McPhillamys Gold Project

State Significant Development Assessment SSD 9505

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Cover image: The proposed mine site October 2020.

Executive Summary

LFB Resources NL, a wholly owned subsidiary of Regis Resources Limited (Regis), proposes to develop the McPhillamys Gold Project (the project), an open cut gold mine to extract up to 60.8 million tonnes (Mt) of ore and produce up to 2 million ounces of gold over 11 years, and build an associated underground water supply pipeline in Central West New South Wales (NSW).

The mine site would be located mainly within the Blayney Shire local government area (LGA) with a small area of the mine site also within Cabonne Shire LGA. The project's 90 kilometre (km) water supply pipeline would transfer water from coal mining and power station operations in Lithgow to the mine site, traversing the Lithgow City, Bathurst Regional and Blayney Shire LGAs.

Strategic Context

The mine site would be located north of the Mid-Western Highway near a rural residential area of Kings Plains, in the upper catchment of the Belubula River, a tributary of the Lachlan River.

The mine site has a history of both mining and agricultural (grazing) land uses. In terms of mining, the region is known for Australia's first discovery of gold, which occurred nearby in Bathurst and led to the 'Australian gold rush' in 1851.

The project's gold deposit is one of the most significant gold resources within NSW with an estimated resource 2,251 thousand ounces (koz) of gold, with some additional gold mineralisation identified beneath the base of the proposed pit.

The water supply pipeline alignment would be over land owned by EnergyAustralia, Centennial Coal, NSW National Parks and Wildlife Service, Crown Lands, and private property, with the majority of the pipeline route traversing cleared agricultural land, State forests, and a number of road reserves.

Assessment Process

The project is classified as State significant development under the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the Independent Planning Commission of NSW (Commission) is the consent authority, as there were more than 50 unique public objections to the project during the 42 days exhibition of the project's Environmental Impact Statement (EIS) in September – October 2019.

The mine site component of the project was declared as a 'controlled action' under *the Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to its potential impacts on threatened species and communities and is assessed in accordance with the Bilateral Agreement between the Commonwealth and NSW Governments.

Regis has amended the project three times in an attempt to address concerns from the community and reduce the potential impacts of the project.

The Department's assessment report and recommended conditions of consent are now referred to the Commission to make a determination on the project.

Engagement

The Department considers that its engagement process met the community participation requirements of the EP&A Act, associated EP&A Regulation and the State's obligations under the Bilateral Agreement with the Commonwealth Government.

During the exhibition period, the Department received 648 public submissions and advice from 21 government authorities and five local councils (Blayney Shire, Cabonne Shire, Lithgow City, Bathurst Regional and Orange City). Of the 648 public submissions 623 from individuals and 25 from special interest groups, including 217 submissions supporting, 395 objecting and 36 providing comments.

Following the EIS exhibition period, the Department received additional representations on the project, mainly from the local landholders and their representative, the majority of which objected to the project. The Department's assessment has considered all the received submissions and representations.

During its detailed assessment of the project, the Department engaged with independent experts, inspected the proposed site and surrounds, held a community information session in Blayney during the exhibition period, and met with the key stakeholders face-to-face or virtually, including the Belubula Headwaters Protection Group, Goldfields and Honey Australia Pty Ltd, and attended the Community Consultative Committee on a number of occasions.

Assessment

Given the close proximity of the project's mine site to the Kings Plains residents, as well as the project's tailings storage facility (TSF) location upstream of the Belubula river, the Department considers that the key assessment issues relate to the potential amenity and social impacts on the residents to the south of the mine site, and the potential impacts on water resources. There are also other important impacts to consider, including on biodiversity, Aboriginal cultural heritage, agriculture, and the economy.

Importantly, there have been multiple amendments to the project throughout the assessment process that have resulted in substantial reductions to the project's predicted amenity impacts at nearby residences as well as impacts on road safety, heritage and water resources.

Amenity Impacts

The project's impacts on the amenity (noise, air quality, visual and lighting) of Kings Plains is a critical assessment issue, given the mine site's close proximity to surrounding residences, including 85 privately owned receivers within 2 km of the mine project boundary, including 19 residences in the Kings Plains settlement (i.e. the area immediately south of the mine site boundary).

In response to the issues raised in public submissions and advice from the Environment Protection Authority (EPA) and the Department, Regis amended the mine design and proposed operational measures to address amenity issues. This included revising the scheduling of construction activities, mining and waste rock operations, relocating the mine site access and the open cut pit haulage access. The amendments also included revised mitigation measures, such as the use of lower sound levels mining fleet, dust suppression using water, limiting speeds in work areas, and minimising disturbed areas, vegetation screening and progressive rehabilitation.

The key considerations in the Department's assessment of amenity impacts are summarised below:

- **Noise:** Exceedances of 1-2 dB(A) operational noise at 14 receivers was predicted. Under the *Noise Policy for Industry* (NPfI) and the *Voluntary Land Acquisition and Mitigation Policy* (VLAMP), these are considered negligible impacts. However, the Department acknowledges that operational noise would be audible at residences around the mine under certain meteorological conditions. Importantly, Regis has committed to implement negotiated agreements (outside the VLAMP) with 18 landowners in the Kings Plains settlement to the south of the mine to mitigate noise and visual impacts, 16 of which include land acquisition at the landowner's request.

- **Air Quality**: No incremental or cumulative exceedances of the EPA's air quality assessment criteria have been predicted at any sensitive receiver locations, except for NO_2 1hr average criterion that could potentially be exceeded due to adverse weather conditions if blasting was undertaken outside 8 am to 4 pm. To ensure compliance with NO_2 criterion, the Department's recommended conditions include limiting blasting hours to 9 am - 4 pm (not including Sundays and public holidays), with a maximum of one blast per day.

- **Visual:** During the initial years of developing the proposed pit and southern amenity bunds (effectively the southern face of the waste rock emplacement), there would likely be high visual impacts on rural residential receivers to the south of the mine in the Kings Plains locality. However, these impacts are expected to be substantially reduced from Year 6, as the rehabilitation measures progress, with visual impacts reduced to low or very low in the long term. While the Department acknowledges that there would still be a permanent change to the local landscape, this is unavoidable given the location of the mineral resource.

- **Lighting:** There would be direct lighting effects from the south-west to the north-west, including from Guyong Road, and diffuse light effects, general night-glow when light of sufficient strength being reflected into the atmosphere.

The Department recognises that completely avoiding amenity impacts from the project is not possible given the location of the gold resource in relative proximity to existing community members. However, there are important aspects of the project design that would help to minimise impacts, including the establishment of amenity bunds and various operational limits to reduce noise and air quality impacts.

Following review of Regis' revised noise and air assessments and additional information, the Department and EPA consider that the project's noise and air quality impacts would be able to remain within the limits of applicable policies and guidelines and that the proposed mitigation measures (including Regis' offer for negotiated agreements) would be feasible and reasonable.

Social Impacts

The Department acknowledges that there are both negative and positive social impacts of the project, with negative impacts focused on the Kings Plains and surrounding residents (mainly through amenity impacts, loss of sense of place and rural way of life), while positive impacts would be experienced by the wider community (particularly by increased employment and economic opportunities).

The Department's social impact experts reviewed Regis' impact assessments against the relevant NSW social impact assessment (SIA) guidelines, including Regis' additional information requested by the Department, an executed Voluntary Planning Agreement with Council, and offers of negotiated agreements with neighbouring landowners in Kings Plains that would be most likely to be affected by noise and visual impacts.

The Department considers that the impacts to the sense of place and rural way of life are inevitable with the introduction of a mining development in the locality and notes that the mitigation measures proposed by Regis are consistent with industry best practice to reduce the impacts as far as practicable.

The Department has recommended conditions in consultation with its social impact experts and in accordance with the NSW SIA guideline, representing leading practice in social impact management. The recommended conditions of consent would require Regis to prepare and implement a Social Impact Management Plan in consultation with Council and key stakeholders (including Kings Plains residents) to include a Stakeholder Engagement Framework, measures to enhance positive impacts and mitigate

negative and cumulative impacts of the project, as well as a program to monitor, review and report on the effectiveness of these measures.

Water Resources

The Department acknowledges that many of the concerns about impacts to water resources stem from the location and presence of the tailings storage facility (TSF) or the use of cyanide in processing. However, the Department considers that Regis has sufficiently considered alternatives to the location and design of the TSF, and notes that the proposed use of cyanide is safely and consistently managed at most other gold mining operations in NSW.

While there would likely be some reductions in flow downstream to Carcoar Dam over the life of the project (up to 223 ML/year) and post-mining (up to 62 ML/year), the Department considers that potential impacts to downstream users in the Belubula catchment would not be significant. There would also be groundwater drawdown from the mine as a result of inflow into the open cut pit (between 160 and 580ML/year), however it would be mostly localised and the predicted impacts would comply with the minimal impact considerations of the *NSW Aquifer Interference Policy* (AIP).

The project would also intercept surface water flows on 3rd order streams and higher, and while there would only be relatively minor reductions in flow downstream, the full volume of water captured by the mining operations must still be licensed under the *Water Management Act 2000*. The surface water source is highly constrained in terms of available water licenses, and this has been a cause for many delays in the assessment process. However, the Department considers there is now a clear pathway for Regis to acquire the relevant entitlements in accordance with the *Water Management Act 2000*, particularly given there is now a Specific Purpose Access License (SPAL) subcategory for the mine.

The Department has recommended conditions which include water management performance measures for the development and the preparation of a comprehensive water management plan to include a site water balance, erosion and sediment control plan, surface water management plan and groundwater management plan.

With the implementation of these measures, the Department considers the project would result in acceptable impacts on water resources.

Biodiversity

The project would directly impact terrestrial and aquatic biodiversity values from clearing of native vegetation (approximately 130.53 ha for the mine site and 15.64 ha for the water supply pipeline), and threatened species and aquatic habitat associated with the upper Belubula River and along the water supply pipeline route.

To avoid or minimise the project's biodiversity impacts, Regis has proposed to implement a range of management and monitoring programs as well as standard best practice measures, such as pre-clearance surveys and minimising and delineating disturbance areas, revegetation and rehabilitation.

To retire the required ecosystem and species credits through a biodiversity offset strategy, has identified a 384-ha land-based Biodiversity Stewardship site (Aziel site, located approximately 9 km southwest of Blayney) and is currently preparing a Biodiversity Stewardship Agreement. This site would be able to retire all box gum woodland credits for the development and around 70% of required credits for the Koala. Regis proposes to pay any residual credits into the Biodiversity Conservation Fund.

The Department and its Biodiversity Conservation and Science Directorate (BCS) consider that the project's design would avoid, mitigate and manage biodiversity impacts where practicable. The Department has recommended conditions requiring Regis to retire the biodiversity credits for the project in accordance with the *Biodiversity Offsets Scheme* of the *Biodiversity Conservation Act 2016* (BC Act), implement an Aquatic Ecological Offset Strategy and a Biodiversity Management Plan, prior to commencing construction, including undertaking pre-clearance surveys and translocation of threatened species in accordance with the NSW Government's *Translocation Operational Policy 2019*.

Aboriginal Cultural Heritage

The project would directly impact on Aboriginal cultural heritage values through clearing of artefact scatters and isolated aboriginal items (30 artefacts within the mine site and 6 artefacts through construction of the water supply pipeline). The Department also recognises that whole project area (including both the mine and pipeline developments) is of cultural significance to the Aboriginal community with the majority of the area being within Wiradjuri tribal land with a zone of interaction between the Wiradjuri, the Dharug to the east and the Gundungurra to the south.

Importantly, none of the historic conflict events in the Kings Plains area occurred within the mine site development area and Regis's Aboriginal cultural heritage surveys were undertaken involving Registered Aboriginal Parties (RAPs) and seeking feedback on both cultural and archaeological values.

The Department has consulted with BCS and Heritage NSW and recommended conditions to mitigate and manage impacts to Aboriginal cultural heritage, including provisions for a Heritage Management Plan, including Aboriginal cultural heritage (to be prepared in consultation with Heritage NSW and RAPs). Subject to the recommended conditions, the Department considers that the project's impacts on Aboriginal cultural heritage would be acceptable in accordance with NSW government policy.

Agriculture

The project's potential agricultural impacts would be predominantly from the mine site development through impacts on surrounding agricultural operations (mainly due to likely impacts on water resources) and honey production and European bee health (mainly due to disturbance of around 1.7 % of the Box Gum Woodland within a 5 km radius around the mine site, bee exposure to dust and contaminated water and lighting).

Overall, the Department considers that while there would be an overall net reduction in land capability class within the mine site disturbance area, rehabilitation practices would see the majority of the area still suitable for agricultural practices. Additionally, nearly all disturbance associated with the pipeline would be restored to its existing land capability class.

To mitigate potential impacts on bee foraging in the locality, the Department has recommended Regis restore a minimum of 22 ha of Box Gum Woodland in undisturbed areas of the site, targeting areas adjoining or proximate to the Vittoria State Forest. The Department considers that this requirement, in addition to vegetation screening and offset commitments would provide suitable compensation.

Further, although a risk assessment concluded that predicted concentrations of heavy metal in various affected sources would be at levels unlikely to affect bee health and honey production, the Department considers that measures should be in place to evaluate and respond to any potential impacts on local apiary operators. The Department has recommended conditions requiring an Apiary Monitoring and Management Program, including a monitoring program to assess heavy metal and other mining-related impacts on local honey bee operations, collection of baseline data, and a trigger action response plan.

Economic

The project would have considerable economic benefits for the region and NSW through employment (about 710 construction and about 260 operational jobs) and up to $65 million (net present value) royalties in total over the life of the project, and up to $11 million per year. The Department also notes that Regis has committed to minimise the impacts of workforce accommodation demands during construction and operation of the project and has executed a Voluntary Planning Agreement with Council (dated 15 February 2021), including direct monetary contributions to Council to fund community infrastructure projects. Consequently, the Department has recommended conditions requiring Regis to commence the executed Voluntary Planning Agreement with Council.

At a broader level, the Department notes significance of the project's resource, the increasing focus on minerals mining with decreasing reliance on coal and fossil fuels in the mining and energy sector and the associated growing demand for raw metals (including gold) due to urbanisation, electrification, a range of technological development and transition to renewable energies.

Other Issues

The Department has considered other impacts of the project, including traffic and transport, rehabilitation and final landform, hazards and risks, human health, blast and vibration, greenhouse gas emissions and historic heritage. The Department considers that these and other impacts have been sufficiently minimised and that residual impacts can be appropriately managed and/or offset and regulated through the recommended conditions.

Evaluation

The Department has carried out a detailed assessment of the merits of the project, in accordance with the relevant requirements of the EP&A Act, with a particular focus on issues raised in public submissions, representations, government agency advice and advice provided by the Department's independent experts.

The project is located near Blayney and surrounding rural residential areas, including the Kings Plains locality. The key issues associated with the project predominantly relate to amenity and social impacts on nearby rural residents due to development of a greenfield mine, noting that some landholders have recently (within the last 5-10 years) acquired properties in the area.

The Department acknowledges the high degree of public interest in the project and the broad range of community concerns, including but not limited to impacts on the amenity of the local community in Kings Plains, water resource, biodiversity, agriculture (including impacts on local beekeeping industry), and Aboriginal cultural heritage. The Department also recognises that a prospect of a new mine in a long-established rural character area would cause other associated social impacts, such as fears, stress and anxiety due to the uncertainty and different perceptions of how the actual impacts may be experienced in the future.

Regis has responded to community concerns through amendments to the project design for both the mine site surface infrastructure and water supply pipeline alignment, including staging of construction and operational activities, relocation of the mine site access road further away from the receivers in the Kings Plains settlement, improvements to the mine site's raw water management system.

Based on this assessment, the Department considers that Regis has designed the project in a way to achieve a practicable balance between maximising resource recovery and minimising associated

impacts on the surrounding landholders and the environment through best practice contemporary practices and mitigation measures.

The Department has carefully considered all the issues raised throughout its assessment process, Regis responses to community concerns, feedback from the government agencies and notes the substantial changes that Regis has made to the project design, in particular to the mine site, to reduce impacts, while maintaining the economic viability of the project.

The Department has recommended a strict and precautionary set of conditions in consultation with the key NSW Government agencies and has taken their advice into account in finalising the recommended conditions. The recommended conditions of consent would ensure that the project complies with contemporary criteria and standards, and that residual impacts are effectively minimised, managed and/or offset to achieve an acceptable level of environmental and social performance.

The Department also notes significance of the project's resource, the increasing focus on minerals mining with decreasing reliance on coal and fossil fuels in the mining and energy sector and the associated growing demand for raw metals (including gold) due to urbanisation, electrification, a range of technological development and transition to renewable energies. The Department considers that the project would result in considerable economic benefits to the region and to the State of NSW through employment (up to 710 construction and up to 320 operational jobs) and royalties.

On balance, the Department considers that the benefits of the project outweigh its residual costs and that the project is in the public interest and is approvable, subject to the strict conditions of consent.

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1 Introduction

1. LFB Resources NL, a wholly owned subsidiary of Regis Resources Limited (Regis), proposes to develop the McPhillamys Gold Project (the project), an open cut gold mine with associated water supply pipeline in Central West New South Wales (NSW).

2. The mine site would be located to the north of the Mid-Western Highway near Kings Plains, approximately 8 kilometres (km) north-east of Blayney mainly within the Blayney Shire local government area (LGA) with a small area of the mine site also within Cabonne Shire Council.

3. Water would be supplied from three sources near Lithgow via an approximately 90 km long pipeline from the Angus Place Colliery to the mine site, traversing the Lithgow City, Bathurst Regional and Blayney Shire LGAs (see **Figure 1** and **Figure 2**).

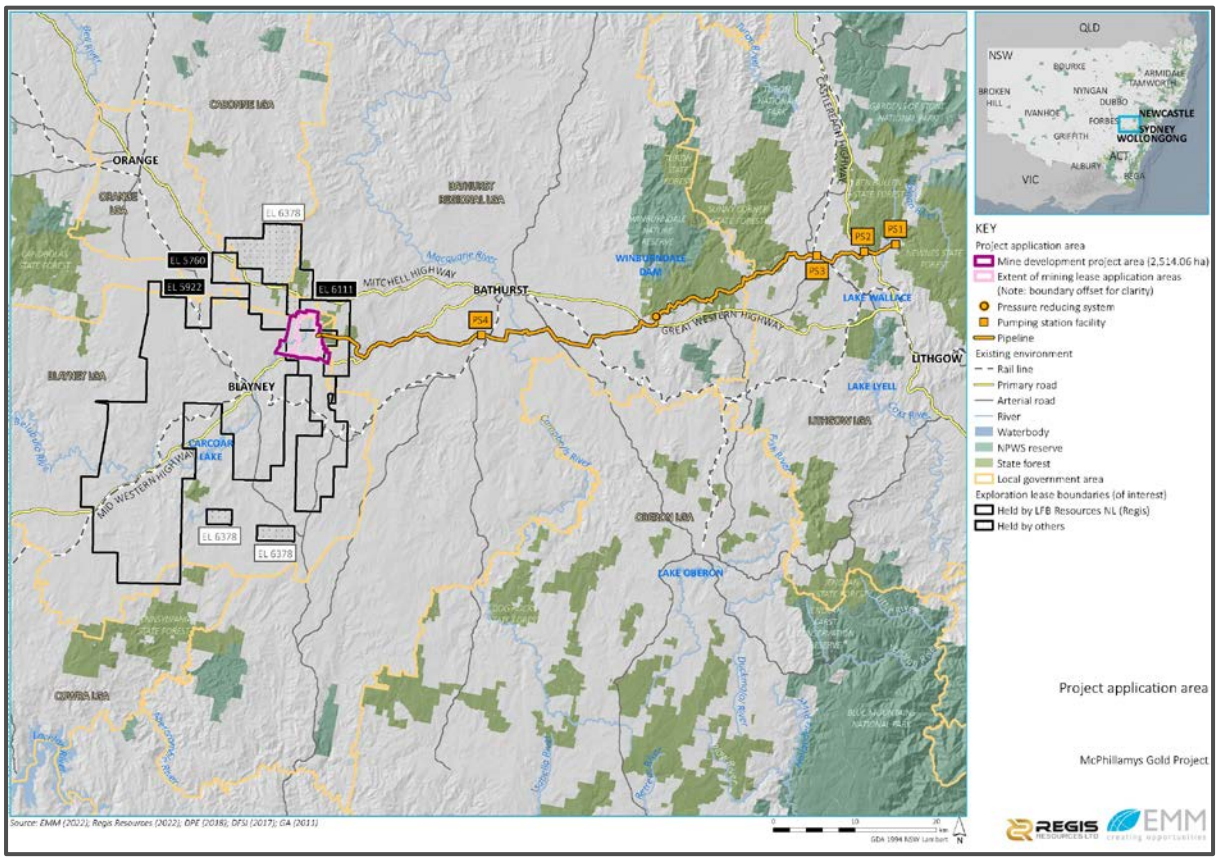


Figure 1 | Regional Setting (Source: Regis – Additional Information (November 2022))

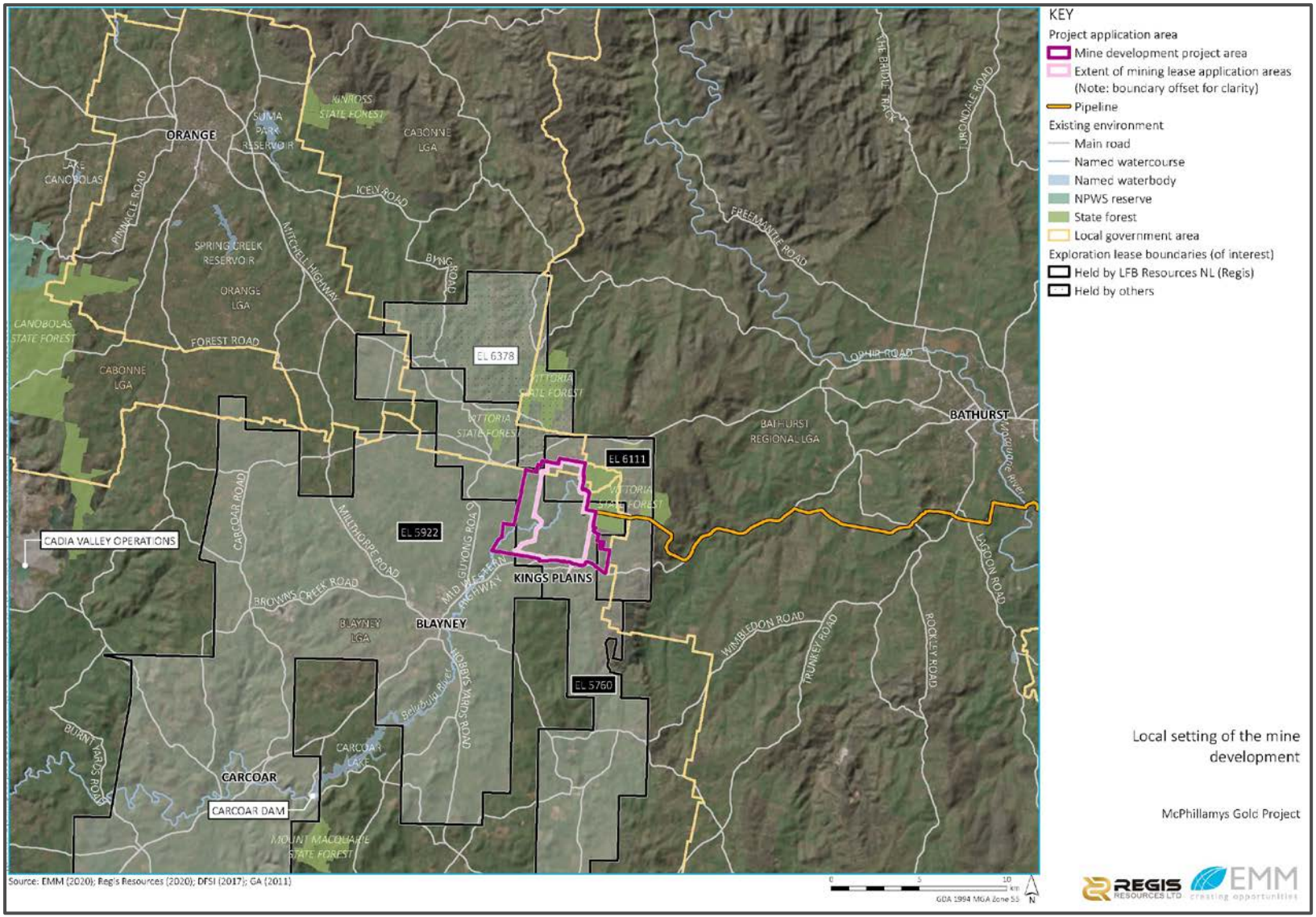


Figure 2 | Local Context of the Mine Site Development (Source: Regis – Additional Information (November 2022))

2 Project

4. There are two key components to the project:

- an open cut mining operation to extract up to 60.8 million tonnes (Mt) of ore and produce up to 2 million ounces of gold over 11 years of mining operations; and
- an underground water supply pipeline (approximately 90 km long) connecting to the Springvale Coal Pty Limited facility (Springvale Coal) in Lithgow.

5. The key elements of the project as amended are summarised below in **Table 1**, and depicted in Figures 3 to 5. The project is described in detail in the Environmental Impact Statement (EIS) (see Appendix A) and subsequent amendment reports (see Section 2.2 below and Appendix B).

6. To reduce noise amenity impacts at nearby residences and address impacts on road safety, heritage and water resources, Regis amended its development application in September 2020 (Amendment 1) followed by further amendments made in May 2022 (Amendment 2) and October 2022 (Amendment 3). **Table 2** below provides a summary of these amendments.

Table 1 | Main Components of the Project

Aspect	Description
Project Area	Up to 2,727 hectares (ha) comprising: • 2,514 ha for the mine development area (disturbance area 1,116 ha); and • 213 ha for the water supply pipeline (disturbance area 127 ha).
Project Life	Approximately 15 years, including 11 years of mining operation, up to 2 years of construction and up to 4 years of rehabilitation, with overlap between the project phases.
Mine Operations	Conventional drill and blast excavation of the open pit, with ore transported to the run-of-mine (ROM) stockpile for processing.
Processing	Up to 7 Mt of ore would be processed each year through carbon in leach processing using cyanide to produce gold doré.
Tailings/ Waste Management	Storage of 46,700 ML of waste residue (tailings) from ore processing in an on-site tailings storage facility (TSF). Approximately 84.5 million bank cubic metres (Mbcm) of waste rock transported to a waste rock emplacement area. Potentially Acid Forming (PAF) would be encapsulated by Non-Acid Forming (NAF) material.
Water Supply	Construction water supply sourced from captured rainfall and groundwater bores on the site for initial 9 months of construction. Operational water supply would be sourced from tailings decant, captured runoff and process water, groundwater inflows to the open pit and through the transfer of approximately 13 ML per day (up to 15.6 ML per day) via the water supply pipeline.
Water management	The on-site water management system comprises clean water diversion, clean water capture and discharge, mine water management facilities, sediment basins and storage of pipeline supply water, and an on-site water treatment plant to produce potable water.Operating as a 'nil-discharge' site – water within the mine water management system would be captured and reused in processing and dust suppression activities.

Aspect	Description
Rehabilitation and Mine Closure	Progressive rehabilitation of the mine site comprising a mix of agriculture and pasture with the waste emplacement to be rehabilitated to open woodland habitat regeneration and enhancement (See **Figure 18** below). The water supply pipeline would be retained for future use and if no uses are identified, all surface infrastructure would be removed.
Ancillary Infrastructure	Construction and operation of ancillary infrastructure, including administration buildings; workshops and stores facilities, plant parking, laydown and hardstand areas, internal road network, explosives magazine, and on-site laboratory.
Operating hours	Mine construction (initial six months) and pipeline construction: • Monday – Friday: 7:00am – 6:00 pm; • Saturday: 8:00am – 1:00 pm; and • No work on Sunday or public holidays. After six months, ongoing construction and mining activities would be carried out 24 hours per day, 7 days per week except for developing the southern end of the waste rock emplacement area, which would only be undertaken during the daytime period only.
Employment	Construction: 710 Full Time Equivalent (FTE) (120 FTE for construction of the pipeline) Operation: Average of 260 FTE for 10 years and approximately 320 FTE for 5 years

Table 2 | Summary of project amendments

Amendment	Details
Amendment 1	**Mine Site** • Operational staging: revised to reduce mining activity to the south closer to Kings Plains residences in the initial 4 years of mining operations and limiting construction of the southern amenity bund to the day-time period only. • Site access: relocated approximately 1 km further to the east, that is further from receivers around the Kings Plains settlement. • Entry/exit and pit amenity bund: relocated to the northern end of the pit. • Selection of mining fleet with overall lower sound power levels: reduction in overall sound power levels from the mobile fleet of around 3dB(A) • Construction staging: including construction of the pit amenity bund and water management facilities in sequence within the first six months. **Pipeline** • Alternative options for pipeline route: two options (northern and southern) incorporated for section west of Bathurst. • Pumping station: relocated from Mount Piper Power Station to location further to the west.
Amendment 2	**Mine Site** • Consolidation of raw water management system: to reduce clean water take on site and improve clean water diversions. • Amendment to Mining Lease Application boundary: to ensure the MLA boundary buffer does not encroach on to private landholdings. **Pipeline** • Northern option for pipeline route: revised route following landholder consultation. • Removal of water pipeline section to Mount Piper Power Station: this would be incorporated into a modification associated with the Springvale Coal.
Amendment 3	**Pipeline** • Southern pipeline route option removed: due to landowner access constraints.

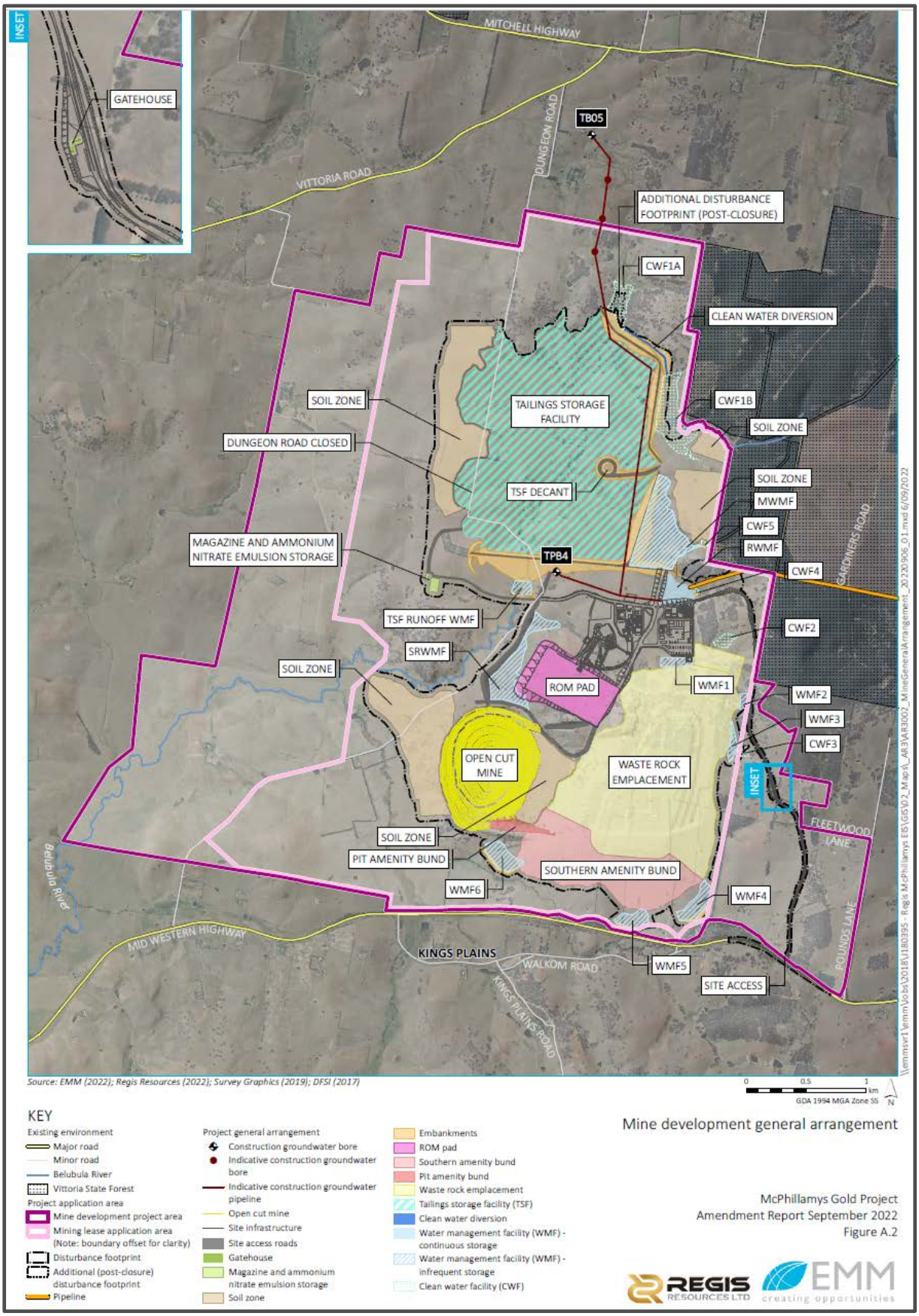


Figure 3 | Mine Site (Source: Third Amendment Report (October 2022))

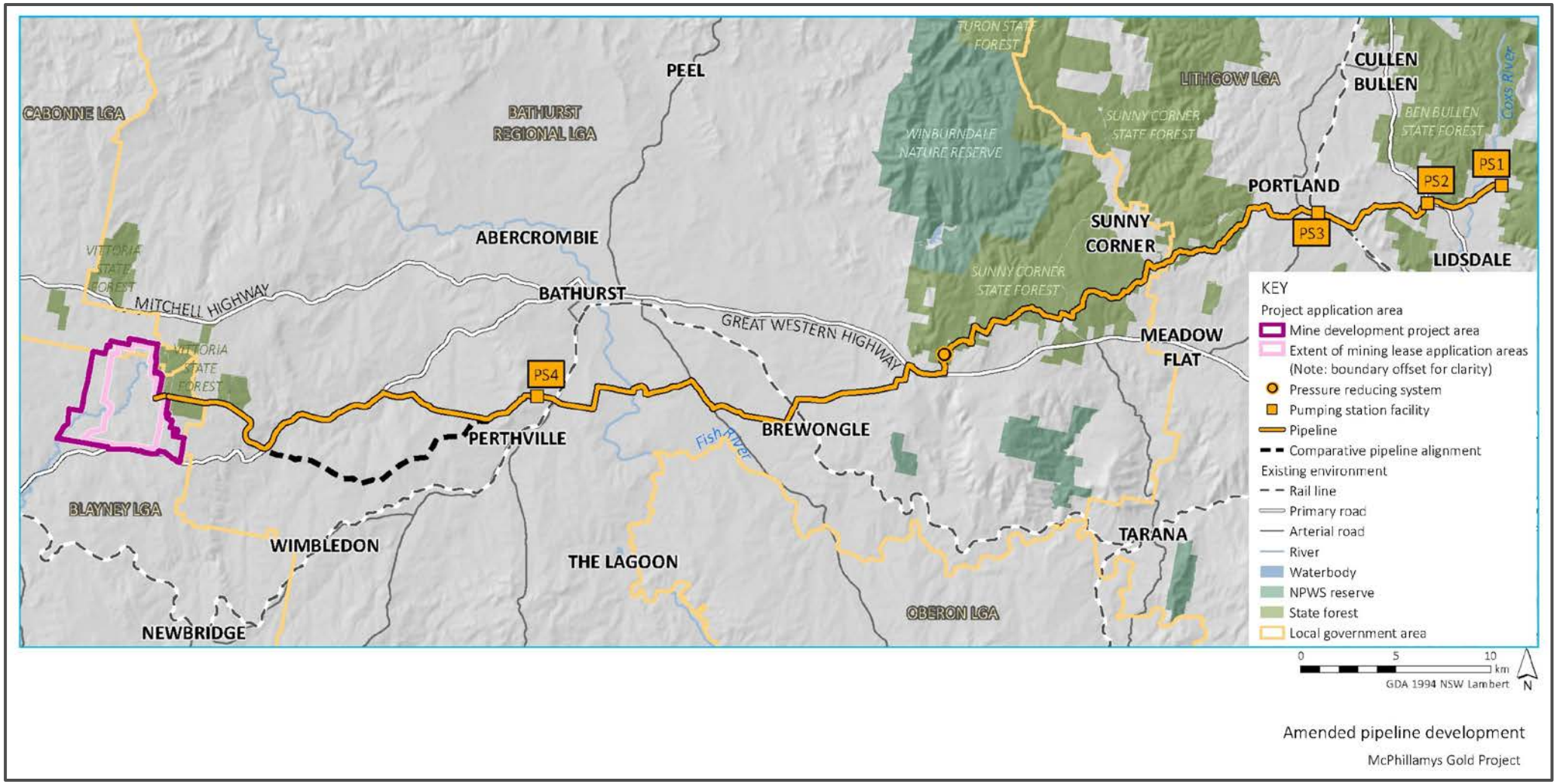


Figure 4 | Water Supply Pipeline Route (Source: Regis – Additional Information (November 2022))

2.1 Associated Projects

2.1.1 Electricity Supply

7. Transgrid would provide the required 26-28 MW electricity for the mine site from a supply point 15 km north of the mine site. Subject to the project approval, Regis proposes the development of a 132 kV above ground electricity transmission line to the mine site in parallel with the mine site construction works.

8. Following landholder negotiations, Regis purchased land over which part of the transmission line would traverse, which has since been on-sold with an easement deed attached to the sale. Regis also has agreements in place with associated landholders for proposed power supply easements. The new power line would be gifted to and operated by Essential Energy as the service provider.

9. Power supply to pipeline infrastructure components would be provided by new above ground power lines connected (ranging from 70 to 430 m distance) to existing Endeavor Energy and Essential Energy networks.

10. Construction and operation of the required power supply for the project would be subject to separate assessment under Part 5 of the EP&A Act. Notwithstanding, Regis undertook a review of the environmental impacts associated with the power line development which showed that there were no major constraints to provision of power to the development.

2.1.2 Water Supply Pipeline Offtake

11. The project would require a water transfer system (pumping station and storage tank) within the Western Coal Services Project (SSD 5579) site. On 21 October 2022, Springvale Coal Pty Limited received approval for a modification (MOD 4) to its Western Coal Services Project, which includes construction and operation of a water management system to allow transfer of water between the Western Coal Services Project site near Lithgow and other operations for beneficial use, including Mount Piper Power Station, Angus Place Colliery and the project site.

12. The approved water management system would allow the transfer of up to 15.6 megalitres per day (ML/ day) of water and connect to the project's water supply pipeline for use at the project site. As part of this arrangement, Regis would have to have commercial agreements in place the relevant mine operators in Lithgow. Regis has advised that a commercial in confidence Water Offtake Deed is currently being finalised with Centennial and EnergyAustralia.

3 Strategic Context

13. This section describes the site context, targeted mineral resource and relevant strategic policy framework of the project. **Section 6** provides detailed assessment of the key issues in consideration of any relevant strategic policies and plans.

3.1 Project Setting

14. The region surrounding the mine site has a long history of both agricultural and mining land use dating back to early European settlement in the mid-19th century. In particular, what is believed to be recognised as Australia's first discovery of gold occurred nearby in Bathurst in 1823[1], followed by the commencement of what is known as the 'Australian gold rush' in 1851. Lasting for approximately 40 years, the Australian gold rush resulted in a sudden influx of hundreds of thousands of immigrants to the region surrounding the project[2].

15. The mine site is in the upper catchment of the Belubula River, a tributary of the Lachlan River. Surrounding users of the Belubula River utilise the water source for agriculture (crops and animals), mining (Australia's largest gold mine, Cadia Valley Operations, extracts from the river) and urban and residential use (for water sources and recreation)[3].

16. The mine site is located in the South Eastern Highlands (a bioregion which includes 13 nationally important wetlands, not within the project area). There are various native woodlands in the region, however, these are generally fragmented due to agricultural impacts.

17. The current land uses surrounding the mine site are predominantly agricultural, including grazing, cropping and areas of viticulture and apiary, with a large queen bee and honey production operation located to the north of the mine site. Vittoria State Forest is located to the east of the mine site which is used for forestry operations and bee keeping (see **Figure 3**).

18. The nearest privately owned residences are located in the Kings Plains settlement rural residential area, along Walkom Road and Kings Plains Road to the south of the mine site (see **Figure 2**). The Social Impact Assessment completed for the project identified around 88 privately owned residences (three since acquired by Regis) within 2 km of the mine project area, including 19 in the Kings Plains settlement in the Walkom Road area. The proximity of residences in the Walkom Road area in particular and potential amenity and social impacts is a key assessment issue for the project.

19. The majority of the water supply pipeline route would traverse cleared agricultural land, state forests and crown land, and would require crossing of roads and railway lines.

3.2 Minerals Mining

20. Both the Federal and State Governments recognise the importance of investment in mineral mining and exploration industry and their economic benefits. These strategic policies are reflected in the following key documents:

- *Australia's Global Resources Statement* (2020): highlights the Australian Government's commitment to a technology-led approach to lowering Australia's greenhouse gas emissions, including a strong focus on minerals and high-tech metals within the mining sector and less reliance on coal and fossil fuels in the mining and energy sector.

[1] State Archives & Records Gold Mining Guide: https://www.records.nsw.gov.au/archives/collections-and-research/guides-and-indexes/gold-mining-guide
[2] State Library NSW: https://www.sl.nsw.gov.au/stories/eureka-rush-gold
[3] Belubula Water Sharing Plan Background Document: https://www.industry.nsw.gov.au/__data/assets/pdf_file/0011/166835/belubula-reg-river-background.pdf

- The *NSW Minerals Strategy* (February 2019): notes the world class mining industry and the significant and untapped resource for a range of minerals in NSW, which makes NSW well-placed to meet the increasing global demand mainly due to the growing industrialisation and advances in technologies to support development of renewable energy and transport sectors given the current trend with.
- *NSW Critical Minerals and High-Tech Metals Strategy*: outlines the NSW Government's vision and commitment to build on the State's potential to become a major global supplier and processor of critical minerals and high-tech metals. Although it doesn't identify gold as a critical metal/mineral resource, it highlights NSW's rich mineral resource, including abundant copper resource contained in polymetallic deposits that are associated with gold and other precious metals.

21. The global gold demand is derived from four sectors, including the jewelry industry (approximately 55.4%), the investment sector (approximately 25%), the central banks sector (approximately 11.3%) and technology industry (approximately 8.2%)[4]. The increased demand for raw metals, including gold, is attributed to a growing middle class reliant on urbanisation and electrification and the increased use of minerals in technological developments[5], as seen in sectors such as information, energy and transport. The transition out of fossil fuel based industries into the renewable energy sector will also depend on the increased availability of raw metals, given that renewable energy technologies are more metals intensive.

22. NSW has significant investment potential for minerals and traditional metals, including copper and gold, with the Macquarie Arc Belt in the center of the NSW Central West region. The Macquarie Arc Belt is a metal endowed geological belt, consisting of over 80Mozs and over 13Mt of untapped gold and copper, respectively. The belt also hosts the three largest operating gold mines, being Cadia Valley Operations, Cowal Gold Operations and Northparkes (see **Figure 5**)[6].

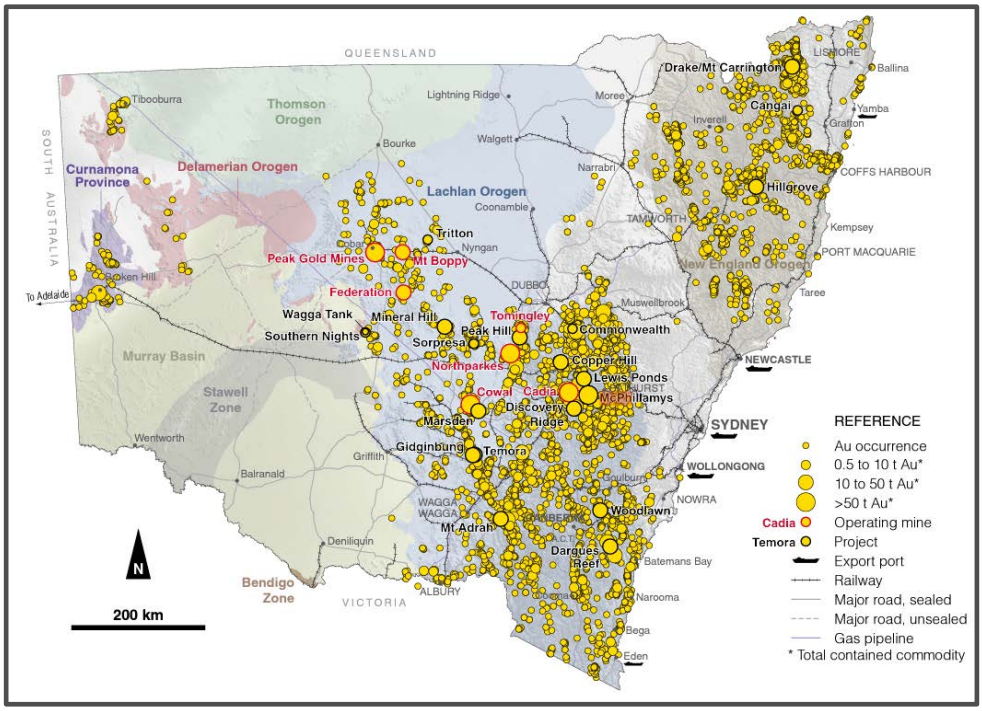


Figure 5 | 2021 Gold Opportunities in NSW (Source: Department of Regional NSW)

[4] Distribution of gold demand worldwide by sector in 2021: https://www.statista.com/statistics/299609/gold-demand-by-industry-sector-share/
[5] Future of Minerals in NSW Report: https://www.regional.nsw.gov.au/__data/assets/pdf_file/0012/1202007/Future-of-Minerals-in-NSW-Report-2019.pdf
[6] Mining, Exploration & Geoscience - Department of Regional NSW: https://www.business.nsw.gov.au/industry-sectors/industry-opportunities/mining-and-resources/precious-metals/gold

23. The Department of Regional NSW's Factsheet for Gold Opportunities in NSW (2021) identified McPhillamys deposit as one of the most significant gold resources within NSW with an estimated contained gold of 2,251 thousand ounces (koz) (mineral resource estimate (indicated and inferred) of 70 Mt @ 1 g/t Au and ore resource estimate (probable) of 61 Mt @ 1 g/t Au). It is noted that some additional gold mineralisation has been identified beneath the base of the proposed pit.

3.3 Regional Setting

24. The project area is located within land covered by the Department's *Central West and Orana Regional Plan 2036* (Regional Plan), which sets out the vision and a 20-year strategic plan for the region with four key goals: the most diverse regional economy in NSW; a stronger healthier environment and diverse heritage; quality freight, transport and infrastructure networks; and dynamic, vibrant and healthy communities.

25. A primary objective of the Regional Plan is economic diversity, noting that mining is traditionally a key industry in the Central West. Direction 8 of the Regional Plan aims to sustainably manage mineral resources. The Regional Plan estimates that mining contributes 16.2% to the regional economy and states that a priority of the Blayney LGA is to continue to grow the mining, agribusiness, transport and logistics sectors and associated businesses. These goals are planned to be achieved through the implementation of a further 29 directions and 127 actions, which have been set out to support the delivery of new and established industries in the region.

26. A review of the Regional Plan is underway (draft *Central West and Orana Regional Plan 2041*), which reaffirms the existing strategic plan for Blayney, and more broadly for the region through Objective 16 to sustainably maximise the productivity of resource lands by protecting potential mineral and energy resources from land uses that would sterilise this potential, and promoting opportunities for minerals processing and production within the region and the significant economic contribution of the mining and energy sector.

27. The 2018–2022 *Orange, Blayney and Cabonne Regional Economic Development Strategy* and *Lithgow Regional Economic Development Strategy* are also relevant to the project, which set out a long-term economic vision and associated strategy for these LGAs. Both strategies aim to leverage the regions' endowments and capitalizing on the existing opportunities, such as topography, climate and natural/ mineral resources, by supporting relevant existing and future specialisation within the regions, including growth in mining and mining services.

4 Statutory Context

28. In line with the requirements of section 4.15 of the EP&A Act, the Department's assessment of the project has given detailed consideration to a number of statutory requirements. These include the:

- objects found in section 1.3 of the EP&A Act; and
- the matters listed under section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

29. The Department has considered these matters in its assessment of the Project and has provided a summary of this consideration below. Further consideration of the objects and other relevant provisions of the EP&A Act and environmental planning instruments is found in **Appendix C**.

4.1 State Significant Development

30. The proposed development is declared to be State significant development under section 4.36 of the EP&A Act as it triggers the criteria in clause 5 of Schedule 1 to *State Environmental Planning*

Policy (SEPP) (State and Regional Development) 2011 [7] (SRD SEPP), as the project is a development for the purpose of mining and mining-related works with a capital investment value greater than $30 million.

31. Under section 4.5 of the EP&A Act and clause 8A(1) of the SRD SEPP, the Independent Planning Commission of NSW (Commission) is the consent authority and must determine the application because the Department received more than 50 unique public objections to the project during the exhibition period.

4.2 Permissibility

32. The mine site is located in both the Blayney Shire and Cabonne Shire Local Government Areas (LGA). Under the *Blayney Local Environmental Plan 2012* (Blayney LEP) and the *Cabonne Local Environmental Plan 2012* (Cabonne LEP), the proposed development is located on land zoned RU1 Primary Production. Development for the purpose of open cut mining is permitted with development consent in this zone.

33. The permissibility of mining developments is also controlled by *State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007* (Mining SEPP)[8]. Clause 7 of the SEPP permits mining with development consent on land where agriculture or industry is also permitted.

34. The water supply pipeline traverses the Lithgow, Bathurst, and Blayney LGAs and land zoned under the *Lithgow Local Environmental Plan 2014* (Lithgow LEP), *Bathurst Regional Local Environmental Plan 2014* (Bathurst Regional LEP) and Blayney LEP.

35. Under each respective LEP, mining (and thus associated works within the pipeline corridor) is permissible with development consent within some, but not all the land use zones. However, Section 4.38(3) of the EP&A Act provides that development consent may be granted for SSD despite the development being partly prohibited by an environmental planning instrument.

36. Therefore, the Department is satisfied that the project is permissible with development consent.

4.3 Site Verification Certificate

37. Under Clause 50A of the *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation)[9], a development application for mining or petroleum development must be accompanied by either a Gateway Certificate or a Site Verification Certificate that certifies that the land on which the proposed development is to be carried out is not Biophysical Strategic Agricultural Land (BSAL).

38. The proposed mining area is not located on mapped BSAL and the Department issued a Site Verification Certificate (SVC) on 18 June 2019 verifying that the Mining Lease Application (MLA) associated with the project is not located on BSAL.

4.4 Other Approvals

39. Under section 4.41 of the EP&A Act, a number of approvals are not required to be separately obtained for the project. These include:

- a permit under section 201, 205 and 219 of the Fisheries Management Act 1994;
- an approval under part 4, or an excavation permit under section 139 of the Heritage Act 1997;

[7] Although the SRD SEPP has been consolidated into the State Environmental Planning Policy (Planning Systems) 2021, the provisions of the SRD SEPP remain current.
[8] Although the Mining SEPP has been consolidated into the State Environmental Planning Policy (Resources and Energy) 2021, the provisions of the Mining SEPP remain current.
[9] Under transitional arrangements the EP&A Regulation 2000 applies to the development as the application was lodged prior to the commencement of the EP&A Regulation 2021.

- an aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974;
- a bush fire safety authority under section 100B of the Rural Fires Act 1997; and
- a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interface approval) under section 91 of the Water Management Act 1994.

40. The Department has considered the matters covered by this legislation in consultation with the relevant agencies and considers that conditions could be developed and imposed to mitigate and/or offset the potential impacts of the project on these matters.

41. Under section 4.42 of the EP&A Act, a number of further approvals are required, but must be granted substantially consistent with any development consent granted for SSD. These include:

- any new mining leases under the *Mining Act 1992*;
- an environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997*; and
- consent for road works under section 138 of the *Roads Act 1993*.

42. The Department has consulted with the authorities responsible for granting these approvals during the assessment process.

4.5 Independent Planning Commission

43. Under Section 2.9(1) (d) of the EP&A Act the Independent Planning Commission (Commission) must hold a public hearing for any matter as requested by the Minister for Planning. On 19 February 2020, the then Minister for Planning and Public Spaces issued terms of reference requesting that the Commission conduct a public hearing on the project prior to determination.

4.6 Mandatory Matters for Consideration

44. Under Section 4.40 of the EP&A Act, the Commission is required to evaluate the merits of the project against the relevant matters for consideration set out in Section 4.15 of the EP&A Act prior to making its determination. This includes:

- the provisions of any environmental planning instruments
- any planning agreement negotiated between the applicant and relevant councils;
- the prescribed matters for consideration in Division 8 of the EP&A Regulation, including consideration of the relevant matters in the Dark Sky Planning Guideline;
- the likely impacts of the project, including the environmental impacts on both the natural and built environments, and social and economic impacts in the locality
- the suitability of the site for the project and
- the public interest, which includes considering the relevant objects of the EP&A Act and Ecologically Sustainable Development (ESD).

45. The Department has considered these matters in its assessment of the project and has provided a summary in the sections below. Further consideration has been provided in **Appendix C**.

4.7 Amended Development Application

46. Regis has amended the development application three times, in accordance with Clause 55 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation[10]), a development

[10] As the development application was lodged prior to the introduction of the *Environmental Planning and Assessment Regulation 2021*, under transitional arrangements EP&A Regulation 2000 still applies.

application can be amended at any time before the application is determined (see **Section 2.2** and **Appendix B** for summary of the changes). The proposed amendments would not change the key aspects of the development application and EIS, including mining and processing methods.

47. Under delegation from the Independent Planning Commission, the amendments of the development application for the project, were accepted in accordance with clause 55AA of the EP&A Regulation.

4.8 Biodiversity Development Assessment Report

48. Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all applications for SSI and SSD to be accompanied by a Biodiversity Development Assessment Report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

49. A BDAR was submitted with the development application, and subsequently updated following the two amendments to the application.

50. Section 7.14 of the BC Act requires the consent authority to take into consideration the likely impact of the proposed development on biodiversity values as assessed in the BDAR. Section 7.14 of the BC Act also enables the consent authority to grant a development consent subject to the requirement to retire biodiversity credits in accordance with the biodiversity offsets scheme established under the BC Act.

4.9 Commonwealth Matters

51. On 28 May 2019, a delegate of the Commonwealth Minister for the Environment determined that the project (EPBC 2019/8421) is a 'controlled action' under the EPBC Act due to its potential impacts on listed threatened species and communities (Sections 18 and 18A).

52. The assessment process under the EP&A Act has been accredited under a bilateral agreement with the Commonwealth Government to assess matters of national environmental significance (MNES). The Department's assessment on controlling provisions under the EPBC Act relating to biodiversity is provided in **Section 6** and further information that the Commonwealth Minister must consider is provided in **Appendix D**.

5 Engagement

5.1 Department's engagement

53. After accepting the EIS, the Department publicly exhibited the EIS on its website from 12 September 2019 until 24 October 2019.

54. The Department advertised the exhibition in the Sydney Morning Herald, Daily Telegraph, The Australian, Bathurst Western Advocate, Orange Central Western Daily, Blayney Chronicle, Lithgow Mercury. The Department also notified:

- relevant State government agencies, including Blayney Shire, Bathurst Regional, Cabonne Shire and Lithgow City councils;
- surrounding private landholders and the registered local Aboriginal parties (RAPs); and
- relevant transport and infrastructure authorities in accordance with the Mining SEPP and the Infrastructure SEPP.

55. During its detailed assessment of the project, the Department engaged with independent experts, inspected the proposed site and surrounds on three occasions, held a community information session in Blayney during the exhibition period, and met with the key stakeholders face-to-face or

virtually, including the Belubula Headwaters Protection Group (BHPG) and Goldfields Honey Australia Pty Ltd.

56. In undertaking these processes, the Department considers that its engagement process met the notification requirements of the EP&A Act and the relevant environmental planning instruments. The Department also considers that this process has fulfilled the State's obligation under the Bilateral Agreement with the Commonwealth Government.

5.2 Summary of Submissions

57. During the exhibition period, the Department received a total of 648 public submissions, and advice/submissions from 21 government authorities. No government agencies objected to the project.

58. The public submissions included 623 from individuals and 25[11] from special interest groups. These submissions comprised of:

- 217 (33%) submissions supporting the project;
- 395 (61%) submissions objecting to the project; and
- 36 (6%) submissions providing comments on the project.

59. Public submissions within 5 km of the mine site were by far by way of objection (91%) to the project, whereas support for the project increased in the regional area (42%). The special interest groups that made submissions are listed in **Table 3.**

60. A full copy of the public submissions and agency advice is provided in in **Appendix A**.

Table 1 | Special interest group submissions (by stance)

Support	Object	Comment
Central West Logistics Pty Ltd, Canero Industries Group Pty Ltd, Triaxial Consulting, TWSevolution, WesTrac NSW, Hort Enterprises Pty Ltd, Puma Energy	Lithgow Environment Group, IA & WM Manning, Belubula Headwaters Protection Group, Scott Lawrence Bennett, Goldfield Honey Australia Pty Ltd, Central Ranges Brewing Company, LBS Supplies Pty Ltd, Orange Local Aboriginal Land Council, Environmentally Concerned Citizens of Orange, Mudgee District Environment Group, Bathurst Community Climate Action, Orange Field Naturalist and Conservation Society Inc., Hoadley Family Pty Ltd, Philip Church Furniture, Central West Environment Council, Neville and Region Landcare	NSW Farmers Association Orange Branch, Ryan's Bakery

5.3 Government Agency Advice

61. **Table 2** provides a summary of the issues raised by government agencies and council submissions during the assessment process. Further detail on specific issues is provided in **Section 6**.

11 Goldfield Honey Australia Pty Ltd made 3 submissions by way of objection as a business/ special interest group.

Table 2 | Key comments by government authorities

Agency	Key comments
Department of Planning and Environment	
Water Group	• Noted that the availability and lack of water entitlement(s) presents a risk for this project and discussed the licensing options available for the project, including the use of harvestable rights, exemptions and licensing requirements. • Following lengthy discussions regarding the classification of storages and surface water take calculations, DPE Water advised that there are no critical barriers to Regis obtaining the necessary entitlements for the project which includes a Specific Purpose Access Licence for surface water take. • Recommended that works within waterfront land, including pipeline watercourse crossings, be carried out in accordance with the Guideline for Controlled Activities on Waterfront Land. • Noted the requirement for the relevant planning approvals and licences for the water supplied from the Centennial operations in Lithgow. • The Department's consideration of the water impacts of the project is detailed in **Section 6.4**.
Biodiversity Conservation and Science Directorate (BCS)	• Requested additional information on the biodiversity assessment including application of *Biodiversity Assessment Method* (BAM). Following review of additional information, it confirmed that the revised assessment met the requirements of the BAM and its previous comments had been addressed (see **Section 6.5** for further details).
Crown Lands	• Noted that prior to disturbing any crown land and roads, Regis must obtain the necessary approvals, including an easement across crown land for the project's water supply pipeline and purchase of part of the crown waterway for the Belubula River that would be impacted by the project.
Environment Protection Authority (EPA)	• Requested additional information about the EIS assessment of noise, air quality, ground and surface water quality and waste management. Following review of the revised impacts assessments resulting from the amendments to the EIS design, it confirmed that Regis had appropriately addressed these issues and recommended conditions, should the project be approved. • Given the mine site's proximity to the Kings Plains residents, the Department has carefully considered these issues, particularly noise, detailed in **Section 6.2**.
Department of Regional NSW	
Mining, Exploration & Geoscience (MEG)	• Determined that efficient and optimised resource outcomes could be achieved, and any identified risks or opportunities could be effectively regulated through the conditions of mining authorities issued under the *Mining Act 1992*. • Required Regis to identify and address any potential title applications intersected by the project's water supply pipeline and be consulted about the proposed location of any biodiversity offset areas to ensure no impacts to prospective land for mineral exploration or potential sterilisation of mineral or extractive resources.
Resources Regulator	• Confirmed site rehabilitation including conceptual final landform, proposed post-mining land uses, progressive rehabilitation were adequately addressed. • Requested confirmation that the final landform for the TSF would incorporate a beach drain and emergency spillway able to withstand significant rainfall events and recommended trials of impacts to capped areas from tree encroachment as part of the Rehabilitation Management Plan. • The Department's consideration of rehabilitation and final landform is detailed in **Section 6.9**.
Forestry Corporation of NSW (Forestry NSW)	• Raised that Regis's references to private plantation forestry or Vittoria State Forest plantation trees as a screen/buffer for the mining operation would be inappropriate, as harvesting would remove any visual screening that they could offer. • Requested to be notified of locations of any artefacts along the final pipeline route within the State forests. • The Department's consideration of these matters is detailed in **Sections 6.2** and **6.6**.
Department of Primary Industries	

Agency	Key comments
Agriculture	• Advised that the initial Agriculture Impact Statement (AIS) did not include the water supply pipeline and did not satisfy the socio-economic requirements. • Following review of additional information, it confirmed that its concerns were addressed and recommended mitigation measures relating to the mine operations impacts on the apiary industry, water supply pipeline construction and rehabilitation, and the project's impacts on local and regional employment for affected agricultural industries (see **Section 6.7** for further details).
Fisheries	• Advised its preference for aquatic ecology offsets would be within the Belubula River and tributaries that contain the highest conservation values. • Requested inclusion of consent conditions for an aquatic ecology offset package in consultation with Fisheries, including an Aquatic Ecological Offset Strategy, outlining details of the long-term monitoring and maintenance program to monitor the targets and key performance indicators (see **Section 6.8** for further details). • The Department has recommended conditions to address NSW Fisheries advice.
WaterNSW	• Considered that the project's likely impacts on water quality within Sydney drinking water catchment and WaterNSW lands, assets and infrastructure as negligible and requested to be consulted for the preparation of the relevant post approval documents (see **Section 177** for further details).
Transport for NSW (TfNSW)	• Recommended that the use of Dungeon Road be limited to a maximum of six months after commencing construction of the mine site and subject to a Traffic Management Plan approved by the Planning Secretary. After this time, all vehicular access to the site is to be via the new vehicular access. • The Department has recommended conditions to address TfNSW advice (see **Section 6.9** for further details)
NSW Rural Fire Service (RFS) **Fire and Rescue NSW (FRNSW)**	• Satisfied with Regis's risk and hazard assessments. • FRNSW and RFS made recommendations relating to preparation of an Emergency Management and Operations Plan and a Bush Fire Emergency Management and Evacuation Plan by an external qualified and experienced person. • The Department has recommended conditions to ensure any residual risks would be managed and minimised (see **Section 6.9**).
Heritage NSW as delegate of the NSW Heritage Council	• Confirmed that no historic heritage items would be directly impacted by the project, including no State Heritage Register (SHR) items within or in the immediate vicinity, • Noted that the Hallwood Farm Complex may be of State significance, which would be located within mine site but outside the disturbance footprint. • Recommended inclusion of a Cultural Heritage Management Plan for the project should the project be approved. • **Sections 6.6** and **6.9** detail the Department's consideration of these matters, including the recommended conditions.
Dam Safety NSW	• Noted that the EIS determined the TSF's consequence of failure as Extreme and provided recommendations relating the proposed TSF and water management dams, should the project be approved. • The Department has considered this advice and included recommendations to address these matters in **Section 6.4**.
NSW Health	• Provided comments that noise, vibration and dust impacts should be minimised and no water should be returned or escaped to the Lithgow LGA. • Detailed consideration of the impacts on public health is provided in **Sections 6.2, 177** and **6.9**.
Blayney Shire Council	• Acknowledged the significance of the mining industry in the Blayney Sire, its support for regional growth and the economic benefits of the project, as it would be in line with the objectives of the *Regional Economic Development Strategy* (2017). • Raised project-specific issues given its close proximity to Kings Plains and cumulative and long-term issues relating to project's workforce accommodation in Blayney, impacts on local businesses and rehabilitation/ final landform. • Should the project be approved, recommended that conditions of consent include: o Investigation of alternative land-use such as an intensified agricultural precinct to enable reuse of the project's infrastructure (e.g. water supply pipeline and transmission lines) for long-term economic benefit for the Blayney Shire and wider region (see **section 6.9** for further detail).

Agency	Key comments
	o Pre-construction requirements for closure of Dungeon Road and upgrade to Guyong and Vittoria roads (see **section 6.9** for further detail). o Risk mitigation and safety measures to mitigate for design and operation of the TSF (see **Section 6.4** for further detail). • Council reaffirmed that the Voluntary Planning Agreement should be executed between Regis and Blayney Shire Council only. This agreement was executed in February 2021 and is publicly available on Council's website.
Bathurst Regional Council	• Noted the only direct impact would be related to the water supply pipeline (interactions with Council roads and impacts on Bathurst Copper Butterfly host plants), and recommended the consent include conditions to minimise impacts. • Following review of Regis's commitments in the Submissions Report and Amendment Report, it confirmed that it had no further comments. • The Department's consideration of impacts on biodiversity and traffic is detailed in **Sections 6.5** and **6.9**, respectively.
Orange City Council	• Council notes the potential positive benefits to Orange ratepayers in the form of investment and employment. • Council encourages the inclusion of condition of consent that would make Regis utilise regional roads rather than local roads such as Plains Road. • The Department's consideration of traffic and transport is provided in **Section 6.9**.
Cabonne Shire Council	• Requested that Regis liaise with them during design and construction phases and during the life of the project and in relation to impacts on Vittoria Road and other environmental impacts (noise, dust, groundwater) to Cabonne local residents. • Confirmed no further comments, following review of the Submissions Report. • **Sections 6.2** (amenity) and **6.4** (water resources) outline the Department's consideration of these matters.
Lithgow City Council	• Initially raised concerns about a range of environmental issues and water supply pipeline design in its EIS submission, including works within its road reserve areas, water supply pipeline survey plans, engineering requirements and decommissioning, as well as impacts on air quality, traffic and historic heritage. • Following review of additional information, it confirmed its satisfaction with Regis' approach to the issues raised, and where relevant requested their inclusion in the conditions of consent, should the project be approved.

5.4 Public Submissions

5.4.1 Submissions in Support

62. Public submissions in support of the project generally pointed to its employment and economic benefits, including increased opportunities for local businesses and service providers, social diversity, and associated social benefits for the surrounding and wider region.

5.4.2 Submissions in Objection

63. Public submissions objecting to the project raised a range of issues, as well as environmental and social cumulative impacts on the surrounding Kings Plains community. The key community impacts raised in submissions are summarised in **Table** and the Department's detailed assessment of the project, including issues raised by the community are provided in **Section 72**.

Table 3 | Key issues raised in the public submissions

Issue	Description
Amenity	Noise, air quality, visual and light (see **section 6.2** for further details).
Water resources	TSF location in the Belubula river headwaters above Carcoar Dam and associated impacts on downstream users, groundwater, local springs, TSF seepage as well as impacts on surface water and quality of the water piped to the mine site (see **Section 6.4** for further details).
Traffic and transport	Closure of Dungeon Road, road safety risks and additional traffic volumes on local networks from project's truck movements (see **Section 6.9** for further details).
Agriculture	Impacts on local apiary industry, disturbance of naturally occurring asbestos due to mining activities, agricultural production and livestock (see **Section 6.7**).
Project design	A range of issues, including suitability of the site, TSF location and management, rehabilitation and final landform, workforce accommodation (see **Section 6** for further details and the Department's overall evaluation of the project in **Section 7**).
Aboriginal cultural heritage	Impacts on cultural values and adequacy of the EIS assessments (see **Section 6.6**).
Biodiversity values	Land clearing and impacts on threatened species, aquatic ecology and biosecurity (weed and pest management), suitability of the proposed biodiversity offsets (see **Section 6.5** for further details).
Human Health	A range of issues, including impacts on air quality, (including exposure to dust and naturally occurring asbestos through inhalation and digestion), noise (including sleep disturbance) and lighting effects, lack of base-line health impact investigations (see **Section 6.9**) as well as impacts on mental health (see **Section 6.3**).
Social and economic	Intergeneration equity, long-term impacts on local jobs and businesses, displacement of long-term local residents, lifestyle, property value, population growth and stress on local housing supply, medical and social services, tourism industry (see **Sections 6.3** and **6.8**).
Other cumulative impacts	Consideration of other extractive and mining operations in the region, including Discovery Ridge, Cadia Valley Operations and other quarry operations, greenhouse gas emissions and climate change (see **Sections 6.3** and **7** for further details).
Merits of the project	Public interest, compatibility with principles of ecologically sustainable development, project's justification (see **Section 7** for further details).
Project ownership	Management of the project profits or royalties. Although these aspects of the project are outside the scope of this assessment, the Department's overall evaluation of the project as a whole is summarised in **Section 7**.

5.5 Representations

64. Following the EIS exhibition period, the Department received additional public representations on the project, mainly from the local community in Kings Plains, including Goldfield Honey Australia Pty Ltd. Throughout the assessment process, the Department also received representations from the BHPG and Australian Honey Bee Industry Council.

65. The issues raised in representations were similar to those raised in the submissions, including impacts on amenity, surface and groundwater resources (including flow of the Belubula River and location of the tailings dam above the Belubula headwaters), property values, social impacts (including community health and changes to the local population), and the local honey production.

66. The Department also received a number of representations from the local landholders in the Kings Plains settlement and their representatives relating to Regis' approach to offering negotiated agreements to further mitigate noise and visual impacts of the project.

67. The Department received one representation supporting the project mainly on the basis of its economic and employment benefits, similar to those raised in the submissions.

68. The Department's assessment has carefully considered the issues raised in representations.

5.6 Submissions Report and Amendment Reports

69. In September 2020, Regis submitted its Submissions Report and an Amendment Report (1st amendment), responding to the issues raised in submissions. Regis further amended the project to address issues raised by government agencies and in response to negotiations with landowners along the project's water supply pipeline (see **Section 2.2** and **Appendix B**).

70. The Department made the Submissions Report and each Amendment Report publicly available on the Department's website and referred them to applicable government agencies, including DPE Water, BCS, Crown Lands, Dams Safety, DPI Agriculture and Fisheries, EPA, Forestry NSW, Heritage NSW – ACH, MEG and Resources Regulator, NSW Health, RFS, TfNSW, WaterNSW, Blayney Shire, Bathurst Regional, Cabonne Shire and Lithgow City Councils

71. The Department also requested additional information from Regis on a number of matters following the Submissions Report and each Amendment Reports, to assist in addressing residual issues raised by government agencies, community and the Department.

72. Additional advice received from government agencies and key additional responses from Regis are provided in **Appendix A**.

6 Assessment

6.1 Introduction

73. The project would be located in a greenfield site, previously undisturbed for mining uses, with the Department considering a full range of potential impacts during its assessment of the project.

74. The assessment process has occurred over a long period and has been comprehensive, with Regis submitting three amendments to the project design to address key issues raised by the public and government agencies, including measures to reduce amenity impacts and safety concerns.

75. The Department considers the two key issues for the assessment are:

- **Amenity and Social:** including noise, air quality, visual and other residual impacts on surrounding community members, particularly in the Kings Plains settlement; and
- **Water:** given the location of the mine upstream of Carcoar Dam and Blayney, and potential impacts on downstream users in the Belubula River.

76. The Department also considers the following assessment issues to be important:

- **Biodiversity:** particularly within the mine footprint;
- **Aboriginal Cultural Heritage:** with loss of cultural values associated with artefacts and broader landscape values of the Belubula River catchment;
- **Agriculture:** potential impacts on the local apiary industry, and loss of agricultural production within the mine footprint; and
- **Economic**: including employment and regional and local business opportunities.

77. The Department's assessment of these issues is detailed in **Sections 6.2** to **6.8** as well as a summary of consideration of a range other relevant issues (traffic and transport, rehabilitation and

final landform, hazards and risks, human health, blast and vibration, greenhouse gas emissions, historic heritage, and economics) in **Section 6.9**.

6.2 Amenity Impacts

6.2.1 Introduction

78. The project has the potential to impact the amenity of around 85 privately owned rural residential receivers around the mine site (within approximately 2 km from the mine site boundary), particularly 47 privately owned residential receivers located to the south of the mine within the Kings Plains locality, including 19 residences in the Kings Plains settlement, in and around Walkom Road. This is a key issue for the Department with a high number of objections from people living in this locality.

79. Given the proximity of the mine site to Kings Plains, noise, air and visual impacts in particular are a key focus of the Department's assessment. Blasting impacts are also considered in **Section 6.8.**

6.2.2 Noise

80. The EIS and Amendment Report noise assessments were completed by Muller Acoustic Consulting (MAC) in accordance with applicable noise guidelines including the *Noise Policy for Industry* (NPfI) and the *Voluntary Land Acquisition and Mitigation Policy* (VLAMP). **Figure 7** shows locations of representative noise catchments, residential receivers and background noise monitoring locations used in the noise assessment.

81. In response to public submissions and advice from the EPA and the Department, Regis updated its noise assessment and made changes to the mine design and operational measures to reduce predicted noise levels. Following the provision of additional information from Regis (see **Appendices A4 and A5**), the EPA was satisfied with the response to the technical issues it had raised about the noise assessment.

Project Design Changes

82. The key mine design and operational changes proposed to reduce noise levels and to demonstrate the application of reasonable and feasible noise mitigation measures, include:

- **Operational staging**: revised to reduce mining activity to the south closer to Kings Plains residences in the initial 4 years of mining operations and limiting construction of the southern amenity bund to the day-time period only.
- **Site access**: relocated approximately 1 km further to the east, that is further from receivers around Kings Plains.
- **Entry/exit and pit amenity bund**: relocated to the northern end of the pit.
- **Selection of mining fleet with overall lower sound power levels**: reduction in overall sound power levels from the mobile fleet of around 3dB(A).
- **Construction staging**: including construction of the pit amenity bund and water management facilities in sequence within the first six months.

Mine Construction Noise

83. Activities that are considered construction for the purpose of the noise assessment and would be completed in the first 6 months include:

- construction of the temporary site access via Dungeon Road;
- initial phase of the permanent site access from the Mid Western Highway;
- clearing and grubbing of the open cut mine and ROM pad areas;
- construction of water management facilities at the southern end of the mine site; and

initial stage of the development of the pit amenity bund.

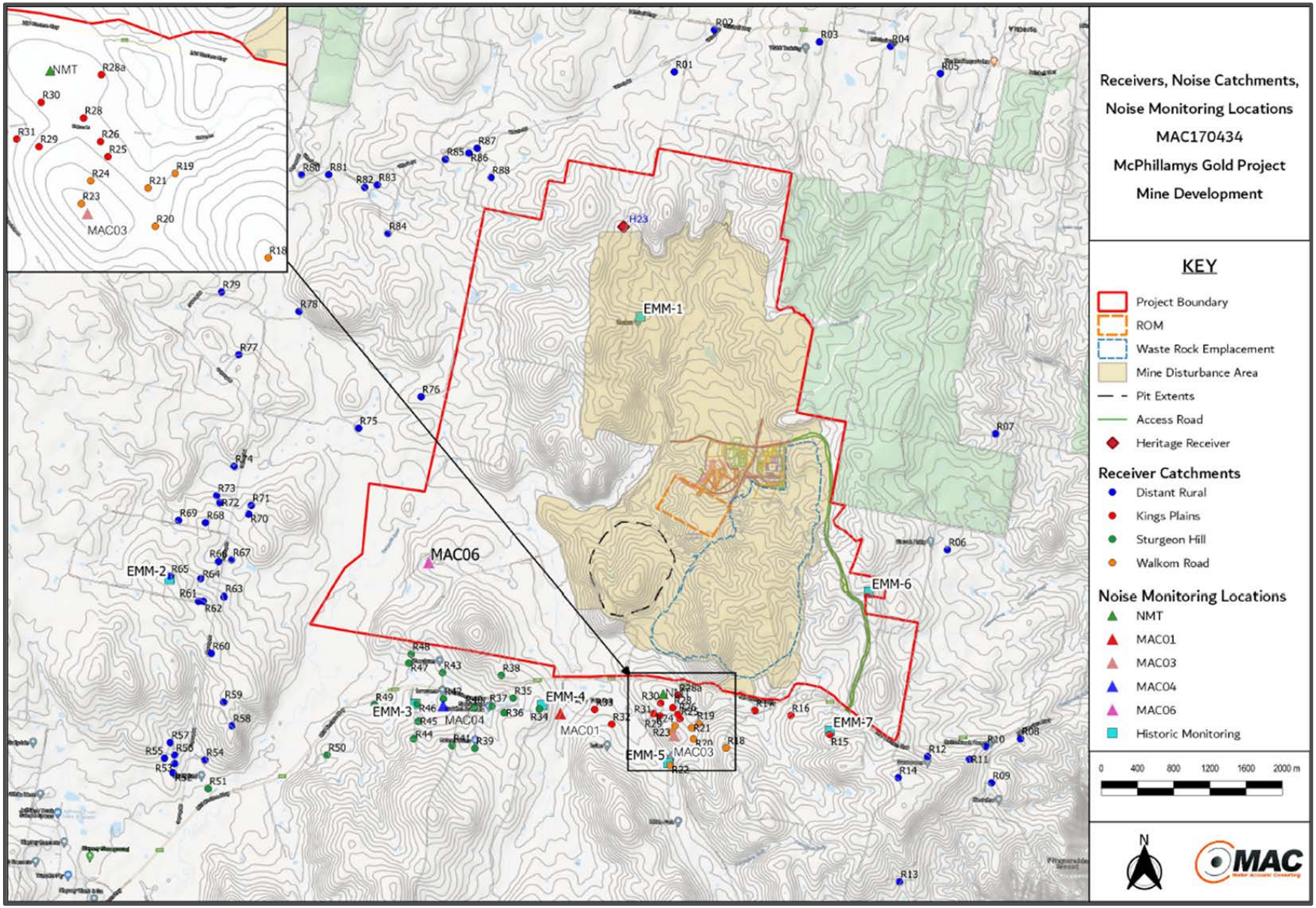


Figure 6 | Mine site - noise catchments, receivers and monitoring locations (Source: First Amendment Report, Appendix J (September 2020))

84. Standard construction hours would apply for the first 6 months following commencement of the development (Monday to Friday 7 am to 6 pm, Saturdays 8 am – 1 pm, with no works on Sundays and Public Holidays), and any ongoing construction would then be managed as operational noise, and operational noise limits would apply.

85. **Table 6** provides the worst-case project noise levels (PNLs) during standard day-time construction hours compared to the noise management levels (NMLs) set by the ICNG.

Table 6 | Predicted worst-case construction noise during standard day-time hours.

Noise Levels dB $LA_{eq(15\ min)}$	Distant Rural (51): R01-R14, R52-R88	Kings Plains (12): R15-R17, R25-R33	Walkom Road (7): R18-R24	Sturgeon Hill (18): R34-R51
NML	**45**	**46[1]**	**45**	**45**
PNL Range (Amended Project)	22-37	36-46	36-44	23-41
PNL Range (EIS)	21-34	36-51	36-44	22-42

Note 1: Kings Plains residences have a 1dB higher NML as a result of background noise levels during the day-time period being affected by traffic along the Mid-Western Highway.

86. The original project proposed in the EIS would have exceeded noise management levels in Kings Plains by up to 5 dB. The relocation of the mine site access road further to the east, along with proposed use of equipment with lower sound power levels and rescheduling of activities has reduced construction noise impacts for the residents such that the NML would be met at all receivers.

Mine Operational Noise

87. The project noise trigger levels (PNTLs) for the project were set at the lowest level that can be applied under the NPfI (40 dBA during the day time period and 35dBA during the evening and night time periods), except for slightly higher (41dBA) level set during the day time period for residences in closer proximity to the Mid-Western Highway, due to background traffic noise.

88. As summarised in **Table 7** below, the noise assessment undertaken for the EIS identified that 19 residences would experience noise levels exceeding the PNTLs. With the adoption of the reasonable and feasible measures as identified above, along with further property acquisitions, this reduces to 14 privately owned properties predicted to exceed the PNTL.

89. Further, all of the properties exceeding the PNTL are predicted to be negligibly affected, that is an exceedance of the PNTL of 1-2 dB(A), as classified under the NPfI and VLAMP, with no receivers predicted to be significantly or moderately affected.

90. With the application of reasonable and feasible noise mitigation measures described above, the operational noise levels are predicted to comply with the relevant day-time criteria at all privately occupied receivers. The exceedance of the PNTLs is predicted to occur during the first four years of operations during the evening and night periods (see **Figure 7**), after which it is predicted that the PNTL at all receivers would be met.

91. This would follow the substantial completion of the pit amenity and southern amenity bunds, providing noise attenuation from mining operations. The Department notes that the reasonable and feasible noise mitigation measures proposed are reliant on using equipment with effective noise attenuation and careful application of operational controls, such as minimising activities at the southern end of the mine during evening and night time periods.

92. Accordingly, the Department has recommended strict conditions to validate the sound power levels for equipment used at the site prior to commencement of construction and operations, and to prepare and implement a Noise Management Plan, including real time noise monitoring to ensure that activities comply with required noise limits.

Table 7 | Summary of Operational Noise Limit Exceedances

Noise Exceedance	Management Approach	EIS		Amended Project	
		Number of Receivers	Receivers	Number of Receivers	Receivers
Significantly affected receivers (>5 dB exceedance)	Acquisition	0		0	
Moderately affected receivers (3-5 dB exceedance)	Noise mitigation at receiver	15[4]	R17, R19, R21, R23[1], R24[1], R25, R26, R27[3], R28, R29, R30, R31, R32, R33, R34	0[2]	
Negligibly affected receivers (1-2 dB exceedance)	Noise mitigation at source	4	R16, R18[3], R20, R36	14	R16, R19, R20, R21, R23[1], R24[1], R25, R26, R28, R29, R30, R31, R32, R33
Total		**19**		**14**	

Notes:

1: Receivers R23 and R24 are owned by the same landowner

2: Receiver R28a in Figure 7 was a new receiver identified after the lodgement of the SSD application – it is a vacant lot which has approval for a residence with no residence yet constructed. Regis has now acquired this property.

3: Receivers R18 and R27 have been acquired by Regis since the lodgement of the SSD application

4: At the time of lodgement of the SSD application, a further receiver R38 had an option agreement with Regis to acquire the property if the project were to be approved. The property has since been acquired by Regis.

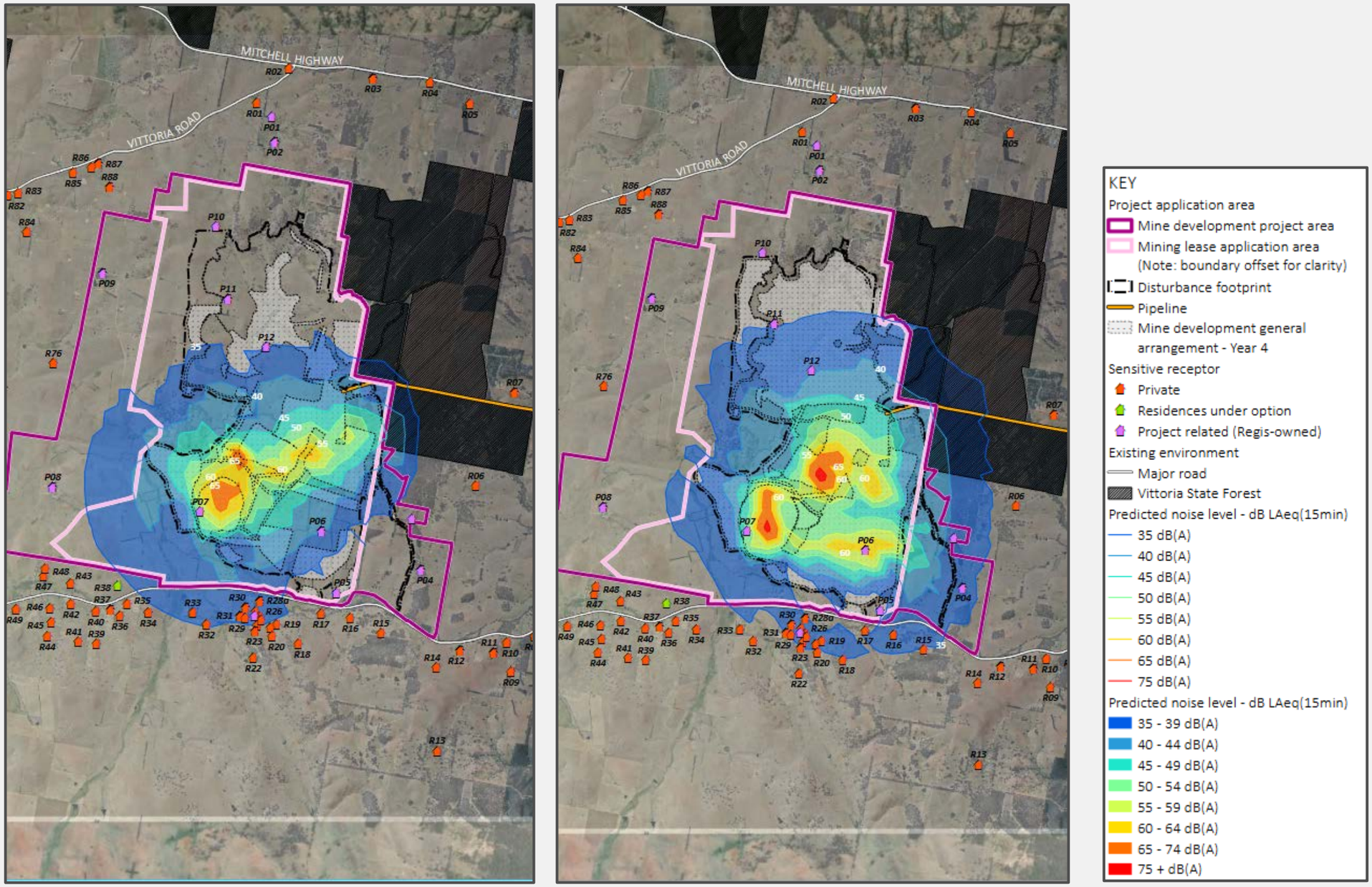
Meteorological Conditions

93. The NPfI includes a requirement to consider noise levels under 'noise enhancing' weather conditions – for example due to inversions or low wind towards receivers.

94. The NPfI allows a proponent to consider locally collected meteorological data to determine whether noise enhancing conditions are a feature of the area. This is defined as when the meteorological conditions are present for at least 30% of the time for day, evening or night period and on a seasonal basis. The analysis completed by MAC indicated that only standard meteorological conditions apply for the project, with Class F and G inversions occurring for around 20% of the time and prevailing winds for up to 19% of the time – both below the requirement set in the NPfI to include these noise enhancing conditions in the noise assessment.

95. The EPA were satisfied with this assessment and recommended that noise limits apply under standard meteorological conditions only. However, consistent with the NPfI, the EPA recommended that a maximum noise limit be set at 10 dB(A) above the PNTL (or 5 dB(A) above noise limits) under all weather conditions outside standard meteorological conditions.

96. The Department agrees with EPA's recommendation and has incorporated these requirements into the recommended conditions. To further minimise impacts during noise enhancing conditions, the Department has also recommended that the Noise Management Plan identifies measures to minimise noise during noise enhancing conditions.



Year 1 Operations Scenario – Night

Year 4 Operations Scenario – Night

Legend

Figure 7 | Operational Noise Contours (Source: First Amendment Report (September 2020))

Noise Modifying Factors

97. The noise assessment considered noise modifying factors, such as tonality and low frequency noise, which can increase the level of annoyance that a person can feel. Where this applies, an additional penalty (from between 2 to 5 dB(A)) is applied to the predicted noise level.

98. The EPA requested that Regis undertake further assessment of low frequency noise, including an analysis of predicted third octave sound power levels from the project to determine whether a low frequency noise penalty would apply due to increased noise annoyance. This further analysis concluded that the low frequency threshold set in the NPfI would not be triggered and therefore a low frequency noise penalty would not apply to the project. The EPA did not raise any further concerns with the additional low frequency analysis completed by MAC.

99. To minimise annoyance, the EPA also recommended that broad spectrum reversing alarms for mobile plant be required. The Department has recommended an operating condition to this effect. The Department notes that if the project were approved, noise monitoring undertaken to assess compliance against noise limits would also need to assess noise modifying factors, including whether low frequency noise is present, and include a noise penalty to the measured noise if these factors were present. The Department has recommended that real time noise monitoring targets representative locations within the Kings Plains settlement.

Mine Site – Sleep Disturbance

100. The noise assessment for the mine site predicted that maximum noise levels would comply with the sleep disturbance trigger level of L_{AFMax} 52 dB(A) – and therefore in accordance with the NPfI further detailed assessment was not required.

101. Following provision of additional information from Regis, the EPA was satisfied with the sleep disturbance assessment and recommended that a sleep disturbance noise limit of 52 dB(A) be included in any conditions. The Department has included this limit in its recommended conditions.

Negotiated Agreements and Offer for Mitigation/ Acquisition

102. Under the VLAMP, noise mitigation and acquisition requirements at residences apply when predicted noise levels reach a level that are characterised as more than negligible, which as is defined where the predicted noise level is 0-2 dB(A) above the PNTL.

103. The Department acknowledges that even at these levels, noise from mining operations would, under certain meteorological conditions, be audible at residences around the mine. The NPfI sets a minimum background level based on contemporary research and World Health Organisation recommendations that represent a reasonable balance between protecting amenity and allowing permissible activities to be undertaken.

104. The noise assessment for the project predicts that a 1-2 dB(A) exceedance would occur at 14 receivers, as summarised in **Table 7** above. Therefore, based on these predictions, the voluntary mitigation and acquisition rights under the VLAMP would not apply to the project.

105. Nonetheless, outside the VLAMP process, Regis has offered negotiated agreements with 16 landowners[12] in the Kings Plains settlement to the south of the mine. While the Department is not involved directly in these negotiations, as it is outside any formal VLAMP process, the terms of the agreement provided to these landowners include the following key elements:

[12] Receivers R15, R16, R17, R19, R20, R21, R23/R24, R25, R26, R28, R29, R30, R31, R32, R33, R34

- noise mitigation works at the residence on request;
- vegetation screening at the residence (where there is also a visual impact – see also visual section below);
- compensation for electricity costs associated with mitigation measures (eg. air conditioning);
- acceptance of a 5 dB(A) noise level above the PNTL;
- complaints handling process in relation to impacts exceeding agreed levels;
- noise and air monitoring;
- acquisition on request provisions for up to 10 years following a decision by Regis to proceed with the project; and
- procedures for acquisition including valuation at market value (excluding any changes in value due to the project) and compensation for relocation (e.g.. stamp duty, reasonable legal costs and valuation fees, financial costs and moving expenses.

106. In preparing the agreement and negotiating with the landholders and, following representations to the Department, Regis engaged Mr Garry West as an independent facilitator to discuss the terms of the agreement, and provide an opportunity for landowners to outline their concerns.

107. At the time of referral of this assessment report to the Commission, Regis has advised that 8 of the 16 landholders being offered mitigation and acquisition rights have signed an agreement with Regis.

108. However, the Department also notes that some landholders consider that the negotiation process is unfair, not transparent, and that the financial package offered by Regis, both during the negotiation process and the proposed acquisition package including relocation costs is insufficient for effectively being forced away from their homes. Further, that there is limited supply to acquire properties that have similar attributes – such as proximity to workplace, landscape and water resources.

109. The Department notes that these agreements afford flexibility to these landowners if they wish to relocate based on experienced noise, air and visual impacts if the mine were to proceed. However, as further discussed below, the provision of these agreements can affect social cohesion with some landowners potentially choosing to leave and others not choosing to, or not progressing with a negotiated agreement.

110. The Department also notes that while these agreements include an acceptance of a higher noise level at a residence, Regis would need to manage noise to meet noise limits set at all receivers. That is, there is limited ability for Regis to benefit from an increase in noise levels at residences where agreements are signed, to ensure compliance more broadly at other receivers around the mine.

111. Regardless of these negotiated agreements offered by Regis as an additional mitigation measure, the Department has considered the operational noise impacts against the NPfI and the VLAMP and notes that the predicted noise impacts would be acceptable under these policies. This would be subject to setting noise limits and ensuring Regis complies with these limits.

Water Supply Pipeline Noise Assessment

112. The pipeline development includes construction and operation of four pumping station facilities and a pressure reducing station which would be housed in concrete buildings fitted with noise mitigation measures.

113. The noise assessment identified 329 noise sensitive receivers within 1 km of the proposed pipeline corridor which were grouped into nine noise catchment areas. The majority (307) of the receivers are residential properties. No sensitive receivers are located within 1 km of the pumping and pressure reducing stations which would be the source of operational noise.

114. The pipeline construction is estimated to take approximately 12 months and would predominantly occur during standard construction hours. However, some work outside standard hours is contemplated for some activities – such as underboring roads, utility infrastructure and major watercourses – due to construction requirements during drilling, and to reduce length of time of impacts within the road corridor.

115. Noise impacts associated with construction of the pipeline would result in day-time NML exceedance at most noise sensitive receivers within 400 m of the pipeline corridor. However, the duration of impact for noise from transient construction activities – such as clearing, trenching and backfilling – would only be over a few days at any individual receiver. The noise assessment identified 14 residential receivers within 50 m of the water supply pipeline construction corridor with a further 13 residences within 50-100m. A further 3 non-residential receivers were also identified within 100m – including a commercial receiver and 2 passive recreation receivers.

116. The noise assessment predicted that construction noise levels would meet the highly affected NML criteria of 75 dB(A) $LA_{eq(15min)}$ at all receivers. However, receivers within 100 m of the pipeline construction corridor without additional mitigation measures applied are predicted to exceed the NML's by more than 20 dB(A) during standard construction hours based on conservative assumptions – noting this would be for a short duration.

117. The Department and the EPA consider that all reasonable and feasible mitigation measures should be applied to further reduce noise levels during construction and that construction work should be confined to standard construction hours, unless noise levels can be demonstrated to be below the out of hours NML – that is no more than 5 dB(A) $LA_{eq(15min)}$ above the background noise levels – which for most of the pipeline route would be no more than 35dB(A) $LA_{eq(15min)}$. Further, out of hours work would only be considered when the noise impacts would comply with NMLs at other sensitive land uses in accordance with the ICNG, and no more than 52 dB(A) L_{AFmax} noise levels during the night period.

118. Regis provided additional information on mitigation measures that could be applied to further reduce noise and committed to implementing reasonable and feasible measures during detailed design.

119. The Department supports the EPA's recommendation and has recommended conditions to this effect. The Department has also recommended that a Water Supply Pipeline Construction Environmental Management Plan be prepared and implemented incorporating a noise, blast and vibration sub-plan.

120. The noise associated with the construction and operation of the pumping and pressure reducing stations is predicted to comply with the relevant noise criteria including the operational night-time limit of 35 dB $LA_{eq(15min)}$ at all sensitive receivers.

Road Traffic

121. An assessment of road traffic noise was undertaken in accordance with the EPA's *Road Noise Policy* (RNP). EPA initially raised concerns about the method used to predict increase in road traffic

noise prepared for the EIS. Regis provided an updated road noise assessment, incorporating 3D terrain data, for the amended project based on a different noise modelling method in consultation with the EPA.

122. The project would result in an up to 15% increase in traffic during the day-time period and up to 50% increase during night-time on the Mid Western Highway near the project. This would largely be due to construction works for the mine site during the first two years with a predicted increase of up to 0.6 dB LAeg(15hr) (from 46.4 to 47 dB) during day-time and up to 1 dB LAeg(15hr) (from 42.8 to 43.8 dB) during night-time compared to background road noise levels.

123. These predicted levels would comply with the RNP noise assessment criteria for a sub-arterial road (Mid Western Highway) of 60 dB LAeg(15hr) for day time and 55 dB LAeg(9hr) for night time, with less then 2 dB(A) increase in overall noise levels. In the initial construction stage, there would also be some traffic during day time using Dungeon Road to access the site prior to construction of the site access road. The noise assessment predicted that the proposed traffic would comply with the lower local road noise day time criterion of 55 dB LAeg(15hr).

124. The pipeline development is expected to require an average of 30 heavy vehicle (HV) movements per day (or a peak of 14 HV movements per hour) during pipeline construction and an average of six HV movements per day (or a peak of four HV movements per hour) during construction works at the operational facilities.

125. The EPA accepted that this level of construction traffic would be unlikely to cause noise impacts on sub-arterial roads, however recommended that the construction noise management plan include measures to minimise road noise impacts on the local road network. The Department also notes the recommended restrictions on working outside of standard hours and has recommended conditions that road traffic noise be considered in preparing any out of hours work protocol.

Conclusion

126. The Department considers that the construction and operational noise impacts could be managed to meet noise levels that would be acceptable under NSW government policy. However, the Department notes that this would require a high level of management by Regis and effective implementation of proposed mitigation measures to ensure compliance with noise limits.

127. The Department has recommended strict operating conditions to ensure that Regis complies with these noise limits including through the preparation and implementation of a Noise Management Plan, validation and ongoing attenuation of mobile equipment and plant to ensure consistency with noise predictions, operating conditions to apply reasonable and feasible measures would be applied to minimise noise, and a comprehensive real time and attended noise monitoring system to monitor performance.

6.2.3 Air Quality

128. The key air pollution sources related to construction and operation of the mine include:

- **Particulate matter**: including total suspended particles (TSP) and particulate matter with diameters smaller than 10 µm and 2.5 µm (PM_{10} and $PM_{2.5}$) due to material handling and processing, operation of mobile plant and equipment and wind erosion of open surfaces.
- **Metal emissions**: from waste rock, ore and tailings material.
- **Gaseous emissions:** including Hydrogen Cyanide **(HCN) from** use of cyanide for ore processing and NOx emissions from mobile fleet, processing plant and blasting operations.

Assessment Methodology

129. The air quality assessment was completed by EMM Consulting Pty Ltd (EMM) in accordance with applicable guidelines, including the *Approved methods for the modelling and assessment of air pollutants in NSW* (EPA, 2016)[13] (the Approved Methods for Modelling) and the VLAMP.

130. Air quality modelling was undertaken to predict incremental (project alone) and cumulative (including background air quality) air pollutant concentrations and deposition rates for different modelling scenarios corresponding with the main stages of the mine development. The modelling scenarios were conservative in selecting years of greatest emissions including peak production rate and longest haulage distances.

Project Design Changes

131. The proposed changes to waste rock scheduling for the amended project has provided a more even distribution of materials handling and processing rates with lower peak material throughput per year resulting in lower peak emissions. **Figure 8** below shows the revisions to the production profile for the project. Further, the proposed use of larger capacity haul trucks (from 177 to 221 tonnes) has reduced dust emissions compared the modelling completed for the EIS.

EIS production profile	Amended project production profile

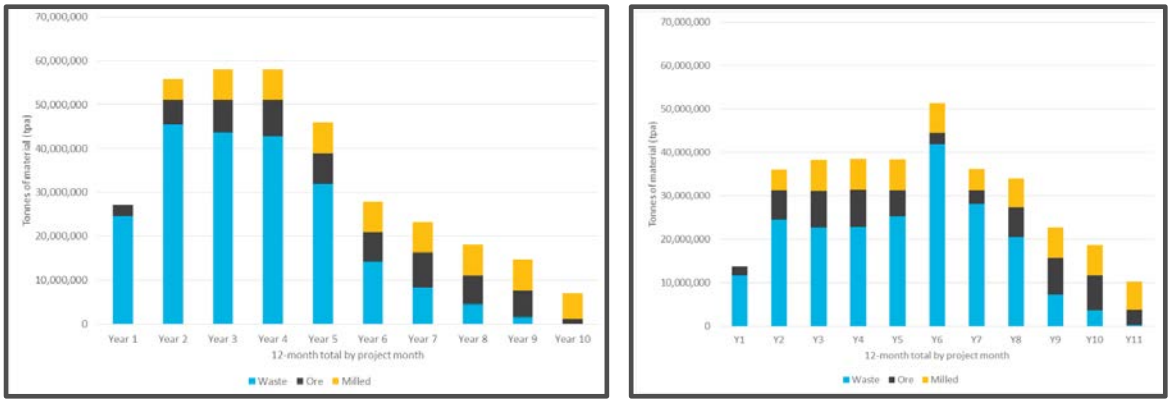


Figure 8 | Production profile

Particulate Matter

132. A range of best practice management measures to minimise particulate emissions have been incorporated into the assessment and air quality modelling including:

- use of chemical suppressants on high traffic haul roads and water suppression to all other routes;
- speed restrictions on vehicles;
- implementation of dust control systems to the design of crushers, screens and associated transfer points at the processing circuit and fitting the in-pit drill rigs with dry filter capture device;
- use of water sprays during the ROM pad operations and primary crusher operations;
- wet suppression for dozer activities for waste rock and topsoil removal; and

[13] The EPA released a revised document Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2022) in September 2022. However, this does not apply for applications lodged prior to 9 September 2022.

- temporary stabilisation of disturbed areas through hydromulching or hydro seeding, ahead of final rehabilitation.

133. The air quality assessment predicted that there would be no exceedances of project alone or cumulative particulate matter criteria for at surrounding residences as a result of the project. **Table 8** below provides the maximum predicted particulate concentrations at privately owned residences around the site, which occurs in Year 6 noting the highest movement of materials in this year.

134. Importantly, the EPA advised that its initial concerns regarding dust emissions had been addressed and recommended a comprehensive Air Quality Management Plan be prepared and implemented incorporating management measures, key performance indicators, trigger-action-response plan and real time monitoring. The Department also notes that air emissions from the site would be regulated by the EPA under an EPL and the provisions of the *Protection of the Environment Operations Act 1997* (POEO Act) including general obligations to minimise air emissions.

Table 8 | Summary of Dust Criteria Predictions

Dust Metric	Criteria (µg/m^3)	Predicted maximum – cumulative (µg/m^3)	Contribution from Project (µg/m^3)
PM_{10} annual average	25	16.8	2.7
PM_{10} 24 hr[1, 2]	50	46.1	22.9
$PM_{2.5}$ annual average	8	6.7	0.6
$PM_{2.5}$ 24 hr	25	17.5	5.2
TSP annual average	90	40	4.7
Dust Deposition	4 g/m^2/month	2.1	0.7

Notes:

1: The cumulative prediction excludes 2 days where the background concentration was excessive due to a dust storm.

2: This is the predicted level at receiver 28a which has now been acquired by Regis

135. The Department has recommended conditions to this effect. Regis has committed to, and the Department and the EPA would require, a comprehensive real time PM_{10} and $PM_{2.5}$ monitoring network around the mine site, particularly representative monitoring targeting residences in the Kings Plains settlement.

Metals and Metalloids

136. Metal and metalloid[14] air emissions are predominantly associated with dust emissions and therefore management of these emissions, as described above, is a key control in also minimising metal emissions.

137. EPA initially raised concerns about the methodology for assessing potential impacts of metals and metalloids. Regis provided an updated assessment based on a conservative approach using the 90th percentile concentration profile from a combined total of 3,580 samples. Regis also provided further justification for how it applied the concentrations to each emission source. The EPA

[14] Metalloids include elements with properties intermediate between metals and solid non-metals – for example boron, silicon, arsenic and antimony. The Approved Methods for Modelling identifies relevant metals and metalloids that are required to be assessed with ambient air quality criterion set for air toxics.

reviewed Regis's response and noted that it had addressed the technical concerns raised about the air quality assessment for metals and metalloids.

138. The air quality assessment predicted that emissions from the mite site would comply with the criteria required under the Approved Methods for Modelling as summarised in **Table 9** below.

Table 9 | Summary of Air Toxics Criteria Predictions at site boundary

Metric	Criteria (µg/m^3) 99.9%ile 1 hr average	Predicted maximum – (µg/m^3)	Metric	Criteria (µg/m^3) 99.9%ile 1 hr average	Predicted maximum – (µg/m^3)
Silver	1.8	0.003	Mercury	0.18	0.00009
Arsenic	0.09	0.033	Magnesium	180	4.3
Barium	9	0.033	Manganese	18	0.64
Beryllium	0.004	0.00005	Nickel	0.18	0.006
Cadmium	0.018	0.0005	Lead (annual average)	0.5	0.00053
Chromium	0.09	0.014	Antimony	9	0.0006
Copper	18	0.130	Zinc	90	0.19
Iron	90	14.2			

Gaseous Emissions

139. The key gaseous emissions from the project are oxides of nitrogen (NOx) and hydrogen cyanide (HCN). On-site diesel consumption is the main contributor to NOx emissions, and the main HCN sources would be from fugitive emissions from the processing plant and from actives areas of the TSF, as a result of use of cyanide in processing of the ore.

140. The air quality assessment modelled a single worst-case scenario for NO_2 (as an indicator for gaseous combustion emissions) and HCN predictions. **Table 10** provides a summary of the predicted concentrations of gaseous emissions, noting that the assessment showing that the project would comply with the gaseous emissions criteria set in the Approved Methods for Modelling.

Table 10 | Summary of Gaseous Emissions Predictions

Metric	Criteria ($\mu g/m^3$)	Diesel/ Processing Predicted maximum –($\mu g/m^3$)		Processing/ TSF fugitive ($\mu g/m^3$)[2]
		cumulative[1]	incremental	Incremental
NO_2 annual average	62	14.2	5.6	na
NO_2 1 hr average	246	171.7	149.6	na
HCN 99%ile 1 hr average	200	Na		69.6

Notes:

1: Cumulative concentration incorporating background concentrations – maximum predicted level at surrounding receivers.

2: Incremental concentration at project boundary (in accordance with Approved Methods for Modelling)

141. Blast fumes were modelled separately through modelling a maximum blast scenario and assuming blasts could occur between 7 am and 5 pm. The modelling showed that there was potential for NO_2 1hr average criterion to be exceeded due to adverse weather conditions if blasting was undertaken earlier than 8 am or later than 4 pm. In practice, blasts would be targeted for the middle of the day and the Department has recommended a condition that blasts only be undertaken between the hours of 9 am and 4 pm (not including Sundays and public holidays), with a maximum of one blast per day. Refer to **Section 6.9** for further discussion in managing blast impacts including blast fume.

Pipeline Construction Air Quality Impacts

142. Air quality impacts of the water supply pipeline construction from dust emissions were assessed against the 2014 *Guidance on the assessment of dust from demolition and construction* by the United Kingdom's Institute of Air Quality Management (IAQM).

143. A risk-based assessment was undertaken based on the scale and nature of the works (demolition, earthworks, construction and heavy vehicle movements required for the pipeline construction), and sensitivity of the area to dust impacts (largely residential receptors).

144. The air quality assessment concluded that the proposed mitigation measures, such as dust suppression through watering, limiting speeds in work areas, minimising disturbed areas and progressive rehabilitation, along with effective communications and complaints handling processes with residences, would be adequate to address the dust impacts during the temporary construction activities of the pipeline.

Conclusion

145. The Department considers that the air quality impacts of the development could be managed to meet levels acceptable under NSW government policy.

146. The Department has recommended strict conditions to ensure that Regis complies with ambient air quality limits including through the preparation and implementation of an Air Quality and Greenhouse Gas Management Plan, operating conditions to apply reasonable and feasible measures to minimise air quality impacts, and operating a real time air quality monitoring system to demonstrate compliance with and adaptively manage air quality emissions.

6.2.4 Visual and Lighting Impacts

Visual Impacts

147. Visual impacts were a key concern in public submissions given the proximity of the project to residential receivers, and potentially high visual impacts during the early years of the project (i.e. development of the proposed pit and southern amenity bunds) (see **Section 5.4**).

148. The Department also acknowledges that even following rehabilitation of the face of the southern emplacement, the landscape character of the area would be permanently changed, particularly in the Kings Plains settlement immediately south of the project.

149. The visual impact of the project was determined by assessing the visual effect (a measure of contrast with the existing landscape) and visual sensitivity (in consideration of land use and visibility) within the four sectors around the mine (i.e. northern, eastern, southern and western).

150. **Table 11** below provides a summary of the predicted impacts for each sector during construction and operations along with mitigation proposed by Regis.

Table 11 | Summary of visual impacts in surrounding sectors

Sector	Sensitive Locations	Visual Impact during Construction and Operation[1]
Northern	Commercial facilities, rural residences, Mitchell Highway, local roads, rural lands	• No impact on commercial facilities, Mitchell Highway and rural residences. • Moderate to low at rural residences and local roads (i.e. Vittoria Road).
Eastern	Commercial facilities, State Forest, rural residences, local roads, rural lands,	• No impact on commercial facilities. • Moderate to low at the State Forest and on local roads and rural lands. • High impact at rural residences.
Southern	King Plains locality, rural residences, heritage-listed items, highways, local roads and rural lands	• Moderate to low on some local roads (Kings Plains Road) and rural lands. • Ranging from low to high on heritage-listed items. • High on Kings plain locality, rural residences, highways and some local roads (Walkom Road)
Western	Blaney Township, rural residences, recreation areas, commercial facilities, highways, local roads and rural lands	• Moderate to low on Blaney Township, recreation areas, commercial facilities, highways, local roads and rural lands. • High on rural residences and elevated areas of Blayney

Note 1: All visual impacts reduce to very low / low following final landform establishment and rehabilitation.

151. In addition, photomontages were prepared from 5 key viewpoints (VPs) (see **Figures 9** and **10**) to illustrate a range of typical views and worst-case scenarios covering as broad a selection of potentially impacted views as possible.

152. Although the project amendments aimed to reduce noise impacts, the changes in mine scheduling results in an increase in the duration of high visual impacts in the southern viewing sector, predominantly by receptors within and near the Kings Plains settlement. These include receptors R14-R21, R23-R26, R28-R34, and R36.

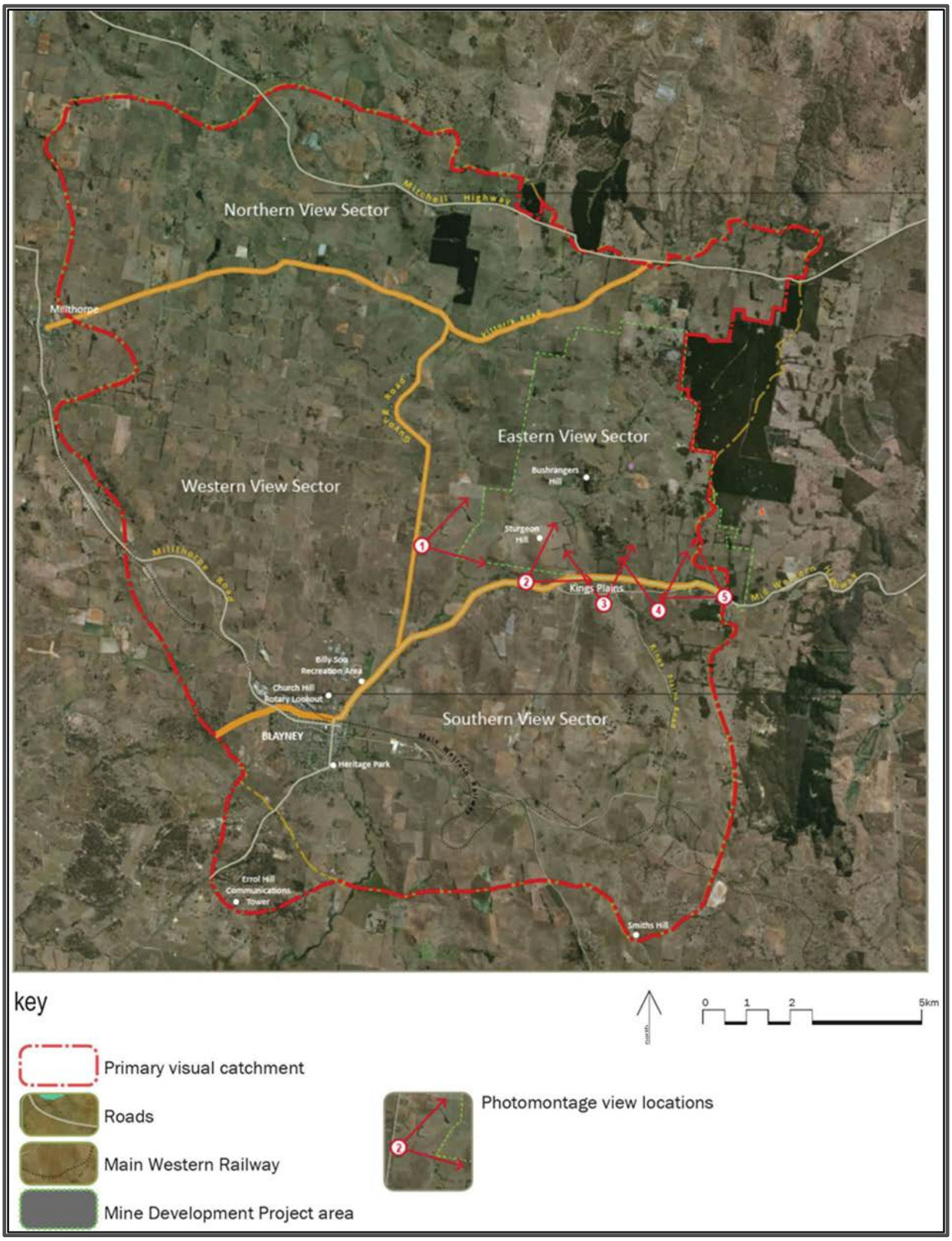


Figure 9 | Visual study area and catchments (Source: First Amendment Report (September 2020))

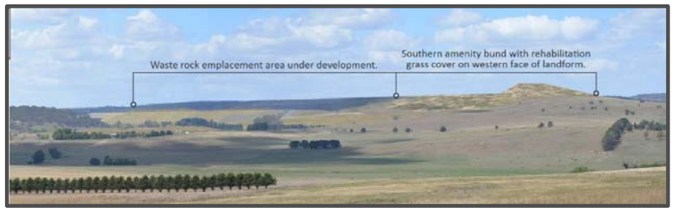
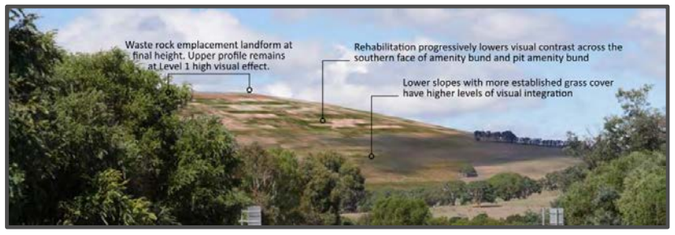
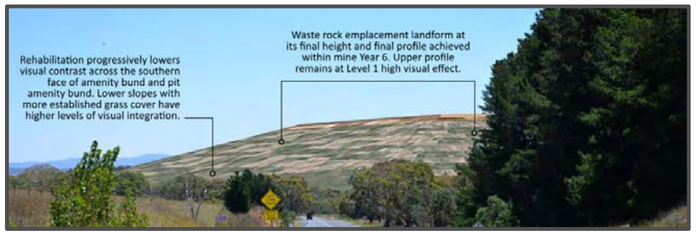
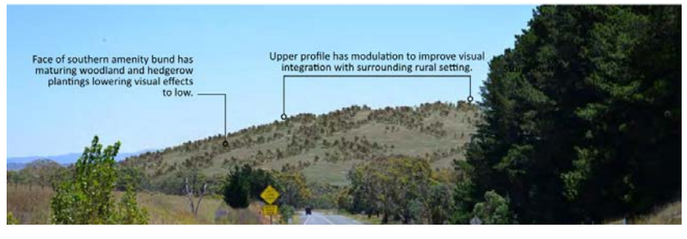
Viewpoint	Existing	Year 6	Final Landform
VP1 (Western Sector) Guyong Road			
VP2 (Western / Southern Sector) Mid Western Highway – views west			
VP3 (Southern Sector) Kings Plains Residence			
VP4 (Southern Sector) Kings Plains Residence			
VP5 (Southern Sector) Mid Western Highway – views east			

Figure 10 | Photomontages (Source: First Amendment Report (September 2020))

153. Some receptors would have more impacted views than others based on distance, orientation of residence, driveways, associated outdoor areas, and intervening trees or low ridgelines that may filter direct views. Although receiver R35 lies within this view sector, there is a minor intervening ridgeline near the highway that would limit the views to the project from most areas within the property.

154. These impacts would also be experienced from the Mid Western Highway and Walkom Road adjacent to the development of the waste rock emplacement, pit amenity bund and southern amenity bund.

155. These impacts are expected to be substantially reduced from Year 6, as the rehabilitation measures progress across the southern face of the pit amenity and southern amenity bunds, with visual impacts reduced to low / very low in the long term.

156. The reduction in visual impacts that would occur for this project is an important factor in the overall assessment of visual impacts. This type of approach to minimising visual impacts through staging operations to establish and revegetate an 'amenity bund' early in the project life is common in mining projects (e.g. for coal mines in the Hunter Valley).

157. The ability to reduce visual impacts in this way is a relatively unique aspect of mining projects given the need to extract and relocate large quantities of material. It is not available in many other types of development where the visual impacts are largely permanent and the potential to screen views is generally minimal.

158. As a comparison, the visual impacts of multiple wind turbines (up to 300 m high) can generally only be partially screened through vegetation and may exist in perpetuity. Further, there are always opportunities to remove or relocate turbines to minimise visual impacts, as the wind resource is generally available across a large area, rather than physically fixed like mineral resources.

159. Regis has engaged with potentially impacted landholders via a community workshop, where further discussion regarding mitigation measures was undertaken. As a result, Regis has already undertaken off-site tree screen planting and advanced landscaping concept plans for three representative residences with eight more progressing. These landscaping concept plans would confirm the effectiveness of a range of off-site residential visual mitigation measures which can implemented at highly impacted residences.

160. The Department acknowledges that in some instances with residences at higher elevations, landscaping options to reduce visual impacts, particularly during the early years of mining until rehabilitation of the southern face of the waste emplacement, may not be effective in reducing these impacts.

161. In addition, Regis continues to progress negotiated agreements with all 18 potentially affected receptors identified above, with 16 of the 18 agreements including noise and visual mitigation, and two agreements for R14 and R36 specific to visual mitigation.

Lighting

162. The project may result in the following two types of light pollution:

- Direct light effects – direct line of sight between the light source and viewpoint; and
- Diffuse light effects – general night-glow that results from light of sufficient strength being reflected into the atmosphere.

163. The project would cause direct lighting effects from the south-west to the north-west, including from Guyong Road. The lighting impacts of the amended project would be reduced compared to the EIS assessment, as vehicle movements on the southern and pit amenity bunds would only be undertaken during daytime hours.

164. Direct lighting effects would occur above the pit amenity bund, experienced up to Year 4 due to stockpiling activities on ROM pad within the mine development area, and due to a strong skyglow effect on the skyline of the pit and southern amenity bunds at night comparing to the existing setting beyond Year 4.

165. Furthermore, the revised alignment of the site access road would create headlight spill from mining related vehicles, viewed from residences on north facing hills adjacent to the site access road.

166. In regard to diffuse light effects, the increase in radiance levels associated with the construction and operation of the project would increase significantly from the current low levels in the wider locality.

167. Localised sky glow would be experienced by residential receptors in all view sectors. Atmospheric conditions such as dust and local seasonal fog would also intermittently exacerbate this impact, with nearby receptors experiencing varying degrees of impact depending on location, shielding topographic features and distance from the project.

168. In order to minimise direct lighting impacts, all external lighting associated with the project would need to comply with AS/NZS 4282:2019 – *Control of the Obtrusive Effects of Outdoor Lighting*, including the minimisation of light spill through the following key measures:

- Restriction of night lighting to the minimum required for operations and safety requirements.
- Use of unidirectional lighting techniques and adequate aiming of lights (including consideration of mounting heights).
- Use of shielded fittings to limit the spill of lighting where available and safe to do so.
- Where necessary, and in consultation with affected landholders, the provision of screening (curtains, cladding, natural or physical screening) on private properties.

169. Diffuse lighting impacts would be minimised to the greatest extent practical by restricting design illuminances to the minimum necessary for the works being undertaken.

170. In addition, the negotiated agreements mentioned above, including the proposed landscaping works, would also help to mitigate any impacts for direct and diffuse lighting at nearby receptors.

Conclusion

171. The Department acknowledges that the project would be highly visible from some areas to the south, particularly from the Kings Plains settlement. However, the Department also recognises that there are fundamental limitations in the ability to avoid and minimise visual impacts where the location of the target mineral resource is physically fixed.

172. Nevertheless, in that context, the project has been staged to substantially reduce impacts after the initial years, and Regis has offered/entered into negotiated agreements with 18 landholders and committed to implement landscaping mitigation measures to reduce the impacts and. The Department considers that Regis' proposed mitigation measures would reduce these impacts to an acceptable level.

6.2.5 Mitigation and Management

173. Regis is proposing to implement a number of best practice measures to mitigate amenity impacts of the project on surrounding receptors, including (but not limited to):

- key mine design and operational changes (e.g. amendment to mine scheduling, relocation of mine site access and selection of fleet with lower sound power levels and larger capacity haul trucks);
- establishing proactive and reactive noise and air quality management systems, combining predictive meteorological forecasting and real-time monitoring data to guide day-to-day operations;
- offering mitigation and acquisition for 16 receptors, along with negotiated agreements for a further 2 solely for visual mitigation;
- minimising disturbed areas and conducting progressive rehabilitation;
- validation of the sound power levels for equipment used at the site prior to commencement;
- minimising use of diesel fuelled fleet and equipment by using electric powered equipment and implementation of dust control, including through the use of dust extraction and/or filter systems for some equipment;
- preparation of detailed Noise and Air Quality Management Plans;
- implementation of an effective communications and complaints handling processes;
- operating in accordance with the AS/NZS 4282:2019 – *Control of the Obtrusive Effects of Outdoor Lighting*; and
- development of off-site tree screens and landscaping concept plans.

174. The Department considers that Regis has taken reasonable and feasible measures to mitigate impacts on amenity, where practical.

6.2.6 Summary

175. The Department recognises that completely avoiding amenity impacts from the project is not possible given the location of the gold resource in relative proximity to existing community members. However, there are important aspects of the project design that would help to minimise impacts, including the establishment of amenity bunds and various operational limits to reduce noise and air quality impacts.

176. The Department considers that amenity impacts could be managed to meet levels acceptable under NSW government policy through the preparation of a suite of management plans, incorporation of best practice contemporary mitigation measures and negotiated agreements as outlined above.

177. On balance, the Department considers that the amenity impacts of the project can be adequately minimised, managed or at least compensated for to achieve an acceptable level of environmental performance.

6.3 Social Costs and Benefits

6.3.1 Introduction

178. The Department recognises that many of the social impacts from the project are related to air quality, noise, and other environmental impacts that have been assessed separately in accordance with relevant legislation and government policy.

179. Notwithstanding these separate assessments, the SIA identified a range of somewhat less tangible, residual and cumulative social impacts, including:

- **Kings Plains:** the quality of life and sense of place of residents near the project;
- **Blayney and surrounding region**: an influx of workers with potential accommodation shortages, increased demand on health and emergency services and community cohesion, safety and wellbeing;
- **Local businesses**: including labour draw from the non-mining sector, increased demand for services and potential impacts following mine closure; and
- **Future generations**: including future land use and concerns with ongoing liability following mine closure.

6.3.2 Assessment approach

180. The EIS includes a Social Impact Assessment (SIA) prepared by Hansen Bailey with an Addendum SIA prepared in response to submissions and to incorporate the amendments to the project.

181. The SIA and Addendum SIA were prepared in accordance with the Department's Social Impact Assessment Guidelines for State Significant Mining, Petroleum Production and Extractive Industry Development 2017[15] and considered the social impacts of the project on the surrounding locality of the mine, Blayney and surrounds and the broader region.

182. The Department's specialist SIA team undertook a review of the SIA, including additional information provided in response to information requests by the Department (see **Appendix A4** and **A5**). Regis also provided a response to the SIA team's review (see **Appendix A5**).

183. A key aspect to note of the 2017 guideline is that the SIA risk matrix (see **Table 12** below) assesses the social risk rating risks on the basis of a likelihood level (5 levels ranging from rare to almost certain) and consequence (5 levels ranging from minimal to catastrophic). The social risk rating is then determined based on the matrix below.

184. As outlined by the Department's SIA team, the mitigated risk rating for identified social impacts for the mine site completed by Hansen Bailey were mostly classified as 'high' to 'extreme'. While a social risk rating of 'high' or 'extreme' on one particular category of social impact might appear problematic if considered in isolation, there are a number of other important factors that must be taken into account in the broader assessment of social impacts.

185. Firstly, the SIA Guidelines do not set strict rules or performance standards about what is an acceptable social impact or not. Instead, the SIA Guidelines provide a clear and consistent process that is intended to capture (and emphasise, where necessary) the full range of potential social impacts through comprehensive stakeholder engagement. While there are a range of tools in the SIA Guidelines to help categorise social issues in a consistent way (including the risk matrix), these are not intended to be used in isolation to determine acceptability. The SIA Guidelines also suggest that a risk-based approach should inform the relevant mitigation, monitoring and management measures to address residual risks.

186. Secondly, there are a range of pre-existing legislative and policy settings which are related to social impacts (e.g. air quality and noise), which do set technical performance standards, and these

[15] The Department's recent 2021 SIA Guideline that applies to all State significant development does not apply to the project under transitional arrangements, with the Secretary's Environmental Assessment Requirements referencing the 2017 guideline.

standards are intended to inform what is an acceptable impact or not for those technical matters. The SIA Guidelines explicitly refers to these technical matters and the Department has separately assessed these issues in accordance with relevant legislation and government policy. Importantly, the assessment of these technical matters (including compliance with the relevant performance standards) must be incorporated into the overall assessment of social impacts.

Table 12 – Social Risk Rating

			Consequence Level				
			1	2	3	4	5
			Minimal	Minor	Moderate	Major	Catastrophic
Likelihood Level	A	Almost certain	A1	A2	A3	A4	A5
	B	Likely	B1	B2	B3	B4	B5
	C	Possible	C1	C2	C3	C4	C5
	D	Unlikely	D1	D2	D3	D4	D5
	E	Rare	E1	E2	E3	E4	E5
Social Risk Rating							
	Low		Moderate		High		Extreme

187. Finally, there are fundamental difficulties in terms of the types of avoidance and mitigation measures available for mining projects where the resource is physically fixed. A key measure that is typically applied to other large-scale SSD projects (e.g. energy and infrastructure projects) is to relocate or physically realign the project to provide additional distance from the affected communities.

188. While Regis has implemented various project design changes to reduce the likely impacts on the surrounding community, these have generally not reduced the magnitude or likelihood sufficiently to generate low or moderate 'risk ratings'. However, despite the challenges with 'traditional' mitigation measures for this project, the Department's SIA team has made recommendations for further mitigation, monitoring and management measures that could be applied through conditions of consent.

189. The Department's SIA team focused on two key areas of social impacts:

- **Kings Plains:** including loss of community wellbeing and cohesion due to out migration, amenity impacts, loss of culture, rural way of life and sense of place; impacts to health, reasonable community fears, community wellbeing, uncertainty and trust, decision making systems and cumulative impacts.
- **Broader social impacts:** including housing pressures (availability and affordability), local services, distributive and intergenerational equity, community resilience, cohesion, safety and wellbeing.

190. The SIA and Addendum SIA also considered the potential social opportunities of the project which include:

- economic benefits to Blayney and the surrounding region; and

- creation of direct and indirect jobs including increased labour and skills capacity for local employment, including opportunities for school leavers from the local high school and Aboriginal community.

6.3.3 Kings Plains

Loss of Amenity, Community Cohesion and Wellbeing

191. The SIA acknowledges the project would contribute to social impacts on the surrounding community, particularly Kings Plains, due to amenity impacts associated with noise and blasting, vibration, air quality and visual/lighting.

192. These amenity impacts are assessed against relevant government policies in the EIS and Amendment Report, and the Department has considered these impacts as outlined in **Section 6.2** and **6.9**. Notwithstanding the findings of the assessment against the relevant policies, the Department acknowledges that there are cumulative changes that contribute to the social impacts on surrounding receivers, noting in particular that the project is a greenfield mine development.

193. Regis has continued its negotiations with the most affected landowners in the Kings Plains settlement to discuss the implementation of mitigation measures at these properties, and the terms of any acquisition process. As outlined above, some landholders have raised concerns about the fairness and transparency around this process and choose not to be involved, or prefer to defer any consideration until the IPC hearing process.

194. Property-specific measures include air conditioning, double glazing, landscaping and screening, plus temporary relocation during the early stages of the project when the highest impacts are predicted. 16 of the negotiated agreements offer voluntary acquisition within 10 years of any approval (originally proposed as 5 years in the Addendum SIA).

195. As discussed above, this offer is not provided as a requirement under the VLAMP and constitutes an option for landowners to consider based on broader social issues.

196. The Department notes that the acquisition and subsequent relocation of residents from the area may cause negative social impacts, particularly on community wellbeing and cohesion, on the remaining community of Kings Plains. The Department's SIA team considers that the impact of outmigration would have an extreme risk rating if many residents choose to take up the option for Regis to acquire their property.

197. The Department's SIA team noted that these impacts could be mitigated by Regis demonstrating that it operates in accordance with regulatory limits and effectively manages impacts, along with targeted community benefits to the Kings Plains community, effective community engagement, and developing a sustainable social license. Further measures to reduce outmigration would include renting out acquired properties, and engaging in activities to enhance community wellbeing and cohesion.

198. Regis has committed to manage the project to comply with the applicable amenity criteria to minimise the risk of outmigration and to make any properties it acquires available for rent to existing residents in Blayney LGA and the project workforce.

199. The Department considers that impacts on community cohesion in the Kings Plains locality (and more broadly in Blayney) would require adaptive management by Regis and would need to be tracked and monitored through the recommended Social Impact Management Plan (SIMP). The

Departments SIA team recommended that the SIMP be prepared with the involvement of landowners and that a Community Benefits Program be developed as part of the SIMP. The Department has recommended conditions to this effect including that in preparing the SIMP, Regis has regard to the Department's SIA team's recommendations for the SIMP and Community Benefits Program.

200. The Department considers that the impacts to the sense of place and rural way of life are inevitable with the introduction of a mining development in the locality and notes that the mitigation measures proposed by Regis are consistent with industry best practice to reduce the impacts as far as practicable.

Loss of Culture, Rural Way of Life and Sense of Place

201. The SIA and the review undertaken by the Department's SIA team notes that amenity impacts and changes in the environment surrounding the community can contribute to a loss of culture – including on Aboriginal cultural values, ecosystem services, sense of place and rural way of life.

202. The Departments' assessment of Impacts on Aboriginal cultural values, biodiversity values and water resources are outlined in **Sections 6.6, 6.5** and **6.4** respectively, and considered against relevant NSW government policies and guidelines. However, the Department acknowledges that impacts on these values contribute to broader social impacts to the community, in relation to the loss of these values. The avoidance, mitigation and offsetting measures proposed to be undertaken by Regis, along with the Department's recommended conditions would reduce the social impacts associated with the loss of these values.

203. The Department's SIA team note the importance of cultural ecosystem services – including the spiritual or aesthetic loss of these values, along with community fears about the loss of direct ecosystem services – such groundwater/ surface water supplies. The Department's SIA team has recommended that effective risk communication techniques be applied in ongoing engagement with the community. The Department has recommended that the proposed Stakeholder Engagement Framework incorporates risk communication techniques.

204. The SIA and the Department's SIA team's review identify loss of the rural way of life and sense of place, including adverse impacts on rural values – including rural outlook, social connections between residents. A measure to minimise these impacts is the design of the project to reduce the appearance of the mining landscape on rural vistas. These include locating the processing plant and mine infrastructure areas in the valley to separate these mining activities from Kings Plains residences and micro-topographic design of the waste emplacement to incorporate these elements into the final landform.

205. The SIA also notes the proposed landowner agreements to address property treatments at receivers to reduce views of mining landforms would assist in mitigating impacts to the sense of place for the affected community. The Near Neighbours Impact Management Framework proposed by Regis includes an action to further analyse and adaptively manage impacts to the sense of place of Kings Plains during the project.

206. The Department's SIA team recommended that RAPs and the Kings Plains community be involved in preparing the SIMP and Community Benefit Program to provide further input into mitigation measures to minimise impacts on loss of culture, rural way of life and sense of place.

Impacts to Health, Reasonable Community Fears, Uncertainty and Trust

207. The SIA acknowledges the potential impacts to the health, wellbeing and associated fears and stress experienced by the community, particularly the most affected residents in Kings Plains. These include fears and stress associated with sleep disturbance, air quality impacts, water impacts, traffic hazards and impacts associated with population influx. Regis proposes to address these impacts through commitments to undertake clear and transparent communications throughout the development and operation of the project, including the dissemination of monitoring results.

208. The Department notes that these concerns arise due to uncertainty about the future lived experience and the community is likely to continue to be fearful of these issues until the lived experience is to the contrary.

209. The Department's SIA team also emphasized community fears about health impacts, safety fears from transport, storage and handling of dangerous goods, potential failure of the tailings dam, noise and dust emissions. While these aspects would be highly regulated through, for example requirements under Dams Safety legislation, codes of practice for the transport and handling of dangerous goods, requirements for ongoing hazards assessment and audits, community fears would remain – which contribute to the social impacts of the project. The Department's SIA team recommended that to address these fears a risk communication specialist be engaged to prepare the SIMP to assist in allaying fears and concerns.

210. The Department considers the ongoing monitoring, reporting and transparent communication with the community is vital to allay these concerns. The maintenance of community consultation, the ongoing operation of the CCC and reporting of the project's performance against its operational criteria would ensure the relevant information is available to the community. Ongoing adaptive management and responses to any complaints, exceedances or incidents is also important to ensure Regis builds trust with the community.

211. As described above, the Department has recommended conditions requiring the Stakeholder Engagement Framework, incorporate risk communication techniques, to guide the evaluation and implementation of social impact management and mitigation measures. The SIMP would also need to be prepared by qualified SIA practitioners.

6.3.4 Blayney and surrounding region

Accommodation Supply, Housing Availability and Affordability

212. The SIA found that accommodation supply in the Blayney LGA is currently insufficient, with a lack of available rental accommodation and supply of housing stock. The Department notes this issue has potentially been exacerbated by the effects of COVID-19 and the associated population growth in regional NSW. While accommodation in the Blayney LGA is limited, the SIA indicated that over 1,000 rooms of short-term accommodation were available in Orange and Bathurst along with ample housing supply.

213. Regis has committed to preparing a Workforce Accommodation and Management Framework to minimise the impacts of workforce accommodation demands during construction and operation of the project. This framework would include monitoring of accommodation availability in Blayney and the wider region. The proposed SIMP would include measures to address accommodation demands without adversely impacting tourism growth in the region or availability.

214. The SIA notes that approximately 60% (367 workers) of the total construction workforce for the mine development and 20% (24) of the pipeline construction workforce is anticipated to be local hires, which may result in labour draw from existing local employers.

215. Regis advised that it is part of the Orange360 group, facilitated by the three regional councils, which monitors accommodation availability and employment in the broader region. Regis has committed to continue its involvement with the Orange360 forum throughout the operation of the project to collaboratively monitor and address issues around labour supply and accommodation.

216. The SIA includes a range of strategies to reduce the impact of the project workforce on services provision in the Blayney LGA. These include:

- project on-boarding to inform construction workers of the range and capacity of health services available in Blayney LGA, service opening hours and the correct action to take in an emergency and non-emergency situation and to take care of routine health requirements in their home;
- managing workforce behaviour including a code of conduct to set expectations and address off-site behaviour; and
- engagement with local health and emergency services during the project start-up phase to help ensure that project demand is anticipated, and potential impacts are appropriately managed in agreement with service providers

217. Regis considers that this ongoing engagement with local service providers would assist in monitoring demand for a wide variety of community services, including the services raised by the Department relating to domestic violence, gambling and women's shelters. The process for this engagement would be outlined in the SIMP.

218. The Department's SIA team raised concerns about the effectiveness of proposed measures, particularly on protecting vulnerable members of the community, for example through rental price increases due to accommodation shortfalls. The Department's SIA team recommended that key stakeholders, such as representatives of vulnerable and marginalised groups, social services groups be involved in preparing the SIMP and community benefit program.

219. The Department notes that Regis proposes to involve the Aboriginal community in the project through two strategies. An Indigenous Participation Plan would be prepared to encourage indigenous business and employment opportunities and the Cultural Heritage Management Plan (see **Section 6.6** below) would address management of cultural heritage values during development and operation of the project.

220. The Department has recommended that the SIMP be prepared in consultation with affected stakeholders, and that the SIMP be prepared having regard to the Department's SIA team's recommendations.

Distributive and Intergenerational Equity

221. The SIA notes that for some near neighbours, there is a sense that the local community is disproportionally carrying the costs of mining and is disadvantaged simply because of its proximity to the impact. The SIA found that the community groups most likely experiencing this would be the Kings Plains community which would potentially experience amenity impacts, and low-income and marginalized households and affected by housing availability and affordability.

222. Regis contends that the economic benefits of the project would benefit the community as a whole in Blayney, which is the local centre for services for those most affected by the project.

223. The Department notes that funding of community infrastructure projects through the Voluntary Planning Agreement (VPA), which was executed between Regis and BSC on 15 February 2021, would also benefit the broader Blayney community. In addition, there would be employment opportunities open to the community, along with training and skill development programs.

224. The executed VPA includes an initial contribution of $1 million, with annual contributions of $212,222 (CPI indexed) until mining operations permanently cease. Over 15 years this equates to around 1% of the capital investment value of the project, or around $4.4 million.

225. Additionally, the revenue generated by the project would be used to employ and up-skill the mine workforce and provide more community facilities and other social infrastructure, mainly through the VPA.

226. The Departments SIA team notes that the VPA would not necessarily address spatial or distributive inequities as the proposed funding would be allocated to a public purpose determined by the Council for local community infrastructure projects. However, there is an in-principle agreement via resolution of Blayney Shire Council that if the project were approved, that funds from the sale of Dungeon Road to be paid by Regis would be allocated for road projects around Kings Plains and Guyong/ Vittoria roads. The Department's SIA team recommended that the SIMP incorporate a community benefit program prepared with input from the community, including Kings Plains residents.

227. Potential intergenerational impacts of the project on future generations include concerns with ongoing liability of the mining landforms such as final landform and land use potential, and potential legacy issues associated with the mine – such as long-term impacts on water resources. These issues are considered in **Section 6.9** (Rehabilitation and Final Landform) and **Section 6.4** (Water Resources).

6.3.5 Mitigation and Management

228. Regis proposes the development and implementation of a range of social impact mitigation measures for the project, which include:

- the executed VPA with Council, which includes direct contributions to Council with those funds to be allocated towards community infrastructure projects, with in principle agreement with Council that the additional funds from the closure of Dungeon Road would be allocated to local roads around the site, including Walkom Road Village Road, Guyong Road and Vittoria Road;
- offers of negotiated agreements with 18 landowners in the Kings Plains settlement to mitigate noise and/or visual impacts, 16 of which include an option for Regis to purchase the property at the landowner's request;
- a corporate volunteer strategy to encourage the workforce to participate in community organisations and activities;
- ongoing operation of the Community Consultative Committee already established for the project;
- a Social Impact Management Plan (SIMP) to address management, monitoring and reporting of potential social impacts and opportunities;

- a Stakeholder Engagement Plan, which aims to manage stress and anxiety in the community through the provision of project information and building relationships between the project and the community;
- a Near Neighbours Impact Management Framework which aims to minimise impacts on residents near the project, particularly Kings Plains;
- a Local Content Plan – including strategies to build local capacity;
- a Recruitment and Training Strategy – including targeting disadvantaged groups and opportunities for young people in Blayney;
- a Complaints and Grievances Procedure to identify and address complaints;
- a Construction Workforce Accommodation Strategy;
- Indigenous Participation Plan; and
- a Mine Closure SIA and Management Plan to address potential social impacts that may arise following mine closure.

229. To ensure these commitments take effect and are effectively implemented, the Department has recommended the preparation and implementation of a Social Impact Management Plan for the mine site, including that it:

- be prepared by a suitability qualified and experienced person(s);
- have regard to the Department's SIA team's recommendations on the SIMP and incorporation of a community benefit program;
- be developed in consultation with Blayney Shire Council, and affected stakeholders (including Kings Plains residents);
- include a social baseline, assessment of social impacts and risks, and risk ratings;
- include a Stakeholder Engagement Framework, incorporating risk communication techniques;
- describe measures to manage and mitigate negative (and cumulative) social impacts;
- include a program to monitor, review and report on the effectiveness of these measures including performance indicators, trigger-action-response-plan, three yearly independent surveys about the attitudes of the community about the development; adaptive management strategies, and additional research throughout the life of the project, to address new or changes social risks.

230. Given the short-term construction of the water supply pipeline and the associated lower social risk rating for this part of the project, the Department has recommended that a social impact sub plan be prepared as part of the Construction Environment Management Plan to manage and mitigate social impacts.

6.3.6 Summary

231. The Department considers the SIA has assessed the range of potential social impacts and benefits in sufficient detail. While the Department's SIA team has identified residual social impacts, particularly on the Kings Plains community and potentially on vulnerable people in the Blayney area, Regis has committed to a range of mitigation and adaptive management measures to limit, manage and monitor the social impacts of the project.

232. The Department considers that the social impacts on some community members are inevitable with the introduction of a mining development in the locality and notes that the mitigation measures proposed by Regis are consistent with industry best practice to reduce the impacts as far as practicable.

233. Further, the Department has recommended comprehensive conditions (including many based on the recommendations of the Department's SIA team) to manage and mitigate these risks including for noise, air, biodiversity, heritage, traffic, hazards, water resources, rehabilitation along with an overarching social impact management plan to be implemented providing adaptive management through the mine life and into closure.

6.4 Water Resources

6.4.1 Introduction

234. Concerns about impacts on water resources were raised in the majority of community submissions on the project.

235. The key water-related issues for this project are:

- **Surface water quantity:** potential impacts on the downstream users in the Belubula catchment;
- **Surface water quality**: potential impacts associated with any discharges or seepage from the mine site, including the proposed use of cyanide in processing of ore;
- **Groundwater drawdown**: potential impacts on surrounding landowner bores, groundwater dependent ecosystems (GDE) or baseflow downstream in the Belubula River;
- **Groundwater quality**: potential impacts associated with the TSF on seeps and springs, and other post-mining groundwater flow changes; and
- **Water licensing**: whether there are sufficient entitlements under the *Water Management Act 2000* and associated Water Sharing Plans to account for the water 'take' of the project.

6.4.2 Water Resource Setting

236. The mine site is located in the upper Belubula River catchment, approximately 26 km upstream of the Carcoar Dam. Within the project site, the Belubula River is a 5th order stream affected by historical agricultural activities with occasional stands of vegetation between degraded sections.

237. The catchment of the mine site is approximately 9.32 km^2 (932 ha) within a broader 43.49 km^2 (4,349 ha) sub catchment (see **Figure 11**) of the Belubula River, with the total catchment area above Carcoar Dam approximately 230 km^2.

238. Use of surface water is regulated under the *Water Management Act 2000* via the *Water Sharing Plan for the Lachlan Regulated River Water Source*, with the mine site located within the 'Belubula River above Carcoar Dam Water Source.'

239. Between the mine site and Carcoar Dam, landholders access water from the Belubula River for stock and domestic uses with up to 264 ML of entitlements issued through water access licences (WALs).

240. Apart from the final section within the mine site catchment, the pipeline route is within the catchments of the Macquarie River and the Coxs River.

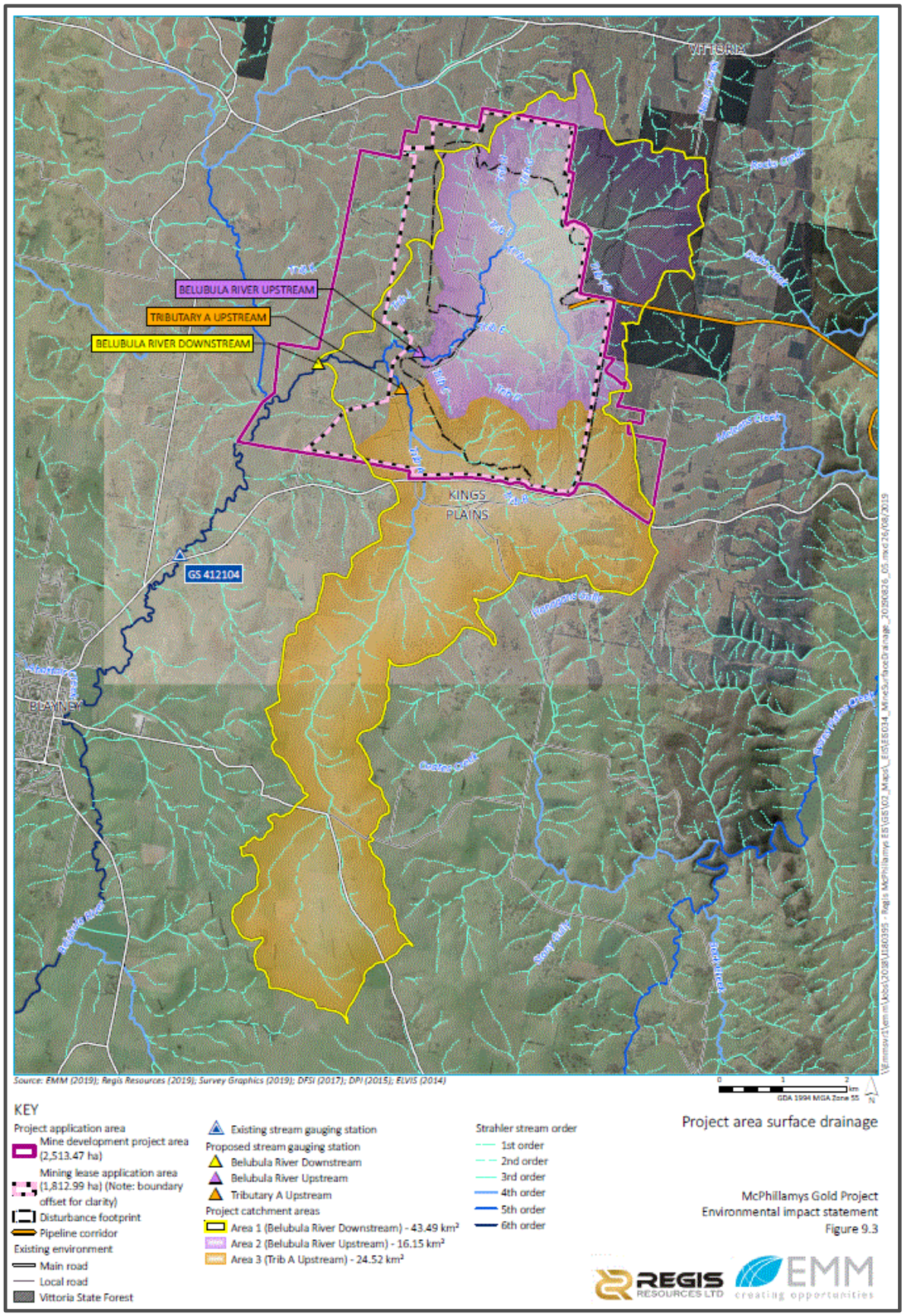


Figure 11: Local catchments around the mine development site (Source: EIS (August 2019))

241. Baseline monitoring results indicate that water quality in the Belubula River typically exceeds the ANZECC water quality objectives (WQO) for electrical conductivity (salinity), nitrogen and phosphorous at most monitoring locations. Exceedances of ANZECC WQO levels of metals including zinc arsenic and cadmium were detected in some samples but less frequent. The EPA agreed with the surface water assessment that site-specific water quality objectives should be used rather than the ANZECC criteria.

6.4.3 Project Design Alternatives

242. Some of the key issues raised by the community about water impacts relate to the project design, including the location and design of the tailings storage facility (TSF), and the use of cyanide in processing.

TSF Alternative Locations

243. The EIS included a TSF Definitive Feasibility Study by ACT Williams (ACTW) and a TSF Risk Assessment by Risk Mentor (Dr Peter Standish). The revised TSF concept design for the amended application, also by ATCW and described in an updated TSF Feasibility Study, was peer reviewed by CMW Geosciences dam safety engineers and Dr David Williams, Professor of Geotech Eng and Director Geotech Eng Centre at the University of Queensland.

244. The TSF Feasibility Study was prepared in accordance with the relevant guidelines and policies of Dams Safety NSW), Australian National Committee on Large Dams (ANCOLD) and the EPA's requirements for liner design.

245. Dr Williams noted that the proposed TSF design has adopted the most conservative design standards for dam design, or an 'Extreme' consequence category structure, including dam wall stability and design storm intensity.

246. The EIS and TSF Feasibility Study assessed four options for the location of the TSF, comparing the proposed on-stream storage within the river valley against three other alternatives including one within a tributary of the Belubula River to the south of the Mid-Western Highway and two turkey's nest storage on the side of a valley outside significant creek and river formations.

247. The options analysis concluded that the proposed location is preferred because it contained the most suitable geological conditions to reduce the risk of seepage, plus it enabled a preferred engineering outcome with regard to the embankment construction and tailings deposition and would be the least visible of the options considered from residences in Kings Plains. Further options were then analysed to determine the optimum design at the preferred site.

248. An analysis of the tailings treatment and disposal options was also prepared by ACTW which described the various options considered for treatment and disposal of tailings generated by the development, including disposal as dry tailings.

249. The Department considers that Regis has undertaken a comprehensive analysis of TSF location and disposal options and notes that the preferred option of tailings thickening (removing excess water from the tailings before disposal), is typically adopted in modern mineral mines.

TSF Design

250. The TSF embankment wall and eastern embankments would be constructed of suitable waste rock material sourced from the open pit with a clay core and clay lined upstream face to minimise

seepage of water through the embankment. The embankment would be constructed in stages as the storage is filled using downstream lifts (**Figure 12**).

251. To control seepage of water from the TSF into groundwater, the TSF would be constructed to achieve the EPA recommended permeability standard of $1x10^{-9}$ m/s at 1 m thickness or equivalent performance across the TSF footprint.

252. Regis provided additional information about the use of an alternative liner system that would match or better the EPA's required permeability rate, through the use of either clay and GCL/ clay liners. The EPA advised it was satisfied with the information provided. However, this would be subject to a rigorous testing regime to demonstrate that the performance would be met, and addressed through relevant management plans should the project be approved. The Department notes that Regis has committed to a TSF Construction Quality Assurance Plan as part of the detailed design.

253. The TSF is also designed as a multi-barrier system. Water that seeps through the tailings material would be intercepted at a cut-off drain at the base of the embankment, which would direct seepage to a storage downslope of the TSF embankment for redistribution through the sites water management system.

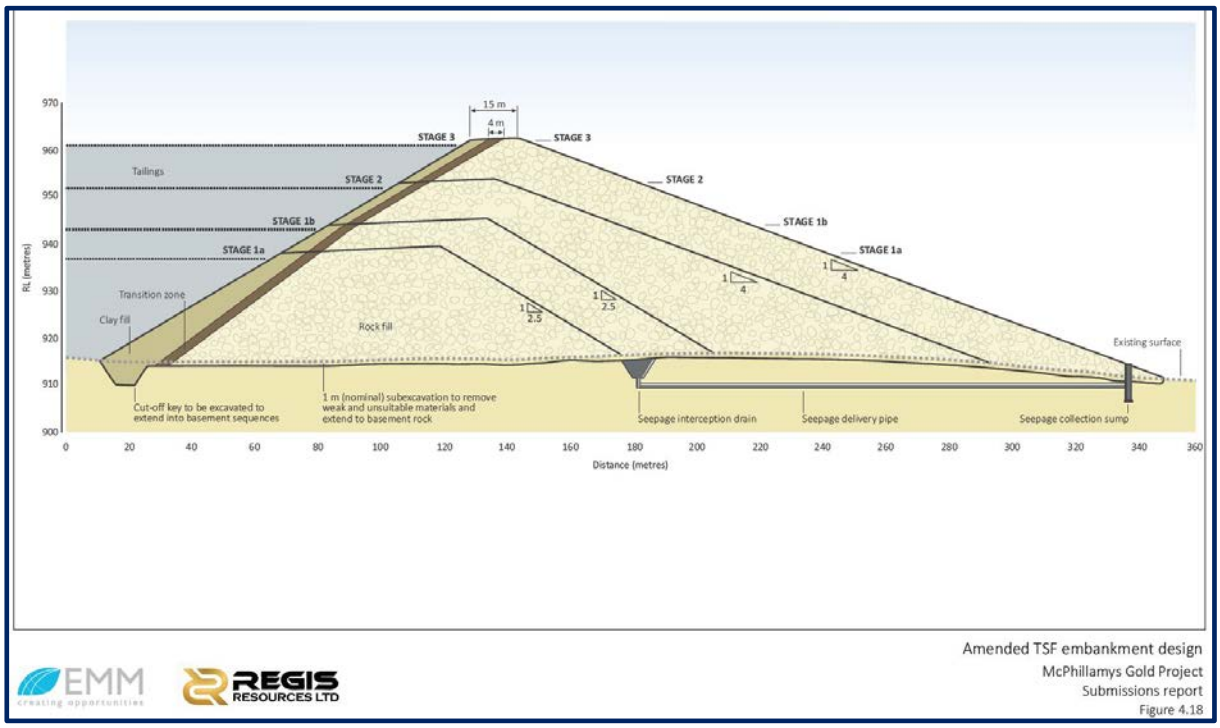


Figure 12: Mine TSF Embankment design and construction (Source: Submissions Report (September 2020)

254. Dams Safety NSW noted that the TSF would likely be "Declared " under the *Dams Safety Act 2015* (DS Act) and require ongoing safety management and reporting in accordance with the DS Act and associated *Dams Safety Regulation 2019* (DS Regulation). Dams Safety NSW has advised of the TSF operational requirements to ensure the TSF integrity is maintained, including vibration limits and monitoring, and monitoring of seepage, subsidence and groundwater around the TSF.

255. The TSF would therefore be regulated by Dams Safety NSW under the DS Act and Regulation. Under the DS Regulation, the design of the TSF embankment would need to comply with the

requirements of *AS/NZS ISO 9001:2016 Quality Management Systems* and the design must be independently reviewed by suitably qualified and experienced engineers.

Use of Cyanide

256. In response to concerns raised in submissions about the use of cyanide in the processing of ore, Regis provided further discussion in its Submissions Report.

257. The Department notes that cyanide destruction methods using carbon in leach methodology is the most prevalent gold processing technique globally and is successfully used in other large mining projects in NSW.

258. Regis proposes to include a cyanide destruction process to reduce the concentration of cyanide and other metals in the tailings before release into the TSF. Regis proposes to treat the tailings to achieve a maximum concentration of weak acid dissociable (WAD) cyanide of 30 parts per million, the standard adopted for WAD cyanide at other gold mines in NSW.

259. Regis undertook testing of samples which would represent the tailings to be produced at the mine. Concentrations of cyanide in the test sample were assessed to be below the ANZECC guidelines and the baseline water quality conditions.

260. Regis proposes to undertake monitoring of water quality in tailings and TSF seepage with ongoing modelling of these results to confirm the concentration of leachate from the tailings water and TSF.

6.4.4 Surface Water

261. The key surface water issues for the project are:

- **Water quantity**: potential impacts on the downstream users in the Belubula catchment;
- **Water quality**: potential impacts associated with discharges and seepage from the mine site, including the proposed use of cyanide in processing of ore; and
- **Watercourse crossings**: potential impacts from pipeline construction at watercourses.

Water Quantity

262. The surface water assessment includes predicted reductions in flows to the Belubula River and Carcoar Dam due to the project. The model was progressively reviewed and revised with the updated modelling results presented in Regis' response to the DPE Water advice on the Submissions Report and amendments to the project. DPE Water considered that the predictions were sufficiently accurate for the purposes of assessing potential impacts.

263. During mining operations, the predicted maximum catchment area reporting to the project water management system would be 932 ha which is around 22% of the catchment downstream of the mine where Tributary A joins the Belubula River and around 4% of the Carcoar Dam catchment.

264. **Table 13** below shows the predicted reduction in flows in the Belubula River due to the project under low (95%ile exceedance), median and high flow (5%ile exceedance) flows.

Table 13 | Predicted impact to river flow due to the project during operations

	% exceeded	Existing (ML/yr)	Project (ML/yr)	Change (ML/yr)
Lake Carcoar inflow	95 %ile	1,576	1,512	-64
	50 %ile	4,526	4,341	-185
	5 %ile	56,019	53,731	-2,288
Mid-Western Highway (GS412104)	95 %ile	764	697	-66
	50 %ile	2,193	2,003	-190
	5 %ile	26,714	24,394	-2,320

265. The total reduction in median flows to Carcoar Dam would be 223 ML/year (including predicted baseflow losses), or around 5% of total median flow during operations. Post closure, following rehabilitation of the mine site, the estimated total reduction in median flows would reduce to 62 ML/year (including base flow losses).

266. DPE Water undertook modelling to understand the implications of the predicted reduction in flows to Lake Carcoar due to the project and impacts on downstream regulated river users, and found:

- long-term annual extraction for general Security diversion for irrigation would be reduced by 1.8%;
- long-term annual extraction for general Security diversion for mining would be reduced by 4.6%;
- flows at Carcoar would be below 2 ML/d (related to Basic Landholder Rights) for an additional 0.4% of the time; and
- flows at the base of the catchment within the Water Sharing Plan (Helensholme End of System (EoS)) would be below the 10 ML/d minimum flow requirement for an additional 0.3% and would cease for an additional 0.3% of the time.

267. Based on these predictions and analysis, the Department considers that the estimated increase in the duration of low flow events is relatively minor and would not have any significant impacts on downstream users.

Water Quality

268. The project has been designed to operate as a nil discharge site for mine water. Runoff from the catchment above the mine site would be captured in clean water storages (CWF 1 to CWF 5) (see **Figure 3**) and pumped to the Belubula River downstream of the mine during and following rain events.

269. Nevertheless, concerns have been raised about water quality impacts at all phases of the development:

- **Construction**: erosion and sedimentation impacts;
- **Operation**s: potential acid generating material in waste rock, or discharges or spills into downstream receiving waters; and
- **Post-mining**: long term water quality in the final void.

270. In relation to the construction phase, to manage erosion and sediment control, Regis has committed to constructing an upstream coffer dam to capture upstream flows and divert the flows

around the TSF construction site and downstream. The TSF runoff WMF would be constructed before commencing construction of the main embankment to act as a sediment basin. Similarly, other water storages on the mine site, including those downslope of the waste emplacement, would be developed before commencing construction of mine infrastructure to act as sediment detention basins.

271. In relation to the operational phase, the Department has carefully considered the key issues as follows:

- **Potential acid generating material in waste rock**: A geochemical characterisation assessment conservatively estimated that approximately 42% of the waste rock to be mined may be classified as having potential acid forming (PAF) material. There would be sufficient non-acid forming (NAF) material to fully encapsulate the PAF material. Further, PAF materials in tailings would likely be reduced through the cyanide destruction process, which increases the pH of the tailings water sent to the TSF.
- **Discharges or spills into downstream receiving waters**: There would be no discharges of tailings or mine water downstream. The project's water management system is designed to provide sufficient capacity in the mine water management storages to avoid discharges during periods of high rainfall, with the exception of sediment dams which are designed to spill consistent with the requirements of *Managing Urban Stormwater: Soils and Construction – Volume 2E Mines and Quarries* (Landcom, 2004).

272. The EPA advised that based on the proposed design there would be minimal risks to the environmental values of receiving waters, and that any residual water pollution risks can be appropriately managed through standard management and mitigation practices and relevant licence conditions.

273. In relation to the post-mining phase, the Department notes that the catchment areas would be largely restored following the completion of mining and rehabilitation of the site, however there would be a final void. The final void is discussed further below but importantly the final void water would not overflow into the Belubula River catchment.

Watercourse Crossings

274. The 90 km pipeline would cross up to 114 watercourses and drainage lines, nine of which are perennial watercourses including the Coxs River and Macquarie River.

275. The pipeline crossings of the Macquarie River and Queen Charlottes Creek would be constructed using horizontal direct drilling, the Wangcol Creek crossing would be attached to an existing aboveground causeway and the remainder would be constructed using standard trench excavation.

276. The EIS includes a pipeline development water assessment incorporating an assessment of geomorphological characteristics of the watercourse crossings along the pipeline route. An additional fluvial geomorphology assessment was prepared for the amended pipeline route as part of the Amendment Report.

277. These assessments considered the key risks of pipeline construction to water courses which include spills, erosion and sedimentation during construction and channel migration and bed scour and bank instability following rehabilitation.

278. Regis proposes to address these risks in a Construction Environment Management Plan (CEMP) for the pipeline construction, to be prepared in consultation with DPE Water and in accordance with the Guidelines for Controlled Activities on Waterfront Land including *Guidelines for laying pipes and cables in watercourses on waterfront land* (NSW Office of Water, 2012). The CEMP would include measures to identify vulnerable creek crossings, a remediation and reconstruction strategy and ongoing monitoring and inspections of pipeline crossings during operations.

279. The DPE Water advice include recommendations to undertake surveys of key creek crossings as part of the detailed design process to determine the preferred location and construction methods for the pipeline.

280. The Department has recommended conditions requiring Regis to prepare a Pipeline CEMP including measures to ensure the pipeline is designed and constructed consistent with DPE Water requirements.

281. The recommended Pipeline CEMP conditions include rehabilitation measures including the requirement to progressively stabilise the pipeline corridor during construction and ongoing monitoring and response strategy to ensure the stability of creek crossings and success of rehabilitation is monitored.

6.4.5 Groundwater

282. The key potential groundwater resource impacts of the project include:

- **Groundwater drawdown**: potential impacts on surrounding landowner bores, groundwater dependent ecosystems (GDE) or baseflow downstream in the Belubula River; and
- **Groundwater quality**: potential impacts associated with the TSF on seeps and springs, and other groundwater flow changes.

Groundwater Modelling

283. The EIS included a groundwater assessment by EMM, as updated for the amended project. The groundwater assessment includes modelling using MODFLOW-USG to reflect current best practice, with the model independently peer reviewed for Regis by Mr Hugh Middlemiss of HydroGeoLogic Pty Ltd.

284. The groundwater assessment includes a sensitivity and uncertainty analysis which considered the model's response to changes in key parameters including hydraulic conductivity, evapotranspiration, boundary conditions and recharge. This was revised following the exhibition of the EIS and input from the Department's independent peer reviewer, Mr Justin Bell of JBS&G (see **Appendix A5**) and DPE Water (see **Appendix A4**).

285. Mr Bell concluded that a comprehensive groundwater assessment has been prepared for the project and that the model was fit for purpose. DPE Water also considered that the model was fit for purpose. However, the independent peer review recommended ongoing refinement of the groundwater model to improve its accuracy, along with the preparation of a model update plan, which was also supported by DPE Water and included in the Department's recommended conditions. The Department has recommended ongoing model calibration and verification every 3 years over the life of the project.

Groundwater Setting

286. The groundwater surrounding the mine site is characterised by a weathered hard rock aquifer system. This source is regulated by the *Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020*.

287. Groundwater is typically found in the weathered upper layer of rock (saprock) around 10 to 15 m below the surface, with aquifer thickness ranging between 5 m and 80 m. Areas of groundwater are also located in alluvial deposits adjacent to the Belubula River with groundwater also reporting to surface flows at the site through springs and seeps.

288. The groundwater assessment found the groundwater at the mine development site is generally 'not highly productive' and is considered suitable for stock and domestic purposes and quality varies based on the host rock. Salinity in regional groundwater was found to generally be below 1,000 mg/L except in the Anson Formation near the open cut pit, with salinity levels recorded from 782 mg/L up to 5,200 mg/L.

289. The highly productive groundwater in the region is the Orange Basalt Groundwater Source, approximately 5 km to the west of the project site. The groundwater assessments demonstrate that this source is outside the area affected by the project.

290. The bore census identified 36 registered bores on privately owned land within approximately 2 km of the mine development site (**Figure 13**), generally on properties along the Mid Western Highway to the south of the project and Vittoria Road to the northwest.

Groundwater Drawdown

291. As mining in the open cut pit progresses, groundwater would flow into the pit. The groundwater assessment predicts that the drawdown contours would be steep and localised given the low permeability of the host rock and geological structures (Godolphin Fault) limiting the inflow of groundwater from the east.

292. The groundwater assessment predicts there would be an inflow of up to 580 ML/year of groundwater into the open cut at the peak of mining operations, dropping to 160 ML/year in the final year. The effects of this groundwater drawdown would extend mostly to the east and north of the open cut pit, with the drawdown to the west and south limited due to the Godolphin Fault.

293. The predicted longer-term drawdown indicates that a 2 m reduction in groundwater would extend up to 1.4 km from the open cut pit and the project would comply with the minimal impact considerations of the *NSW Aquifer Interference Policy* (AIP) (see **Figure 14**).

294. The predicted drawdown would not reduce groundwater levels by more than 1 m below existing levels beyond the project boundary, with the exception of a small area south of the site. The groundwater impacts due to mining on surrounding privately owned bores are therefore predicted to be less than 1 m and well within the minimum 2 m drawdown impact threshold of the AIP.

295. Regis has committed to monitor potentially impacted bores during mining operations to verify its modelling predictions. In the event the project does result in an adverse impact on the groundwater supplies of surrounding private land, the Department has recommended conditions requiring Regis to provide a compensatory water supply, or an alternative equivalent compensation, to that landowner.

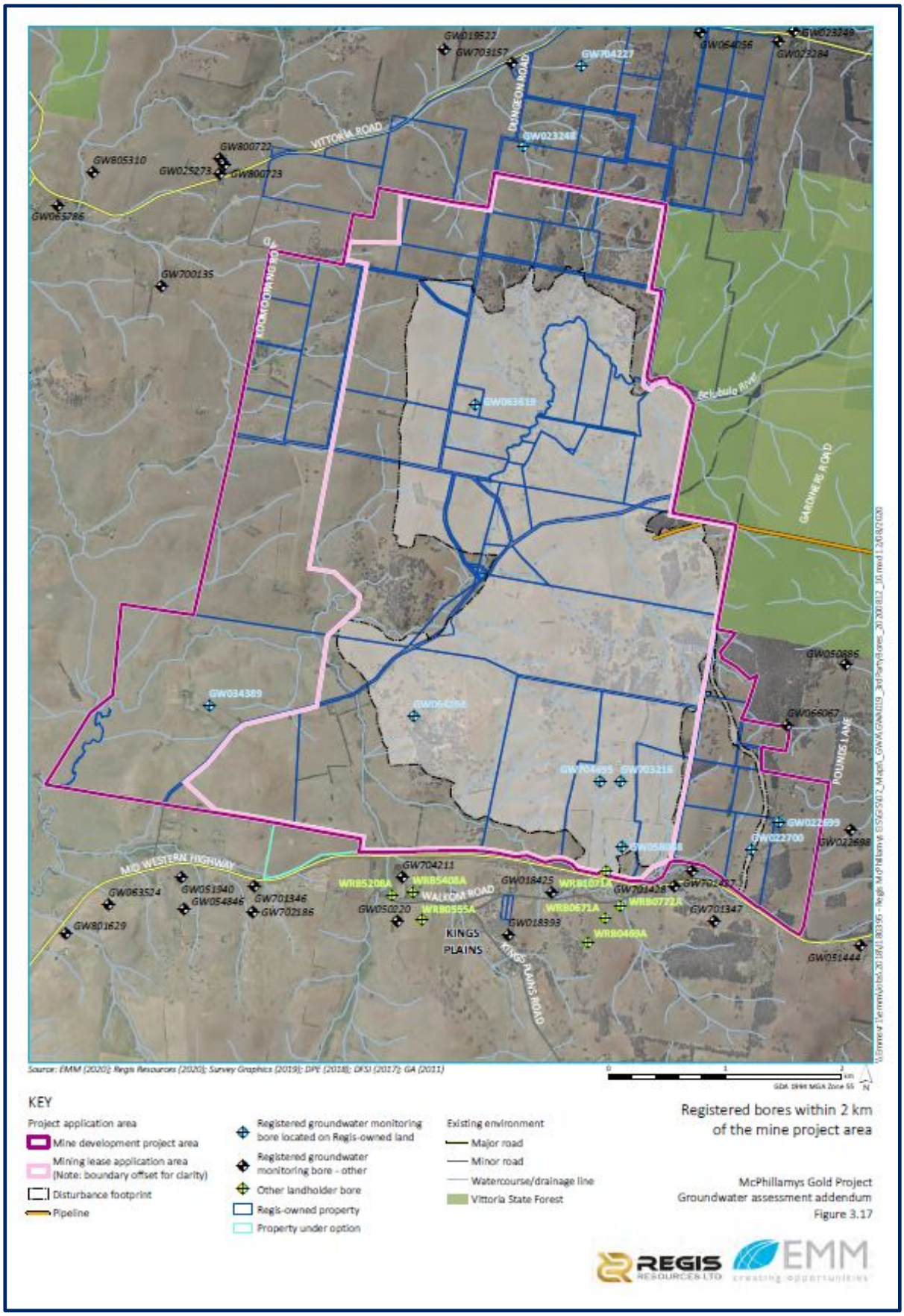


Figure 13 | Registered bores within 2 km of the project site (Source: First Amendment Report, Appendix H (September 2020))

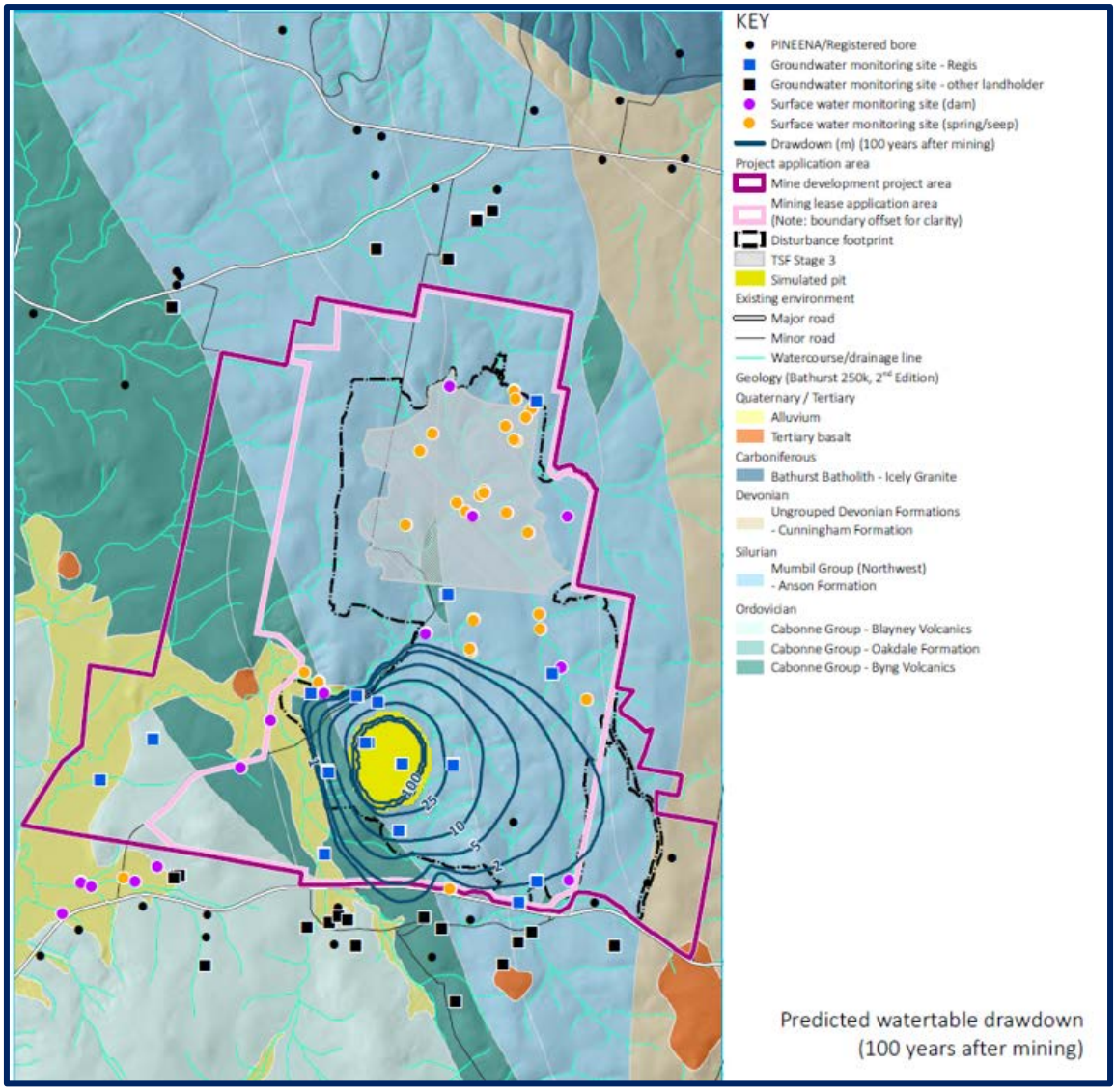


Figure 14 | Predicted groundwater drawdown – 100 years post-mining (Source: First Amendment Report, Appendix H (September 2020))

296. During construction of the mine site and prior to the commissioning of the water supply pipeline, Regis proposes to source its water supply from groundwater bores within the project area. The groundwater assessment predicts that the localised drawdown around each bore would not extend further than 500 m and found that no private bores or high dependence GDEs are located within the drawdown extent.

