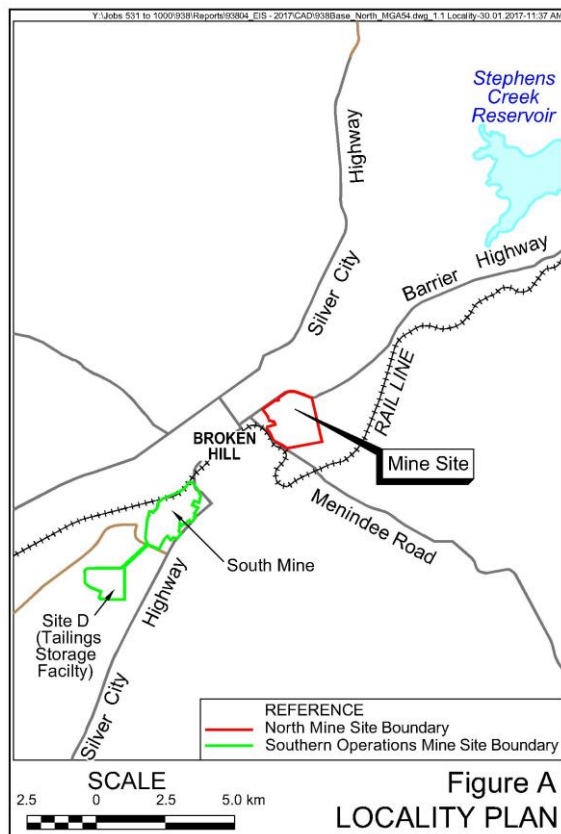


Executive Summary

INTRODUCTION

This *Environmental Impact Statement* (EIS) has been prepared by R.W. Corkery & Co. Pty Limited (RWC) on behalf of Perilya Broken Hill Limited (the Applicant) to describe the proposed recommencement of mining operations at the Broken Hill North Mine ("the Proposal"), located on the Line of Lode, Broken Hill, within Consolidated Mining Leases 4 and 5 (**Figure A**).



The Applicant proposes to undertake the following activities.

- Transport crushed ore via the public road network to the Company's Southern Operations using A-double Road Trains.
 - Undertake ancillary activities associated with the proposed mining works, including re-establishment and refurbishment of a range of existing infrastructure, construction and operation of a paste fill plant, including a tailings harvesting area, and construction of a haul road.
- The Proposal is classified as State Significant Development in accordance with Clause 5 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP) as it would have a capital investment value of more than \$30 million.
- Development consent is required in accordance with Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The approval authority is the Minister for Planning or their delegate.

THE APPLICANT

The Applicant, Perilya Broken Hill Limited, is a wholly owned subsidiary of Perilya Limited, with headquarters in Perth. Shenzhen Zhongjin Lingnan Nonfermet Company Limited, a publically listed company based in Shenzhen, China, acquired 100% control of Perilya Limited in 2013.

Perilya Broken Hill Limited operates the Broken Hill South Mine and Site D (a tailings storage facility), collectively referred to as the Southern Operations, and the Potosi Mine, as well as the North Mine. Development consent also exists for ore extracted from the Potosi Mine (and the

Flying Doctor Mine once developed) to be transported to the Southern Operations for processing.

With substantial investment in Broken Hill, Perilya Broken Hill Limited has an ongoing commitment to the community of Broken Hill.

OBJECTIVES OF THE PROPOSAL

The objectives of the Applicant for the recommencement of mining operations at the Broken Hill North Mine include:

