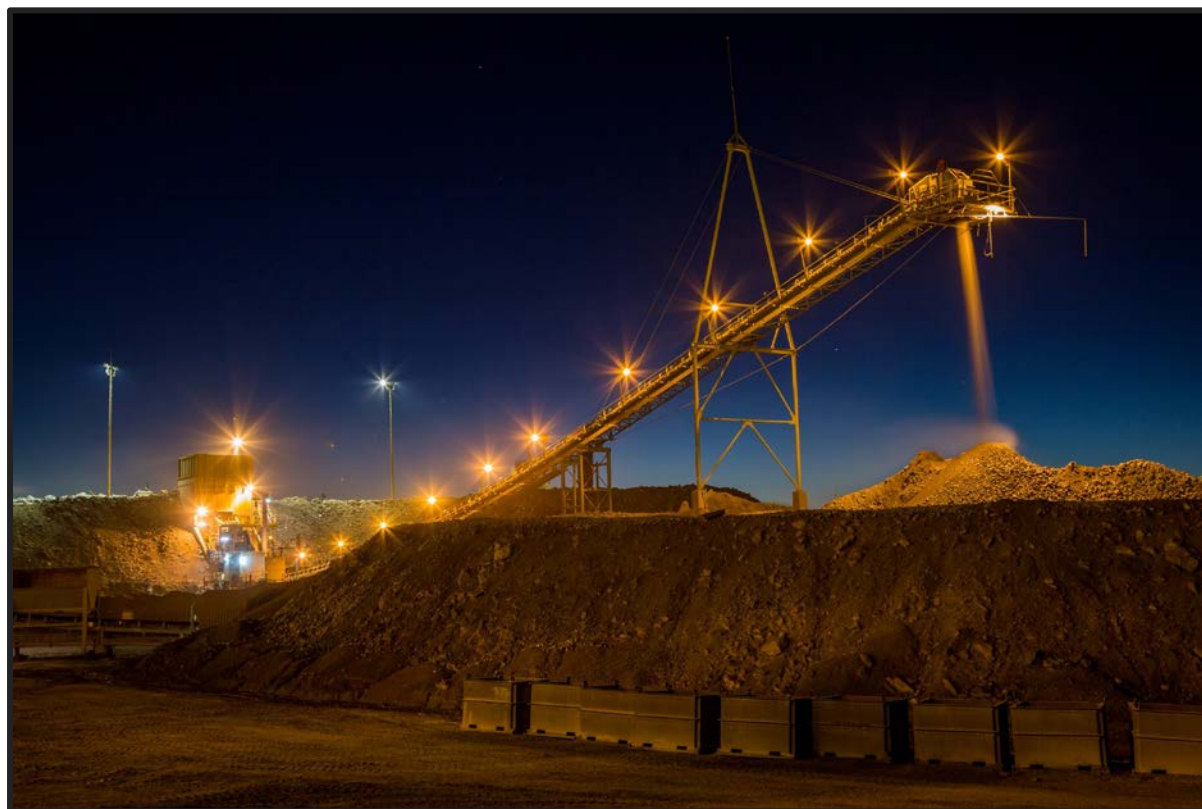




Tritton Copper Mine Modification 8

Budgerygar Underground Extension
State Significant Development Modification Assessment
(DA41/98-Mod-8)

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Cover image: *Tritton Copper Mine (Source: Aeris Resources)*

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1 Introduction

Tritton Copper Mine (the mine) is an underground copper mine located approximately 45 kilometres (km) northwest of Nyngan in the Bogan Local Government Area (LGA) (see **Figure 1**).

