Razorback Iron Ore Project

Application Number: **02227** Commencement Date: **22/01/2024** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Razorback Iron Ore Project

1.1.2 Project industry type *

Mining

1.1.3 Project industry sub-type

Iron ore mine

1.1.4 Estimated start date *

01/06/2025

1.1.4 Estimated end date *

01/07/2085

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

Magnetite Mines' flagship Razorback Iron Ore Project (the Proposed Action) is located 240 kilometres northeast of Adelaide in arid, low-intensity pastoral country (refer Attachment 5, Figure 1, Page 2). The Project area is 15,218.80 ha (full area of proposed Mining Lease (ML) plus transmission line corridor and haul road corridor including rail siding), including a disturbance footprint (Proposed Action Area (PAA)) of 8,443.67 ha and an avoidance area (which will not be disturbed) of 1,012.0 ha (refer Attachment 5, Figure 1, Page 2, and Attachment 5, Figure 3, Page 4).

The Proposed Action is a pre-development magnetite iron ore project capable of producing high-grade and Direct-Reduction grade ("DR-grade") iron ore products required in low-carbon and zero-carbon steel production. The Project is 100% owned and operated by Australian Securities Exchange (ASX)-listed Magnetite Mines Limited (ASX: MGT). The Proposed Action, consisting of two main deposits (named Razorback and Iron Peak), has Probable Ore Reserves of 2.0 billion tonnes and Mineral Resources of 3.2 billion tonnes. Using conventional drill-and-blast methods, the pits may extend up to 350 m deep and will be progressively developed over the Project's life. The project's mine life is forecasted to be ~38 years based on current engineering solutions for tailings management; however, the mine plan indicates 56 years of production that would require (likely) vertical expansion of the tailings storage facility (TSF).

Given the non-commercial grade of the in-situ magnetite iron ore, the ore requires processing to improve its grade and produce a high value product. Magnetite Mines (MGT) is targeting a product grade of between 67.5 % and 68.5 % iron, which will attract a premium pricing compared to the 62 % grade index. Minimum production of 5 Mtpa of product is planned. Processing will require the crushing and grinding of ore to sub-45 micron in size before a series of magnetic separation and floatation circuits remove gangue materials (impurities) to create the product to specification. Waste materials will report to a TSF on site for permanent disposal.

With no existing mining infrastructure or activity within the Braemar Iron Formation region, the PAA is a greenfield development having to construct its own mining, processing, and utility infrastructure, whilst leveraging selected existing infrastructure (i.e., the South Australian electricity grid and

Australian Government owned rail infrastructure). MGT remains responsible for the connection to this infrastructure. The transmission line connecting the mine site to the Bundey substation, and the haul road connecting the mine site to the rail network (via Hillgrange Siding) are included in the Proposed Action. Note that the water supply for operational activities is excluded from the current referral.

Project infrastructure

The Project will require the following infrastructure to be established and maintained:

- main site access/haulage road (Hillgrange to Mining Lease), including the site's gatehouse
- various access roads within the Mining Lease, including for light vehicles and heavy vehicles
- processing plant and Run of Mine (ROM) pad
- Waste rock dump (WRD)
- TSF and supporting infrastructure
- non-process infrastructure (NPI) within the NPI compound, inclusive of workshops, stores, administration centre, ablutions, wash bays, substation
- main accommodation camp, including wastewater treatment and disposal
- temporary (overflow) accommodation at Hillgrange and within the Mining Lease area during construction
- associated infrastructure, including fuel storage, magazine (explosives store) and waste management facilities
- Hillgrange Rail Siding, associated hard stand and supporting facilities
- reticulated power supplies
- groundwater bores for incidental water usage

Construction of the transmission line will generally operate independently from the rest of the construction process, and will result in:

- development of an access track along the entirety of the corridor
- fencing and gate augmentation
- temporary construction compounds, including for mobile accommodation camps
- installation of groundwater bores for construction
- site preparation of tower pads and construction of transmission towers
- conductor stringing.

Operations

Operations will generally consist of:

- Conventional open-pit mining
- Ex-pit haulage of over burden and ore
- Overburden and waste rock disposal
- Ore ROM feed and handling

- Processing of ore
- Tailings management
- Produce stockpiling and load-out
- Product haulage (by road to rail siding)
- Rail siding material load-out

Closure

The closure phase of the Project will focus on the physical and environmental rehabilitation of the PAA areas while supporting a just and sustainable social transition to a post-mining phase for local communities and stakeholders.

Options for the post-mining land use include pastoral and/or conservation activities, each with a potential cultural management focus. A conceptual Mine Closure Plan for the Project is under development.

Potential direct ecological impacts will relate to vegetation clearing, whilst indirect impacts will relate to potential changes in noise, air quality, light, traffic, and ground and surface water quality and quantity. Attachment 7 (all sections) presents a full assessment of all potential direct and indirect changes resulting from the Proposed Action and considers the potential impact of the changes on Matters of National Environmental Significance (MNES).

Refer to Attachment 9, Section 1, page 1 for a detailed Project description.

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

Yes

1.2.3 Is the proposed action the first stage of a staged development (or a larger project)?

Yes

1.2.5 Provide information about the staged development (or relevant larger project).

This referral includes consideration for infrastructure included within the mine site (including mine areas, processing infrastructure, TSF, accommodation etc.), discrete water sources for construction of the Proposed Action and ongoing minor use, the haul/access road from the mine site to the rail siding, the rail siding and connection to the existing rail network, and the transmission line connection to the Bundey Substation. This

referral **excludes** consideration of the water supply pipeline for water required during operation of the Proposed Action. The operational water supply pipeline (primary process water supply) will be subject to separate consideration under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) at a later date.

The preferred water supply option for the Proposed Action is a pipeline from Spencer Gulf utilising seawater (refer Attachment. 5, Figure 2, Page 3). A corridor for the pipeline has been identified and MGT is currently undertaking optimisation studies to determine the impact of process water salinity on the Proposed Action to determine the percentage of water used that would require desalination, and hence the preferred location of a desalination plant. As definition for the water supply option is less advanced than other project aspects, the decision has been made for them to be considered under the EPBC Act separately.

Whilst it is acknowledged the referred Proposed Action and the water supply pipeline comprise two parts of a larger action undertaken by MGT, there is sufficient ecological and geographical distinctions between the two parts that they can be sufficiently considered as separate actions without reducing the ability to undertake an appropriate assessment and achieve the objects of the EPBC Act.

Preliminary desktop assessment of water supply options has been undertaken and detailed site survey to inform mitigation measures will be commissioned when a preferred alignment has been selected. A range of preliminary mitigation measures have been proposed and committed to, including placing infrastructure in existing disturbed areas, co-locating with other linear features such as road corridors and/or fence lines, and use of areas with low ecological value such as cropping paddocks where practicable to avoid and /or minimise potential impacts on any MNES that may be present. As a result, the impact of the pipeline option is likely to be small-scale, of short duration (minimal residual impact post construction phase), and of insufficient magnitude, geographic extent or intensity to be considered significant.

Coastal pipeline option

The coastal pipeline option follows the same route as the haul road to Hillgrange siding (part of the PAA) and would cause no increase in disturbance to that already considered for the haul road (refer Attachment 5, Figure 2, Page 3) in this area. Hence for the purposes of this assessment, the coastal pipeline option will be considered as the additional disturbance from Hillgrange siding to the coast only.

