

ASSESSMENT REPORT

HERA GOLD PROJECT – MODIFICATION 4

Northern Extension (10_0191 MOD 4)

1 BACKGROUND

The Hera Gold Mine is an underground gold, silver, lead and zinc mine located within the Cobar local government area, approximately 100 kilometres (km) south-east of Cobar and 4 km south of Nymagee (see **Figure 1**). Hera Resources Pty Ltd (Hera), a wholly owned subsidiary of Aurelia Metals Limited, owns and operates the mine.

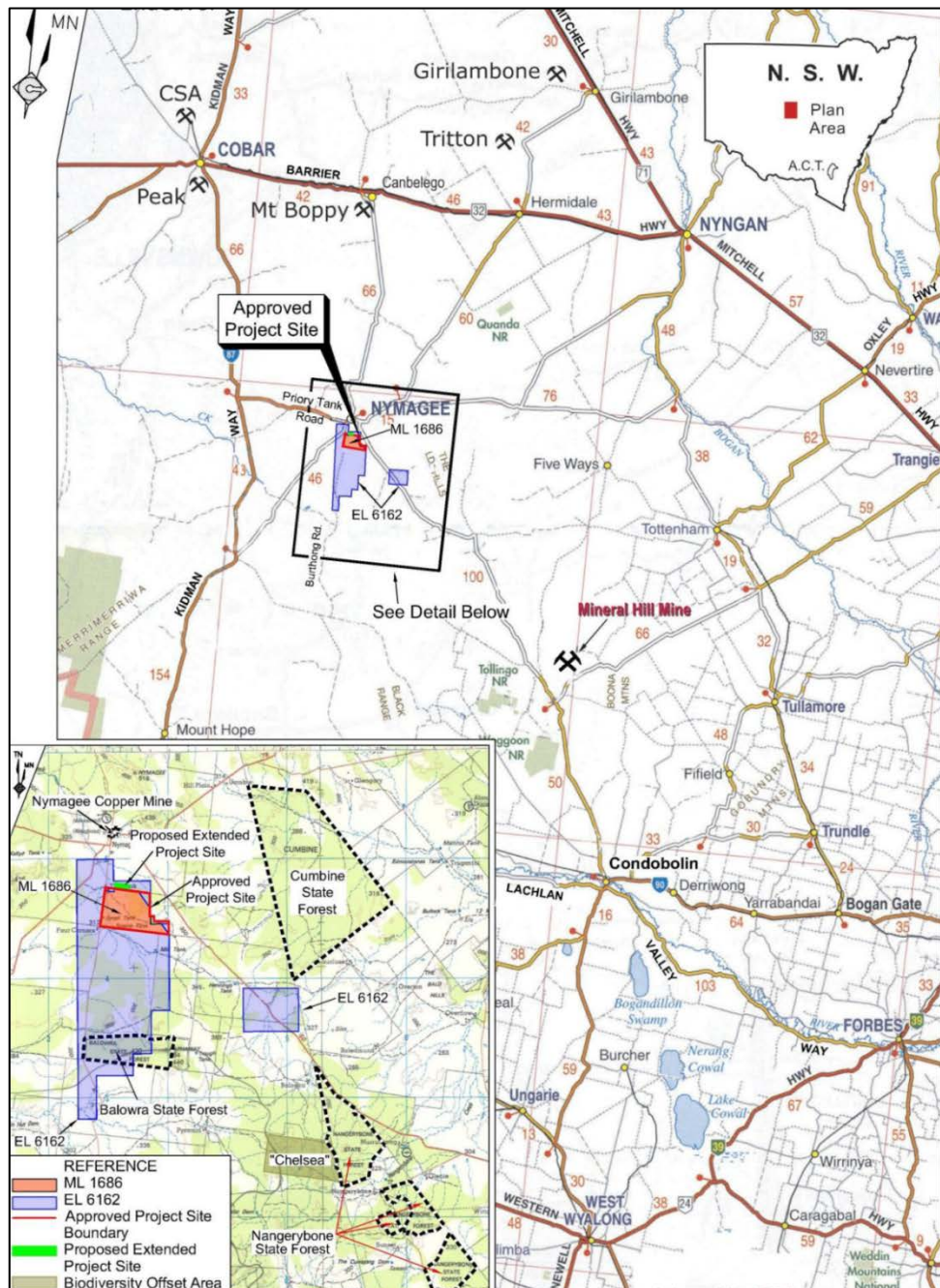


Figure 1: Location of the Hera Gold Mine

The Hera Gold Project was approved on 31 July 2012 by the then Deputy Director-General as delegate of the Minister for Planning and Infrastructure. The mine has been operating since late 2014 and the project has been modified three times.

