

> …when coming to prepare or more importantly approve one of these various plans there is no idea or notion of what that should look like. [29]

The Proponent explained:

- all work carried out under a mining licence must be authorised by a work plan, which must identify risks and specify how they will be managed, include a community engagement plan and rehabilitation plan
- ERR has published work plan guidelines which the Proponent will use in developing a work plan[30]
- under an MOU between ERR, EPA and the predecessor to DTP "*it is understood that EPA and DTP evaluate and provide technical support to ERR and responses to submitted work plans before a decision is made on whether to approve the work plan*"

The Proponent submitted that if the Minister's Assessment of the Project is favourable, the final form and content of any approvals including a work plan will be subject to refinement. The Committee's focus should be on ensuring potential environment impacts have been identified and can be acceptably managed.

The Proponent submitted in closing:

- *…contrary to Council's submission, there is nothing unusual in the fact that the EES does not include draft of the various subplans proposed under the incorporated document. To the best of the Proponent's knowledge, no recent EES has exhibited drafts of the subplans proposed to be required under the project approvals*.[31]

The Proponent submitted a flow chart depicting the regulatory approvals and permissions (see Figure 14 above).

Discussion and findings

The Committee has considered whether:

- it is necessary for the exhibited EES to include a draft of all management plans and the work plan
- the interrelationship between the project documents and approvals is clear.

It is not unusual for an EES to not include drafts of management plans. While the Committee understands Council's desire for more detail relating to the management plans that will be

[28] Council submission (D100), page 14
[29] Council submission (D100), page 40
[30] Preparation of Work Plans and Work Plan Variations, Guideline for Mining Projects, December 2020
[31] Proponent Part C Submission (D129), page 5

assessed for approval under secondary consent, it is not a requirement of the Scoping Requirements to prepare and exhibit all draft management plans. For example, the Scoping Requirements state the EMF is required to "*set the scope for later development and review of environmental management plans for all project phases*".[32]

Section 2.2 of the Scoping Requirements explains key approvals include an approved work plan and mining licence under the MRSD Act, and states it is expected the EES will include a draft work plan consistent with the requirements of the MRSD Act and regulations. The exhibited EES included:

- EES Chapter 5 – Community Engagement
- EES Attachment 3 (Rehabilitation Plan) (see Chapter 3.6)
- EES Attachment 4 (Work Plan Framework) (see Chapter 3.7)
- EES Attachment 5 (Aspects and Risks).

The Committee accepts that the EES was authorised for exhibition with a Work Plan Framework, rehabilitation plan and aspects and risks plan rather than draft work plan. The Work Plan Framework sets out the requirements for a work plan consistent with the MRSD Act and *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019* and how these will be addressed in preparing the work plan.

The Committee understands the mining licence approval documents, including the work plan, will be developed and refined through the approval process. The Committee is satisfied the combined EES documentation contained adequate information relating to the work plan and associated documents. That said, it would have been more straight forward and clearer for submitters, and of assistance to the Committee, if the EES had included a draft work plan presented in a coordinated way with other work plan components such as the Community Engagement Plan, Rehabilitation Plan and Aspects and Risks.

A critical issue is for the Committee is to ensure that potential environment impacts are adequately addressed in approval documents. As discussed in Chapter 5(vi), the Committee recommended EMF at Appendix G includes EMMs that are specific and measurable. The recommended EMMs also include detailed requirements of each management plan. As discussed above, the Committee also recommends conditions to ensure the components of the EMF are enforceable through the Incorporated Document and any future approval under the MRSD Act.

The Committee has made recommendations relating to management of specific environmental effects through conditions and requirements of the EMF and Incorporated Document in other chapters of this Report. These are reflected in its recommended versions of the Project Documentation in Appendices G and H.

The flow chart depicting the regulatory approvals and permissions (see Figure 14) is helpful in understanding which approvals and management plans will need to be considered and assessed under the PE Act and Incorporated Document, and the MRSD Act. The Committee recommends this flow chart be included in EMF Section 24.2.1 Key Approvals and Regulation, subject to any changes to statutory approvals that may be required, for example if a work plan is no longer required under the MRSD Act as discussed in Chapter 5(ii) of this Report. This provides a summary

[32] EES Appendix A, page 9

of approvals required and complements the additional information included in Table 24-2: Avoidance and mitigation of the EMF, discussed in Chapter 5(vi) above.

Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Add a new Figure 1 – Regulatory approvals and other required permissions to Section 24.2.1 Key Approvals and Regulation of the Environmental Management Framework, subject to any changes or updates to statutory approvals.

This change is included in Appendix G.

(viii) Continuous improvement and quality assurance

Submissions

The EPA submitted that delivery of the Project will "*need to continually and actively consider new and amended instruments prepared under the EP Act 2017 as well as developments in the 'state of knowledge' relevant to determining what is reasonably practicable to minimise risks of harm to human health or the environment from pollution or waste*". It said the GED establishes a proactive approach to risk identification, assessment and controls of risk of harm from pollution and waste.

The EPA advised that the EMF may not deal exhaustively with all risks contemplated by the GED, and an assessment by the Minister does not amount to a determination that the GED has been complied with. Further:

> The Proponent will need to ensure that a dynamic process of identification, assessment, and control of the risks of harm to human health and the environment from pollution and waste is undertaken. Those risks are likely to change in nature, frequency, and magnitude during the Project.[33]

As described in Chapter 5(v), Council recommended certification and audit processes to assist it with its regulatory responsibilities. It sought annual compliance audits by an environmental auditor appointed under the EP Act, and reference to the EMS in the Incorporated Document.

The Proponent submitted TN-07 Quality assurance and control measures which described the Proponent's commitment to implement an EMS in accordance with the AS/NZS Standard. It said "*an EMS is an interrelated set of business elements established to avoid and minimise effects on the environment, to fulfil regulatory compliance obligations, enhance environmental performance and to maintain a process of continual improvement*". Further, the EMS would apply to all aspects of the Project and a monitoring program will be progressively developed over time in response to emerging or changing risk, state of knowledge or government policy.

Noting many EMMs required periodic review but did not generally include specific timeframes or triggers, the Committee asked the Proponent to advise suitable timeframes for review of each management plan. The Proponent 'Day 4' version of the EMF included a requirement in Section 24.7.2 for "*management plans to be reviewed in consultation with the relevant regulator or*

[33] EPA submission (S114), page 28

responsible authority at least every five years" and refined EMMs to specify appropriate review timeframes for management plans.

In closing, the Proponent said:

- Council's request for a condition in the Incorporated Plan for annual audits was disproportionate to the risks and impacts identified in the EES
- it proposed an alternative model for compliance assessments to be in accordance with the requirements of each plan and with independent auditor assessments every third year. It said this model was used for other sands mines and was similar to the approach to annual performance statements required by the EPA for operators of licenced premises.

Discussion and findings

A defined Project objective is to establish a world class mining operation. The regulatory framework (see Chapter 4 and Appendix F of this Report) includes:

- mining legislation which encourages "*economically viable mining and extractive industries which make the best use of, and extract the value from, resources in a way that is compatible with the economic, social and environmental objectives of the State*"
- planning policy which requires consideration and adoption of a best practice environmental and risk management to strengthen the resilience and safety of communities
- relevant resource extraction strategies seeking to establish world's best practice mining in the region
- a GED established under the EP Act which requires a person engaging in an activity that may give rise to risk to human health or the environment from pollution and waste, must minimise those risks so far as reasonably practicable.

Further, the Committee's ToR require it to assess whether environmental outcomes can be achieved and are acceptable, with "*regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development*".

The Project is a moving mine that will be delivered over 36 years. During which time there is likely to changes to regulations, knowledge, plant and equipment or emerging matters that require different aspects to be considered for each mine stage.

In this context, it is important to ensure that over the life of the Project, approvals allow for adaptation to changes in regulations and a dynamic approach to manage risks. All management plans should be reviewed and updated at a frequency appropriate to level of risk associated with the plan. This can be determined in the overarching EMS required by the EMF. As discussed in Chapter 5(vi) the EMF will be implemented, as relevant, through the Incorporated Document.

SE-02: Environmental Management System and Community Engagement Plan outlines that the EMS must be developed and implemented across all areas of the Project. To clarify its application to all management plans the Committee recommends editing SE-02 to:

> The EMS must establish a program of review for management plans required by this EMF and the Incorporated Document for all Project activity areas.

SE-02 should also identify that the EMS may also need to be updated if there is a change to the AS/NZS Standard.

The EMF requires review and update of management plans take into consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings. The 'Day 4' version of the EMF included this as a requirement for each management plan. The Committee recommends refining the drafting to include this requirement for all management plans under Section 24.7.1 Operational Planning and Control (unless otherwise specified). The Committee's recommended EMF includes this change, and consequential deletion of the requirement from each EMMs.

The EMF requires that management plans must be reviewed at least every five years. To facilitate a more dynamic process and ensure the plans are current, the Committee recommends each management plan required by the EMF and the Incorporated Document should be reviewed and updated at an appropriate frequency established by the EMS:

- at least every five years or prior to the commencement of each mining block stages or as informed by each audit, whichever is the lesser timeframe; and
- as required to ensure compliance with any updated approvals or regulatory instruments.

The 'Day 4' version of the Incorporated Document includes conditions relating to compliance assessment including:

- a compliance assessment plan be prepared before commencement of development
- a compliance assessment report be provided to the responsible authority within one year of the commencement of development, which states whether the requirements of the Incorporated Document have been complied with
- compliance assessment reporting every three years "*accompanied by a report prepared by an environmental auditor appointed under Part 8.3 of the Environment Protection Act 2017 that verifies that the matters contained in the compliance assessment report for that reporting year are correct*".

The Committee accepts this as an acceptable schedule of compliance assessment and auditing for the WBA.

In addition to these recommendations, the Committee has reviewed specific requirements for each management plan required by the EMF or Incorporated Document, and made recommendations regarding review and update timeframes where required, as shown in Appendix G.

Recommendations

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit Section 24.7.1 of the Environmental Management Framework as follows:

Management plans required under Table 24-2 (unless otherwise specified) and the Incorporated Document must be reviewed and updated at an appropriate frequency as established in the overarching Environmental Management System with consideration to the level of risk, statutory requirements, monitoring results, community complaints, in response to audit findings and any other specific requirements detailed in Table 24-2 or the Incorporated Document. Review and update of management plans must be in consultation with the relevant regulator or responsible authority:

- **at least every five years or prior to the commencement of each mining block stages or the completion of each audit, which ever is the lesser timeframe**
- **and as required to ensure compliance with any updated approvals or regulatory instruments.**

b) Edit mitigation measure SE-02: Environmental Management System and Community Engagement Plan to:

- **require that the Environmental Management System must establish a program of review for management plans required by this Environmental Management Framework for all Project activity areas, including the WIM Base Area**
- **require that the Environmental Management System must be reviewed if there are relevant changes to the AS/NZS ISO 14001:2016 Standard 'Environmental management systems – Requirements with guidance for use'.**

Incorporated Document

Include the following change:

a) Add new clause 5.15 Review of approved plans, with conditions that management plans required by the Incorporated Document must be updated at an appropriate frequency, as specified in Appendix H of this Report.

These changes are included in Appendices G and H.

(ix) Issues not addressed by the Committee

The Committee's primary role is to consider and report upon the environmental effects of the Project, assess the significance and acceptability of effects and, where relevant, make recommendations relating to mitigation measures. It is not the role of the Committee to make a recommendation on whether the Project should be approved, that is a decision for Government.

While the Committee has considered and reviewed the various submissions and evidence, it has not undertaken an assessment or made findings related to issues outside of its ToR or addressed through other processes including:

- foreign ownership
- compensation arrangements with landholders
- property values
- rehabilitation bond
- EES process.

The Committee has made some comments in relation to submissions made about some of these issues where relevant in the context of the particular issues raised.

PART B: ASSESSMENT OF ENVIRONMENTAL EFFECTS

6 Radiation

6.1 Introduction

The relevant evaluation objective is:

> Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Radiation is discussed in:

- EES Chapter 4 – Regulatory Framework
- EES Chapter 13 – Air Quality
- EES Chapter 14 - Radiation
- EES Appendix I – Radiation Risk Assessment.

The exhibited EMF included the avoidance and mitigation measures shown in Table 6.

Table 6 Radiation - avoidance and mitigation measures

Code	Measure
RD-01	Site security measures and signage will be applied to restrict unauthorised access by members of the public to operational areas.
RD-02	HMC haulage trucks will be fully contained.
RD-03	Roads for light and heavy vehicles will be constructed with appropriate materials comprising low silt content to minimise dust emissions.
RD-04	Road watering will be undertaken on light vehicle roads and heavy vehicle routes to keep the surface moist and to minimise wheel generated dust.
RD-05	HMC will be stockpiled wet, and sprinklers will be established to maintain moisture content and minimise surface creep during extremely dry conditions.
RD-06	Vehicle washdown facilities will be provided within the WBA to ensure vehicles and equipment can be washed down as required.
RD-07	The Project will implement and maintain procedures and processes to prepare for and respond to potential emergency situations.
RD-08	A Radiation Management Plan will be established to provide a framework for the management of radiation related risks.
RD-09	A Rehabilitation Plan will be developed to achieve the rehabilitation objectives as soon as reasonably practicable.

The Committee has had regard to relevant submissions, expert evidence (see Table 7) and technical notes:

- TN-14 Radiation (D96)
- TN-17 Cumulative effects of the Project (D106).

Table 7 Radiation expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D30	Proponent	Mr Darren Billingsley	DBH Radiation Pty Ltd	Radiation impact assessment
D31	Proponent	Mr Jim Hondos	JRHC Enterprises Pty Ltd	Radiation impact assessment
D44	Council	Mr Cameron Jeffries	Camrad Radiation Services	Radiation impact assessment
D61	Proponent and Council			Expert meeting joint statement on radiation
D89	Proponent and Council			Presentation - Expert meeting joint statement on radiation

6.2 Background

The *Victorian Radiation Act* 2005 (amended 2017) specifies what is required to control the exposure of the population to radiation. The purpose of the Act is:

> to protect the health and safety of persons and the environment from the harmful effects of radiation.

The Radiation Regulations 2017 (enabled by the *Victorian Radiation Act)* objectives include:

- to prescribe the activity concentration and activity of material that spontaneously emits ionising radiation and the prescribed circumstances for the purpose of the definition of radiation material: and
- to prescribe the radiation dose limits; and
- to prescribe the radiation sources that require a current certificate of compliance prior to use of the source; and
- to prescribe the date of expiry for certificates of compliance issued in respect of prescribed radiation sources; and
- to prescribe fees; and
- to prescribe other matters that required to give effect to the Radiation Act 2005.

The Project will be required to obtain a management license from Victoria's Department of Health to handle and dispose of radioactive materials. Approved radiation management and waste management plans will also be required before construction begins.

6.3 Future radiation impacts

(i) Issues

The issues are whether:

- the radioactive pathways have been adequately assessed
- exposure to the environment and residents from radiation is acceptable
- HMC stockpiles should be covered.

(ii) What did the EES say?

EES Chapter 14 provides an overview of radiation impacts of the Project, supported by EES Appendix I – *Radiation Risk Assessment*, DBH Radiation Pty Ltd, January 2023 (RRA).

The EES explained the methodology of the RRA, gave an introduction to radiation, including characterisation of radionuclides in the mined soil and HMC, the existing background conditions, identification of potential impact pathways, impacts on people, biota and animals, and assessment of residual impacts with avoidance and mitigation measures in place.

The RRA excluded the Avonbank mine and processing workers, transport workers and PoP operators and handlers. Generally, the risk to workers other than directly involved in the mine and processing facility is beyond the scope of the EES process. The transport company and PoP will have to comply with the *Radiation Act 2005*.

Management of mine and processing workers radiation exposure is an important aspect of the proposed mitigation measure Radiation Management Plan (RMP) and the management licence approvals process as required under the *Radiation Act 2005*.

The existing background radiation levels for various exposure pathways were determined as shown in Table 8.

Table 8 Background radiation levels

Exposure pathway	Assessment and findings
Terrestrial radiation	The background external gamma radiation levels were measured at a distance of less than 1 kilometre apart within the mining license area and approximately 2 kilometres apart in the surrounding areas. The samples were taken at above ground level at 124 locations. The results from sampling are not significantly different to the Australian average.
Surface soil radiation	Surface soils and farming land soils were collected and analysed at 29 locations within and around the project area to measure the radionuclide content. The worldwide range of uranium-238 and thorium-232 is 16 to 110 Bq kg^{-1} and 17 to 60 Bq kg^{-1} respectively. [34] The soil samples are within the worldwide range.
Radionuclides in crops	The radionuclides uptake of crops varies depending upon soil to plant transfer factors and the overall levels of radionuclides in the soil. A comparison was not made with standards.
Radioactivity of surface water	Winter and summer sampling was undertaken at four locations within the study area. The recommended gross alpha and beta radioactivity levels in the Australian Drinking Water Guidelines trigger action if the radioactivity levels exceed 0.5 Bq L^{-1}. None of the water samples exceeded this level.
Radioactivity of groundwater	Groundwater samples were collected within the mine area and outside the area. The samples were analysed for gross alpha and beta radioactivity (emissions of radioactive particles). Six out of the eight samples were shown to have an excess of the Australia Drinking Water Guidelines (ADWG) value of 0.5 Bq L^{-1} for either alpha of beta or both radioactive values. It was considered this result is due to the groundwater at these sample locations coming into contact with the ore body and

[34] The becquerel (Bq) is a unit of radioactivity, used In the International System of units (SI). Bq L^{-1} and Bq kg^{-1}, are measures of radioactivity per litre and kilogram respectively.

Exposure pathway	Assessment and findings
	was not unexpected.
Airborne dust radioactivity	Dust sampling using a Hi-volume sampler started in mid-March 2020 and monthly samples were taken, resulting in eleven samples. Dust concentrations ranged from 5 to 30 µg m^{-3}. There was no apparent correlation of alpha and beta radioactivity concentrations with the total dust concentrations.
Dust deposition	Dust deposition was measured over a year within the study area to determine the background concentration of radioactive particles Ra-226 and Pb-210. Deposited dust radionuclide concentration ranged from 3.1 Bq mg^{-1} for Ra-226 to 169 Bq mg^{-1} for Pb-210. Dust falls on rooftops and can affect rainwater in water tanks. The majority of the gross alpha radioactivity from water tank samples were below the detectable level.

The EES identified the potential exposure pathways that could result in elevated levels of radiation dosage. The potential exposure pathways are shown in Table 9 (IP refers to impact pathway).

Table 9 Potential exposure pathways

Item	Exposure Pathways	Project Phase[1]
IP-01	Potential exposure pathways to the general public (Critical Group) resulting in an elevated annual radiation dose.	O
IP-02	Potential exposure pathways to the general public (Non-Critical group) resulting in an elevated annual radiation dose.	O
IP-03	Potential exposure pathways to members of the public from activities at the Port of Portland resulting in an elevated annual radiation dose.	O
IP-04	Exposure pathways from the post-mining areas and rehabilitated landform resulting in an elevated annual radiation dose.	O, D
IP-05	Radiological impact on non-human biota from resuspended radioactive particulate settling in soils.	O

Source: EES Chapter 14, page 14-8

Potential radiation hazards were identified, considering the project activities, the background levels of radiation, the legislative requirements and the stakeholder concerns. The EES characterised the radiation risk as follows:

> The potential for a noticeable health effect is related directly to the total exposure that is received. For biological systems, this is quantified in terms of dose in units of microsieverts (µSv). The greater the µSv received, the greater the 'risk' of an effect.
>
> The risk of an effect is the result of the sum of all exposure pathways to an individual. Thus, whilst individual exposure components are addressed, they cannot be considered in isolation as only the sum of assessed exposure pathways is of importance in determining the risk.
>
> There are regulatory upper dose limits that apply to occupational workers and members of the public. The limit for a member of the public is set at 1,000 µSv per year. This is set conservatively low and is considerably less that the allowable annual dose limit to an occupational worker (20,000 µSv) in the interests of keeping doses as low as reasonably possible.

Residual risks were assessed with the proposed avoidance and mitigation measures in place. The EES concluded:

> Predicted annual doses of radiation from exposure pathways from the Project during operations are expected to be a maximum potential dose of 40.1 µSv for an adult and a

> maximum potential dose of 71 µSv for a child. Both doses are substantially below the Victorian regulatory limit for a member of the public of 1,000 µSv.[35]

Overall risks can be managed with avoidance and mitigation measures in place, noting:

- potential for seepage of radionuclides from the rehabilitated site into groundwater or surface water was commensurate with pre-mining conditions
- radionuclide concentrations in tailings would be less than the uranium and thorium content in the original ore, would be covered with at least 3 metres of overburden/soil and the residual risk was negligible
- risk to non-human biota was negligible.

The EES said there was no potential for cumulative radiation risk.

(iii) Evidence and submissions

As directed by the Committee, a radiation expert meeting was held before the Hearing and a joint statement was prepared (D61). Experts gave evidence as a group on Day 5 of the Hearing with a joint presentation (D89) and responded to questions of cross examination.

Experts agreed (D89):

- Radiological impacts are negligible to very low for members of the public. There are no reasons to delay the project due to the radiological impact assessment outcome.
- The purpose of the operational Radiation Management Plan(s) are to ensure that potential impacts are as, or less than, predicted.
- The dose assessment for dust was based on assumptions representing a worst case scenario. It was agreed that it is highly unlikely for these conditions to exist in practise.

Council relied on the evidence of its expert, noting the advice was that the RRA was sound and conservative. It said "*Radiation is dealt with separately under the Radiation Act 2006 by the issue of a Radiation Licence*".[36] It said it was not appropriate for the Incorporated Document to include any reference to radiation as the responsibility sits with another authorising body.

The EPA submitted the EP Act states:

> This Act does not apply to a radiation source within the meaning of the Radiation Act 2005 unless a serious risk to human health or the environment from pollution or waste has arisen or is likely to arise.

It noted the tailings to be returned to the mine void have been classified as not radioactive material based on its radiation content. Accordingly tailings need to be dealt with in accordance with the EPA waste disposal requirements.

Issues raised in submissions were mainly general in nature and usually only expressed some concern about radiation exposure. Specific issues raised were whether:

- measurements of the existing conditions were adequate
- impacts on crops, other users of the WIFT, rainwater and drinking water had been adequately considered.

[35] µSv = microsieverts

[36] Council submission (D100), paragraph 48

BDEC provided submissions on various matters including comments on the RRA. BDEC was concerned about the health impact of radiation exposure on workers, and was critical of the lack of assessment and relying on the Department of Health for regulation of radiation risk.

Some submitters referred to Fingerboards Mineral Sands Project IAC recommendations to reject that project. BDEC said that with consideration of Fingerboards the HMC stockpiles should be a closed system.

General issues relating to air quality and dust are described and assessed in Chapter 8 of this Report.

The Proponent relied on evidence. In closing it submitted:

- the circumstances of the Fingerboards Mineral Sands Project are very different to the Avonbank Project
- experts did not consider the HMC stockpiles should be enclosed, and Council no longer sought this
- some objecting submitters did not seem overly familiar with the specifics of the Project.

(iv) Discussion

The meeting and agreed statement of radiation experts was informative and helpful to the Committee. The fundamental and main agreement was that the radiological impacts from the mining operations and the processing of the HMC will be very low and should not impact members of the public. There were minor differing views between the experts, however, these differences did not change the fact that the radiation exposure to members of the public will be significantly below the annual radiation dose limit.

The radiation exposure for the critical group (sensitive receptors such as schools, community centres, recreational facilities and businesses) is significantly less than the recommended annual dose of 1,000 µSv standard for the general public.

The Committee is satisfied that the sampling, measurements and reporting of the existing conditions was comprehensive, covering all the exposure pathways. The number of samples and the duration of the sampling was thorough and provided an extensive understanding of the existing conditions.

It is appropriate to rely on Department of Health radiation management licence approvals relating to transport and PoP workers. The RMP required by RD-08, provides an appropriate framework for avoiding and minimising risks for the Project, including works at the WBA and the MIN area. The EES says the RMP must be approved by the Department of Health, and the Committee suggests this be explicitly expressed in RD-08 rather than "*by the relevant Authority*" as drafted in the 'Day 4' version.

The proposed Fingerboards Project was a significantly different operation compared to the Project with a significantly different risk profile. The Committee has focussed its considerations on the content of the Project EES and potential impacts. The Committee accepts the advice of experts that covering HMC stockpiles is not necessary or appropriate.

In considering the RRA and its assessment of sensitive receptors, the Committee notes that landholder/residents returning to the properties after mining and rehabilitation of their land have not been considered in the critical group. This group could be closer to the mining area than the residents of Longerenong, who have been considered a critical group. The EES states:

> The 'Code of Practice and Safety Guide – Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing' (ARPANSA, 2005) recommends assessing the effective dose to a Critical Group of individuals most likely to be impacted by the Project.

The Committee considers it is necessary to assess the effective dose to the group of residents who may potentially return to their residences while mining operations are still active in other parts of the Project, and determine requirements to appropriately managed any identified risks.

The 'Day 4' EMF includes:

> **RD-02: Use of sealed vehicles for the transport of HMC on public roads**
>
> Transport of HMC from the WBA to the Port of Portland must be undertaken on sealed roads in covered articulated vehicles.

At times during the Hearing, dust from transporting the HMC was expressed as a concern. The covering of the HMC for transporting by trucks from the WBA to the PoP should expressed as 'sealed', where sealed is achieved by using the most practical and best reasonable method available at the time. The EMM RD-02 should be changed to reflect this requirement.

(v) Findings

The Committee finds:

- radioactive pathways have been adequately assessed
- exposure to the environment and residents from radiation is acceptable
- HMC stockpiles do not need to be covered
- HMC should be sealed when transported from the WBA to the PoP
- Impacts for returning residents should be assessed while mining operations are still underway
- subject to its recommendations, the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the radiation effects, and radiation effects are acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) **Edit mitigation measure RD-02: Use of sealed vehicles for the transport of Heavy Mineral Concentrate on public roads as follows:**
   - **Transport of Heavy Mineral Concentrate from the WIM Base Area to the Port of Portland must be undertaken on sealed roads in sealed trailers, where the sealing of the trailer is achieved by using the most practical and best reasonable method available at the time.**

b) **Edit mitigation measure RD-08: Radiation Management Plan to:**
   - **specify the Radiation Management Plan must be approved by the Department of Health**
   - **require identification of exposure risks and requirements to appropriately manage and minimise any identified risks for returning residents after rehabilitation of properties while mining operations are still underway.**

These changes are included in Appendix G.

6.4 Overall conclusions on radiation issues

There are no radiation impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to ensure potential effects on residents returning to their properties soon after rehabilitation are adequately assessed and if necessary, managed and minimised, and HMC haulage trucks are sealed.

7 Soil and rehabilitation

7.1 Introduction

The relevant evaluation objective is:

> Minimise adverse social, land use and infrastructure effects.

Soils and rehabilitation is discussed in:

- EES Chapter 9 – Traffic and Transport
- EES Chapter 15 – Soils and landform
- EES Chapter 19 – Waste and emissions
- EES Chapter 22 – Land rehabilitation
- EES Appendix C – Road Traffic Impact Assessment
- EES Appendix J – Soils and Landform Impact Assessment
- EES Attachment 3 – Rehabilitation Plan
- EES Attachment 4 - Work Plan Framework
- EES Attachment 5 - Aspects and Risk Register.

The exhibited EMF included the avoidance and mitigation measures shown in Table 10.

Table 10 Soil and landform and land rehabilitation - avoidance and mitigation measures

Code	Measure
SL-01	Potential acid sulfate soil (PASS) material (Geera Clay) will be avoided during all mining, excavation and dewatering activities with a buffer of at least 1.5 m to avoid exposing/oxidising PASS.
SL-02	A pre-mine soil survey protocol will be maintained to characterise soils prior to stripping.
SL-03	The effective rooting zone will be stripped and stockpiled to ensure the upper soil horizons are stockpiled separately from the lower soil horizons.
SL-04	Rehabilitated soils will be ameliorated with gypsum.
SL-05	Rehabilitation machinery with low bearing pressure will be used and subsurface soil units will be ripped as required.
SL-06	Potentially contaminated sites will be assessed and managed in accordance with the National Environment Protection Measures (NEPM) prior to mining.
SL-07	An integrated mine planning process will be implemented to progressively develop site drainage plans.
SL-08	Hydrocarbons and other chemicals will be managed in line with industry leading practice and material safety datasheets.
SL-09	A risk-based weed management protocol will be implemented to minimise the risk of spreading weeds or pathogens.
SL-10	A Rehabilitation Operations Management Plan (ROMP) will be maintained to avoid and minimise operational risks/impacts.
SL-11	A Rehabilitation Plan will be developed to achieve the rehabilitation objectives as soon as reasonably practicable.

Code	Measure
SL-12	The agricultural productivity of landholdings will be assessed prior to mining to inform the relevant performance standards for landholder specific rehabilitation plans.
RH-01	A Rehabilitation Plan will be developed to achieve the rehabilitation objectives as soon as reasonably practicable after mining. The rehabilitation strategy is detailed in Attachment 3 (Rehabilitation Plan).
WE-04	Potentially contaminated materials and sites will be assessed in accordance with the NEPM prior to mining.
WE-07	A Rehabilitation Plan will be developed and implemented to avoid and minimise planning and operational risks/impacts.

A number of other relevant avoidance and mitigation measures related to road maintenance and rehabilitation (TM-04, TM-07) and there were several monitoring measures related to soil, landform and rehabilitation.

The Committee has had regard to relevant submissions, expert evidence (see Table 11) and:

- TN-06 Rehabilitation, Monitoring and Management (D55)
- Response to Matthew Sparke Witness Statement (D84).

Table 11 Soil and land rehabilitation expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D42	Proponent	Christian Bannan	South East Soil and Water	Rehabilitation of the Demonstration Trial pit
D27	Proponent	Harry Savage	EMM	Soils and landform
D45	Scanlan Carroll submitters	Matthew Sparke	Sparke Agricultural and Associates	Agronomy

7.2 Soils

(i) The issue

The issue is whether:

- soils will be adequately assessed prior to mining
- soil stockpiling will be appropriately managed
- the condition of soils will be impacted by stockpiling.

(ii) What did the EES say?

EES Chapter 15 summarised soil and landform effects of the Project, supported by the Soil and Land Impact Assessment (EES Appendix J).

The EES described the scope and methodology, operational context, existing conditions, potential impacts, avoidance and mitigation measures and expected residual impacts. It established a management framework including an environmental objective to ensure:

- Agricultural productivity and soil profile capability of the rehabilitated landform will be commensurate with surrounding unmined areas.

EES Appendix J – Soils and Landform Impact Assessment provided a detailed description of the soils within the development extent. This information informed the approach to the mining operation and the development of measures to preserve and protect soils to optimise agricultural land productivity once sections of the mine are completed and closed. It said changes in the soil chemical and physical properties will be minor but soil capability and productivity will not be affected. The Project has been designed to avoid Geera Clay which lies below the depth of proposed mining because if disturbed it could cause acid sulfate soil.

(iii) Evidence and submissions

Mr Sparke, giving evidence for the Scanlan Carroll submitters, said:

- Soils are a grower's asset which can be improved by fertilisers, but fertilisers are no substitute for structurally sound and productive soils.
- The testing of soils pre-mining to date is inadequate and further soil nutrients need to be tested to provide an accurate baseline of pre mining soil health. He explained the baseline soil testing he recommended, as shown in Table 12.
- Soil testing should be on a one hectare grid and soil pits every 50 metres with the information stored on a GIS (Geographic Information System) platform.

Soil profiles vary across sites. He provided several examples including the one shown at Figure 15 which shows the soil profile for phosphorous important for plant growth across a paddock.

For soils management practices, Mr Savage recommended:

- segregating topsoils, subsoils and overburden
- applying ameliorants as recommended and applying them prior to stripping
- managing stockpile construction
- ameliorating and selective handling of sodic, magnesic or dispersive soils
- minimising mechanical handling and avoid compacting soils
- undertaking post approval surveys and management plans
- investigating soil contamination.

He also said:

- Stockpiling of soil has to be done on an individual soil unit or paddock basis and the soil returned to the same paddock.
- A weed management plan is needed, guided by an agronomist.
- That wind erosion risk as a negligible risk was understated and a Wind Management Plan is needed.

Table 12 Baseline soil tests recommended by Mr Sparke

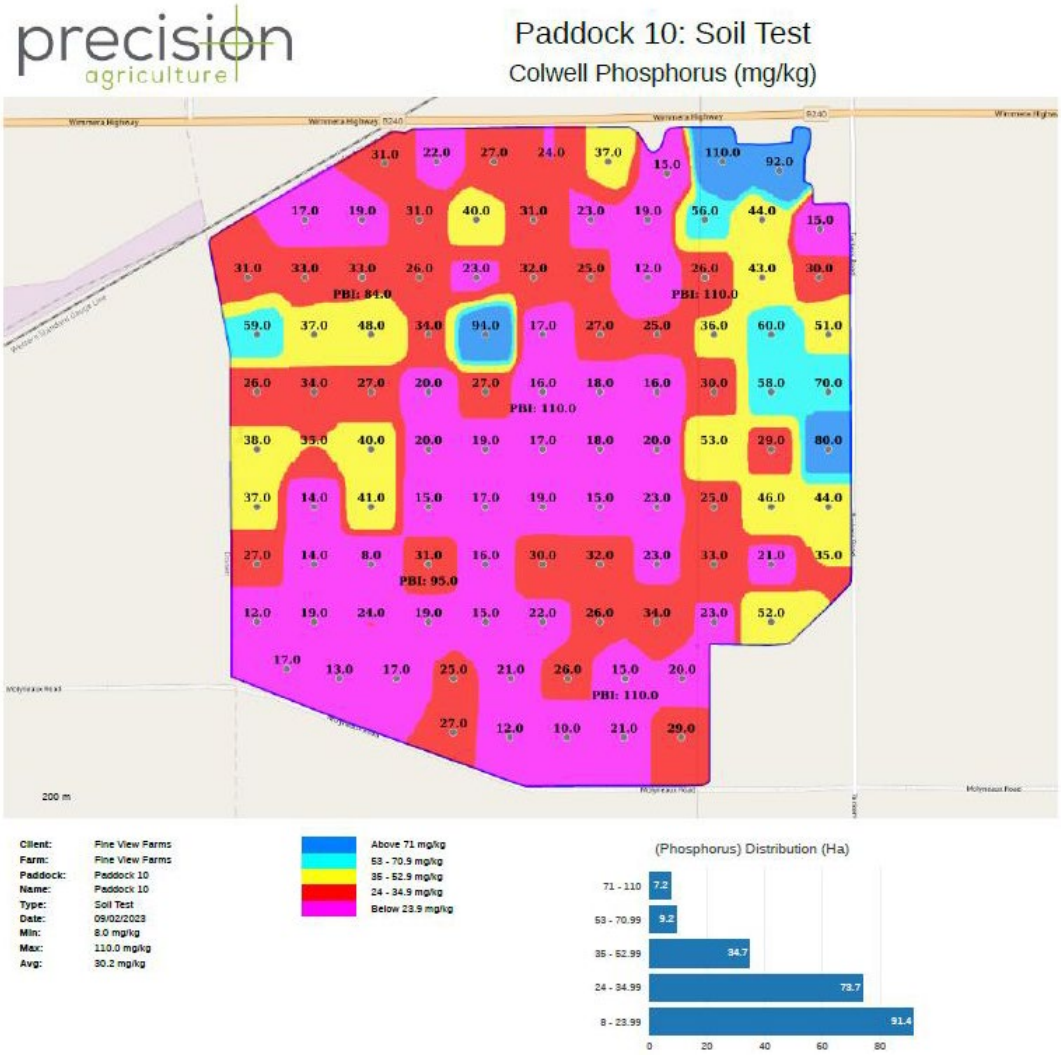
Depth (cm)	Baseline Soil Tests
0 - 10	Full test including: pH, EC, OC, texture, Colour, Cl, Boron, Colwell Phosphorus, PBI, Colwell K, Macro's (Ca, Mg, K, Na), Micro's (Cu, Zn, Fe, Mn), KCL-S, Al.
30 - 60	pH, EC, Cl, Boron, Colwell K, Macro's (Ca, Mg, K, Na), KCL-S, Al.
60 - 110	pH, EC, Cl, Boron, Colwell K, Macro's (Ca, Mg, K, Na), KCL-S, Al.

For soils management practices, Mr Savage recommended:

- segregating topsoils, subsoils and overburden

- applying ameliorants as per recommendation and applying them prior to stripping
- managing stockpile construction
- ameliorating and selective handling of sodic, magnesic or dispersive soils
- minimising mechanical handling and avoid compacting soils
- undertaking post approval surveys and management plans
- investigating soil contamination.

Figure 15 Profile of phosphorous across one landholding



Source: D108

Mr Sparke considered there needs to be further planning in relation to wind erosion as loss of topsoil due to wind erosion could take years to decades to rebuild the soil. He said guidelines are needed to minimise wind erosion when soil is laid back. Having stockpile cover to reduce wind erosion will be critical to the mine's success.

Mr Savage and Mr Bannan agreed with many of Matthew Sparke's recommendations (see D84). They all agreed and recommended:

- baseline soil testing to be on a one hectare and soil pits every 50 metres and stored on a Geographic Information System platform
- testing for organic carbon for potential agreement around lost Australian carbon credit units payments as a result of the Project

- having strategies for increasing carbon post-mining
- planning around wind erosion.

Mr Savage said:

> I believe there is merit in the principles of many of the testing and additional requirements proposed by Sparke. I believe the further measures proposed to be undertaken by WIM should address many of the aspects raised and these can be further resolved at the consultation and approvals stage.

The Proponent agreed to a number of the recommendations in principle, stating that if the matters are not addressed in the Rehabilitation Plan they could expect to be further researched or resolved during consultation for the work plan and LACAs. It made changes in response to the evidence including to require a suitably qualified person must undertake the Agricultural Baseline Assessment (SL-12). It said soil stockpile management requirements in the EMF will require a pre-mine survey that identifies key stripping depths for each soil unit and information to be used to prepare rehabilitation plans for each landholding.

(iv) Discussion

Managing the soil stockpiles and bringing them back to commensurate productivity is one of the most important, if not the most important, determinant of the post-mining success of Project. Especially crucial will be protecting the top soil from wind erosion.

As agreed and recommended by all experts it will be crucial to establish detailed and documented baseline soil surveys, done on a grid basis. Once mined the soils need to be stockpiled in discrete topsoil, subsoil A, subsoil B and overburden stockpiles in a manner so the stockpiles can be returned to the same paddock to the satisfaction landowner, and as agreed in each landowner's LACA. Documenting soils prior to mining is crucial to determining if the soil has been returned to a commensurate condition post mining.

The Committee is satisfied with the following 'Day 4' version of EMMs relating to soil management:

- SL-01: Potential Acid Sulfate Soils
- SL-02: Soil Resource Management
- SL-05: Soil Profile ripping and compaction management
- SL-06 and SL-0C: Contaminated land
- SL-0A: Field Surveys and SL-0B Pre mine soil surveys.

With consideration of the evidence, the Committee recommends further changes to some of the EMMs related to soil management as follows:

- SL-03: Soil Stockpile Management to require a detailed inventory of soil stockpiles is prepared and securely stored. Mr Sparke explained that soil quality varies within paddocks and between landholdings. Accurate stockpile management relies on pre-mine surveys using current technology to document the location of original soils and their return to the same location within the same landholding. The baseline soil tests shown in Table 12 provides the required detail.
- SL-04: Soil amelioration to require testing of gypsum and other ameliorants. Soil amelioration relies to an extent on using gypsum and it is important that quality gypsum is used that is low in salt and weed free.
- SL-09: Weeds and Pathogens to require a weed and pathogen management plan that applies to the whole Project not just the Flora and Fauna Management Plan (FFMP). This

is important as weeds and pathogens can be introduced to the soil by, for example, vehicles coming onto the development extent. Weeds and pathogens can lie dormant until the right conditions and may take years for a landholder to eradicate.

- SL-12: Agricultural baseline assessment to require the assessment be prepared for each landholding or paddock, as sufficient detail is vital to determining the soil quality to be achieved post mining.

(v) Findings

Subject to its recommendations, the Committee finds:

- soils need to be assessed in detail and inventoried prior to mining
- stockpiles can be managed through careful segregation into discrete units
- the measures proposed in the EMF adequate to sufficiently avoid, mitigate or manage the environment effects of stockpiling
- the effects on soils are acceptable.

Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure SL-03: Soil stockpile management to:
- **require a detailed inventory of soil stockpiles is prepared and securely stored.**

b) Edit mitigation measure SL-04: Soil amelioration to:
- **require testing and application of gypsum and other ameliorants, as recommended by a suitably qualified person.**

c) Edit mitigation measure SL-09: Weeds and pathogens to:
- **require a weed and pathogen management plan that applies to the whole Project (and remove the associated requirement for the biosecurity management protocol to be prepared as part of the FF-06: Flora and Fauna Management Plan).**

d) Edit mitigation measure SL-12: Agricultural baseline assessment to:
- **allow the assessment be prepared for each landholding or paddock.**

These changes are included in Appendix G.

7.3 Land rehabilitation

(i) The issue

The issue is whether the land can be returned to productivity commensurate with pre-mining productivity.

(ii) What did the EES say?

The EES described the Demonstration Trial that was used to test whether the land could be returned to productivity post mining (see Chapter 2.4 of this Report). The learnings from the rehabilitation of Demonstration Trial have informed the Rehabilitation Plan.

EES Appendix J – Soils and Landform Impact Assessment explained the avoidance and mitigation measures required to reduce the residual impacts. Mitigation measures that relate to land rehabilitation include:

- RH-01: Rehabilitation Plan
- SL-10: Rehabilitation and Operations Management Plan
- SL-12: Agricultural baseline assessment.

EES Attachment 3 – Rehabilitation Plan is a preliminary plan. It encompassed the development extent, the WBA and minor infrastructure corridors. The Rehabilitation Plan includes environmental objectives (among others):

> The rehabilitated landform will be safe, stable, sustainable, and capable of supporting the proposed end land use;
>
> Agricultural productivity and soil profile capability of the rehabilitated landform will be commensurate with surrounding unmined areas.

It proposes to define the end use in consultation with the landholders and the community.

The Rehabilitation Plan outlined what was required to meet the Scoping Requirements and to return the land to a safe, stable, sustainable form which can support the end use, agriculture. It includes a post-closure risk assessment.

The EES said the Rehabilitation Plan had been designed to ensure there are no ongoing management measures required once the land is rehabilitation. As rehabilitation is progressive the Rehabilitation Plan's effectiveness can be assessed early in the Project and adjusted as required.

The rehabilitation risk assessment in the Rehabilitation Plan identified no residual risks.

The EES described key mitigation measures for operations:

- minimising disturbance and undertaking progressive rehabilitation (LV-03)
- ensuring landform and drainage design avoids pooling of water and prioritise sheet flow conditions (WE-03).

(iii) Evidence and submissions

At the Hearing Mr Bannan explained some differences between the Demonstration Trial and what is proposed for the mine. He said any lessons learnt through the demonstration that can be applied to the Project have been, and he was confident the land can be returned to productivity.

Mr Sparke believed a workable Rehabilitation Plan can be achieved in consultation with the landholders. He raised issues relating to regular reviews in response to emerging knowledge and technology, flexibility with implementation depending on seasons and rehabilitation may present an opportunity to improve uniformity across paddocks.

Mr Savage and Mr Bannan agreed with Mr Sparke's recommendations to:

- plan timing for backfilling soil to avoid wind erosion
- use an agronomist to oversee the weed control plan
- herbicide should be fit for purpose and assessed for resistance
- long term monitoring of the soils will be needed post rehabilitation
- soils need to be returned with commensurate health as the soil will deteriorate when stockpiled

- bringing the soils back to their original health will need ongoing treatment and it may take years, possibly decades.

A number of individual submitters expressed confidence that the mine could be rehabilitated to productive farming land.

Some submitters were critical of the Demonstration Trial due to:

- the site not having soils which characterise the rest of the soils to be mined due to its grazing history
- it was excavated to shallower depth than proposed for the Project
- a comparatively small excavator was used that would not cause the same level of compaction.

One submitter said that seeding can only commence and germinate in May and this needs to be considered in the schedule in the Rehabilitation Plan. It was also concerned about soil compaction from heavy vehicles which will need special attention during rehabilitation.

The Proponent proposed new mitigation measure RH-02: Rehabilitation Research Plan that aims to investigate alternative rehabilitation methods to optimise the end land use in consultation with landholders and Longerenong College (with a view to developing student programs where relevant).

In closing the Proponent submitted the Rehabilitation Plan needs to go through consultation before being finalised and must be approved by ERR. As all three experts agreed that the land can be rehabilitated. The Proponent said the Committee does not need to look at the Rehabilitation Plan in detail.

(iv) Discussion

The Rehabilitation Plan will form part of the approvals under the mining licence, informed by the requirements in the EMF. In addition the Incorporated Document imposes some rehabilitation requirements for the WBA.

The exhibited Rehabilitation Plan is preliminary and will be approved by ERR before the commencement of the Project. The Rehabilitation Plan should be reviewed periodically to assess its performance and be adjusted as necessary.

The Committee relies on the agreed evidence of three experts that this can be achieved when the Rehabilitation Plan is fully implemented.

The Committee recommends including a new EMM requiring a Wind Erosion Management Guidelines as suggested by Mr Sparke and supported by other experts in principle. This is important to plan for and manage when and how soil is laid back down to avoid and minimise risk.

It is intended that some landholders may want return to live at their properties progressively during the Project. This is considered in Chapter 6 on Radiation.

The new mitigation measure RH-02 Rehabilitation Research Plan proposed by the Proponent appropriately addresses investigating and assessing feasibility of alternative rehabilitation methods to optimise the end land use and ensure risks are minimised as far as practicable. This is supported by the Committee.

Issues and recommendations relating to native vegetation rehabilitation are addressed in Chapter 12.5.

(v) Findings

Subject to its recommendations, the Committee finds the:

- EMF adequate to sufficiently avoid, mitigate or manage the environment effects related to land rehabilitation
- environmental effects are acceptable.

Recommendation

The Committee recommends:

Environmental Management Framework

a) Add mitigation measure SL-13 Wind Erosion Management Guidelines.

This change is included in Appendix G.

7.4 Rehabilitation of roads

(i) The issue

The issue is whether measures to rehabilitate local roads are acceptable.

(ii) What did the EES say?

EES Chapter 9 describes the local roads as having low traffic volumes and that they are mainly used by farm machinery and for property access. It says local roads will be progressively rehabilitated and reinstated over the life of the mine.

It includes TM-04: Road maintenance and management requiring an agreement between Council and the Proponent which includes:

> The process and standard of road reinstatement post-mining operations to the pre-existing condition and/or to the relevant road standard described in the HRCC 'Road Management Plan' (HRCC, 2017).

It says the agreement will include requirements to conduct:

- Pre-condition assessments to establish a benchmark standard against which roads are to be reinstated after rehabilitation.
- Post-condition assessments to confirm the reinstated roads meet the necessary regulatory standards and the agreed pre-condition benchmark.
- Periodic monitoring of local roads relied upon for Project traffic for signs of deterioration resulting from the Project.

The exhibited EMF included:

- TM-07: Local roads will be progressively rehabilitated and reinstated over the life of mine.

(iii) Submissions

Council noted that many of the local roads "*are not only unsealed, but are also dry weather only roads, formed in the local soil*" (S74).

Landholders raised issues relating to access and condition of local roads.

The Proponent advised that some sites were inaccessible for view in transport during the site inspection due to poor road conditions and the route was modified (D80). In closing the Proponent noted Greenhills Road is already impassable in some circumstances.

The 'Day 4' EMMs require:

- assessment be undertaken to confirm if reinstated roads meet necessary regulatory standards (TM-0A)
- periodic inspection of local roads for signs of deterioration resulting from the Project (TM-0B)
- a maintenance and management agreement for local roads within the development extent relied on by the Project or used as detours be brought up to their pre-existing condition and/or the relevant standard (TM-04).

The 'Day 4' EMF deleted TM-07 and cross referenced TM-01 and TM-04.

(iv) Discussion

There are three types of local roads and their rehabilitation that need to be considered:

- local roads in the development extent
- local roads relied on by the Project
- other local roads impacted by increased traffic due to the Project.

The TMP required by TM-01 does not address road rehabilitation. While TM-04 refers to road reinstatement the requirements are not detailed and do not capture all of the elements required for adequate reinstatement as expressed in EES Chapter 9. The Committee recommends TM-07 be reinstated and drafted to include suitable requirements to ensure road reinstatement is acceptable.

Reinstating roads to a pre-existing condition would mean they potentially will be unsealed and dry weather only. Reinstatement of local roads provides an opportunity to improve local road outcomes for the landholders and wider community. This is likely to be of benefit to the Project as it continues to use the progressively rehabilitated road network during its operations, noting there will be ongoing requirements to monitor, maintain and manage these roads as described in the EES.

It is the Committee preference for reinstated roads to be all-weather or to the relevant standard in the Council Road Management Plan, as determined appropriate and agreed by Council and stakeholders. This is consistent with the environmental objectives in the Rehabilitation Plan, which for infrastructure states:

> The end land use will be commensurate with the relevant planning scheme and any retained infrastructure will be fit for purpose and of beneficial use to the next land user.

While this is reinstated rather than retained infrastructure, it is important that reinstated roads are "*fit for purpose*" and "*of beneficial use to the next land user*".

Further, the Rehabilitation Plan says it intends define the end use in consultation with the landholders and the community, the Committee suggests reinstating TM-07 to address progressive rehabilitation of roads and require the minimum condition of the reinstated road be agreed prior to removal of the road.

The Committee is satisfied the EMMs relating to assessment, inspection and management and maintenance of local roads are appropriate.

(v) Findings

Subject to its recommendations, the Committee finds the:

- EMF adequate to sufficiently avoid, mitigate or manage the environment effects related to local roads
- environmental effects are acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure TM-07: Progressive rehabilitation of roads to:
- **require local roads removed for mining operations be reinstated to a condition agreed before removal of the road, to an all-weather standard or the relevant road standard described in the Horsham Rural City Council Road Management Plan (2017) in consultation with landholders and community.**

b) Edit mitigation measure TM-04: Road maintenance and management to:
- **cross reference revised TM-07.**

These changes are included in Appendix G.

7.5 Unplanned closure

(i) The issue

The issue is whether there are adequate measures for unplanned closure of the Project.

(ii) What did the EES say?

EES Attachment 3 included a brief section on unplanned closure. It described the possible reasons for a temporary closure relating to safety, economic or other issues, in which case the Project would be put into a "*state of care and maintenance for a period until there is clarity on a path forward for the operations*".[37] If feasible, progressive rehabilitation would continue in accordance with the Rehabilitation Plan.

EES Attachment 3 says if there is a temporary closure:

> Unplanned closure activities will be prioritised based on the risk potential of each domain and will include short term measures to prepare the site for rehabilitation and closure including:
>
> - Monitoring;
> - Site inspections;
> - Restrictions to access and site security;
> - Removal of fuel supplies and services not required for closure and rehabilitation activities;
> - Shutdown and isolation of all unnecessary plant and equipment; and
> - Ongoing maintenance and management whilst rehabilitation is undertaken.

[37] EES Attachment 3, page 80

Further, it says that if the rehabilitation bond were to be drawn on to pay a third party to undertake rehabilitation works in accordance with the Rehabilitation Plan, there would be sufficient material stockpiled to do so.

(iii) Submissions

The Proponent said that if there are unforeseen circumstances then work might have to slow down or even shutdown for a while and wait it out. If closed, the mine would effectively have to be rehabilitated, as described in Section 14 of the Rehabilitation Plan. If required the stakeholders would be consulted and the bond may need to be reassessed as per the MRSD Regulations.

Some submitters gave many examples of mines that had been abandoned, often leaving a toxic legacy as the remaining bond was insufficient to fund rehabilitation. One submitter said the price of minerals fluctuates which could cause the Project to either shut down or go into go slow mode possibly for years.

Some submitters were concerned the cost of rehabilitation would outstrip the bond and that the full impact of the mine may not be evident for decades. Others raised the issue of past problems with the adequacy of bonds for mines, as documented in the Victorian Auditor General's Office's report on *Rehabilitating Mines* (5 August 2020).

(iv) Discussion

The Scoping Requirements say the draft rehabilitation and closure plan should incorporate:

> Proposed contingency measures for rehabilitation in the event of unplanned/forced closure.

The section on unplanned closures does not explicitly raise the possibility of permanent closure, although it is alluded to by raising the possibility of paying a third party to do the rehabilitation. Further there was no mention of:

- closure of the WBA
- the status of obligations to landholders under their LACAs
- payment of money owed to employees, contractors and others.

The Victorian Auditor General's Office's report on rehabilitating mines examined the State's exposure to liabilities in relation to mine and quarry rehabilitation. While the report focuses on the ineffectiveness of the then compliance regime, it did highlight issue of mines becoming inactive or abandoned before rehabilitation has been completed.

To ensure clarity around expectations and responsibilities, and for the benefit of all stakeholders, the Committee considers it important to require contingency measures for rehabilitation in the event of temporary or permanent unplanned closure (consistent with the suggestion in the Scoping Requirements) be included in the EMF.

RH-01 Rehabilitation Plan is not fit for this purpose. A new EMM is required for an unplanned closure contingency plan. It must be:

- prepared in consultation with an independent mining management expert, stakeholders and landholders and endorsed by responsible authorities
- prepared before construction commences and be reviewed before each mine stage
- give clear pathways for both temporary and permanent closure.

(v) Findings

Subject to its recommendations, the Committee finds the:

- EMF adequate to sufficiently avoid, mitigate or manage the environment effects related to unplanned closure
- environmental effects are acceptable.

(vi) Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) add new mitigation measure RH-03: Contingency plan for unplanned closure.

This change is included in Appendix G.

7.6 Overall conclusions on soil and land rehabilitation issues

There are no soil and land rehabilitation impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to:

- ensure requirements for soil testing, baseline assessment and stockpile management is adequate
- require a weed and pathogen plan for the whole Project
- require a Wind Erosion Plan
- include a mitigation measure for progressive rehabilitation of roads
- include a new mitigation measure for a contingency plan in the event of unplanned closure.

8 Air quality

8.1 Introduction

The relevant evaluation objective is:

> Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Radiation is discussed in:

- EES Chapter 13 – Air Quality
- EES Chapter 18 - Human Health
- EES Appendix H – Air Quality Impact Assessment (AQIA)
- EES Appendix M – Human Health Risk Assessment (HHRA).

The exhibited EMF included the avoidance and mitigation measures shown in Table 13.

Table 13 Air quality - avoidance and mitigation measures

Code	Measure
AQ-01	Transport of HMC will be undertaken on sealed roads to avoid wheel generated dust and the HMC will be stored and loaded onto the ship via a closed system.
AQ-02	Active mining areas, including topsoil stripping, will be minimised so far as reasonably practicable.
AQ-03	Gravel and low silt content material will be used for internal haulage routes.
AQ-04	Open areas and unsealed roads will be routinely watered, and schedules will be adapted as required in response to forecast weather conditions, monitoring and community feedback.
AQ-05	HMC will be stockpiled wet, and sprinklers will be established to maintain moisture content and minimise surface creep during extremely dry conditions.
AQ-06	Topsoil stripping and placement will be avoided during extreme weather conditions.
AQ-07	Appropriately sized vehicles will be used to maximise the efficiency of material carting and minimise the number of haulage circuits.
AQ-08	An Air Quality Management Plan will be established to provide a framework for the management of residual impacts and risks.
AQ-09	A Community Engagement Plan will be implemented to provide a framework for consultation over the life of the Project.
AQ-10	Mined areas will be progressively rehabilitated and stabilised with a crop cover 1.5 to 4 years after disturbance.
AQ-0A	AQ-0A Real-time continuous air quality monitoring of particulate matter will be undertaken at sensitive receptors according to a schedule approved in the Air Quality Management Plan. The monitoring will be developed by a suitably qualified person such that it is aligned with the requirements of EPA Publication 1961 and will fully characterise the relevant risks and impacts associated with the Project.
AQ-0B	Visual inspections for nuisance dust will be undertaken.

The Committee has had regard to relevant submissions and expert evidence (see Table 14).

Table 14 Air quality expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D32 and D99	Proponent	Dr Iain Cowan	Tonkin and Taylor	Air Quality

8.2 Air quality impacts

(i) The issues

The issues are whether the:

- AQIA methodology is appropriate
- air quality will be acceptable with mitigation measures applied.

(ii) What did the EES say?

EES Chapter 13 provided an overview of air quality effects of the Project, supported by the AQIA (EES Appendix H).

The AQIA uses the approach prescribed by the EPA including:

- establishing baseline levels of pollutants through monitoring and analysis with air pollutants of importance for the Project being:
  - dust - particles PM_{10} and $PM_{2.5}$[38]
  - a range of heavy metals
  - respirable crystalline silica
- land data including the terrain, land uses, locations of sensitive receptors and development extent
- meteorological data
- the predicted air quality for the construction year, operations years 2, 7, 22 and the rehabilitation phase using details about the vehicles and equipment to be used and their emissions.

Radiation and vehicle emissions used to transport material to Portland were not included in the AQIA.

The air quality monitoring for the baseline year (prior to mining commencing) found that there were five occasions on which the PM_{10} measurements exceeded the Environmental Reference Standard (ERS) of 50 microgram per cubic metre in 24 hours. The $PM_{2.5}$ ERS was not exceeded in the baseline year. It has therefore been considered that sources of PM_{10} were either agricultural activities or dust coming from the more arid regions of Australia.

Air quality monitoring for the baseline year showed a number of exceedances above the ERS for PM_{10} which it is posited were due to agricultural activities or windblown dust from inland. The baseline year exceedances are not predicted to cause any additional exceedances of the ERS.

Based on the EPA guidelines[39] a Level 3 assessment was undertaken as the mine is:

- estimated to have an extraction rate of 20.5 million tonnes of per year

[38] $PM_{10}/PM_{2.5}$ means particulate matter with an equivalent aerodynamic diameter of 10/2.5 micrometres or less

[39] Guidelines for Assessing and Minimising Air Pollution in Victoria, EPA pub. no. 1961, February 2022

- within 500 metres of a sensitive receptor.

A Level 3 assessment is the highest level of assessment, has the most stringent assessment criteria and requires a risk assessment both for inherent risk (that is without any controls) and residual risk after mitigation measures are implemented. The residual risk was then assessed for the risk to human health. The proposed technology required for the mitigation measures as well the cost of the measures were considered in the risk assessment. The EPA was involved in identifying risks and mitigations measures and other aspects of the air quality assessment.

Due to the moving mine operations the impacts of the project were assessed for construction (year 1), operation (years 2, 7 and 22) and during rehabilitation as these years represent the years with the maximum disturbance areas and have the potential to generate the worst case impacts due to their proximity to sensitive receptors.

The modelling of air quality used the standard EPA approved atmospheric dispersion models. The meteorological data was from the nearby Bureau of Meteorology weather station at Longerenong College. It was noted the weather station at Longerenong does not measure upper air and relevant files for modelling wind speed and direction were generated using data from elsewhere such as satellite data. The emissions data for equipment such as excavators was sourced from The National Pollutant Inventory (2012) and the United States Environment Protection Authority in the emission factor compendium known as AP-42 (2006). The modelling was done with and without mitigation measures applied to assess impacts of the Project when compared with the baseline as well as the effectiveness of mitigation measures.

It showed the greatest quantity of PM_{10} came in year 7 with the trucking of overburden from the stockpiles being the most significant contributor. With the exception of baseline PM_{10} exceedances no other exceedances of the criteria are predicted to result from the Project for air pollutants assessed.

The AQIA recommended:

- a range of mitigation measures to minimise dust, in particular wheel generated dust
- preparation of an Air Quality Management Plan (AQMP) for the whole of the Project site.

The AQMP concluded that with the mitigation measures in place the air quality impacts of the Project will be negligible or minor during construction and for all stages of operations.[40]

Appendix H said:

> The predicted concentrations are sufficiently low that there would not be noticeable impacts to air quality by an individual and it is only through monitoring that any changes would be noted.[41]

In relation to cumulative impacts, a number of other projects in the region including Western Highway Duplication Project, the Western Victorian Transmission Network and other mineral sands mining projects are likely to affect air quality in the future. While no assessment has been made about the quantum of these affect/s the AQIA considered:

> … that none of the projects … would result in any cumulative impacts, either because they are too distant for the zones of impact to overlap or because emissions would not occur concurrently.[42]

[40] Negligible is less than 4 per cent and minor and moderate are greater than 4 per cent change

[41] EES Appendix H, page 81

[42] EES Chapter 13, page 13-36

(iii) Evidence and submissions

The Proponent relied on the evidence of Dr Cowan who outlined the assessment methodology and results.

Dr Cowan emphasised the AQIA:

- had been reviewed by a technical committee which included the EPA and an independent consultant Mr Frank Fleer
- the Proponent had supplied details that underpinned the impact assessment including the scheduling of the Project and material movements and characteristics as well the types of vehicles and equipment to be used on the Project
- others had supplied data such meteorological data and dust test results
- EPA had been consulted regarding the modelling inputs.

Dr Cowan stated:

- PM_{10} and $PM_{2.5}$ have no 'safe level' and every increment results in an increased risk of harm to human health
- in mining it is not possible to eliminate the risk as these particles are generated when moving earth
- the controls which reduce the emissions and therefore the risk must be able to be practicably implemented
- reduction in risk 'so far as reasonably practicable' considered all activities and available mitigation measures commonly used in mining and listed in either the *National Pollutant Inventory, Emission Estimation Technique Manual for Mining* (NPI) [43] or the *Compilation of Air Pollutant Emissions Factors* (AP-42)[44]
- potential mitigation measures were discussed with the Proponent to understand which mitigation measures were practicable from an operational perspective.

Dr Cowan said:

> The identified mitigation measures included in the modelling resulted in a 93 % reduction in emissions compared to no controls and a 72 % reduction compared to standard industry controls.

Dr Cowan emphasised the Project has to meet its GED obligation as required by the EP Act. He advised that due to agricultural activities or windblown dust there is likely to be exceedances on the PM_{10} standard but not the $PM_{2.5}$ or respirable crystalline silica standards or the heavy metal criteria.

Dr Cowan endorsed the air quality EMMs.

Dr Cowan advised:

> The greatest reduction in emissions was achieved through the use of larger mining trucks to reduce truck movements on the Site.

At the hearing the Committee asked Dr Cowan about the seeming contradiction between his recommendation of larger mining trucks and the advice of soils experts to use lighter trucks to

[43] National Pollutant Inventory, Emission Estimation Technique Manual for Mining, version 3.1, January 2012, Department of Sustainability, Environment, Water, Population and Communities

[44] United States of America, 2006

reduce soil compaction. Dr Cowan explained larger trucks meant fewer trips and less emissions. If different trucks are used he said the modelling should be re-run to assess their impact.

The EPA made extensive submissions on air quality. In its original submission it recommended amending a number of EMMs and proposed the following new EMMs:

- Implement tiered vehicle speed limit of 20 km/hr within 500 m of sensitive receptors on unsealed project roads, otherwise 50 km/hr with appropriate signage and enforcement by the Proponent to minimise dust generation. Employee and contractor induction processes are to include ensuring drivers are advised to further reduce speeds when dusty conditions are observed.
- Establish and maintain CCTV [closed-circuit television] cameras for continuous dust surveillance during construction operation rehab and closure.
- Prior to commencement of the Project, conduct baseline crop monitoring to analyse dissolved and total metals. Conduct ongoing monitoring of crops and rainwater tanks during construction, operation, and closure to a schedule proportionate with risk of harm to human health. Assessment of monitoring results will inform any management actions required. Publish rainwater tank monitoring data following consent provided by the residents/landowners.[45]

The EPA provided written comments on the Proponent's 'Day 2' versions of the EMF and on the 'Final day' version. In its comments on the 'Final day' versions the EPA suggested one change to the Incorporated Document requesting the words "*in consultation with the EPA*" be deleted from condition 5.11(a) Decommissioning Plan.

Council raised concerns that dust will be generated when the tailings and HMC are dry. Council submitted:

- an assessment had not been made of the risk posed by the tailings drying out and the Incorporated Document does not have a requirement for a Dust Management Plan
- an AQMP should be included in the Incorporated Document consistent with AQ-08 Air Quality Management Plan
- in its original submission that an additional mitigation measure should require a shed, tarpaulins or spray mulch be included to prevent dust at the WIFT, but accepted Dr Cowan's evidence that this was not necessary or practical
- agreed with the Proponent that speed limits for trucks as proposed by the EPA is not warranted.

Submitters raised the following issues:

- methodology including wind direction and speed used in the model
- dust generally caused by the Project, in rainwater tanks, from wind erosion, heavy metals and radioactivity in dust, dust generated by surrounding agricultural activities
- respirable crystalline silica
- the HMC stockpile management and moisture
- buffer between residents and mine is inadequate.

In response to the 'Final day' version of the EMF one submitter recommended:

- wind be monitored at 30 metres at the Overburden Stockpile Block A and B to check for dust spreading over crops, residences and businesses
- moisture levels in the overburden stockpiles should be maintained at 5-8 per cent

[45] EPA proposed this as a Human Health Measure.

- crop monitoring for dust must done in consultation with landowners by an agreement and by a suitably qualified professional
- all data should be shared with the respective landowner where data is collected.

One submitter highlighted that wind speed at elevated heights can differ to the speeds closer to ground level.

BDEC raised additional issues including:

- the NPI manual had been based on coal mining and as coal is wet the estimates of dust emissions from the Project are underestimated
- the need for a dust management plan
- radionucleotides, heavy metals and rare earths in dust could have human health impacts
- dust will contaminate food
- co-siting of food handling businesses at the WIFT will be compromised and risk Australia's reputation as a food exporter
- minimum or no till crop management reduces dust from agriculture.

In response to issues raised by Council, Dr Cowan said that dust from the Project is a minor issue. He considered that given the location in relation to sensitive uses and with proposed mitigation measures a shed is not warranted, a tarpaulin is not practical and spray mulch would contaminate the HMC.

In closing submissions the Proponent clarified the apparently contradictory recommendations of Dr Cowan and soils experts related to trucks used in different parts of the mining operation. It said:

> The two recommendations relate to different parts of mining operations: Dr Cowan's recommendation was directed to trucks used for the hauling of overburden during mining operations. These trucks will move over designated haul roads. The issue of compaction arises in relation to the movement and replacement of topsoils and subsoils. These will be removed and replaced with low pressure bearing vehicles consistent with the recommendation of Mr Savage and as proposed in the Day 3 EMF[42] and the Rehabilitation Plan.

The Proponent made extensive changes to the EMMs relating to air quality including many of the EPA's suggested changes. Changes and additions included requiring:

- closed circuit television be established, monitored and maintained as part of the AQMP
- real time continuous air quality monitoring
- details about visual inspections
- sweeping and watering of dusty roads
- baseline crop monitoring to analyse dissolved and total metals.
- ongoing monitoring of crops and rainwater tanks.

The Proponent rejected the EPA's recommendation for a new measure for tiered vehicle speeds. Dr Cowan said there is no evidence that faster vehicles generate more dust and referred to several references support his position.

In response to a question from the Committee, the Proponent explained it did not consider an AQMP necessary in the Incorporated Document as this was covered by condition 5.6 Environmental Management Plan, which include a reference to air quality.

(iv) Discussion

The modelling and assessment of air quality is comprehensive and supported by an independent review.

As identified by Dr Cowan the air pollutant of most concern throughout the life of the Project is dust and the monitoring and mitigation measures will need to be closely adhered to. The inclusion of real time continuous monitoring and CCTV surveillance is essential to understand dust sources and movements around the mine and the WBA as well as compliance with ERS and providing data during operations for additional modelling when required. Real time continuous monitoring used in mines and quarries can have alarm systems to sound an alert when concentrations of particles reach a level close to the ERS and either curtailment of operations or shut down is needed. This is recommended for the installed monitoring system (AQ-0A). Further, the Committee recommends this as a new monitoring measure (AQ-0D), rather than as part of AQ-08 as proposed by the Proponent.

Trucks will be a significance source of dust throughout the life of the Project. It Is noted that the source of emissions data for trucks and other equipment used in modelling comes from the NPI and AP-42 and are relatively dated. Provided the vehicles and equipment are well maintained and their engines and exhaust systems in the main post date AP-42 and NPI data, then the modelled emissions from these sources is likely to be relatively conservative.

The Committee has recommended sealed trucks be used for HMC haulage (see Chapter 6).

Consistent with Dr Cowan's recommendation, it would be appropriate to test modelling outcomes against real time air quality data early on in the Project and any adjustments made to the modelling and the Project if required. This is a position the Committee supports as there are many variables used in modelling and real data is needed to assess its accuracy especially for future years of the Project. The Committee recommends new monitoring measure AQ-OF: Modelling accuracy re-run.

The Committee has relied on the final 'Day 4' air quality EMMs its review and assessment. It generally agrees with the 'Day 4' version however makes following recommendations:

- AQ-08 - provide for the AQMP to be maintained and implemented for the duration of the Project
- AQ-0C - crop and rainwater monitoring should be amended to require monitoring and publication of data with the landholders' consent.

The meteorological data collected at the nearby Bureau of Meteorology station at Longerenong College does not include upper air data and as such does not show the wind profile at elevated heights.[46] Wind speed and direction at the height of the overburden stockpiles which are proposed at 30 metres above ground level is important for monitoring conditions that are likely to elevate dust levels. Elevated wind speeds may require the mitigation measures such as activating sprinklers. The equipment and location of the wind speed and direction monitoring should seek the EPA's endorsement. The Committee recommends new AQ-OE: Monitoring wind speed and direction.

The Incorporated Document should include a condition requiring an AQMP in accordance with EMM AQ-08. This is important to ensure clear lines of responsibility air quality management for

[46] Longerenong Bureau of Meteorology station has wind data at 10 metres only.

the WBA. It is appropriate for Council to have direct oversight of an AQMP for the WBA, that is consistent with the requirements of the EMF.

EPA's *The Guideline for assessing and minimising air pollution* states that examples of sensitive land use include, but are not limited to, residential premises, educational and childcare facilities, nursing homes, retirement villages, hospitals. The current businesses at the WIFT includes Viterra, a grain storage and handling operation and Johnson Asahi, which stores hay for animal feed to be exported to Japan. Both these businesses would have a requirement to provide products that reach certain standards with Viterra's product ultimately for human consumption. They could be considered to be sensitive to air quality. Having an AQMP in place provides Council with clearly defined administrative control and provides assurance to Council and the businesses at the WIFT that air quality meets the ERSs.

(v) Findings

The Committee finds:

- the AQIA methodology is appropriate
- subject to its recommendations, the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the air quality effects, air quality effects are acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) **Edit mitigation measure AQ-08 to:**
   - **require the Air Quality Management Plan be maintained and implemented for the duration of the construction, operation, decommissioning and closure of the facilities to the satisfaction of the responsible authority.**
   - **delete the requirement relating to closed circuit television.**

b) **Add new monitoring measure AQ-0D to:**
   - **Require monitoring with closed circuit television.**

c) **Add new monitoring requirement AQ-0E to:**
   - **require monitoring of wind speed and direction with monitoring at elevation above the height of the stockpiles. The equipment to be used and its location be endorsed by EPA.**

d) **Add new monitoring measure AQ-0F to:**
   - **require the model to be re-run using one year of monitored air quality data to assess the accuracy of the modelling results. The modelling results will determine any adjustments that may be required to Project's operation.**

e) **Edit monitoring measure AQ-0A to:**
   - **require real time continuous air quality and wind monitoring of particulate matter preferably with an alarm to provide an alert when wind speed and direction and concentrations of particles could result in particle levels close to the Environmental Reference Standard.**

f) Edit monitoring measure AQ-0C to:

- **require ongoing crop and rainwater tank monitoring, and publication of data, with consent of the residents/landowners.**

Incorporated Document

Include the following change:

a) Add a new condition requiring an Air Quality Management Plan in consultation with Earth Resources Regulation and the Environment Protection Authority Victoria, consistent with the requirements of AQ-08 Air Quality Management Plan.

These changes are included in Appendices G and H.

8.3 Overall conclusions on air quality issues

There are no air quality impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to ensure monitoring measures are adequate and mitigation measures area maintained and implemented for the duration of the Project. The Incorporated Document should be amended to include a condition requiring an AQMP for the WBA.

9 Traffic and transport

9.1 Introduction

The relevant evaluation objective is:

> Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Radiation is discussed in:

- EES Chapter 3 – Project Alternatives
- EES Chapter 4 – Regulatory Framework
- EES Chapter 9 – Traffic and Transport
- EES Appendix C – Road Traffic Impact Assessment.

The exhibited EMF included the avoidance and mitigation measures shown in Table 15.

Table 15 Radiation - avoidance and mitigation measures

Code	Measure
TM-01	The proposed haulage route is designed to rely on higher-order roads and/or routes gazetted as appropriate to cater for the types of traffic generated by the Project.
TM-02	A Traffic Management Plan will be maintained to manage Project traffic movements and mitigate specific short and long-term traffic impacts.
TM-03	A Green Travel Plan will be maintained to encourage sustainable travel and to minimise Project traffic generation.
TM-04	Road maintenance and management agreements will be established with Horsham Rural City Council for local roads that are relied upon by the Project.
TM-05	Road infrastructure improvements will be undertaken at the Wimmera Highway/WBA intersection so that it complies with Austroads and Department of Transport design requirements.
TM-06	A Community Engagement Plan will be established to identify and consult affected and interested stakeholders.
TM-07	Local roads will be progressively rehabilitated and reinstated over the life of mine.

The Committee has had regard to relevant submissions, expert evidence (see Table 16) and the following technical notes:

- TN-03 Feasibility of rail for the transport of Heavy Mineral Concentrate (D52)
- TN-04 Road transport of Heavy Mineral Concentrate (D53)
- TN-15 Traffic and transport (D97)
- TN-18 Road diversions and access to paddocks (D134).

Table 16 Traffic and transport expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D33 and D68	Proponent	Mr Aaron Walley	Ratio	Transport

9.2 Haulage road conditions and traffic

(i) The issues

The issues are whether the Project will have an acceptable impact relating to:

- increased road damage from HMC truck movements on the haulage route
- increase in traffic movements at night
- increased road transport on school bus routes
- cumulative impacts of multiple mineral sands projects relying on road transport.