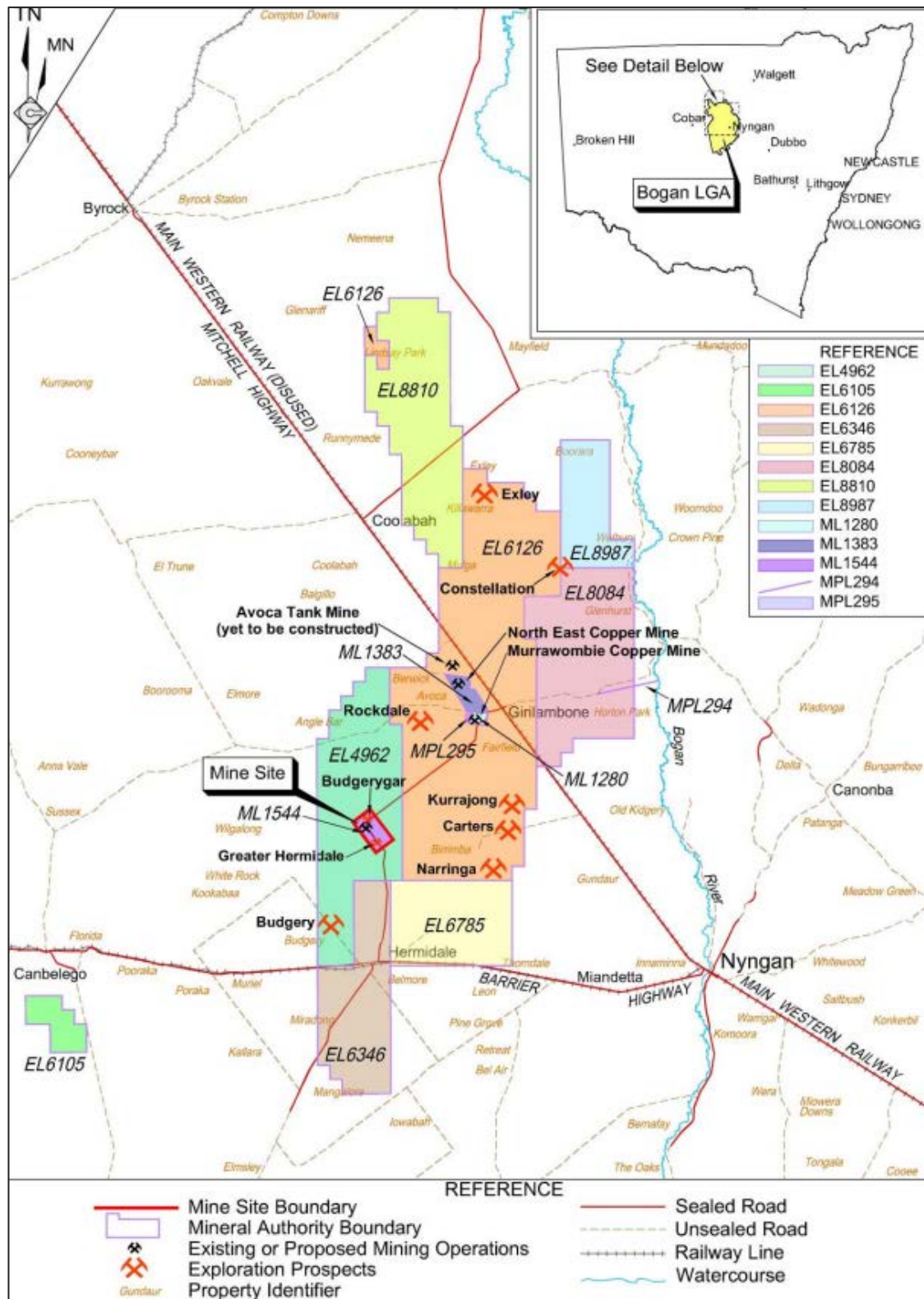


Figure 1 | Tritton Copper Mine Locality Map (Source: Tritton Modification Report, MOD 8, Tritton)

The mine is owned and operated by Tritton Resources Pty Ltd (Tritton), along with three other copper mines in the near vicinity (North East Copper Mine, Murrawombi Copper Mine and Avoca Tank Mine).

The mine operates under a development consent issued by the then Minister for Planning and Urban Affairs on 1 September 1999. The consent has been modified on seven occasions and allows for:

- extraction of approximately 10.2 Million tonnes (Mt) of copper ore using underground mining techniques;
- processing up to 1.4 Mt of ore onsite, including up to 1Mt of ore imported from other Tritton operations;
- transport of copper product by road to the Hermidale rail siding for export;
- capped export of waste rock;
- excavation and export of tailings for use in pastefill operations at the Murrawombi Mine; and
- other ancillary mining activities, including tailings storage, waste rock emplacement and water management infrastructure.

