

Peak Downs Mine Continuation Project

Application Number: **01376**Commencement Date: **24/08/2022**Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Peak Downs Mine Continuation Project

1.1.2 Project industry type *

Mining

1.1.3 Project industry sub-type

Coal

1.1.4 Estimated start date *

3/09/2025

1.1.4 Estimated end date *

31/12/2116

1.2 Proposed Action details

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

BM Alliance Coal Operations Pty LTD (BMA) proposes to develop the Peak Downs Continuation Project (herein referred to as the action) located within the Isaac Regional Local Government Area (LGA), approximately 30 kilometers (km) south-east of Moranbah, within the Bowen Basin mining region (Figure 1 – Attachment (Att) A 'EPBC Referral Figures', page 1).

The PDM operates in accordance with, amongst other authorisations, Environmental Authority (EA) EPML00318213, granted under the *Environmental Protection Act 1994* (Qld) (EP Act).

BMA is proposing to expand the existing footprint of the PDM eastwards (Figure 2 – Att A 'EPBC Referral Figures', page 2), and continue mining activities within ML 70411, ML1775 and ML 1885.

The Peak Downs Mine Continuation Project (the Project) involves the ongoing development of the existing PDM operation including the extraction of additional coal reserves within ML 70411, ML 1885 and part of ML 1775, along with the development of supporting off-lease infrastructure east of and adjacent to ML 1775 (the Action).

The development of the Action would ensure the continuation of the existing PDM mine life for up to approximately 93 years.

BMA is seeking approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for components of the Action described below within ML 70411, ML 1885, the nil surface areas within ML 1775, and an off-lease infrastructure corridor (Figure 2 – Att A 'EPBC Referral Figures', page 2).

Prior to the Action commencing and as part of the Project, BMA will continue to carry out existing activities within existing authorised areas of ML 1775 and undertake exploration and maintain existing infrastructure within ML 70411, ML 1885 and ML1775, in accordance with existing or future State and Commonwealth Approvals.

The Action Area is shown on Figure 2 (Att A 'EPBC Referral Figures', page 2). The Action would include, but not be limited to, the following components and activities within the Action Area (the Action):

- open cut mining (dragline and truck and shovel methods) of ROM coal from the coal measures in ML 70411, ML 1885 and part of ML 1775;
- relocation of various third party infrastructure to facilitate the open cut mining extension, including the Peak Downs Mine Road and associated rail level crossing, a section of the Moranbah 132 kilovolt (kV) No. 2 Transmission Line, Ergon Single Line Earth Return, a 132 kV substation feeder, and the Eungella Water Pipeline Southern Extension;
- diversion of Ripstone Creek, relocation of the low-flow Ripstone Creek infrastructure and Boomerang Creek levees;
- construction and operation of new infrastructure in support of open cut mining;
- ongoing exploration activities across the Action Area, following the grant of approval; and
- progressive rehabilitation of the mine site.

The Action Area is approximately 4062ha. The exact area to be directly impacted would be determined following further detailed mine planning and impact assessment. Activities associated with the Action that could impact the environment include vegetation removal, topsoil stripping, excavation of overburden and coal, diversion of and release of water to watercourses. Indirect impacts may also occur through the generation of dust from vehicle movements, waste rock emplacement, stockpiles and coal processing activities (e.g. crushing) as well as impacts from lights on vehicles and plant.

Further background information on the nature and extent of the above activities is available in the Initial Advice Statement (IAS) dated 23 March 2022 that was submitted to the Office of the Coordinator-General for declaration of the Project as a Coordinated Project under the *State Development and Public Works Organisation Act 1971* (Qld).

Activities Not Included in the Action

The actions does not include ongoing mining and associated activities in the existing Peak Downs Mine adjacent to the project area. The action also does not include existing infrastructure in the action the area.

Certain activities within the area of the Action are unlikely to have a significant impact on Matters of National Environmental Significance, and accordingly are excluded from the Action for the purposes of this referral. These activities are: access tracks, exploration activities, internal water and power supply infrastructure, survey and demarcation activities, works relating to the management or salvage of Aboriginal heritage items, and, installation of monitoring equipment (e.g. monitoring bores). These activities within the area of the Action are not part of the Action, and will be addressed in a separate EPBC referral, if necessary.

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

No

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

State Development and Public Works Organisation Act 1971

An IAS has been prepared for the Project and lodged with the Office of the Coordinator-General. The IAS forms part of the application for declaration of the Project as a Coordinated Project. The Coordinator-General will assess the application and determine whether the Project meets the requirements for declaration as a Coordinated Project. A decision on the application is expected to be made by the Coordinator-General in the coming months.

Environmental Protection Act 1994 and Mineral and Energy Resources (Financial Provisioning) Act 2018

The PDM currently operates in accordance with EA EPML00318213.

An amendment to the existing PDM EA EPML00318213 is required for the Project (section 226 of the *Environmental Protection Act 1994* [EP Act]). The amended EA will authorise the Project, and in particular, activities under the EP Act on areas within ML 70411, ML 1775 and ML 1885 where BMA does not currently hold surface rights. The current EA includes the following Environmentally Relevant Activities (ERAs) that may be undertaken as part of the Project:

- Schedule 3, ERA 13: Mining Black Coal;
- Ancillary ERA 8 – Chemical Storage;
- Ancillary ERA 31 – Mineral Processing;
- Ancillary ERA 60 – Waste Disposal;
- Ancillary ERA 62 – Resource Recovery and Transfer Facility Operation; and
- Ancillary ERA 63 – Sewage Treatment.

It is considered that the Project would be a major amendment under the EP Act, given the Project would include components which are expected to exceed the minor amendment threshold in DES's *Guideline Major and Minor Amendments*.

A Progressive Rehabilitation and Closure Plan (PRCP) (including the PRCP Schedule) must be prepared and submitted as part of the EA application and approved before BMA may carry out any activities under the EA.

Water Act 2000

A water licence may be required to take or interfere with water or the flow of water. An associated water licence may be required for incidental groundwater taken as part of the open cut mining activities. A Riverine Protection Permit may be required for excavation or placing of fill within a watercourse, where the works are conducted outside a Mining Lease.

Native Title Act 1993 and Aboriginal Cultural Heritage Act 2003

The Barada Barna People are the Native Title holders for the Action Area, and are considered the 'Aboriginal Party' for the purposes of the *Aboriginal Cultural Heritage Act 2003* (ACH Act). The Action Area, and the existing PDM, are located within the extent of the PDM Indigenous Land Use Agreement (QI2001/047), formed with the Barada Barna People in 2004.

In accordance with the requirements for an Environmental Impact Statement (EIS) under the ACH Act, BMA would prepare a Cultural Heritage Management Plan (CHMP) for the Project.

Nature Conservation Act 1992

There is the potential for habitat and species specified under the *Nature Conservation Act 1992* (NC Act) to occur within the Action Area. BMA would apply for relevant licences and permits required under the NC Act.

Planning Act 2019

The components of the Action located outside of a mining lease may require development approvals, under the relevant local government planning scheme and the Planning Regulation 2019. Components of the Project proposed to be outside the PDM mining leases may include powerlines, creek diversions, pipelines and roads.

Mineral Resources Act 1989

Parts of ML 1775, ML 1885 and ML 70411 do not currently provide surface area rights required to carry out the Project. BMA has submitted applications for surface rights across these areas in accordance with the *Mineral Resources Act 1989*.