(ii) What did the EES say?

Road network and condition

The EES identified the arterial road network that would be used during all phases of the Project (see Figure 16) including:

- Wimmera Highway (B200) which runs through the Project area and connects the Project to Henty Highway and Western Highway and the local road network
- Henty Highway (A200/B200) which is the proposed HMC haulage route providing connection from the WBA and mine site to the PoP, as well to the Western Highway and Horsham
- Western Highway (A8) which provides connection to Melbourne and Adelaide and Tuckers Hill Quarry towards the southeast between Stawell and Ararat. It provides the most direct and major route for the transport of equipment and plant to the Project area.

The Wimmera Highway forms part of the gazetted B-double road network and is being assessed for inclusion in the A-double road network. The pavement condition of the highway through the mining area was assessed as generally very good. The EES said the traffic volumes are low compared to the capacity of a two-lane two-way arterial road which has a capacity of 4,000 vehicles per day.

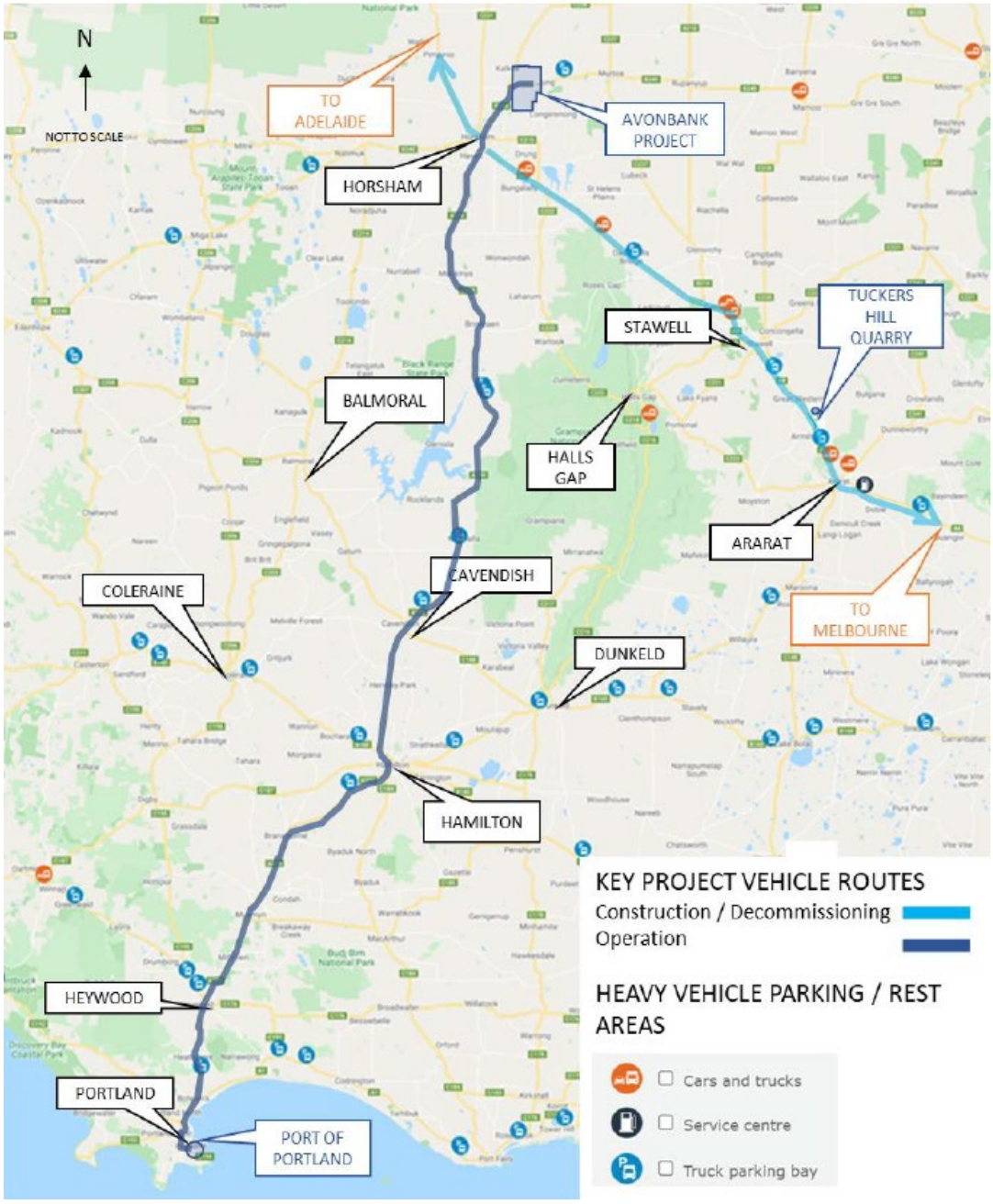
The Henty Highway and all the intersections along its length between Dooen and Portland is a gazetted an A-double highway. The highway will be used by A-double vehicles for the Project, subject to the proposed vehicles complying with relevant DTP guidelines.

The EES said the proposed HMC haulage route comprises the highest standard of arterial roads and has the lowest percentage increase in traffic from existing conditions compared with other potential route options considered.

The EES did not include a substantial analysis of the existing road condition for the arterial roads used between WBA and PoP. However, it noted the State Government has committed funding for relevant road improvement projects since late 2019, including:

- planned pavement reconstruction of the Henty Highway between the Wimmera Highway to Hamilton
- completed surface improvement works on the Henty Highway near Condah
- various pavement reconstruction and improvement projects on the Wimmera Highway near Horsham.

Figure 16 Project Area and Haulage Route during construction and operation



Source: EES Appendix C, page 69

Traffic and transport

The EES assessed other existing traffic and transport considerations including pedestrians and cyclists, public transport, rail crossings and rest areas.

The EES said that during the site establishment and construction phase the Project will generate approximately 200 full-time jobs on-site and many indirect full-time jobs. These workers will generate traffic movements to and from the site, accessing the local road network and the arterial roads near Horsham. The EES indicated the construction equipment and materials will mostly be transported to the site along the Western Highway from Adelaide and Melbourne. The EES did not indicate an estimate of the number of vehicles involved in the transport of equipment and materials.

During operations the Project will generate approximately 232 employees working various rosters for the 24-hour operation of the Project. The Proponent proposed a transfer bus from the mine site to Horsham at shift change whilst other workers will use private vehicles. The EES explained the Proponent will develop a Green Travel Plan (TM-03) to promote sustainable transport initiatives and to minimise private vehicles use by the Project workers were practicable for all phases of the Project.

The EES discussed the residual impacts for the arterial road network including:

- road network capacity
- road network infrastructure
- WBA access upgrade.

The EES indicated there will be up to 27 HMC haulage vehicle trips from the WBA to the PoP each day. This translates to 54 heavy vehicle movements every 24 hours as each truck returns from the PoP to the WBA.

The EES determined the carrying capability of the haulage route in terms the level of service which is derived from the relationship of the traffic volume (existing and/or future) compared to the capacity of the road. It said:

- all arterial roads operate with a level of service of free-flowing to reasonable free-flowing
- there will be no change to the level of service, across all arterial roads, during the Project construction or operation phases
- there is expected to be a small reduction in level of service on urban sections of arterial roads through Horsham, Portland and Stawell in 2052 (during the decommissioning phase) however all roads will be operating at a level of service level of stable uncongested flow.

The road capacity assessment showed that all the level of service changes in the future scenarios are a result of assumed traffic growth and not directly a result of the Project. The residual impacts associated with all phases of the Project were assessed to be negligible or minor.

(iii) Evidence and submissions

Mr Walley gave evidence addressing issues raised in submissions relating to:

- potential increase in arterial road damage and road maintenance requirements with the increase in the number of heavy vehicles
- concerns for other road users such as school buses
- cumulative impacts of multiple mineral sands projects relying on road transport.

Mr Walley said:

> All arterial roads relied on by the Project are gazetted heavy vehicle routes identified as suitable for all heavy vehicles expected to be generated by the Project.
>
> As the responsible authority, under the Road Management Act and the DTP's Road Management Plan, DTP has a statutory duty to "*inspect, maintain and repair a public road*" to the appropriate standard.
>
> The level of service assessment undertaken identifies that Project generated traffic will have minimal impact on the road network level of service, with the relative impact expected to decrease over the Project life due to underlying traffic growth.

Mr Walley provided the Committee with hourly traffic volumes for various townships and sections of the haulage route (D92). The existing hourly traffic volumes for small remote townships on the haulage route (like Cavendish) have very low traffic two-way volumes. Cavendish for instance, has

only about 15 vehicles between the hours of midnight and 6am; the traffic data did not indicate if these 15 vehicles consisted of trucks or cars.

Regarding bus operations along the haulage route, Mr Walley explained public buses operate within Horsham, Hamilton and Portland and the Horsham public bus routes do not utilise the arterial roads that are in the Project area. The interaction of the haulage route and the public bus routes include:

- In Horsham
  - a short section of Baillie Street
  - a short section of the Henty Highway between Edith Street and Pryors Road, and
  - sections of the Western and Henty Highways.
- In Hamilton, the public buses will use a short section of the Henty Highway.
- In Portland, there are no interaction of the haulage route and bus routes.

Mr Walley said:

> - From data sourced from DoT and HRCC, some school bus routes operate on roads that will be relied on by Project traffic. … School buses operate on some road segments across transport routes relied on by the Project. No routes operate on roads within the Project area.
> - Routes and number of buses can vary annually based upon changes in student enrolment and resultant demand. Routes along the Henty highway in proximity to Project area currently operate 7:45-8:30am and 3:45-4:30pm on school days.

Council raised issues relating to the arterial roads including the development of the access to the WBA from the Wimmera Highway and road closures during these works. It sought for the Incorporated Document to require the TMP to include "*truck routes through Horsham and other towns within the municipality*".

Further, Council submitted:

- there needs to be an acceleration lane facing west at the intersection of the exit from the WBA to the Wimmera Highway
- it had concerns with sight distances at the Henty /Wimmera Highway intersection
- a Green Travel Plan should be a condition of the Incorporated Document.

The Proponent submitted (D129) Council's proposition that the Project be responsible for the 'wear and tear' of the haulage route was unfair and untenable given the number of Project vehicles using the route is small compared to the total number of vehicles and the number of heavy vehicles using the route. It reiterated that "*arterial roads are a State responsibility and are for use by members of the public, including business such as the Proponent's*".

Further, the Proponent disagreed with Council submitting "*The Green Travel Plan is intended to relate to personnel transport to and from site and will not be included in the Inc Doc* [sic]" (D149).

Several submitters raised issues of road noise impacts associated with the introduction of the 24 hour per day road haulage of HMC.

(iv) Discussion

The Committee accepts the information regarding existing conditions presented in the EES. The existing traffic volume data in EES Appendix C provides a useful base to consider the potential increase in the traffic volumes resulting from the Project.

The Committee:

- accepts the information provided with regards to the increase in overall traffic volumes and heavy vehicles on the arterial road network due to the construction and operation of the Project
- notes there will be an increase in traffic due to the Project workers travelling between the Project site and their accommodation on the arterial roads between the Project and Horsham and other nearby towns
- notes the Project will result in an increase of up to 54 large trucks a day using the haulage corridor.

The Committee has prepared Table 17 which shows examples of the increase in traffic volumes and proportion of heavy vehicles due to Project operations compared to existing traffic conditions.

Table 17 Examples of existing traffic conditions with and without the Project

Location	Existing estimated daily traffic volumes		Commencement of mine operations estimated daily traffic volumes	
	All vehicles	% heavy vehicles	All vehicles	% heavy vehicles
Wimmera Highway to north of Horsham	4000	11.8	4318	12.5
Cavendish	1200	15	1264	19.3
Branxholme	2200	18.6	2264	20.9
Myamyn	2600	26.5	2664	28.3
North of Portland	8900	14.6	8964	15.2

Source: Committee adapted from EES Appendix C, pages 83-85, Table 11-5

In sections of the route where existing traffic volumes are low the increase in traffic and heavy vehicles will be noticeable. Where the existing traffic volumes are high, such as in Horsham on the Western Highway section of the route and north of Portland, the increase in heavy vehicle traffic will not be as significant compared to a less trafficked section of the route. The introduction of an additional 10 heavy vehicles in a five-hour night time period in low trafficked areas represents a moderate increase in traffic and potential disturbance. Night-time traffic noise impacts are considered in Chapter 10.6.

However, limiting or curtailing HMC haulage vehicles from the Project using the proposed haulage route is not reasonable given the gazetted arterial road network is specifically designed, constructed and maintained to accommodate all compliant heavy vehicles.

Based on the evidence of Mr Walley, public buses are already interacting with heavy vehicles in the major towns that have public bus routes. School buses are also currently interacting with existing traffic along the Henty Highway and other arterial roads, where the existing traffic contains heavy vehicles. The school buses operate for less than an hour on the HMC haulage route resulting a potential interaction with 1 to 2 HMC haulage vehicles (assuming that there are about 2 HMC trucks movements per hour).

The Committee is satisfied with the investigations undertaken by Mr Walley and that the interaction of the HMC haulage truck with buses on the haulage route is not a significant additional risk compared to the existing interaction of the buses with heavy trucks already using the routes.

The Committee does not agree with Council that the Incorporated Documented should be amended to require the Proponent be responsible for impacts on roads across the wider region. These roads are used by many vehicles not associated with the Project and are subject to management and maintenance arrangements beyond the scope of the Project.

Increase in damage to the arterial roads because of the increase in heavy vehicle is a potential issue. TM-01: HMC Haulage requires the preferred transport route be periodically reviewed to assess the road condition. The Committee recommends TM-01 be amended to require the Proponent consult with DTP when sections of the haulage route become damaged and require rectification.

The design of the intersection of the WBA entrance and the Wimmera Highway must consider the requirements set by Austroads and the DTP. At the design stage, the requirements for an acceleration lane in a westerly direction will be considered. Council noted that the development of the WIFT included the provision of an acceleration lane on the Henty Highway at Freight Terminal Road for southbound movements of trucks entering the Henty Highway from Freight Terminal Road. EMF TM-04: Road Infrastructure Improvements adequately addresses the requirements for the intersection of the WBA entrance and the Wimmera Highway.

The Committee agrees with Council that a Green Travel Plan should be included as a condition in the Incorporated Document, consistent with the requirements of TM-03. TM-03 is intended to apply to the entire Project and will have benefits relating to reduced traffic and greenhouse gas (GHG) emissions. Consideration of worker transport and opportunities to reduce traffic impacts will be important when developing the Environmental Management Plan for the WBA. The Committee recommends adding this as a condition to clause 5.6 Environmental Management Plan.

Landscape screening to achieve appropriate road intersection site distances is addressed in Chapter 15.2.

(v) Findings

Subject to its recommendations, the Committee finds:

- the measures proposed in the EMF and conditions in the Incorporated Document are adequate to sufficiently avoid, mitigate or manage the impacts so far as reasonably practicable
- the traffic and transport effects on the arterial road network are acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure TM-01: HMC Haulage route to:

- **require consultation with the Department of Transport and Planning during periodic review of the preferred road transport haulage route**
- **require consultation with the Department of Transport and Planning as soon as practicable when significant issues arise regarding road safety, condition and maintenance of the arterial roads used for transporting**

Heavy Mineral Concentrate from the WIM Base Area to the Port of Portland.

Incorporated Document

Include the following change:

a) Edit clause 5.6 Environmental Management Plan to require a Green Travel Plan.

These changes are included in Appendix G.

9.3 Local road network

(i) The issue

The issue is whether local road closures in the Project area are acceptable and mitigation measures adequate to avoid and mitigate risks.

(ii) What did the EES say?

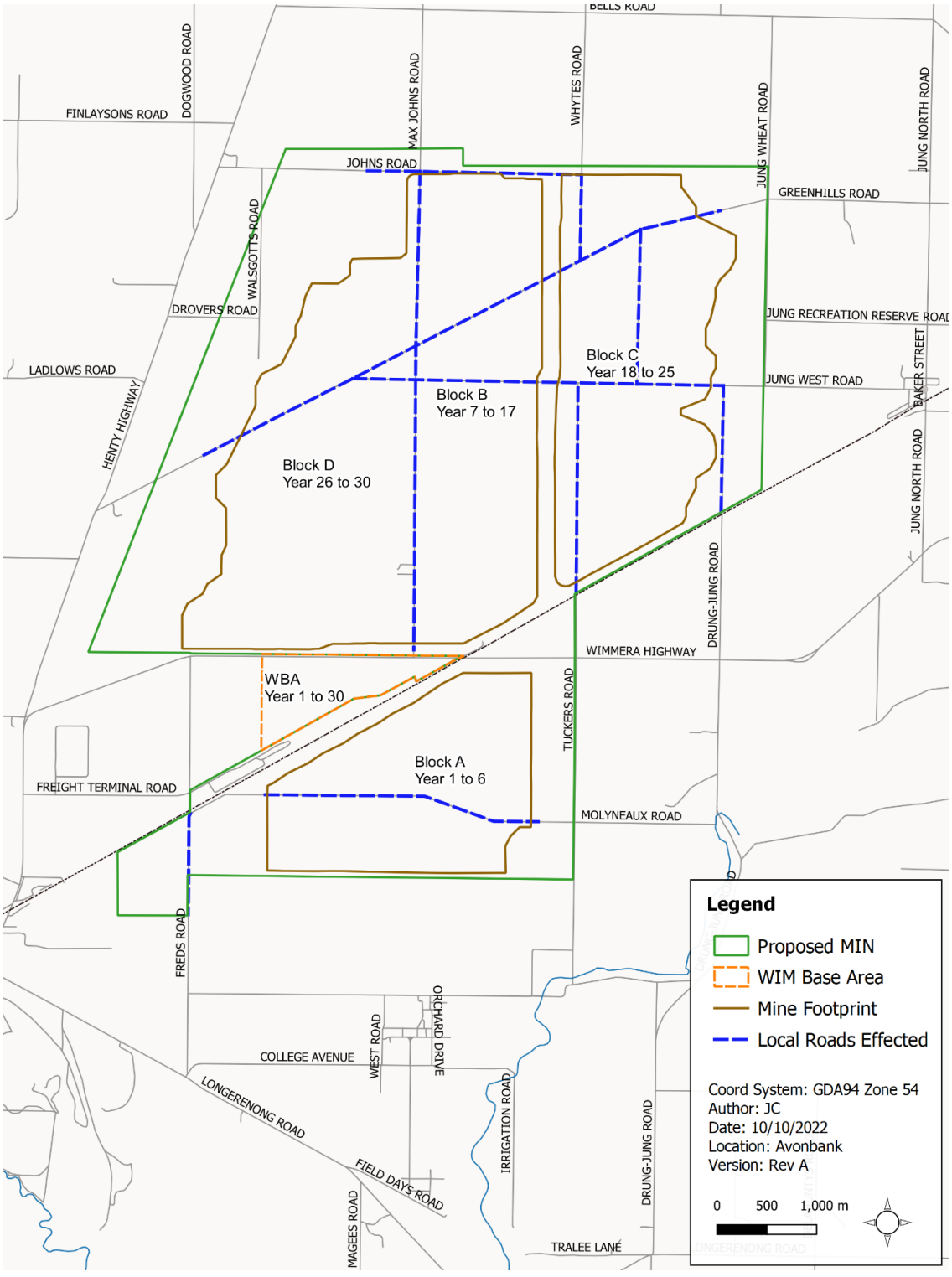
The EES explained the local roads in the vicinity of the MIN area and WBA are arranged in a grid pattern connected to the arterial roads at the Henty and Wimmera Highways (see Figure 17).

The EES discussed the impacts of the Project on the local road network and the systematic closures and reopening after rehabilitation of the mine. Table 18 shows the proposed timing of the local road closures.

The EES said the local road network would currently have no more than 50 vehicles per day on any road, with vehicle types ranging from light vehicles to farm machinery.

During the operation of the Project, east-west traffic would be directed to the Wimmera Highway whilst north-south traffic would be directed to the Henty Highway and the Jung North Road. Public access to land impacted by mining will be managed on an as-need basis and coordinated by the Proponent in consultation with Council.

Figure 17 Local road closures



Source: EES Chapter 9, page 9-7

Table 18 Proposed local road closure timing

Mining Block	Road	Closed (Years Since Commencement)
Block A	Molyneaux Road	1 to 10
	Freds Road	1 to 10
Block B	Max Johns Road	6 to 20
	Jung West Road	7 to 20
	Greenhills Road	7 to 20
	Johns Road	8 to 20
Block C	Johns Road	18 to 20
	Whytes Road	17 to 21
	Greenhills Road	17 to 28
	Jung West Road	17 to 28
	Tuckers Road	17 to 28
	Drung-Jung Rd	21 to 28
Block D	Max Johns Road	25 to 32
	Jung West Road	26 to 32
	Greenhills Road	26 to 32

Source: EES Chapter 9, page 9-8

The EES said:

> It is expected that Project traffic will result in a marginal increase in the local road usage across all phases of the Project. The local roads used will be spatially dispersed, and the same roads will not be relied upon by all vehicles. The additional traffic is not expected to materially impact levels of congestion or compromise safety, and the residual impacts associated with all phases of the Project are expected to be negligible.

The EES explained:

- the residual impacts on local road users was assessed as minor across all phases of the Project
- the TMP will include a program of consultation with the community and landholders and periodic reporting to Council and DTP to facilitate review and amendments as required
- road maintenance and management agreements will be established between Council and the Proponent for roads relied on by the Project
- a Rehabilitation Plan and associated bond will be established in line with the requirements of the MRSD Act for relevant roads within the MIN area.

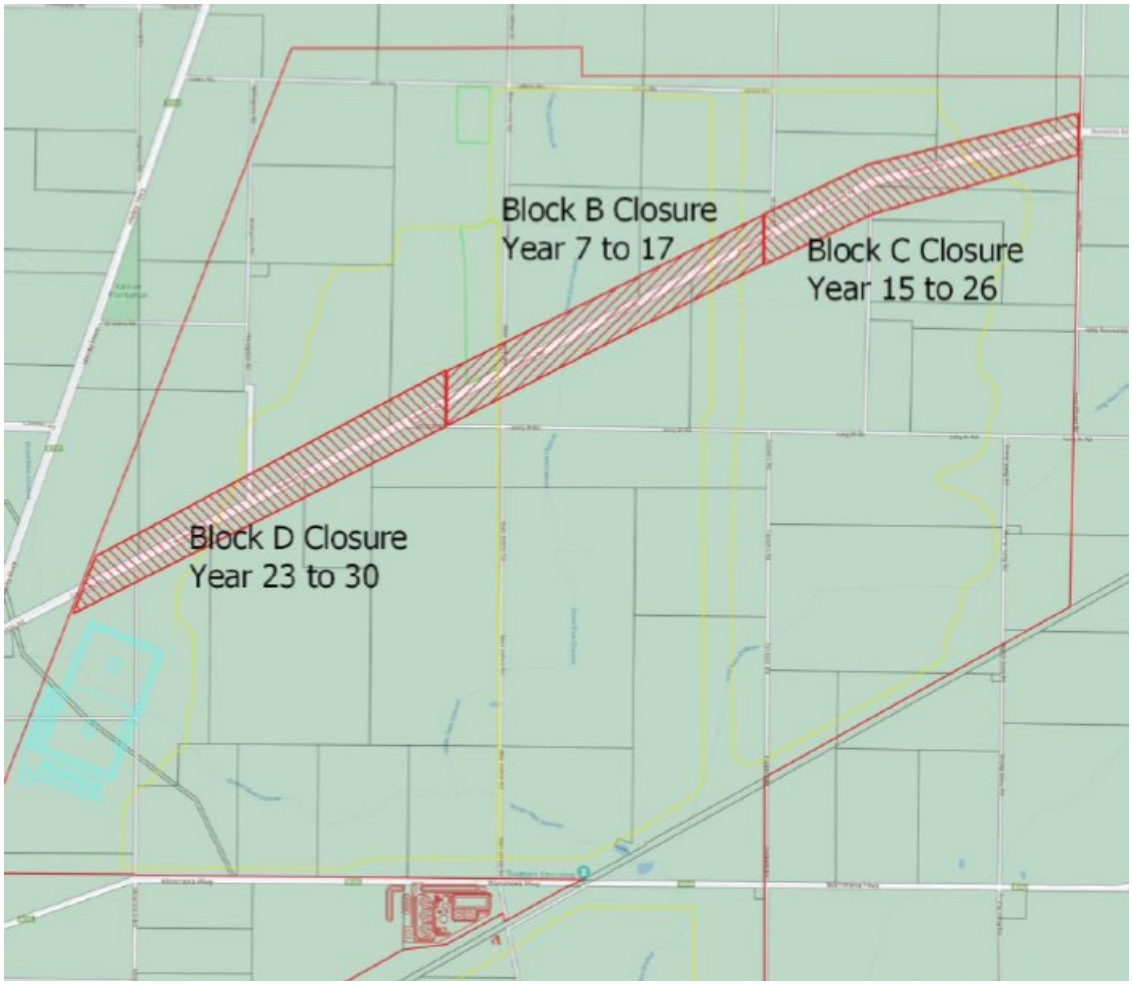
(iii) Submissions

In response to questions from the Committee the Proponent submitted TN-18 Road diversions and access to paddocks (D134). TN-18 said:

- Public access to land impacted by mining will be managed on a landholder-by-landholder basis, coordinated by the Proponent and in consultation with Council.
- Internal access roads will be established within the proposed MIN area/WBA to minimise reliance on the local public roads. Internal access roads will not have direct access to Wimmera Highway but will extend from existing local roads.
- Escorts will be required where landowners wish to access their property through active working areas by internal roads. Escorts will not be required for landowners accessing their property by public roads.

- Road closures will be required across the Project life and will direct traffic to existing road detours or newly created road detours.
- Block A road closures will include Molyneaux Road and the already closed Fred's Road from year 1 to year 8.
- The entire length of Greenhills Road will not be closed at any one time during the Project. It will be closed at various places and various times depending on which block is being mined. Figure 18 shows the timing of the closure of Greenhills Road, and Figure 19 shows the primary diversions during mining of Block B.
- Diversions of Greenhills Road will add between three to five kilometres to travel distance for different stages.
- The Proponent will provide private landholder access to the property at R89 on Molyneaux Road and the property at R38 on Max Johns Road as well as access to farming equipment and infrastructure that has been excluded from the mining. Access will be provided by escort and subject to the terms of the LACA.
- Access to R6 and the associated farming infrastructure at the intersection of Greenhills Road and the Henty Highway will not be impacted by the Project.

Figure 18 Closures of Greenhills Road



Source: TN-18 Road diversions and access to paddocks

Figure 19 Primary diversions during mining of Block B

Source: TN-18 Road diversions and access to paddocks

Council submitted the Project would cause significant disruption to many of the residents in and near the mining area. Council considered it, along with landholders and other stakeholders, should be involved in:

- determining the options for local access
- developing traffic and access management plans.

Council submitted it should approve the plans rather than just being consulted.

In relation to road use and access, Council submitted:

> Ultimately as Council is the authority that must approve road closures, we think that Council will be able to negotiate the best outcomes at the relevant time.
>
> …Council highlights the significance of Greenhills Rd as a key east-west link that is vital to farmers in the area to transport large, moving wide far machinery safely to avoid the use of the Wimmera Highway.
>
> … at all times there should be both a north-south and east-west link through the mining area north of the Wimmera Highway to facilitate access. The east west link may be on or close to Greenhills Road and the north south link may be on or close to Max Hohns Road. The exact location should be developed as part of the Traffic Management Plan in consultation with local landowners, the routes may also vary as the mine proceeds across road alignments with detours established when formal road reserves are actually being mined.[47]

Many landholder submitters were concerned the closure of the local roads would mean disrupted access for a few years or inability to access their properties for most of the Project duration.

Submitters were concerned about the:

- additional distance they may need to travel between various parts of landholder's properties

[47] Council submission (D100), paragraph 104

- road safety implications of using the main highways to travel between parts of their properties and at times moving large farm machinery
- inability to access properties at cropping times
- additional cost of moving farm machinery over larger distances
- impacts on sharing of farm equipment among landholders because of access issues.

Some submitters said the Project should be required to completely avoid Greenhills Road and Molyneaux Road.

In closing, the Proponent reiterated that Greenhills Road will only be closed in limited sections at a time and that access to most properties will be available. It submitted that TM-02: Traffic Management Plan required the Proponent to minimise the impact of road closures.

(iv) Discussion

The Project estimates local roads in Block A and B could be closed between 10 years to 14 years respectively. The Project should provide alternative arrangements for the landholders to access properties, to continue farming if at all possible and/or to provide access for ongoing management.

The Proponent's reasons for not being able to avoid Greenhills Road are explained in detail in Chapter 12.3. The Committee accepts that to achieve the Project objectives Greenhills Road or Molyneaux Road closures cannot be avoided.

The 'Day 4' mitigation measure TM-02: Traffic Management Plan includes the following specific requirements relating to local road closures (among others):

- Include a program to consult with the community and landholders prior to local road closures and changes to the local road network.
- Include periodic reporting requirements to the Horsham Rural City Council (**HRCC**) and Department of Transport and Planning (**DTP**) to facilitate review and amendments where necessary.
- Identify detour routes for local landholders impacted by road closures.
- Consider impacts to travel times and accessibility for road users …
- Consult the HRCC and/or relevant road authority prior to any local road closure.
- …
- Ensure that stakeholders are aware of any proposed changes to Project traffic conditions and that risks associated with such changes are identified and mitigated.

Travel on local roads is essential to the local community. Consultation with the community and landholders, Council and/or relevant road authority prior to any road closures is of the utmost importance. The Committee recommends amending TM-02 to require the Proponent to:

- consult with the relevant impacted landholders when identifying detour routes
- obtain Council approval for proposed local road closures and preferred road detours
- give stakeholders adequate advanced notification of proposed local road closures and road detours.

The TMP is designed to support the objectives of the Project, assist in the fair and reasonable operation of the mine and not create substantial obstacles that hinder the mine's operations. The recommended changes the TMP are to ensure that there is enough forewarning for the stakeholders when the Project considers a local road closure.

(v) Findings

Subject to its recommendations, the Committee finds:

- the measures proposed in the EMF adequate to sufficiently avoid, mitigate or manage the local road network impacts
- the impacts on the local road network are acceptable.

(vi) Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure TM-02: Traffic Management Plan to:

- **require that prior to identifying detour routes the Proponent must consult with local landholders impacted by road closures.**
- **require that the Proponent must consult with Council and/or relevant road authority prior to any local road closure, and secure Council's agreement regarding proposed local road closures and preferred road detours.**
- **require that the Proponent to provide stakeholders with adequate advanced notification of proposed local road closures and road detours.**

This change is included in Appendix G.

9.4 Rail

(i) The issue

The issue is whether the Project should be required to transport HMC by rail rather than the arterial road network.

(ii) What did the EES say?

EES Chapter 3 – Project Alternatives considered the option to transport HMC by rail between WBA and PoP. It concluded the option of rail was not practicable due to the high cost of upgrading existing rail infrastructure:

> Road transport (Option A) was selected as the only feasible option of the Project due to the operational constraints associated with the existing rail infrastructure (Option B). The high cost to upgrade the rail line was not considered to be reasonably practicable in the context of the Project.

The road and rail transport option assessment from EES Chapter 3 is shown in Table 19.

The option of rail transport was not considered further in EES Chapter 9 or EES Appendix C.

Table 19 Road and rail transport option assessment

Options Assessment
Option A – Road Transport Operational constraints and opportunities: • Existing arterial route is appropriately rated for freight transport using B-double articulated vehicles. • Road transport provides greater operational flexibility to deliver HMC at the PoP at regular intervals. Environmental risks or opportunities: • Potential to contribute to existing traffic noise along the arterial road. Project cost implications and limitations: • Low capital cost and low ongoing operational costs. Stakeholder considerations: • Both road and rail options are likely to result in noise effects on some residents.
Option B – Rail Transport Operational constraints and opportunities: • Existing rail line requires upgrade on route to PoP. • Speed and HMC payload is limited in some sections due to the condition of the main line between Maroona and Portland. • No receival system at POP (double handling at PoP – product has to be trucked after arrival at PoP). • Dooen Rail Terminal is not equipped for bulk loading, and a major upgrade of the terminal is required. • Rail upgrades are unlikely to be completed prior to Project commencement. Environmental risks or opportunities: • Higher disturbance area required for additional rail infrastructure at the WBA. • Potential noise issues with train load out and along the rail line. Project cost implications and limitations: • Very high capital cost to upgrade the rail line at Dooen to enable loading of bulk HMC, rail line and POPL receival facilities. Stakeholder considerations: • Both road and rail options are likely to result in noise effects on some residents.

Source: EES Chapter 3, page 3-14

(iii) Submissions

The Committee's RFI asked the Proponent to explain the background and context, extent of assessment and feasibility of rail transport of HMC. In response the Proponent submitted TN-03: Feasibility of rail for the transport of HMC.

TN-03 said:

- The Proponent consulted with Australian Rail Track Corporation, PoP, Council and DTP regarding the rail freight line and the Project's HMC haulage requirements.
- The primary constraint is the condition of the Maroona to Portland rail line. The section of line is deteriorated and is currently rated for no more than a 19-tonne axle load and a speed of 40 kilometres per hour.
- The line in its current state is not considered fit for the transport of HMC. For the rail line to be fit for the transport of the HMC, it should be at the same quality at the adjacent network of an axle loading of 23-tonne and a speed of at least 80 kilometres per hour.
- The MOU between the Proponent and Council commits the Proponent to further investigate the feasibility of using rail to transport HMC to PoP, contingent on the necessary infrastructure upgrades to the rail line.

- Other works at the WIFT and PoP would need to be considered in a future feasibility assessment. The feasibility assessment would also need to consider the implications of the EP Act, GED and relevant DTP policies at the time of the assessment.

Council submitted the:

- This WIFT provides for a key industrial and logistics area involving the storage and distribution of primary produce and raw materials and associated industry, warehouse, manufacturing, mineral sands processing and storage handling, office and retail uses.
- The intermodal hub at the WIF is a well-established intermodal rail siding … supporting rail freight to Melbourne, Portland, Geelong and Adelaide.[48]

Council supported the Project provided the activities make the best use of the WIFT "*given its intermodal capability and access to rail*".[49]

Council called for rail to be used when it is available, however accepted the current conditions do not allow the Project to feasibly, reasonably and practicably use the rail line. In the foreseeable future until the line is upgraded the only alternative is road transport.

In its closing submissions (D128) Council submitted if the railway line is upgraded and unloading facilities at the PoP provided by others, the Proponent ought to extend the rail siding into the Project land. Further, the Incorporated Document should include a requirement for the Proponent to extend the rail siding into its land, noting that "*without this, it will not be possible to require the move to rail even if rail becomes available*".

The Rail Freight Alliance (S106) made a comprehensive and substantial submission supporting the use of rail to transport the HMC. However, the Alliance accepted that in its current condition the rail line is not suitable for transporting the HMC.

Wimmera Southern Mallee Development Association (S90) strongly recommended rail be used to transport HMC.

Some submitters suggested rail was preferred for haulage of the HMC, raising issues related to the benefits of removing traffic from roads and reducing GHG emissions.

The Proponent's 'Day 4' version of the EMF provides:

> **TM-01: HMC Haulage route**
>
> The proposed Heavy Mineral Concentrate (HMC) haulage route must rely on sealed roads gazetted for the types of vehicles generated by the Project. The preferred road transport route must be periodically reviewed over the life of the Project to assess alternative routes with consideration to matters, including but not limited to, road condition, safety, traffic impact, travel time and amenity effects. The feasibility of transporting HMC to the Port of Portland by rail must be periodically evaluated.

(iv) Discussion

The Scoping Requirements required the Proponent to:

- Evaluate the suitability of existing road/rail conditions, traffic conditions, port facilities for transport, storage and shipping.

[48] Council submission (D100), paragraphs 8-9
[49] Council submission (D100), paragraph 32

The Committee is satisfied with the Project alternatives assessment of rail in EES Chapter 3. The issues with the condition of the rail line between Dooen and PoP is accepted by all parties as the main reason rail transport of the HMC is not currently an option. The timing of upgrade to the rail line is unknown.

The Committee observed during its site visit at the PoP that rail facilities exist and are used for some products. Upgrade of these facilities is required before it will be possible to use rail for HMC transport to the PoP.

While not a statutory obligation, the MOU between the Proponent and Council commits the Proponent to the following intentions:

> 3.3.7. To include an allowance within engineering related planning, provision of required ancillary rail infrastructure to enable use of rail as a mode of transport to the ports, subject to Clause 3.3.8.
>
> 3.3.8. WIM will commit to continue to investigate rail as a mode of transport taking into account the triple bottom line, and contingent on necessary infrastructure upgrades..

The Committee can see benefit in:

- specifying the timeframes for assessing feasibility of transporting HMC by rail, specifically when funding for upgrade of the rail line is committed
- taking into account the triple bottom line when assessing feasibility of rail
- ensuring provision for future rail infrastructure is considered in any Development Plan for the WBA.

The Committee recommends changes to the Incorporated Document and EMF accordingly.

(v) Findings

Subject to its recommendations, the Committee finds:

- it is currently not appropriate to require the HMC be transported by rail rather than truck, however the option should continue to be investigated and its feasibility assessed should funding be committed.
- the WBA should provide for future rail infrastructure
- subject to its recommendations, the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the traffic and transport effects, and the traffic and transport effects relating to haulage of HMC are acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure TM-01: HMC Haulage route to:

- **require the feasibility of rail be periodically evaluated including at the time funding is committed to upgrade the rail line, and taking into account the triple bottom line impacts and benefits.**

Incorporated Document

Include the following change:

a) Edit clause 5.4 Development Plan as follows:

d)iii The location and layout of proposed buildings … within the Project Land, including allowance for provision of required ancillary rail infrastructure to enable use of rail if determined to be feasible during the life of the Project.

These changes are included in Appendices G and H.

9.5 Overall conclusions on traffic and transport issues

There are no traffic and transport impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to ensure that there is adequate communication with DTP about the condition of the HMC haulage route and the development of a consultation process between the Project, Council and landowners regarding the local road closures within the mining area and the detours routes. The Incorporated Document should be amended to include a condition requiring the Development Plan allow for provision of infrastructure for future rail use if feasible.

10 Noise and vibration

10.1 Introduction

The relevant evaluation objective is:

> Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Noise and vibration is discussed in:

- EES Chapter 12 – Noise and Vibration
- EES Appendix G – Noise and Vibration Impact Assessment (NVIA).

The exhibited EMF included the avoidance and mitigation measures shown in Table 20.

Table 20 Noise and vibration - avoidance and mitigation measures

Code	Measure
NV-01	Equipment fleet size will be optimised to reduce the number of circuits associated with the mining operations.
NV-02	The proposed haulage route will comprise arterial roads, which are gazetted to cater for the types of traffic generated by the Project, and as such, impacts to lower-order local roads will be avoided.
NV-03	High noise level generating construction activities will be limited to the Environment Protection Authority (EPA) recommended normal working hours, where reasonably practicable.
NV-04	Earthen bunds and stockpiles will be established to abate noise emissions and mitigate impacts to sensitive receptors.
NV-05	Noise abatement kits will be fitted on all equipment and vehicles where practicable to do so.
NV-06	A Noise and Vibration Management Plan will be established and implemented to manage and mitigate impacts associated with Project construction, operations and rehabilitation/closure.
NV-07	A Traffic Management Plan will be established to manage and mitigate impacts associated with all phases of the Project.

The Committee has had regard to relevant submissions, expert evidence (see Table 21) and TN-15 Traffic and Transport.

Table 21 Noise and vibration expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D34, D93 and D129a	Proponent	Tom Evans	Resonate Consultants	Noise and vibration
D36	Proponent	Dr Lynette Denison	Tonkin + Taylor Pty Ltd	Human health risk assessment
D92	Proponent	Aaron Walley	Ratio	Traffic Volumes

10.2 Background

(i) Noise assessment and peer review

EES Chapter 12 provided an overview of the noise impacts of the Project, supported by the NVIA. It included the potential noise and vibration impacts from the construction and operation of the Project on the immediate community and the community further afield along the transport route and in Portland. It included:

- existing baseline noise environment
- noise and vibration impact from the various phases of the project and the limits that apply to these activities
- residual impacts, whether they were significant and any further mitigation measures required.

Mr Evans of Resonate Consultants Pty Ltd prepared an expert witness statement (D34) which contained a peer review of the NVIA (NVIA Peer Review). The NVIA Peer Review did not involve modelling of the construction and operational noise or undertaking noise measurements of the existing background noise levels. It did consider whether the findings and conclusions of the NVIA were sound.

(ii) Terminology and abbreviations

The NVIA includes an acoustic glossary (see Table 22).

Table 22 Acoustic glossary

Terminology	Description
dB(A)	Unit used to measure 'A-weighted sound' pressure levels. A-weighting is an adjustment made to sound-level measurement to approximate the response of the human ear
Leq	This level represents the equivalent or average noise energy during a measurement period.
L_{Aeq}, 30 minutes	This represents the A-weighted Leq noise level calculated over a 30 minute period.
$L_{A90,}$ 30 minutes	This is the A-weighted sound pressure level that is exceeded for 90% of the time over a 30 minute period.
L_{Amax}	The maximum sound pressure level of an event.
Hertz (Hz)	The measure of the frequency of sound wave oscillations per second. 1 oscillation per second equals 1 hertz or 1 Hz.
Hertz	A division of the frequency range into bands.
1/3 Octave	Single octave bands divided into three parts.

10.3 Existing noise levels

(i) The issue

The issue is whether existing noise levels were adequately assessed in areas inside and outside the Project area.

(ii) What did the EES say?

The NVIA described the average and background noise levels during 2020. The existing noise levels are shown in Table 23 and noise monitoring locations are shown in Figure 20 (annotated by the Committee to show the approximate measurement locations).

The noise measurement locations were:

- Site 1: Longerenong College
- Site 2: Drung-Jung Road
- Site 3: Jung
- Site 4: Dooen
- Site 5: Max Johns Road
- Site 6: Johns Road/Henty Highway.

Day, evening and night time L_{Aeq} and L_{A90} noise levels were determined at the six locations in February/March and May/June in 2020.

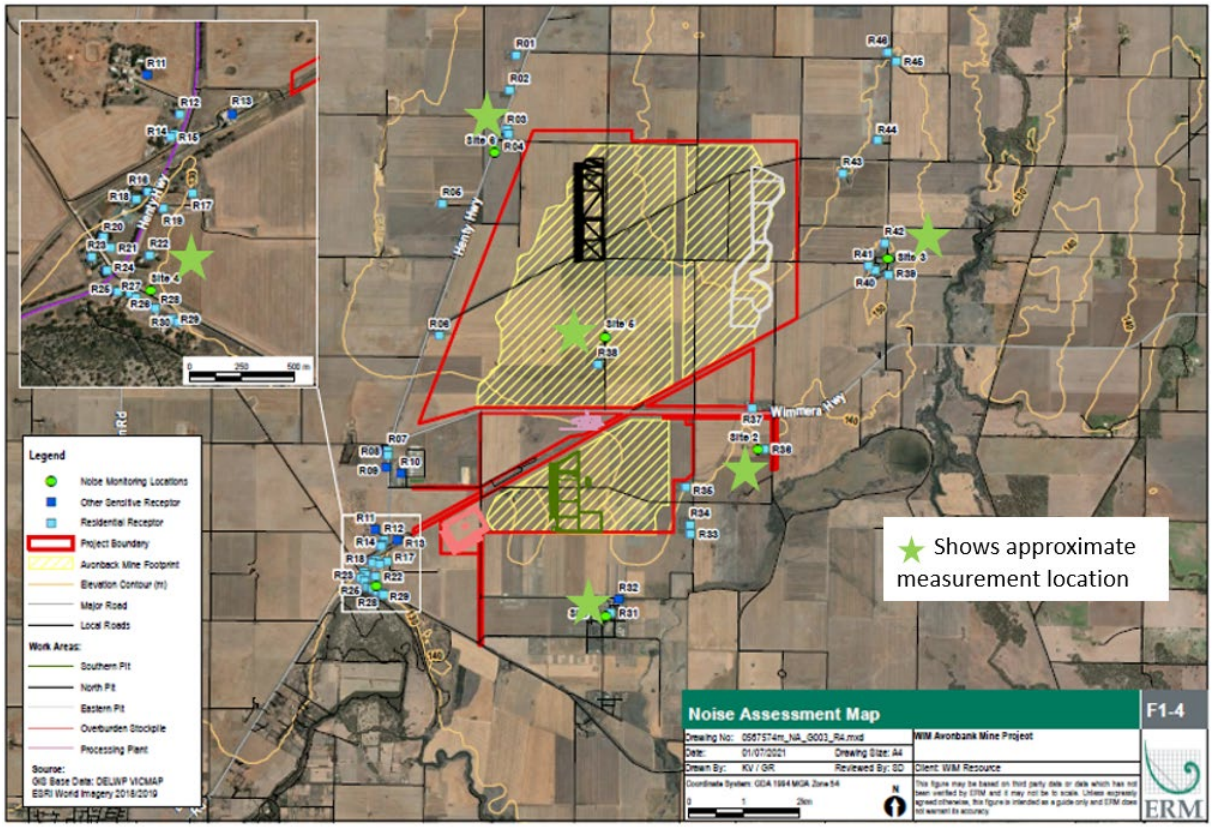
Existing background vibration levels were not determined as part of the NVIA.

Table 23 Summary of average (L_{Aeq}) and background (L_{A90}) noise levels

Feb-Mar	Site 1		Site 2		Site 3		Site 4		Site 5		Site 6	
	LA90	LAeq	LA90	LAeq	LA90	LAeq	LA90	LAeq	LA90	LAeq	LA90	LAeq
Day	31	62	26	40	29	53	37	53	26	48	32	59
Eve	30	47	25	35	28	42	28	50	28	41	26	54
Night	23	27	20	32	23	48	21	44	21	38	24	51
May-Jun	**Site 1**		**Site 2**		**Site 3**		**Site 4**		**Site 5**		**Site 6**	
	LA90	LAeq	LA90	LAeq	LA90	LAeq	LA90	LAeq	LA90	LAeq	LA90	LAeq
Day	28	48	24	44	31	50	37	53	28	48	29	59
Eve	25	37	20	38	23	47	29	50	22	40	26	56
Night	22	34	19	38	20	44	27	47	21	38	22	49

Source: EES Chapter 12, page 12-9

Figure 20 Map of the location of the existing noise measurements



Source: EES Appendix G, page 5 (Committee annotation)

(iii) Evidence and submissions

Mr Evans gave evidence:

> The background noise monitoring results demonstrate that the:
>
> - Background noise environment is generally quiet as is typical in rural environments, Background noise levels of approximately 25-30 L_{A90} were observed during the day and evening, and approximately 20 dB L_{A90} at night.
> - Ambient noise levels can vary depending on the proximity of the monitoring locations to the roads in the area. Ambient noise levels in the order of 30 dB L_{Aeq} were observed at some locations at night, but at other locations the ambient noise levels were in the order of 40-50 dB L_{Aeq} at night.
>
> The noise monitoring results, analysis and discussion is considered to appropriately describe the existing noise environment around the Project and address the scoping requirements.

The EPA submitted that the background noise measurements should be undertaken again closer and prior to the start of the Project and the measurements should also include the frequency spectrum of background noise. This would ensure that the ERS environmental value of human tranquillity and enjoyment of the outdoors can be more fully assessed.

The EPA stated:

- Mitigation measure NV-0A sets out the requirement for performance of noise measurements and monitoring.
- The purpose of noise, monitoring and measurements should also include the verification that actions taken to reduce noise and its impacts are effective and meet the acoustic performance they have been designed to achieve. In these circumstances, EPA publications 1834 and 1826.4 may not be the only relevant reference documents.

The Proponent's 'Day 4' version of the EMF included changes in response to the EPA's submissions, adding additional requirements to NV-06: Noise and Vibration Management Plan as follows:

> Consider the risk of the impact to the natural environment having regard to the frequency spectrum of both the pre-existing noise and the noise from the project, their potential character and the variability.

It also amended monitoring requirement NV-0A to include:

> The monitoring outcomes must be used to verify that the mitigation measures or corrective actions taken to reduce noise are effective and meet the acoustic performance they have been designed to achieve.

(iv) Discussion

The measurement of the existing noise levels at various locations within and near the Project site shows the existing background noise levels are relatively low and not unexpected for an area that is predominately agricultural.

The EPA raised a concern that the EES did not assess the impacts of low frequency noise. The EES did not expand on the issue of low frequency noise impacts and no analysis of the low frequency component of the existing background noise was undertaken. This is not a significant issue at this point in time because the existing low frequency component is due to normal/common background noise sources. However, once the Project is operating, the measurement of the low frequency component of the mining and WBA plant noise will need to be assessed.

The Committee agrees with the EPA that further existing noise measurements should be undertaken closer to the start of the construction of the Project. For completeness these measurements should include a noise frequency analysis in accordance with the EPA Publication 1996, *Noise guidelines: assessing low frequency noise*.

The Committee has reviewed 'Day 4' EMF and generally agrees with the scope NV-06 which includes requirements for the NVMP to summarise the baseline data and existing environment and detail the monitoring to be undertaken.

(v) Findings

The Committee finds:

- the noise levels were adequately assessed in areas inside and outside the Project area
- subject to its recommendations, the mitigation measures in the EMF adequate to sufficiently avoid, mitigate or manage noise effects and the noise effects will be acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit monitoring measure NV-0A: Operator attenuated noise measures to:

- **require measurement of existing noise levels no more than 6 months prior to the commencement of construction activities, and include details of requirements as shown in Appendix G.**

- **require measurements of existing and future noise levels in accordance with Environment Protection Authority Victoria's publication 1996.**

These changes are included in Appendix G.

10.4 Construction noise and vibration

(i) Issue

The issue is whether the construction noise and vibration impacts are acceptable.

(ii) What did the EES say?

With respect to vibration impacts, the EES said:

- Unlike noise, vibration dissipates rapidly with distance such that impacts, even from significant vibration generating sources, are not commonly experienced beyond a distance of 100m.
- Based on the equipment and activities identified for the Project's construction and operation, potential sources of vibration are limited to blasting (a common source of vibration generation) will not form part of the Projects design. Given the ≥100 m distance offset to the closest sensitive receptors or buildings to the Project, it was concluded that vibration impacts would be minimal if at all.

Given that there are no vibration sensitive receptors within 100 metres of the construction activities, no construction phase vibration mitigation measures are proposed.

The EES referred to the requirements of the EPA's *Civil Construction, Building and Demolition Guide* (EPA Publication 1834, November 2020). This guide:

- recognises some elevated noise levels will happen during construction activities and does not set noise limits as elevated noise is usually short term and only occasional
- aims to minimise construction noise as far as reasonably practicable using the best practice activities and equipment.

The EES modelled construction noise levels at various sensitive sites. The highest modelled construction noise levels during standard meteorological conditions were predicted at two residences receptor R34 (about 2.5 kilometres southeast of the wet concentrator plant on Tuckers Road) and R38 (about 1 kilometre north of the wet concentrator plant on Max Johns Road). The Committee has compiled a summary of existing and predicted noise levels for R34 and R38 which is shown in Table 24.

During the day the existing background noise levels will be higher than the construction noise levels and so the construction noise may not be obvious. However, at night- the construction noise levels could be 3 dB(A) higher than the background noise levels under normal meteorological conditions.

Table 24 Existing background noise and construction noise at R34 and R38

Activity	Receptor R34	Receptor R38
Existing background noise (night)	No measurements	38 dB(A) L_{Aeq}
Existing background noise (evening)	No measurements	41 dB(A) L_{Aeq}
Existing background noise (day)	No measurements	48 dB(A) L_{Aeq}

Activity	Receptor R34	Receptor R38
Predicted construction noise level under normal meteorological conditions	30 dB(A) $L_{Aeq, 30min}$	41 dB(A) $L_{Aeq, 30min}$
Predicted construction noise level during enhanced meteorological conditions	36 dB(A) $L_{Aeq, 30min}$	46 dB(A) $L_{Aeq, 30min}$

(iii) Evidence and submissions

Mr Evans gave evidence that the NVIA used a conservative approach to the meteorological conditions, albeit not the most conservative inputs in the model. Mr Evans considered the modelling approach undertaken in the NVIA was acceptable.

Mr Evans said:

> As stated in Chapter 12 of the EES, noise monitoring procedures to verify the noise predictions and evaluate the effectiveness of avoidance and mitigation measures should be incorporated into the NVMP to be prepared for the Project under the Work Plan and Incorporated Document.

The EPA expressed concerns about the management of noise and vibration from the project:

> Noise, including vibration, must be managed for construction, operation, rehabilitation, and closure activities in accordance with the GED. This involves applying controls and measures to eliminate the risk of harm to human health and the environment, and wherever elimination is not reasonably practicable, the risk is to be minimised so far as reasonably practicable. Concurrently, noise must not be emitted, form a place or premises that is not a residential premises if it is 'unreasonable noise'….

The EPA proposed several changes and inclusions in the EMF that will influence the construction management measures, including to amend NV-03 to:

> … refer to minimising the risk of harm associated with construction noise (including vibration) so far as reasonably practicable at all times, consistent with the GED and with EPA publication 1834 (as amended from time to time). This is to include, but not be limited to, limiting noisy activities to the recommended normal working hours of EPA publication 1834, wherever reasonably practicable.
>
> … include a framework for justification and approval of unavoidable and managed impact works that may occur outside the normal working hours, consistent with EPA publication 1834 and with the comments made in relation to construction noise management in this submission.
>
> … include a requirement that noise criteria that may be considered to manage the emergence of construction noise over background noise must be established based on a background level that represents the background at the time of impact.

Council said clause 5.5 in the Incorporated Document did not adequately address the issue of out-of-hours construction noise. It said clause 5.5 should be revised and it had:

- …provided a form of drafting of condition 5.5 that we submit more clearly aligns with the proposed NVMP with what is anticipated and envisaged by Chapter 12 of the EES.

Several submitters were concerned the Project would result in unacceptable noise levels from construction activities including the transport of construction equipment and materials on the local road network. The issues in these submissions are very similar to the issues identified by the EPA and Council.

One submitter said the noise study has followed the new GED and the Project's mitigation measures would manage impacts as far as reasonably practicable.

The Proponent fully accepted the substance of changes to NV-03 proposed by the EPA, and made amendments accordingly. It partly accepted the submissions of Council and amended the NVMP clause in the Incorporated Document to include conditions for:

- the WBA to include separate sections related to construction, operations and decommissioning phases
- a framework for the approval of construction works outside normal working hours as detailed in the *Civil construction, building and demolition guide* (EPA publication 1834).

(iv) Discussion

The Committee is satisfied the 'Day 4' version of the EMF adequately responds to issues raised in submissions and the recommendations of the EPA and Council relating to management of construction noise and vibration.

Mitigation measure NV-03: Noise and Vibration Management Plan requires that the Project must minimise the risk of harm associated with construction noise (including vibration) so far as reasonably practicable at all times. The changes to the Incorporated Document will ensure out-of-hours construction noise will be adequately managed in the WBA.

The Committee has reviewed the drafting of mitigation measures NV-03 and NV-06 and observes substantial repeat of content related to the NVMP. The Committee has removed the detail of NVMP requirements from NV-03 (apart from one requirement which has been retained) and relies on the NV-06 to capture all content relevant to the NVMP.

(v) Findings

The Committee finds:

- the construction noise and vibration modelling is adequate and appropriate
- the measures proposed in the Day 4 version of the EMF are adequate to sufficiently avoid, mitigate or manage the environment effects
- the construction noise and vibration effects are acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure NV-03: Construction noise to:

- **remove content already covered by NV-06.**

These changes are included in Appendix G.

10.5 Operational noise and vibration

(i) Issue

The issue is whether operational noise and vibration impacts are acceptable.

(ii) What did the EES say?

As mentioned above, vibrations dissipate rapidly with distance from the source, to the extent that at 100 metres from the source. Accordingly no operation vibration mitigation measures are proposed.

The EES identified the applicable legislation, regulations, policy and guidelines which will determine the operation of the project with respect to noise impacts. Relevant regulations include (see summaries in Appendix F):

- *Environment Protection Regulations 2021*
- *Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* (EPA Publication 1826.4, March 2021) (Noise Protocol).

The *Environment Protection Regulations 2021* require noise from commercial, industrial and trade premises comply with the Noise Protocol. The EES included the noise limits for the operational noise using the Noise Protocol (see Table 25).

Table 25 Operational noise limits

Receptor Type	Operational Noise Limits / Screening Thresholds – $L_{Aeq, 30\ minute}$ (dBA)		
	Day[1]	Evening[2]	Night[3]
Residential	46	41	36
Educational[4, 5]	46	41	36
Commercial/Industrial	51	46	41

Source: EES Chapter 12, page 12-19

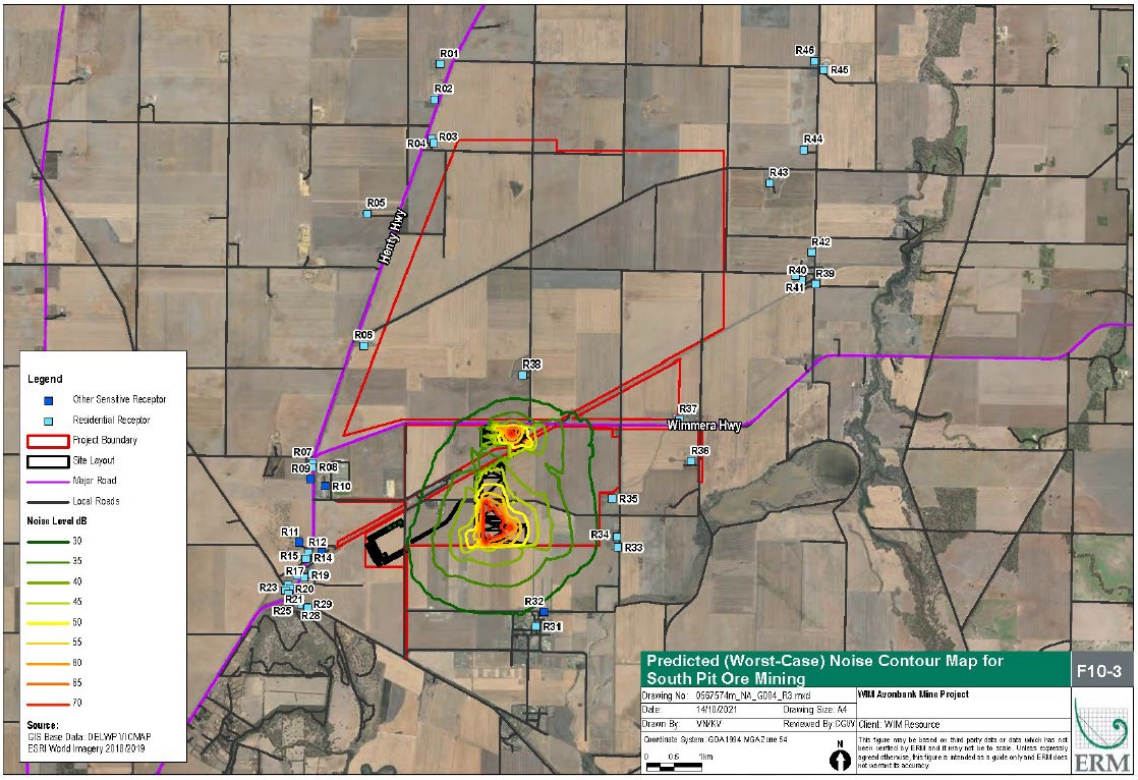
The EES specified criteria for three types of noise sensitive uses, residential (including Longerenong College's residential facilities), educational (Longerenong College) and commercial/industrial (in the WIFT).

The EES predicted operational noise levels at various locations around the mine site and WBA for various operational years 1, 2, 22 and 26 when the mine was located closest to sensitive receptors (see Figure 21). During standard meteorological conditions the operational noise level at Longerenong College (R32) was 31 dB(A). The predicted highest mine noise level during noise-enhanced meteorological conditions was 36 dB(A) in year 2 when the mine is closest to Longerenong College (R32). This predicted noise level is less than the daytime and evening noise limits (see Table 25 above) and at the night-time noise limit for residential receptors.

During noise-enhanced meteorological conditions the mining operations meet the day, evening and night-time noise limits for all operational years at all receptors.

The modelling also considered noise from the WBA and its impact on other facilities in the WIFT precinct. Stockpiles of HMC to the west side of the WBA attenuated noise impacts in the WIFT to the west of the WBA (see noise modelling in Figure 21 and conceptual model of WBA showing location of stockpiles in Figure 4).

Figure 21 Modelling receptors and modelled noise levels for south pit and WBA in Year 2



Source: EES Chapter 12, page 12-21

(iii) Evidence and submissions

Mr Evans gave evidence:

> The noise prediction methodologies adopted for the NVIA are considered appropriate and are based on noise prediction methodologies widely used in Australia.

He recommended:

> As stated in Chapter 12 of the EES, noise monitoring procedures to verify the noise predictions and evaluate the effectiveness of avoidance and mitigation measures should be incorporated into the NVMP to be prepared for the Project under the Work Plan and Incorporated Document.

Mr Evans considered the impacts of the operational noise on sensitive receivers and considered the issue of the residents that may need to be relocated when the mining operation is in close proximity to their residences. He said:

> … it is understood that agreement would be sought with the landowners of some noise-sensitive receivers that are either on, or very close to, the Project land to relocate at times when mining operations are occurring closer to them during the life of the mine.

The receivers where the landowners have chosen to relocate have not been modelled in the NVIA; for example, in Year 7 when the mining is close to R38 in Max Johns Road, this receptor was not considered in the operational noise model as it was assumed that the residence will be unoccupied at this time.

Mr Evans explained that where the predicted noise levels are below the noise limits the NVIA records that no noise impacts would be anticipated. While the noise levels are below the noise limits, Mr Evans noted that the mining noise will likely be audible at times as the existing background noise levels are low.

Mr Evans recommended:

> … the NVMP should define a process to be implemented to:
>
> - predict noise levels from operational scenarios in advance of them commencing in each area, including those not assessed by the NVIA
> - identify mitigation measures to be implemented to reduce the risk of noise impacts so far as reasonably practicable.

Further, he said:

> As this process would be implemented over the life of the Project, the predictions could take into account the results of noise monitoring from earlier scenarios to provide further confidence in the accuracy of the noise predictions.

The EPA expressed concerns about the management of construction and operations noise and vibration from the Project. Most are addressed in Chapter 10.3 relating to construction noise and vibration section.

The EPA submitted that EES Appendix G conservatively applied a +2 dB(A) adjustment to the modelled operational noise levels to represent the potential for the project activities to generate a just perceptible tonal character, however the risk associated with a tonal component to the operational noise had not been assessed.

The EPA's original submission recommended the EPA Publication 1996, *Noise guidelines: assessing low frequency noise* be used in addition to the assessment of the operational noise impacts so that a more complete understanding of the noise impacts can be made. The EPA said:

> It will be important that the development of the NVMP referred to in mitigation measure NV-06 includes consideration of the emissions of low frequency noise and the associated risk, and ensures this risk is managed adequately.

The EPA's original submission also made the following recommendations:

- NV-04: Earthen bunds and stockpiles

  Include triggers to take opportunities of relevant changes in noise sources or in the availability of material to build or increase bunds/stockpiles, to ensure that they are optimised, consistent with minimising noise at sensitive receptors and its impacts so far as reasonably practicable across the life of the project.
- New mitigation measure:

  Ensure that processes are in place to assess or otherwise ensure the protocols from Service providers, or other external bodies contracted, are adequate to manage noise emissions (including vibration) and their impacts.

The EPA made further recommendations in comments on the 'Day 2' and 'Final day' versions of the EMF. It did not make further submission on noise mitigation measures in its comments on the 'Final day' version of the EMF.

Council's submission mostly focused on getting consistency between the NVMP and the requirements in the Incorporated Document. It said the:

> NVMP required under the Incorporated Document should address *all* noise sources at *all* hours.

Council sought changes to the NVMP in the Incorporated Document to reference clause 5.2 which references the EMF. Further it said:

> The NVMP submitted to the responsible authority must be accompanied by a written report or statement prepared by an environmental auditor appointed under Part 8.3 of the Environment Protection Act 2017 that certifies that the NVMP addresses the requirements of condition 5.7 and condition 5.2 of this incorporated document and includes appropriate

measures for the avoidance and mitigation of noise and vibration impacts for normal working hours.'

Various other submissions raised operational noise as a concern.

The Proponent accepted the majority of the recommendations proposed by the EPA and the changes are included in the 'Day 4' version of the EMF.

In response to Council's submission on the Incorporated Document the Proponent said all plans are subject to clause 5.2 regarding the EMF and further cross referencing was unnecessary. Further, the acoustic consultant reviewer will have regard to the EMF.

(iv) Discussion

The Proponent's operation noise modelling of the mine and WBA have shown that the Noise Protocol noise limits for the day, evening and night time periods will not be exceeded. The closest noise sensitive activity is at Longerenong College where the noise limits for the educational and residential facilities will not be exceeded when the mine activity is at its closest to the College.

There may be a risk of not achieving the night-time noise limits at Longerenong College when mining is closest to the College. A noise monitoring program should be considered at the College under adverse weather conditions to demonstrate compliance with the operational noise limits. If the noise limits are exceeded at any time and especially at night time at the College, then the mine operator must undertake measures to reduce the noise from the mine activities.

To ensure that noise monitoring is undertaken at noise sensitive locations identified in the noise modelling, like the potential night time noise levels at Longerenong College, the Committee has changed NV-06 to add a requirement for noise monitoring at locations where the noise modelling has shown that the potential operation noise levels are approaching the noise criteria limits.

Additionally, the terminology in monitoring measure NV-0A: Operator attenuated noise measurements is confusing. The Committee recommends the title and detail in the measure be changed as follows:

NV-0A: ~~Operator attenuated n~~Noise measurements

~~Operator attenuated n~~Noise measurements must be undertaken over……

The EPA Noise Protocol is the controlling document for the operational noise. The Noise Protocol sets out requirements for the noise monitoring from the various premises, which would include the WBA site. In Chapter 10.3 of this Report the Committee has recommended NV-06 include reference to the Noise Protocol, and this will be used to determine the operational noise requirements.

The Committee agrees with the Proponent regarding drafting of clause 5.7 in the 'Day 4' version of the Incorporated Document with respect to operational noise conditions. The Incorporated Document requires all plans have regard to clause 5.2 regarding the EMF, and the acoustic consultant certifying the NVMP will consider this.

(v) Findings

The Committee finds:

- the assessment of operation noise and vibration impacts for the life of the project is acceptable subject to ongoing compliance with the EPA Noise Protocol

- subject to its recommendations the proposed mitigation measures will adequately manage operational noise and vibration, and operational noise and vibration is acceptable.

(vi) Recommendations

The Committee recommends:

3. Environmental Management Framework

Include the following changes:

a) Edit mitigation measure NV-06: Noise and Vibration Management Plan to:

- **require noise monitoring be undertaken during mining operations at receiver locations where the noise modelling has shown that the potential operation noise levels are approaching the noise criteria limits.**

b) Edit monitoring measure NV-0A as follows:

- **NV-0A: ~~Operator attenuated n~~Noise measurements**
- **~~Operator attenuated n~~Noise measurements must be undertaken over….**

These changes are included in Appendix G.

10.6 Road traffic noise and vibration

(i) Issue

The issue is whether road traffic noise and vibration impacts are acceptable, especially at night.

(ii) What did the EES say?

The EES identified road traffic noise as an impact to local residents during the Project construction, operation and decommissioning stages. Specifically, the night time noise impacts of the HMC haulage trucks between the WBA and PoP in Horsham and smaller towns like Cavendish and Dooen were a potential major concern.

The NVIA used the *NSW Road Noise Policy* 2011 to determine the noise limits for the HMC haulage between the WBA and PoP, noting the *VicRoads Traffic Noise Reduction Policy* 2006 does not address traffic noise from existing highways or arterial roads.

The NSW Road Noise Policy includes two aspects to consider. The first consideration determines the daytime and night time noise levels for existing residences affected by additional traffic on existing roads generated by land use developments (see Table 26).

Table 26 Road traffic noise criteria

Assessment Classification	Daytime[2]	Night[3]
Road traffic noise criteria for existing residences affected by additional traffic on existing sub-arterial roads generated by land use developments.	LAeq(15-hour) ≤ 60 dBA (external)	LAeq(9-hour) ≤ 55 dBA (external)

Source: EES Chapter 12, page 12-24

The second consideration relates to sleep disturbance and is based on the various practices in other agencies. EES Appendix G states:

- As outlined in the RNP the following sleep disturbance thresholds have been determined from research undertaken on sleep disturbance:

- maximum internal noise levels below 50-55 dB(A) L_{Amax} are unlikely to awaken people from sleep
- one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) L_{Amax}, are not likely to affect health and wellbeing significantly.

The EES presented the modelled the traffic noise impacts on local sensitive uses for the daytime and night time periods and modelled traffic noise levels were compared to the NSW Road Noise Policy criteria. The modelling showed:

- the increase in traffic noise due to construction vehicles is less than 0.5 dBA
- the township of Dooen and Cavendish on the HMC haulage were identified as the most sensitive towns along the route, due to the existing low levels of traffic volumes
- modelled noise levels indicate Cavendish receptors were below the assessment criteria for daytime and night time, however, noise levels at night were increased by up to 5 dBA, (due to Project activities), which is considered to be a clearly perceptible change
- the increased noise levels at Cavendish, will be limited to around two trucks per hour, with noise levels similar to other heavy haulage vehicles using the arterial road
- noise levels at Dooen exceed the criteria at several receptors prior to and during the Project implementation. At these receptors, the change in noise levels due to the Project are unlikely to be perceptible
- the avoidance and mitigation measures are expected to effectively minimise the residual impacts so as far as reasonably possible.

The NVIA said "*it is important to consider potential sleep disturbance noise impacts associated with construction/operational noise sources and road traffic*" (page 51).

With regard to EES Appendix M – Human Health Risk Assessment, the NVIA said:

- It is noted that a Human Health Risk Assessment (HHRA) has been developed for the Project which, amongst other things, provides an in-depth analysis of potential human health issues including those associated with noise and related sleep disturbance. The thresholds adopted within the HHRA vary to those utilised in this NVIA as they are established with due regard to specific human health related standards.
- Specifically, the HHRA Noise criteria (used to assess the potential risks from noise) have been taken from *enHealth, Health Effects from Environmental Noise* (2018) and the World Health Organization (WHO) *Environmental Noise Guidelines for Europe* (2018).
- As noted in the HHRA, the Noise Protocol and ERS do not contain health-based noise criteria such that these two additional standards and guidelines were adopted.
- Despite similarities noted between the NVIA and HHRA Project impacts (and mitigation) have been assessed based on the worse-case circumstances established by either specialist report.

EES Chapter 18 – Human Health said:

> For road traffic noise, the WHO recommended threshold noise limits to protect against adverse health effects, …. and sleep disturbance. The thresholds are based on the annual average L_{den} (day, evening and night) and L_{night} (night):
>
> - L_{den} 53 dB.
> - L_{night} 45 dB.
>
> …
>
> The residual risk attributable to noise from the Project road traffic, as detailed in Appendix M, Section 10 are:

- Predicted existing daytime and night-time road traffic noise levels exceed the WHO benchmarks at most receptors in both Cavendish and Dooen prior to Project commencement (i.e. existing conditions).
- For receptors assessed in Cavendish and Dooen, one additional receptor was predicted to be highly annoyed by road traffic, above those due to existing traffic.
- The increment from the Project did not lead to an increase in sleep disturbance is either Dooen or Cavendish above that due to existing traffic.

The overall risk to the exposed receptors in Cavendish and Dooen due to the increase in traffic noise due to the Project were assessed to be minor. [50]

(iii) Evidence and submissions

The Proponent relied on the evidence of Mr Evans, who concluded:

- The percentage increase in heavy trucks at night time in Horsham due to the HMC truck route will be relatively small because there is already a significant number of trucks using the arterial roads in Horsham.
- The percentage increase in trucks at night time through small towns like Dooen and Cavendish will be large because of the current low numbers of trucks using the arterial roads.
- The increase in the number of trucks through Cavendish will not increase the traffic noise levels above the assessment criteria for L_{Aeq} road traffic noise level (see Table 26 above)
- The maximum noise levels may exceed the sleep disturbance thresholds for receivers closer to the roads, however, this would already be the situation.
- Residents may perceive the increase in the number of trucks from one per hour to three per hour even if the maximum pass by noise levels is the same.

Dr Denison gave evidence that predicted noise levels from existing traffic in Cavendish and Dooen would exceed World Health Organisation road noise guidelines and may result in adverse health effects. She recommended that if opportunities were available above what was proposed in the NVIA, then they should be considered where practicable to minimise road traffic noise in these areas.

The EPA raised issues that there will be a significant increase in the noise from HMC heavy vehicles resulting in sleep disturbance and an increase in annoyance. It said:

- ….. the main risk to harm relates to loud heavy vehicle pass-bys which can affect sleep and cause annoyance.
- While criteria from road traffic policies can provide for the assessment of general traffic noise they are limited in their ability to represent the risks associated with significant increases in heavy vehicle traffic because they consider the average noise exposure across whole day/evening and night periods ……
- The risk associated with haulage trucks should be considered having regard to the frequency and loudness of the bypasses, which can affect sleep and cause annoyance.

Council submitted concerns about the potential vibration impacts from truck traffic (S74). Council considered the noise from HMC haulage trucks had been significantly understated and the there are potential significant impacts on human health.

[50] EES Chapter 18, page 18-17

Council was critical about the lack of consideration of the potential increase of heavy vehicles through Horsham especially during the night time. Further, it was concerned minor irregularities in the road surface will create noise and vibration.

Mr Evans responded to Council submissions by saying:

> …the additional numbers of trucks will result in a greater number of discrete events that produce a given L_{Amax} level at night. In Cavendish, based on the traffic volumes in the NVIA, the number of night time events could increase from one per hour to approximately three per hour. While the additional events would be expected to result in an absolute L_{Amax} level that is similar to, or no higher than, the existing L_{Amax} events they already experience, a resident may perceive an increase in the number of discrete traffic events.