There are no Threatened Ecological Communities (TECs) that are common to both the PAA and the coastal pipeline option. A distinguishing feature of the only TEC recorded in the PAA (Mallee Bird Community of the Murray Darling Depression Bioregion) (MBC of the MDDB) is that it can only be present within the Murray Darling Depression bioregion. As the coastal pipeline runs southwest from the PAA within the Flinders Lofty Block bioregion, and is not within the Murray Darling Depression Bioregion, the MBC of the MDDB TEC cannot be present. Similarly, the TECs that are mapped as potentially occurring within the coastal pipeline corridor were not recorded during field surveys of the PAA. Hence as there are no TECs that co-occur in both the PAA and the coastal pipeline corridor, it is reasonable to assume that impacts on any TEC could be assessed appropriately when considering the PAA separately from the coastal pipeline corridor.

The cumulative impact of the combined coastal pipeline corridor and PAA on MNES flora species is unlikely to be significant as there have been no EPBC listed flora species found within the PAA to date.

Cumulative impacts on fauna species are yet to be confirmed as no fauna studies have been completed within the coastal pipeline corridor, however there are few records of MNES within the north-eastern end of the corridor in the vicinity of the mine site, with the majority of MNES fauna records being associated with major water courses and less arid land in the central section of the corridor, and the coastal habitats on the western extent of the corridor. The MNES fauna species using the semi-arid habitat within the PAA are not the same cohort of species that would use the coastal wetland habitat, and hence impacts on both communities can be properly assessed separately.

It is acknowledged that the northeastern end of the proposed coastal pipeline corridor joins the proposed haul road (part of the PAA), and that there is potential for some widespread and locally common MNES species (such as *Aphelocephala leucopsis* (Southern Whiteface)) which will not be significantly impacted by the PAA to occur across both sections of infrastructure. However, given small areas and temporary nature of disturbance associated with construction and operation of a pipeline, and given the anticipated alignment within lower value habitat such as cropping paddocks, fencelines and previously disturbed areas, any resulting impacts are likely to be insignificant due to the small geographical area, magnitude and duration of the disturbance on a widespread species with relatively unspecialised habitat requirements which is known to be insensitive to disturbance. Therefore, any impact is unlikely to be important, notable or of consequence having regard to context and intensity.

Hence there are unlikely to be cumulative impacts such that consideration of the PAA and the coastal water pipeline separately would result in a different outcome than considering both aspects together.

Once sufficient detailed information is determined for the proposed coastal pipeline (including refined alignment corridor, location of desalination plant and information on construction methods and timing), a self-assessment will be completed to determine whether a referral under the EPBC Act is required for the water supply pipeline. Should a referral be required, it would consider any potential cumulative impacts determined to be relevant at that time.

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

Commonwealth Legislation

The EPBC Act is relevant to the proposed action, due to the known presence of the MBC of the MDDB TEC within part of the study area and portions of the transmission line corridor. In addition, four EPBC listed bird species and two EPBC listed flora species are known to occur, or likely to occur within the PAA. Two areas of Commonwealth Lands (associated with the rail network) also overlap with the PAA. The presence of these MNES within the PAA determines the need for the Proposed Action to be referred to the Commonwealth, under the EPBC Act.

State Legislation

There are several South Australian legislative frameworks relevant to the Proposed Action. The key pieces of state legislation include the *Mining Act 1971* (and *Mining Regulations 2020*), the *National Parks and Wildlife Act 1972* and the *Native Title Act 1994*.

The *Mining Act 1971* is most relevant to the Proposed Action as the proposed works meet the definition of 'mining' under the Act. Exploration Licences (EL) for the Proposed action have been granted under the Act and are held by Razorback Iron Pty Ltd. To secure approvals for the Proposed Action under the Mining Act a Mining Lease Application, supported by a Mining Lease Proposal (MLP) will be submitted to the SA Department of Energy and Mining (DEM) to apply for a Mining Lease (ML) over the PAA. ML applications will be undertaken in accordance with South Australian Minerals Regulatory Guidelines (MGs) and Terms of Reference (TOR).

The South Australian *National Parks and Wildlife Act 1972* (NPW Act) applies to the proposed action, as it covers the protection of native plants and animals throughout the State. Baseline studies of the PAA have determined the presence of several state listed species, which will be considered under the NPW Act. This act also protects values of Pualco Range Conservation Park, which is adjacent to the PAA.

As the Proposed Action is partially located upon land registered to have Native Title determined and also subject to claim, the *Native Title Act 1994* is applicable to the proposed action. The Native Title Act outlines the existence of native title, native title rights, compensation for extinguishment or impairment of native title and acquisition of native title in land, or entry to/occupation of native title land or any other matter related to native title.

Other relevant pieces of state legislation that apply to the referral area include the *Environment Protection Act 1993, Planning, Development and Infrastructure Act 2016, Native Vegetation Act 1991, Natural Resources Management Act 2004, Aboriginal Heritage Act 1988, Landscape South Australia Act 2019* (relates to water licences and permits), *Fire and Emergency Services Act 2005 (and Fire and Emergency Services Regulations 2005)* and *Local Government Act 1999*.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

Indigenous stakeholders

A native title claim has established the Native Title holders, Traditional Owners and cultural custodians of the PAA.

In 2011, a Native Title Agreement was signed in support of MGT (then called Royal Resources) exploration activities, founding a strong relationship between MGT and the Indigenous Stakeholders. Since 2011, the two groups have worked together on heritage clearances and active monitoring for resource exploration, maintenance of access tracks, stratigraphic drilling, groundwater investigation and geotechnical assessment programs for the Proposed Action.

In 2021/22, MGT engaged Indigenous heritage teams to undertake baseline cultural heritage surveys of approximately 3,500 hectares across the PAA. These surveys, together with a men's ethnographic survey completed in December 2022, provided a clear, mutual understanding of the intrinsic cultural value of the PAA. Survey activities in 2022 accounted for 288 days of combined field survey effort.

Since 2022, MGT has undertaken regular engagement with Indigenous Stakeholders (as described in Attachment 4, Section 1, Page 1). This has led to the development and signing of a voluntary Partnering Agreement between MGT and the Indigenous Stakeholders as the 'foundation stone' for a respectful, productive and long-term relationship centered on the Proposed Action. The 'Walking Together – One Team' Partnering Agreement was signed on 20 December 2023. The Partnering Agreement will support a collaborative approach for subsequent activities driving towards project development. Detail of the partnering agreement is publicly available: https://magnetitemines.com/insights/proactive-investors-magnetite-mines-formalises-partnership-with-ngadjuri-nation/

Future targeted engagement activities are planned to continue robust engagement, further on-ground heritage surveys and negotiation of an Indigenous Land Use Agreement (ILUA) (as described in Attachment 4, Section 1, Page 2).

Local communities

1. Peterborough

Early engagement between the District Council of Peterborough (Council) and MGT identified the keen interest of the local community in the Proposed Action and the opportunities it can present for Peterborough, located only 80 km away from the mine site. Given the potential for direct and indirect interaction between project activities and local communities, as well as the benefits that can be derived from the operation of a large-scale mine in the region, Council and MGT both held the view that shared opportunities can only be maximised through a strong partnership model. A Memorandum of Understanding (MoU) was identified as the preferred mechanism on which Council and MGT can collaborate and support project development, and to ensure community involvement in the Proposed Action. The MoU was signed on 5 May 2023, with further information on the MoU available here: https://www.investi.com.au/api/announcements/mgt/cadc5660-fc8.pdf.
A range of community information and feedback sessions have been completed, with additional engagement planned in 2024 as detailed in Attachment 4, Section 2.1, Page 3).