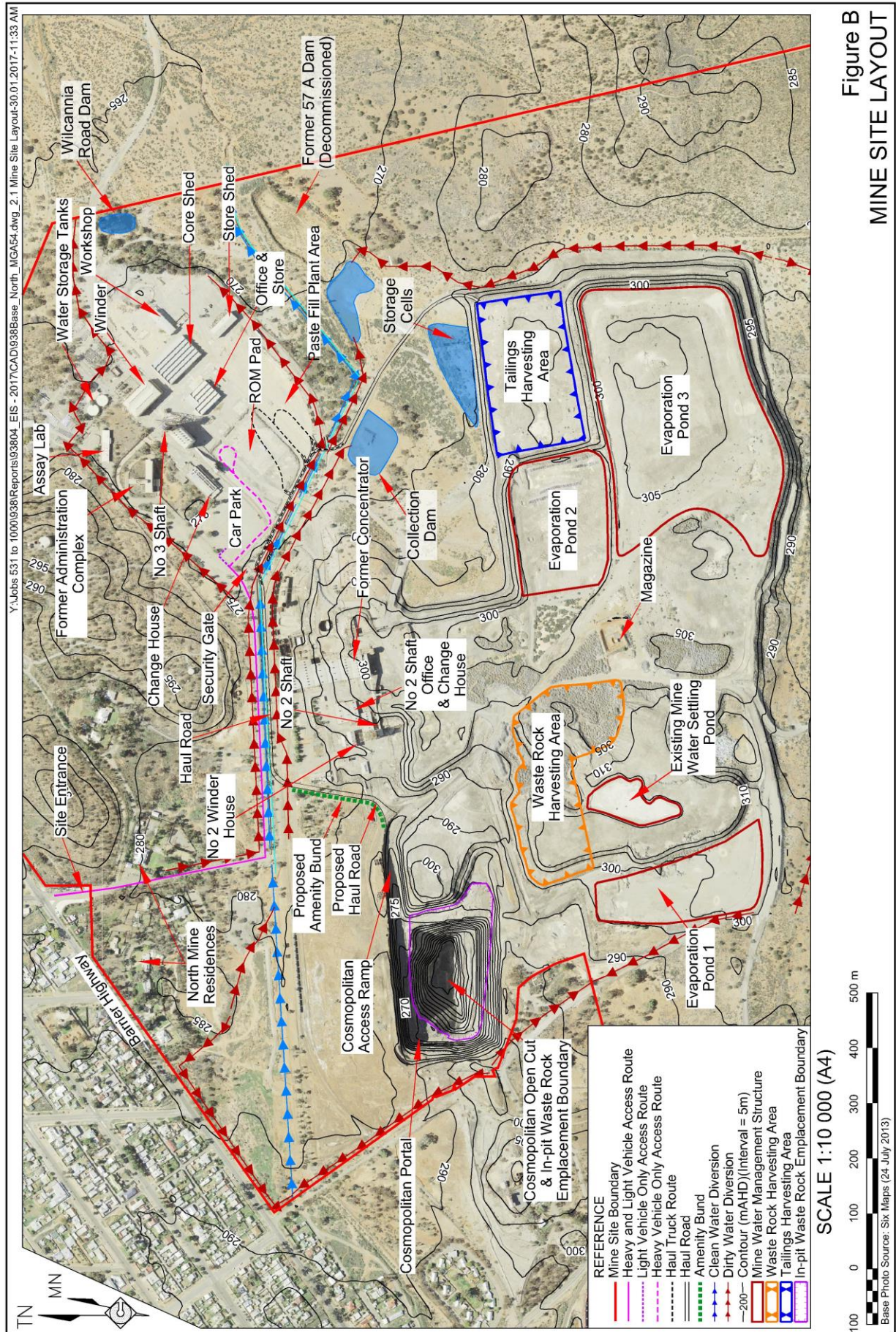
- to safely mine the economically extractable resources;
- to minimise surface disturbance and impacts upon surrounding residents and the local environment during operations;
- to provide for the ongoing operation of the Applicant's mining operations in Broken Hill in a cost-effective manner to ensure security of employment and the continued economic contributions as production at the South Mine and Potosi Mine;
- to continue to communicate and maintain transparent relationships with the relevant government agencies and the community; and
- to implement a level of management control and mitigation measures that ensures compliance with relevant statutory requirements and reasonable community expectations.

DESCRIPTION OF THE PROPOSAL

The Proposal would include the following activities (**Figure B**).