Modifications 1 and 2 were relatively minor and involved extending an onsite power line (Mod 1) and changing the concentrate haulage route (Mod 2).

Modification 3 was more substantial and facilitated access to newly identified ore resources within the approved mine site. The modification also included increasing the annual ore processing limit from 355,000 to 505,000 tonnes, extending the mine life by two years and upgrading and/or expanding ancillary infrastructure to support the increased production rate.

The project as currently approved allows Hera to:

- carry out mining operations on the site until 31 December 2022;
- process up to 505,000 tonnes of ore each year;
- construct and operate a mining infrastructure area including waste rock emplacement areas, a Run-of-Mine (ROM) ore stockpile and laydown areas; and
- transport up to 50,000 tonnes per annum of gold and silver doré and a lead/lead concentrate from the mine to Hermidale via public roads.

Since gaining approval of Modification 3, Hera has identified further economically viable ore resources to the north of the approved mine in an area known as 'North Pod'. North Pod is located immediately adjacent to the 'Hera Deposit', however the resource is located outside the approved project boundary and existing mining lease (see **Figure 2**).

2 PROPOSED MODIFICATION

Hera is proposing to extend the approved project boundary to extract and process an additional 62,000 tonnes of gold-zinc-lead ore from North Pod (see **Figures 2 and 3**).

There would be no change to the approved processing rate, mine life, waste disposal methods, surface infrastructure, product transport or operating hours.

Development of the North Pod workings would commence 280 m below ground level and would extend 300 m north of the existing project boundary. Hera proposes to use open stope mining methods and backfill the mined stopes, which is consistent with currently approved activities. Ore from North Pod would be processed at the existing processing facility.

Access to North Pod would occur via a new access decline that would connect with the existing decline 250 m below ground level (see **Figure 3**).

The modification would also require the construction of a new fresh air intake rise that would connect with the North Pod underground workings 300 m below ground level (see **Figure 3**). Surface expression of the fresh air intake rise would disturb a small area (i.e. 20 m²) of previously cleared land within the approved project boundary. This would be the only aspect of the modification to result in ground disturbance.

The proposed project boundary extension is considerably larger than the area associated with North Pod as Hera plans to undertake further exploration of the area (see **Figure 3**). Access to any additional ore resources within this area would be the subject of a separate application.

In justifying the proposed modification, Hera considers the extraction and processing of ore from North Pod to be a logical extension of the existing mine given that the ore resource is located immediately north of the existing mine and could be processed using existing infrastructure.

The proposed modification is described in full in the Environmental Assessment (EA) submitted in support of the application (see **Appendix C**).