2. Yunta

MGT presented to the Yunta District Hall group – an incorporated representative group that supports the operation of the Yunta community – in October 2023. Additionally, MGT presented to the Outback Communities Authority (the overarching State Government agency dealing with outback community matters) in December 2023. Through these engagements, MGT outlined development plans relating to the PA, and provided opportunities for feedback. Significant interest in the opportunity for economic benefits to Yunta was apparent, as well as how housing issues could be addressed and the reliance of emergency services to support the project. While several of these matters are outside of MGT's direct influence, the Company plans to maintain engagement with the Yunta community and Outback Communities Authority (OCA) and will be supporting OCA's local community planning project.
Details of community consultation completed in Yunta, together with plans for upcoming consultation are detailed in Attachment 4, Section 2.2, Page 4.

3. Pastoral and associated landowners

MGT has extensively engaged with land-owners relevant to the Proposed Action, building upon over ten years of engagement for exploration and pre-development activity.

Areas for proposed mining, processing, storge and disposal activities span two properties – Manunda Pastoral Lease and Spring Dam (Crown perpetual lease). Land access negotiations are continuing to confirm tenure for the Proposed Action. These landowners have been offered and provided with project scope updates over the last 2-3 years, with input sought on local ecological, hydrogeological and other environmental conditions and contexts. Principal concerns focus on impacts to pastoral productivity (i.e. loss of productive land), family heritage links, groundwater interactions and general nuisance. In this regard, MGT has:

- elected to not pursue a near-site bore field for process water supply
- ensures pastoral activities can operate within the transmission line corridor post construction
- offset pastoral land losses through access agreement-making.

Five private landowners are within the proposed haulage corridor (including rail siding), of which one land access agreement has already been executed. Engagement with the four other groups continues with the objective of aligning the intended scope of the Proposed Action to the continuing productive and sustainable operation of the existing pastoral activities. Land access agreements will finalise such arrangements.

The transmission line alignment has been determined through a stakeholder led process, with extensive review and engagement across more than 30 land-owners undertaken to identify an alignment that minimises impacts to sensitive areas (i.e., erosive soils, remnant vegetation) and pastoral operations, while co-designing various elements, such as aligning to fence lines and reviewing optimal locations to cross regional creek lines. Engagement with those eleven land-owners subject to the proposed transmission line alignment continues, with a focus on determining required management strategies as part of land access negotiations.

Detailed information on consultation with pastoral and associated landowners is shown in Attachment 4, Section 3, page 5.

4. State Government stakeholders

MGT and ELA have consulted widely on its baseline characterisation program and current impact assessment studies with a range of SA Government agencies to ensure study methodologies are appropriate and all information sources identified and considered. Representatives from the following agencies have been engaged:

- Department for Energy and Mining
- Department for Environmental and Water
- National Parks and Wildlife Service
- Landscapes SA – Arid Lands
- Landscapes SA – Riverland and Murraylands
- Attorney General’s Department – Aboriginal Affairs
- Department for Infrastructure and Transport
- Environment Protection Authority

Consultation documents for all community consultation and feedback sessions are shown in Attachment 4, Figures 1-7, Pages 7-end. A summary of stakeholder feedback is shown in Attachment 8, Pages 1-4

1.3.1 Identity: Referring party

Privacy Notice:

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	87096512088
Organisation name	ECO LOGICAL AUSTRALIA PTY LTD
Organisation address	2232 NSW

Referring party details

Name	Sarah Holt
Job title	Senior approvals consultant
Phone	0882354126
Email	sarah.holt@ecoaus.com.au
Address	Level 2, 70 Pirie Street, Adelaide, 5000

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	34108102432
Organisation name	MAGNETITE MINES LIMITED
Organisation address	5000 SA

Person proposing to take the action details

Name	Allan Kane
Job title	General Manager - Sustainability
Phone	0884270516
Email	allan.kane@magnetitemines.com
Address	Suite 3.03, 30 Currie Street, Adelaide, SA 5034

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

The Person Proposing the Action (MGT) has no proceedings under Commonwealth, State or Territory laws.

MGT is currently operating the Exploration Leases under the Generic program for environmental protection and rehabilitation (PEPR) – low impact exploration in South Australia, whilst advanced exploration activities are undertaken under exploration PEPRs. Each PEPR requires consideration of the environment, including consideration of potential environmental impacts, control strategies, required environmental outcomes and outcome measurement criteria. MGT remains compliant with all outcomes and conditions within these statutory documents since major field and exploration programs commenced in 2009.

MGT views robust and sustained environmental, social and corporate governance (ESG) performance as an opportunity to pursue meaningful social and environmental objectives while underwriting long-term financial performance. In June 2023, MGT launched its bespoke sustainability platform 'foresight' that, together with its Stage 1 Sustainability Framework, provides a structure for transparently evaluating the Proposed Action's compliance with a range of principle and performance based voluntary initiatives intended to engender sustainable business practices for the mining sector. These initiatives include voluntary alignment with the UN Sustainable Development Goals and adoption of the Initiative for Responsible Mining Assurance (IRMA) Standard for Responsible Mining (which will be incrementally operationalised in line with the scale up of the organisation).

The Proposed Action will be undertaken in accordance with MGT's expanding corporate governance and operations framework (refer https://magnetitemines.com/about-us/corporate-governance/), of which its Risk Management Policy leads company consideration of structural and project-based risks. An umbrella sustainability policy is currently under development, which will form the specific agenda for the environmental policy and procure systems that the Proposed Action will be developed under.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation’s environmental policy and planning framework

Corporation's environmental policy and planning framework documentation is under development.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	34108102432

Organisation name	MAGNETITE MINES LIMITED
Organisation address	5000 SA

Proposed designated proponent details

Name	Allan Kane
Job title	General Manager - Sustainability
Phone	0884270516
Email	allan.kane@magnetitemines.com
Address	Suite 3.03, 30 Currie Street, Adelaide, SA 5034

1.3.4 Identity: Summary of allocation

☐ Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	87096512088
Organisation name	ECO LOGICAL AUSTRALIA PTY LTD
Organisation address	2232 NSW

Representative's name	Sarah Holt
Representative's job title	Senior approvals consultant
Phone	0882354126
Email	sarah.holt@ecoaus.com.au
Address	Level 2, 70 Pirie Street, Adelaide, 5000

☐ Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	34108102432
Organisation name	MAGNETITE MINES LIMITED
Organisation address	5000 SA
Representative's name	Allan Kane
Representative's job title	General Manager - Sustainability
Phone	0884270516
Email	allan.kane@magnetitemines.com
Address	Suite 3.03, 30 Currie Street, Adelaide, SA 5034

☐ Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)?