- Remediate the existing Cosmopolitan access ramp, portal and decline to the 12 Level (limit of the existing decline) to facilitate safe and efficient access to the underground workings

- Restore and upgrade existing electrical, ventilation, air and water services, including on surface and within the decline, No. 2 and No. 3 Shafts, No. 3 Return Air Rise.
- Extend the existing decline from the 12 Level to link with the existing decline between the 32 Level and the 38 Level.
- Undertake exploration drilling from underground to further define remnant ore and identify additional ore lenses and lodes.
- Develop access drives to permit access by modern mining equipment.
- Extract remnant ore and ore below the base of previous mining operations, including within the Fitzpatrick Area.
- Transport extracted ore to the surface ROM Pad using underground haul trucks, including establishment of a haulage route utilising existing roads and a proposed haul road cutting.
- Transport extracted waste rock for placement either within completed stopes underground or within the in-pit waste rock emplacement in the Cosmopolitan Open Cut.
- Extract waste rock from the existing surface waste rock emplacement for transportation back underground, as required.
- Harvest tailings from a former Tailings Storage Facility for mixing with water and cement in a proposed Paste Fill Plant for use backfilling completed stopes.
- Re-establish surface infrastructure required to support the mining operation, including a ROM pad, office and store, workshop and fuel store, change house and car park, services (power, water, air and communications), surface magazine and ancillary infrastructure.
- Stockpile and crush ore within the existing ROM Pad using a mobile crusher.



- Load and transport the crushed ore to the Southern Operations using A-double road trains utilising the Barrier Highway, Menindee Road, Crystal Street and Gypsum Street.
- Dewater the existing workings and transfer that water to on site evaporation ponds or the Southern Operations.

The transported ore would be processed using the Southern Operations Concentrator under the continuing use rights held for that operation.

Site Preparation

The following activities would be undertaken in preparation for the recommencement of mining operations.

- Re-establish access to underground workings, including stabilisation and inspection of walls, and underground infrastructure, and re-establish surface and underground services.
- Re-establish the haul road network and roadside drainage.
- Refurbish and continue to use existing surface facilities.
- Realign the intersection between the Site Access Road and the Barrier Highway.

Mining Operations

Ore would be extracted from the underground workings using a range of mining methods in three phases as follows.

- **Phase 1: Remediation and Restoration**
preparation of the Mine Site for recommencement of mining operations.
- **Phase 2: North Mine Uppers**
extraction of ore using Long Hole Open Stope mining methods at a rate of up to 295 000tpa of ore and 110 000tpa of waste rock.
- **Phase 3: North Mine Deeps**
extraction of ore using Long Hole Open

Stope, Overhand Cut and Fill and Underhand Cut and Fill mining methods at a rate of up to 300 000tpa of ore and 180 000tpa of waste rock.

A total of approximately 4.2Mt of ore and 3.0Mt of waste rock would be mined over a period of 16 years. The Applicant anticipates additional ore would be identified during the mining operations.

Waste Rock Management

Waste rock would be placed within completed stopes underground. Where suitable stopes are not available for backfilling, waste rock would be transported to the surface and placed within the Cosmopolitan Open Cut in-pit Waste Rock Emplacement. Waste rock from the Existing Waste Rock Harvesting Area would then be transported underground for backfilling operations, as required.

Stockpiling and Processing Operations

Ore would be transported to the surface and stockpiled within the existing ROM Pad. Crushing operations would be undertaken on a campaign basis using a mobile crushing plant.

Tailings Harvesting and Paste Fill Operations

Completed stopes would be backfilled with a range of materials, including waste rock and paste fill, a mixture of tailings and cement.

Within the Mine Site, the Applicant would harvest previously placed tailings within the Tailings Harvesting Area, mix the tailings with cement and water within the Paste Fill Plant Area, and pump the paste fill underground for backfilling.

Transportation Operations

The Mine Site would be accessed from the Barrier Highway via the existing Site Access Road and the existing internal road network.

The Applicant would transport crushed ore to the Southern Operations using A-double Road Trains via the proposed transport route presented on **Figure C**.

The Applicant would implement the following works to the surrounding road network in consultation with Broken Hill City Council and/or Roads and Maritime Services.

- Modification of the intersection of the North Mine Site Access Road and the Barrier Highway.
- Widening and sealing of the intersection of Gypsum Street and Crystal Street.
- Relocation of the Give Way line for traffic turning left out of Crystal Street at the intersection of Menindee Road and Crystal Street.

Hours of Operation

The Applicant would undertake underground preparation activities, mining, paste production, stockpiling and maintenance operations 24 hours per day, 7 days per week. Crushing, transportation and tailings harvest operations would be undertaken 7 days a week between 9:00am and 7:00pm.