2 Proposed Modification

The proposed modification involves:

- underground mining of an additional resource deposit (referred to as the 'Budgerygar deposit'), located approximately 600 metres (m) to the north east of the existing Tritton deposit;
- extraction of approximately 2.6 Mt of copper ore from the Budgerygar deposit;
- installation of surface infrastructure to support underground operations, including power supply, fencing, water and paste fill pipelines;
- raising the existing Waste Rock Emplacement (WRE) area by 10 m;
- disposal of drill cuttings from Tritton exploration activities and screened waste material (referred to as 'mill trash') within excavated cells in the Tailings Storage Facility; and
- an extension of the mine life for an additional four years, until 22 December 2028.

Following exhibition of the modification application and advice from the Environment Protection Authority (EPA), Tritton advised that it no longer sought to dispose of mill trash in the Tailings Storage Facility (see **Section 4.2**).

The proposed modification would provide ongoing employment of approximately 296 personnel for an additional four years.

No other elements of the approved development would be altered as a result of the proposed modification, including the extraction method, annual extraction rate and operating hours.

The proposed modification is depicted in **Figure 2** and described in detail in the Modification Report (see **Appendix A**) and the Submissions Report (see **Appendix B**).

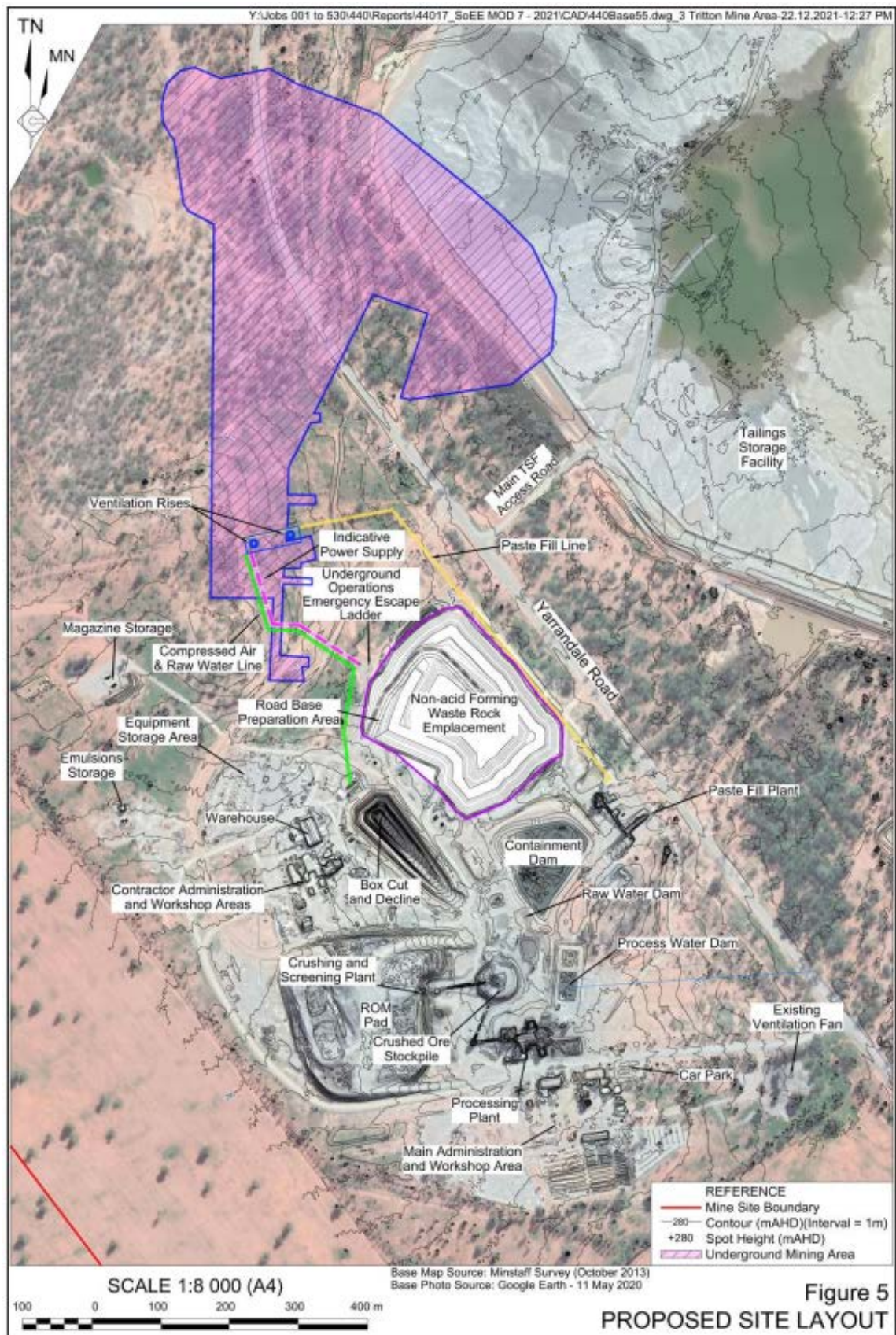


Figure 2 | Proposed Site Layout (Source: Tritton Modification Report, MOD 8, Tritton)

