COUNCIL ASSESSMENT REPORT

Panel Reference	**2015WES003 DA**
DA Number	**2015/004**
LGA	**Bogan Shire Council**
Proposed Development	**Construction and operation of an underground mine and associated infrastructure including but not limited to a box cut, decline, ROM pad, waste rock emplacement, access road, workshop, offices, hardstand areas and related infrastructure.**
Street Address	**Yarrandale Road, Hermidale**
Applicant/Owner	**Aeris Resources**
Number of Submissions	**0**
Regional Development Criteria (Schedule 4A of the Act)	**Clause 3 – general development with a capital investment value> $20M**
List of all relevant s79C(1)(a) matters	• **Environmental Planning & Assessment Regulation 2000** • **State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007** • **State Environmental Planning Policy No. 55 – Remediation of Land** • **State Environmental Planning Policy (Infrastructure) 2007** • **Bogan Local Environmental Plan 2011** • **Bogan Development Control Plan 2012**
Is a Clause 4.6 variation request required?	**No**
Does the DA require Special Infrastructure Contributions conditions (S94EF)?	**No**
Have draft conditions been provided to the applicant for comment? Have any comments been considered by council in the assessment report?	**No**
List all documents submitted with this report for the Panel's consideration	**Development assessment report incorporating:** **Director General Requirements – Appendix A** **EIS and Response to Submissions– Appendix B** **Submissions – Appendix C** **General Terms of Approval – Appendix D** **Draft conditions of consent – Appendix E**
Recommendation	**Approval subject to conditions**
Report prepared by	**David Walker – Senior Town Planner, Geolyse on behalf of Bogan Shire Council**
Report date	**24 August 2016**

ASSESSMENT OF DEVELOPMENT APPLICATION
AVOCA TANK PROJECT

PREPARED FOR
BOGAN SHIRE COUNCIL

AUGUST 2016

• Civil, Environmental & Structural Engineering • Surveying • Environmental • Planning • Architecture

ASSESSMENT OF DEVELOPMENT APPLICATION

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Report Title:	*Assessment of Development Application*
Project:	*Avoca Tank Project*
Client:	*Bogan Shire Council*
Report Ref.:	*211054_REP_002D.docx*
Status:	*Final*
Issued:	*24 August 2016*

Geolyse Pty Ltd and the authors responsible for the preparation and compilation of this report declare that we do not have, nor expect to have a beneficial interest in the study area of this project and will not benefit from any of the recommendations outlined in this report.

The preparation of this report has been in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All maps, plans, and cadastral information contained within this report are prepared for the exclusive use of Bogan Shire Council to accompany this report for the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes apart from those stated therein.

Geolyse Pty Ltd accepts no responsibility for any loss, damage suffered or inconveniences arising from, any person or entity using the plans or information in this study for purposes other than those stated above.

Executive Summary

Tritton Resources seeks consent to develop and operate the Avoca Tank Mine, a box cut and portal mine extracting gold, silver and copper reserves. The proposal is located on land approximately seven kilometres north of the village of Girilambone and approximately 55 kilometres northwest of Nyngan. The proposal would have an operational life of approximately seven years, four of which would involve direct extraction of minerals. The mine would feature the following physical components:

- A run of mine pad;
- Waste rock emplacement;
- Hardstand areas;
- Water management structures; and
- Internal roads.

The capital investment value of the project exceeds $20 million and therefore the development represents regional development for which the Western Joint Regional Planning Panel is conferred the decision making responsibilities of the consent authority, pursuant to Clause 5 of Schedule 4A of the *Environmental Planning and Assessment Act 1979*.

The proposed development is located within the Bogan Local Government Area for which Bogan Shire Council (BSC) is the local planning authority and consent authority. By reference to clause 21 of the *State Environmental Planning Policy (State and Regional Development) 2011* BSC will exercise its consent authority functions in relation to the receipt, exhibition and assessment of the application and the Western Region JRPP will determine the application.

Geolyse has been commissioned by BSC to complete an independent assessment of the proposed application and provide the assessment to the Western Region JRPP for their determination.

The development is designated development by virtue of clause 25 of Schedule 3 of the Environmental Planning and Assessment Regulation 2000 as it would result in disturbance of greater than 4 hectares of land. The development represents a scheduled activity pursuant to clause 29 of Schedule 1 of the *Protection of the Environment Operations Act 1997* as the development would disturb more than four (4) hectares of land. The development represents integrated development pursuant to the Section 91 of the EP&A Act on the basis that it requires:

- an environment protection licence from the Environment Protection Authority for the carrying out of scheduled activities;
- approvals under the *Water Management Act 2000* for water management works approval; and
- the gaining of a mining lease pursuant to the *Mining Act 1992*.

The site of the proposal has an area of approximately 1,846 hectares and is to be accessed via a private road to be developed from the Tritton Resources Girilambone Copper Mine, located approximately 2 kilometres to the south. The project site has a frontage to the Mitchell Highway however proposed operations would be setback from this by approximately one (1) kilometre.

The subject site is formed of four (4) lots, being: Part Lot 3 DP751342 and Lots 135, 144 and Part Lot 10 DP751315. The land is currently privately owned and would be purchased from the current landowner on granting of development consent. It is noted that the development application form has not been signed by the land owner (although it is understood that consultation with the owner has occurred). It is noted that such consent is not required to progress the development application by virtue of clause 14 of Schedule 1 of the *Mining Act 1992*.

An assessment of potential environmental impacts resulting from the project identifies the following:

- The proposal has the potential to impact known and unknown sites of Aboriginal heritage
- One flora and eight fauna species were identified as occurring on site that listed as vulnerable under either (or both) the *Threatened Species Conservation Act 1995* and the *Environment Protection and Biodiversity Act 1999;*
- Groundwater standing water levels in the site are between 30 and 40 metres below the surface;
- Noise and vibration impacts from site activities (including blasting) are anticipated to comply with all relevant criteria;
- Three sites of heritage significance were identified as being located within the site;
- Surface water would be diverted around the site and surface water from within the site would be captured within a proposed system of water management and reused on site;
- The proposal would generate around 50 road train movements per day although noting that these movements are anticipated to result in an overall consistent volume of movements as currently exists due to restrictions on the volume of material that may be transported from offsite for processing at the Tritton Copper Mine;
- The site would not be visible from the public domain;
- The proposal would not lead to the permanent loss of a viable agricultural land as the site would be rehabilitated at project completion and be able to return to its next highest use, being grazing;
- Socioeconomic impacts would be largely positive through continued employment opportunities and flow on spending in the local economy

The application has been exhibited by Council for 30 days via two (2) advertisements in the local paper, a sign on the site, targeted consultation letters to nearby properties and consultation letters to integrated, concurrence and potentially interested regulatory stakeholders.

Council received no public submission to the project during the exhibition period.

Agency submissions were received from the NSW Department of Primary Industries (Water), NSW Office of Environment and Heritage, Environment Protection Authority, NSW Heritage Council, NSW Resources and Energy and Roads and Maritime Services.

The merits of the project have been assessed and this report concludes that the potential impacts have been satisfactorily addressed via the original Environmental Impact Statement, additional information received, the statement of commitments and the recommended conditions of approval.

Consequently, it is concluded that this project is in the public interest and should be approved subject to the imposition of conditions.

FIGURES

TABLES

APPENDICES

APPENDIX A
Director General Requirements

APPENDIX B
EIS and Response to Submissions

To be attached separately

APPENDIX C
Submissions Received

APPENDIX D
General Terms of Approval

APPENDIX E
Recommended Conditions of Consent

ABBREVIATIONS

AHD	Australian Height Datum
ARI	Annual Recurrence Interval
BSC	Bogan Shire Council
DA	Development Application
DCP	Development Control Plan
DPI	NSW Department of Primary Industries
EIS	Environment Impact Statement
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regs	Environmental Planning and Assessment Regulations 2000
EPI	Environmental Planning Instrument
Ha	Hectare
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
LEP	Local Environmental Plan
LGA	Local Government Area
NOW	NSW Office of Water
OEH	NSW Office of Environment and Heritage
Rural Lands SEPP	State Environmental Planning Policy (Rural Lands) 2008
RMS	Roads and Maritime Services
SIG	Special Interest Group
SR-SEPP	State Environmental Planning Policy (State and Regional Development) 2011
WRJRPP	Western Region Joint Regional Planning Panel

Introduction

1.1 INTRODUCTION

Geolyse Pty Ltd has been commissioned by Bogan Shire Council (BSC) to undertake an assessment of a designated Development Application (DA) for a proposed mine to be located seven kilometres from the village of Girilambone.

The assessment has been prepared pursuant to Section 79C of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and provides recommendations for determination of the DA.

1.1.1 BACKGROUND

Mining activity has been prevalent in the surrounding region since the 1880's with the discovery of the Girilambone Copper Deposit in 1881. The Murrawombie Mine, an open cut and underground mine extracting copper ore, commenced operations in 1992. Murrawombie was placed on care and maintenance in 2008 and, despite being subject to ongoing review, remains in this state at the time of writing. The applicant assumed control of Murrawombie and the nearby North East Mine (comprising Hartmans, Larsens and North East Open Cut) in 2005. Mining activities at Hartmans has ceased and the open cut is being backfilled by extracted waste rock from the North East underground mine.

The applicant has operated the Tritton Copper Mine, 24 km southwest of the application site, since 2000.

A maximum of 1,000,000 tonnes per year of ore extracted off-site (ie, from Murrawombie and Girralambone) are transported by road to Tritton Copper Mine for processing. Processed concentrate is then transported in sealed shipping containers to the Applicant's Hermidale siding for rail transport.

1.1.2 SITE DESCRIPTION

The site is located approximately 55 km northwest of Nyngan and 7 km northwest of Girilambone, and is situated 2 km north of the existing North East Mine, and 4 km northwest of the Murrawombie Mine (refer – **Figure 1**).

The application site consists of an area of 1,846 hectares formed of part Lot 3 DP751342 and Part Lot 10, Lot 144 and Lot 135 DP751315 (Corkery, 2014).

All land titles within the Project Site are registered to Mr P.G. Johnston. The EIS notes that the Applicant will formalise an arrangement to purchase land required for the Proposal should consent be granted (Corkery, 2014).

1.1.3 OWNER'S CONSENT

It is noted that the development consent application form supplied with the application form does not contain Mr Johnston's signature. By reference to Part 1 of Schedule 1 of the EP&A Regulations, clause 1, subclause (1)(i), the owner's consent is required to be provided for a development application where this is required by the regulations. However, by reference to clause 14 of Part 2, Division 2, Schedule 1 of the Mining Act, any requirement of the EP&A Act for the consent of the land owner to be provided with a development application does not apply to the extent it relates to an application made under this division. Division 2 of Part 2, Schedule 1 of the Mining Act applies *inter alia*:

> *(a) in relation to a mining lease for a mineral or minerals, to land for which development consent is required before the land may be used for the purpose of obtaining minerals, and*
>
> *(b) in relation to a mining lease for a mining purpose or mining purposes only, to land for which development consent is required before the land may be used for that purpose or those purposes*

As the Division 2 is applicable to this application, the specific consent of the land owner is therefore not required.

1.1.4 THE LOCALITY

The subject site is located in a rural environment characterised by broad acre farming with associated scattered residential dwellings. Closest residential receptors are greater than two (2) kilometres from the existing facility (Corkery, 2014).

A land capability assessment of the land within the subject site characterised it as Class 6 land, or land with very severe limitations (Corkery, 2014, p. 4-84)

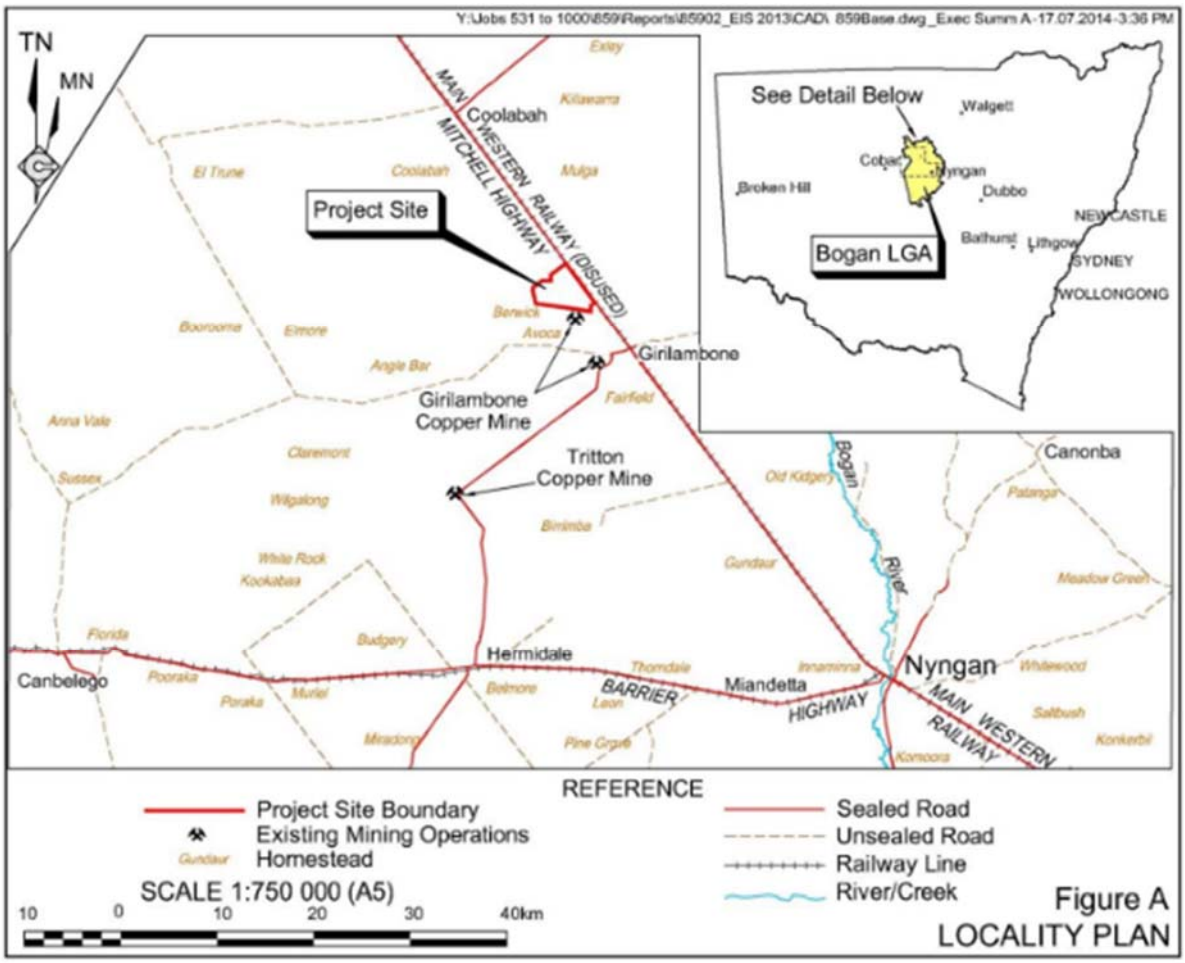

Figure 1: Proposed Site Location (Source: Figure A of R.W. Corkery Avoca Tank Project EIS, 2014)

1.2 PROPOSAL DESCRIPTION

Tritton Resources seeks consent to develop and operate the Avoca Tank Mine, a box cut and portal mine extracting gold, silver and copper reserves. The proposal is located on land approximately seven kilometres north of the village of Girilambone and approximately 55 kilometres northwest of Nyngan. The application states that the project would have an operational life of approximately seven years, four of which would involve the mining of minerals. The remaining three years would involve site mobilisation, demobilisation and rehabilitation. The mine would feature the following physical components:

- A run of mine pad;
- Waste rock emplacement;
- Hardstand areas;
- Water management structures; and
- Internal roads.

The indicative project site layout is depicted in **Figure 2 (page 6)**.

The capital investment value of the project exceeds $20 million and therefore the development represents regional development for which some of the functions of the consent authority, including determination, are conferred on the Western Joint Regional Planning Panel (pursuant to Clause 5 of Schedule 4A of the *Environmental Planning and Assessment Act 1979* and clause 21 of the *State Environmental Planning Policy (State and Regional Development) 2011*).

The development is designated development by virtue of clause 25 of Schedule 3 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regs) as it would result in disturbance of greater than 4 hectares of land.

The development represents a scheduled activity pursuant to clause 29 of Schedule 1 of the *Protection of the Environment Operations Act 1997* as the development would disturb more than four (4) hectares of land. For this reason, among others, the development represents integrated development pursuant to the Section 91 of the EP&A Act. Other integrated triggers include:

- a requirement for approvals under the *Water Management Act 2000* for water management works; and
- a requirement for gaining a mining lease pursuant to the *Mining Act 1992*.

The proposed development is located within the Bogan Local Government Area for which Bogan Shire Council (BSC) is the local planning authority and consent authority. BSC has exercised its functions in relation to the receipt, exhibition and assessment of the application. The Western Regional JRPP will determine the application on behalf of BSC by reference to the provisions of clause 21 (1)(a) of the SEPP SRD).

Table 1.1 – Main Components of the Project

Component	Description
Summary	Development of a proposed box cut and portal mine over a seven year period including a four year period of extraction of gold, silver and copper, including: • Initial site set up to establish a box cut, partial, decline and underground mine with two ventilation rises; • Constructing and operating ancillary infrastructure; • Extraction of up to approximately 375,000 tonnes of ore per year for four years; • Site demobilisation and rehabilitation; and • Ongoing monitoring
Project area	The site area is confirmed via the Tritton Resources Response to Submissions (June, 2016) as 1,846 hectares.
Disturbance area	34 hectares (by reference to the EIS executive summary and EIS Section 4.3.6.2)
Mining and reserves	Extraction of approximately 1.095 million tonnes (indicative, includes waste and ore) using conventional bench stoping and long hole open stope mining techniques.
Processing and facilities	Mined ore placed on the ROM Pad would be loaded into two-trailer road trains (~52t capacity) and transported to the Tritton Copper Mine for processing. Processing would be undertaken at the existing Tritton Copper Mine processing plant under the existing Development Consent which allows import of up to 1 million tonnes of ore per annum from off-site. Processed concentrate would then be transported in sealed shipping containers to the Applicant's Hermidale siding for rail transport.
Project life	Seven years including site establishment, four year mining timeframe and demobilisation and rehabilitation

Table 1.1 – Main Components of the Project

Component	Description
Proposed surface infrastructure	The project would require the construction of the following: • A box cut, portal and decline; • A run of mine (ROM) pad; • Laydown area; • Fuel store and refuelling bay • Waste rock emplacement; • Hardstand area comprising ancillary facilities including a workshop, mobile plant parking areas, wash down by, transportable offices, crib room and ablution facilities; • Extension of infrastructure including site access road, water pipeline and electricity transmission line; • Water management structures; and • Internal roads.
Water demand and supply	The maximum predicted project-related water requirement is 164 million litres per year (ML/year) comprising • water required for dust suppression (128 ML/year), • underground mining (32ML) • Evaporation – mine water pond (4ML). Supply is predicted to balance with this demand through: • Dirty water - up to 30ML/year; and • Mine water – between 0 – 111ML per year; and • Make up water – between 23 – 134ML per year These supply types have the following characteristics: 1. **Dirty water** - from surface water (rainfall) that is directed to the Sediment Basin (no interaction with ROM Pad or waste rock emplacement). 2. **Mine water** - including the following: i. Groundwater inflow extracted from the underground mine and pumped to the Mine Water Pond. ii. Surface water flows within the ROM Pad and waste rock emplacement. Directed to Leachate Management Ponds. 3. **Make up water** – any shortfall in water for operational purposes will be sourced from the Applicants licenced raw water dam at the Murrawombie Mine and transported to the Project Site via the proposed pipeline. The Applicant's maximum groundwater entitlement under the following Water Access Licences issued under the *Water Management Act 2000* is provided below: • WAL009374 – 705ML/year – high security • WAL009375 – 210ML/year – general security • WAL009940 – 15ML/year – supplementary water
Tailings management	Tailings produced from the existing flotation plant at the Tritton Copper Mine will be discharged to a Tailings Storage Facility. Development Consent 41/98 (most recently modified via modification application no. 5, dated 7 April 2015) would cover processing of all Avoca Tank ore and tailings management.
Waste rock management	Approximately 404,000 tonnes (indicative) of waste rock would be generated over the life of the project. The proposed waste rock emplacement area has an approximate final design volume of 250,000m^3. Waste rock would also be used in construction of surface infrastructure and during stope backfilling.
Rehabilitation	The site would be rehabilitated at project completion to allow for intermittent agricultural use and would include the removal of all infrastructure excluding water management structures.
Transport	Forecasted Movements (1 journey = 2 movements) • Heavy vehicles (road trains) – 50 road train movements per day • Heavy vehicles (other than road trains) – 4 movements per day; • Light (staff) vehicles – 18 employee movements per day between the project site and Nyngan, and the project site and the Tritton Copper Mine Extracted material would be transported in off road haul trucks via a private haulage road to Girilambone Copper Mine and then on road legal two-trailer road-trains (approximately 52 tonne capacity) via Booramugga and Yarrandale Roads to the Tritton Copper Mine for processing.