Further:

- the road traffic noise increase associated with the Project in Horsham was in the order of 0.1 to 0.3 dB
- irregularities in the road surface may have potential to increase noise emissions to a limited degree in the immediate vicinity for all traffic using the route, and he did not expect this to alter the conclusions of the NVIA.

Some submitters expressed concerns of trucks using the Henty Highway and specifically during the night time period.

In response to a request from the Committee for hourly traffic volumes for the Henty Highway through Cavendish, the Proponent provided the hourly traffic volumes (D92). The Committee has compiled a table showing the highest weekday and weekend night-time hourly volumes (see Table 27).

Table 27 Hourly traffic volumes on Henty Highway, Cavendish

Period	Hour								
Day	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7
Weekday	12	11	2	2	1	1	3	6	26
Weekend	15	9	5	4	1	1	1	3	10

Source: Committee adapted from D92

The Proponent argued against a total ban of truck movements at night time as proposed by Council and other submitters.

In closing the Proponent submitted:

- limiting truck operations would significantly affect the operation efficiency of the Project and may influence the overall viability of the Project
- the evidence of Mr Evans and Dr Dennison did not recommend night time limitations on the HMC truck movements
- acknowledge that the State highways will have varying usage depending upon the major projects, industry and agriculture in the region and that the availability of the highway at all times is an important obligation of the State government
- Establish a Transport Liaison Group consisting of the Project, DTP and the three councils associated with the haulage route, to consider if required noise complaints which the Project may be able to mitigate.

The Proponent's 'Day 4' version of the EMF included noise and vibration requirements in NV-06:

- Develop and implement a code of practice for haul truck driver behavior to limit impacts from truck pass-bys near residences and ensure compliance with the code of

practice with consideration to matters including but not limited to noisy accelerations/decelerations, engine brake noise, tailgate rattling. The code of practice is to be monitored and audited to establish its effectiveness. Non-conformances with the code of practice must be investigated and corrective actions applied as required.

- Product haulage trucks must meet High Productivity Freight Vehicle (HPFV) Performance Based Standards to minimise noise emissions, including, but not limited to, road-friendly suspension, antilock braking systems on all axles and low impact tyres (pavement loading and contact area).

(iv) Discussion

A dilemma for the Committee is:

- the NVIA considered two aspects to the NSW Noise Road Policy related to sleep disturbance; the maximum internal noise level (L_{Amax}) which is unlikely to awaken people from sleep and the number of events at night time (L_{Amax}) that exceed the NSW Road Noise Policy levels but were unlikely to affect health and well-being significantly
- the HHRA considered the WHO recommendations to protect against adverse health effects and sleep disturbance expressed in Lden and Lnight.

The Proponent relied on the HHRA to provide assurances that the potential health impacts of night time sleep disturbance in Cavendish and Dooen due to the increase in traffic noise as a result of the Project is assessed as minor. This is without any verified connection to the units used in the noise measurements, modelling and assessment undertaken in the NVIA.

The Committee relies on the findings of the NVIA with respect to noise related issues, however notes Dr Denison's recommendation to implement measures to reduce traffic noise within towns.

The Committee welcomes and supports the Proponent's new requirements in NV-06 for a driver code of practice and for trucks to meet High Productivity Freight Vehicle (HPFV) Performance Based Standards. This will help to mitigate the Project's noise impacts near residences. These measures are supported. It is recommended to refer to truck movement through towns rather than passing by residences.

The Committee is, however, alert to the issue of noise impacts of HMC truck movements through the smaller towns on the haulage route at night time and can see merit in managing the potential number of truck movements to minimise the impacts on the smaller towns.

The hourly traffic volume data (see Table 27) shows current traffic movements through Cavendish between midnight and 6am range between 1 and 6 vehicles per hour. The existing hourly traffic volumes do not identify whether traffic in the night time is cars or heavy vehicles.

The hourly traffic volume data supports Mr Evans' evidence that the number of discrete heavy vehicle movements through Cavendish would increase from one vehicle to three vehicle per hour at certain times of the night.

As discussed in Chapter 9.2, the Committee has concluded it is not reasonable to limit or curtail HMC haulage vehicles from the Project using the proposed haulage route.

The Proponent has stated there will be 54 truck movements on along the haulage route a day (approximately 2 per hour) from the Project; consisting of 27 HMC loaded trucks travelling between WBA and PoP and then returning.

Given this low number of existing truck movements, and the evidence put by Mr Evans, the Committee recommends regulating night time truck movements to 2 per hour during the 10pm to 6am period, a total of 16 truck movements for the period. This will regulate truck movements so that there will not be multiple movements of trucks in an hour with some hours with no movements, at a rate that nearly matches the Proponent's hourly average truck movements of 2.25 trucks. Limiting the number of HMC truck movements to 2 per hour is consistent with the NVIA's use of the *NSW Road Noise Policy* 2011 to determine the road traffic noise criteria as a management tool for the Project.

This will also contribute to the Project's environmental objective expressed in EES Chapter 12:

- Noise emissions from haulage vehicles will result in no material change to the environmental values or existing use of land adjacent the haulage route.

It will also contribute to the relevant EES evaluation objective to "m*inimise adverse social, land use and infrastructure effects*".

While it would appear that the issue of night time truck movement is focused on the impacts on smaller towns, the submissions did provide an understanding of the impacts on the much larger towns/cities like Horsham, Hamilton and Portland. The EES considered the potential increase in traffic noise level in Horsham to increase by 0.1 to 0.3 dB. Regulating the Project's truck movements in these larger towns will not affect their overall road traffic noise levels.

Further, as discussed in previous sections, vibration impacts are ameliorated within a short distance from the source. Vibration impacts from passing vehicles was not identified in the EES or the evidence as an impact that requires avoidance or mitigation measures.

(v) Finding

The Committee finds:

- the issue of night time truck movements of the HMC haulage trucks on the Henty Highway will have some impact on the small towns of Dooen and Cavendish. Restricting the Project's truck movements to 2 per hour will ameliorate sleep disturbance impacts.
- subject to its recommendations, the proposed mitigation measures will adequately manage road traffic noise, and road traffic noise and vibration is acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure NV-02: HMC Haulage route to:
- **require the number of HMC haulage trucks using the haulage route be limited to 2 haulage vehicles per hour between 10pm and 6am**
- **require predicted noise levels of night time vehicle movements in Dooen, Horsham, Cavendish, Hamilton, Heywood and Portland be reported on. The report must include the potential for sleep disturbance using the indicators in the New South Wales Road Noise Policy.**

b) Edit mitigation measure NV-06: Noise and Vibration Management Plan to:
- **require the driver code of practice relate to travel through towns.**

c) Edit monitoring measure NV-0A: Noise measurements to:

- **require measurements of existing background noise must be undertaken in Dooen, Horsham, Cavendish, Hamilton, Heywood and Portland to determine the noise impacts of night time vehicle movements. Traffic counts and vehicle type must be recorded during the noise measurements. Reporting of the measurements must be included in the prediction report required by NV-02.**

These changes are included in Appendix G.

10.7 Overall conclusions on noise and vibration issues

There are no noise and vibration impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure use of the haulage route between WBA and PoP during the night time period is regulated. The noise impacts of night time movements should be assessed.

11 Water

11.1 Introduction

The relevant evaluation objective is:

> Minimise effects on water resources and on existing and potential future beneficial and licensed uses of surface water, groundwater and related catchment values over the short and long term.

Water is discussed in:

- EES Chapter 16 – Surface Water
- EES Chapter 17 - Groundwater
- EES Appendix K – Surface Water Impact Assessment
- EES Appendix L – Groundwater Impact Assessment.

The exhibited EMF included the avoidance and mitigation measures shown in Tables 28, 29 and 30.

Table 28 Surface water - avoidance and mitigation measures

Code	Measure
SW-01	Slimes and sand tailings will be co-disposed to the mining cell to avoid the construction of solar drying cells.
SW-02	Process water storage capacity will be established and maintained to contain a 1% Annual Exceedance Probability (AEP) storm event.
SW-03	Progressive rehabilitation of mined areas will be undertaken to minimise the disturbed area on average to less than 300 ha at any point in time over the life of mine.
SW-04	An integrated mine planning process will be maintained to manage site drainage.
SW-05	A water efficiency program will be developed and implemented to minimise water use so far as reasonably practicable.
SW-06	A Surface Water Management Plan will be maintained to avoid and minimise risks/impacts so far as reasonably practicable.
SW-07	A Rehabilitation Plan will be developed to achieve the rehabilitation objectives as soon as reasonably practicable.

Table 29 Groundwater - avoidance and mitigation measures

Code	Measure
GW-01	PASS material (Geera Clay) will be avoided during all mining, excavation and dewatering activities with a buffer of at least 1.5 m to avoid exposing/oxidising PASS.
GW-02	Process water from tailings will be recovered and re-used using flocculants and decant sumps.
GW-03	Sand tailings will be placed in the mine void to a depth greater than 3 m from the final rehabilitated ground surface and surrounding natural ground.
GW-04	Groundwater bore network will be monitored and augmented over the life of mine to adequately characterise the potential risks and impacts to groundwater resources.

Code	Measure
GW-05	If Project related drawdown/mounding or adverse changes to groundwater quality are recorded, targeted studies and monitoring will be undertaken to avoid or minimise the risks so far as reasonably practicable.
GW-06	Potentially contaminated sites will be assessed and managed in accordance with the NEPM prior to mining.
GW-07	Chemicals will be stored and managed in line with relevant guidelines and industry best practice.
GW-08	A Groundwater Management Plan will be implemented to avoid and minimise risks/impacts so far as reasonably practicable.
GW-09	A PASS Management Plan will be implemented to avoid and minimise risks/impacts so far as reasonably practicable.
GW-10	Chemicals will be stored and managed in line with relevant guidelines and industry best practice.
GW-11	A Rehabilitation Plan will be developed and implemented to avoid and minimise planning and operational risks/impacts.

Table 30 Water related 'waste and emissions' - avoidance and mitigation measures

Code	Measure
WE-01	Process water storage, transfer areas and sumps will be designed with a capacity to contain a significant rainfall event of at least 1 % AEP such that there is no discharge of contact water from operational areas.
WE-02	Process water will be recovered and re-used to minimise discharge.
WE-03	A drainage plan will be prepared prior to disturbance of each new mining cell with consideration to the existing topography, detailed mine design and surrounding infrastructure.

The Committee has had regard to relevant submissions, expert evidence (see Table 31) and technical notes:

- TN-12 Water supply (D77)
- TN-13 Groundwater geochemistry (D86)
- TN-17 Cumulative effects of the Project (D106).

Table 31 Water expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D28 and D69	Proponent	Mr Ben Hughes	Water Technology	Surface Water
D29 and D89	Proponent	Mr Rikito Gresswell	GHD	Groundwater

11.2 Surface water and water supply

(i) The issues

The issues are whether the:

- modelling informing the Surface Water Impact Assessment is adequate and appropriate
- proposed Surface Water Management Plan (SWMP) and impacts on water quality are acceptable
- risk of flooding impact to the Project is acceptable
- Project's water requirements have been adequately considered.

(ii) What did the EES say?

EES Chapter 16 provided an overview of surface water effects, supported by EES Appendix K – *Avonbank Mineral Sands Project – Surface Water Impact Assessment*, Water Technology, February 2023.

The Project area is located in the Wimmera River catchment and is located in the south west area of the Murray Darling Basin. There are no designated watercourses in the Project area however there are three watercourses within the vicinity of the Project; Yarriambiack Creek, Two Mile Creek and the Wimmera River, and two wetlands nearby (see Figure 2 above):

- Dooen Swamp which connects to the Wimmera River during high flow events
- Darlot swamp which is fed by the Yarriambiack Creeks.

The EES identified the following potential surface water impacts for all phases of the Project:

- riverine flooding within operational areas resulting in downstream impacts at sensitive receptors.
- changes to local drainage patterns resulting in flooding on private property or public infrastructure.
- changes to local drainage patterns resulting in reduced water availability at sensitive receptors.
- Off-site water discharges resulting in poor quality water entering downstream environments.

The Surface Water Impact Assessment identifies environmental values and sensitive receptors (see Table 32). It notes there are cultural and spiritual values for Traditional Owners and non-indigenous people at Dooen Swamp and the Wimmera River.

The EES proposed mitigation measures including a SWMP and monitoring measures; SW-0A: Surface water monitoring and SW-0A: Freeboard monitoring.

Following implementation of proposed mitigation measures the residual surface water impacts included:

- potential riverine flooding extending to the Project area (negligible impact)
- localised inundation (negligible impact)
- reduced surface water availability (negligible impact)
- water quality impacts (no impacts).

Regarding cumulative impacts, EES Chapter 7 explained other planned and proposed projects, including other mineral sands mines, are located some distance from the local catchment and have no overlapping surface water residual impacts that require consideration.

It noted the WIFT is the only known major development in proximity to the Project, and an expected increase in run-off from the WIFT has potential to partly offset reductions in flows from the Project.

Table 32 Relevant sensitive receptors

Environmental Values	Sensitive Receptors
Water dependent ecosystems and species	Potential groundwater dependent ecosystems including Dooen Swamp and Wimmera River.
Human consumption after appropriate treatment Potable water supply	The Project is not within a declared Special Water Supply Catchment Area.
Potable mineral water supply	
Agriculture and irrigation	Several farm dams are in proximity to the Project (Figure 16-7). There are a total of 18 surface water licences on the Wimmera River (13 domestic and stock; and 5 irrigation) between Coughlin Park in Horsham and the Wimmera River – Yarriambiack Creek junction.
Human consumption of aquatic foods	Consumption of recreationally caught fish from the Wimmera River is common.
Water-based recreation	The Wimmera River is used for a significant number of water-based recreation activities.
Traditional Owner cultural and spiritual values	Surface water features including Dooen Swamp and Wimmera River.
Cultural and spiritual values (non-indigenous)	Surface water features including Dooen Swamp and Wimmera River.
Protection of buildings and structures	Buildings and residential dwellings and Project related infrastructure, including the WBA (Figure 16-7).

Source: EES Chapter 12, page 16-13, 16-14

(iii) Evidence and submissions

The Proponent relied on the surface water evidence of Mr Hughes, who was co-author and Project Manager for preparation of the Surface Water Impact Assessment.

Mr Hughes said:

> The use of surface water modelling in the mine design is standard practice, as is the use of a Surface Water Management Plan to ensure all potential impacts are reduced so far as reasonably practical. These tools provide the basis for ensuring no impacts to surface water receptors if ongoing compliance is achieved. In my experience it is very important for the technical work set out in the EES to continue through to the Surface Water Management Plan as its technical foundation.[51]

He explained:

- modelling of riverine flooding of Yarriambiack Creek and Wimmera River assesses the Projects interaction with riverine flooding from
  - direct/localised catchment inundation
  - hydraulic modelling to identify existing overland flow paths, depths and velocities of water flowing into and within the site
- catchment contribution modelling which assess the regional and mine catchment for potential changes in downstream flows and required mine storage

[51] Mr Hughes expert witness statement (D28), page 12

- water quality which due to the flat terrain of the Project area and relative low rainfall means the overall surface water runoff is intermittent and typically low in volume and limits sampling opportunities. This is interlinked to catchment modelling.

Mr Hughes summarised and explained how the EMMs address identified impacts, stating:

> If all proposed mitigation measures are undertaken to the appropriate standard, I do not believe the Avonbank mine will impact or be impacted by any undue flood risk or cause impact to surrounding surface water uses. I believe any potential changes can be reduced to as low as reasonably practicable through the application of industry standard design and mitigation measures. These are reflected in the mitigation measures proposed for the Project.

Further he considered:

- the Project would not cause significant or consequential changes to inundation of Dooen Swamp
- the water quality data available was sufficient to assess potential impacts, with the highest risk activity to water quality runoff from roads which can be managed by an appropriate Storm Water Management Plan
- the mine storage of 130 ML is sufficient to store the maximum historic daily inflow 5.5 times over (assuming normal water use) if the processing water dam and raw water storage are constructed at the design volume, and they have more than enough capacity to contain large rainfall events (including the largest of record in January 2011)
- very high water use is the main contributor to maintaining zero site runoff, with all runoff utilised for mine use
- climate change had been adequately taken into consideration.

Council did not query the surface water modelling or predictions. It requested to be nominated as a stakeholders in relation to the SWMP.

The EPA noted:

- The SWMP will be prepared prior to Project commencement, containing appropriate characterisation of ambient existing surface water quality, monitoring and management in-line with relevant state and national guidelines and reregulation's such as the ERS and the Australian and New Zealand guidelines for fresh and marine water quality to reduce impacts to surface water as far as reasonably practicable.
- The SWMP will establish an appropriate framework to manage and mitigate the potential impacts of the Project on human health and the environment (subject to its comments on implementation of the EMF discussed in Chapter 5(vi) of this Report).
- The EMP required by the Incorporated Document will include surface water management and be prepared in consultation with EPA.

Submitters raised surface water issues relating to:

- the Project's water requirements
- modelling and impact on access to water in drought years
- the impact to the Project from flooding
- adequacy of the Project's proposed SWMP
- the impact of the Project on water quality.

Some submissions questioned the adequacy of the surface water modelling and whether it represented the 1 per cent AEP inclusive of the potential impacts of climate change on the future

flood levels. The submissions did not question the veracity of the modelling or the modelling inputs.

In response to issues raised in submissions Mr Hughes said:

- the assessment for the Project's water supply for operation was undertaken by Grampians Wimmera Mallee Water as the most appropriate organisation to determine adequacy of water supply for the Project
- flooding in the Wimmera River and Two Mile Creek would not increase the flood depth significantly as a flood would spread out on flood plains further upstream before the flood height increased near the mine site
- water quality would not be affected by the operation of the mine as the water balance modelling showed the mine would not affect the runoff of surface water to the Wimmera River
- there won't be an increase in the salinity of the Wimmera River as the mine is not directly linked to the river system.

The Proponent submitted TN-12 Project Water Supply (D77) which confirmed Grampians Mallee Water Corporation had confirmed "*unallocated rural pipeline water is currently available for use as the primary water source for the Project*".

(iv) Discussion

The Surface Water Impact Assessment methodology is appropriate and acceptable. The Committee is satisfied that generally the EES has adequately assessed and considered stormwater impacts and concludes:

- the Project will not impact riverine flood levels and therefore no control measures are necessary
- local drainage works will be required to prevent pooling of water on rural roads and within productive agricultural areas
- the development will have negligible impact on the hydrological regime of the Wimmera River or Dooen Swamp
- there are unlikely to be any changes to water quality and all site runoff can be contained with zero discharge to downstream environments
- the Project would not be impacted by riverine flooding or by significant local flooding, even under extreme events.

The Committee is satisfied that while flood levels may be elevated in the future due to climate change, they will not significantly impact the Project. As the Project and surrounding area is relatively flat, future floods will spread out from the watercourses and the spread of floods will likely take place further upstream of the Project.

Grampians Wimmera Mallee Water and the Proponent have agreed to commercial terms for supply of 4.6 gigalitres of water per year with a daily peak demand volume of 17.2 megalitres. The Committee is generally satisfied that the Project water requirements can be met by the agreed "*unallocated rural pipeline water*" (TN-12, D77).

The volume of water supplied to the Project will depend on the amount of water required after recovering water from ore processing and capturing rainfall on the Project site. In dry or drought years there will be a higher demand to purchase water from Grampians Wimmera Mallee Water. Details of the agreement with Grampians Wimmera Mallee Water do not form part of the surface

water assessment, however the recovery of process water and capture of rainfall will influence the amount of water required to purchase. Mitigation measure SW-05: Water use efficiency should address some of the issues raised about water requirements of the Project. It is also expected the Project will be motivated to develop systems to minimise the volume of water purchased from Grampians Wimmera Mallee Water as it will reduce the Project's operational costs.

The Committee is satisfied the Project impacts on water quality are acceptable. The EES assessment demonstrated that the capacity of the Project's water storage will be sufficient to contain the most extreme rain events. SW-02 requires there is no discharge of surface water from operational areas.

The 'Day 4' EMF includes the following requirements:

- SW-06:

  The SWMP must be implemented, and must provide a management framework to avoid and minimise impacts of the Project water on surface water quality, so far as reasonably practicable, in line with the Project EMS and relevant legislative requirements.
- SW-0A:

  Surface water samples and water levels must be undertaken according to a schedule approved in the Surface Water Management Plan. The surface water sampling analytical suite must be developed by a suitably qualified person such that it is aligned with the requirements of the EPA Environment Reference Standard (ERS) and must fully characterise the relevant risks and impacts associated with the Project.

The EPA noted the SWMP should consider the relevant state and national guidelines and regulations such as the ERS and the Australian and New Zealand guidelines for fresh and marine water quality. The Committee agrees and recommends SW-06 include reference to more specific standards and guidelines as discussed by the EPA.

Given its role as responsible authority for the WIFT, and potential for generation of stormwater from development in this area, the Committee agrees with Council that it should be specified as a stakeholder in preparing the SWMP.

Findings

The Committee finds:

- surface water modelling informing the EES is appropriate
- water quality, flooding and water requirements have been adequately considered
- subject to its recommendations, the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the surface water effects, and surface water effects are acceptable.

(v) Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure SW-06: Surface Water Management Plan to:

- **require consideration be given to the requirements of the *Environment Protection Act* 2017, the Environment Protection Authority's Environmental Reference Standard and the relevant Australian and New Zealand water quality guidelines**

- **require surface water modelling to be routinely updated and reviewed over the life of the Project and prior to entering each new mining Block**
- **require that Council be consulted as a stakeholder when preparing the Surface Water Management Plan.**

These changes are included in Appendix G.

11.3 Groundwater

(i) The issues

The issues are whether the groundwater:

- modelling and assessment are adequate and appropriate
- monitoring measures are adequate
- quality impacts are acceptable.

(ii) What did the EES say?

EES Chapter 17 provided an overview of groundwater effects, supported by EES Appendix L – *Avonbank Mineral Sands Project Environment Effects Statement Groundwater Impact Assessment Report*, GHD Pty Ltd, January 2023.

The Groundwater Impact Assessment study area extended to the Wimmera River in the north-west, west and south and to the Yarriambiack Creek to the east. It:

- focused on activities within the mining footprint, associated areas within the predicted drawdown and mounding zones and potential process water mitigation pathways
- characterised the existing conditions, identified potential impacts and assessed the residual impacts with avoidance and mitigation measures in place.

Existing groundwater conditions from a series of 20 bores over the period from 2018 to 2021 were assessed for their hydrogeological properties, groundwater levels, flow direction and groundwater quality.

Section 17.3 of EES Chapter 17 detailed the operational context of water usage during the mined material processing to extract the HMC and to recover process water for further use in the processing facility. With respect to process water entering the groundwater the EES said "*The volume of tailings water returned to the pit during operations and rehabilitation is estimated to be around 25.4 [megalitres] per day on average. This means around 2.5 to 2.7 [megalitres] could seep into the groundwater system each day*".

The EES described potential impacts (Table 33), and environmental values and sensitive receptors (see Table 34).

Table 33 Potential impacts to groundwater

Item	Potential Impacts	Phase[1]
IP-01	Mining ore and pit dewatering resulting in groundwater drawdown and impacts to sensitive receptors.	O, D
IP-02	Tails placement resulting in groundwater mounding and impacts to sensitive receptors.	O, D
IP-03	Mining ore and pit dewatering resulting in land subsidence.	O, D
IP-04	Mining ore and pit dewatering resulting in the activation of potential acid-forming materials and related impacts to the groundwater aquifer.	O, D
IP-05	Placement of tails resulting in changes to the hydrochemistry of the groundwater aquifer and impacts to sensitive receptors.	O, D
IP-06	Tails water mounding within and adjacent mining cells resulting in saturation and salinisation of the upper soil profile.	O, D
IP-07	Mobilisation of existing potentially contaminated groundwater areas.	O, D
IP-08	Spills and leaks from storage areas affecting the groundwater aquifer.	C, O, D

Source: EES Chapter 17, page 17-13

Table 34 Groundwater sensitive receptors

Environmental Values	Sensitive Receptors
Water-dependent ecosystems and species (surface water)	Potential groundwater dependent ecosystems including Two Mile Creek, Wimmera River, Yarriambiack Creek, Darlot Swamp and Dooen Swamp.
Agriculture and irrigation (stock watering)	Livestock drinking water sourced from groundwater bores within the study area that are identified and classified as (domestic/stock or unknown) as well as more broadly across the entire LPS aquifer.
Industry and commercial use	LPS aquifer across the study area (no specific point location).
Water-based recreation (Primary contact recreation)	Assumed to be water-based recreational use at baseflow receiving surface water features down-gradient of the Project.
Traditional owner cultural values	All potential GDEs and surface water features.
Buildings and structures	LPS aquifer across the study area (no specific point location).
Geothermal properties	Not relevant to this impact assessment as water <20 degrees.

Source: EES Chapter 17, page 17-13

The EES proposed mitigation measures including a Groundwater Management Plan (GWMP). The EES concluded:

> ….residual impacts are considered to be minor or negligible, Overall, the proposed Project work/activity is unlikely to result in significant groundwater effects and it is anticipated that the associated impacts can be managed with avoidance and mitigation measures in place to achieve the evaluation objectives.

Regarding cumulative impacts the EES said proposed mineral sands projects in the region are greater than 15 kilometres from the Project and there is expected to be no overlap with groundwater impacts. There are no other known groundwater affecting activities planned in the predicted area of drawdown or mounding.

(iii) Evidence and submissions

The Proponent relied on the groundwater evidence provided by Mr Gresswell who was one of the authors of EES Appendix L.

Mr Gresswell explained:

> The water table underneath the Project occurs in the Loxton-Parilla Sands (LPS) aquifer, at 12 to 34 m below the ground. In some parts the proposed mining pits, the floor of the mine would penetrate the water table. This would necessitate temporary dewatering of the LPS aquifer, resulting in temporary drawdown (lowering) of the water table until the ore is extracted and the mined area is backfilled. Following processing of the extracted ore, wet

> tailings would be returned to the mined pits. It is estimated that around 80% of water contained within the wet tailings could be recovered through decant sumps and dewatering of the adjacent mining cells, while 10% could be entrained in the tailings. The remaining 10% has the potential to seep into the LPS aquifer and cause mounding (raising) of the water table. Localised changes in the groundwater quality are likely below and immediately adjacent to the mined pits due to the less saline process water (compared to groundwater) and potential hydrogeochemical changes.

Mr Gresswell advised:

- key groundwater issues relate to changes in groundwater due to dewatering and tailings placement, and potentially localised changes in groundwater quality
- detectable changes to groundwater conditions are expected but unlikely to occur at magnitude, spatial extent or duration that would pose a risk to identified groundwater environmental values at the location of receptors.
- groundwater residual impacts and risks of the Project to receptors are minor to negligible, once the appropriate mitigation and management measures are implemented.

Further, Mr Gresswell said:

- licenced groundwater users are outside the Project's area of influence (south of Wimmera River)
- groundwater from the mine flows north-northwest away from the Wimmera River and Yarriambiack Creek (ultimately discharging to the Wimmera River approximately 20 kilometres northwest)
- Darlot and Dooen swamps are subject to periodic flooding where periodic replenishment of soil moisture and subsequent drying is critical to the survival of trees
- groundwater at a depth of 5 to 8 metres is at the outer range of the tree root system and no drawdown of groundwater is predicted
- 0.1 to 0.5 metres of mounding over 25 years is a small fraction of the depth of the groundwater and unlikely to impact the trees that may be accessing the groundwater.

The Proponent submitted TN-13 Groundwater geochemistry to provide an understanding of the action of flocculent and the formation of acrylamide in the groundwater and the formation of hexavalent chromium from the disturbed mine area. It said:

> while the use of polyacrylamide-based flocculants has the potential to result in emission of these compounds as well as any impurities such as acrylamide entering the environment, it is likely that that polyacrylamide and acrylamide would biodegrade in the subsurface in a matter of days to weeks and that formation of acrylamide through biodegradation of polyacrylamide in process water would be highly unlikely. As a result, any risk to human health and the environment due to the use of polyacrylamide-based flocculants would be low.

The EPA recommended analytes acrylamide and hexavalent chromium should be considered in the GWMP and proposed a new monitoring requirement GE-0E:

> Monitor acrylamide and CR(VI) as part of the listed analytes included in the groundwater management plan with a process to understand risks to sensitive receptors and uncertainties related to the monitoring data. Monitoring should be undertaken in accordance with Groundwater Sampling Guidelines, EPA Publication 669.1.

EPA noted the deposition of waste into a mine void and potential seepage requires an A18 permit under the *Environment Protection Regulations* 2021. The A18 permit application will require an assessment of the risks to human health and the environment, will need to demonstrate

avoidance or minimisation measures as well as mitigation and monitoring management. The EPA required the GWMP be consistent with the EMF and the A18 permit.

The EPA noted that the groundwater mitigation measures as detailed in the EMF do not outline benchmarks by which predicted environmental outcomes will be measured. It said it was "*unclear how potential groundwater impact events will be avoided or minimised, so far as reasonably practicable*".

In response to submissions from the EPA Mr Gresswell said:

> I concur with EPA's recommendation to include acrylamide and hexavalent chromium as part of the standard suite of analytes to monitor in groundwater. These analytes were monitored as part of the baseline sampling program for the EES and should continue to be monitored on an ongoing basis (as part of the proposed groundwater management plan).

The Proponent accepted a new monitoring measure related to chemicals of potential concern proposed by the EPA and supported by Mr Gresswell.

Mr Gresswell's responded to issues raised by other submitters (see Table 35).

Table 35 Summary of issues raised in other submissions and Mr Gresswell's response

Issue raised in submissions	Mr Gresswell's Response
Concerns about groundwater contamination of metals, radionuclides and other contaminants of potential concern	The potential for groundwater quality impacts is considered low due to the management and mitigation measures, existing high salinity of groundwater, low ground flow velocity, considerable distance to most receptors and low potential for the Project to mobilise metals above the relevant stock watering criteria.
Concern about the use of flocculants, residual acrylamides and lack of transparency around the proposed flocculant dosage	Regarding use of flocculants, details are provided in Technical Note TN-13 Groundwater geochemistry. One round of sampling for acrylamide at the test pit completed to date at a bore located 5 metres from test pit. The concentration of acrylamide was below the laboratory detection limit.
Uncertainty associated with the groundwater impact assessment, specifically limitations and assumptions and poorly understood groundwater recharge process	A detailed quantitative uncertainty analysis was undertaken as part of the numerical groundwater modelling, using conservative range of parameter values to thoroughly assess model uncertainty. The Technical Report (EES Appendix K) was independently peer reviewed by external peer reviewers with expertise in hydrogeology and groundwater modelling.
Lack of mitigation measures proposed to minimise and manage groundwater impacts	Several mitigation measures are proposed to avoid, mitigate and minimise groundwater effects, as detailed in the EMF and technical reports. Groundwater monitoring is proposed which would set out triggers for actions and contingency plans. This would be reviewed and audited by an independent and suitably qualified personal.

Issue raised in submissions	Mr Gresswell's Response
Council submission: - groundwater is unlikely to be used - a number of drainage channels have been decommissioned - operational water balance where pipeline water has a higher salinity	Stock and domestic use of groundwater was considered based on the measured range of salinity; the groundwater was unlikely to be used. The drainage channels information is based on Vicmap geospatial data which may be out of date. The accuracy of the drainage data does not change the fundamental assumptions underpinning the Technical Report. The pipeline makeup water would have a lower salinity concentration that the groundwater (about 10 per cent). Freshening the groundwater below the mine pit remains likely. This does not change the salinity assessment in the Technical Report.
Concern about depletion of groundwater due to temporary dewatering	Less than 10 per cent reduction in available drawdown at the location of the registered bores due to temporary dewatering. This would not impact access to groundwater for stock and domestic use. There is an expected increase in groundwater over time.

Source: Summarised from Mr Gresswell's expert witness statement (D29)

(iv) Discussion

The Committee has reviewed the Groundwater Impact Assessment and evidence of Mr Gresswell and accepts the methodology is sound. It is appropriate to apply conservative assumptions, and the Committee is reassured by the uncertainty analysis and peer review prepared by HydroGeoLogic, December 2022, attached to EES Appendix L.

Based on the EES and evidence the Committee understands:

- groundwater moves slowly in a northwest direction and away from the immediate vicinity of the Wimmera River and local watercourses, Darlot and Dooen swamps and the Project area
- the mine will lower the groundwater/water table in the vicinity of the mined ore and rehabilitation of the mined area will potentially raise the level of the groundwater as water from the tailing's seeps into the groundwater
- groundwater in the Project area is saline and not potable or useable for stock.

The Committee accepts that the residual risks and impacts of the Project to groundwater are minor to negligible. The potential and residual impacts of the Project are well understood and the EMF requirements for groundwater are comprehensive.

The 'Day 4' version of the EMF includes a monitoring measure to include acrylamide and hexavalent chromium in the groundwater monitoring program, as recommended by the EPA and supported by Mr Gresswell. The Committee supports the inclusion of this new monitoring requirement GW-0E: Chemicals of potential concern monitoring.

With regards to other issues raised, the Committee accepts the evidence of Mr Gresswell that impacts are acceptable on the basis:

- contamination and/or groundwater quality residual impacts are unlikely in the context of environmental values and relevant water quality criteria
- depletion of groundwater is unlikely, with an expected less than 10 per cent reduction in available drawdown at the location of registered bores due to temporary dewatering.

Issues related to groundwater dependent ecosystems (GDEs) are addressed in Chapter 12.6 of this Report.

(v) Findings

The Committee finds:

- the groundwater modelling and assessment is adequate and appropriate
- subject to its recommendations, the measures in the EMF are adequate to sufficiently avoid, mitigate or manage groundwater effects, and the impacts on groundwater are acceptable.

11.4 Overall conclusions on water issues

There are no surface water or ground water impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure SW-06: Surface Water Management Plan is comprehensive with regard to regulations, consultation and review requirements.

12 Flora and fauna

12.1 Introduction

The relevant evaluation objectives are:

> Avoid, minimise or offset adverse effects of the project on biodiversity values including native vegetation, listed threatened species and communities and habitat for these species consistent with state and commonwealth policies.
>
> Minimise effects on water resources and on existing and potential future beneficial and licensed uses of surface water, groundwater and related catchment values over the short and long-term.

Flora and fauna is discussed in:

- EES Chapter 16 – Surface Water
- EES Chapter 17 - Groundwater
- EES Chapter 21 – Flora and Fauna
- EES Chapter 25 – Matters of National Environmental Significance
- EES Appendix K – Surface Water Assessment
- EES Appendix L – Groundwater Assessment
- EES Appendix P - Flora and Fauna Impact Assessment (FFIA).

The exhibited EMF included the avoidance and mitigation measures shown in Table 36.

Table 36 Flora and fauna - avoidance and mitigation measures

Code	Measure
FF-01	Areas of native vegetation will be avoided via exclusion zones to protect local ecological values.
FF-02	Tree protection zones will be established around selected scattered trees that are not otherwise protected within an exclusion zone (FF-01).
FF-03	Periodic flora surveys will be undertaken over the life of the Project across the proposed disturbance area to characterise previously unsurveyed areas.
FF-04	Fauna egress will be incorporated into the design of open mine voids, sumps, trenches and dam infrastructure which could pose a risk to native fauna due to entrapment.
FF-05	If Project related drawdown/mounding or adverse changes to groundwater quality are recorded, targeted studies will be undertaken and corrective actions applied to avoid or minimise the risks so far as reasonably practicable.
FF-06	A Flora and Fauna Management Plan will be maintained to minimise the risk of direct and indirect impacts on flora and fauna.
FF-07	A Rehabilitation Plan will be developed to achieve the rehabilitation objectives as soon as reasonably practicable.
FF-08	Offsets will be applied to compensate for residual impacts on native vegetation, threatened species and habitat for threatened species.

The Committee has had regard to relevant submissions, expert evidence (see Table 37) and the following technical notes and documents:

- TN-08 Flora assessment (D57)

- TN-09 Vegetation removal avoidance measures (D58)
- Scenario test for generation of native vegetation removal report (D73)
- Native vegetation removal report (D78)
- Native vegetation mapping (D85).

Table 37 Flora and fauna expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D42 and D71	Proponent	Mr Brett Lane	Nature Advisory	Ecology
D29 and D89	Proponent	Mr Rikito Gresswell	GHD	Groundwater

The expert evidence of Brett Lane (D42) included a *Peer Review of Flora and Fauna Assessment*, Nature Advisory, July 2023 (Flora and Fauna Peer Review).

12.2 Background

(i) Relevant legislation, strategies and guidelines

Relevant legislation includes:

- PE Act
- *Flora and Fauna Guarantee Act 1988* (FFG Act)
- EPBC Act
- *Wildlife Act 1975.*

The following key strategies and guidelines are relevant:

- *Protecting Victoria's Environment – Biodiversity 2037*, Department of Environment, Land, Water and Planning (DELWP), 2017
- *Guidelines for the removal, destruction or lopping of native vegetation*, DELWP, 2017 (Native Vegetation Guidelines)
- *Assessor's handbook: Applications to remove, destroy or lop native vegetation*, DELWP, 2018 (Assessor's Handbook)
- *Matters of National Environmental Significance: Significant impact guidelines 1.1*, *Environment Protection and Biodiversity Conservation Act 1999* (MNES Significant Impact Guidelines).

See Appendix F for a summary of relevant legislation, strategies and guidelines.

(ii) Chronology of flora and fauna studies and surveys

EES Chapter P comprises a main flora and fauna assessment report prepared by AECOM with a number of earlier reports and survey findings attached (collectively referred to as the FFIA). The Committee has compiled a chronology of flora and fauna studies in the FFIA (see Table 38) and the Flora and Fauna Peer Review prepared by Mr Lane.

Table 38 Chronology of flora and fauna studies in the FFIA

D# or EES reference	Timeline	Report	Scope
n/a	2017	*Preliminary Ecology Assessment: Avonbank Heavy Mineral Sands Project*, Okologie, May 2017	Preliminary assessment to determine the extent of the native vegetation and ascertain the presence of any listed threatened flora and fauna species or threatened species habitat
Appendix A to EES Appendix P	2018	*Desktop assessment of significant flora and fauna values of the Avonbank Mineral Sands Project*, Ecology Australia, August 2018	Reviewed likely biodiversity issues associated with the Avonbank project and provided input to a referral under the EE Act and EPBC Act
Appendix A to EES Appendix P	2019	*Avonbank Mineral Sands Project: Survey Findings 2018*, Ecology Australia, June 2019	Conducted detailed vegetation assessments and targeted surveys of the significant flora and fauna values in the retention licence area
Appendix A to EES Appendix P	2020	*Avonbank Mineral Sands Project: Survey Findings 2018-2020*, Ecology Australia 2020	Documented the key finding of the surveys carried out in spring and early summer 2018, and late summer and early autumn 2020
EES Appendix P	2023	*Avonbank Mineral Sands Project Flora and Fauna Assessment*, AECOM, 2023	Informed the EES including existing conditions, impacts on identified ecological values, recommended mitigation measures and identification of residual impacts
Attachment to Brett Lane's Expert Witness Statement (D42)	2023	*Peer Review of Flora and Fauna Assessment*, Nature Advisory, July 2023	Determined if the FFIA was based on appropriate and sufficient investigations, prepared to a satisfactory standard for an EES, addressed relevant regulatory requirements and EES scoping requirements

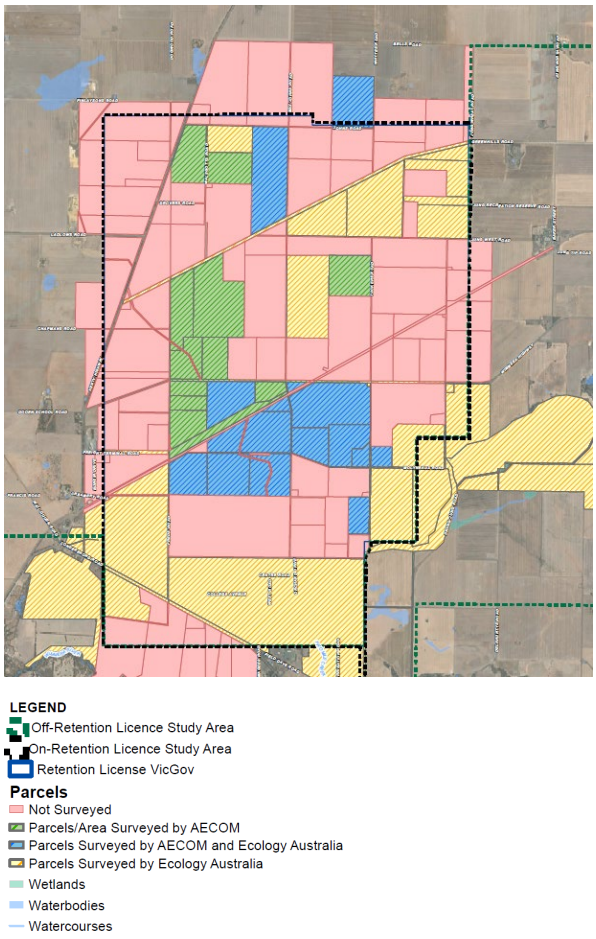
The survey effort of flora and fauna studies in the FFIA and Flora and Fauna Peer Review is shown in Figure 22.

The AECOM Flora and Fauna Assessment relied on field surveys of the retention licence areas undertaken from 2018 to 2020, as documented in the Ecology Australia reports, and field surveys undertaken by AECOM for the retention licence areas and minor utilities corridor area in 2022.

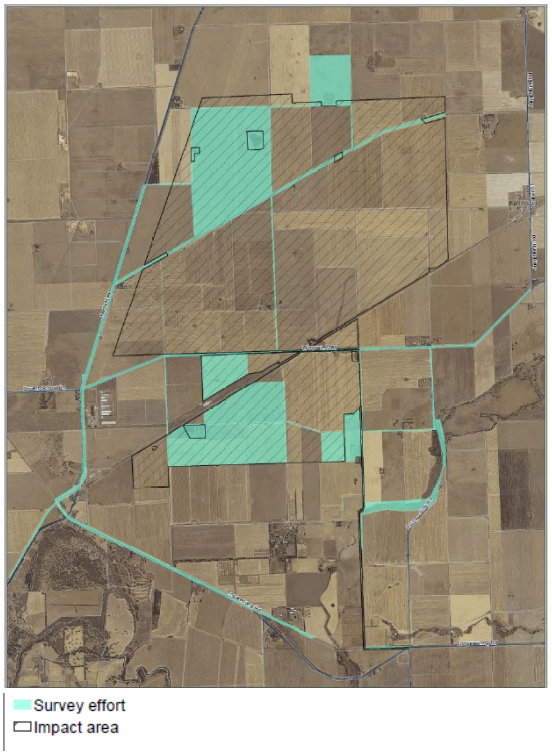
The survey effort of the Flora and Fauna Peer Review also included an area along Horsham-Drung South Road.

Figure 22 **Survey effort of flora and fauna studies**

FFIA survey effort (EES Appendix P, page 22)



Flora and Fauna Peer Review survey effort (page 2)



(iii) Flora and Fauna Impact Assessment

ESS Chapter 21 provides an overview of flora and fauna effects of the Project, supported by the FFIA.

The EES described the methodology of the FFIA including:

- assessment of existing conditions by:
  - collating and reviewing previous site studies prepared by Ecology Australia and Okologie (see Table 38)
  - further desktop assessment and targeted field base assessment for areas within the development extent, including the minor utilities corridor
- identification and assessment of potential impacts associated with the Project
- identification of avoidance and mitigation measures to avoid and/or minimise impacts so far as reasonably practicable
- assessment of direct and indirect residual impacts, and any required offsets
- assessment of cumulative effects where information was available.

The study area of the FFIA extended approximately 10 kilometres beyond the proposed MIN area to ensure the area of direct disturbance and potential indirect impacts were considered.

The FFIA identified a number of potential impacts on sensitive receptors (see Table 39).

Table 39 Flora and fauna sensitive receptors

Receptor Type	Sensitive Receptors
Terrestrial ecology	Native vegetation patches and trees (Appendix P, Table 40 and Table 41). High-quality vegetation and DELWP wetlands (Appendix P, Table 43). Threatened ecological communities listed under the EPBC Act and/or FFG Act (Appendix P, Table 44 and Table 45). Threatened flora and fauna species listed under the EPBC Act and/or FFG Act (Section 21.4.1). Wildlife protected under the Wildlife Act.
Groundwater dependent ecosystems	Dooen Swamp, Darlot Swamp, Yarriambiack Creek and Wimmera River.

Source: EES Appendix P, page 21-16

The FFIA included proposed mitigation measures to avoid and minimise residual impacts, including:

- Exclusion zones and tree protection zones will be implemented to avoid impacts on native vegetation.
- Periodic flora surveys will be undertaken to identify previously unsurveyed flora within the proposed disturbance area.
- Refinement of the minor utilities corridor will be undertaken in consultation with Service Providers and landholders to avoid further areas of vegetation where practicable.
- Fauna egress will be incorporated into the design of dams, sumps and pits where practicable and safe to do so.
- Targeted areas of rehabilitation comprising native species will be undertaken where appropriate in consultation with landholders.
- The FFMP, SWMP and GWMP will be implemented to avoid and minimise indirect risks/impacts so far as reasonably practicable.[52]

Other mitigation measures include:

- development of a Rehabilitation Plan, including rehabilitation of native vegetation
- offsets for unavoidable removal of native vegetation, threatened species and habitat for threatened species.

The FFIA said there was limited data on other proposed mineral sands projects for a quantitative assessment of the cumulative impacts. However, it said:

> … the magnitude of vegetation removal associated with the Avonbank Project is relatively low for a mining Project of its size. The total area of threatened ecological communities to be removed under the EPBC Act is 0.23 ha, with 11.63 ha to be removed under the FFG Act.

Overall the EES concluded the Project would have residual impacts on flora and fauna that can be managed with proposed mitigation measures to achieve the evaluation objectives.

Specific findings are discussed as relevant to issues raised in the following chapters.

12.3 Avoid and minimise native vegetation removal

(i) The issues

The issues are whether:

- native vegetation has been adequately assessed

[52] EES Chapter 21, page 21-30 and 21-31

- the Project adequately addresses 'avoid and minimise' requirements in accordance with the Native Vegetation Guidelines.

(ii) What did the EES say?

The FFIA found there was:

- 25.87 hectares of native vegetation within the MIN area and WBA, and 2.63 hectares within the minor utilities area (see Table 40 which shows native vegetation recorded by Ecological Vegetation Class (EVC)Table)
- 170 scattered trees and trees in patches (see Table 41).

Table 40 EVC's recorded across the study area including the development extent

Ecological Vegetation Class	Bioregional Conservation Status	Total Extent within the On-retention Licence Study Area (ha)	EVC within Development Extent (ha)		
			MIN and WBA	Minor Utilities Corridor	Total
Black Box Lignum Woodland (663)	Endangered	4.30	0.34	0.17	0.51
DELWP Mapped Wetland	N/A	40.32	-	0.75	0.75
Floodplain Riparian Woodland (56)	Endangered	4.45	-	0.33	0.33
Plains Grassland (132)	Endangered	23.98	20.53	0.65	21.18
Plains Savannah (826_62)	Endangered	5.22	5.00	0.01	5.01
Plains Woodland (803)	Endangered	0.56	-	-	-
Red Gum Swamp (292)	Vulnerable	1.19	-	0.02	0.02
Riverine Chenopod Woodland (103_62)	Endangered	2.00	-	0.70	0.70
Total		82.02	25.87	2.63	28.50

Source: EES Chapter 21 (Table 21-2)

Table 41 Summary of trees in the development extent

Location	Tree Category			
	Small Scattered Tree	Large Scattered Tree	Large Tree in Patches	Total
Development extent (MIN and WBA)	34	79	48	161
Development extent (minor utilities corridor)	2	6	1	9
Total	36	85	49	170

Source: EES Chapter 21 (Table 21-1)

The quality of native vegetation varied from low to high quality. Black Box Lignum Woodland was the highest quality with scattered canopy tree species dominant but with highly degraded understory and low floristic diversity.

The FFIA concluded:

- the Project will result in unavoidable removal of 11.80 ha of native vegetation and 59 trees within the development extent (including threatened ecological communities, habitat for threatened fauna and threatened flora listed under the FFG Act and EPBC Act)
- vegetation offsets will total 2.650 General Habitat Units and 45 large trees.

(iii) Evidence and submissions

The Flora and Fauna Peer Review provided by Mr Lane included:

- a review of the FFIA including its methodology, assessment of existing conditions, impact assessment and environmental performance recommendations
- a survey of all key areas of native vegetation for the main Project area undertaken in June 2023 (see Figure 22) and the minor utilities corridor
- an update to native vegetation mapping.

The Flora and Fauna Peer Review found additional native vegetation that may be affected and included a revised Native Vegetation Removal Report (Appendix 2 of the Flora and Fauna Peer Review). It said:

> While differences in native vegetation extent and occurrence were found, these are considered to be readily explainable by the prescribed methodology, which is affected by natural variability in vegetation condition between surveys.

The Flora and Fauna Peer Review noted an inconsistency between the FFIA (AECOM) main report and its appendices relating to the identified amount of native vegetation proposed for removal, and concluded the data in the appendix was the most recent (14.777 hectares). The Flora and Fauna Peer review identified an additional 3.213 hectares of Plains Grassland (EVC 132) impacted by the Project, resulting in the total native vegetation proposed for removal 17.990 hectares.

The Flora and Fauna Peer Review recommended the updated Native Vegetation Removal Report (Appendix 2 of the Flora and Fauna Peer Review) should be used as the basis for determining the extent of impact on native vegetation and offset requirements.

Mr Lane gave evidence that in combination with the updated native vegetation removal assessment in the Flora and Fauna Peer Review, the FFIA provided the necessary information for an assessment to be made of the impacts of the project on biodiversity under the EPBC Act, the FFG Act and in accordance with the Native Vegetation Guidelines. He said:

> I am satisfied that the Flora and Fauna impact assessment adequately addresses the EES Scoping Requirements and is consistent with best practice in Victoria in relation to identifying, mitigating and offsetting biodiversity impacts for projects of this type, subject to the recommendations made.[53]

In response to a question from the Committee, Mr Lane advised a five yearly review of the FFMP would be appropriate.

The Proponent relied on the evidence of Mr Lane and submitted offsets would be provided where further minimisation cannot be achieved.

In response to the Committee's RFI which asked the Proponent if exemptions to a permit to remove native for minor utility infrastructure might be sought, it explained:

> The exemption could conceivably apply to the installation, upgrade and maintenance of the water and power supply infrastructure for the Project if, for example, Powercor or GWM Water was to undertake any of these works. However, an exemption has not been assumed in the EES and the impacts of this infrastructure on native vegetation has been assessed.[54]

[53] Flora and Fauna Peer Review, page 43

[54] Proponent Part B submission (D50), Response to RFIs table

DEECA submitted that EES Chapter 21 did not adequately address 'avoid and minimise' requirements in accordance with the Native Vegetation Guidelines. DEECA said it had raised the issue in the TRG meetings however its concerns were not resolved through that process.

DEECA submitted:

- the Project occurs in a highly modified agricultural landscape with limited native vegetation
- it noted and supported the intent to avoid some areas of native vegetation, including EPBC Act listed Buloke Woodlands
- further demonstration of the avoid and minimise requirements is needed and it considered a further reduction in impacts could be achieved.

It also recommended:

- Avoiding an additional four Large Trees with a slight boundary change or the application of a tree protection zone. The additional four trees are FFG Act listed buloke trees on the edge of the development area.[55]
- Avoiding removal of the 9.56 hectares of Plains Grassland (EVC 132) listed under the FFG Act and with bioregional conservation status of endangered. The grasslands occurs on the public land road reserves along Greenhills Road and Molyneaux Road.
- Avoiding native vegetation removal in the utility corridors by moving the utility corridor to areas with no native vegetation or boring the infrastructure underground.

It submitted that more than 99 per cent of the grasslands in the Wimmera had been lost, and those that remain are mostly in road reserves. Further, "*in regions such as the Kalkee Plain (the Project location) where cultivation has been so pervasive, the extent of the former grasslands is likely further reduced"*.[56]

DEECA said that while degraded in quality the sites are important as remnants, and removal of the roadside native vegetation contributes to further fragmentation of native vegetation in the landscape.

DEECA said the EES did not:

- discuss potential Project alternatives to avoid the removal of native vegetation on road reserves
- explain why the development area could not expand into areas devoid of native vegetation within the MIN.

DEECA took a number of the Committee's questions at the Hearing on notice, and provided a written response (D121). It advised:

- It is possible to bore underground services within a tree protection zone or underneath patches of native vegetation to avoid impacts. It said the entry and exit pits should be clear of the TPZs and patches of native vegetation.
- Following considering of Mr Lane's evidence, it recommended the 'avoid and minimise' principle be applied and justified to all additional areas of native vegetation proposed to be impacted and evaluated accordingly. Further:

[55] DEECA clarified the map references in D121 (page 3) stating "The four trees are located on the edge of the development area (see maps F9c, F9d, F9e and F9j of Appendix P – Flora and Fauna Assessment).

[56] DEECA submission (D117), page 5

> Given that there is a discrepancy between the AECOM and Nature Advisory reports [Flora and Fauna Peer Review] for the total amount of native vegetation mapped and proposed to be removed, an updated site assessment should be undertaken prior to project approval to ensure that the native vegetation mapping and required offsets adequately represent the current extent of native vegetation and all areas of potential native vegetation within the project area should be ground truthed.
>
> This is in accordance with the planning permit application requirements stated in the Assessors Handbook, specifically Application requirement 10: Site assessment report, which states that the site assessors report must be current, and that vegetation assessments should have been completed within the last three years for grassland ecosystems and five years for woodland ecosystems (page 15).[57]

Council submitted the proposal to put water pipelines in road reserves was contrary to normal Wimmera Mallee Pipeline works, and queried if the pipes should be located in the adjacent private land.

Several submitters raised concerns the Project would have a negative impact on the natural environment, including removal of native vegetation and trees and loss of habitat.

Some submitters were concerned about removal of planted native vegetation, in particular the native trees along Greenhills Road planted by the community, and considered offsets needed to be local and significant.

Some supporting submitters emphasised the Proponent's commitment to environmental sustainability and leading practice to mitigate environmental impacts. They said:

- it was important for the Project to be undertaken in an environmentally sustainable manner to protect local ecosystems and ensure sustainable development for future generations
- they were satisfied the Proponent had avoided removal of native vegetation as far as reasonably practicable.

The Proponent submitted in closing:

> Avoiding removal of native vegetation on Greenhills and Molyneaux Roads is not feasible. It would have a very significant impact on the Project and its objectives. Collectively, this would result in the Project being unable to access around 35 million tonnes of ore equivalent to around 3.5 years (or slightly over 10%) of the mine life. Any reduction in the life of the mine would result in a corresponding reduction in the benefits to be obtained from the mine.[58]

The Proponent further explained that avoiding Greenhills Road would:

- require establishment of separate mine blocks north of Greenhills Road, which would require a separate overburden stockpile and would result in a greater disturbance footprint of farmland
- require modification of the mining method due to the smaller pit size north of Greenhills Road, with potential consequential effects relating to noise, air quality and visual impacts
- result in changes to the mining sequence impacting viability of the Project as the existing sequence is designed to target higher grade ore first to maximise cash flow when the costs are greatest.

[57] DEECA submission (D121), page 2

[58] Proponent closing submissions (D129), page 16

The Proponent submitted that in the absence of challenge to Mr Lane's evidence that the native vegetation on Greenhills Road is heavily degraded, there is no justification for this level of avoidance. Further:

> To the extent that DEECA submitted that the Project could avoid the impacts on the Project by mining other areas not already identified for mining, this submission (respectfully) betrays a fundamental misunderstanding of the design of the mine. The Project is already designed to maximise viable recovery of the mineral resource. To the extent areas without material social or environmental values are not being mined, that generally reflects the fact that those areas do not contain a viable mineral resource. Simply expanding the footprint of the mine without increasing recovery would merely increase costs and adverse impacts associated with mining without any compensating benefit.
>
> …
>
> …the appropriate approach is to ensure that, when the time comes for rehabilitation, native vegetation should be required to be re-established in the road reserve in consultation with the relevant stakeholders.[59]

The Proponent's 'Day 4' of the EMF included:

- FF-03: Periodic flora surveys:

  Periodic Spring flora surveys (October to December) must be undertaken over the life of the Project across the proposed disturbance area to characterise previously unsurveyed areas (due to land access restrictions). Given that the Project extends over 36 years, it is acknowledged that the vegetation characteristics will change over this period. The periodic surveys will capture these changes and facilitate the consideration of further avoidance and mitigation measures. It is anticipated that periodic surveys will be undertaken as required under the Flora and Fauna Management Plan prior to the commencement of each mining block and prior to construction of the water pipeline. It is acknowledged that offsets may need to be adjusted over the life of the Project in response to new surveys.
- FF-06: Flora and Fauna Management Plan, with requirements to:
  - Undertake a native vegetation condition assessment prior to the removal of vegetation.
  - Undertake spring surveys (October to December) along the minor utilities corridor and public roads to confirm the total numbers of protected/threatened flora individuals that will be removed by Project activities prior to commencement.
- FF-08: Native vegetation offsets:

  The Project will result in unavoidable residual impacts on native vegetation with avoidance and mitigation measures in place, as established by the native vegetation conditions assessments under FF-06. Offsets will be required to compensate for residual impacts on native vegetation, threatened species and habitat for threatened species. Offsets will be sought within the Wimmera Catchment Management Authority (**WCMA**) or the Horsham Rural City area.

(iv) Discussion

The objectives of the Project are to establish a world class mining operation based on environmentally sustainable mining practices. Consistent with policy, every effort should be made to avoid and minimise native vegetation removal. Remnant vegetation in the landscape provides important ecological and habitat values and should be taken into consideration for future native vegetation rehabilitation plans (see Chapters 12.5 and 12.7).

The Committee accepts that some removal of native vegetation is unavoidable, and efforts have been made in the Project design to avoid native vegetation, including large patches.

[59] Proponent's closing submission (D129), page 16-17

The combined FFIA and Flora and Fauna Peer Review provide an acceptable assessment of likelihood of the presence of native vegetation, verified in part by surveys. The survey work in the FFIA is however deficient, as evidenced by the Flora and Fauna Peer Review identifying additional native vegetation impacted by the Project. As noted by Mr Lane, this is likely to have resulted from natural variability in vegetation condition between surveys, however it is also likely the timing of surveys and seasonal conditions have also contributed to this difference.

The Committee does not have confidence the survey work accurately identifies all native vegetation in areas surveyed on the basis that:

- The methodology for targeted flora surveys was not documented and could not be confirmed.
- Field surveys were undertaken for the FFIA in March 2017, November 2018 and March to April 2020, January and June 2022.
- Field surveys for the Flora and Fauna Peer Review in June 2023.
- The optimum time to undertake survey work for native grasslands is Spring to Summer.
- Not all parts of the development extent were able to be accessed and surveyed before preparation of the EES. As shown in Figure 22, large areas of the development extent have not been surveyed.

It is possible further survey work may identify additional native vegetation impacted by the Project, or given the timeframe of the Project the condition of native vegetation will have changed when future survey work is conducted.

The EMMs in the 'Day 4' EMF have been drafted to respond to this uncertainty by:

- requiring survey work be undertaken over the life of the Project, including previously unsurveyed areas, before construction of the pipeline and the commencement of mining each block
- requiring survey work be undertaken in Spring-Summer
- acknowledging mitigation measures, including opportunities to further avoid and mitigate impacts, and offsets may need to be adjusted in response to new surveys.

In the context of this uncertainty, the Project timeframe and the moving mine nature of the project, the Committee is satisfied with progressive native vegetation surveys informing offset requirements, rather than an updated site assessment of the Project extent prior to approval as proposed by DEECA. The progressive assessment is likely to result in a more accurate assessment, and secondary consents can be sought as required.

Further, DEECA will have the opportunity to approve the FFMP as it is developed, and the Committee recommends this also apply to periodic review and update of the FFMP.

The Committee suggests the review period of the FFMP be established in the EMS and be no less than every five years and prior to the commencement of each mining block. This aligns with the requirement to undertake periodic surveys before the commencement of each mining block.

The 'Day 4' EMF includes requirements to avoid native vegetation impacts by:

- implementing vegetation exclusion zones (with reference to amended Figure 21-6) and tree protection zones
- consideration of further avoidance following periodic surveys
- preparation of a FFMP which provides a framework to avoid and minimise impacts as far as reasonably practicable, consistent with the Native Vegetation Guidelines

- monitoring requirement for periodic inspection of avoidance areas to verify effectiveness of measures.

The Committee acknowledges the Proponent's advice that the assessment of native vegetation impacts from minor utility infrastructure have been included and the exemption has not been assumed. This is appropriate as it provides a conservative assessment, and in the context that further efforts to avoid native vegetation removal should be made.

Broadly the Committee accepts the Proponent's rationale for why the development area cannot expand further into areas devoid of native vegetation, particularly along Greenhills and Molyneaux Roads. In the context that the mine site is designed to maximise extraction with consideration of the ore resource, it is clear that there is little opportunity to completely avoid native vegetation and achieve the objectives of the Project. While disturbance is unavoidable across the bulk of the mine site, there may be opportunities to refine the Project mine boundary to further avoid native vegetation removal.

Options should be further investigated to avoid removal of the four trees identified by DEECA on the edge of the development extent. FF-06 requires the FFMP provide a framework to avoid and minimise impacts, be consistent with the Native Vegetation Guidelines, reviewed and updated regularly and prepared in consultation with stakeholders and approved by DEECA. The Committee is satisfied the FF-06 will ensure assessment of the potential protection of additional native vegetation is acceptable, including the four trees identified by DEECA.

Subject to its recommendations, the Committee generally accepts the Proponent's 'Final day' EMMs relating to avoiding, minimising and offsetting native vegetation removal.

(v) Findings

The Committee finds:

- The EES adequately assesses the likelihood of the presence of native vegetation, however survey efforts are not comprehensive or conclusive.
- Further survey work is required before and during delivery of the Project and efforts made to further avoid and minimise native vegetation removal in accordance with the Native Vegetation Guidelines.
- Subject to its recommendations, the proposed mitigation measures in the EMF are adequate and effects on native vegetation are acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure FF-01: Vegetation exclusions zones to:
- **ensure that vegetation exclusion zones are established and maintained**
- **update Environment Effects Statement Figure 21-6 which shows vegetation exclusion zones as required.**

b) Edit mitigation measure FF-02: Tree protection zones to:
- **require that tree protection zones are established and maintained, and applied to patches or scattered trees**

- **refer to Environment Effects Statement Figure 21-6 which shows tree protection zones and is updated as required.**

c) **Edit mitigation measure FF-03: Periodic flora surveys to:**
   - **require that surveys must be undertaken as required under the Flora and Fauna Management Plan and in accordance with timeframes required by the *Assessor's handbook: Applications to remove, destroy or lop native vegetation*, Department of Environment, Land, Water and Planning, 2018 (or equivalent if updated) over the life of the Project and before commencement of each mining block and along the minor utilities corridor and public roads prior to construction of the pipeline.**
   - **cross reference FF-08 to note that offset requirements may need to be adjusted in response to new surveys.**

d) **Edit mitigation measure FF-06: Flora and fauna management plan to:**
   - **require the Flora and Fauna Management Plan be reviewed and updated at minimum prior to the commencement of each mining block, in consultation with stakeholders and approved by the Department of Energy, Environment and Climate Action.**
   - **require that following completion of periodic surveys as required by FF-03, further avoidance and mitigation measures be considered including the option to bore or move underground services and further exclusion zones under FF-01 and FF-02.**

These changes are included in Appendix G.

12.4 Listed flora and vegetation communities

(i) The issues

The issues are whether:

- listed flora and vegetation communities have been adequately assessed
- efforts to avoid and minimise impacts on listed flora and fauna communities are adequate
- residual impacts on listed flora and fauna communities are acceptable.

(ii) What did the EES say?

Four threatened ecological communities (TEC) listed under the FFG Act were recorded within the development extent:

- 21.018 hectares of Northern Plains Grassland Community (comprising Plains Grassland EVC 132)
- 5.01 hectares of Semi-arid Northwest Plains Buloke Woodland Community (comprising Plains Savannah EVC 826)
- 1.56 hectares of Victorian Temperate Woodland Bird Community (comprising Black Box Lignum EVC 663, Floodplain Riparian Woodland EVC 56 and Riverine Chenopod Woodland EVC103_62)
- 0.02 hectares of Red Gum Swamp Community No. 1 (comprising Red Gum Swamp EVC 292).

Three flora species listed as critically endangered under the FFG Act were recorded within the development extent including:

- 153 buloke (*Allocasuarina luehmannii*)
- 10 buloke mistletoe (*Amyema linophylla subsp. Orientalis*)
- six weeping myall (*Acacia pendula*).

Eleven other FFG listed flora species have a moderate or greater likelihood of occurrence, and two of these are listed under both the EPBC Act and FFG Act:

- turnip copperburr (*Sclerolaena napiformis*), moderate likelihood of occurrence across the development extent (FFG Act = as critically endangered, EPBC Act = endangered)
- large-headed fireweed (*Senecio macrocarpus*), moderate likelihood of occurrence in the MIN area and WBA and low likelihood of occurrence across the minor utilities corridors (FFG Act = as critically endangered, EPBC Act = vulnerable).

Further:

> One flora species listed as endangered under the FFG Act was incidentally recorded within Darlot Swamp – Grassland Bindweed (*Convolvulus graminetinus*). Following inundation at Dooen Swamp and Darlot Swamp, there is potential for wetland-specific threatened flora to be present.

EES Chapter 25 said four TECs listed under the EPBC Act were identified as having the potential to occur within the study area:

- Buloke Woodlands of the Riverina and Murray Darling Depression (listed as endangered) – surveyed in several patches within the study area
- Natural Grasslands of the Murray Valley Plains (listed as critically endangered) – EVCs did not meet thresholds for threatened ecological community
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (listed as critically endangered) – not surveyed within the study area
- Mallee Bird Community of the Murray Darling Depression Bioregion (listed as endangered) – not surveyed within the study area.

The residual impacts on TECs includes removal of:

- 10.71 hectares of the Northern Plains Grassland Community (FFG Act listed)
- 0.23 hectares of Semi-arid Northwest Plains Buloke Woodland Community (FFG Act listed and EPBC Act listed)
- 0.69 hectares of Victorian Temperate Woodland Bird Community (FFG Act listed).

The residual impacts on FFG listed flora includes removal of:

- 46 buloke
- 5 weeping myall.

A 'permit to take protected flora' will be required to remove TEC and flora species listed under the FFG Act.

The EES says a Spring survey is required to "*confirm the total number of individuals that will be removed from the relevant vegetation communities in areas within the minor utilities corridor*". Further, offsets may need to be adjusted over the life of the Project in response to new surveys.

EES Chapter 25 described the assessment of potential impacts with reference to the National *Recovery Plan for Buloke Woodland of the Riverina and Murray-Darling Depression Bioregions* (Cheal et al., 2011) and the MNES Significant Impact Guidelines. It concluded that the residual

impact is unlikely to constitute a significant impact under the EPBC Act and offsets are not expected to be required.

Regarding radiation impacts, the Radiation Risk Assessment (EES Appendix I) concluded:

> …that even using extremely conservative criteria, the radiological risk on the EPBC listed species, or other native flora and fauna identified in the Project area (EP-10) will be negligible.[60]

(iii) Evidence and submissions

The Flora and Fauna Peer Review said the previous survey work undertook targeted flora surveys for 17 species with moderate to high likelihood of occurrence in Retention License Area. Due to lack of information about methodology it was not able to conclude whether targeted survey work was adequate. It said:

> As with the targeted fauna surveys, it would be expected that for each of the threatened flora species surveyed, an indication of survey guidelines be provided along with explanation of how these were met.
>
> For species without established guidelines, rational for the method chosen is required. This should include information about each species' growth habit and detectability throughout the year.
>
> …
>
> Additionally, no targeted flora surveys have been conducted within the utility infrastructure corridor as AECOM's investigation fell outside of the survey window (AECOM 2023). The AECOM (2023) report states that surveys will be completed in spring 2022, but there has been no confirmation as to whether these targeted surveys have gone ahead.

As discussed in the previous chapter, the Flora and Fauna Peer Review survey work identified addition native vegetation for removal. This included 3.153 hectares of endangered Plains Grassland (EVC 132), all of which is considered low quality vegetation.

The Flora and Fauna Peer Review concluded:

- the EES comprehensively identifies and accurately describes the threatened species and communities of the area, with the possible exception of listed threatened flora species
- the efficacy and appropriateness of targeted flora surveys could not be reviewed, and further targeted surveys are recommended
- it is not expected that additional surveys would result in significant change to the impact assessment and can be undertaken post-approval before finalisation of the mine plan, "*with secondary consent for any newly identified acceptable impacts considered*".[61]

The Flora and Flora Peer Review recommended:

> - Additional detail should be provided on the targeted survey methodology for threatened flora species, including any rationale and assumptions and, where required, surveys be undertaken before the mine plan is finalised.

Mr Lane gave evidence that the recorded buloke mistletoe may have been misidentified, and the Flora and Fauna Peer Review only found harlequin mistletoe which is not a threatened species. The only implication of the potential error was an unnecessary protected flora permit for removal on public land. It was also possible the grassland bindweed recorded at Darlot Swamp was misidentified.

[60] EES Appendix I, page 68

[61] Flora and Fauna Peer Review, page 43

Mr Lane said no significant impacts were expected to occur on FFG Act or EPBC Act listed species or communities, and the proposed removal of 46 listed buloke and five weeping myall would not affect the status of the species in the wider region or State.

Several submitters raised issues relating to the impact on flora and preservation of biodiversity. One submitter raised concerns that listed threatened species may not have been seen during targeted surveys.

(iv) Discussion

The Project must respond to relevant legislation including to:

- protect, conserve, restore and enhance biodiversity, as required by the FFG Act
- provide for protection of the environment and promote ecologically sustainable development and conservation of biodiversity, required by the EPBC Act.

The Project will result in residual impacts on threatened flora and TECs as described in the combined EES and Flora and Fauna Peer Review. FF-08 details native vegetation offset requirements and FF-06 includes a requirement for the Project to:

> - Obtain relevant permits and authorisations prior to the removal of vegetation and taking of protected flora in accordance with the Horsham Planning Scheme and the *Flora and Fauna Guarantee Act 1988*.

The Committee notes Mr Lane's evidence that he expected no significant impacts on FFG Act or EPBC Act listed species or communities, however as discussed in Chapter 12.3, the survey work informing the EES cannot be relied on. There was no documentation of the method used for targeted surveys and, as noted by Mr Lane, it is not possible to know if the findings are accurate or if species are present or not on the site. In the context of lack of reliable data and the uncertainty detailed in Chapter 12.3, the Committee is taking a precautionary approach.

Further survey work before and during delivery of the Project is critical, in the context that three flora species listed as critically endangered under the FFG Act were recorded within the development extent and 11 other FFG listed flora species have a moderate or greater likelihood of occurrence (two of which are also EPBC listed).

The Committee's recommendations in Chapter 12.3 substantially address the requirements relating to flora surveys, including requirements in:

- FF-03 for Spring flora surveys along the utilities corridor and public roads before construction of the water pipeline and progressively across the mine site
- FF-06 for further consideration of avoidance and mitigation measures following completion of surveys.

Consistent with the evidence of Mr Lane, it is further recommended the FFMP at FF-06 include a requirement to provide details of the targeted survey methodology for threatened flora species, including any rationale and assumptions. This is included in the Committee's recommended EMF at Appendix G.

(v) Findings

The Committee finds:

- The EES adequately assesses the likelihood of occurrence of threatened flora and TECs, however survey efforts are not comprehensive or conclusive.

- Further survey work is required before and during delivery of the Project and efforts made to further avoid and minimise removal of threatened flora and TECs.
- Subject to its recommendations, the proposed mitigation measures in the EMF are adequate and effects on threatened flora and vegetation communities are acceptable.

(vi) Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure FF-06: Flora and Fauna Management Plan to:

- **include a requirement to provide details of the targeted survey methodology for threatened flora species, including any rationale and assumptions.**

These changes are included in Appendix G

12.5 Rehabilitation of native vegetation

(i) The issue

The issue is whether the plan to restore native vegetation is appropriate.

(ii) What did the EES say?

EES Chapter 21 said native vegetation rehabilitation will help to minimise longer term effects of the Project, and includes details of proposed mitigation measure FF-07: Rehabilitation Plan.

Section 9 of EES Attachment 3 – Rehabilitation Plan explains what is proposed to return native vegetation and habitat where reasonable to do so, in consultation with the landholder. It says:

> There may be opportunities to target patches of rehabilitation using native species where landholders deem this appropriate and desirable. It is expected such areas would generally be limited to where native vegetation existed prior to mining (refer to Chapter 21, Flora and Fauna). One such opportunity may exist along Greenhills Road where road verges may be rehabilitated following road reinstatement with species from a Plains Grassland vegetation type.

(iii) Evidence and submissions

Proponent relied on the evidence of Mr Lane who said:

> The project should identify opportunities to establish new habitat corridors or contribute to existing habitat corridors in the broader landscape. This would provide a way of improving biodiversity outcomes once the project is complete.

DEECA submitted the native vegetation rehabilitation requirements "*could be strengthened to ensure there is a binding requirement of rehabilitation should grassland on road reserves be removed for the project*".

In response to questions from the Committee, DEECA advised:

- broadscale restoration of native grasslands and grassy woodlands is possible but requires long-term management and adequate funding to be successful
- translocation of plants is possible

- scarcity of seed for restoration of native grasslands and grassy woodlands is a key limiting factor
- habitat corridors are more successful when aligned with existing patches and strips of native vegetation and are planned to support multiple fauna species.

DEECA recommended that habitat corridor creation link to as much existing remnant vegetation present within the landscape as possible. Key linkage points include Darlot and Dooen Swamps, Yarriambiack Creek, Wimmera River and could include existing roadside native vegetation and larger patches of vegetation in the Project area.

Council submitted that site rehabilitation should consider stockpiling soil separately for areas where native vegetation will be removed with potential for re-establishment of native vegetation using seed in the soil bank.

Several submitters were concerned the Project would result in removal of tree plantations, including areas they had contributed to planting.