297. The groundwater assessment estimates that the extraction from construction bores would reduce baseflows to the Belubula River by approximately 2.5 kL/day or up to 0.7 ML over the extraction period. The assessment considers this reduction is unlikely to be observed and the take of water would be accounted for through WALs obtained by Regis.

298. The biodiversity assessment reviewed the presence of groundwater dependent ecosystems (GDE) and potential impacts due to the mining operations. The GDE assessment found that the main vegetation community within the area that would rely on groundwater is within the project disturbance footprint. Consequently, the GDE assessment concluded that the project would have no impacts on vegetation communities that may depend on access to groundwater.

Groundwater Quality

299. Regis undertook a Surface Water-Groundwater Interaction Assessment (SWGIA) as part of the Submissions Report. The SWGIA was prepared in response to submissions which raised concerns about the impacts of the project, particularly the TSF, on springs and seeps and the consequential reduction in flows in the Belubula River.

300. The SWGIA estimates that the contribution of groundwater to flows in the Belubula River comprises approximately 5% of baseflows downstream of Tributary A and that as many of the seeps and springs on the site have typically been excavated further to create farm dams, much of the groundwater reporting to the surface was historically lost to evaporation or stock and domestic uses.

301. The SWGIA concluded that the potential changes in baseflows in the Belubula River due to coverage of the springs would be negligible, reducing by approximately 15%, from the current 5% of total flows downstream of Tributary A, to approximately 4.25%, or a reduction of up to 38 ML/year during operations.

302. In terms of post-mining groundwater quality, the final void would continue to function as a groundwater sink, with inflows exceeding outflows and evaporation exceeding rainfall. Inflows are predicted to equilibrate at approximately 66 ML/year with approximately 11 ML/year of outflows possible. Rainfall and runoff inputs to the final void are an estimated 472 ML/year with evaporation losses estimated at 519 ML/year. A pit lake would slowly form at the base of the void, reaching a dynamic equilibrium level of around 902 m AHD after about 500 years post mining).

303. The predicted lake level would be well below the crest height of the void (around 916 m AHD) and would therefore not spill under any circumstances. This would generally prevent the release of saline water into the surrounding environment, but as a result the salinity of the pit lake would rise over time, reaching a salinity of 1,600 µS/cm after about 1,000 years post mining.

6.4.6 Mitigation and Management

304. Regis proposes to prepare and implement a water management plan to describe the surface water and groundwater monitoring and mitigation measures, which include:

- a surface and groundwater monitoring program to establish the monitoring network and monitoring frequencies
- identification of the relevant water quality and flow objectives
- recording water take and transfers between mine water storages
- trigger levels for water quality, including TSF seepage, and groundwater level changes
- a trigger action response plan to outline the protocols in the event of these being reached
- erosion and sediment control plan
- a program to review and update the groundwater modelling based on recorded data as mining operations progress.

305. The Department considers that the proposed mitigation and management measures reflect a best practice approach to minimise, monitor and manage the potential impacts of the project on local and regional water resources.

6.4.7 Water Licensing

306. The 'take' of water from surface water sources and groundwater aquifers must be licensed under the *Water Management Act 2000* and associated Water Sharing Plans. This has been an important issue in the Department's assessment as the Belubula River above Carcoar Dam surface water source is highly constrained in terms of available water licenses.

Water Balance

307. The surface water assessment includes a water balance model for the construction and operation of the project, which models water use and external demand requirements. The assessment includes consideration of rainfall generated during dry, median and wet climate sequences over 131 climate scenarios to determine the external supply requirements to maintain the ongoing operation of the project.

308. The main water demand of the project would be for operation of the processing plant (around 76%) and dust suppression (18%). Water balance modelling estimated that up to around 11 ML/d of water would be required for processing, averaging around 3,430 ML/year at the maximum processing rate of 7 Mtpa.

309. Mining operations would prioritise water from the TSF, open cut pit groundwater inflows and captured on-site runoff, with shortfalls in water supply to be made up through water from the water supply pipeline. The water pipeline supply and captured inflows would be collected, stored and distributed in a series of mine water storages on the site as shown in **Figure 3**.

310. Regis also proposes to install a reverse osmosis (RO) plant on the site to treat water sourced from the pipeline to produce potable water.

311. The water balance model predicts the majority of water demand would be provided by external sources at an average of 2,592 ML/year (52%) from pipeline water supply and captured runoff yielding 1,781 ML/year (36%) during the average modelled year. Remaining water supply would be sourced from intercepted groundwater in the open pit (peaking at 580 ML/y in Year 2 of mining operations), captured rainfall and TSF decant water, averaging 594 ML/yr.

312. During dry years, with less water available from captured runoff, modelling predicts maximum external supply requirements of approximately 4,000 ML/year or approximately two thirds of the available capacity of the pipeline (**Figure 15**). Based on the ability to supply water demands via the pipeline, the water balance model predicts no shortfalls in the 131 climate simulations.

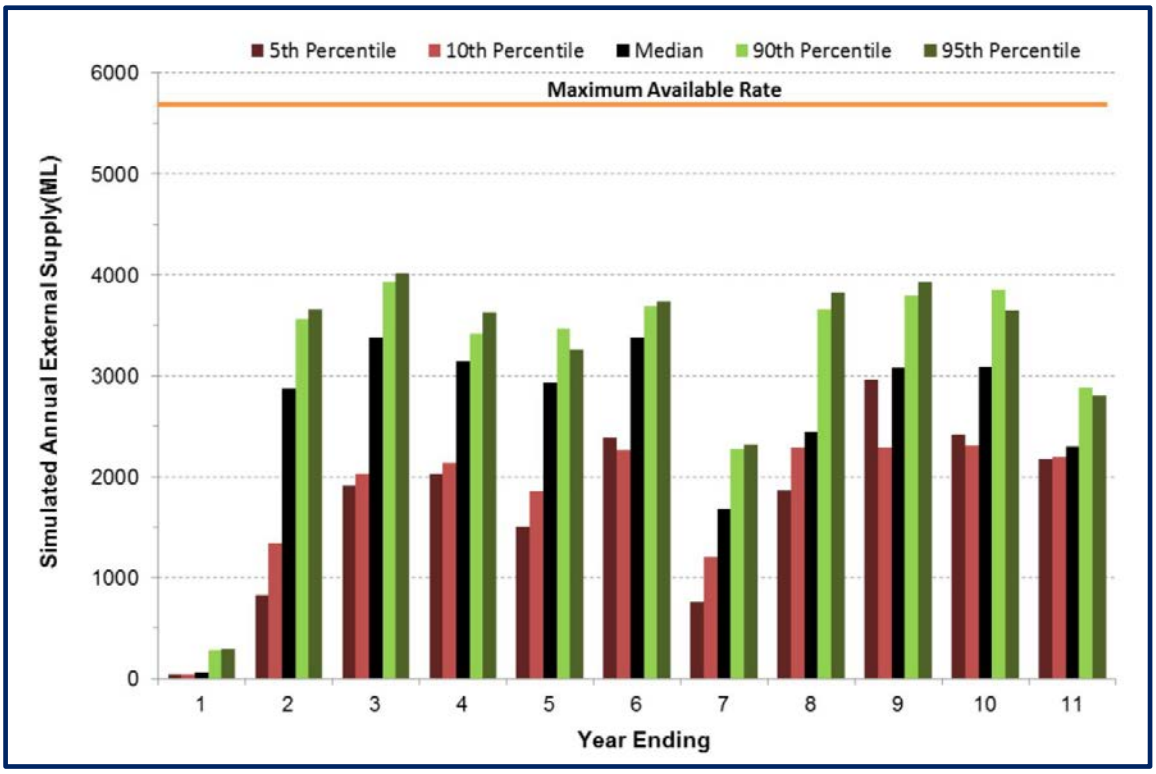


Figure 15: Mine external supply (Source: Third Amendment Report (October 2022))

Construction Water Supply

313. Construction water supply would be sourced from onsite groundwater bores until the water supply pipeline is commissioned. Regis estimates on site supply of approximately 470 ML would be required for the initial 9 months of construction. The water balance indicates that the onsite groundwater bores would be able to provide sufficient water for construction activities in most scenarios, with supplementary water required during a hot, dry weather scenario.

314. Regis has secured 400-unit shares leaving a shortfall of 70-unit shares to meet the predicted construction demand at 100% entitlement. Supplementary investigations demonstrate that sufficient groundwater resource exists on the site to meet the construction water demands. Regis has lodged an expression of interest for an additional 200-unit shares to accommodate the shortfall if required. DPE Water has indicated this would be sufficient to meet the construction water supply requirements.

Operational Water Supply

315. While the water management system is designed to maximise the reuse of water within the processing operations, the Department notes that the mining operations would rely heavily on water supplied by the pipeline.

316. Regis are currently finalising negotiations for a commercial agreement with Centennial Coal and Energy Australia (Regis Resources Water Offtake Agreement) to secure a reliable supply of water for the mining operations, with three sources supplying the pipeline to deliver up to 15.6 ML/day to the mine. The water balance estimates that an average supply of 13 ML/day (approximately 4,745 ML/year) to the mine water storages would be enough to supply four weeks of mining operations.

317. To enable the supply of water from the existing Centennial Coal developments, the relevant development consents would need to be modified to amend the existing water management system and construct and operate the infrastructure within those sites.

318. Centennial Coal's application to modify the Western Coal Services SSD consent (SSD 5579) for this purpose was determined on 21 October 2022. An application to modify the development consent for the Angus Place Colliery (MP 06_0021) is yet to be lodged, however an application to modify MP 06_0021 to transfer water from the Angus Place Colliery to the Mount Piper Power Station was approved on 19 March 2021.

319. DPE Water recommended that the approvals be obtained prior to commencing the transfer of water from these sources and Regis noted that the Water Offtake Agreement includes the provision to ensure planning approvals allow the transfer of the water to the mine site.

320. DPE Water's initial advice on the EIS raised concerns about the security of the water supply from the sources to pipeline. In response, Regis has advised that there are sufficient entitlements in the WALs held by Centennial to supply the project.

321. While the execution of the Water Offtake Agreement between the parties appears to be well advanced, the Department has recommended that the development not commence until Regis provides a copy of the executed agreement to the Planning Secretary that provides for a reliable water supply over the life of the development, consistent with the water balance modelling assumptions and water quality characteristics described in the EIS.

Water Entitlements

322. The project would intercept surface water flows on 3rd order streams and higher, and while there would only be relatively minor reductions in flow downstream, the full volume of water captured by the mining operations must still be licensed under the *Water Management Act 2000*.

323. The surface water assessment calculated that 117.2 ML of available harvestable rights capacity is available on the mine site, based on the catchment area and capacity of existing storages on the site.

324. Regis has also now acquired 262 unit shares of entitlements from a total allocation of 264 shares in the Belubula River Above Carcoar Dam Water Source, however this not fully account for the project's water take.

325. Based on the runoff captured in project water storages, the project would have an entitlements shortfall of approximately around 2,083 ML based on the 80th percentile (wet) year. DPE Water advised that there was insufficient entitlement available for Regis to account for this water take.

326. Since the exhibition of the EIS, the NSW Government has commenced changes to water policy and legislation that are relevant to the project. These include:

- making 192 unit shares of entitlements available that were previously retired in the Belubula River Above Carcoar Dam water source (which Regis obtained and forms part of the 262 unit shares noted above);
- drafting updated trading rules to enable the trading of water entitlements and allocations between water sources, which is yet to be finalised;
- the intent to update the hydroline dataset as it relates to the Strahler stream order; and

- amending the *Water Management (General) Regulation 2018* (WM Regulation) to create a Specific Purpose Access License (SPAL) subcategory for "an unregulated river access licence of subcategory "McPhillamys Belubula River gold mine", for the purpose of enabling water to be taken for McPhillamys Gold Mine from the Belubula River above Carcoar Dam water source."

327. Under the WM Regulation, certain excluded works and activities are exempt from the requirement to obtain water entitlements. Of relevance to the project, these include structures used for "environmental purposes" (such as the capture of and prevention of pollution) on 1st and 2nd order streams.

328. In July 2022, DPE Water released a draft factsheet "*How to interpret excluded work exemptions*" for targeted consultation. The draft factsheet notes that an exemption can apply to dams that capture water that is not already contaminated (i.e. clean water), if it would otherwise have flowed over land and result in it contaminating a water source. This would generally apply to the five clean water dams for the project.

329. Regis has identified the following approaches to address the license allocation shortfalls identified by DPE Water:

1. Applying for a SPAL under Section 61(1)(a) of the NSW *Water Management Act 2000* for the TSF and any other storages not captured by harvestable rights or the excluded works exemption.
2. Applying the Excluded Works exemption under the WM Regulation, including potentially revisions to the stream order classification based on field investigations.
3. Constructing two storages (the MWMF and RWMF) as "turkey's nest" storages that do not capture rainfall runoff and are exempt from licensing under the WM Act (see **Figure 3**).
4. The use of groundwater drawdown entitlements for loss of groundwater flows reporting to surface water.

330. If the project was approved, Regis proposes to submit an application for a SPAL for the TSF take of between 1,117 ML/year and 1,753 ML/year, which represents the 80th and 98th percentile rainfall years, respectively. During the median rainfall year, Regis estimates that the TSF would capture 765 ML.

331. The impacts of the TSF on flows to Lake Carcoar have been modelled at an average 255 ML/yr, 413 ML/year during wet conditions and 83 ML/year during median rainfall year. To offset these losses, Regis estimates that it would need to acquire up to 1,796 unit shares of regulated general security entitlements from the current market share of 22,454 of available entitlements, which is approximately 8% of the available shares.

332. Of the 17 proposed water management structures to be constructed for the project, seven are on streams that are currently classified as 3rd, 4th, or 5th order streams with an estimated annual peak water take of 2,594 ML/yr.

333. Regis considers that the current classification of these streams does not reflect actual conditions. It noted that the current hydroline spatial data on which the WM Regulation bases stream order "is based on historical topographic mapping and has not been updated to accurately reflect the current watercourse configuration of this significantly modified landscape".

334. During the assessment of the application, Regis carried out field investigations to assess the current condition and Strahler order of the streams. The revised stream order classification and construction of two turkey's nest dams results in only three structures, the TSF, TSF runoff WMF and WMF 6, located on 3rd order streams, with the equivalent of 1,274 ML/yr maximum annual peak water take.

335. Based on the revised classification, all mine water storages with the exception of the TSF would be either excluded from the requirement for an entitlement, or would be accounted for by the 262 unit shares held by Regis.

336. DPE Water advised Regis that the hydroline dataset used to calculate stream order for WAL exemption purposes would most likely be updated on an annual basis, commencing from July 2022, although this is yet to occur. Should it not occur prior to the construction of the water storages on the mine site, Regis would need to obtain allocations for two storages, CWF1 and WMF1. In this case, Regis proposes to seek SPALs for these two storages and purchase the necessary offset entitlements as with the approach for the TSF.

337. DPE Water has advised that there are no critical barriers to successful application for the SPAL and confirmed that the process to update the hydroline data is yet to be implemented. Consequently, DPE Water has recommended that Regis determine its licensing requirements based on the existing hydroline data.

338. DPE Water recommended consent conditions requiring Regis to:

- prepare and implement a Trigger Action Response Plan (TARP) to monitor, investigate and manage impacts to water supply availability on the Belubula River between the project site and Carcoar Dam.
- to offset impacts to the Belubula Regulated River Water Source due to water take from the Tailing Storage Facility.

339. The Department has adopted DPE Water's recommendations and included the requirement for a TARP and water source offsets in the recommended conditions of consent.

6.4.8 Summary

340. The Department acknowledges that many of the concerns about impacts to water resources stem from the location and presence of the TSF or the use of cyanide in processing. However, the Department considers that Regis has sufficiently considered alternatives to the location and design of the TSF, and that the proposed use of cyanide is consistent with other gold mining operations.

341. The predicted water impacts would comply with the minimal impact considerations of the *NSW Aquifer Interference Policy* (AIP). The Department considers that potential impacts to water resources could be managed to meet levels acceptable under NSW government policy through the preparation of a suite of management plans, incorporation of best practice contemporary mitigation measures, and ongoing refinement and review of the predictions by Regis.

342. The Department has recommended conditions which include water management performance measures for the development and the preparation of a comprehensive water management plan to include a site water balance, erosion and sediment control plan, surface water management plan and groundwater management plan.

343. While the the Belubula River above Carcoar Dam surface water source is highly constrained in terms of available water licenses, the Department considers that there is now a clear pathway for Regis to acquire the relevant water entitlements in accordance with the *Water Management Act 2000*.

344. With the implementation of these measures, the Department considers the project would result in acceptable impacts on water resources.

6.5 Biodiversity

6.5.1 Introduction

345. Impacts on biodiversity was a concern raised in public submissions. The project would directly impact on terrestrial and aquatic biodiversity values from clearing of native vegetation and habitat for threatened species, along with aquatic habitat associated with the upper Belubula River and along the pipeline route.

6.5.2 Biodiversity Setting

346. The biodiversity assessment of the project was undertaken by EMM and OzArk Environment and Heritage through the preparation of Biodiversity Development Assessment Reports (BDARs) in accordance with the NSW *Biodiversity Assessment Method* (BAM) under the BC Act.[16]

347. The development footprint comprises predominantly cleared pasture with remnant native vegetation, riparian vegetation and areas of pine plantation along the pipeline corridor. The pipeline corridor is located mostly within road reserves and tracks and crosses agricultural land, and State Forest land.

348. The project was determined to be a controlled action under the EPBC Act (EPBC 2019/8421) due to the potentially significant impacts on Matters of National Environmental Significance (MNES) for listed threatened species (Koala) and communities (White Box – Yellow Box - Blakely's Red Gum Grassy Woodland) within the mine development footprint.

349. The water supply pipeline is not included in the controlled action declaration. In accordance with the *Commonwealth-NSW Bilateral Agreement relating to environmental assessment*, the Department has assessed the project's impacts on these species (below). Additional assessment of MNES is provided below and detailed in **Appendix D** and in BCS's assessment of EPBC listed threatened species and communities (**Appendix A4**).

350. Following its review of the BDARs for the mine site and water supply pipeline, BCS sought further clarification about survey methods and target species, along with credit calculations under the BAM. Regis provided additional information in response to the BCS for review and BCS has advised that this satisfactorily addressed its concerns (see **Appendix A4** and **A5**).

351. The Department, including BCS, consider that the BDAR has been prepared in accordance with relevant guidelines and policy.

[16] The biodiversity assessment for the EIS for the mine site was undertaken by EMM using the Framework for Biodiversity Assessment and the NSW Biodiversity Offsets Policy for Major Projects under transitional arrangements, with OzArk applying the BAM for the pipeline route. In subsequent amendments the more contemporary BAM under the BC Act was updated by EMM and applied for the entire project footprint – mine site and pipeline corridor.

6.5.3 Avoidance and Mitigation

352. The ecological assessments are based on a suite of avoidance and mitigation measures that Regis would implement to reduce impacts on the biodiversity values of the site. The measures include:

- limiting the disturbance of high-quality Box Gum Woodland to a 1.47 ha area within the TSF footprint and the open pit, which is unavoidable due to the location of the resource;
- designing the TSF and waste emplacement and infrastructure footprint to reduce the disturbance footprint of the mine in the northern portion of the site, to avoid established woodland and Koala habitat corridors where possible and minimise disturbance in other areas;
- designing the pipeline alignment to minimise impacts on native vegetation and habitat, including threatened ecological communities, species and fauna habitat;
- use of underboring construction methods to avoid impacting key fish habitat within the pipeline corridor;
- controlling weeds, sediment and pollutant runoff during construction;
- targeted revegetation of the mining site to connect fragmented patches of Koala habitat;
- rehabilitation using species characteristic of native woodland on the waste rock emplacement;
- salvaging topsoil, seed and other vegetation resources for reuse in rehabilitation;
- undertaking weed and feral animal controls; and
- undertaking pre-clearing surveys and progressively clearing and rehabilitating the site.

353. In considering the application of the avoid, mitigate, offset hierarchy the Department considers that Regis has amended the design of the project which reduces impacts on established woodland and habitat corridors.

354. The Department also considers that the impacts of the pipeline corridor would likely be reduced following detailed design compared with those predicted in the BDAR. Regis has committed to reduce the clearing of vegetation to the minimum possible including up to 6 m wide construction corridor in areas of Box Gum Woodland and avoiding potential habitat for threatened species.

355. BCS were satisfied that the BDAR assessment met the requirements of the Biodiversity Assessment Method and that all comments had been adequately addressed. Further, the Department is satisfied with the avoidance and mitigation measures proposed by Regis to avoid impacts on EECs and threatened flora and fauna species.

6.5.4 Vegetation Clearing and Threatened Species

356. The disturbance footprint of the mine site is approximately 1,117 ha of which 130.53 ha is native vegetation. The pipeline disturbance corridor would directly impact 15.64 ha of native vegetation.

357. Vegetation surveys identified four native vegetation communities (see **Figure 16**), classified by plant community types (PCTs), within the mine site disturbance area and seven PCTs identified within the pipeline corridor, as summarised below in **Table 14** and **Table 15**, including a breakdown by woodland and derived native grassland (DNG) forms.

358. EMM also assessed potential indirect impacts by assuming a 20 m buffer around direct disturbance at the mine site (to predominantly account for edge effects impacting vegetation condition), with a 7 m buffer around the pipeline disturbance footprint to account for potential impacts on tree roots and edge effects. The direct impact disturbance area of the pipeline was based on an 8 m width, reduced to 6 m when traversing Box Gum Woodland. These indirect impacts are also incorporated into the biodiversity credits required for offsetting.

Table 14 | Biodiversity impacts – mine site

Vegetation Community	PCT	Condition	Impacts (ha)		Impact Credits Generated
			Direct	Indirect	
Yellow Box – Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion[1]	1330	Woodland	21.19	2.21	1,370
		DNG	24.65	0.63	
		Total	**45.84**	**2.84**	
Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion	727	Woodland	38.39	2.48	952
		DNG	10.40	1.68	
		Total	**48.79**	**4.16**	
Mountain Gum – Manna Gum open forest of the South Eastern Highlands Bioregion	951	Woodland	-	-	465
		DNG	32.86	0.94	
		Total	**32.86**	**0.94**	
Carex sedgeland of the slopes and tablelands	766	Woodland	-	-	26
		DNG	3.04	-	
		Total	**3.04**	-	
Total		Woodland	59.58	4.69	**2,813**
		DNG	70.95	3.25	
		Total	**130.53**	**7.94**	

Note 1: This community comprises the *White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands* (Box Gum Woodland), listed as an endangered ecological community (EEC) under the BC Act, 20.43 ha of which comprises the *White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland*, listed as a CEEC (Box Gum Woodland CEEC) under the EPBC Act

Table 15 | Biodiversity impacts – pipeline corridor

Vegetation Community	PCT	Condition	Impacts (ha)			Impact Credits Generated
			Direct	Indirect	Total	
Yellow Box – Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion[1]	1330	All	7.00	13.43	20.43	158
		DNG	11.95			
Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion	727	All	0.03	0.72	0.75	2
		DNG	-			
Blakely's Red Gum – Yellow Box grassy tall woodland on	277	All	2.37	4.67	7.04	53
		DNG	2.08			

Vegetation Community	PCT	Condition	Impacts (ha)			Impact Credits Generated
			Direct	Indirect	Total	
the tablelands, South Western Slopes Bioregion[1]						
River Oak forest and woodland wetland of the NSW South Western Slopes and South Eastern Highlands Bioregion	85	Woodland	-	-		-
		DNG	0.04	0.07	0.11	
Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093	All	3.14	7.87	11.01	97
		DNG	0.22			
Snow Gum – Candle Bark woodland on brad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion[2]	1191	All	2.10	4.67	6.77	75
		DNG	0.34			
Snow Gum – Mountain Gum tussock grass-herb forest of the dry open forest of the South Eastern Highlands Bioregion[2]	1197	All	0.96	4.26	5.22	53
		DNG	-			
Total		All	**15.64**	**35.68**	**51.32**	**438**
		DNG	**14.70**			

Notes

1: These communities comprise the *White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands* (Box Gum Woodland), listed as an endangered ecological community (EEC) under the BC Act. 1.34 ha each of PCT 1330 and PCT 277 comprise the Box Gum Woodland CEEC under the EPBC Act.

2: These communities comprise the Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregion (Werriwa Tablelands Woodland), listed as CEEC under the BC Act

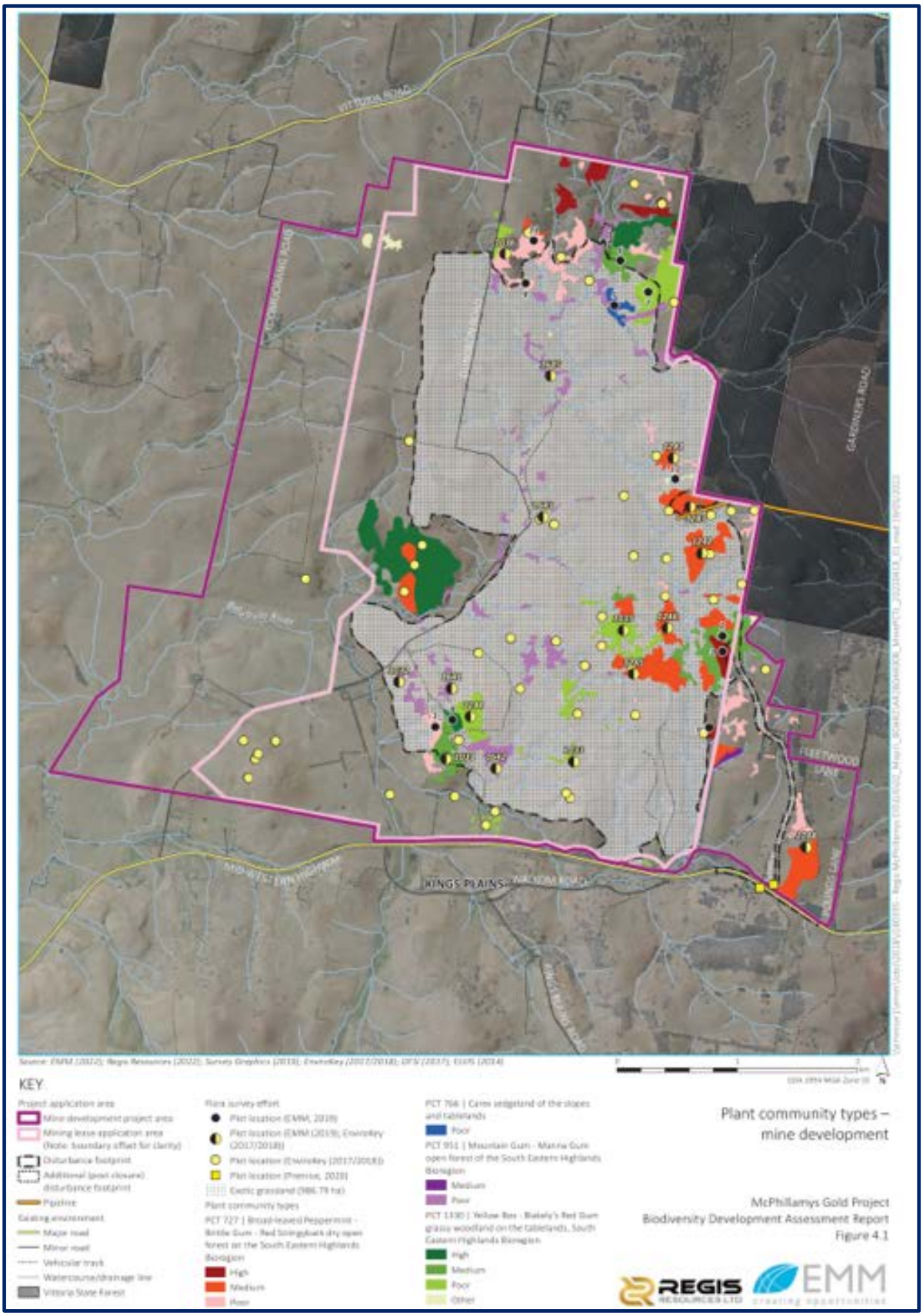


Figure 16 | Plant Community Types in the Mine Development Footprint (Source: Second Amendment Report BDAR (June 2022))

Threatened Species

359. Based on the mapped PCTs and assessment of available habitat, 7 ecosystem credit species were identified within the mine site disturbance area and 34 ecosystem credit species within the pipeline disturbance area. Ecosystem credit species habitat is directly linked to the relevant PCT and under the BAM no targeted surveys are required for these species. These species are summarised in **Table 16** below.

Table 16 | Ecosystem credit species with assumed presence in relevant PCTs

Component	Species
Mine development	Spotted Harrier, Spotted-tailed Quoll, Black Falcon, White-bellied Sea Eagle, Little Eagle, White-fronted Needletail, Yellow-bellied Sheathtail-bat, Rosenberg's Goanna-
Pipeline	*Assumed presence excluding vegetation zones where no canopy present eg. DNG* Regent Honeyeater, Gang-gang Cockatoo, Brown Treecreeper (eastern subspecies), Varied Sittella, Eastern False Pipistrelle, Little Lorikeet, Painted, Honeyeater, Swift Parrot, Large Bent-winged Bat, Turquoise Parrot, Barking Owl, Powerful Owl, Yellow-bellied Glider, Superb Parrot, Grey-crowned Babbler (eastern subspecies), Grey-headed Flying-fox, Greater Broad-nosed Bat, Masked Owl
	Assumed presence – all vegetation zones Dusky Woodswallow, Speckled Warbler, Spotted Harrier, Spotted-tailed Quoll, Black Falcon, White-bellied Sea-Eagle, Little Eagle, White-throated Needletail, Square-tailed Kite, Hooded Robin (south-eastern form), Black-chinned Honeyeater (eastern subspecies), Scarlet Robin, Flame Robin, Yellow-bellied Sheathtail-bat, Diamond Firetail, Rosenberg's Goanna

360. In addition to ecosystem credit species, the BDAR identified suitable habitat for a range of species credit species within the PCTs proposed to be disturbed by the project. Species credit species have specific habitat requirements, such as rocky habitat, in addition to the biodiversity values associated with an associated PCT.

361. Following surveys, or in some cases assuming presence without undertaking surveys, the BDAR identified 3 fauna species in the mine site and 15 threatened flora and 6 fauna species in the pipeline corridor potentially impacted by the project. These species are identified in **Table 17** below.

362. Field surveys identified eight records of the Squirrel Glider in woodland within the mine site. The BDAR includes species offset credits for the project's impacts on the Squirrel Glider and the adoption of pre-clearing surveys, woodland regeneration and improved habitat connectivity.

363. Habitat for the Brush Tailed Rock Wallaby and Pink-tailed Worm Lizard was observed near sections of the pipeline corridor. Some areas of granite outcrop which forms habitat for the lizard would be excavated. Regis proposes to design the pipeline to minimise damage to the habitat and engage an ecologist to conduct pre-clearance surveys and monitor for the lizard during construction of the pipeline. No areas of rocky outcrops and ridges typical of Brush Tailed Rock Wallaby habitat would be impacted by the pipeline construction.

Table 17 | Species credit species impacted

Species (common name)	Habitat (ha)[1] Mine Area	Credits Mine Area	Habitat (ha) Pipeline	Credits Pipeline
Threatened Fauna				
Koala	117.1	2,428	4.65	162
Squirrel Glider	127.5	2,648	4.50	156
Key's Matchstick Grasshopper	45.8	1,096	9.36	171
Barking Owl		-	0.23	7
Bathurst Copper Butterfly		-	0.24	14
Booroolong Frog		-	0.35	9
Brush-tailed Phascogale		-	2.12	81
Brush-tailed Rock Wallaby		-	0.38	9
Eastern Pygmy Possum		-	4.17	142
Gang-gang Cockatoo		-	1.64	13
Large-eared Pied Bat		-	0.4	10
Masked Owl		-	0.66	27
Pink-tailed Worm Lizard		-	0.34	5
Powerful Owl		-	1.02	35
Yellow-spotted Tree Frog		-	0.04	1
Threatened Flora				
Aromatic Peppercress		-	0.064	4
Austral Toadflax		-	3.32	31
Black Gum[1]		-	4	8
Clandulla Geebung		-	0.08	4
Silky Swainson-pea		-	8.19	76
Veronica blakelyi		-	0.87	38
TOTAL[2]	**N/A**	**6,172**	**N/A**	**1,003**

Notes

1: Area is for direct impacts only.

2: Based on individuals impacted rather than habitat area, note that there were discrepancies in the BDAR about the number of individuals within the direct disturbance area, EMM confirmed that 4 individuals and 8 credits were the correct numbers.

3: There is overlap of habitat area for species so summation of each individual species impact area would be an overestimate of the total area of impact.

364. No threatened flora species were identified in the project mining area. Four individuals of the Black Gum (*Eucalyptus Marginate*) would be directly impacted, and four individuals of the Clandulla Geebung (*Persoonia Marginate*) were identified in the pipeline corridor.

365. The Tarengo Leek Orchid (*Prasophyllum petilum*) was identified near the pipeline corridor and Regis has committed to avoid direct impacts to the species and establish a 5 m buffer around individuals recorded during surveys. The Department has recommended a condition to give effect to this commitment.

366. Keys Matchstick Grasshopper was only identified as a candidate threatened species when the BDAR was reopened for the 2nd Amendment and presence of this species was assumed in areas of suitable habitat, and a credit liability determined. Since the update of the BDAR, further survey effort was undertaken at the mine site (see **Attachment A5**) concluding that the species was not present. That is the credit liability specified in the BDAR may not be required to be retired, The Department has recommended a condition that allows a review of the credit liability in consultation with BCD, if the project were to be approved.

Serious and Irreversible Impacts Consideration

367. The BDAR includes an assessment of the Box Gum Woodland EEC, Werriwa Tablelands Woodland EEC and the Yellow-spotted Tree Frog as candidates for Serious and Irreversible Impacts (SAII) in accordance with sections 9.1.1 and 9.1.2 of the BAM.

368. Based on these SAII assessments, and acceptance of the retirement of the proposed ecosystem and species credits as offsets by BCD, and consideration of the 4 principles set out in Section 6.7 of the *Biodiversity Conservation Regulation 2017,* the Department is satisfied that there would be no SAII on these candidate species, such that the proposed clearing would contribute to a risk of extinction.

369. Regis proposes a biodiversity offset strategy to offset the residual impacts on native vegetation communities and threatened species, discussed further below. In addition to the offsets required under the BAM, Regis has committed to, and the Department has recommended enhancement of vegetation corridors in areas within the project boundary undisturbed by the mine, including the restoration of a minimum of 22 ha of PCT 1330.

6.5.5 Biodiversity Offset Strategy

370. The proposed project biodiversity offset strategy would seek to retire the required ecosystem and species credits through:

- a proposed 384 ha land-based offset site (Aziel Biodiversity Stewardship Site) located approximately 9 km southwest of Blayney;
- acquiring 'like for like' credits available on the market; and/or
- paying any residual credits into the Biodiversity Conservation Fund.

371. Regis is currently preparing a Biodiversity Stewardship Agreement (BSA) for the Aziel site and has undertaken vegetation mapping and surveys of the site. The BSA has sufficient credits (1,733) to retire all box gum woodland credits for the development (PCT 1330) and around 70% (1,780) of required credits for the Koala (see **Appendix A5**).

372. Regis provided additional information (see **Appendix A5**) about the depth of the market to acquire like for like credits. For residual ecosystem credits, 65% are available on the market (based on

analysis of the credits supply register) with any remaining credits to be met by paying into the fund. For residual species credits, 77% are available on the market.

373. Regis proposes to deliver the offset strategy in two stages, linked to the two components of the project, i.e. Stage 1 for the pipeline development area and Stage 2 for the mine site.

6.5.6 Commonwealth Biodiversity Matters

374. The Department notes that the Commonwealth referral decision in determining that the action was a controlled action was based on there being likely significant impacts on White Box – Yellow Box - Blakely's Red Gum Grassy Woodland and the Koala.

375. The Department's consideration has had regard to Regis', EMM's and BCS's assessments (see **Appendix A**), along with the threatened species assessment guidelines.

376. This assessment has considered the direct and indirect impacts of the project on threatened species, populations or ecological communities, or their habitats – both on the site and the broader study area, as defined under the threatened species assessment guidelines.

377. The assessment considered 51 threatened species, 14 migratory species and 3 communities with the potential to occur within the project disturbance footprint. Of these, 11 species with the potential to occur in the project area were considered in the ecological assessment, namely Black Gum, Basalt Peppercress, Hoary Sunray, Clandulla Geebung, Small Purple Pea, Austral Toadflax, Bathurst Copper Butterfly, Superb Parrot, Greater Glider, Pink-tailed Worm Lizard and the Latham's Snipe. The assessment concluded that these species were unlikely to be significantly impacted given the absence of the species/communities in the project footprint.

378. Apart from the Box Gum Woodland and Koala, the significance assessments concluded that there would not be a significant impact on any threatened species listed under the EPBC Act, as the habitat being removed would not be at a scale that would isolate or fragment populations.

379. BCS's consideration of Commonwealth matters (**Appendix A1**) noted that the biodiversity offset requirements were appropriately calculated under the BAM. BCS noted that appropriate conditions would be included in a development consent requiring Regis to retire biodiversity offset credits in accordance with the relevant legislation and Regis would need to conform with the like-for-like offset rules for EPBC Act listed entities.

380. For the Box Gum Woodland and Koala, considered likely to be significantly impacted, the Department has undertaken a detailed consideration of Regis' and EMM's assessments of significance, BCS's advice, relevant approved conservation advice, recovery plans and threat abatement plans (TAPs). A summary of this assessment is provided in **Appendix D**.

381. The Department has also considered the significance assessments for the remaining threatened species identified in the biodiversity assessment and accepts that there is unlikely to be a significant impact on these species. Further review of these EPBC listed threatened species is provided in **Appendix D**.

382. With the proposed avoidance and mitigation measures in place, the Department considers that, for Box Gum Woodland and Koala, where the project is considered likely to have a significant impact, these impacts would be acceptable with the implementation of the proposed biodiversity offset strategy.

6.5.7 Aquatic Ecology

383. The aquatic habitat in the project area includes the Belubula River and tributaries within the mine site, along with 114 creek crossings associated with the water supply pipeline.

384. The aquatic ecology assessment found that the majority of riparian habitat within the mine site is in poor condition due to livestock impacts and weed growth, dominated by willow species, exotic grasses and blackberry. Surveys identified impeded fish passage due to in stream structures such as the Dungeon Road causeway, vegetation build up (willow trees), farm dams and livestock watering points.

385. Despite the poor quality condition, the aquatic assessment considered that 1.8 km of the Belubula River within the mine development footprint comprised key fish habitat, which was accepted by NSW Fisheries.

386. The pipeline corridor would cross 26 watercourses classified as key fish habitat under NSW Fisheries predictive mapping. Field surveys confirmed 21 watercourses meet the criteria for key fish habitat with five crossings meeting the criteria for highly sensitive fish habitat with the Macquarie River classified as a major key fish habitat waterway.

387. Five fish species were identified as potentially present in the study area, however the field surveys indicated that the habitat values within the disturbance area would either not support habitat for these species, or certain species had not been recorded in the area.

388. Construction of the pipeline would utilise underboring methods to avoid direct impacts within the watercourse crossings of the Macquarie River and Queen Charlottes Creek, with other crossings to utilise trenching methods. Regis proposes to implement appropriate measures to minimise impacts on water quality during construction and restore the disturbed creek banks to ensure banks are stable and revegetated. The potential impacts on stream stability of the trenched pipeline crossings are considered in **Section 6.4** (Surface Water).