Yes

1.4.2 Select reason for exemption

Small Business

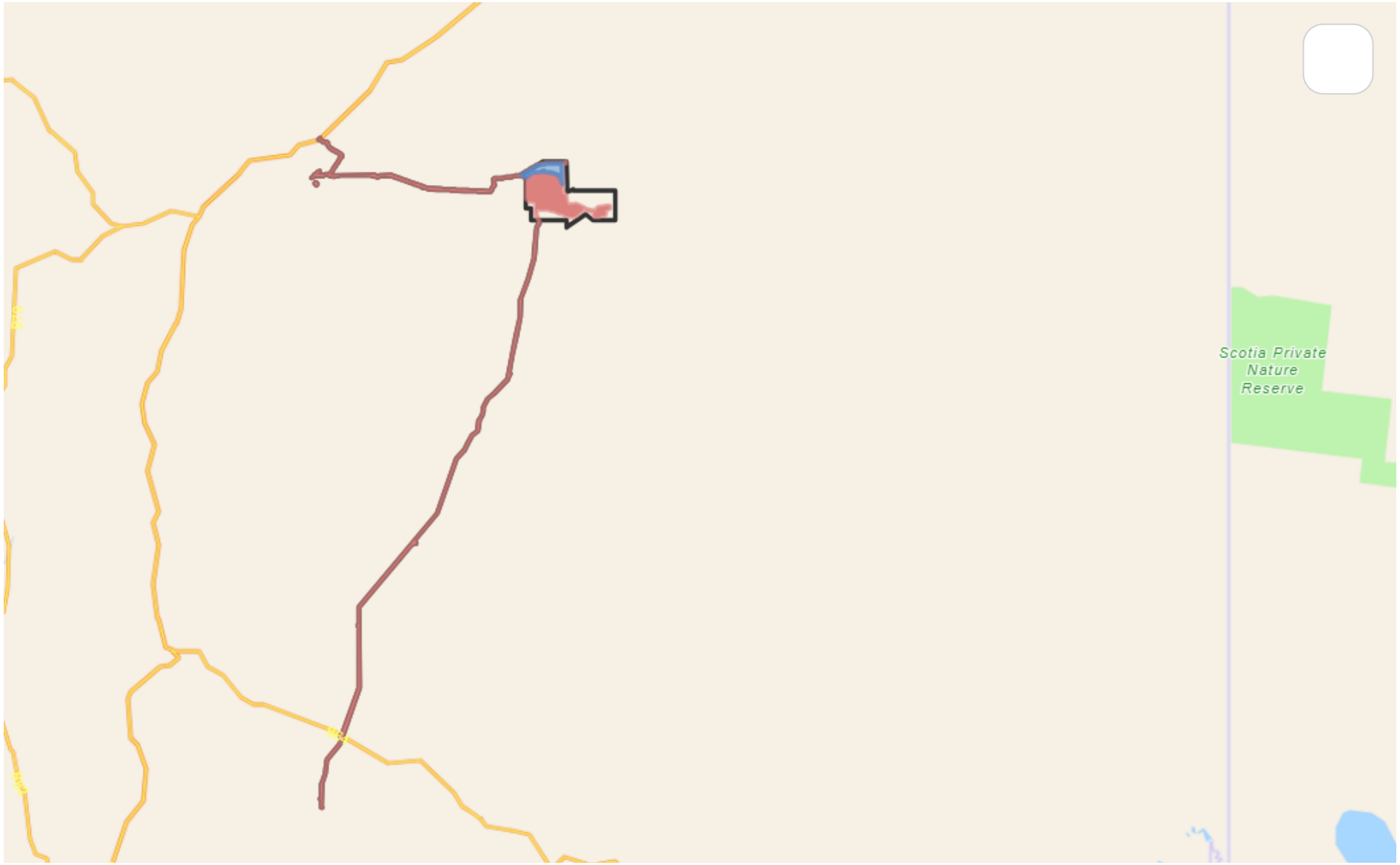
1.4 Payment details: Payment allocation

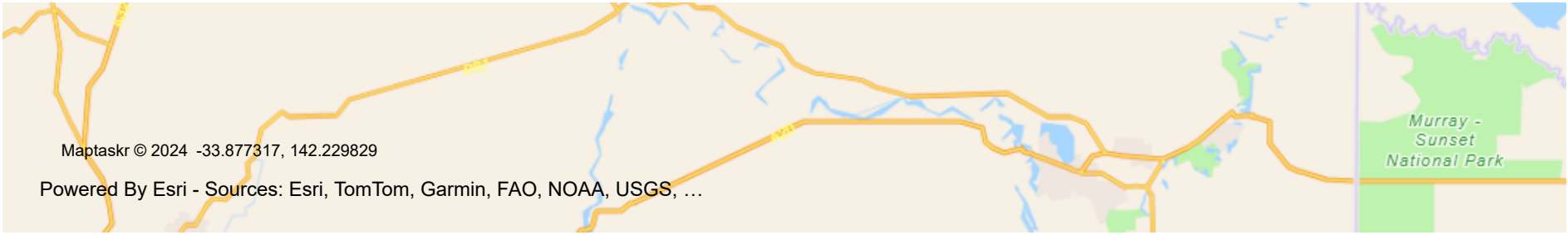
1.4.11 Who would you like to allocate as the entity responsible for payment?

Person proposing to take the action

2. Location

2.1 Project footprint





Project Area: 15218.79 Ha **Disturbance Footprint:** 8443.67 Ha **Avoidance Area:** 1012.00 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

The western extent of the Project haul road is the junction of Rucioch Rd and Barrier Hwy.

2.2.2 Where is the primary jurisdiction of the proposed action? *

South Australia

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The PA is located across a variety of land tenures, dominated by Crown Lease lands. Other land tenures within the PA include:

- Certificate of Title (freehold)
- Crown reserves

- Formed road reserves (under care and control of Department of Infrastructure and Transport (DIT), District Council (DC) of Peterborough, and Regional Council (RC) of Goyder)
- Unformed road reserves (under care and control of DIT, DC of Peterborough and RC of Goyder.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

Vegetation condition

Field investigations from 2020 - 2023 recorded seven native vegetation associations (VAs) and a variety of habitat suitable to support native flora and fauna within the PAA.

The PAA has a long history of low intensity pastoral grazing, with current vegetation condition generally moderate to poor due to grazing by domestic cattle and sheep, and feral species such as goats, rabbits and kangaroos (Refer Attachment 1, Sec 4.3, pg.48). The PAA was historically subject to vegetation clearing by settlers (Trove, 1879), including clearing of riparian vegetation adjacent to Manunda Creek which has caused depauperate remaining vegetation and resulting areas of erosion and sedimentation.

Invasive species

Thirty-nine introduced flora species were recorded throughout the study area by ELA during the seven surveys undertaken between 2020 and 2023 (Att1. Sec 4.3, pg47), of which four are listed as Weeds of National Significance (WoNS) and declared under the (*Landscape South Australia Act 2019 (SA*)) (LSA): *Opuntia robusta* (Wheel pear), *Opuntia* sp. (Prickly Pear), *Lycium ferocissimum* (African Boxthorn) and *Solanum*

elaeagnifolium (Silver-leaf Nightshade). In addition, *Marrubium vulgare* (Horehound) and *Xanthium spinosum* (Bathurst Burr), declared under the LSA Act, were recorded during the 2022-2023 vegetation surveys (Attachment 1. Sec 4.3, pg47, and Attachment 10, Section 3.3.6, pg26).

Five introduced mammal species were recorded within the study area: *Vulpes vulpes* (Red Fox), *Capra hircus* (Goat), *Oryctolagus cuniculus* (European Rabbit), *Ovis aries* (Sheep) and *Lepis capensis* (Brown Hare). All pest species are common to the semi-arid region and do not represent unexpected records for the habitat types present (Att 1. Sec 4.3, pg48).

Land use zoning

The PAA is located in the 'remote land zone' which has a desired outcome of 'a diverse range of uses including pasture growing, grazing, farming, agricultural processing and transportation, mining and petroleum, energy generation and storage, pipeline infrastructure, workers accommodation and settlements'. The dominant land use for land adjoining the PAA is low intensity grazing. The land use zoning is appropriate for both the current and proposed land uses.

Access

Existing infrastructure to provide access to the PAA is limited, owing to its relatively remote location. Access requirements differ between the intended Mining Lease/haulage corridor and the transmission line corridor.

Access to the Mining Lease/haulage corridor will occur, primarily, via the Barrier Highway in Nackara, SA. With the majority of construction and operations supplies, services and staff originating from (or transporting through) Adelaide, the Upper Spencer Gulf or Peterborough (via B79), the Barrier Highway provides the logical access route (A-Route designation) that is also approved for 36.5m road train configurations. As MGT's private haul road to Hillgrange Siding ends ~10km short of the Barrier Highway, Rucioch and Crocker Roads (under the care and control of the District Council of Peterborough) will be used (subject to road and intersection upgrades as considered within this Proposed Action) to bridge access between the Barrier Highway and private haul road.