The Proponent's 'Day 4' version of the EMF included:

- FF-06 with a new requirement to:
  - Identify and deliver opportunities to establish new habitat corridors or contribute to existing habitat corridors in the broader landscape to improve biodiversity outcomes once the Project is complete, where it is reasonably practicable to do so and with the agreement of the landowner.
- FF-07 which required, among other things, requirements to identify opportunities to re-establish native vegetation along Greenhills Road, landholder specific rehabilitation plans, seed bank retention and seed collection, enhancing protected stands of vegetation and some targeted translocation of significant species in consultation with DEECA.

(iv) Discussion

If done well, re-establishing native vegetation corridors and habitat will contribute to the Project's objective to achieve a world class mining operation, environmental best practice and potentially improve biodiversity outcomes.

To ensure a coordinated approach and achieve ecologically beneficial outcomes, including enhancing protected native vegetation and connecting to significant ecological values such as wetlands and waterways, the Committee recommends a native vegetation rehabilitation plan be developed under the guidance of a suitably qualified ecologist, in partnership with relevant landholders and stakeholders. The native vegetation rehabilitation plan should be consistent with the FFMP (FF-06) and coordinated with the development and implementation of the Rehabilitation Plan (RH-01). The EMF appropriately identifies the option of native seed collection and the translocation of species may be possible in consultation with DEECA.

These changes are reflected in the Committee's recommended EMF at Appendix G.

(v) Findings

Subject to its recommendations, the Committee finds the:

- proposed mitigation measures in the EMF relating to native vegetation rehabilitation are adequate and appropriate
- native vegetation rehabilitation effects acceptable.

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure FF-06: Flora and Fauna Management Plan to:
- **require the development of a native vegetation rehabilitation plan under the guidance of a suitably qualified ecologist, and to be included in the overall Project Rehabilitation Plan (RH-01).**

b) Edit mitigation measure RH-01: Rehabilitation Plan to:
- **require the Rehabilitation Plan incorporate the requirements of native vegetation rehabilitation as required by FF-07.**

c) Edit mitigation measure FF-07: Native vegetation rehabilitation to:
- **require a native vegetation rehabilitation plan be implemented consistent with the Flora and Fauna Management Plan at FF-06 and Rehabilitation Plan at RH-01.**

These changes are included in Appendix G.

12.6 Groundwater dependent ecosystems

(i) The issue

The issue is whether GDEs have been adequately assessed and considered in the EES.

(ii) What did the EES say?

EES Chapter 17 summarised the likely drawdown effects of the Project on potential GDEs (see Table 42).

Table 42 Drawdown effects on potential GDEs

Potential GDE	Depth to Groundwater (m)	Drawdown Magnitude (m)[2]	Drawdown Rate (m p/annum)[3]	Likely Effects
Darlot swamp	5–8	0	0	No appreciable drawdown expected. Losing system not dependant on baseflow.
Longerenong College	12	0.1	0.02	Low potential for groundwater dependence due to depth to groundwater. Negligible magnitude and rate.
Wimmera River	Varies	0	0	No appreciable drawdown expected.
Two Mile Creek	4–5	0.1	0.01	Small magnitude and rate of change relative to the depth to groundwater. Losing system not dependant on baseflow.
Yarriambiak Creek	5–10	0	0	No appreciable drawdown expected.

Source: EES Chapter 17, page 17-21

Further, "*the predicted magnitude and rate of groundwater mounding at sensitive receptors is low and not likely to materially saturate the effective rooting zone… The residual impacts of mounding on terrestrial*" GDEs and vegetation is expected to be minor and within the normal seasonal range.

The EES said:

- Dooen Swamp, Darlot Swamp, Yarriambiack Creek and the Wimmera River are all located outside the predicted area of groundwater drawdown and no residual impact is predicted for these potential GDEs
- Longerenong College (terrestrial) has low potential for groundwater dependence as the water table is greater than 12 metres deep
- Two Mile Creek (aquatic) was assessed in the Groundwater Impact Assessment as a losing system, disconnected from the water table and unlikely to be an aquatic GDE.

The EES identified environmental values related to Traditional Owner cultural values for all potential GDEs, and the associated indicators and objectives:

> Water quality that protects the cultural values of Traditional Owners may include traditional aquaculture, fishing, harvesting, cultivation of freshwater and marine foods, fish, grasses, medicines, and filtration of water holes, and that allows cultural, spiritual and ceremonial practices to continue.

The EES concluded:

- The expected maximum drawdown at sensitive receptors is very low and will be experienced gradually at around 0.01 to 0.02 metres per year.
- The residual impacts to both aquatic and terrestrial GDEs is expected to be negligible to minor, with no impact on environmental values at the identified sensitive receptors.

(iii) Evidence and submissions

Mr Lane referred to a key issue identified in the EES Scoping Requirements:

> Identify and characterise any areas of native vegetation and Groundwater Dependent Ecosystems (GDEs) that may be affected by groundwater mounding, groundwater drawdown or changes to groundwater chemistry.

Mr Lane explained his assessment relied on other EES reports and guidance on the vulnerability of GDEs, which indicated "*all wetland areas are surface water features and not affected by groundwater. This is because groundwater is quite deep for most of the potential GDEs, or will be affected by groundwater changes to a very minor degree, within the natural tolerance of the vegetation potentially affected*."[62]

Mr Gresswell said:

> - Drawdown is not predicted to reach potential GDEs associated with Dooen and Darlot swamps, located around 2 km from the proposed pit boundary.
> - …a small amount of mounding….may extend to Darlot and Dooen swamps (located around 2km from the pit boundary) where trees could be opportunistically accessing groundwater.

BGLC submitted it was vital that risk of harm or damage to the cultural landscape is avoided including water bodies and wetlands (see Chapter 15.1(ii)).

One submitter said Darlot and Dooen Swamps are wetlands with important ecological and cultural function.

[62] Mr Lane expert witness statement, page 35

(iv) Discussion

The relevant environmental objectives of the Project are:[63]

> Groundwater drawdown and/or mounding will result in no material impact on the health and function of potential GDEs.
>
> Process water infiltration to the LPS [Loxton Parilla Sands] groundwater aquifer will result in no adverse material change to the groundwater environmental values associated with stock water bore use or GDEs.

EES Chapter 17 notes the GDE and species environmental objectives are the most stringent benchmark in the chapter. EES Appendix L notes *"… it has been assumed that the groundwater quality must be protected to maintain aquatic ecosystems and GDEs… Therefore no specific groundwater assessment has been undertaken on the impact of traditional owner values*".[64]

The EES explains the mitigation measures relevant to avoid and mitigate impacts on GDEs including the preparation of a GWMP and requirements to monitor groundwater. The 'Day 4' EMF includes requirements for:

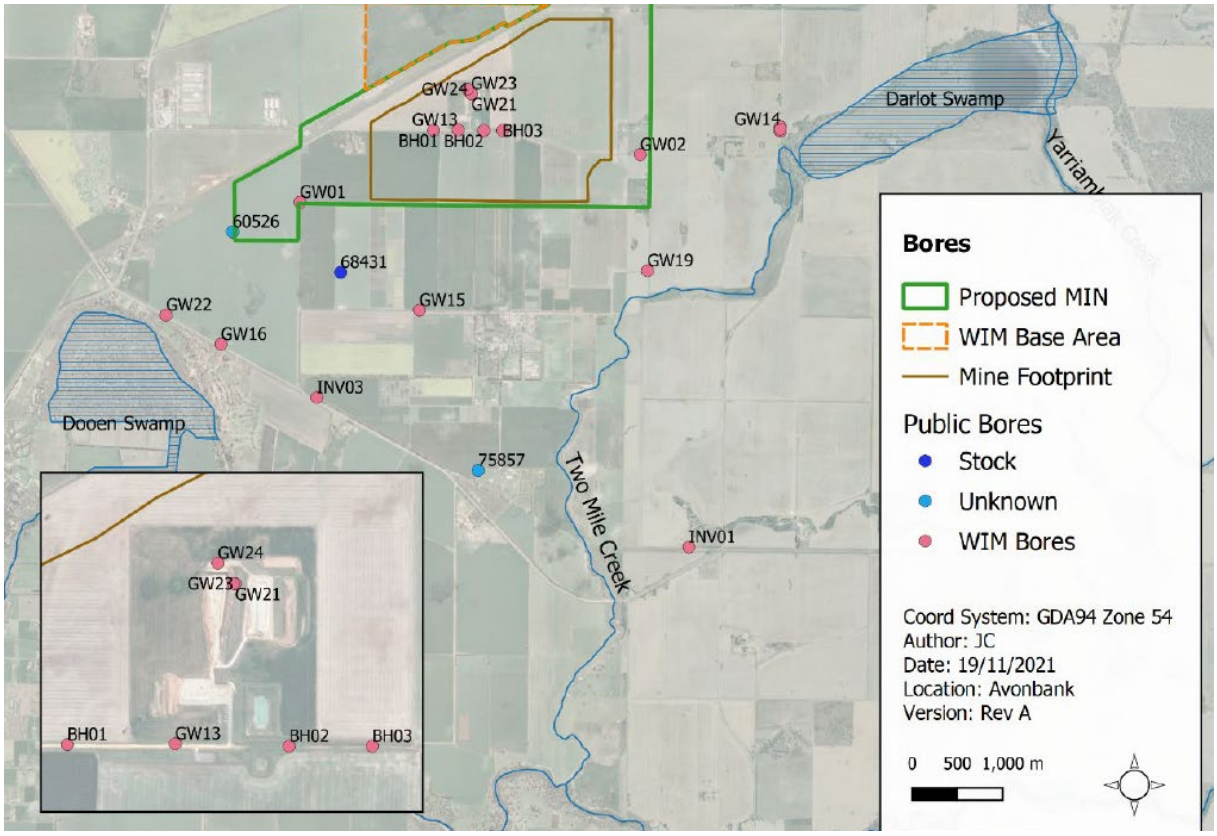
- Monitoring of GDEs if Project related groundwater drawdown or mounding, or changes to groundwater quality, are recorded. This includes targeted GDE health monitoring if the performance standards are exceeded. (GW-05 and FF-05)
- The GWMP must address aspects relating to Project related groundwater drawdown/mounding, changes to the groundwater chemistry and associated potential impacts to sensitive receptors including GDEs. (GW-08)
- Establishment of a GDE monitoring protocol to be implemented if certain groundwater flux performance standards are exceeded. (GW-08)
- A root cause investigation must be undertaken, and corrective actions/contingencies must be identified and implemented. (FF-05)
- Targeted monitoring of GDEs must be undertaken over the course of the Project if adverse groundwater effects (flux or hydrochemistry) are recorded that could propagate to areas of potential GDEs. The mining of Block A must provide an opportunity to verify the actual groundwater effects against the groundwater model and must enable a tailored and specific GDE monitoring program to be established if required. (GW-0B)

As shown below, the Proponent has installed a number of bores between the mine site and the GDEs that will support the proposed monitoring (see Figure 23).

[63] EES Chapter 17, page 17-32 and EES Chapter 21, page 21-29

[64] EES Appendix L, page 86

Figure 23 Groundwater bores in immediate vicinity of the Project



Source: Excerpt from EES Chapter 17, page 17-7

Given how stringent the proposed environmental objectives are relating to GDEs, and ecological and cultural significance of these values, it is important to verify the groundwater model as proposed for Block A (GW-0B), which is within close proximity to the GDEs.

The Committee recommends the requirements of GW-0B be strengthened and clarified to:

- specify the timing of monitoring during mining of Block A, with a requirement for a minimum of monthly monitoring during the first year
- for the outcomes of monitoring to inform any changes or additional EMMs.

The Committee also recommends:

- renaming FF-05 from Groundwater and surface water management plans to Groundwater Dependent Ecosystem Health and requiring any root cause investigation be undertaken in consultation with a suitably qualified ecologist
- cross referencing GW-0B: Targeted monitoring of groundwater dependent ecosystems in GW-05.

These changes are included in the Committee's recommended EMF at Appendix G.

The Committee supports the other EMMs related to GDEs in the 'Day 4' EMF.

(v) Findings

Subject to its recommendations, the Committee finds:

- impacts on GDE's have been adequately assessed

- the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the GDE environment effects, and environmental effects on GDE's are acceptable .

(vi) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure GW-05: Groundwater dependent ecosystem studies to:
- **include a reference to GW-0B related to targeted monitoring**

b) Edit mitigation measure FF-05 to:
- **rename the mitigation measure 'Groundwater Dependent Ecosystem health'**
- **require that any root cause investigation be undertaken in consultation with a suitably qualified ecologist.**

c) Edit monitoring measure GW-0B: Targeted monitoring of groundwater dependent ecosystems to:
- **specify the timing of monitoring during mining of Block A, with a requirement for a minimum of monthly monitoring during the first year**
- **for the outcomes of verification monitoring to inform any changes or additional mitigation measures in consultation with a suitably qualified ecologist.**

These changes are included in Appendix G.

12.7 Fauna

(i) The issues

The issues are whether:
- fauna has been adequately assessed and surveyed
- impacts on fauna listed under the EPBC Act and/or FFG Act are acceptable.

(ii) What did the EES say?

The FFIA identified a number of EPBC listed fauna with moderate or above likelihood of occurrence in the study area, including the Growling Grass Frog, Striped Legless Lizard and Golden Sun Moth. Areas where water is present may provide habitat for migratory and marine bird species including the White-Throated Needle Tail.

Targeted surveys were conducted for Golden Sun Moth (*Synemon plana*), Reddish Orange Sun Moth (*Syemon jcaria*), Pale Sun Moth (*Synemon selene*) and Striped Legless Lizard (*Delma impar*) during 2018 and 2020, however none were recorded. No targeted surveys for the Growling Grass Frog were conducted. No targeted surveys were made in the utilities infrastructure corridor for fauna. No surveys undertaken for threatened aquatic species such as the silver perch and freshwater catfish however it was submitted that they could be present in areas of the utility corridor. Further targeted surveys were recommended.

Based on desktop reviews there is the potential presence of the EPBC Act and FFG Act White-Throated Needletail which is listed as vulnerable. There have also been recent sightings of listed species including Australasian Shovelers, Great Egrets, Musk Ducks, Brolgas, Hooded Robins and the Black Falcon within 20 to 25 kilometres of the Project site.

The EPBC Act listed Mallee Bird community of the Murray Darling Depression Regions and the FFG listed Victorian Temperate Woodland Bird Community were also thought could be present on the retention licence area but they could not be surveyed due to the dry conditions. [65]

The 2020 surveys found the dam at the Viterra facility (just north of Dooen which is partially within the retention licence, but outside the mining footprint) regularly contained a large number of waterbirds. Ten bird species listed under the Marine Schedule of the EPBC Act, two species listed under the Migratory Schedule of the EPBC Act and three species listed on the Victorian Advisory List were recorded in the retention licence area. [66] It was therefore considered that water birds including listed water birds, may utilise the other areas in the development extent when water is present.[67]

Cumulative impacts were identified as land clearing (classified as a threatening process in EPBC Act) and, under the FFG Act, loss of native vegetation, habitat fragmentation and loss of hollow bearing trees.[68]

The EES identified there may be a cumulative impact on the Victorian Temperate Woodland Bird Community from the Avonbank Project and the Wimmera Mineral Sand project. However, the cumulative impacts from Donald Mineral Sands and the Murra Wurra Wind Farm and other impacts from the Wimmera Mineral Sand project could not be quantified due to insufficient information about the other projects.

(iii) Evidence and submissions

The Proponent relied on the evidence of Mr Lane.

Mr Lane's evidence included a comprehensive table of the likelihood of occurrence of listed fauna.[69]

Mr Lane summarised the listed species as either being likely in or near the Project as being:

- 10 EPBC Act listed threatened fauna species
- 8 EPBC Act listed migratory bird species
- 22 FFG Act listed threatened fauna species.

The Flora and Fauna Peer Review identified that in addition to those identified in the FFIA, listed species that are likely to, or may occur in the project area include:

- White Bellied Sea-Eagle (FFG listed as endangered) may forage on site
- Brown Treecreeper (EPBC listed as vulnerable, newly listed)
- Black Falcon (FFG listed as critically endangered)
- Little Eagle (FFG listed as vulnerable)

[65] EPBC Act listed Mallee Bird community of the Murray Darling Depression Regions and the FFG listed Victorian Temperate Woodland Bird Community are similar

[66] The Victorian Advisory List was revoked in 2020 to provide on list, the FFG Act Threatened List

[67] Ecology Australia 2019

[68] EES Chapter 21, page 21.1

[69] Appendix 4 July 2023

- Square Tailed Kite (FFG listed as vulnerable)
- Blue Winger Parrot (EPBC listed as vulnerable, newly listed)
- Australasian Shoveler (FFG listed as vulnerable)
- Common Greenshank (FFG listed as endangered)
- Bearded Dragon (FFG listed as vulnerable).

Mr Lane gave evidence that due to the largely degraded nature of the habitat within the Project Area and the limited extent of high quality habitat available in the surrounding region it is unlikely that habitats within the study area are critical to the survival of these EPBC Act listed species. He did not consider the impacts as significant. Some fauna including birds are highly adaptive and many will return when the conditions are right.

Mr Lane endorsed the residual impacts on listed fauna as identified, provided a comprehensive range of measures to minimise the impact on fauna are included in the EMF, including:

- minimising impacts on fauna during construction (FF-04)
- detail monitoring to verify the effectiveness of avoidance and mitigation measures, including related to fauna condition (FF-06)
- periodic targeted fauna surveys "*if the native vegetation condition assessment demonstrates the vegetation represents habitat that is likely to be used by listed fauna*" (FF-06)
- consideration of targeted translocation of significant fauna in consultation with DEECA as part of native vegetation rehabilitation (FF-07).

DEECA was satisfied the assessment had been adequate and did not raise concerns about the Project's impact on fauna.

Several submitters expressed general concern about the impact the Project will have on the local fauna. One submitter said the targeted surveys were done in exceptionally hot weather.

(iv) Discussion

The Project site is used mainly for cropping and much of potential habitat is degraded.

Some limited survey work was undertaken. There are a number of shortcomings in the fauna surveys which the FFIA relies on including:

- its limited in scope due access restrictions across much of the MIN area (see Figure 22)
- surveys were undertaken in dry conditions with no water in dams and other water sources on which some listed fauna would rely on
- targeted surveys were limited to three species and here has been no formal survey of fauna in the utilities corridor.

Due to these shortcomings more comprehensive surveys of the whole development extent and the utilities corridor are required. Baseline fauna surveys must be undertaken prior to construction commencing, with a schedule of future fauna surveys in line with the Project stages. These surveys should be organised in consultation with DEECA. The Committee recommends this as a new monitoring measure.

While the proposed avoidance measures generally relate to protecting flora, these in turn will provide habitat for fauna. With the addition of the Committee's recommended monitoring measure, the fauna mitigation measures are comprehensive and supported by the Committee.

(v) Findings

Subject to its recommendations, the Committee finds:

- native fauna have not been adequately surveyed and survey work must be ongoing throughout delivery of the Project
- the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the fauna environment effects
- impacts of the Project are acceptable.

(vi) Recommendation

The Committee recommends:

Environmental Management Framework:

Include the following changes:

a) Add new monitoring measure FF-0D: Fauna surveys to:

- **require targeted fauna surveys be undertaken in consultation with the Department of Energy, Environment and Climate Action prior to construction**
- **require a schedule of fauna surveys be developed and implemented that aligns with the Project's stages.**

This change is included in Appendix G.

12.8 Overall conclusions on flora and fauna issues

There are no biodiversity impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should, however, be amended to require further surveys and monitoring related to flora, fauna and groundwater, and further efforts made to avoid and minimise native vegetation removal

13 Socioeconomics

13.1 Introduction

The relevant evaluation objectives are:

> Achieve the best use of available mineral sands resources, in an economically and environmentally sustainable way.
>
> Minimise adverse social, land use and infrastructure effects.

Socioeconomics is discussed in:

- EES Chapter 5 – Community Engagement
- EES Chapter 20 – Socioeconomics
- EES Appendix N – Economics
- EES Appendix O – Social
- EES Attachment 1 – Stakeholder Engagement Report.

The exhibited EMF included the avoidance and mitigation measures shown in Table 43.

Table 43 Socioeconomics – avoidance and mitigation measures

Code	Measure
SE-01	The development extent has been designed to avoid direct impacts on dwellings, historic sites, patches of vegetation and key public infrastructure.
SE-02	An EMS will be established and maintained to monitor and respond to emerging issues and to avoid and minimise impacts to the community so far as reasonably practicable.
SE-03	A Workforce Accommodation Strategy will be developed in consultation with key stakeholders.
SE-04	Targeted community programs will be funded to support the local community.
SE-05	Land Access and Compensation Agreements will be negotiated such that landholders are reasonably compensated.
SE-06	A Rehabilitation Plan will be developed and implemented to return mined land to the landholder with objectives met as soon as possible after mining.

The Committee has had regard to relevant submissions, expert evidence (see Table 44) and the following technical notes:

- TN-01 Workforce accommodation (D38)
- TN-17 Cumulative effects of the Project (D106).

Table 44 Social expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D35, D72 and D129a	Proponent	Mr Glenn Weston	Public Place	Social impact assessment

13.2 What did the EES say?

EES Chapter 20 provides an overview of social and economic effects of the Project, supported by:

- EES Appendix N – Economic Impact Assessment, REMPLAN, July 2021 (EIA)
- EES Appendix O – Social Impact Assessment, Public Place, February 2023 (SIA).

The EES explained the methodology of the EIA and SIA, including characterisation of existing conditions, identification of potential impacts and assessment of residual impacts with avoidance and mitigation measures in place.

It identified potential sensitive receptors with consideration of spatial extent of the Project, associated likely effects and outcomes stakeholder and community engagement (see Table 45).

Table 45 Sensitive receptors

Receptor Type	Sensitive Receptors
Landholders	Landholdings and occupants of residential dwellings within the immediate vicinity of the proposed mining licence and WBA that may be subject to changes in land use.
Residents	Residents and visitors of affected settlements.
Users of public land, waters and facilities	Community using public land, waters/waterways and public facilities.
Longerenong College	Longerenong College students, staff and accommodation village.
Dooen Hall	Users of Dooen Hall.
Dwellings on the haulage route	Residents situated adjacent Henty Highway.
Community facilities and services	Users of facilities in the Horsham and services across the HRC.
Horsham community and WSM community	General public residing and working in the HRC and across the WSM region.
Housing market participants	Renters and home buyers in Horsham and surrounding settlements.

Source: EES Chapter 20, page 20-13

The EES included measures to avoid and mitigate residual effects, including:

- Avoid
  - the development spatial extent has been designed to avoid direct impacts
- Minimise
  - preparation and implementation of an EMS for all Project activity areas
  - preparation of a Community Engagement Plan
  - preparation of a Workforce Accommodation Strategy
  - targeted community support programs
  - LACAs.

Residual impacts were assessed with consideration of:

- measures to avoid and/or minimise impacts to sensitive receptors so far as reasonably practicable
- the magnitude of the social effects and the sensitivity of the receptors
- economic modelling to determine the total economic and employment impact to the State, regional and local economy for each Project phase
- the cumulative effects of other projects across the region.

The EES also describes the requirements for a Rehabilitation Plan that will cover all Project activity areas and will define the end land use with consideration of the views of landholders and the broader community. EES Attachment 3 includes the preliminary Rehabilitation Plan.

EES Chapter 20 acknowledges but does not repeat the measures that will be implemented to manage amenity impacts relating to noise and vibration, air quality and traffic and transport.

Overall the Project is expected to have a significant positive socioeconomic impact. Residual impacts include:

- direct land use impacts, specifically displacement of current land use and residents (moderate negative impact)
- amenity effects, including dwellings surrounding the Project (moderate to minor impact), townships and settlements (minor to negligible impact) and Longerenong College (negligible impact)
- social profile impacts, including demographics (positive impact), community facilities and services (negligible to minor positive impact) and social cohesion (minor positive)
- community impacts, including local labour market (long-term positive residual impact), housing market (minor to negligible impact)
- economic impacts (significant positive economic impact on the region and State).

The EES says the Project is estimated to generate a total $5.7 billion in additional Gross State Product over the life of the Project, and a gross revenue output of $335 million each year in the Wimmera Southern Mallee Region. Economic impact related to the loss of agricultural production is estimated to be a fall in regional gross revenue by $465,450 each year.

Cumulative impacts were assessed with consideration of the proposed mineral sands mines in the region and other major projects. While there is limited information available and timing is uncertain for some projects, the EES states:

- it is less likely the projects will all commence at the same time, which will allow for additional demand for housing to be introduced to the market progressively
- the projects are likely to increase the size and skill of the workforce, however the long-standing skills gap in western Victoria may be exacerbated due to the pipeline of projects
- cumulative demand for community services and facilities is likely to improve viability
- cumulative demand for medical services would be relatively minor, but may exacerbate the ongoing challenge to attract and maintain medical professional in the region.

Preliminary economic modelling of the potential cumulative impacts of the four mineral sands mines projects in the region determined economic impact on Victoria of $750.2 million Gross State Product during construction and $769.9 million Gross State Product for each year of operation, with Avonbank contributing 25 per cent of cumulative totals. There is an opportunity for the region to become a regionally significant hub, and modelling indicates there would be a total of 1,766 full time equivalent jobs for the region and 3,867 full time equivalent jobs for Victoria.

13.3 Economic benefits

(i) The issue

The issue is whether the Project:

- will deliver the economic benefits as claimed
- the expected Project benefits are acceptable.

(ii) Submissions

The Proponent submitted the Project is expected to bring significant economic and social benefits for Horsham and the wider region. It explained the benefits included employment and:

- an estimated $6 million in royalties each year over 30 years
- approximately $388 million in direct and indirect taxation and other indirect flow on effects

- targeted community support programs providing training, assisting Indigenous employment and facilitating research.

The Proponent referred to EES Chapter 20 and Appendix N, stating the Project's economic impacts have been modelled using REMPLAN which is an economic modelling methodology widely applied by government in Victoria.

The Proponent explained that while some of the information in the *Wimmera Southern Mallee Mining Sector Plan* (2012), referred to in the EIA, is now dated, "*the potential economic value of mining within the region, and the employment and economic diversity opportunities it presents, are consistent with the more recent directions set in the Strategy and Growth Plan*".[70]

In closing the Proponent submitted there is general acknowledgement and support in many submissions for the significant economic and social benefits of the Project, including hundreds of long-term jobs and flow of addition income to the region among other things. These benefits were not challenged in any serious way.

Council submitted it expected the Project would have significant benefit to the region's economy and vitality, including employment, procurement, diversification and flow on benefits for social and economic wellbeing. Council considered the broader regional economic benefits of the Project may be overstated, but "*not to a significant extent*".[71] It identified factors that may not have been fully considered including:

- externalities, such as cost of road accidents, carbon emissions and housing prices
- ratio of workers sourced from the region may have been overstated
- economic multipliers may not be accurate and the use of national level multipliers is not necessarily appropriate.

Council noted the EIA had not considered the impact on Council rate revenue as the Project is exempt from rates during mining.

Many submitters considered the Project would bring extensive economic benefits to the region, including investment, innovation, employment and business opportunities.

Some submitters raised concerns the economic benefits were overstated, short term, unsustainable and high risk. One submitter raised issues including:

- the *Wimmera Southern Mallee Mining Sector Plan* (2012) cited in EES Appendix N is out of date
- the modelled benefits relied on there being no adverse effects and full rehabilitation
- estimated royalties are unlikely to materialise
- job estimates for local communities are over estimated
- 2021-2022 estimates from the Australian Bureau of Statistics show the mining and manufacturing sectors are the largest detractors from aggregate labour productivity growth
- REMPLAN did not undertake independent review of the Proponent's estimates of annual loss of agricultural revenue
- loss in agricultural revenue and changes to farm land values have not been fully accounted for

[70] Proponent Part A submission (D23), page 38, referring to the Wimmera Southern Mallee Regional Growth Plan, 2014
[71] Council submission (D100), page 34

- whether the Proponent had complied with section 26A(3) of the MRSD Act relating to 'Statement of economic significance if agricultural land covered by licence', which must be made with respect to each separately owned or occupied property
- the assessment of benefits must be in the context of net community benefit.

Other submitters raised concerns the:

- Proponent would not be charged rates for use of the WBA
- economic benefits would not be steady
- effect on health and community morale had not been defined economically and will likely exceed any potential economic weight.

(iii) Discussion

The EIA was authored by REMPLAN which has expertise and experience in regional economic modelling, and as noted by the Proponent, REMPLAN uses a methodology widely used by government. The Committee was not presented with any economic evidence presenting an alternative view to the EES.

A large number of submissions supported the Project because of the anticipated economic benefits. Objecting submissions that raised speculative issues about the assessment of economic benefits, but were not supported by relevant data, evidence or analysis, were not of assistance to the Committee.

Consistent with submissions from the Proponent and Council, the Committee finds that the Project is likely to deliver significant economic benefits, and provides the following response to issues raised in submissions.

The Project is supported by local, regional and State government policies and strategies relating to economic development (see Appendix F). Council's Municipal Planning Strategy (Clause 02.03-4) of the Planning Scheme states:

> Mining of the sands provides employment opportunities and significant economic benefits for the municipality.

The Committee agrees with the Proponent that while dated, the information in the *Wimmera Southern Mallee Mining Sector Plan* (2012) is consistent with more recent strategies which are also referenced in the EIA. For example, the *Wimmera Southern Mallee Regional Growth Plan* (2014) which states:

- major earth resources projects can contribute significantly to economic development and diversifying the economy
- there are significant mineral sands deposits near Horsham
- while the sector provides direct employment for only two per cent of the regional workforce, the flow on effect is much higher due to jobs and associated industries
- mining employment is forecast to double over the next 25 years.

Regarding estimated loss of agricultural revenue, the EIA documents report assumptions including:

> This report attempts to estimate the potential loss in regional economic activity due to the disruption of agricultural production associated with Avonbank. Estimates of the annual loss of agricultural revenue was provided by WIM. It is outside the scope of this report for REMPLAN to undertake an independent review of the agricultural estimates provided.

While it would have been useful if REMPLAN had peer reviewed the estimates of annual loss of agricultural revenue provided to it by the Proponent, the Committee notes:

- REMPLAN did not raise any concerns with the agricultural revenue data provided to it by the Proponent
- it received and heard submission from the Wimmera Southern Mallee Development Association (S90) and Victorian Farmers Federation (VFF) (S145) who, while raising issues relating to workforce and land rehabilitation, did not raise concerns with the overall economic benefits or estimates relating to agricultural land value and crop revenue
- no submitter provided alternative estimates of annual loss of agricultural revenue.

Further during the Hearing the Committee heard submissions about the varying value of crops depending on the condition of paddocks, seasons and management. In the context of this variability and in the absence of contra evidence, the Committee is satisfied that loss in agricultural revenue is adequately considered in assessing overall likely economic benefit of the Project as presented in the EIA.

The Committee understands that agricultural land value and crop revenue loss will be taken into consideration when negotiating land purchase or LACA's with each affected landholder as required by the MRSD Act.

The EIA explained its use of economic multipliers to calculate the flow on effects for the region's economy. For example, in its conclusion the EIA described its use of Type 2 multipliers and identified whether the multipliers used are for Victoria, the region or the Council area.[72] It is not clear why Council raised issues that the multipliers were national level. Council concluded that while it thought economic benefits were overstated it was satisfied this was not a significant issue. In the absence of detailed submissions or evidence the Committee agrees.

The economic outcomes and benefits are dependent on the Project being successfully delivered. The Committee was not presented with any submissions or evidence this was not possible or likely. Issues relating to successful land rehabilitation and productivity are addressed in Chapter 7 of this Report.

Other relevant issues are discussed in other chapters of this Report, including:

- employment and workforce (see Chapter 13.4)
- housing (see Chapter 13.5)
- GHG emissions and loss of soil carbon (see Chapters 15.3 and 7.2))
- traffic and road maintenance (see Chapter 9).

The Committee has no role in directly considering impacts to Council's rate revenue. This may be taken into consideration through other mechanisms such as the MOU discussed in Chapter 2.5.

(iv) Findings

The Committee finds:

- the Project is likely to bring significant economic benefits

[72] EES Appendix N, page 89 - Type 2 multiplier = Includes the Direct Effect + Supply-Chain Effects + Consumption Effects. For example, if you have a Type 2 output multiplier of 2.011 then for every direct one dollar increase in output you would expect to see an extra $1.01 of activity generated within the region due to the supply-chain effects plus the consumption effects.

- delivery of the Project will contribute to the evaluation objective to achieve best use of available mineral sands resources in an economically and environmentally sustainable way.

13.4 Workforce

(i) The issues

The issues are whether the Project:

- will result in competition for labour from other industries and increase cost of wages
- effects on the workforce are acceptable.

(ii) Context

TN-01 Workforce accommodation explains the expected Project workforce is:

- 150 to 200 workers during construction for one year
- 232 workers during mining and operations every year for 30 years
- 165 workers during the decommissioning for six years.

It is expected:

- during construction between 25 and 75 per cent of the construction workforce will be sourced from within the Wimmera Southern Mallee region
- during operations approximately 25 percent of the workforce will be sourced from outside the region
- for every direct job with the Project there is likely to be one and half indirect full time equivalent jobs supported in the region (total employment effect during operations estimated to be 588 full time equivalent jobs).

According to the EIA:

- the rate of local unemployment is well below the State average of 5.4 per cent (as at 2020), at between 3 and 5 per cent in Horsham and between 3.4 and 4.8 per cent for the Wimmera Southern Mallee region
- it is estimated there are 9,361 existing jobs in Horsham and 23,360 across the region (based on 2016 census data)
- top employing industries include for Horsham health care, retail, construction and agriculture, and for the region agriculture, health care and retail trade.

The EIA concludes the Project:

- is expected to diversify employment opportunities for the local and regional workforce, which will support an increase in local employment
- has the potential to adversely impact the workforce for other industries in the short term, however increased employment opportunities is expected to attract additional workers.

The EIA recommends the Proponent invest in workforce development to monitor and mitigate any adverse impacts in terms of labour and skills shortages.

The SIA found the Project would create employment benefits for the region, and would assist in attracting and retaining young adults in the region. It notes the Proponent proposes a Targeted Community Program intended to enhance the benefits of the Project for the region, with a focus on but not limited to skills development and Indigenous employment programs.

(iii) Evidence and submissions

Mr Weston gave evidence that the Project is likely to impact labour supply and attract workers from other industries across the region. He notes the EIA states the Project has the potential to "*adversely impact labour supply in industries such as agriculture, construction and manufacturing*", but concludes the labour force would grow quickly to meet additional demand.

He identified positive benefits including:

- there may be job opportunities for appropriately skilled workers who currently live in the region and work outside of the region
- the local training and employment opportunities may assist in attracting and retaining young people in the region and provide opportunities for those currently unemployed.

The Proponent submitted the Project will have a positive economic and community impact through employment creation and skills development. It submitted the Project offered an additional economic benefit in the form of targeted community support programmes intended to provide training opportunities and assist employment.

During the Hearing the Proponent submitted revised SE-04 to reflect the detail in EES Chapter 20. The revised SE-04 includes a requirement for targeted community support programs, including those which focus on:

- skill development and apprenticeship programs
- indigenous employment programs
- encouraging local small businesses to tender on goods and services contracts for the Project.

Council considered the Project would create jobs in the region. It submitted it is likely the Project will draw on personnel currently engaged in other employment, which with current low levels of unemployment and limited skilled staff in some disciplines, will present challenges to the local labour market. This will be exacerbated by the capacity of the mine to offer higher salaries than other industries.

Council recommended a strategy be developed addressing workforce and associated issues including housing, childcare, education and health. It submitted a key area of focus should be fostering improved availability of skilled labour for the Project and existing businesses. Council did not seek drafting changes to SE-04 Targeted community support programs in its comments on the Proponent's 'Final day' version of the EMF.

Many submitters supported the Project in anticipation of the employment opportunities it would bring. Support for the Project included:

- flow on economic benefits for the region, including for local businesses
- the Project will bring new jobs and workers with families who will also work in other sectors of the community
- support for job opportunities that retain young people in the region
- diversification of the economy which will protect the community and region from changes in other industries.

The Wimmera Southern Mallee Development Association (S90) supported the Project and submitted investment in skills building and career opportunities is crucial. It provided examples of skill and training programs underway, such as by the Minerals Council of Australia in partnership with Federation University. It recommended these programs continue and be complemented by

government resources and engagement with schools and training organisations to identify career opportunities.

The Wimmera Southern Mallee Local Learning and Employment Network (S115) supported the Project noting it will provide significant employment and training opportunities for young people, broaden and improve the skill base across the region's workforce, diversity the economy and provide opportunities for local businesses and industry to grow. It submitted it was important for the Proponent to work productively with stakeholders.

Several submitters were concerned about impacts on the existing workforce and small businesses losing employees to the Project. Issues raised include:

- shortage of labour when it is already hard to find skilled staff
- potential to increase wages.

One supporting submitter was concerned businesses may lose staff to new mining jobs. He considered the risks could be reduced and managed through, for example, sub-contractor supply engagement.

(iv) Discussion

Overall the Project is likely to result in significant workforce benefits for the region. While there will likely be short term impacts resulting from the Project attracting local workers from other industries, these are likely to resolve as the workforce grows.

Delivery of the proposed SE-04 Community Support Strategy is a positive and proactive way to manage any adverse effects of changes to the workforce as a result of the Project. It will contribute towards the evaluation objective to minimise adverse social effects.

SE-04 includes a requirement that:

> Programs will be established to encourage local small businesses to tender on goods and services contracts over the life of the Project.

This will assist with addressing the concerns of local businesses regarding potential impact on workforce, and will help strengthen the local business supply chain. The requirement is supported by the Committee and included in its recommended version of the EMF.

The Committee notes the EIA states:

> Avonbank and similar projects across the wider region will lead to some economic structural change. Any structural change can leave workers in industries that are in long-term decline with fewer employment opportunities. Relevant education, training and skills development has long been acknowledged as a means to reduce instances of long-term unemployment in regional Australia.[73]

While SE-04 will contribute in some way to supporting workers through this process of economic structural change, issues resulting from broader economic structural change across the region are beyond the responsibility of the Project. Nevertheless, there are opportunities for the Project to make a positive contribution and support local employment.

Noting the significant role Council has in economic development it is important the Proponent consult with Council in development of its community support strategy. EES Chapter 5 – Community Engagement identifies Council as a key stakeholder and commits to engaging through

[73] EES Appendix N, page 74

an MOU "*to ensure the best socioeconomic outcomes for the Council*". The Proponent should continue to work with Council under its MOU to facilitate as many positive outcomes as possible and minimise negative employment outcomes across the region.

As noted by submitters, it is important for the Proponent to consult with other relevant stakeholders, such as local training providers, during preparation of the strategy to ensure a coordinated approach.

The Committee suggests modification of the wording of SE-04 to include a focus on workforce support and development, to require consultation with Council and other relevant stakeholders in preparation of the strategy, to require the strategy be developed before construction commences and to be delivered throughout the life of the Project. The Committee's proposed wording is shown in its recommended version of the EMF at Appendix G.

(v) Findings

The Committee finds:

- the Project is likely to bring significant employment opportunities
- there are likely to be short term workforce impacts, however the Project will offer increased employment opportunities and attract additional workers
- subject to its recommendations, the workforce effects are acceptable.

(vi) Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit SE-04: Targeted community support programs to:

- **include a focus on workforce support programs and include requirement for the 'community support and workforce development strategy' to be developed in consultation with Council and other relevant stakeholders before construction commences and to be delivered across the life of the Project.**

This change is included in Appendix G.

13.5 Housing

(i) The issue

The issue is whether workforce accommodation needs and impacts on temporary and permanent housing have been adequately considered and addressed.

(ii) Context

The SIA recommends a Workforce Accommodation Strategy be established including:

- estimates of housing needs of the Project
- a schedule of housing controlled by the Proponent
- an estimate of permanent and temporary housing available on the market, and agree percentage to be occupied by imported workers

- assessment of the need for mitigate strategies, including Drive-In Drive-Out and Fly In Fly out positions.

It recommends the housing requirements of the Project workforce be communicated to the market immediately following Project approval to enable the market to take advantage of opportunities.

TN-02 Workforce accommodation explained:

- the Proponent had undertaken an assessment of accommodation options during Project planning and feasibility, including consideration of establishing single persons quarters or integrating workers and families with established accommodation
- consultation with the Community Reference Group, Council and other stakeholders indicated a strong preference for the workforce to be accommodated in the existing community, which would have better outcomes than other options, including having people moving permanently to the region, benefits for businesses and community groups, and better mental health outcomes for personnel.

Consultation and targeted research identified:

- it is expected that there would be sufficient accommodation capacity to meet the needs of the construction workforce (at most likely to be 16 per cent of rooms available in the region)
- a number of contingency measures should be explored through the Workforce Accommodation Strategy before construction commences
- during the first three years of operations Drive-In Drive-Out options will be made available to soften the impact on the residential rental market.

(iii) Evidence and submissions

Mr Weston was confident the housing needs of the Project's workforce could be met. He advised the Project would generate demand for:

- 50 – 150 beds from temporary or short term accommodation during construction
- housing for approximately 58 households during operations.

Mr Weston considered the Workforce Accommodation Strategy proposed as a mitigation measure would provide up-to date assessment of supply/unused capacity in the context of workforce requirements. The SIA assumes this strategy would be developed and outlines what it should contain. Mr Weston said that TN-01 reiterates the minimum requirements set out in the SIA and added detail regarding contingency measures if a mismatch in housing capacity and workforce needs is identified.

The Proponent acknowledged the introduction of additional workers may impact on housing supply. The Proponent relied on the evidence of Mr Weston that the impacts are manageable with implementation of proposed SE-03 Workforce Accommodation Strategy.

Council submitted it did not agree with the conclusions of the EES there was substantial unused capacity in the region's temporary accommodation market, noting:

- the data relied was based on 2021 data during the COVID pandemic
- turning visitor and tourism accommodation over to workers would have a significant impact on Horsham's events and business visitation
- *Invest in the Grampians Tourism 2022* strategy advocates for more accommodation in the region to cater for a growing tourism market

- the use of motels and caravan parks for Drive-In Drive-Out workforce during construction needs to be reconsidered so as to not affect the region's tourism industry.

Council welcomed the Proponent's commitment to a Workforce Accommodation Strategy, however it submitted a clearer commitment to the provision of short term accommodation and investment is needed to mitigate social and economic effects, including higher prices for housing and rent. It submitted the labour markets are understated in the EES and impacts on the housing sector will require further and ongoing work. Council noted the population data for Horsham in Chapter 20 was incorrect and recommended the data and analysis should be updated to reflect the 2021 census.

Several submitters were concerned about the impacts on housing and considered the issue needed proper analysis and strategies to manage impacts. Issues included the:

- availability of housing and impact on property prices
- the influx of construction workers could not be easily accommodated
- the capacity to build more houses in a timely manner.

Several submitters were supportive of the Project and its potential to support future residential growth in and around Horsham. These submitters considered housing an issue that can be addressed and managed through a coordinated strategy.

One submitter who works in the local real estate industry including rental property and construction project management, submitted it was in regular consultation with Council and businesses in the development industry, and the industry is well positioned to respond to the anticipated growth in demand.

The Wimmera Southern Mallee Development Association (S90) supported the Project and submitted that growing the population and increasing housing stock was a major component to achieving future liability and enhanced economic growth for the region. It strongly supported development of a Workforce Accommodation Strategy. It recommended that depending on where the workforce comes from, it may be worth considering investing in support for settlement services for temporary visa workers. While noting it was outside the scope of the EES, it considered it important an integrated strategy addressing worker housing and infrastructure needs, taking into consideration the multiple key projects across the region.

(iv) Discussion

In line with broader economic benefits, the Project has the potential to support growth in housing for the region. To achieve potential Project benefits for housing, it is important to proactively plan for workforce accommodation to avoid and minimise social and economic effects. Submitters highlighted short term and temporary accommodation, particularly during construction, as requiring careful consideration and management.

The Workforce Accommodation Strategy is a proactive approach to ensure workforce accommodation needs can be met while managing effects on the housing market. The Committee supports the requirements of the Workforce Accommodation Strategy as detailed in the SIA, and the additional requirement proposed by the Proponent to explore contingency measures for the construction workforce. In the context of the importance of tourism and visitor accommodation for the economic vitality of the region, it is particularly important to mitigate short term impacts during project construction.

The SIA and EES Chapter 20 did not use the most current demographic and housing data which made it difficult to fully appreciate the potential effects of the Project. To be effective the Workforce Accommodation Strategy must be based on current data. The Committee recommends the use of current data is specified in SE-03.

The Committee supports the Workforce Accommodation Strategy being prepared prior to commencement of the Project. Given the significant changes in the property market over the past few years, and the different demands for the construction and operations phases of the Project, it recommends the Workforce Accommodation Strategy be reviewed periodically, including before Project operations commence. This will ensure any changes to market supply are identified, including impacts of the construction workforce on tourism accommodation, and mitigation strategies determined and enacted if required.

The Committee agrees with Wimmera Southern Mallee Development Association there would be value in preparing a wider Workforce Accommodation Strategy in the context of other major projects proposed for the region. While the preparation of a broader strategy is beyond the Project, it is important the Proponent participate in the preparation of any such strategy, and that the Workforce Accommodating Strategy be informed by any such projects. Any changes to market conditions resulting from other major projects can be taken into consideration in the periodic review of the Workforce Accommodating Strategy recommended by the Committee.

The Workforce Accommodating Strategy will be prepared in consultation with key stakeholders, and the Committee is satisfied the need for settlement support services for temporary visa workers will be considered if relevant and does not need to specified in SE-03.

Subject to its recommended wording as show in Appendix G, the Committee is satisfied SE-03: Workforce Accommodation Strategy is an appropriate response to manage identified impacts.

(v) Findings

The Committee finds:

- workforce accommodation needs and impacts on temporary and permanent housing will be adequately considered and addressed through development and implementation of the Workforce Accommodation Strategy
- subject to its recommendations, effects on housing are acceptable.

(vi) Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure SE-03: Workforce Accommodation Strategy to:

- **ensure it is based on the most current data and is reviewed periodically, including prior to operations commencing.**

This change is included in Appendix G.

13.6 Social Impact Assessment and community services

(i) The issues

The issues are whether the:

- SIA is adequate
- Project will result in unreasonable demands on local health services, childcare and education.

(ii) Evidence and submissions

Mr Weston was author of the SIA. He gave evidence that while some data had changed marginally since preparation of the SIA, it provided a reliable base for the assessment.

Mr Weston gave evidence the additional demand for community services would be minimal in the context of existing services. He said the demand resulting from the Project would contribute to the viability of existing community services rather than overwhelm them. Medical services are currently stretched and historically Horsham has had difficulty attracting and retaining General Practitioners. The projected uplift in demand for medical services would not be sufficient to fundamentally alter the balance of supply and demand.

Mr Weston concluded that while the supply and demand for childcare in Horsham is dynamic, the additional projected demand from the Project of approximately four places would not overwhelm supply. He explained:

- since the research phase for the SIA, provision of childcare places in Victoria has increased to 330 places per 1,000 children compared with 280 places per 1,000 children in Horsham
- Council's submission indicates it is increasing supply of Long Day Care places, and when this has occurred overall supply would be 350 places per 1,000 children which is above average
- the number of children aged 0 to 5 years old in Horsham is project to decline between 2023 and 2031.

Mr Weston gave evidence the Project would only have a small impact on demand for public secondary school enrolments, and there is notable spare capacity in the Catholic and independent schools. Mr Weston did not agree with Council that the Proponent should be required to prepare a strategy addressing childcare, education and health was needed, however the Department of Education should be informed about any population trends and implications for school planning and provision.

Council disagreed with a number of Mr Weston's statements regarding the SIA. It submitted:

- the SIA was based on out of date data and lacked analysis
- there are significant waiting lists for childcare and Long Day Care in Horsham
- Horsham is experiencing population growth which is increasing overall service demand.

Council sought for the SIA to be updated:

- with regard to current literature and strategies
- to quantify the actual additional demand on community services in the context of supply
- revisit demand for education and school capacity
- draft an EMM relating to augmentation of additional services required.

Further, Council submitted the Proponent should develop a strategy which clearly articulates the childcare needs of families who will be working at the Project and identify strategies to assist in making sure services are available. It suggested SE-03 could be expanded to include other social needs such as childcare, education and health, or alternatively another EMM drafted in a similar fashion to SE-04 could be developed that requires the Proponent prepare a strategy for addressing the social needs of the expanded population.

In closing, Council submitted the Proponent ought to offset social impacts relating to community and education services of the Project through "*further analysis and potentially funding and support through agreements with Council and other bodies*".[74] Council did not seek specific drafting changes to the EMF in its comments on the Proponent's 'Final day' version of the EMF.

Many submitters supported the Project and expected it would result in positive impacts for the community, including:

- opportunities for development and viability of community and health services
- support for community development projects and groups
- employment opportunities and benefits to housing (as described in previous chapters).

BGLC submitted it anticipated continuing discussions with the Proponent in relation to possible partnership agreements and opportunities for cultural and economic wellbeing of the Traditional Owners.

A small number of submitters were concerned the Project would result in negative community impacts, including concern that increased population may result in increased crime and reduced community cohesion.

Wimmera Southern Mallee Development Association (S90), while supporting the Project, submitted the Proponent should "*investigate the possibility of investing in community leadership to support community cohesion*".

One submitter said the SIA Community Reference group was not representative, and questioned the validity of conclusion the Project will have a 'moderate negative' residual impact on the community and, with consideration of landholder impacts recommended this be changed to 'negative'.

The Proponent relied on the evidence of Mr Weston, who concluded the social impacts were manageable. It:

- rejected claims the Project will result in increased crime, stating the Project will have a positive impact on the social and cultural life of the region
- explained the Avonbank Community Reference Group for the SIA included a broad range of stakeholders including Council, impacted landholders, sporting clubs, members of local businesses, the education sector and community groups.

Regarding landholder impacts, the Proponent submitted that "*without seeking to trivialise those impacts at the individual level, those impacts are not only compensable under the Minerals Act but are, in the final analysis, outweighed by the substantial benefits that the Project will provide to the community as a whole*".

[74] Council closing submission (D128), page 2

In closing the Proponent provided further evidence from Mr Weston in response to issues raised by Council (D129a). Mr Weston said he considered Council's assessment unnecessarily negative given the small projected increase in demand for childcare. He explained the situation is comparable with demand across Victoria. Mr Weston encouraged the Proponent and Council to work together to ensure the Project delivers maximum benefit to the community. Specifically, the Proponent should give Council information regarding the size and composition of its workforce to assist with planning.

The Proponent submitted that Council had provided no basis to require the Project make a financial contribution to childcare services, in what is a user-pays system in Victoria.

(iii) Discussion

While some questions were raised about the currency of data used to inform the SIA the Committee was not presented with any information that led it to doubt the findings of the SIA and recommendations to mitigate identified impacts. On this basis the Committee does not support Council's suggestion the SIA should be updated, and expects current data will be used as required for development of specific elements of the Project. For example, as discussed in Chapter 13.5 above, the Committee recommends the Workforce Accommodation Strategy be developed using the most current data.

The Committee is satisfied the additional demands on childcare, education and health can be managed through the mitigation measures, subject to its recommendations. Consistent with the evidence of Mr Weston, the Committee has added to SE-04 Targeted community support programs to require the Proponent to communicate its anticipated workforce size and composition to Council and the Department of Education following Project approval. This will ensure these authorities can consider future demand in service planning.

The Committee does not consider the scale of impact to community services resulting from the Project warrants a separate strategy be prepared by the Proponent, and considers the increase in demand can be addressed through the usual community and education service planning processes.

The Committee notes Council did not seek further mitigation measures be included in its comments on the 'Final day' versions of the EMF. Further, the MOU and proposed mitigation measures provide opportunities for Council to negotiate or partner with the Proponent to achieve beneficial community and social outcomes. For example, SE-04 includes a community development fund. The community leadership support suggested by Wimmera Southern Mallee Development Association may be considered through such a program.

The Committee notes and supports the inclusion of Indigenous employment programs in SE-04.

The Committee was not given any evidence or information to substantiate concerns about increased crime, and accepts the Project is likely to overall have a positive social impact of the region.

On balance it is expected the benefits to the community as a whole outweigh impacts.

The Committee accepts the SIA's findings that residual impacts on land uses within the Project area are 'moderate negative'. As explained by Mr Weston, displacement of landholders will result in negative impacts, however the circumstance of each landholder varies and the significance of the impact varies accordingly. Mitigation measures include LACAs and compensation agreements

with landholders (LP-02), access to counselling services and staff training (SE-07 and SE-08), a rehabilitation plan (RH-01) as well as broader community programs (SE-02, SE-03 and SE-04).

(iv) Findings

The Committee finds:

- the SIA adequately captures the current situation and impacts, for the purposes of determining mitigation measures to manage effects
- the Project is not likely to place unreasonable demands on community services and facilities
- subject to its recommendations, effects on community services are acceptable.

(v) Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure SE-04: Targeted community and workforce support programs to:

- **require that the Proponent communicate the anticipated Project workforce size and composition to Council and the Department of Education following Project approval.**

This change is included in Appendix G.

13.7 Overall conclusions on socioeconomic issues

There are no socioeconomic impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure workforce, housing and community services impacts are appropriately managed and minimised.

14 Human health

14.1 Introduction

The relevant evaluation objective is:

> Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Human health is discussed in:

- EES Chapter 18 – Human Health
- EES Appendix M – HHRA
- EES Chapters 11, 12, 13, 16, 17, 19
- EES Appendices F, G, H, K, L and Q.

The exhibited EMF included the avoidance and mitigation measures, as detailed in other chapters of this Report.

The Committee has had regard to relevant submissions and expert evidence (see Table 46).

Table 46 Health expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D36	Proponent	Dr Lyn Denison	Tonkin and Taylor	Human Health
D37	Proponent	Dr Jackie Wright	Environmental Risk Sciences Pty Ltd	Mental Health

14.2 General human health

(i) The issue

The issue is whether human health impacts are acceptable.

(ii) What did the EES say?

The HHRA was informed by the outcomes of the AQIA, NVIA, Surface Water Impact Assessment and Groundwater Impact Assessment.

The HHRA established existing conditions, identified potential hazards and assessed residual risks once EMMs were implemented. Residual risks related to airborne particles, dust deposition and metals, noise, groundwater and surface water.

The HHRA included a review of cumulative impacts identified in other technical reports and concluded impacts were minor, and further assessment was not undertaken.

In summary, the HHRA concluded:

- The residual risks to human health from dust emissions, respirable crystalline silica (RCS) and metals from the mine construction and operation are negligible;
- The road traffic noise arising from transport of the ore may result in adverse health effects in Cavendish and Dooen – however, predicted existing noise levels would pose a similar risk. The increment from the Project is minor;
- Noise from the mine construction and operation is predicted to pose a negligible risk to the health of the local community;

- Dust and metal deposition on crops has negligible impact and would pose a negligible health risk;
- Residual risks for rainwater tanks are negligible for all; and
- Residual risks to human health associated with potential impacts to groundwater and surface water quality in the Project are considered to be negligible.

Subsequent to the initial HHRA assessment there were some design changes to the Project and these are described in the Addendum to the HHRA. The further assessment did not change the risk ratings.

Impacts of lighting were considered in EES Appendix F – *Landscape and Visual Impact Assessment*, Landform Architects, February 2023 (LVIA) which concluded residual impacts were minor to negligible.

(iii) Evidence and submissions

Dr Denison, who was author of the HHRA, gave evidence based on the information contained in the HHRA. She concluded:

- the residual risks of the Project for air quality, operational noise, groundwater and surface water would be negligible on the health of the local community
- predicted levels of metals in crops are well below maximum residue levels for the safe consumption of food
- predicted concentrations of metals in rainwater are well below relevant guidelines and pose a negligible risk
- the predicted noise levels from existing traffic in Cavendish and Dooen exceed World Health Authority *"road traffic noise guidelines and may result in adverse health effects such as sleep disturbance and cardiovascular effects. The predicted increases in traffic noise levels related to the Project are small relative to these guidelines*"
- the TMP should include measures to reduce traffic noise within towns to minimise potential health risks so far as reasonably practicable.

While predicted metal concentrations in rainwater would only pose a negligible risk, she recommended management measures related to rainwater tank water sampling and reactive dust monitoring.

Dr Denison reviewed the LVIA and submissions and said implementation of mitigation measures in the LVIA were critical to minimising health risks associated with artificial light at night.

Dr Denison's evidence is referred to as relevant in other chapters of this Report.

Human health issues (radiation, noise and vibration, water and lighting) raised in submissions are documented in other chapters of this Report.

(iv) Discussion

The Committee relies on the HHRA and Dr Denison's Expert Witness Statement. The Committee concludes the human health impacts are acceptable subject to its recommendations discussed in the following chapters of this Report:

- Chapter 6 – Radiation
- Chapter 8 – Air quality
- Chapter 10 – Noise and vibration
- Chapter 11 – Water

- Chapter 15.2 – Landscape and visual amenity (lighting).

(v) Findings

Subject to its recommendations in other chapters of this Report, the Committee finds the:

- measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the general human health effects of the Project
- general human health effects are acceptable.

14.3 Mental health

(i) The issue

The issue is whether the mental health support is adequate.

(ii) Evidence and submissions

In response to the Committee's RFI which asked "*what consideration has been given to mental health impacts*" the Proponent engaged Dr Jackie Wright to provide expert evidence (D37). Dr Wright's expert witness statement included Annexure B - *Avonbank Mineral Sands Project: Impacts on mental Health/Wellbeing* which considered submissions on the EES raising issues relevant to mental health. The Committee considered Dr Wright's expert witness statement and did not require her to present her evidence at the Hearing.

Dr Wright noted the EP Act defined human health to include psychological health. Citing from various sources she noted that wellbeing equates to positive mental health and has attributes such as optimism and confidence as well as the ability to cope with life stresses. Poor mental health due to chronic and persistent negative stresses can lead to both illness and social problems.

Dr Wright' s assessment was that the Horsham local government authority population has a similar level of resilience as the Victorian population. Like many rural and regional communities its medical services are stretched but it is well serviced with allied health services.

Overall Dr Wright considered the risks to mental health and wellbeing to be low. The potential employment opportunities and economic benefits would have positive impacts on the wellbeing for many in the Horsham community. Reduced housing availability, noise, traffic and air quality issues would negatively impact some in the population.

Dr Wright said the people most at mental health risk are the multi generational farming families who will be displaced for years from their land by the Project. She also noted that negotiating LACAs can be stressful as will be moving from the land which can put pressure on existing relationships. Furthermore other stressors for this cohort could be loss of income and employment and possibly loss of connectedness to community.

She also pointed out that farmers are known to be reluctant to access professional mental health services and had a higher rate of suicide than the general population.

Dr Wright recommended for those directly impacted by the Project, by mental health and/or financial impacts, the Project should provide them with details of resources and support services, including through the National Centre for Farmer Health.

Further, she recommended all staff be appropriately trained to be aware of and manage mental health and wellbeing impacts when engaging directly with landholders.

Chapters 1.2(ii) and 5(iii) document many landholder issues, including emotional strain experienced as a result of the Project.

Affected landholder submitters including the Scanlan Carroll submitters (D108) said:

- the Project is having mental health impacts on families ranging from sixth to first generation farmers
- the impacts range from sleepless nights, loss of control over their futures and inability to plan, possible loss of local connections and loss of many sentimental things they value
- the Project had created psychological and financial stress over the last 10 years and with years ahead of uncertainty.

One submitter considered the Proponent should pay for legal fees for independent legal advice to help landholders negotiate fair compensation.

On the other hand many submitters in the general community expressed enthusiasm about the Project for the opportunities it will bring.

The Proponent proposed two new EMMs in its 'Day 1' EMF relating to mental health:

- SE-07: Access to counselling services.

Facilitate access to independent counselling services (financial and psychological) for those landholders who will be displaced by the Project, during the period that land agreements and compensation are being negotiated.

- SE-08: Training and awareness.

All staff involved in direct engagement with landholders, particularly those negotiating land agreements and compensation, will receive appropriate training to be aware of potential mental health and wellbeing impacts of the Project and have skills to approach landholders with sensitivity.

As noted in Chapter 5(iii), in its closing submissions the Proponent acknowledged there will be an impact on the landowners who will be displaced and these impacts cannot be fully mitigated by the EMMs, however the landowners will be entitled to compensation.

In response to 'Final day' versions of the EMF, one submitter said SE-07 should say:

> Counselling services (financial and psychological) must be available for the lifetime of the project.

(iii) Discussion

The Committee's discussion focusses on the directly affected landowners/farmers as their farms are mined or the mining activity surrounds their homes. Others living nearby to the Project may experience mental health problems and Committee is satisfied support for this group can be accommodated through the general health channels.

In submissions and during the Hearing the stress felt by the cohort of directly impacted farmers was already evident although the Project has not started. This group will have many decisions to make such as negotiating LACAs, having to relocate from their homes and farms and making many decisions about their future. These stressors and associated distress are likely to occur for the individual families at different times over the life of the Project.

The Committee welcomes the two new mitigation measures (SE-07 and SE-08) proposed by the Proponent, including the commitment to train staff who will have direct engagement with landholders to be sensitive to mental health and wellbeing impacts of the Project.

The Committee notes the evidence of Dr Wright who said:

> It is important to recognise the potential impact of the Project on landholders and families displaced by the Project. This may be more significant for intergenerational families where displacement from existing agricultural land would disrupt existing family relationships and connections, and potentially regional connections (due to the limited availability of alternate agricultural land in the local area). It is important that additional access to independent counselling (financial/economic and psychological) is available for these individuals and families.[75]

Facilitation of access to independent counselling services for landholders who will be displaced during the Project is a positive approach to addressing the issues of landholder wellbeing. The Committee however does not consider that providing access to counselling service only during the time that the LACAs are being negotiated will provide adequate support. Access to counselling services for directly affected landholders should be for the life of the Project, on the basis that:

- the Project is likely to be a stressor for landholders at different stages during the life of the Project
- landholders (and their families) are individuals and issues that impact the wellbeing of landholders may arise at different times for different people during the life of the Project.

Access to counselling is one way to support the mental health and wellbeing of landholders. Dr Wright also advised:

> Perceived impacts to health can also be managed through effective and ongoing communication with the community. It is therefore important that such communication is effective and provides information on services and resources available to the community where the community may feel increased levels of anxiety and stress, as a result of the Project.

With this in mind, the Committee recommends a more coordinated and proactive approach to supporting landholders displaced by the Project through preparation of a Wellbeing Plan that includes facilitation of counselling services. The Wellbeing Plan should endure to the end of the Project and to such time as the families have a chance to re-establish their farms.

The Committee notes the evidence report of Dr Wright is titled impacts on mental health/wellbeing. The Committee chooses to call the proposed mitigation measure a Wellbeing Plan in the context this offers a more holistic approach to health management.

It is suggested the Wellbeing Plan should include both financial and psychological support and be developed by an independent trained psychologist, preferably with one who specialises in farmers mental health and can advise on access to financial planning support.

The Wellbeing Plan should be completed prior to construction commencing and before any of the farmers and families are displaced and the Plan reviewed periodically in line with recommendations made by the professional who is engaged to prepare the Wellbeing Plan.

(iv) Findings

Subject to its recommendations, the Committee finds the:

- mental health support measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the mental health effects
- mental health effects are acceptable.

[75] Dr Wright expert witness statement, page 48

(v) Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure SE-07 to:

- **rename the mitigation measure to 'Wellbeing plan and access to counselling services'**
- **require that a Wellbeing Plan prepared by an independent psychologist specifically for the mental health of farmers. That the Wellbeing Plan be specifically for the affected landowners and their families, provide both psychological and financial counselling, be prepared prior to the commencement of the Project, extend beyond the life of the Project and, it be reviewed periodically.**

b) Edit mitigation measure SE-08: Training and awareness to:

- **require that the scope and frequency of training must be in line with recommendations of the Wellbeing Plan required by SE-07.**

These changes are included in Appendix G.

14.4 Overall conclusions on human health issues

There are no human health impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to require a Wellbeing Plan focussed on supporting landholders and families be prepared by an independent trained psychologist and implemented including counselling services and training for staff.

15 Other issues

15.1 Heritage

(i) Introduction

The relevant evaluation objective is:

> Avoid or minimise adverse effects on Aboriginal and historical cultural heritage.

Heritage is discussed in:

- EES Chapter 10 – Historic Heritage
- EES Chapter 23 – Aboriginal Cultural Heritage
- EES Appendix D – Historic Heritage Impact Assessment
- EES Appendix E – Cultural Heritage Management Plan Summary.

The exhibited EMF included the avoidance and mitigation measures shown in Table 47.

Table 47 Aboriginal cultural heritage - avoidance and mitigation measures

Code	Measure
AH-01	A Cultural Heritage Management Plan, as agreed with the Registered Aboriginal Party (RAP), will be implemented to protect Aboriginal cultural heritage.

The exhibited EMF included historic heritage avoidance and mitigation measures as shown in Table 48.

Table 48 Historic heritage - avoidance and mitigation measures

Code	Measure
HH-01	Exclusion zones will be established to avoid impacts several sites within the development extent.
HH-02	The shed at Site 1 may be relocated in consultation with the landholder if impacts are unavoidable and relocation is deemed to be practicable.
HH-03	A Chance Finds Procedure will be maintained to manage unexpected discoveries of archaeological sites, which includes a provision to stop work in the vicinity of the discovery.
HH-04	A Heritage Management Plan will be developed, which will include relevant requirements under the *Heritage Act 2017* and other means to avoid and minimise residual impacts so far as reasonably practicable.
HH-05	A Rehabilitation Plan will be established for the Project that will address matters relating to progressive rehabilitation and closure.

The Committee had regard to relevant submissions including from BGLC submission (D127). No Aboriginal cultural or historic heritage evidence was called.

(ii) Aboriginal cultural heritage

The issues

The issues are whether:

- tangible and intangible cultural heritage values were adequately assessed
- mitigation measures adequately manage effects of the Project.

What did the EES say?

The EES provided an overview of the cultural heritage assessment and Cultural Heritage Management Plan (CHMP). It described the process and consultation with the BGLC, which is the Registered Aboriginal Party for the Project. It detailed key management and monitoring measures to be implemented in accordance with the CHMP.

EES Appendix E only contained a summary of the CHMP as it contains culturally sensitive material. It noted the CHMP had been prepared in accordance with the *Aboriginal Heritage Regulations 2018*.

The EES noted the study area had been extensively modified and no Aboriginal cultural heritage locations were listed in the Victorian Aboriginal Heritage Register or in relevant literature. No artifacts were identified during the assessment, and there was low potential for these to occur.

The EES concluded the Project would not result in increased cumulative impacts of Aboriginal cultural heritage values for the region.

Submissions

BGLC submitted it believed the Proponent had "*complied with international standards by obtaining the free, prior and informed consent of Indigenous peoples for projects on their Country*". Its submission:

- explained it commenced discussions with the Proponent in July 2018, had continued regular communication since this time and been a member of the Avonbank Project Community Reference Group since it began in August 2019
- advised it was satisfied the Project had fulfilled legislative obligations related to the protection and management of tangible cultural heritage values in the MIN area.

BGLC described the process of preparing the CHMP. It said the CHMP 17043 contained results and conclusions of cultural heritage assessments, considered potential impacts of Project activities, outlined the process of negotiation and agreement for measures to implemented to avoid, minimise and mitigate impacts. BGLC was satisfied the Project had fulfilled legislative obligations relating to tangible cultural heritage in the MIN area.

BGLC explained the Project is located in a "*highly significant cultural landscape*" with important connections and values for Traditional Owners. It provided a snapshot of connections and values in the surrounding cultural landscape, including water bodies, wetlands and places, and submitted it was vital that any risk of harm or damage to this cultural landscape is avoided.

It raised issues relating to:

- potential impacts of Project activities to tangible cultural values outside the MIN
- intangible cultural heritage and values of the surrounding landscape
- subsequent effects this may have on Traditional Owners continuing their cultural practices and fulfilling cultural rights and obligations.

It submitted that if the Committee:

> …is satisfied that the Avonbank Mineral Sands Project poses no risk to this cultural landscape, and associated cultural values, rights and obligations of the WJJWJ Peoples, BGLC will support the project.

Council noted in its submission that a CHMP had been prepared and no cultural heritage places identified. One submitter also noted a CHMP had been prepared and noted it had been endorsed by the Registered Aboriginal Party.

One submitter said the CHMP did not adequately acknowledge cultural values and did not comply with the United Nations Declaration on the Rights of Indigenous Peoples.

The Minerals Council of Australia Victoria (S109) submitted the Proponent, as a member company of the Minerals Council of Australia had committed to environmental, social and governance frameworks. This included Towards Sustainable Mining which would be a requirement for Minerals Council of Australia companies by 2025 and required consideration of protocols related to communities and people, including Indigenous and community relationships.

The Proponent submitted:

- a CHMP was required under the *Aboriginal Heritage Act 2006*
- the CHMP had been prepared in consultation with BGLC.

In closing the Proponent responded to the BGLC submission, noting it acknowledged the Proponent had complied with international standards in seeking the "*free, prior and informed consent*" of Traditional Owners and had worked together to assess potential cultural heritage impacts and prepare an agreed CHMP which meets requirements of the *Aboriginal Heritage Act 2006.*

Regarding issues raised by BGLC, the Proponent agreed it was important to protect tangible and intangible cultural heritage outside the MIN area and that, "*insofar as the submission identifies specific locations that require protection … the evidence called on behalf of the Proponent indicates that there should not be any impacts on those areas subject to the implementation of the proposed mitigation measures*".[76]

Discussion

The Committee accepts the submissions of BGLC that the Proponent has complied with international standards in the matter it has engaged with it in planning the Project.

The Committee also accepts that BGLC is satisfied with the CHMP prepared in consultation with the Proponent, and this document satisfies the requirements of the *Aboriginal Heritage Act 2006* and will result in adequate protection and management of tangible cultural heritage and values within the MIN area.

The 'Day 4' version of the EMF includes:

> **AH-01 Cultural Heritage Management Plan**
>
> A Cultural Heritage Management Plan, as agreed with the Registered Aboriginal Party (RAP), must be implemented to protect Aboriginal cultural heritage.
>
> **AH-0A Cultural Heritage Management Plan**
>
> Monitoring and inspections must be undertaken as agreed in the Cultural Heritage Management Plan

No submissions were made on proposed EMMs and the Committee accepts these as appropriate.

Regarding intangible and tangible values in the surrounding cultural landscape, the Committee relies on its assessment of environmental effects relating to specific issues and areas as discussed in other chapters of this Report. Specifically, the Committee has concluded that subject to its recommendations, the effects of the Project are acceptable in relation to:

- surface water and groundwater (see Chapter 11)

[76] Proponent closing submission (D129), paragraph 85

- flora and fauna (see Chapter 12).

Findings

The Committee finds:

- Aboriginal cultural heritage effects were adequately assessed
- cultural heritage mitigation measures adequately manage effects of the Project.

(iii) Historic heritage

The issues

The issues are whether:

- historic heritage was adequately assessed
- mitigation measures adequately manage effects of the Project.

What did the EES say?

EES Chapter 10 provided an overview of historic heritage effects of the Project supported by EES Appendix D - *Historic Cultural Heritage Impact Assessment*, David Bannear, August 2022 (Historic Heritage Assessment).

The EES explained the scope and methodology of the Historic Heritage Assessment, including the study area (broader region with assessment focused on the development extent), assessment of existing conditions, identification of potential impacts and assessment of residual impacts with avoidance and mitigation measures in place.

The Historic Heritage Assessment considered information from statutory listings, non-statutory listings and community based information including from the *Horsham Heritage Study* (Grieve and Gillet, 2012).

The EES found, within the development extent:

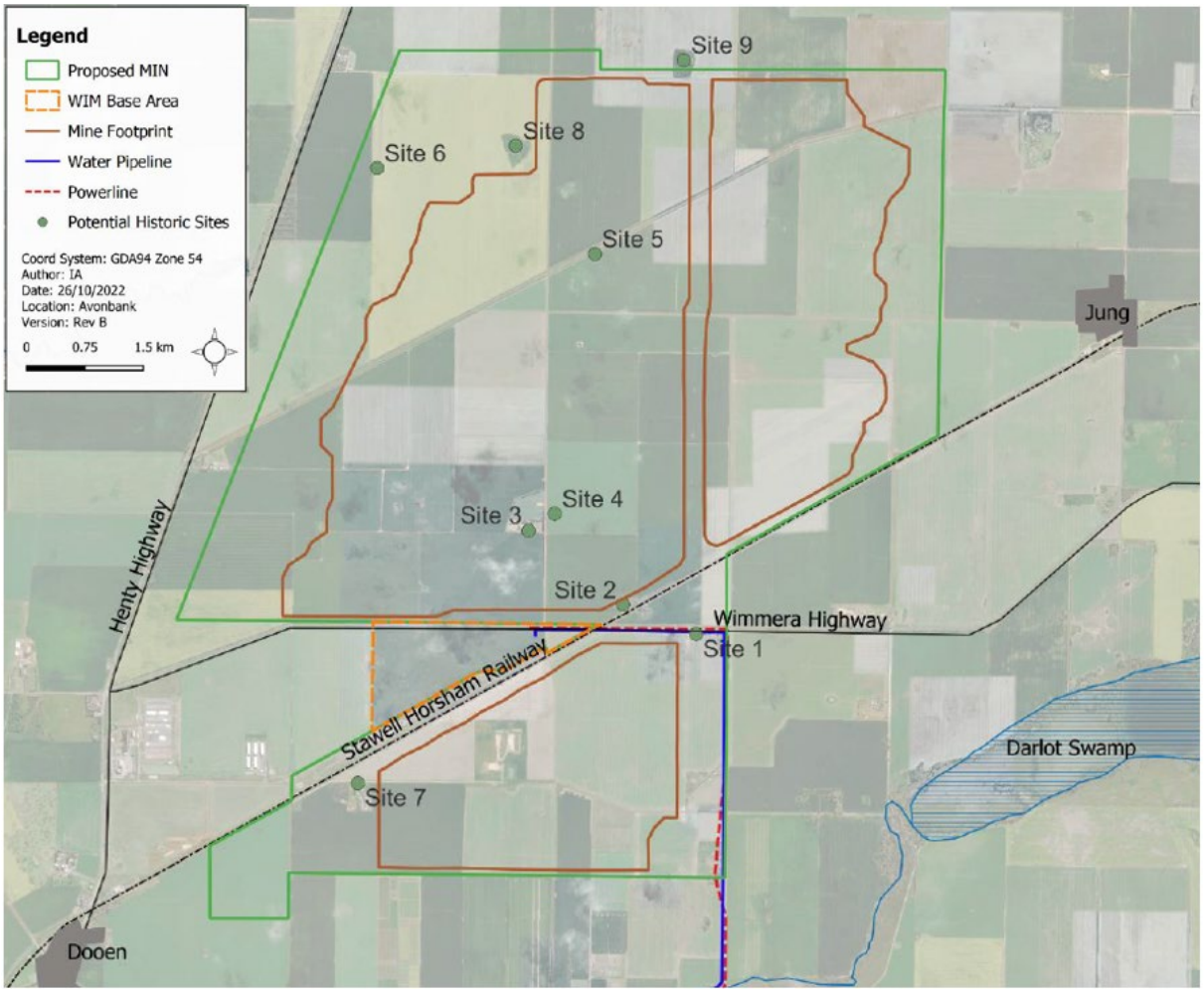
- there are no listed heritage sites
- the *Horsham Heritage Study* identified important place types with potential heritage value, including settlers' dwellings, farm sheds and railway sidings, but did not identify any specific sites of interest
- nine sites assessed as having beneficial and/or family value or potential archaeological values including five outside the mine footprint, four within the utilities corridor and one within the proposed mining footprint (Site 3) (with Site 4 and 5 subsequently determined not to be archaeological sites) (see Figure 24).