3 Statutory Context

3.1 Scope of Modification

The modification application and Modification Report were lodged under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Department has reviewed the scope of the modification application and considers that:

- the proposed mine life extension is relatively minor in comparison to the approved mine life;
- although the modification would result in the extraction of additional copper resource, the impacts of the development as modified would be similar to the impacts of the approved development; and
- the development would remain substantially the same development as approved under the most recent Section 75W modification (Modification 6 in 2019).

Therefore, the Department is satisfied the proposed modification is within the scope of section 4.55(2) of the EP&A Act and does not constitute a new development application. Accordingly, the Department considers that the application can be assessed and determined under section 4.55(2) of the EP&A.

3.2 Consent Authority

The Minister for Planning (the Minister) is the consent authority for the modification application under section 4.5(a) of the EP&A Act. However, under the Minister's delegation of 9 March 2022 the Director - Resource Assessments, may determine the application. This is because Tritton has not made any reportable political donations and Bogan Shire Council (Council) did not object to the proposed modification and there were no submissions by way of objection.

3.3 Mandatory Matters for Consideration

The Department has considered relevant required matters in accordance with section 4.15(1) of the EP&A Act including the objects of the Act, applicable environmental planning instruments, the likely impacts of the modification application, site suitability and the public interest. The Department has also considered the reasons for the granting of the original application in its assessment of the project and is satisfied that the proposed modification does not affect the decision that was previously made.

4 Engagement

4.1 Department's Engagement

The Department publicly exhibited the modification application from Wednesday 23 February 2022 to Tuesday 8 March 2022. The application was also referred to Council and relevant State government agencies for advice.

The Department received advice from seven government agencies. No submissions were received from Council or members of the public.

4.2 Summary of Advice

Crown Lands noted that a significant part of the mine is located on Crown Land and that there is no record of agreement for its use. Crown Lands advised that Tritton is required to:

- enter into a Section 265 compensation agreement within 12 months for the use of relevant Crown land lots; and
- permit free and uninterrupted passage of stock through one of two parts of the site covered by Travelling Stock Reserves.

Tritton agreed to these requests.

The **Department's Water Group** (DPE Water) provided post approval recommendations to address potential water impacts including preparing an updated Water Management Plan, implementing methods to report accurately on water take and ensuring sufficient water entitlement is held prior to take occurring. The Department has considered the water impacts of the proposed modification in **Section 5**.

The **Department's Biodiversity, Conservation and Science Directorate** (BCS) requested further analysis of plant community types in areas with potential for groundwater dependent ecosystems (GDEs) to justify conclusions that GDEs are unlikely to be impacted. In its Submissions Report, Tritton provided an additional review of GDEs and BCS subsequently advised that they were satisfied with the information provided.

The **Department of Regional NSW – Mining, Exploration & Geoscience** (MEG) advised that the proposed modification is consistent with the objects of the *Mining Act 1992* and that it would achieve efficient and optimised resource outcomes. MEG provided an assessment of the economic benefits of the modification which concluded that an appropriate return would be provided to the NSW government. Lastly, MEG requested Tritton consider potential resource sterilisation should any future biodiversity offset areas be required.

The **Environment Protection Authority** (EPA) advised that disposal of mill trash within the Tailings Storage Facility was not supported and that this waste stream should be disposed of in an appropriately licensed landfill. The EPA also advised that importing and disposing of treated drilling mud in the in the Tailings Storage Facility would not meet the criteria of the relevant recovery order and exemption.

Following further consultation with the EPA, Tritton advised that it no longer sought to dispose of mill trash in the Tailings Storage Facility under the modification and that it would consult with EPA to facilitate permissible handling and disposal of treated drilling mud on the site under its Environment Protection Licence (EPL).