Access to the Mining Lease area may also use, infrequently, the Sturt Vale Road from Yunta. This access route may provide some early access into the Mining Lease area for initial mobilisation, and then ongoing throughout the life of the project as an emergency access/egress route.

Access to the transmission line will use several routes, owing to its long linear nature. With the majority of construction supplies and services for the transmission line originating from Adelaide or the Mid North, the following access routes are likely to support the spatially-extensive construction domains:

- Southern: Thiele Highway (B81), Worlds End Highway, Powerline Road, Sutherlands Road, private station tracks
- Central – south: Barrier Highway (A32) and/or Thiele Highway (B81)/Worlds End Highway, Goyder Highway (B64), private station tracks
- Central – north: Barrier Highway (A32), Goyder Highway (B64), Eastern Road, Grassville Track, Hogback's Lane, Lilydale Road, private station tracks
- Northern: via main project haulage corridor

It is expected that these access routes will be utilised during project decommissioning and closure stages, with the private haul road-Crocker Road-Rucioch Road-Barrier Highway route to remain used until full project closure.

Distance to major towns

The proposed ML is approximately 50 km southeast of Yunta, 80 km east of Peterborough, 100 km northeast of Burra, and 240km northeast of Adelaide.

3.1.2 Describe any existing or proposed uses for the project area.

Current land use

There are two land uses within the PAA: pastoral (grazing) (mining area, haul road and transmission line) and 'agriculture' (transmission line only). The land use is typified by broadacre cropping in agricultural areas, or low intensity grazing of sheep on chenopod shrublands or native annual grasslands (where shrub cover has been lost) in dry pastoral areas. Although agricultural land use is shown on land use maps within parts of the transmission line location, field surveys recorded only pastoral / grazing land use at the time of survey.

Proposed land use

There are no proposed changes to land use with the exception of the proposed mining application.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

Pualco Range Conservation Park

The Pualco Range Conservation Park (PRCP) spans approximately 7,746 ha and is adjacent to Exploration Licences (EL) 5902, EL6878, EL6126 and EL6127 associated with the Proposed Action. The PRCP was proclaimed under the *National Parks and Wildlife Act 1972* in 2010, as the land supports high value habitat for the endangered *Pedionomus torquatus* (Plains-wanderer) (although there are no publicly available records of this

species within PRCP) and other state listed species including the *Cacatua leadbeateri* (Major Mitchells Cockatoo), *Neophema chrysostoma* (Blue-winged parrot) and *Falco peregrinus* (Peregrine falcon) (DENR, 2011). PRCP is an International Union for Conservation of Nature (IUCN) Category IV Protected Area, due to the important species and habitat contained within it (IUCN, 2020).

The PRCP is subject to a National Parks and Wildlife (Pualco Range Conservation Park – Mining Rights) Proclamation 2010 under Section 43 of the NPW Act (the Proclamation), which intends that certain existing and future rights of entry, prospecting, exploration or mining be preserved in relation to the land, as long as certain conditions are met. The Proposed Action will be located entirely outside of PRCP, however the Proclamation recognises that some interaction between mining activities and PRCP (in this case potential indirect impacts such as dust and noise) may be considered acceptable in certain circumstances.

Manunda Creek and Yunta Creek

Whilst not within the PAA, Manunda Creek and Yunta Creek are significant ephemeral features in the landscape, located 3 km east of the Site. Manunda Creek and Yunta Creek are the only major watercourses in the vicinity of the PAA, with the confluence of the two creeks occurring approximately 12 km upstream of the PAA (Attachment 3. Sec 2.2.4.2, pg28).

Manunda Creek extends from the north-west (upstream) of the PAA to the east, intersecting the north-eastern portion of the PAA, before discharging downstream to the Murray Basin further to the south-east. Yunta Creek extends from the town of Yunta (approximately 40 km north of the PAA) to the southeast where it meets Manunda Creek at its confluence, approximately 12 km upstream from the PAA (Attachment 3. Sec 2.2.4.2, pg28).

References:

Department of Environment and Natural Resources (DENR) (2011). *Three new conservation parks added to SA's reserve system*. Available at: Three new conservation parks added to SA's reserve system. - Department of Environment, Water and Natural Resources (DEWNR (archive.org)

IUCN Biodiversity A-Z (2020). IUCN Category IV - Habitat / Species Management Area. Available at: IUCN Category IV - Habitat / Species Management Area definition | Biodiversity A-Z

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The topography of the PAA is shown in Attachment 5, Figure 4, Page 5.

The regional topography consists of the Olary Ranges to the north-west of the PAA, which form highlands around the north-western margin of the Murray Basin sedimentary plains. The region is dominated by a series of high-elevation, south-east to north-east trending ridgelines, including Razorback Ridge (i.e., the PAA), which sits in the south-western portion of the Olary Ranges and reaches an elevation of approximately 1,430 m above sea level (measured in reference to Australian Height Datum; m AHD) (Attachment 5, Figure 4, Page 5 & Attachment 3, Sec 2.2.2, pg18).

The regional topography transitions from high elevations in the north-west to undulating to flat terrain to the south-east, from the Olary Ranges towards the Murray Basin. Drainage lines have formed in the low-elevation areas at the base of the ridgelines and capture surface water runoff throughout the catchment, which is either recharged to groundwater through vertical infiltration in areas of outcropped fractured rock and/ or discharged to the lower lying areas of the Murray Basin in the south-east (Attachment 3, Sec 2.2.2, pg18).

The Proposed Action is not situated within a marine area and thus, depth range for the action is not relevant.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

Field survey efforts

Survey efforts within the PAA include flora and fauna assessments completed between 2010-2023 with associated reporting completed by Rural Solutions in 2010 and 2013, and ELA in 2020 and 2022 (Attachment 1, Table 2-1, Pg 17). The most recent surveys, in 2023 and 2024, were undertaken to address areas added to the PAA resulting from minor design changes, and consider new species added to the EPBC Protected Matters List since initial survey. The objectives of the 2023 and 2024 field surveys were to complement existing vegetation mapping and baseline fauna surveys, identify habitat features present for listed biota with predicted high likelihood of occurrence within the study area, and undertake targeted searches for newly listed species added to the EPBC Act in March 2023 (Attachment 1, Section 1.1 and 1.2, Pages 12-14).

Fauna

A total of 137 fauna species were recorded during seven surveys from 2020 to 2023, consisting of two amphibian species, 102 birds, 21 mammals, 13 reptiles and one amphibian. Of the 137 species, three were EPBC listed, including *Aphelocephala leucopsis* (Southern Whiteface), *Melanodryas cucullata cucullata* (South-eastern Hooded Robin) and *Lophochroa leadbeateri leadbeateri* (Eastern Major Mitchell's Cockatoo). Of the 137 species recorded, seven NPW-listed species *Chalinolobus picatus* (Little Pied Bat), *Myiagra inquieta* (Restless Flycatcher), *Saccolaimus flaviventris* (Yellow-bellied Sheath-tailed Bat), *Megalurus cruralis* (Brown Quail), *Climacteris affinis* (White-browed Treecreeper), *Corcorax melanorhamphos,* (White-winged Chough) and *Falco peregrinus* (Peregrine Falcon) were detected within the PAA.

The Mixed *Eucalyptus leptophylla* +\- *E. gracilis open mallee* vegetation (VA5, described in Attachment 1, Table 3-6, Page 41) contains an abundance of hollows which are important breeding resources for resident species observed during field investigations such as *Pardalotus stiatus* (Striated Pardalote), *Psephotus varius* (Mulga Parrot), and *Barnardius barnardi* (Mallee Ringneck). These hollows also have the potential to provide breeding habitat for the Yellow-bellied Sheath-tailed Bat and Blue-winged Parrot.