The EES says:

- Site 3 is a modern house, mid 20th century onwards, brick with tiled roof, a structure of common type with no inherent technical, aesthetic or historic heritage
- in terms of uncertainties, at Site 3 the Project may have potential impacts on presence of buried archaeological material from earlier occupation, including features and artefact bearing occupation deposits.

The Historic Heritage Assessment said that "*when the private land that makes of the area of mining interest can be accessed, archaeological fieldwork in combination with historical research and stakeholder engagement will be undertaken*".

Figure 24 Places and archaeological sites of potential historic value



Source: modified from EES Appendix D, page 27

Potential impacts included:

- removal or loss of historic buildings and structures resulting from mining, processing activities or establishment of the minor utilities corridor
- disturbance of potential archaeological sites of interest in the utilities corridor
- ground movement from mining activities impacting the structural integrity of a building or structure.

The sensitivity of potential heritage/archaeological values assessed, and the relative significance of each residual impact was rated. Measures were identified to avoid and minimise residual effects, including:

- Avoid:
  - establish exclusion zones
- Minimise
  - Relocation of historic structures
  - Chance finds procedure
  - Heritage Management Plan
  - Rehabilitation Plan.

The EES said:

> Overall, the proposed Project activity is unlikely to result in significant heritage effects and it is anticipated that the associated impacts can be managed with avoidance and mitigation measures in place to achieve the evaluation objectives.

Submissions

Council commented on EES Appendix D and advised the foundations, including end walls of Dooen Weir are partly intact recommended they remain in place.

As discussed in Chapter 5(iii), the Scanlan Carroll submitters sought the protection, where possible of tangible and intangible values of landholder properties including potential protection or relocation of valued objects.

One submitter explained the disturbance of many dwelling sites of his fore fathers has historical significance for his family. This included objects and places with childhood memories all proposed to be removed by the Project. He submitted:

> To us these are the things that harbour the remains of the tough times and the good, it is these remnants that if removed, will take with them the fabric of what makes this farm our home.

Further he submitted:

> Weeroona hosts several memorial trees planted in memory of our loved ones and by those who are no longer with us. These trees are of great significance to our family. At times they are home to flocks of yellow-tailed black cockatoos, these trees should not be removed.

In response to submissions, the Proponent advised:

- the methodology and assessment findings were included in EES Appendix D
- mitigation measure HH-04 required a Heritage Management Plan be prepared and implemented prior to commencement of the Project.

As described in Chapter 3.8, the Proponent submitted changes to the Project following exhibition of the EES. This included removal of Dwelling R38 from the development extent (see Figure 13), which is Site 3 in the Historic Heritage Assessment (see Figure 24).

Discussion

The Committee is generally satisfied the EMMs in the EMF will effectively avoid and minimise impacts to historic heritage, subject to some minor changes. Specifically:

- Exclusion zones (HH-01) will protect potential heritage sites from inadvertent disturbance. Consistent with the Historic Heritage Assessment, these areas should be established "*and maintained*".
- Relocation of historic structures (HH-02) at Site 1 and other sites if discovered, following detailed assessment of the structure and archaeological survey, in line with requirements of the *Heritage Act 2017* is appropriate.
- Chance Finds Procedure (HH-03) in the event a site of potential heritage or archaeological value is discovered is appropriate.
- Heritage Management Plan (HH-04) is appropriate.

The Proponent advised Dwelling R38 has been removed from the development extent of the Project as a post exhibition change, and will now be retained. Dwelling R38 is identified as a site of potential historic value (Site 3).

While Site 3 is now proposed to be removed from the development extent, and therefore will be protected, there is uncertainty regarding the presence of buried archaeological material from earlier occupation at the site. The Committee considers field investigation should be undertaken to identify any archaeological features and artefact bearing deposits before confirming the exact development extent boundary. The development extent and an exclusion zone should be established and maintained around Site 3, in consultation with the landholder and informed by the field investigation. The development extent and exclusion zone should also take into consideration potential impact from ground movement from mining activities that may impact the structural integrity of a building or structure. These changes are included in the Committee's recommended EMM HH-01 at Appendix G.

Regarding landholder submissions seeking recognition of places or objects with family value the Committee considers this issue may be explored further through the Community Engagement Plan (SE-02) which has a purpose:

> … to develop an understanding between the Project and stakeholders, to provide an opportunity for two-way communication that allows stakeholder concerns to be addressed so far as reasonably practicable, and to facilitate beneficial Project integration with the local area and region.

The issue can be adequately addressed through SE-02 which includes a requirement for:

> Targeted consultation groups/committees will be formed over the life of the Project to address specific matters or issues as they arise and to communicate environmental performance to interested parties or affected parties, including but not limited to landholders, regulators, HRCC and community members.

Findings

Subject to its recommendations, the Committee finds:

- the historic heritage effects are not significant and are acceptable
- the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage the effects on historic heritage.

Recommendations

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) **Edit mitigation measure HH-01: Heritage exclusion zones to:**
   - **confirm the development extent boundary and require an exclusion zone be established and maintained at Site 3 following field investigation and consideration of impacts from ground movement resulting from mining activities.**

b) **Edit mitigation measure HH-04 to:**
   - **rename it 'Historic Heritage Management Plan'.**

These changes are included in Appendix G.

(iv) Overall findings on heritage

Subject to the Committee's recommendations, there are no Aboriginal cultural heritage or historic heritage impacts that preclude the Project being approved or the relevant evaluation objective being achieved.

15.2 Landscape and visual amenity

(i) Introduction

The relevant evaluation objective is:

> Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Landscape and visual amenity is discussed in:

- EES Chapter 11 – Landscape and Visual Amenity
- EES Appendix F – Landscape and Visual Amenity Assessment.

The exhibited EMF included the avoidance and mitigation measures shown in Table 49.

Table 49 Landscape and Visual Amenity - avoidance and mitigation measures

Code	Measure
LV-01	Project plant will be situated in a planning zone designated for industrial activity (WIFT Precinct).
LV-02	The form and placement of Mine Block B overburden stockpile will be set back from road edges and designed to minimise the footprint, avoid visual impacts and disturbance to the surrounding agricultural land.
LV-03	Progressive rehabilitation will be undertaken to minimise the disturbed area on average to less than 300 ha at any point in time over the life of mine.
LV-04	Landscape screening vegetation will be established to filter and screen views of the mine Block B overburden stockpile and Wet Concentrator Plant (WCP), from public viewpoints along the Henty and Wimmera Highways.
LV-05	Project lighting at the WBA location within the WIFT Precinct will be diverted away from roads and farming areas, so far as reasonably practicable.
LV-06	A Rehabilitation Plan will be established for the Project that will address matters relating to progressive rehabilitation and closure.

The Committee has had regard to relevant submissions and expert evidence (see Table 50).

Table 50 Landscape and visual expert evidence

D#	Party calling expert	Expert	Firm	Area of expertise
D36	Proponent	Dr Lynette Denison	Tonkin + Taylor Pty Ltd	Human health risk assessment

(ii) What did the EES say?

EES Chapter 11 provided an overview of landscape and visual amenity effects of the Project supported by the LVIA.

The EES explained the methodology of the LVIA, including the study area, characterisation of existing conditions, identification of potential impacts and assessment of residual impacts with avoidance and mitigation measures in place. It identified sensitive receptors including 12 publicly accessible viewpoints and six private viewpoints (see Table 51).

Table 51 Sensitive receptors

Receptor Type	Sensitive Receptors
Public viewpoints	Publicly accessibly viewpoints located on Wimmera Highway (VP1, VP2, VP3, VP4, VP5), Henty Highway (VP6, VP7, VP8), Longerenong Road (VP9), Jung township (VP10), Dooen township (VP11) and the Longerenong Agricultural College (VP12). (also refer Figure 11-11). The Project is not visible from either the Dooen swamp or Darlot swamp.
Private residences	Private residential viewpoints (R03/04, R43, R44, R37, R36, R06) located at residential dwellings within the viewshed (also refer Figure 11-11).

Source: EES Chapter 11, page 11-10

The sensitivity of different landscape units and relative significance of each residual impact was assessed. Measures were identified to avoid and minimise residual effects, including:

- Avoid:
  - the WBA plant location situated in the WIFT to ensure visual impact is commensurate with planned industrial land use
- Minimise
  - location and form of Overburden stockpile B to minimise the footprint, avoid visual impacts
  - progressive mining and rehabilitation to ensure the extent of Project disturbance is less than 400 hectares at any one time
  - landscape screening at three locations (see Figure 25) of Project elements that will be in place throughout the life of the Project, including for the WBA and Overburden stockpile B
  - lighting placed and designed to minimise impacts.

The LVIA noted:

- lighting for 24 operations would be required around permanent buildings, project plant and equipment
- lighting secondary to operational and safety requirements should be designed in accordance with AS/NZS 4282 'Control of obtrusive effects of outdoor lighting' which requires:
  - ensuring lighting is baffled and directed to the ground
  - installing motion-trigger mechanisms to reduce the duration of lighting
  - installing perimeter landscaping to intervene in views to lighting from identified sensitive receptors (residential dwellings).[77]

The proposed LV-05 Lighting impacts captures the requirements of Australian and New Zealand Standard AS/NZS 4282.

Overall the Project is expected to have minor to negligible visual impacts, as assessed from the viewpoints, and residual impacts can be managed through the proposed avoidance and mitigation measures. Residual impacts include:

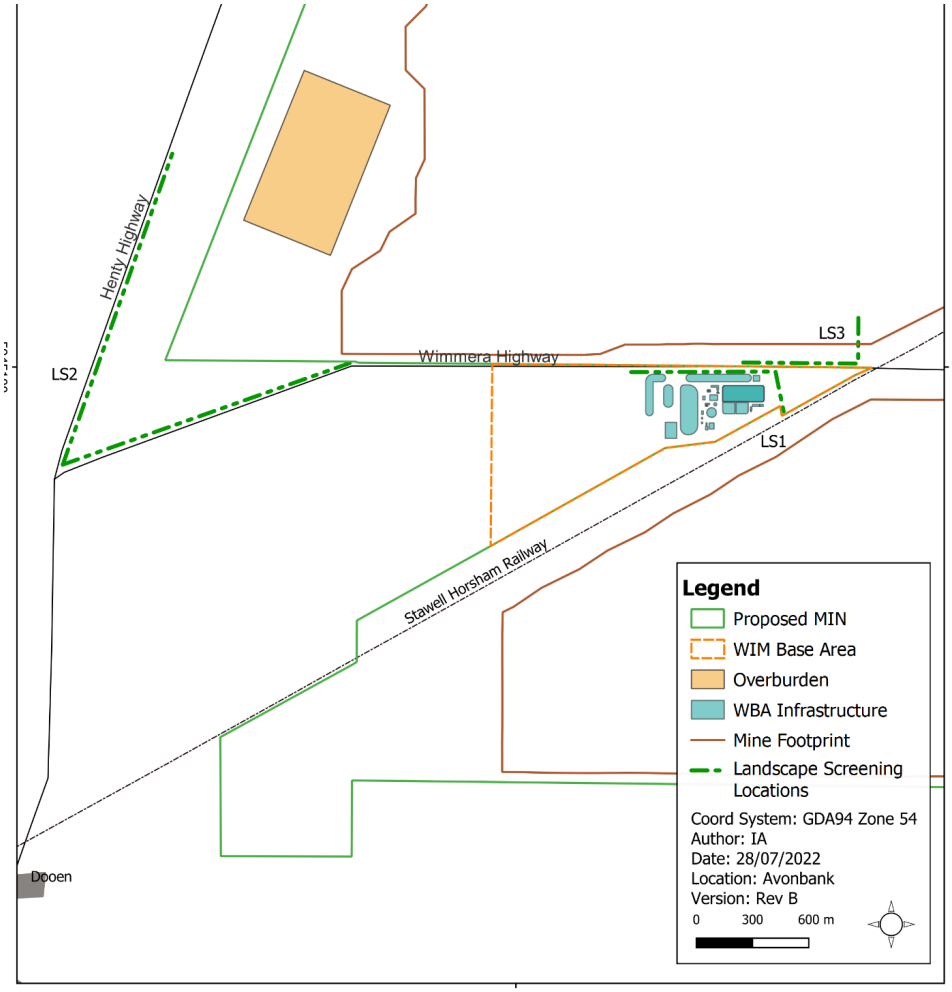
- visual impacts of large plant in the WBA from nine viewpoints (minor to negligible impact), and no visual impacts from remaining nine viewpoints
- during mining there are expected to be visual impacts from some viewpoints (minor to negligible) and no residual visual impact at the end of the mine life following rehabilitation

[77] EES Appendix F, page xii

- the visual impact of Overburden stockpile B from years 7 to 30 of operations is expected to be:
  - from public viewpoints (minor to nil)
  - from private viewpoint R06 (negligible) due to existing vegetation, and not additional screening vegetation is proposed
- lighting (minor to negligible).

Cumulative impacts were assessed with consideration of the proposed mineral sands mines in the region and Dooen Landfill. Other sands mines projects are more than 15 kilometres from the Project and there is expected to be no overlap in visual impact. Due to limited visibility and relative distance from the landfill to the Project areas the cumulative impacts were considered negligible.

Figure 25 Landscape screening locations



Source: EES Chapter 11, page 11-15 (excerpt)

(iii) Visual impacts

The issue

The issues are whether:

- the visual impacts of the Project are acceptable
- the visual impact of Overburden stockpile B is acceptable
- landscape screening planting is appropriate.

Submissions

The Proponent submitted:

- landscape and visual impacts have been assessed using industry accepted methodologies
- mitigation measures are proposed to minimise residual impacts.

In response to submissions, the Proponent advised:

- LV-04 has been amended to include additional vegetation screening to the west of Overburden stockpile B
- it would consult with Council to determine the appropriate setback and precinct dimensions and siting of screening vegetation at the intersection of the Wimmera and Henty Highways.

Council submitted it was important the landscape screening at the intersection of the Wimmera and Henty Highways has a significant setback to ensure appropriate site distances are maintained. The photomontage figures in EES Appendix F do not show appropriate setbacks. Council recommends a setback of 300 to 400 metres.

Submitters raised issues relating to:

- impact on natural scenery and the landscape
- the location and scale of Overburden stockpile B and associated impacts to the adjacent residence.

The Proponent's 'Day 4' version of LV-04: Landscape screening requires the landscape screening locations proposed in EES Chapter 11 (see Figure 25 above) be established prior to commencement of the Project and:

> Additional landscape screening may be provided during Project implementation in response to community feedback where reasonably practicable to do so. It is anticipated that tree screening will be established between the Overburden B stockpile and the adjacent residential dwelling (R6) and associated business.
>
> Landscape screening must be maintained throughout the life of the Project.

Discussion

The Committee is satisfied the methodology used to assess landscape and visual impacts is appropriate and the overall conclusions of the EES are sound.

The EMF appropriately includes EMMs relating to location of infrastructure and Project activity areas, progressive mining and rehabilitation, landscape screening and lighting. The Committee addresses issues relating to lighting in following chapter of this Report.

The Committee accepts the recommended change to LV-04 proposed by the Proponent to require addition screening planting between Overburden stockpile B, and suggests an amendment to wording to require the landscape screening be established in consultation with the adjacent landholder. Further, consistent with the Proponent's suggestion that it would consult with Council regarding appropriate road intersection site distances, the Committee recommends LV-04 be amended to include this as a requirement.

Findings

Subject to its recommendations, the Committee finds:

- the visual impact Overburden stockpile B is acceptable, and landscape screening planting is appropriate

- the 'Day 4' versions of the Project Documentation are suitable for managing landscape and visual impacts
- the visual impacts of the Project will be acceptable.

Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure LV-04: Landscape screening to:

- **require the Proponent consult with Council where required to ensure appropriate road intersection site distances are maintained, and with the adjacent landholder to Overburden stockpile B.**

This change is included in Appendix G.

(iv) Lighting

The issue

The issue is whether lighting impacts of the Project are acceptable.

Evidence and submissions

Dr Denison gave evidence that several submissions raised concerns about light pollution and the potential to impact sleep. She explained:

- the LVIA discusses measures to minimise artificial lighting at night affecting nearby residences
- mitigation measures include a requirement to ensure "*lighting is baffled and directed to the ground installing motion-trigger mechanisms to reduce the duration of lighting, and installing perimeter landscaping to intervene in views to lighting from identified sensitive receptors residential dwellings)*"[78]
- the LVIA concluded that while the Project lighting would be noticeable, the impact would be minor to negligible due to the sensitive residential receptors in proximity to the Project and the presence of existing lighting.

With consideration of literature relating to exposure to artificial light at night and adverse health effects, Dr Denison concluded it was important to minimise exposure to artificial light at night as far as reasonably practicable. She advised that implementation of the proposed mitigation measures would be critical to minimising any health risks associated with exposure to artificial light at night.

The Proponent relied on the evidence of Dr Denison.

Several submitters were concerned about the impact of lighting including:

- light pollution
- night-time lighting, including potential to disturb sleep and negative impacts on health
- impacts on animals.

[78] Dr Denison expert witness statement (D36), page 32

Discussion

The Committee was not presented with any evidence or information that the mitigation measures or referenced Australian standard was not suitable or appropriate to manage identified impacts.

Consistent with the evidence of Dr Denison, the Committee considers it:

- important that impacts from night-time lighting are managed to minimise exposure as far as practicable
- the standard AS/NZS 4282 provides appropriate guidance on acceptable requirements.

The Committee suggests a minor amendment to the drafting of LV-05 to refer to AS/NZS 4282 rather than AS 4282.

Monitoring requirements include LV-0A Visual amenity inspections which requires periodic inspections from selected viewpoints to qualitatively assess the effects of lighting. This monitoring is important, and particularly from private viewpoints. The Committee recommends amending LV-0A to specify that private viewpoints must be included.

The Committee is satisfied the residual effects of lighting are acceptable subject to implementation of LV-05 and monitoring proposed through LV-0A, subject to its recommendations.

Findings

The Committee finds:

- The impacts of lighting pollution will be acceptable, subject to implementation of the mitigation measures in the EMF and subject to the Committee's recommended changes to LV-05 and LV-0A.

Recommendation

The Committee recommends:

Environmental Management Framework

Include the following changes:

a) Edit mitigation measure LV-05: Lighting impacts to:
- **refer to AS/NZS 4282 'Control of obtrusive effects of outdoor lighting'.**

b) Edit monitoring measure LV-0A: Visual amenity inspections to:
- **require periodic inspections to include private viewpoints.**

These changes are included in Appendix G.

(v) Overall conclusions on landscape and visual amenity

There are no landscape and visual impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure landscape and visual impacts are appropriately managed and minimised.

15.3 Wastes and emissions

(i) Introduction

The relevant evaluation objective is:

> Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Waste and emissions are discussed in:

- Chapter 3 – Project Alternatives
- Chapter 4 - Regulatory Framework
- EES Chapter 19 - Waste and Emissions
- EES Appendix Q - Waste and Emissions Impact Assessment.

The exhibited EMF included the avoidance and mitigation measures relevant to waste and emissions as shown in Table 52. Other waste and emissions issues and EMMs are addressed as relevant in Chapters 7 and 11.

Table 52 Waste and emissions - avoidance and mitigation measures

Code	Measure
WE-04	Potentially contaminated materials and sites will be assessed in accordance with the NEPM prior to mining.
WE-05	An energy efficiency program will be established to minimise greenhouse gas emissions over the life of the Project.
WE-06	A Waste Management Plan will be maintained to avoid and minimise waste and emissions so far as reasonably practicable.

The Committee has had regard to relevant submissions and TN-05 – Greenhouse Gas Emissions (D54).

(ii) Greenhouse gas emissions

The issue

The issue is whether GHG emissions will be adequately minimised.

What did the EES say?

EES Chapter 4 explained the *Climate Change Act 2017*:

- establishes a long term emissions reduction target of net zero by 2050 with five yearly interim targets
- introduces a new set of policy objectives and updated guiding principles to embed climate change in government decision-making.

It said:

> The EP Act defines greenhouse gas (GHG) emissions as a waste, and the GED applies. The Project has the responsibility to understand and minimise (so far as reasonably practicable) the risks of harm from GHG responsibility to understand and minimise (so far as reasonably practicable) the risks of harm from GHG emissions from any activity. This applies whether small or large amounts of GHG emissions are emitted.
>
> The Project is required to manage energy consumption and GHG emissions as part of ongoing integrated environmental management processes, systems and reporting.[79]

EES Appendix Q stated the GHG assessment for the Project included Scope 1, 2 and 3 emissions, as defined by the *National Greenhouse and Energy Reporting Regulations* 2008. Broadly Scope 1

[79] EES Chapter 4, page 4-15

emissions result from direct Project activities, Scope 2 emissions result from activities that produce energy consumed by the Project and Scope 3 are indirect emissions.[80]

The estimated GHGs for Scope 1 and 2 emissions generated by the Project relied on data provided by Greenbase Environmental Accountants which used emission factors and data from standard references and databases.

The EES detailed that the GHG assessment assumed the following would not occur:

- inefficient use of fossil fuels and electricity
- construction delays causing additional consumption of fossil fuels.

It said if these assumptions are incorrect, emissions may increase beyond those estimated.

Further assumptions included (among others):

- removal of approximately 3,600 hectares of vegetation over the life of the Project, which is considered very conservative
- all electricity would be from the grid based on available sources, and renewable energy was not available and had not been considered although sources may become available and viable over the lifetime of the Project
- transport of HMC to the PoP will be by road truck.

In total, GHG emissions equate to around 7.5 million tonnes of carbon dioxide equivalence (t/CO2-e) over the life of the Project. It is estimated:

- During construction, Scope 1, and 3 emissions will total of 77,784 t/CO2-e with approximately 80 per cent coming from stationery equipment fuel use. For scope 1 and 2 these emissions equated to 0.075 per cent of Victoria's annual emissions of carbon dioxide.
- During operations, Scope 1 and 2 emissions will total 187,000 t/CO_2-e each year with approximately 60 per cent coming from electricity and fuel consumption making up much of the rest[81]. This equated to 0.205 per cent of Victoria's annual emissions of carbon dioxide. Scope 3 emissions of 69,440 t/CO_2-e will be released with about 50 per cent resulting from shipping the HMC to China.

GHG emissions are proposed to be monitored and reduction targets set as part of a GHG and Energy Efficiency Program required by the EMF (WE-05). It proposes interim reduction and overall GHG emissions reduction targets for Scope 1 and 2 activities.

EES Appendix Q said:

> Targets and stretch targets for reducing GHG will be set and reviewed annually and consider targets required to achieve 'net zero' emissions by 2050 [sic].

The EES says the operational GHG emissions are likely to exceed the single facility threshold for National Greenhouse and Energy Reporting Scheme and it is expected the Proponent will be required to report annually to the Australian Government's Clean Energy Regulator.

The EMF includes mitigation measures related to avoiding and minimising GHG emissions such as investigating the use of alternatives to replace fossil fuels, reducing vegetation removal and investigating the purchase of renewable energy. No offset mitigation measures are proposed.

[80] EES Appendix Q, page 22

[81] Scope 1 and 2 are the greenhouse GHG emissions and energy consumption emissions that are required to be reported under the *National Greenhouse and Energy Reporting Act 2007*

Submissions

Some submitters were concerned the Proponent had not adequately identified or responded to the requirements of Commonwealth and State climate change legislation.

The Proponent provided TN-05 Greenhouse gas emissions in response to the Committee's RFI which requested further information about the proposed approach to managing GHGs in light of climate change legislation and the GED, as required by the EP Act.

TN-05 explained energy consumption and GHG emissions would be managed through its integrated environmental management and reporting system. It outlined some of the measures it proposed to implement during construction and operation including the possibility of purchasing renewable energy and reducing vegetation removal where possible.

Further, it would establish emissions reduction targets and would regularly monitor, report on progress and continually update its program to reduce GHG emissions far as reasonably practicable. It stated it would investigate new and emerging technologies, noting:

> …emissions must be reduced so far as reasonably practicable to meet the GED requirements. However, offsets for GHG emissions will also be investigated and used where necessary to achieve a net GHG emissions reduction target.[82]

The Proponent's revised EMF included the following changes:

- avoidance and mitigation measure:

  ~~WE-05 An energy efficiency program will be established to minimise greenhouse gas emissions over the life of the Project.~~

  WE- 05 GHG and Energy Efficiency Program

  A Greenhouse Gas and Energy Efficiency Program must be prepared and implemented to minimise GHG emissions. The program must be developed using the 'Protocol for Environmental Management (PEM): Greenhouse Gas Emissions and Energy Efficiency in Industry' (PEM, 2001) and the EPA's 'Guideline for minimising GHG emissions' (EPA, 2022).

  The Program must identify energy efficiency targets and measures to achieve these targets. The Program must set out the monitoring requirements required to evaluate the effectiveness of the management measures and must establish a mechanism to identify improvements. In setting targets, consideration must be given to Victoria's Climate Change Framework, as this sets out Victoria's long-term plan to achieve net zero emissions by 2050.

- monitoring requirement:

  WE-0B Energy use and greenhouse gas emissions monitoring

  Energy use and greenhouse gas emissions ~~will~~ must be monitored in line with the GHG and ~~Project~~ Energy ~~and GHG~~ Efficiency Program.

Experts Mr Bannan and Mr Sparke (D108) raised the issue of carbon being a commodity under the Energy Reduction Fund (or now known as the Australian Carbon Credit Unit Scheme) which could be a future revenue stream for farmers which they will be precluded from due to the Project. This issues was also raised by a submitter.

Some submitters referred to GHG emissions including:

- the Rail Freight Alliance and Council who supported the potential to move HMC to Portland by rail to reduce GHG emissions
- one submitter said the Project would add considerable GHG emissions and increase global warming which will affect generations to come

[82] Proponent TN-05, paragraph 15

- BDEC who said the Project should be required to source green energy or purchase offsets and this should start from the first year.

Discussion

The Committee accepts the assumptions and estimates informing the GHG emissions assessment.

The *Climate Change Act 2022* (Cth) sets out Australia's GHG reduction targets and other associated responsibilities and functions. The Victorian *Climate Change Act 2017* sets out Victoria's GHG reduction targets and other associated responsibilities and functions. New state interim targets and an overall net zero emissions target by 2045 were set in June 2023. The federal and State legislation sets the scene and policy framework for emissions reduction.

The Committee considers the avoidance and mitigation measure WE-05: GHG and Energy Efficiency Program should be updated and strengthened to adequately avoid, mitigate or manage the environment effects. The Committee proposes changes to the EMM to require:

- investigation into the feasibility of transitioning to renewable energy and/or introducing offsets, as far as practicable
- targets be set and regularly reviewed and adjusted if necessary to ensure they, at a minimum, align with any changes to Victoria's interim and net zero targets.

While a small contributor to Statewide GHG emissions, the Project is increasing rather than reducing Victoria's emissions. It therefore is incumbent on the Proponent to set ambitious GHG reduction targets to compensate for adding to Victoria's emissions.

The Project is likely be required to report its Scope 1 and 2 GHG emissions to the National Greenhouse and Energy Reporting annually which is a publicly available database. The greatest impact to reducing its Scope 1 and 2 emissions would be switching to renewable energy and there should be opportunities to add additional reduction measures such as incorporating solar panels on the project buildings. Another option for reducing Scope 1 and 2 emissions would be for the Proponent to offset its emissions.

While transport emissions (the Project's Scope 3 emissions) are not reportable under the National Greenhouse and Energy Reporting, switching to rail, when available, is likely to assist in reducing overall GHG emissions and assist the Project to reduce its GHG emissions and achieve Victoria's GHG targets. The GHG emissions impacts of switching to rail should be assessed as part of the proposed triple bottom line assessment (see Chapter 9.4).

To ensure transport emissions are adequately considered, the Committee has recommended in Chapter 9.2 that the Incorporated Document include a condition for a Green Travel Plan.

The Committee supports the Proponent's proposed change to monitoring requirement WE-0B, as shown in Appendix G.

Impacted landholders who may potentially be able to generate revenue through carbon farming is a matter for negotiation of LACAs.

Findings

The Committee finds:

- the measures proposed in the EMF need to be updated and strengthened to adequately avoid, mitigate or manage GHG emissions effects
- subject to its recommendations, the GHG emissions effects will be acceptable.

Recommendation

The Committee recommends:

Environmental Management Framework

Include the following change:

a) Edit mitigation measure WE-05: GHG and Energy Efficiency Program to:

- **require investigation of the feasibility of transitioning to renewable energy and/or introducing offsets as far as practicable, for energy efficiency targets to be set and a requirement for targets to be regularly reviewed and adjusted if necessary to ensure they, at a minimum, align with any changes to Victoria's interim and net zero targets.**

This change is included in Appendix G.

(iii) Waste

The issue

The issue is whether wastes will be minimised and adequately managed.

What did the EES say?

The EES (Appendix Q):

- identified and characterised liquid and solid waste generated and included an assessment of risks and residual impacts associated with these wastes
- identified waste management approaches to minimise the risk minimise risks to human health and the environment
- reviewed the EPA permissions (Permits, Registrations, and Licences) that will be required correctly managing general wastes.

The EES identified the general wastes that may be generated at the site included:

- vegetation from land clearing
- oil and fuel
- sewage
- chemicals
- building waste
- vehicle and machinery parts waste
- accidental spills
- unplanned wastes such as asbestos.

It documented assumptions relied on for its assessment of the Project's waste effects, including:

- data about materials required for the Project provided by the Proponent
- vehicles and equipment to be used by the Project
- all fuel using diesel
- concrete being ready mix
- steel that is imported.

The EES said:

- Two sewage management systems will be installed to treat up to 5,000 litres per day. Provided that the amount of sewage does not exceed 5,000 litres per day an A20 Permit

will be required from Council. If the amount of sewage generated exceeds that amount an A03 Licence will be required from the EPA.
- Up to 160,000 litres (4 x 40,000 litre tanks) of diesel fuel plus other hydrocarbons will be required for the Project. These will be required to stored according to the relevant standards (AS 1692 and AS 1949- 2004). The storage areas will need to be bunded, appropriately housed according to Dangerous Goods (Storage and Handling) Regulations 2012 and disposed of utilising the EPA's waste transport system.
- Vegetation waste through tree removal possibly mulched and composted with no off-site disposal proposed.
- Building waste will mostly be generated during decommissioning. There will be opportunities for some of this to be re-used or recycled.
- Underground fuel tanks, asbestos and illegal landfills may be found when sites are cleared and old buildings demolished. Disposal will need to comply with regulations.
- Waste tyre storage of less than 40 tonnes would require A09b Registration or if greater, and A09a Licence may be required.
- Vehicle and equipment parts may be recycled or otherwise correctly disposed of.
- General waste such as office waste, electronics and putrescibles potentially can be recycled or composted.

EES Appendix Q included a detailed risk assessment to identify and prioritise the further assessment of impacts.

The main type of residual risks, which were considered to be minor, related to incorrect storage, management and disposal of wastes, including:
- Non-compliance of waste and waste disposal with EPA Regulations
- waste not being sent to the correct place for disposal or not being disposed of properly
- land near storage areas being contaminated with chemicals
- asbestos in pipes and in building to be demolished.

EES Appendix Q recommended preparing a Waste Management Plan prior to the Project starting. The Waste Management Plan would defer to the EMS with regard to various standards.

Submissions

EPA submitted that all industrial wastes, including waste soil, will need to comply with the EP Act 2017, Regulations and any supporting legislation and guidance. It recommended:
- WE-06 Waste Management Plan include reference to the waste classification in accordance with Schedule 5 of the Regulations.
- amending the monitoring measure to require records be kept about the volumes and types of waste generated, re-used on-site and disposed of off-site and these records be routinely audited.

Some submitters raised issues relating to waste:
- the Project will generate sewage and other general waste and there would be bulk diesel, petrol and chemicals will be stored, dispensed and used at the WBA
- decommissioning the WBA will generate a range of waste.

Council submitted concrete was suitable for reuse and would like to discuss arrangements to facilitate its reuse.

The Proponent indicated in its Part B submission it fully accepted the EPA's recommendations relation to avoidance and mitigation measure WE-06 and monitoring measure WE-0A. The Proponent's updated EMF included the Waste Management Plan requirements as detailed in EES Appendix Q and changes in response to recommendations of the EPA.

The Proponent accepted the EPA recommendations and included them in its updated EMF.

Discussion

Generally the consideration of wastes in the EES is comprehensive, as are the requirements of Waste Management Plan in the updated 'Day 4' version of the EMF. The identified residual risks largely result from poor management and are likely to be breaches of EP Regulations, which will be monitored and managed.

The sewage management systems will be constructed to ensure the design and installation will be undertaken in accordance with the requirements of the EPA Publication 891 (EPA, 2016a) and are fit for purpose. The systems will be maintained and operated in line with the design specifications. The residual impact was assessed to be negligible, with all design and maintenance controls in place.

Fuel, chemicals and other dangerous goods stored as part of the Project.

There will be a requirement to comply with the *Dangerous Goods Act 1985* and *Dangerous Goods (Storage and Handling) Regulations 2023*. The *Dangerous Goods Act 1985* includes the following object:

- to promote the safety of persons and property in relation to the manufacture, storage, transport, transfer, sale and use of dangerous goods and the import of explosives into Victoria.

Schedule 2 of the *Dangerous Goods Act 1985* (Subject Matters for Regulation) relates to, among other things, the construction of buildings where the dangerous goods are to be stored, their distance from other buildings and from roads, rail and public places.[83]

The *Dangerous Goods (storage and Handling) Regulations 2023* has the following objective:

- to provide for the health and safety of people, property and the environment in the manufacture, storage, transfer, use, handling, sale and disposal of dangerous goods.

The regulations impose obligations on how these goods are stored and handled as well as requirements about signage and staff training.

Reference to dangerous goods storage requirements should be included in both WE-06 in the EMF and the Incorporated Document.

The Proponent's 'Day 4' version of the EMF includes the following WE-06: Waste Management Plan requirement:

- Ensure all dangerous goods on-site (including waste hydrocarbons and chemicals) are stored in accordance with AS 1940-2004 'The storage and Handling of Flammable and Combustible Liquids', AS 1692 'Tank Storage of Fuels', and EPA Publication 1698 (EPA, 2018).

This is supported, and the Committee recommends requirement WE-06 be amended to include the *Dangerous Goods Act 1985* and the *Dangerous Goods (Storage and Handling) Regulations*

[83] Clauses 22, 40 and 42

2023. CW – I can't see where this would go in the WE-06 – it doesn't include the legislation just the guidelines etc.

The Committee notes the changes to monitoring measure WE-0A in the Proponent's 'Day 4' EMF did not fully capture the recommendations of the EPA. The Committee prefers the wording of the Proponent and considers this appropriately captures monitoring requirements to reflect the relevance of Waste duties.

It is important to identify where dangerous goods may be stored at the WBA to ensure storage and handling requirements are considered and appropriately planned for. The Committee recommends condition 5.4 in the Incorporated Document requiring a Development Plan be amended to also show the location and layout of any proposed dangerous goods storage buildings.

Findings

The Committee finds:

- the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage waste effects, subject to its recommendations related to storing and handling dangerous goods.

Recommendations

The Committee recommends:

Environmental Management Framework

Include the following change:

a) edit mitigation measure WE-06: Waste Management Plan to:
- **require the Waste Management Plan be in accordance with the *Dangerous Goods (Storage and Handling) Regulations 2023*.**

Incorporated Document

Include the following change:

b) Amend condition 5.4 d) iii to:
- **require the Development Plan show the location and layout of proposed buildings including dangerous goods storage buildings.**

These changes are included in Appendices G and H.

(iv) Overall conclusions on wastes and emissions

There are no waste and emissions impacts that preclude the Project being approved or the evaluation objective being achieved. The EMF should however be amended to ensure:

- transition to renewable energy or introducing offsets as far as practicable is considered, and targets to be set and regularly reviewed to align with State targets
- consideration of dangerous goods regulations.

The Incorporated Document should be amended to require the Development Plan show the location and layout of buildings including for dangerous goods.

15.4 Land use and planning

(i) Introduction

The relevant evaluation objective is:

> Minimise adverse social, land use and infrastructure effects.

Land use and planning is discussed in:

- EES Chapter 4 – Regulatory Framework
- EES Chapter 8 – Land Use and Planning
- EES Appendix B – Land Use and Planning
- EES Attachment 2 – Draft Planning Scheme Amendment.

The exhibited EMF included the avoidance and mitigation measures shown in Table 53.

Table 53 Land use and planning - avoidance and mitigation measures

Code	Measure
LP-01	The WBA secondary processing facility is situated within the Wimmera Intermodal Freight Terminal (WIFT) Precinct, which is a Special Use Zone (SUZ9) established for industrial purposes, including the processing, storage and handling of mineral sands. The placement of the facility within the WIFT Precinct will avoid the loss of land parcels currently zoned for farming.
LP-02	Land will be purchased prior to the commencement of works or Land Access and Compensation Agreements will be negotiated such that landholders are reasonably compensated.
LP-03	A Rehabilitation Plan will be established for the Project that will address matters relating to progressive rehabilitation and closure.

(ii) Land use and planning impacts

The issue

The issue is whether land use and planning impacts are acceptable.

What did the EES say?

EES Chapter 8 – Land Use Planning explained the scope and methodology of the Land Use and Planning Impact Assessment. It identified potential impacts (see Table 54), sensitive receptors (see Table 55) and avoidance and mitigation measures.

Table 54 Land use and planning potential impacts

Item	Potential Impacts	Phase[1]
IP-01	Permanent or temporary changes to land use resulting in the loss of an existing beneficial use within or adjacent the development extent.	C, O, D
IP-02	Inconsistencies between the Project objectives and the Planning Policy Framework or Municipal Planning Strategy resulting in a misalignment with the overarching vision for the area.	C, O, D
IP-03	Other commercial or industrial developments may be attracted to the area as an indirect effect of the Project, resulting in agglomeration impacts.	C, O, D

Table 55 Land use and planning sensitive receptors

Receptor Type	Sensitive Receptors
Landholders	Landholdings and residential dwellings within the immediate vicinity of the proposed mining licence and WIM Base Area that may be subject to changes in land use (refer Figure 8-9 and Figure 8-15).
Transport (Minor roads)	Minor government roads within the proposed mining licence and WIM Base Area (refer Figure 8-11). No change in land use is planned for Wimmera Highway, Henty Highway or Stawell-Horsham Railway.
Crown land tenure	Crown land tenure parcels that may be subject to land use changes (refer Figure 8-12 and Figure 8-13).

Key avoidance and mitigation measures include:

- use of the WIFT for the WBA to avoid further loss of farming land
- LACAs or purchase of some properties
- Rehabilitation Plan.

With avoidance and mitigation measures in place, residual impacts of loss of existing land use included:

- loss of existing land use within MIN area (loss to individual landholders would be compensated for with LACAs)
- economic impacts (positive regional economic effect)
- non-landholder impacts (negligible to minor)
- traffic impacts on local roads (minor)
- loss of agricultural land (temporary).

The EES said that the Project was consistent with State and local planning policies, except for the protection of agricultural land. It said that while there will be temporary loss of agricultural land of up to 400 hectares at any one time this would be returned to agricultural land within four years of each cell being minded.

The EES said the Project is only one of a number of mineral sands projects in the region and:

> Collectively the cumulative impact of agricultural land temporarily removed from agricultural production for the purpose of mineral production is relatively minor in a regional and national context.

Submissions

Land use and planning issues raised in submissions are documented in other chapters of this Report.

Discussion

Environmental objectives for the Project include:

- There will be no permanent change to land use within the development extent due to Project activities.
- Agricultural productivity and soil profile capability of the rehabilitated landform will be commensurate with surrounding unmined areas.

In balancing policies, the Committee accepts the temporary loss of agricultural land is offset by the benefits of resource recovery, noting the maximum disturbed area will average less than 400 hectares at any one time and the mine will be progressively rehabilitated and returned to productive farmland.

This does not disregard impacts to directly impacted landholders. As discussed in Chapter 5(iii) of this Report, the Committee acknowledges the significant impacts of the Project on directly affected landholders. LACAs are the primary mechanism for mitigating and minimising impacts on landholders, however not all impacts can be mitigated through the compensation package.

The Committee recommends a number of measures to complement the LACAs to avoid and minimise impacts on landholders. Key recommendations relate to soil and land rehabilitation (see Chapter 7), the local road network (see Chapter 9.3), amenity issues (see Chapters 10 and 15.2), historic heritage (see Chapter 15.1), socioeconomics (see Chapter 13) and mental health (see Chapter 14).

Subject to the Committee's recommendations, following mining, full rehabilitation and decommissioning:

- there should be no permanent change to land use within the development extent due to Project activities
- it is expected that agricultural land will be returned to the same or better state of productivity.

Findings

Subject to its recommendations in other chapters of this Report, the Committee finds:

- the measures proposed in the EMF are adequate to sufficiently avoid, mitigate or manage land use and planning effects
- land use impacts are acceptable.

(iii) Overall conclusions on land use and planning

There are no land use and planning impacts that preclude the Project being approved or the evaluation objective being achieved.

PART C: IMPLEMENTATION AND INTEGRATED ASSESSMENT

16 Project implementation

16.1 Draft Horsham Planning Scheme Amendment C84hors

(i) Introduction

Draft PSA

Clause 5 of the Committee's ToR requires it to review the draft PSA, consider submissions and recommend any changes it considers necessary.

The draft PSA proposes to introduce an Incorporated Document through a schedule to the SCO to facilitate the WBA component of the Project in the WIFT. The extent of the proposed SCO is shown in Figure 12.

The exhibited Incorporated Document exempts the WBA from other Planning Scheme provisions. The purpose of the control is to permit and facilitate the use and development of the Project land for the purposes of a secondary mineral processing facility and other infrastructure in the WBA.

The draft PSA is included in EES Attachment 2, and is described in Chapter 3.5 of this Report. Project approvals are described in Chapter 4 of this Report, and Appendix F details the regulatory context of the Project.

EES Appendix B – Land Use and Planning summarised the stakeholder consultation undertaken including with Council, ERR, DELWP (former department) and with the community including the Community Reference Group, commercial businesses and landholders.

Explanatory report

The Explanatory Report described why the amendment is needed including to:

- authorise and regulate the use and development of the WBA for HMC processing
- allow the WBA to be used and developed in a manner that would otherwise be prohibited or restricted and in accordance with the draft Incorporated Document
- provide streamlined and coordinated approval for the permitted use and development
- provide a single consolidated planning control for the WBA.

It explained how the draft PSA implements the relevant objectives of planning in Victoria under the PE Act, in particular:

- To provide for the fair, orderly, economic and sustainable use, and development of land (s.4(1)(a)).
- To provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity (s.4(1)(b)).
- To facilitate development in accordance with the objectives set out in paragraphs (a), (b), (c), (d) and (e) ((s.4(1)(f)).
- To balance the present and future interests of all Victorians (s.4(1)(g)).

It described the environmental, social and economic effects associated with the project, a summary of residual effects and associated mitigation measures.

It explained:

- why the SCO and Incorporated Document were selected as the most appropriate Planning Scheme controls

- the draft PSA maintains the existing zone to the Project land, and the SCO maintains the current permit triggers and will not change the permit triggers for proposed use and development not associated with the Project
- the relevant requirements of the existing DPO9 and DDO11 are addressed in various requirements in the Incorporated Document
- the consultation with government agencies in preparation of the draft PSA, including early consultation with the EPA as required by Ministerial Direction 19.[84]

(ii) Submissions

The Proponent progressively amended the Incorporated Document during the Hearing in response to evidence and submissions:

- 'Day 1' version before the Hearing (D49)
- 'Day 2' version (D105)
- 'Final day' versions with its closing submissions with and without tracked changes (D132 and D133)
- 'Day 4' versions following the Hearing with and without tracked changes (D148 and D149).

Parties were given the opportunity to provide written comments on the 'Final day' versions following the close of the Hearing.

General issues relevant to the draft PSA were raised in submissions including:

- whether it was appropriate to regulate the WBA through the Planning Scheme
- whether the exhibited material was adequate
- giving effect to the EMF through the Incorporated Document
- appropriate certification and audit processes.

These submissions are summarised in other chapters of this Report, including:

- Chapter 5(v) - WBA approvals and the WIFT
- Chapter 5(vi) - Giving effect to the EMF
- Chapter 5(vii) - Exhibition of draft work plan and management plans
- Chapter 5(viii) - Continuous improvement and quality assurance.

Specific issues related to conditions in the Incorporated Document are summarised in other chapters of this Report, including:

- the need for a green travel plan (see Chapter 9.2)
- allowance for provision of required ancillary rail infrastructure (see Chapter 9.4)
- storage of dangerous goods (see Chapter 15.3(iii))
- AQMP (see Chapter 8).

Council made a number of suggestions to the drafting of the Incorporated Document to improve clarity of the purpose, scope and conditions. It submitted it is important the proposed land use activities operate in a way that complements the balance of the WIFT's planning controls.

[84] Ministerial Direction 19: Preparation of and Content of Amendments that may Significantly Impact the environment, Amenity and Human Health

Council submitted a number of additional management plans should be required by the Incorporated Document including a Drainage Management Plan, Site Decontamination and Rehabilitation Plan, Infrastructure Plan, AQMP and Green Travel Plan.

In its comments on the 'Final day' version of the Incorporated Document, Council accepted many of the changes proposed by the Proponent, however it made submissions that:

- staged approval of the Development Plan is acceptable if a Development Master Plan is first prepared and approved by the responsible authority
- the Project's activities should be in accordance with an approved EMP and the EMS required under the EMF to the satisfaction of the responsible authority until the final closure and conclusion of rehabilitation
- a need to clarify the purpose of the environmental audit at the conclusion of the Project
- a cessation date for mining and processing activities should be included in place of an end date of the Incorporated Document so all other obligations can be required and undertaken.

The EPA submitted, and the Proponent agreed, the requirement to consult with it in preparing the Decommissioning Plan was not required.

One submitter raised concerns there was no dispute resolution clause in the Incorporated Document, and the Development Plan should be prepared in full, not in stages.

One submitter objected to the expiry condition, suggesting works should be required to begin within 2 years of Project approval, and then a further one year be allowed for development of the Project land to be completed. He considered the conditions should require the approval to be acted on in a timely manner, and should not be able to be extended forever.

The Proponent accepted a number of drafting changes proposed by Council and included these in its 'Day 4' version of the EMF. It did not accept some of Council's suggested changes including:

- reference to the EMS is captured through the conditions relating to the EMF
- it did not consider the Project is suited to a Development Plan Master Plan in the event of staging, on the basis that if the mine proceeds there is certainty about when the WBA development will be complete
- it did not accept that further plans should be conditioned as these matters are already addressed
- the changes to expiry of the control as this is already covered by the condition which says the controls expire after issue of an environmental audit statement at conclusion of the Project.

In response to Council's submission, the Proponent amended the condition relating to the environmental audit at the conclusion of the Project to state the purpose of the audit it to demonstrate the Project land is suitable for the purpose end use nominated in the Decommissioning Plan.

The Proponent's 'Day 4' version of the Incorporated Document included the following conditions:

> 5.2 Any plan required by the conditions of this Incorporated Document must be:
>
> a) generally in accordance with the Minister's assessment of the environmental effects of the Avonbank Mineral Sands Project dated [INSERT] under the Environment Effects Act 1978 (Minister's Assessment) unless otherwise approved by the responsible authority; and

b) address the requirements of, and be consistent with, the 'Day 4' Environmental Management Framework dated 1 September 2023 tabled before the inquiry and advisory committee for the Avonbank Mineral Sands Project environment effects statement (Day 4 EMF).

5.3 To the extent of any inconsistency between the Minister's Assessment and the Day 4 EMF, the Minister's Assessment prevails.

It also included conditions for additional sub plans (see Table 56).

Table 56 Plans required in the Incorporated Document – exhibited and Day 4 versions

Exhibited Incorporated Document	'Day 4' Incorporated Document
Development Plan	Development Plan
Construction Management Plan	Construction Management Plan
Environmental Management Plan	Environmental Management Plan
Noise and Vibration Management Plan	Noise and Vibration Management Plan
Native Vegetation Management Plan	Flora and Fauna Management Plan
Traffic Management Plan	Traffic Management Plan
Fire Management Plan	Fire Management Plan
Nil	Decommissioning Plan
Nil	Compliance Assessment Plan

(iii) Discussion

The Committee has addressed a number of preliminary issues related to the draft PSA in Chapter 5 of this Report. Specifically, the Committee found:

- it is appropriate to regulate the WBA in the WIFT using an Incorporated Document in the Planning Scheme rather than through the MIN
- the components of the EMF should be enforceable through the Planning Scheme and the Incorporated Document should include a requirement to comply with the EMF
- it is not necessary to prepare and exhibit all draft management plans and, subject to its recommendations, the Project Documentation appropriately details requirements of each management plan
- it is important over the life of the Project to ensure that approvals allow for adaptation to changes in regulations and a dynamic approach to manage risks, and the requirements for review and update of management plans, and compliance and auditing processes must reflect this.

The Committee's recommended Incorporated Document at Appendix H includes changes accordingly.

As discussed in Chapter 5(v), Council raised concerns that regulating mining activities is not a core competency of Council and ongoing compliance and enforcement presented some challenges with regards to resourcing, skills and expertise. While the Explanatory Report states it is not expected the Project will have any unnecessary impact on the administrative costs for Council, Council does not agree. While the role for Council as responsible authority for the WIFT is pre-conceived and pre-existing, adequate resourcing is important and if necessary, should be explored outside of the Committee process.

In relation to specific environmental effects, the Committee has recommended the following changes to the Incorporated Document (as shown in Appendix H):

- a green travel plan for the WBA in line with EMF requirements (see Chapter 9.2)
- allowance for provision of required ancillary rail infrastructure to enable use of rail if it becomes feasible during the Project (see Chapter 9.4)
- that the Development Plan must show the location and layout of proposed buildings, including for storage of dangerous goods (see Chapter 15.3(iii))
- an AQMP for the WBA in line with EMF requirements (see Chapter 8).

The Committee is satisfied the proposed Incorporated Document adequately captures the requirement of existing controls, and notes draft PSA maintains the existing planning controls for proposed use and development not associated with the Project.

The Committee has reviewed the drafting changes proposed by Council and suggests some minor changes in addition to those accepted by the Proponent.

The Committee agrees with Council there is merit in requiring a Development Plan Master Plan if the Development Plan is proposed to be prepared and approved in stages. In the context that the WBA is located in the broader WIFT precinct, Council is responsible authority for surrounding precinct development and a coordinated approach is important to delivery of the vision for the precinct. It will also assist Council, other authorities, stakeholders and the community to understand the complete plan for the WBA. This condition should only be used if the Proponent seeks approval in stages.

The Committee supports clauses 5.2 and 5.3 proposed by the Proponent which requires:

- any plans prepared under the Incorporated Document to be generally in accordance with the Minister's assessment of the EES, and to address the requirements of the 'Day 4' EMF
- to the extent of any inconsistency the Minister's assessment prevails.

The EMF contains EMM SE-02 requiring an EMS and which describes its purpose and scope . It says the EMS will:

- be consistent with the AS/NZS ISO14001:2016 Standard
- be developed and maintained across the whole Project including the WBA
- provide a consistent management approach
- be refined before commencement of the Project and is to consider the outcome of the EES assessment and approvals.

The EMS is not in itself a plan and is not intended as a regulatory tool. The EMS establishes the framework for review and update of management plans required by the EMF (discussed in Chapter 5(viii) of this Report).

The Committee accepts the submissions of the Proponent that the EMS is embedded in the EMF and in this context does not require specific reference in the Incorporated Document. However, there must be a trigger for update of management plans required by the Incorporated Document to be in line with the EMS. Clause 5.6 includes a condition for the EMP to include "*A description of the appropriate review periods and/or triggers to ensure the continued effectiveness of the EMP*". The Committee's recommended version of the Incorporated Document includes amended condition 5.6 to ensure the EMP reflects the EMS requirements as detailed in the EMF. This is complemented by the Committee's recommended new clause 5.15 discussed in Chapter 5(viii) of this Report.

The Committee has reviewed the suggested drafting changes proposed by Council and the Proponents response, and has made some changes it considers will improve clarity and assist with interpretation and application of the planning control. These changes are included in the Committee's recommended version of the Incorporated Document as shown in Appendix H.

The Committee supports the Proponent's 'Day 4' version changes Decommissioning Plan clause to state:

> At the conclusion of the site decontamination (if any) and rehabilitation, an environmental audit statement under the *Environment Protect Act 2017* in respect of the Project Land which demonstrates that the Project Land is suitable for the proposed end use nominated in the approved Decommissioning Plan must be provided to the responsible authority.

There are a number of checks and balances in the expiring clause in the 'Day 4' version of the Incorporated Document which responds to the issues raised in submissions. It includes conditions related to commencement of development and use of the land, and includes a condition that the controls expire after the issue of an environmental audit following decommissioning and closure. These are supported by the Committee.

(iv) Findings

The Committee has reviewed the draft PSA in the context of its ToR and finds:

- it is consistent with the objectives of planning under the PE Act
- the planning controls in the draft PSA are appropriate to facilitate the Project
- subject to its recommendations, the Committee supports the Proponent's 'Day 4' version of the Incorporated Document (D148).

As noted in Chapter 1.3(iii) of this Report, the Committee has used the Proponent's 'Day 4' version of the Incorporated Document (D148) as the basis of its recommendations shown in Appendix H.

(v) Recommendation

The Committee recommends:

Incorporated Document

Include the following changes:

a) **Edit clause 5.4b) to provide for a Development Plan Master Plan if the Development Plan is proposed to be prepared and approved in stages.**
b) **Edit clause 5.6 Environmental Management Plan to require the Environmental Management Plan reflect the Environmental Management Systems requirements as detailed in the Environmental Management Framework.**

Draft Planning Scheme Amendment

Approve the draft Horsham Planning Scheme Amendment C84hors, subject to amending the Avonbank Mineral Sands Project Incorporated Document in line with the Committee's recommended version shown at Appendix H.

16.2 The Environmental Management Framework

(i) Scoping Requirements

The Scoping Requirements state the EMF:

> …is needed for project construction, operation, rehabilitation and closure to achieve predicted environmental outcomes, statutory requirements and stakeholder confidence. The EMF will articulate clear accountabilities for managing and monitoring environmental effects and risks associated with all project elements and phases.[85]

Chapter 3.4 of this Report describes the exhibited EMF.

The Scoping Requirements said the EMF should include:

- required approvals and consents
- an EMS to be adopted
- responsibilities and accountabilities
- EMMs
- environmental risk register
- arrangements for baseline and monitoring data management and access
- arrangements for management of incidents and emergencies
- performance criteria and monitoring requirements.

It must also:

- include a proposed community engagement program
- set the scope for later development and review of environmental management plans for all project phases
- outline internal and external auditing and reporting requirements.

(ii) Submissions

As mentioned in Chapter 3.8, the Proponent submitted it had made changes to the 'Day 1' EMF in response to evidence and submissions from the EPA requesting to make the EMF a statutory control document.

The Proponent progressively amended the EMF during the Hearing in response to evidence and submissions:

- 'Day 1' versions of the EMF with and without tracked changes (D47 and D48)
- 'Day 2' versions of the EMF with and without tracked changes (D103 and D104)
- 'Final day' versions of the EMF with and without tracked changes (D130 and D131)
- 'Day 4' versions of the EMF with and without tracked changes (D146 and D147).

Parties were given the opportunity to provide written comments on the 'Final day' versions following the close of the Hearing.

Among other things, Council was concerned the EMF allowed for management plans to be prepared and approved in stages.

The EMF was the subject of submissions and evidence related to:

[85] EES Appendix A, page 8-9

- how the EMF would be enforced and quality assurance as discussed in Part A of this Report
- environmental effects as discussed in Part B of this Report.

Issues related to the exhibition of management plans required by the EMF are discussed in Chapter 5(vii) - Exhibition of draft work plan and management plans.

(iii) Discussion

The EMF is the primary tool that links all of the Project's legislative responsibilities with plans and procedures to avoid, minimise, monitor and manage risks. The Committee is satisfied the EMF will provide an appropriate framework for managing all aspects of the Project operations and activity areas.

This matter is discussed in Chapters 5(vi) and 16.1 where the Committee has concluded, subject to minor drafting changes, that the Proponent's 'Day 4' version of the Incorporated Document is appropriate.

The Committee has recommended changes:

- ensure the EMF is enforceable and contains appropriate review and update requirements for management plans, as discussed in Part A of this Report
- manage environmental effects of the Project and to ensure impacts are acceptable, as discussed in Part B of this Report.

Subject to its recommendations, the Committee's is satisfied the 'Day 4' EMF:

- identifies required approvals and consents
- details the EMS, responsibilities and accountabilities
- includes EMMs
- requires that all relevant management plans summarise baseline data
- requires key records be kept for monitoring data, among other things
- addresses requirements for emergency management
- details performance criteria and monitoring requirements
- sets the scope for later development and review of management plans for all project phases
- outlines auditing and reporting requirements.

The Aspects and Risks Register currently sits outside of the EMF (EES Attachment 5). The EMF states:

> A preliminary register of environmental aspects is attached to the EES. This register must be further developed prior to commencement with consideration to the Minister's assessment of the EES and the detailed mine operating plans.

Further it says the Aspects and Risks Register will be integrated with the EMS.

The Committee recommends the EMF state the Aspects and Risks 'must', rather than 'will', be integrated into the EMS, and must be generally consistent with the exhibited EES Attachment 5 – Aspects and Risks and, if required, updated to be consistent with the Minister's assessment of the EES.

Similarly the EMF includes a framework for community engagement and complaints management (Section 24.9) and EMM SE-02 includes requirements for a community engagement plan. SE-02 says EES Chapter 5 – Community Engagement provides an overview of the community

engagement strategy. The Committee recommends EMM SE-02 require the Community Engagement Plan be generally consistent with the exhibited EES Chapter 5 – Community Engagement and, if required, updated to be consistent with the Minister's assessment of the EES.

These changes will ensure that the information exhibited with the EES is embedded in the regulatory controls, consistent with the Minister's assessment of the EES. This is important to provide continuity with expectations related to exhibited material and for transparency.

The Committee notes that in response to evidence and submissions the Proponent included significantly more detail in the 'Day 1' version of the EMMs in the EMF than the exhibited version. The detail was generally sourced from the EES chapters and technical appendices, and for example included expansive descriptions of requirements for each management plans.

While the Proponent made a number of drafting refinements during the Committee Hearing process, reflected in its 'Day 4' version of the EMF, the Committee observes there are opportunities to further refine drafting. The Committee has not undertaken this task for the entire EMF, and has focused its proposed changes on implementing its recommendations. The Committee recommends further drafting refinement of the EMF and EMMs to reduce repetition and improve clarity.

As shown in the Committee's recommended version of the EMF at Appendix G, the Committee also suggests some changes to assist with readability of the EMF and clarity of the requirements. For example:

- inclusion of a table of abbreviations and glossary
- consistent reference to other organisations.

The EMF will require further review prior to approval in order to identify any consequential changes resulting from the Committee's recommendations, including the changes to the EMMs and monitoring measures.

(iv) Findings

The Committee finds the 'Day 4' version of the EMF appropriate, subject to its recommendations.

(v) Recommendations

The Committee recommends:

Environmental Management Framework

Amend the Environmental Management Framework in line with the Committee's recommended version shown at Appendix G.

Include the following changes:

a) edit Section 24.5.3 Risks and Opportunity as follows:

- **An Aspects and Risks register must be integrated into the Environmental Management System, and must be generally consistent with the exhibited Environment Effects Statement Chapter 5 – Aspects and Risks and, if required, updated to be consistent with the Minister's assessment of the Environment Effects Statement.**

b) edit mitigation measure SE-02: Environmental Management System and Community Engagement Plan to:

- **require that the Community Engagement Plan must be generally consistent with the exhibited Environment Effects Statement Chapter 5 – Community Engagement and, if required, updated to be consistent with the Minister's assessment of the Environment Effects Statement.**

These changes are included in Appendix G.

16.3 Matters of National Environmental Significance

(i) Introduction

The Project was determined to be a controlled action under the EPBC Act due to potential significant impacts on listed threatened species and ecological communities and nuclear actions.

Clause 14 of the Committee's ToR states:

> Under the bilateral agreement between the Australian and Victorian governments, the Victorian EES process is serving as the accredited process for the assessment purposes of the EPBC Act. The assessment of environmental effects to be made by the Victorian Minister for Planning will be provided to the Commonwealth Minister for the Environment to inform the approval decision under the EPBC Act.

(ii) What did the EES say?

EES Chapter 25 – Matters of National Environmental Significance was prepared to respond to Scoping Requirements supported by EES Appendix I – Radiation Risk Assessment and EES Appendix P – Flora and Fauna Impact Assessment.

Other relevant sections of the EES include:

- EES Chapter 21 and EES Appendix P which address flora and fauna (see Chapter 12)
- EES Chapter 14 and EES Appendix I which address radiation (see Chapter 6)
- EES Chapter 4 which describes the regulatory framework including the EPBC Act.

EES Chapter 25 described:

- the controlled action
- the places affected by the action
- any MNES that are likely to be affected by the action; and
- all relevant impacts on MNES and the extent of the likely impacts.

The Project was determined to be a controlled action due to provisions relating to threatened species and communities and protection of the environment from nuclear actions.

The assessment of potential impacts on MNES considered all Project activity areas and all phases of the controlled action, including construction, operation and post-mining.

The assessment of potential impacts was undertaken with regard to relevant EE Act and EPBC Act Guidelines (see Appendix F).

Flora and ecological communities

The EES identified (see Chapter 12) four TECs and two flora species listed under the EPBC Act with potential to occur. Of those, surveys found patches of Buloke Woodlands within the development extent. The EES included an assessment of potential impacts undertaken with reference to the National Recover Plan for Buloke Woodland of the Riverina and Murray Darling Depression Bioregions and the MNES Significant Impact Guidelines.

With regard to significant impact criteria "*Reduce the extent of an ecological community*" the assessment found:

- the Project proposes to remove 0.23 hectares of Plains Savannah EVC (which is consistent with the EPBC Act listed ecological community Buloke Woodlands)
- the stands were assessed as being of low quality and of simplified composition
- the stands are small and of less value/priority for conservation according to the National Recover Plan
- nonetheless the loss will reduce the extent of the TEC, albeit of lower value stands.

Other significant impacts were determined to be unlikely.

The EES described measures in place to avoid and minimise impacts, including avoidance of 4.78 hectares of vegetation representative of Buloke Woodlands and 107 individual trees. EES Chapter 25 concluded the residual impact "*is unlikely to constitute a significant impact under the EPBC Act, and offsets under the EPBC Act are not expected to be required*".

There were no expected direct or indirect effects identified on GDEs.

Fauna

The EES identified there was one threatened fauna species, the White-Throated Needletail, listed under the EPBC Act that may be impacted within the development extent through removal of habitat. It is a migratory marine species listed as vulnerable and had a high likelihood to occur.

The EES included an assessment against the significant impact criteria for vulnerable species. All significant impacts were determined to be unlikely.

Targeted surveys were undertaken for other species but none were recorded.

The EES described measures in place to minimise impacts, including avoidance of vegetation removal and retaining 5.64 hectares of woodland communities and 111 scattered trees. Further measures included the FFMP and the Rehabilitation Plan. The EES said that residual impacts from patches of vegetation loss are unlikely to affect the occurrences of White-Throated Needletail across the region, or have a significant impact on the species.

Radiation

Chapter 6 of this Report describes what the EES says regarding radiation.

EES Chapter 25 included an assessment of impacts related to nuclear action/radiation. This included hazards to the general public, non-human biota and the general environment.

It concluded the risk to humans and non human biota during operations and rehabilitation of the mining site, including EPBC listed flora and fauna species to be negligible.

The radiation impacts assessment on groundwater and surface water were also examined and concluded that "*the potential for seepage of radionuclides from the rehabilitated site into the existing groundwater system or surface waters will be identical to the existing pre-mining conditions*".[86]

[86] EES Appendix I, page 4

(iii) Evidence and submissions

Evidence and submissions relevant to these matters are detailed in Chapters 6 and 12 of this Report.

The Flora and Fauna Peer Review identified additional EPBC Act listed fauna species as being likely in or near the project, and additional native vegetation for removal.

Mr Lane gave evidence no significant impacts were expected to occur on any species or communities listed under the EBPC Act.

(iv) Discussion

Discussion relevant to MNES is detailed in Chapters 6 and 12 of this Report, and is not repeated here.

The Committee accepts the evidence and submissions that the Project will not significantly impact MNES nor require offsets under Commonwealth legislation, and the conclusions of EES Chapter 25 that:

> It is anticipated the Avonbank Project can be implemented in accordance with the principles of ecologically sustainable development outlined in the EPBC Act.

The Committee has however made various recommendations relevant to MNES including:

- RD-02 to require sealing of trailers on transport trucks
- RD-08 to require the RMP be approved by the Department of Health
- FF-01 for vegetation exclusion zones to be established and maintained
- FF-02 for tree protection zones to be established and maintained including for patches and scattered trees
- FF-03 to require periodic surveys be undertaken as required under the FFMP and in accordance with timeframes required by the Assessor's Handbook over the life of the project and before commencement of each mining block and along the minor utilities corridors and public roads before construction of pipelines
- FF-06 to require the FFMP to specify review periods, consideration of further avoidance and mitigation measures following surveys, documentation of targeted survey methods, development of a native vegetation rehabilitation plan under the guidance of a suitably qualified ecologist
- FF-07 to require a native vegetation rehabilitation plan
- GW-05, GW-0B and FF-05 to specify monitoring and investigation requirements to protect GDE health
- FF-0D to require targeted fauna surveys be undertaken in consultation with DEECA prior to construction and a schedule of fauna surveys aligned with Project phases.

As discussed in other chapters of this Report, given the Project timeframe and progressive nature of the Project, the Committee considers the progressive survey work recommended is critical for assessing and determining any potential changes to avoidance and mitigation measures to flora and fauna.

(v) Overall conclusions on MNES

The Committee concludes:

- Based on its assessment in Chapters 6 and 12, the Committee is not aware of any matters that would require or preclude approval under the EPBC Act.

- MNES impacts can be acceptably managed through the Committee recommended EMF.

16.4 Other approvals

The Project will require various approvals as summarised in Chapter 4 of this Report and detailed in EES Chapter 4. Specific approvals are addressed, as relevant, in the issue specific chapters in Part B of this Report.

The Committee supports the relevant approvals and consents, subject to its recommendations.

17 Assessment

This Chapter includes an integrated assessment with consideration of:

- legislation and policy
- net community benefit and sustainable development
- assessment against evaluation objectives
- response to ToR.

17.1 Integrated assessment

(i) Legislation and policy

Relevant legislation, polices and guidelines are described in Appendix F of this Report, and are addressed, as relevant, in the issue specific chapters in Part B of this Report.

The Committee considers the Project EES has considered the relevant legislation. The Committee addressed some preliminary matters relating to consideration of relevant legislation in Chapter 5 including the proposed update to MRSD Act to become the *Mineral Resources and Extractive Industries Act 1990* through the *Mineral Resources (Sustainable Development) Amendment Bill 2023*. In this context the Committee has recommended general conditions for the appropriate regulatory authority to determine how they may be implemented through relevant approval documents, which may or may not include a work plan depending on when the updated legislation is approved.

The Committee's assessment of relevant policies and guidelines, as relevant to specific issues discussed in Chapter 5, Part B, and the summary in Appendix F of this Report shows the Project is strongly supported by national, regional and local mineral resources and economic development strategies and polices and is consistent with local policies related to environment and landscape, risks and amenity and natural resource management.

As discussed in Chapter 15.4, the Committee accepts the temporary loss of agricultural land is offset by the benefits of resource recovery, noting the maximum disturbed area will average less than 300 to 400 hectares at any one time and the mine will be progressively rehabilitated and returned to productive farmland.

Through its ToR and as embedded in relevant legislation the Committee is required to have regard to key decision making principles:

- ecologically sustainable development
- integrated decision making and net community benefit
- precautionary principle
- GED.

(ii) Ecologically sustainable development and precautionary principle

The Project has had regard to principles of ecologically sustainable development by:

- ensuring baseline assessment and monitoring is embedded into planning, operations and management of the Project
- avoiding and mitigating long-term environmental impacts by applying appropriate EMMs

- considering individual and community wellbeing by planning and delivering economic development and services to contributed to community wellbeing and providing compensation where impacts cannot be otherwise mitigated
- ensuring ecological impacts are acceptable by avoiding and minimising where possible, and rehabilitating native vegetation to improve long term ecological outcomes
- consideration had been given to impacts on national and State listed flora and fauna
- facilitation of community involvement in decisions and actions that affect them, through for example the Community Engagement Plan.

In terms or precautionary principle:

- the EMF provides for regular review and update of management plans
- EMMs require ongoing monitoring and if necessary, developing new or amending existing mitigation measures to avoid and minimise impacts.

By way of example, the EMMs contain:

- a requirement for progressive surveys and review of mitigation measures where required (FF-03 and FF-06)
- targeted monitoring of GDEs to verify actual groundwater effects against the model and for this to be used to inform changes or additional mitigation measures in consultation with a suitably qualified ecologist (GW-0B).

The Project expressed aim is to establish a world class mining operation with a commitment to economically viable mining based on adoption of best practice environmental and risk management approach. The Committee has assessed the exhibited EES with regard to continuous improvement and quality assurance, and has made recommendations to ensure the requirements of the EMF are adequately dynamic to respond to changes to regulations, knowledge, plant and equipment and as the moving mine is implemented over the life of the Project.

The Committee is satisfied that subject to its recommendations the environmental outcomes can be achieved and are acceptable, with "*regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development*" and applying the precautionary principle.

(iii) Integrated decision making and net community benefit

As described in Clause 71.02-3 (Integrated decision-making) of the Planning Scheme (see Appendix F) net community benefit is relevant for assessing whether the Project should receive planning approval (whether the draft PSA should be adopted). It is also a form of integrated assessment of the Project's environmental, social and economic impacts.

The Project did not explicitly assess the net community benefit. It would have assisted the Committee if it had.

The Project is broadly consistent with planning policy, as discussed in Chapters 15.4 and 16.1 of this Report. While the Project results in temporary loss of agricultural land, over the long-term this will be re-established for productive farming purposes.

While the Project is expected to have economic and social benefits for the wider community, it will have significant impacts on the directly affected landholders. While acknowledging these impacts will be greater for some landholders, as discussed in Chapters 5(iii) and 13, the Project impacts are acceptable subject to implementation of the Committee's recommendations.

The Committee has noted that engagement with directly affected landholders must be handled sensitively and appropriately, and the Committee strongly supports the mitigations measures related to facilitating access to counselling services and training for staff.

The Committee is generally satisfied that the Project adequately responds to the range of policies, provides for efficient use of resources, assesses impacts and benefits of the Project and provides a balanced approach to managing environmental effects for "*net community benefit and sustainable development for the benefit of present and future generations*" (Clause 71.02-3).

(iv) GED

The GED is explicitly addressed in the EMF, stating in Section 24.2.1:

> The GED applies to all entities engaging in activities that may give rise to risks of harm to human health or the environment from pollution or waste. The GED requires that a person who is engaging in an activity that may give rise to risks of harm minimise those risks so far as reasonably practicable. The GED applies to all phases of the Project, from construction through to closure and is a legislative requirement that applies concurrently with all other legal obligations.

It also requires the establishment of an EMS which requires review and update of management plans and monitoring of environmental effects. The Committee has further assessed the commitment to continuous improvement and quality assurance, and has made recommendations discussed in Chapter 5(viii) to ensure environmental effects and risks to health are adequately addressed.

(v) Assessment against evaluation objectives

Clause 4b) of the Committee's ToR requires it to have regard to the evaluation objectives in the Scoping Requirements. Table 57 summarises the Committee's findings about the Project's consistency with objectives and where the relevant discussion can be found in this report.

Table 57 Summary of the Committee's assessment against evaluation objectives

Evaluation objective	Integrated assessment and relevant chapters of this Report
Resource development - Achieve the best use of available mineral sands resources, in an economically and environmentally sustainable way	The Project is consistent with the evaluation objective, subject to applying the Committee's recommendations Chapters 13 and 15.4
Social, land use and infrastructure - Minimise adverse social, land use and infrastructure effects	The Project is consistent with the evaluation objective, subject to applying the Committee's recommendations Chapters 7, 13 and 15.4
Amenity and environmental quality - Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity	The Project is consistent with the evaluation objective, subject to applying the Committee's recommendations Chapters 6, 8, 9, 10, 14, 15.2 and 15.3
Cultural heritage - Avoid or minimise adverse effects on Aboriginal and historic cultural heritage	The Project is consistent with the evaluation objective, subject to applying the Committee's recommendations Chapter 15.1

Evaluation objective	Integrated assessment and relevant chapters of this Report
Biodiversity and habitat - Avoid, minimise or offset adverse effects of the project on biodiversity values including native vegetation, listed threatened species and communities and habitat for these species consistent with state and commonwealth policies	The Project is consistent with the evaluation objective, subject to applying the Committee's recommendations Chapters 12 and 16.3
Catchment values - Minimise effects on water resources and on existing and potential future beneficial and licensed uses of surface water, groundwater and related catchment values over the short and long-term	The Project is consistent with the evaluation objective, subject to applying the Committee's recommendations Chapter 11 and 12

(vi) Findings

Subject to its recommendations, the Committee is satisfied the Project has adequately considered:

- relevant legislation and policy and requirements can be complied with
- the requirements of ecologically sustainable development, the precautionary principle, net community benefit and the GED
- and can achieve the evaluation objectives in the Scoping Requirements.