Lastly, EPA recommended that any new monitoring wells installed on site are incorporated into the sites' EPL and ongoing monitoring requirements.

The **Resources Regulator** noted that Tritton is required to undertake a risk-based approach to achieving the required rehabilitation outcomes and must comply with rehabilitation requirements under the relevant mining authorisations.

Transport for NSW (TfNSW) requested that the mine's Drivers Code of Conduct be updated and that haulage of additional material to the site be limited (ie. one load per day / 50 loads per year) to ensure

safety within the existing road network. The Department has considered the traffic impacts of the proposed modification in **Section 5.2**.

Dam Safety NSW noted that the Tailings Storage Facility is a declared dam of significant consequence and the deposition of coarser materials would need to be placed well away from the dam embankment. The Department has considered this matter further in **section 5.1**.

Bogan Shire Council (Council) advised that it had no comments on the proposed modification.

5 Assessment

The Department has assessed the modification application and supporting information in accordance with the relevant requirements of the EP&A Act, including the matters for consideration, as set out in section 4.15(2) of the EP&A Act.

5.1 Water Resources

The key water impacts associated with the proposed modification relate to groundwater drawdown and management of Potential Acid Forming (PAF) material and the Tailings Storage Facility.

The Modification Report included a groundwater assessment prepared by GHD Pty Ltd with supplementary information provided in the Submissions Report including a Groundwater Dependent Ecosystem Review Report prepared by Envirokey Pty Ltd.

Groundwater in the vicinity of the site occurs within the fractured rock aquifer of the Lachlan Fold Belt. Groundwater levels generally range between 20 m and 90 m below ground level with water quality brackish to saline. The mine lies within the Bogan River catchment. There are some unnamed ephemeral draining lines in the mine's vicinity, however, there are no permanent water courses or drainage lines within the Budgerygar extension area.

Groundwater Drawdown

Key water impacts of the proposed modification relate to groundwater inflows to mining areas and associated drawdown of the groundwater table. It is predicted that groundwater inflows to the Budgerygar workings would remain similar to existing operations, with a predicted annual peak inflow of around 55 ML/year.

The extent of groundwater drawdown is predicted to increase by approximately 400 m, from around 4 to 4.4 km from the underground workings. However, Tritton advise that these predictions are likely to be conservative as historic monitoring has recorded limited drawdown in the vicinity of the mine.

There are three private landowner bores within approximate 25 km of the mine, the closest of which is around 19 km. The extent of drawdown associated with the proposed modification is therefore not predicted to impact any landholder bores. Similarly, due to the distance between the mine and other nearby mining operations (notably the Murrawombi Mine being the closest operation located approximately 20 km away), cumulative groundwater impacts are not expected.

The Groundwater Assessment concludes that the proposed modification would not exceed the Level 1 minimal impact considerations under the *NSW Aquifer Interference Policy* for groundwater levels and pressure head decline at a registered water supply work.

DPE Water raised no concern with the groundwater assessment, however provided a number of post approval recommendations including updates to the site's Water Management Plan.

Groundwater Dependent Ecosystems

The *Bureau of Meteorology Groundwater Dependent Ecosystem Atlas* identifies potential terrestrial GDEs within the predicted extended drawdown. The groundwater assessment concluded that GDEs would be unlikely to be impacted as groundwater levels generally present at depths below tree root depth. Following advice received from BCS during the exhibition period, Tritton undertook a further review of the plant community types (PCTs) within the predicted drawdown extent. This review concluded that the identified PCT with GDE potential (ie PCT 36 – *River Red Gum tall to very tall open forest / woodland wetland on rivers on floodplains*) would be unlikely to rely on the groundwater source due to its high salinity levels.

The groundwater assessment identified two low-potential aquatic GDEs approximately 7.5km south-west and 13.3km south of the Budgerygar deposit. However, both are located outside the extent of drawdown and would not be affected by the proposed modification.

Overall, the Department considers that potential impacts on GDEs are unlikely.

Water Quality

The key risks to water quality at the mine relate to PAF waste rock and the Tailings Storage Facility. Both aspects require careful management to avoid adverse offsite water quality impacts associated with acid mine drainage, groundwater seepage or leakage of tailings.

PAF Waste Rock

The proposed modification would require handling and management of additional waste rock from the Budgerygar deposit. The groundwater assessment advised that there is potential for oxidisation of PAF material during dewatering of underground workings.