Local Environmental Plans

The Action Area is located within the Isaac Regional LGA of the Bowen Basin, in central Queensland, within the lands covered by the *Isaac Regional Council Planning Scheme 2021*. Please provide a response to the question above.

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. *

Consultation and engagement with relevant stakeholders to date has focused on providing an overview of BMA, obtaining land access for baseline studies and an initial introduction to the Action. It is anticipated that the following stakeholders would be consulted at various stages of Action development:

- local landholders;
- community groups;
- Isaac Regional Council;
- Native Title parties (Barada Barna People);
- Office of the Coordinator-General;
- Queensland Department of Environment and Science (DES);
- Queensland Department of Resources;
- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW);
- Queensland Department of Regional Development, Manufacturing and Water;
- overlapping tenure holders;
- worker accommodation village (WAV) service providers; and
- infrastructure service providers.

Consultation regarding the Action is planned to increase as the design and assessment develops. As components of the Action become more refined, BMA will be able to have more detailed technical discussions regarding the Action, its potential impacts, and its proposed mitigation and management strategies with relevant stakeholders.

Key input points include, although are not limited to:

- development and finalisation of the Terms of Reference (ToR) for the EIS;
- consultation during preparation and lodgement of the EIS; and
- consultation post EIS lodgement, exhibition and supplementary EIS development, lodgement and exhibition prior to determination.

Consultation mechanisms used for other BMA projects and expected to be used for the Action include:

- face-to-face meetings;
- roadshows;
- information sessions;
- newsletters and factsheets;
- emails;
- media releases;
- advertising;

- website;
- community information sessions;
- digital communications campaigns; and
- qualitative and quantitative research.

1.3.1 Identity: Referring party

Privacy Notice:

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Confirm that you have read and understand this Privacy Notice *

1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details	
ABN	67096412752
Organisation name	BM Alliance Coal Operations Pty Limited
Organisation address	Level 14, 480 Queen Street Brisbane, QLD, 4000
Referring party details	
Name	Murray Timms
Job title	Principal Environment Approvals
Phone	0409834797
Email	murray.timms@bhp.com
Address	Level 14, 480 Queen Street Brisbane QLD 4000 Australia

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? *

Yes

Person proposing to take the action organisation details	
ABN	67096412752
Organisation name	BM Alliance Coal Operations Pty Limited
Organisation address	Level 14, 480 Queen Street Brisbane, QLD, 4000
Person proposing to take the action details	
Name	Murray Timms
Job title	Principal Environment Approvals
Phone	0409834797
Email	murray.timms@bhp.com
Address	Level 14, 480 Queen Street Brisbane QLD 4000 Australia

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 proponent of the Action is BMA and is owned 50:50 by BHP Group Limited (BHP) and Mitsubishi Development Pty Ltd (operated by BHP) and is Australia's largest supplier of seaborne metallurgical coal. BMA operates seven Bowen Basin mines: Blackwater, Broadmeadow, Goonyella Riverside, Peak Downs, Saraji, Caval Ridge and Daunia as well as owning and operating the Hay Point Coal Terminal near Mackay.

BMA has an excellent record of responsible environmental management and a strong commitment to the communities and the environments in which it operates. BMA has no convictions for breaches of environmental management requirements and regularly reviews environmental performance and publicly reports on progress.

To the best of our knowledge and enquiries, BMA has not been subject to any environmental related proceedings in any superior State or Federal Court.

BMA has been the subject of environmental related proceedings in the Queensland Magistrates Court, for matters related to State legislation. A fine was imposed and paid by BMA. No conviction was recorded.

The Action will be undertaken in accordance with the corporation's environmental policy and framework.

BMA has been responsible for multiple actions under the EPBC Act, including (but not limited to):

- 2021/9031 – BM Alliance Coal Operations Pty Ltd, Caval Ridge Mine Horse Pit Extension.
- 2019/8576 – BM Alliance Coal Operations Pty Ltd, Saraji Mine Spring Creek to Phillips Creek Diversion.
- 2016/7791 – BM Alliance Coal Operations Pty Ltd, Saraji East Mining Lease Project.
- 2013/6868 – BM Alliance Coal Operations Pty Ltd, Dysart Road Relocation.
- 2013/6865 – BM Alliance Coal Operations Pty Ltd, Red Hill Mining Project.

- 2012/6268 – BM Alliance Coal Operations Pty Ltd, M Block 3D Seismic Survey Program.
- 2009/4759 – BM Alliance Coal Operations Pty Ltd on behalf CQCA Joint Venture, Hay Point Coal Terminal Expansion.
- 2008/4659 – BM Alliance Coal Operations Pty Ltd, Vessel-based Seismic and Hydrographic Sonar Survey.
- 2008/4418 – BM Alliance Coal Operations Pty Ltd, Develop an Open Cut Coal Mine at Daunia.
- 2008/4417 – BM Alliance Coal Operations Pty Ltd, Caval Ridge Open Cut Coal Mine Project.
- 2005/2248 – BM Alliance Coal Operations Pty Ltd, Goonyella Riverside Coal Mine Expansion.
- 2005/2211 – BM Alliance Coal Operations Pty Ltd, Hay Point Services Coal Terminal Offshore Expansion.
- 2004/1447 – BM Alliance Coal Operations Pty Ltd, Norwich Park Coal Mine - Development of East Pit.

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	67096412752
Organisation name	BM Alliance Coal Operations Pty Limited
Organisation address	Level 14, 480 Queen Street Brisbane, QLD, 4000
Proposed designated proponent details	
Name	Murray Timms
Job title	Principal Environment Approvals
Phone	0409834797
Email	murray.timms@bhp.com
Address	Level 14, 480 Queen Street Brisbane QLD 4000 Australia

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	67096412752
Organisation name	BM Alliance Coal Operations Pty Limited
Organisation address	Level 14, 480 Queen Street Brisbane, QLD, 4000
Representative's name	Murray Timms
Representative's job title	Principal Environment Approvals
Phone	0409834797
Email	murray.timms@bhp.com

✔ 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.

Same as Referring party information.

✔ 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)? *

No

1.4.3 Has the department issued you with a credit note? *

No

1.4.5 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.7 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A? *