17.2 Response to Terms of Reference

(i) Clause 34

Clause 34 of the ToR sets out what the Committee must respond to in its Report. The Committee's responses are included in Table 58.

Table 58 Committee response to Clause 34

Clause	Terms of Reference	Committee's response and findings	Report reference
34(a)	Analysis and conclusions with respect to the environmental effects of the Project and their significance and acceptability	Subject to its recommendations, the Committee finds the environmental effects of the Project are generally acceptable For some effects, the Committee has recommended new or edited mitigation and monitoring measures to further avoid and minimise effects	Part B

Clause	Terms of Reference	Committee's response and findings	Report reference
34(b)	Findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development	Subject to its recommendations, the Committee finds that acceptable environmental outcomes can be achieved Due to the lifespan of the progressive nature of the Project, the Committee has made recommendations to ensure measures in the EMF, including management plans , are dynamic and focus on continuous improvement and quality assurance	Parts A, B and C
34(c)	Recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects	Subject to its recommendations, the Committee finds that the EMF and Incorporated Document contain appropriate measures to prevent, mitigate or offset adverse environmental effects	Parts A, B and C
34(d)	Recommendations as to any feasible modifications to the design or management of the project that would offer improved environmental outcomes	The Committee has not suggested any specific modifications to the design of the Project, however recommends further flora and fauna survey work is required before and during delivery of the Project and efforts made to further avoid and minimise native vegetation removal in accordance with the Native Vegetation Guidelines The Committee has recommended a schedule of review and update of management plans required under the EMF and Incorporated Document as established in the EMS, and a trigger for update of the EMS The Committee has recommended various modifications to Project management and monitoring effects	Parts A, B and C

Clause	Terms of Reference	Committee's response and findings	Report reference
34(e)	Recommendations for any appropriate conditions that may be lawfully imposed on any approval for the project, including with respect to the content of a work plan or conditions that might appropriately be attached to approval of a work plan if issued under the MRSD Act or changes that should be made to the draft PSA	The Committee has relied on its recommendations to amend the EMF, in line with its recommended version at Appendix G, to inform future approvals under the MRSD Act, noting the legislation is currently being reviewed and work plans may not be required under the revised legislation The Committee has recommended the Incorporated Plan be amended in line with its recommended version at Appendix H	Parts A, B and C
34(f)	Recommendations as to the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects, contingency plans and site rehabilitation	The Committee has made recommendations for amendment of the EMF, in line with its recommended version at Appendix G, including on monitoring environmental effects, contingency plans and site rehabilitation Chapter 7 on soil and rehabilitation addresses land rehabilitation requirements and unplanned closure	Parts B and C
34(g)	Recommendations with respect to the structure and content of the draft PSA	The Committee is satisfied that use and development of the WBA can be regulated under the Planning Scheme using and the SCO and Incorporated Document The Committee recommends that before the draft PSA is approved, the Incorporated Document should be updated in line with the recommended version at Appendix H	Parts A, B and C
34(h)	Specific findings and recommendations about the predicted impacts on matters of national environmental significance and their acceptability, including appropriate controls and environmental management	Subject to its recommendations, the Committee is satisfied the potential impacts on MNES have been adequately assessed and impacts acceptable	Parts B and C

(ii) Clauses 35

Clause 35 of the ToR specifies what the Committee's Report must include. The Committee's responses are included in Table 59.

Table 59 Committee's responses to Clause 35

Clause 35		
35(a)	Information and analysis in support of the IAC's findings and recommendations	Parts A, B and C
35(b)	A list of all recommendations, including cross references to relevant discussions in the report	Table 62 below
35(c)	A description of the public hearing conducted by the IAC, and a list of those persons consulted with or heard	Overview table, Chapter 1 and Appendix C and D
35 (d)	A list of all submitters in response to the exhibited EES	Appendix B
35(e)	A list of the documents tabled during the proceedings	Appendix E

Clause 35(b) requires the Committee's report list all recommendations including cross-references to the relevant discussions in the Report (see Table 60 below).

Table 60 Cross references between Committee recommendations and discussions

Recommendation	Report reference
Environmental Management Framework	
Revised EMF Section 24.2.1 (Key Approvals and Regulation of the Environmental Management Framework)	Chapter 5
Revised EMF Section 24.5.3 (Risks and Opportunity)	Chapter 16
Revised EMF Section 24.7.1 (Operational Planning and Control)	Chapter 5
Revised EMM SE-02 (Environmental Management System and Community Engagement Plan)	Chapters 5, 16
Revised EMM RD-02 (Use of sealed vehicles for the transport of Heavy Mineral Concentrate on public roads)	Chapter 6
Revised EMM TM-01 (HMC Haulage route)	Chapter 9, 10
Revised EMM TM-02 (Traffic Management Plan)	Chapter 9
Revised EMM TM-04 (Road maintenance and management)	Chapter 7
Revised EMM TM-07 (Progressive rehabilitation of roads)	Chapter 7
Revised EMM HH-01 (Heritage exclusion zones)	Chapter 15
Revised EMM HH-04 (Heritage Management Plan)	Chapter 15
Revised EMM LV-04 (Landscape screening)	Chapter 15
Revised EMM LV-05 (Lighting impacts)	Chapter 15
Revised EMM LV-0A (Visual amenity inspections)	Chapter 15
Revised EMM NV-06 (Noise and Vibration Management Plan)	Chapter 10
Revised EMM NV-0A (Operator attenuated noise measures)	Chapter 10
Revised EMM NV-02 (HMC Haulage route)	Chapter 10
Revised EMM NV-03 (Construction noise)	Chapter 10
Revised EMM AQ-08 (Air Quality Management Plan)	Chapter 8

Recommendation	Report reference
Revised EMM AQ-0A (Real time continuous air quality monitoring)	Chapter 8
Revised EMM AQ-0C (Crop and rainwater tank monitoring)	Chapter 8
New EMM AQ-0D (Real time continuous monitoring)	Chapter 8
New EMM AQ-0E (Wind speed and direction monitoring)	Chapter 8
New EMM AQ-0F (Modelling accuracy be re-run)	Chapter 8
Revised EMM RD-08 (Radiation Management Plan)	Chapter 6
Revised EMM SL-03 (Soil stockpile management)	Chapter 7
Revised EMM SL-04 (Soil amelioration)	Chapter 7
Revised EMM SL-09 (Weeds and pathogens)	Chapter 7
Revised EMM SL-12 (Agricultural baseline assessment)	Chapter 7
New EMM SL-13 (Wind Erosion Management Guidelines)	Chapter 7
Revised EMM SW-06 (Surface Water Management Plan)	Chapter 11
Revised EMM GW-05 (Groundwater dependent ecosystem studies)	Chapter 12
Revised EMM GW-0B (Targeted monitoring of groundwater dependent ecosystems)	Chapter 12
Revised EMM WE-05 (GHG and Energy Efficiency Program)	Chapter 15
Revised EMM WE-06 (Waste Management Plan)	Chapter 15
Revised EMM SE-04 (Targeted community support programs)	Chapter 13
Revised EMM SE-03 (Workforce Accommodation Strategy)	Chapter 13
Revised EMM SE-07 (Access to counselling services)	Chapter 14
Revised EMM SE-08 (Training and awareness)	Chapter 14
Revised EMM FF-01 (Vegetation exclusion zones)	Chapter 12
Revised EMM FF-02 (Tree protection zones)	Chapter 12
Revised EMM FF-03 (Periodic flora surveys)	Chapter 12
Revised EMM FF-06 (Flora and fauna management plan)	Chapter 12
Revised EMM FF-07 (Native vegetation rehabilitation)	Chapter 12
Revised EMM FF-05 (Groundwater and surface water management plans)	Chapter 12
New EMM FF-0D (Fauna surveys)	Chapter 12
Revised EMM RH-01 (Rehabilitation Plan)	Chapter 12
New EMM RH-03 (Contingency plan for unplanned closure)	Chapter 7
Incorporated Document	
Add new clause 5.15 Review of approved plans, with conditions that management plans required by the Incorporated Document must be updated at an appropriate	Chapter 5

Recommendation	Report reference
frequency, as specified in Appendix H of this Report.	
Add a new condition requiring an Air Quality Management Plan in consultation with Earth Resources Regulation and the Environment Protection Authority Victoria, consistent with the requirements of AQ-08 Air Quality Management Plan.	Chapter 8
Edit clause 5.6 Environmental Management Plan to require a Green Travel Plan.	Chapter 9
Edit clause 5.4 Development Plan as follows: d) The location and layout of proposed buildings… within the Project land, including allowance for provision of required ancillary rail infrastructure to enable use of rail if determined to be feasible during the life of the Project.	Chapter 9
Include the following change: b) Amend condition 5.4 d) iii to: require the Development Plan show the location and layout of proposed buildings including dangerous goods storage buildings.	Chapter 15
Include the following change: c) Edit clause 5.4b) to provide for a Development Plan Master Plan if the Development Plan is proposed to be prepared and approved in stages. d) Edit clause 5.6 Environmental Management Plan to require the Environmental Management Plan reflect the Environmental Management Systems requirements as detailed in the Environmental Management Framework.	Chapter 16
Draft Planning Scheme Amendment	
Before the draft Horsham Planning Scheme Amendment C84hors is approved, update the Incorporated Document in line with the Committee's recommended version shown at Appendix H.	Chapter 16

PART D: APPENDICES

Appendix A Terms of Reference

Terms of Reference

Avonbank Mineral Sands Project
Inquiry and Advisory Committee

VICTORIA State Government | Department of Transport and Planning

Version: January 2023

The Avonbank Mineral Sands Project Inquiry and Advisory Committee (IAC) is appointed to inquire into, and report on, the proposed Avonbank Mineral Sands Project (the project) and its environmental effects in accordance with these terms of reference.

The IAC is appointed pursuant to:

- section 9(1) of the *Environment Effects Act 1978* (EE Act) as an inquiry; and
- part 7, section 151(1) of *the Planning and Environment Act 1987* (P&E Act) as an advisory committee.

Name

1. The IAC is to be known as the 'Avonbank Mineral Sands Project IAC'.

Skills

2. The IAC members should have the following skills:
   a. rehabilitation of mineral sands mines;
   b. amenity impacts relating to air and noise;
   c. groundwater and groundwater dependent ecosystems; and
   d. statutory planning.

3. The IAC will comprise an appointed Chair (IAC Chair) and other members.

Purpose of the IAC

4. The IAC is appointed by the Minister for Planning under section 9(1) of the EE Act to hold an inquiry into and report on the environmental effects of the project. The IAC is to:

   a. review and consider the environment effects statement (EES), submissions received in relation to the project, the predicted environmental effects, and the other exhibited documents;
   b. consider and report on the potential environmental effects of the project, their significance and acceptability, and in doing so have regard to the evaluation objectives in the EES scoping requirements and relevant policy and legislation;
   c. consider and report on potential environmental effects on relevant matters of national environmental significance protected under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act);
   d. identify any measures it considers necessary and effective to sufficiently avoid, mitigate or manage the environmental effects of the project, including any necessary project modifications; and
   e. advise on how these measures relate to relevant conditions, controls and requirements that could form part of the necessary approvals and consents for the project.

5. The IAC is also appointed as an advisory committee under section 151(1) of the P&E Act to:

   a. review the draft planning scheme amendment (PSA) C84hors, which has been prepared to apply a Specific Controls Overlay (SCO) and establish planning approval for the project under an incorporated document;

VICTORIA State Government | Department of Transport and Planning

b. consider issues raised in public submissions received in relation to the draft PSA; and
c. recommend any changes to the draft PSA that it considers necessary.

6. The IAC is to produce a report of its findings and recommendations to the Minister for Planning to inform the Minister's assessment under the EE Act, which will be considered by statutory decision makers for the project.

Background

Project outline

7. The Avonbank Mineral Sands Project comprises the development of a mineral sands mine with a disturbance footprint of 3,600 hectares located approximately 15 kilometres north-east of Horsham in north-west Victoria. Open-pit mining and mineral separation processing is proposed to produce 350,000 to 600,000 tonnes per annum of heavy mineral concentrate over a mine life of more than 30 years. Primary ore processing via a mining unit plant will occur within the mining licence and secondary ore processing will occur in the WIM Base Area outside the mining licence. Mine products will be transported by truck to the Port of Portland for overseas export.

8. The key components of the project include:

a. progressive development of a mineral sands mine;
b. two mobile mining unit plants;
c. a wet concentrator plant and tailings thickening and disposal plant;
d. power and water supply infrastructure;
e. site facilities including site offices, warehouse, workshop facilities and fuel storage.

9. The project's proponent is WIM Resource Pty Ltd (WIM Resource), who is responsible for preparing technical studies, consulting with the public and stakeholders and preparing an EES and draft PSA.

EES assessment process

10. In response to a referral under the EE Act from the proponent, the former Minister for Planning determined on 17 August 2019 that an EES was required for the project and issued his decision with procedures and requirements for the preparation of the EES as specified in **Attachment 1**.

11. The EES was prepared by the proponent in response to the EES scoping requirements issued by the Minister for Planning in August 2020.

12. The EES will be placed on public exhibition for thirty (30) business days, together with the draft PSA. This public comment process is in accordance with the procedures and requirements issued for this EES by the Minister for Planning. WIM Resource is responsible for public notice of EES exhibition.

Commonwealth assessment process

13. Because of its potential impacts on matters of national environmental significance, the project was determined to be a controlled action for the purposes of the EPBC Act on 3 July 2020. The relevant controlling provisions under the EPBC Act are listed threatened species and communities (sections 18 & 18A) and nuclear actions (sections 21 & 22A).

14. Under the bilateral agreement between the Australian and Victorian governments, the Victorian EES process is serving as the accredited process for the assessment purposes of the EPBC Act. The assessment of environmental effects to be made by the Victorian Minister for Planning will be provided to the Commonwealth Minister for the Environment to inform the approval decision under the EPBC Act.

Planning approval process

15. The IAC is to consider and provide advice on draft PSA C84hors that proposes the use and development of facilities and infrastructure associated with the project, including a mineral sands secondary processing facility, in the WIM Base Area outside the mining licence and within the Wimmera Intermodal Freight

Terminal. The PSA is proposed to apply a SCO to the WIM Base Area and regulate the use and development of facilities and infrastructure within the SCO in accordance with an incorporated document proposed to be included in the Horsham Planning Scheme.

Other approvals

16. The project may require other statutory approvals and/or consents, as outlined in the EES, including:

    a. a mining licence and approved work plan under the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act);
    b. an approved Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006*;
    c. planning permits for the alteration or creation of access to a road in a Transport Zone 2 and for the removal of some native vegetation under the P&E Act;
    d. approvals under the *Radiation Act 2005*;
    e. approvals under the *Water Act 1989* for extraction of surface and/or groundwater;
    f. a permission to discharge or deposit waste to an aquifer under the *Environment Protection Act 2017*;
    g. a permit to export radioactive material under the *Customs Act 1901*;
    h. a permit to remove listed flora and fauna under the *Flora and Fauna Guarantee Act 1988*; and
    i. an authority to take or disturb wildlife under the *Wildlife Act 1975*.

Process

Stage 1 – Submissions

17. Submissions on the EES and draft PSA are to be provided in writing on or before the close of submissions. Submissions will be collected by the office of Planning Panels Victoria (PPV) through the Engage Victoria platform. All submissions must state the name and address of the person making the submission. Submissions will be collected and managed in accordance with the '*Guide to Privacy at PPV*'.

18. Petition responses will be treated as a single submission and only the first names from a petition submission will be registered and contacted.

19. Pro-forma submitters will be registered and contacted individually if they provide their contact details. However, pro-forma submitters who want to be heard at the hearing may be encouraged to present as a group, given their submissions raise the same issues.

20. All written submissions and other supporting documentation or evidence received through the course of the IAC process will be published online, unless the IAC specifically directs that the submission or other material, or part of it, is to remain confidential.

21. Electronic copies of each submission on the EES and draft PSA are to be provided to the proponent, Department of Transport and Planning (DTP) (Impact Assessment), Horsham Rural City Council and the Barengi Gadjin Land Council Aboriginal Corporation.

22. PPV will retain any written submissions and other documentation provided to the IAC for a period of five years after the time of its appointment.

Stage 2 – Public hearing

23. Prior to the commencement of the public hearing, the IAC must hold a directions hearing to make directions it considers necessary or appropriate as to the conduct, scope or scheduling of the public hearing.

24. The IAC must hold a public hearing and may make other such enquiries as are relevant to undertaking its role.

25. If, following the close of submissions, IAC forms the view that an inquiry by submitter conference may be more appropriate in light of the volume and nature of submissions and issues raised, then it should seek the Minister for Planning's endorsement to change to an inquiry by submitter conference.

26. When it conducts a public hearing, the IAC has all the powers of an advisory committee that are specified in section 152(2) of the P&E Act.

27. The IAC may inform itself in any way it sees fit, but must review and consider:

    a. the exhibited EES and draft PSA;

    b. the views of the Barengi Gadjin Land Council Aboriginal Corporation (if known);

    c. all submissions and evidence provided to the IAC by the proponent, state agencies, local councils and submitters;

    d. any information provided by the proponent and parties that respond to submissions or directions of the IAC; and

    e. any other relevant information that is provided to, or obtained by, the IAC.

28. The IAC must conduct its process in accordance with the following principles:

    a. The public hearing will be conducted in an open, orderly and equitable manner, in accordance with the principles of natural justice.

    b. The public hearing will be conducted with a minimum of formality and without legal representation being necessary for parties to be effective participants.

    c. The IAC process is to be exploratory and constructive, with adversarial behaviour discouraged and with cross-examination / questioning regulated by the IAC.

29. The IAC may limit the time of parties appearing before it.

30. The IAC may direct that a submission or evidence is confidential in nature and the hearing be closed to the public for the purposes of receiving that submission or evidence.

31. The IAC may conduct a public hearing when there is a quorum of at least two of its members present or participating through electronic means, one of whom must be the IAC Chair.

32. If directed by the IAC, recording of the hearing must be undertaken by the proponent. If recorded, the audio recording will be provided to PPV as a weblink and would be made publicly available as soon as practicable after the conclusion of each day of the hearing, or otherwise as directed by the IAC.

33. Any other audio recording of the hearing by any other person or organisation may only occur with the prior consent of, and strictly in accordance with, the directions of the IAC.

Stage 3 – Report

34. The IAC must produce a written report for the Minister for Planning containing its:

    a. analysis and conclusions with respect to the environmental effects of the project and their significance and acceptability;

    b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;

    c. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects;

    d. recommendations as to any feasible modifications to the design or management of the project that would offer improved environmental outcomes;

    e. recommendations for any appropriate conditions that may be lawfully imposed on any approval for the project, including with respect to the content of a work plan or conditions that might appropriately be attached to approval of a work plan if issued under the MRSD Act or changes that should be made to the draft PSA;

f. recommendations as to the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects, contingency plans and site rehabilitation;

g. recommendations with respect to the structure and content of the draft PSA; and

h. specific findings and recommendations about the predicted impacts on matters of national environmental significance and their acceptability, including appropriate controls and environmental management.

35. The report should include:

a. information and analysis in support of the IAC's findings and recommendations;

b. a list of all recommendations, including cross-references to relevant discussions in the report;

c. a description of the public hearing conducted by the IAC, and a list of those persons consulted with or heard;

d. a list of all submitters in response to the exhibited EES; and

e. a list of the documents tabled during the proceedings.

Timing

36. The IAC should hold a directions hearing no later than 20 business days from the final date of the exhibition period.

37. The IAC should commence the hearing no later than 50 business days from the final date of exhibition period.

38. The IAC must submit its report in writing to the Minister for Planning within 40 business days from its last day of its proceedings.

39. The DTP's Impact Assessment Unit must liaise with PPV to agree on the directions hearing and hearing dates, which are to be included on all public notices.

Minister's assessment

40. The Minister for Planning will make an assessment of the environmental effects of the project after considering the IAC's report as well as the EES, submissions and any other relevant matters.

41. PPV will notify submitters of the release of the Minister for Planning's assessment and IAC report.

Fee

42. The fees for the members of the IAC will be set at the current rate for a panel appointed under part 8 of the P&E Act.

43. All costs of the IAC, including the costs of obtaining any expert advice, technical administration and legal support, venue hire, accommodation, recording proceedings and other costs must be met by the proponent.

Miscellaneous

44. The IAC may apply to the Minister for Planning to vary these terms of reference in writing, at any time prior to submission of its report.

45. The IAC may retain specialist expert advice, additional technical support and/or legal counsel to assist if considered necessary.

46. PPV is to provide any necessary administrative support to the IAC. In addition, the proponent is to provide any necessary administrative or technical support to the IAC in relation to the conduct of the hearing (if required).

Sonya Kilkenny MP
Minister for Planning

Date: 6/2/2023

The following information does not form part the Terms of Reference.

Project Management

1. For matters regarding the IAC process, please contact Amy Selvaraj, Senior Project Officer of Planning Panels Victoria, by phone [redacted] email Planning.Panels@delwp.vic.gov.au.
2. For matters regarding the EES process please contact the Impact Assessment Unit in DTP by [redacted] or email environment.assessment@delwp.vic.gov.au.

Attachment 1

Procedures and requirements under section 8B(5) of the *Environment Effects Act 1978*

The procedures and requirements applying to the EES, in accordance with both section 8B(5) of the Act and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Ministerial Guidelines), are as follows.

(i) The EES is to document investigations and avoidance of potential environmental effects of the proposed project, including for any relevant alternatives (such as for the mining extent, methods for mining and processing, water supply and transport of mining outputs), as well as associated environmental avoidance, mitigation and management measures. In particular the EES should address:

a. Effects on the land uses of the site and surrounding areas, including the implications for agricultural productivity;
b. Effects on land stability, erosion and soil productivity associated with the construction and operation of the project, including progressive rehabilitation works;
c. Effects of project construction and operation on air quality, noise and visual amenity of nearby sensitive receptors (in particular residences);
d. Effects on surface water environments, including local waterways and the broader catchment, as well as groundwater (hydrology, quality, uses and dependent ecosystems);
e. Solid and liquid waste that might be generated by the project during construction and operation;
f. Both positive and adverse socio-economic effects, at local and regional scales, potentially generated by the project, including increased traffic movement and indirect effects of the project construction workforce on the capacity of local community infrastructure;
g. Effects on biodiversity and ecological values within and in the vicinity of the site, and associated with adjacent road reserves and crown land, including: native vegetation; listed threatened ecological communities and species of flora and fauna; and other habitats values; and
h. Effects on Aboriginal and non-Aboriginal cultural heritage values.

(ii) The matters to be investigated and documented in the EES will be set out in detail in scoping requirements prepared by the Department of Environment, Land, Water and Planning (the department). Draft scoping requirements will be exhibited for 15 business days for public comment, before being finalised and then issued by the Minister for Planning.

(iii) The level of detail of investigation for the EES studies should be consistent with the scoping requirements issued for this project and be adequate to inform an assessment of the potential environmental effects (and their acceptability) of the project and any relevant alternatives, in the context of the Ministerial Guidelines.

(iv) The proponent is to prepare and submit to the department a draft EES study program to inform the preparation of scoping requirements.

(v) The department is to convene an inter-agency Technical Reference Group (TRG) the proponent and the department, as appropriate, on scoping and adequacy of the EES studies during the preparation of the EES, as well as coordination with statutory approval processes.

(vi) The proponent is to prepare and submit to the department its' proposed EES Consultation Plan for consulting the public and engaging with stakeholders during the preparation of the EES. Once completed to the satisfaction of the department, the EES Consultation Plan is to be implemented by the proponent, having regard to advice from the department and the TRG.

(vii) The proponent is also to prepare and submit to the department its proposed schedule for the studies, preparation and exhibition of the EES, following confirmation of the draft scoping requirements. This is to enable effective management of the EES process on the basis of an agreed alignment of the

proponent's and department's schedules, including for TRG review of technical investigations and the EES documentation.

(viii) The proponent is to apply appropriate peer review and quality management procedures to enable the completion of EES studies to an acceptable standard.

(ix) The EES is to be exhibited for a period of 30 business days for public comment, unless the exhibition period spans the Christmas-New Year period, in which case 40 business days will apply.

(x) An inquiry will be appointed under the *Environment Effects Act 1978* to consider the environmental effects of the proposal.

Notification

The following parties (proponent and relevant decision-makers) are to be notified of this decision in accordance with sections 8A and 8B(4)(a)(i) of the *Environment Effects Act 1978*:

- WIM Resource Pty Ltd (proponent)
- Minister for Resources
- Minister for Water
- Minister for Energy, Environment and Climate Change
- Secretary of Department of Jobs, Precincts and Regions
- Secretary of Department of Environment, Land, Water and Planning
- Executive Director of Aboriginal Victoria
- Executive Director of Heritage Victoria
- Horsham Rural City Council
- Grampians Wimmera Mallee Water Authority
- Environment Protection Authority
- Wimmera Catchment Management Authori

Appendix B List of Submitters

No.	Submitter
1	Russell Kremser
2	Land and Marine Geological Services Pty Ltd
3	Sarah Miller
4	Brian Morgan
5	Rob and Cathy Mintern
6	Barb Atkins
7	David Kennett
8	Tess Wilson
9	Michael Kartaschew
10	Jess Kost
11	David Lennon
12	Robert Wilson
13	Peter Hellmuth
14	Duncan Calder
15	Stephen Pye
16	Julie Pye
17	Mary Crossfield
18	Brandon Stadon
19	Ashlee Pye
20	Rasmussen Estate Pty Ltd
21	Denzil Harrison
22	MMD Australia Pty Ltd
23	D Thompson
24	Brett Nevill
25	Mitch Davie
26	Greg Brown
27	Haydn Morrell
28	Christine Standing
29	Owen Peters
30	Ning Jiang
31	Melvin Joyce

No.	Submitter
32	Marc English
33	Judd Carmaichael
34	Scott Hackett
35	Brendan Hutchins
36	Piacentini & Son Pty Ltd
37	Millers Civil Contractors Pty Ltd
38	Wayne Oliver
39	Denisz Sipos
40	Tom Smith
41	Jason Jewell
42	Heavnleigh Earthworks
43	Avril Hogan
44	Leon Forrest
45	Leanne Wilkinson
46	Jesse Brown
47	Emily Humphries
48	Rickie Bell
49	Caeleigh Humphries
50	Graham Hansen
51	Andrew Sloot
52	Mason Sinclair
53	Ladlow
54	Lachlan Craig
55	Lewis Utting
56	Yi Hansen
57	Tim Shaw
58	WST Fabrications
59	OnTrak Rentals Pty Ltd
60	Jordan Clark
61	Helene Sinclair
62	Mark Derriman

No.	Submitter
63	David Whitworth
64	Bradley Thomas
65	CHS Group
66	Lesters Automotive
67	Port of Portland Pty Limited
68	Nicole (Nikki) Phillips and Jason Phillips
69	The Alliance for Responsible Mining Regulation Inc. (ARMR)
70	Tom Murray
71	AXIS Worx
72	Horsham Mitre10
73	David Keegan
74	Horsham Rural City Council
75	Gavin & Kara Puls
76	Percy & Kathleen Puls
77	Graham Hudson
78	Scott Benbow
79	Timothy Kelm
80	Chairman of West Vic Business
81	Director/Principal of Harcourts Horsham Real Estate
82	Horsham Hydraulics (Edward Nagorcka)
83	Cheeky Fox Cafe
84	Horsham Bearings
85	Sukh Singh
86	Michael Harris
87	West Vic Business
88	Simon Mitchell
89	Real Estate Agent
90	Wimmera Southern Mallee Development (WDA – Wimmera Development Association)
91	Horsham Hydraulics (Andrew Marlow)
92	Lauren Henwood
93	Withdrawn

No.	Submitter
94	Kayne Higgins
95	David & Jan Tucker
96	Brent Phillips
97	Thomas Gallagher
98	Terance Harris
99	Shanara Phillips
100	Harvey Baker
101	Robert and Joan Johns
102	James Lonsdale
103	Dale Nitschke
104	Jane Hildebrant
105	Kerrie Reynolds
106	Rail Freight Alliance
107	Colin Mills
108	Robert Moir
109	Minerals Council of Australia - Victoria
110	Darren Mills
111	Craig Ross
112	Glenn Doyle
113	Rowena Doyle
114	Environment Protection Authority Victoria (EPA)
115	Wimmera Southern Mallee Local Learning and Employment Network
116	Sarah Shiell
117	Luke Molyneaux
118	Jenny Moore
119	Breuers Hire - Hire and Rental Industry for the Wimmera Region
120	David Addinsall
121	Lee English
122	Murray Mckenzie
123	Department of Energy, Environment and Climate Action (DEECA) - Grampians region
124	Shane & Andrea Cross Builders

No.	Submitter
125	Joanne Eastman
126	Andrea Cross
127	Gary West
128	Robyn & Steven Brain
129	Peter Cox
130	James Read
131	Lolita Brain
132	Bendigo District Environment Council (Ian Magee)
133	Matthew Mills
134	Chris Johns
135	Adrian Paul
136	Adam Lister
137	Andrew Barter
138	Town House Motor Inn
139	Jess Wilkinson
140	Jeremy Woo
141	Justin Williams
142	David Wilkinson
143	Carolyn Wilkinson

No.	Submitter
144	Meghan Barter
145	Victorian Farmers Federation (VFF) Wimmera Branch
146	Scott Johns
147	John Szczur
148	Adrian Lenting
149	Barbara Wilson
150	Nirav Madhok
151	Natasha Madhok
152	Vanessa Lenehan
153	Brads Coffee
154	Glenn Dixon
155	Withdrawn
156	Sally Joustra
157	Withdrawn
158	Kate Zealley
159	Bendigo District Environment Council (Simon Perrin)
160	Anna Molyneaux

Appendix C List of Parties

Submitter	Represented by
WIM Resource Pty Ltd (Proponent)	Chris Townshend KC and Rupert Watters of Counsel instructed by Tim Power of White & Case, who called expert evidence on: - surface water impacts from Ben Hughes of Water Technologies - traffic and transport impacts from Aaron Walley of Ratio - social impacts from Glenn Weston of Public Place - ecological impacts from Brett Lane of Nature Advisory - groundwater impacts from Rikito Gresswell of GHD - rehabilitation of the Avonbank demonstration trial test pit from Christian Bannan of South East Soil and Water - soils and landform from Harry Savage of EMM - radiation risks from Darren Billingsley of DBH Radiation - radiation risks from Jim Hondros of JRHC - noise and vibration impacts from Tom Evans of Resonate - air quality impacts from Dr Iain Cowan of Tonkin & Taylor - human health risks (other than mental health) from Dr Lyn Denison of Tonkin & Taylor - mental health risks from Dr Jackie Wright of Environmental Risk Sciences
Horsham Rural City Council (Council)	Terry Montebello and Charlie Wurm of Maddocks, who called expert evidence on: - radiation from Cameron Jefferies of CamRad Radiation Services
Gavin & Kara Puls, Darren Mills, Chris Johns, Colin Mills, Matthew Mills and Timothy Kelm (Scanlan Carroll submitters)	Sharelle Staff of Scanlan Carroll, who called expert evidence on: - agronomy from Matthew Sparke of Sparke Agricultural & Associates
Department of Energy, Environment and Climate Action (DEECA) – Grampians region	Lisa Macaulay
Luke Molyneaux	
Scott Johns	
David Lennon	
Dale Nitschke	
Wimmera Southern Mallee Development	Chris Sounness
CHS Group	Timothy Hopper
Wayne Oliver	
Glenn Doyle	

Submitter	Represented by
Bendigo District Environment Council (BDEC)	Ian Magee and Simon Perrin
Victorian Farmers Federation Wimmera Branch	Ryan Milgate
Rail Freight Alliance	Reid Mather
The Alliance for Responsible Mining Regulation Inc. (ARMR)	Dora Pearce and Jane Hildebrant
Anna Molyneaux	
Jane Hildebrant	
Joanne Eastman	

Appendix D Hearing procedural issues

Procedural issue	Description and process
Exhibited EES documents	During exhibition of the EES some submitters raised concerns that the exhibited EES documents available on the Proponent's website were 'locked' and could not be searched, edited, annotated, or highlighted. PPV instructed the Proponent to publish 'unlocked' versions of the documents, and the Proponent subsequently made unlocked PDF versions available on their website.
Extension of time for submissions	Several submitters were concerned the EES exhibition period was too short or had fallen during the seeding period, resulting in inadequate time to detail all concerns. The Proponent submitted in its Part B submission that Committee's ToR set the exhibition period. One submitter requested an extension to provide a late submission, and two submitters requested to provide an initial submission followed by a complete submission after the exhibition closing date. These requests were granted by the Committee. Direction 33 was issued explaining the process for parties to provide further written material to supplement their original submissions during the Hearing.
Request for information (RFI)	The Committee prepared a RFI (D4) that was provided to the Proponent and tabled at the Directions Hearing. The RFI directed the Proponent to provide further information about various matters based on the Committee's preliminary review of the EES and submissions. The Proponent explained how it intended to respond to the RFI through its Part B submission (D50) and responded through its submissions, evidence, Technical Notes, and various other information.
Quorum	In accordance with the Committee's Terms of Reference, the Committee may conduct its Hearing with a quorum of at least two members present, one of whom must be the Chair. The full Committee sat on all days of the Hearing, apart from Member Wilson did not sit for part of the day on 1 August and 8 August 2023.
Changes to the timetable	Five versions of the timetable were issued through the Hearing process in response to changes advised or agreed by parties. Some parties were concerned about changes to the timetable they were not aware of, in particular Council submitting on Day 7 instead of as originally scheduled on Day 8. At the Directions Hearing and on Day 1 of the Hearing parties were advised the Hearing would proceed with a rolling timetable. This is standard practice and the Hearing timetable includes a note advising parties that the Committee may amend the timetable without notice. Any significant changes to the timetable were emailed to parties in advance, including advice of the change to Council's submission (D91).

Procedural issue	Description and process
Redactions	Some parties expressed concerns before and during the Hearing about the extent of redactions to their submissions. Parties were advised at the Directions Hearing that personal information in submissions would be redacted before publishing on the Engage Victoria website, and that further submissions during the Hearing must not contain any information of a private or personal nature, or anything potentially defamatory. Parts of some submissions were redacted before uploading to Engage Victoria. Parties were advised: - the Committee had received full unredacted full versions of all submissions - in accordance with the Terms of Reference, the Proponent, DTP, Council and Barengi Gadjin Land Council Aboriginal Corporation had been provided with unredacted full versions of submissions.
Barengi Gadjin Land Council Aboriginal Corporation (BGLC)	The BGLC is the Registered Aboriginal Party representing the Traditional Owners of the land on which the Project is proposed. The BGLC did not make a submission during exhibition. Consistent with the Committee's ToR Clause 27 the Committee wrote to BGLC inviting it to participate in the Committee process by providing a written submission and/or participating in the Hearing (D1). The BGLC accepted the Committee's invitation to present at the Hearing, however due to unforeseen circumstances this was not possible and they provided a written submission (D127). The BGLC written submission was provided in full to parties on the distribution list, and a version with parts redacted for reasons of cultural sensitivity, in consultation with BGLC, was made available on the Engage Victoria website.
Experts appearing at the Hearing	The Proponent advised it intended to call xx experts during the Hearing. Parties were directed to advise the Committee of their intent to ask questions of cross examination by 3pm the day before a witness was scheduled to present. Two experts were not subject to cross examination by parties or questions from the Committee and were not required to attend the Hearing to verbally present their Evidence in Chief, namely Dr Lyn Dennison on human health and Dr Jackie Wright on mental health. The Committee has considered their written expert witness statements (D36 and D37) and any further evidence provided by the Proponent in closing submissions (D129 and D129a).

Procedural issue	Description and process
Expert meeting and joint statement and comment on like evidence	The Committee directed expert meetings and joint statements be prepared where more than one witness was being called in a particular field. The radiation experts met before the Hearing and prepared a joint statement (D61). Radiation experts called by: - the Proponent were Mr Darren Billingsley and Mr Jim Hondros - Council was Mr Cameron Jefferies. As agreed with parties at the Hearing, the radiation experts appeared and presented evidence together at the Hearing on Day 5 (D89). The process was detailed in an email from the Proponent to all parties on 1 August 2023 (D74). Mr Savage and Mr Bannan provided a combined written response to the evidence of Matthew Sparke during the Hearing (D84)
EPA submissions	The EPA was a submitter to the EES, but not a party to the Hearing. The EPA requested an opportunity to provide written comment on the Proponent's 'Day 2' Project Documentation. In line with its Terms of Reference which allow the Committee to inform itself in anyway it sees fit, the Committee advised the EPA it would appreciate its written comments and requested these be provided by Thursday 17 August 2023 (D75). EPA provided written comments on the Proponent's 'Day 2' Project Documentation on 16 August 2023 (D120).
DEECA questions on notice	DEECA presented to the Committee on Day 10 of the Hearing. It took a number of questions from the Committee on notice and provided a written response to these on Friday 18 August 2023 (D121).
Project Documentation	The Committee directed the Proponent to circulate 'Day 1' versions of the Project Documentation before the commencement of the Hearing, and 'Final day' versions with its closing submissions. Parties were given the opportunity to provide written comments on the 'Final day' versions following close of the Hearing. Seven parties elected to do so including: - D136 – Joanne Eastman - D137 – Alliance for Responsible Mining Regulation Inc. - D138 – Jane Hildebrant - D139 – 141 - Council - D142 – Chris Johns - D143 - EPA - D144 – Robert and Joan Johns. The Committee reminded parties by email on 30 August 2023 (D135a) and in its final correspondence on 5 September 2023 (D150) that it would only consider comments that relate to drafting of 'Final day' versions of Project Documentation. The Proponent provided a response to comments 'Day 4 versions' on Monday 4 September 2023 (D146 - 149). The Committee has reviewed the various versions of the Project Documentation, as well as the comments made by the parties on the 'Final day' versions.

Procedural issue	Description and process
AS/NZS ISO 14001:2016 Standard	The Committee requested the Proponent provide a copy of *AS/NZS ISO 14001:2016 Standard 'Environmental management systems – Requirements with guidance for use'*. The Proponent advised the Committee it was not able to provide a copy of the AS/NZS Standard due to licence restrictions. The Committee has access to the standard, but it was not able to share it due to licence restrictions.
Withdrawal of submissions following the Hearing	After the Hearing had concluded , three submitters separately requested the office of PPV to withdraw their submissions, advising they had not written or made the submissions. The submissions were immediately removed from publication on Engage Victoria and not taken into consideration by the IAC. The withdrawn submissions are shown as 'Withdrawn' in Appendix B. PPV collects submissions in good faith and makes contact with all submitters after lodgement acknowledging they have made a submission and advising them of the role of the IAC and Hearing process. This letter was sent on 1 June 2023 (D2). Following receipt of this letter, no submitter advised the Committee they were not the author of the registered submission. Nor was this issue raised at any stage during the Hearing process. The advice from the three submitters was well after the Hearing concluded. There were many submissions in support of the Project, and many of these raised similar issues. The withdrawal of the three submissions has not had any bearing on the overall consideration of issues in support or opposing the Project. The Committee notes it is of concern that this information was provided well after the Hearing process which meant the Committee could not address it

Appendix E Tabled documents

No.	Date	Description	Presented by
1	31 May 23	Letter from Inquiry and Advisory Committee (IAC) to Barengi Gadjin Land Council Aboriginal Corporation - Invitation	IAC
2	1 Jun 23	Directions Hearing Notification	IAC
3	15 Jun 23	Draft Directions	IAC
4	16 Jun 23	Request for Information (RFI) (dated 15 June 2023)	IAC
5	20 Jun 23	Directions and Distribution list (v1)	IAC
6	20 Jun 23	Hearing Timetable (v1)	IAC
7	26 Jun 23	Draft Planning Scheme Amendment (Attachment 2) (as exhibited) (Direction 12) – collated pdf and Word a) 1. Explanatory Document *(word)* b) 2. Instruction Sheet *(word)* c) 3. SCO Map *(word)* d) 4. Clause 45.12 *(word)* e) 5. Schedule to Cl 45.12 *(word)* f) 6. Schedule to Cl 72.03 *(word)* g) 7. Schedule to Cl 72.04 *(word)* h) 8. List of Amendments *(word)* i) 9. Incorporated Document V4 *(word)*	Proponent
8	26 Jun 23	Chapter 24 - Environmental Management Framework (EMF) (as exhibited) (Direction 12) – Pdf and word	Proponent
9	26 Jun 23	Avonbank Document Share Platform Instructions (Direction 3)	Proponent
10	26 Jun 23	Email from Proponent to IAC - Confirmation of experts (Direction 1)	Proponent
11	28 Jun 23	Email from Council to IAC - Confirmation of experts (Direction 1)	Council
12	28 Jun 23	Proposed draft site inspection itinerary and map (Direction 8)	Proponent
13	29 Jun 23	Hearing Timetable (v2)	IAC
14	29 Jun 23	Requested changes to site inspection itinerary	Robert and Joan Johns
15	30 Jun 23	Email nominating additional site inspection locations	Council
16	10 July 23	Site inspection itinerary and map	Proponent
17	12 July 23	Letter regarding documents filed in accordance with Direction 13	Proponent
18	12 July 23	Memorandum of Understanding between WIM Resources and Horsham Rural City Council dated 11 July 2022	Proponent

No.	Date	Description	Presented by
19	12 July 23	Pro forma 'Commercial Consent Agreement for Access to Private Land' published by Earth Resources Regulation	Proponent
20	12 July 23	Guide to Commercial Consent Agreement for Access to Private Land	Proponent
21	12 July 23	Code of Practice and Safety Guide, Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing	Proponent
22	12 July 23	Wimmera Intermodal Freight Terminal (WIFT) Master Plan	Proponent
23	12 July 23	Part A submission	Proponent
24	12 July 23	Email giving indicative order of expert witnesses	Proponent
25	13 July 23	Appendices to the South East Soil & Water report "Post Mining Agricultural Assessment – Avonbank Exploration Test Costean Study"	Proponent
26	13 July 23	Expert witness statement of Christian Bannan	Proponent
27	13 July 23	Expert witness statement of Harry Savage	Proponent
28	13 July 23	Expert witness statement of Ben Hughes	Proponent
29	13 July 23	Expert witness statement of Rikito Gresswell	Proponent
30	13 July 23	Expert witness statement of Darren Billingsley	Proponent
31	13 July 23	Expert witness statement of Jim Hondros	Proponent
32	13 July 23	Expert witness statement of Dr Iain Cowan	Proponent
33	13 July 23	Expert witness statement of Aaron Walley	Proponent
34	13 July 23	Expert witness statement of Tom Evans	Proponent
35	13 July 23	Expert witness statement of Glenn Weston	Proponent
36	13 July 23	Expert witness statement of Dr Lynette Denison	Proponent
37	13 July 23	Expert witness statement of Dr Jackie Wright	Proponent
38	13 July 23	Technical Note 1 - Workforce accommodation	Proponent
39	13 July 23	Wimmera yield estimates	Proponent
40	13 July 23	Avonbank test pit harvest, lentils (8 January 2023)	Proponent
41	13 July 23	Harvest silo delivery receipts	Proponent
42	14 July 23	Expert witness statement of Brett Lane	Proponent
43	20 July 23	Hearing Timetable (v3)	IAC
44	20 July 23	Expert witness statement of Cameron Jeffries	Council

No.	Date	Description	Presented by
45	25 July 23	Expert witness statement of Matthew Sparke	Gavin & Kara Puls, Darren Mills, Chris Johns, Colin Mills, Matthew Mills, and Timothy Kelm (Scanlan Carroll submitters)
46	27 July 23	Letter filing documents in accordance with Directions 30 and 32	Proponent
47	27 July 23	Day 1 version of Environmental Management Framework (clean)	Proponent
48	27 July 23	Day 1 version of Environmental Management Framework (tracked changes)	Proponent
49	27 July 23	Day 1 version of Incorporated Document (tracked changes)	Proponent
50	27 July 23	Part B submission	Proponent
51	27 July 23	Technical Note 2 - Wimmera Freight Intermodal Terminal Area	Proponent
52	27 July 23	Technical Note 3 - Feasibility of rail for the transport of Heavy Mineral Concentrate	Proponent
53	27 July 23	Technical Note 4 - Road transport of Heavy Mineral Concentrate	Proponent
54	27 July 23	Technical Note 5 - Greenhouse gas emissions	Proponent
55	27 July 23	Technical Note 6 - Rehabilitation, monitoring and management	Proponent
56	27 July 23	Technical Note 7 - Quality assurance and control measures	Proponent
57	27 July 23	Technical Note 8 - Flora Assessment	Proponent
58	27 July 23	Technical Note 9 - Vegetation removal avoidance measures	Proponent
59	27 July 23	Technical Note 10 - Avonbank Community Engagement Groups	Proponent
60	27 July 23	Technical Note 11 - Country Fire Authority consultation	Proponent
61	28 July 23	Expert meeting joint statement on radiation	Proponent
62	28 July 23	Video - Avonbank Project Overview	Proponent
63	28 July 23	Video - Avonbank Test Pit & Demonstration Trials	Proponent
64	28 July 23	Updated indicative order and schedule of expert witnesses	Proponent
65	28 July 23	Overview of the EES process	Department of Transport and Planning Impact Assessment Unit
66	28 July 23	Hearing Timetable (v4)	IAC

No.	Date	Description	Presented by
67	31 July 23	Retention licence RL2014	Proponent
68	31 July 23	Presentation of Aaron Walley	Proponent
69	31 July 23	Presentation of Ben Hughes	Proponent
70	31 July 23	Presentation slideshow	Proponent
71	1 Aug 23	Presentation of Brett Lane	Proponent
72	1 Aug 23	Presentation of Glenn Weston	Proponent
73	1 Aug 23	Scenario test for generation of native vegetation removal report	Proponent
74	1 Aug 23	Email regarding radiation expert evidence	Proponent
75	2 Aug 23	Email to EPA requesting written comment on 'day 2' Project Documentation	IAC
76	2 Aug 23	Email to Parties regarding expert evidence and EPA Victoria comments on Project Documentation	IAC
77	2 Aug 23	Technical Note 12 - Water Supply	Proponent
78	2 Aug 23	Native vegetation removal report (DEECA)	Proponent
79	2 Aug 23	Revised development extent map	Proponent
80	2 Aug 23	Email notifying of changes to site inspection itinerary	Proponent
81	4 Aug 23	Email regarding experts response to Mr Sparkes, native vegetation map, Technical Note 13	Proponent
82	4 Aug 23	Presentation of Rikito Gresswell	Proponent
83	4 Aug 23	Presentation of Harry Savage	Proponent
84	4 Aug 23	Response to Matthew Sparke Witness Statement	Proponent
85	4 Aug 23	Native vegetation mapping by Nature Advisory	Proponent
86	4 Aug 23	Technical Note 13 - Groundwater geochemistry	Proponent
87	6 Aug 23	Presentation of Christian Bannan	Proponent
88	7 Aug 23	Presentation on moving mine method and mine cells	Proponent
89	7 Aug 23	Radiation expert joint statement presentation	Proponent
90	7 Aug 23	Email regarding cross examination of Day 6–7 expert witnesses	IAC
91	8 Aug 23	Hearing timetable update	IAC
92	8 Aug 23	Hourly Route Traffic Volumes - Major Townships	Proponent
93	8 Aug 23	Presentation of Tom Evans	Proponent
94	8 Aug 23	Response to recommendations in expert evidence	Proponent
95	8 Aug 23	Illuka Planning Permit	Proponent
96	8 Aug 23	Technical Note 14 - Radiation	Proponent

No.	Date	Description	Presented by
97	8 Aug 23	Technical Note 15 - Traffic data	Proponent
98	8 Aug 23	Technical Note 16 - Processing RFI	Proponent
99	8 Aug 23	Presentation of Iain Cowan	Proponent
100	9 Aug 23	Submission	Council
101	9 Aug 23	Day 1 Project Documentation (Council tracked changes and comments)	Council
102	9 Aug 23	Exhibited draft incorporated document (Council tracked changes and comments)	Council
103	9 Aug 23	Day 2 version of Environmental Management Framework (clean)	Proponent
104	9 Aug 23	Day 2 version of Environmental Management Framework (tracked changes)	Proponent
105	9 Aug 23	Day 2 version of Incorporated Document (tracked changes and blue highlight)	Proponent
106	10 Aug 23	Technical Note 17 - Cumulative effects	Proponent
107	13 Aug 23	Submission	Robert and Joan Johns
108	14 Aug 23	Presentation of Matthew Sparke	Scanlan Carroll submitters
109	14 Aug 23	Timetable update	IAC
110	14 Aug 23	Submission	Scanlan Carroll submitters
111	14 Aug 23	Supplementary submission	David Lennon
112	14 Aug 23	Hearing Timetable (v5)	IAC
113	15 Aug 23	Agriculture Notes - Estimating crop yields and crop losses	Luke Molyneaux
114	15 Aug 23	Google Earth satellite image of test plot	Luke Molyneaux
115	15 Aug 23	Test pit layout	Luke Molyneaux
116	15 Aug 23	Trial plot harvester	Luke Molyneaux
117	15 Aug 23	Submission	DEECA Grampians region
118	15 Aug 23	Submission	Glenn Doyle

No.	Date	Description	Presented by
119	16 Aug 23	Submission, enclosing attachments: a) Attachment SE7 - Rehabilitating Mines (August 2020) b) Attachment SE42 - Environmental Water Management Plan, Wimmera River System (October 2015) c) Attachment SE53 - Fingerboards EES Appendix A011 - Radiation Assessment Report d) All other attachments to submission (combined with bookmarks) e) Diagram f) Attachment SE55 g) Index of attachments	Bendigo District Environment Council (BDEC)
120	16 Aug 23	Response to Day 2 documentation	Environment Protection Authority Victoria
121	18 Aug 23	Response to Committee questions	DEECA Grampians region
122	18 Aug 23	Timetable update	IAC
123	20 Aug 23	Submission, enclosing attachments: *a) What's Wrong with Risk Matrices?* b) *Limitations of the Entomological Operational Risk Assessment Using Probabilistic and Deterministic Analyses*	Simon Perrin on behalf of Bendigo District Environment Council
124	20 Aug 23	Submission, enclosing attachments: a) Horsham Rural City Council meeting agenda, 24 June 2019 b) Horsham Rural City Council meeting agenda, 18 September 2017 c) Horsham Rural City Council meeting minutes, 24 June 2019 d) Horsham Rural City Council meeting minutes, 18 September 2017 e) Horsham Rural City Council comments on draft 30 Year Infrastructure Strategy for Victoria	Alliance for Responsible Mining Regulation Inc
125	20 Aug 23	Submission, enclosing attachments: a) Critical Minerals Strategy 2023-2030 b) Supplementary Memorandum of Opinion - Climate Change and Directors' Duties c) IRENA Renewable Energy and Jobs Annual Review 2022	Jane Hildebrant
126	21 Aug 23	Submission	Joanne Eastman

No.	Date	Description	Presented by
127	23 Aug 23	Submission	Barengi Gadjin Land Council Aboriginal Corporation
128	23 Aug 23	Closing submission	Council
129	23 Aug 23	Closing submission	Proponent
129a	23 Aug 23	Attachments to closing submission	Proponent
130	23 Aug 23	Final Day version of Environmental Management Framework (clean)	Proponent
131	23 Aug 23	Final Day version of Environmental Management Framework (tracked changes)	Proponent
132	23 Aug 23	Final Day version of Incorporated Document (clean)	Proponent
133	23 Aug 23	Final Day version of Incorporated Document (tracked changes)	Proponent
134	23 Aug 23	Technical Note 18 - Road diversions	Proponent
135	25 Aug 23	Concluding email to Parties	IAC
135a	30 Aug 23	Reminder regarding comments on 'final day' project documentation	IAC
136	29 Aug 23	Comments on Proponent's 'final day' project documentation	Joanne Eastman
137	30 Aug 23	Comments on Proponent's 'final day' project documentation	Alliance for Responsible Mining Regulation Inc.
138	30 Aug 23	Comments on Proponent's 'final day' project documentation	Jane Hildebrant
139	31 Aug 23	Letter enclosing comments on Proponent's 'final day' project documentation	Council
140	31 Aug 23	Comments on final day version of environmental management framework	Council
141	31 Aug 23	Comments on final day version of incorporated document	Council
142	31 Aug 23	Comments on Proponent's 'final day' project documentation	Chris Johns
143	31 Aug 23	Comments on Proponent's 'final day' project documentation	EPA Victoria
144	31 Aug 23	Comments on Proponent's 'final day' project documentation	Robert and Joan Johns
145	4 Sep 23	Letter from Proponent to IAC - filing for Day 4 Project Documents	Proponent
146	4 Sep 23	Day 4 version of Environmental Management Framework (clean)	Proponent

No.	Date	Description	Presented by
147	4 Sep 23	Day 4 version of Environmental Management Framework (tracked changes)	Proponent
148	4 Sep 23	Day 4 version of Incorporated Document (clean)	Proponent
149	4 Sep 23	Day 4 version of Incorporated Document (tracked changes)	Proponent
150	5 Sep 23	Email regarding final tabled documents	IAC

Appendix F Regulatory context

Strategic context

Mineral Resources

National, State and regional plans include:

- *Australia's Critical Minerals Strategy 2023-2030* (published in June 2023), which identifies critical minerals in the Critical Minerals List, which includes the minerals proposed to be produced by the Project.
- *State of Discovery – Mineral Resources Strategy 2018-2023*, which identifies priorities for action including "*increasing the social responsibility requirements for licence holders, supporting leading practice environmental management and sustainability in the minerals sector, supporting land access negotiations through a range of initiatives, and securing enduring benefits for host communities*".[87]
- *Wimmera Southern Mallee Regional Growth Plan* (2014), which includes a principle to use the region's assets to facilitate diversification of the economy and build a resilient community. It identifies mineral sands deposits in the western and northern part of the region as a priority for investment, forecasts that mining employment will double over the next 25 years and that planning schemes should protect significant earth resources particularly near Horsham and Donald. It acknowledges the potentially significant impacts and highlights the importance of careful management to maximise benefits and minimise adverse impacts on the environment and communities.
- *Wimmera Southern Mallee Mining Sector Plan* (2012), which presents opportunities regarding potential economic value of the mining in the region, employment and economic diversity opportunities, consistent with more recent policy directions.

Council policies and strategies include:

- *Horsham Rural City Council Plan 2021-2025*, which includes strategies to achieve a sustainable and sound environmental future, sustainable and diverse economy, a region which attracts new investment, technologies and opportunities, and identifies the importance of addressing climate change. Council's strategy advocates for world's best practice for mining in the region.
- *Economic Development Strategy 2017 – 2021*, which recognises the potential for mining to contribute to the regional economy, and specifically encourages facilitation of the mineral sands industry.
- *Destination Horsham: Investment Attraction Strategy and Implementation Plan 2022 onwards*, which specifically mentions the Project and that approvals should reflect world's best practice.

Biodiversity

Protecting Victoria's Environment – Biodiversity 2037 (DELWP, 2017) is Victoria's long term plan to stop the decline of biodiversity and achieve overall biodiversity improvement over the next 20 years. It states that a healthy natural environment is critical for life sustaining services for humans and underpins many activities that generate value for Victorians.

[87] Proponent Part A submission (D23), page 36

It includes priorities and targets, and intends to "*instigate biodiversity response planning at scales appropriate to how species operate, and to cost-effectively benefit the maximum number of species*". It emphasises the links between relevant legislation including the PE Act, *Flora and Fauna Guarantee Act* 1988 and the *Climate Change Act* 2017. It states:

> The land use planning framework, for example, provides a good opportunity to ensure that biodiversity is integrated early in decision-making processes.

Relevant legislation

Environment Effects Act 1978

The EE Act provides for the integrated assessment of projects with the potential for significant environmental effects. In response to a referral made by Council, the Minister for Planning determined that an EES was required and an Inquiry appointed to consider the environmental effects of the Project. The EES was prepared in response to the EES Scoping Requirements Report issued by the Minister for Planning.

The Minister's Assessment is not an approval as such, but is an assessment of the environmental effects of the Project that must be considered by decision makers in determining whether to grant approvals required for the Project under other legislation, and any conditions to be imposed.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Clauses 13 and 14 of the ToR identify the Project was determined to be a controlled action under the EPBC Act. Controlled actions are identified as likely to have a significant impact on Matters of National Environmental Significance. The relevant controlling provisions of the EPBC Act are:

- listed threatened species and communities (section 18 and 18A); and
- protection of the environment from nuclear actions (sections 21 and 22A).

Under the Bilateral Assessment Agreement between the Commonwealth and the State of Victoria the EES process is accredited to assess impacts on MNES under the EPBC Act.

Mineral Resources (Sustainable Development) Act 1990

The purpose of the MRSD Act is to encourage mineral exploration and economically viable mining and extractive industries which make the best use of, and extract the value from, resources in a way that is compatible with the economic, social and environmental objectives of the State.

Among others, the objectives of the MRSD Act include:

- encouraging and facilitating exploration for minerals and fostering the establishment and continuation of mining operations
- establishing a legal framework aimed at ensuring that risks are appropriately managed, consultation is effective and appropriate, land is rehabilitated, just compensation is paid for use of private land, conditions enforced and dispute resolution procedures effective.

Planning and Environment Act 1987

The objectives of planning are set out in section 4(1) of the PE Act:

> a) provide for the fair, orderly, economic and sustainable use, and development of land
>
> b) provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity
>
> c) secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria

d) conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value

e) facilitate development in accordance with the objectives set out in paragraphs (a), (b), (c), (d) and (e)

f) balance the present and future interests of all Victorians

fa) to facilitate the provision of affordable housing in Victoria

g) to balance the present and future interests of all Victorians.

Aboriginal Heritage Act 2006

The *Aboriginal Heritage Act 2006* (AH Act) aims to safeguard Aboriginal cultural heritage and involve the Aboriginal community in decision-making. The AH Act requires developers and heritage consultants to engage with Aboriginal heritage stakeholders on whether a project could potentially impact sites or objects of significance to Aboriginal cultural heritage. Actions that may have negative impacts are prohibited unless performed under a Cultural Heritage Management Plan (CHMP) or cultural heritage permit.

Any project which requires an EES must also have a CHMP.

Environment Protection Act 2017 and Environment Protection Regulations 2021

The EP Act establishes the powers and responsibilities of the EPA, and sets out a GED that requires entities to minimise the environmental and health risks of their activities. The GED will apply to all stages of the Avonbank Mineral Sands Project. The EP Act is supported by the *Environment Protection Regulations 2021* and the *Environment Reference Standard 2021*.

The *Environment Protection Regulations 2021* outline the permissions needed for various activities, and how applications for permissions are assessed. Under the regulations, a mine operating in accordance with the MRSD Act is not required to obtain a license from the EPA so long as it discharges mining wastes only, and only discharges them onto land.

Crown Land (Reserves) Act 1987

The *Crown Land (Reserves) Act 1978* allows Crown land to be reserved for public purposes, and includes provisions for the reserved land to be managed by a committee or trustee. As part of the Project would be located on restricted Crown land, consent is required from the Victorian Minister for Energy, Environment and Climate Change to operate there.

Land Act 1958

The *Land Act 1958* consolidates laws governing the sale and use of Crown land, providing for various transactions including acquisition, exchange, leasing, licensing, and sale. It allows Victoria's Minister for Energy, Environment, and Climate Change to exchange Crown land for other land that is either needed for public purposes, has the potential to improve the use of reserved Crown land, or would rationalise boundaries between private land and reserved Crown land.

Port Management Act 1995

The purpose of the *Port Management Act 1995* is to among other things provide for the establishment, management and operation of commercial trading ports and local ports in Victoria.

Radiation Act 2005 and Radiation Regulations 2017

The *Radiation Act 2005* and *Radiation Regulations 2017* establish the legal framework for managing radioactive materials, such as the Naturally Occurring Radioactive Materials found in heavy mineral sands, in a way that is safe for humans and the environment. The Radiation Act

mandates that a license is required to conduct radiation related activities, and the Radiation Regulations support the Radiation Act by setting out requirements and defining the permissible levels of radioactive substances.

Customs Act 1901 (Cth) and Customs (Prohibited Exports) Regulations 1958

The *Customs Act 1901* controls the import and export of goods to and from Australia. Regulation 9 of the *Customs (Prohibited Exports) Regulations 1958* requires a permit from the Department of Industry, Science and Resources to export radioactive material, including naturally occurring uranium and thorium.

Climate Change Act 2017

The *Climate Change Act 2017* establishes the long-term goal of achieving net zero emissions by 2050 and introduced policy to ensure climate change is considered in government decision-making. As GHGs are classified as waste under the EP Act, the Project must evaluate and minimise the risks associated with its GHG emissions.

National Greenhouse and Energy Reporting Act 2007

The *National Greenhouse and Energy Reporting Act 2007* (NGER Act) provides a framework for the National Greenhouse and Energy Reporting Scheme for reporting GHG emissions, projects and energy consumption and production by corporations in Australia.

Native Title Act 1993 and Indigenous Land Use Agreement

The *Native Title Act 1993* and the *Native Title Legislation Amendment Bill 2020* allow Aboriginal people to claim title over their land via the National Native Title Tribunal.

Heritage Act 2017

The *Heritage Act 2017* protects archaeological sites over 75 years old (other than sites of Aboriginal heritage) and establishes the Victorian Heritage Register and Heritage Inventory. Sites and objects listed in these registers must not be excavated or disturbed without permission from the Executive Director of Heritage Victoria.

Flora and Fauna Guarantee Act 1988

The FFG Act provides a framework for conserving threatened species and ecological communities and managing processes that may threaten biodiversity.

Wildlife Act 1975

The *Wildlife Act 1975* legislates how wildlife is to be protected, conserved, managed and used in Victoria.

Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act 1994* establishes catchment management authorities to oversee catchment areas. The Project area falls under the jurisdiction of the Wimmera Catchment Management Authority, and the Project must comply with the Act with regard to pest control, water resource protection, and minimising land degradation.

Water Act 1989

The water required for the Project to operate must be obtained in compliance with the *Water Act 1989*. Under this Act, the Project must obtain ground and surface water licences to build water management dams, construct and operate pipelines, and extract groundwater.

Road Management Act 2004

The *Road Management Act 2004* establishes a system for managing state and local public road networks. As the Project spans both state and local roads, it will require permission from the Department of Transport or Horsham Rural City Council to mine in road reserves, close or divert roads, and undertake road words.

Transport Integration Act 2010

The *Transport Integration Act 2010* sets out a framework for decision-making around transport infrastructure, with VicTrack designated as the owner and manager of Victoria's rail transport land and assets. The Project proposes directional drilling under the railway easement to install high-voltage cabling and piping, which will require approval from VicTrack.

Planning policy

Environmental and landscape values

Clause 12 Environmental and landscape values states:

> Planning should help to protect the health of ecological systems and the biodiversity they support (including ecosystems, habitats, species and genetic diversity) and conserve areas with identified environmental and landscape values.
>
> Planning must implement environmental principles for ecologically sustainable development that have been established by international and national agreements. Foremost amongst the national agreements is the Intergovernmental Agreement on the Environment, which sets out key principles for environmental policy in Australia. Other agreements include the National Strategy for Ecologically Sustainable Development, National Greenhouse Strategy, the National Water Quality Management Strategy, Australia's Strategy for Nature 2019-2030, the National Forest Policy Statement and National Environment Protection Measures.
>
> Planning should protect, restore and enhance sites and features of nature conservation, biodiversity, geological or landscape value

Clause 12.01-1S Protection of biodiversity includes the objective:

> To protect and enhance Victoria's biodiversity.

Key relevant strategies include:

> Use biodiversity information to identify important areas of biodiversity, including key habitat for rare or threatened species and communities, and strategically valuable biodiversity sites.
>
> Strategically plan for the protection and conservation of Victoria's important areas of biodiversity.
>
> Ensure that decision making takes into account the impacts of land use and development on Victoria's biodiversity, including consideration of:
>
> - Cumulative impacts.
> - Fragmentation of habitat.
> - The spread of pest plants, animals and pathogens into natural ecosystems.
>
> Avoid impacts of land use and development on important areas of biodiversity.
>
> Assist in the establishment, protection and re-establishment of links between important areas of biodiversity, including through a network of green spaces and large-scale native vegetation corridor projects.

Clause 12.01-1S Protection of biodiversity – Horsham includes strategies:

> Protect and enhance native vegetation, biodiversity and ecological processes and endeavour to achieve no net loss of native vegetation in the municipality.
>
> Protect remnant vegetation on private land and in road and railway reserves.
>
> Conserve suitable nesting sites for the Red-tailed Black Cockatoo through the protection of live and dead hollow bearing trees and other suitable trees within the bird's known nesting area.
>
> Conserve the feeding habitat of the Red-tailed Black Cockatoo through the retention of Buloke and Stringybark trees.

Clause 12.01-2S Native vegetation management includes the objective:

> To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation.

Key relevant strategies include:

> Ensure decisions that involve, or will lead to, the removal, destruction or lopping of native vegetation, apply the three-step approach in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment, Land, Water and Planning, 2017):
>
> - Avoid the removal, destruction or lopping of native vegetation.
> - Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
> - Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

Other relevant policies and strategies relate to Clause 12.03 Water bodies and wetlands.

Relevant policy documents include:

- *Wimmera Regional Catchment Strategy 2021 – 2027*, Wimmera Catchment Management Authority, 2021
- *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017)
- *Protecting Victoria's Environment – Biodiversity 2037* (DELWP, 2017)
- *Victorian Waterway Management Strategy* (Department of Environment and Primary Industries, 2013)
- *Assessor's handbook – applications to remove, destroy or lop native vegetation* (DELWP, 2017).

Environmental risks and amenity

Clause 13 Environmental Risks and Amenity states:

> Planning should strengthen the resilience and safety of communities by adopting a best practice environmental management and risk management approach.
>
> Planning should identify, prevent and minimise the risk of harm to the environment, human health, and amenity through:
>
> - Land use and development compatibility.
> - Effective controls to prevent or mitigate significant impacts.
>
> Planning should identify and manage the potential for the environment and environmental changes to impact on the economic, environmental or social wellbeing of society.
>
> Planning should ensure development and risk mitigation does not detrimentally interfere with important natural processes.
>
> Planning should prepare for and respond to the impacts of climate change.

Relevant policies and strategies relate to:

- Clause 13.01 Climate change impacts

- Clause 13.02 Bushfire
- Clause 13.04 Soil degradation
- Clause 13.05 Noise
- Clause 13.06 Air quality
- Clause 13.07 Amenity, human health and safety

Natural resource management

Clause 14 Natural resource management states:

> Planning is to assist in the conservation and wise use of natural resources including energy, water, land, stone and minerals to support both environmental quality and sustainable development.
>
> Planning should ensure agricultural land is managed sustainably, while acknowledging the economic importance of agricultural production.

Agriculture

Clause 14.01-1S (Protection of agricultural land) includes the objective:

> To protect the state's agricultural base by preserving productive farmland.

Key relevant strategies include:

> In considering a proposal to use, subdivide or develop agricultural land, consider the:
>
> - Desirability and impacts of removing the land from primary production, given its agricultural productivity.
> - Impacts on the continuation of primary production on adjacent land, with particular regard to land values and the viability of infrastructure for such production.
> - Compatibility between the proposed or likely development and the existing use of the surrounding land.
> - The potential impacts of land use and development on the spread of plant and animal pests from areas of known infestation into agricultural areas.
> - Land capability.
>
> Balance the potential off-site effects of a use or development proposal (such as degradation of soil or water quality and land salinisation) against the benefits of the proposal.

Clause 14.01-2S (Sustainable agricultural land use) includes the objective:

> To encourage sustainable agricultural land use.

Key relevant strategies include:

> Ensure agricultural and productive rural land use activities are managed to maintain the long-term sustainable use and management of existing natural resources.
>
> Support the development of innovative and sustainable approaches to agricultural and associated rural land use practices.
>
> Support adaptation of the agricultural sector to respond to the potential risks arising from climate change.

Resource exploration and extraction

Clause 14.03-1S (Resource exploration and extraction) includes the objective:

> To encourage exploration and extraction of natural resources in accordance with acceptable environmental standards.

Key relevant strategies include:

> Protect the opportunity for exploration and extraction of natural resources where this is consistent with overall planning considerations and acceptable environmental practice.

Ensure planning schemes do not impose conditions on the use or development of land that are inconsistent with the *Mineral Resources (Sustainable Development) Act 1990…*

Recognise the possible need to provide infrastructure, including transport networks, for the exploration and extraction of natural resources.

Develop and maintain buffers around mining and extractive industry activities.

The Horsham Municipal Planning Strategy includes strategic directions relating to Earth and Energy Resources (Clause 02.03-4) which states:

Mineral sand resources are in abundance in various locations in Horsham. Mining of the sands provides employment opportunities and significant economic benefits for the municipality.

…

Council's strategic directions for earth and energy resources are to:

- Encourage the use and development of land in areas of abundant mineral sand deposits for the earth and energy resources industry and associated activity.
- Direct urban growth and rural residential development away from areas where it would limit the ability to mine and extract earth resources.
- Support infrastructure and services associated with mining and extractive industry.

Wimmera Intermodal Freight Terminal

Clause 02.03-7 of the Planning Scheme includes strategic directions for the WIFT:

Additional land for business and industry is also available in the Wimmera Intermodal Freight Terminal (WIFT) Precinct and the Horsham Aerodrome.

The WIFT Precinct in Dooen of about 470 hectares is a major intermodal freight and logistics hub for the Wimmera-Mallee region. The development of the precinct will facilitate a range of businesses and jobs for the municipality and wider region relating to freight and logistics. The precinct comprises six industry sub-precincts to assist in managing potential inter-industry conflict and to maximise the opportunities associated with the proximity to the key freight handling facilities.

Council's strategic directions for industry are to:

- Support industrial development in industrial areas.
- Avoid encroachment of sensitive land uses near land identified for industrial development.
- Provide for the staged development of the WIFT Precinct as a major intermodal freight and logistics hub for the Wimmera-Mallee region.

Clause 17.01-1L includes strategies for the WIFT:

Encourage use and development that benefit from association with the WIFT including:

- Freight.
- Logistics and transport related uses.
- Industry including manufacturing, mineral sands processing and storage.
- Warehousing.

Encourage value-add uses such as warehousing and industries involved in the manufacture, packaging, storage and transfer of primary produce and raw materials from farms for national and international markets.

Encourage a range of complementary activities and businesses that support the role of the precinct as a major intermodal freight and logistics hub, including container park facilities, large volume container packing, bulk loading and warehousing facilities.

Manage inter-industry conflict by providing separation between food based industries and uses with adverse amenity potential that may impact on food processing.

Ensure subdivisions provide sufficient space in road verges for future infrastructure provision.

Encourage the long term provision of reticulated potable water, sewerage and gas.

Ensure that development does not prejudice the potential extension of the rail siding.

Ensure that development does not prejudice the future upgrade of key transport routes for B-Triple trucks access from Wimmera and Henty Highways to the WIFT and warehousing sub-precincts.

Minimise the impact of use and development with adverse amenity potential on the Dooen Township and surrounding rural area.

Discourage the development of sensitive land uses on land adjacent to the precinct.

Policy document

Consider as relevant:

Wimmera Intermodal Freight Terminal Structure Plan (AECOM, December 2012)

Other planning policy

Other relevant planning policy relates to:

- Settlement (Clause 11)
- Built environment and heritage (Clause 15)
- Economic development (Clause 17), including employment and industry
- Transport (Clause 18), including movement networks, roads, freight and ports
- Infrastructure (Clause 19), including energy.

Planning controls

Zones and overlays

EES Appendix B details the relevant planning controls. The Committee has summarised these in Table 61.

Table 61 Project areas and relevant planning controls

	Zones	Overlays and particular provisions
MIN	- Farming Zone	Environmental Significance Overlay Schedule 7 (WIFT Precinct Buffer Area) Land Subject to Inundation
WBA	- Farming Zone - Special Use Zone Schedule 9	Development Plan Overlay Schedule 9 (Wimmera Intermodal Freight Terminal Precinct) Design and development Overlay 11 (Wimmera Intermodal Freight Terminal Precinct)
Minor utilities corridor	- Farming Zone - Public Use Zone 2 (Education) - Public Park and Recreation Zone - Public Conservation and Resource Zone - Transport Zone	Land Subject to Inundation Overlay Environmental Significance Overlay Schedule 3 (Water Course Protection) Environmental Significance Overlay Schedule 7 (WIFT Precinct Buffer Area) Bushfire Management Overlay Clause 52.17 – Native vegetation

Farming Zone

The purposes of the Farming Zone are:

To implement the Municipal Planning Strategy and the Planning Policy Framework.

To provide for the use of land for agriculture.

To encourage the retention of productive agricultural land.

To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.

To encourage the retention of employment and population to support rural communities.

To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.

To provide for the use and development of land for the specific purposes identified in a schedule to this zone.

The tables of uses includes 'Industry' as a Section 2 (permit required) use.

Wimmera Intermodal Freight Terminal Precinct/Special Use Zone 9

Special Use Zone Schedule 9 (SUZ9) applies to land in the WIFT (see Figure 26). The key relevant purposes of SUZ9 are show in Table 62.