Tritton propose to mitigate these potential impacts of acid mine drainage by preferentially using PAF material to backfill completed stopes or in paste fill production, and encapsulating PAF material if it is brought to the surface. These practises are currently implemented at the mine and the existing conditions of consent include measures to identify, prevent and manage potential acid mine drainage. Monitoring associated with previous workings in the Tritton deposit indicates no migration of acid mine drainage has occurred to date.

Should impacts on groundwater quality occur, the groundwater assessment concludes that it would be localised to the vicinity of the exploration decline and would not lower the beneficial use category of the groundwater source.

Tailings Storage Facility

A small part of the Budgerygar deposit lies directly beneath the Tailings Storage Facility (see **Figure 2**), however, its separation depth from the base of the facility is considered sufficient to avoid

structural impacts (ie approximately 260 m). Tritton also adopts non-subsiding mining methods and no subsidence impacts are anticipated on the facility or any other mining infrastructure.

The proposed modification seeks to undertake additional excavation and disposal of drill cuttings in the Tailings Storage Facility. The key risks associated with these activities are potential damage to the facility embankment or lining that could result in offsite leakage of tailings.

Tritton propose to manage potential excavation risks through careful design and emplacement methods, including:

- locating emplacement cells at least 80 m from the edge of the embankment and 150 m away from the decant pond;
- limiting cell depth to 1.5 m (which is between 4.4 m and 9.4m above the lining of the facility); and
- regularly inspecting cells to ensure water is not ponding in them or near the embankment.

Dam Safety NSW advised that the deposition of drill cuttings within the Tailings Storage Facility would be possible, but procedures would need to be developed in consultation with a qualified dams engineer. The Department has also included a condition requiring that any import of drill cuttings to the site be undertaken in accordance with the requirements of the EPL. A variation to the EPL would be required to facilitate receipt and handling of the drill cuttings.

The Department has recommended that Tritton prepare a Disposal Management Plan that includes details of the process to dispose of drill cuttings in the facility, in consultation with Dams Safety NSW and the EPA.

It is also noted that the existing conditions of consent include requirements to ensure the long-term stability of the Tailings Storage Facility and the proper management of declared dams is regulated by Dams Safety NSW under the *Dams Safety Act 2015*.

Water Entitlement

The groundwater assessment predicted a peak groundwater inflow during mining of around 55 ML/year and a post-mining peak of around 50 ML/year. Tritton advised that they hold an entitlement of 334 ML within the *Lachlan Fold Belt Murray Darling Basin Groundwater Source* under two Water Access Licences.

DPE Water advised that only one of these licences (WAL31090) is allocated to the Tritton mine and appropriate dealings would need to be undertaken to re-allocate existing works approvals or obtain water entitlement through other measures.

Tritton advised the existing works approvals are sufficient to cover both the Tritton and other mining operations and that it would consult with DPE Water to ensure appropriate re-allocation.

Surface Water Management

Except for managing potential water quality risks associated with PAF material and the Tailings Storage Facility, risks to surface water associated with the proposed modification are minimal. Tritton currently implements a surface water monitoring program and erosion and sediment control practises in accordance with *Managing Urban Stormwater: Soils and Construction* (Landcom 2004) (i.e. the Blue Book).

There would be no changes to the mine discharge regime, which would continue to operate with zero discharge requirements.

DPE Water also concluded that the potential surface water impacts could be effectively mitigated through implementation of the Blue Book practices. The Department considers that the potential surface water impacts are minimal and can be managed under existing and updated conditions of consent.

Conclusion

Overall, the Department considers that the water-related impacts of the proposed modification are minimal, as:

- there is no predicted drawdown on privately owned bores, GDEs or cumulative drawdown impacts due to the mine's remote location;
- potential impacts associated with PAF waste rock and the Tailings Storage Facility can be appropriately mitigated through design and management practices;
- Tritton holds sufficient water allocation to account for water take of the proposed modification, subject to re-allocation of water entitlement from its other mining operations;
- potential surface water impacts are minimal and can be managed through proper erosion and sediment control practices.