When required, surface site preparation activities and rehabilitation operations would be undertaken 7 days per week during daylight hours only.

Life of the Proposal

The Applicant anticipates that Phase 1 to Phase 3 mining operations require approximately 16 years to complete. However, the Applicant anticipates that

additional ore would be identified during mining operations. As a result, the Applicant proposes to undertake mining operations for a period of 25 years from the date of granting of development consent, with rehabilitation and mine closure activities expected to require a number of years following the completion of mining operations.

Employment and Economic Contribution

The Applicant anticipates that it would require the following full time equivalent personnel to operate the Proposal.

- Phase 1
approximately 20 to 72 positions.
- Phase 2
approximately 72 to 100 positions.
- Phase 3
approximately 100 to 140 positions.

The Applicant notes that these positions would be likely to be made up of a combination of personnel progressively transferred from its existing operations and limited new positions. The Proposal would ensure the ongoing employment of a number of current employees who would otherwise not have a position as mining operations at the Potosi Mine wind up in the coming years.

The Applicant anticipates that the Proposal's economic contributions would be between approximately \$48 million and \$98 million per year, of which between approximately \$33 million and \$88 million would largely be retained within the Broken Hill community.

Final Landform and Land Use

The final landform and land use would be the subject of extensive consultation with the surrounding community and would be the subject of a Mine Closure Plan to be prepared during the life of the Proposal.





PLANNING CONTEXT

Planning Instruments

The Mine Site is situated within land zoned as follows under the *Broken Hill Local Environmental Plan 2013* (Broken Hill LEP).

- SPI1 – Mining.
- R1 – Residential.
- RU2 – Rural Landscape.

Underground mining is permissible with consent within each of these zones.

The Proposal would be developed and operated in accordance with a number of State Planning instruments, namely:

- SEPP (State and Regional Development) 2011;
- SEPP (Mining, Petroleum Production and Extractive Industries) 2007;
- SEPP (Infrastructure) 2007;
- SEPP 33 (Hazardous and Offensive Development); and
- SEPP 55 (Remediation of Land).

The EIS addresses each of the above documents together with the Broken Hill LEP.

Approvals Required

In addition to development consent, the Proposal would require the following approvals.

- An amendment to the existing EPL2683 or a new licence issued by the Environment Protection Authority.
- A Works Authority Deed with the Roads and Maritime Service under the *Roads Act 1993* for construction of the intersection of the Site Access Road and the Barrier Highway.

The Applicant currently holds the following approvals relevant to the Proposal.

- Consolidated Mining Leases 4 and 5.

- Water Supply Work Approval 60WA583325.
- Consolidated Water Access Licence 40959.

The Applicant would also enter into a Voluntary Planning Agreement in relation to maintenance of and works required for local roads.

ENVIRONMENTAL FEATURES SAFEGUARDS AND IMPACTS

The components and features of the existing environment within and surrounding the Mine Site have been studied in detail and the Proposal has been designed to avoid or minimise impacts on that environment. A brief overview of the main components of the surrounding environment, the proposed safeguards and the assessed level of impact are set out in the following sections.

Air Quality

Given the implementation of the nominated safeguards and controls, PEL (2017a) determined that particulate matter levels are not predicted to exceed relevant criteria at any surrounding residences as a result of the Proposal.

PEL (2017a) also determined that the Proposal would not result in a significant incremental increase in the concentration of heavy metals or of greenhouse gases. As a result, no adverse air quality impacts are anticipated as a result of the Proposal.

Human Health

PEL (2017b) determined that the levels of mean blood lead for children living in the vicinity of the Mine Site would be less than target levels, and that nil or very minor increases in mean blood levels are anticipated as a result of the Proposal. Furthermore, given the implementation of the nominated safeguards and controls, the



Proposal is conservatively anticipated to result in an increase of less than 0.7% of children currently exceeding relevant lead blood levels.

As a result, the Proposal is not anticipated to result in a significant change of the current background blood levels for residents in the vicinity of the Mine Site.

Noise and Blasting

Operational and transport noise generated by the Proposal would, assuming the implementation of the nominated safeguards and controls, not exceed the relevant criteria at any privately-owned residence. In addition, ground vibration generated by blasting would, assuming the implementation of the nominated safeguards and controls, not exceed the relevant criteria at any privately-owned residence. The Applicant would continue to monitor ground vibration.