Figure 26 SUZ9 – Land Use Precinct Plan

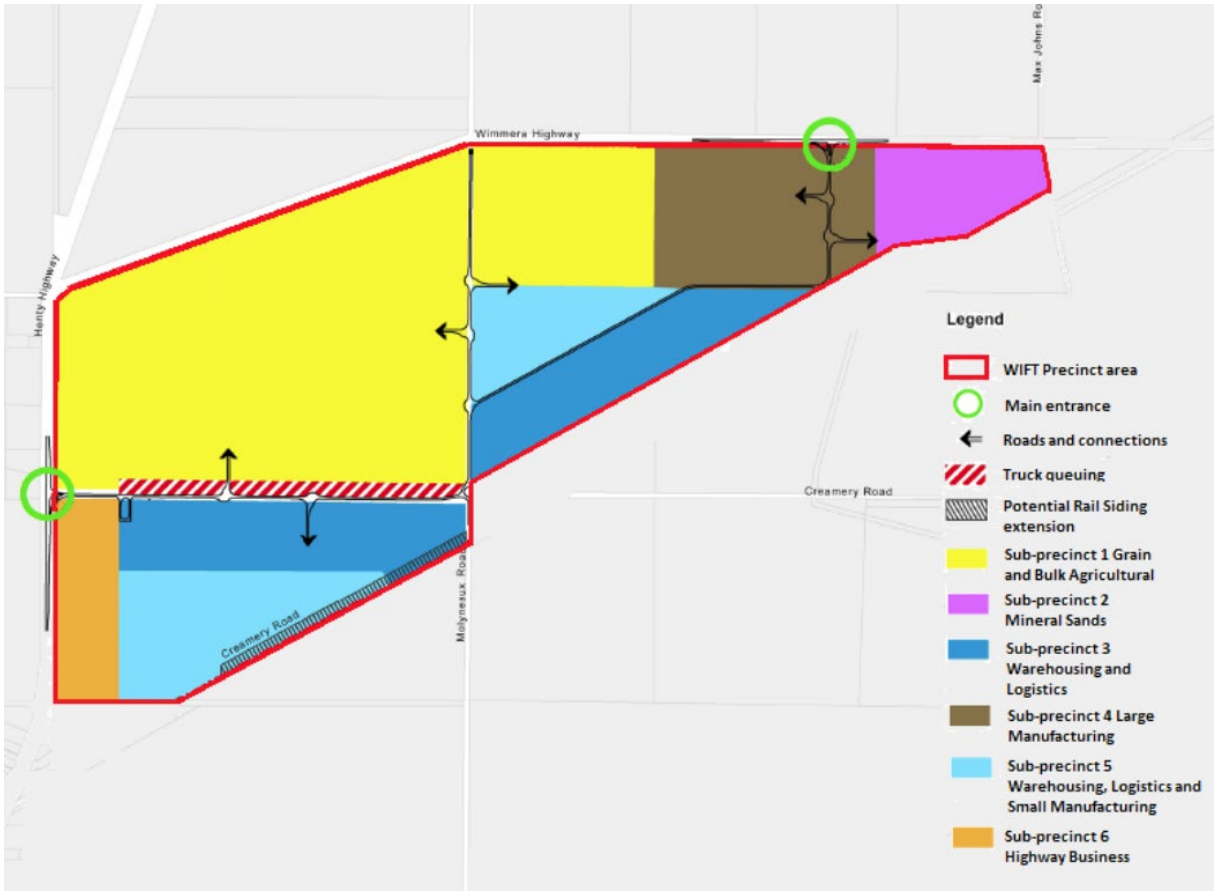


Table 62 SUZ9 - Purposes

Area	Key relevant purposes
General	To provide for industry involved in the storage and distribution of primary produce and raw materials and associated industry, warehouse, manufacturing, mineral sands processing and storage handling, office and retail uses in a manner which does not affect the safety and amenity of local communities.
Sub-precinct 2 – Mineral Sands	To provide for industry and warehousing involved in the storage and transfer of mineral sands and other earth resources on land generally in sub precinct 2 having regard to Map 1 to Schedule 9 to Clause 37.01 To ensure appropriate separation between industry and warehousing involved in the storage and transfer of mineral sands and other earth resources from food related industries and warehouses.
Sub-precinct 3 – Warehousing and logistics	To provide for large scale warehousing and logistic industries and mineral sands processing and storage handling in close proximity to the Wimmera Intermodal Freight Terminal generally on land in sub precinct 3 having regard to Map 1 to Schedule 9 to Clause 37.01 Mineral sands development shall be discouraged from abutting the northern side of the Wimmera Intermodal Freight Terminal.
Sub-precinct 4 – Large manufacturing	To provide for large scale manufacturing and general industries and mineral sands processing and storage handling with adverse amenity potential that require large separation distances from sensitive land uses (e.g. dwellings) generally on land in sub-precinct 4 having regard to Map 1 to Schedule 9 to Clause 37.01.
Sub-precinct 5 – Warehousing, logistics and small manufacturing	To provide for a mix of small-scale manufacturing, warehousing, logistics and industries generally on land in sub precinct 5 having regard to Map 1 to Schedule 9 to Clause 37.01

The tables of uses for each relevant sub-precinct permit 'Industry' as either a Section 1 (as of right) or Section 2 (permit required) use, subject to conditions.

'Earth and energy resources industry' is a prohibited use in sub-precinct 1 (Grain and bulk agricultural produce), and is an unspecified Section 2 permit use in sub-precincts 2, 3, 4 and 5.

The definition of 'Earth and energy resources industry' in the Planning Scheme is:

> Land usefully exploration, removal or processing of natural earth or energy resources. It includes any activity incidental to this purpose including the construction and use of temporary accommodation.

The definition of 'Industry' in the Planning Scheme includes:

> Land used for any of the following operations:
>
> a) any process of manufacture
> b) dismantling or breaking up of any article
> c) treating waste materials
> d) winning clay, gravel, rock, sand, soil, stone or other materials
> e) laundering, repairing, servicing or washing any article, machinery, or vehicle, other than on site work on a building, works or land; or
> f) any process of testing or analysis.
>
> If on the same land as any of these operations, it also includes:

a) storing goods used in the operation or resulting from it
b) providing amenities for people engaged in the operation
c) selling by wholesale goods resulting from the operation; and
d) Accounting or administration in connection with the operation.

Guidelines, standards and protocols

EE Act Guidelines

The Ministerial Guidelines for the Assessment of Environmental Effects under the *Environment Effects Act 1978*' (EE Act Guidelines) are made under section 10 of EE Act and define the general objective of the EES process:

> To provide for the transparent, integrated and timely assessment of the environmental effects of projects capable of having a significant effect on the environment.

The EE Act Guidelines incorporate specific principles of best practise ensuring a systems and risk-based approach to the assessment of potential effects, an integrated perspective of the relationship of different effects to inform decision-making and the need to ensure consistency with principles and objectives of ecologically sustainable development.

The EE Act Guidelines indicate potential for significant effects will reflect the following factors:

- *Significance* of the environmental assets affected, in relation to:
  - *Character* of the potentially affected environmental assets.
  - *Geographic occurrence* of the environmental assets.
  - *Values or importance* of the environmental assets, based on expert knowledge, relevant policy and evidence of social values.
- *Potential magnitude, extent and duration* of adverse effects on environmental assets in the short, medium and longer term, as a result of the development, operation and where relevant, decommissioning of a project.
- *Potential for more extended adverse effects in space and time*¸ as a result of interactions of different effects and environmental processes affecting environmental assets.

The EE Act Guidelines include referral criteria – potential environmental effects which individually or together, warrant the referral of a project for assessment as to whether an EES ought to be undertaken.

Native Vegetation Guidelines

The *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017) is an incorporated document in all planning schemes in Victoria. Its purpose is to set out and describe the application of policy in relation to assessing and compensating for the removal of native vegetation. It must be considered by a planning authority when preparing a planning scheme amendment, as relevant.

Regarding the three-step approach (avoid, minimise, offset) to biodiversity protection it states:

> Efforts to avoid the removal of, and minimise the impacts on, native vegetation should be commensurate with the biodiversity and other values of the native vegetation and focused on areas of native vegetation that have the most value.

A planning application to remove native vegetation must include an avoid and minimise statement. This should include a description of:

- Strategic level planning – any regional or landscape scale strategic planning process that the site has been subject to that avoided and minimised impacts on native vegetation across a region or landscape.

- Site level planning – how the proposed use or development has been sited or designed to avoid and minimise impacts on native vegetation.
- That no feasible opportunities exist to further avoid and minimise impacts on native vegetation without undermining the key objectives of the proposal.

AS/NZS Standard

The AS/NZS ISO 14001:2016 Standard "*Environmental management systems – Requirements with guidance for use"* was prepared by a committee of Joint Standards Australia/Standards New Zealand.

The objective of the Standard is to specify the requirements for environmental management systems that organisations may use to improve their environmental performance. It aims to encourage organisations to consider how external environmental conditions can affect their operations through issues such as climate change as well as identifying the impacts it has on the environment. This will allow organisations to identify broader issues of organisational risk which might compromise their operations and organisation.

Assessor's Handbook

The *Assessor's handbook: Applications to remove, destroy or lop native vegetation* (DELWP, 2018) provides guidance on assessing applications for planning permits to remove vegetation under Clauses 52.16 and 52.17 of Victorian planning schemes. It can also be used for other applications that involve the removal of native vegetation where the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017) apply, though it does not cover the requirements of other planning scheme clauses that require a permit for vegetation removal (e.g. Erosion Management Overlay, Vegetation Protection Overlay).

MNES Guidelines

The *Matters of National Environmental Significance: Significant impact guidelines 1.1*, *Environment Protection and Biodiversity Conservation Act 1999* provide guidance on whether actions should be referred the Australian Government Department of the Environment for a decision by the Environment Minister under the *Environment Protection and Biodiversity Conservation Act 1999*. If an action could significantly impact national environmental matters, it must be referred to the Environment Minister for approval.

Other guidelines

Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues (EPA Publication 1826.4, March 2021)

The *Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* outlines methods for setting noise limits for establishments (including commercial, industrial, trade, and entertainment venues), evaluating noise levels, and identifying excessive noise.

National Greenhouse and Energy Reporting Regulations 2008

The *National Greenhouse and Energy Reporting Regulations 2008* are a set of rules and guidelines established to implement the National Greenhouse and Energy Reporting Scheme, which collects and manages data related to GHG emissions and energy consumption and production. The regulations cover reporting obligations, registration of reporting parties, and identification of GHGs and their impact on global warming. They also define reporting thresholds, processes for changes,

recordkeeping and audit requirements, penalties for excess emissions, and provisions for information disclosure.

Protocol for Environmental Management (PEM): Greenhouse Gas Emissions and Energy Efficiency in Industry (PEM, 2001)

The *Protocol for Environmental Management (PEM): Greenhouse Gas Emissions and Energy Efficiency in Industry* is an incorporated document of Victoria's State Environmental Protection Policy (Air Quality Management). It assists Victorian businesses to comply with requirements around GHG emissions and energy consumption, mitigate their GHG emissions, and incorporate environmental issues into their existing management practices.

EPA's *'Guideline for minimising GHG emissions'* (EPA, 2022)

EPA's *'Guideline for minimising GHG emissions'* aims to help business owners and operators fulfil their responsibilities around GHG emissions under the GED, as mandated by the *Environment Protection Act 2017* (see page 275). It provides guidance for identifying sources of GHG emissions, assessing the risk of harm, implementing controls to reduce the impact of emissions, and reviewing controls for continual improvement.

Key decision making principles

Ecologically sustainable development

The Committee's ToR require it to have regard to the principles and objectives of ecologically sustainable development.

Ecologically sustainable development is defined in section 4 of the *Commissioner for Environmental Sustainability Act 2003* and adopted in the EE Act Guidelines:

> **What is ecologically sustainable development?**
>
> (1) Ecologically sustainable development is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.
>
> (2) The objectives of ecological sustainable development are –
>
> (a) to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
>
> (b) to provide for equity within and between generations;
>
> (c) to protect biological diversity and maintain essential ecological processes and life-support systems.
>
> (3) The following are to be considered as guiding principles of ecologically sustainable development –
>
> (a) that decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations;
>
> (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
>
> (c) the need to consider the global dimension of environmental impacts of actions and policies;
>
> (d) the need to develop a strong, growing and diversified economy which can enhance the capacity for environment protection;
>
> (e) the need to maintain and enhance international competitiveness in an environmentally sound manner;
>
> (f) the need to adopt cost effective and flexible policy instruments such as improved valuation, pricing and incentive mechanisms;

(g) the need to facilitate community involvement in decisions and actions on issues that affect the community.

Integrated decision-making

Clause 71.02-3 (Integrated decision-making) of the Planning Scheme requires:

> Society has various needs and expectations such as land for settlement, protection of the environment, economic wellbeing, various social needs, proper management of resources and infrastructure. Planning aims to meet these needs and expectations by addressing aspects of economic, environmental and social wellbeing affected by land use and development.
>
> Planning and responsible authorities should endeavour to integrate the range of planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However, in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.
>
> Planning authorities should identify the potential for regional impacts in their decision making and coordinate strategic planning with their neighbours and other public bodies to achieve sustainable development and effective and efficient use of resources.

The precautionary principle

The precautionary principle states that if there are threats of series or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle is given legislative force through a number of the Acts discussed above.

General Environmental Duty

The EP Act provides the overarching legislative framework for the protection of the environment in Victoria. It establishes a proactive approach to preventing the risks of harm to human health and the environment from pollution and waste in the form of a GED. The GED requires a person engaging in an activity that may give rise to risk to human health or the environment from pollution and waste, must minimise those risks so far as reasonably practicable.

Appendix G IAC recommended Environmental Management Framework

Tracked added

~~Tracked deleted~~

[to be updated as required]

WIM RESOURCE
Think Ahead, Move Ahead

Avonbank Mineral Sands Project

Committee recommended version – showing tracked changes against the Proponent's 'Day 4' Project Documentation (D146)

~~1 September 2023~~ [insert date]

Environmental Management Framework



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[Insert table with relevant abbreviations and glossary]

ENVIRONMENTAL MANAGEMENT FRAMEWORK

24.1 Introduction

This Environmental Management Framework (EMF) provides an overview of the environmental management framework for the Avonbank Mineral Sands Project (the Project). It has been prepared to address the Environment Effects Statement (EES) Scoping Requirements (DELWP, 2020) and the Minister for Planning's assessment of the EES dated **[INSERT]**, and reflects the requirements set out in the AS/NZS ISO 14001:2016 Standard 'Environmental management systems – Requirements with guidance for use' (AS/NZS ISO 14001:2016).

The Scoping Requirements state that a framework must be developed to articulate how the Project will achieve its predicted environmental outcomes, meet statutory requirements and maintain stakeholder relations. The specific Scoping Requirements relevant to this EMF are detailed in Appendix A of the EES.

Sections 24.3 to 24.9 of this EMF set out the environmental management system (EMS) that must be developed and maintained by the Proponent in line with ~~the~~ AS/NZS ISO 14001:2016 ~~Standard~~. Section 24.10 details the Environmental Management Measures (EMMs) that must be incorporated into the Project approvals including, in particular, the work plan required under the *Mineral Resource Sustainable Development Act* (MRSD Act) and the management plans required by the Incorporated Document under the Specific Control Overlay.

24.2 Context

24.2.1 Key Approvals and Regulation

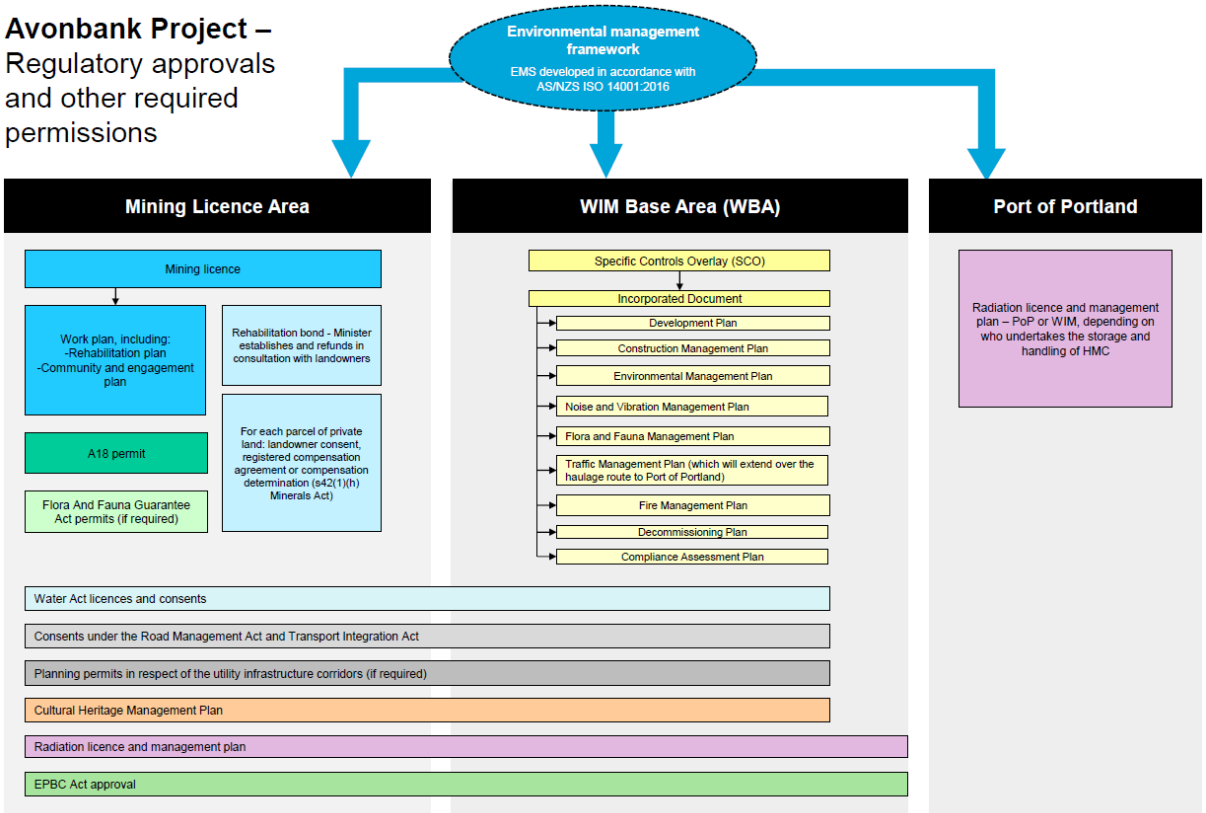
The relevant Project approvals are summarised below in Table 24-1 and shown in Figure 1 below.

Table 24-1: Key Project approvals

Work Area	Key Legislation or regulatory instrument	Key Requirements and approvals ~~and Regulatory Instruments~~
Mining licence (MIN)	*Mineral Resources (Sustainable Development) Act 1990* (MRSD Act)	Work Plan including a Risk Management Plan, Rehabilitation Plan and Community Engagement Plan. Various other requirements must be met prior to work commencing (refer Chapter 4, Section 4.4.1 and Attachment 4).
WIM Base Area (WBA)	Horsham Planning Scheme, Specific Control Overlay (SCO) and Incorporated Document.	Relevant management plans in line with the incorporated document as detailed in the draft Planning Scheme Amendment (refer EES Chapter 4, Section 4.4.2).
Minor Utilities (Power and water)	Horsham Planning Scheme ~~(HPS)~~	In line with planning permissions/requirements in the Horsham Planning Scheme ~~(HPS)~~ as they relate to minor utilities installation.
Port of Portland (PoP)	*Port Management Act 1995* Glenelg Planning Scheme (GPS)	Environmental Management Plan (including decommissioning commitments) in line with the Port licence conditions.

Figure 1 – Regulatory approvals and other required permissions

[update Figure 1 in line with Committee recommendations]



In addition to the above approvals and associated regulatory instruments, the Project must comply with the relevant permissions granted under the *Environment Protection Act 2017* (EP Act) and comply with the duties set out in the EP Act, notably the General Environmental Duty (GED).

The GED applies to all entities engaging in activities that may give rise to risks of harm to human health or the environment from pollution or waste. The GED requires that a person who is engaging in an activity that may give rise to risks of harm minimise those risks so far as reasonably practicable. The GED applies to all phases of the Project, from construction through to closure and is a legislative requirement that applies concurrently with all other legal obligations.

The EMMs detailed in table 24.2 and 24.3 will be incorporated into the relevant Project approval required prior to commencement.

24.2.2 Environmental Management System

An EMS will be developed and maintained across the Project, the scope of which will cover the mine site (within the mining licence), mineral sands processing plant (within the WIM Base Area), road transport and activities at the ~~Port of Portland (~~PoP~~)~~. The EMS will provide a consistent management approach across the Project, be consistent with this EMF, and be integrated with other relevant business elements.

The overarching requirements of ~~the~~ AS/NZS ISO 14001:2016 ~~Standard~~, as they apply to the EMS required for the Project, are summarised in this ~~Environmental Management Framework (~~EMF~~)~~. This EMF communicates the framework that will be established and maintained for the life of the Project.

An AS/NZS ISO 14001:2016 EMS is an interrelated set of business elements established to avoid and minimise effects on the environment, to fulfil regulatory compliance obligations, enhance environmental performance and to maintain a process of continual improvement.

The underlying concept of an EMS is based on a Plan-Do-Check-Act (PDCA) principle comprising the following elements:

- Plan: establish environmental objectives and processes necessary to deliver results in accordance with the organisation's environmental policy.
- Do: implement the processes as planned.
- Check: monitor and measure performance against the organisation's environmental policy and environmental objectives.
- Act: take action to meet environmental objectives and to continually improve performance.

The AS/NZS ISO14001:2016 Standard provides a clear set of requirements against which an organisation can be audited over the life of the Project. The intent of the AS/NZS ISO14001:2016 Standard is reflected in this Chapter to ensure the commitments made are clear, concise, auditable and relevant for the life of the Project.

24.3 Scope of the EMS

The scope of the Avonbank EMS must include all activities, related conditions and products that the Project has influence over. It must include the following key Project elements:

- Mining, primary processing and associated activities within the mining licence area.
- Secondary processing, ancillary infrastructure, production of Heavy Mineral Concentrate (HMC) and loading for transport at the WIM Base Area (WBA).
- Transport of Heavy Mineral Concentrate from the WBA to the PoP.
- Storage of HMC and loading at the PoP.

The scope of the EMS must cover all phases of the Project, from construction, operations, and decommissioning/closure.

As detailed in the following sections this EMF, the EMS must address:

- leadership and environmental policy
- risk assessment and planning
- environmental objectives and planning.

The EMS scope will be refined prior to the commencement of the Project and must consider the outcome of the EES assessment and subsequent approvals.

24.4 Leadership and Environmental Policy ~~and Leadership~~

24.4.1 Leadership

The Management team is responsible for the establishment of an environmental policy that is compatible with the strategic direction and context of the Project. The Management team must take accountability for the effectiveness of the EMS to ensure it achieves its intended outcomes.

24.4.2 Environmental Policy

The environmental policy must be developed and endorsed by WIM Resource to provide the framework upon which the environmental objectives are set.

The environmental policy must include commitments to:

- Comply with regulatory requirements.
- Avoid or minimise emissions to land, water and air.
- Protect sites of cultural heritage.
- Protect flora and fauna.
- Conserve resources and minimise waste.
- Undertake targeted research to improve environmental performance.
- Progressively rehabilitate disturbed areas.
- Respond quickly and effectively to stakeholder concerns.
- Communicate openly with employees, the community and regulators.

The environmental policy must be reviewed, updated on a periodic basis and at a minimum before each phase of the Project and communicated to all staff and contractors and environmental reference group (ERG).

24.5 Risk Assessment and Planning

24.5.1 Environmental Aspects

A register of environmental aspects must be maintained to identify the Project related activities, conditions and products that can interact with the environment. In determining the relevant environmental aspects, consideration must be given to:

- the Project description in this EES and detailed operating plans;
- any planned changes, including new or modified infrastructure, activities or products, conditions; and

- any reasonably foreseeable emergency or unplanned situation.

The aspects register must include a description of the potential impacts and form the basis of the risk assessment described in Section 24.5.3.

A preliminary register of environmental aspects is attached to the EES. This register must be further developed prior to commencement with consideration to the Minister's assessment of the EES and the detailed mine operating plans.

24.5.2 Compliance Obligations

A register of compliance obligations associated with the Project's environmental aspects must be developed and maintained as part of the EMS. Compliance obligations must include key legislative requirements, conditions related to Project approvals, orders or guidance from regulatory bodies and commitments made to stakeholders.

The documentation describing the compliance obligations will provide context as to how each obligation applies to the Project such that it can be readily communicated through the organisation. A periodic review must be undertaken to ensure the compliance obligations remain current and in line with the relevant legislative requirements.

24.5.3 Risks and Opportunity

The EMS must require that an assessment of the risks and opportunities associated with the Project related environmental aspects, potential impacts and compliance obligations be periodically undertaken. The assessment must be conducted in accordance with documented procedures that reflect the requirements of the AS/NZS ISO 14001:2016, 'Standard for Environmental Management Systems' and with consideration to the AS ISO 31000:2018, 'Standard for Risk Management'. This must include processes for:

- identifying hazards, potential impacts or opportunities associated with the Project;
- assessing the risks or opportunities in terms of likelihood and consequence; and
- identifying the controls to avoid or minimise the risks so far as reasonably practicable.

The assessment must be scheduled to occur periodically and in response to significant non-conformities associated with results from monitoring, inspections, audits and community complaints. A change management process must be established whereby any material change to the operating conditions or environmental setting must require an assessment of the risks and opportunities.

The scope of the periodic assessment must consider:

- the relevant environmental aspects, including any new or proposed operational changes, changed environmental conditions, changes to technology and/or changes to the state of knowledge;
- current compliance obligations, including any new or changed legislative or Project specific obligations;
- emerging organisational issues or opportunities;
- reported non-conformities, stakeholder issues, incidents and outcomes from monitoring programs, inspections and audits;
- outcomes from community/stakeholder engagement; and
- emergency or unplanned situations and contingencies.

The EMS must identify and establish controls to avoid or minimise residual risk to human health and the environment so far as reasonably practicable. A hierarchy of controls must be applied to:

- avoid or eliminate the hazard; or
- minimise the risk associated with the hazard through:
  - engineering controls to minimise the risk;

- substituting higher-risk activities with lower-risk ones;
- isolating the hazard/source or receptor; or
- implementing administrative controls.

The controls must consider all avoidance and mitigation measures communicated in the Avonbank mineral sands Project EES and any additional controls that may be required to ensure the risks are avoided or minimised during operations.

In identifying and selecting appropriate controls, consideration must be given to:

- the availability and suitability of ways to avoid or minimise the hazards and risks;
- the likelihood of the risks eventuating;
- the degree of harm (consequence) that would result if the risks eventuated;
- the cost of avoiding or minimising the risks;
- current technology and state of knowledge regarding the hazard or risk; and
- leading practice controls applied within the mineral sands industry.

The risk and opportunity assessment must address certain requirements under both the ~~*Environment Protection Act* 2017~~ EP Act and the ~~*Mineral Resources (Sustainable Development) Act 1990*~~ MRSD Act with regard to avoiding or minimising risks to human health and the environment so far as reasonably practicable.

An Aspects and Risks register ~~will~~ must be integrated into the EMS, and must be generally consistent with the exhibited EES Chapter 5 – Aspects and Risks and, if required, updated to be consistent with the Minister's assessment of the EES.

24.5.4 Environmental Objectives

Environmental objectives must be established and maintained that aim to fulfil the commitments in the environmental policy and meet the required compliance obligations. The environmental objectives must be consistent with the Minister for Planning's assessment of the Project EES.

Performance standards must be developed and maintained to provide a measurable benchmark against which an associated environmental objective can be assessed. The performance standards must be specific, measurable, achievable, realistic and time-bound. Each performance standard must have an associated monitoring, inspection or auditing program.

The relevant environmental objectives and performance standards must be incorporated into the mining work plan and other relevant Project approvals. Objectives and standards must be appropriately communicated, regularly reviewed and updated as required in line with the organisation's commitment to continuous improvement.

24.5.5 Business Planning

An integrated business plan must be maintained to describe how the Project aims to achieve its operational and environmental objectives. The planning process must occur periodically to establish the forward work plan for the Project. It must define specific actions and must detail how they are to be resourced, the timeframes for completion and the associated measures of success.

24.6 Resources, Training and Communication

The Project must be appropriately resourced with competent personnel to maintain the EMS and associated environmental policy commitments.

WIM Resource's Project Management team must report to the Chief Executive Officer and indirectly to board members. The Management team must take accountability for the implementation of the EMS and must be supported by line managers and operational staff based in Horsham.

Procedures must be established to:

- determine the competencies required to undertake work and fulfil the Projects policy commitments and compliance obligations;
- ensure personnel are competent on the basis of appropriate experience, training or education; and
- assess the training needs for the Project.

Programs must be established to ensure all personnel are made aware of the Project's environmental policy commitments as well as:

- the significant environmental aspects and the potential impacts and risks associated with their work;
- their contribution to the effectiveness of the EMS, including the benefits of enhanced environmental performance; and
- the implications of not conforming with the EMS requirements, including not fulfilling the Project's compliance obligations.

Internal communication processes must be established between various levels of the organisation to ensure changes to the EMS and associated procedures are effectively communicated.

External communication procedures must be established to ensure the triggers for reporting to regulatory bodies or other stakeholders are documented and communicated. A community engagement plan (CEP) must be prepared and implemented as part of the EMS (see **SE-02** in Table 24-2).

24.7 Operational Control

24.7.1 Operational Planning and Control

The management plans referred to in Table 24.2 and required under statutory approvals for the Project must be developed and maintained through all phases of the Project as described in this EES and updated as required to address emerging issues, risks or regulatory requirements. Each management plan must:

- Summarise the baseline data and existing environment.
- Explain the relevant statutory requirements and context (including any relevant approvals).
- Describe the controls to be implemented to minimise residual risks/impacts so far as reasonably practicable.
- Identify specific environmental objectives and performance standards to be achieved with controls in place.
- Detail monitoring to be undertaken to verify the effectiveness of the controls.
- Describe mechanisms to determine when/if corrective actions and contingency measures are required.
- Detail a program to investigate and implement ways to improve the environmental performance of the Project over time.
- Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose.
- Establish procedures to manage:
  - incidents and any non-conformity.
  - stakeholder and community complaints.

  - failure to comply with statutory requirements and/or environmental performance standards.
  - roles and responsibilities for implementing the plan.
  - a protocol for periodic review of the plan.
- Include a community engagement strategy which must include a complaints handling system.

The EMMs described in Tables 24-2 and 24-3 must be incorporated into the relevant management plans. The management plans required prior to commencement are summarised in Table 24-2. Management plans must be approved by the regulators who administer the planning controls and statutory approvals that apply to the Project.

Management plans required under Table 24-2 (unless otherwise specified) and the Incorporated Document must be reviewed and updated at an appropriate frequency as established in the overarching EMS with consideration to the level of risk, statutory requirements, monitoring results, community complaints, in response to audit findings and any other specific requirements detailed in Table 24-2 or the Incorporated Document. Review and update of management plans must be in consultation with the relevant regulator or responsible authority:

- at least every five years or prior to the commencement of each mining block stages or as informed by each audit, which ever is the lesser timeframe
- and as required to ensure compliance with any updated approvals or regulatory instruments.

Management plans or other plans required under Table 24-2 may also be prepared and approved in stages, and as separate documents and plans relating to particular locations or aspects of the Project, with the approval of the relevant regulator or responsible authority.

Procedures must be developed and maintained to provide further task specific detail where required. Operational procedures must provide work instructions and detail the criteria or operating parameters within which work will be undertaken.

24.7.2 Emergency Preparedness and Response

The Project must implement and maintain procedures and processes to prepare for and respond to potential emergency situations. The procedures and plans must:

- aim to prevent or mitigate adverse environmental impacts from emergency situations;
- define response actions to prevent or mitigate the consequences of emergency situations appropriate to the magnitude of the emergency and the potential environmental impact;
- include a periodic testing regime for the planned response actions, where practicable;
- have requirements to review procedures and processes periodically, particularly after the occurrence of an emergency situation; and
- provide relevant information and training related to emergency preparedness and response, as appropriate, to relevant parties.

The various plans, procedures and processes developed in accordance with Section 27.7.2 **[check this reference number]** must be reviewed and maintained to ensure they remain current and fit for purpose.

24.8 Monitoring and Performance Evaluation

24.8.1 Monitoring, Measurement, Analysis and Evaluation

Programs must be established to proactively monitor, measure, analyse and evaluate the Project's environmental performance. A monitoring program must be maintained over the life of the Project that outlines:

- what needs to be monitored and measured;

- the methods for monitoring, measurement, analysis and evaluation, as applicable, to ensure valid results;
- the standards against which the Project must evaluate its environmental performance; and
- a schedule to identify when monitoring must be undertaken, analysed and evaluated.

The monitoring program must address the commitments in this EES, relevant compliance obligations and must consider any emerging risks and opportunities associated with the Project's environmental aspects. The key Project monitoring requirements are described in Table 24-3.

Periodic assessment of the monitoring outcomes against the performance standards and compliance obligations must be undertaken. Monitoring outcomes and associated environmental performance must be communicated both internally and externally, as identified in the Project's communications procedures and in line with the identified compliance obligations.

24.8.2 Audit Requirements

Internal audits must be undertaken at planned intervals to assess whether the EMS conforms to the requirement of AS/NZS ISO 14001:2016 and is effectively implemented and maintained.

An internal and external audit program must be maintained detailing the frequency, methods, responsibilities, planning requirements and reporting requirements. The frequency and scope of the audit program must be determined with consideration to risks and issues pertinent at any point in time over the life of the Project, in line with the AS ISO 9011:2018, 'Guideline for Auditing Management Systems'.

External audits are conducted by an independent organisation or auditor to assess the compliance and effectiveness of an organisation's EMS against the requirements of the relevant standards ~~Standard~~. Internal audits are typically conducted within the organisation on an ongoing basis to assess conformance with the Standard.

Relevant documentation associated with the audit program must be retained in accordance with AS/NZS ISO 140001:2016 and relevant legislation.

24.8.3 Management Review

WIM Resource's Management team must review the EMS at planned intervals to ensure its continuing suitability, adequacy and effectiveness. The EMS must be reviewed if there are relevant changes to the AS/NZS ISO 14001:2016.

The management review must include consideration of:

- Changes in:
  - external and internal issues that are relevant to the EMS;
  - the needs and expectations of interested parties, including compliance obligations;
  - significant environmental aspects; and
  - risks and opportunities.
- The extent to which environmental objectives have been achieved.
- Information on the Projects environmental performance, including trends in:
  - non-conformities and corrective actions;
  - monitoring and measurement results;
  - fulfilment of its compliance obligations; and
  - audit results.
- Relevant communications from interested parties, including complaints.
- Opportunities for continual improvement.

The relevant documentation and outputs from the management review meetings must be retained.

24.8.4 Documentation

Documented information and records required by the EMS, including but not limited to the required compliance obligations must be controlled to ensure:

- they are available and suitable for use, where and when required; and
- are adequately protected (e.g. from loss of confidentiality, improper use, or loss of integrity).

For the control of documented information and records, appropriate processes must be put in place for document storage and preservation, including preservation of legibility, control of changes (e.g. version control), retention and disposition.

Key records must include, but not limited to monitoring data, stakeholder correspondence, baseline environmental information, minutes from management meetings and regulator correspondence.

Management plans required under statutory approvals for the Project or are referred to in Table 24.2 must, with the consent of the relevant regulator, be published on the Project website.

24.9 Improvement

24.9.1 Community Engagement and Complaints Management

A community engagement strategy must be maintained to ensure:

- Contact options are established such that all community members can provide feedback on the Project or lodge a complaint.
- A complaints mechanism is established so that community issues can be resolved so far as reasonably practicable.
- Material community complaints are raised as a non-conformity and investigated.
- Outcomes from investigations are incorporated into decision-making processes related to the avoidance and mitigation of impacts and general improvement of environmental performance.

The complaints or grievances must be documented in a register and the complainants must be kept informed during the consideration of the issue and notified of any corrective actions that occur as a result of the complaint or incident investigation.

Community complaints must be documented and acknowledged within 3 business days, and responded to expeditiously. Where required, progress updates and/or a formal response must be provided to address the feedback received.

A ~~community engagement plan~~ CEP is required under SE-02 (Table 24.2). Under this plan stakeholders can provide feedback and WIM Resource can receive responses, and must include a mechanism for recording and resolving complaints.

24.9.2 Non-conformity and Corrective Action

Material deviations from the plans, processes and procedures that comprise the EMS must be identified as non-conformities and reported as incidents. Incidents must be investigated to determine the root cause and to develop corrective actions with the aim of preventing reoccurrence and addressing any associated consequences, including mitigating adverse environmental impacts. Documentation must be retained to show the nature of the incidents and any immediate contingencies applied or subsequent actions taken.

24.9.3 Continual Improvement

A process of continual improvement must be established to enhance environmental performance over the life of the Project. This will be primarily achieved through the successful implementation of the EMS described in this Chapter.

Over the life of the Project, it is recognised technologies will advance and leading practice standards across the industry will evolve. Processes must be established to identify, evaluate and implement such improvements over the life of the Project.

A research and development program must be maintained and funded to further develop and improve environmental performance. Aspects of this program are further described in the preliminary Rehabilitation Plan exhibited with the EES.

24.10 Environmental Management Measures

The EMMs are provided in Table 24-2 in Table 24-3. As described in Section 24.2.1 these measures will be incorporated into subsequent approvals for the Project including but not limited to the mining work plan, Incorporated Document and associated management plans.

Table 24-2: Avoidance and mitigation

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
Land use and Planning		
8.6.1.1	**LP-01: WIM Base Area (WBA) location** The WBA secondary processing infrastructure must be situated within the Wimmera Intermodal Freight Terminal (WIFT) as generally as depicted in Figure 8-6 **[check and if necessary update figure reference in the EES]** of the EES.	WBA
8.6.1.2	**LP-02: Land Access Agreements or Land Purchase** Prior to the commencement of work on a mining licence, consent from the owners/occupiers of the land directly affected must be granted, land may be purchased prior to the commencement of works, or compensation must be determined under the *Mineral Resources (Sustainable Development) Act 1990* (or equivalent updated legislation if enacted). For access to land outside the mining licence (WBA or minor utilities corridor), tenure to enter upon land to undertake and use works must be agreed with the relevant landholders.	Development extent
8.6.1.3	**LP-03: Rehabilitation Plan** Refer to **RH-01**.	Development extent Port
Traffic and Transport		
9.6.1.1	**TM-01: HMC Haulage route** The proposed Heavy Mineral Concentrate (**HMC**) haulage route must rely on sealed roads gazetted for the types of vehicles generated by the Project. The number of HMC haulage trucks using the haulage route must be limited to 2 per hour between 10pm and 6am. The preferred road transport route must be periodically reviewed over the life of the Project, in consultation with the Department of Transport and Planning (DTP), to assess alternative routes with consideration to matters, including but not limited to, road condition, safety, traffic impact, travel time, maintenance and amenity effects. The Project must consult with DTP as soon as practicable when significant issues arise regarding road safety, condition and maintenance of the roads used for HMC haulage. The feasibility of transporting HMC to the Port of Portland by rail must be periodically evaluated, including at the time funding is committed for upgrade of the rail line. The feasibility must take account of the triple bottom line impacts and benefits, including greenhouse gas emissions.	HMC haulage route
9.6.2.1	**TM-02: Traffic Management Plan** A Traffic Management Plan (**TMP**) must be prepared prior to Project commencement. The TMP must be implemented, and must provide a management framework and specific requirements relating to traffic movement to and from the proposed mining licence/WBA to mitigate residual impacts. ~~The TMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings~~ Initially, the TMP must address matters relating to worksite construction traffic, and as the Project progresses, it must be reviewed and updated to address subsequent Project phases. The TMP must: • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the avoidance and mitigation measures to be implemented to minimise impacts so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place.	Project

[88] Refer to table 24-1 noting that the 'Development extent' includes the MIN, WBA and minor utilities. 'Project' refers to all work areas. 'HMC haulage route' refers to the arterial route from WBA to the Port of Portland

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]

	• Detail the monitoring to be undertaken to verify the effectiveness of the avoidance and mitigation measures.
	• Describe mechanisms to determine when/if corrective actions and contingency measures are required.
	• Detail a program to investigate and implement ways to improve the environmental performance of the Project over time.
	• Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose.
	• Establish procedures to manage:
	• incidents and any non-compliance.
	• stakeholder and community complaints.
	• failure to comply with statutory requirements and/or performance criteria.
	• roles and responsibilities for implementing the plan.
	• a protocol for periodic review of the plan.
	• Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02).
	• Include a program to consult with the community and landholders prior to local road closures and changes to the local road network, including specific requirements that the Proponent must:
	  ○ consult with the relevant landholders when identifying detour routes for local landholders impacted by road closures.
	  ○ consult the HRCC and/or relevant road authority prior to any local road closure. HRCC will need to agree to the proposed local road closures and preferred road detours.
	  ○ must give stakeholders adequate advanced notification of proposed local road closures and preferred road detours.
	• Include periodic reporting requirements to the Horsham Rural City Council (**HR~~R~~C**) and ~~Department of Transport and Planning (~~**DTP**~~)~~ to facilitate review and amendments where necessary.
	In addition to the above framework and the avoidance and mitigation measures in **TT-01** and **TT-03** – **TT-05,** the TMP must include specific requirements to:
	• ~~Identify detour routes for local landholders impacted by road closures.~~
	• Consider impacts to travel times and accessibility for road users, including but not limited to emergency services and public transport during any public road works.
	• ~~Consult the HRCC and/or relevant road authority prior to any local road closure.~~
	• Detail Project traffic activity, including hours, expected volumes, traffic types, haulage activity, and access routes.
	• Identify Project traffic operation expectations and requirements (vehicle operating speeds, driver behaviour and conduct, compliance and enforcement).
	• Include mitigation measures to minimise dust and noise impacts on sensitive receptors with particular regard to driver behaviour.
	• Outline strategies to be implemented that seek to ensure the safety and health of the public and others who may be impacted by Project traffic during site operations.
	• ~~Ensure that stakeholders are aware of any proposed changes to Project traffic conditions and that risks associated with such changes are identified and mitigated~~.
	• Undertake a Road Safety Audit prior to the TMP being approved by the relevant road authority.	

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
9.6.2.2	**TM-03: Green Travel Plan** A Green Travel Plan (**GTP**) must be developed prior to Project commencement and implemented to promote sustainable transport initiatives and to minimise private vehicle use by Project personnel (where appropriate). The GTP must be relevant to all phases of the Project, from construction through to decommissioning and focus on Project related personnel activity to encourage carpooling and/or Project provided transit services where appropriate. The GTP must be prepared in consultation with the HRCC and must include: • Sustainable transport initiatives and associated incentives. • Travel mode targets and timeframes. • Mechanisms to monitor, review and amend the GTP, as required.	Project
9.6.2.3	**TM-04: Road maintenance and management** Road maintenance and management agreements must be established between the HRCC and WIM Resource for local roads that are directly relied upon by the Project or used as detours for public traffic. This agreement will ~~likely~~ include: • Identification of maintenance responsibilities, triggers and standards for local roads that are relied on by Project traffic. • Process and standard of progressive road reinstatement (refer TM-07). • ~~The process and standard of road reinstatement post-mining operations to the pre-existing condition and/or to the relevant road standard described in the HRCC 'Road Management Plan' (HRCC, 2017).~~ • A dispute resolution process. The agreements must be in place prior to Project construction. The HRCC must be consulted on all relevant matters relating to road closures and detours. Requirements for rehabilitation of local roads removed for the purposes of mining are detailed in SE-07.	Development extent
9.6.2.4	**TM-05: Road infrastructure improvements** Road infrastructure improvements that are necessary for the Project must be undertaken at the Wimmera Highway/WBA intersection so that it complies with Austroads and DTP design requirements. The design of the intersection must be subject to a Road Safety Audit during the functional and detailed design stage.	WBA
9.6.2.5	**TM-06: Community engagement** Refer to **SE-02**.	Project
9.6.3.1	**TM-07: Progressive rehabilitation of local roads** Local roads that have been removed for the purposes of mining operations must be reinstated to a condition agreed prior to removal, in consultation with stakeholders, HRCC and impacted landowners. The minimum condition of the reinstated road must be agreed to prior to the removal of the road for mining operations. The process and standard of road reinstatement post-mining operations must be to an all-weather standard, or to the relevant road standard described in the HRCC 'Road Management Plan' (HRCC, 2017), in consultation with landholders and the community. Refer to **RH-01** and **TM-04.**	WBA Mining licence
Historic Heritage		
10.6.1.1	**HH-01: Heritage exclusion zones** Exclusion zones must be established and maintained within the development extent to avoid direct impacts to Sites 2, 3, 6, 7, 8 and 9, as shown in Figure 10-7. Confirm the development extent boundary and establish and maintain an exclusion zone around Site 3 following field investigation undertaken to identify any archaeological features and artefact bearing deposits, and consideration of potential impact from ground movement from mining activities that may impact the structural integrity of a building or structure. The exclusion zones must be recorded and communicated to contractors and site personnel through site inductions/training and by physical demarcation where required.	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
10.6.2.1	**HH-02: Relocation of historic structures** A detailed assessment of the structure and an archaeological survey of Site 1 will be undertaken to establish whether it is practicable to relocate Site 1. Any relocation must be conducted in line with the relevant consents under the *Heritage Act 2017* and in line with the Heritage Management Plan (**HH-04**). Over the course of the Project, if additional heritage structures or items are discovered, opportunities for relocation must be investigated.	WBA
10.6.2.2	**HH-03: Chance Finds Procedure** A Chance Finds Procedure (**CFP**) for potential heritage or archaeological sites must be prepared prior to Project commencement that sets out the steps that must be taken in the event of discovering a site of potential heritage or archaeological value that requires oversight by a project archaeologist. The CFP must be implemented and must include contingency measures for temporarily stopping works and establishing a protection buffer around the discovery area. The CFP must be prepared to include all requirements listed in the draft procedure provided in the Historic Heritage Impact Assessment (refer Appendix D of the EES).	Development extent
10.6.2.3	**HH-04: Historic Heritage Management Plan** A Historic Heritage Management Plan (**HMP**) must be prepared prior to Project commencement. The HMP must be implemented, and must provide a management framework to avoid and minimise impacts to historic heritage so far as reasonably practicable. ~~The plan must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings.~~ The HMP must: • Summarise the baseline data and existing environment. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the avoidance and mitigation measures to be implemented to minimise residual risks/impacts so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail the monitoring and inspections to be undertaken to verify work procedures are implemented effectively. • Describe mechanisms to determine when/if corrective actions or contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance. - stakeholder and community complaints. - failure to comply with statutory requirements and/or performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the avoidance and mitigation measures in **HH-01** – **HH-03**, the HMP must include specific requirements to: • Undertake field investigations where relevant in line with the 'Guidelines for Conducting Archaeological Surveys' (Heritage Victoria, 2020) once access is granted for each landholding and prior to the commencement of ground disturbing works. • Complete and lodge a site card for identified historic sites within 30 days of any new discovery. • Maintain and implement a CFP as described in Section 10.6.2.2 (HH-03). • Undertake archival recordings (photographs) in line with the 'Specification for the Submission of Archival Photographic Records' (Heritage Victoria, 2017) prior to disturbing or altering any historic sites. • Obtain relevant consents in line with the Heritage Act 2017, including where relevant: Consent to Uncover, Consent to Disturb, or Consent to Excavate.	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
	• Develop an internal topsoil disturbance approval process that requires authorisation by a suitably trained person prior to any disturbance. • Develop a heritage induction and training program for site personnel so that the requirements of the HMP are understood by the relevant personnel.	
10.6.3.1	**HH-05: Rehabilitation Plan** Refer to **RH-01**.	Development extent Port
Landscape and Visual Amenity		
11.6.1.1	**LV-01: WBA plant location** Refer to **LP-01**.	WBA
11.6.2.1	**LV-02: Block B stockpile (OB-B) location** The Overburden B Stockpile must be located in an area that is set back from the Henty and Wimmera Highways. The form of the overburden stockpile will be managed by shaping and profiling its slopes to minimise the footprint, minimise visual impacts and disturbance to the surrounding agricultural land so far as reasonably practical.	Mining licence
11.6.2.2	**LV-03: Progressive rehabilitation** Visual impacts associated with the Project must be minimised through the staging and sequencing of works. At any given time, the extent of Project disturbance will be less than 400 ha at any one time as areas are progressively mined and rehabilitated, typically within four years.	Development extent
11.6.2.3	**LV-04: Landscape screening** The visual impact of Project elements that are expected to remain in place for the Project life must be minimised through landscape screening established prior to the commencement of Project works that require landscaping. Landscape screening will consist of planting native trees at identified locations and must be designed in consultation with HRCC to ensure, where required, appropriate road intersection site distances are maintained. Once established, screening vegetation must minimise visual impacts by reducing the visibility of the WBA/Wet Concentrator Plant (**WCP**) and Overburden B stockpile from nearby receptors. Figure 11-12 shows the location of the proposed landscape screening areas: • Landscape Screen 1 (LS1) to the north and east of the WBA. • Landscape Screen 2 (LS2) along the Wimmera and Henty Highways adjacent to OB-B Stockpile. • Landscape Screen 3 (LS3) along the Wimmera Highway north of the WBA. Additional landscape screening may be provided during Project implementation in response to community feedback where reasonably practicable to do so. ~~It is anticipated that tree screening will be~~ E~~e~~stablish~~ed~~ landscape screening~~-~~between the Overburden B stockpile and the adjacent residential dwelling (R6) and associated business in consultation with the landholder. Landscape screening must be maintained throughout the life of the Project.	WBA Mining licence
11.6.2.4	**LV-05: Lighting impacts** All lighting secondary to key operational and safety requirements must be designed in accordance with AS/NZS 4282 'Control of obtrusive effects of outdoor lighting'. This must include limiting the amount of lighting required for the Project, reducing direct visibility of light sources, reducing glare and minimising light spill.	Development extent
11.6.3.1	**LV-06: Rehabilitation Plan** Refer to **RH-01.**	Development extent Port
Noise and Vibration		
12.6.1.1	**NV-01: Fleet type** The mine haulage vehicle fleet must be optimised to minimise the number of circuits and to minimise noise emissions so far as reasonably practicable.	Mining licence

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
12.6.1.2	**NV-02: HMC Haulage route** Predicted noise levels of night-time vehicle movements in Dooen, Horsham, Cavendish, Hamilton, Heywood and Portland be reported on. The report must include the potential for sleep disturbance using the indicators in the New South Wales Road Noise Policy. Between the hours of 10pm and 6am, the number of HMC haulage vehicles using the haulage route is limited to 2 haulage vehicles per hour. Refer **TM-01**.	HMC Haulage route
12.6.1.3	**NV-03: Construction noise** The Project must minimise the risk of harm associated with construction noise (including vibration) so far as reasonably practicable at all times, consistent with the ~~General Environmental Duty (~~GED~~)~~ and with the Civil Construction, Building and Demolition Guide (Environment Protection Authority (EPA) publication 1834). High noise generating construction activities associated with the Project must be scheduled to occur only during the normal working hours specified in EPA publication 1834, unless they are justified and approved to be unavoidable works or low- noise impact works as defined in EPA publication 1834. A Noise and Vibration Management Plan (NVMP) must be prepared and approval sought (refer to **NV-06**). The NVMP must include a process for the justification and approval of unavoidable works, managed-impact works, and low noise impacts that may be planned to occur outside the normal working hours, consistent with EPA publication 1834.~~ The NVMP must be prepared by a suitably qualified person and must:~~ ~~• include a clear rationale for the justification of both unavoidable works and managed-impact works (consistent with EPA publication 1834) and response strategies to reduce and minimise noise and vibration and their impacts, so far as reasonably practicable.~~ ~~• ensure that all assessments for justification of out-of-hours works and their approval are conducted by a suitably qualified independent person, such as an Independent Environmental Auditor, who has no prior involvement in planning or delivery of the Project and is able to make decisions free from influence or pressure relating to the delivery of the Project;~~ ~~• ensure that in respect of unavoidable works:~~ ~~- the necessity for such works to be carried out outside of normal working hours is assessed and documented by a person with skills and expertise in risk/safety assessments;~~ ~~- the mitigation measures to reduce noise and vibration are designed, specified, and assessed by a person with skills and expertise in noise and vibration control; and~~ ~~- the risk associated with residual noise and vibration is assessed and contingency measures are taken to address, so far as reasonably practicable the residual noise and vibration impacts;~~ ~~• ensure in respect of managed-impact works:~~ ~~- measures are taken to manage impacts on noise sensitive receptors consistent with the definition of managed-impact works in EPA publication 1834~~ ~~- these measures are designed, specified and assessed by a person with skills and expertise in noise and vibration control; and~~ ~~- a program is in place to verify that the measures to managed noise impacts meet the performance they have been designed to achieve.~~ ~~• ensure in respect of low-noise impact works:~~ ~~- a list detailing planned works that are low-noise impact works (because they are inherently quiet or unobtrusive, consistent with the definition in EPA publication 1834) is established.~~ Noise criteria that may be considered to manage the emergence of construction noise over background noise must be established based on a background level, that represents the background at the time of impact. ~~A community engagement strategy and complaints handling system must be established to ensure noise emissions are avoided and minimised so far as reasonably practicable during the construction phase (**SE-02**).~~	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
12.6.2.1	**NV-04: Earthen bunds and stockpiles** Earthen bunds and stockpiles must be strategically located to abate noise emissions and mitigate impacts to sensitive receptors. Indicative locations for stockpiles and bunds for the construction phase are shown in Appendix G of the EES. Noise bunds must be designed to minimise the risk of noise emissions at sensitive receptors so far as reasonably practicable. Planning procedures must be established to proactively situate and construct noise bunds, to mitigate impacts on sensitive receptors. During operations, the location and configuration of bunds should be adapted and augmented to respond to the results of monitoring and stakeholder feedback.	WBA Mining licence
12.6.2.2	**NV-05: Noise abatement on equipment** Noise abatement kits must be fitted on all relevant equipment and vehicles to minimise the risk of harm to human health or the environment from noise so far as reasonably practicable, taking into account sound levels, frequency spectrum and noise character.	Project
12.6.2.3	**NV-06: Noise and Vibration Management Plan** A Noise and Vibration Management Plan (**NVMP**) must be prepared prior to Project commencement. The NVMP must be implemented, and must provide a management framework to avoid and minimise risks/impacts from Project noise and vibration, so far as reasonably practicable, in line with the Project EMS and relevant legislative requirements. The NVMP must address the management of any works outside recommended normal working hours (during construction) in accordance with EPA publication 1834 (**NV-03**) and must also address the operational phase of the Project, including road traffic haulage to the Port of Portland. The NVMP must be developed in consultation with stakeholders and must be subject to approval by the relevant authority. Initially, the NVMP must address matters relating to worksite construction and as the Project progresses it must be reviewed and updated to address subsequent operational Project phases. ~~The NVMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings.~~ The NVMP must, as a minimum: • Summarise the baseline data and existing environment, based on existing noise measurements undertaken at representative locations no more than six months before the Project commences. • Explain the relevant statutory requirements and context (including any relevant approvals). • Detail a framework for the approval of construction works outside normal working hours as detailed in EPA publication 1834 (refer to **NV-03**). • Describe the avoidance and mitigation measures to be implemented to minimise noise emissions so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail the monitoring to be undertaken to verify the modelling and the effectiveness of the avoidance and mitigation measures (monitoring must meet the requirements of EPA publication 1996: Noise guidelines – assessing low frequency noise). • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance; - stakeholder and community complaints; - failure to comply with statutory requirements and/or performance standards; - roles and responsibilities for implementing the plan; and - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the avoidance and mitigation measures detailed in **NV-03** – **NV-05**, the NVMP must include specific requirements to:	Project

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
	• Plan vehicle movements to avoid manoeuvres and idling near sensitive receptors. • Restrict areas where mobile plant can operate, so that it is away from sensitive receptors. • Investigate quieter equipment or methods and maintain equipment. • Maintain a mine planning procedure that defines a process by which mitigation and management measures are identified and implemented over the life of the Project to reduce the risk of harm from noise so far as reasonably practicable. • Augment or add new noise bunds as required in response to monitoring and community feedback, as well as proactively, to ensure noise emissions are minimised so far as reasonably practicable. • Manage noise from the Project during construction and operation with consideration to the risk of low frequency noise and implement appropriate management measures to reduce the risk so far as reasonably practicable. • Conduct noise modelling over the life of the Project to assess operational scenarios that may impact sensitive receptors. • Noise monitoring to be undertaken during mining operations at receiver locations where the noise modelling has shown that the potential operation noise levels are approaching the noise criteria limits. • Define procedures for the selection of equipment for each phase/stage of works in order to minimise noise emissions. • Connect to the electricity grid as early as possible to avoid the use of diesel generators. • Enable preparatory work to occur off-site or within shielded areas where there is low potential for impacting receptors. • Restrict areas where mobile plant can operate so that it is away from receptors that may be affected by noise. • Consider maximum/impulsive noise level events, especially at night, as they have the potential to generate sleep disturbance or awakening impacts. • Consider the risk of impact to natural areas having regard to the frequency spectrum of both the pre-existing noise and the noise from the Project, their potential character, and variability. • Develop and implement a code of practice for haul truck driver behavior to limit impacts from truck ~~pass-bys near residences~~ passing through towns and ensure compliance with the code of practice with consideration to matters including but not limited to noisy accelerations/decelerations, engine brake noise, tailgate rattling. The code of practice is to be monitored and audited to establish its effectiveness. Non-conformances with the code of practice must be investigated and corrective actions applied as required. • Product haulage trucks must meet High Productivity Freight Vehicle (HPFV) Performance Based Standards to minimise noise emissions, including, but not limited to, road-friendly suspension, antilock braking systems on all axles and low impact tyres (pavement loading and contact area). • Ensure that processes are in place to assess or otherwise ensure the protocols from service providers, or other external bodies contracted, are adequate to manage noise emissions (including vibration) and their impacts. • Use electrical equipment rather than equipment driven by a diesel generator. • Use effective alternatives to 'beeper' alarms (e.g. broadband alarms, proximity sensors).	
12.6.2.4	**NV-07: Traffic Management Plan** Refer to **TM-02**.	Project
Air Quality		
13.6.1.1	**AQ-01: HMC Transport** Refer **TM-01**. HMC will be temporarily stored in a closed shed at the Port of Portland and will be loaded to the ship in a contained conveyor with water sprays to avoid dust lift-off during ship loading.	Haulage route

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area[88]
13.6.2.1	**AQ-02: Minimise disturbed area** The active disturbed area will be maintained to less than ~~around~~ 400 ha, comprising the active mining area, tails cells, overburden/soil removal and areas being land formed and rehabilitated. The area subject to topsoil stripping must be minimised so far as reasonably practicable, and once rehabilitated (**RH-01**), will be cropped in line with surrounding farming areas.	Development extent
13.6.2.2	AQ-03: Road surface material Roads for light and heavy vehicles within the mining licence area and WBA must be constructed with appropriate materials comprising low silt content to minimise dust emissions. It is expected gravels mined from the Karoonda sandstone geological unit will be preferentially used as they are less susceptible to surface erosion due to the relatively large particle or aggregate size. Permanent and semi-permanent roads will be topped with gravel excavated during mining to optimise road conditions and minimise surface erosion and dust so far as reasonably practicable.	WBA Mining licence
13.6.2.3	**AQ-04: Road and open area watering** Road watering within the mining licence area and WBA must be undertaken on light vehicle roads and heavy vehicle routes to keep the surface moist and to minimise wheel generated dust. It must also be undertaken as required in areas that have been disturbed and not yet stabilised. Road watering must be scheduled such that the rate is commensurate with the ambient weather conditions and can be adapted to provide a preventative response to forecast weather events. Open areas and unsealed roads must be routinely watered, including when they are observed to be dusty, and schedules must be adapted as required in response to forecast weather conditions, monitoring and community feedback. It is expected that during the summer months, there will be at least two water trucks to service all at risk areas. Water trucks may be dosed with polymer stabilising agents to improve efficiency of the program during high-risk periods.	Development extent
13.6.2.4	**AQ-05: HMC stockpile management** Heavy Mineral Concentrate must be stockpiled wet when pumped from the concentrator plant. The HMC stockpile will retain moisture and will be loaded to the haulage trucks moist with around 5-8% water content. Under standard operating conditions there would typically be two HMC stockpiles; one that is actively being stacked and the second being loaded to the haulage truck by a front-end loader. A third stockpile will facilitate the transition of the active stacker to a new stockpile. Sprinklers must be established at each stockpile to maintain the appropriate moisture content to minimise dust lift off so far as reasonably practicable. During the start-up phase of the Project the target moisture threshold of stockpiled HMC must be above 5% (weight/weight). This moisture threshold must be verified under a range of conditions upon commencement to confirm it will effectively prevent dust lift-off. If a higher moisture content is required based on field verification, then the moisture threshold can be increased up to around 8%. During operations, the area supervisor must periodically take moisture measurements in accordance with the Air Quality Management Plan (AQMP) (**AQ-08**) from representative areas on the stockpile and must activate sprinklers, as required, to prevent dust lift off. Field inspections during loading activities must also be undertaken to verify the HMC meets the target moisture threshold. The sprinkler systems must be equipped with fail-safe mechanisms, such as secondary pumps/water sprays and water carts, to ensure there's an alternate method for maintaining the moisture content in the event of a mechanical failure in the primary sprinkler system. A routine maintenance schedule must be put in place to regularly check and test these systems. Sediment creep fences must be installed around the HMC stockpiles to reduce windspeed and act as a physical barrier to prevent spillage or movement by gradual creep outside the area. The sediment fences will be around 150 - 200cm and constructed of a chain wire fence covered with a woven geotextile fabric to slow wind speeds.	WBA

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
13.6.2.5	**AQ-06: Operational scheduling** Topsoil stripping and placement must be avoided during extreme wind events to avoid excessive dust emissions. Subsoil, overburden and ore extraction will continue during all weather conditions as the materials have a higher moisture content and are less susceptible to erosion. Water carts may be used as described in Section 13.6.2.3 (**AQ-04**) to increase soil moisture during overburden and subsoil removal, however, this is not expected to be required due to the inherent moisture content of the material.	Development extent
13.6.2.6	**AQ-07: Vehicle types and operation** Appropriately sized vehicles will be used to maximise the efficiency of material carting (topsoil, subsoil, overburden) and minimise the number of circuits. Drop heights from the excavator to truck must be minimised so far as reasonably practicable without impacting safety.	WBA Mining licence
13.6.2.7	**AQ-08: Air Quality Management Plan** An Air Quality Management Plan (**AQMP**) must be prepared prior to Project commencement. The AQMP must be maintained and implemented for the duration of the construction, operation, decommissioning and closure of the facilities to the satisfaction of the responsible authority.~~, and~~ It must provide a management framework to mitigate residual air quality impacts from the Project so far as reasonably practicable, in line with the Project EMS and relevant legislative requirements. The AQMP must be developed in consultation with stakeholders and must be subject to approval by the relevant authority. ~~It must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings.~~ The AQMP must: • Summarise the baseline data and existing environment. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the avoidance and mitigation measures to be implemented to minimise air emissions so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail monitoring to be undertaken to verify the modelling and the effectiveness of the avoidance and mitigation measures. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance. - stakeholder and community complaints. - failure to comply with statutory requirements and/or performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the avoidance and mitigation measures detailed in **AQ-01** – **AQ-07** the AQMP must include specific requirements to: • Train employees to record and report excessive dust emissions if they occur so that mitigation measures can be adjusted or applied. • Require employees and contractors to drive to conditions to minimise emissions. • Encourage work teams to consider weather conditions at the commencement of each shift to ensure that all appropriate mitigation and contingency measures have been considered. • Plan daily work programs with consideration to the forecast weather conditions to minimise dust emissions.	Project

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	~~• Closed Circuit TV cameras will be established, monitored and maintained within the WBA and mining licence to facilitate dust surveillance. Recordings will be retained for a minimum period of six months from the time taken and used as required to investigate incidents.~~ • Periodic sweeping of the sealed surfaces within the WBA will be undertaken to minimise sediment accumulation so far as reasonably practicable.	
13.6.2.8	**AQ-09: Community engagement** Refer to **SE-02.**	Project
13.6.3.1	**AQ-10: Progressive rehabilitation** Refer to **RH-01**	Development extent
Radiation		
14.6.1.1	**RD-01: Site security** Site security and signage must be provided to restrict unauthorised access by members of the public to the operational areas.	WBA Mining licence
14.6.1.2	**RD-02: Use of sealed vehicles for the transport of HMC on public roads** Transport of HMC from the WBA to the Port of Portland must be undertaken on sealed roads in sealed trailers ~~covered articulated vehicles~~, where the sealing of the trailer is achieved by using the most practical and best reasonable method available at the time.	HMC haulage road
14.6.2.1	**RD-03: Road surface material** Refer to **AQ-02**	WBA Mining licence
14.6.2.2	**RD-04: Road and open area watering** Refer to **AQ-04**	Development extent
14.6.2.3	**RD-05: HMC stockpile management** Refer to **AQ-05**	WBA
14.6.2.4	**RD-06: Washdown** Vehicle washdown facilities must be provided within the WBA to ensure vehicles and equipment can be washed down as required. Periodic audits must be conducted to ensure compliance with this requirement. Procedural controls and/or Personal Protective Equipment may be used to minimise concentrate leaving site on worker's clothing where appropriate.	WBA
14.6.2.5	**RD-07: Emergency and clean-up procedures** Emergency response procedures and processes must be maintained to prepare for and respond to potential emergency situations. This must include suitable emergency and clean-up procedures in the unlikely event of a spill, consistent with Section 24.7.2.	Project
14.6.2.6	**RD-08: Radiation Management Plan** A Radiation Management Plan (RMP) must be prepared prior to Project commencement. The RMP must be implemented. The RMP must provide a management framework to avoid and minimise risks so far as reasonably practicable in line with the 'Code of Practice on Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing' (ARPANSA, 2005) (the Code of Practice). The RMP must address aspects relating to radiation exposures to workers and members of the public, a statutory requirement under the *Radiation Act 2005* (**Radiation Act**). The RMP must also address matters associated with risks to the environment and the management of any ancillary wastes. It must thereby cover all requirements of a radioactive waste management plan as required under the Code of Practice (ARPANSA, 2005). ~~The RMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings. It~~ The RMP must be developed in consultation with stakeholders and must be subject to approval by the ~~relevant Authority~~ Department of Health. The RMP must:	Project

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	• Summarise the baseline data and existing environment and be updated as additional baseline data is obtained. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the avoidance and mitigation measures to be implemented to minimise residual risks so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail the monitoring and inspections to be undertaken to verify the effectiveness of the avoidance and mitigation measures. • Establish performance standards relating to radiation exposure associated with specific receptors. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time consistent with currently available technology. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - Incidents and any non-compliance. - Stakeholder and community complaints. - Failure to comply with statutory requirements and/or environmental performance standards. - Roles and responsibilities for implementing the RMP. - A protocol for periodic review of the RMP. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the avoidance and mitigation measures outlined in **RD01** – **RD07**, the RMP must include specific requirements to: • Identify all significant exposure sources and pathways, including plans of the mine and processing plant, descriptions of the equipment to be used in mining and processing, the processes involved and estimates of the radionuclide content of various process streams, and identification of those groups of workers or members of the public most at risk. • Prevent and minimise low-level radiation exposure to workers and detail the worker dose assessment methodologies for internal and external exposure pathways in accordance with the 'Monitoring, Assessing and Recording Occupational Radiation Doses in Mining and Mineral Processing' (ARPANSA, 2011). • Report to the Victorian Department of Health, and company management, detailing results of personal dosimetry, area and dust monitoring, incident reports and other operational issues, and worker dose records. • Describe the waste generated and the facilities and procedures involved in the handling, treatment, storage and disposal of radioactive waste (i.e., any process gauges or discrete radiation source that may be used in the process plant, which must require legal off-site disposal in accordance with requirements under the Radiation Act). • Describe the hazards risks and monitoring requirements for relevant sensitive receptors identifying the reference organisms selected for the assessment and the rationale for selection. • Identify the exposure risks and requirements to appropriately manage and minimise any identified risks for returning residents after rehabilitation of properties while the mining operations are still underway.	
14.6.3.1	**RD-09: Progressive rehabilitation** Refer to **RH-01.**	Development extent
Soils and Landscape		
15.6.1.1	**SL-01: Geera clay formation** Refer to **GW-01**	Mining licence
15.6.2.1	**SL-02: Soil resource management**	WBA

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	A pre-mine soil survey must be undertaken by a suitably qualified person for each landholding once land access is secured and prior to stripping topsoil. The surveys must be conducted at an appropriate intensity to characterise the materials that will be stripped and stockpiled for later placement in the reconstructed soil profile. Field characteristics must be logged, and representative samples submitted for laboratory analysis, including but not limited to sodicity, salinity and pH. Under the Rehabilitation Plan that must be implemented through **RH-01,** the upper soil horizons must be stripped and stockpiled separately from the lower soil horizons. The effective rooting zone (being the upper soil horizons) will typically be stripped as three separate soil units, being topsoil, Subsoil A and Subsoil B. The exact number of stripped soil units and the stripping depths must be informed by the depth and characteristics of the soil units as informed by the pre-mine soil surveys, and set out in specific rehabilitation plans for each landholding (groups of land parcels). Lower soil horizons will be stripped or excavated as overburden and either stockpiled or placed directly back to the mined void. It is anticipated that the depth of each soil unit will be adjusted as required across the landholding to ensure appropriate differentiation of upper and lower subsoil units. Wherever reasonably practicable topsoil and subsoil resources will be returned to the same landholding from which it was stripped. Stripping operations must be controlled via a combination of survey control for each soil unit and field observations. The depth of each soil unit will be either marked by survey pegs or by GPS control in the relevant rehabilitation machinery. Operations must be supervised to verify the stripping depths as per survey controls and to verify various field indicators (such as soil colour or texture). Adjustments must be made, if required, to the planned stripping depth by a suitably trained field supervisor to ensure soil units are appropriately stripped and stockpiled. For the purposes of this SL-02, a 'soil unit' are soils that have common physical and chemical characteristics observed vertically and horizontally.	Mining licence
15.6.2.2	**SL-03: Soil stockpile management** Stockpile areas must be pre-stripped to preserve the soil resource and to ensure stockpiles are placed on the same underlying soil unit. A~~n~~ detailed inventory of soil stockpiles using GIS and Normalised Differential Vegetation Index (NVDI) images or similar technology must be kept which identifies~~y~~ the stockpile footprint, surveyed volume, key characteristics, amelioration requirements and intended placement location. The inventory must be securely stored for future reference. Topsoil and subsoil stockpiles will be seeded and stabilised with vegetation to minimise wind erosion where practicable to do so. Chemical stabilisers such as polymers or hydromulch may be used as a contingency if required. Overburden will be directly returned to the mine void except for the stockpiles associated with starter pits for Block A and Block B. Surface water run-off and surface erosion must be actively managed given the dispersive nature of the materials. Drainage of each stockpile location must be designed and incorporated into the overarching progressive mine and rehabilitation planning system to ensure no mine contact water is discharged from the operational areas. Suitable erosion and sediment controls, such as sediment retention ponds, must be established at the toe of each overburden stockpile to capture run-off water. Water from sumps must be returned to the process water circuit or used for operational purposes.	WBA Mining licence
15.6.2.3	**SL-04: Soil amelioration** The subsoil and topsoil units must be ameliorated to mitigate the issues relating to sodicity. Gypsum and other ameliorant requirement tests will be undertaken prior to topsoil/subsoil placement to determine the amelioration requirements for each soil unit or stockpile. Gypsum and other ameliorants will be spread as recommended by a suitably qualified person following topsoil and subsoil placement and then ripped or disc ploughed to the depth of each soil unit. Fertilisers will be spread onto topsoil areas after placement at rates commensurate with surrounding unmined areas. This is expected to offset the anticipated loss of topsoil fertility due to stockpiling.	WBA Mining licence
15.6.2.4	**SL-05: Soil profile ripping and compaction management** The stripping, stockpiling and placement of topsoil and subsoil materials will be undertaken during dry soil conditions, wherever practicable to do so, to minimise compaction. Topsoil heights must be limited to 2 m and subsoil heights will be limited to 6 m, to minimise compaction within the stockpile. It is anticipated that machinery with low bearing pressure will be used to minimise topsoil and subsoil compaction. Each soil unit will be ripped as required to alleviate compaction within the rooting zone. It is expected ripping will be undertaken to the depth extent of each soil unit to avoid mixing hostile materials	WBA Mining licence