The Department has recommended a range of updated water-related conditions to ensure contemporary practices are implemented at the mine for the remainder of its life. This includes:

- overarching water performance measures;
- a contemporary Water Management Plan condition that consolidates management practices relating to erosion and sediment control, surface and groundwater monitoring programs and management;
- a requirement for Tritton to ensure sufficient water is available during all stages of development and obtain all necessary water licences for the development; and
- a Disposal Management Plan to detail processes to dispose of drill cuttings in the facility.

5.2 Other issues

The Department considers that other issues associated with the proposed modification are minor and would not significantly increase impacts from the approved development. The Department has summarised its assessment of these matters in **Table 1** below.

Table 1 | Assessment of Other Issues

Issue	Findings	Recommendations
Traffic	<ul style="list-style-type: none"> • The proposed modification would: <ul style="list-style-type: none"> - increase truck movements to facilitate the importation of drill cuttings to the site, including 50 heavy vehicle loads (ie 100 movements) per year, with a maximum of one load per day (ie two movements); and - result in continued road haulage of copper product for an additional four years, with no change to annual haulage rates. • The Modification Report concludes that the road network would be able to accommodate the extended and additional 	The Department has recommended a condition limiting the haulage of drill cuttings to 50 truck loads (ie.100 movements) per year and the inclusion of a Driver's Code of Conduct within the

Issue	Findings	Recommendations
	<p>haulage and that there is sufficient sight distance (ie up to 900 m) at the site intersection with Yarrendale Road for turning heavy vehicles.</p> <ul style="list-style-type: none"> The Department agrees with the findings of the Modification Report and notes that the mine is located in a remote area with Tritton being the principal road user of Yarrendale Road. To ensure the additional road haulage is safely facilitated within the road network, TfNSW recommended a condition limiting drill cutting haulage to the site and an updated Driver's Code of Conduct. The Department has recommended conditions to this effect. Subject to the recommended conditions, the Department considers that the traffic impacts of the proposed modification are acceptable. 	<p>Traffic Management Strategy.</p>
Noise	<ul style="list-style-type: none"> The proposed modification would generate some additional noise sources from the higher emplacement of waste rock and excavation in the Tailings Storage Facility. Overall noise generated by the mine is not predicted to change substantially, however, as a result of the mine life extension, noise sources would continue for an additional four years. The mine is located in a remote area with the closest receiver located over 4 km away. The Modification Report concludes that the mine could continue to operate in accordance with existing noise criteria of the consent. Existing noise criteria of the consent was established in 1999 using an L_{A10} index. These criteria do not reflect contemporary standards. As the proposed modification seeks to extend the life of the mine by an additional four years, the Department considers that contemporary noise limits should be in place. The Department has recommended that the minimum noise criteria prescribed by the <i>Noise Policy for Industry 2017</i> be applied. Tritton advised that this noise criteria would be achievable. EPA raised no concern of potential noise impacts and the Department's recommended conditions. Subject to the recommended conditions, the Department considers the noise impacts of the proposed modification to be acceptable. 	<p>The Department has recommended contemporary noise criteria and operating conditions.</p>
Air Quality	<ul style="list-style-type: none"> The proposed modification would involve some additional dust generating activities, including waste rock emplacement at higher elevation, heavy vehicle haulage and exaction in the Tailings Storage Facility. It would also result in the continuation of existing dust generating activities for a further four years. 	<p>The Department has recommended contemporary air quality operating conditions.</p>

Issue	Findings	Recommendations
	<ul style="list-style-type: none"> The mine is located in a remote area with the closest receiver located over 4 km away. Tritton advise that processing activities would not change in scale or intensity, and that mitigation measures would be implemented to minimise dust generation on site. This includes watering exposed surfaces, covering truck loads and limiting operations during periods of high wind. The Modification Report concludes that dust emissions from mining operations modification would continue to be compliant with all relevant criteria. The Department considers that the air quality impacts of the proposed modification are minor and can be managed under existing and updated conditions of consent. 	
Blasting	<ul style="list-style-type: none"> The proposed modification would involve continuation of underground blasting within the Budgerygar workings. Tritton advise that blasting would occur at least 100 m below ground level and that air blast overpressure impacts are unlikely. Due to the depth of cover, ground vibration impacts are predicted to be negligible and would not exceed relevant criteria. 	No additional conditions necessary.
Biodiversity	<ul style="list-style-type: none"> Additional surface infrastructure required for the proposed modification would be constructed in areas already approved for surface disturbance. As such, no additional clearing of vegetation is proposed and there would be no additional impacts on biodiversity values. 	No additional conditions necessary.
Rehabilitation	<ul style="list-style-type: none"> The proposed modification would not result in substantial change to existing the rehabilitation outcomes. Additional surface infrastructure would be decommissioned and the waste rock emplacement area would be used to shape the final landform across the site to be consistent with surrounding topography. The Resources Regulator raised no concerns with the proposed modification and the Department considers that the proposed changes are minor and acceptable. 	No additional conditions necessary.
Visual	<ul style="list-style-type: none"> The proposed modification would result in an increase in the height of the waste rock emplacement (WRE) by 10 m (ie to a maximum of 30 m above ground level). The WRE area would be visible to users of Yarrandale Road but not from surrounding residences at both the existing and proposed heights. The Department notes that the WRE area would be a temporary feature in the landscape, and would be reshaped during rehabilitation to a landform consistent with surrounding topography. 	No additional conditions necessary.

Issue	Findings	Recommendations
	<ul style="list-style-type: none"> The Department considers the visual impacts of the proposed modification to be minor and acceptable. 	
Economics	<ul style="list-style-type: none"> The proposed modification would result in a range of economic benefits, including: <ul style="list-style-type: none"> approximately \$4.6 Million (net present value) in royalties to the NSW government; continuation of approximately of 293 full-time equivalent positions for an additional four years; and positive economic flow-on effects in the region. The proposed modification would allow for the efficient recovery of a State significant resource, with no additional surface disturbance. 	No additional conditions necessary.

6 Evaluation

Tritton is seeking to modify its development consent for the Tritton Copper Mine to allow for extraction of an additional resource deposit (the Budgerygar deposit). The Department has assessed the proposed modification in accordance with the requirements of the EP&A Act, including relevant environmental planning instruments and agency advice.

The proposed modification has potential impacts associated with groundwater drawdown, management of PAF waste rock and the onsite Tailings Storage Facility.

The Department considers that the water-related impacts of the proposed modification are minimal with no predicted drawdown on privately owned bores, GDEs or cumulative drawdown impacts, due to the mine's remote location. Potential impacts associated with the handling of PAF material and activities within the Tailings Storage Facility can be appropriately mitigated through specific design and management measures.

The proposed modification would also have other minor environmental and social impacts, related to traffic level increases and amenity (noise, blast, air quality and visual), however impacts would be similar to the existing operations, particularly as there are no immediate private receivers in the mine's vicinity.

The proposed modification would result in the continuation of employment for approximately 293 full-time equivalent personnel for an additional four years and enable efficient extraction of a State significant resource.

Overall, the Department considers that the proposed modification represents a logical extension to an existing mining operation that would enable the production of an important resource and continue employment in the Bogan region. These benefits could be achieved with minimal environmental impacts subject to appropriate management and mitigation methods. The Department has recommended contemporary and updated conditions to this effect.

On this basis, the Department considers that the proposed modification's benefits outweigh its costs, is in the public interest and is approvable, subject to strict conditions of consent.

7 Determination

It is recommended that the Director, Resource Assessments as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report
- **determines** that the application (DA41/98-Mod-8) falls within the scope of section 4.55(2) of the EP&A Act;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to approve the modification
- **modify** the consent (DA41/98-Mod-8)
- **signs** the attached approval of the modification (**Appendix D**).

Recommended by:



29/5/22

Brittany Golding
Planning Officer
Resource Assessments

Recommended by:



1/6/22

Gen Lucas
Team Leader
Resource Assessments

The recommendation is **Adopted** by:



2/6/22

Steve O'Donoghue
Director
Resource Assessments

as delegate of the Minister for Planning

Appendices

Appendix A – Modification Report

Refer to “Modification Application” folder on the Department’s website at <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-8-tritton-budgerygar-underground-extension>

Appendix B – Submissions Report

Refer to “Response to Submissions” folder on the Department’s website at <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-8-tritton-budgerygar-underground-extension>

Appendix C – Agency Advice

Refer to “Agency Advice” folder on the Department’s website at <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-8-tritton-budgerygar-underground-extension>

Appendix D – Notice of Modification

Refer to “Determination” folder on the Department’s website at <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-8-tritton-budgerygar-underground-extension>

Appendix E – Consolidated Consent

Refer to “Consolidated Consent” folder on the Department’s website at <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-8-tritton-budgerygar-underground-extension>