389. Potential habitat for the Purple Spotted Gudgeon was identified at two pipeline crossings (Kirconnel Creek and Saltwater Creek), however the habitat impacted does not exceed 0.05 ha and the crossings would avoid permanent pools that may provide habitat during dry periods. The 7-Part Test for the Purple Spotted Gudgeon concluded that the project would not significantly impact this species.

390. Following exhibition of the EIS, DPI Fisheries sought clarification of the stream order of the tributaries upstream of the mine development area. The addendum assessment includes additional areas of Tributary G classified as key fish habitat, resulting in a revised estimate that 40,381 m^2 (4.04 ha) of key fish habitat within the Belubula River and tributaries that would be impacted by the mine development.

391. NSW Fisheries has advised that it concurs with this estimate and recommends downstream offsets to provide twice the area impacted or supplementary measures via payment of fund to the Fish Conservation Trust Fund.

392. To offset the impacts of the project on key fish habitat, Regis proposes to rehabilitate and remediate waterways outside the mine disturbance area, including sections of the Belubula River downstream of the project site, within the project site and in Tributaries A and B (see **Figure 17**). Should these programs not meet the requirements of the *Biodiversity offsets policy for major project Fact Sheet:*

Aquatic biodiversity (Aquatic Biodiversity Fact Sheet), Regis would contribute funds towards supplementary measures to fulfil its offsetting requirements.

393. The Department considers that the offsets are consistent with the principles of the Aquatic Biodiversity Fact Sheet, and NSW Fisheries recommendation, and has recommended conditions requiring Regis to implement these measures.

394. Following mine closure, Regis proposes to establish a new alignment of the Belubula River through the project site, to the east of the TSF (see **Figure 19**). The realigned section of the waterway would be approximately 4. km in length with an average grade of 1% (ranging between 0.5% and 2%).

395. DPI Fisheries advised that it is satisfied the proposed designs of the diversion would provide a geomorphologically stable watercourse with riparian vegetation and avoids the need for large drop structures which would have formed barriers to the passage of fish.

396. Further consideration of mine rehabilitation is provided in **Section 6.9.**

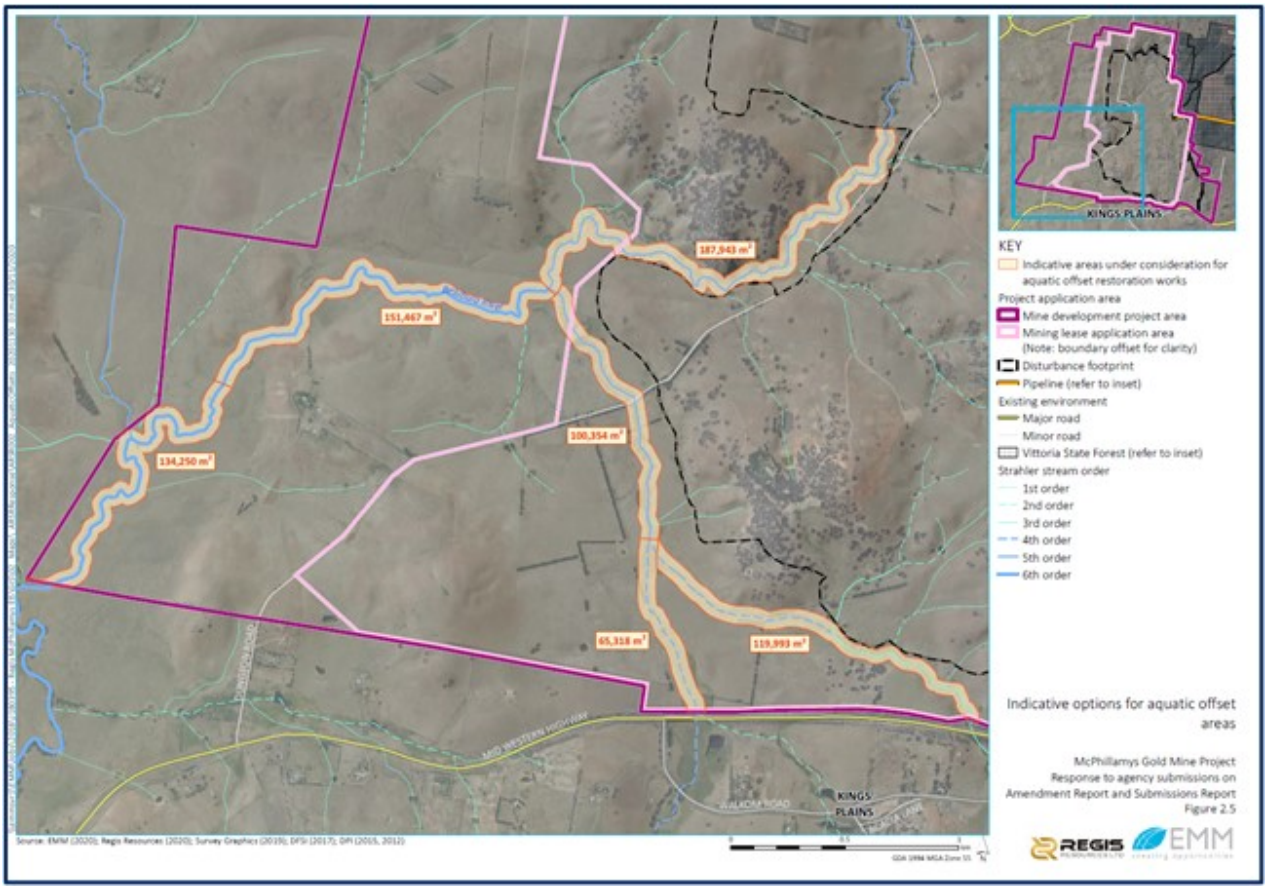


Figure 17 | Aquatic offset target areas (Source: Response to Agency Submissions Amendment Report (November 2020))

6.5.8 Mitigation and Management

397. Regis is proposing to implement a number of standard best practice measures to avoid or minimise the biodiversity impacts of the project, including (but not limited to):

- minimising and delineating disturbance areas;
- pre-clearance surveys;

- reuse of habitat resources (such as tree hollows);
- revegetation project would be developed and implemented as part of the Biodiversity Management Plan targeted at Koalas;
- removal of existing barriers to fish passage in the project area;
- management of riparian habitat;
- management and monitoring of weeds, pests and pathogens; and
- progressive rehabilitation.

398. These measures would be described in a detailed Biodiversity Management Plan which Regis would be required to prepare for the project.

399. Further to the above, Regis would retire the required terrestrial ecosystem and species credits in accordance with the BAM and the Biodiversity Offsets Scheme. An aquatic ecology biodiversity offset strategy would also be prepared prior to commencement of construction of the mine site.

400. The Department considers that Regis has taken reasonable and feasible measures to avoid impacts to biodiversity, where practical, given the location of the resource.

6.5.9 Summary

401. Overall, the Department considers that the project has been designed to avoid, mitigate and manage biodiversity impacts where practicable, and that the required ecosystem credits could be obtained and that the retirement of these credits would sufficiently compensate for residual biodiversity impacts.

402. The Department considers that biodiversity impacts could be effectively managed under a Biodiversity Management Plan.

403. The Department considers that, subject to conditions, the project could be undertaken in a manner that would result in acceptable short-term impacts on biodiversity values and the proposed offsets would result in improved biodiversity outcomes in the medium to long term.

6.6 Aboriginal Cultural Heritage

6.6.1 Introduction

404. The project would directly impact on Aboriginal cultural heritage values through clearing of artefact scatters and isolated aboriginal items.

405. The majority of the project area falls within Wiradjuri tribal land, with a small zone of interaction between the Wiradjuri, the Dharug to the east and the Gundungurra to the south. The public submissions highlighted that the whole project area (including both the mine and pipeline developments) is of cultural significance to the Aboriginal community, and that impacts on Aboriginal heritage values is a key issue to the community.

6.6.2 Aboriginal cultural heritage assessment

406. The Aboriginal Cultural Heritage Assessment (ACHA) was prepared in accordance with applicable guidelines by Landskape Natural and Cultural Heritage Management (Landskape) for the mine site and OzArk Environmental & Heritage Management Pty Ltd (OzArk) for the pipeline development.

407. Following expressions of interest for Registered Aboriginal Parties (RAPs) for the preparation of the ACHA for the EIS, Orange Local Aboriginal Land Council (Orange LALC) registered interest as

a RAP for the mine site and pipeline, while a further 12 RAPS registered interest for the pipeline development only.

408. Further field surveys and addendums to the mine site and pipeline development ACHAs were undertaken for the amended project, including the pipeline route changes and the realigned mine access road. These ACHAs were developed based on a desktop assessment of known and predicted cultural heritage within the project area and subsequent archaeological surveys involving RAPs.

409. Given the period of time since the original ACHA was prepared for the project, Regis also sought a further expression of interest for RAPs in late 2020 and sought further feedback on the ACHA completed to date. In addition to the existing RAPs, Ms Nyree Reynolds (previously associated with the Orange LALC) registered an interest in the project as an individual and was offered the opportunity to provide input on the ACHA completed to date and be involved in ongoing ACHA for the project.

410. BCS/Heritage NSW[17], Blayney Shire Council and Forestry NSW advice on the ACHAs did not raise any significant concerns with these assessments or the proposed avoidance and mitigation measures.

411. Heritage NSW noted that consultation with the Aboriginal community was undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* and agreed with the proposed management measures.

6.6.3 Cultural values and landscape context

412. Consultation with the RAPs identified the Aboriginal community's strong spiritual and cultural connections to the Kings Plains area and upper catchments of the Belubula River. In particular, the submission by the Orange LALC described that, although individual sites are important, they cannot be viewed in isolation as they form part of the broader Aboriginal cultural landscape or "Country". Further they consider that the Belubula River is a significant Aboriginal waterway for the Wiradjuri people. Impacts to the Belubula River are described in detail in **Section 6.3**.

413. The Orange LALC also consider the project area and wider surrounds to be of great significance due to events that occurred there between 1822-1824, which played a critical role in the rapidly expanding pastoral occupation of Aboriginal lands at the time.

414. In its Submissions Report, Regis confirmed that none of the conflict events in Kings Plains area occurred within the proposed mine development area, noting that they occurred within the broader region on either side of the Belubula River and not the contemporary locality of Kings Plains.

415. The RAPs also identified a number of tangible and intangible cultural values associated with the amended pipeline and mine access road development area.

416. The Department understands that a Section 10 application under the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act) to seek to protect the area proposed to be disturbed by the project is under consideration by the Commonwealth government.

[17] The advice on Aboriginal cultural heritage on the EIS was provided by BCS within the Department. This function was transferred to Heritage NSW within the Department of Premier and Cabinet in providing a response to the Amendment Report. Heritage NSW is currently within the Department of Planning and Environment and for the purposes of this report advice on Aboriginal cultural heritage assessment references Heritage NSW.

The application under the ATSIHP Act is outside and separate to the consideration of the proposal under the NSW planning system.

6.6.4 Mine site impacts

417. The ACHA identified a total of 30 artefact scatters/isolated stone artefacts likely to be disturbed by the amended mine site project boundary, this included 27 that would be directly impacted and three indirectly impacted (see **Figure 18**).

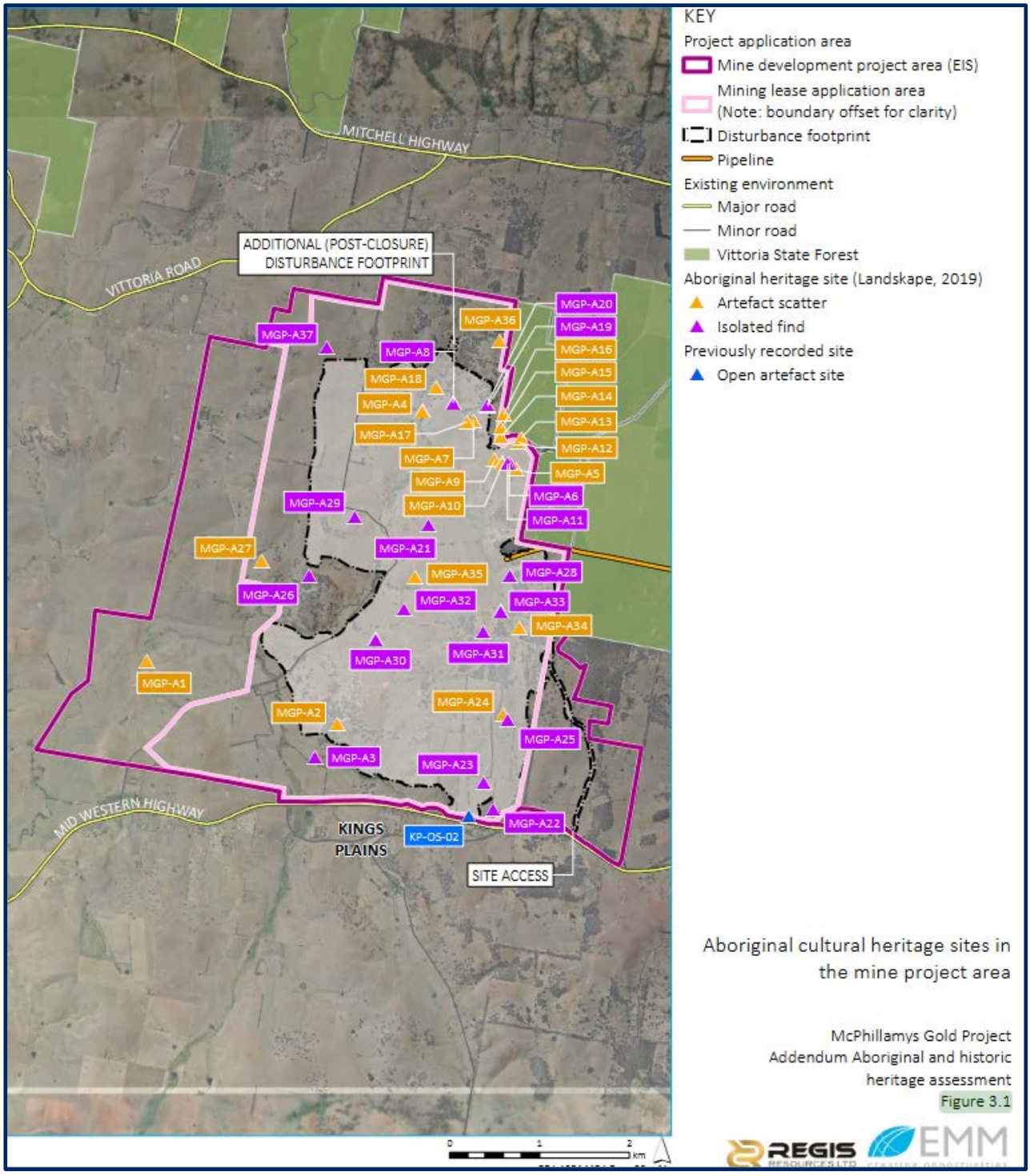


Figure 18 | Identified ACH heritage sites within the mine site (Source: First Amendment Report – Appendix O (September 2020))

418. These sites were all assessed by Landskape as having low scientific, educational or aesthetic significance, and all of moderate/high Aboriginal cultural heritage significance.

419. Although there is potential for additional sites to exist in the project area, it is unlikely that these artefacts would be located in-situ due to past land disturbance. Additionally, there are no culturally sensitive landforms located in the project area.

420. All directly and indirectly impacted sites would be salvaged in accordance with a Heritage Management Plan, which would be prepared in consultation with the RAPs and Heritage NSW. All Aboriginal heritage sites outside of the disturbance footprint would be protected by a barrier or fence to avoid harm.

421. The Orange LALC submission on the EIS also raised concerns regarding the following:

- potential ancestral remains on the Dungeon Property;
- potential presence of an ochre quarry at the locality of Pounds Lane; and
- importance of the area in telling the story of the historic frontier wars.

422. In relation to these concerns, Regis confirmed in its Submission Report:

- the Dungeon Property is located approximately 600 m west of the proposed disturbance footprint and would not be directly or indirectly impacted by the project;
- Pounds Lane is outside of the mine development project and, although two pieces of ochre were recorded during surveys for the project, both pieces were in secondary contexts, and no Aboriginal cultural heritage sites were recorded in conjunction with them; and
- none of the documented conflict events in the Kings Plains area occurred within the proposed mine development area.

6.6.5 Pipeline Development

423. The proposed pipeline would traverse river and creek crossings and landforms and topographic features with past Aboriginal occupation, including elevated landforms near waterways which have archaeological sensitivity, and ridges and spurs as vantage points with views along the creek valleys and valley slopes or for camp sites.

424. Six Aboriginal heritage sites were identified during the field surveys of the proposed pipeline amendment, with a seventh site having previously been recorded (AHIMS #45-1-2548) although not able to be found during the project surveys. These located sites comprise of five isolated artefacts and one artefact scatter (two artefacts).

425. These sites would all be directly disturbed by the construction of the pipeline, pumping station and access road. Further sites may be uncovered during trenching works, however this is considered unlikely given the surveys indicate a low density of artefact scatters.

426. Although one additional Aboriginal heritage site was identified during the survey of the amended section of the water supply pipeline (AHIMS #44-2-0296 – Swan Ponds Quarry), Regis advised that the pipeline would be designed to avoid impacts to this site.

427. Each of the sites were determined to be of moderate/high cultural significance to the RAPs, but low scientific, educational or aesthetic significance. Regis proposes to salvage each site through recording and collection of surface artefacts in consultation with the RAPs.

6.6.6 Mitigation and Management

428. Regis has committed to preparing an Aboriginal Cultural Heritage Management Plan which would describe the measures to be implemented prior to, during and following operation of the project in consultation with the RAPs, local councils and Heritage NSW. The key management measures proposed by Regis to minimise impacts on Aboriginal heritage values include (but are not limited to):

- an archaeological subsurface testing program and social and cultural mapping study;
- managing and salvaging Aboriginal artefacts (both identified and following discovery of unidentified Aboriginal cultural heritage sites) by a suitably qualified archaeologist and RAPs;
- including an unanticipated finds protocol, unanticipated skeletal remains protocol, and long-term management of any artefacts;
- including a protocol should tangible evidence associated with the frontier conflict be noted during construction to ensure that any such evidence be appropriately managed; and
- confining all ground surface disturbing activities to the assessed study area to avoid the potential for harm to historic objects on unassessed adjacent landforms.

6.6.7 Summary

429. The Department notes that Regis's Aboriginal cultural heritage surveys were undertaken involving RAPs and sought feedback on both cultural and archaeological values.

430. The Department has recommended conditions to mitigate and manage impacts to Aboriginal cultural heritage, including provisions for a Heritage Management Plan (to be prepared in consultation with Heritage NSW and RAPs).

431. With implementation of the appropriate measures outlined above, the Department considers that the project's impacts on Aboriginal cultural heritage are acceptable under NSW government policy.

6.7 Agriculture

6.7.1 Introduction

432. The project would directly impact on agricultural land and would be located in close proximity to local apiary operators. Impacts on agriculture and the apiary industry was a concern raised in public submissions.

6.7.2 Land and Soil Capability

433. The EIS included an Agricultural Impact Assessment (AIS) and a Land Capability and Soils Assessment prepared by Sustainable Soils Management Pty Ltd. These assessments were updated as part of the first amendment report and in response to comments received from the Resources Regulator and DPI Agriculture. A supplementary AIS was prepared for the pipeline corridor.

Mine Site

434. The Soils Assessment found that the Land and Soil Capability (LSC) of the existing mine site comprises mostly (96%) Class 4 and 5 land, suitable for grazing and cropping, with the remaining land a lower LSC class. As discussed in Section 4, no land was identified as BSAL within the mine disturbance area.

435. **Table 18** provides a summary of the expected change in LSC across the mine site. The project would result in a net reduction in LSC across the site, resulting in the loss of 414 ha of LSC Class 4 and 5 soils and increase of LSC Class 6 and 7 of 348 ha, with the 66 ha void classed as LSC Class 8. Disturbance associated with the mine site represents approximately 0.8% of the available agricultural land in the Blayney LGA.

Table 18 | Change in LSC Class

LSC Class	Capability	Pre-mining (ha)	Post mining (ha)	Change %
4	Moderate	932	929	-3
5	Moderate – Low	1,492	1,081	-411
6	Low	86	409	+323
7	Very Low	4	29	+25
8	Extreme Low	0	66	+66

436. Post-rehabilitation, the AIS estimates that the project would reduce the carrying capacity of the site by 2,728 dry sheep equivalent per year and reduce the gross agricultural production value by approximately $110,114 per year, which is approximately 0.3% of the gross value of agricultural production in the Blayney LGA.

437. To mitigate impact on land and carrying capacity, Regis propose to maximise the rehabilitation outcomes by reusing topsoil and subsoil profiles from disturbed areas in rehabilitation of the site. The soils assessment estimated that there would be sufficient topsoil and subsoil available to establish the required soil profiles for successful rehabilitation of the mine site. Regis also propose to use the majority of the 1,398 ha of land outside the mine disturbance footprint to continue the existing agricultural/grazing uses. Although, as discussed above, some of this land would be used for native vegetation enhancement, including Box Gum Woodland restoration.

438. The proposed mine rehabilitation strategy includes commitments to return parts of the site to grazing land following the completion of mining operations, with specific performance indicators and completion criteria including carrying capacity (see **Section 6.9**).

Pipeline

439. The water supply pipeline corridor contains predominantly LSC Class 5 soils (66%) with some better-quality soils in places (3 % LSC Class 2, 9 % LSC Class 3 and 12% LSC Class 4). The corridor crosses land subject to ongoing agricultural operations and includes approximately 4.5 ha of mapped BSAL. Following construction of the pipeline corridor, Regis propose to restore the land capability to match that prior to construction, with the exception of approximately 1.86 ha associated with pumping stations and access tracks.

440. The soils assessment found that approximately half of the pipeline route contains soils with the potential for tunnel or gully erosion. During construction of the pipeline, Regis propose to undertake soil sampling and analysis to identify areas with erosion potential and treat soils where necessary to minimise erosion risk.

441. DPI Agriculture recommended specific measures to achieve successful rehabilitation and minimise impacts on cropping and farm infrastructure. The Department has recommended a Water Supply Pipeline Construction Environmental Management Plan, including details of measures to manage grazing and agriculture, in consultation with DPI Agriculture.

Surrounding Agriculture

442. The AIS considers the key risks of the project to surrounding agriculture to be associated with potential impacts on water resources. The AIS also considered impacts on downstream users associated with reduced water availability as discussed in **Section 6.4**.

443. Regis propose to minimise the impacts on surrounding agricultural uses through the implementation of a pest and weed management plan, along with mitigation measures to address water, air quality and noise impacts discussed earlier in this report.

444. The AIS also noted the proposed mine rehabilitation strategy and the proposal to return parts of the site to grazing land following the completion of mining operations, with specific performance indicators and completion criteria including carrying capacity.

6.7.3 Bee Industry

445. There are two bee keeping and honey production operations in the vicinity of the project, including Goldfields Honey located around 2.5 km north east and Cottesbrook Honey located 3.8 km to the south east of the mine disturbance area. Approximately 1,500 beehives belonging to Goldfields Honey are located within the Vittoria State Forest, which adjoins the project site. Hives in the forest include a queen bee rearing, nucleus and honey producing beehives.

446. Potential impacts on the bee keeping industry were a key concern raised in submissions and subsequent representations throughout the assessment of the project. Key potential impacts include:

- clearing of Box Gum Woodland and associated loss of bee foraging resources;
- bee exposure to dust and water containing potentially toxic metals and cyanide (arsenic, copper, manganese and lead) and resultant impacts on bee health and honey production; and
- attraction of bees to project lighting.

Clearing

447. The project would clear around 21.2 ha of Box Gum Woodland in woodland form, which provides an important source of pollen and nectar for bee foraging. This species is distributed across the proposed disturbance area, with patches located in the far north and south (see **Figure 16**). The project was designed to avoid larger impacts to higher quality habitat condition of this community.

448. The proposed disturbance would impact on around 1.7 % of the Box Gum Woodland community within a 5 km radius of the mine site. Approximately 35 ha of the species would remain within the project boundary, including areas directly adjoining the Vittoria State Forest as well as a large high-quality patch east of the disturbance area (see **Figure 16**).

449. As part of its proposed measures to mitigate visual impacts, Regis has commenced tree planting along parts of the project's eastern and southern boundaries. This planting is proposed to contain a variety of species suitable for bee foraging. DPI Agriculture recommended revegetation initiatives include identical species mix with provenance from surrounding areas. Regis agreed to this request

and advised that the species would also be appropriately offset through the project's offset strategy (see **Section 6.5**).

450. As part of the project's biodiversity management requirements, the Department has also recommended that Regis restore a minimum of 22 ha of Box Gum Woodland in undisturbed areas of the site, targeting areas adjoining or proximate to the Vittoria State Forest.

Contaminant Exposure

451. In response to exposure and contamination concerns, the Submissions Report included a risk assessment of honey production and bee health prepared by enRiskS. The risk assessment identifies that bees could be exposed to metal concentrates from deposited dust in plants, soil and water, or if they are present in nectar, pollen or water they drink. The assessment notes that the pathway to honey contamination would require contaminants to be present in nectar, which would require uptake of soil contaminants into plant root and subsequent transfer to stems, leaves and flowers.

452. The risk assessment drew on the findings from a variety of ecotoxicity studies and estimated the project's potential exposure concentration levels for bees and nectar, using the findings of the project's water quality and air quality impact assessments. This assessment concluded that:

- concentrations of metals that may be within various affected sources (i.e. nectar, pollen, water and soil) would be below levels that might indicate that health impacts on bees could occur; and
- concentrations of metals that could be present in honey are within on below general levels reported for honey worldwide.

453. Following a review of this assessment, DPI Agriculture recommended the implementation of a heavy metals monitoring program, including soil and infrastructure surfaces, groundwater, water bodies and honey. Regis advised that this monitoring regime would largely be included in other proposed environmental monitoring plans (including for air quality, surface water and groundwater) and committed to liaising with local honey operators regarding honey sampling. However, the Department considers a more targeted approach to monitoring is warranted.

454. While the risk assessment provides a suitable approach to estimate potential impacts on bee health and honey production, the Department recognises that there are uncertainties in the absence of site-specific data and lived experience. Bee keeping industries play a crucial role in food security and it is considered that measures should be in place to detect and mitigate adverse impacts. On this basis, the Department has recommended a condition requiring the development of a targeted monitoring program and trigger action response plan.

455. Baseline data and triggers would need to be established to ensure monitoring results could be appropriately analysed and responded to. DPI Agriculture noted that extended periods of dry weather can also cause an increase in heavy metals in the environment, and the bee industry is subject to threats including disease and climate change. Careful thought would need to be given to adopted trigger types and levels, as well as investigation processes to determine the cause of adverse impacts, if they occur. On this basis, it is recommended that this program is developed by a suitably qualified expert/s and in consultation with DPI Agriculture and local bee keeping operators.

456. The Department acknowledges that there are some examples of mining projects operating in close proximity to apiary operations, including open cut operations at the Cadia Gold Mine and Mangoola Coal Mine. Although the specifics of these apiary operations may not be directly similar to those surrounding the project, these examples indicate co-existence of the two land uses. The Department considers that the recommended conditions would support this co-existence and provide a suitable approach to evaluate and respond to unforeseen impacts.

Lighting

457. Submissions identified a risk to bees and workers as bright lights at night can attract bees. DPI Agriculture shared these concerns and requested further assessment of potential lighting impacts on nearby apiary sites.

458. Regis advised that some topographic screening lies between the hives and the main infrastructure area, however, plantations in the Vittoria State Forest are subject to harvesting. Regis advised that minimising light impacts would predominantly occur through the implementation of mitigation measures, including using shielded fittings, direction controls, timer and sensor controls and anti-reflective surfaces. The Department's assessment of the project's visual and light impacts is provided in **Section 6.2**.

Offset Sites

459. In responding to concerns about disruption and displacement of beehives, Regis offered local apiarists access to the 'Aziel' offset site as an alternate location for beehives. DPI Agriculture noted that apiary sites are rarely able to be replaced in 'like-for-like' condition and any would need to be assessed for suitability. However, it is understood the BC Act prohibits European honeybees in biodiversity stewardship sites because they compete with native fauna.

460. The Department encourages the Applicant to consult with the Biodiversity Conservation Trust to confirm specific requirements of the Aziel site and provide consideration of alternative sites as part of its trigger action response plan.

6.7.4 Summary

461. Overall, the Department considers that while there would be an overall net reduction in land capability class within the mine site disturbance area, rehabilitation practices would see the majority of the area still suitable for agricultural practices. Additionally, nearly all disturbance associated with the pipeline would be restored to its existing land capability class.

462. To mitigate potential impacts on bee foraging in the locality, the Department has recommended Regis restore a minimum of 22 ha of Box Gum Woodland in undisturbed areas of the site, targeting areas adjoining or proximate to the Vittoria State Forest. The Department considers that this requirement, in addition to vegetation screening and offset commitments would provide suitable compensation.

463. Although a risk assessment concluded that predicted concentrations of heavy metal in various affected sources would be at levels unlikely to affect bee health and honey production, the Department considers that measures should be in place to evaluate and respond any potential impacts. These measures would also contribute to the understanding of how these land uses co-exist.

The Department considers that the agricultural impacts of the project are acceptable, subject to the recommended conditions.

6.8 Economics

6.8.1 Introduction

464. The cost-benefit analysis, which includes estimated costs from all environmental externalities, indicates that the project would have a production benefit of $139M (excluding employee benefits) in net present value (NPV) terms (at 7% discount rate). However, in consideration of the recent significant increases in the forecast gold price, the net benefit of the project is likely to be significantly greater, at around $244 M NPV (at 7% discount rate).

6.8.2 Assessment of impacts

465. The EIS includes a detailed economics assessment which includes a cost-benefit analysis to evaluate the net benefit/cost of the project to NSW, and input-output modelling to assess flow-on effects in the region. The Department commissioned BIS Oxford Economics (BOE) to undertake an independent peer review of the economic assessment.

466. The total annual impact of peak construction year on the regional economy is estimated at up to:

- $531 M in annual direct and indirect regional output or business turnover;
- $218 M in annual direct and indirect regional value added;
- $114 M in annual direct and indirect household income; and
- 1,289 direct and indirect jobs.

467. The economics assessment indicates that the operational phase of the project would also have a range of economic benefits for the local and regional economy of up to:

- $492 M in annual direct and indirect regional output or business turnover;
- $272 M in annual direct and indirect regional value-added;
- $67 M in annual direct and indirect household income; and
- 788 direct and indirect jobs.

468. In its review of the economic assessment, BOE sought additional clarification and justification regarding the price of gold assumptions, employee benefits, environmental externalities, project costs and the local effects analysis. Following review of additional information provided by Regis, including a targeted review of estimates for gold price undertaken by Golder Associates Pty Ltd, BOE confirmed that its comments had been addressed but reiterated that employee benefits should not be included in the CBA outputs.

469. The Department agrees with this conclusion and confirms that employee benefits have been excluded from the estimated costs outlined above.

470. Further to the above, MEG confirmed that the State would receive around $65 M in NPV terms (at 7% discount rate) in royalty from the project over 15 years. At full production scale, the NSW Government would receive around $11 M per year in royalties.

471. The Department acknowledges that cost-benefit analyses are commonly criticised, particularly the approach to allocating costs associated with GHG emissions.

472. While Regis has apportioned a component of the total global costs to NSW, the Department recognises that other economic experts consider that the full cost of Scope 1 and 2 emissions should be attributed to NSW.

473. A third option suggested by economists in contemporary assessment has been to allocate the full cost of Scope 1 and 2 emissions to Australia and apportion the relevant percentage to NSW (i.e. approximately 32% of the total GHG costs), noting that the Commonwealth government is the entity responsible for ensuring Australia's Nationally Determined Contributions under the *United Nations Framework Convention on Climate Change Paris Agreement 2015* would be met.

474. This approach would result in a cost of approximately $3.6 million (based on the EU carbon price) being attributed to NSW, resulting in a minor reduction in the project NPV benefits. Alternatively, should the full cost of greenhouse gas emissions ($11.4 million) be attributed solely to NSW, this would still result in an NPV benefit of well over $125 million.

475. The Department also notes that approximately 75% of these Scope 1 and 2 emissions (and their associated costs) are attributable to electricity consumption. Given the current shift toward renewable energy sources and availability of green energy, it is likely that these emissions would reduce over time, therefore also reducing the associated costs.

6.8.3 Summary

476. The Department considers that the project would have considerable economic benefits for the region and NSW through employment (about 710 construction and about 260 operational jobs) and royalties. The Department also notes that Regis has executed a Voluntary Planning Agreement with Council, including direct monetary contributions to Council to fund community infrastructure projects. Consequently, the Department has recommended conditions requiring Regis to commence the executed Voluntary Planning Agreement with Council.

477. At a broader level, the Department notes significance of the project's resource, the increasing focus on minerals mining with decreasing reliance on coal and fossil fuels in the mining and energy sector and the associated growing demand for raw metals (including gold) due to urbanisation, electrification, a range of technological development and transition to renewable energies.

6.9 Other issues

478. Apart from the key issues considered in detail above, there are a number of other issues that were raised in the EIS or in submissions. The Department's consideration of these other issues summarised in **Table 19**.

Table 19 | Other issues

Issue	Recommended Conditions
Traffic and Transport	
Site access and temporary access, Dungeon Road: In response to safety concerns raised by TfNSW and the public, Regis relocated the proposed mine site access (including a new road into the mine administration and infrastructure area) approximately 1 km to the east, off the Mid Western Highway and committed to entering into a Works Authorisation Deed with TfNSW prior to construction commencing. Regis also proposed the temporary use of Dungeon Road for early works access to the mine site (agreed to by TfNSW for a maximum of 6 months). Dungeon Road is a predominately unsealed road that runs through the centre of the project area, connecting between Vittoria Road, just north of the project, and the Mid-Western Highway, just south of the project. As such, Regis also proposed the closure of Dungeon Road to the public from approximately 550 m north of the intersection with the Mid-Western Highway and 1.2 km south of Vittoria Road at the start of construction (see **Figure 3**), (a measure supported by Blayney Council). Access to the project through the life of mine would still be maintained from Dungeon Road via locked gates for emergency vehicles, environmental monitoring or mine inspections. The closure of Dungeon Road would not impact the two receivers located on Dungeon Road south of the project, north of the Mid-Western Highway with access remaining to both properties and to Blayney or Bathurst (via the Mid-Western Highway). Regis also committed to upgrade and seal the approximate 550 m of Dungeon Road from the Mid-Western Highway intersection, reducing dust impacts and improving access to these two properties. Regis acquired all properties with access from Dungeon Road north of the project area. Other public road users traversing between Vittoria Road and the Mid-Western Highway would continue to be able to do so through Guyong Road, which is noted has similar travel times and improved road quality (sealed roads). To minimise impacts to road users of Dungeon Road, the Department recommended limiting the use of the road to the first six months of construction, subject to a Traffic Management Plan completed to the satisfaction of the Planning Secretary. **Pipeline construction:** Construction of the pipeline would include work within the road reserves and require three rail crossings constructed via underboring (subject to a licence). Traffic impacts during construction would be temporary and mitigated through a Construction Traffic Management Plan. Operational impacts would be limited to periodic maintenance works. The Department has recommended a Pipeline Construction Environmental Management Plan for management of	The Department has recommended conditions that require Regis to: • limit the use of Dungeon Road to access the site to the first six months of construction; • limit project related traffic on Vittoria and Guyong Road; • construct the new access point and road in accordance with relevant design standards; • decommission the mine access road upon closure; • prepare a Traffic Management Plan to monitor and manage traffic impacts on the road network during temporary access arrangements, the mine site construction and operational stages; and • prepare and implement a Pipeline Construction Environmental Management Plan inclusive of a traffic and access management sub-plan.

Issue	Recommended Conditions
the water supply pipeline, inclusive of a traffic and access management sub-plan. **Traffic impacts:** The majority of project traffic would travel via the Mid Western Highway from Blayney and Bathurst, and via Vittoria Road and Guyong Road when travelling from the Orange area. However, the project's use of Vittoria and Guyong Roads would be limited through an internal policy. To strengthen this commitment, the Department has recommended that the Traffic Management Plan for the project includes measures to minimise project related traffic on these roads. Construction workers would reduce traffic impacts by traveling in shuttle-buses or carpooling and heavy vehicles would be primarily used in construction for delivery of materials, plant and mining fleet. Operational traffic would primarily comprise private vehicles and minibuses with heavy vehicle movements limited to deliveries. Overall, project traffic would result in minor increases to traffic volumes on the surrounding road network which would have sufficient capacity for the increased volumes for the life of the project. There would be minimal impact on local bus services, pedestrians or cyclists. Regis would implement additional mitigation measures, including installation of fog activated advance warning signs on the Mid Western Highway and implementing a Traffic Management Plan, including a drivers code of conduct. The Department considers that subject to implementation of the recommended conditions, the potential traffic impacts of the project can be managed to acceptable standards.	
Rehabilitation and Final Landform	
Mine site rehabilitation: Several community members raised concerns about the rehabilitation of the site, including that the open cut would remain a final void which may cause long term impacts to groundwater. The Department has considered potential impacts to groundwater and surface water resources in **Section 6.4**. NAF waste rock, subsoil and topsoil for capping of the TSF, waste rock emplacement and ROM pad for rehabilitation purposes post mine closure would be temporarily stored in the project area, to the east and west of the open cut and west of the TSF. These infrastructure items would also be shaped for surface water management, with the TSF being designed to drain runoff towards the clean water diversion on the east and south-east of the TSF (see **Figure 19**). The TSF would include a beach drain to discharge clean water, which would be installed post closure and designed to withstand significant rainfall events in accordance with the Australian National Committee on Large Dams guidelines. The TSF would also include an emergency spillway which would	The Department has recommended conditions that require Regis to: • meet strict rehabilitation objectives; • progressively rehabilitate the development as soon as reasonably practicable following disturbance; • prepare and implement a Rehabilitation Strategy to the satisfaction of the Planning Secretary; • decommission the pipeline if alternative uses for the water supply pipeline cannot be

Issue	Recommended Conditions
be decommissioned following successful rehabilitation of the TSF meeting water quality criteria. The post mining land use across the majority of the rehabilitated area (excluding the void) would be grass cover for grazing purposes, with some woodland over the waste rock emplacement to enhance biodiversity values and visual amenity of the area and provide for reduced erosion risk. Regis engaged an expert to review the TSF who noted that the capping material (the NAF, subsoil and topsoil) is unlikely to be compromised by erosion or trees (naturally encroaching). The Resources Regulator had some residual concerns about natural tree establishment on the TSF and waste rock emplacement areas, and recommended trials be undertaken as part of the Rehabilitation Management Plan. Amendments to the project resulted in beneficial results for rehabilitation objectives including a reduction in the amount of Class 4 soil being lost (12 ha to 3 ha), more efficient water management post-closure and lower heights to the ROM pad and amenity bund, reducing visual impacts. Regis would also progressively rehabilitate the project area (mainly the waste rock emplacement) as far as practicable throughout the life of mine. **Pipeline rehabilitation:** Rehabilitation of the pipeline would be completed following construction by covering with crop and grass species and, if alternative uses for the water supply pipeline cannot be found post closure, the pipeline would be decommissioned and left in-situ with surface infrastructure removed, followed by re-establishment of vegetation communities (including potential for forestry plantations). Overall, the Department considers that adequate exploration of rehabilitation options for the final landform and land use has been considered, with improved outcomes compared to the original project proposed. It is also considered that project area can be rehabilitated to achieve a sustainable final landform to be used for agricultural purposes and enhanced biodiversity values in the area, while delivering appropriate rehabilitation outcomes.	found following the completion of mining operations; and • prepare and implement a Rehabilitation Management Plan in accordance with the *Mining Act 1992.*
Hazards and Risks	
Hazards and Risks under SEPP 33: Regis provided a preliminary hazards analysis (PHA) for the project, in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'*. The Department's Hazards Unit has reviewed the relevant documents in the EIS and Submissions Report and considers that: • the PHA appropriately identified the fire, explosion and toxic scenarios which may arise from incident.	The Department has recommended conditions requiring Regis to: • comply with all requirements under the Explosives Act 2003, all relevant Australian Standards, EPA and the Department's guidelines for transport, storage and use of a range of dangerous goods;

Issue	Recommended Conditions
• the project would be able to comply with all requirements under the Explosives Act 2003, including Australian Standards 2187 Explosives – Storage, transport and use (AS 2187) and relevant AEISG codes of practice (i.e. industry best practice). • the PHA adequately estimated that the worst-case fire and toxic scenarios that may cause significant impacts would be well within the mine site boundary and would not reach neighbouring land uses. **On-site Hazards and Risks under Work Health and Safety Legislation:** The mine site is located within intermediate rocks of the Anson Formation categorised low potential for naturally occurring asbestos (NOA). The intermediate-mafic rock unit in the southern portion of the McPhillamys Gold Deposit from the surface may contain NOA. Drilling within this rock unit and modelling found that NOA containing material would fall outside of the ore zone, extending to depths greater than 400 m from the surface and would be present in 1% of the material proposed to be mined. Regis would be required to comply with the Work Health and Safety (WHS) legislation, in particular, the effective management of on-site risks associated with the principal hazards as specified in the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*, which includes provisions for health monitoring of workers at the mine and development of control measures for managing risks of airborne contaminants such as NOA.	• prepare and implement a range of post-approval documents to manage hazards including: o Hazard and Operability Study; o Final Hazard Analysis o Transport of Hazardous Materials Study, o Emergency Plan; o Safety Management System; o Hazard Audits; and o Hazardous Materials Management Plan, (including onsite storage and handling of sodium cyanide and other toxic chemicals).
Human Health (off-site)	
In response to community concerns raised during the exhibition, Regis engaged enRiskS to undertake a health impact assessment of the project, undertaken in accordance with enHealth guidelines. The off-site risks of construction and operation of the mine due to worst-case exposures to dust/particulate matter related emissions including from NOA exposure, gaseous emissions, noise, quality and quantity of surface and groundwater and hazardous materials were assessed using the applicable guidelines, as informed by the modelling undertaken for the project. The assessment of worst-case conservative scenarios found that with the incorporation of proposed mitigation measures the off-site health impacts would be very low or negligible. However, the assessment acknowledged that the project has and would cause stress and anxiety affecting health and wellbeing, as also outlined in the social impact assessment. Details of the Department's consideration of impacts due to changes to the amenity (including noise, air quality, and lighting), water resources, and stress and anxiety as a component of social impacts are provided in **Sections 6.2** to **6.7**. The Department's consideration of hazardous material, including recommended conditions are provided separately in this table.	The Department has recommended conditions relating to each risk factor including: • operating and limit conditions for noise, air, blasting and water resources; • operating conditions for management of visual and lighting impacts; • preparation and implementation of management plans and monitoring programs; and • a social impact management plan incorporating a community engagement framework and, risk communication techniques, monitoring.