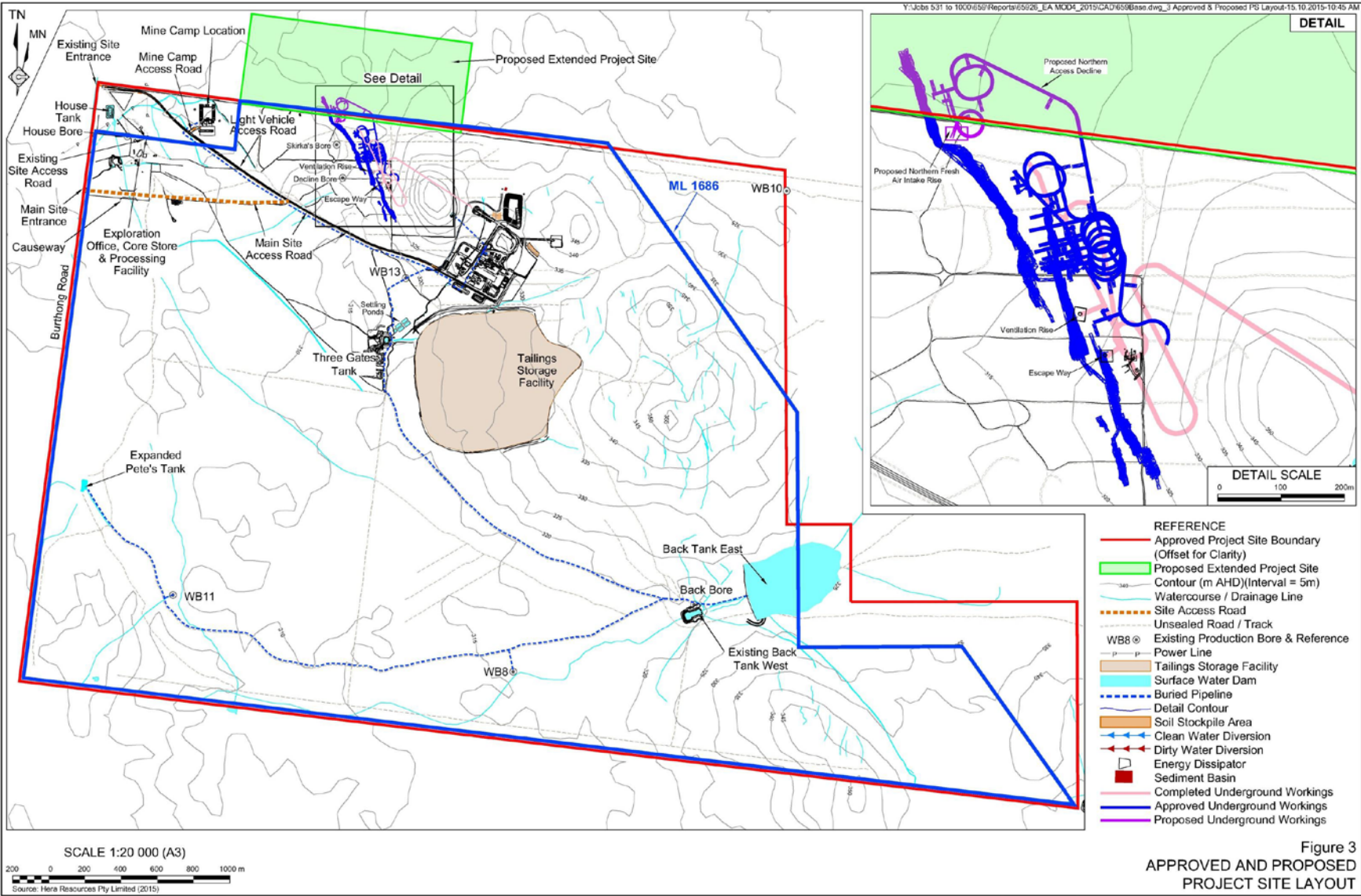


Figure 2: Proposed Modification

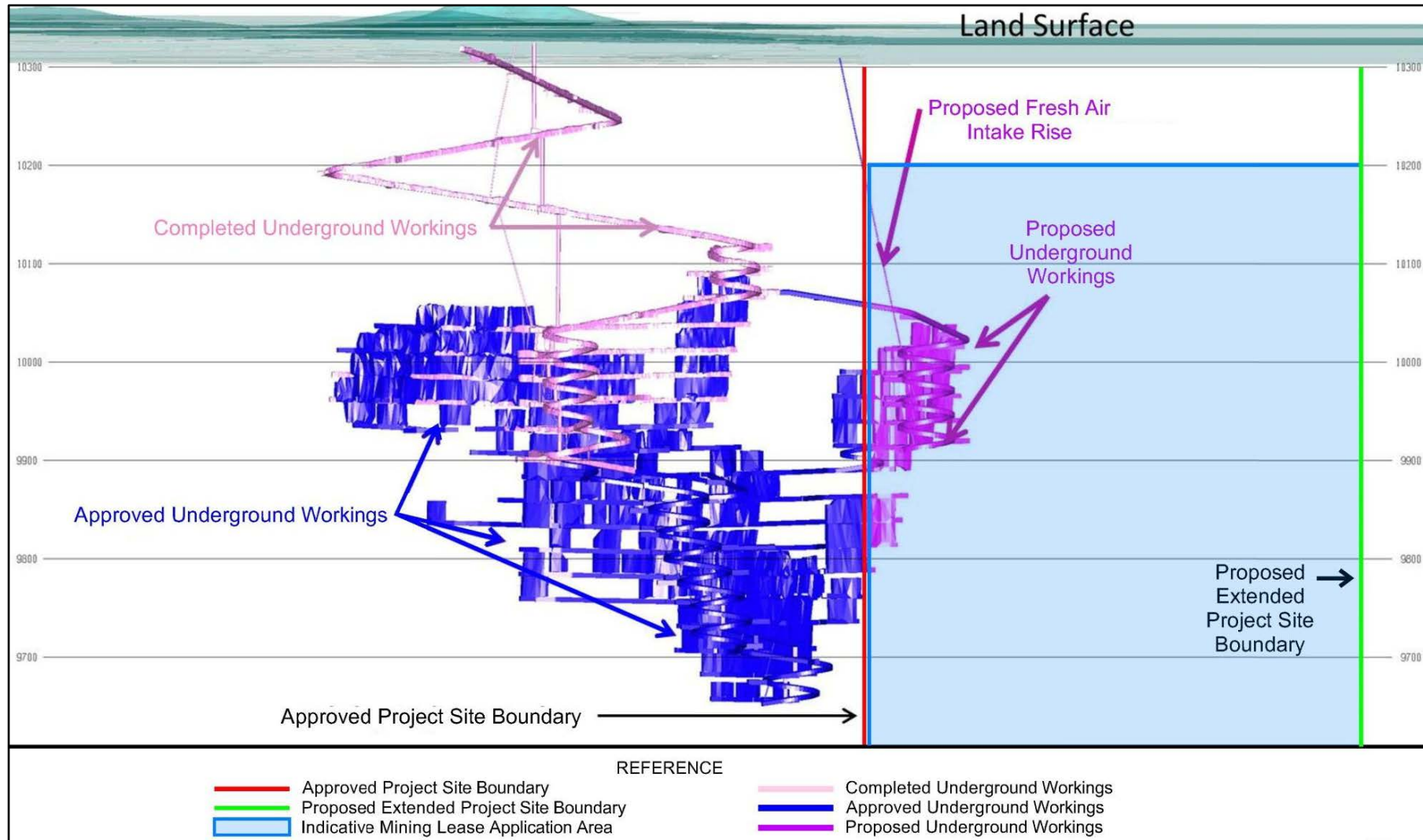


Figure 3: Proposed Underground Workings

3 STATUTORY CONTEXT

3.1 Section 75W

The project was original approved under the former Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Although Part 3A was repealed on 1 October 2011, the project remains a “transitional Part 3A project” under Schedule 6A of the EP&A Act. The proposed modification can therefore be considered under Section 75W of the EP&A Act, in accordance with the relevant savings provisions.

Based on its assessment, the Department is satisfied that the application can be characterised as a modification as the project boundary extension is minor and all operations on site would remain substantially the same as currently approved. The modification would not increase the volume of ore approved to be extracted, processed and transported in any given year, nor would it significantly increase the environmental impacts of the project as approved.

3.2 Approval Authority

The Minister for Planning is the approval authority for the modification application. However, under the Minister’s delegation dated 16 February 2015, the Director, Resource Assessments may determine the application. This is because Hera has not made reportable political donations, Cobar Shire Council did not object to the modification, and no public submissions were received during the public exhibition.

3.3 Permissibility

The project boundary extension is located on land zoned RU1 – Primary Production under the *Cobar Local Environment Plan 2012* (Cobar LEP). Mining is permissible with consent within this zone.

3.4 Environmental Planning Instruments

The Department has considered the modification against the provisions of relevant environmental planning instruments, and is satisfied that none of these instruments substantially govern the carrying out of the modification.

A Preliminary Hazard Analysis under *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* for the original development application concluded that the project would not exceed the trigger thresholds for hazardous substances. The modification would not change the volume of dangerous goods stored and handled on the site.

4 CONSULTATION

The Department exhibited the application from 27 April until 11 May 2016, and made the EA publicly available on its website, at its Information Centre and at Cobar Shire Council, Bogan Shire Council and the Nature Conservation Council.

The Department received submissions from eight government agencies, none of which objected to the proposal. No submissions were received from the general public.

The **Division of Resources and Energy** (DRE) supports the proposed modification and noted that Hera lodged an application for a subsurface mining lease for the northern extension area on 15 April 2016.

The **Environment Protection Agency** (EPA) supports the modification and advised that Hera would need to update its existing Environment Protection Licence (EPL) if the project is approved.

The **Department of Primary Industries – Water** (DPI Water) recommended that Hera update its Water Management Plan and Waste Rock Management Plan, in consultation with DPI Water, to ensure potential impacts on groundwater resources are appropriately managed (see Section 5.1 of this report for further discussion of this matter).

Cobar Shire Council, Bogan Shire Council, DPI Lands, Roads and Maritime Services and the Office of Environment and Heritage raised no concerns and/or made no recommendations about any aspect of the proposed modification.

A copy of these submissions and Hera's Response to Submissions (RTS) is provided in **Appendix D**.

5 ASSESSMENT

In assessing the merits of the proposal, the Department has considered a range of material, including:

- the modification application and accompanying EA;
- submissions received on the application and Hera's response to the submissions;
- the EA and conditions of approval for the original project;
- relevant environmental planning instruments, policies and guidelines; and
- the requirements of the EP&A Act.

5.1 Groundwater

The EA includes a groundwater assessment undertaken by Aquade Groundwater Services Pty Ltd (Aquade).

The assessment used groundwater monitoring data collected since operations commenced in late 2014. The data confirmed that the most significant groundwater inflows are limited to the fractured rock environment located within 250 m of the ground surface.

Given that the North Pod workings would be located deeper than 250 m below ground level (with the exception of the fresh air intake rise), the total long-term inflows are not expected to change significantly due to the proposed modification. Inflows are predicted to range between 0.3 and 0.4 mega litres (ML) a day, with a gradual decrease over time. This is largely consistent with inflows to the existing underground mine.

During construction of the fresh air intake rise, or when the North Pod workings intersect existing exploration drill holes, inflows may increase to 1 ML a day. However, this increase would be short lived and would not likely exceed the approved Water Extraction Licencing levels.

In regard to groundwater drawdown associated inflows to the pit, the assessment concluded that the modification may result in drawdown of up to 3 m at one registered bore (GW017385) located approximately 2 km north of North Pod. No other groundwater users or groundwater dependant ecosystems would be impacted.

Groundwater drawdown at GW017385 would exceed the Level 1 Minimal Impact Considerations of the *NSW Aquifer Interface Policy* and make good provisions would apply. The existing conditions of approval address this issue as Hera is already required to provide a compensatory water supply to any owner on privately-owned land whose water supply is adversely impacted by the project. Additionally, as a component of Hera's existing Water Management Plan, a monitoring bore has been installed to provide early warning of any potential impact on the GW017385.

The Department is therefore satisfied that any potential impacts on groundwater users surrounding the site can be effectively managed in accordance with Hera's existing conditions of approval.

DPI Water has confirmed that Hera would be required to update its Water Management Plan to account for the proposed modification. The Department notes that the existing conditions of approval require Hera to review and update relevant management plans following the approval of any modification.

Regarding groundwater quality, the Department notes that the existing conditions of approval permit Hera to backfill mined stopes with potentially acid forming waste rock. The Department is satisfied that backfilling mined stopes at North Pod is consistent with approved operations, and potential groundwater quality impacts can be managed through updated waste rock and water management plans.

5.2 Other Issues

The Department's consideration of other issues is summarised in **Table 1**.

Issue	Consideration	Recommendations
<i>Subsidence</i>	<ul style="list-style-type: none"> The EA includes an assessment of geotechnical conditions within and directly above North Pod, undertaken by Ground Control Engineers Pty Ltd (GCE). The crown of North Pod lies between 273 m and 318 m below ground level, which is significantly deeper than the 100 m surface exclusion zone associated with Hera's mining lease application. The underground workings would be designed to ensure ground stability and to mitigate the risk of subsidence. Specifically, all mined stopes would be backfilled with waste rock, with the exception of the upper most development drive, which would remain open to a maximum extent of 6 m. As mining at North Pod progresses, Hera would collect, monitor and evaluate geotechnical data in order to ensure that the proposed mining methods significantly reduce the risk of any surface subsidence. The Department also notes that Hera has successfully extracted ore from the adjacent Hera Deposit, and that DRE, the key agency that manages and regulates potential subsidence impacts, raised no concerns in this regard. The Department is satisfied that the proposed mine plan and continual monitoring would ensure the long-term stability of the proposed mining area. 	<ul style="list-style-type: none"> No additional conditions of approval are required.
<i>Blasting</i>	<ul style="list-style-type: none"> The EA includes a blasting impact assessment based on blast monitoring data at the mine, undertaken by Spectrum Acoustics. The assessment considered only blast vibration as all blasting associated with the proposed modification would occur underground and air blast overpressure would be negligible. To achieve the blasting criteria under the existing conditions of approval, and therefore avoid any potential blasting impacts on sensitive receivers surrounding the mine, the following blast Maximum Instantaneous Charge (MIC) apply: <ul style="list-style-type: none"> 200 kg during the day; 190 kg during the evening; and 120 kg during the night. The Department is therefore satisfied that with the application of the above MICs, blast vibration associated with the proposed modification would comply with the existing blasting limits and the proposed modification would not result in additional impacts on surrounding receivers. The Department also notes that the existing conditions of approval permit any property owner to request a building inspection to be undertaken by Hera to establish baseline-building condition in order to measure any future potential impacts on blasting. The Department is satisfied that the existing conditions of approval would effectively manage blasting activities associated with the modification, and requires Hera to update its Blast Management Plan to account for the proposed modification. 	<ul style="list-style-type: none"> No additional conditions of approval are required.
<i>Waste</i>	<ul style="list-style-type: none"> The approved tailings storage facility has a design capacity of 2.45 million tonnes (Mt), which would accommodate the expected 2.4 Mt of tailings expected to be generated by the existing project and the proposed modification over the life of the project. Additional waste rock would be stored at the approved waste rock emplacements, which have sufficient capacity to accommodate the proposed modification (N.B. construction of an additional waste rock emplacement area was approved under modification 3). The Department is satisfied that the existing conditions of approval would effectively manage the additional tailings and waste rock generated by the modification, and requires Hera to update its Waste Rock Management Plan to account for the proposed modification. 	<ul style="list-style-type: none"> No additional conditions of approval are required.

