Hera Resources Pty Ltd

Federation Project

Environmental Impact Statement

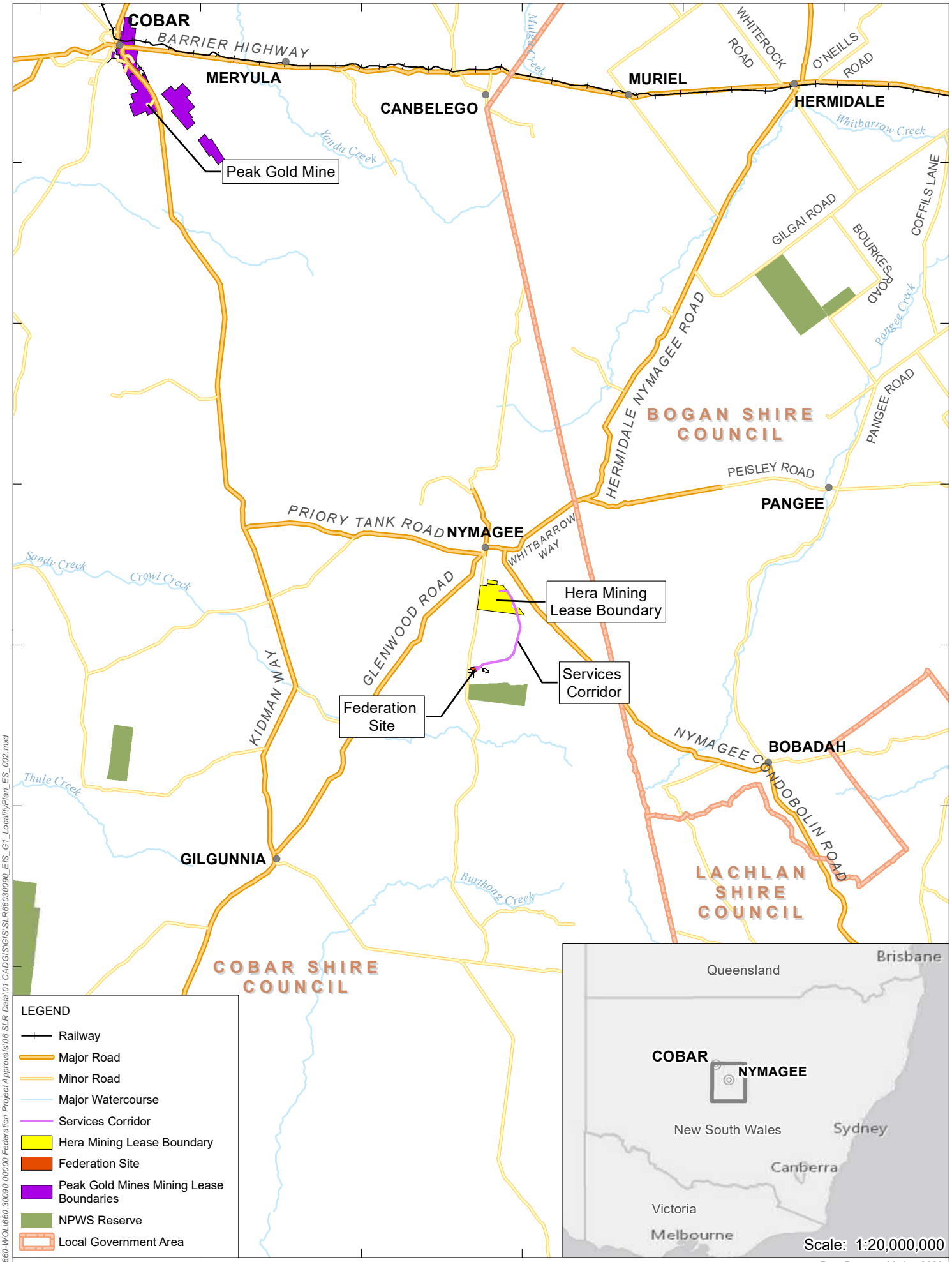
Executive Summary

1. Introduction

The Federation Project (the Project) is a proposed underground metalliferous mine development located in central-western NSW, approximately 15 km south of the Nymagee township and 10 km south of Hera Resources Pty Limited's (Hera Resources') Hera Mine. Hera Resources is the proponent for the Project and is a wholly owned subsidiary of Aurelia Metals Limited (Aurelia). Nymagee is a small, rural township with approximately 20 residences, located approximately 80 km south east of Cobar (refer to the Location Plan at **Figure ES-1** and Project Boundary Plan at **Figure ES-2**).

High grade lead, zinc and gold mineralisation was discovered at the Federation deposit in April 2019. Subsequent surface drilling programs have delineated a substantial gold-lead-zinc-copper-silver mineral deposit. Hera Resources is evaluating the development of a satellite underground mine at the Federation Site that leverages established infrastructure at the Hera Mine to minimise environmental impacts and allow for the continuation of mining operations in the Nymagee area.

Mining at Hera Mine is currently approved for operations until December 2025. Mining of the Federation deposit will allow for a transition of mining operations from Hera Mine to Federation, as ore from the Federation deposit replaces ore from the Hera Mine.



Scale: 1:600,000 at A4
Coordinate System: GDA 1994 MGA Zone 55

Date Drawn: 20-Jan-2022
Project Number: 660.30090.00000

Data Source: Basedata NSW SS, 2019, Geoscience Australia
Aerial imagery supplied by © Department of Customer Service 2020

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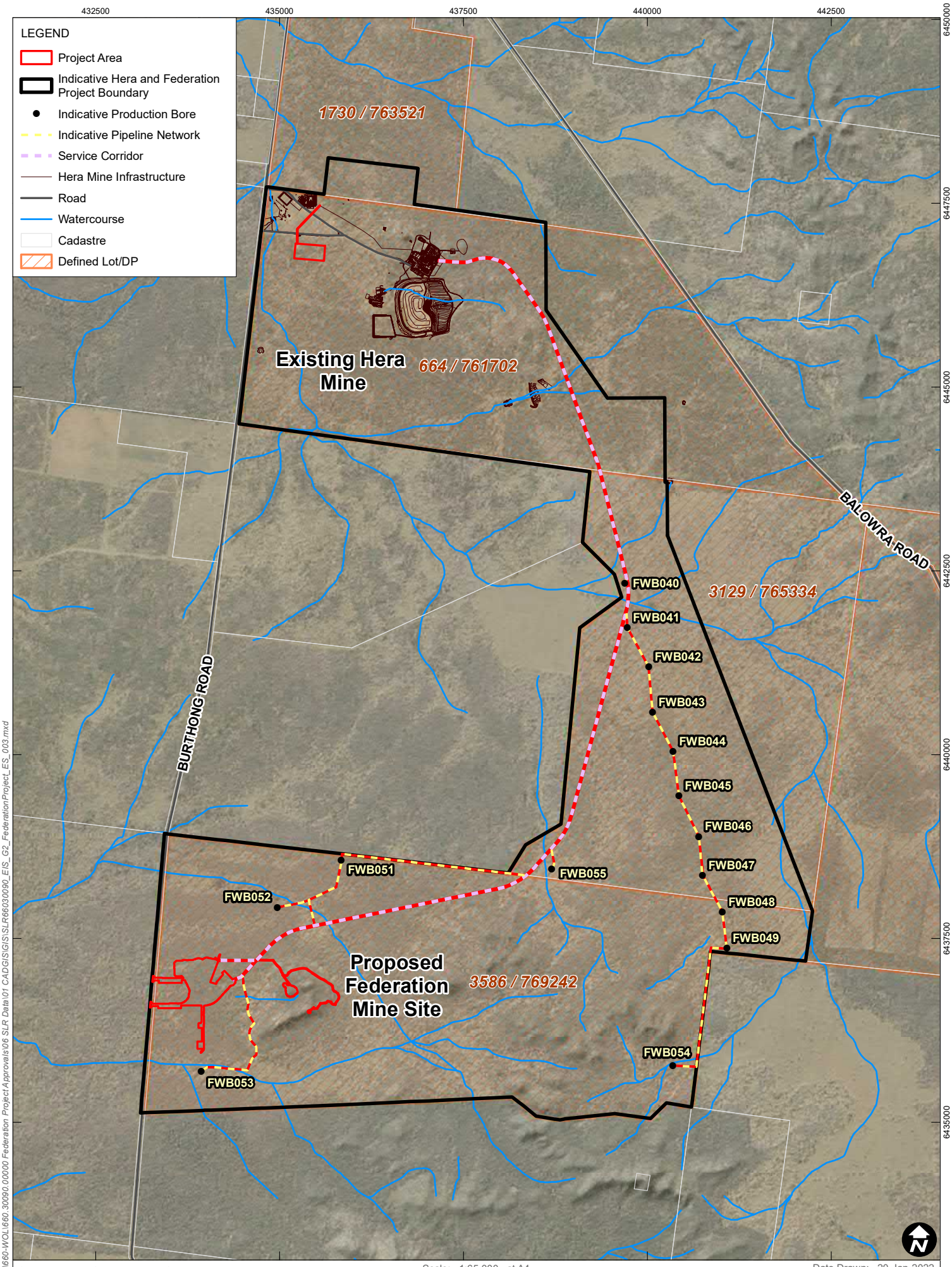
LOCATION PLAN

FIGURE ES-1



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PROJECT BOUNDARY

FIGURE ES-2

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2. Project Overview

The Project comprises:

- The establishment and operation of underground gold and metalliferous mining activities, with supporting surface infrastructure, mining approximately 6.95 million tonnes (Mt) of ore over a period of 12 to 14 years, referred to as the Federation Site, as shown in **Figure ES-3**;
- Amendments at the Hera Mine to facilitate mining and processing of Federation ore, with works including a new process plant, solar farm and disposal of tailings in the Hera Mine tailings storage facility (TSF), as shown in **Figure ES-4**; and
- Services Corridor between the Federation Site and Hera Mine, including powerline, water pipeline, access track and a potential tailings pipeline, as shown in **Figure ES-2**, **Figure ES-3** and **Figure ES-4.**

Provided in **Table ES.1** is a summary of the key elements of the Project.