No

1.4.8 Would you like to add a purchase order number to your invoice? *

No

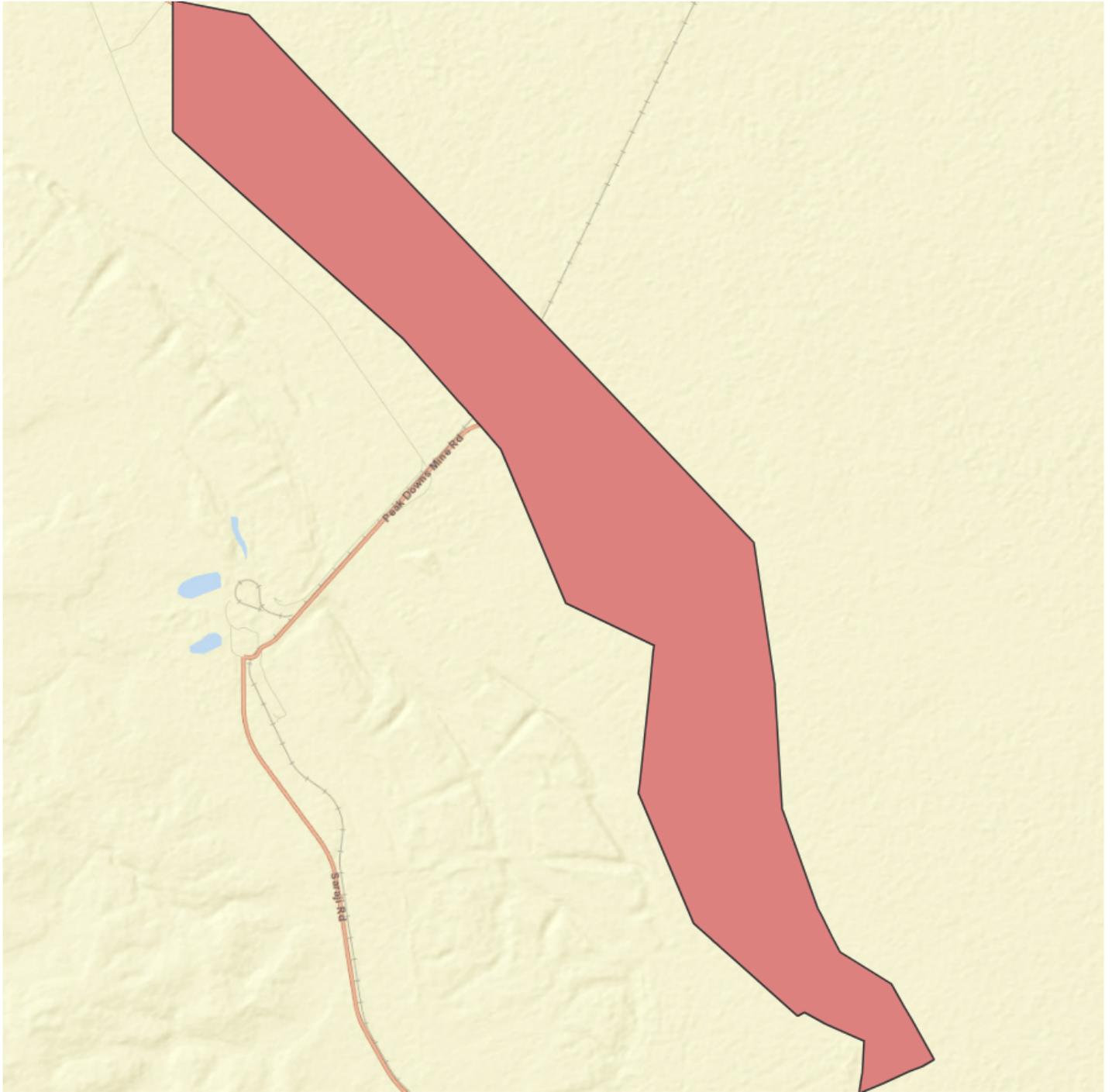
1.4 Payment details: Payment allocation

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

Person proposing to take the action

2. Location

2.1 Project footprint



2.2 Footprint details

2.2.1 What is the address of the proposed action? *

The Corner of Peak Downs Mine Road and Saraji Road, Moranbah.

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

Queensland

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 Action Area is located within BMA tenements ML 70411, ML 1885 and ML 1775 (Figure 3 – Att A 'EPBC Referral Figures', page 3) and a small off-lease portion adjacent ML 1775.

The Action Area would occur primarily within parts of: Lot 8 SP 277384, Lot 10 SP 208611, Lot 9 CNS 98, Lot 5 CNS 90, Lot 2 CNS 79, Lot 13 CNS 406, and Lot 12 CNS 84.

Easements intersecting the Action Area include: Lot A CNS 406, Lot D CNS 365, Lot A CNS 44, Lot A CNS 45, Lot B CNS 151, Lot A CNS 66, Lot C 63, Lot J SP 206092 and Lot F CNS 400.

3. Existing environment

3.1 Physical description

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

The Action is located approximately 30 km south-east of Moranbah.

Access to the Peak Downs Mine is via the Peak Downs Mine Road (from the North) and Saraji Road (from the South). Peak Downs Mine Road and Saraji Road join at the intersection with the main entrance to the Peak Downs Mine site. The Action includes the realignment of a section of the Peak Downs Mine Road along the eastern margin of the Action Area during the operational stage of the Action. This realigned road would remain following completion of the Action. There would be no change to Saraji Road or the intersection with the main entrance to the mine site as a result of the Action.

Access within the mine site itself is via a series of unsealed light vehicle roads and haul roads. Additional internal roads would be developed as part of the Action as mining progresses. Internal roads would be rehabilitated at completion of the Action, unless they are required for access as part of the post-mining land use (to be developed during preparation of the EIS).

The Action Area has been largely cleared through past agricultural practices, however some tracts of remnant (or regrowth) vegetation exist, particularly along the Isaac River (outside the Action Area). Currently, the main land use within the Action Area is cattle grazing.

Sixteen introduced species (including eleven fauna and five flora species) with the potential to occur within the Action Area and surrounds were also identified by the EPBC Act Protected Matters Search (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', pages 6 and 7).

REs identified by the Queensland Government (2021a) [OP1] regional mapping are shown on Figure 4a (Att A 'EPBC Referral Figures', page 4) and Threatened Ecological Communities (TECs) are shown on Figure 4b (Att A 'EPBC Referral Figures', page 5).

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

The Action is located in the north of the Bowen Basin where mining and petroleum exploration activities have been conducted within the Action Area and surrounds for several decades. Currently, the main land use within the Action Area is cattle grazing.

A number of existing and approved/proposed coal mines surround the Action Area, including Caval Ridge, Eagle Downs, Vulcan, Winchester South, Saraji, Saraji East and Olive Downs (Figure 1 – Att A 'EPBC Referral Figures', page 1).

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

There are no outstanding natural features or other unique values within the Action Area.

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 landscape in the Action Area has average elevations of approximately 190 metres (m) Australian Height Datum (AHD) in the areas to the south of the Action to approximately 240 m AHD to the north-west of the Action Area (Queensland Government, 2021a).

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.

Database searches of the following were undertaken to identify any Matters of National and/or State Environmental Significance with the potential to occur in the Action Area and surrounds:

- EPBC Protected Matters Search (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', all pages);
- Atlas of Living Australia (ALA) Database Search (ALA, 2021);
- Birdlife Australia (BLA) Database Search (BLA, 2021); and
- Wildlife Online Database Search (DES, 2021).

The database searches identified three (DAWE, 2021) (Att B 'EPBC Act Protected Matters Search', page 4) conservation significant flora species under either the Commonwealth EPBC Act or NC Act relevant to the Action Area or surrounds. Threatened species and communities potentially impacted by the works to be undertaken within the Action Area are summarised in Section 4.1.5.

The northern part of the Action Area has been modified by cattle grazing agricultural land uses and exploration activities and is generally non-remnant vegetation, while the southern part of the Action Area generally comprises remnant vegetation. Regional Ecosystems (REs) within the Action Area have been identified by the Queensland Government (2021a) regional mapping (Figure 4a – Att A 'EPBC Referral

Figures', page 4). Of the REs identified within the Action Area or surrounds, the following are associated with TECs:

- 11.3.2 - *Eucalyptus populnea* woodland on alluvial plains.
- 11.4.4 - *Dichanthium spp.*, *Astrelba spp.* grassland on Cainozoic clay plains.
- 11.4.8 - *Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendron* on Cainozoic clay plains.
- 11.4.9 - *Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains.
- 11.8.11 - *Dichanthium sericeum* grassland on Cainozoic igneous rocks.
- 11.9.3 - *Dichanthium spp.*, *Astrelba spp.* grassland on fine-grained sedimentary rocks.

REs within the Action Area that contain, or potentially contain, these TECs are mapped on Figure 4b (Att A 'EPBC Referral Figures', page 5).

The EPBC Act Protected Matters Search (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 3) identified the following TECs listed under the EPBC Act with the potential to occur in the Action Area and surrounds:

- Brigalow (*Acacia harpophylla* dominant and co-dominant).
- Natural Grasslands of the Queensland Central Highlands and Northern Fitzroy Basin.
- Poplar Box Grassy Woodlands on Alluvial Plains.

Detailed vegetation mapping would be undertaken as part of the EIS to validate and ground-truth the RE and TEC mapping.

The database searches identified fauna species listed as conservation significant or migratory under either the EPBC Act or NC Act, relevant to the Action Area and surrounds. Threatened species and communities potentially impacted by the works to be undertaken within the Action Area are summarised in Section 4.1.5.

Sixteen introduced species (including eleven fauna and five flora species) with the potential to occur within the Action Area and surrounds were also identified by the EPBC Act Protected Matters Search (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', pages 6 and 7):

- Prickly Acacia (*Acacia nilotica* subsp. *Indica*);
- Cotton-leaved Physic-Nut (*Jatropha gossypifolia*);
- Lantana (*Lantana camara*);
- Parkinsonia (*Parkinsonia aculeata*);
- Parthenium Weed (*Parthenium hysterophorus*);
- Cane Toad (*Rhinella marina*);
- House Sparrow (*Passer domesticus*);
- House Mouse (*Mus musculus*);
- Domestic Dog (*Canis lupus familiaris*);
- Red Fox (*Vulpes vulpes*);
- Domestic Cat (*Felis catus*);
- Rabbit (*Oryctolagus cuniculus*);
- Goat (*Capra hircus*);
- Feral Deer (*Cervus sp.*);
- Pig (*Sus scrofa*); and
- Water Buffalo (*Bubalus bubalis*).

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

Soil types within the northern part of the Action Area can be described as grey self-mulching cracking clays, with the southern part of the Action Area described as hard pedal yellow/mottled yellow duplex soils (Queensland Government, 2021a).

The Action Area has been largely cleared through past agricultural practices, however some tracts of remnant (or regrowth) vegetation exist, particularly along the Isaac River (outside the Action Area). Currently, the main land use within the Action Area is cattle grazing.

Grazing land dominates the Action Area with remnant and regrowth woodland vegetation present in patches. REs within the Action Area have been identified by the Queensland Government (2021a) regional mapping (Figure 4a – Att A 'EPBC Referral Figures', page 4). Of the REs identified within the Action Area or surrounds, the following are classified as TECs:

- 11.3.2 - *Eucalyptus populnea* woodland on alluvial plains.
- 11.4.4 - *Dichanthium spp.*, *Astrelba spp.* grassland on Cainozoic clay plains.
- 11.4.8 - *Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendron* on Cainozoic clay plains.
- 11.4.9 - *Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains.
- 11.8.11 - *Dichanthium sericeum* grassland on Cainozoic igneous rocks.
- 11.9.3 - *Dichanthium spp.*, *Astrelba spp.* grassland on fine-grained sedimentary rocks.

The TECs that contain these REs within the Action Area are mapped on Figure 4b (Att A 'EPBC Referral Figures', page 5). Detailed vegetation mapping would be undertaken as part of the EIS to validate and ground truth the RE mapping.

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.

The Action Area does not contain any Commonwealth Heritage Places.

The Queensland Heritage Register (September 2021) includes no culturally significant sites in the general vicinity of the Action (Queensland Government, 2021b). The closest significant site was located in Nebo, 75 km to the north-east of the Action Area.

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

BMA executed a CHMP with the Barada Barna People in 2012 for the PDM which includes the Action Area. The CHMP describes the assessment of the cultural heritage values within the proposed area of disturbance, and the development of appropriate management strategies. The CHMP will not be made publicly available due to cultural sensitivity reasons.

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. *

The Action Area lies within the Isaac River sub-catchment in the north of the Fitzroy River catchment as defined by the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (EPP [Water and Wetland Biodiversity]) (Queensland Government, 2021a). Under the Strahler classification system (Queensland Government, 2021a), the Isaac River in the vicinity of the Action is a 6th order stream.

Tributaries of the Isaac River in the vicinity of the Action Area include (Figure 2 – Att A 'EPBC Referral Figures', page 3):

- Ripplestone Creek;
- Ripstone Creek;
- Boomerang Creek; and
- Harrow Creek.

Ripplestone Creek, Ripstone Creek and Boomerang Creek pass through the Action Area. The Isaac River and Harrow Creek are not located within the Action Area. Flow duration data from the Queensland Government operated monitoring stations is available for the Isaac River catchment at two sites:

- Isaac River at Goonyella (130414A).
- Isaac River at Deverill (130410A).

Monitoring data indicates that the Isaac River is dry for many months of the year (between April and November), and subject to short periods of high flows in summer.

BMA currently undertakes monitoring of surface water in accordance with their Receiving Environment Monitoring Program. Surface water monitoring sites of relevance to the Action include MP4(PDM) and MP12(PDM) (located on Ripstone Creek) and MP24(PDM) and MP10(PDM) (located on Boomerang Creek).

Streamflow monitoring on Ripstone Creek and Boomerang Creek between July 2018 and July 2019 identified highly ephemeral flows, with significant flows recorded in March 2019 and smaller flows recorded in December 2018 (BMA, 2020) (Att C 'Receiving Environment Monitoring Program [REMP] Annual Report July 2018 – June 2019', Section 5.1, pages 20 to 22). The flow monitoring sites were generally dry outside of these periods.

The Action coal resource is within the Isaac Connors Groundwater Management Area (GMA) as defined by the Fitzroy Basin Water Resource Plan (Figure 5 – Att A 'EPBC Referral Figures', page 6). The Isaac Connors GMA consists of the following groundwater units:

- Isaac Connors Groundwater Unit 1 (also known as the Isaac Connors Alluvium Groundwater Sub-area), containing the aquifers of the quaternary alluvium; and
- Isaac Connors Groundwater Unit 2, containing all subartesian aquifers within the Isaac Connors GMA other than the aquifers included in Isaac Connors Groundwater Unit 1.

A bore census of groundwater bores located within 10 km of the PDM was undertaken in 2020 and identified:

- 14 total registered bores;
- 1 bore installed into the Quaternary alluvium; and
- 20 bores installed into the Permian strata (Fort Cooper Coal Measures, Moranbah Coal Measures and Back Creek Group).

Of the above-listed bores, only one bore was used for water supply purposes and the remainder were monitoring bores.

Registered groundwater bores within the Action Area and immediate vicinity are shown on Figure 6 (Att A 'EPBC Referral Figures', page 7).

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	Yes	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	Yes	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth heritage places overseas	No	Yes
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. *

A search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no areas of World Heritage Properties occur within the EPBC Action Area or surrounds.

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. *

A search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no areas of National Heritage Places occur within the EPBC Action Area or surrounds.

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.

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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. *

A search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no areas of Ramsar Wetlands occur within the EPBC Action Area or surrounds.

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	Calidris ferruginea
No	No	Dasyurus hallucatus
Yes	Yes	Denisonia maculata
No	Yes	Dichanthium queenslandicum
No	No	Egernia rugosa
No	No	Euseya albagula
No	No	Erythrorichis radiatus
No	No	Eucalyptus raveretiana
No	No	Falco hypoleucos
No	No	Furina dunmalli
Yes	Yes	Geophaps scripta scripta
No	No	Grantiella picta
No	No	Lerista allanae
No	No	Macroderma gigas
No	No	Neochmia ruficauda ruficauda
No	No	Nyctophilus corbeni
Yes	Yes	Petauroides volans
Yes	Yes	Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)
No	No	Poephila cincta cincta

Direct impact	Indirect impact	Species
No	No	Rheodytes leukops
Yes	Yes	Rostratula australis
No	No	Samadera bidwillii

Ecological communities

Direct impact	Indirect impact	Ecological community
Yes	Yes	Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant)
Yes	Yes	Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin
Yes	Yes	Poplar Box Grassy Woodland on Alluvial Plains

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 Action would have a direct impact on threatened species and ecological communities listed under the EPBC Act because clearance of native vegetation and habitat is required for the Action. The matters that are likely to be directly impacted are either known or likely to occur in the Action Area. These matters are the Brigalow (*Acacia harpophylla* dominant and co-dominant), Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin, Poplar Box Grassy Woodland on Alluvial Plains, Ornamental Snake, Squatter Pigeon (southern), Koala, Greater Glider and Australian Painted Snipe. All patches of Brigalow (*Acacia harpophylla* dominant and co-dominant), are considered '*Habitat Critical to the Survival of the Ecological Community*' according to the Department of the Environment (2013) (Att D 'Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community', Section 1.9, page 8). Further surveys are required to determine if '*Habitat Critical to the Survival of the Species*' occurs for the other matters, although it is noted that all habitat containing Ornamental Snake, including the habitat in the Action Area, is important habitat (DSEWPac, 2011) (Att E 'Draft Referral guidelines for the nationally listed Brigalow Belt reptiles', Sections 5 and 8, pages 14, 18 and 19).

The approximate location of the threatened species habitat and threatened communities is known based on desktop mapping and initial investigations; however the extent and condition of the threatened species habitat and threatened ecological communities would be confirmed through detailed surveys. The exact area to be directly impacted would be determined following further detailed mine planning.

The direct impact on the threatened ecological communities would reduce the area occupied by the community within its extent and the direct impact on the threatened species would likely decrease the abundance of individuals and/or availability of habitat for the species. However, these threatened species and ecological communities would likely persist outside of the Action Area in the surrounds due to the wider extent of suitable habitat.

The Action also has the potential to indirectly impact the threatened species and ecological communities listed above if they occur outside the direct clearance area. Without mitigation measures, the Action may indirectly impact the matters through the following recognised threats: increased fragmentation, possible modified fire regime, possible incursion of weeds, possible increase in feral animals, changes in hydrology and hydrogeology and a very minor contribution to global greenhouse gas emissions and a proportional contribution to climate change (which can impact flora and fauna). Please provide a response to the question above.

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. *

Since the mine design and environmental studies undertaken for the Action are preliminary, the significance of the direct impacts are yet to be determined. Notwithstanding, a Terrestrial Ecology Assessment is being prepared for the Action as part of the EIS. Preliminary results from surveys associated with the EIS Terrestrial Ecology Assessment have been incorporated into this referral.

The Ornamental Snake has been recorded within the Action Area during recent surveys by Ausecology (in preparation) (Att F 'BMA Peak Downs Terrestrial Ecology Assessment – Interim Memo on Surveys Conducted in November and December 2021', Section 3, page 10) and also during previous activities (ALA, 2021) (Figure 4b – Att A 'EPBC Referral Figures', page 5). Depending on the final mine design, the Action may have a significant impact on the Ornamental Snake as habitat for the species occurs in the southern portion of the Action Area

and the draft *Referral Guidelines for the Nationally Listed Brigalow Belt Reptiles* (DSEWPaC, 2011) (Att E 'Draft Referral Guidelines for the Nationally Listed Brigalow Belt Reptiles', Sections 5 and 8, pages 14 and 18) indicates that > 2 ha of habitat clearance has a high risk of a significant impact.

The Squatter Pigeon (southern) has been recorded during surveys within the Action Area by Environmental Resources Management (ERM) (2021) (Att G 'Ecology Technical Memo', Section 4, pages 25 to 30) and Aurecon (2013) (Att H 'BMA Peak Downs Mine Ecological Assessment of Dysart Road MC90 Realignment', Section 4.3.2, pages 40 and 41) (Figure 4b – Att A 'EPBC Referral Figures', page 5). Another individual was also recorded outside of the Action Area (ALA, 2021; BLA, 2021) (Figure 4b – Att A 'EPBC Referral Figures', page 5). Since the mine design and environmental studies undertaken for the Action are preliminary, the potential impacts on this species are uncertain.

Indirect evidence of Koala presence, in the form of scat and scratches, were recently recorded within the Action Area by Ausecology (in preparation) (Att F 'BMA Peak Downs Terrestrial Ecology Assessment – Interim Memo on Surveys Conducted in November and December 2021', Section 3, page 10) during dry season surveys (Figure 4b – Att A 'EPBC Referral Figures', page 5). Similarly, previous surveys by Footprints (2009) (Att I 'Assessment of Koalas and Koala Habitat Use on BMA Peak Downs Mine', Sections 3 and 4, pages 9 to 15) and AECOM (2020) (Att J 'Peak Downs East Mining Lease Terrestrial Ecology Baseline Report', Section 5.2.3, page 55) recorded indirect Koala evidence within and outside of the Action Area, however AECOM (2020) (Att J 'PDM Terrestrial Ecology Baseline Report', Section 5.2.3, page 55) surveys also observed a Koala within the Action Area (Figure 4b – Att A 'EPBC Referral Figures', page 5). The Action may also have a significant impact on the Koala depending on the outcomes of further assessments in consideration of the revised *Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory* (DAWE, 2022) (Att K 'Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory', all pages).

The Greater Glider has been recorded in the Action Area previously (AECOM, 2020) (Att J 'Peak Downs East Mining Lease Terrestrial Ecology Baseline Report', Section 5.2.3, page 55) and during recent surveys by Ausecology (in preparation) (Att F 'BMA Peak Downs Terrestrial Ecology Assessment – Interim Memo on Surveys Conducted in November and December 2021', Section 3, page 10) (Figure 4b – Att A 'EPBC Referral Figures', page 5). Since the mine design and environmental studies undertaken for the Action are preliminary, the potential impacts on this species are yet to be determined

BMA would investigate opportunities to avoid, minimise and mitigate impacts on the species during the detailed mine planning and EIS process.

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. *

Since the mine design and environmental studies undertaken for the Action are preliminary, and the significance of the direct impacts are uncertain, BMA consider it likely that the Action will be declared a controlled action for the Ornamental Snake, Squatter Pigeon (southern), Koala and Greater Glider.

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. *

Since the mine design for the Action is preliminary, the potential impacts on threatened species are uncertain. BMA would investigate opportunities to avoid, minimise and mitigate significant impacts during the detailed mine planning process.

Measures that would be implemented to avoid and mitigate potential impacts on the natural environment would include, but not necessarily be limited to:

- project designs to be modified to avoid impacts where feasible and practical to do so;
- progressive rehabilitation;
- appropriate landform design and establishment of post-mining land uses in consideration of agricultural land uses and native ecosystem values of the surrounding landscape;
- soil management practices, including the stripping and stockpiling of soil for use in rehabilitation;

- appropriate erosion and sediment controls and upslope drainage during vegetation clearance, soil stripping and rehabilitation activities;
- clear definition of areas to be cleared in a progressive manner as part of surface disturbance protocols;
- management of the site water management system in accordance with the Environmental Authority conditions;
- minimising licenced extraction/harvesting of groundwater and surface water resources;
- dust suppression within active mining areas and at coal handling and processing circuits;
- appropriate design of blast events;
- designing for overall energy efficiency;
- consideration of purchasing renewable energy to supply the mine operations to minimise greenhouse gas generation;
- weed and feral animal control strategies; and
- preparation of management plans and monitoring programs.

The above measures will be refined and expanded upon to address the predicted impacts identified as part of the environmental assessments and stakeholder engagement to be conducted as part of the EIS.

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

BMA would provide biodiversity offsets for residual significant impacts to matters of state environmental significance and MNES (where required) in accordance with relevant State and Commonwealth policies and legislation.

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
Yes	Yes	Apus pacificus
No	No	Calidris acuminata
No	No	Calidris ferruginea
No	No	Calidris melanotos
No	No	Cuculus optatus
No	No	Gallinago hardwickii
Yes	Yes	Hydroprogne caspia
No	No	Motacilla flava
No	No	Pandion haliaetus
No	No	Plegadis falcinellus
Yes	Yes	Rhipidura rufifrons

Direct impact	Indirect impact	Species
No	No	Tringa nebularia

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

Yes

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

Clearance of native vegetation and habitat as a result of the Action is likely to directly impact the following migratory species listed under the EPBC Act who have been recorded within the Action Area during surveys by AECOM (2020) (Att J 'Peak Downs East Mining Lease Terrestrial Ecology Baseline Report', Section 5.2.3, page 55): Fork-tailed Swift (*Apus pacificus*), Rufous Fantail (*Rhipidura rufifrons*), and Caspian Tern (*Hydroprogne caspia*). For these three migratory species, potential foraging and dispersal habitat is present within the Action Area, however breeding habitat does not occur.

The Action also has the potential to indirectly impact the migratory species listed above if they occur outside of the direct clearance area.

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

No

4.1.5.6 Describe why you do not consider this to be a Significant Impact. *

The potential direct and indirect impacts on migratory species as a result of the Action are likely to be negligible and therefore are not considered to be significant. Impacts as a result of the Action are considered negligible as important habitat, specifically breeding habitat, for these migratory species is not present in the Action Area, and a reduction of migratory species foraging and dispersal habitat will not significantly impact the persistence of these species.

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

No

4.1.5.9 Please elaborate why you do not think your proposed action is a controlled action. *

The negligible direct or indirect impacts of the Action are not considered significant impacts and therefore migratory species are not considered to be a controlled action.

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

Since the mine design for the Action is preliminary, the potential impacts on migratory species are uncertain. BMA would investigate opportunities to avoid, minimise and mitigate significant impacts during the detailed mine planning process.

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

No proposed offsets are necessary for migratory species as the Action will have negligible direct or indirect impacts as important habitat for the migratory species is not present in the Action Area.

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 search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no areas of Nuclear Action occur within the EPBC Action Area or surrounds.

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. *

A search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no Commonwealth Marine Areas occur within the EPBC Action Area or surrounds.

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. *

A search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no areas of Great Barrier Reef occur within the EPBC Action Area or surrounds.

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? *

Yes

4.1.9.2 Briefly describe why your action has a direct and/or indirect impact on this protected matter. *

Surface Water

The Action is located within the Fitzroy River Catchment and is subject to the *Water Resource (Fitzroy Basin) Plan 2011* and the Isaac Connors Groundwater Management Area (GMA) (Figure 5 – Att A 'EPBC Referral Figures', page 6). The *Water Resource (Fitzroy Basin) Plan 2011* regulates taking overland flow water from within the Fitzroy Water Plan Area.

The Action has the potential to impact surface water resources through direct disturbance associated with open cut mining, diversion of drainage features, creation of new temporary and permanent landforms that affect flood waters and (if required) through release of water to the surrounding environment.

Potential impacts to surface water resources may include: changes to catchment areas and flow characteristics due to the construction of (for example) water storage dams, mine infrastructure, waste rock emplacements, flood levees, open cut pits, upstream diversions and final voids; impacts to other water users in the region; and potential extraction and/or discharge of water as part of the on-site water management system.

Groundwater

The Action has the potential to impact groundwater resources through direct interaction with aquifers by open cut mining and indirect take from adjacent aquifers due to changes in hydraulic gradients.

Potential impacts to groundwater resources may include: potential drawdown of groundwater aquifers, alteration of groundwater flow directions and decrease in baseflow to surface water systems; localised effects on groundwater quality; and long-term changes to groundwater levels and flow direction in the vicinity of final voids.

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

No

4.1.9.6 Describe why you do not consider this to be a Significant Impact. *

The Action would be an extension of the existing PDM which has been shown not to have significant impacts on water resources (surface and groundwater). Therefore, the direct impact of the Action on water resources is not likely to be significant

Surface Water

The Isaac River in the vicinity of the Action is a 6th order stream (Queensland Government, 2021a). Tributaries of the Isaac River in the vicinity of the Action are shown on Figure 2 (Att A 'EPBC Referral Figures', page 2)

Streamflow monitoring on Ripstone Creek and Boomerang Creek, between July 2018 and July 2019, identified highly ephemeral flows, with significant flows recorded in March 2019 and smaller flows recorded in December 2018 (BMA, 2020) (Att C 'Receiving Environment Monitoring Program [REMP] Annual Report July 2018 – June 2019', Section 5.1, pages 20 to 22). Flow monitoring sites were generally dry outside of these periods

Monitoring undertaken by BMA for the PDM (BMA, 2020) (Att C 'Receiving Environment Monitoring Program [REMP] Annual Report July 2018 – June 2019', Sections 5.1 and 5.2, pages 20 - 33) indicates, with a few exceptions, downstream median water quality results are within the acceptable ranges for slightly-to-moderately disturbed systems for local streams, and/or within current guidelines or EA EPML00318213 trigger values. Values above guidelines generally occurred both upstream and downstream of mining operations, and are likely a function of background and associated land use outside of mining

The Action is located approx. 23 km upstream of the confluence of Ripstone Creek with the Isaac River

The Action water management strategy involves: separation of undisturbed area runoff from disturbed area runoff; collection and re-use of surface runoff from disturbed areas; capture of pit inflows and re-use for mine operations; storage of water on-site; and licensed water extraction to supplement water supply

A site water balance model would be developed for the Actions in the EIS

Groundwater

It's expected that the coal resource is within a confined groundwater system where the majority of groundwater flow occurs through secondary porosity (faults and fractures) (SRK Consulting [Australia] Pty Ltd [SRK Consulting], 2020) (Att L 'Peak Downs OTD and ATD Hydrogeology Assessment', Section 6.4, page 58). The resource is located within the Isaac Connors GMA under the *Water Resource (Fitzroy Basin) Plan 2011* made under the Queensland *Water Act 2000*. It is also expected that the Quaternary alluvial and unconsolidated Tertiary sediments associated with the Isaac River and its tributaries contain unconfined to semi-confined groundwater systems (Jacobs, 2017) (Att M 'Associated Water – Mine site Inflow Estimates', Sections 4.3 and 5, pages 19, 25 and 26).

The Action is located approximately 5 km west from the mapped alluvium extent associated with the Isaac Connors Groundwater Unit 1

The BOM GDEs Atlas indicates that there are no potential aquatic GDEs or high potential terrestrial GDEs mapped within the Action Area. There are moderate potential terrestrial GDEs located along Boomerang and Ripstone Creek, however the presence and potential impacts of GDEs will be assessed in the EIS

There are a number of groundwater bores within and immediately adjacent to the Action Area. Bores located in a 10 km vicinity of the Action Area and classified as "existing" include (Queensland Government, 2021a): 14 total registered bores; one bore installed into the Quaternary alluvium; and 20 bores installed into the Permian strata (Fort Cooper Coal Measures, Moranbah Coal Measures and Back Creek Group). Of the listed bores, only one bore was used for water supply purposes and the remainder were monitoring bores

A groundwater bore census was recently conducted as part of the update of the regional Caval Ridge Mine groundwater model for the PDM (SRK Consulting, 2020) (Att L 'Peak Downs OTD and ATD Hydrogeology Assessment', Section 5.1.1, page 30) which confirmed that groundwater use in the locality is limited, largely due to the limited extent of saturated alluvium (SLR Consulting Australia Pty Ltd [SLR], 2021) (Att N 'Caval Ridge Mine Horse Pit extension Project Groundwater Assessment', Sections 4.2 and 5.5, pages 51 to 54 and 120 and 121). The assessment also confirmed that water within the alluvium adjacent to the Action Area generally exceeds guideline levels for drinking water and freshwater aquatic systems (SLR, 2021) (Att N 'Caval Ridge Mine Horse Pit extension Project Groundwater Assessment', Sections 4.2.1.2, 5.4 and 5.5, pages 51 - 54 and 115 - 121)

A groundwater assessment is being developed for the Action as part of the EIS.

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

No

4.1.9.9 Please elaborate why you do not think your proposed action is a controlled action. *

The proposed Action is not considered to be a controlled action as the Action is not likely to have a significant impact on a water resource for the following reasons:

- the Action is located approximately 23 km upstream of the confluence of Ripstone Creek with the Isaac River;
- surface water monitoring indicates downstream median water quality results are within the acceptable ranges at the PDM;
- the Action coal resource is expected to be within a confined groundwater system;
- the Action is located approximately 5 km west from the mapped alluvium extent associated with the Isaac Connors Groundwater Unit 1;
- there are no potential aquatic GDEs or high potential terrestrial GDEs mapped within the Action Area; and
- groundwater use in the locality is limited.

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

Alternatives to the Action that have been considered include alternative mining methods and layouts, and alternative infrastructure and processing options.

Refinement of the mine plan during the EIS process will consider the principles of the Queensland Government's mining rehabilitation reforms, in particular, progressive rehabilitation opportunities and post-mining land use outcomes.

The Action layout has been designed to maximise recovery of the resource while avoiding impacts to environmental values of significance.

The preferred mine plan, infrastructure design, production and workforce profiles are being developed by BMA in consideration of environmental and planning constraints, logistics, community and external relationship expectations for marketing and financial matters.

The final Action design will be assessed as part of the EIS, to demonstrate that potential environmental effects can be adequately avoided, minimised, mitigated or offset.

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

The Water Resource (Fitzroy Basin) Plan 2011 regulates interfering with groundwater from within the Fitzroy Water Plan Area, and states that: "A person may only take or interfere with groundwater in a GMA (such as Isaac Connors) under a water permit, water licence or water allocation etc."

Interfering with associated water (e.g. to dewater the pit) will be authorised once the EA is amended.

If associated water is taken under the general authorisation under section 334ZP of the MR Act, BMA is required to measure and report on the volume of associated water taken (including through evaporation if relevant).

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.

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. *

A search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no areas of Commonwealth Land occur within the EPBC Action Area or surrounds.

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.

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. *

A search of the EPBC Act database using the Protected Matters Search Tool (DAWE, 2021) (Att B 'EPBC Act Protected Matters Report', page 2) indicates that no areas of Commonwealth Heritage Places Overseas occur within the EPBC Action Area or surrounds.

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. *

BMA operates seven mines in the Bowen Basin, with each asset being at a different stage in its mine and development life. Assets in the Bowen Basin have been progressively developed by BMA to meet long term global demand for high quality metallurgical coals since the 1960s. BMA's strategy is to continue to develop its assets over the coming decades to allow market demand to be met through the most efficient development of resources.

Benefits from the PDM occur through the continuity of employment, expendable income, export earnings and government revenue. BMA is the largest employer in the Central Queensland region and provides local jobs for its direct employees with an employment flow-on effect in the Isaac Regional LGA.

The PDM has approximately 2,400 FTE employees, including labour hire and contractors. These jobs are reliant on maintaining continuity of mining operations at the PDM through the Project.

The local and regional community has established itself to service the existing PDM, and is therefore accustomed to the benefits, costs and demands associated with mining operations. Development of the Project will provide continued direct employment opportunities to the regional communities, and long-term flow-on social and economic benefits.

BMA considers that the development of the Action, being a brownfield development (extension of the existing PDM), and its use of the significant existing on-site infrastructure already developed to service the PDM (e.g. rail, road, power and water infrastructure) would result in less demand and impact on existing services and providers, when compared to a greenfield development away from an existing mining complex.

If the Action did not proceed, open cut mining operations at the PDM would be restricted to within approved areas at the PDM. In absence of the Action, the significant premium hard coking coal resource located within existing mining leases of ML 70411 and the nil surface areas of ML 1775 and ML 1885 (Figure 2 – Att A ‘EPBC Referral Figures’, page 2) at the PDM would be foregone resulting in a consequential loss of royalty payments to the State, taxes, expenditure with regional businesses and discontinuation of employment of the significant PDM workforce.

Refinement of the mine plan during the EIS process will consider the principles of the Queensland Government’s mining rehabilitation reforms, in particular, progressive rehabilitation opportunities and post-mining land use outcomes.

The Action layout has been designed to maximise recovery of the resource while avoiding impacts to environmental values of significance, such as Ripstone Creek and the heritage and ecological values along its riparian corridor.

Should the Action not be developed, it would not contribute to the significant economic growth provided by Queensland’s growing export industry, the value that the coal resource would provide through State royalties and Commonwealth tax revenue would be foregone and the employment opportunities and social and community benefits for the region would not be realised.

The preferred mine plan, infrastructure design, production and workforce profiles are being developed by BMA in consideration of environmental and planning constraints, logistics, community and external relationship expectations for marketing and financial matters. The final Action design will be assessed as part of the EIS, to demonstrate that potential environmental effects can be adequately avoided, minimised, mitigated or offset.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

#1.	Att A ‘EPBC Referral Figures’	Document	Figures for PDM Continuation Project
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3.1.1 Current condition of the project area’s environment

#1.	Att B ‘EPBC Act Protected Matters Report’	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
#2.	Queensland Globe	Link (Webpage)	https://qldglobe.information.qld.gov.au/

3.1.2 Existing or proposed uses for the project area

#1.	Att A ‘EPBC Referral Figures’	Document	Figures relevant to the proposed Action
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3.1.4 Gradient relevant to the project area

#1.	Queensland Globe	Link (Webpage)	https://qldglobe.information.qld.gov.au/
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3.2.1 Flora and fauna within the affected area

#1.	Att A ‘EPBC Referral Figures’	Document	Figures relevant to the proposed Action.
#2.	Att B ‘EPBC Act Protected Matters Report’	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.

#3.	Atlas of Living Australia	Link (Webpage)	https://biocache.ala.org.au/search#tab_spatialSearch
#4.	Birdlife Australia, Birdata	Link (Webpage)	https://www.gbif.org/dataset/4bf1cca8-832c-4891-9e17-7e7a65b7cc81
#5.	Wildlife Online Database Search	Link (Webpage)	https://www.qld.gov.au/environment/plants-animals/species-information/wildnet

3.2.2 Vegetation within the project area

#1.	Att A 'EPBC Referral Figures'	Document	Figures relevant to the proposed Action.
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3.3.1 Commonwealth heritage places overseas or other places that apply to the project area

#1.	Heritage Register Map	Link (Webpage)	https://apps.des.qld.gov.au/heritage-register/map/
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3.4.1 Hydrology characteristics that apply to the project area

#1.	Att A 'EPBC Referral Figures'	Document	Figures relevant to the proposed Action.
#2.	Att C 'Receiving Environment Monitoring Program (REMP) Annual Report July 2018 – June 2019'	Document	Existing management plan used by the Peak Downs Mine.

4.1.1.3 (World Heritage) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.1.2.3 (National Heritage) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.1.3.3 (Ramsar Wetland) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

#1.	Att D 'Approved Conservation Advice for the Brigalow (Acacia harpophylla dominant and co-dominant) e	Document	Current conservation advice for the Endangered Brigalow (Acacia harpophylla dominant and co-dominant) threatened ecological community.
#2.	Att E 'Draft Referral guidelines for the nationally listed Brigalow Belt reptiles'	Document	Guidelines to assist with determining if an action needs to be referred to the Australian Government.

4.1.4.5 (Threatened Species and Ecological Communities) Why you consider the direct and/or indirect impact to be a Significant Impact

#1.	Att A 'EPBC Referral Figures'	Document	Figures relevant to the proposed Action.
#2.	Att E 'Draft Referral guidelines for the nationally listed Brigalow Belt reptiles'	Document	Guidelines to assist with determining if an action needs to be referred to the Australian Government.
#3.	Att F 'BMA Peak Downs Terrestrial Ecology Assessment – Interim Memo on Surveys Conducted in November'	Document	Well established consultancy firm specialising in ecology.
#4.	Att F 'BMA Peak Downs Terrestrial Ecology Assessment – Interim Memo on Surveys Conducted in November'	Document	Well established consultancy firm specialising in ecology.
#5.	Att G 'Ecology Technical Memo'	Document	Well established consultancy firm specialising in environmental issues.
#6.	Att H 'BMA Peak Downs Mine Ecological Assessment of Dysart Road MC90 Realignment'	Document	Well established consultancy firm specialising in various disciplines including ecology.
#7.	Att I 'Assessment of Koalas and Koala Habitat Use on BMA Peak Downs Mine'	Document	Well established consultancy firm specialising in terrestrial and aquatic ecology.
#8.	Att J 'Peak Downs East Mining Lease Terrestrial Ecology Baseline Report'	Document	Well established consultancy firm specialising in various disciplines including ecology.
#9.	Att K 'Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, Ne	Document	Current conservation advice for the Endangered Koala.

4.1.5.2 (Migratory Species) Why your action has a direct and/or indirect impact on the identified protected matters

#1.	Att J 'Peak Downs East Mining Lease Terrestrial Ecology Baseline Report'	Document	Well established consultancy firm specialising in various disciplines including ecology.
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4.1.6.3 (Nuclear) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.1.7.3 (Commonwealth Marine Area) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.1.8.3 (Great Barrier Reef) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.1.9.2 (Water resource in relation to large coal mining development or coal seam gas) Why your action has a direct and/or indirect impact

#1.	Att A 'EPBC Referral Figures'	Document	Figures relevant to the proposed Action.
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4.1.9.6 (Water resource in relation to large coal mining development or coal seam gas) Why you do not consider the direct and/or indirect impact to be a Significant Impact

#1.	Att A 'EPBC Referral Figures'	Document	Figures relevant to the proposed Action.
#2.	Att C 'Receiving Environment Monitoring Program (REMP) Annual Report July 2018 – June 2019'	Document	Existing management plan used by the Peak Downs Mine.
#3.	Att L - SRK (2021) PDM OTD and ATD Hydrogeology Assessment_Part2	Document	Relevant publication regarding hydrogeology of the Peak Downs Mine.
#4.	Att L - SRK (2021) PDM OTD and ATD Hydrogeology Assessment_Part3	Document	Relevant publication regarding hydrogeology of the Peak Downs Mine.
#5.	Att L - SRK (2021) PDM OTD and ATD Hydrogeology Assessment_Part4	Document	Relevant publication regarding hydrogeology of the Peak Downs Mine.
#6.	Att L - SRK (2021) PDM OTD and ATD Hydrogeology Assessment_Part5	Document	Relevant publication regarding hydrogeology of the Peak Downs Mine.
#7.	Att L - SRK (2021) PDM OTD and ATD Hydrogeology Assessment_Part6	Document	Relevant publication regarding hydrogeology of the Peak Downs Mine.
#8.	Att L - SRK (2021) PDM OTD and ATD Hydrogeology Assessment_Part7	Document	Relevant publication regarding hydrogeology of the Peak Downs Mine.

#9.	Att L 'Peak Downs OTD and ATD Hydrogeology Assessment_Part1'	Document	Relevant publication regarding hydrogeology of the Peak Downs Mine.
#10.	Att M 'Associated Water – Mine site Inflow Estimates'	Document	Relevant publication regarding groundwater inflows and hydrogeology of the area.
#11.	Att N - SLR (2021) Caval Ridge Mine Horse Pit Extension Project Groundwater Assessment_P1	Document	Relevant groundwater assessment prepared by an experienced groundwater consultant.
#12.	Att N - SLR (2021) Caval Ridge Mine Horse Pit Extension Project Groundwater Assessment_P2	Document	Relevant groundwater assessment prepared by an experienced groundwater consultant.
#13.	Att N - SLR (2021) Caval Ridge Mine Horse Pit Extension Project Groundwater Assessment_P3	Document	Relevant groundwater assessment prepared by an experienced groundwater consultant.
#14.	Att N - SLR (2021) Caval Ridge Mine Horse Pit Extension Project Groundwater Assessment_P4	Document	Relevant groundwater assessment prepared by an experienced groundwater consultant.
#15.	Att N - SLR (2021) Caval Ridge Mine Horse Pit Extension Project Groundwater Assessment_P5	Document	Relevant groundwater assessment prepared by an experienced groundwater consultant.

4.1.10.3 (Commonwealth Land) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.1.11.3 (Commonwealth heritage places overseas) Why your action is unlikely to have a direct and/or indirect impact

#1.	Att B 'EPBC Act Protected Matters Report'	Document	Generated list of EPBC Act protected matters known and likely to occur within the Action Area and nearby surrounds.
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4.3.8 Why alternatives for your proposed action were not possible

#1.	Att A 'EPBC Referral Figures'	Document	Figures relevant to the proposed Action.
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5.2 Declarations

Completed Referring party's declaration

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

ABN	67096412752
Organisation name	BM Alliance Coal Operations Pty Limited
Organisation address	Level 14, 480 Queen Street Brisbane, QLD, 4000
Representative's name	Murray Timms
Representative's job title	Principal Environment Approvals
Phone	0409834797
Email	murray.timms@bhp.com
Address	Level 14, 480 Queen Street Brisbane QLD 4000 Australia

- 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, **Murray Timms of BM Alliance Coal Operations Pty Limited**, 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.

Same as Referring party 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, **Murray Timms of BM Alliance Coal Operations Pty 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, **Murray Timms of BM Alliance Coal Operations Pty 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. *