Issue	Consideration	Recommendations
Biodiversity	<ul style="list-style-type: none"> The fresh air intake rise is the only aspect of the modification that would result in ground disturbance. Surface expression of the rise would occur in a previously disturbed area accessible via existing vehicle access tracks, and would not require vegetation clearance. The Department and OEH are satisfied that the modification would not result in any biodiversity impacts. 	<ul style="list-style-type: none"> No additional conditions of approval are required.
Rehabilitation	<ul style="list-style-type: none"> Hera would rehabilitate the proposed fresh air intake rise (i.e. the only aspect of the modification resulting in surface disturbance) by applying a suitably designed and engineered cap that would permit reopening of the rise if required. The Department notes that this is consistent with the rehabilitation method approved for the existing rises at the mine. The Department is satisfied that approved rehabilitation objectives, decommissioning requirements and final landform design would continue to apply to the proposed modification. 	<ul style="list-style-type: none"> No additional conditions of approval are required.

6 RECOMMENDED CONDITIONS

The Department has drafted a Notice of Modification for the proposed modification (see **Appendix A**) and a consolidated version of the Project Approval as modified (see **Appendix B**).

The Department has updated the conditions of approval to include the proposed extension area and to enable Hera to extract and process ore resource from North Pod.

There are no recommended updates to the environmental performance conditions as the Department is satisfied that the existing conditions would adequately manage the modified project, subject to the updating of relevant management plans.

7 CONCLUSION

The Department has assessed the merits of the modification in accordance with the relevant requirements of the EP&A Act.

Based on this assessment, the Department considers that the proposed modification would enable greater utilisation of existing mineral resources located immediately adjacent to an approved mine. Additionally, the extraction and processing of ore from North Pod would maximise the use of infrastructure at the existing mine.

The Department notes that DRE supports the proposed modification and that no objections were received from Council, government agencies or the community. The Department also considers that the modification would not result in additional impacts on the community.

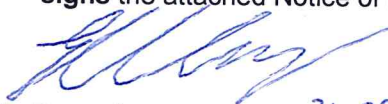
The Department is satisfied that with the implementation of the environmental safeguards and mitigation measures in the existing approval, the modification would not result in any significant additional environmental impacts.

Given the above, the Department believes that the modification is in the public interest and should be approved.

8 RECOMMENDATION

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

- **considers** the findings and recommendations of this report;
- **determines** that the proposed modification is within the scope of Section 75W of the EP&A Act;
- **approves** the proposed modification under Section 75W of the EP&A Act; and
- **signs** the attached Notice of Modification (**Appendix A**).



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21.09.2016



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21/9/16

APPENDIX A – NOTICE OF MODIFICATION

APPENDIX B – CONSOLIDATED PROJECT APPROVAL

APPENDIX C – ENVIRONMENTAL ASSESSMENT

APPENDIX D – SUBMISSIONS AND RESPONSE TO SUBMISSIONS