Table ES.1 Key Federation Project Elements

Project Element	Summary of the Project
Mining Method	Underground mining via longitudinal retreat long hole stoping method
Mineralisation	Federation deposit has a total mineralisation of approximately 6.95Mt to be mined.
Project Area	Project area of 92.5 hectares (ha) (refer **Figure ES-2**)
Life of Mine	12-14 years
Annual Production	Processing of ore at a maximum rate of 750 million tonnes per annum (Mtpa) at a new process plant at Hera Mine
Management of Waste Rock	During operations, waste rock will be stored on designated pads or utilised for backfilling underground stopes. Post mining, potentially acid forming waste rock will be returned underground, and non-acid forming waste rock will be returned underground, used for backfilling the box cut or used for other rehabilitation purposes.
Management of Tailings	Tailings will be either placed into the approved TSF at Hera Mine or returned to Federation Site for placement underground as paste backfill.
General Infrastructure	Internal roads, ablutions block, administration buildings, workshop and stores, sewage treatment, diesel storage tanks, potable water treatment, waste rock storage, underground vents, substation, mobile paste plant, laydown area, topsoil stockpiles, ROM pad, box cut, magazines, haul roads, telecommunications tower, surface extraction area and access roads.

Transport	Ore will be transported from Federation Site to Hera Mine via Burthong Road. Tailings will be transported from Hera Mine to Federation Site via Burthong Road. At the peak of mining, ore and tailings transport is estimated to be an average of 124 vehicle trips (one way movements) per day. Concentrate will be transported via road from Hera Mine to Hermidale Siding with an average of 17 vehicle trips per day at the peak of concentrate transport.
Water Management	The processing plant will generate the majority of water demanded for the Project. Water will primarily be sourced from underground workings and pumped to the surface. A network of production bores will also be established which will supplement the existing production bores. The maximum groundwater extraction forecast by the site water balance model is 530 megalitres per year (ML/year), which is within the existing licenced volume of 543 ML per year. A water management system will be implemented at the Federation Site. Key elements include the diversion of clean water runoff around the site, and the collection of water from disturbed areas and the underground. Dirty (sediment) water would be captured in catch drains and collected in the sediment basin within the footprint of the Stormwater Retention Pond. Runoff from the PAF pads will drain to lined leach ponds. Runoff from the box cut would report down the decline and be dewatered as part of the underground dewatering system to the Dewater Pond. Water contained in the lined leach ponds, Stormwater Retention Pond and Dewater Pond would be recirculated for reuse within the Hera Mine water management system by the proposed water pipeline between Federation Site and Hera Mine.
Services Corridor	Infrastructure in the 23 m wide services corridor includes: • Electricity transmission line • Water pipeline • Access track • Tailings pipeline and return water line (potentially).
Operational Workforce	Approximately 200 – 250 (inclusive of the transition of approximately 150 workforce positions from Hera Mine operations).
Capital Investment	Approximately $200M.

433000
433500
434000
434500
435000
435500
6437500
6437000
6436500
6436000

DIESEL POWER AND TANKS
DEWATER POND (10ML)
WORKSHOP AND STORE
TOPSOIL STOCKPILE
POTABLE WATER TREATMENT
10L TANKS
STORMWATER RETENTION POND
BOX CUT
ACCESS ROAD
SEWERAGE EFFLUENT IRRIGATION
LAYDOWN
U/G VENTS
SEWERAGE TREATMENT
PAD 01
ROAD TO COMMUNICATION TOWER
INTERNAL ACCESS ROAD
SUBSTATION
PAD 02
PAD 03
BURTHONG ROAD
TOPSOIL STOCKPILE
ABLUTION
OFFICE, CRIB, ADMIN
U/G VENTS
ROM PAD
PAF & NAF WASTE ROCK DUMP
MOBILE TAILINGS PASTE PLANT
UNDERGROUND GO-LINE
PAF WASTE ROCK DUMP
BATCH PLANT
HAUL ROAD
FUEL FARM
SURFACE EXTRACTION AREA
PAD SEDIMENT BASIN
INTERNAL ACCESS ROAD
TOPSOIL STOCKPILE
LINED LEACH POND
LINED LEACH POND
TELECOMMUNICATION TOWER
PAD 04 MAGAZINE
SECOND MAGAZINE
INDICATIVE PIPELINE

LEGEND
- Project Area
- Haul Road/Internal Access Road
- Indicative Pipeline Network
- PAD
- Services Corridor
- Approximate Location of Stoping Areas (Projected at Surface)

0 250 500 m

Scale: 1:7,500 at A4
Coordinate system: GDA 1994 MGA Zone 55

Date drawn: 20-Jan-2022
Project number: 660.30090.00000

Data Source: Basedata NSW SS, 2019
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FEDERATION SITE PLAN

FIGURE ES-3

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435000
436000
437000
438000
6447000
6446000

EXISTING AND EXPANDED ACCOMODATION VILLAGE

PROPOSED OVERHEAD TRANSMISSION LINE

EXISTING OVERHEAD TRANSMISSION LINE

NEW PROCESS PLANT

QUARRY LOCATION (MOD 6)

EXISTING PROCESS PLANT

SERVICES CORRIDOR

BURTHONG ROAD

PROPOSED SOLAR FARM

APPROVED MINE SITE INFRASTRUCTURE

RELOCATED MAGAZINE

TO FEDERATION MINE

TSF

WATER MANAGEMENT DAM

LEGEND

- Haulage Route - Hera Mine
- Hera Mine Infrastructure
- Hera Mine, Proposed New Process Plant
- Hera Mine Site Boundary
- Services Corridor
- Proposed Overhead Transmission Line
- Solar Farm

0 250 500 m

Scale: 1:10,000 at A4
Coordinate system: GDA 1994 MGA Zone 55

Date drawn: 20-Jan-2022
Project number: 660.30090

Data Source: Basedata NSW SS, 2019
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HERA MINE SITE PLAN

FIGURE ES-4

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3. Project Setting and Existing Operations

3.1 Hera Mine

Hera Resources currently operates the Hera Mine located south of the township of Nymagee and approximately 80 km south east from Cobar, NSW. Hera Mine commenced operations in 2012 under the former *Environmental Planning and Assessment Act 1979* (EP&A Act) Part 3A approval PA10_0191. The Project approval has recently been modified for the sixth time, which provided for the continuation of operations at Hera Mine until December 2025.

Operations at Hera Mine involve the extraction of waste rock and metalliferous ore using underground open stope mining methods and underground load and haul operations. The on-site processing plant is approved to process up to 505,000 tonnes per annum (tpa) of ore to produce gold and silver doré (unrefined bars) and a zinc/lead concentrate. Tailings which are produced from the processing plant undergo a cyanide detoxification process prior to placement into an onsite TSF. The zinc/lead concentrate is transported via public road to the Hermidale Rail Siding located approximately 75km to the north. The gold and silver doré is transported to Dubbo airport where is it is then flown to Perth Mint.

There is a mine accommodation village at Hera Mine, including accommodation facilities, ablution facilities, a water treatment facility, communal facilities and a communal car park. The accommodation village was approved under Cobar Shire Council (CSC) development consent 2012/LD-00004 (2012), with and extension approved under development consent 2021/LD-00010 (2021).

3.2 Exploration Decline Program

In August 2021 the Department of Planning Industry and Environment Resource Regulator (DPIE-RR) approved the development of an exploration decline at Federation (referred to as the Exploration Decline Program) under Part 5 of the EP&A Act and section 23A(4) of the *Mining Act 1992*. The Exploration Decline Program involves the development of a box cut, portal and an exploration decline. A surface infrastructure area will be established to support exploration decline activities.

Extraction of one or more bulk samples together totaling no more than 20,000 tonnes (t) will be undertaken and transported to Hera Mine via Burthong Road for processing at the existing processing plant. Waste rock from would be stored within the surface infrastructure area for future use in rehabilitation, transferred to Hera Mine via Burthong Road or returned underground via the exploration decline. A 14.8 km surface pipeline to transfer water from the exploration decline to Hera Mine will also be established.