As a result, no adverse noise or blasting impacts are anticipated.

Traffic and Transportation

The Proposal would not result in a reduction in the performance of any roads or intersections along the proposed transportation route. Minor and infrequent queuing associated with heavy vehicle movements approximately every 30 minutes may occur but is not expected to be significant. The Proposal is not expected to increase road safety risks.

A range of modifications to intersections are proposed and would be constructed in consultation with the Roads and Maritime Services and Broken Hill City Council. In addition, the Applicant would negotiate a Voluntary Planning Agreement with Broken Hill City Council in relation to transportation on local roads.

As a result, no significant adverse traffic and transportation impacts are anticipated.

Historic Heritage

A range of sites of historic heritage significance may be directly or indirectly impacted by the Proposal. Given the implementation of the nominated safeguards and controls, it is assessed that the Proposal would not result in significant impacts to any of these sites. In addition, the Proposal would involve the continued use of historic Mine-related infrastructure. As a result, no adverse historic heritage impacts are anticipated.

Surface Water

Given that the Mine Site does not currently discharge potentially sediment-laden water during rainfall events less than a 1 in 100 year event and the implementation of the nominated safeguards and controls, the Applicant anticipates that the Proposal would not result in adverse surface water-related impacts.

Groundwater

The standing water level within the North Mine workings is 579.2m below ground level. In addition, the quality of that water is such that it would not meet the criteria for discharge to the natural environment. Furthermore, there are no surrounding groundwater users or groundwater dependent ecosystems that would be adversely impacted by the Proposal.

As a result, the Proposal is not anticipated to exceed minimal impact criteria under the NSW Aquifer Interference Policy and no adverse groundwater impacts are anticipated.

Ecology

No native vegetation would be disturbed by the Proposal and the Proposal would not significantly impact any threatened species. As a result, no adverse ecology impacts are anticipated.

Aboriginal Heritage

No sites of Aboriginal heritage significance were identified within the Mine Site. As a result, no adverse Aboriginal heritage impacts are anticipated.

Visual Amenity

The Mine Site is an area of longstanding mining disturbance and Proposal-related activity on the surface would be limited and typically would occur within sections of the Mine Site that are not visible from publicly available vantage points or surrounding residences. As a result, assuming the implementation of the nominated safeguards and controls, no adverse visual amenity impacts are anticipated.

Other Impacts

Bushfire, soils and land capability and agricultural impacts associated with the Proposal would be negligible.

PROPOSAL EVALUATION AND JUSTIFICATION

The proposed Broken Hill North Mine Project has been evaluated and justified principally through consideration of its potential impacts on the environment and potential benefits to the local and wider community.

An evaluation of the Proposal has been undertaken by firstly re-assessing the risks posed to the local environment by Mine-related activities following the implementation of all operational controls, safeguards and/or mitigation measures, and secondly through consideration of the principles of ecologically sustainable development.

This evaluation has found that, with the implementation of the proposed operational controls, safeguards and/or mitigation measures, the residual risk posed by each

potential environmental impact has been reduced to moderate, low or as low as reasonably practicable, and therefore acceptable.

Further, the design of the Proposal has addressed each of the sustainable development principles, and on balance, it is concluded that the Proposal achieves a sustainable outcome for the local and wider environment.

The Proposal and associated activities have been assessed in terms of a wide range of biophysical, social and economic issues. Potential residual impacts can be justified in terms of the positive economic and social benefits to the Broken Hill and surrounding areas.

CONCLUSION

The Proposal has, to the extent feasible, been designed to address all issues raised by the local community and all levels of government, as well as the principles of ecologically sustainable development. The Proposal provides for the continued mining of a valuable resource in an area of long-standing mining-related disturbance.

The Proposal would also result in the maintenance of local employment and expenditure within the regional economy. The socio-economic impacts of the Proposal are considered to be positive.

Finally, the post-mining landform would be the determined following extensive consultation with the surrounding community.

In light of the conclusions included throughout this *Environmental Impact Statement*, it is assessed that the Proposal could be constructed and operated in a manner that would satisfy all relevant statutory goals and criteria, environmental objectives and reasonable community expectations.



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