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	into the upper soil profile.	
15.6.2.5	**SL-06: Contaminated land** Once land access is secured and prior to soil disturbance, potentially contaminated sites must be assessed and managed in accordance with the EP Act 2017, together with relevant parts of the National Environment Protection (Assessment of Site Contamination) Measure (1999) (as amended 2013) (**NEPM**). The NEPM outlines a staged approach to the investigation and assessment of existing contamination that proceed in stages, in proportion to the risks of environmental harm. The initial desktop review provided in this EES must be expanded upon and must involve: • Site inspections and landholder interviews to identify areas of potential contamination. • Preliminary sampling of soil, groundwater and surface water in areas of suspected contamination. • Preparation of a conceptual site model relevant to each suspected contaminated site. This will facilitate the completion of a preliminary site investigation for the relevant landholdings. As detailed in Section 2 of the NEPM, further work may be required pending the outcomes of the site investigation, which may involve a detailed site investigation. If areas of contamination are confirmed, a remediation or management plan must be developed to address all relevant requirements of the NEPM. Any management plan in the first instance must determine whether it is possible to avoid disturbing pre-existing contaminated land. Where disturbance cannot be avoided, it must describe options to mitigate or remediate environmental harm from existing contamination.	Development extent Port
15.6.2.6	**SL-07: Site drainage and erosion** Refer to **SW-04**.	Development extent
15.6.2.7	**SL-08: Chemical management** Refer to **WE-06**.	Project
15.6.2.8	**SL-09: Weeds and pathogens** A biosecurity management protocol must be prepared ~~as part of the Flora and Fauna Management Plan under FF-06~~, and must be implemented across the whole Project. The Protocol must be prepared by a suitably qualified person to minimise the risk of weeds or pathogens proliferating or spreading as a result of the Project's activities. The ~~FFMP~~ Protocol must include requirements pertinent to weed and pest management to: • restrict and minimise access to rehabilitation areas ~~will be restricted or minimised~~ where possible; • restrict vehicles and machinery ~~will be restricted~~ to formed roads and tracks to the maximum practicable extent; • implement risk-based vehicle/machinery hygiene protocols when crossing between landholdings and when entering or leaving the operational areas; • avoid or minimise movement of topsoil between landholdings ~~must be avoided or minimised~~ so far as reasonably practicable; • manage topsoil stockpiles ~~must be managed~~ to minimise the occurrence and proliferation of weeds; • implement risk-based hygiene controls ~~must be implemented~~ for any imported rehabilitation materials to minimise biosecurity risks; • undertake herbicide application ~~must be undertaken~~ with consideration to any potentially herbicide resistant species (i.e. herbicides must be fit for purpose); and • monitor weeds and pests ~~must be monitored~~ across the site.	Development extent
15.6.2.9	**SL-10: Rehabilitation Operations Management Plan** A Rehabilitation Operations Management Plan (**ROMP**) must be prepared prior to Project commencement. The ROMP must be implemented, and must provide a management framework to avoid and minimise impacts so far as reasonably practicable. The ROMP must address matters relating to operational control of rehabilitation activities to facilitate the successful implementation of the approved Rehabilitation Plan (**RH-01**). The ROMP must detail processes relating to planning, works implementation, monitoring and reporting. It must provide a roadmap to the detailed rehabilitation related work procedures that must be maintained and implemented. ~~The ROMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory~~	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	~~requirements, monitoring results, community complaints and in response to audit findings.~~ The ROMP must: • Summarise the baseline data and existing environment. • Explain the relevant statutory requirements and context (including any relevant approvals). • Detail planning and operational requirements associated with the successful implementation of the Rehabilitation Plan developed under **RH-01**. • Describe the avoidance and mitigation measures to be implemented to minimise residual risks/impacts so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail the monitoring and inspections to be undertaken to verify work procedures are implemented effectively. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance. - stakeholder and community complaints. - failure to comply with statutory requirements and/or performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework, the ROMP must include specific requirements to: • Detail a protocol for pre-mine soil surveys and contaminated site investigations for each landholding. • Detail the design specifications relevant to backfill operations for overburden and sand tailings. • Describe the procedural requirements for the development of an integrated planning process that must inform the Rehabilitation Plan and the landholder specific plans (which may form a part of the Land Access and Compensation Agreements). • Describe procedural requirements relating to the scheduling of activities with consideration to ground and weather conditions such that environmental risks are minimised. • Include work instructions relevant to the successful implementation of the Rehabilitation Plan. • Maintain fire management measures, including but not limited to the establishment of fire breaks and access to a water source.	
15.6.3.1	**SL-11 Rehabilitation Plan** Refer to **RH-01**.	Development extent Port
15.6.3.2	**SL-12: Agricultural baseline assessment** A detailed agricultural baseline assessment (ABA) must be completed prior to mining within each landholding or paddock by a suitably qualified person. The outcomes of the assessment must inform the setting of appropriate performance standards and rehabilitation criteria (including but not limited to yield). The assessments may be used to form the basis of the Land Access and Compensation Agreements performance target, where appropriate. The ABA must describe matters including but not limited to, if available: • Soil chemical and physical characterisation; • Site-specific fertiliser, weed management and herbicide history; • Site survey levels; • Climatic conditions; and	WBA Mining licence

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	• Past crop yields for a range of cropping varieties over several years.	
New	**SL-13: Wind Erosion Management Guidelines** Prior to commencement of the Project, Guidelines must be prepared by a person with expertise in agricultural soil management to specify measures to minimise wind erosion of stockpiles and the conditions when stockpiles, especially topsoil stockpiles, can be backfilled. The Guidelines must consider, but not be limited to, methods and conditions to maximise stockpile vegetation cover, stockpile moisture levels and meteorological conditions for backfilling.	WBA Mining licence
Surface Water		
16.6.1.1	**SW-01: Solar drying cells** Fine and course tailings will be co-disposed to the in-pit tailings cells so that solar drying cells are avoided.	WBA Mining licence
16.6.1.2	**SW-02: Offsite water discharge** The process water storage, transfer areas and sumps must be designed with a capacity to contain a significant rainfall event of at least 1% annual exceedance probability (AEP), such that there is no discharge of surface water from operational areas. The process water capacity will be maintained at between 350% to 500% of a 1% AEP event.	WBA Mining licence
16.6.2.1	**SW-03: Disturbance area** Refer **LV-03**.	Development extent
16.6.2.2	**SW-04: Mine planning and site drainage** Prior to opening new mining cells or constructing new infrastructure, an integrated mine drainage and erosion plan must be prepared by a suitably qualified person with consideration to the existing topography, detailed mine design, surrounding infrastructure and the location of sensitive receptors. All infrastructure, including but not limited to buildings, stockpiles, sumps, pipelines and booster pumps will be located in areas to minimise the risk of ponding, erosion and adverse effects to surface water flow paths. Rehabilitation areas must be contoured to reflect the pre-mining landform and surface drainage must be re-established commensurate with undisturbed areas. Appropriately sized sediment retention basins will be established as part of the drainage plan to capture mine contact water and prevent discharge and erosion outside operational areas. Stormwater drains must be designed and constructed to minimise the risks posed to infrastructure and sensitive receptors. The Surface Water Management Plan (Section 16.6.2.4 (**SW-06**)) must be developed and implemented to monitor water quality within operational areas and in established rehabilitation areas.	Development extent
16.6.2.3	**SW-05: Water use efficiency** To optimise water use from the Grampians Wimmera Mallee Pipeline, a water efficiency program must be incorporated into the Surface Water Management Plan (**SW-06**). This program must provide a framework to investigate water use efficiency and recovery opportunities, with consideration to any new or emerging technologies over the life of mine.	WBA Mining licence
16.6.2.4	**SW-06: Surface Water Management Plan** A Surface Water Management Plan (**SWMP**) must be prepared prior to Project commencement. The SWMP must be implemented, and must provide a management framework to avoid and minimise impacts of the Project water on surface water quality, so far as reasonably practicable, in line with the Project EMS and relevant legislative requirements, regulations and guidelines including but not limited to the EP Act, ERS and Australian and New Zealand guidelines for water quality. The SWMP must address aspects relating to Project related mine stormwater drainage, process water management and associated potential impacts and risks to sensitive receptors, including but not limited to adjacent landholders and Dooen swamp. The SWMP must be developed in consultation with stakeholders, including HRCC, and must be subject to approval by the relevant Authority. ~~It must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings.~~	Development extent Port

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	The SWMP must: • Summarise the baseline data and existing environment. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the avoidance and mitigation measures to be implemented to minimise residual risks/impacts so far as reasonably practicable. • Identify specific environmental objectives and standards to be achieved with avoidance and mitigation measures in place. • Detail the monitoring to be undertaken to verify the effectiveness of the avoidance and mitigation measures, including but not limited to surface water chemistry and water storage levels. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance. - stakeholder and community complaints. - failure to comply with statutory requirements and/or performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the avoidance and mitigation measures in **SW01** – **SW02**, **SW04** and **SW05**, the SWMP must include specific requirements to: • Implement mine planning procedures to ensure surface water drains and sumps are established and maintained to contain significant storm events within disturbed areas. • Routinely inspect and monitor freeboard in process water dams and sumps. • Reestablish pre-mining drainage patterns were appropriate to do so. • Have procedures in place to prepare for extreme rainfall events. • Detail the erosion control and management measures for stockpiles, internal roads and other disturbed areas. • Surface water modelling to be routinely updated and reviewed over the life of the Project and prior to entering each new mining Block.	
16.6.3.1	**SW-07: Rehabilitation Plan** Refer to **RH-01**.	Development extent Port
Groundwater		
17.6.1.1	**GW-01: Geera clay formation** Mine design and operations must avoid disturbing the Bookpurnong Formation/Geera Clay during all mining, excavation, and dewatering activities with a buffer of at least 1.5 m to avoid exposing and oxidising the Geera Clay. Mining and sump excavation must be undertaken with survey control to ensure the buffer is maintained. Refer to the Potential Acid Sulfate Soil Management Plan (PASSMP)~~PASS Management Plan~~ requirements in **GW-09**.	Mining licence

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
17.6.2.1	**GW-02: Tailings strategy** The fine tailings produced at the desliming cyclone will be dosed with a polymer flocculant to promote water recovery. A large diameter thickener and a flocculant dosing system will be used in the primary stage of dewatering to allow the fines to be thickened. Fines will report to the thickener underflow and will be combined with sand tailings and pumped back to the mine void. Clean water overflow from the thickener will be transferred to a process water dam or recirculated to the WCP. The use of flocculants must be optimised to ensure maximum clean water recovery whilst minimising the amount used, so far as reasonably practicable. The flocculants will be used in the process at very low concentrations in line with standard practice within the mineral sands industry. Secondary dewatering must occur at the mine void tails discharge outlet. This must involve adding further polymer flocculant to the slurry exiting the pipe head. The clean water must separate from the tailings beach and must report to a decant sump. The recovered water must be recycled to the process water circuit. This process results in water recovery of around 62% and must effectively maximise water recovery, so far as reasonably practicable.	WBA Mining licence
17.6.2.2	**GW-03: Tails placement** Sand tails will be placed in the mine void to a depth greater than 3 m from the final rehabilitated ground surface and surrounding natural ground. All sand tailings cells must be capped with at least 3 m of overburden, subsoil and topsoil material.	Mining licence
17.6.2.3	**GW-04: Groundwater bore network** Process water and groundwater monitoring must be undertaken in line with the Groundwater Management Plan (GWMP) (Section 17.6.2.7 (**GW-08**)). The bore network (locations and sampling schedule) established in accordance with the ~~Groundwater Management Plan~~ GWMP must be adapted over the life of mine in response to observed Project related drawdown/mounding effects and any changes to water chemistry, with consideration to identified sensitive receptors. An annual groundwater monitoring review must be undertaken by a suitably qualified person to assess the outcomes against the groundwater modelling and background water quality. Recommendations must be made as required to adapt the monitoring schedule and/or bore network so that the effects on sensitive receptors can be adequately characterised as the mine progresses.	WBA Mining licence
17.6.2.4	**GW-05: Groundwater dependent ecosystem studies** If Project related drawdown/mounding or adverse changes to groundwater quality are recorded that could propagate to areas of potential GDEs, targeted studies must be undertaken to monitor Groundwater Dependent Ecosystem (**GDE**) health/function over time in accordance with monitoring measure GW-0B. As described in the GWMP framework (refer Section 17.6.2.7 (**GW-08**)), environmental performance standards must be established, against which groundwater monitoring results must be regularly reviewed. Performance standards must be established for bores situated in-between the source and the identified GDE receptors. Commencement of targeted GDE health monitoring must be triggered if the performance standards are exceeded.	WBA Mining licence
17.6.2.5	**GW-06: Contaminated sites investigations** Refer to **SL-06**	Development extent
17.6.2.6	**GW-07: Chemical storage and management** Refer to **WE-06**	Development extent Port

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
17.6.2.7	**GW-08: Groundwater Management Plan** A Groundwater Management Plan (**GWMP**) must be prepared prior to Project commencement. The GWMP must be implemented, and must provide a management framework to avoid and minimise risks/impacts from the Project to groundwater, so far as reasonably practicable, in line with the Project EMS and relevant legislative requirements. The GWMP must address aspects relating to Project related groundwater drawdown/mounding, changes to the groundwater chemistry and associated potential impacts to sensitive receptors, including but not limited to bore users and GDEs. ~~The GWMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings . It~~ The GWMP must be developed in consultation with stakeholders and must be subject to approval by the relevant Authority. The GWMP must: • Summarise the baseline data and existing environment. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the avoidance and mitigation measures to be implemented to minimise residual risks/impacts so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail monitoring to be undertaken to verify the effectiveness of the avoidance and mitigation measures including but not limited to groundwater levels and chemistry. • Establish performance standards relating to groundwater flux and changes to hydrochemistry for bores associated with specific receptors. • Establish a GDE monitoring protocol to be implemented if certain groundwater flux performance standards are exceeded. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. Establish procedures to manage: - incidents and any non-compliance. - stakeholder and community complaints. - failure to comply with statutory requirements and/or environmental performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the avoidance and mitigation measures in **GW01** – **GW04**, the GWMP must include specific requirements to: • Utilise data collected as part of the GWMP to inform the groundwater model and verify spatial and temporal predictions over the life of the project. Where unexpected changes are indicated, implement mitigation measures, and re-visit the model to reassess risks and update where needed. • Review the groundwater bore network annually to ensure the spatial extent and monitoring frequency is adequate to characterise the risks at identified sensitive receptors. • Implement a water quality monitoring program that is commensurate with the risks associated with mining and water use/discharge (during operations and post closure). • Submit an annual groundwater report to the relevant regulatory authority that summarises groundwater monitoring data against relevant environmental objectives. • Maintain a Project water balance to forecast water use and to verify actual use over the life of mine. • Undertake a periodic survey of groundwater bore users over the life of mine, to maintain a current record of users that may be affected by Project activities.	Mining licence

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	• Maintain groundwater quality monitoring equipment to ensure it is appropriately calibrated and associated records maintained.	
17.6.2.8	**GW-09: Potential Acid Sulfate Soil ~~PASS~~ Management Plan** A Potential Acid Sulf~~ph~~ate Soil Management Plan (**PASSMP**) must be prepared prior to Project commencement. The PASSMP must be implemented, and must provide a management framework to avoid and minimise risks/impacts from Project-Generated PASS, so far as reasonably practicable, in line with the Project EMS and relevant legislative requirements. The PASSMP must address aspects relating to Project related PASS risks with the objective of avoiding the high-risk lithological unit (Geera Clay). ~~The PASSMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings.~~ It must be developed in consultation with stakeholders and must be subject to approval by the relevant Authority. The PASSMP must: • Summarise the baseline data and existing environment primarily through the Avonbank geological model. • Include a protocol for sampling PASS as part of the progressive resource drilling program to verify and further characterise the geological model. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the measures to avoid PASS material during mining and to minimise residual risks so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail the monitoring and inspection to be undertaken to verify the effectiveness of the avoidance and mitigation measures. • Establish performance standards relating to changes in process water chemistry and bores associated with specific receptors. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance. - stakeholder and community complaints. - failure to comply with statutory requirements and/or environmental performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy, which must include a complaints handling system (SE-02). In addition to the above framework, the PASSMP must include specific requirements to: • Ensure GPS survey control is used to limit the excavation at the bottom of the ore body such that there is a buffer of at least 1.5 m to the Geera Clay lithological unit. • Ensure routine in-pit inspections of the lower ore body above the Geera Clay are carried out to verify PASS materials are not excavated or dewatered. • Routinely ~~M~~monitor the pH of decant sumps and conduct PASS field testing in-pit during mining. • Maintain a geological model and incorporate new drilling or sampling results as required.	Mining licence
17.6.2.9	**GW-10: Waste Management Plan** Refer to **WE-06**	Project
17.6.3.1	**GW-11: Rehabilitation Plan** Refer to **RH-01**.	Development extent Port

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
Wastes and Emissions		
19.6.1.1	**WE-01: Off-site water discharge** Refer to **SW-02**.	WBA Mining licence
19.6.2.1	**WE-02: Tailings strategy** Refer to **GW-02**.	WBA Mining licence
19.6.2.2	**WE-03: Mine planning and site drainage** Refer to **SW-04**.	Development extent
19.6.2.3	**WE-04: Contaminated land** Refer to **SL-06**.	Development extent Port
19.6.2.4	**WE-05: GHG and Energy Efficiency Program** A Greenhouse Gas and Energy Efficiency Program must be prepared and implemented to minimise greenhouse gas (GHG) emissions. The program must: • bBe developed using the 'Protocol for Environmental Management (PEM): Greenhouse Gas Emissions and Energy Efficiency in Industry' (PEM, 2001) and the EPA's 'Guideline for minimising GHG emissions' (EPA, 2022). • Must investigate the feasibility of transitioning to renewable energy and/or introducing an offsetting program to the extent practicable. • ~~The Program must identify~~ Set energy efficiency targets and measures to achieve these targets. • ~~The Program must s~~Set out the monitoring measures ~~requirements~~ required to evaluate the effectiveness of the program. • ~~management measures and must e~~Establish a mechanism to identify improvements. • Regularly review targets and adjust them if necessary to ensure they, at a minimum, align with any changes to Victoria's interim and net zero targets. ~~In setting targets, consideration must be given to Victoria's Climate Change Framework, as this sets out Victoria's long-term plan to achieve net zero emissions by 2050.~~	Project
19.6.2.5	**WE-06: Waste Management Plan** A Waste Management Plan (**WMP**) must be prepared prior to Project commencement. The WMP must be implemented, and must provide a management framework to avoid and minimise risks so far as reasonably practicable. The WMP must address aspects relating to Project related waste, emissions and associated potential impacts on sensitive receptors. ~~The WMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS, with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings~~. It must be developed in consultation with stakeholders, including the EPA, and must be subject to approval by the relevant Authority. The WMP must: • Summarise the baseline data and existing environment. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe the mitigation measures to be implemented to minimise residual risks/impacts so far as reasonably practicable. • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail monitoring is to be undertaken to verify the effectiveness of the avoidance and mitigation measures. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance.	Development extent Port

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	- stakeholder and community complaints. - failure to comply with statutory requirements and/or environmental performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the mitigation measures in **WE-05**, the WMP must include specific requirements to: • Ensure all dangerous goods on-site (including waste hydrocarbons and chemicals) are stored in accordance with AS 1940-2004 'The storage and Handling of Flammable and Combustible Liquids', AS 1692 'Tank Storage of Fuels', ~~and~~ EPA Publication 1698 (EPA, 2018) and Dangerous Goods (Storage and Handling) Regulations 2023. • Develop a recycling program that will include investigating options for waste material re-use on-site. • Track waste transport through the EPA Waste Tracker and maintain records and receipts. • Ensure onsite sewage systems are designed and installed in compliance with EPA Publication 891 (EPA, 2016a) for systems <5,000 L/day. • Review waste volumes disposed of, recycled and reused to assess the effectiveness of waste minimisation and management measures. • Evaluate and consider alternative, carbon friendly fuels, electricity sources, energy efficient equipment and other measures to minimise GHG and carbon emissions. • Participate in GHG reporting and audits, as required by current regulations and legislation. • Ensure waste classification is done in accordance with Schedule 5 of the Regulations with reference to Waste classification assessment protocol, EPA publication 1827.2. • Include an unexpected finds protocol for the discovery of unexpected, historical waste during excavation on-site. • Provide a framework and procedure outlining the requirements for demolition and removal of Project infrastructure at the end of Project life, which must include the identification and categorisation of waste types and disposal options adopting the waste hierarchy.	
19.6.3.1	**WE-07: Rehabilitation Plan** Refer to **RH-01**.	Development extent Port
Socioeconomic		
20.6.1.1	**SE-01: Heritage exclusion zones** Refer to **HH-01.**	Development extent
20.6.2.1	**SE-02: Environmental Management System and Community Engagement Plan** An AS/NZS ISO 14001:2016 EMS must be developed and implemented across the Project, the scope of which must cover the mine site, processing plant, road transport and activities at the Port of Portland. The EMS will provide a consistent management approach across the Project and will be integrated with other relevant business elements. An EMS is an auditable system of interrelated business elements established to avoid and minimise effects on the environment, fulfil compliance obligations, enhance environmental performance and maintain a process of continual improvement. The EMS must establish a program of review for management plans required by this EMF and the Incorporated Document for all Project activity areas. The underlying concept is based on a Plan-Do-Check-Act (PDCA) principle comprising the following elements: • Plan: establish environmental objectives and processes necessary to deliver results in accordance with the organisation's environmental policy. • Do: implement the processes as planned. • Check: monitor and measure performance against the organisation's environmental policy and environmental objectives. • Act: take action to meet environmental objectives and to continually improve performance.	Project

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	The EMS must be developed prior to the commencement of mining, following the EES assessment, and must be reviewed if there are relevant changes to the AS/NZS ISO 14001:2016. A Community Engagement Plan (**CEP**) must be incorporated into the EMS. The CEP provides a means by which stakeholders can provide feedback and receive responses and includes a mechanism for recording and resolving complaints. The purpose of the CEP is to develop an understanding between the Project and stakeholders, to provide an opportunity for two-way communication that allows stakeholder concerns to be addressed so far as reasonably practicable, and to facilitate beneficial Project integration with the local area and region. An overview of the community engagement strategy is provided in EES Chapter 5. The CEP must be generally consistent with the exhibited EES Chapter 5 – Community Engagement and, if required, updated to be consistent with the Minister's assessment of the EES. The CEP must be relevant to all Project activities and areas. Prior to commencement of Project works, an Environmental Reference Group (ERG) will be formed and maintained to facilitate effective two-way communication between WIM, community stakeholders and government regulators. Targeted consultation groups/committees will be formed over the life of the Project to address specific matters or issues as they arise and to communicate environmental performance to interested parties or affected parties, including but not limited to landholders, regulators, HRCC and community members.	
20.6.2.2	**SE-03: Workforce Accommodation Strategy** A Workforce Accommodation Strategy (**WAS**) must be developed prior to the commencement of Project works in consultation with key stakeholders, including the HRCC and relevant local housing organisations. The WAS must be based on the most current data and consultation must be undertaken with these groups prior to commencement to minimise adverse effects and to optimise opportunities for the community. Once prepared, the ~~Workforce Accommodation Strategy~~ WAS must be implemented and reviewed periodically throughout delivery of the Project, including prior to operations commencing. The ~~Strategy~~ WAS must include: • An estimate of the housing needs of the Project workforce by location. • A schedule of housing under the control of the Project, inclusive of strategic housing purchases, rental agreements with holiday home owners and partnerships with housing developers. • An estimate of permanent and temporary housing available on the open market by location and agreed maximum percentage be occupied by imported workers. • An assessment of the need for mitigation strategies, including D~~e~~rive-I~~i~~n, D~~e~~rive-O~~e~~ut or F~~f~~ly-I~~i~~n, F~~f~~ly-O~~e~~ut worker positions. • Contingency measures for the construction workforce if temporary accommodation arrangements cannot be made available. This may involve temporary accommodation contingencies and/or Drive-In Drive-Out contingency models with accommodation outside the Wimmera Southern Mallee. In addition to the above, the housing requirements of the construction and operational workforce must be communicated to the market immediately following Project approval to enable the market to take advantage of the opportunities created by the Project. ~~The strategy must include contingency measures for the construction workforce if temporary accommodation arrangements cannot be made available. This may involve temporary accommodation contingencies and/or Drive_In Drive_Out (DIDO) contingency models with accommodation outside the Wimmera Southern Mallee.~~	Development extent
20.6.2.3	**SE-04: Targeted community and workforce support programs** A community development fund will be established to support community groups through an annual grant selection program. From this fund, targeted community support programs will be planned and funded over the course of the Project to reflect the needs and aspirations of the community. A community support and workforce development strategy will be prepared in consultation with HRCC and other relevant stakeholders before construction commences and implemented across the life of the Project that recognises the following initial key areas of focus: • Skills development and apprenticeship programs. • Indigenous employment programs. • Mining and rehabilitation research programs.	Project

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	• Student research programs established with Longerenong Agricultural College on agricultural mine rehabilitation. Programs will be established to encourage local small businesses to tender on goods and services contracts over the life of the Project. Communicate anticipated Project workforce size and composition to HRCC and the Department of Education following Project approval.	
20.6.2.4	**SE-05: Land access and compensation agreements** Refer to **LP-02**.	Development extent
20.6.3.1	**SE-06: Rehabilitation Plan** Refer to **RH-01.**	Development extent Port
New	**SE-07: Wellbeing Plan and access to counselling services** Prepare and implement a Wellbeing Plan focussed on supporting landholders and families who will be displaced by the Project. The Wellbeing Plan must at a minimum: • be prepared before construction commences by an independent trained psychologist, preferably with one who specialises in mental health of farmers • identify suitable training for staff engaging with landholders throughout the Project • identify suitable counselling services (financial and psychological) • include a communications plan for effective and ongoing communication with the landholders about services and resources available • be reviewed periodically as advised by the professional who is engaged to prepare the plan. Facilitate access to independent counselling services (financial and psychological) for those landholders who will be displaced by the Project, at a minimum during the period that land agreements and compensation are being negotiated, and as determined appropriate in the Wellbeing Plan.	WBA Mining licence
New	**SE-08: Training and awareness** All staff involved in direct engagement with landholders, particularly those negotiating land agreements and compensation, will receive appropriate training to be aware of potential mental health and wellbeing impacts of the Project and have skills to approach landholders with sensitivity. The scope and frequency of training must be in line with recommendations of the Wellbeing Plan required by SE-07.	Project
Flora and Fauna		
21.6.1.1	**FF-01: Vegetation exclusions zones** Vegetation exclusion zones must be established and maintained within the development extent (as shown in ~~(refer~~ EES Figure 21-6 and as amended~~)~~ to reflect the revised development extent (Committee Hearing Document 79) and in response to periodic surveys (FF-03) and review and update of the FFMP (FF-06). No native vegetation removal or topsoil disturbance will be permitted within the exclusion zones over the life of the Project.	Development extent
21.6.1.2	**FF-02: Tree protection zones** Tree protection zones must be established and maintained to protect patches or scattered trees wherever reasonably practicable to do so within the development extent (as shown in EES Figure 21-6 and as amended to reflect the revised development extent (Committee Hearing Document 79) and in response to periodic surveys (FF-03) and review and update of the FFMP (FF-06). Tree protection zones ~~have been~~ will be established around selected scattered trees that can be avoided and are not otherwise protected within an exclusion zone. Tree protection zones must be implemented in line with Australian Standard AS 4970-2009 'Protection of Trees on Development Sites' (the Standard). A 15 m buffer from trees (patches and scattered) and exposed edges must be implemented to protect trees from indirect impacts. Activities excluded from within a tree protection zone, as detailed in the Standard, include: • physical damage to the tree; • machine excavation including trenching; • parking of vehicles and plant; • dumping of waste;	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	• wash down and cleaning of equipment; and/or • placement of fill. It is noted that on private properties the landholder may require activities such as cultivation, firebreaks or weed spraying to be undertaken within a tree protection zone in the course of continued management of their properties.	
21.6.1.3	**FF-03: Periodic flora surveys** Given that the Project extends over 36 years, vegetation characteristics will change over this period. Periodic Spring flora surveys (October to December) must be undertaken as required under the FFMP and in accordance with timeframes required by the *Assessor's handbook: Applications to remove, destroy or lop native vegetation*, DELWP, 2018 (or equivalent guidelines if updated): • over the life of the Project across the proposed disturbance area to further update surveys prepared through the EES process and characterise previously unsurveyed areas (due to land access restrictions), prior to the commencement of each mining block • along the minor utilities corridor and public roads to confirm the total numbers of protected/threatened flora individuals that will be removed by Project activities, prior to commencement and construction of the water pipeline. ~~Given that the Project extends over 36 years, it is acknowledged that the vegetation characteristics will change over this period.~~ The periodic surveys will capture these changes and facilitate the consideration of further avoidance and mitigation measures. ~~It is anticipated that periodic surveys will be undertaken as required under the Flora and Fauna Management Plan prior to the commencement of each mining block and prior to construction of the water pipeline. It is acknowledged that~~ Native vegetation offsets may need to be adjusted over the life of the Project in response to new surveys (see FF-08).	Development extent
21.6.2.1	**FF-04: Construction methods** Within the development extent, there will be open mine voids, sumps, trenches and dam infrastructure which could pose a risk to native fauna due to entrapment. Fauna egress will be incorporated into the design of these features where practicable and safe to do so. Trenching for minor utilities must be backfilled and/or covered as soon as practicable. Earthen sumps and mine voids will be typically constructed such that they pose a very low risk to fauna, given the natural materials used and the gradient of the walls/batters (i.e., not vertical). Certain activities and mining features must be fenced to exclude access by livestock and/or larger mammals. The type of fencing must be suitable for the type and nature of the hazard and associated receptors (animals/general public) that may be affected. It is anticipated that activity specific fencing requirements will be assessed progressively over the life of mine, with consideration to the hazards presented and the risks posed to livestock and/or larger mammals. Existing landholder use and requirements must be considered in any such assessment of risk.	Development extent
21.6.2.2	**FF-05: Groundwater Dependent Ecosystem health** ~~**Groundwater and surface water management plans**~~ A Surface Water Management Plan **(SW-06)** and ~~Groundwater Management Plan~~ GWMP (**GW-08**) must be prepared prior to Project commencement to avoid and minimise Project related risks/impacts to surface and groundwater, so far as reasonably practicable, and must be implemented. Each plan must include a monitoring program that must assess surface and groundwater quality, process water quality and groundwater levels in established bores. If Project related drawdown/mounding or adverse changes to groundwater quality are recorded that could propagate to areas of potential GDEs located on or in the vicinity of mining activities, targeted studies must be undertaken to monitor the health/function of potentially affected GDEs. A root cause investigation must be undertaken, and corrective actions/contingencies must be identified and implemented, in consultation with a suitably qualified ecologist.	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
21.6.2.3	**FF-06: Flora and Fauna Management Plan** A Flora and Fauna Management Plan (**FFMP**) must be prepared prior to Project commencement. The FFMP must be implemented, and must provide a management framework to avoid and minimise impacts so far as reasonably practicable. The FFMP must be reviewed and updated at an appropriate frequency as established in the overarching EMS, and prior to the commencement of each mining block (with consideration of matters in Section 24.7.1 of this EMF) ~~with consideration to the level of risk, statutory requirements, monitoring results, community complaints and in response to audit findings~~. It must be developed, reviewed and updated in consultation with stakeholders and must be subject to approval by the Department of Energy, Environment and Climate Action (DEECA) ~~Department of Environment, Land, Water and Planning~~. The FFMP must: • Summarise the baseline data and existing environment. • Explain the relevant statutory requirements and context (including any relevant approvals). • Describe how the detailed design and delivery of the Project avoids and minimises impacts to native vegetation consistent with the '*Guidelines for the removal, destruction or lopping of native vegetation*' (DELWP, 2017). • Identify specific environmental objectives and performance standards to be achieved with avoidance and mitigation measures in place. • Detail the monitoring to be undertaken to verify the effectiveness of the avoidance and mitigation measures, including but not limited to flora and fauna condition and compliance with tree protection zones and exclusions zones. • Describe mechanisms to determine when/if corrective actions and contingency measures are required. • Detail a program to investigate and implement ways to improve the environmental performance of the Project over time. • Detail appropriate review periods and/or triggers to ensure the plan remains fit for purpose. • Establish procedures to manage: - incidents and any non-compliance - stakeholder and community complaints. - failure to comply with statutory requirements and/or environmental performance standards. - roles and responsibilities for implementing the plan. - a protocol for periodic review of the plan. • Include or cross-reference to a community engagement strategy which must include a complaints handling system (SE-02). In addition to the above framework and the avoidance and mitigation measures in **FF01** – **FF05 and SL-09**, the FFMP must include specific requirements to: • Provide details of the targeted survey methodology for threatened flora species, including any rationale and assumptions. • Undertake a native vegetation condition assessment prior to the removal of vegetation. • ~~Undertake spring surveys (October to December) along the minor utilities corridor and public roads to confirm the total numbers of protected/threatened flora individuals that will be removed by Project activities prior to commencement.~~ • Following completion of periodic surveys as required by FF-03, consider further avoidance and mitigation measures including the option to bore or move underground services and the need for further exclusion zones (FF-01 and FF-02). • Periodic targeted fauna surveys must be undertaken if the native vegetation condition assessment demonstrates the vegetation represents habitat that is likely to be used by listed fauna. • Under the guidance of a suitably qualified ecologist, develop a native vegetation rehabilitation plan to identify and deliver opportunities to progressively establish new habitat corridors or contribute to existing habitat corridors in the broader landscape to improve biodiversity outcomes once the Project is complete, where it is reasonably practicable to do so and with the agreement of the landowner. Ensure the requirements for the native vegetation rehabilitation plan are included in the overall Project Rehabilitation Plan (RH-01).	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
	• Establish fencing or demarcate exclusions zones and tree protection zones where necessary as determined through a risk-based assessment conducted in consultation with the landholder/s. • Develop tree removal protocols describing the timing and program for removal to avoid the breeding season of nesting birds and mammals. • Establish and maintain tree screens (**LV-04**) using species that could be used as habitat by local fauna. • Progressively rehabilitate farm dams in consultation with the landholder. • Undertake risk-based pre-mining flora surveys as required prior to the development of each mining block and revise the vegetation offsets as required. • Establishment and implement procedures to translocate listed flora, where suitable and practicable to do so, prior to disturbance • Identify and outline the requirements for salvaging and relocating wildlife in consultation with ~~DELWP~~ DEECA and ~~Council~~HRCC. • Obtain relevant permits and authorisations prior to the removal of vegetation and taking of protected flora in accordance with the Horsham Planning Scheme and the *Flora and Fauna Guarantee Act 1988*. • Develop and implement a flora and fauna induction and training program for site personnel so that the requirements of the FFMP are understood by the relevant personnel. • Develop a fire safety plan in consultation with (and approved by) the Country Fire Authority and landholders to specify requirements for operational fire safety measures, plan communication and implementation, follow-up assessment and plan review/update. The fire safety plan must include: - Requirements to maintain firebreaks with consideration to the operational hazards and surrounding landholder activities/hazards. - Occupational health and safety procedures relating to how Hot Works (i.e. welding etc.) are to be undertaken and hazards controlled. - Maintenance of firefighting equipment in and around work areas to meet the general duties under the Occupational Health and Safety Act and to minimise residual risks to the environment so far as reasonably practicable.	
21.6.3.1	**FF-07: Native vegetation rehabilitation** ~~A Rehabilitation Plan (**RH-01**) must be established and implemented for the Project that addresses matters relating to progressive rehabilitation and closure. The Rehabilitation Plan must include a schedule of progressive rehabilitation and must describe the strategy to establish a safe, stable, sustainable landform capable of supporting the proposed end land use. It is expected that land will be stabilised as soon as reasonably practicable after mining, typically within 4 years.~~ ~~The Rehabilitation Plan must define the end land use with consideration to the views of the landholders and the broader community where appropriate. The focus of the plan, in line with community feedback to date, is on returning private land to a productive agricultural end land use.~~ ~~Where it is proposed to establish native vegetation on rehabilitated land, the Rehabilitation Plan in respect to those areas must be developed~~ Implement a native vegetation rehabilitation plan consistent with the FFMP (FF-06) and Rehabilitation Plan (RH-01) in consultation with the relevant landholders and stakeholders. Establishing native vegetation on rehabilitated land will only occur with the consent of landholders, and is expected to primarily target native vegetation that existed prior to mining. One such opportunity may exist along Greenhills Road, where road verges may be rehabilitated following road reinstatement with a Plains Grassland vegetation type. Where areas of native vegetation are to be rehabilitated, a landholder specific rehabilitation plan would be developed to meet these objectives. It is expected that topsoil would be stored separately and returned following mining. Alternatively, topsoil stripped from these areas could be directly returned to an area of rehabilitation in a commensurate location to facilitate the regeneration of the retained seed bank. Seed collection of local provenance native species will be undertaken to facilitate targeted seeding and planting programs within areas of native rehabilitation. It is expected that there will be opportunities to enhance the habitat values of protected stands of vegetation where this is deemed appropriate by a suitably qualified ecologist and in consultation with the Landholder. This may include implementing weed control measures, additional planting of native understorey species and additional canopy species to enhance the habitat value of the sites. Felled trees may be utilised as habitat logs in exclusion zones where practicable to do so and in agreement with the landholder. Similarly, some targeted translocation of significant species (flora or fauna) may be possible in some instances in consultation with ~~DELWP~~ DEECA.	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
21.6.4.1	**FF-08: Native vegetation offsets** The Project will result in unavoidable residual impacts on native vegetation with avoidance and mitigation measures in place, in response to periodic flora surveys (FF-03) and as established by the native vegetation conditions assessments under FF-06. Offsets will be required to compensate for residual impacts on native vegetation, threatened species and habitat for threatened species. Offsets will be sought within the Wimmera Catchment Management Authority (WCMA) or the Horsham Rural City area.	Development extent
Rehabilitation		
22.1 to 22.9	**RH-01: Rehabilitation Plan** Prior to Project commencement, a Rehabilitation Plan must be established and implemented to ensure the progressive rehabilitation of the mine and the timely rehabilitation of other Project components. It will cover all work areas within the proposed mining licence, the broader development extent and the Port of Portland. The Rehabilitation Plan must incorporate the requirements of native vegetation rehabilitation as required by FF-07. The Rehabilitation Plan must be consistent with the preliminary Rehabilitation Plan exhibited as Attachment 3 of the EES, but refined to take account of detailed operating plans, stakeholder and community feedback, and the Minister for Planning's EES assessment. The Rehabilitation Plan must be approved by the relevant authorities and must be implemented. The Rehabilitation Plan must describe the work to be undertaken to ensure the rehabilitated landform will be safe, stable, sustainable, and be capable of supporting the proposed end land use. The Rehabilitation Plan must define the end land use with consideration to the views of the landholders and the broader community where appropriate. The Rehabilitation Plan must establish objectives and performance standards/criteria to measure and quantify when the objectives have been met and the rehabilitation is considered to be complete. A schedule for progressive rehabilitation must be included along with the rehabilitation milestones for the life of mine. Relevant post-closure risks associated with the completed rehabilitation must be identified and assessed to determine: the type, likelihood and consequence of the risks; the activities required to manage those risks; the associated projected costs; and any other matter that may be relevant to risks arising from the rehabilitated land. A rehabilitation bond will be assessed and lodged prior to the commencement of mining, in line with the MRSD Act and the ~~ERR~~ 'Guidelines for Rehabilitation Bonds – Mineral, Exploration, Mine and Quarries' (Earth Resources Regulation ~~ERR~~, 2022). It is anticipated that the bond will be periodically assessed prior to the commencement of each mine development stage and must consider the progressive rehabilitation undertaken at that point in time.	Development extent Project
New	**RH-02: Rehabilitation Research Plan** A Rehabilitation Research Plan (RRP) must be developed prior to the commencement of mining and maintained for the life of the Project. The overarching objective of the RRP will be to investigate and assess the feasibility of applying alternative rehabilitation methods to optimise the end land use, and to ensure the relevant rehabilitation risks are minimised so far as reasonably practicable. The RRP will identify areas of study and research to be undertaken over a 5-year forward plan. The development of studies within the RRP will involve consultation with landholders affected by the Project, as well as suitably qualified persons with experience in agronomy, soil science, soil hydrology, hydrogeology, mine rehabilitation, and mine planning (as relevant to each study). The Longerenong College will be consulted during the development of the RRP and over the course of its implementation. Student research programs and partnerships will be developed where relevant. Each study proposed in the RRP will typically include a desktop scoping component, followed by a field trial or glasshouse trial. Some studies may be completed via desktop research or benchmarking with other parties, including other leading practice mineral sands operations and/or local farmers. Each investigation will be designed so that results are valid and reliable.	Development extent

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
New	**RH-03: Contingency plan for unplanned closure** Prepare an unplanned closed contingency plan, in consultation with independent mining management expert, stakeholders and landholders, before construction commences and reviewed before each mine stage. It must give pathways for both temporary and permanent closure.	WBA Mining licence
Cultural Heritage		
23.1 to 23.8	**AH-01: Cultural Heritage Management Plan** A Cultural Heritage Management Plan, as agreed with the Registered Aboriginal Party (RAP), must be implemented to protect Aboriginal cultural heritage. A Cultural Heritage Management Plan is not subject to the review and update requirements detailed in Section 24.7.1 of this EMF.	Development extent

Table 24-3: Monitoring

EES Section	Environmental Management Measures (Monitoring) Requirements are for all phases of the Project unless otherwise stated)	Work area
Traffic and Transport		
9.8	**TM-0A: Local road assessments** Assessments must be undertaken to confirm if reinstated roads meet the necessary regulatory standards and the agreed pre-condition benchmark. Assessments must be undertaken by a suitably qualified person as detailed in the HRCC agreement (refer **TM-04**).	Development extent
9.8	**TM-0B: Local road inspections** Local roads relied upon by the Project must be periodically inspected by a suitably experienced person for signs of deterioration resulting from the Project.	Development extent
Historic Heritage		
10.8	**HH-0A: Heritage exclusion zone inspections** An internal topsoil disturbance approval process must be established that requires authorisation by a suitably trained person prior to any disturbance within the development extent. Exclusion zones must be periodically inspected to ensure the protocol is complied with and no damage to heritage sites has occurred as a result of Project activities.	Development extent
Landscape and Visual		
11.8	**LV-0A: Visual amenity inspections** Visual amenity inspections must be periodically conducted from selected viewpoints, which must include private viewpoints, over the life of mine to qualitatively assess the effects of lighting and other matters relating to visual amenity.	Development extent
11.8	**LV-0B: Tree screen monitoring** Tree screen establishment must be periodically inspected and monitored to assess the condition of vegetation.	WBA Mining licence
Noise and Vibration		
12.8	**NV-0A: ~~Operator attenuated n~~Noise measurements** ~~Operator attenuated n~~Noise measurements must be undertaken over the life of the Project, including measuring existing noise levels prior to and close to the time of construction, at sensitive receptors according to a schedule approved in the Noise and Vibration Management Plan. Noise measurements must be undertaken at representative locations at no more than six months prior to the commencement of the operation of the Project. Measurements of existing background noise must be undertaken in Dooen, Horsham, Cavendish, Hamilton, Heywood and Portland to determine the noise impacts of night-time vehicle movements. During the noise measurements, traffic volumes and vehicle type must be determined and reported. The monitoring program must be developed by a suitably qualified person such that it is aligned with the requirements of EPA Publications 1996, 1834 and 1826.4 and must fully characterise the relevant risks and impacts associated with the Project. The monitoring program must cover Project activities associated with the WBA, mining licence and HMC haulage route. The monitoring outcomes must be used to verify that the mitigation measures or corrective actions taken to reduce noise are effective and meet the acoustic performance they have been designed to achieve.	Project
12.8	**NV-0B: Audit and inspection** A program for audit and inspection must be established to verify that measures to minimise noise emissions and their impacts are adequately implemented and the relevant work practices are adhered to.	Project
12.8	**NV-0C: Response to complaints** Community complaints must be investigated and corrective actions developed and implemented as required under the NVMP to inform continual improvement. The number of complaints will be monitored and reported via the management review process and to the ERG.	Project

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
Air Quality		
13.8	**AQ-0A: Real time continuous air quality monitoring** Real-time continuous air quality monitoring of particulate matter (preferably with alarm to notify of preset particle concentrations alert levels) must be undertaken at sensitive receptors according to a schedule approved in the **AQMP** (AQ-08) ~~Air Quality Management Plan~~. The monitoring must be developed by a suitably qualified person such that it is aligned with the requirements of EPA Publication 1961. The siting, maintenance and calibration of the instruments and analysis of data is to be completed by a suitably qualified person with NATA accreditation (were relevant). The intent of the monitoring is to fully characterise the relevant risks and impacts associated with the Project. The continuous air monitoring locations will be determined by a suitably qualified person, and will include areas within the WBA, the mining licence as well as adjacent sensitive receptors.	Development extent
13.8	**AQ-0B: Visual inspection** Visual observations and inspections for nuisance dust must be undertaken routinely by area supervisors and recorded, investigated and contingency measures implemented for nuisance dust. Observed nuisance dust by any member of staff must be investigated and appropriate controls enacted. The focus must be on measures to prevent and control nuisance dust.	Development extent Port
New	**AQ-0C: Crop and rainwater tank monitoring** Prior to commencement of the Project, baseline crop monitoring to analyse dissolved and total metals must be conducted. Ongoing monitoring of crops and rainwater tanks must be conducted during construction, operation and closure according to a schedule that is proportionate to the risk of harm to human health, as negotiated with each landholder. Assessment of monitoring results must inform any management actions required. Crop and r~~R~~ainwater tank monitoring data must be published with consent provided by the residents/landowners.	WBA Mining licence
New	**AQ-0D: Real time continuous monitoring** Closed Circuit TV cameras will be established, monitored and maintained within the WBA and mining licence area to facilitate dust surveillance. Recordings will be retained for a minimum period of six months from the time taken and used as required to investigate incidents.	WBA Mining licence
New	**AQ-0E: Wind speed and direction monitoring** Monitor wind speed and direction with monitoring at elevation above the height of the stockpiles. The equipment to be used and its location be endorsed by EPA.	Mining licence
New	**AQ-0F: Modelling accuracy re-run** Re-run the air quality model using one year of monitored air quality data to assess the accuracy of the modelling results. The modelling results must be used to determine any adjustments that may be required to Project's operation.	WBA Mining licence
Radiation		
14.8	**RD-0A: Personal radiation dose monitoring (workers)** Personal radiation dose monitoring (workers) and work area monitoring must be undertaken over the life of mine at sensitive receptors according to a schedule approved in the Radiation Management Plan. The monitoring program must be developed by a suitably qualified person such that it is aligned with the regulatory requirements and must fully characterise relevant risks and impacts associated with the Project.	WBA Mining licence
14.8	**RD-0B: Sampling of airborne particulate matter** Periodic sampling of airborne particulate matter must be analysed for radionuclides.	WBA Mining licence
14.8	**RD-0C: Water sampling** Surface water and groundwater samples must be analysed for radionuclides according to a schedule approved in the Radiation Management Plan. The monitoring program must be developed by a suitably qualified person such that it is aligned with the regulatory requirements and must fully characterise the relevant risks and impacts associated with the Project.	WBA Mining licence

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
New	**RD-0D – Field inspections** The HMC stockpiles must be monitored to ensure the target moisture threshold is maintained and to ensure there is no observable dust lift off.	WBA
Soils and Landform		
15.8	**SL-0A: Field surveys** Field surveys and inspections must be undertaken during supervised soil stripping and stockpiling activities to ensure the soil units are stripped and stockpiled as planned.	Development extent
15.8	**SL-0B: Pre mine soil surveys** Pre-mine soil sampling must be undertaken over the life of mine according to the protocol in the Rehabilitation Operations Management Plan. The monitoring program must be developed to adequately characterise the resources to be recovered for rehabilitation (refer Attachment 3 (Rehabilitation Plan), Section 13.1).	WBA Mining licence
15.8	**SL-0C: Inspections** Stormwater drains and sumps must be inspected and monitored over the life of the Project.	Development extent Port
Surface Water		
16.8	**SW-0A: Surface water monitoring** Surface water samples and water levels must be undertaken according to a schedule approved in the SWMP ~~Surface Water Management Plan~~. The surface water sampling analytical suite must be developed by a suitably qualified person such that it is aligned with the requirements of the EPA Environment Reference Standard (ERS) and must fully characterise the relevant risks and impacts associated with the Project.	Development extent Port
16.8	**SW-0A: Freeboard monitoring** Process water dam levels must be routinely monitored to confirm freeboard levels are maintained.	Development extent
Groundwater		
17.8	**GW-0A: Groundwater monitoring** Groundwater samples and water levels must be undertaken according to a schedule approved in the ~~Groundwater Management Plan~~ GWMP. The groundwater sampling analytical suite must be developed by a suitably qualified person such that it is aligned with the requirements of the ERS and must fully characterise the relevant risks and impacts associated with the Project. Prior to mining, the relevant ERS environmental objectives and indicators must be established as a benchmark against which the maintenance of the stated environmental values can be assessed. EMS environmental performance standards must be set that are commensurate with the ERS objectives.	WBA Mining licence
17.8 21.8	**GW-0B: Targeted monitoring of groundwater dependent ecosystems** Targeted monitoring of GDEs must be undertaken over the course of the Project if adverse groundwater effects (flux or hydrochemistry) are recorded that could propagate to areas of potential GDEs. Monitoring must be conducted at a minimum monthly during year one of ~~The~~ mining of Block A, and as determined appropriate in the EMS, ~~must provide an opportunity~~ to verify the actual groundwater effects against the groundwater model and to inform any changes or additional mitigation measures in consultation with a suitably qualified ecologist and ~~must~~ enable a tailored and specific GDE monitoring program to be established if required.	WBA Mining licence
21.8	**GW-0C: Process water monitoring** Process water monitoring must be undertaken at the WCP prior to groundwater discharge according to a schedule to be approved in the ~~Groundwater Management Plan~~ GWMP. Monitoring must be conducted for various key parameters, including, but not limited to, pH and salinity. This must confirm process water quality is within set operating parameters prior to discharge.	WBA

EES Section	Environmental Management Measures (Avoidance and Mitigation Measures)	Work area
21.8	**GW-0D: Geological model verification** Soil sampling must be undertaken to validate the geological conceptual model in line with the requirements to be approved in the PASSMP ~~Management Plan~~. The monitoring must be designed by a suitably qualified person to validate the geological conceptual model in line with the requirements to be approved in the PASSMP.	Mining licence
New	**GW-0E: Chemicals of potential concern monitoring** Chemicals of Potential Concern (including but not limited to acrylamide and Cr(VI)) must be monitored as part of the listed analytes included in the ~~Groundwater Management Plan~~ GWMP. A process must be maintained to understand the risks to sensitive receptors and the uncertainties related to the monitoring data. Monitoring must be undertaken in accordance with Groundwater Sampling Guidelines, EPA Publication 669.1.	WBA Mining licence
Wastes and Emissions		
19.8	**WE-0A: Waste record keeping and inspection** The volume and characteristics of all waste streams generated, reused onsite or disposed offsite must be recorded in accordance with relevant waste duties. Relevant records must be kept and routine inspections and audits must be undertaken to ensure such duties are complied with.	Project
19.6.2.4	**WE-0B: Energy use and greenhouse gas emissions monitoring** Energy use and greenhouse gas emissions must be monitored in line with the GHG and Energy Efficiency Program.	Project
Socioeconomic		
20.8	**SE-0A: Community surveys** Periodic community surveys must be conducted over the life of the Project to objectively gauge views on the Project.	Project
Flora and Fauna		
21.8	**FF-0A: Clearing reconciliation** Periodic reconciliation of survey data collected for vegetation clearing and topsoil disturbance against planned and approved areas.	Development extent
21.8	**FF-0B: Periodic inspections of avoidance areas** Periodic inspections of avoidance areas (refer to FF-01 and FF-02) to ensure there are no impacts from Project activities.	Development extent
21.8	**FF-0C: Weed inspections and monitoring** Weed inspections and monitoring must be undertaken according to the schedule in the ~~Flora and Fauna Management Plan~~ FFMP.	Development extent
New	**FF-0D: Fauna surveys** Undertake baseline targeted fauna surveys in consultation with DEECA prior to construction. Develop and implement a schedule of fauna surveys that aligns with the Project's stages.	Development extent
Rehabilitation		
22.7	**RH-0A: Rehabilitation monitoring** Rehabilitation monitoring must be conducted against the agreed completion criteria as outlined in the Rehabilitation Plan. Aspects to be monitored include but not limited to soil stability/erosion, vegetation establishment and soil physical and chemical parameters. The Rehabilitation objectives, criteria and associated monitoring is outlined in Attachment 3 (Rehabilitation Plan).	Development extent Port
Cultural heritage		
23.7	**AH-0A: Cultural Heritage Management Plan** Monitoring and inspections must be undertaken as agreed in the Cultural Heritage Management Plan.	Development extent

Appendix H IAC recommended incorporated document

The following table includes the Committee recommended changes to the Incorporated Document.

These changes are based on the Proponent's 'Day 4' version (D148).

Tracked added

~~Tracked deleted~~

[to be updated as required]

Planning and Environment Act 1987

HORSHAM PLANNING SCHEME

AVONBANK MINERAL SANDS PROJECT

Processing and ancillary infrastructure

Committee recommended version – showing tracked changes against the Proponent's Day 4 version - Draft Incorporated Document ~~September 2023~~ [insert date]

1 INTRODUCTION

1.1 This document is an Incorporated Document in the Horsham Planning Scheme (**Planning Scheme**) pursuant to section 6(2)(j) of the Planning and Environment Act 1987 (Vic).

1.2 This Incorporated Document facilitates the delivery of mineral sands processing and other infrastructure (**Project**) required to support the Avonbank Mineral Sands Project by providing a specific control for the purpose of clause 45.12 of the Planning Scheme.

1.3 The control in Clause 4 prevails over any contrary or inconsistent provision in the Planning Scheme.

1.4 The control in this Incorporated Document does not apply to the use and development of the Project Land for purposes other than the Project. Use and development of the Project Land for purposes other than the Project must be in accordance with the Planning Scheme.

2 PURPOSE

2.1 The purpose of the Control is to provide specific controls for the Project on the Project Land, as defined in Clause 3 in accordance with Clauses 4 and 5.

3 LAND TO WHICH THIS DOCUMENT APPLIES

3.1 The control in this Incorporated Document applies to the land (**Project Land**) shown as Specific Controls Overlay (SCO) on the planning scheme map forming part of the Planning Scheme, and as shown as the SCO Area in Attachment 1 of this incorporated document.

4 CONTROL

4.1 Despite any provision in the Planning Scheme to the contrary or any inconsistent provision in the Planning Scheme, ~~no~~ a planning permit is not required for, and no provision in the Planning Scheme operates to prohibit, restrict or regulate, the use and development of Project Land for the purpose of, or relating to, the Project.

4.2 The use and development of the Project Land for the purposes of, or related to, the Project ~~includes~~ comprises:

a) Mineral sands processing and ancillary activities;

b) Buildings and works including plant and machinery required for mineral sands processing, associated waste management and associated activities;

c) Transport of materials and mineral sands to and from the Project Land;

d) Roads, road widening and roadworks including the creation or alteration of access to roads in Transport Zone 2;

e) Removing, destroying and lopping trees and vegetation, including native vegetation and dead vegetation; and

f) Stormwater drains/sumps, noise bunds, internal access tracks, vegetation tree screens, laydown yards.

5 CONDITIONS

5.1 The use and development authorised by this Incorporated Document must be undertaken in accordance with the following conditions set out below:

5.2 Any plan required by the conditions of this Incorporated Document must be:

a) generally in accordance with the Minister's ~~a~~Assessment of the environmental effects of the Avonbank Mineral Sands Project dated [INSERT] under the Environment Effects Act 1978 ~~(Minister's Assessment)~~ unless otherwise approved by the responsible authority; and

b) address the requirements of, and be consistent with, the 'Day 4' Environmental Management Framework dated 1 September 2023 tabled before the inquiry and advisory committee for the Avonbank Mineral Sands Project environment effects statement ~~(Day 4 EMF).~~

5.3 To the extent of any inconsistency between the Minister's Assessment and the ~~Day 4 EMF~~ 'Day 4' Environmental Management Framework dated 1 September 2023, the Minister's Assessment prevails.

5.4 Development Plan

a) Prior to the commencement of the use and development of the Project Land, a Development Plan must be prepared to the satisfaction of the responsible authority.

b) The Development Plan may be prepared and approved in stages or in respect of any of the individual Project components listed in Clause 4.2. If the Development Plan is to be prepared and approved in stages, a Development Plan Master Plan must first be prepared and approved to the satisfaction of the responsible authority. A Development Plan for any stage or Project component must be consistent with the Development Plan Master Plan and, ~~but the Development Plan for each stage or component~~ must be approved before the commencement of development for that stage or component.

c) The Development Plan may be amended to the satisfaction of the responsible authority.

d) The Development Plan must show:

i The location, boundaries and dimensions of the Project Land;

ii Relevant ground levels;

iii The location and layout of proposed buildings (including any dangerous goods storage buildings), works and proposed activities within the Project Land, including allowance for provision of required ancillary rail infrastructure to enable use of rail if determined to be feasible during the life of the Project;

iv If the Development Plan is to be approved in stages or in respect of individual components of the Project, a plan for each stage of development or component for which approval is currently being sought;

v Elevations of buildings and above-ground proposed works;

vi Adjoining roads and rail;

vii Proposed construction materials and colours;

viii The provision of all utilities and services on the Project Land including electricity, telecommunications, water supply and waste water treatment;

ix Driveways and vehicle parking and loading areas;

x External storage and waste treatment areas;

xi Location and construction details of all water mains, powerlines, drainage works, wastewater treatment and disposal areas, telecommunications, driveways and vehicle parking and loading areas;

xii A landscape plan which shows all proposed landscape areas, a description of vegetation to be planted, and the method of preparing, draining, watering and maintaining the landscape areas; and

xiii The identification of any areas or objects of non-Aboriginal cultural heritage significance on the Project Land.

e) The use or development as shown on the Development Plan must not be altered without the written consent of the responsible authority.

5.5 Construction Management Plan

a) Prior to commencement of use and development of any component of the Project listed in clause 4.2, a Construction Management Plan (CMP) must be prepared in consultation with the Environment Protection Authority Victoria (EPA) to the satisfaction of the responsible authority.

b) The CMP may be amended from time to time to the satisfaction of the responsible authority.

c) All construction works must be undertaken and completed in accordance with the approved CMP to the satisfaction of the responsible authority.

d) The CMP must include, but not be limited to:

i A staging plan for all construction phases;

ii Location of any temporary construction works office and machinery storage area;

iii Construction timeframes;

iv The proposed hours of construction activities;

v Intended access and routes of all construction vehicles;

vi Any proposed vehicle and machinery exclusion zones;

vii Measures and techniques to manage surface water runoff and to protect drainage lines and watercourses from sediment runoff from disturbed or under construction areas;

viii Measures to protect sites of conservation or archaeological significance during construction;

ix Measures to protect existing vegetation, which must be consistent with the relevant measures set out in the Flora and Fauna Management Plan approved in accordance with Clause 5.8;

x Measures and techniques to avoid impacts on fauna;

xi Measures and techniques to manage weeds;

xii Measures and techniques to manage erosion;

xiii Location of a machinery and vehicle wash down area;

xiv Measures and techniques to manage water from machinery and vehicle wash down areas;

xv Management of litter, construction wastes and chemical storage;

xvi Details of where construction personnel shall park;

xvii Phone numbers of on-site personnel or other supervisory staff to be contactable in the event of issues arising on site;

xviii The removal of works, buildings and staging areas on completion of the construction phase;

xix Measures to avoid sediment laden surface water runoff from the Project Land.

xx Methods of ensuring all contractors are informed of the requirements of the plan and persons responsible for ensuring the plan is adhered to.

5.6 Environmental Management Plan

a) Prior to the commencement of the development and use of the Project Land, an Environmental Management Plan (EMP) must be prepared and approved to the satisfaction of the responsible authority, which reflects the EMS requirements as detailed in the approved Environmental Management Framework for the Project as set out in Clause 5.2 and 5.3, in consultation with the EPA and Earth Resources Regulation (ERR). The EMP must include:

i A description of the mitigation measures to be implemented to avoid and minimise the environmental risks so far as reasonably practicable, with regard to air quality, surface water management, waste management and visual amenity;

ii The identification of specific environmental objectives and performance standards to be achieved with mitigation measures in place;

iii A description of the monitoring to be undertaken to verify the effectiveness of the mitigation measures;

iv A description of the mechanisms to determine if corrective actions and contingency measures are required and if so, when they are required;

v A description of the appropriate review periods and/or triggers to ensure the continued effectiveness of the EMP;

vi Procedures to manage incidents and any non-compliance, stakeholder and community complaints and report any non-compliance to the relevant authority;

vii A community engagement strategy and an associated complaints handling procedure; and

viii A summary of the external communication procedures to describe the triggers for reporting to relevant authorities or other stakeholders.

ix A Green Travel Plan to promote sustainable transport initiatives and minimize private vehicle usage by Project personnel, in line with the Environmental Management Framework for the Project as set out in Clause 5.2 and 5.3.

b) The EMP submitted to the responsible authority must be accompanied by a written report or statement prepared by an environmental auditor appointed under Part 8.3 of the *Environment Protection Act 2017* that verifies that the EMP addresses the requirements of clause 5.6.

c) The EMP may be amended from time to time to the satisfaction of the responsible authority.

d) The EMP must be maintained and implemented for the duration of the construction, ~~and~~ operation, rehabilitation and decommissioning of the facilities to the satisfaction of the responsible authority.

5.7 Noise and Vibration Management Plan

a) Prior to the commencement of building and works, a Noise and Vibration Management Plan (NVMP) must be prepared in accordance with chapter 4 of the *Civil construction, building and demolition guide* (EPA publication 1834), section 9 of the *Construction – guide to preventing harm to people and the environment* (EPA publication 1820.1), the *Noise limit and assessment protocol for the control of noise from industrial and trade premises and entertainment venues* (EPA publication 1826.4) to the satisfaction of the responsible authority in consultation with the EPA. The NVMP must include:

i Separate sections for each of the construction, operational and decommissioning phases of the Project;

ii A description of the mitigation measures to be implemented to avoid and minimise noise and vibration emissions so far as reasonably practicable;

iii A framework for the approval of construction works outside normal working hours as detailed in the *Civil construction, building and demolition guide* (EPA publication 1834);

iv The identification of specific environmental objectives and performance standards to be achieved with mitigation measures in place;

v A description of the monitoring to be undertaken to verify the modelling and the effectiveness of the mitigation measures;

vi A description of the mechanisms to determine if corrective actions and contingency measures are required and if so, when they are required;

vii Details of a program to investigate and implement ways to improve the environmental performance of the use and development of the Project over time;

viii A description of the appropriate review periods and/or triggers to ensure the continued effectiveness of the NVMP;

ix Procedures to manage incidents and any non-compliance, stakeholder and community complaints, failure to comply with statutory requirements and/or performance standards, roles and responsibilities for implementing the plan, and a protocol for periodic review of the plan (in line with clause 5.15 Review of approved plans).

x A community engagement strategy which incorporates the procedures for managing stakeholder and community complaints;

xi Details of good management practices; and

xii Consideration of the cumulative impacts of the use and development of the Project and surrounding land use and development.

b) The NVMP submitted to the responsible authority must be accompanied by a written endorsement from an appropriately qualified acoustic consultant that certifies that the NVMP addresses the requirements of clause 5.7 and includes appropriate measures for the avoidance and mitigation of noise and vibration impacts for normal working hours.

c) The NVMP must be maintained and implemented for the duration of the construction, operation and decommissioning and closure of the facilities to the satisfaction of the responsible authority.

5.8 Air Quality Management Plan

a) Prior to commencement of development, an Air Quality Management Plan (AQMP) must be prepared to the satisfaction of the responsible authority in consultation with ERR and the EPA.

b) The AQMP must be in line with the Environmental Management Framework for the Project as set out in Clause 5.2 and 5.3.

5.9 Flora and Fauna Management Plan

a) Prior to the commencement of development, a Flora and Fauna Management Plan (FFMP) must be prepared to the satisfaction of the responsible authority in consultation with the Secretary, Department of Energy, Environment, Climate Action (DEECA). The plan must include:

i A photograph or site plan (drawn to scale) showing the boundaries of the site, existing native vegetation and the native vegetation (both trees and patches of native vegetation) to be removed;

ii A description of the native vegetation to be removed, including the extent and type of native vegetation, the number and size of any trees to be removed and the Ecological Vegetation Class of any native vegetation to be removed;

iii A written explanation of the steps that have been taken to avoid the removal of native vegetation, where possible and minimise the removal of native vegetation;

iv A written explanation that addresses the Guidelines for the Removal, Destruction or Lopping of Native Vegetation (DELWP, 2017) as if a permit was required to remove native vegetation;

v The process and methodology proposed for the stripping, stockpiling and then reuse of topsoil including the collection of seeds especially, but not limited to topsoil stripped from road side areas;

vi A biosecurity management protocol which minimises the risk of weeds or pathogens proliferating or spreading as a result of the Project activities; and

vii A landscape plan that shows tree planting and landscaping to the satisfaction of the responsible authority on the Project Land particularly along the boundary of the Project Land with the Wimmera Highway and between the Project Land and the balance of the WIFT to the west. Landscaping along the Wimmera Highway boundary must be set back 7 metres from the edge of the road seal to the Wimmera Highway.

b) Prior to the removal, lopping or destruction of any native vegetation, an Offset Management Plan (OMP) must be prepared to the satisfaction of the responsible authority and DEECA. The OMP must include:

i The legally enduring methods of permanent protection for established offsets;

ii Location of the offsets;

iii Type of offsets to be provided;

iv Details of any revegetation including number of trees, shrubs and other plants; species mix; density; methods of interim protection and management until vegetation is established; and a Schedule of Works;

v Details of any existing vegetation to be retained including methods of managing and restoring the vegetation and a Schedule of Works;

vi Actions to protect Large Old Trees and Very Large Old Trees that are hollow

bearing and provide fauna habitat;

vii Identification of those responsible for implementing and monitoring the OMP; and

viii Time frames for implementing the OMP.

5.10 Traffic Management Plan

a) Prior to the commencement of building and works, a Traffic Management Plan (TMP) must be prepared by a suitably qualified traffic engineer and must be approved by the Head of Transport for Victoria and the Horsham Rural City Council. The TMP must include, but not be limited to:

i Any creation or alteration to access to a road in a Transport 2 Zone.

ii Identification and assessment of local roads and associated infrastructure at risk from damage arising from the construction and operation of the mineral sands processing facilities, including:

iii A program of regular inspection works to be carried out during construction to identify road safety hazards and works to reduce those hazards as a result of construction traffic;

iv A program to rehabilitate damage caused by Project traffic to existing local roads and infrastructure to a safe and usable condition during construction, operation and during and at the conclusion of decommissioning of the mineral sands processing facilities;

v Measures to be taken to manage traffic impacts associated with construction and ongoing operation of the mineral sands processing facilities on surrounding local roads; and

vi A requirement to enter into agreements with the relevant road authority regarding ongoing pavement maintenance to local (non-arterial) roads prior to the commencement of the operation of the mineral sands processing facility.

vii Details of road widening and road upgrades required to accommodate additional traffic or oversize vehicles; and

viii The provision of an acceleration lane from the main entrance to the WBA on the Wimmera Highway.

b) The TMP may be amended from time to time to the satisfaction of the Head Transport for Victoria and the Horsham Rural City Council.

c) The TMP may be prepared in stages or in respect of any elements of the Project listed in Clause 4, but the TMP for any stage of development or component must be approved before the commencement of development for that stage or component.

5.11 Fire Management Plan

a) Prior to the commencement of building and works, separate Construction and Operational Fire Management Plans (FMP) must be prepared by a suitably qualified person and approved by the CFA in consultation with the Horsham Rural City Council. The FMP must include, but not be limited to:

i Procedures for vegetation management, fuel control and the provision of firefighting equipment during declared fire danger periods;

ii Protocols to address periods of high fire danger, including Total Fire Ban days and Code Red days, including as required, to seek appropriate exemptions at the commencement of higher risk fire periods during both the construction and

operational phases;

iii Criteria for the provision of static water supply solely for firefighting purposes;

iv Minimum standard for access roads and tracks to allow access for firefighting vehicles;

v Details of roles and responsibility for implementation of the FMP;

vi Details of the role of fire emergency evacuation points and plans;

vii A program for monitoring the implementation of bushfire mitigation measures on an on-going basis; and

viii A requirement for the operator to facilitate a familiarisation visit to the site and explanation of emergency services procedures, on an annual basis, for the Country Fire Authority, Rural Ambulance Victoria, responsible authority, Emergency Management Committee and Victoria Police.

b) The FMP may be amended from time to time to the satisfaction of the Country Fire Authority and the responsible authority.

5.12 Decommissioning Plan

a) No less than 5 years prior to ceasing operation of the Project, a Decommissioning Plan must be prepared to the satisfaction of the responsible authority. The Decommissioning Plan must be generally in accordance with section 9.9 (Decommission of WBA) of Attachment 3 (Rehabilitation Plan) to the *Avonbank Mineral Sands Project Environment Effects Statement (2023)* but modified to show compliance with Australian Standard 3798-2007: Guidelines on earthworks for commercial and residential developments and the proposed end use of the Project Land.

b) At the conclusion of the site decontamination (if any) and rehabilitation, an environmental audit statement under the *Environment Protect Act 2017* in respect of the Project Land which demonstrates that the Project Land is suitable for the proposed end use nominated in the approved Decommissioning Plan must be provided to the responsible authority.

c) The Decommissioning Plan may be amended from time to time to the satisfaction of the responsible authority.

d) The Decommissioning Plan must be implemented for the duration of the decommissioning and closure of the Project to the satisfaction of the responsible authority.

5.13 Compliance Aassessment Plan

a) Prior to the commencement of development, a Compliance Assessment Plan must be prepared to the satisfaction of the responsible authority. The Compliance Assessment Plan must include:

i the frequency of compliance assessment reporting;

ii the approach and timing of compliance assessments;

iii the retention of compliance assessment reports;

iv the method of reporting of non-compliances and the corrective actions taken, including a requirement to notify the responsible authority of any non-compliance within 7 days of the identification of the non-compliance;

v the table of contents of compliance assessment reports; and

vi requirements with respect to the public availability of compliance assessment reports.

b) The Compliance Assessment Plan may be amended from time to time to the satisfaction of the responsible authority.

c) Within one year of the commencement of development, a compliance assessment report must be provided to the responsible authority. The compliance assessment report must include:

i an endorsement by the managing director, general manager or chief executive officer of the Project operator, or a delegate authorized on that person's behalf;

ii a statement as to whether the requirements of this incorporated document have been complied with; and

iii identify all non-compliances and describe corrective and preventative actions taken.

d) A compliance assessment report containing the matters required by clause 5.12(c) must be submitted to the responsible authority annually by the anniversary date of the first compliance assessment report required by clause 5.12(c).

e) The compliance assessment report required by clause 5.12(c) must, every three years, be accompanied by a report prepared by an environmental auditor appointed under Part 8.3 of the Environment Protection Act 2017 that verifies that the matters contained in the compliance assessment report for that reporting year are correct.

5.14 Publication of approved plans

a) Upon approval of any management plan referred to in this clause 5, that management plan must be published on the Project operator's website.

5.15 Review of approved plans

a) Management plans referred to in this clause 5 (unless otherwise specified) must be reviewed and updated at an appropriate frequency as established in the overarching EMS and with consideration to the level of risk, statutory requirements, monitoring results, community complaints, in response to audit findings and any other specific requirements detailed in each condition in clause 5. Review and update of management plans must be in consultation with the relevant regulator or responsible authority:

i at least every five years or prior to the commencement of each mining block stages or the completion of each audit, which ever is the lesser timeframe

ii and as required to ensure compliance with any updated approvals or regulatory instruments.

6 IMPLEMENTATION

6.1 The use and development of the Project Land must be carried out in accordance with the management plans and framework referred to in Clause 5, and associated buildings, works and plantings must be maintained to the satisfaction of the responsible authority.

7 INVESTIGATIVE WORKS

7.1 For the purposes of the use and development authorised by this document, works associated with geotechnical testing or service proving are not considered to be commencement of the development.

8 EXPIRY OF THIS CONTROL

8.1 The specific controls in this Incorporated Document expire if:

a) The development of the Project Land authorised by these controls is not:

i started within four years of the approval date; and

ii completed within four years of the commencement of development.

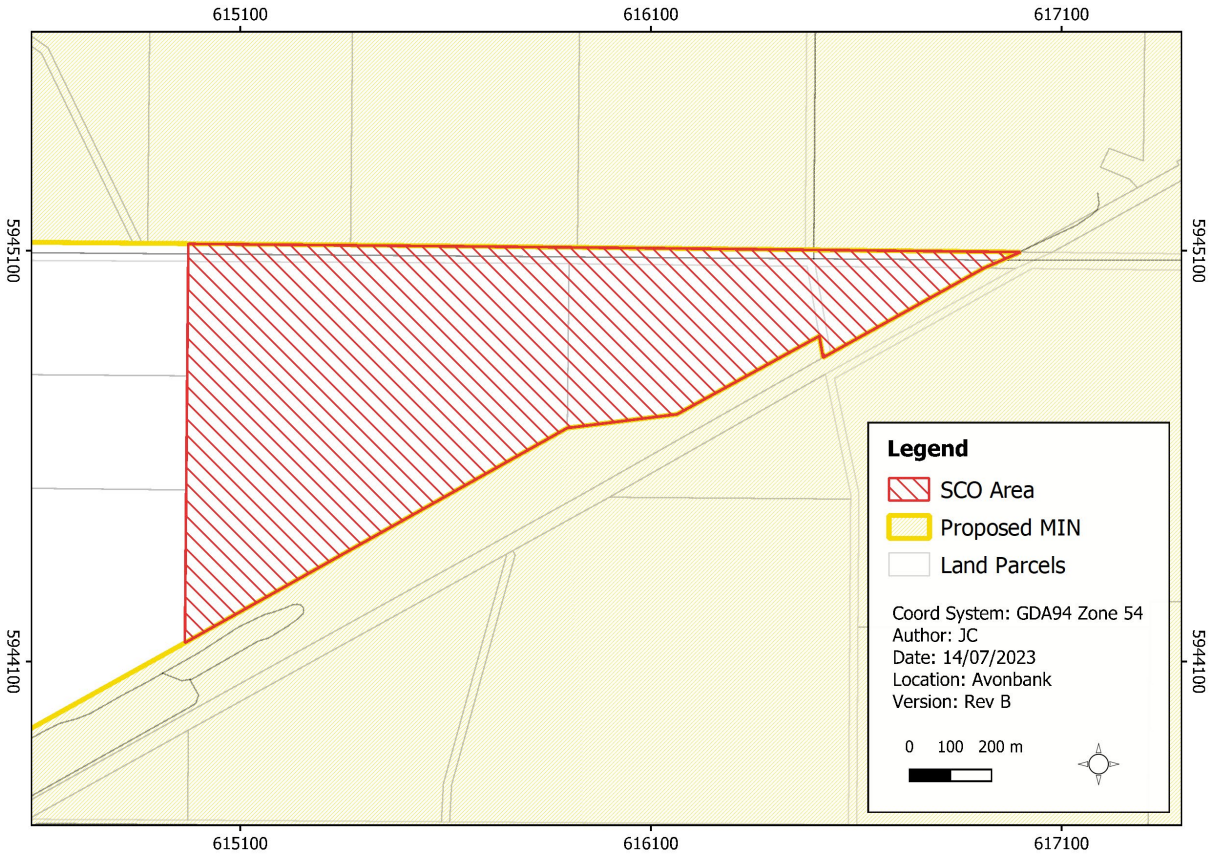
b) The use of the Project Land authorised by these controls is not started within two years of the completion of development.

c) The controls in this incorporated document expire after the issue of an environment audit statement required under clause 5.11.b).

8.2 The responsible authority may extend any period referred to in this condition if a request is made in writing before these controls expire or within six months afterwards.

8.3 Upon expiry of the specific control, the land may be used and developed only in accordance with the provisions of this scheme

ATTACHMENT 1: AREA TO WHICH INCORPORATED DOCUMENT APPLIES



SCO Area – Specific Control Overlay Area;

Proposed MIN – Proposed Mining Licence