Table 1.1 – Main Components of the Project

Component	Description
Mine Operations Plan	A *Mine Operations Plan* would be prepared, covering the following points: • Mining Activities and Infrastructure; • Rehabilitation activities, domains, objectives and completion criteria; and • Rehabilitation monitoring and performance indicators. A *Rehabilitation Cost Estimate* would accompany the *Mining Operations Plan*.
Hours of Operation	Vegetation clearing, topsoil stripping and rehabilitation operations would occur during daylight hours, seven days per week. All other activities (including site establishment, underground mining, ore transportation and maintenance operations) would occur 24 hours per day, seven days per week.
Employment	The applicant has a current workforce of 318 people, all of whom will find continued employment as a result of the project. The EIS is silent on whether any additional employees are required as a result of the project. The EIS identifies that the 318 staff currently employed by Tritton and currently working within the applicant's other facilities (notably Girilambone Copper Mine) would transfer to Avoca once operational. The applicant confirms that the two operations would operate simultaneously but would not produce, cumulatively, more than the stated 1,000,000 tonnes per year as allowed to be transport to and processed at the Tritton Copper Mine processing facility. In this way, the applicant contends overall employment would be remain consistent with current levels.
Capital Investment Value	Approximately $23 million

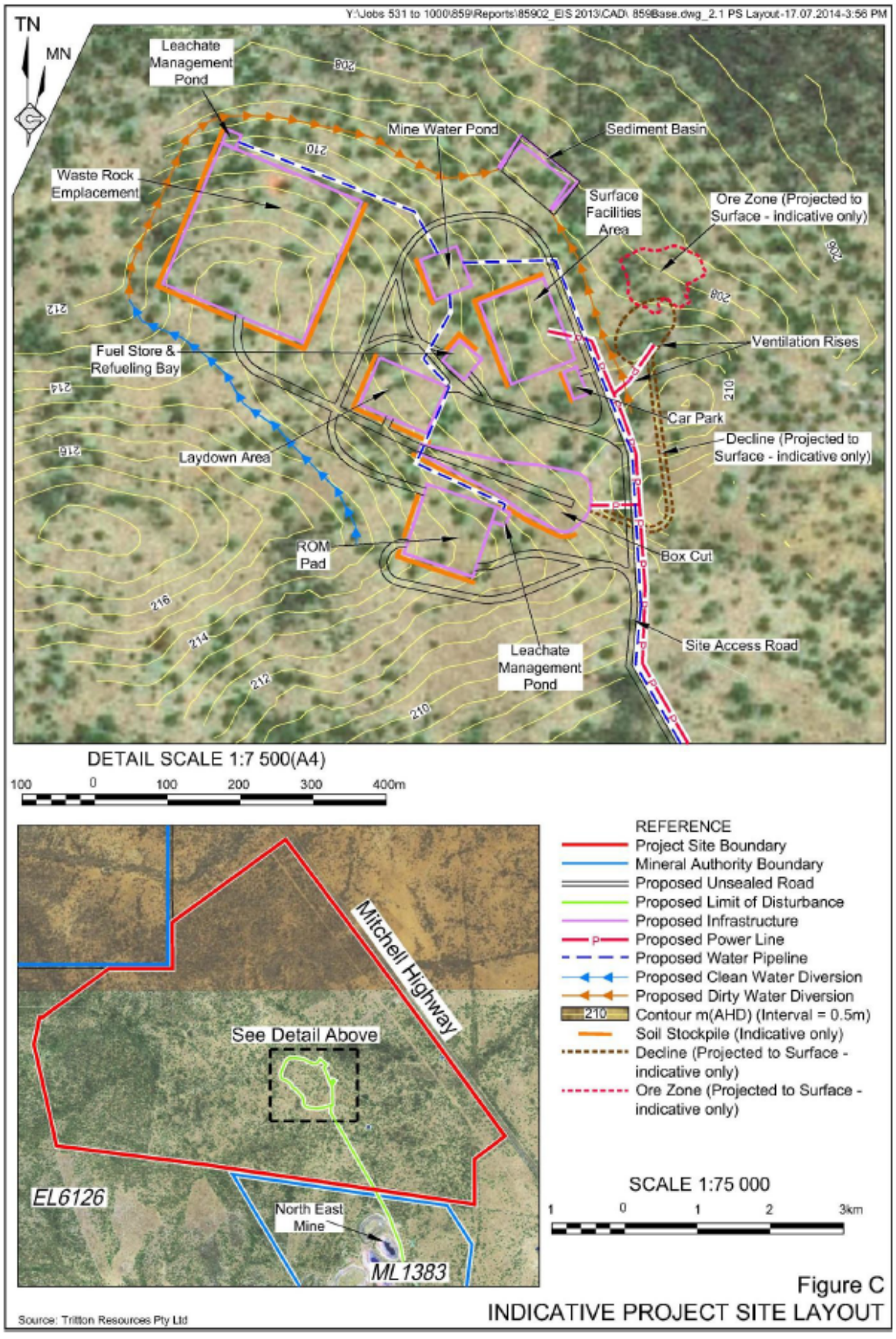

Figure 2: Indicative Project Site Layout (Source: Figure C of R.W. Corkery Avoca Tank Project EIS, 2014)

Statutory Context

2.1 PART 4 ASSESSMENT

The proposal site is located in the RU1 – Primary Production Zone under *Bogan Local Environmental Plan 2011* (LEP). Pursuant to the LEP there are a number of land use definitions that could conceivably capture the development including mining, open cut mining and underground mining.

These are each defined via the LEP dictionary as follows:

> ***mining*** *means mining carried out under the Mining Act 1992 or the recovery of minerals under the Offshore Minerals Act 1999, and includes:*
>
> *(a) the construction, operation and decommissioning of associated works, and*
>
> *(b) the rehabilitation of land affected by mining.*
>
> *Note. Mining is not a type of industry—see the definition of that term in this Dictionary.*
>
> ***open cut mining*** *means mining carried out on, and by excavating, the earth's surface, but does not include underground mining.*
>
> ***underground mining*** *means:*
>
> *(a) mining carried out beneath the earth's surface, including board and pillar mining, longwall mining, top-level caving, sub-level caving and auger mining, and*
>
> *(b) shafts, drill holes, gas and water drainage works, surface rehabilitation works and access pits associated with that mining (whether carried out on or beneath the earth's surface),*
>
> *but does not include open cut mining.*

The land use table for the RU1 zone identifies that open cut mining is permitted with consent but mining and underground are prohibited, on the basis that they are not specifically permitted.

For the avoidance of doubt, the development does not constitute an extractive industry on the basis that it relates to the extraction of materials from a mine. Extractive industry is defined as:

> ***extractive industry*** *means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.*

By virtue of the fact that the proposed development includes both excavating open cut (i.e. box cut) and tunnelling (i.e. underground mining), it is considered to also constitute both open cut and underground mining.

Clause 1 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) identifies the following:

> *(1)**Mining***
> *Development for any of the following purposes may be carried out only with development consent:*
>
> *(a) underground mining carried out on any land,*
>
> *(b) mining carried out:*
>
> *(i) on land where development for the purposes of agriculture or industry may be carried out (with or without development consent), or*
>
> *(ii) on land that is, immediately before the commencement of this clause, the subject of a mining lease under the Mining Act 1992 or a mining licence under the Offshore Minerals Act* 1999,

(c) mining in any part of a waterway, an estuary in the coastal zone or coastal waters of the State that is not in an environmental conservation zone,

(d) facilities for the processing or transportation of minerals or mineral bearing ores on land on which mining may be carried out (with or without development consent), but only if they were mined from that land or adjoining land,

(e) mining on land that is reserved as a state conservation area under the National Parks and Wildlife Act 1974,

(f) extracting a bulk sample as part of resource appraisal of more than 20,000 tonnes of coal or of any mineral ore.

Notwithstanding the provisions of the LEP:

- Clause 1(a) of the Mining SEPP identifies that carrying out underground mining is permissible on any land;
- Clause 1(b) identifies that mining is permissible on land where development for the purposes of agriculture may be carried out. Agriculture is permitted without consent under the RU1 zone of the LEP and as such, mining is permissible with consent; and
- Clause 1(d) identifies that facilities for the processing or transportation (i.e. ROM Pad) on land where mining is carried out are permitted with or without development consent.

Mining is defined by the Mining SEPP as:

***mining** means the winning or removal of materials by methods such as excavating, dredging, or tunnelling for the purpose of obtaining minerals, and includes:*

(a) the construction, operation and decommissioning of associated works, and

(b) the stockpiling, processing, treatment and transportation of materials extracted, and

(c) the rehabilitation of land affected by mining.

On the basis of the above, the proposed development is permitted with consent.

2.2 DESIGNATED DEVELOPMENT

Clause 125 of Schedule 3 to the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) identifies the relevant thresholds for which a proposed mine would be considered Designated Development:

Mines that mine, process or handle minerals (being minerals within the meaning of the Mining Act 1992 other than coal or limestone) and:

(a) that disturb or will disturb a total surface area of more than 4 hectares of land (associated with a mining lease or mineral claim under the Mining Act 1992) by:

(i) clearing or excavating, or

(ii) constructing dams, ponds, drains, roads, railways or conveyors, or

(iii) storing or depositing overburden, ore or its products or tailings, or

(b) that are located:

(i) in a natural waterbody or wetland, or

(ii) in or within 40 metres of a natural waterbody, wetland, a drinking water catchment or an environmentally sensitive area, or

(iii) within 200 metres of a coastline, or

(iv) if involving blasting, within 1,000 metres of a residential zone, or within 500 metres of a dwelling not associated with the mine, or

(v) within 500 metres of another mining site that has operated during the past 5 years, or

(vi) so that, in the opinion of the consent authority, having regard to topography and local meteorological conditions, the mine is likely to significantly affect the environment because of the use or production of substances classified as poisonous in the Australian Dangerous Goods Code.

The EIS confirms that the proposal would disturb 34 hectares of land in the development of the mine, and therefore, for this reason alone, the development meets the designated development trigger at (a) above.

As set down in clause 78A(8)(a) of the EP&A Act, an EIS is required to support a DA if the application is in respect of designated development. The EIS prepared by R W Corkery & Co and other associated information supplied by way of response to comments from statutory stakeholders satisfies this requirement.

2.3 CONSENT AUTHORITY

The development constitutes general development with a CIV exceeding $20 million by reference to Schedule 4A, clause 3 of the EP&A Act. As such, the Western Region Joint Regional Planning Panel (WRJRPP) is to exercise the functions of the consent authority, including determination of this DA.

The development has a CIV less than $30 million and therefore the development **does not** represent state significant development for which the Minister would be the consent authority as per clause 21 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD).

2.4 INTEGRATED DEVELOPMENT

The proposed development has been identified as being 'Integrated Development' by virtue of requiring development consent and the following approvals:

- **Environment Protection Licence** (EPL) – Environment Protection Authority (EPA).
  - An EPL issued by the EPA under Section 47 of the *Protection of the Environment Operations Act 1997* will be required.
- **Mining Lease** – Department of Trade and Investment and Regional Infrastructure and Services – Mineral Resources Division.
  - The Applicant currently holds Exploration Licence 6126 (EL 6126) over the Project Site. A Mining Lease to be issued under the *Mining Act 1992* will be required.
- **Work Approval** – NSW Department of Primary Industries (Water)
  - A work approval pursuant to Section 90 of the Water Management Act 2000 for an excavation which will result in the take of groundwater.

2.5 SUB-REGIONAL LAND USE STRATEGY

The Western Council's Sub-Regional Land Use Strategy (LUS) was prepared in December 2009 for the western Councils of Bogan, Coonamble, Gilgandra, Narromine and Warren in collaboration with the then Department of Urban and Affairs Planning.

The LUS was prepared to guide development in the sub-region until 2031 and has the following objectives:

- *Determine residential and rural residential settlement policy and patterns*
- *Guide actions and identify locations for environment protection*
- *Strengthen the links between settlement, employment, transport and infrastructure*
- *Identify the locations for economic development and jobs*

Table 2.1 provides sub-regional actions identified for extractive industries and mining resources, discussed in the context of this development.

Table 2.1 – Assessment of project LUS sub-regional actions for mining and extractive industries

Sub-Regional Actions	Assessment
Mining Resources	
8.7 (d) Ensure that LEP's recognise all mining sites and associated processing areas that have been identified (in the Local Profile) and implement a suitable buffer to protect them from encroachment of inappropriate uses.	The site has not been previously identified within a LEP however its separation from adjacent uses ensures no problematic encroachment from adjacent uses, inappropriate or otherwise.
8.7 (e) Planning instruments also need to ensure that important potential mineral extraction sites (where these may be known) are also protected from encroachment of inappropriate uses.	As above
8.7 (f) Identify the typical haulage routes for mining sites and ensure that these are considered in planning controls for development in the locality.	The proposed development proposes to utilise the same haulage routes as existing operations without any increase in overall vehicle numbers due to managing the overall extraction levels within the context of the approved 1,000,000 tonne ore per year transport and processing limit applying to the Tritton Mine for off-site materials. A condition of consent would be imposed to ensure that materials extracted at Avoca (other than waste rock) are only transported off-site to the Tritton processing facility and to no other location. This ensures that traffic generation levels in the context of the proposed Avoca mine would remain consistent with current levels.
8.7 (g) Identify areas affected by past mining activities (including mine subsidence areas) along with a suitable buffer and restrict development in these areas proportionate to the level of risk.	Future reuse of the site for the current agricultural grazing purposes is not precluded due to the short term nature of the use (total 7 years) and the rehabilitation that would occur post development.
Population Growth Impacts	
8.7 (h) Use urban design assessment to determine appropriate forms of small lot or medium density housing (and, if found to be appropriate, single persons' quarters) to cater for mining related growth in urban areas. Consider the appropriate mix of housing types to better match the mining workforce mix comprising transient and potentially permanent residents.	The project would result in continued employment of 318 persons, approximately half of whom are understood to reside in the Bogan LGA. As a 'new' workforce would not be required, it is not anticipated that any undue pressure on residential land would result.
8.7 (i) Prevent the loss of caravan park accommodation (permanent and tourist) due to residential expansion pressure. Alternative locations for new caravan park facilities should be considered.	As above

Source: Western Council's Sub-Regional Land Use Strategy 2009

The proposed development is broadly compatible with the sub-regional actions relating to mining and extractive industries of the LUS.

2.6 ENVIRONMENTAL PLANNING INSTRUMENTS

The relevant Environmental Planning Instruments (EPI) are:

- *Bogan Local Environmental Plan 2011* (LEP);
- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*;
- *State Environmental Planning Policy No. 44 – Koala Habitat Protection;*
- *State Environmental Planning Policy No. 55 – Remediation of Land;*
- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*
- *State Environmental Planning Policy (Infrastructure) 2007*

- *State Environmental Planning Policy (Rural Lands) 2008*
- *State Environmental Planning Policy (State and Regional Development) 2011*

There is one draft EPI in the Bogan LGA which has received Gateway approval from DP&E, however this is not relevant to the subject site.

The relevant Development Control Plans are:

- Bogan Shire Council Development Control Plan 2012 (DCP)

There are no known Planning Agreements, provisions of the EP&A Regulation, or Coastal Zone Management Plans that apply to the proposed development.

The above instruments, including their relevance, is discussed in the following sections.

2.6.1 BOGAN LOCAL ENVIRONMENTAL PLAN 2011

The aims of the LEP are:

> *(1) This Plan aims to make local environmental planning provisions for land in Bogan in accordance with the relevant standard environmental planning instrument under section 33A of the Act.*
>
> *(2) The particular aims of this Plan are as follows:*
>
> *(a) to protect, enhance and conserve agricultural land through the proper management, development and conservation of natural and man-made resources,*
>
> *(b) to encourage a range of development, including housing, employment, recreation and community facilities, to meet the needs of existing and future residents of Bogan,*
>
> *(c) to promote the efficient and equitable provision of public services, infrastructure and amenities.*

The development is not considered to be antipathetic to these aims on the basis that the current agricultural use of the land is sporadic and its continued use in the future, post development, is not precluded. The development would also maintain the current level of economic activity in the region through provided an opportunity to ensure continued employment of local residents, who may otherwise need to be let go if the Tritton Girilambone Copper Mine winds down and no alternative site is developed.

A review of LEP constraint mapping in the context of the subject site is provided in **Table 2.2**, including reference to the relevant area of this report where these are discussed.

Table 2.2 – Local Environmental Plan Mapping Constraint Review

Constraint	Relevance	Section of the Report Discussed
Land Application Map	The subject site is identified as being located within the Bogan LGA	No further discussion required
Land Zoning Map	The site is zoned RU1 – Primary Production	**Section 2.1**
Lot Size Map	The applicable minimum lot size for subdivision is 600 hectares	As no subdivision is proposed, no further discussion is required
Heritage Map	The site is not identified as containing or being located within the vicinity of a heritage item	No further discussion required
Land Reservation Acquisition Map	Land is not identified for reservation or acquisition	No further discussion required
Terrestrial Biodiversity Map	The site is identified as containing land with moderate biodiversity sensitivity	Refer **Sections 2.6.1.3 and 3.6**
Groundwater Vulnerability Map	The site is not identified as being located within land identified as groundwater vulnerable	No further discussion required

Table 2.2 – Local Environmental Plan Mapping Constraint Review

Constraint	Relevance	Section of the Report Discussed
Watercourse Map	The site is not identified as containing a sensitive watercourse, although it is noted that a watercourse traverses to the south and east of the site	Refer **Section 3.7.2.1**
Wetlands Map	The site is not identified as containing or being located within the vicinity of a sensitive wetland	No further discussion required
Urban Release Area Map	The site is not identified as being located within an urban release area	No further discussion required

Source: Bogan Local Environmental Plan 2011

The above mapped constraints together with other matters of relevance emerging from the LEP are discussed in the following sections.

2.6.1.1 Preservation of trees or vegetation

Clause 5.9 of the LEP seeks to ensure that the amenity of an area is protected, including biodiversity values, through the preservation of trees and vegetation.

Development consent is required for any works that would affect a tree of a species identified within a DCP. A review of the DCP does not identify any specific tree species that acquire protection from this clause. As such, it is considered that clause 5.9 does not apply to the development. Clause 5.9AA is therefore applicable which identifies that consent is not required via the LEP for impacts to or removal of vegetation that is not identified in a DCP.

Notwithstanding this, an ecological assessment of the impacts of the development has been prepared which confirms that the impacts of the development in respect of biodiversity would not be significant. The NSW Office of Environment and Heritage have provided their comments against the findings of that assessment and have recommended the inclusion of consent conditions requiring the proponent to establish suitable offsets for areas of native vegetation being impacted by the project. It is understood the proponent does not object to this requirement.

By virtue of the inclusion of the above recommended conditions, it is considered that impacts associate with clearing of vegetation are adequately addressed.

In any event, given the absence of specific DCP provisions, clause 5.9AA applies and no specific consent under the LEP is required for proposed vegetation clearing.

2.6.1.2 Earthworks

Clause 7.1 of the LEP seeks to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land. Specific consent is not required where earthworks are ancillary to other development for which development consent has been given. This DA seeks consent for the use of the land as a mine, ancillary to which is the undertaking of earthworks. As such, specific and separate consent for earthworks is not considered to be required.

2.6.1.3 Terrestrial Biodiversity

Clause 7.4 of the LEP relates to land identified as containing sensitive terrestrial biodiversity and states *inter alia:*

> *(1) The objective of this clause is to maintain terrestrial biodiversity by:*
>
> *(a) protecting native fauna and flora, and*
>
> *(b) protecting the ecological processes necessary for their continued existence, and*

(c) encouraging the conservation and recovery of native fauna and flora and their habitats.

(2) This clause applies to land identified as "High Biodiversity Sensitivity" and "Moderate Biodiversity Sensitivity" on the Terrestrial Biodiversity Map.

(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider whether or not the development:

(a) is likely to have any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and

(b) is likely to have any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and

(c) has any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and

(d) is likely to have any adverse impact on the habitat elements providing connectivity on the land.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or

(b if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

An ecological assessment has been prepared by EnviroKey (2014) to support the EIS (Corkery, 2014). This has in turn been reviewed by OEH.

The ecological assessment concludes that assuming the adoption of mitigation measures outlined in Section 4.3.7 of the EIS, the development:

- *would not have a significant impact upon the vegetation community present at the site;*
- *is unlikely to have a significant effect on all identified threatened species;*
- *is unlikely to impact the identified migratory species; and*
- *does not affect any matters of National Environmental Significance.*

OEH conclude that, given the extent of clearing, and the number of hollow bearing trees and species that are to be potentially impacted, that a biodiversity offset strategy is to be implemented. Correspondence dated 24 June 2016 from OEH provides the following specific recommendations:

- *Council include a condition of consent requiring the preparation and implementation of a Biodiversity Offset Strategy that adequately addresses the following recommendations.*
- *An offset package be prepared that comprises like for like offsets for the impacts to 34 hectares of Poplar Box-Gum Coolibah and White Cypress Pine Shrubby Woodland mainly in the Cobar Peneplain Bioregion.*
- *A Biodiversity Offset Management Plan be developed to ensure the offsets are appropriately managed and funded. Management activities included in the management plan should result in an improvement of the offset area over time.*
- *The offset be secured in perpetuity under one of the following conservation mechanisms:*
  - *BioBanking agreement;*
  - *Dedication of land under the National Parks and Wildlife Act 1974 (NPW Act);*
  - *Trust Agreements under the Nature Conservation Trust Act 2001, and;*
  - *A PVP registered on title under the Native Vegetation Act 2003.*

On the basis of the above, it is considered that the EIS and the proposed conditions of consent adequately addresses the considerations identified within sub-clause 7.3(3) and 7.3(4).

Further detailed summary and assessment of the impacts to biodiversity, including recommended conditions of consent, are contained within **Section 3.6**

2.6.1.4 Essential Services

The LEP requires via clause 7.9 that a DA not be granted unless the consent authority is satisfied that all essential services required to support the development are supplied.

A review of the content of the EIS in respect of essential services is provided in **Table 2.4** and reveals the following:

Table 2.3 – Essential Service Provision

Essential Services	Response	Acceptable
(a) the supply of water,	Potable water would be brought to the site in bulk by tanker and stored in tanks. This water would be used for potable and ablutions purposes.	✓
(b) the supply of electricity,	Section 2.8.2.2 of the EIS confirms that an 11kV power line would be constructed by the applicant from the applicants existing power supply at the North East open cut and underground mine to provide power to the underground mine, workshop and other facilities. This would be constructed adjacent to the internal access road.	✓
(c) the disposal and management of sewage,	Discharge from staff ablutions would be managed via an on-site system of effluent management in the form of either an aerated wastewater treatment pump or a pump out septic system, in accordance with Council's requirements and subject to Council approval prior to installation.	✓
(d) stormwater drainage or on-site conservation,	There are two principal types of stormwater: clean water run-off from undisturbed sections of the site and dirty water run-off from disturbed portions of the site. Clean water would be diverted away from disturbed areas and would be allowed to flow to natural drainage. Dirty water would be managed in accordance with Landcom *Managing Urban Stormwater – Volumes 1, 2C and 2E*	✓
(e) suitable road access.	The applicant proposes to construct a site access road from its existing Girilambone Copper Min to permit access to the applicants internal road network and ultimately the public Booramugga and Yarrandale Roads.	✓

Source: Bogan Local Environmental Plan 2011 Clause 7.9

By virtue of the above, it is considered that the development adequately responds to the provisions of clause 7.9 of the LEP.