3.3 Peak Gold Mine

Peak Gold Mines Pty Ltd, a wholly owned subsidiary of Aurelia, operates the Peak Gold Mine (PGM), which includes the New Cobar Complex located 3km to the south-east of Cobar and the Peak Complex located 10 km south east of Cobar. PGM has operated since mining commenced at the Peak deposit in 1991 and operates under development approvals issued by CSC. The PGM processing plant comprises a range of mills, flotation cell banks and other associated equipment. The plant has recently been upgraded to replace the flotation circuit and installation of segregated concentrates storage area.

Tailings are managed within the Peak Complex and are placed in the PGM TSF. As part of the Project it is proposed to transport up to 200 kilo-tonnes per annum (ktpa) of ore to PGM for processing up to Year 5 of operations, being approximately 10% of the total ore from the Federation deposit. Processing of ore and management tailings from the Federation deposit will occur under PGM's existing approvals.

4. Statutory Context

Part 4, Division 4.7 of the EP&A Act specifically relates to the assessment of State Significant Development (SSD) applications. Under Section 4.36 of the EP&A Act, a development is SSD if it is declared to be as such by any State Environmental Planning Policy (SEPP). The relevant SEPP for the declaration of the Project is the *State and Regional Development - State Environmental Planning Policy (SRD SEPP) 2011*. In particular, clause 8(1) of the SRD SEPP states that development may be declared an SSD if it is specified in Schedule 1 or 2. Clause 5(1) of the SRD SEPP includes mining developments with a capital investment of more than $30 million.

The Project is a development for the purpose of mining that has a capital investment value of more than $30 million, and accordingly, the Project is classified as SSD and is subject to the provisions of Division 4.7 of Part 4 of the EP&A Act.

In accordance with Section 4.12 of the EP&A Act, a development application (DA) for SSD must be accompanied by an Environmental Impact Statement (EIS) that is prepared in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation).

To inform the content of the EIS, a request for the Secretary's Environmental Assessment Requirements (SEARs) from the Planning Secretary of the Department of Planning, Industry and Environment (DPIE) is required, which specify the issues that must be addressed in the EIS. The SEARs for the Project were issued by DPIE on 17 August 2021, and this EIS has been prepared in accordance with the SEARs.

A referral under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) was submitted for the Project to the Department of Agriculture, Water and the Environment on 19 November 2021, supported by information providing evidence that the Project was not likely to have a significant impact on matter of national environmental significance and therefore should not be a 'controlled action'. On 7 January 2022 the delegate of the Minister for the Environment decided that the Project (the proposed action) was not a controlled action.

Hera Resources currently holds planning approval PA 10_0191 for Hera Mine. As part of the Project it is intended to rescind / surrender PA 10_0191 with activities at Hera Mine incorporated into the SSD approval.

5. Consultation and Engagement

Engagement for the Project was informed by the community and stakeholder participation strategy which identified key community and agency stakeholders, and the tools that would best be utilised to ensure effective communication outcomes. To date there have been two Project-specific community information sessions and four general Community Consultative Committee (CCC) meetings held by Hera Mine which have included updates on the Project. The CCC meetings were held in December 2020, March 2021, June 2021 and October 2021. The community information sessions were held in March 2021 and an online meeting in September 2021 (held in 2 stages).

The proponent has also liaised with directly affected landowners and surrounding landholders.

Engagement with government stakeholders has been undertaken as part of the preparation of the EIS for the Project, and consisted primarily of online meetings, email correspondence, and on-site meetings where possible to discuss Project scope and confirm impact assessment processes.

Engagement activities were also undertaken through establishment of a community hotline and email address, emails to stakeholders, newsletters and engagement with the community through company representation at community events and through sponsorship opportunities.

Consultation with the Aboriginal community has been undertaken as part of the aboriginal cultural heritage assessment process including involvement of Registered Aboriginal parties (RAPs) in field work, and attendance at an Aboriginal focus group meeting.

6. Rehabilitation and Closure

Under the State rehabilitation reforms which came into effect in July 2021, existing mines are required to convert their existing Mine Operations Plan (MOPs) into Rehabilitation Management Plans (RMP) by July 2022. Lease holders of large mines are required to submit rehabilitation objectives, rehabilitation completion criteria and the final landform and rehabilitation plan to the Secretary for approval.

A Rehabilitation Strategy has been prepared, in accordance with the SEARs, to inform a RMP for the Project, and proposes rehabilitation objectives, performance indicators and completion criteria for all mining domains.

Rehabilitation of the Project area will involve decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use sustainability and land relinquishment. Rehabilitation implementation includes soil management, revegetation, maintenance, weed and pest management, and erosion and sediment control.

The proposed post-mining land use will include returning the site to a combination of agriculture (limited pastoral activities) and native vegetation made up of predominantly endemic species comprising trees, shrubs and grasses, which will be similar to the pre-mining land use.

Some infrastructure will be retained for the benefit of future landowners such as the powerline, solar farm, water pipeline, roads, tracks and communications infrastructure.

A rehabilitation monitoring program will be undertaken to assess the long-term stability and functioning of re-established ecosystems on affected land and assess rehabilitation performance against the closure criteria.

In order to verify rehabilitation procedures and outcomes the monitoring program will assess rehabilitation progress towards meeting the completion criteria using performance indicators.

7. Impact Assessment

A number of comprehensive technical investigations have been completed by appropriately qualified and experienced personnel for the Project to ensure potential environmental and social impacts associated with the development are appropriately assessed. The investigations have also identified management measures to be implemented for the duration of the Project to avoid or mitigate the identified impacts.

The findings of the technical investigations are summarised in the main body of this EIS and are provided in full in the appendices. The following sub-sections provide an overview of the key findings.

7.1 Soils and Land Capability

A land and soil capability assessment was prepared by Sustainable Soils Management to identify the current soil properties and corresponding soil and land capability classification across the Project area, through soil sampling, laboratory testing, and supplemented with information collected during the desktop assessment. Capability assessment was based on slope, wind hazard, soil pH, surface structural stability, salinity, rock outcrop, waterlogging potential, and existing erosion according to relevant guideline criteria. Suitable soils stripping depths were determined to provide a source of growth material for rehabilitation.

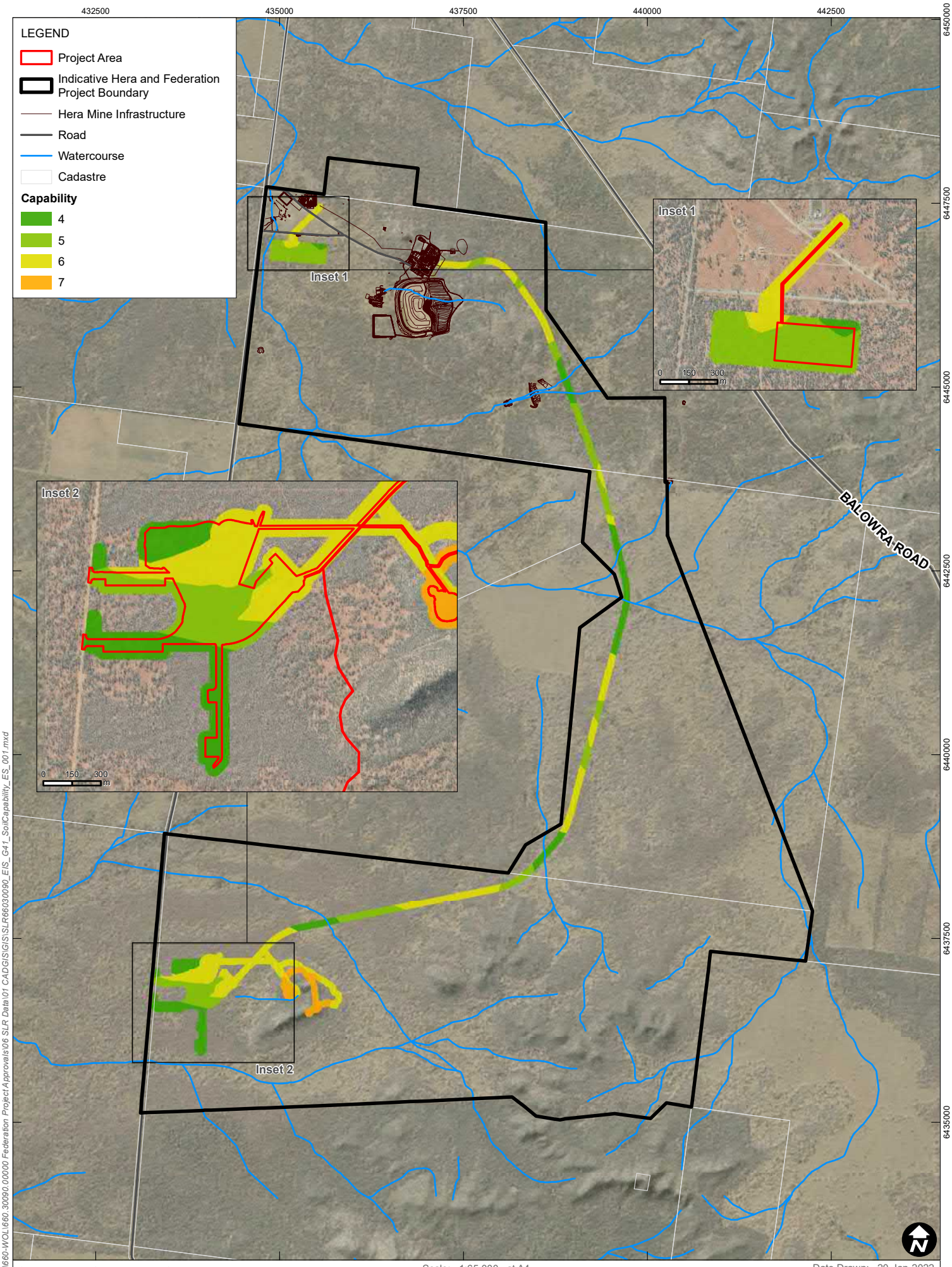
There were five soil mapping units identified across the Project area, which demonstrated a close correlation with land use classification, which classifies land into one of eight land and soil capability classes. These classes give an indication of the intensity of use the land can withstand without suffering land and soil degradation.

The majority of the Project area has a land and soil capability rating of class 5 and 6 (refer **Figure ES-5**), which is consistent with the historic land use of extensive grazing, and indicates that the land has relatively low potential agricultural productivity. Disturbance to the soil will be managed so that it is possible to restore the majority of land to a similar class that was present before the Project.

The soils balance, based on the proposed stripping depths, demonstrates that there is sufficient soil available to for use in rehabilitation. With the proposed final rehabilitation of the Project area, the land would be capable of supporting the pre-existing land and soil capability and similar stocking density

Mapping indicated there is a very low probability of acid sulphate soils likely to the present in the Project area. Similarly, it is unlikely that there is pre-existing land contamination given the previous low level agricultural use and management of hazardous materials and fuels across the Project area.

Soil management measures are proposed for soil stripping and handling, soil stockpiling, and soil respreading.



Scale: 1:65,000 at A4
Coordinate System: GDA 1994 MGA Zone 55

Date Drawn: 20-Jan-2022
Project Number: 660.30090.00000

Data Source: Basedata NSW SS, 2019
Aerial imagery supplied by © Department of Customer Service 2020 & Aerometrex Pty Ltd, 2019
Soil data supplied by Sustainable Soils Management Pty Ltd

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LAND AND SOIL CAPABILITY CLASSIFICATION

FIGURE ES-5

7.2 Geochemistry

A geochemical assessment was completed by Terrenus Pty Ltd and provides the characterisation of potential waste rock from the Federation Site and tailings generated at Hera Mine from Federation ore processing. This information was then used in the design of waste rock pads, planning of mine operations, and the rehabilitation strategy.

Waste rock was characterised through obtaining numerous samples from the box cut and from various depths within and surrounding the stoping footprint. Bench scale testing of tailings was undertaken from three trial samples. The assessment concluded that weathered rock sourced from the box cut was non-acid forming, had a low potential for sulfate-derived salinity, and had a high cation exchange capacity; while fresh rock was classified as potentially acid forming and had a high potential for sulfate-derived salinity. Tailing were also classified as potentially acid forming.

Waste rock will be separated as potentially acid forming and non-acid forming and stored separately to allow non-acid forming waste rock to be used in the final landform design, as either backfill in the box-cut or used in construction or final rehabilitation. Potentially acid forming waste rock will be placed underground at Federation or Hera Mine during or post mine life, and will not remain on the surface at mine closure.

Waste rock and run-of-mine stockpiles will drain to lined leach ponds. Water will be monitored for standard water quality parameters prior to use in the mine water management system. Tailings will be placed into either the approved Hera Mine tailing storage facility or returned to Federation for paste backfilling of underground stopes.

A Mineral Waste Management Plan will be developed which will detail management of waste rock and tailings for the Project.

7.3 Subsidence

A surface subsidence assessment was completed by Beck Engineering. Subsidence predictions were determined through the development of a numerical model of the underground mine at Federation to determine the potential surface impacts. The model was a 3D discontinuum model, which sourced model inputs from site data, regional information and desktop assessments. The numerical simulation of mine-scale subsidence for the entire duration of the mine plan indicates that total cumulative 3D surface displacements above the mining footprint will be within the range of 1 - 2 cm. This includes both horizontal and vertical components of displacement. This level of displacement was determined to be negligible and highly unlikely to have any impact on surface features.

To mitigate risks associated with potential stope or decline instability, a number of design and operational are proposed for the Project, including further characterisation of the rock strength, upper stope control measures and a rock mass characterisation.

7.4 Surface Water

A surface water impact assessment was completed by GHD, which details the design of the proposed water management system at Federation Site, the current water management practices at Hera Mine,

and the integration of the Federation Site and Hera Mine water management systems to develop a water balance for the Project.

The Project is located in the Murray Darling Basin within the upper catchment area of Sandy Creek (refer **Figure ES-6**). The main creek systems in the vicinity of the Project are westerly flowing ephemeral streams that ultimately drain to the Darling River, and include Box Creek to the north, and Sandy Creek to the south. No surface water users were identified downstream of the Project.

The Project area has annual median rainfall of 396 mm and annual average evaporation of 2001 mm, and has an average monthly net rainfall deficit in all parts of the year.

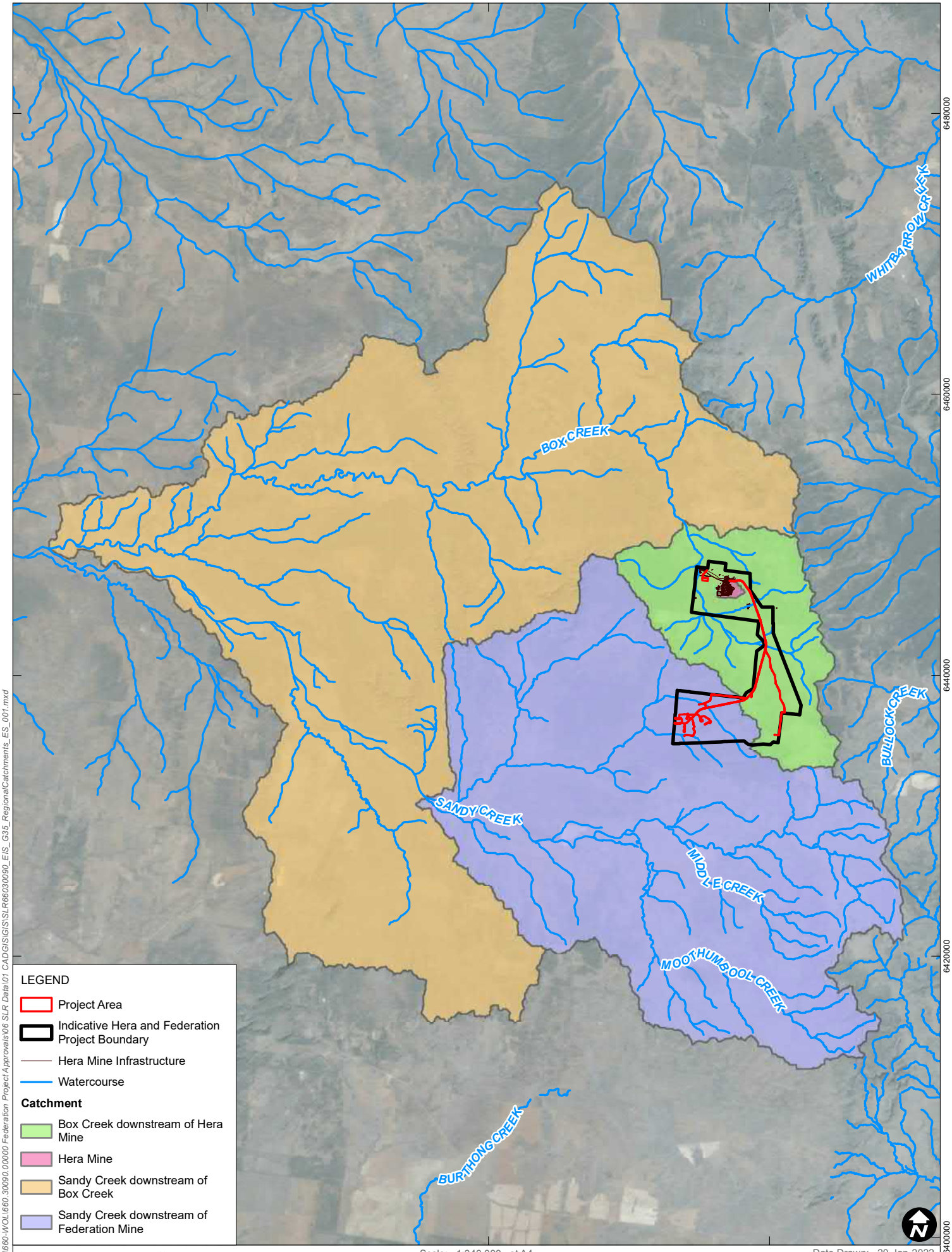
GOLDSIM software was used to develop the water balance for the Project (i.e. including the range of annual extraction from all production bores at peak water demand) and this modelling demonstrated that under the proposed conditions of the Project, there would be both greater inputs and outputs compared to the current Hera Mine. However, the water requirements of the Project are expected to be within the entitlements already held by Aurelia. There is no predicted discharge from the Federation Site.

The water balance model will be reviewed and revised annually. The predicted water balance for the Project will be included in the Water Management Plan and the results for each year will be reported in the Annual Review for the Project.

Mining operations have the potential to impact on flow regimes in watercourses due to changes to surface water runoff and baseflow contributions. Impacts to the local catchments of Box Creek and Sandy Creek will be minimal, comprising a reduction of less than 1 per cent of its respective pre-development catchments. The Federation Site is not expected to be subject to regional or localised flooding due to the elevated topography and the establishment of diversion drains.

Upstream water quality was assessed through sampling of two dams (Far Dam and Middle Dam), where the majority of analytes were below the default value guidelines or limit of detection with the exception of nutrients.

Surface water quality at Hera Mine will continue to be monitored in accordance with the approved Hera Mine Water Management Plan, which will be updated to include the Project. Two additional surface water quality monitoring locations (one upstream and one downstream) will be nominated for the Federation Site and be added to the surface water quality monitoring program.



Scale: 1:340,000 at A4
Coordinate System: GDA 1994 MGA Zone 55

Date Drawn: 20-Jan-2022
Project Number: 660.30090.00000

Data Source: Watercourse: LPI, 2015
Aerial imagery supplied by © Department of Customer Service 2020
GHD Surface Water Impact Assessment, 2021 (Figure 6-1)

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CATCHMENTS PROPOSED CONDITIONS

FIGURE ES-6

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7.5 Groundwater

A groundwater impact assessment was completed by GHD, and provides an assessment of groundwater conditions in the domain inclusive of the Project and current, approved activities at Hera Mine. Comparison of the respective model outputs has resulted in an assessment of the changes in groundwater conditions as a result of the Project, as well as an assessment of cumulative impacts.

Current groundwater monitoring is completed through groundwater monitoring programs at Federation Site, Hera Mine, and Nymagee Copper Mine; with the monitoring of a number of bores. Groundwater was found to be relatively deep, with depths of 45 to 90 below ground level at Federation Site and Hera Mine, and slightly brackish and low in dissolved metal. There is no evidence of either a perched shallow aquifer or any alluvial aquifers in the vicinity of Federation, Hera Mine and proposed borefield. There are no groundwater dependent ecosystems at the Project site due to the depth of the groundwater in the locality. Groundwater quality is slightly brackish to saline.

A groundwater model was prepared to determine the potential impact to groundwater in accordance with the NSW Aquifer Interference Policy, and assessed current conditions, being the mine operation at Hera Mine with closure in 2023, and the proposed condition, which is with the operation of the Project. The groundwater model was peer reviewed by HydroAlgorithmics, who concluded groundwater assessment is consistent with best practice and that the groundwater model is fit for purpose.

Predicted impacts have been compared to the Level 1 minimal impact considerations for less productive water sources in the NSW Aquifer Interference Policy and were determined to be within the minimal impact considerations, with the exception of modelled impacts on two landholder bores, where predicted drawdown exceeds 2 m, but is less than 4 m. Therefore, make good provisions will apply at these bores.

The predictions of the hydrogeological model will be reviewed following two years of mining at Federation. The review of the hydrogeological model will include a comparison of modelling results against groundwater monitoring data and mine dewatering volumes. If required, the model will be revised to improve the fit between observed and modelled dewatering volumes and groundwater levels.

The existing groundwater monitoring programs at Federation Site, Hera Mine, and Nymagee Copper Mine would continue during the Project with the addition of three bores at Federation Site to identify any potential impacts on landholder bores and to validate groundwater model predictions and provide observation data for future model calibration.

The existing flow monitoring program at Hera Mine will also be continued. In addition, the flow monitoring program will be expanded as required to include the metering of water transfers into and out of the Federation workings, and the metering of groundwater extraction from all proposed production bores.

7.6 Biodiversity

A biodiversity development assessment report was prepared by AREA Environmental and Heritage Consultants, as required under section 7.2 (2)(b) of the *Biodiversity Conservation Regulation 2017*,

consisting of desktop assessment and extensive surveys over the course of 2020 and 2021. Additional surveys to identify environmental constraints for other Hera Resources related projects have been previously undertaken by AREA in 2018, 2019, 2020, and early 2021.

Surveys identified six plant community types in the Project area (as shown in **Figure ES-7**), none of which are classified as a threatened ecological community, namely:

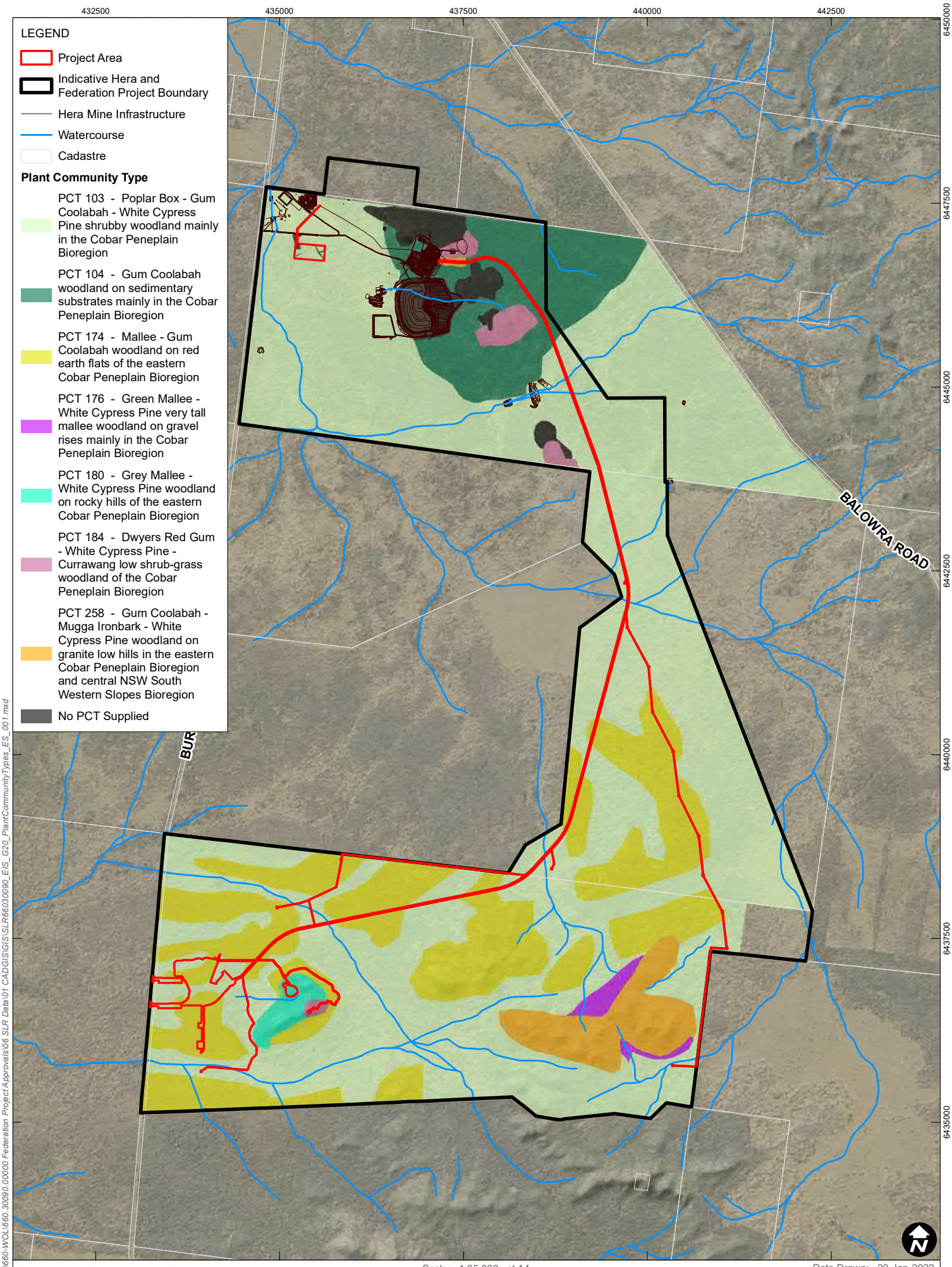
- PCT103 Poplar Box - Gum Coolabah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion;
- PCT104 Gum Coolabah woodland on sedimentary substrates mainly in the Cobar Peneplain Bioregion;
- PCT174 Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion;
- PCT180 Grey Mallee - White Cypress Pine woodland on rocky hills of the eastern Cobar Peneplain Bioregion;
- PCT258 Gum Coolabah - Mugga Ironbark - White Cypress Pine woodland on granite low hills in the eastern Cobar Peneplain Bioregion and central NSW South Western Slopes Bioregion; and
- PCT184 Dwyer's Red Gum - White Cypress Pine - Currawang low shrub-grass woodland of the Cobar Peneplain Bioregion.

No threatened flora species were recorded in the Project area. Three State listed threatened bat species were positively identified through bat surveys. All 14 candidate species identified as needing targeted survey were able to be excluded from biodiversity assessment methodology credit calculator because field assessment determined they were not present, or unlikely to be present, or unlikely to use the suitable habitat in the Project area.

There are no Commonwealth listed threatened ecological communities (TECs) in the Project area. The assessment concluded that the Project is unlikely to result in significant impacts to Commonwealth listed threatened species and ecological communities and listed migratory species.

Opportunities were sought through the Project design to avoid and minimise impacts to vegetation. This included utilising cleared or disturbed areas for placement of infrastructure, use of an existing public road rather than an internal haul road and condensing the Project area where feasible. Management and mitigation measures have been proposed to further minimise potential impacts to biodiversity, including vegetation clearing protocols and preclearance surveys which will minimise impacts by allowing fauna to vacate if present. The staging of Project activities will avoid unnecessary clearing if a stage does not go ahead.

Biodiversity offsets under the *Biodiversity Conservation Act 2016* will be required for the Project to compensate for residual impacts to the above listed plant community types, totalling 2045 credits.



Scale: 1:65,000 at A4
Coordinate System: GDA 1994 MGA Zone 55

Date Drawn: 20-Jan-2022
Project Number: 660.30090.00000

Data Source: Basedata NSW SS, 2019
Aerial imagery supplied by © Department of Customer Service 2020
AREA Environmental & Heritage Consultants Pty Ltd

SLR

PLANT COMMUNITY TYPES (PCTs)

FIGURE ES-7

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7.7 Indigenous Heritage

An Aboriginal cultural heritage assessment and archaeological survey report were completed by AREA Environmental and Heritage Consultants in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* to determine the likely Aboriginal and historic heritage impacts of the Project.

A series of archaeological surveys have been undertaken across the Project area in 2020 and 2021, in conjunction with Registered Aboriginal Parties.

Consultation was completed with a number of registered Aboriginal parties during the assessment, including attendance at field surveys, review of documentation, and participation in an Aboriginal focus group meeting with the intent to come to an agreement on the management and mitigation measures for the Project.

Twenty-eight Aboriginal sites were recorded during the surveys, one within the Project area, nineteen within 100 m of the Project area, and the remaining eight further than 100 metres from the Project area (refer to **Figure ES-8**). All sites were outside the impact footprint, with the exception of one (being a culturally modified tree identified) which will remain in-situ and protected from disturbance by a 10 m buffer.

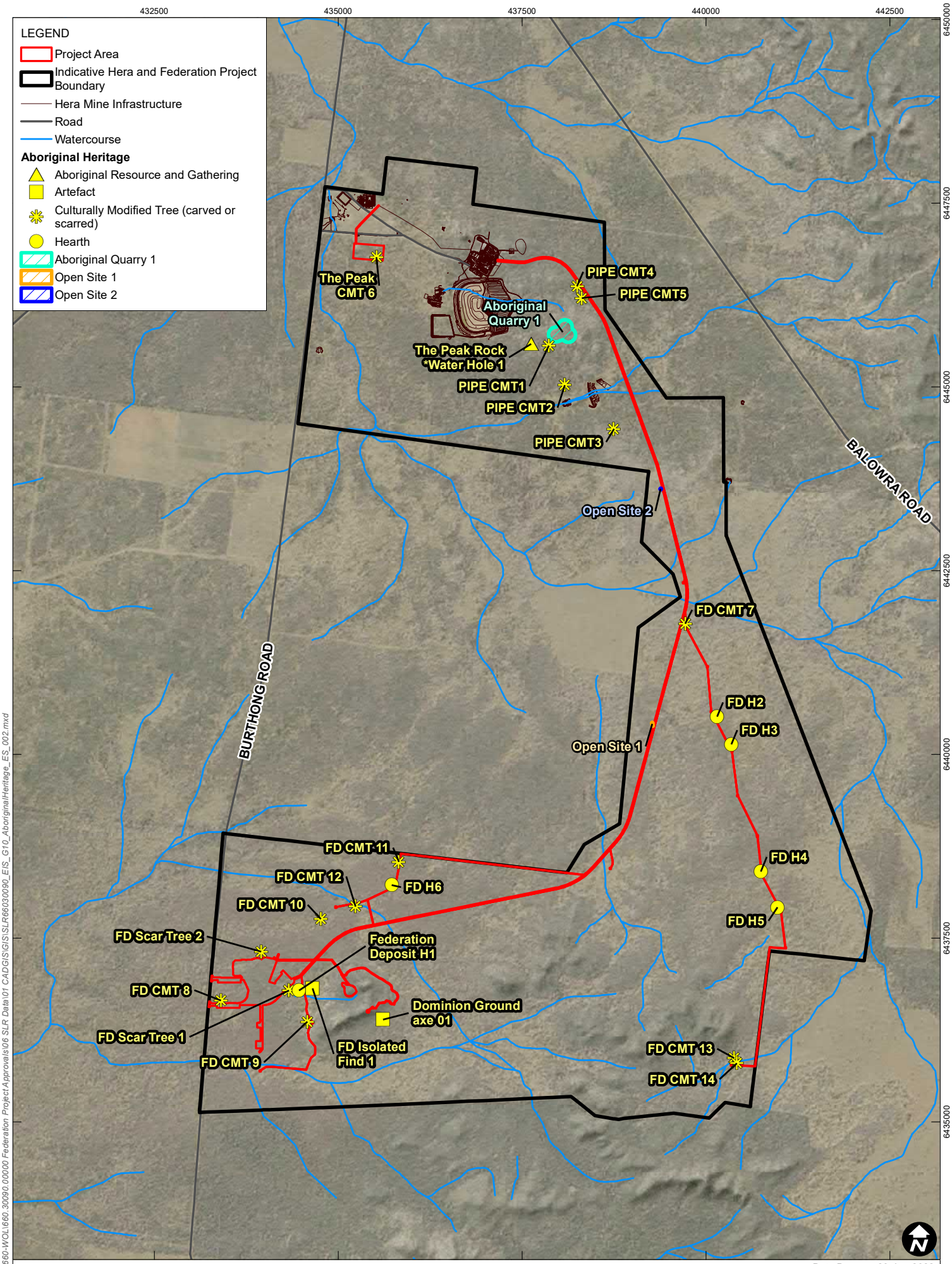
Management measures have been proposed for the ongoing protection of identified Aboriginal sites following discussions with registered Aboriginal parties, including the erection of fencing around each Aboriginal site within 100 m of the Project site. An unexpected finds protocol will be developed and implemented for the Project.

7.8 Non-Indigenous Heritage

A desktop non-indigenous heritage assessment was completed by SLR to provide detail on the level of potential impacts to items of historic heritage as a result of the Project.

A search of public databases was undertaken to identify any items of historical heritage in proximity to the Project. No heritage items of local, State, or national significance were identified as having been recorded in the vicinity of the Project including within Nymagee.

Given the lack of any known items of listed historic heritage within proximity to the Project, potential impacts are considered negligible. Given Nymagee is 15 km from the Federation Site, any potential impacts associated with items of heritage in Nymagee, are also considered negligible. It is considered that the continuation of mining in the area would benefit the township into the future both economically and culturally, with the historic mining heritage reflected through the Project. An unexpected finds protocol will be developed and implemented for the Project.



Scale: 1:65,000 at A4
Coordinate System: GDA 1994 MGA Zone 55

Date Drawn: 20-Jan-2022
Project Number: 660.30090.00000

Data Source: Basedata NSW SS, 2019
Aerial imagery supplied by © Department of Customer Service 2020
Heritage data supplied by AREA Environmental Consultants & Communication

SLR

RECORDED ABORIGINAL SITES

FIGURE ES-8

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7.9 Noise and Vibration

A noise and vibration impact assessment was prepared by Muller Acoustic Consulting to determine the potential impact of the Project to identified sensitive receivers. The assessment quantified potential construction noise emissions associated with site establishment and construction of new infrastructure, and operational noise emissions associated with mining operations, material handling, and transport operations.

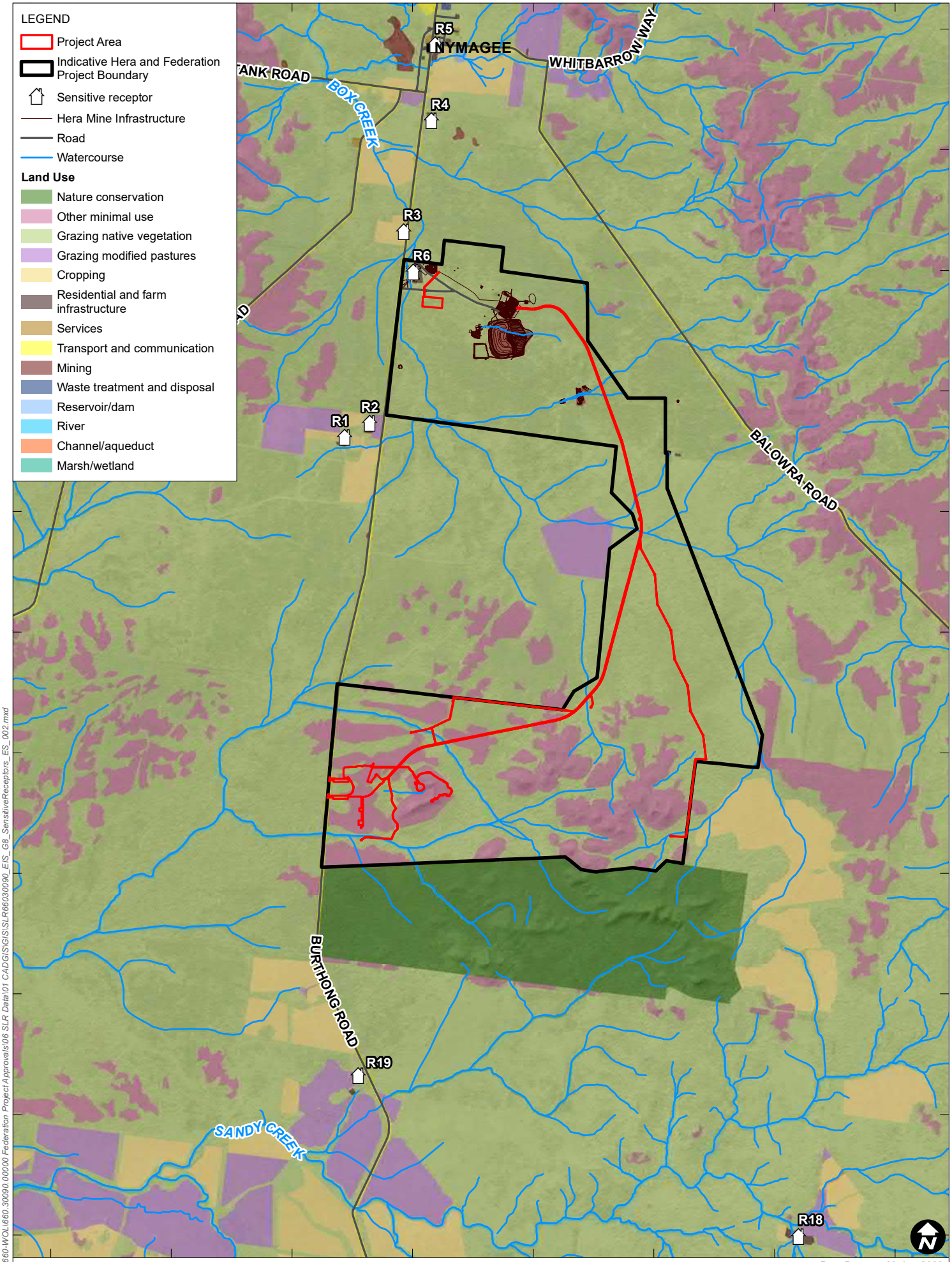
A model was developed to quantify Project noise emissions to neighbouring residential sensitive receivers, numbering seven, with Nymagee village being identified collectively as a single receiver (refer to **Figure ES-9**). The results of the assessment concluded that operational noise levels would achieve the relevant NSW Noise Policy for Industry criteria for all assessment periods at each assessed receiver location. The assessment considered operations at both the Federation Site and Hera Mine, including the simultaneous operation of the existing and new processing plants.

The road traffic noise assessment demonstrates that the road noise criteria as specified in the NSW Road Noise Policy will be satisfied for the nearest residential receivers adjacent to each of the proposed haul routes, with haulage vehicle movements restricted to daylight periods only.

Blast overpressure and vibration was also assessed for the nearest receivers to the Federation Site. Levels are predicted to meet Australian and New Zealand Environment Council criteria at all assessed receivers for surface blasts for the maximum probable maximum instantaneous charge (i.e. the total charge mass of explosives firing at one point in time during a blast). Additionally, ground vibration levels are predicted to meet the criteria at all assessed receivers for the maximum probable maximum instantaneous charge for underground blasting.

As noise and vibration levels are predicted to meet the relevant noise and vibration criteria, no further mitigation measures are required. However, to proactively address any potential residual noise impacts, a Noise Management Plan may be considered for the Project that would guide, manage, quantify, and control noise emissions through the implementation of feasible and reasonable best management practices.

The Noise Management Plan will also include a provision for attended noise monitoring within the community in response to received complaints if they arise, and subsequent responses to any exceedances.



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Coordinate System: GDA 1994 MGA Zone 55

Date Drawn: 20-Jan-2022
Project Number: 660.30090.00000

Data Source: Basedata NSW SS, 2019
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SENSITIVE RECEPTOR LOCATIONS

FIGURE ES-9

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7.10 Air Quality

An air quality impact assessment was prepared by ERM to determine the potential air quality impacts to nearby sensitive receivers. Air quality impact criteria in NSW are derived from the adopted National Environmental Protection (Ambient Air Quality) Measure which provides a national standard for six criteria pollutants. Air dispersion modelling was undertaken to predict potential impacts.

Emission sources were determined through the consideration of potential dust generating activities undertaken at both the Hera Mine and Federation Site for the worst-case year, being financial year 2028. The assessment included the assumption that standard dust control measures would be implemented for the Project.

The modelling results were compared against the adopted air quality criteria, which demonstrated that there were no predicted exceedances at sensitive receiver locations for any of the annual average parameters. For 24-hour average Particulate $Matter_{2.5}$, there were no predicted exceedances of the impact assessment criteria at sensitive receiver locations, however for 24-hour average Particulate $Matter_{10}$, there is one predicted exceedance of the impact assessment criteria, experienced at all sensitive receiver locations. This exceedance is due to background concentrations already exceeding the criteria. There are no additional exceedances at sensitive receiver locations of the 24-hour average Particulate $Matter_{10}$ criterion caused by Project contributions.

The preparation of an Air Quality Management Plan is proposed, which would detail any proposed mitigation and monitoring at the Project relating to dust generating activities. Air quality monitoring associated with Hera Mine will continue to measure and report concentrations and deposition levels.

7.11 Human Health Risk Assessment

A human health risk assessment was prepared by Environmental Risk Sciences which assessed the potential impacts of the Project on community health in relation to air quality (considering both particulate size and particulate composition) and noise, drawing upon the results of the noise and vibration and air quality impact assessments.

The assessment concluded that there would be negligible risk to community from air quality changes for inhalation exposures and multi-pathway exposures (where metals present in dust are deposited to the ground or onto roof areas, ingested through homegrown produce, and accumulated in rainwater tanks). The assessment concluded that there would be negligible risk to community from noise changes.

Based on the available information, and with consideration of the uncertainties identified, no health risk issues of concern have been identified for the off-site community.

7.12 Greenhouse Gas

A greenhouse gas assessment was completed by ERM based on data provided by Hera Resources about anticipated combustion sources, in accordance with the Greenhouse Gas Protocol, the Intergovernmental Panel on Climate Change, and Australian Government greenhouse gas accounting and classification systems.

The Project will result in scope 1 emissions, being direct greenhouse gas emissions that occur from sources that are owned or controlled by the reporting entity. There will be no scope 2 emissions (indirect emissions from the generation of purchased energy). Scope 1 emissions were calculated for the combustion of liquefied natural gas for the gas fired power plant, diesel for vehicles, lubricants/oil and liquefied petroleum gas.

Approximately 75% of electricity will be provided by the power plant at Hera Mine (75 per cent of the total power requirements) with the balance provided by the proposed solar farm . The assessment concluded that using the on-site power plant and solar farm, rather than taking electricity from the grid, reduces emissions by approximately 92,300 tonnes of carbon dioxide over the life of the Project. Further, by having the power plant provide 75%of electricity needs and the solar farm provide 25 per cent, compared with 100 per cent production by the power plant, the Project saves approximately 62,000 tonnes of carbon dioxide over the life of the Project. Overall, the combination of solar farm and power plant will make a significant saving to greenhouse gas emissions for the Project.

Additional energy efficiency measures will be sought to further reduce greenhouse gas emissions. Greenhouse gas emissions will be reported in accordance with the requirements of the *National Greenhouse and Energy Reporting Act 2007*.

7.13 Landscape and Visual Amenity

A landscape and visual impact assessment was prepared by SLR to assess the potential impact on visual amenity from the Project, consisting of a desktop analysis and a site investigation.

For the assessment, visual receptor points were selected by analysing aerial photography to identify areas that may have impact significance, and then taking additional photography at those key locations with an angle of view towards the Project area. Once these receptors were determined, a visibility model was run to ascertain the likelihood of proposed infrastructure from the Project being seen from these receptor points. Receptor sensitivity was combined with an assessment of the magnitude of change to determine the significance of impacts.

Four viewpoints were adopted as being representative of public and private views. Receptor sensitivity was considered to be low at all viewpoints.

The magnitude of change was considered to be negligible to medium due to the Project infrastructure and activities being relatively hidden by adjoining vegetation and landform that would remain unaffected by the works. The significance of impacts was determined to be minor – negligible to minor – moderate.

No specific mitigation measures are required in relation to landscape and visual amenity, other than the maintenance of existing vegetation buffers and implementation of the Rehabilitation Strategy that has been prepared for the Project, outlining the rehabilitation objectives and outcomes to ensure the land is rehabilitated back to a stable landform and be revegetated with suitable native vegetation and grassland.

7.14 Waste Management

A desktop waste management assessment was completed by SLR to provide details on the proposed waste management practices to be implemented during both construction and operation of the

Project in accordance with relevant NSW legislation and guidelines. The waste management assessment also provides a summary of the findings of the tailing storage facility risk assessment.

Waste management for the Project will continue practices currently in place at Hera Mine, with wastes being managed, segregated, stored, and labelled in accordance with relevant guidelines and best waste management practices. Waste records will be kept, with all waste transported off site by a licensed contractor.

A Waste Management Plan will be developed for the Project covering both construction and operation, with waste rock being managed in accordance with a separate Mineral Waste Management Plan. Waste rock will be tested on site with segregation of non-acid forming and potentially acid forming. Runoff from all waste rock pads will drain to lined leach ponds. All potentially acid forming will be placed underground at the end of mining operations.

Tailings management will continue to be in accordance with the 'Hera Mine Tailing Storage Facility Operation and Maintenance Manual'. A tailings risk assessment was completed as part of the waste management assessment with risks ranked as low to moderate (i.e. acceptable) with the implementation of proposed management and mitigation measures.

7.15 Traffic and Transport

A road transport assessment was prepared by The Transport Planning Partnership to assess the Project's impacts on the road network.

Ore and tailings will be transported along Burthong Road, a local road that is currently unsealed for most of the section between the Federation Site and Hera Mine. Approximately 10% of ore may be transported to Peak Mine along Burthong Road, Priory Tank Road (a sealed regional road) and Kidman Way (a State road). Concentrate will be transported from Hera Mine along the Nyamgee-Hermidale Road (sealed main road), via Nymagee. All potential Project traffic, including workforce movements, general deliveries and haulage has been considered in the assessment, along with expected growth in background traffic.

The assessment concluded that the existing road network and intersections, subject to recommended upgrades, have adequate capacity to accommodate the Project generated traffic together with unrelated traffic changes in the region, while maintaining the efficiency and safety of the road network operations at good standards. The road network efficiency assessment indicates that the Level of Service (LOS) on all impacted roads would remain at LOS A (the best traffic conditions) inclusive of Project traffic. An intersection analysis was conducted for the intersections which are proposed for use for haulage, which found that intersection upgrades, commensurate with rural road intersections, would be required.

It is proposed to seal the unsealed section of Burthong Road between Federation Site and Hera Mine, and restrict the transport of ore, concentrates and tailings to daylight hours only. A Traffic Management Plan and associated Driver's Code of Conduct will be prepared for the Project in consultation with relevant regulators, to address the use of public roads by Project traffic. Planning agreements with Cobar Shire Council and Bogan Shire Council are proposed to manage and mitigate potential road impacts.

The Project would generate approximately two train movements per week, and it expected that there is sufficient rail and Port capacity for the increase in concentrate volumes (above the one train per week that is already used for railing concentrate from Hera Mine) that will be generated by the Project at its peak.

7.16 Preliminary Hazard Assessment

A preliminary hazard analysis was prepared by SLR to assess the level of risk from hazardous materials proposed for use by the Project to people, property and the environment in the presence of controls.

Following a preliminary risk screening, a comprehensive analysis was undertaken for the storage and transport of the following dangerous goods: sodium isobutyl xanthate, hydrogen peroxide and sodium cyanide (all at Hera Mine) and ammonium nitrate/fuel oil (at Federation Site).

The residual risks associated with these hazards, once controls are implemented, were rated as tolerable, which is defined as an acceptably low risk. The technical and management safeguards required to manage risk are standard industry practice and readily implemented as part of safety engineering.

7.17 Social

A social impact assessment was prepared by Element Environmental in accordance with the Social Impact Assessment Guideline for State Significant Projects (DPIE, 2021), and completed over two phases. Phase 1, the scoping phase, included semi structured interviews with local stakeholders, an online community survey, and was used to define social locality and identify potential positive and negative social impacts. Phase 2, the impact assessment phase, considered the social baseline for the social locality, supported by ethnographic content analysis and a workforce survey, and was used to inform the analysis of potential positive and negative social impacts.

The assessment was prepared in consultation with stakeholders who were identified through a comprehensive scoping exercise. These stakeholders were engaged through various mechanisms including advertisements in the local newspapers, community information sessions, CCC meetings, emails, semi-structured interviews, newsletters, and surveys.

For each predicted impact the evaluation considered the impact likelihood and magnitude. The significance of residual social impacts, after the implementation of enhancements for positive impacts and mitigation measures for potential negative impacts, was assessed.

The significance of residual positive social impacts was determined to be:

- High for community contributions
- Very high for business revenue and individual incomes
- High for mental health benefits (due to ongoing presence in community)
- High for Aboriginal employment.

The significance of residual negative social impacts was determined to be:

- low for way of life (with a potential lack of integration in local community)

- Low for impacts associated with environmental assessments such as groundwater, air quality and dust, and noise and vibration
- Medium for cultural heritage impacts or impacts to connection with country for Aboriginal people (mitigated through avoidance of all identified cultural heritage sites and proposed rehabilitation of country)
- Low for traffic volumes and intersections
- Low for accessibility of medical services
- Low for accessibility of Hera Resources staff, with the implementation of a community engagement plan.

The social impact assessment concluded that the residual negative social impacts would not overshadow the predicted positive social impacts of the Project.

7.18 Economic

An economic impact assessment was prepared by Gillespie Economics in accordance with the NSW Government (2015) Guideline for the economic assessment of mining and coal seam gas proposal and NSW Government (2018) Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals.

The assessment included a local effect analysis and cost-benefit analysis (CBA) to determine the net economic impact in accordance with the relevant NSW Guideline. The local effects analysis (LEA) was supplemented by input output analysis. The CBA assesses the benefits of the Project (net production benefits to society (including royalties, company tax and net producer surplus), and any economic benefits to existing landholders, workers, and suppliers); against the costs of the Project (including environmental, social, and cultural impacts, and net public infrastructure costs). Therefore environmental, social, and cultural factors have been included in the valuation of the Project. The net social benefit of the Project is expressed in terms of net present value (NPV).

Per the input output analysis, the total annual impact of the peak year of construction on the regional economy is estimated at:

- $65M in annual direct and indirect regional output or business turnover;
- $27M in annual direct and indirect regional value added;
- $16M in annual direct and indirect household income; and
- 130 direct and indirect jobs.

Per the input output analysis, the Project is estimated to make up to the following average annual contribution to the regional economy during operations:

- $214M in annual direct and indirect regional output or business turnover;
- $98M in annual direct and indirect regional value-added;
- $41M in annual direct and indirect household income; and
- 350 direct and indirect FTE jobs.

The CBA determined that the Project would provide a net production benefit to NSW and Australia in the order of $70 million and $147 million respectively.

The CBA determined that the net social benefits of the Project, would be between $146 million to $242 million to Australia and $69 million to $165 million to NSW. As the Project has a positive NPV it is desirable and justified from an economic efficiency perspective.

8. Justification and Conclusions

Potential Project impacts have been assessed by specialists their respective areas of expertise. The EIS proposes a comprehensive set of management measures to mitigate or offset adverse impacts resulting from the Project.

The Project is consistent with the principles of Ecologically Sustainable Development as it does not exploit natural resources unsustainably, it has been based on economic and environmental considerations, and the likely environmental impacts of the Project are well understood and predictable. Furthermore, the development does not deplete or unreasonably affect biological diversity or ecological integrity without providing biodiversity offsets, and it provides an asset for future generations on land identified by State and local government planning policy as appropriate for mining.

The suitability of the site is considered optimal, with existing mining operations at Hera Mine currently planned to cease by 2023. The development of the Project will allow for the continuation of mining in the local and regional area, with the use of existing and proposed infrastructure at the Hera Mine to ensure the substantial gold-lead-zinc-copper-silver mineral deposit is extracted with minimal disturbance.

The continuation of mining operations in the locality and the transitioning of the Hera Mine workforce would ensure ongoing employment for people in the social locality and sustain the income for their households. This employment and income would terminate if the Project does not proceed.

Additionally, Hera Resources will continue to engage with the local Aboriginal community in relation to the preservation of cultural heritage. An Aboriginal employment engagement program will also be developed and implemented for the Project.

The Project would provide positive economic outcomes through the continuation of an operational workforce with higher workforce numbers, and continued support of local businesses in the Nymagee area. Contributions to the NSW government from the Project from royalties and taxes will also contribute to public infrastructure and services for future generations. The Project is estimated to have net social benefits to both Australia ($146 million to $242 million) and NSW ($69 million to $165 million) relative to the base case, and hence is desirable and justified from an economic efficiency perspective.

The Project has the potential to result in some negative impacts, however it is considered these can be managed and minimised through leveraging the strong relationship Hera Resources has with the local community and other stakeholders. Hera Resources will continue to actively participate in the local community and seek other opportunities to improve community engagement.

Upon cessation of operations, rehabilitation of the disturbed areas will be undertaken in accordance with the Rehabilitation Management Plan, with the intention to rehabilitate the land to a similar land suitability and use as existed pre-mining. The site will be returned to a stable landform and rehabilitated with native woodland across the majority of the area.