Five introduced mammal species were recorded within the study area: *Vulpes vulpes* (Red Fox), *Capra hircus* (Goat), *Oryctolagus cuniculus* (European Rabbit), *Ovis aries* (Sheep) and *Lepis capensis* (Brown Hare).

Flora

A total of 323 flora species (282 native and 41 introduced) have been recorded throughout various field investigations conducted by ELA between 2020 and 2024, none of which are listed under the SA *National Parks and Wildlife Act 1972*, or the EPBC Act.

The vegetation of the referral area is described in Attachment 1, Figure 3-3 and Tables 3-2 to 3-8, Pages 36-43)

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

Vegetation Associations

Field investigations from 2020 - 2024 recorded seven native vegetation associations including variety of habitat suitable to support native flora and fauna within PAA. The vegetation associations are summarised below and are detailed in Attachment 1, Fig 3-3 and tables 3-2 to 3-8 (pages 36-43). The most common vegetation association across the PAA is VA1 covering approximately 82% of the PAA.

VA1: *Maireana sedifolia* +/- *Maireana pyramidata* low open grassy shrubland (clay loam soils)

VA2: Ridgeline *Xanthorrhoea quadrangulata* very low open woodland with emergent *Callitris glaucophylla* +/- *Eucalyptus gracilis* (sandy to clay loam soils on hills)

VA3: *Myoporum platycarpum* low open woodland

VA4: *Casuarina pauper* low woodland (clay loam soils)

VA5a: Mixed *Eucalyptus leptophylla* +/- *E. gracilis* open mallee (clay loam substrate)

VA5b: Mixed *Eucalyptus leptophylla* +/- *E. gracilis* open mallee (TEC, described later) (on undulating sandy soil with rocky outcrops)

VA6: *Triodia scariosa* very open mixed mallee

VA7: *Eremophila sturtii* tall open shrubland over *M. pyramidata* open chenopod shrubland (on sand and clay soil type)

The 2023 and 2024 surveys identified one TEC (The *Mallee Bird Community of the Murray Darling Depression Bioregion)* that was listed as Endangered under the EPBC Act in December 2021: Approximately 43.9 ha of the Mixed *Eucalyptus leptophylla* +/- *E. gracilis* open mallee (VA5b) within the PAA is consistent with the definition of the TEC.

Soils

A Soils Baseline Assessment Report was prepared by ELA in 2022 to support the development of the MLP. A wide range of soils were identified, although the study area is dominated by Shallow soils on Rock (Group L), Calcareous Soils (Group A) and Hard Red-Brown Texture Contrast Soils with Alkaline Subsoil (Group D) depending on landscape position. Mapped soil groups are detailed in the Soils Baseline Assessment Report (Attachment 2, Sec 3.2.1.3, page 27).

3.3 Heritage

3.3.1 Describe any Commonwealth heritage places overseas or other places recognised as having heritage values that apply to the project area.

A Protected Matter Search Tool (PMST) search of the PAA and an additional 50 km buffer returns one Nationally listed Heritage place within the buffer area of the transmission line; the Australian Cornish Mining Sites (place ID 106304).

The Australian Cornish Mining Sites are situated in Burra, South Australia along the Barrier Highway, approximately 130 km south-west of the PAA. This heritage site is remnants of the 'Burra' copper mine, which operated from 1845 to 1877 and includes a collection of nineteenth century civil, residential, church, and Cornish mining bult structures (DCCEEW, 2023). Given the distance to the PAA, it is highly unlikely that this national heritage place will be impacted by the Proposed Action. No other nationally listed heritage places are located within the mine site area or 50 km buffer.

There are no world or Commonwealth heritage items located within the PAA or 50 km buffer.

Reference: Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2017). *Australian Cornish Mining Sites: Burra, Barrier Hwy, Burra, SA, Australia.* Available at: Australian Heritage Database (environment.gov.au)

3.3.2 Describe any Indigenous heritage values that apply to the project area.

The *Native Title Act 1993* recognises the rights and interests of Indigenous people to land and aims to provide for the recognition and protection of common law native title rights. A summary of the process by which Indigenous heritage values have been identified within the PAA is detailed in Attachment 4, Section 1, Page 1.

A Taa Wika search conducted by ELA in 2021 identified seven reported sites within the PAA, and more sites have been determined during site assessment by Indigenous Stakeholder heritage representatives. Preliminary assessment of cultural heritage suggests that there are indigenous cultural heritage items and sites across the PAA in excess of those returned by the Taa Wika search results. Consultation and further site heritage assessments are ongoing, and a cultural heritage management plan is proposed to be co-developed with Indigenous Stakeholders.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

A Surface water and Groundwater Baseline Water Assessment has been undertaken by ELA (Att. 3, Sec Executive Summary, pg vii) with a summary of the results outlined below. ELA notes that more recent groundwater monitoring data (May and November 2023) has been collected, with an updated surface water and groundwater report to be prepared in early 2024.

Surface Water

Primary surface water resources

Manunda Creek and Yunta Creek are the only major watercourses in the vicinity of the PAA. Naturally occurring, semi-permanent surface water only occurs in a small area along Manunda Creek near its confluence with a major tributary, where a series of in-stream pools and waterholes are known to exist for extended periods. These are typically fresh water and exist in depressions of outcropping Neoproterozoic rock.

Rainfall and evapotranspiration

Average annual rainfall observed at the Yunta weather station is 234 mm/year for the last 30-year period (1992-2021). Rainfall occurrence and intensity is episodic in the region, which can lead to flash flooding events in the typically dry watercourses. The regional average potential evapotranspiration rate is between 1700 and 2600 mm/year, with actual evapotranspiration estimated between 190 and 300 mm/year. Monthly average potential evapotranspiration is greater than monthly average rainfall throughout the year.

Streamflow

All natural watercourses in the vicinity of the proposed PAA are ephemeral, with streamflow only occurring during periods of intense or prolonged rainfall. Based on field observations during 2021 and 2022, Manunda Creek occasionally receives high flows as evidenced by the observed high riverbanks (approximately 2 m) and large creek widths (estimated at approximately 175 m in areas immediately east of the PAA), in addition to the presence of debris throughout the creek bed and large washout areas. Satellite imagery suggests that there are very few areas along Manunda Creek where large, inundated areas (flood-outs) occur for extended periods of time.

Interactions with groundwater

There are no known areas of groundwater discharge in the vicinity of the PAA. Salt scalding present near the Manunda Creek waterholes may be indicative of some form of groundwater discharge but it is likely only diffuse and driven by evaporation from shallow water table. Surface water features potentially act as point sources of episodic recharge to the underlying fractured rock aquifer(s).

Surface water quality

The concentrations of dissolved parameters for the Manunda Creek waterhole samples are below relevant livestock (sheep) drinking water guidelines. However, there are exceedances of default guideline values for freshwater systems for dissolved copper, arsenic and zinc. There are exceedances for surface water sediment default guideline values for nickel concentrations for most samples along Manunda Creek and its tributaries, including along the proposed haul road route. There are no other exceedances for metals or hydrocarbon species.

Groundwater

Primary groundwater resources

There are four primary hydrostratigraphic units identified within the vicinity of the PAA: Neoproterozoic fractured rock aquifer(s), Murray Basin sedimentary aquifers, Neogene fluvial aquifer(s)/paleo valleys and Neogene perched aquifers.