2.6.2 STATE ENVIRONMENTAL PLANNING POLICY NO. 33 – "HAZARDOUS AND OFFENSIVE DEVELOPMENT"

The *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* (SEPP33) applies to all development that is either hazardous or offensive, or has the potential to be hazardous or offensive.

The EIS identifies at Section 2.8.2.4 that a fuel store are would be established which would incorporate a maximum storage volume of 110,000 litres for diesel, together with capacity for storage of other goods, such as bulk oils, greases and waste oils, all stored in minor quantities. Diesel is class C1 dangerous good due to being non-combustible by reference to the *Australian Code for the Transport of Dangerous Goods by Road and Rail (7th Edition).*

All goods would be stored in bunded areas with a capacity of 110% of the maximum storage volume.

Bunded areas would be designed and construction in accordance with AS1940 *The storage and handling of flammable and combustible liquids.*

SEPP33 and the accompanying guidelines *Applying SEPP; A Guide (2011),* require the determination firstly of whether a development is potentially offensive or potentially hazardous.

The primary consideration for a consent authority in determining whether a development is considered to be potentially offensive is whether the development would emit a polluting discharge which would cause a significant level of offence. A key consideration in determining whether a development is potentially offensive is whether the development requires an Environment Protection Licence (EPL). The Guidelines recommend that if a licence is required, that the development should be considered potentially offensive. A licence is required by virtue of clause 9 of Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act). The trigger for an EPL is not however met insofar as it relates to the storage of petroleum products, on the basis that the maximum volume to be stored at any one time is less than 2,000 tonnes or 200 tonnes in a gaseous form.

The storage volume for diesel is below the level at which a preliminary hazard analysis is required.

The development is therefore not considered to represent potentially offensive development. In addition, by virtue of the issuance of the GTAs by the EPA, and the recommended conditions imposed, it is can be construed that the development is acceptable.

A separate assessment is also required to determine if the development is potentially hazardous. The Applying SEPP33 guidelines state that the initial test in determining if SEPP33 applies is to be first confirm whether the development is either an industry or whether it is a 'storage establishment'. The development is neither industry (by reference to **Section 2.1** of this assessment) nor a storage establishment. The development is therefore not considered to be potentially hazardous. Notwithstanding this conclusion, WorkCover NSW provides a code of practice for the storage and handling of dangerous goods. The measures outlined within that document should be incorporated into the proposed *Hydrocarbon Management Plan*, as specified at Section 3.3.3.3 of the EIS. A condition of consent to this effect is proposed.

On the basis of the above, the provisions of SEPP33 are considered to be satisfied.

2.6.3 STATE ENVIRONMENTAL PLANNING POLICY NO. 44 – KOALA HABITAT PROTECTION

The *State Environmental Planning Policy No. 44 – Koala Habitat Protection* (SEPP44) does not apply to the Bogan LGA on the basis that it is not listed in Schedule 1 of that policy. As such, no further consideration of the policy is required via this assessment.

2.6.4 STATE ENVIRONMENTAL PLANNING POLICY NO. 55 – "REMEDIATION OF LAND"

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP55) provides a statewide approach to remediation of contaminated land and aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Clause 7 of the SEPP No. 55 states that a consent authority must not consent to the carrying of development unless it has considered, among other things, whether the land is contaminated. Clause 7 requires, if contamination is confirmed, the land be either confirmed as suitable for use in the contaminated state or would be suitable after remediation.

The project site is identified as having been historically used for grazing purposes. No additional information on historical land uses are identified by the applicant. A review of Council's records confirms no other noted approved land uses at the site. The site is therefore considered to have a minimal likelihood of previous contamination and therefore no remediation is required. On this basis it is not considered that SEPP55 is applicable to the development.

2.6.5 STATE ENVIRONMENTAL PLANNING POLICY (RURAL LANDS) 2008 (RURAL LANDS SEPP)

The EIS concludes that, as the land the subject of the application has not been identified as state or regionally significant agricultural land via Schedule 2 of the *State Environmental Planning Policy (Rural Lands) 2008* (Rural Lands SEPP), that the Rural Lands SEPP does not apply (Corkery, 2013a).

The aims of the Rural Lands SEPP are identified as:

(a) to facilitate the orderly and economic use and development of rural lands for rural and related purposes,

(b) to identify the Rural Planning Principles and the Rural Subdivision Principles so as to assist in the proper management, development and protection of rural lands for the purpose of promoting the social, economic and environmental welfare of the State,

(c) to implement measures designed to reduce land use conflicts,

(d) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,

(e) to amend provisions of other environmental planning instruments relating to concessional lots in rural subdivisions.

Despite the assertions of the EIS, from a review of the above aims, it does not follow that the provisions of the Rural Lands SEPP apply only to land identified as state or regionally significant agricultural land. In fact, clause 4 of the Rural Lands SEPP identifies that the policy applies to the state, with the exception of the LGA's identified. Bogan Shire is not identified and therefore the Rural Lands SEPP is considered to apply to development within the Bogan LGA. For the avoidance of doubt, a review of Schedule 2 of the Rural Lands SEPP confirms that the site is not identified as state or regionally significant agricultural land.

On the basis of the above, it is considered that the Rural Lands SEPP is relevant to the development and therefore an assessment of the development against the rural planning principles is provided within **Table 2.4**.

Table 2.4 – Rural Planning Principles

Rural Planning Principles	Response
(a) the promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas	The land the subject of the proposed mine is zoned for primary production use however is identified as class 6 agricultural land (land with very severe limitations) which has not been used since approximately 2004. Its short term use for mining purposes does not preclude its use in the longer term for agricultural purposes.
(b) recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State	Given the low productivity level of the land, its short term use for mining purposes is considered to provide a positive impact to the locality economy. Following completion and rehabilitation the ongoing and future use of the site for grazing purposes is not precluded.
(c) recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development	Mining is a viable and permissible rural land use. The economic and social benefits of the use of the site for mining purposes are arguably greater than those associated with a grazing use of the land.
(d) in planning for rural lands, to balance the social, economic and environmental interests of the community	The site is isolated and would contribute to the local economy through employment. An environmental assessment has been provided which confirms, subject to appropriate management measures, that the site can operate without detrimental impact.
(e) the identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land	OEH have recommended the application of conditions of consent to ensure the proponent prepare and implement a biodiversity offset strategy. On this basis, any residual impacts associated with the clearing of vegetation are considered to be addressed.
(f) the provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities	Not directly applicable due to separation to rural residential land uses.
(g) the consideration of impacts on services and infrastructure and appropriate location when providing for rural housing	No rural housing in the locality that would be impacted. Services are provided for the site and would not affect service provision to other land uses.

Table 2.4 – Rural Planning Principles

Rural Planning Principles	Response
(h) ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.	No applicable regional strategy. The Western Councils Sub Regional LUS identifies a range sub-regional actions relating to mining and extractive industries and these are discussed in **Section 2.5**

Source: State Environmental Planning Policy (Rural Lands) 2008

In the context of the above matters, it is considered that the development is generally acceptable.

2.6.6 STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011

Part 4 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SR-SEPP) provides provision for assessment and determination of applications of regional significance, specifically those included in Schedule 4A of the EP&A Act.

The proposed development represents regional development on the basis that it is general development with a CIV exceeding $20 million. By reference to clause 21 of the SR-SEPP, the determination functions of the consent authority, BSC, are conferred on the Western Joint Regional Planning Panel.

For the avoidance of doubt, the development does not represent state significant development on the basis that the CIV is less than $30 million, is not coal or mineral sands mining and is not within an environmentally sensitive area of the state.

2.6.7 STATE ENVIRONMENTAL PLANNING POLICY (MINING, PETROLEUM PRODUCTION AND EXTRACTIVE INDUSTRIES) 2007

The aims of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) are identified as:

> *(a) to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and*
>
> *(b) to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and*
>
> *(b1) to promote the development of significant mineral resources, and*
>
> *(c) to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources, and*
>
> *(d) to establish a gateway assessment process for certain mining and petroleum (oil and gas) development:*
>
> *(i) to recognise the importance of agricultural resources, and*
>
> *(ii) to ensure protection of strategic agricultural land and water resources, and*
>
> *(iii) to ensure a balanced use of land by potentially competing industries, and*
>
> *(iv) to provide for the sustainable growth of mining, petroleum and agricultural industries.*

The policy applies to all land within the site.

Clause 7 confirms that the development is permitted with consent.

Clause 9 and Schedule 1 outlined those developments that are prohibited by virtue of the Mining SEPP: the subject site is not identified in Schedule 1 and is therefore not prohibited.

Part 3 of the Mining SEPP identifies those matters for consideration in the assessment of a development application to which the Mining SEPP applies. These are addressed in detail in **Table 2.5**.

Part 4AA relates to development on strategic agricultural land. A review of the strategic agricultural land mapping associated with the Mining SEPP confirms that the site is not located on strategic agricultural land and therefore Part 4AA is not applicable to this application.

Table 2.5 – Mining SEPP Matters for Consideration

Clause	Description	Information provided	Assessment
12AA	Repealed	N/A	N/A
12AB	**Non-discretionary development standards for mining** (1) The object of this clause is to identify development standards on particular matters relating to mining that, if complied with, prevents the consent authority from requiring more onerous standards for those matters (but that does not prevent the consent authority granting consent even though any such standard is not complied with).		
	(2) The matters set out in this clause are identified as non-discretionary development standards for the purposes of section 79C (2) and (3) of the Act in relation to the carrying out of development for the purposes of mining. Note. The development standards do not prevent a consent authority from imposing conditions to regulate project-related noise, air quality, blasting or ground vibration impacts that are not the subject of the development standards.		
	(3) Cumulative noise level The development does not result in a cumulative amenity noise level greater than the acceptable noise levels, as determined in accordance with Table 2.1 of the Industrial Noise Policy, for residences that are private dwellings.	The EIS identifies at Section 4.5.6 that all surrounding residential properties would achieve compliance with the project specific noise level operational criteria of 35 dB(A).	Refer **Section 3.15**
	(4) Cumulative air quality level The development does not result in a cumulative annual average level greater than 30 µg/m3 of PM10 for private dwellings.	A quantitative assessment of air quality impacts has not been completed. The qualitative assessment forms the view that dust levels generated by the project would be unlikely to exceed air quality guidelines. The EIS proposes ongoing monitoring to record dust levels together with a range of management measures to minimise dust generation.	Refer **Section 3.12**
	(5) Airblast overpressure Airblast overpressure caused by the development does not exceed: (a) 120 dB (Lin Peak) at any time, and (b) 115 dB (Lin Peak) for more than 5% of the total number of blasts over any period of 12 months, measured at any private dwelling or sensitive receiver.	The closest receiver to the proposed blasting operations is 2.4 kilometres to the north-east. The maximum instantaneous charge is 1,000 kgs. Derived overpressure is 107 dbl.	Compliance with the requirements of the Mining SEPP are achieved.
	(6) Ground vibration Ground vibration caused by the development does not exceed: (a) 10 mm/sec (peak particle velocity) at any time, and (b) 5 mm/sec (peak particle velocity) for more than 5% of the total number of blasts over any period of 12 months, measured at any private dwelling or sensitive receiver.	The closest receiver to the proposed blasting operations is 2.4 kilometres to the north-east. The maximum instantaneous charge is 1,000 kgs. Derived vibration is 5 mm/s.	Compliance with the requirements of the Mining SEPP are achieved.

Table 2.5 – Mining SEPP Matters for Consideration

Clause	Description	Information provided	Assessment
	(7) Aquifer interference Any interference with an aquifer caused by the development does not exceed the respective water table, water pressure and water quality requirements specified for item 1 in columns 2, 3 and 4 of Table 1 of the Aquifer Interference Policy for each relevant water source listed in column 1 of that Table. Note. The taking of water from all water sources must be authorised by way of licences or exemptions under the relevant water legislation.	It is noted that the level 1 minimal impact considerations outlined in Table 1 of the Aquifer Interference Policy are exceeded in relation to potential impacts to two private bores. NOW has requested a monitoring and mitigation plan be prepared including make good provisions to supply water to the impacted users in the event of impact.	The applicant proposes to address these matters via the proposed Water Management Plan. By virtue of the issuance of the GTA's by DPI (Water) it is considered that the development is acceptable in this regard.
	(8) The Minister is to review a non-discretionary development standard under this clause if a government policy on which the standard is based is changed.	No changes are noted	N/A
12	**Compatibility of proposed mine, petroleum production or extractive industry with other land uses** Before determining an application for consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must: (a) consider:	-	-
	(i) the existing uses and approved uses of land in the vicinity of the development, and	Existing and approved uses in the vicinity of the development include mining, agriculture, nature conservation, native vegetation forestry, transportation and residential land uses.	Given the offset distances, the general noted levels of compliance throughout the EIS and the range of mitigation measures proposed, it is considered that the development is consistent with surrounding land uses.
	(ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and	Section 4 of the EIS provides an assessment of potential impacts associated with the proposed development.	A review of potential impacts together with proposed mitigation measures through **Section 3** of this report confirms that the proposed development is considered unlikely to result in impacts to the preferred land uses in the vicinity of the application site. It is the view of the consent authority that the preferred land uses are likely to be agriculture, mining and natural resource management.
	(iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and	No specific information is contained with the EIS to suggest any particular incompatibility with the preferred land uses.	Given offset distances, the nature of land uses within the area and the measures proposed throughout Section 4 EIS, it is considered that the development is compatible.
	(b) evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a) (i) and (ii), and	Public benefit associated with the development includes positive contributions to the local and state economies, including continued local employment opportunities.	Given the minor nature of impacts to land uses identified above, it is considered that the public benefit associated with the project outweighs these impacts.

Table 2.5 – Mining SEPP Matters for Consideration

Clause	Description	Information provided	Assessment
	(c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a)(iii).	A range of measures to mitigate or manage impacts is provided throughout section 4 of the EIS.	Given the above conclusion that the development is largely compatible with the land uses in the vicinity, it is considered that further evaluation of measures in this respect is not required.
12A	**Consideration of voluntary land acquisition and mitigation policy** (1) In this clause: the voluntary land acquisition and mitigation policy means the policy by that name published by the Minister in the Government Gazette on 19 December 2014.	Not considered in the EIS	
	(2) Before determining an application for consent for State significant development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider any applicable provisions of the voluntary land acquisition and mitigation policy and, in particular:		N/A – the proposed development is not state significant
	(a) any applicable provisions of the policy for the mitigation or avoidance of noise or particulate matter impacts outside the land on which the development is to be carried out, and		As above
	(b) any applicable provisions of the policy relating to the developer making an offer to acquire land affected by those impacts.		As above
	(3) To avoid doubt, the obligations of a consent authority under this clause extend to any application to modify a development consent for State significant development for the purposes of mining, petroleum production or extractive industry.		As above
	(4) This clause extends to applications made, but not determined, before the commencement of this clause.		As above
13	**Compatibility of proposed development with mining, petroleum production or extractive industry** (1) This clause applies to an application for consent for development on land that is, immediately before the application is determined: (a) in the vicinity of an existing mine, petroleum production facility or extractive industry, or	The site is within the immediate vicinity of an existing mine, namely the applicant's Girilambone Copper Mine	Clause 13 is applicable to the assessment of the application. Extraction of material from the Avoca Tank mine is restricted by virtue of the overarching limit on material to be transported to the Tritton Mine for processing. This ensures that the cumulative impact would be no greater than the current impact
	(b) identified on a map (being a map that is approved and signed by the Minister and copies of which are deposited in the head office of the Department and publicly available on the Department's website) as being the location of State or regionally significant resources of minerals, petroleum or extractive materials, or Note. At the commencement of this Policy, no land was identified as referred to in paragraph (b).	The site is not located on a site of state or regionally significant resources of minerals, petroleum or extractive materials	Not applicable

Table 2.5 – Mining SEPP Matters for Consideration

Clause	Description	Information provided	Assessment
	(c) identified by an environmental planning instrument as being the location of significant resources of minerals, petroleum or extractive materials. Note. Sydney Regional Environmental Plan No 9—Extractive Industry (No 2—1995) is an example of an environmental planning instrument that identifies land as containing significant deposits of extractive materials.	The site is not identified by an environmental planning instrument as being the location of significant resources of minerals, petroleum or extractive materials	Not applicable
	(2) Before determining an application to which this clause applies, the consent authority must: (a) consider: (i) the existing uses and approved uses of land in the vicinity of the development, and	Existing and approved uses in the vicinity of the development include mining, agriculture, nature conservation, native vegetation forestry, transportation and residential land uses.	Given the offset distances, the general noted levels of compliance throughout the EIS and the range of mitigation measures proposed, it is considered that the development is consistent with surrounding land uses.
	(ii) whether or not the development is likely to have a significant impact on current or future extraction or recovery of minerals, petroleum or extractive materials (including by limiting access to, or impeding assessment of, those resources), and	Section 1.4 of the EIS provides information to confirm that the development would not have a significant impact on the extraction or recovery of minerals, petroleum or extractive materials (including by limiting access to, or impeding assessment of, those resources	The development is considered to be acceptable in this regard
	(iii) any ways in which the development may be incompatible with any of those existing or approved uses or that current or future extraction or recovery, and	No incompatibility with surrounding land uses is noted	Given the offset distances, the general noted levels of compliance throughout the EIS and the range of mitigation measures proposed, it is considered that the development is consistent with surrounding land uses.
	(b) evaluate and compare the respective public benefits of the development and the uses, extraction and recovery referred to in paragraph (a) (i) and (ii), and	The EIS notes at Section 3.3.3.6: *'The protection of the land that is the subject of the Proposal would not provide any public benefit. In fact, the employment and local economic stimulus that would be generated by the Proposal would be of far greater public benefit than the current grazing.'*	It is agreed there are economic and employment public benefits associated with the development. As the application seeks to extract materials from the land and the applicant is the holder of exploration licence 6126 over the site it follows that the development would not inhibit or restrict access for any other recovery of materials, except to the extent allowed via a development consent and mining lease. The development is therefore acceptable in this regard.
	(c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a) (iii).	Measures are provided in Section 1.4 and throughout Section 4 of the EIS	Via the imposition of conditions, it is considered that the measures are generally acceptable

Table 2.5 – Mining SEPP Matters for Consideration

Clause	Description	Information provided	Assessment
14	**Natural resource management and environmental management** (1) Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure the following: (a) that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable,	Details of mitigation measures in respect of surface and ground water impacts provided in Sections 4.9 and 4.4 of the EIS	By virtue of the issuance of the GTAs by DPI (Water) it can be construed that the development is acceptable in respect to potential impacts to water.
	(b) that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable,	Details of mitigation measures in respect of biodiversity impacts provided in Section 4.3 of the EIS	Refer to **Section 3.6**
	(c) that greenhouse gas emissions are minimised to the greatest extent practicable.	The proponent has confirmed that greenhouse gas emissions would not increase above current levels as a result of the project due to the overarching limitation on the processing of not more than 1,000,000 tonnes of ore at the Tritton processing facility.	Refer to **Section 3.19.** A condition of consent would be imposed to ensure that materials extracted at Avoca (other than waste rock) are only transported to the Tritton Processing Facility and to no other location. This ensures that traffic generation levels in the context of the proposed Avoca mine would remain consistent with current levels.
	(2) Without limiting subclause (1), in determining a development application for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions.	As above	Refer to **Section 3.19**
	(3) Without limiting subclause (1), in determining a development application for development for the purposes of mining, the consent authority must consider any certification by the Chief Executive of the Office of Environment and Heritage or the Director-General of the Department of Primary Industries that measures to mitigate or offset the biodiversity impact of the proposed development will be adequate.	OEH have provided their acceptance of the proposal subject to the implementation of conditions requiring the proponent prepare and implement a BOS.	Refer to **Section 3.6**
15	**Resource recovery** (1) Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider the efficiency or otherwise of the development in terms of resource recovery.	Refer to **Section 3.13**	Waste management measures are considered to be appropriate

Table 2.5 – Mining SEPP Matters for Consideration

Clause	Description	Information provided	Assessment
	(2) Before granting consent for the development, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at optimising the efficiency of resource recovery and the reuse or recycling of material.	Refer to **Section 3.13**	The mitigation measures within the EIS and identified in Section 3.13 are to be incorporated into an EMP for the site and condition to this affect would be added to any consent
	(3) The consent authority may refuse to grant consent to development if it is not satisfied that the development will be carried out in such a way as to optimise the efficiency of recovery of minerals, petroleum or extractive materials and to minimise the creation of waste in association with the extraction, recovery or processing of minerals, petroleum or extractive materials.	Refer to **Section 3.13**	Waste management measures are considered be acceptable. Conditions relating to waste management are proposed.
16	**Transport** (1) Before granting consent for development for the purposes of mining or extractive industry that involves the transport of materials, the consent authority must consider whether or not the consent should be issued subject to conditions that do any one or more of the following:		
	(a) require that some or all of the transport of materials in connection with the development is not to be by public road,	All extracted minerals would be part transported by private road and part by public road	This reflects the current arrangement at the Girilambone Copper Mine and is considered to be acceptable. The overall volume of extracted and processed materials remains consistent with current levels.
	(b) limit or preclude truck movements, in connection with the development, that occur on roads in residential areas or on roads near to schools,	Transport of minerals to the Tritton processing facility is controlled by virtue of DA 41/98	This reflects the current arrangement at the Girilambone Copper Mine and is considered to be acceptable. The overall volume of extracted and processed materials remains consistent with current levels.
	(c) require the preparation and implementation, in relation to the development, of a code of conduct relating to the transport of materials on public roads.	The EIS notes at Sections 4.5.5 and 4.10.3 that a drivers code of conduct will be prepared, implemented and enforced and a copy of this has been provided.	The comments provided from Roads and Maritime require the preparation of a code of conduct in accordance with this requirement; a condition of consent will be added to this effect.
	(2) If the consent authority considers that the development involves the transport of materials on a public road, the consent authority must, within 7 days after receiving the development application, provide a copy of the application to:		
	(a) each roads authority for the road, and	Referral of the application to Council's traffic engineers has occurred	Comments are provided in **Section 5**

Table 2.5 – Mining SEPP Matters for Consideration

Clause	Description	Information provided	Assessment
	(b) the Roads and Traffic Authority (if it is not a roads authority for the road). Note. Section 7 of the Roads Act 1993 specifies who the roads authority is for different types of roads. Some roads have more than one roads authority.	Referral of the application to Roads and Maritime has occurred	Comments are provided in **Section 5**
	(3) The consent authority: (a) must not determine the application until it has taken into consideration any submissions that it receives in response from any roads authority or the Roads and Traffic Authority within 21 days after they were provided with a copy of the application, and	Referral of the application to Roads and Maritime has occurred	Comments are provided in **Section 5** and the matters identified have been considered in the assessment of the application
	(b) must provide them with a copy of the determination.	This would occur	This would occur
	(4) In circumstances where the consent authority is a roads authority for a public road to which subclause (2) applies, the references in subclauses (2) and (3) to a roads authority for that road do not include the consent authority.	Noted	Noted
17	**Rehabilitation** (1) Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring the rehabilitation of land that will be affected by the development.	A range of general rehabilitation criteria is provided in Table 2.12 of the EIS. Detailed criteria would be included in the MOP, which would require sign off by NSW Trade and Investment	A condition to this effect is proposed – refer **Section 3.7**
	(2) In particular, the consent authority must consider whether conditions of the consent should: (a) require the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated, or		A condition to this effect is proposed – refer **Section 3.7**
	(b) require waste generated by the development or the rehabilitation to be dealt with appropriately, or		A condition to this effect is proposed – refer **Sections 3.13 and 3.7**
	(c) require any soil contaminated as a result of the development to be remediated in accordance with relevant guidelines (including guidelines under section 145C of the Act and the Contaminated Land Management Act 1997), or		A condition to this effect is proposed – refer **Section 3.11**
	(d) require steps to be taken to ensure that the state of the land, while being rehabilitated and at the completion of the rehabilitation, does not jeopardize public safety.		A condition to this effect is proposed – refer **Section 3.7**

Source: ***State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007***

By reference to the above assessment, it is considered that the development is generally compatible with the intent and requirements of the Mining SEPP.

2.6.8 BOGAN DEVELOPMENT CONTROL PLAN 2012

The *Bogan Development Control Plan 2012* (DCP) applies to all land within the Bogan LGA. The DCP contains specific provisions as relevant to various land uses; mining land uses are not specifically identified. Several sections of the DCP provide generic standards that apply to all development. Those matters are considered in **Table 2.6.**

Table 2.6 –Applicable Development Control Plan Standards

Standard	Response	Compliance
Outdoor lighting		
a) Temporary lighting for a period not exceeding 28 days in one calendar year may receive exemption from the controls.	Operations would occur on a 24 hour basis and as such no temporary lighting is proposed	N/A
b) Search lights, laser source lights or any similar high-intensity light will only be permitted in emergencies by police and fire personnel or at their direction, or for meteorological data gathering purposes.	None proposed	✓
c) Lighting selection and location should improve safety and reduce crime and fear.	A condition would be added to this effect	✓
Outdoor advertising signage		
Not relevant as no external advertising proposed	No further response required.	N/A
Brothel and Restricted Premises		
Not relevant as the development is not a brothel or restricted premises	No further response required.	N/A
Standards for Flood Affected Land		
Site is not noted to be within a flood planning area	No further response required.	N/A
Environmental Standards		
Vegetation		
a) Existing trees may be removed from the proposed building footprint where it can be shown there is no acceptable alternative design.	The ecological assessment contained within the EIS confirms that vegetation removal would be minimised and that appropriate rehabilitation with endemic species would occur at the completion of the project (Corkery, 2014). Subject to the preparation of a BOS it is considered that the development would be acceptable in the context of vegetation.	✓
b) All trees removed must be replaced by comparable native and mature trees.	As above	✓
c) Non-native plants may be used where they are shown to be non-invasive and pivotal to the overall amenity of the development.	Not proposed.	N/A

Source: Bogan Development Control Plan 2012

On the basis of the above, it is considered that the development is generally compatible with the provisions of the DCP.

2.7 STATEMENT OF COMPLIANCE

The EIS and associated submitted documents, including responses provided by the proponent to stakeholder queries, have been considered against the content of the issued Director Generals Requirements and, overall, it is determined that the document generally complies with those requirements.

2.8 OBJECTS OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 (THE ACT)

In assessing a development application, the consent authority is required to consider the objects set-out in Section 5 of the EP&A Act. These objects have been fully considered by this report – refer **Section 6.1**.

2.9 OBJECTS OF THE COMMONWEALTH ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

Clause 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) states that:

(1) The objects of this Act are:

(a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and

(b to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and

(c) to promote the conservation of biodiversity; and

(ca) to provide for the protection and conservation of heritage; and

(d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and

(e) to assist in the co-operative implementation of Australia's international environmental responsibilities; and

(f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and

(g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

The above objects have been considered in the assessment of this application, particularly the impact of the development on the environment, and especially those matters of national environmental significance – refer **Section 6.1**.

Assessment

3.1 INTRODUCTION

In assessing the merits of the project, the following has been considered:

- The Proponent's Environmental Assessment including additional information submitted by the proponent to support the EA (refer **Appendix B**);
- The Proponents Response to Submissions dated June 2016, submitted in response to the Council's request for additional information (refer **Appendix B**);
- All submissions (refer **Appendix C**);
- The objects of the *Environmental Planning and Assessment Act 1979* (the Act), including the object to encourage Ecologically Sustainable Development (refer **Section 6.1.5**);
- The objects of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (refer **Section 2.9**);
- Relevant Environmental Planning Instruments (refer **Section 2.5**);
- Relevant guidelines and policies (including the *Mining Design Guidelines*);
- The Department of Planning's Guide to Section 79C;
- The Department of Planning's standard model conditions for state significant mining developments; and
- Relevant statutory requirements of the Act and Regulation.

3.2 CONTEXT AND SETTING

3.2.1 EXISTING ENVIRONMENT

3.2.1.1 Character and Amenity of the Locality

The subject site is relatively isolated, located in a rural environment surrounded predominantly by scrubby woodland vegetation within land cleared and developed for agriculture. There are very few artificial light sources in the surrounding landscape, limited to vehicles, rural residences and agricultural operations. The notable exception is the Applicant's operations at the Girilambone Copper Mine.

3.2.1.2 Landscape, Views, and Scenic Quality

A visual amenity assessment for the proposal was prepared by R W Corkery & Co. Pty Limited as part of the EIS, and is contained in Section 4.11 (Corkery, 2014).

The EIS notes that the closest residential receptor and publically accessible vantage point (on the Mitchell Highway), are approximately 2.4 km and 1.5 km (respectively) from the closest area of proposed disturbance (Corkery, 2014). The EIS also identifies that views of the Applicant's mining operations at the Tritton and Girilambone Copper Mines are available from Booramugga and Yarrandale Roads.

The surrounding natural woodland vegetation is noted in the EIS to provide and effective screen in all directions.

Regional topography is noted to be:

> *'gently east sloping, with maximum elevations to the west and south of the Project Site from 250m AHD near the 'Argyle' residence and 287m AHD at 'The Brothers' respectively. To the north and east of the project site, elevations generally range between 200m AHD and 175m AHD and drain towards an unnamed tributary*

(referred to here as the Wilga Tank Tributary) and Sibury's Creek, located approximately 1km north and 3km to the south of the Project Site respectively.' (Corkery, 2014)

3.2.2 ASSESSMENT

3.2.2.1 Compatibility of Land Uses

Existing and approved uses in the vicinity of the development include mining, agriculture, nature conservation, native vegetation forestry, transportation and residential land uses.

Given the offset distances, the general noted levels of compliance throughout the EIS and the range of mitigation measures proposed, it is considered that the development is consistent with surrounding land uses.

Compatibility of the proposed development with the existing surrounding land uses is discussed in **Section 4** of this report. Overall, it is considered that the site is suitably located in the context of surrounding land uses.

3.2.2.2 Potential Impacts

In the context of the surrounding area, the primary impacts are likely to be the potential visual impact of the development from the adjacent Mitchell Highway and nearby residential receivers, noise and vibration impacts to residential receivers as a result of blasting and other operations and cumulative impacts associated with the operation of the proposed operation with the nearby Girilambone Copper Mine operations.

Potential visibility-related impacts and their risk ratings (after adoption of mitigation measures) identified in Section 4.11.1 of the EIS are reproduced below:

- *Amenity impact through change in content and composition of views from residences and public vantage points – low risk.*
- *Visual intrusion or reduction in scenic quality at residential and other sensitive receptors – moderate risk.*
- *Local amenity impact of visibility of industrial traffic on residential and other sensitive receptors – low risk.*

The EIS assesses that the proposed activities would not impact significantly on local visual amenity due to the relative isolation of the Project Site and the implementation of proposed visual amenity related controls (Corkery, 2014 p. 4-79).

Given the offset of the operation from the highway (approximately 1 kilometre) and the measures and controls outlined in the relevant sections of the EIS, it is considered that the visual impacts associated with the project are generally low. Additionally, the short operational timeframe and the extensive rehabilitation works proposed are sufficient to ensure that the long term visual impacts would be offset.

Noise and vibration impacts are considered in **Sections 3.15 and 3.16** of this report respectively. These assessments conclude that noise and vibration impacts are both acceptable and within the ranges specified in the Mining SEPP.

Cumulative impacts are considered in **Section 3.22**. The cumulative impact of the project is considered to be acceptable.

3.2.2.3 Mitigation Measures

The EIS confirms that the Applicant would implement visual impact management and mitigation measures identified in Section 4.11.3 of the EIS (reproduced below) throughout the life of the Project.

- *Designs surface infrastructure to ensure that the height of any stockpiles (ROM Pad and waste rock emplacement) or buildings (workshop, office and crib room) are constructed to the lowest manageable height to reduce the potential for components to be visible on the horizon from surrounding locations.*
- *Construct built structures from dull-coloured, non-reflective materials.*
- *Undertake active dust suppression to reduce the potential for the creation of 'dust cloud' over the Project Site.*
- *Include appropriate waste management to ensure that wind-blown rubbish does not spread from the Project Site.*
- *Orientate night lighting towards the active areas of operation and towards the ground, minimising the light spill from the Project Site.*
- *Ensure that lighting not required is turned off.*
- *Decommission and remove surface infrastructure following the completion of extraction operations, ultimately returning the Project Site to a post-mining comparable landform through rehabilitation and revegetation activities.*

- It is recommended that the above-listed mitigation measures from Section 4.11.3 of the EIS are incorporated into the conditions of any consent granted.

3.3 TRANSPORT, TRAFFIC AND ACCESS

3.3.1 EXISTING ENVIRONMENT

3.3.1.1 Intersections

Existing intersections that will be used as a result of the development include the following:

- Mitchell Highway – Booroomugga Road
- Booroomugga Road – Yarrandale Road

3.3.1.2 Existing Traffic Generation

A traffic and transportation assessment for the project was prepared by R W Corkery & Co. Pty Limited as part of the EIS, and is contained in Section 4.10 (Corkery, 2014).

The DGRs requires the preparation of a road safety audit however the EIS notes that one has not been prepared on the basis that the traffic generated by the proposed development would replace mine traffic generated by the wind down of the Girilambone Copper Mine.

No traffic count data is available for Booramugga and Yarrandale Roads. However, based on data from the previously completed *Road Train Noise Assessment* (Bridges Acoustics, 2013) for ore transportation via Yarrandale between Tritton Copper Mine and the Girilambone Mine, existing road train transport on Yarrandale Road is approximately 80 movements per day. Non-ore related traffic movements and non-mining relative local vehicles movements between Tritton Copper Mine and Girilambone mine are estimated by the proponent at approximately 40-60 movements per day.

The proponent notes that overall movements per day/year are not anticipated to increase as a result of the proposed development due to the overarching restriction applied as a result of DA 41/98, which restricts maximum ore transportation to the Tritton processing plant to 1,000,000 tonnes per year. Overall extraction limits across the Avoca Tank and Girilambone operations are proposed to be managed in the context of this limit to ensure traffic numbers would remain consistent with the existing arrangement. Not explicitly stated, but implied in this assumption, is that material extracted from the facility would only be transported to the Tritton processing facility and not to any other location. As this assumption forms the basis of the expectation that traffic levels would remain consistent, it is recommended that a condition of consent be imposed that 100% of extracted material proposed to leave the site would be transported to the Tritton processing facility.

3.3.2 ASSESSMENT

3.3.2.1 Intersections

No change is proposed to existing intersections that would be used to access the site, including the Mitchell Highway – Booramugga Road intersection, Booramugga Road – Yarrandale Road Intersection, and the Booramugga Road intersection with the Applicant's existing private haul road from the North East open cut and underground mine.

3.3.2.2 Parking

The EIS confirms that the Project involves the establishment of a parking area. **Figure 3** identifies the area for parking at the Project Site and Section 2.8.1 of the EIS states that a hardstand area will be established at the workshop and laydown area comprising an area that is 'sufficiently large to permit all mobile plant to be parked', and an 'unsealed car park area' (Corkery, 2014 p. 2-33).

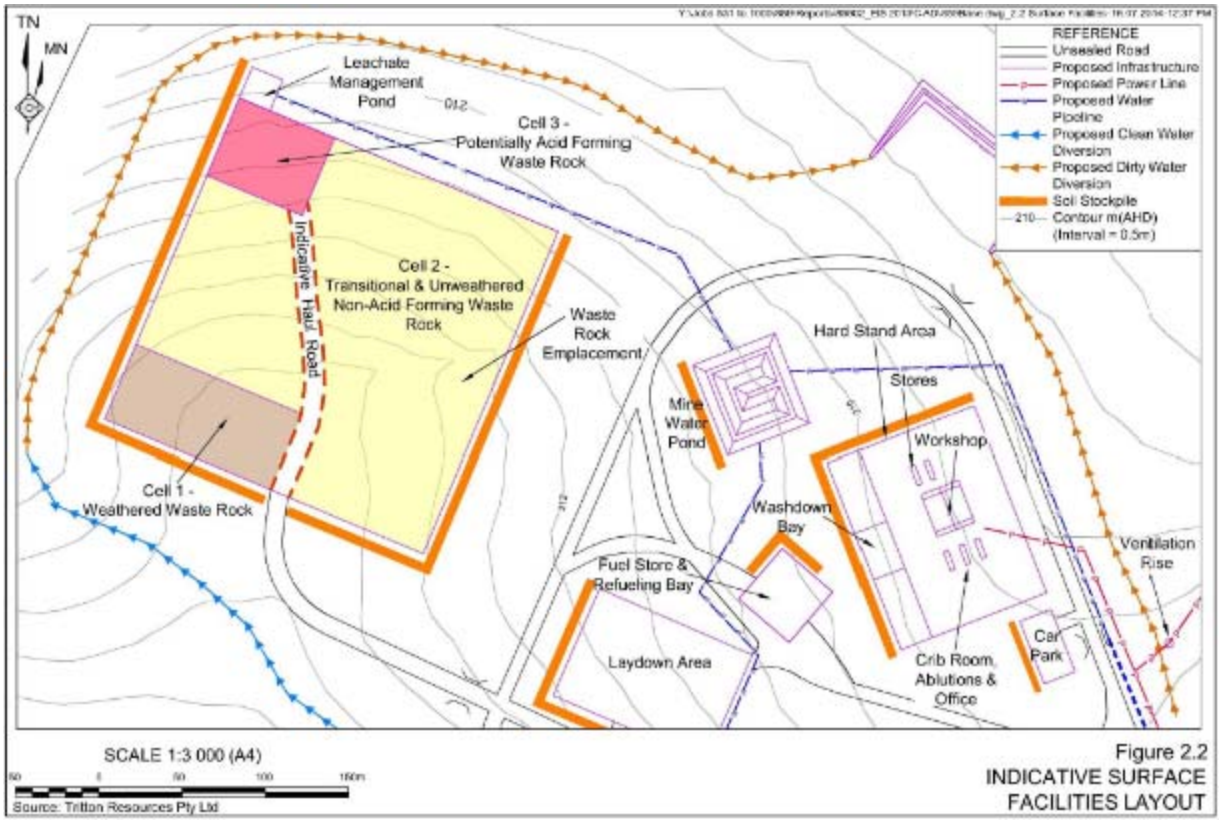

Figure 3: Indicative Surface Facilities Layout (Figure 2.2 of R W Corkery EIS, 2014)

There are no details provided for the arrangement of parking or compliance with relevant standards.

3.3.2.3 Traffic Generation

The Applicant anticipates that traffic generation associated with the Project would be managed in the context of the overall limits on ore transport and processing that apply to the Tritton processing facility. Any proposal in the future to increase this amount would need to be prepared in the context of additional assessment into traffic (and other) impacts associated with the increase.

Anticipated maximum daily traffic movements as identified in the EIS are reproduced in **Figure 4**.

As stated above, to ensure that traffic levels remain consistent it is proposed that a condition of consent be imposed that ensures that extracted materials are only transported to the Tritton processing facility. In this way, the overarching limitation on the volume of material to be transported to the Tritton facility would provide a mechanism for ensuring current levels of impact remain consistent.

Anticipated Maximum Daily Traffic Movements[1]

Route	Applicant-related Movements			Non-Applicant Related Movements
	Light Vehicles	Heavy Vehicles	Long and Oversize Vehicles	
Proposal Construction				
Project Site – Tritton Copper Mine	12	2	nil	20 to 40
Project Site – Nyngan	24	4	nil	
Proposal Operation				
Project Site – Tritton Copper Mine	6	2	50[2]	20 to 40
Project Site – Nyngan	12	2	nil	
Note 1: Two vehicle movements = one return trip.				
Note 2: Based on the maximum production rate of 316 000tpa, transportation operations on 270 days per year and 52t per load.				
Source: Tritton Resources Pty Ltd.				

Figure 4: Anticipated Maximum Daily Traffic Movements (Table 4.25 of R W Corkery EIS)

3.3.3 POTENTIAL IMPACTS

The EIS notes that existing and proposed traffic levels on Booramugga and Yarrandale Road identified in **Figure 4** is significantly below the 500 movements per day recognised as a level appropriate for local rural roads. As existing and proposed traffic levels are appropriate for local rural roads and overall traffic numbers on the road is proposed to remain within the limits applying in respect of the transport of ore to the Tritton processing facility (ie, 1,000,000 tonnes per year), the Applicant did not undertake a Road Safety Analysis or formal intersection or road performance analysis.

Potential traffic and transportation-related impacts and their risk rankings (after adoption of mitigation measures) identified in Section 4.10.1 of the EIS are reproduced below:

- *Increased traffic levels due to movement of workforce and contractors resulting in:*
  - *i) increased traffic congestion (low risk);*
  - *ii) elevated risk of accident/incident on local roads (low risk); and/or*
  - *iii) road pavement deterioration (low risk).*
- *Increased heavy vehicle movements for product transportation resulting in:*
  - *i) increased traffic congestion (low risk);*
  - *ii) elevated risk of accident/incident on local roads (high risk); and/or*
  - *iii) road pavement deterioration (moderate risk).*

The EIS states that the Project would not adversely impact on the public road network surrounding the Project Site (Corkery, 2014).

Despite incomplete knowledge of all base traffic volumes, given the existing use and the low volumes anticipated, it is considered that the conclusions in the EIS are reasonable where the mitigation measures identified in Section 4.10.3 of the EIS are implemented. The scale of the project in the context of the established limit on total volumes able to be transported to the Tritton processing facility, including imposition of a condition to ensure that extracted materials are not transported to other off-site locations, does not warrant additional traffic assessment.

3.3.4 MITIGATION MEASURES

3.3.4.1 Traffic Generation

The EIS confirms that the Applicant would implement the management and mitigation measures identified in Section 4.10.3 of the EIS (reproduced below) to mitigate the potential for adverse traffic-related impacts.

- *Water or treat internal roads with chemical suppressants, where appropriate, to minimise dust generation.*
- *Restrict vehicle speed on the Site Access Road to 80km/hr or such lower speeds as may be appropriate.*
- *Ensure that all vehicles transporting ore are not loaded beyond their legal capacity.*
- *Ensure that the trays of all heavy vehicles transporting ore are covered prior to leaving the ROM Pad.*
- *Prepare, implement and enforce a Driver's Code of Conduct for all heavy vehicle drivers accessing the Project Site regularly.*
- *Investigate any complaints in relation to transportation operations promptly.*

- The mitigation and management measures identified within Section 4.10.3 of the EIS are to be implemented by the applicant, specifically, the applicant is to prepare, implement and enforce a driver's code of conduct in accordance with clause 16(1) of the Mining SEPP.
- A condition of consent is to be imposed to restrict the transport of the extracted material to the Tritton processing facility only. In the context of the existing limitation on the volume of material to be transported to that facility from off-site locations, this ensure that current transport generation levels would remain consistent.

3.3.4.2 Parking

There are no details provided for the arrangement of parking or compliance with relevant standards.

- Sufficient parking is to be provided on site to accommodate proposed staffing levels, at a ratio of one parking space per two employees. All parking provided on site is to be designed and constructed to ensure compliance with Australian Standard 2890.

3.4 UTILITIES

Refer **Section 2.6.1.6**.

3.5 HERITAGE

3.5.1 INDIGENOUS HERITAGE

An Aboriginal heritage assessment of the Project was undertaken by OnSite Cultural Heritage Management (OnSite CHM) to support the EIS by establishing the presence of any remains of Aboriginal heritage within the study area. The assessment included background database searches of existing Aboriginal heritage items in the area, review of existing Aboriginal heritage reports for the area, assessment of the environmental and cultural contexts, and field survey. The field surveys included representatives from Nyngan Local Aboriginal Land Council (NLALC), Bogan Aboriginal Corporation, and Ngemba/Ngiyampaa Native Title Claim group.

The survey identified five Aboriginal heritage sites recorded in the AHIMS database, and the assessment revealed that:

Aboriginal occupation evidence is sparsely distributed across the Avoca Tank Project Site and is indicative of low intensity use of the landscape by Aboriginal people characterised by a high level of mobility and relatively short term occupation or single use of these places (OnSite CHM, 2014) (Appendix 5).

3.5.1.1 Assessment

Potential Impacts

The EIS concluded that:

Based upon the avoidance of all identified sites occurring within the Project Site and the implementation of the outlined mitigation measures, it has been determined that there would be a negligible impact upon the local or regional Aboriginal heritage as a result of the Proposal (Corkery, 2014 p. 4-24)

Mitigation Measures

The EIS confirms that the Applicant would minimise the potential for harm to occur to the identified sites by avoiding all sites, and would limit the potential for unintended disturbance by implementing avoidance measures identified in Section 4.2.9 of the EIS, reproduced below:

- *Ensure each identified site is permanently fenced and signposted as a 'no-go' area in accordance with the Applicant's policy Community and Heritage Policy and Straits Procedures – Heritage Management Planning (Australia).*
- *Inclusion of bush fire fuel load management within the Proposal's Environmental Management Strategy for the Avoca Tank 4 fenced area to reduce the potential for bush fires to affect the scarred tree.*
- *Provide for a buffer of 50 metre between the identified sites and proposed mine infrastructure, ensuring that all mine site personnel are aware of the location of each site and show the location of the sites on accessible plans.*
- *Ensure that work crews in the vicinity of the identified sites are informed by the way of an induction as to the location of each site and its legislative protection under the National Parks and Wildlife Act 1974. All work crews would be informed that the fenced area remains a "no-go" area for the duration of the works.*

An unexpected finds protocol is to be incorporated into an Aboriginal heritage sub-plan of a Construction Environmental Management Plan (CEMP).

- It is recommended that the above-listed mitigation measures from Section 4.2.9 of the EIS are incorporated into the conditions of any consent granted.
- In addition to the above measures, an unexpected finds protocol is to be included in a Aboriginal heritage sub-plan of a construction environmental management plan

3.5.2 NON-INDIGENOUS HERITAGE

A historic heritage assessment of the Project was undertaken by OnSite Cultural Heritage Management (OnSite CHM) to support the EIS, and establish the presence and significant of any non-indigenous heritage or archaeological sites. The assessment included historical research of the study area and a field survey investigation.

The survey identified three historic heritage places are located within the study area, and that all items are considered to result from pastoral activity. The study identified the following:

…historic heritage sites and artefacts are sparsely distributed across the Avoca Tank Project Site and no foci points of historic activity were located. From this perspective the historic potential of the Project Site and Proposed Disturbance Footprint to contain further historic sites and artefacts, is considered to be low (OnSite CHM, 2014) (EIS Appendix 9).

3.5.2.1 Assessment

Potential Impacts

The EIS concluded that:

> *Based upon the avoidance of all historic heritage sites, including the implementation of the outline mitigation measures for Avoca Tank 4, it has been determined that there would be negligible impact upon the local or regional historic heritage as a result of the Proposal* (Corkery, 2014 p. 4-65).

Mitigation Measures

The EIS confirms that the Applicant would implement the management and mitigation measures identified in Section 4.7.6 of the EIS, reproduced below.

- *Implement the management and mitigation measures identified in Section 4.2.9* [of the EIS] – refer - **Section 3.5.1.1**
- *Ensure Avoca Tank 4 is fenced with a suitable buffer for the life of the Proposal.*
- *Ensure that the mine site personnel are aware of the location of Avoca Tank 4 and provide the location of the site on mine plans.*
- *Ensure all work crews would be informed that the fenced area are "no-go" areas for the duration of the works.*
- *Ensure that mine site personnel do not disturb historic artefacts at Avoca Tank 6 and Avoca Tank 7.*
- *Ensure that mine site personnel report any additional historic finds they may find and not remove or disturb historic artefacts.*

During Construction

In line with the NSW legislation protecting heritage, specifically Section 139 of the NSW *Heritage Act 1977*, should any underground remains be discovered on site; works are to stop in that area. At that stage the contractor is to contact an archaeologist who will come to inspect the remains, record the remains via photography and possibly measured drawings and provide advice on the next steps to take.

- It is recommended that the above-listed mitigation measures from Section 4.7.6 of the EIS are incorporated into the conditions of any consent granted.
- An unexpected finds protocol for heritage relics or items is to be incorporated into a heritage sub-plan of a construction environmental management plan

3.6 FLORA AND FAUNA

3.6.1 EXISTING ENVIRONMENT

An ecology assessment has been prepared by EnviroKey Pty Ltd (2014) to support the EIS (Corkery, 2014). The EIS identifies that the surrounding area contains native vegetation dominated by Poplar Box Woodland, with varying intergrades of Gum Coolabah, Cypress Pine and occasional Mulga (Corkery, 2014).

3.6.1.1 Section 5A Assessment

Section 5A of the EP&A Act requires consideration of whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats as a result of the proposed development. The following provides a summary of the findings of the ecology assessment carried out by EnviroKey for the Project.

Existing Environment

The ecological assessment defines the existing environment as:

> *The Study Area comprises four Biometric vegetation communities. These being 'ID 103 - Poplar Box – Gum Coolabah and White Cypress Pine Shrubby Woodland mainly in the Cobar Peneplain Bioregion', 'ID 72 – White Cypress Pine – Poplar Box woodland on footslopes and peneplains mainly in the Cobar Peneplain Bioregion', 'ID174 – Mallee – Gum Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion' and 'ID229 – Derived mixed shrubland on loamy-clay soils in the Cobar Peneplain Bioregion'. Field surveys revealed a total of 127 flora species comprising 114 native species and 13 exotic species. One threatened flora species was recorded during the extensive field survey. A single Cobar Greenhood Orchid (Pterostylis cobarensis) was recorded within the Biometric Vegetation Community Benson ID 72. This species is listed as 'vulnerable' under the NSW Threatened Species Conservation Act 1995 (TSC Act).No threatened ecological communities were recorded within the Study Area.*
>
> *For fauna, two general fauna habitats are present; woodland and shrubland. A total of 114 fauna species were recorded comprising:*
>
> - *63 species of bird*
> - *25 species of reptile*
> - *9 species of frog*
> - *17 species of mammal (including nine species of microchiropteran bat).*
>
> *A total of eight threatened or migratory fauna species (seven definite, one by precautionary principle) were identified within the Study Area. These were the:*
>
> - *Pink Cockatoo (Cacatua leadbeateri), Vulnerable TSC Act*
> - *Grey-crowned Babbler (Pomatostomus temporalis temporalis), Vulnerable TSC Act*
> - *Superb Parrot (Polytelis swainsonii), Vulnerable TSC Act, Vulnerable EPBC Act*
> - *Inland Forest Bat (Vespadelus balstoni), Vulnerable TSC Act*
> - *Little Pied Bat (Chalinolobus picatus), Vulnerable TSC Act*
> - *Yellow-bellied Sheathtail Bat (Saccolaimus flaviventris), Vulnerable TSC Act*
> - *Eastern Long-eared Bat (Nyctophilus corbeni), Vulnerable TSC Act, Vulnerable EPBC Act*
> - *Rainbow Bee-eater (Merops ornatus), Migratory EPBC Act*

3.6.2 ASSESSMENT

The ecological assessment has completed an assessment of the site by reference to the following:

- *conducting a field assessment that is consistent with OEH guidelines.*
- *adopting the precautionary principle in the assessment of impact.*
- *designing appropriate ameliorations measures to mitigate potential impacts to an acceptable level.*

3.6.2.1 Potential Impacts

Direct impacts from the project identified in Section 4.3.6.2 of the EIS include:

- Clearing of native vegetation, approximately clearing 2% of the project site of the *Benson 103 – Poplar Box – Gum-barked Coolibah – White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion vegetation community*.
- Loss of hollow-bearing fauna habitat. Removal of approximately 2% of hollows potentially present within the Project Site; generally stags as majority of upper canopy trees have been removed or ring-barked.
- Potential fauna injury and mortality during clearing and transport operations.
- Dispersal of root material infected with *Phytopthora cinnamon*.

Potential indirect impacts from the project identified in Section 4.3.6.3 of the EIS include:

- Noxious weed dispersal and propagation
- Extend reach of feral fauna species

The layout of the surface infrastructure has been designed with the intent to minimise disturbance and concentrate activities in previously disturbed areas where possible to ensure that no 'significant effect' would occur upon any threatened or migratory biota or their habitats (Corkery, 2014 p. 4-39).

The ecological assessment concludes that assuming the adoption of mitigation measures outlined in Section 4.3.7 of the EIS, the development:

- *would not have a significant impact upon the vegetation community present at the site;*
- *is unlikely to have a significant effect on all identified threatened species;*
- *is unlikely to impact the identified migratory species; and*
- *does not affect any matters of National Environmental Significance* (Corkery, 2014)

The Envirokey report concluded that:

> *This report has determined that the Proposal is unlikely to have a significant effect of any listed threatened species, communities, populations and their habitats in accordance with s5A of the NSW Environmental Planning & Assessment Act 1979 provided amelioration measures as detailed within Chapter 8 are adopted, implemented and maintained. Therefore, a species impact statement is not required.*
>
> *This report has also determined that the Proposal is unlikely to have a significant effect of any EPBC Act listed threatened and migratory biota and their habitats. Therefore, a referral to the Commonwealth Environment Minister is not warranted.*

3.6.2.2 Section 5A Assessment

It is considered that the ecology assessment, together with the proposed conditions of consent, provides adequate consideration of the requirements under the EP&A Act including flora, fauna, threatened species, populations and ecological communities and their habitats, by reference to the scale and nature of the proposed development. The proposed conditions ensure that the scale of the development will not lead to significant impacts.

3.6.2.3 OEH Referral

The EIS, inclusive of the ecological assessment, has been referred to the NSW Office of Environment and Heritage (OEH) who provided an initial response, within which it was highlighted that the projects failure to adopt a biodiversity offset strategy was inconsistent with the DGRs. This OEH response was provided to the proponent who responded to the effect that whilst it was not agreed, due to the lack of significant impact, that a BOS was required, that there would not be an objection to a condition of consent to require the preparation and implementation of a BOS.

OEH subsequently confirmed their agreement that application of conditions to this effect was appropriate. Specifically, OEH recommend the following:

> *1.1 Council include a condition of consent requiring the preparation and implementation of a Biodiversity Offset Strategy that adequately addresses the following recommendations.*
>
> *1.1.1 An offset package be prepared that comprises like for like offsets for the impacts to 34 hectares of Poplar Box-Gum Coolibah and White Cypress Pine Shrubby Woodland mainly in the Cobar Peneplain Bioregion.*
>
> *1.1.2 A Biodiversity Offset Management Plan be developed to ensure the offsets are appropriately managed and funded. Management activities included in the management plan should result in an improvement of the offset area over time.*
>
> *1.1.3 The offset be secured in perpetuity under one of the following conservation mechanisms:*
>
> - *BioBanking agreement;*
> - *Dedication of land under the National Parks and Wildlife Act 1974 (NPW Act);*

- *Trust Agreements under the Nature Conservation Trust Act 2001, and;*
- *A PVP registered on title under the Native Vegetation Act 2003.*

3.6.3 MITIGATION MEASURES

The ecological assessment recommends the following proposed measures:

- *General land management amelioration measures (eg, pest animal control).*
- *Amelioration measures to be undertaken prior to commencement of the Proposal (eg, pre-clearance surveys, threatened species monitoring).*
- *Amelioration measures to be undertaken during the Proposal (eg, clearly marking areas to be cleared and areas to be retained).*
- *Amelioration measures to be undertaken after the proposed activity has been completed (eg, rehabilitation, monitoring).*

Additionally, the EIS confirms that the Applicant would implement the management and mitigation measures identified in Section 4.3.7.3 of the EIS (reproduced below) to mitigate disturbance of natural vegetation and threatened species habitat.

- *Draft and implement the following plans to manage potential biodiversity impacts.*
  - *i) Pest Animal Management Plan.*
  - *ii) Weed Management Plan.*
  - *iii) Fauna Management Plan.*
  - *iv) Threatened Species Monitoring Plan.*
- *Clearly mark-out the proposed disturbance footprint boundaries and identify vegetation to be cleared.*
- *Implement a hollow-bearing tree pre-clearance survey where a qualified professional inspects all hollows and immediate surrounds for any species prior to clearing activities. If any fauna is identified, these would be relocated to areas outside of the proposed disturbance footprint prior to clearing.*
- *Ensure machinery required for the Proposal remains on existing vehicular access tracks or within the proposed disturbance footprint, where practicable. Where this is not possible, machinery would be manoeuvred to avoid sapling or remaining canopy trees wherever possible.*
- *Place felled canopy trees in adjacent vegetation areas outside of the proposed disturbance footprint to improve existing habitats.*
- *Eradicate any identified noxious weed and other weed material encountered, ensuring that the weed is destroyed and/or removed using appropriate methods to ensure weeds do not spread into the remainder of the Project Site.*
- *Install sediment and erosion control structure where appropriate.*
- *Stabilised exposed soils to prevent potential erosion.*

Finally, the matters recommended by OEH in their correspondence of June 2016 are to be imposed as conditions of consent.

- It is recommended that the above-listed mitigation measures from Section 4.3.7.3 of the EIS are incorporated into the conditions of any consent granted.
- The requirements of OEH via their correspondence of June 2016 are to be imposed as conditions of consent.

3.7 OTHER LAND RESOURCES

3.7.1 PRODUCTIVE AGRICULTURAL LAND

3.7.1.1 Existing Environment

The land within the Project Site has been used for agricultural purposes, principally intermittent sheep and cattle grazing. Soils within the Project Site are identified as Class 6 land, or land with very severe limitations in accordance with OEH (2012) (Corkery, 2014). This classification corresponds to the current land use of infrequent grazing.

3.7.1.2 Assessment

Whilst the proposed development would reduce the area available for agricultural use, it would not reduce the agricultural potential of the land and is likely to have no or negligible adverse impacts on agricultural activities in the vicinity of the Project Site (Corkery, 2014 p. 4-91).

Additionally, following the site rehabilitation and decommissioning measures identified in Section 2.13 of the EIS, the EIS concludes that:

> *The post-mining landform would integrate the re-establishment of vegetation conducive to the use of ongoing native conservation with the potential to be utilised for historical agricultural purposes* (Corkery, 2014 p. 5-20).

Where the above outcome is likely to be achieved is questionable, however it is considered that the relatively small area of disturbance would not detrimentally impact the productivity of surrounding agricultural land.

3.7.1.3 Mitigation Measures

As per site rehabilitation and decommissioning measures identified in Section 2.13 of the EIS.

- It is recommended that the above-listed mitigation measures from Section 2.13 of the EIS are incorporated into the conditions of any consent granted.

3.7.2 WATER SUPPLY CATCHMENTS

3.7.2.1 Existing Environment

The Site is within the Bogan – Macquarie Catchment Management Area. The Bogan River is located approximately 25km east of the Project Site. Drainage throughout the Project Site generally flows in an easterly direction. Surface water flows in two ephemeral, poorly defined, unnamed drainage lines that are first order streams that merge into a second order stream approximately 500m from the Project Site's eastern boundary, and eventually flow northwest before merging with the Wilga Tank Tributary. Site topography and drainage is depicted in **Figure 5**.

Within the Project Site, water resources are limited to farm dams and highly saline groundwater, and as such water resources in the vicinity of the Project Site are limited in availability, quality and severely limit agricultural activities.

The Project Site is within the areas of the following water sharing plans for groundwater and surface water, respectively:

- *Water Sharing Plan for the NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2012*.
- *Water Sharing Plan for the Macquarie Bogan Unregulated and Alluvial Water Sources 2012*.

3.7.2.2 Assessment

The EIS, together with groundwater impact assessment report, was provided to Department of Primary Industries (Water) for their review and issuance of General Terms of Approval (GTAs). An initial review of the documentation raised a number of queries from DPI Water which were provided to the proponent for a response, including:

- *Section 4.4.7 refers generally to licensing requirements however no detail is provided on existing work approvals, linked water access licenses 0NALs) and water take figures. Further detail is requested to confirm existing approvals for groundwater interception, the water take requirements and the entitlements held in linked water access licenses (WALs). Where additional entitlement is required, detail is requested on whether adequate entitlement is available in other WALs held by the proponent or whether the proponent has considered the ability to purchase the required entitlement.*
- *Clarification is requested on the methods used to estimate the groundwater inflows listed in Table 4.12 of the EIS. The Office of Water advises that adequate water entitlement needs to be held to account for water taken whether it is for consumptive use or incidentally by an aquifer interference activity.*
- *Clarification is requested of the numerical modelling referred to on page 1-35 of Appendix 7 of the EIS as no detail of this model is provided elsewhere in the report.*
- *A conceptual groundwater monitoring and mitigation plan is requested to understand the proposed measures to monitor and address potential impacts due to the aquifer interference activity. The estimated impact on 2 private bores exceeds the Level 1 minimal impact considerations of the Aquifer Interference Policy, hence make good provisions are requested to be included in the monitoring and mitigation plan in an unlikely event of impact. Section 4.4.8 refers to monitoring of existing bores but further detail is requested to support how this will monitor the predicted impacts of the proposed activity and that the current bores will not become obsolete due to drawdown impacts.*

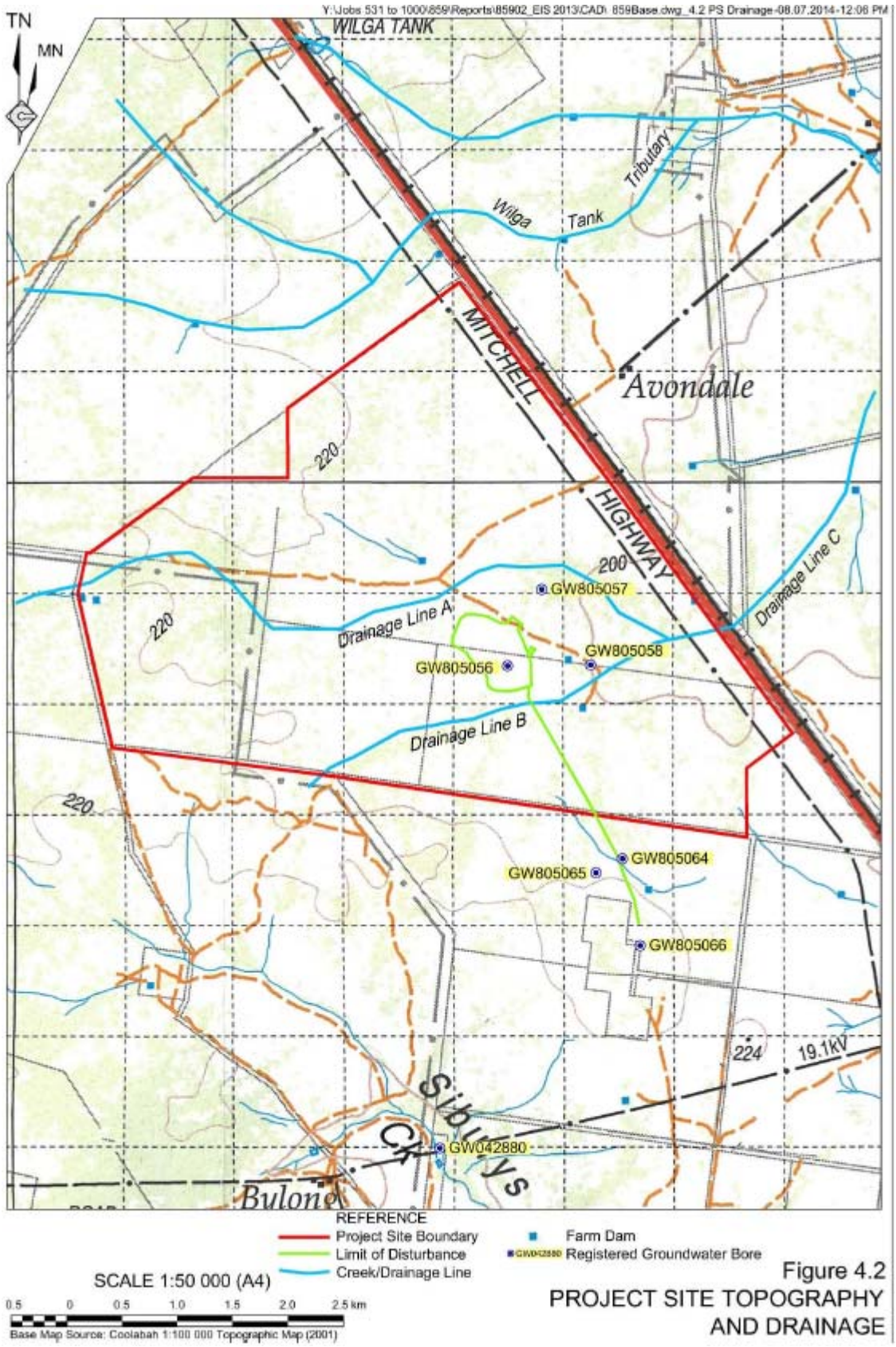

Figure 5: Project Site Topography and Drainage (Source: Figure 4.2 of R W Corkery EIS, 2014)

The proponent provided a response to the request for additional information in June 2016. This was forwarded to DPI Water for their review. DPI Water indicated satisfaction with the information provided and have issued their GTA's. By virtue of their review and issuance of GTA's it can be concluded that the development is considered to be acceptable in the context of water supply catchments.

- The GTA's of the DPI(Water) are to be attached to any consent in their entirety.

3.8 WATER DEMAND & SUPPLY

3.8.1 WATER SOURCES

3.8.1.1 Drinking Water

The EIS states that water for drinking purposes would be brought to site in bulk and stored within tanks (Corkery, 2014).

3.8.1.2 Make Up Water

The EIS states that make up water would be transported to site via a buried poly pipe installed adjacent to the Site Access Road, and would be sourced from the Applicant's current water supply at the North East Open Cut. The EIS notes that this water is obtained under licence from a pumping station on the Bogan River (Corkery, 2014 p. 2-26). Any shortfall in make-up water for operation purposes would be would be sourced from the Applicant's licenced raw water dam at the Murrawombie Mine and transported to the Project Site via the proposed pipeline (Corkery, 2014 p. 2-29).

The Applicant currently holds Water Access Licences to use up to 913ML of surface water per annum from Burrendong Dam, which is extracted from the Bogan River pumping station 25km east of the site (Corkery, 2014).

3.8.1.3 Mine Water

The EIS states that mine water would be sourced from water removed from the underground mine which would comprise a mixture of water pumped underground from the Mine Water Pond and groundwater that may seep into the underground workings.

3.8.2 WATER REQUIREMENTS

3.8.2.1 Potable and Ablutions Water

The EIS states that water would be brought to the site in bulk and stored within tanks for use within ablutions facilities and for drinking purposes.

3.8.2.2 Dust Suppression

The EIS states that water stored in the Mine Water Pond would be required for dust suppression by a water cart; this would include mine water and make up water if required. The EIS states that the anticipated annual volume of water required for dust suppression for the Project Site is 128ML, which assumes the following (Corkery, 2014):

- Area requiring dust suppression approximately 20,000m^2.
- Average number of days per year with less than 1mm rain (321 days).
- Dust suppression requirement of 2mm/m^2/day.
- Average hours per day during which dust suppression is required (10 hours).

3.8.2.3 Fire-fighting

A mitigation measure identified in Section 4.12.3 of the EIS states that a water cart with fire-fighting capabilities would be available to assist in extinguishing any fire ignited (Corkery, 2014 p. 4-82). A

condition of consent would be included to ensure that the water cart is sufficiently sized to ensure it is capable of providing necessary fire-fighting services.

- A condition of consent would be included to ensure that the water cart is sufficiently sized to ensure it is capable of providing necessary fire-fighting services. Details are to be provided in the MOP.

3.9 WATER MANAGEMENT

3.9.1 TREATMENT, REUSE AND DISPOSAL OF WATER

3.9.1.1 Rainwater Tanks

Rainwater tanks are proposed for storage of potable water and water for effluent management. The sizing of these tanks is not provided. As the water is to be trucked to the site, it is reasonable to assume that the water purchased would be suitable for human consumption.

3.9.1.2 Wastewater Treatment

Wastewater would be treated in an aerated wastewater treatment or pump out septic system that would be installed in the vicinity of the ablutions facilities. The EIS notes that the system would comply with the requirements of the Bogan Shire Council and would be approved for use by Council prior to being commissioned (Corkery, 2014). A condition of consent would be added to require the proponent lodge and gain an applicable section 68 approval from BSC.

- A condition of consent is proposed to ensure that an appropriate s.68 approval is sought and gained prior to the installation of the proposed effluent management system

3.9.1.3 Mine Water Reuse

The Mine Water Pond would contain mine water and if required, make up water. Water from the Mine Water Pond would be pumped underground for use in mining operations. Mine water would not be permitted to flow to natural drainage. Mine water would not be treated and the Mine Water Pond would be lined to achieve a permeability of 1 x 10^{-9} m/s over 900m or equivalent.

The EIS notes that an *Erosion and Sediment Control Plan* would be prepared prior to the establishment and construction operations, which would include mine water containment structures and the Mine Water Pond (Corkery, 2014).

No discussion is provided of the suitability of the soils for use in for the mine water containment structures or Mine Water pond, however it is considered that this information can be required via a condition of consent i.e. to be included in the *Soil and Water Management Plan*.

Consultation with the DPI (Water) has resulted in the issuance of GTA's and it is therefore concluded that the development is acceptable in this context.

3.9.1.4 Excess Mine Water Disposal

In the event that more mine water was produced than could be used by the Proposal, the additional mine water would be transferred to the North East Open Cut (partially filled with groundwater). As excess mine water would be largely groundwater (from underground seepage), transfer of that water would not result in adverse environmental impacts (Corkery, 2014).

Monitoring of groundwater would be addressed via a Water Management Plan, to be prepared in consultation with DPI (Water) – refer Section

3.9.1.5 Dirty Water Containment and Reuse

The EIS states that all run off from disturbed areas within the Surface Facilities Area would be diverted by dirty water containment structures to a Sediment Basin. Water contained within the Sediment Basin would be reused for operational purposes where possible, or following testing to demonstrate suitable water quality, discharged to natural drainage (Corkery, 2014).

The Sediment Basin volume, together with that of existing farm dams within the Project Site, would be less than the applicable Harvestable Right under Section 5 of the *Water Management Act 2000* (Corkery, 2014 p. 2-27).

The EIS notes that an *Erosion and Sediment Control Plan* would be prepared prior to the establishment and construction operations, which would include the design and operation of dirty water containment structures and the sediment basin. The EIS also notes that dirty water would be managed in accordance with the recommendations of *Managing Urban Stormwater – Volumes 1, 2C and 2E* (Corkery, 2014).

3.9.1.6 Clean Water Diversion

The EIS states that clean water (run off from undisturbed sections of the Project Site) would, as far as practicable, be diverted away from disturbed areas by clean water diversion structures, and would be allowed to flow to natural drainage. Clean water diversion structures would be removed at the end of the life of the Proposal (Corkery, 2014).

The EIS notes that an *Erosion and Sediment Control Plan* would be prepared prior to the establishment and construction operations, which would include clean water diversions. The EIS also notes that clean water would be managed in accordance with the recommendations of *Managing Urban Stormwater – Volumes 1, 2C and 2E* (Corkery, 2014).

No discussion is provided of the suitability of the soils for use in for the clean water diversion structures, however it is considered that this information can be required via a condition of consent i.e. to be included in the *Erosion and Sediment Control Plan*.

DPI (Water) has not identified any objections to the above proposed approach to surface waters and therefore it is considered acceptable.

3.9.1.7 Leachate Management Pond

The EIS confirms that a Leachate Management Pond would be constructed near the waste rock emplacement so that all leachate (potentially acidic) is not permitted to seep into the aquifer or flow to natural drainage. The EIS states that any leachate collected within the pond would be transferred to the Mine Water Pond for use in underground operations. The EIS also mentions monitoring of leachate (Corkery, 2014).

Groundwater monitoring is required as a condition of the DPI (Water) GTA's. This will ensure impacts to groundwater are monitored and any remediation action required would be taken.

The EIS mentions monitoring of leachate; it is expected this would be covered in the Water Management Plan. A condition of consent to this effect, consistent with the statement in the EIS, would be included in any consent.

3.9.2 ASSESSMENT

DPI (Water) have, via their GTA's, recommended application of a condition of consent requiring preparation of a Water Management Plan in consultation with DPI (Water). This must address:

- Erosion and Sediment Control;
- Groundwater Monitoring and Mitigation;
- Surface Water Monitoring and Mitigation.

On this basis, the development impacts to the water environment are considered to be acceptable.

- The GTA's of the DPI(Water) are to be attached to any consent in their entirety.

3.10 WATER QUALITY

3.10.1 SURFACE WATER

3.10.1.1 Existing Environment

A surface water assessment for the proposal was prepared by R W Corkery & Co. Pty Limited as part of the EIS, and is contained in Section 4.9.

An excerpt from the EIS identifying existing water quality in the vicinity of the Applicant's existing operations are provided below:

> *Monitoring of clean water storages in the vicinity of the Applicant's existing operations has returned results below the relevant Australian and New Zealand Environment and Conservation Council's Guidelines for Fresh and Marine Water Quality (ANZECC 2000) trigger values* (Corkery, 2014 p. 1-16).

Surface water within the Project Site is typically only present immediately after substantial rainfall, and is likely to have elevated suspended sediment concentrations (Corkery, 2014 p. 4-73).

3.10.1.2 Assessment

Potential Impacts

Potential impacts relating to surface water and their risk rankings after adoption of mitigation measures are identified in Section 4.9.1 of the EIS, and are reproduced below:

- *Discharge of sediment-laden water impacting upon riverine ecology and downstream users – low risk*
- *Pollution of surface water and shallow groundwater – low risk*
- *Impact on surface or groundwater biota within surface water and shallow groundwater environments – low risk*
- *Diversion and retention banks erosion / instability leading to increased sediment loads – low risk*

Mitigation Measures

The EIS states that Section 2.6 of the EIS presents the surface water management and mitigation measures that would be implemented throughout the life of the proposal. Specific mitigation measures are not outlined in Section 2.6 of the EIS, but rather an outline of proposed water management processes and the *Sediment and Erosion Control Plan* that will include mitigation measures relevant to surface water quality. The *Sediment and Erosion Control Plan* would be prepared prior to the commencement of site establishment and construction operations in accordance with *Managing Urban Stormwater: Soils and Construction – Volume 1, 2C and 2E*, and would include the following components:

- Clean water diversion structures.
- Dirty water containment structures.
- Sediment basin.
- Mine water containment structures.
- Mine Water Pond.
- Road-side drainage and sediment control structures (constructed in accordance with DECC (2008a) (Corkery, 2014 p. 2-27).

Section 4.9.4 of the EIS (Assessment of Impacts) contends that the Proposal would have a negligible impact on the surface water environment within and surrounding the Project Site for the reasons identified in Section 4.9.4 of the EIS (reproduced below).

The potential impacts identified in the EIS are considered to result from failure of water containment, diversion or storage features; all of which are to be constructed and operated in accordance with the *Sediment and Erosion Control Plan* (Corkery, 2014 p. 2-27). Despite that no specific mitigation measures for surface water quality impacts are provided in Section 4.9.2 of the EIS (Management and Mitigation Measures), it is considered that the reasons identified in Section 4.9.4 of the EIS are appropriate mitigation measures (reproduced below).

- *Prepare and implement a Water Management Plan prior to the commencement of site establishment and construction operations. The plan would describe management of the following:*
  - *i) Sediment and erosion control.*
  - *ii) Hydrocarbons and minerals.*
  - *iii) Water balance, including separation of clean, dirty and mine water and monitoring of water flows within the Project Site.*
  - *iv) Surface water and groundwater monitoring.*
- *Ensure that clean water is diverted away from areas of proposed disturbance and permitted to flow to natural drainage.*
- *Ensure that dirty water is retained until the suspended sediment concentration is less than 50mg/L prior to discharge. Alternatively use that water for mining related purposes.*
- *Ensure that contaminated water, including saline groundwater, is retained and is not ~~be~~ permitted to flow to natural drainage.*
- *Manage the flow of make up water to ensure that discharge of water from the Mine Water Pond does not occur.*
- *Treat waste water using a suitable waste water treatment or pump out septic system.*

- It is recommended that the above-listed mitigation measures from Section 4.9.4 of the EIS are incorporated into the conditions of any consent granted.
- The GTA's of the DPI(Water) are to be attached to any consent in their entirety.
- As per the DPI (Water) GTA's, a Water Management Plan would be prepared in consultation with DPI (Water) and implemented to their satisfaction

3.10.2 GROUNDWATER

3.10.2.1 Existing Environment

Hydrogeology and Groundwater Quality

A groundwater impact assessment for the proposal was prepared by Environmental Strategies and is attached as Appendix 7 to the EIS and summarised in EIS Section 4.4.

The Project Site is located within the NSW Murray-Darling Basin (MDB) fractured rock groundwater source, in particular the Lachlan Fold Belt MDB groundwater source which consists of a fractured rock aquifer with a low-moderate level of connection between surface and groundwater. Groundwater within the immediate vicinity of the Project Site is within typically low primary permeability rocks of the Girilambone Group. Secondary permeability is controlled by geological features such as fractures, faults and foliation in the strata (Corkery, 2014).

Regional groundwater is typically low yield with high salinity (Corkery, 2014). Groundwater quality from monitoring bores within the Project Site (collected monthly between November 2010 – March 2013) are consistent with groundwater quality data from the Applicant's Girilambone Copper Mine, including salinity (measured as TDS) of approximately 13,000 mg/L and electrical conductivity of approximately 21,000 µS/cm.

Standing water levels for the existing groundwater monitoring bores range from 31.04m to 39.97m, with water bearing zones ranging from an upper limit of 29m to a lower limit of 65m.

Groundwater Users

The EIS identifies a total of 22 registered groundwater bores within a 20km radius of the Project Site. These bores are predominantly used for monitoring or stock purposes. However, due to low yields and high salinity values, the groundwater is of marginal use for stock watering, based upon the ANZECC & ARMCANZ (2000) guidelines that state water with TDS levels over 10,000mg/L is generally unsuitable for stock use (Corkery, 2014 p. 4-46).

Groundwater Dependent Ecosystems

No groundwater dependent ecosystems exist within 150km of the Project Site (Corkery, 2014 p. 4-44).

3.10.2.2 Assessment

Licencing and Approvals

DPI (Water) have reviewed the documentation provided and have issued their GTA's for a work approval pursuant to Section 90 of the WM Act for the intersection and/or extraction of groundwater.

Potential Impacts

Potential impacts relating to groundwater and their risk rankings after adoption of mitigation measures are identified in Section 4.4.1 of the EIS, and are reproduced below:

- *Reduction in groundwater discharge to surrounding creeks/rivers, adverse impacts on groundwater dependent ecosystems or surrounding groundwater users – low risk.*
- *Reduction in groundwater discharge to surrounding creeks/rivers, adverse impacts on groundwater dependent ecosystems or surrounding groundwater users – low risk.*
- *Discharge of poor quality groundwater to surrounding aquifers – low risk (Corkery, 2014 p. 4-42).*

In Section 4.4.6.3 of the EIS, the Applicant contends that the Proposal would not adversely impact on groundwater quality during or following the life of the proposal due to the following:

- *Groundwater within and surrounding the Project Site is of poor quality, with limited beneficial uses.*
- *Hydrocarbons and other chemicals would be stored and used in accordance with the commitments in Section 4.4.5* [of the EIS] *and relevant industry and other standards.*
- *The contaminated water circuit would be managed as described in Section 2.6* [of the EIS].
- *During mining operations dewatering of the proposed mine would ensure that the groundwater gradient would be towards the mine (Corkery, 2014 p. 4-52).*

3.10.2.3 Mitigation Measures

The EIS confirms that the Applicant would implement the management and mitigation measures identified in Section 4.4.5 of the EIS (reproduced below) to mitigate the potential for adverse groundwater-related impacts.

- *Prepare and implement a Water Management Plan prior to the commencement of site establishment and construction operations. The plan would describe management of the following.*
  - *i) Sediment and erosion control.*
  - *ii) Hydrocarbons and chemicals.*
  - *iii) Water balance, including separation of clean, dirty and mine water and monitoring of water flows within the Project Site.*
  - *iv) Surface water and groundwater monitoring.*
- *Store all hydrocarbon and chemical products within a bunded area complying with the relevant Australian Standard.*
- *Refuel all equipment within designated, sealed areas of the Project Site, where practicable.*

- *Undertake all maintenance works involving hydrocarbons, where practicable, within designated areas of the Project Site such as the workshop.*
- *Direct all water from wash-down areas and workshops to oil/water separators and containment systems.*
- *Ensure all hydrocarbon and chemical storage tanks are either self-bunded or bunded with an impermeable surface and a capacity to contain a minimum 110% of the largest storage tank capacity.*
- *Ensure that volumes of water pumped into and out of the proposed mine are monitored and recorded to enable net groundwater inflows to be determined.*
- *Ensure that standing water levels in surrounding monitoring bores and groundwater inflow rates to the proposed mine are monitored monthly and should the actual groundwater inflows or reduction in standing water levels be greater than assessed, ensure that the advice of a suitable qualified hydrogeologist is sought (Corkery, 2014 p. 4-50).*

- It is recommended that the above-listed mitigation measures from Section 4.4.5 of the EIS are incorporated into the conditions of any consent granted.
- The GTA's of the DPI(Water) are to be attached to any consent in their entirety.

3.10.3 CONSULTATION

As stated previously, DPI (Water) have issued their GTA's in relation to section 90 of the WM Act in relation to an excavation which will result in the take of groundwater. A summary of DPI (Water's) comments is provided **Table 5.1** and a copy of the GTA's is provided in **Appendix D**.

Following a review of the project by DPI (Water), and in the context of the issuance of GTA's, it is considered that the development is acceptable.

- The GTA's of the DPI(Water) are to be attached to any consent in their entirety.

3.11 SOILS

3.11.1 EXISTING ENVIRONMENT

A soil and land capability assessment was undertaken by R W Corkery & Co Pty Limited as part of the EIS (Corkery, 2014). The soils occurring within the Project Site are described as red earths with variable gravel and increasing clay with depth. Analyses of soils occurring within the Project Site found that soils were typically non-saline, with near surface pH values between 6.3 and 7.2 with slightly more alkaline subsoils, and with slight to moderate dispersibility for near surface soils and high to moderate dispersibility for deeper soils.

3.11.2 ASSESSMENT

3.11.2.1 Potential Impacts

The potential impacts relating to soil and land capability and their risk rankings (after the adoption of mitigation measures) identified in Section 4.13.1 of the EIS are reproduced below.

- *Inadequate soil available for rehabilitation purposes leading to less successful rehabilitation and increased rehabilitation costs and maintenance – low risk.*
- *Degradation of soil in stockpiles leading to less successful rehabilitation and increased rehabilitation costs and maintenance to the Mine Area – moderate risk.*
- *Erosion of the soil stockpiles leading to increased sediment loads in creeks – low risk.*

The EIS confirms that adherence to the recommended soil-related procedures and management practises together with appropriate rehabilitation practices would result in a 'generally minimum impact to soils and land capability within the Project Site' (Corkery, 2014 p. 4-86).

3.11.2.2 Mitigation Measures

The EIS confirms that the Applicant would implement the management and mitigation measures identified in Section 4.13.4 of the EIS (reproduced below) throughout the life of the proposal to mitigate the potential for adverse soil-related impacts.

- *Minimise handling of all soils, so that they retain their structural integrity, by:*
  - *i) Locating soil stockpiles adjacent to or as close as possible to disturbance areas;*
  - *ii) Stripping soil using a bulldozer or scrapper and directly placing that material into stockpiles; and*
  - *iii) Clearly marking areas for stripping and stockpiling.*
- *Strip topsoil from all areas of disturbance to a depth of approximately 20cm and store in stockpiles no more than 2m high.*
- *Strip subsoil within the footprint of the Box cut, Mine Water Pond, ROM pad and waste rock emplacement to a depth of 50cm below the base of the topsoil and store in stockpiles no more than 3m high. Subsoil would not be removed from other areas of disturbance because those areas would not be subject to further excavation or compaction of the subsoil.*
- *Spread 100mm topsoil on the subsoil stockpile to facilitate revegetation.*
- *Refrain from stripping or placing soils during wet conditions.*
- *Ensure that the formed soil stockpile surfaces have a surface that is as 'rough' as possible, in a micro-scale, to assist in surface water run off control and seed retention and germination.*
- *Spread seed of a suitable non-persistent cover crop on all soil stockpiles.*
- *Ensure that soil stockpiles are constructed with side slopes of 1:3 (V:H) or less and that the surface of all stockpiles achieves an effective 70% cover within 10 days of formation. This may be achieved through the use of mulches, spray on polymer-based products or hessian that would allow a vegetative cover to become established.*
- *Fence and signpost all soil stockpiles and limit operation of machinery on the stockpiles to minimise compaction and further degradation of soil structure.*
- *Construct clean water diversions/dirty water retention banks to direct overland surface water flow away from the soil stockpiles and retain sediment laden water.*
- *Maintain an inventory of all soil stripped, stockpiled and used during rehabilitation within the Project Site and elsewhere at the Applicant's operations.*

- It is recommended that the above-listed mitigation measures from Section 4.4.5 of the EIS are incorporated into the conditions of any consent granted.
- A Soil and Water Management Plan (SWMP) shall be prepared for the proposed development and submitted to Council for approval prior to commencement of the development. The SWMP shall be consistent with the measures outlined in Section 2.6.2 of the EIS and the measures outlined in the Blue Book.
- The SWMP shall be implemented during construction and maintained throughout operation of the development.

Soil and Water Management Plan

It is noted that the Blue Book requires preparation of an Erosion and Sediment Control Plan for sites where would be less than 2,500 square metres and a SWMP for sites where disturbance exceeds 2,500 square metres. As the site disturbance for the project would exceed 2,500 square metres, a SWMP is the appropriate tool for managing soil and water impacts.

3.12 AIR & MICROCLIMATE

3.12.1 CRITERIA

Clause 12AB of the Mining SEPP requires that the development not result in cumulative air quality levels exceeding annual average level greater than 30 µg/m^3 of PM_{10} for private dwellings.

3.12.2 EXISTING ENVIRONMENT

A qualitative air quality assessment for the Proposal was undertaken by R W Corkery & Co Pty Limited as part of the EIS. The air quality surrounding the Project Site is typical of a rural environment and influences on air quality include seasonal influence, and the extent and nature of surrounding agricultural and mining activities (Corkery, 2014).

3.12.2.1 Existing Air Pollutant Sources

The EIS identifies that the closest source of particulate emission generation is at the Girilambone Copper Mine, south of the site. Particulate emissions from this site may be generated by dust emissions from unloading/loading, wind-generated dust from exposed areas, and dust entrainment from vehicle movements on internal roads (Corkery, 2014 p. 4-67).

The EIS also identifies that particulate emissions may be generated by agricultural activities, including farm vehicle or livestock movement on exposed areas, cropping activities, and wind-blown dust from cleared or heavily grazed areas (Corkery, 2014 p. 4-67).

3.12.2.2 Background Deposited Dust Levels

Results from the deposited dust data collected from three deposited dust gauges located within the Project Site boundary between December 2011 and August 2013, indicate that average deposited dust levels in the vicinity of the Project Site are between 0.4 g/m^2/month to 0.9 g/m^2/month. These values are in line with background deposited dust results within rural communities throughout western NSW (Corkery, 2014 p. 4-68).

3.12.3 ASSESSMENT

3.12.3.1 Potential Impacts

No mention of particulate matter from diesel vehicle emissions in the EIS however this would be generally low scale in the context of the locality, it is considered that it can be adequately managed via a condition of consent.

Potential sources of dust emissions associated with the Proposal are identified in Section 4.8.3 of the EIS, and include the following:

- Construction of surface water infrastructure components.
- Surface-based materials handling.
- Haulage and placement of materials.
- Wind erosion on exposed surfaces.
- Maintenance of unsealed roads.

The potential impacts relating to air quality and their risk rankings (after the adoption of mitigation measures) identified in Section 4.8.1 of the EIS are reproduced below.

- *Amenity impacts on residents and other sensitive receivers – low risk.*
- *Health and/or amenity impacts on residential and other sensitive residences – low risk.*
- *Increased dust load on crops on surrounding agricultural land – low risk (Corkery, 2014 p. 4-66).*

The EIS confirms that the Proposal would be highly unlikely to result in dust levels that would exceed the relevant air quality guidelines at residences surrounding the Project Site due to the distance to surrounding residences, and the implementation of best practice management measures and controls (Corkery, 2014 p. 4-71).

3.12.3.2 Mitigation Measures

The EIS confirms that the Applicant would implement the management and mitigation measures identified in Section 4.13.4 of the EIS (reproduced below) throughout the life of the proposal to mitigate the potential for adverse air quality impacts.

- *Limit, where practicable, excavation of material during periods of high winds.*
- *Limit disturbance to the minimum area necessary for mining and associated activities.*
- *Operate the largest practical truck size to reduce the number of movements necessary to transport the ore and waste rock.*
- *Adhere to all vehicle speed limits.*
- *Profile all surfaces to reduce velocity of overland winds.*
- *Apply vegetative cover to non-operational exposed surfaces such as water management structures and soil stockpiles as soon as practical after disturbance.*
- *Maintain ore handling areas / stockpiles in a moist condition by using water carts to water down areas likely to generate wind-blown and traffic generated dust.*
- *Apply water to all roads and trafficked areas using water trucks to minimise the generation of dust.*
- *Water stockpiles to maintain moisture content and minimise the generation of dust.*
- *Minimise drop heights when loading ore material for transportation to the Tritton Copper Mine.*
- *Clearly define all haul road edges with marker posts or equivalent to control their locations, especially when crossing large areas of non-descript disturbance.*
- *Close, rip and revegetate all obsolete roads.*
- *Reshape, topsoil and rehabilitate all completed areas as soon as practicable after the completion of mining operations (Corkery, 2014 pp. 4-70 – 4-71).*

It is recommended that the consent conditions reflect ambient air quality outcomes, particularly in relation to suspended and deposited dust, and that the project be required to operate within these levels. It is also recommended that the consent reflect the need for point source discharges to comply with the requirements of the Protection of the Environment Operations (Clean Air) Regulation 2010.

- The applicant shall adhere to the principles outlined in Section 4.13.4 of the EIS, including but not limited to:

  (a) implement best practice air quality management on site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the project;

  (b) minimise any visible air pollution generated by the project;

  (c) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events;

  (d) take all practical measures to minimise dust emissions from the tailings storage facility;

  to the satisfaction of the Director-General.
- The applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not exceed the following listed criteria at any residence on privately-owned land
  - Particulate matter <10 um (PM_{10}) - annual average level greater than 30 $\mu g/m^3$ of PM_{10}
  - Particulate matter <10 um (PM_{10}) – 24 hour period, greater than 50 $\mu g/m^3$ of PM_{10}

- Deposited dust – annual average, not more than 2 g/m^2/month increase or not more than 4g/m^2/month total

- The applicant shall ensure that all point-source discharge locations on the site are designed and operated to comply with the maximum discharge concentrations applicable under the Protection of the Environment Operations (Clean Air) Regulation 2010 and the requirements of any Environment Protection Licence issued for the project under the POEO Act.

3.13 WASTE

3.13.1 NON-PRODUCTION WASTE

Non-production wastes are identified in Table 2.10 of the EIS, and is reproduced below in **Figure 6**.

Waste Type	Storage	Removal Method
General solid waste (putrescible), including food scraps and inert materials	Covered bins located within the crib room, office and elsewhere as required. Where these bins would be located in open areas, they would be fitted with animal-proof lids.	Collected on a regular basis by licensed waste contractor and transported to a licensed waste disposal facility.
Waste oils and greases	Placed within bunded area(s) within the workshop area.	Collected on a regular basis by a licensed waste contractor and transported to an appropriately licensed facility.
Batteries	Batteries would be placed within a covered and marked used battery storage area until removed from site.	Batteries would be collected as necessary by a licensed disposal contractor and recycled.
Tyres	Tyres would be placed within a marked used tyre storage area until removed from site or used for another purpose.	Tyres would be reused on site for construction of retaining walls, erosion protection, traffic control or would be removed from site for reuse elsewhere or recycling.
Scrap Steel /Metal	Stored in a specified areas within the workshop area or elsewhere such as the laydown area, as required.	Collected as necessary by a scrap metal recycler.
General Recyclables	Covered bins located within lunch rooms, offices, camp site and elsewhere as required. Where these bins are located outside a closed building they would be fitted with animal-proof lids.	Collected as necessary by a licensed recycling contractor and transported to an appropriate recycling facility.
Source: Tritton Resources Pty Ltd		

Figure 6: Non-production Waste Management (Source: Table 2.10 of R W Corkery EIS, 2014)

The EIS states the following:

- Non-production waste would be managed in accordance with Clause 46K(1) of the *Protection of the Environment Operations (Waste) Regulation 2005* (POEO Regulations 2005) and the *NSW Waste Avoidance and Resource Recover Strategy 2007*.
- The Applicant would implement a purchasing policy that takes into account waste management.

- The Applicant would ensure that all recyclable materials would, where practicable, be recycled on site or would be transported to an appropriate recycling facility.

It is noted that the POEO Regulations 2005 have been repealed and replaced with the *Protection of the Environment Operations (Waste) Regulation 2014* and the relevant clause is now clause 87.

- It is recommended that the above-listed non-production waste management measures from Section 4.13.4 of the EIS are incorporated into the conditions of any consent granted (updated to reflect the 2014 POEO Regulations).

3.13.2 EFFLUENT

An aerated wastewater treatment system or pump out septic system would be installed that complies with the requirements of Bogan Shire Council and would be approved for use by Council prior to being commissioned (Corkery, 2014 p. 2-30).

- Conditions of consent relating to the installation of an effluent management system are required to ensure compliance with relevant standards, prior to commissioning

3.13.3 HAZARDOUS WASTES

In Section 3.3.3.3 of the EIS, the Applicant notes that potentially hazardous goods would be used or stored within the Project Site, and would include diesel and other hydrocarbons, and explosives (Corkery, 2014).

The EIS confirms that the Applicant would store and use those potentially hazardous goods in accordance with a comprehensive *Hydrocarbon Management Plan* (Corkery, 2014 p. 3-12). It is unclear whether this plan includes disposal of hydrocarbon waste. In addition, whilst this plan is considered appropriate for potentially hazardous goods such as diesel and other hydrocarbons, it is not appropriate for the management of explosives.

The EIS doesn't address what happens with waste explosives and associated explosive materials and as such a condition of consent is proposed to ensure that this is adequately addressed, either in the Hydrocarbon Management Plan, or similar suitable document.

- Conditions of consent are recommended to provide further details of requirements for the *Hydrocarbon Management Plan*, to specifically address management measures for use, storage and disposal of diesel and other hydrocarbons.
- Conditions of consent are recommended to provide further details of requirements of explosive waste disposal in accordance with clauses under Division 6 (Disposal of Explosives) of the *Explosives Regulation 2013*.

3.14 ENERGY

An 11kV power line would be constructed from the Applicant's existing power supply at the North East Open Cut and Underground. The power line would be constructed adjacent to the Site Access Road and would provide power for the underground mine, workshop and other ancillary facilities within the Project Site (Corkery, 2014 p. 2-34).

A substation would be established near the ventilation rise to reduce the supply voltage for underground mining use. The voltage would be further reduced to 240V for supply to the workshop and other ancillary facilities within the Project Site.

Surface water pumps and other infrastructure may be powered by diesel or petrol generators.

3.15 NOISE

3.15.1 EXISTING ENVIRONMENT

A noise impact assessment for the Proposal was undertaken by EMGA Mitchell McLennan (EMM) as an element of the EIS. The existing acoustic environment of the Project Site is characterised by rural noise sources.

The noise impact assessment adopted the default background noise level adopted by the *NSW Industrial Noise Policy* of 30 dB(A) due to the absence of background noise data and generally rural nature of the Project Site (Corkery, 2014 p. 4-55).

The closest potentially affected receiver is located 2.4 kilometres from the closest disturbance at the Project Site.

3.15.2 ASSESSMENT

3.15.2.1 Potential Impacts

The potential impacts relating to noise and their risk rankings (after the adoption of mitigation measures) identified in Section 4.5.5 of the EIS are reproduced below.

- *Amenity impacts on residential and other sensitive residences (including infrasound) – low risk.*
- *Health impacts on residential and other sensitive residences (including infrasound) – low risk.*
- *Amenity impacts on residential and other sensitive residences – low risk.*

Specific noise impacts and the result of the noise assessment is identified in Section 4.5.6 of the EIS and summarised below:

- Site establishment and construction noise – under worst case meteorological scenario conditions, all residences would comply with the relevant criteria.
- Operational noise – under worst case meteorological scenario conditions, all residences would comply with the Project Specific Noise Level operational noise criteria of 25dB(A). In addition, cumulative noise emissions associated with the Proposal and the Girilambone Copper Mine would be insignificant.
- Sleep disturbance - under worst case meteorological scenario conditions, maximum noise levels associated with road train loading operations satisfied the sleep disturbance criteria at all residences.
- Road traffic noise – predicted road traffic noise levels under both cumulative transport scenarios (between the Proposal and the Girilambone Copper Mine) satisfy the *NSW Road Noise Policy* criteria at all residences on Booramugga and Yarrandale Roads and along the Mitchell and Barrier Highways.

3.15.2.2 Mitigation Measures

The EIS confirms that the Applicant would implement the management and mitigation measures identified in Section 4.5.5 of the EIS (reproduced below) throughout the life of the proposal to mitigate the potential for adverse noise impacts.

- *Strictly comply with the proposed hours of operation identified in Table 2.11* [of the EIS].
- *Regularly service all on-site equipment to ensure sound power levels of each item remains at or below the default/or factory-set values.*
- *Install frequency modulated reversing alarms to all mobile equipment.*
- *Ensure that all truck drivers would be required to comply with the Applicant's Drivers Code of Conduct outlining procedures for reducing noise impacts during transportation within the Project Site and off site.*
- *Maintain an open dialogue with the surrounding community and neighbours to ensure any concerns over noise or vibration are addressed (Corkery, 2014 p. 4-60).*

- It is recommended that the above-listed mitigation measures from Section 4.5.5 of the EIS are incorporated into the conditions of any consent granted.

3.16 VIBRATION

A blasting and vibration assessment for the Proposal was undertaken by EMGA Mitchell McLennen (EMM) as part of the noise impact assessment for the EIS.

3.16.1.1 Potential Impacts

The potential impacts relating to vibration and their risk rankings (after the adoption of mitigation measures) identified in Section 4.6.1 of the EIS are reproduced below.

- *Amenity impacts on residential and other sensitive residences – low risk.*
- *Flyrock ejected outside the blast envelope resulting in damage to nearby residences / surrounding property / infrastructure / stock – low risk.*
- *Flyrock ejected outside blast envelope resulting in injury or death – low risk.*
- *Flyrock and airblast impacting upon airborne aircraft and aerial operations – low risk.*

Section 4.6.4 of the EIS confirms the following:

- The use of a Maximum Instantaneous Charge (MIC) of 1,000kg or less would result in compliance with the ANZECC blasting criteria at the nearest residence.
- Due to the distance between privately-owned residences and the proposed box-cut, no issue would occur with regards to flyrock or blast fumes (Corkery, 2014 p. 4-62).

3.16.1.2 Mitigation Measures

Specific mitigation measures are not provided in Section 4.6 (Blasting and Vibration) of the EIS, however the following measures are identified elsewhere in the EIS and are considered to be appropriate mitigation measures:

- *Should blast fumes be visible at surrounding residences, the Applicant would undertake a review of the blast in question and discuss with the blasting contractor to identify the issue and ensure that it is not repeated should further blasts be required.*
- *The Applicant would ensure that initial blasts are monitored to determine compliance with criteria identified in Section 4.6.2 at distances less than 2.4km from the box cut. Once compliance has been demonstrated, monitoring would be discontinued (Corkery, 2014 p. 4-62).*

- It is recommended that the above-listed measures from Section 4.6.4 and Section 4.6.5 of the EIS are incorporated into the conditions of any consent granted.

3.17 NATURAL HAZARDS

3.17.1 BUSHFIRE

3.17.1.1 Existing Bushfire Hazard Environment

A bushfire management assessment for the project is provided at Section 4.12 of the EIS.

A review of Councils bushfire prone land map confirms that the site is mapped as bush fire prone.

The bushfire management assessment within the EIS was prepared by reference to the now obsolete Appendix 3 of the Rural Fire Service *Planning for Bush Fire Protection* document (2006) (hereafter referred to as PBFP). Appendix 3 to PBFP was reissued in 2010 to account for the 2009 update of

Australian Standard 3959. An updated assessment was requested and provided by the proponent via correspondence dated June 2016. This updated assessment reviewed the development in the context of the updated PBFP Appendix 3 and determined that the development would result in a Bushfire Attack Level 40 (BAL 40).

Notwithstanding the above, by reference to Part G5.2 of the NCC Building Code of Australia, the development of class 2 or 3 buildings, and class 10a buildings or decks associated with a class 2 or 3 building identifies, must comply with AS3959:2009. As the buildings proposed for the project site do not constitute either class 2, 3 or 10a buildings or decks associated with a class 2 or 3 building, AS3959:2009 is not considered to be strictly relevant to this development. Consequently, the construction standards imposed by AS3959:2009 by reference to bush fire attack levels (BALs) are not imposed on buildings of other classes.

The updated bush fire management assessment provided concluded that the site has a BAL 40.

3.17.1.2 Assessment

Potential Impacts

The potential impacts relating to bushfires and their risk rankings (after the adoption of mitigation measures) identified in Section 4.12.1 of the EIS are reproduced below.

- *Fire initiated off site threatening Site operations, impacting on-site stock and infrastructure – moderate risk.*
- *Fire initiated on site threatening Site operations or spreading off site and impacting on stock and infrastructure – moderate risk (Corkery, 2014 p. 4-79).*

The Applicant contends that the Proposal would not result in a significant adverse bush-fire related risk due to the low bush fire risk within the Project Site and the proposed mitigation measures to manage any bush fire risk (Corkery, 2014 p. 4-82).

Mitigation Measures

PBFP does not prescribe a minimum applicable asset protection zone for non-residential land with a BAL 40. Notwithstanding, the 15m cleared around proposed buildings and infrastructure is considered an appropriate control.

Section 4.12.3 of the EIS identifies the following management and mitigation measures and these would be mandated via a condition of consent:

- *Ensure that personnel are evacuated from the underground mine in the event of a bush fire encroaching upon or starting within the Project Site.*
- *Consider evacuation of all non-essential personnel from the Project Site if required.*
- *Liaise with Rural Fire Service or other emergency service personnel, in the event of a bush fire and provide all assistance required, including equipment and personnel, and follow all instructions in relation to fire management.*
- *Undertake refuelling within the designated refuelling bay or within cleared areas, with all vehicles turned off during refuelling.*
- *Enforce a no smoking policy in designated areas of the Project Site.*
- *Maintain fire extinguishers within site vehicles and refuelling areas.*
- *Ensure housekeeping activities are maintained to limit potential fuel loads within the active sections of the Project Site.*
- *Ensure a water cart with fire fighting capabilities would be available to assist in extinguishing any fire ignited.*
- *Ensure a cleared area of at least 15m is maintained around all buildings and other infrastructure within the Project Site.*

- A bush fire management plan is to be prepared and provided to Council prior to the commencement of operations incorporating, but not being limited to the following:
  - A condition of consent would be applied to ensure that the 15m cleared around the buildings and infrastructure is maintained in accordance with Appendix 5 of PBFP for the life of the development.
  - A condition of consent would be applied to ensure that the controls identified in Section 4.12.3 of the EIS are implemented via and maintained for the life of the consent.

3.17.2 FLOODING

The EIS is silent on the matter however it is understood from Council's records that the site is not flood affected.

3.18 TECHNOLOGICAL HAZARDS

3.18.1 FIRE

As discussed at **Section 3.17.1** of this report, the Project Site and surrounds is defined as Category 1 bush fire prone land. Mitigation measures identified in Section 4.12.3 of the EIS and reproduced in **Section 3.17.1.2** of this report are considered sufficient to mitigate the potential impacts associated with fires initiated off-site and on-site.

3.18.2 VEHICLE ACCIDENTS

As discussed in **Section 3.3.3** of this report, the elevated risk of accidents/incidents on local roads is considered low risk due to increased traffic levels from workforce movement, and high risk from increased heavy vehicle movements for product transportation. The level of risk assumes the implementation of mitigation measures identified in Section 4.10.3 of the EIS, reproduced in **Section 3.3.4** of this report.

Those mitigation measures are considered sufficient to mitigate the risk of accidents.

3.18.3 HAZARDOUS MATERIAL

In Section 3.3.3.3 of the EIS, the Applicant notes that potentially hazardous goods would be used or stored within the Project Site, and would include diesel and other hydrocarbons, and explosives (Corkery, 2014).

3.18.3.1 Hydrocarbons

The EIS confirms the following:

- All diesel fuel for mobile equipment would be stored in tanks with a total indicative capacity of approximately 110,000L within the fuel store area.
- Fuel tanks would either be self-bunded or would be located within a covered, concrete-sealed bund that would be sized to meet the requirements of Australian Standard 1940:2004 *The Storage and Handling of Flammable and Combustible Liquids*, namely that the capacity of bunded areas would be 110% of the volume of the largest tank.
- A sealed refuelling area would be located adjacent to the fuel store and all drainage would be directed to an oil/water separator.
- Any bulk oils, greases and waste oils would be stored within the fuel store.
- Bunded pallets would be maintained in workshop areas for storage of hydrocarbons or waste oils to be used or generated during servicing.

- Appropriate hydrocarbon spill kits would be located in the vicinity of all hydrocarbon storage areas, and the Applicant would ensure all contractors and employees are trained in their use (Corkery, 2014 p. 2-35).

- It is recommended that the above-listed mitigation measures from Section 4.13.4 of the EIS are incorporated into the conditions of any consent granted.
- Conditions of consent are recommended to provide further details of requirements for the *Hydrocarbon Management Plan*, to specifically address management measures for use, storage and disposal of diesel and other hydrocarbons. The *Hydrocarbon Management Plan* is to be provided to and approved by Council prior to the commencement of operations.

3.18.3.2 Explosives

The EIS notes that explosives would be store and used in accordance with a Hydrocarbon Management Plan.

- A copy of the final Hydrocarbon Management Plan is to be provided to Council prior to the commencement of operations to ensure the safe storage and use of explosives in accordance with the *Explosives Act 2003 and Explosives Regulation 2013*.

3.19 CLIMATE CHANGE

3.19.1 BACKGROUND

Recent LEC proceedings[1] have held that, if relevant, consideration must be given to climate change: both how the development contributes to climate change and how the development would be impacted upon by climate change.

3.19.2 CONTRIBUTION TO CLIMATE CHANGE

The EIS does not contain any specific consideration of the impacts of climate change and specifically excludes consideration of greenhouse gas emissions on the basis that they are to be conducted in concert with activities at the applicant's approved Girilambone Copper Mine and would be limited to a maximum extraction level by virtue of the current limitation on material to be transported to Tritton for processing.

The Australian Bureau of Statistics (2013) identified that the mining sector accounted for 10% of all greenhouse gas emissions in Australia, the fourth highest industry. The ABS report uses the Australian Greenhouse Emissions Inventory but reallocates transport and electricity data to specific industries.

As the proposed mine would operate in concert with existing Girilambone Copper Mine within an overarching limited extraction level, it is determined that overall emissions associated with mining would remain unchanged as a result of the project. The project would therefore have no greater contribution to greenhouse gas emissions than currently exists and therefore would not have an increased impact on climate change.

3.19.3 IMPACT OF CLIMATE CHANGE ON THE DEVELOPMENT

The DECCW document NSW Climate Impact Profile (DECCW, 2010) identifies that the western region is likely to see the following impacts as a result of climate change:

- Hotter and drier landscape;
- Increase run off and stream flow in summer but a decrease in winter and spring;
- A decline in plant cover on the drier western slopes and plains but an increase in the warmer tablelands. Sheet, rill and gully erosion are likely to worsen on the western slopes but ease on

[1] Walker v Minister for Planning [2007] NSWLEC 741.

the most vulnerable soils on the tablelands. Soil acidification is expected to lessen on the tablelands and slopes;

- Likelihood of flooding from urban streams is likely to increase;
- Widespread changes in natural ecosystems are likely. Smaller woodlands are particularly likely to be under substantial threat.

It is not considered that dot points 1 - 4 require a specific response in the context of the proposed development. In the context of the final dot point above, the proposed biodiversity offset strategy is considered to sufficiently respond to this issue to ensure that the proposed development would not further exacerbate any threat to smaller woodlands from climate change.

3.20 SAFETY, SECURITY & CRIME PREVENTION

The EIS confirms that the Applicant would incorporate the Proposal into its existing *Health and Safety Management System*. In addition, the following measures are proposed to be implemented in Section 2.12 of the EIS:

- *Use of locked gates to exclude access when site personnel are not working within the Project Site.*
- *Installation of and maintenance of safety signage around the Project Site and perimeter fencing, where necessary.*
- *A requirement that all visitors entering and departing the Project Site report their location to the Applicant through use of a tag board and sign in/sign out process as appropriate (Corkery, 2014 p. 2-38).*

- It is recommended that the above-listed mitigation measures from Section 2.12 of the EIS are incorporated into the conditions of any consent granted.

3.21 SOCIO-ECONOMIC IMPACT

The potential impacts relating to socio-economic factors and their risk rankings (after the adoption of mitigation measures) identified in Section 4.15.1 of the EIS are reproduced below.

- *Inability of local business to compete with mining wages leading to reduced staff availability for local agricultural businesses – low risk.*
- *Perception of negative health impacts on the community at surrounding residences – low risk.*
- *Increased pressure on local infrastructure – low risk (Corkery, 2014 pp. 4-91 – 4-92)*

Impacts to local infrastructure, such as housing availability, are considered to be low. It is noted that pressure on housing availability within Nyngan has grown in recent years, with several major mining and infrastructure projects being developed in the region. This, in conjunction with a gradual shift of older generation primary producers from larger holdings to small sites in town, has meant that there is a shortage of affordable housing within the Nyngan. Notwithstanding this, the EIS confirms that the applicant's employment levels would remain consistent. Tritton is also understood to be investigating development of a worker's accommodation camp within or close to Nyngan to expand on capacity of their current facility in Nyngan. Whilst not forming part of this project, this will also assist in minimising impacts associated with this development on local housing availability.

The EIS concludes that potential adverse socio-economic impacts are outweighed by beneficial impacts, including the following reproduced from Section 4.15.6 of the EIS:

- *Continued employment for approximately 318 persons, of which approximately 50% would continue to reside within the Bogan LGA.*
- *Continued contribution to the local, Regional, State and National economies, including contributions of approximately $15.8M and $10M annually within the Bogan LGA through wages and salaries and purchase of goods and services respectively, with additional indirect contributions.*

- *Continued support for local Community Organisations and Services (Corkery, 2014)*

Mitigation measures identified in Section 4.15.5 of the EIS are considered sufficient to mitigate the potential adverse socio-economic impacts associated with the Proposal.

3.22 CUMULATIVE IMPACTS

Cumulative impacts can take effect over a number of different forms, including:

- Time crowded effects, where individual impacts occur so close in time that the effects of one are not dissipated before the next;
- Space crowded effects, where individual impacts occur so close in space that the effects overlap;
- Nibbling effects, where often minor impacts erode environmental conditions; and
- Synergistic, being different types of disturbances interacting to produce an effect which is greater or different than the sum of the separate effects.

The EIS provides minimal discussion of potentially cumulative impacts in the context of surrounding developments. Those comments provided relate to cumulative noise (operational and transport), air quality, ecological and transport (movements/generation). Primarily, any cumulative impacts would occur in the context of the proposed development and the existing Girilambone Copper Mine (consisting of the Murrawombie Open Cut and associated development, and the North East Mine – refer Figure 1.4 of the EIS), located approximately two kilometres to the south.

As the Girilambone Copper Mine and Avoca Tank mines would be operated within the context of an overall maximum extraction limit of 1,000,000 tonnes per year, the cumulative impact of the two operations is considered to be no worse than the current level of operation, which also currently operates within this framework. A condition of consent would be imposed to ensure that materials extracted at Avoca are only able to be transported to Tritton for processing and to no other location. This ensures that traffic generation levels in the context of the proposed Avoca mine would remain consistent with current levels.

Notwithstanding, the following comments are provided in respect of the abovementioned potential cumulative impact areas comparing the impact of both projects operating simultaneously:

- Noise – Clause 12AB of the Mining SEPP requires that a proposed development not result in a cumulative amenity noise level greater than acceptable noise levels, as determined in accordance with Table 2.1 of the INP, for residences that are private dwellings. The noise impact assessment (EMM, 2014) provided with the EIS demonstrates that
  - Operational – cumulative noise impacts associated with the operation of the Avoca and Girilambone Mines would not be significant and that compliance with the INP would be achieved;
  - Transport – The EIS provides an assessment of noise associated with the project and the existing Girilambone Copper Mine transport operations and confirms compliance with the NSW Road Noise Policy for residents on Booramugga and Yarrandale Roads and the Mitchell and Barrier Highways.
- Air quality – Clause 12AB of the Mining SEPP identifies that development should not result in a cumulative annual average level greater than 30 ug/m3 of PM10 for private dwellings. A qualitative assessment prepared by R W Corkery concludes that exceedence of this figure is highly unlikely. Specific controls are proposed together with a commitment to carry out air quality monitoring, which would be reported via the Annual Environmental Management Report (required as a standard Mining Lease condition).
- Ecology – clearing associated with the development would be 34 hectares, or 2% of the project site. Taken together with clearing for the Girilambone Copper Mine there is the potential for cumulative ecological impacts. Given the generally small footprints of these two sites, the assessment by Envirokey that does not anticipate significant impacts. Additionally, the imposition of a condition requiring the applicant to establish biodiversity offset strategy would ensure that

any cumulative impacts associated with clearing of biodiversity is unlikely to result in any significant impacts;

- Transport – the applicant clarifies that heavy vehicle movements associated with the proposal would operate within an overarching maximum 1,000,000 tonne per year limit for transport of materials to the Tritton processing facility. This, along with imposition of a condition of consent to ensure that materials extracted at Avoca are only able to be transported to Tritton for processing and to no other location, ensures that overall traffic impacts would remain consistent with current levels.

The proposed development would not result in unacceptable cumulative impacts as outlined throughout this section. An assessment of the combined impacts associated with the project and the Girilambone Copper Mine has demonstrated that impacts are acceptable within the context of the overarching limit on the volume of extracted material that may be transported to the Tritton processing facility. Subject to a condition of consent to ensure that material is not transported to any other location, cumulative impacts would be acceptable. In a future scenario that proposed transport of material to an alternate off-site location for processing, a modification of this consent would be required and this would need to be informed by a greenhouse gas emission assessment and an updated traffic assessment, among other assessments.

Suitability of the Site

4.1 DOES THE PROPOSAL FIT IN THE LOCALITY?

There are a number of matters to consider in determining whether the proposal fits into the locality. These are generally addressed within the provisions of the Mining SEPP at **Section 2.6.7**.

4.2 ARE THE SITE ATTRIBUTES CONDUCIVE TO DEVELOPMENT?

4.2.1 IS THE SITE SUBJECT TO NATURAL HAZARDS INCLUDING FLOODING, TIDAL INUNDATION, SUBSIDENCE, SLIP, MASS MOVEMENT, AND BUSHFIRES?

The site is mapped as bushfire prone however no other of the listed environmental hazards are noted to apply. Adequate measures have been identified via the EIS and through imposition of conditions of consent to ensure that hazard from bushfire can be appropriately managed.

4.2.2 ARE THE SOIL CHARACTERISTICS ON THE SITE APPROPRIATE FOR DEVELOPMENT?

The summary of the soil environment and the anticipated impacts provided at **Section 3.11** confirms the adequacy of the soil characteristics of the site for the proposed use.

4.2.3 IS DEVELOPMENT COMPATIBLE WITH PROTECTING ANY CRITICAL HABITATS OR THREATENED SPECIES, POPULATIONS, ECOLOGICAL COMMUNITIES AND HABITATS ON THE SITE?

By virtue of the ecological assessment and through imposition of appropriate conditions requiring the applicant enter into a biodiversity offset strategy the Office of Environment and Heritage has indicated the compatibility of the development with this objective.

4.2.4 IS THE SITE PRIME AGRICULTURAL LAND AND WILL DEVELOPMENT PREJUDICE FUTURE AGRICULTURAL PRODUCTION?

Soils within the Project Site are identified as Class 6 land, or land with very severe limitations in accordance with OEH. Current use of the land is for intermittent grazing. The site is therefore not considered to represent prime agricultural land.

4.2.5 WILL DEVELOPMENT PREJUDICE THE FUTURE USE OF THE SITE FOR MINERAL AND EXTRACTIVE RESOURCES?

The proposal involves the extraction of mineral resources and a future application could conceivably propose further extraction should this prove economic. Such a situation would require a modification of an approval where granted in relation to this project or a new consent. The development would therefore not prejudice the future use of the site for this purpose.

Submissions Received

The DA was publicly exhibited and notified as follows:

- Via signage posted on the site;
- Via targeted consultation letters to potentially affected nearby land owners during the period 16 March 2015 to 16 April 2015;
- Via advertising in the Nyngan Observer for a period of 30 days from 1 April 2015, via advertisements placed on the 1st and 8 April 2015.

5.1 PUBLIC AGENCY SUBMISSIONS

Copies of agency submissions are provided in **Appendix C** and summarised in **Table 5.1**.

Table 5.1 – Public Agency Submissions

Agency	Summary of Comments
Roads and Maritime Services 20 April 2015	Roads and Maritime does not object to the proposed development and provides the following recommended condition of consent for Council's consideration: • The proponent is to prepare and implement a code of conduct relating to transport of materials on public roads as part of the considerations under Clause 16(1) of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
Roads and Maritime Services 27 June 2016	Response to additional information. No further comments provided.
Environment Protection Agency General Terms of Approval 21 July 2015	The EPA issued the general terms of approval for the project on the 21 July 2015. This includes 17 draft licence conditions – refer **Appendix D**.
Environment Protection Agency Response to additional information Undated (received by Geolyse 4 July 2016	The EPA provided a response to applicant comments against the general terms of approval. The applicant, via their additional information provided to Council dated June 2016. The applicant seeks to achieve a variation of the provisions of the proposed licence to remove conditions A3, L6.4 and M2 and modify conditions O3 and O4. The EPA has reviewed this request and has agreed to modify condition M4 to require only monitoring of rainfall. The EPA have agreed to the removal of the requirement to provide an on-site weather monitoring station due to the distance to the closest sensitive receptor. The EPA has considered the request in respect of conditions O3 and O4 and is satisfied that these to not require modification despite the applicants request to prepare a single Water Management Plan. The EPA GTA's are amended to reflect the above amendments.
NSW Department of Primary Industries (Water) (initial response dated 15 April 2015)	NSW Office of Water seeks additional information asks that Council 'stop-the-clock'. The following additional information is requested with detailed comments in Attachment 1 (refer **Appendix C**). • Section 4.4.7 refers generally to licensing requirements however no detail is provided on existing work approvals, linked water access licenses 0NALs) and water take figures. Further detail is requested to confirm existing approvals for groundwater interception, the water take requirements and the entitlements held in linked water access licenses (WALs). Where additional entitlement is required, detail is requested on whether adequate entitlement is available in other WALs held by the proponent or whether the proponent has considered the ability to purchase the required entitlement. • Clarification is requested on the methods used to estimate the groundwater inflows listed in Table 4.12 of the EIS. The Office of Water advises that adequate water entitlement needs to be held to account for water taken whether it is for consumptive use or incidentally by an aquifer interference activity.

Table 5.1 – Public Agency Submissions

Agency	Summary of Comments
	• Clarification is requested of the numerical modelling referred to on page 1-35 of Appendix 7 of the EIS as no detail of this model is provided elsewhere in the report. • A conceptual groundwater monitoring and mitigation plan is requested to understand the proposed measures to monitor and address potential impacts due to the aquifer interference activity. The estimated impact on 2 private bores exceeds the Level 1 minimal impact considerations of the Aquifer Interference Policy, hence make good provisions are requested to be included in the monitoring and mitigation plan in an unlikely event of impact. Section 4.4.8 refers to monitoring of existing bores but further detail is requested to support how this will monitor the predicted impacts of the proposed activity and that the current bores will not become obsolete due to drawdown impacts.
NSW Department of Primary Industries (Water) General Terms of Approval 24 June 2016	Based on a review of information supplied by the applicant dated June 2016, the DPI Water is prepared to issue General Terms of Approval (GTA) and recommended conditions of consent. The licensing requirements that the GTA relate to include the following: - Work Approval under the Water Management Act 2000 for an excavation which will result in the take of groundwater. Detailed comments are provided in Attachment A, Recommended conditions of consent in Attachment B and General Terms of Approval in Attachment C (refer **Appendix C**). Please note Council's statutory obligations under section 91A(3) of the Environmental Planning and Assessment Act, 1979 (EPA Act) which requires a consent, granted by a consent authority, to be consistent with the GTA proposed to be granted by the approval body. If the proposed development is approved by Council, the Office of Water requests that the attached GTA be included (in their entirety) in Council's development consent. Please also note the following: - DPI Water should be notified if any plans or documents are amended and these amendments result in more than minimal change to the proposed development or in additional works on waterfront land. Once notified, DPI Water will ascertain if the amended plans require review or variation/s to the GTA. This requirement applies even if the proposed works are part of Council's proposed consent conditions and do not appear in the original documentation. - DPI Water should be notified if Council receives an application to modify the development consent if the modification relates to a matter covered by our GTA. Failure to notify may render the consent invalid. - DPI Water requests notification of any legal challenge to the consent. Under section 91A(6) of the EPA Act, Council must provide DPI Water with a copy of any determination/s including refusals. The GTA in Attachment C are not the work approval (refer **Appendix C**). The applicant must apply to DPI Water for the work approval after consent has been issued by Council and before the commencement of the related works.
Office of Environment and Heritage 10 April 2015 (initial response)	OEH considers that the EIS does not meet the Director General's requirements. Specifically, a Biodiversity Offset Strategy should be prepared to offset the area of impact. Further details are provided in Attachment A (refer **Appendix C**).
Office of Environment and Heritage Response dated 24 June 2016	OEH has reviewed the information supplied by the applicant and considers that the proponent has not addressed the OEH's concerns regarding offsetting. Conditions of consent requiring the proponent to establish suitable offsets for areas of native vegetation being impacted by the project are recommended (refer **Appendix C** for detailed OEH comments and **Section 3.6** for assessment).
NSW Resources and Energy General Terms of Approval 5 March 2015	Supports the proposed project subject to the implementation of the following conditions on any consent: 1. ***Rehabilitation Management Plan/Mining Operation Plan (RMP/MOP)*** *The proponent must prepare and implement a Rehabilitation Management Plan I Mining Operations Plan for the project area to the satisfaction of the Secretary of DTIRIS. This Plan must be:* *a) prepared in consultation with the ORE, Office of Environment and Heritage, Planning and Environment, NSW Office of Water, NSW EPA and Broken Hill City Council* (it is assumed this is an error and should refer to Bogan Shire Council);

Table 5.1 – Public Agency Submissions

Agency	Summary of Comments
	b) prepared in accordance with the relevant DRE guidelines and in consultation with the ORE; and *c) submitted -to the Secretary of DTIRIS within 3 months of this approval.* ***2. Exploration Activities*** *a) Exploration activities must be notified to, and approved by, ORE prior to commencement. Relevant due diligence assessment reports and environmental assessment reports must be provided and must address the following:* *• summary of the Proposed Activity; • description of the Site(s);* *• existing Environment - including general description, surface and groundwater, threatened species, populations and ecological communities, aboriginal cultural heritage values, historic and natural heritage values;* *• impact assessment;* *• summary of Impacts;* *• conclusions; and* *• Statement of Commitments* *b) Details of exploration activities must be documented in the Annual Environmental Management Report.*
NSW Resources and Energy Response to additional information Undated (received by Geolyse 11 July 2016)	*The Division has reviewed the applicants Response to Submissions, dated June 2016 by AusGold Mining Group (the Proponent) and considers that its submission has been responded to satisfactorily.* *If exploration is not approved as part of the development consent, the details of the proposed prospecting will be required to be included in a Mining Operations Plan (MOP) and adequately reflected in a Rehabilitation Cost Estimate (RCE) for the relevant mining lease. Details to be included in the MOP should cover the extent and location of the area that will be affected by prospecting during the MOP's term.* *Further, the Division would like to note that a number of the its guidelines and policies surrounding exploration on a mining lease have been released. Attached is a Frequently Asked Questions document Prospecting on a mining lease which may be of assistance to you in circumstances where a development consent does not contemplate prospecting.*
Heritage Council Response to additional information 21 July 2016	The Heritage Division has considered the information supplied and notes the commitment by the proponent to update the response strategy. To ensure the response strategy continues to appropriately manage historic heritage during the proposed works, the following updates are recommended: • The definition for 'historical relics' has changed from a 'greater than 50 years of age' to management of sites based on significance to reflect the definition of 'relic' in the NSW Heritage Act 1977. The sections in the report (p.A3-12) should be updated to reflect this. (Refer to section 4 of the Heritage Act and the definition of relics). • A procedure should be included in the response strategy specifically dealing with the unexpected identification of historic heritage items or relics during works and how these should be managed. This should also identify any approvals under the Heritage Act 1977 that may be required. It is also noted the RtS has confused historic and Aboriginal heritage in parts. The CHMP should be clear in expressing when advice relates to Aboriginal and when to historic heritage matters and ensure that advice is correct. Updating the above information may enable this area to be better addressed.

5.2 SPECIAL INTEREST GROUPS

No SIG submissions received.

5.3 INDIVIDUAL SUBMISSIONS

No individual submissions received.

The Public Interest

6.1 OBJECTS OF THE ACT

6.1.1 INTRODUCTION

It has been held in various NSW Land and Environment Court (LEC) proceedings that the objects of the EP&A Act are a relevant consideration, under the heading of public interest in Section 79C, where they have relevance to an issue. The objects of the Act are:

(a) *to encourage:*

- (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
- (iii) *the protection, provision and co-ordination of communication and utility services,*
- (iv) *the provision of land for public purposes,*
- (v) *the provision and co-ordination of community services and facilities, and*
- (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) *ecologically sustainable development, and*
- (viii) *the provision and maintenance of affordable housing, and*

(b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*

(c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

Of the above objectives, (i), (ii), (vi) and (vii) are considered specifically relevant to the project. These matters are discussed in the following sections.

6.1.2 PROPER MANAGEMENT, DEVELOPMENT & CONSERVATION OF RESOURCES

The proposed development involves the proposal to carrying out the extraction of mineral resources. Through imposition of conditions requiring that the activities occur in accordance with the mitigation measures proposed and the controls set down by the relevant regulatory stakeholders, the development would result in the proper management, development and conservation of resources.

6.1.3 PROMOTION & CO-ORDINATION OF THE ORDERLY & ECONOMIC USE & DEVELOPMENT OF LAND

The project utilises an existing natural resource. The land use is permissible with council consent. Through imposition of conditions requiring that the activities occur in accordance with the mitigation measures proposed and the controls set down by the relevant regulatory stakeholders, the development represents the orderly and economic use of land. The development would result in positive economic impacts at a local and regional level.

6.1.4 PROTECTION OF THE ENVIRONMENT

By virtue of relevant GTA's for the development, and through imposition of recommended conditions of consent, the development can be reasonably expected to occur in a manner that would not lead to any significant impact to the environment.

6.1.5 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Ecologically Sustainable Development (ESD):

> *requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:*
>
> *(a) the precautionary principle—namely, that 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.*
>
> *In the application of the precautionary principle, public and private decisions should be guided by:*
>
> *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
>
> *(ii) an assessment of the risk-weighted consequences of various options,*
>
> *(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*
>
> *(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*
>
> *(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:*
>
> *(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
>
> *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
>
> *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

These matters, where relevant, are discussed below.

6.1.5.1 Precautionary Principle

The EIS outlines at Section 4 those specific impacts that may occur as a result of the project and provides a comprehensive range of safeguards to minimise this risk. The assessment provided throughout Section 3 of this report demonstrates that the assessment is considered to be generally adequate and the safeguards (except to the extent where amended by proposed conditions of consent) are appropriate.

The analysis of risk prepared by the applicant at Section 5.2 of the EIS identifies the only high residual risk item (subject to the implementation of proposed control measures) being the elevated risk of road accident/incident in respect to both workers and heavy vehicles. Medium risk items included:

- Impacts to known or unknown Aboriginal heritage sites; and

- Risk of bushfire initiated either on or off site.

All other identified residual risks are low or positive, subject to the implementation of proposed control measures.

Construction and operational safeguards are to be incorporated within a relevant environmental management plans (outlined in Section 4.3.7.3 of the EIS) and implemented as necessary to ensure that risk of impacts is appropriately managed.

6.1.5.2 Intergenerational/Social Equity

The EIS concludes that social equity is achieved through continued provision of the Tritton employment workforce, of which 51% reside in the Bogan LGA.

Other potential intergenerational or social equity issues relate to any long term environmental impacts which thereby affect future generations. A review of the EIS concludes that there are no significant long term impacts that would result in unacceptable impacts to future generations.

6.1.5.3 Conservation of Biological Diversity and Ecological Integrity

The application has been referred to OEH for their review, and subject to imposition of recommended conditions, including the requirement to enter into a biodiversity offset strategy, the development is considered unlikely to lead to a reduction in biological diversity and ecological integrity.

6.1.5.4 Improved Valuation, Pricing and Incentive Mechanisms

The EIS provided the following comments on improved valuation, pricing and incentive mechanisms:

> *This principle involves consideration of the Proposal and the surrounding environmental resources (e.g. air, water, land and living things) which may be affected and the financial resources required by the Applicant to minimise or manage these impacts on surrounding environmental resources.*
>
> *The Applicant's principal objective of the Proposal is the design and operation of an underground mining operation in a manner that minimises surface disturbance and any impact on the environment and surrounding residents. The Applicant has financially committed to this and other such measures by providing adequate financial resources (from the sale of processed products) to reinstate any disturbed habitat through appropriate rehabilitation procedures, as well as providing for the installation and ongoing management of fences to reduce the chance for any interaction with the identified Aboriginal and historic heritage sites.*
>
> *It is planned that the income received from the sale of the processed ore would be sufficient to enable the Applicant to achieve an acceptable profit level whilst undertaking all environmentally-related tasks and meeting all commitments in all approvals, licences and permits and those made to the local community.*

The NSW Land and Environment Court planning principle (*BGP Properties Pty Limited v Lake Macquarie City Council [2004] NSWLEC 399*) suggests that this may be demonstrated in the following ways:

- *polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
- *the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
- *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems."*

By reference to the measures proposed throughout the EIS, including the statement of commitments, and the measures to be imposed by way of consent, it is considered that the development demonstrates adequate consideration of this principle.

6.1.5.5 Conclusion

Council has considered the encouragement of ecologically sustainable development (ESD) (Object 5(a)(vii)) throughout its assessment of the merits of the application, and sought to integrate all significant economic and environmental considerations and avoid any serious or irreversible damage to the environment, based on an assessment of risk-weighted consequences. Based on this consideration, Council is satisfied that the project can be carried out in a manner that is consistent with the principles of ESD.

6.2 OTHER MATTERS OF PUBLIC INTEREST

6.2.1.1 Loss of Primary Production Land

Primary production land affected by the proposal is classed as Class 6, land, or land with very severe limitations.

The proportion of land to be utilised by the project is low in the context of the surrounding locality. Rehabilitation of the land at the end of the operating life of the mine would ensure that it can be returned to its current intermittent grazing purpose. Thus there would be no long term loss of primary production land.

6.2.1.2 Economic Stimulus

The development ensures the continued employment of the Tritton workforce, of which over 50% reside in the Bogan Shire. This has logical positive economic benefits for the community through payment of wages and expenditure of wages in the local community. In addition, continued interaction with local mining businesses would provide another tier of economic

Conclusion

7.1 CONCLUSION

Geolyse on behalf of Bogan Shire Council has completed a detailed assessment of the project in accordance with the requirements of the EP&A Act.

The proposed development is permitted with consent in the RU1 zone pursuant to the *Bogan Local Environmental Plan 2011* (LEP) and clause 7 of the Mining SEPP.

The development has been assessed against the provisions of the Bogan LEP, Mining SEPP, SEPP 33, SEPP 44, Infrastructure SEPP and Bogan DCP 2012 and is considered generally acceptable. There are no draft or deemed instruments affecting the development. There are no planning agreements entered into, or any draft planning agreements offered by the developer. No provision of the Regulations (specified for the purpose of s.79C(1)(a)(iv) of the Act) are applicable to this development.

The assessment concludes that, by reference to the scale of the project, the proposed duration of works, the nature of the controls and commitments under which the project would be operated, and by reference to the range of recommended conditions, that the development has limited potential for significant impacts outside of the site boundaries.

The project would result in continued positive economic impacts to the locality and region and is considered to be in the public interest. The development should therefore be approved subject to the recommended conditions.

7.2 RECOMMENDATION

It is recommended that the JRPP, in adopting the determination functions of the consent authority in respect of this application, approve the development subject to the range of conditions provided at **Appendix E**.

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