Issue	Recommended Conditions
Blasting and Vibration	
Predicted blasting emissions at nearby residential receivers and heritage items would remain within the airblast overpressure criteria (115/120 dB[Lin Peak]) and ground vibration criteria (5/10 mm/s) for blasts up to 300 kg maximum instantaneous charge (MIC). This includes the Hallwood Farm where more stringent ground vibration criteria of 3 mm/s would apply. In relation to livestock, worst-case blasting impacts would result in airblast overpressure of up to 115 dB(Lin Peak) with ground vibration up to 1.3 mm/s which would comply with relevant criteria. Vibration impacts from the pipeline development would be negligible. In order to ensure the relevant blasting criteria would be met, Regis has committed to limiting the MIC for blasts at the project to 300 kg. In addition, blasting would only be undertaken between 9 am and 4 pm (Monday to Saturday inclusive).	• The Department has recommended construction and operating conditions to ensure safety of people and livestock by managing and minimising blasting and vibration impacts of the project, including any associated structural damage to buildings or infrastructure.
Greenhouse Gas (GHG)	
The GHG assessment included Scope 1 (direct emissions from owned or controlled sources of an organisation/ development), Scope 2 (indirect emissions from the generation of purchased energy electricity, heat and steam used by an organisation/ development), and Scope 3 (all other indirect emissions/upstream and downstream emissions related to an organisation/ development) using the Commonwealth Government's National Greenhouse Accounts Factors (NGAF) workbook (2019). The assessment identified that: • the highest annual GHG emissions would be during the material handling and processing (Year 2 - Year 12), attributed to fuel and energy consumption; • the highest GHG emission intensities would be from Year 6 to Year 8, attributed to the increase in the waste rock extraction rate relative to gold production, and the associated diesel consumption from vehicles; • annual Scope 1 emissions of 0.0425 Mt $CO_{2\text{-}e}$ is comparable with the Australian metal ore mining industry average of 0.0503 Mt $CO_{2\text{-}e}$; • estimated combined annual Scopes 1 to 3 emissions would be about 0.11% of the NSW and 0.03% of the total Australia's emissions; and • the pipeline development would have a negligible contribution to the project's GHG emissions as a whole. The Department considers that the proposal is generally consistent with the NSW Government's *Climate Change Policy Framework*, and the impacts can be minimised to the greatest extent possible.	The Department has recommended conditions requiring Regis to: • implement all reasonable and feasible steps to improve energy efficiency and reduce Scopes 1 and 2 GHG emissions of the development; and • implement an approved Air Quality and Greenhouse Gas Management Plan, describing the best practice management measures to minimise the project's Scope 1 and 2 GHG emissions and ensure energy efficiency.

Issue	Recommended Conditions
Historic Heritage	
Mine Site: A total of 24 historic heritage sites would be impacted, with one of potential State and local heritage significance (MGP-H23 Hallwood Farm Complex) and 14 potentially of local significance, which include ruins, building material dumps, building complex and bridge, remnants from early gold mining in the area (shafts, benching, adit and dump), survey marker tree, and stockyards (see **Figure 20**).There would be no direct impacts to the Hallwood Farm Complex but there would be direct impacts (destruction of the site) to 13 items, including 10 with local significance. **Water Supply Pipeline:** No direct impacts on the four locally significant heritage items of Portland General Cemetery (Lithgow LEP), Leeholme Homestead and outbuilding (Bathurst LEP), Bathampton Homestead, stables and brick barn, and Binalong (the proposed pipeline corridor would traverse more than 300 m away from other historic heritage items). The Department's assessment of these matters includes Heritage NSW advice, which considered the historical cultural heritage assessment as appropriate and recommended conditions, should the project be approved.	The Department has recommended conditions relating to all non-Aboriginal cultural heritage items include requiring a Historic Heritage Management Plan prior to commencing construction and a structural inspection of the Hallwood Farm Complex prior to commencing blasting on the site, by a suitably qualified person(s).

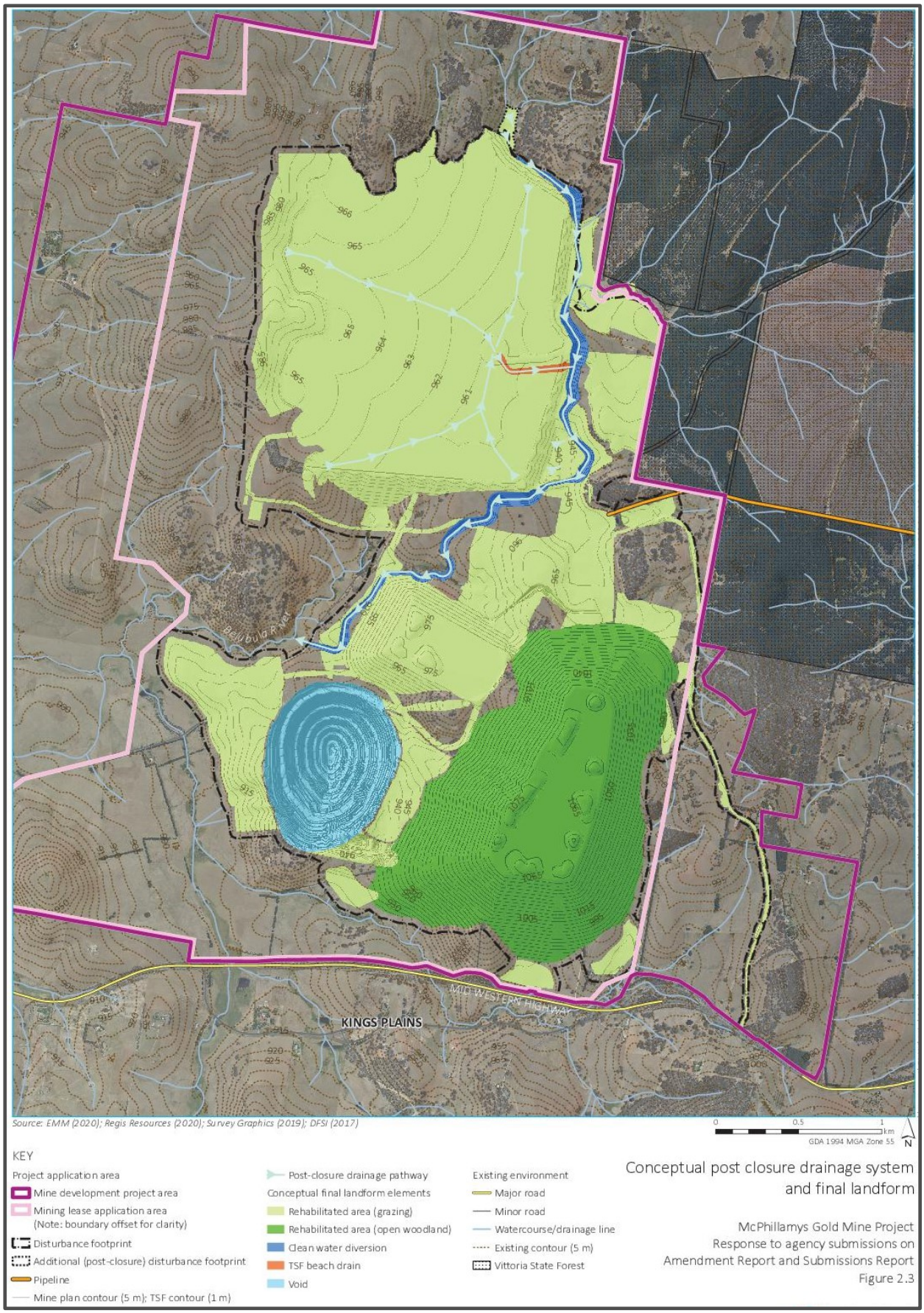


Figure 19 | Mine Site Final Landform (Source: Response to Agency Advice on the Submissions Report and First Amendment Report (November 2020))

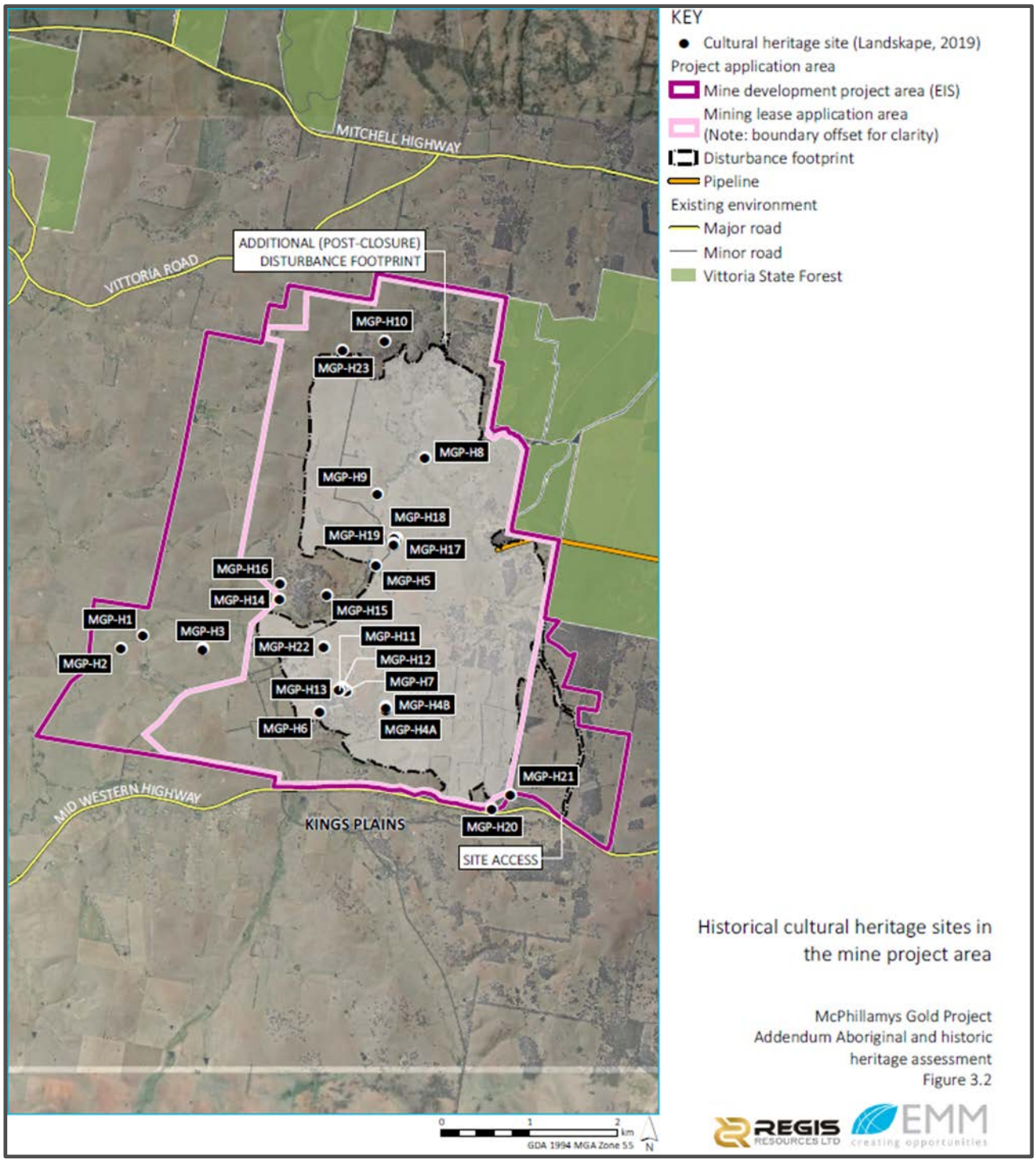


Figure 20 | Identified historic heritage sites within the mine site (Source: First Amendment Report - Appendix O (September 2020))

7 Evaluation

479. The Department has carried out a detailed assessment of the merits of the project, in accordance with the relevant requirements of the EP&A Act, with a particular focus on issues raised in public submissions, representations, government agency advice and advice provided by the Department's independent experts.

480. The project is located near Blayney and surrounding rural residential areas, including the Kings Plains locality. The key issues associated with the project predominantly relate to amenity and social impacts on nearby rural residents due to development of a greenfield mine, noting that some landholders have recently (within the last 5-10 years) acquired properties in the area.

481. The Department acknowledges the high degree of public interest in the project and the broad range of community concerns, including but not limited to impacts on the amenity of the local community in Kings Plains (through noise, air, visual and lighting impacts), water resource (including potential downstream impacts on users and the aquatic environment), biodiversity, agriculture (including impacts on local beekeeping industry), Aboriginal cultural heritage, social and economic impacts.

482. In addition to the formal public submission during the exhibition period, the Department has considered a number of public representations about the project's impacts, including from the local apiary industry as well as landholders in the Kings Plains settlement and their representatives relating to Regis' approach with offering the negotiated agreements to further mitigate noise and visual impacts of the project.

483. The Department recognises amenity impacts as a key concern for the local community given the rural character of the area where the proposed mine site would be located, which in turn drive other associated social impacts, such as fears, stress and anxiety due to the uncertainty and different perceptions of how the actual impacts may be experienced in the future.

484. Regis has responded to community concerns through amendments to the project design for both the mine site surface infrastructure and water supply pipeline alignment, including staging of construction and operational activities, relocation of the mine site access road further away from the receivers in the Kings Plains settlement, and improvements to the mine site's raw water management system.

485. Based on this assessment, the Department considers that Regis has designed the project in a way to achieve a practicable balance between maximising resource recovery and minimising associated impacts on the surrounding landholders and the environment through the following (but not limited to) key mitigation measures and best practice contemporary practices:

- **Amenity** - use of noise and visual barriers and low noise emitting equipment, minimising use of diesel fuelled fleet and equipment by using electric powered equipment, restricted construction and operating hours, and proactive and reactive noise and air quality management systems to guide its day-to-day operations;
- **Social** – offers of negotiated agreements with neighbouring landowners in the Kings Plains settlement that would be most likely to be affected by noise and visual impacts, minimising impacts of construction workforce on housing and short-term accommodation supply in Blayney LGA, undertaking on-going engagement with local community and key stakeholders, establishing a SIMP with a focus on potential impacts on Kings Plains residents;

- **Water resources** – establishing water management system to maximise the reuse of water, minimise clean water take on site and improve clean water diversions, undertake on-going monitoring programs, and minimise the risk of water pollution impacts;
- **Biodiversity and agriculture** – avoiding and minimising land clearing and impacts on native vegetation, including minimising clearing Box Gum Woodland and associated loss of bee foraging resources, and habitat for threatened species and aquatic habitat associated with the upper Belubula River and along the pipeline route and undertaking a targeted revegetation program;
- **Aboriginal cultural heritage** - avoiding and minimising disturbance to surface areas and impacts on Aboriginal heritage items, undertaking an archaeological subsurface testing program and social and cultural mapping study for Aboriginal sites;
- **Economics** – the key direct measure being monetary contributions to Council to fund community infrastructure projects with a focus on Kings Plains locality through an executed Voluntary Planning Agreement with Council. This agreement would commence if the project is approved.

486. The Department has assessed other impacts of the project, including traffic and transport, rehabilitation and final landform, hazards and risks, human health, blast and vibration, greenhouse gas emissions, and historic heritage. The Department considers that these and other impacts have been minimised to the greatest extent practicable and that residual impacts can be appropriately managed and/or offset and regulated.

487. The Department has carefully considered all the issues raised throughout its assessment process, Regis responses to community concerns, feedback from the government agencies and notes the substantial changes that Regis has made to the project design, in particular to the mine site, to reduce impacts while maintaining the economic viability of the project.

488. The Department has recommended a strict and precautionary set of conditions in consultation with the key NSW Government agencies and has taken their advice into account in finalising the conditions. The recommended conditions of consent reflect current best practice for regulating the project and would ensure that the project complies with contemporary criteria and standards, and that residual impacts are effectively minimised, managed and/or offset to achieve an acceptable level of environmental and social performance.

489. The Department also notes significance of the project's resource, the increasing focus on minerals mining with decreasing reliance on coal and fossil fuels in the mining and energy sector and the associated growing demand for raw metals (including gold) due to urbanization, electrification, a range of technological development and transition to renewable energies. The Department considers that the project would result in considerable economic benefits to the region and to the State of NSW through employment (about 710 construction and about 260 operational jobs) and royalties.

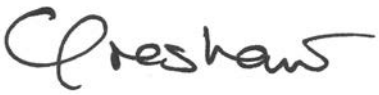
490. On balance, the Department considers that the benefits of the project outweigh its residual costs and that the project is in the public interest and is approvable, subject to the strict conditions of consent.

491. This assessment report is hereby presented to the Commission to determine the application. Recommended conditions of approval are included in **Appendix E** of this report.

Recommended by:

17/11/2022

Stephen O'Donoghue
Director
Resource Assessments



17/11/2022

Clay Preshaw
Executive Director
Energy, Resources and Industry

Appendices

Appendix A – List of referenced documents

A1 – Environmental Impact Statement: Refer to the 'EIS' folder under the 'Assessment' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

A2 – Submissions: Refer to the 'Submissions' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

A3 – Submissions Report: Refer to the 'Response to Submissions' folder under the 'Assessment' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

A4 – Agency Advice: Refer to the 'Agency Advice' folder under the 'Assessment' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

Table A4-1 | Agency Advice

Agency	Advice
Department of Planning and Environment	
Biodiversity, Conservation and Science Directorate	• BCS - Advice on EIS • BCS - Advice on EIS - EPBC Matters • BCS - Advice on EIS - ACH Matters • BCS - Advice on RTS & 1st Amendment • BCS - Advice on Response to Advice on 1st Amendment (21 December 2020) • BCS - Advice on Response to Advice on 1st Amendment (2 February 2021) • BCS - Advice on 2nd Amendment • BCS - Advice on Response to Advice on 2nd Amendment (23 August 2022) • BCS - Advice on Response to Advice on 2nd Amendment (7 October 2022)
Crown Lands	• Crown Lands - Advice on EIS • Crown Lands - Advice on RTS & 1st Amendment
Hazards Group	• DPE Hazards - Advice on EIS
Heritage NSW	• Heritage NSW - Advice on EIS • Heritage NSW - Advice on RTS & 1st Amendment • Heritage NSW (ACH) - Advice on 2nd Amendment
Water Group	• DPE Water & NRAR - Advice on EIS • DPE Water - Advice on 1st Amendment (10 February 2021)

	• DPE Water - Advice on 1st Amendment (22 June 2021) • DPE Water - Advice on 1st Amendment (19 August 2021) • DPE Water - Advice on 2nd Amendment • DPE Water - Advice on Draft SPAL Package • DPE Water - Reduced Inflow to Carcoar Dam Memorandum • DPE Water - Reduced Inflow to Carcoar Dam Clarification • DPE Water - Final Advice and Recommendations
Social Impact Assessment	• SIA - Expert Advice
Environment Protection Authority	• EPA - Advice on EIS • EPA - Advice on RTS & 1st Amendment • EPA - Advice on Response to Advice on 1st Amendment
Department of Regional NSW	
Mining, Exploration and Geoscience	• MEG - Advice on EIS • MEG - Advice on EIS - Attachment A • MEG - Advice on EIS - Attachment B • MEG - Advice on RTS • MEG - Advice on 1st Amendment • MEG - Advice on 2nd Amendment
Resources Regulator	• Resources Regulator - Advice on EIS • Resources Regulator - Advice on RTS & 1st Amendment
Department of Primary Industries	
Agriculture	• DPI Agriculture & Fisheries - Advice on EIS • DPI Agriculture - Advice on RTS & 1st Amendment • DPI Agriculture - Advice on Response to Advice on 1st Amendment
Fisheries	• DPI Fisheries - Advice on RTS & 1st Amendment • DPI Fisheries - Advice on Response to Advice on 1st Amendment
Dams Safety NSW	• Dams Safety - Advice on EIS • Dams Safety - Advice on RTS & 1st Amendment
Forestry Corporation of NSW	• Forestry NSW - Advice on EIS • Forestry NSW - Advice on RTS • Forestry NSW - Advice on 1st Amendment
NSW Health	• NSW Health - Advice on RTS & 1st Amendment
NSW Rural Fire Service	• NSW RFS - Advice on EIS • NSW RFS - Advice on RTS & 1st Amendment
Roads and Maritime Services	• RMS - Advice on EIS • RMS - Advice on EIS - Attachment
Transport for NSW	• TfNSW - Advice on EIS • TfNSW - Advice on RTS & 1st Amendment
Water NSW	• Water NSW - Advice on EIS • WaterNSW - Advice on RTS & 1st Amendment

Bathurst Regional Council	• Bathurst Council - Submission on EIS • Bathurst Council - Advice on RTS & 1st Amendment
Blayney Shire Council	• Blayney Council - Submission on EIS • Blayney Council - Advice on RTS & 1st Amendment
Cabonne Council	• Cabonne Council - Submission on EIS • Cabonne Council - Advice on RTS & 1st Amendment
Lithgow City Council	• Lithgow Council - Submission on EIS • Lithgow Council - Advice on RTS & 1st Amendment
Orange City Council	• Orange Council - Submission on EIS

A5 – Additional Information: Refer to the 'Additional Information' folder under the 'Assessment' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

Table A5-1 | Additional Information

Subject Matter	Date/s
Economic Expert Review & Regis Responses	November 2019 28 February 2020 13 March 2020 15 May 2020 30 June 2020
Groundwater Expert Review & Regis Responses	5 December 2019 21 February 2020 9 December 2020 21 December 2020
Regis Response - Noise	27 February 2020
DPE Water & NRAR Advice & Regis Responses	2 April 2020 23 April 2020 15 February 2021 6 October 2022
Agency Advice on RTS & 1st Amendment Report	23 October 2020
Regis Response - Agency Advice on RTS & 1st Amendment Report	November 2020
RTS & 1st Amendment Report	27 October 2020
Regis Response - RTS & 1st Amendment Report	20 November 2020
Regis Response - Addendum AHCH Assessment	December 2020

Subject Matter	Date/s
BCS Advice on 2nd Amendment & Regis Responses	22 December 2020 28 January 2021 24 June 2022 14 July 2022 27 September 2022
Regis Response - Mine Site Land Contamination Assessment	8 January 2021
Regis Response - Pipeline Land Contamination Assessment	5 February 2021
BHPG Correspondence & Regis Responses	March 2021 17 March 2021 15 April 2021
Regis Response - Aboriginal Cultural Heritage	15 April 2021
Regis Response - Air Quality & Visual	3 June 2021
Regis Responses - GHG Assessment	9 July 2021 26 July 2021
SIA & Regis Responses	24 August 2021 14 September 2021 20 September 2021 7 October 2021 30 November 2021
EPBC Assessment & Regis Response	1 October 2021 14 October 2021
Regis Response - BCS Advice on 2nd Amendment (Revised BDAR - July 2022)	July 2022
Regis Response - BCS Advice on 2nd Amendment (Revised BDAR - Sep 2022)	September 2022
Regis Response - Keys Matchstick Grasshopper Survey	October 2022
Regis Response - Biodiversity Offsets	9 November 2022
Regis Response - SIA Final Advice	14 November 2022

Appendix B – Project Amendments

B1 – Amendment Report 1: Refer to the 'Amendment' folder under the 'Assessment' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

Table B1 | Key Project Amendments – Amendment 1

Aspect	Project Description (EIS)	Amended Project (1st Amendment)	Key Changes
Project Area	Up to 2,640 ha comprising: • 2,513 ha for the mine development (1,813 ha MLA574 and 1,135 ha disturbance area), and • 127 ha pipeline corridor disturbance footprint	Up to 2,727 ha comprising: • 2,514 ha for the mine development (1,806 ha MLA574 and 1,116 ha disturbance area), and • between 194 ha and 213 ha for the water supply pipeline corridor (disturbance footprint 127 ha)	1 ha increase in mine site area 19 ha (1.7%) reduction in disturbance Additional 1.64 ha disturbance post mining No change in water supply pipeline disturbance area
Project Life	15 years, including 10 years of mining operations	15 years, including 11 years of mining operations	No change to overall project life, 1-year additional mining operations
Open Pit	Extraction of 109 Mbcm 460 m depth 1,050 m diameter	Extraction of 107.5 Mbcm 450 m depth 1,050 m diameter	1.5 Mbcm reduced extraction 10 m reduction in depth of pit Reconfiguration of access ramps
Waste Rock Emplacement	Estimated volume 87.8 Mbcm 1,065 m AHD up to 1075 m AHD Approximately 266 ha area Construction of the southern amenity bund completed in year 4	Estimated volume 84.5 Mbcm 1,065 m AHD up to 1,075 m AHD Approximately 240.5 ha area Construction of the southern amenity bund completed in year 6	Emplacement commencing at the northern end compared with the southern end No change to height Reduction in approximately 25.5 ha at the northern end Gradual and extended construction period
Tailings Storage Facility	Pyramid construction 2,450 m embankment length 270 ha storage area 49,300 ML storage capacity	Downstream lift construction 3,600 m embankment length 273 ha storage area 46,700 ML storage capacity	Embankment construction method 1,150 m increased embankment length 3 ha additional storage area 2,600 ML reduced capacity
Water Management	Volume of storage: 5,894 ML in 8 storages	Volume of storage: 3,379 ML in 11 storages	Removal of northern secondary water management facility Reduced capacity of 2,515 ML
Mine Layout	Indicative general mine layout and arrangements	Revised Indicative general mine layout and arrangements (see **Figure B1-1**)	Modified pit shape and revised ancillary infrastructure locations
Site Access	Site access intersection located on Mid-Western Highway	Site access intersection located further east on Mid-Western Highway	Site access intersection moved 1 km east of the EIS intersection along Mid-Western Highway
Water Supply Pipeline	90 km pipeline from operations near Lithgow to the mine site	Northern and southern pipeline options with minor alignment changes	Two pipeline options

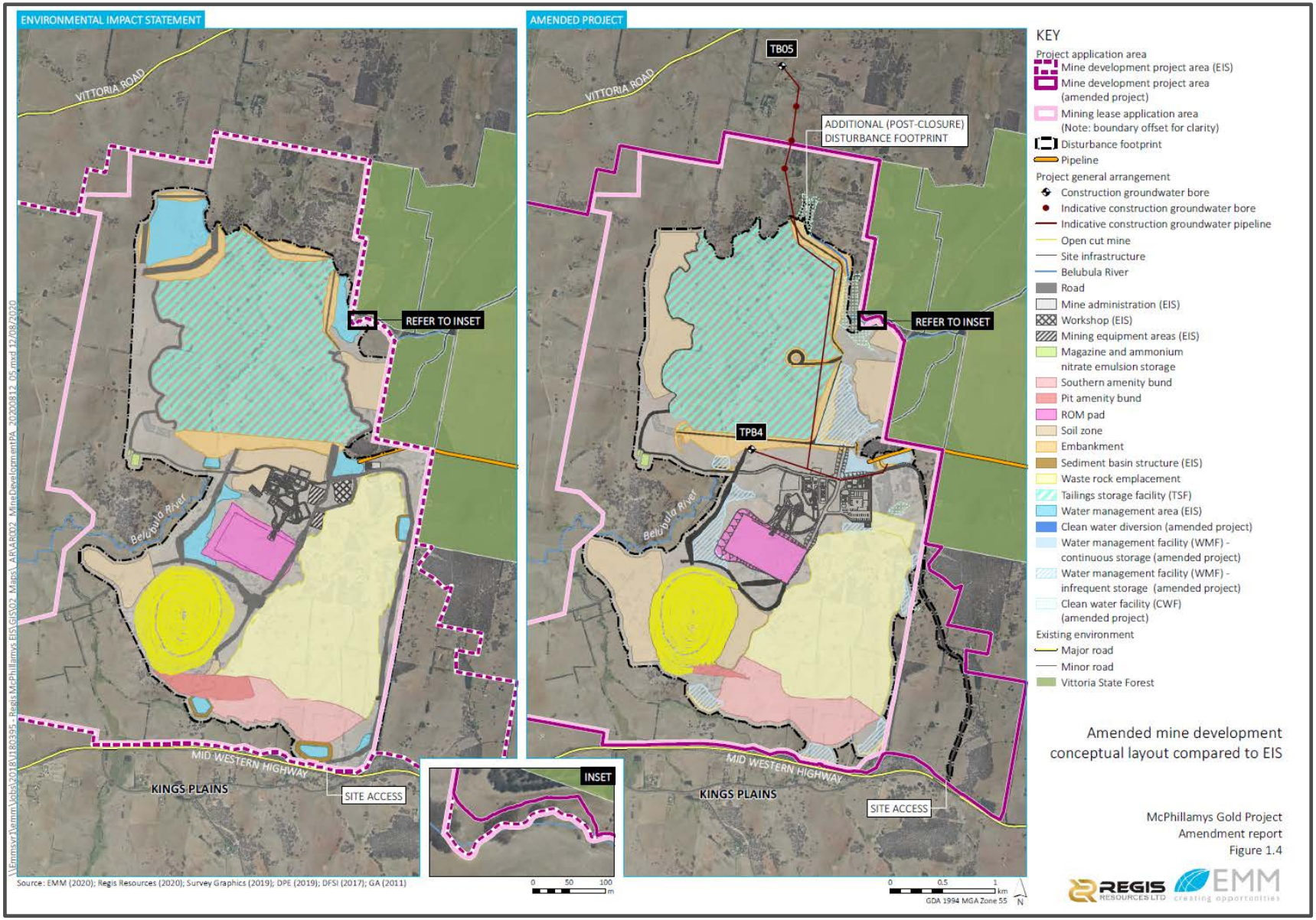


Figure B1-1 | Amended Mine Layout (Source: First Amendment Report)

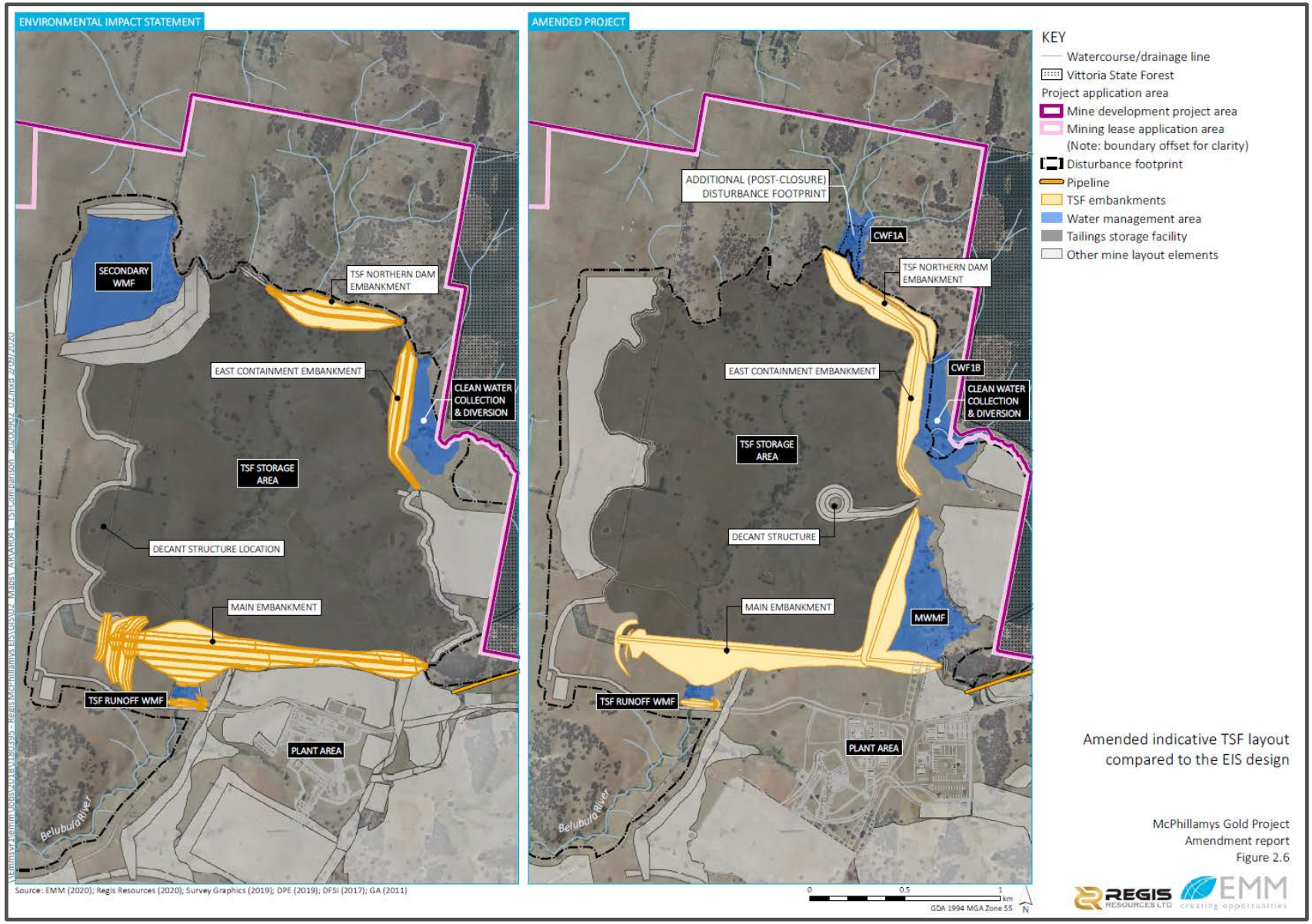


Figure B1-2 | TSF Amendments (Source: First Amendment Report)

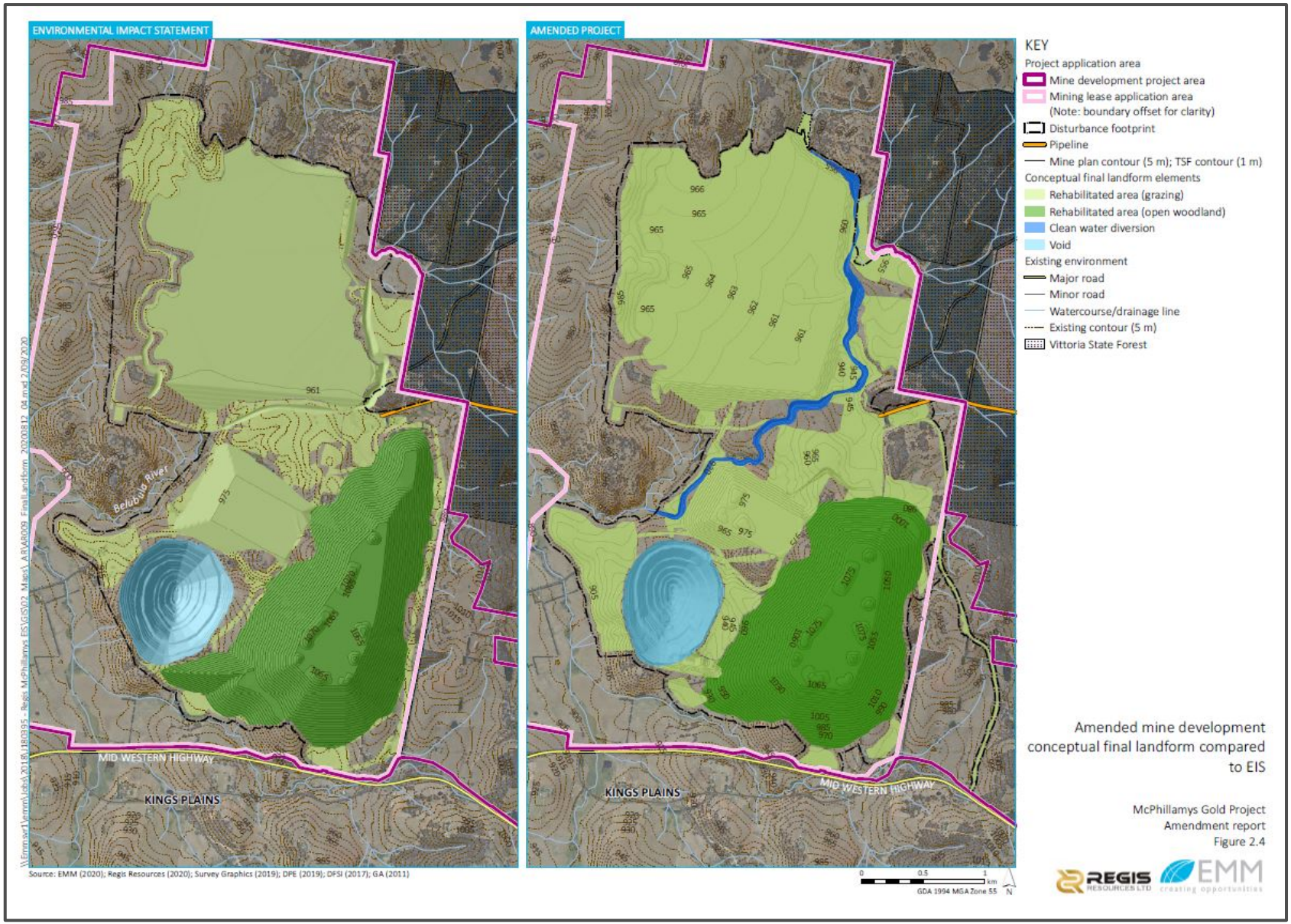


Figure B1-3 | Final Landform Amendments (Source: First Amendment Report)

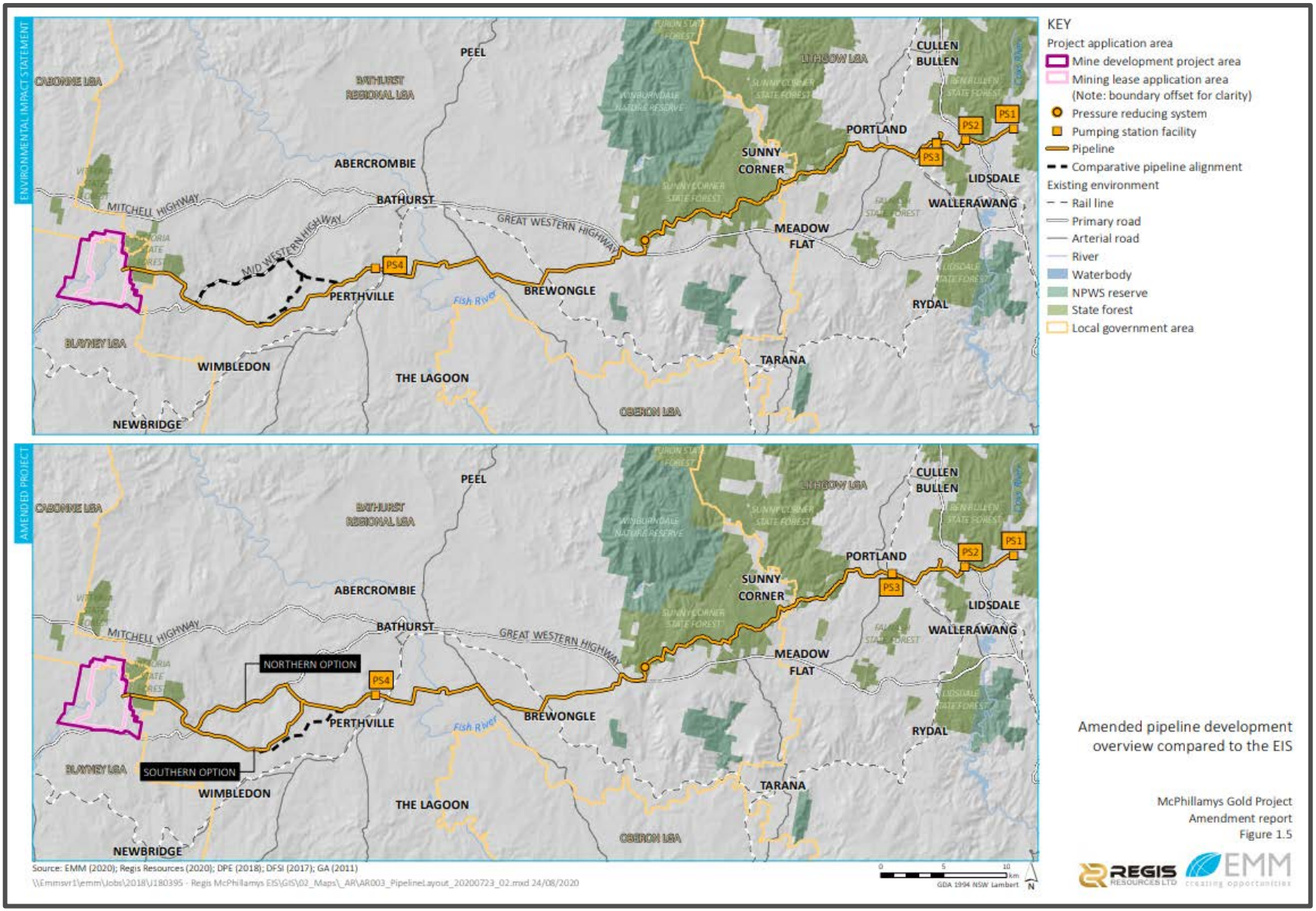


Figure B1-4 | Pipeline Amendments (Source: First Amendment Report)

B2 – Amendment Report 2: Refer to the 'Amendment' folder under the 'Assessment' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

Table B2 | Key Project Amendments – Amendment 2

Aspect	Project Description (1st Amendment)	Amended Project (2nd Amendment)	Key Changes
Mining Lease Boundary	MLA 574 boundary as depicted in **Figure B1-1**	Revised boundary of MLA 574 (see **Figure B2-1**).	Revised MLA 574 boundary, with an approximate 1 ha reduction in surface development area MLA 595 boundary unchanged
Water Management	Raw water management facility and main water management facility	Two clean water diversion systems, both upstream of the raw water management facility and the main water management system	Construction and operation of two clean water diversion systems, each with a clean water facility
Water Supply Pipeline	Northern water supply pipeline option as depicted in the 1st amendment Water supply pipeline connection point at Mount Piper Power Station	Realignment of 1.6 km of the northern pipeline option Removal of crossing one watercourse No water supply pipeline connection point at Mount Piper Power Station	Revised alignment of a section of the northern pipeline option, reducing the pipeline length by 0.6 km Revised alignment that does not cross one unnamed watercourse Removal of the pipeline connection point at Mount Piper Power Station

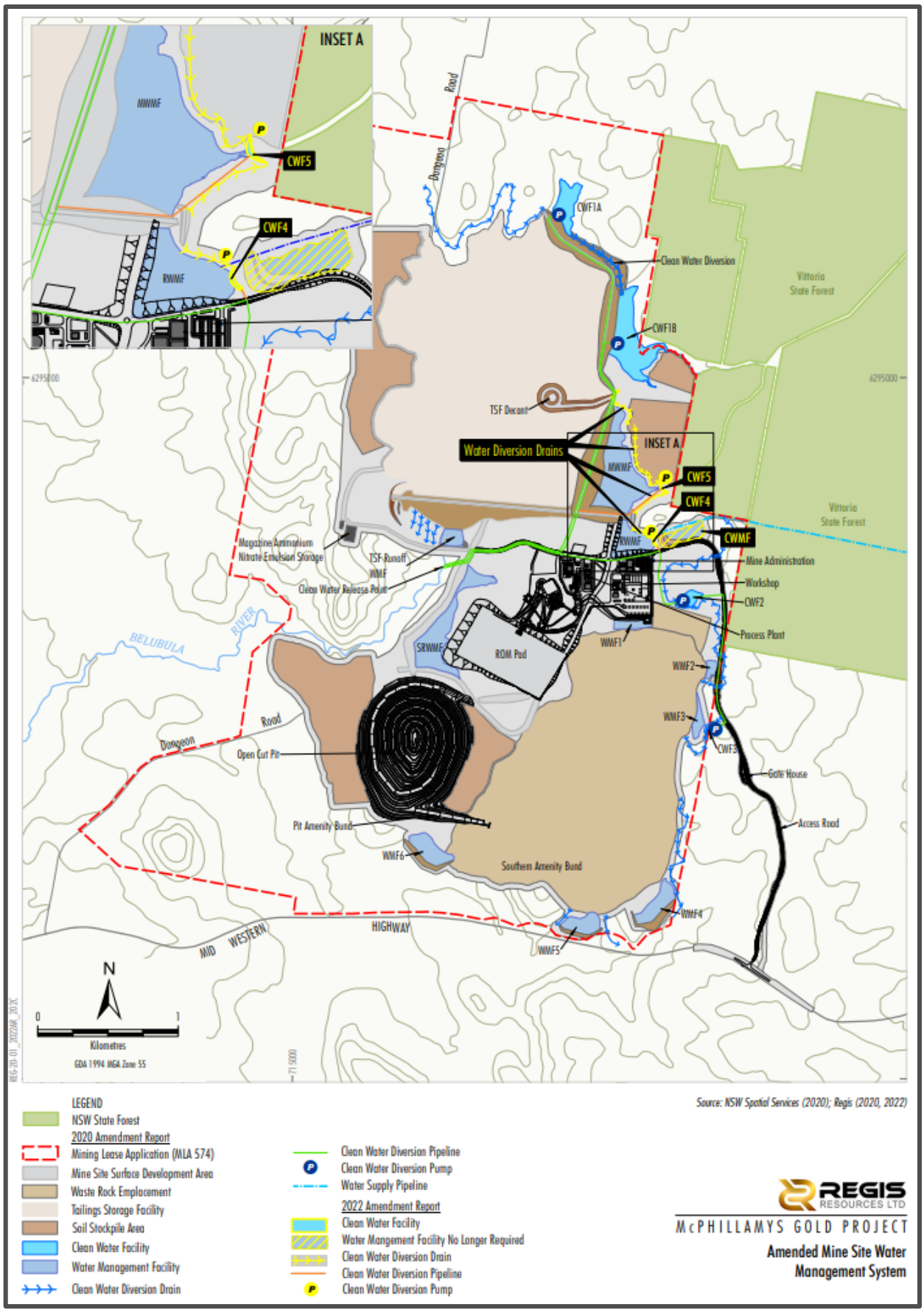


Figure B2-1 | MLA 574 Boundary and Site Water Management System Amendments (Source: Second Amendment Report)

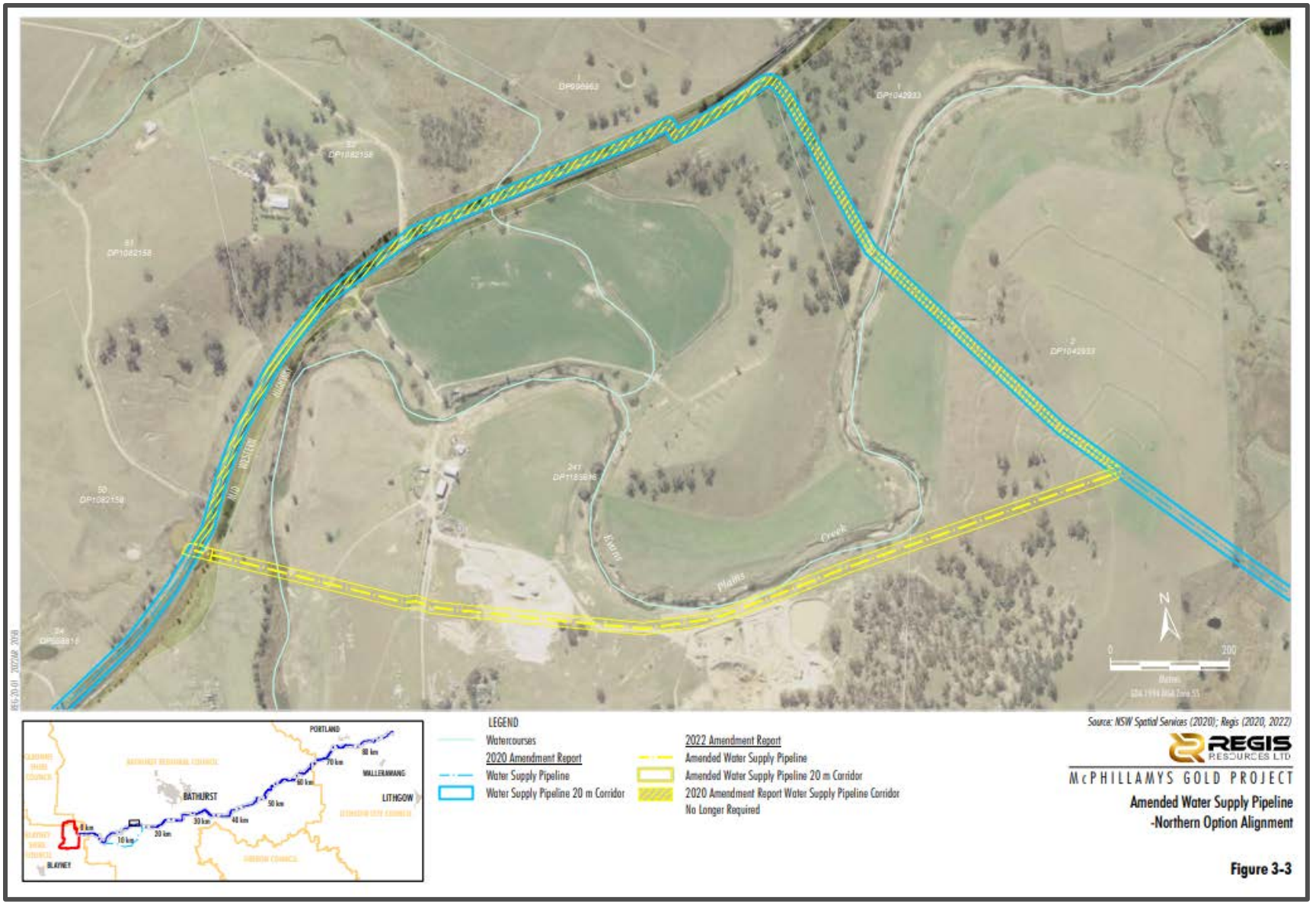


Figure B2-2 | Northern Water Supply Pipeline Option Amendment (Source: Second Amendment Report)

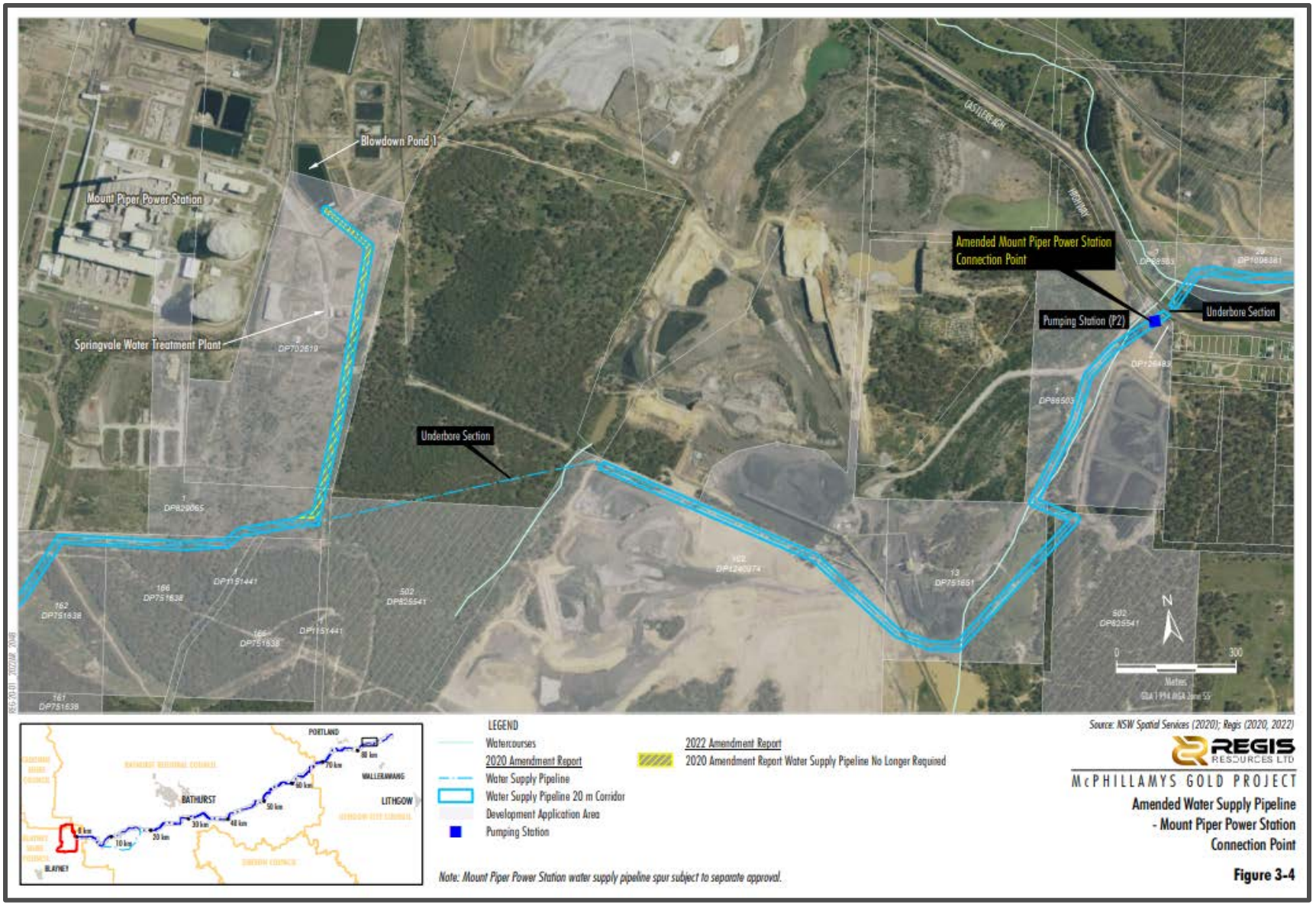


Figure B2-3 | Mount Piper Power Station Connection Point Amendments (Source: Second Amendment Report)

B3 – Amendment Report 3: Refer to the 'Amendment' folder under the 'Assessment' tab on the Department's website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project

Table B3 | Key Project Amendments – Amendment 3

Aspect	Project Description (2nd Amendment)	Amended Project (3rd Amendment)	Key Changes
Mining Lease Boundary	Mining lease application referred to as MLA 595	Mining lease application referred to as MLA 613	Application number amended
Water Supply Pipeline	Northern and southern water supply pipeline options	Northern water supply pipeline option	Removal of the southern water supply pipeline option

Appendix C – Statutory Considerations

The Department's assessment of the McPhillamys Gold Project (the project) has given consideration to all applicable statutory requirements (see **Section 4**). These include:

- the objects found in Section 1.3 of the EP&A Act; and
- the matters listed under Section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

Some of the key statutory requirements are addressed in further detail below.

C.1 Objects of the EP&A Act

A summary of the Department's assessment against the current relevant objects (found in Section 1.3 of the EP&A Act) are provided in **Table C1**.

Table C1 | Consideration of the project against relevant objects of the EP&A Act

Objects of the EP&A Act	Consideration
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources, *(c) to promote the orderly and economic use and development of land,*	• the project involves a permissible land use on the subject land; • the resource has been determined to be significant from a State and regional perspective; • the project would provide considerable socio-economic benefits.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment	• the proposal can be carried out in a manner that is consistent with the principles of ESD, which have been considered through the project EIS and the Department's assessment (see **Section 4** and **Appendix B.2**) which has sought to integrate all significant environmental, social and economic considerations.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	• the project has been designed to minimise potential environmental impacts where practicable; • Regis would offset residual biodiversity impacts in accordance with the NSW and Commonwealth government policy; • the project is able to be undertaken in a manner that would avoid impacts upon biodiversity values to the greatest extent possible; and • both the precautionary principle and the conservation of biological diversity and ecological integrity has been applied in the assessment to avoid serious or irreversible damage to the environment wherever possible.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	• the project management measures have been developed in consultation with a wide range of community stakeholders; and • Regis' proposed mitigation and management measures would ensure that the project would have acceptable impacts on Aboriginal cultural heritage and historic heritage.

(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	• the Department has notified and consulted with the affected Councils and other NSW government authorities over the project and carefully considered all responses in its assessment
(j) to provide increased opportunity for community participation in environmental planning and assessment.	• the Department publicly exhibited the proposal and subsequent amendments, and requested community submissions which were all reviewed, considered and responded to by Regis

C.2 Ecological Sustainable Development (ESD)

The EP&A Act adopts the definition of ecologically sustainable development (ESD) found in the *Protection of the Environment Administration Act 1991*, as follows:

"ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:
(a) the precautionary principle;
(b) inter-generational equity;
(c) conservation of biological diversity and ecological integrity; and
(d) improved valuation, pricing and incentive mechanisms."

The Department has considered the principles and programs of ESD, as follows:

Precautionary Principle

The Department has assessed the project's threats of serious or irreversible environmental damage using reasonable worst case scenarios, and is satisfied that there is sufficient scientific certainty to enable the decision maker to weigh up the impacts of the project and determine the development application. The Department has considered all the available information presented and consulted closely with independent experts and key Government agencies to obtain advice on various aspects of the project.

While it is recognised the project would result in a number of impacts of varying significance, the key matters that could cause serious or irreversible environmental damage relate to impacts on amenity, water resources, biodiversity and agriculture.

The EIS, Amendment Reports and the Department's assessment have identified management and mitigation measures to address potential environmental impacts, and include commitments and requirements to implement monitoring, auditing and reporting mechanisms.

Overall, the Department has assessed these matters in detail (see Section 6) and considers that the recommended risk-based conditions and performance measures would provide appropriate protection for the environment and minimise the potential for any serious or irreversible environmental damage.

Intergenerational Equity

Intergenerational equity has been addressed through maximising efficiency and silver resource recovery and developing environmental management measures which are aimed at ensuring the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

The Department acknowledges that emissions generated from mining operations are a contributor to climate change, which has the potential to impact future generations. However, the Department also recognises that there remains a clear need to develop gold deposits to meet society's basic requirements for the foreseeable future. The proposal includes measures to mitigate potential greenhouse gas emissions from the project, which would be recommended as a requirement of the project's operating conditions and detailed in an Air Quality and Greenhouse Gas Management Plan.

The Department's assessment of direct energy use and associated greenhouse gas emissions (i.e. Scope 1 and Scope 2 emissions) has found that these emissions would be low and comprise a very small contribution towards climate change at both the national and global scale (see **Section 6.9**).

The Department considers that the socio-economic benefits and downstream energy generated by the project would benefit future generations, particularly through the provision of national and international energy needs in the short to medium term.

Conservation of Biological Diversity and Ecological Integrity

The project's potential impacts on biodiversity have been outlined in the Department's assessment of the project (see **Section 6.5**). The Department considers that the conservation of biological diversity and ecological integrity has been applied through avoiding and minimising biodiversity impacts. The Department considers that the project's potential impacts would be reasonably mitigated and/or offset to enable the long-term biodiversity outcomes to be achieved for the region.

Improved Valuation, Pricing and Incentive Mechanisms

Valuation and pricing of resource has been considered through economic, social and cost-benefit analyses which have been completed as part of the EIS. The cost benefit analyses sought to weigh up the project's costs and benefits based on its full range of environmental, social and economic impacts. The Department has carefully considered the costs and economic benefits of the project and support the conclusion that it would deliver a significant net benefit to the local region and the State of NSW.

The Department has also recommended performance-based conditions, where possible, to provide incentive to Regis to achieve environmental outcomes and objectives in the most cost-effective way.

C.3 Environmental Planning Instruments

Under Section 4.15 of the EP&A Act, the consent authority is required to consider, amongst other things, the provisions of the relevant EPI's, including any exhibited draft EPIs[18]. The Department notes Regis's consideration of these instruments in its EIS (see **Section 3.5** of the EIS) and has undertaken its own consideration of the project against the applicable provisions of relevant EPIs.

Blayney Local Environmental Plan 2012 and Cabonne Local Environmental Plan 2012

[18] Note that due to the effect of clause 11 of the SRD SEPP, development control plans do not apply to SSD.

The project disturbance area is located in both the Blayney and Cabonne local government areas. All subject land within the proposed open cut mining areas is zoned RU1 Primary Production under both the Blayney Local Environmental Plan 2012 and Cabonne Local Environmental Plan 2012.

Open cut mining is permissible with consent in this zone.

SEPP No. 33 – Hazardous and Offensive Development

Although SEPP 33 was consolidated into the *State Environmental Planning Policy (Resilience and Hazards) 2021* from the 1 March 2022, the provisions of SEPP 33 have simply been transferred and remain current.

The key aims of SEPP 33 are to ensure that, in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impacts and that any measures proposed to be employed to reduce the impact of the development are taken into account.

Clause 12 of SEPP 33 requires persons proposing to carry out development for the purposes of potentially hazardous industry to prepare a Preliminary Hazard Analysis (PHA) and subsequent assessment to submit this with the development application. The EIS has considered the potential hazards and risks associated with the project, including the storage and transportation of hazardous goods and materials (see **Section 18** of the EIS).

The Department considers that suitable mitigation measures could be incorporated into the design of the project to ensure that it would meet relevant standards and be compatible with the existing or likely future use of land surrounding the mine. With the proposed measures in place, the Department considers that the potential hazards associated with the project can be managed.

The Department considers that the project would not increase risks to public safety and would not alter the consequences or likelihood of a hazardous event on the site or during the transport of materials. As such, the Department considers that the project is consistent with the provisions of SEPP 33.

SEPP No. 44 – Koala Habitat Protection

At the time when the EIS was finalised, the *SEPP (Koala Habitat Protection) 2019* (2019 SEPP) had application. However, the 2019 SEPP was repealed on 1 March 2020 by the *SEPP (Koala Habitat Protection) 2020* (2020 SEPP), which was again repealed on 17 March 2021 by the *SEPP (Koala Habitat Protection) 2021* (2021 SEPP). The Department notes that these SEPPS do not strictly apply to State significant development.

Although the 2020 SEPP and the 2021 SEPP was consolidated into the *State Environmental Planning Policy (Biodiversity and Conservation) 2021* from the 1 March 2022, the provisions of the SEPP's have simply been transferred and remain current.

These SEPPs aim to conserve and manage Koala habitat to reverse the current trend of Koala population decline. In this respect, the Department considered of impacts of the project on Koala populations (see **Section 6.5**).

The EIS's assessment of potential impacts on Koalas was against the provisions of the 2019 SEPP. The Schedule 1 of the 2019 SEPP had general application within the Blayney and Cabonne LGA's. The assessment undertaken for the project recorded one Koala feed tree species and one Koala within the disturbance area. Given the low presence of Koalas and feed tree species in the study area for the project, the EIS considered it unlikely to represent core Koala habitat.

The study undertaken additionally concluded that vegetation within the project disturbance area was found to represent habitat critical to the survival of Koalas. A such, offsets for Koalas have been included in the biodiversity offset strategy for the project.

This assessment concluded that the project was unlikely to result in any significant impacts on Koala populations, given the low presence of Koalas and feed tree species, but has taken into consideration the offsetting required for the disturbance of critical habitat vegetation.

SEPP No. 55 – Remediation of Land

Although SEPP 55 was consolidated into the *State Environmental Planning Policy (Resilience and Hazards) 2021* from the 1 March 2022, the provisions of SEPP 55 have simply been transferred and remain current.

SEPP 55 relates to the remediation of contaminated land. Regis has considered the potential land contamination matters associated with the project in its EIS (see Section 3.5.5). The proposed disturbance area has been investigated and no evidence of land contamination was encountered. Regis also did not encounter any evidence of land contamination during exploration activities undertaken in the project area.

The Department considers that the project would not have a significant risk of existing contamination and that the proposal is generally consistent with the aims, objectives, and provisions of SEPP 55.

SEPP (State and Regional Development) 2011

Although *SEPP (State and Regional Development) 2011* was consolidated into the *State Environmental Planning Policy (Planning Systems) 2021* from the 1 March 2022, the provisions of *SEPP (State and Regional Development) 2011* have simply been transferred and remain current.

The proposed development is declared to be State significant development under Division 4.7 of the EP&A Act as it is development for the purposes of gold mining and mining-related works that has a capital investment value of more than $30 million, as specified in clause 5 of Schedule 1 to *State Environmental Planning Policy (State and Regional Development) 2011*.

In accordance with Section 4.5(a) of the EP&A Act, the Independent Planning Commission is the consent authority for the proposal as there were more than 50 unique objections to the project.

SEPP (Infrastructure) 2007

Although *SEPP (Infrastructure) 2007* was consolidated into the *State Environmental Planning Policy (Transport and Infrastructure) 2021* from the 1 March 2022, the provisions of *SEPP (Infrastructure) 2007* have simply been transferred and remain current.

The Infrastructure SEPP requires the consent authority to notify relevant public authorities about developments that may affect public infrastructure or public land. The Department notified Bathurst

Regional Council, Blayney Shire Council, Cabonne Council, Orange City Council, Transport for NSW, Dams Safety Committee and Crown Lands about the proposed project.

The Department has consulted with public authorities and considered the matters raised in its assessment of the project (see **Section 6**). Where appropriate, the Department has also developed conditions of consent to address the recommendations and advice of these public authorities. The Department considers that such conditions would provide appropriate protection for public infrastructure. As such, the Department considers that the requirements of the Infrastructure SEPP have been satisfied.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP)

Although the Mining SEPP was consolidated into the *State Environmental Planning Policy (Resources and Energy) 2021* from the 1 March 2022, the provisions of the Mining SEPP have simply been transferred and remain current.

Clause 7(1)(b) of the Mining SEPP identifies that mining is permissible with consent on any land where development for the purposes of agriculture or industry may be carried out (with or without development consent). Consequently, the proposed development is permissible with consent under the Mining SEPP, and the Commission may determine the application.

In addition, Part 3 of the Mining SEPP lists a number of matters that a consent authority must consider before determining an application for consent to undertake development for the purposes of mining. The Department has considered these matters in its assessment of the proposed project and has included a brief summary of these considerations below.

Non-discretionary development standards for mining (clause 12AB)

Clause 12AB identifies non-discretionary development standards for the purposes of section 4.15(2) of the EP&A Act in relation to the carrying out of development for the purposes of mining. Throughout Section 3.5.1 of the projects EIS, Regis has provided consideration of the applicable standards and whether or not the project meets them.

The Department agrees with the conclusions provided in this assessment.

Compatibility with other land uses (clause 12)

The Department's assessment has considered the potential impacts of the project on other land uses in the area. In addition, it has considered the potential impacts on water resources, biodiversity, agriculture and heritage impacts and potential impacts on amenity at nearby private residences. This assessment has been undertaken in consideration of the public benefits of the project, surrounding land uses and measures to avoid, mitigate or minimise any land use incompatibility.

Overall, the Department is satisfied that with the implementation of the recommended conditions, including performance measures and adaptive management, the project could be managed to minimise any potential land use conflicts and meet the aims, objectives, and provisions of clause 12.

Voluntary Land Acquisition and Mitigation Policy (VLAMP) (clause 12A)

The Department's assessment has considered the NSW Government's *Voluntary Land Acquisition and Mitigation Policy* (December 2014). Predictions at nearby receivers are expected to be negligible, and as such mitigation and acquisition rights under the VLAMP do not apply. Nevertheless, Regis has committed to implement negotiated agreements with 18 landowners located south of the project.

In summary, the Department is satisfied that the project could be managed to minimise amenity impacts at surrounding private properties.

Compatibility with mining, petroleum and extractive industries (clause 13)

The project would be located in proximity with Cadia Valley Operations, Cowal Gold Operations, Northparkes Mine and a series of quarries, including Blayney Quarry, East Guyong Quarry, Shadforth Quarry and Cow Flat Quarry.

The project would not have any direct impacts on other operations in the area and the Department is satisfied that the project has been designed in a manner that is compatible with, and would not adversely affect, nearby current or future mining-related activities.

Natural resource management and environmental management (clause 14)

The Department has recommended a number of conditions aimed at ensuring that the project is undertaken in an environmentally responsible manner, including but not limited to, conditions in relation to amenity, water resources, biodiversity, agriculture and Aboriginal cultural heritage.

Resource recovery (clause 15)

The Department has considered resource recovery in its assessment of the project and is satisfied that the project can be carried out in an efficient manner that optimises resource recovery within environmental constraints.

The Department has recommended conditions to ensure the project can be carried out in an efficient manner that optimises resource recovery, while giving appropriate recognition and protection for the environmental values that may be affected.

Transport (clause 16)

Clause 16 aims to limit the transport of coal, other minerals and their ores, and extractive materials on public roads. All ore extracted from the mine would be processed on site and the concentrate would be transported off site.

The Department has consulted with the applicable road authorities in relation to the project and taken this advice into consideration in its assessment (see **Section 6.9**). The Department has also recommended conditions in relation to limit traffic impacts from the project.

Rehabilitation (clause 17)

Clause 17 outlines particular requirements relating to consideration of whether any consent granted should be subject to conditions aimed at ensuring rehabilitation of land disturbed by mining and, in particular,

whether conditions should require preparation of a rehabilitation management plan, appropriate treatment of waste, remediation of soil contamination and the avoidance of public safety risks.

Regis has provided a rehabilitation strategy for both the mine site (see Chapter 22 and Appendix U of the EIS) and the pipeline (see Chapter 35 of the EIS). The strategy seeks to return disturbed land to a condition that is stable, non-polluting, and supports the proposed post-mining land use, which is a mixture of grazing of improved pasture and woodland areas

The Department has considered the final landform proposed by Regis (see Section 6.9) and considers that the proposed final landform could be achieved to meet contemporary best practice in the NSW mining industry, and has recommended a comprehensive suite of conditions relating to rehabilitation of land disturbed by the project.

Summary of Mining SEPP

Based on its assessment of the project, the Department considers that it can be managed in a manner that is generally consistent with the aims, objectives and provisions of the Mining SEPP.

Appendix D – Consideration of Commonwealth Matters

In accordance with the bilateral agreement between the Commonwealth and NSW Governments, the Department provides the following additional information required by the Commonwealth Minister, in deciding whether or not to approve a proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Department's assessment has been prepared based on the assessment contained in the McPhillamy's Gold Project Environmental Impact Statement (EIS), Amendment Report, Regis' Submissions Report, and supplementary information provided during the assessment process, as well as public submissions, advice provided by the BCS and other NSW agencies.

This Appendix is supplementary to, and should be read in conjunction with, the main volume of the Department's assessment which includes the Department's consideration of impacts to listed threatened species and communities and avoidance, mitigation and offsetting measures for threatened species, including for Matters of National Environmental Significance (MNES).

The Department has also considered the advice provided by BCS on MNES which is provided in **Appendix A4**.

D.1 Impacts on EPBC Listed Species and Communities

Table D1 below summarises the vegetation communities required to be cleared for the Commonwealth assessment footprint. The total assessment footprint is 1,117 ha, including 130.53 ha of native vegetation.

As outlined in **Section 6.5**, the project was determined by the former DAWE (Department of Agriculture, Water and Environment, now the Department of Climate Change, Energy, Environment and Water, DCCEEW) to likely to have a significant impact on the Box Gum Woodland Critically Endangered Ecological Community (CEEC) and the Koala, listed as a threatened species under the EPBC Act. The habitat areas proposed to be cleared within the Commonwealth assessment footprint for these species are also summarised in **Table D1**.

Table D1 | Native Vegetation Clearing and Habitat Areas for the Project - Commonwealth

Vegetation Community (PCT)	Area (ha)	Box Gum Woodland (ha)	Koala Habitat Area (ha)
Yellow Box – Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330)	45.84	20.43	48.66
Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (PCT 727)	48.79	-	40.60
Mountain Gum – Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951)	32.86	-	33.80

Vegetation Community (PCT)	Area (ha)	Box Gum Woodland (ha)	Koala Habitat Area (ha)
Carex sedgeland of the slopes and tablelands (PCT 766)	3.04	-	-
Native Vegetation Total	**130.53**	**20.43**	**123.06**

Regis assessed the significance of the impacts on terrestrial and aquatic species using the methodology outlined in *Matters of National Environmental Significance Significant Impact Guidelines 1.1 (2013)* (MNES Impact Guidelines), as documented in the BDAR.

The Department notes that the BDAR concluded that there would be a significant impact on the Box Gum Woodland and Koala due to the project. BCS in its advice undertook a detailed review of the Commonwealth listed species with detailed analysis of the Box Gum Woodland and species determined likely to be significantly impacted by DAWE.

Further detailed consideration of the impact on these species is provided below.

Box Gum Woodland

The assessment predicts that the project would clear up to 45.84 ha of the Yellow Box – Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330), which corresponds with the White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands (Box Gum Woodland), listed as an endangered ecological community (EEC) under the BC Act. 20.43 ha of this woodland meets the classification of the Box Gum Woodland CEEC. Of this, 1.47 ha is considered high quality condition which is located within the footprint of the open cut, and therefore impacts are unavoidable.

This contravenes the Recovery Plan which seeks to achieve no net loss in extent and condition of an ecological community. The assessment considers the avoidance and mitigation measures including design of the project to avoid impacts on high condition woodland where possible (outside the open cut area) and minimise the clearing of medium condition woodland.

The assessment estimates that 1,129 ha of the woodland occurs within a 5 km radius of the project and the project disturbance equates to 1.8% of the local community within the 5 km radius. This comprises 0.008% of the NSW extent and 0.004% of the national extent of this community.

The assessment of significance undertaken for the Amended Project concluded that the clearing of 20.43 ha of habitat critical to its survival is likely to result in significant impacts on the Box Gum Woodland.

Regis proposes an offset strategy which includes the retirement of 1,096 credits for PCT 1330, which includes the 20.43 ha of Box Gum Woodland CEEC. BCS has confirmed that the calculation of offset credits is appropriate.

EPBC listed species considered to be significantly impacted

Koala

A single record of the Koala was made during surveys for the project and no scats were found nor was a Koala sighted during night time surveys.

Approved Conservation Advice for the Koala identifies loss and fragmentation of habitat, vehicle strike and environmental stressors as key threats to the species. Assessment against the Koala habitat assessment tool found that the vegetation to be disturbed by the project represents habitat critical to the survival of the Koala. The 123.06 ha of Koala habitat within the mine disturbance comprises 8.12% of the 1,516.3 ha of habitat within a 5 km radius of the project.

Further assessment of the impacts concluded that the Koala is likely to occur in low densities in the area and would not represent an important population. Proposed mitigation measures include management of retained areas and revegetation to reduce the fragmentation of retained habitat areas around the project.

The assessment concludes that an area of critical habitat would be removed by the project resulting in significant impacts, which are known, predictable and irreversible.

The species credits required for the 123.06 ha of koala habitat disturbed by the project under the NSW assessment would provide 2,428 credits. The BCS has advised that the calculation of the credits is appropriate.

EPBC listed species not considered to be significantly impacted

Other communities and species listed under the EPBC Act were considered by Regis, including:

- Communities: Natural Temperate Grassland of the South Eastern Highlands, Temperate Highland Peat Swamps of the Sydney Basin Bioregion, Upland Basalt Forests of the Sydney Basin Bioregion.
- Flora species: Acacia meiantha, Silver-leaved Mountain Gum (Eucalyptus pulverulenta), Black Gum (Eucalyptus aggregata), Euphrasia arguta, Basalt Peppercress (Lepidium hyssopifolium), Hoary Sunray (Leucochrysum albicans var. tricolor), Small Purple Pea (Swainsona recta), Austral Toadflax (Thesium australe); and
- Fauna species: Regent Honeyeater (*Anthochaera phrygia*), Curlew Sandpiper (Calidris ferruginea), Grey Falcon (*Falco hypoleucos*), Painted Honeyeater, White-throated Needletail (*Hirundapus caudacutus*), Swift Parrot (*Lathamus discolor*), Malleefowl (*Leipoa ocellata*), Eastern Curlew (*Numenius madagascariensis*), Australian Painted Snipe (*Rostratula australis*), Murray Cod (*Maccullochella peelii*), Macquarie Perch (*Macquaria australasica*), Booroloong Frog (*Litoria booroolongensis*), Yellow-spotted Tree Frog (Litoria castanea), Large-eared Pied Bat (Chalinolobus dwyeri), Spotted-tailed Quoll (*Dasyurus maculatus maculatus*), Greater Glider (*Petaurus volans*), Grey-headed Flying Fox (*Pteropus poliocephalus*), Pink-tailed Worm-lizard (*Aprasia parapulchella*), Striped Legless Lizard (*Delma impar*), Superb Parrot (*Polytelis swainsonii*); and
- Migratory species*:* Australian Painted Snipe (*Rostratula australis*), Black-faced Monarch (*Monarcha melanopsis*)*,* Common Sandpiper (*Actitis hypoleucos*), Curlew Sandpiper (*Calidris ferruginea*), Eastern Curlew (*Numenius madagascariensis*)*,* Fork-tailed Swift (*Apus pacificus*), Latham's Snipe (*Gallinago hardwickii*), Pectoral Sandpiper (*Calidris melanotos*), Rufous Fantail (*Rhipidura rufifrons*),

Satin Flycatcher (*Myiagra cyanoleuca*), Sharp-tailed Sandpiper (*Calidris acuminata*), White-throated Needletail (*Hirundapus caudacutus*), Yellow Wagtail (*Motacilla flava*).

The assessment of these species found no records or suitable habitat within the project area, therefore finding the project would pose a nil to negligible risk of impact.

D.2 Offsetting impacts to EPBC listed species

Regis proposes an offset strategy to retire impact credits including the identification of a site to provide land-based offsets, and option for residual credits to be retired by payment into the Biodiversity Conservation Fund, or through supplementary measures. **Table D2** below summarises the proposed offset mechanisms for the EPBC listed community and species identified by DAWE to likely to be significantly impacted.

Table D2 | Summary of Offset Mechanisms - EPBC Listed Species

Species	Impacted (ha)	Credits	Offsetting Approach
Box Gum Woodland	20.43	1,370 ecosystem credits	Retirement of ecosystem credits prior to commencement of construction by: - retiring up to 654 ecosystem credits; and/ or - retiring credits into alternative like for like land-based offsets; and/or - payment into Biodiversity Conservation Fund (BCF) for any residual credits.
Koala	123.06	2,428 species credits	Retirement of species credits prior to commencement of construction by: - retiring up to 2,428 species credits; and/or - retiring credits into alternative like for like land-based offsets; and/or - payment into Biodiversity Conservation Fund (BCF) for any residual credits.

The Department notes that the impact area for Box Gum Woodland (20.43 ha) for the Commonwealth is a subset of the NSW area (45.84 ha) due to different requirements for the listing – with the Commonwealth only including higher condition class. Nonetheless, the offsetting requirements in Table D2 include offsets for the larger impact area based on NSW offsetting requirements.

D.3 Requirements for decisions about threatened species and endangered ecological communities

In accordance with Section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of a subsection of Section 18 or Section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, Recovery Plans, or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved conservation advices.

Australia's international *obligations*

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing

of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The recommendations of this assessment report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. Accordingly, the recommended development consent requires avoidance, mitigation and management measures for listed threatened species and communities and all information related to the proposed action is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (Apia Convention) include encouraging the creation of protected areas which together with existing protected areas would safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using their best endeavours to protect such fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006. The recommendations are not inconsistent with the Convention which has the general aims of conservation of biodiversity.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommendations are not inconsistent with CITES as the proposed action does not involve international trade.

Recovery plans and approved conservation advice

Approved conservation advice under the EPBC Act for threatened species that are likely to be significantly impacted is available for the Koala.

Approved recovery plans under the EPBC Act for communities and threatened species that are likely to be significantly impacted are available for the Box Gum Woodland and Koala.

Regis, EMM and BCS (see Appendix A4) considered the relevant recovery plans and approved conservation advice at the time of their assessment of impacts on MNES. The Department has considered this advice in its assessment.

- **Box Gum Woodland**

The Department has considered the approved Recovery Plan under the EPBC Act in assessing the impacts of the project on Box Gum Woodland and notes that the main identified threats to this community are clearing and fragmentation and degradation resulting from inappropriate management and weed invasion by introduced perennial grasses.

There is no approved conservation advice for Box Gum Woodland.

The Department considers that with the proposed site mitigation, rehabilitation and offset measures (see **Section 6.5** of the assessment report), the action would not be inconsistent with the Recovery Plan for the Box Gum Woodland.

- **Koala**

The Department has considered the approved conservation advice under the EPBC Act in assessing the impacts of the project on Koala and notes that the main identified threats to this species are loss and fragmentation of habitat, vehicle strike, disease, and predation by dogs. Drought and incidences of extreme heat are also known to cause very significant mortality, and post-drought recovery may be substantially impaired by the range of other threatening factors.

The conservation advice identifies a range of research priorities that would contribute to effective conservation management of the species and inform future regional and local priority actions.

Priority management actions identified in the conservation advice for the Koala includes identifying populations of high conservation priority and investigating formal conservation arrangements, management agreements and covenants on private land, and for Crown and private land investigating and/or secure inclusion in reserve tenure if possible.

A recovery plan for the Koala was adopted in April 2022. The Department has considered the approved Recovery Plan under the EPBC Act in assessing the impacts of the project on the Koala and notes that the main identified threats to this community are habitat loss and fragmentation and degradation resulting from inappropriate management and others including disease, dog predation and vehicle strike.

The Department considers that with the proposed site mitigation and offset measures (see above and **Section 6.5** of the assessment report), the action would not be inconsistent with the objectives of the Recovery Plan. The Department has recommended conditions to formalise these measures (refer to Part B of Appendix E).

Threat abatement plans (TAPs)

The Department has considered the Threat Abatement Plans (TAPs) relevant to the project under the EPBC Act. These TAPs are available at http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved. The TAPs which are relevant to the project are as follows:

- *Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi* (relevant to Box Gum Woodland)
- *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads* (relevant to Box Gum Woodland)
- *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs* (Sus scrofa) (2017) (relevant to Box Gum Woodland)

The project has the potential to:

- facilitate the spread, or lead to a higher abundance of feral pigs (and other unmanaged or feral fauna) through the clearance and modification of habitat; and
- increase the risk of introducing *Phytophthora cinnamomi* to the site through the increased vehicular and pedestrian activity associated with development of the site.

The Department has included measures for the control of *Phytophthora cinnamomi* and feral animals under the recommended Biodiversity Management Plan for the project, including specific requirements for Regis to consider the actions identified in relevant TAPs. With these measures in place, the Department considers that the action can be carried out in a manner which is compatible with the relevant TAPs.

The Department notes that the Commonwealth's Species Profile and Threats Database lists the *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads* as relevant to the Box Gum Woodland. The Department has reviewed the TAP and in accordance with the potential distribution and records of occurrence map included within the TAP, considers there is unsuitable habitat for the Cane Toad present in the proposed action area. Therefore, the Department considers the approval of the action would not be inconsistent with the *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads.*

D.4 Additional EPBC Act considerations

Table D3 contains the additional mandatory considerations, factors to be taken into account and factors to have regard under the EPBC Act additional to those already discussed.

Table D3 – Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act section	Considerations	Conclusion
Mandatory considerations		
136(1)(b)	Social and economic matters are discussed in Sections 6.3 and 6.8 of the assessment report.	The Department considers that the proposed development would result in a range of benefits for the local and regional economy and is of public benefit. Negative social impacts, particularly on the local community residing in the area have been considered in the assessment of the development. A range of mitigation measures have been proposed by the Applicant, including provision of a Planning Agreement with Blayney Shire Council.
Factors to be taken into account		
3A, 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taking into account, in particular: • the long term and short term economic, environmental, social and equitable considerations that are relevant to this decision; • conditions that restrict environmental impacts and impose monitoring and adaptive management, reduce any lack of certainty related to the potential impacts of the project;	The Department considers that the project, if undertaken in accordance with the recommended conditions of consent, would be consistent with the principles of ESD.

EPBC Act section	Considerations	Conclusion
	• conditions requiring the project to be delivered and operated in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance; • advice provided within this report reflects the importance of conserving biological diversity, ecological and cultural integrity in relation to all of the controlling provisions for this project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms are promoted by placing a financial cost on the proponent to mitigate the environmental impacts of the project.	
136(2)(e)	Other information on the relevant impacts of the action – the Department is not aware of any relevant information not addressed in this assessment report.	The Department considers that all information relevant to the impacts of the project has been taken into account in this recommendation.
Factors to have regard to		
176(5)	Bioregional plans	There is no approved bioregional plan related to the activity.
Considerations on deciding on conditions		
134(4)	Must consider: • information provided by the person proposing to take the action or by the designated proponent of the action; and • the desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	All project related documentation is available from the Department's website www.majorprojects.planning.nsw.gov.au. The Department considers that the conditions at Appendix L are a cost effective means of achieving their purpose. The conditions are based on the material provided by Regis that was prepared in consultation with the Department, DCCEEW, DPI Water, EPA, BCS and other agencies.

D.7 Conclusions on controlling provisions

Threatened species and communities (Sections 18 and 18A of the Act)

For the reasons set out in Section 6.5, and this Appendix, the Department considers that the impacts of the action would be acceptable, subject to avoidance, mitigation measures described in Regis' EIS, Amendment Report, Submissions Report and additional advice provided to the Department and the recommended conditions of consent in Appendix E.

D.8 Other protected matters

The former Commonwealth Department of Agriculture, Water and the Environment determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage, National Heritage, migratory species, Ramsar wetlands, Commonwealth marine environment, Commonwealth land, Commonwealth action, nuclear action, and Great Barrier Reef Marine Park and Commonwealth Heritage places overseas.

Appendix E – Recommended Instrument of Consent

Refer to ‘Recommendation’ folder on the Department’s website at:
https://www.planningportal.nsw.gov.au/major-projects/projects/mcphillamys-gold-project