Recharge

The primary source of recharge to the aquifer(s) appears to be via diffuse rainwater infiltration or discrete recharge from watercourses. Timeseries groundwater level monitoring captured recharge occurring adjacent to the Manunda Creek drainage line during two months in late 2022 with a series of high rainfall events.

Water quality and environmental isotopes indicate groundwater salinity is likely an indicator for recharge rates across the region. Areas of higher salinity indicate relatively slow recharge rates, whereas areas of fresher water indicate relatively high rates of recharge. Regional estimates of recharge indicate the annual average is in the range of approximately 2-25 mm, representing only 1-10% of annual rainfall.

Discharge

There are no known areas of groundwater discharge to the surface as springs, seeps or baseflow to rivers. There is, however, evidence (salt scalds) of some degree of groundwater discharge occurring along drainage lines where evaporation from shallow water tables removes water from the aquifer(s).

Groundwater flow

Available groundwater level measurements of the wide-spread fractured rock aquifer(s) indicate there is a strong relationship with surface topography, with groundwater elevations typically following surface elevations. Regionally, groundwater flow is likely to mimic surface water flow, with groundwater moving from the areas around the ridges towards the valleys and watercourses. Based on the lack of evident surface discharges (besides some degree of evaporation from shallow water tables), groundwater is likely to ultimately discharge in the sub-surface into the Murray Basin sedimentary aquifers to the south of the PAA. Ridges are likely to act as groundwater flow divides, compartmentalising the fractured rock aquifer into different flow systems.

Groundwater dependent ecosystems

Satellite derived greenness observations suggest that only communities of *Eucalyptus camaldulensis* (River Red Gum) within the Manunda and Ocalia creek riparian corridors have potential for some degree of groundwater dependence.

Aquatic ecology surveys have been completed at Manunda Creek and at groundwater bore locations across the PAA. The limited stygofauna sampling of all available and suitable groundwater sites within the PAA and surrounding reference areas showed a stygofauna assemblage to be present. No stygofauna were recorded from the more elevated sites in the southeastern part of the PAA, where the target ore deposits occur, or where the depth to groundwater exceeded 40 mbgl in the PAA. The sampling results and habitat assessment indicate that the main stygofauna diversity occurs within the fractured rock aquifer systems present lower in the landscape that are in closer association with more incised drainage lines and the depth to groundwater is less than 30 mbgl. The more incised channels would facilitate the influx of resources (nutrients, dissolved oxygen) during recharge events with the infiltration of rainfall into the relatively shallow aquifer systems.

Groundwater quality

Brackish to saline groundwater salinity is common in the vicinity of the PAA, which limits the environmental value of the aquifer(s) to use for primary industries, and in many areas the aquifer(s) have no environmental value. Groundwater is typically unsuitable for human consumption without treatment (desalination). Groundwater quality is typically satisfactory for its primary existing use of providing drinking water for livestock (sheep). However, there are several exceedances of the livestock drinking guideline values for parameters such as salinity, sulfate, fluoride, selenium and radiation.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	No	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes

EPBC Act section	Controlling provision	Impacted	Reviewed
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no World Heritage Areas in proximity to, or likely to be affected by the Proposed Action (as confirmed by the PMST search results).

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no MNES National Heritage matters in proximity to, or likely to be affected by the Proposed Action (as confirmed by the PMST search results).

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Ramsar wetland
No	No	The Coorong, and Lakes Alexandrina and Albert Wetland

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The PAA is approximately 153km from the Coorong, and Lakes Alexandrina and Albert Wetland Ramsar site at the closest point. There are no direct or indirect connections (land or hydrological) between the Project and the Ramsar site.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species
No	No	Acacia carneorum
No	No	Acacia glandulicarpa
No	No	Acacia menzelii

Direct impact	Indirect impact	Species
No	No	Amytornis modestus
No	No	Amytornis striatus howei
Yes	Yes	Aphelocephala leucopsis
No	No	Aprasia pseudopulchella
No	No	Caladenia tensa
No	No	Calidris acuminata
No	No	Calidris ferruginea
No	No	Codonocarpus pyramidalis
No	No	Dodonaea subglandulifera
Yes	Yes	Falco hypoleucos
No	No	Galaxias rostratus
No	No	Gallinago hardwickii
No	No	Grantiella picta
No	No	Leipoa ocellata
No	No	Lepidium monoplocoides
No	No	Litoria raniformis
Yes	Yes	Lophochroa leadbeateri leadbeateri
No	No	Maccullochella peelii

Direct impact	Indirect impact	Species
No	No	Melanodryas cucullata cucullata
No	No	Neophema chrysostoma
No	No	Nyctophilus corbeni
No	No	Pedionomus torquatus
No	No	Pterostylis xerophila
No	No	Rostratula australis
No	No	Stagonopleura guttata
No	No	Swainsona pyrophila
No	No	Tiliqua adelaidensis

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions
Yes	Yes	Mallee Bird Community of the Murray Darling Depression Bioregion
No	No	Peppermint Box (Eucalyptus odorata) Grassy Woodland of South Australia

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The likelihood of occurrence of each of the MNES species returned by the PMST search is described in detail in Attachment 6, Tables 1-3, pages 2-25. A total of one TEC, four fauna species and two flora species are considered known, or likely to occur within the PAA (refer Attachment 7, Table 1-1, Page 1). These species are:

- Mallee Bird Community of the Murray Darling Depression Bioregion (MBC of the MDDB)
- *Aphelocephala leucopsis* (Southern Whiteface)
- *Melanodryas cucullata cucullata* (South-eastern Hooded Robin)
- *Lophochroa leadbeateri leadbeateri* (Major Mitchell's Cockatoo)
- *Falco hypoleucos* (Grey Falcon)
- *Acacia carneorum* (Needle Wattle)
- *Codonocarpus pyramidalis* (Slender Bell-fruit)

An assessment of the potential impacts of the Proposed Action using Matters of National Environmental Significance Significant Impact Guidelines V1.1 (DoE, 2013) (the Guidelines) was undertaken for each species known or likely to occur. Full detail of these assessments is presented in Attachment 7, Sections 2-4, Pages 3-39.

These assessments showed that there is unlikely to be an impact on any of the species considered, with the exception of the MBC of the MDDB TEC. A very small area of this TEC will be cleared for widening of a current access track into a haul road resulting in direct loss of 1.3 ha of MBC of the MDDB habitat. Potential indirect impacts on the TEC include fragmentation, dust, noise and traffic. Efforts were made to avoid and minimise potential impacts on this TEC (refer Attachment 7, Section 2.3, Page 8).

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.4.5 Describe why you consider this to be a Significant Impact. *

An assessment of potential impacts of the Proposed Action on the MNES known or likely to be recorded within the PAA was undertaken. The potential impacts of the Proposed Action on all species known or likely to occur within the PAA was considered in Attachment 7, Sections 2-4, Pages 3-39.

The assessment against the Guidelines showed that there are potential significant residual impacts (post standard mitigation measures, but prior to offsetting), on the MBC of the MDDB TEC. This is because there will be direct loss of a small area (approximately 1.3ha or 10% of the patch) of this TEC. Whilst the geographic extent of the impact on the TEC is small, the fragmentation and potential isolation of the southern part of the TEC is acknowledged as a consequence of the Iron Peak haul road. Given the 10-year timeframe assumed for the construction and operation of the haul road, with associated indirect impacts such as noise and dust disturbing a portion of the remaining habitat, the impacts are likely to be considered significant in the context of this patch of TEC. Hence as a precautionary measure, the impact is considered to be significant.

The assessment against the Guidelines showed that there were no significant impacts expected on any MNES flora or fauna species (refer Attachment 7, Section 4, Pages 20-39).

4.1.4.7 Do you think your proposed action is a controlled action? *

Yes

4.1.4.8 Please elaborate why you think your proposed action is a controlled action. *

There are potential significant residual impacts on the MBC of the MDDB TEC resulting from the Proposed Action (refer Attachment 7, Section 2, Pages 3- 14).

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The Proposed Action's impact assessment is currently being finalised (via a Mining Lease Application) which will set out detailed mitigation measures to minimise potential impacts on all MNES.

Efforts to avoid impacts of the Proposed Action on the MBC of the MDDB are described in Attachment 7, Section 2.3, Page 8.

MGT proposes the following preliminary general mitigation measures to avoid and minimise direct and indirect impacts on endangered communities:

- 1,011.0 ha of retained habitat within the PAA.
- Locate transmission towers and other project infrastructure to avoid MBC of MDDB TEC and higher quality roosting and foraging habitat for MNES bird species, where practicable
- Minimise the amount of native vegetation clearing within the PAA
- Minimise loss of key fauna habitat (including but not limited to tree hollows)
- Minimise the impacts of clearing on fauna, by including actions such as pre-clearance surveys
- Use fauna management protocols to limit disturbance to fauna remaining onsite
- Implement pest species control program within Proposed ML to minimise impacts on native flora and fauna

Undertake mitigation of potential indirect impacts such as water trucks or application of binding agents to minimise dust impacts, and directional lighting to minimise light impacts.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

The provision of offsets will be evaluated during detailed assessment and project design stages.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species
No	No	Actitis hypoleucos
No	No	Apus pacificus
No	No	Calidris acuminata
No	No	Calidris ferruginea
No	No	Calidris melanotos
No	No	Gallinago hardwickii
No	No	Motacilla cinerea
No	No	Motacilla flava
No	No	Myiagra cyanoleuca

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.5.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

Eleven migratory species were returned by the PMST search for the PAA and surrounding 50 km buffer undertaken on 30th October 2023. A likelihood of occurrence assessment was undertaken for these migratory species (refer Attachment 6, Table 3, Pages 11- 22), which showed that no migratory species are known or likely to occur within the PAA, and that there is no high-quality habitat for migratory species within the PAA. Thus, the Proposed Action is unlikely to impact migratory species.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

A program was designed to quantify any radioactivity risk associated with the Proposed Action. This program included testing whether Uranium (U) and Thorium (Th) are present, and whether content varied between the different units in the Braemar Iron Formation (and Pualco tillite) and if any variability was present spatially across the Razorback prospect.

Assays returned an average of 0.67ppm with a maximum of 1.49ppm U, while the spectrometer readings returned an average of 1.3ppm average and maximum of 5.2ppm U. The results were provided to Radiation Consulting Australia for assessment. It was noted in the report that very low U concentrations, as found in the samples from Razorback, spectrometer readings can be impacted by background dose rates and are often overestimated (refer Attachment 11, Page 3).

The activity concentrations at the Razorback Iron Ore Project are well below the threshold for “radioactive material” in South Australia. The average concentration of uranium in Australian soils is 1.1ppm , and 3 to 5 times for thorium - 3.3 to 5.5ppm1 , while the average worldwide concentration of K40 in souls is 0.37 Bq/g 2 . The measured concentrations of uranium, thorium and K 40 at the Razorback Iron Ore Project are therefore in line with expected concentrations in soil.

The findings of the report indicate that the maximum activity concentration for uranium, thorium and K 40 at the PAA were well below the threshold to be considered radioactive material under the South Australian Radiation Protection and Control Act 2021. There is no requirement to manage the Project under a Radiation Management License, nor to implement radiation protection controls for handling natural mineralized ore associated with the Project (refer Attachment 11, Page 3).

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no Commonwealth Marine Areas that will be impacted by the Proposed Action, the closest is over 150km to the south of the PAA.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Great Barrier Reef is over 1,000 km to the northeast of the PAA and thus will not be impacted by the Proposed Action.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed Action is not a large coal mining development, nor a coal seam gas project.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Commonwealth land area
No	No	Commonwealth Land - Australian National Railways Commission

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed Action will not impact on the functioning of the Australian National Railways Commission.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no Commonwealth Heritage Places Overseas in proximity to, or likely to be impacted by the Proposed Action (as confirmed by the PMST search results).

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

- Threatened Species and Ecological Communities (S18)

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Migratory Species (S20)

- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

Due to the location of the target deposits, there are no alternative locations for the Proposed Action.

MGT has already considered a range of options within its scoping of the Proposed Action, including alternative locations for the tailings storage facility, as well as various alignments for the haulage corridor and transmission line corridor. Optimum locations have been determined based on a robust multi-criteria analysis process that includes a range of environmental and social factors, as well as technical and commercial considerations.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att.5_ EPBC Referral Figures_Final.pdf All maps referred to in referral text	25/01/2024	No	High
#2.	Document	Att.9_Project description.pdf Detailed project description	25/01/2024	No	High

1.2.7 Public consultation regarding the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att.4_Community consultation - full_compressed.pdf Summary of community consultation undertaken	04/04/2024	Yes	High
#2.	Document	Att.4_Community consultation - redacted_V4_compressed.pdf Summary of community consultation - sensitive information redacted	04/04/2024	No	High
#3.	Document	Att.8_Stakeholder feedback.pdf Summary of feedback from public consultation	04/04/2024	No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Att.1_ Baseline ecology report_V3.pdf Baseline ecology report	25/01/2024	No	Medium
#2.	Document	Att.10_Addendum_ Razorback Ecology_V3.pdf Addendum to ecology baseline report incorporating Feb 2024 survey	04/04/2024	No	High

3.1.3 Natural features, important or unique values that applies to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att.3_ Baseline hydrology report_V1_Appendices.pdf Appendices for hydrology baseline report	20/02/2023	No	High
#2.	Document	Att.3_ Baseline hydrology report_V1_Part 1.pdf Baseline assessment of hydrology of Proposed Action Area	01/02/2023		High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att.2_18474_Razorback_Soil Baseline Assessment Report_Variation_V3_Final.pdf Baseline summary of soils of Proposed Action Area	20/02/2023	No	Medium

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att.6_ Likelihood of Occurrence Tables_final.pdf Likelihood of occurrence assessment for all EPBC listed species returned by PMST search.	04/04/2024	No	Medium
#2.	Document	Att.7_Ecology impact assessment_final_V3.pdf Assessment of potential impacts to MNES	04/04/2024	No	Medium

4.1.6.3 (Nuclear) Why your action is unlikely to have a direct and/or indirect impact

Type	Name	Date	Sensitivity	Confidence
#1. Document	Att. 11_Radioactivity.pdf Report on radioactivity within Project Area	04/04/2024	No	Medium

5.2 Declarations

☐ Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	87096512088
Organisation name	ECO LOGICAL AUSTRALIA PTY LTD
Organisation address	2232 NSW
Representative's name	Sarah Holt
Representative's job title	Senior approvals consultant
Phone	0882354126
Email	sarah.holt@ecoaus.com.au
Address	Level 2, 70 Pirie Street, Adelaide, 5000

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Sarah Holt of ECO LOGICAL AUSTRALIA PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☐ Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	34108102432
Organisation name	MAGNETITE MINES LIMITED
Organisation address	5000 SA
Representative's name	Allan Kane
Representative's job title	General Manager - Sustainability
Phone	0884270516
Email	allan.kane@magnetitemines.com
Address	Suite 3.03, 30 Currie Street, Adelaide, SA 5034

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Allan Kane of MAGNETITE MINES LIMITED**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☐ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Allan Kane of MAGNETITE MINES LIMITED**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *