EPBC Act referral

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Title of proposal	2021/8980 - Isaac River Coal Mine Project

Section 1

Summary of your proposed action

1.1 Project industry type Mining

1.2 Provide a detailed description of the proposed action, including all proposed activities

The Action being proposed by Bowen Coking Coal (BCC) (The Proponent) is located 28 km to the east of Moranbah in the Bowen Coal Basin in Central Queensland and is situated within the Isaac Regional Council Local Government Area. The Action is located on “Daunia Station”, described as real property Lot 4 on RP894192. The proposed haul road to connect the Project to the Red Mountain Coal Handling and Preparation Plant (RM CHPP) and Red Mountain Train Loadout (RM TLO) facility is located within the adjoining Mining Lease (ML) 70115 and ML 1781, both held by BHP Coal Pty Ltd. The RM CHPP and RM TLO are located on ML 70312 held by BHP Billiton Mitsui Coal Pty Ltd, which adjoins ML 70115 and ML 1781.

The Project’s Mining Lease application (MLa) 700062 is approximately 330.4 hectares (ha) and will cover parts of Mineral Development Lease (MDL) 444 and Exploration Permit for Coal (EPC) 830. The disturbance area within MLa 700062 is approximately 175.00 ha which includes an additional section of road connecting to the Daunia Quarry access road. In addition to MLa 700062, The Proponent has applied for a Mining Lease for Transport (MLT) (MLa 700063) over the Daunia Quarry access road. The MLa 700063 application area is approximately 8.89 ha. The Action will utilise the existing road within MLa 700063 and as such no new disturbance areas associated with the Action are proposed within MLa 700063.

The Action will involve mining approximately 500,000 tonnes per annum (tpa) of metallurgical coal for the export market. MLa 700063 is underlain by MDL 444 and EPC 830, both of which are held by Coking Coal One Pty Ltd, a subsidiary of the Proponent. All aspects of the Project within MLa 700062 and MLa 700063 once granted will be authorised by a site specific Environmental Authority (EA). Aspects of The Action which occur on the Daunia Coal Mine, RM CHPP and RM TLO facility will be undertaken within existing environmental approvals and EA authorisations for those operations and are excluded from the assessment relevant to this referral.

Development of the Action is expected to commence in 2021 with initial early construction works and extend operationally for approximately five years until the depletion of the current reserve, and an additional two years for rehabilitation and mine closure activities to be completed. It is expected additional time will be required following completion of the rehabilitation activities to monitor the success of the rehabilitation activities and undertake further restorative work as required.

The Action consists of one open cut operation that will be mined using a truck and shovel methodology initially before commencing highwall mining methods to maximise coal extraction from the resource area. Open cut and highwall mining will target the Vermont and Leichhardt seams. Following the completion of open cut mining, highwall mining will commence and will target the Vermont seam initially, followed by the Leichhardt seam. Highwall mining will be undertaken in the final years of the Project overlapping final open cut operations.

Coal will be transported to an onsite Run-of-Mine (ROM) pad, prior being transported to the RM CHPP where it will be processed to high value metallurgical coal products at a yield of approximately 75%. Rehabilitation works are expected to commence in Year 2 and will continue to occur progressively through the remaining mine operation, with final rehabilitation and mine closure activities occurring at the completion of mining.

The Action will utilise the existing RM TLO to transport product coal to the established coal export facilities at the DBCT south of Mackay.

Access to the mining operation will be via the Peak Downs Highway, then the Daunia Road / Annandale Road approximately 8.5 km west of Coppabella. From the Daunia Road, access will be via the existing access road used for the Daunia Quarry. An additional section of road will be constructed within MLa 700062 to connect to the existing Daunia Quarry Road.

The following features are assessed as part of this Action for which BCC is seeking approval:

Within MLa 700062

- Open cut mining targeting the Vermont and Leichhardt seams;
- Highwall mining of the Vermont and Leichhardt seams;
- One ROM coal stockpile area;
- On lease access and internal roads, ROM coal haul roads and waste rock haul roads;

- One out of pit waste rock dump;
- Internal water distribution pipelines and management infrastructure;
- Mine affected water dams and sediment affected water dams;
- Light and heavy vehicle internal roads;
- Offices, crib rooms, ablution block and workshop facilities;
- Access point control;
- Surface water drainage structures;
- Fencing; and
- Internal energy distribution network.

Within MLa 700063

- Use of the existing Daunia Quarry access road to connect to MLa 700062.

The transportation of coal from the ROM stockpile to the RM CHPP and TLO will be via a haul road connecting into the existing Daunia Coal Mine haul road. The haul road within MLa 700062 originates from the Project ROM stockpile and joins the Daunia Coal Mine haul road in the north west corner of MLa 700062.

Overall, the Action would result in approximately 25.00 ha of disturbance to Ornamental Snake habitat to facilitate the components of the Action. The disturbance is a result of the necessary clearance of non-remnant agricultural grassland within MLa 700062 where a single Ornamental Snake was found during a second round of targeted surveys. Direct impacts to ground quantity will occur as a result of the pit development and ongoing mining. Numerical modelling indicates a return to premining conditions approximately six years following cessation of mining.

A detailed description of the Action is provided in AttachmentA_Part 1_PRD_V1_16062021b, Section 2, pages 39-86. A Figure showing the layout of the Action is at Attachment B - Figure 1 Proposed Action Layout and Boundary Coordinates. The disturbance area to Ornamental Snake habitat is shown at Attachment B - Figure 2 Ornamental Snake Habitat Disturbance Footprint.

1.3 What is the extent and location of your proposed action?

See Appendix B

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)

The Action is located approximately 28 km to the east of Moranbah in the Bowen Coal Basin in Central Queensland and is situated within the Isaac Regional Council Local Government Area. The Action is located on “Daunia Station”, described as real property Lot 4 on RP894192. The proposed haul road to connect the Project to the RM CHPP and RM TLO facility is located within the adjoining ML 70115 and ML 1781, both held by BHP Coal Pty Ltd. The RM CHPP and RM TLO are located on ML 70312 held by BHP Billiton Mitsui Coal Pty Ltd, which adjoins ML 70115 and ML 1781. The property description details are provided at Table 1.

Table 1 Property Description

Proposed Action	Property Description	Tenure	Current Land Use	Property Name
Mine operations	Lot 4 on RP894192	Freehold	Grazing native vegetation	Daunia Station

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The total area of the Action is approximately 339.48 ha.

The extent of the proposed Action area development footprint (i.e. the disturbance footprint) is approximately 175.00 ha. The 175.00 ha disturbance will occur within MLa 700062. No new disturbance is proposed in MLa 700063.

No specific areas assigned as avoidance or retention footprints are proposed as part of the Action.

1.7 Proposed action location

Other - Access is from the existing Daunia Quarry Rd that is off Daunia/Annandale Rd west of Coppabella.

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1.8 Primary jurisdiction	Queensland	

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☐ Yes ☑ No

1.10 Is the proposed action subject to local government planning approval?

☐ Yes ☑ No

1.11 Provide an estimated start and estimated end date for the proposed action	Start Date	01/02/2022
	End Date	31/07/2032

1.12 Provide details of the context, planning framework and state and/or local Government requirements

Commonwealth Approval Framework

The Action is being referred to the Commonwealth Minister for the Environment for consideration as to whether the Action is a 'controlled action' and requires approval under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (i.e. this EPBC Referral).

Native Title has been extinguished over the area that the Action will occur and therefore, the Native Title Act 1993 (Native Title Act) is not relevant.

State and Local Government Planning Framework

The Action is located within the Isaac Regional Council local government area. The Action will occur in 'Rural Zone' as defined in the Belyando Shire Planning Scheme 2008 as administered by the Isaac Regional Council. The Action will occur within Mining Leases and as such the local government planning framework will not apply.

The following State and local regulatory framework applies to the Action:

- Mineral Resources Act 1989 (MR Act);
- Environmental Protection Act 1994 (EP Act);
- Environmental Offsets Act 2014;
- Water Act 2000
- Transport Infrastructure Act 1994;
- Nature Conservation Act 1992;
- Building Act 1975;
- Forestry Act 1959;
- Land Act 1994; and
- Biosecurity Act 2014.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

Specific consultation about the Action has commenced between the proponent and key State Government Departments as well as key local stakeholders. The proponent will continue to actively engage all relevant Government agencies, stakeholders and other affected and interested parties as required.

Statutory public consultation associated with the grant of MLa 700062 and MLa 700063 is still to be completed.

The Project is located within the Barada Barna People (QC2016/007) Native Title Determination Area registered with the National Native Title Tribunal. Consultation with the Barada Barna People will continue through the duration of the Project.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

The proponent has submitted applications for Mining Lease (MLa 700062) and Mining Lease (MLa 700063) with the Queensland Mining Registrar. An application for a site-specific environmental authority and PRC plan (APP0060905) as required by the Environmental Protection Act 1994 has been submitted to the Department of Environment and Science (DES).

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In support of the application for MLa 700062 and MLa 700063 the Proponent has prepared an Environmental Assessment Report (EAR). The EAR is the key document supporting the primary approvals required for the Project under Queensland legislation, including the EP Act and the MR Act, in addition to any further approvals required under prevailing State legislation.

1.15 Is this action part of a staged development (or a component of a larger project)?

☐ Yes ☑ No

1.16 Is the proposed action related to other actions or proposals in the region?

☑ Yes ☐ No

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation)

Access to the Isaac River Coal Mine will be via the existing Daunia Quarry access road. A small section of road will be constructed within MLa 700062 to connect to this road. Approval is being sought under this referral for the small section of road within MLa 700062 that connects to Daunia Quarry Access Road.

Coal will be hauled from the Isaac River Coal Mine to the existing RM CHPP and existing RM TLO using exiting roads located within the adjoining ML 70115 and ML 1781, both held by BHP Coal Pty Ltd. The RM CHPP and RM TLO are located on ML 70312 held by BHP Billiton Mitsui Coal Pty Ltd, which adjoins ML 70115 and ML 1781.

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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☐ Yes ☑ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☐ Yes ☑ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☑ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☑ Yes ☐ No

Species or threatened ecological community

A single Threatened Ecological Community, the Endangered Brigalow (Acacia harpophylla dominant and co-dominant), has been identified as occurring within MLa 700063.

Three EPBC listed threatened fauna species have been assessed as known or likely to occur within the Project area based on habitat suitability or recordings during field surveys. These species are:

Ornamental Snake (Denisonia maculata) - known within MLa 700062 only. Identified during field surveys within MLa 700062.
Greater Glider (Petauroides Volans) - known within MLa 700063 only. Identified during field surveys within MLa 700063.
Squatter Pigeon - southern subspecies (Geophaps scripta scripta) - not identified within either MLa 700062 or MLa 700063 during field surveys but likely to occur in MLa 700062 and MLa 700063.

Impact

Brigalow (Acacia harpophylla dominant and co-dominant) - Endangered

This TEC has undergone extensive disturbance and clearing associated with the construction and operation of the Daunia Quarry access road. Evidence of dieback is also prevalent within MLa 700063. No further clearing of REs associated with the Endangered Brigalow (Acacia harpophylla dominant and co-dominant) TEC is proposed within MLa 700063 as the existing Daunia Quarry access road will be utilised as access to the mine. Given these contributing factors, no further significant residual impacts attributable to the Isaac River Coal Mine are assessed as being likely to occur.

A significant impact assessment has been undertaken for Brigalow (Acacia harpophylla dominant and co-dominant) following the MNES Significant Impact Guidelines (DotE, 2013) and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 4.7.2.3, pages 181-184.

Species or threatened ecological community

Greater Glider (Petauroides Volans) - Vulnerable

Impact

Great Glider may occur in a range of eucalypt dominated habitats from coastal areas to ranges. Needs large hollow-bearing

trees for daytime roosting. Favours wooded habitats with a diversity of eucalypt species (Kavanagh, 1984).

Several Greater Glider (up to seven) were recorded within MLa 700063 in vegetation (RE11.3.25) associated with North Creek.

No clearing activities are proposed within MLa 700063. As such no direct or indirect impacts are predicted.

A significant impact assessment has been undertaken for Greater Glider following the MNES Significant Impact Guidelines (DotE, 2013) and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 4.7.2.2, pages 189 - 191.

Species or threatened ecological community

Squatter Pigeon - southern subspecies (Geophaps scripta scripta) - Vulnerable

Impact

Squatter Pigeon - southern subspecies occurs in dry grassy eucalypt woodlands and open forests, also Callitris and Acacia woodlands. Most birds live in sandy sites near permanent water (Frith, 1982; Blakers et al., 1984 and Crome and Shields, 1992). Often around cattle yards and other disturbed areas.

Squatter Pigeon - southern subspecies was not identified within either MLa 700062 or MLa 700063 during field surveys, including targeted surveys. Notwithstanding, the species was assessed as being likely to occur as the species is relatively common across the wider landscape and was recorded to the south and east during recent surveys for surrounding mining projects. 29 database records from surrounding area.

Clay soils dominating the disturbance area associated with the Action are generally less suitable for the presence of this species. However, wooded habitat occurring in the eastern section of MLa 700062, but outside of the disturbance footprint, may provide suitable habitat. Wooded habitat within MLa 700063 may also provide suitable habitat.

No clearing of potential wooded habitat is proposed within either MLa 700062 and MLa 700063. Consequently no direct or indirect impacts are predicted.

A significant impact assessment has been undertaken for Squatter Pigeon - southern subspecies following the MNES Significant Impact Guidelines (DotE, 2013) and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 4.7.2.3, pages 192-194.

Species or threatened ecological community

Ornamental Snake (Denisonia maculata) - Vulnerable

Impact

Occurs in low-lying areas with deep-cracking clay soils that are subject to seasonal flooding (particularly where gilgais occur) and adjacent areas of clay and sandy loams. The species is found in woodlands and shrublands, such as Brigalow, and in riverine habitats, and lives in soil cracks and under fallen timber (Ehmann 1992; and Wilson 2015). Potential habitat is associated with REs 11.3.3, 11.4.3, 11.4.6, 11.4.8, 11.4.9 and 11.5.16 or where they occurred before clearing (DSEWPaC, 2011b).

Ornamental Snake was confirmed as being present within MLa 700062 during field surveys in degraded gilgai habitat within non-remnant vegetation in the north western corner of MLa 700062. Potential habitat for the species has been identified within MLa 700062. The habitat consists of small areas of heavily disturbed gilgai within mechanically cleared agricultural grassland with some areas of Brigalow regrowth. The areas of disturbed gilgai are mostly absent of fallen timber, rocks and bark and thereby limiting sheltering habitat for the snake during the day and further reducing the quality of the habitat. Potential habitat in the Action area has been substantially modified as a result of clearing, weed invasion and cattle grazing. This habitat area within MLa 700062 is approximately 36 ha in total with approximately 25.00 ha (or 66%) to be cleared during the development of the mine.

The reduction in available habitat may lead to a minor localized decrease in the local population; however, due to the amount of available habitat, both remnant and non-remnant within the region and the number of records within the broader region it is considered to be unlikely that this decrease would be significant at a regional scale.

Direct impacts are predicted and include:

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- Direct disturbance to fauna and habitat through vegetation clearing, albeit the habitat to be cleared is non-remnant highly disturbed agricultural grasslands
- Loss of habitat;
- Direct mortality through vehicle strikes; and
- Unplanned fire.

A significant impact assessment has been undertaken for Ornamental Snake following the MNES Significant Impact Guidelines (DotE, 2013) and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 4.7.2.1, pages 185-188.

2.4.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☐ Yes ☑ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☐ Yes ☑ No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☐ Yes ☑ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☑ Yes ☐ No

Water resource

Groundwater.

Impact

The potential groundwater impacts on aquifers due to the Action are not considered to be significant, as:

- No landholder water supply bores are located within the predicted drawdown / depressurisation extents attributable to the proposed Action;
- Stygofauna was not encountered in samples from bores located within the Isaac River Coal Mine and groundwater conditions at the Isaac River Coal Mine, i.e. high salinity of deep groundwater in the coal seams and absence of shallow groundwater in the Cainozoic sediment deposits along North Creek during dry seasons, do not provide conditions conducive to stygofauna;
- Numerical groundwater modelling indicates that the extent of groundwater drawdown in the seams of the Rangal Coal Measures is limited to within 2km of the mine pit at the end of mining and is expected to fully recover to premining conditions six years post-mining. Drawdown at the end of mining within a distance of 500m of the pit is anticipated to be in the vicinity of 10 m, between 500m and 1 km drawdown is anticipated to be 5 m and between 1 km to 2.5 km of the pit drawdown is anticipated to be 1 m or less; and
- The proposed pit is approximately 2.5 km from the North Creek to the east, and approximately 5 km from the New Chum Creek to the west and over 7 km from the Isaac River at its closest point to the south west. Given the low hydraulic conductivity of the Permian strata surrounding the pit and of the granitoid intrusion to the east of the pit, it is unlikely that there will be any impact on any surface watercourses or associated GDEs due to dewatering of the proposed pit.

An impact assessment has been undertaken for impacts to hydrology and is included in Attachment A_Part2_PRD_V1_16062021b, Section 6, pages 265-424.

An impact assessment has been undertaken for impacts to groundwater and is included in Attachment A_Part2_PRD_V1_16062021b, Section 7, pages 425-510.

An impact assessment has been undertaken for impacts to Groundwater Dependent Ecosystems and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 5.10, pages 243-253.

An impact assessment has been undertaken for impacts to Stygofauna and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 5.11, pages 253-256.

2.9.2 Do you consider this impact to be significant?

☐ Yes ☑ No

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2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

2.11 Is the proposed action to be taken by a Commonwealth agency?

☐ Yes ☑ No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☑ No

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Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

A total of 121 flora species were recorded during site surveys. No threatened plant species were recorded during field surveys. Habitat requirements for flora species listed under the NC Act and/or EPBC Act were considered during the flora assessments. Opportunistic searches for threatened flora species were carried out during the flora survey / site traverse across the study area. The site survey was considered to have been conducted at a suitable time of year (following heavy rainfall).

A total of 73 terrestrial vertebrate species were recorded during the field survey, including two frog, six reptile, 52 bird and 13 mammal species. Several of these were recorded in the local surrounding area to the east rather than within MLa 700062 and MLa 700063. While the suite of faunal species is relatively low the community observed appears typical for a site that lies within an area that is largely cleared of native vegetation. Similarly the majority of the land within MLa 700063 has been extensively disturbed via land clearing associated with the construction and operation of the Daunia Quarry access road. Evidence of dieback is present throughout MLa 700063; however, the cause of the dieback is uncertain.

Two conservation significant species were recorded during field surveys within and adjacent to MLa 700062 and MLa 700063. A single Ornamental Snake was recorded in degraded gilgai habitat within non-remnant vegetation in the north western corner of MLa 700062. Several Greater Glider (up to seven) were recorded within MLa 700063 in vegetation (RE11. 3.25) associated with North Creek. The species had previously been recorded in the same area during studies for the Olive Downs South Project (DPM Enviroscіences, 2018).

Squatter Pigeon (southern) (Vulnerable NC Act and EPBC Act) is considered as ‘likely to occur’ within MLa 700062 and MLa 700063 but was not identified during any field surveys.

Two further conservation significant species, Koala (Vulnerable – NC Act and EPBC Act) and Fork-tailed Swift (Migratory EPBC Act, Special Least Concern NC Act) are considered to have some potential, albeit unlikely, to occur occasionally in MLa 700063 in remnant vegetation associated with North Creek. Netiher species were identified during field surveys.

No conservation significant aquatic species were recorded during surveys undertaken in North Creek.

A detailed discussion in respect to terrestrial flora and fauna is provided in AttachmentA_Part 1_PRD_V1_16062021b, Section 4 pages 92-218.

A detailed discussion in respect to aquatic flora and fauna is provided in AttachmentA_Part 1_PRD_V1_16062021b, Section 5, pages 219-264.

3.2 Describe the hydrology relevant to the project area (including water flows)

The Action is located within the North Creek catchment, a small tributary that drains to the middle reaches of the Isaac River catchment, itself part of the greater Fitzroy Basin. The Isaac River is the main watercourse within the region where the Action is proposed and flows in a north-west to south-east direction. The Isaac River, located to the south of MLa 700062 is a seasonally flowing watercourse. Surface flows are greater between months from November to April coinciding with the wet season, reducing to shallow subsurface flows during the drier months between May to October.

North Creek is located to the east of the Action and is the only tributary of the Isaac River relevant to the Action. North Creek enters the Isaac River immediately upstream of the Deverill stream gauging station on the Isaac River, to the south east of the Action. The catchment area of North Creek upstream of its confluence with the Isaac River is approximately 342 km2. Stock grazing and the Moorvale Mine are the predominate land uses within the catchment contributing to water quality, with the existing environmental approvals for the Moorvale Mine permitting water releases to North Creek.

North Creek is ephemeral, experiencing flows only after sustained or intense rainfall within the catchment. Stream flow in North Creek is highly variable, and it is expected most channels dry out during winter to early spring when rainfall and runoff is historically low. Some of the deeper pools may hold water for extended periods. Therefore, the physical attributes and water quality within North Creek is also expected to be highly variable over time.

There are no mapped wetlands of High Ecological Significance (HES) or High Ecological Value (HEV) within the Project area.

A detailed discussion in respect to hydrology is provided in Attachment A_Part2_PRD_V1_16062021b, Section 6, pages 265-424.

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3.3 Describe the soil and vegetation characteristics relevant to the project area

An assessment of the soil classification of the area was undertaken by reviewing the Australian Soil Resource Information System (ASRIS) 2014 data, Land Resources Areas (LRAs), as well as a review of the site specific soil sample records in the locality to further define the local soil physical attributes and confirm applications of LRA descriptions. The predominant soils within the area of the Action are vertosols, comprising both brown and grey vertosols (65% and 35% respectively). Vertosols typically have a uniform clay texture, shrink-swell properties and smooth surfaces on the faces of soil aggregate. Management considerations of vertosols and key features are summarised below.

Vertosols

- Topsoils have moderate fertility;
- Topsoils have medium to heavy clay textures and therefore soil workability may make stripping difficult;
- Subsoils are mildly to moderately alkaline, sodic and saline at depth and have high Calcium to Magnesium (Ca:Mg) ratios;
- Due to high cation exchange capacity and exchangeable Ca and Mg levels and clay minerology, these subsoils are unlikely to be highly dispersive; and
- They have a low dust potential.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

The site for the Action is within an area that has been extensively degraded by agricultural activities and adjoining mining operations and is not considered to have outstanding features.

3.5 Describe the status of native vegetation relevant to the project area

MLa 700062 encompasses approximately 330.4 ha, the majority of which remains cleared of remnant vegetation (approximately 294 ha or 89% of the MLa area). Non-remnant areas within MLa 700062 comprise cleared agricultural grasslands dominated by a dense cover of introduced grasses (largely Buffel Grass and Indian Blue Grass) interspersed with areas of low Brigalow regrowth (varying between 1 m up to 2.5 m in height).

Remnant vegetation within MLa 700062 is dominated by open eucalypt woodland communities on volcanic soils. This community is approximately 37 ha (approximately 11 % of MLa 700062) in size and occurs in the south eastern corner of MLa 700062 and outside of the disturbance footprint of the Action.

The following describes the non-remnant and native vegetation relevant to MLa 700063.

MLa 700063 encompasses approximately 8.89 ha the majority of which (5.82 ha or approximately 66% of the MLa area) has been cleared of remnant vegetation associated with the construction and operation of the Daunia Quarry Access Road.

Very little remnant vegetation occurs within the road corridor being used to access the Project. The vast majority of the remnant vegetation communities occur adjacent to the southern boundary of MLa 700063, with the exception of North Creek, an un-named tributary to the west of North Creek and a small patch of RE11.9.1 (Acacia harpophylla -Eucalyptus cambageana woodland to open forest on fine-grained sedimentary rocks) occurring adjacent and to the east of the un-named tributary. Each of these communities appears to have been subject to extensive clearing associated with the construction and operation of the Daunia Quarry Access Road and also dieback of canopy trees.

A detailed discussion in respect to terrestrial flora is provided in AttachmentA_Part 1_PRD_V1_16062021b, Section 4 pages 92-218.

A detailed discussion in respect to aquatic flora is provided in AttachmentA_Part 1_PRD_V1_16062021b, Section 5, pages 219-264.

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

Topography across the Project area ranges from 212 m to 251 m above sea level. Although there is almost 40 m difference between the lowest and highest point, the area can be considered flat with gently undulating areas. Except for the lowest point at the north-eastern corner, the remaining area is considerably flat with some gently undulating areas.

3.7 Describe the current condition of the environment relevant to the project area

The Isaac River Coal Mine is located within the Northern Bowen Basin subregion, one of 13 subregions of the Brigalow Belt North bioregion. The region has experienced a long history of human disturbance due to agriculture and mining activities. The Isaac River Coal Mine and surrounding area is representative of the wider region and landscape with over 89% (or 294 ha) of MLa 700062 and approximately 66% (or 5.82 ha) of MLa 700063 cleared and currently mapped as non-remnant. Remnant vegetation within MLa 700062 is largely confined to the southeast corner, but outside of the Isaac River Coal Mine's disturbance footprint. Within MLa 700063 remnant vegetation occurs as small

pockets generally limited to the fringes of the road corridor associated with the Daunia Quarry access road. The ground layer in cleared areas and in remnant open woodland within MLa 700062 and ML 700063 is dominated by the exotic Buffel Grass and Indian Blue Grass with some recent Brigalow regrowth, particularly that portion of MLa 700062 which will be cleared for the Isaac River Coal Mine. Weed species present includes Parthenium, scattered Lantana and Prickly Pear.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

There are no Commonwealth Heritage Places within the Referral area or within close proximity to the Action.

3.9 Describe any Indigenous heritage values relevant to the project area

The Action is located within the Barada Barna People (QC2016/007) Native Title Determination Area registered with the National Native Title Tribunal (NNTT) (2016), and within areas subject to Indigenous Land Use Agreements (ILUAs) QI2011/031 and QI2012/062 between the Barada Barna People and Arrow and QGC respectively).

The Aboriginal Cultural Heritage Act 2003 (ACH Act) protects Indigenous cultural heritage in Queensland. To comply with the duty of care provision under section 23 of the Act, a proponent of a project is to prepare a Cultural Heritage Management Plan (CHMP), which is an agreement between the proponent and the native title claimants covering the identification and management of Indigenous cultural heritage. The proponent is in the process of negotiating a CHMP with the Barada Barna People to manage the risk of harm to Aboriginal cultural heritage by activities associated with the Action.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

The Action will be located on freehold land used primarily for cattle breeding and grazing.

3.11 Describe any existing or any proposed uses relevant to the project area

There are no other current land uses known, proposed or reasonably foreseeable for the area the Action will occur other than the existing cattle grazing and supporting activities that occur over this landscape. The intent is to return the project area to cattle grazing post rehabilitation.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

Measures that will be undertaken to avoid or reduce impacts associated with the Action to terrestrial ecology, aquatic ecology and hydrology are included in Chapter 4 to Chapter 6 in AttachmentA_Part 1_PRD_V1_16062021b Section 4.9 (terrestrial ecology) pages 203-206, Section 5.13 (aquatic ecology) pages 259-261 and Section 6.13 (hydrology) pages 412-421.

Measures that will be undertaken to avoid or reduce impacts associated with the Action to groundwater are included in Chapter 7 in AttachmentA_Part 2_PRD_V1_16062021b Section 7.6, pages 499-505.

Typical mitigation measures include:

- The establishment of offset areas for any clearing of TECs;
- Locating and minimising disturbance from mine infrastructure and operations, where feasible, to avoid significant environmental values;
- Consideration of significant vegetation communities and other environmentally sensitive areas in mine planning where possible;
- No unnecessary clearing or earthwork are to occur;
- Development of an Erosion and Sediment Control Plan;
- Pre-clearance surveys tobe undertaken prior to clearing activities;
- Implement weed and pest control measures;
- Unsealed roads, tracks, spoil areas and stockpiles will be wetted down regularly to avoid dust;
- Regular monitoring of surface and groundwater levels and water quality and riparian vegetation health;
- Surface and groundwater control measures to minimise impact on surface and groundwater flow regimes and quality, and relationships to groundwater dependent ecosystems if present in the Project disturbance area;
- Project design to ensure surface water flows within and adjacent to the project area are maintained as close to natural conditions as practical; and
- Progressive rehabilitation of disturbed areas to existing land use values.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

The desired environmental outcome is that the Project does not significantly impact on MNES. Measures that will be undertaken to avoid or reduce impacts associated with the Action to terrestrial ecology, aquatic ecology and hydrology are included in Chapter 4 to Chapter 6 in AttachmentA_Part 1_PRD_V1_16062021b Section 4.9 (terrestrial ecology) pages 203-206, Section 5.13 (aquatic ecology) pages 259-261 and Section 6.13 (hydrology) pages 412-421. Measures that will be undertaken to avoid or reduce impacts associated with the Action to groundwater are included in Chapter 7 in AttachmentA_Part 2_PRD_V1_16062021b Section 7.6, pages 499-505.

In summary, the Action has an approximate disturbance footprint of 175 ha. The Isaac River Coal Mine has been designed with extensive mitigation measures to be implemented in order to manage and reduce impacts to threatened fauna by minimising clearing, avoiding disturbance in areas of remnant vegetation, sensitive construction procedures including pre-clearance surveys and staged clearing methods. Rehabilitation of the site will be in step with mining activities to limit the total disturbance area at any one time.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ World Heritage properties
- ☐ National Heritage places
- ☐ Wetlands of international importance (declared Ramsar wetlands)
- ☐ Listed threatened species or any threatened ecological community
- ☐ Listed migratory species
- ☐ Marine environment outside Commonwealth marine areas
- ☐ Protection of the environment from actions involving Commonwealth land
- ☐ Great Barrier Reef Marine Park
- ☐ A water resource, in relation to coal seam gas development and large coal mining development
- ☐ Protection of the environment from nuclear actions
- ☐ Protection of the environment from Commonwealth actions
- ☐ Commonwealth Heritage places overseas
- ☐ Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

The Action has exceeded the significant impact referral threshold for the Ornamental Snake. The impact assessment for Ornamental Snake provided in AttachmentA_Part 1_PRD_V1_16062021b, Section 4.7.2.1, pages 185-188, concludes that there are potential impacts of up to 25 ha associated with the referred Action in what may be classed as 'important habitat' (under DAWE, 2020b) for Ornamental Snake habitat. Despite a single specimen of the species being found, on-site habitat conditions appear relatively poorly suited to the species (i.e. noncracking clay soils and little woody debris on ground). Nevertheless, scattered shallow gilgai formations occur within the MLa 700062 and the species would be expected to preferentially utilise these areas of habitat, notwithstanding the habitat is all located within non-remnant agricultural grasslands.

There is 'essential habitat' mapped in remnant vegetation in the eastern portion of MLa 700062 and a section of MLa 700062 associated with the existing Duania Quarry access road. The majority, if not all of the land mapped as essential habitat in the eastern section of MLa 700062 is highly unsuitable for the species presence particularly given the substrate is dominated by land zone 12 (igneous rocks) (Wilson and Taylor, 2012). The land mapped as essential habitat in the north east corner of MLa 700062 is also considered to be unsuitable given the extensive clearance that has occurred associated with the Daunia Quarry access road and the quarry itself, in addition to the clearing associated with grazing activities. Similarly, the essential habitat mapped within MLa 700063 is considered to be unsuitable habitat given the presence of the Daunia Quarry access road and the extensive land clearance activities within the road corridor.

The Proponent considers the impacts of the Action on Ornamental Snake are not significant given:

- The regional availability of suitable habitat for the species and the very minor proportion of this habitat The Action will impact;
- Avoidance, mitigation measures and rehabilitation will be undertaken during construction and operation to further reduce potential impacts; and
- An OMP will be established should these impacts be considered by DAWE after consideration of the assessment as being 'significant' under the EPBC Act.

Significant impacts to Greater Glider and the Brigalow (Acacia harpophylla dominant and co-dominant) TEC, both found within remnant vegetation in MLa 700063 (Daunia quarry access road) are not predicted as no clearing within MLa 700063 is proposed as part of the action. Similarly significant impacts to Koala, should they occur within the remnant vegetation habitat in MLa 700063, are not predicted as no clearing within MLa 700063 is proposed as part of the Action.

Impacts to groundwater are not predicted to be significant. Numerical groundwater modelling indicates that the extent of groundwater drawdown in the seams of the Rangal Coal Measures is limited to within 2km of the mine pit at the end of mining and is expected to fully recover to pre-mining conditions six years post-mining. Drawdown at the end of mining within a distance of 500m of the pit is anticipated to be in the vicinity of 10 m, between 500m and 1 km drawdown is anticipated to be 5 m and between 1 km to 2.5 km of the pit drawdown is anticipated to be 1 m or less. An impact assessment has been undertaken for impacts to groundwater and is included in Attachment A_Part2_PRD_V1_16062021b, Section 7, pages 425-510.

No GDEs occur within the disturbance area and no GDEs within the vicinity of the Action are predicted to be impacted from

groundwater drawdown. An impact assessment has been undertaken for impacts to Groundwater Dependent Ecosystems and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 5.10, pages 243-253.

No stygofauna were found during surveys at site. No changes to groundwater quality are predicted. An impact assessment has been undertaken for impacts to Stygofauna and is included in AttachmentA_Part 1_PRD_V1_16062021b, Section 5.11, pages 253-256.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

The proponent has adhered to its regulatory responsibilities in association with its other projects in Australia. The proponent has allocated the resources required to assess the potential environmental impacts associated with this referral and the resources required to implement the mitigation and management measures outlined in this referral.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

The Proponent has not been the subject of any such proceedings.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☑ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

See Attachment C - Environment and Community Policy for a copy of the Bowen Coking Coal Environmental Policy.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☐ Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

Department of Agriculture, Water and the Environment (DAWE) (2020). Species Profile and Threats Database for Geophaps scripta scripta – squatter pigeon (southern). Access date: 17 March 2021. Available from: http://www.environment.gov.au/cgibin/sprat/public/publicspecies.pl?taxon_id=64440.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

Department of Agriculture, Water and the Environment (DAWE) (2020b) Species Profile and Threats Database for Denisonia maculata — Ornamental Snake. Access date: 17 March 2021. Available from: http://www.environment.gov.au/cgibin/sprat/public/publicspecies.pl?taxon_id=1193.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

Department of the Environment (DotE) (2013). Matters of National Environmental Significance. Significant Impact Guidelines 1.1, Department of the Environment, Australian Government, Accessed 17 March 2021. Available from: https://www.environment.gov.au/epbc/publications/significantimpact-guidelines-11-mattersnational-environmental-significance.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

DPM Envirosciences (2018). Olive Downs Coking Coal Project - Terrestrial Fauna Assessment.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

Wilson, P.R. and Taylor, P.M. (2012). Land Zones of Queensland, Queensland Herbarium, Queensland Department of Science, Information Technology, Innovation and the Arts, Brisbane.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Uncertainties

None known.

Reference source

Kavanagh, R.P. (1984). 'Seasonal changes in habitat use by gliders and possums in southeastern New South Wales.' In Possums and Gliders (eds AP Smith and ID Hume), pp. 527-543. Surrey Beatty and Sons, Chipping Norton.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

Frith, H.J. (1982). Pigeons and doves of Australia, Rigby, Adelaide.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

Crome, F and Shields, J. (1992). The parrots and pigeons of Australia: The national photographic index of Australian wildlife, Angus and Robertson, Pymble.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

Blakers, M, Davies, S.J.J.F. and Reilly, P.N. (Eds.) (1984). 'The atlas of Australian birds', Royal Australasian Ornithologists Union, Melbourne University Press, Melbourne.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Reference source

Wilson, S. (2015). A field guide to the reptiles of Queensland 2nd ed., New Holland Publishers, Chatswood.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Uncertainties

None known.

Reference source

Ehmann, H. (1992). Encyclopaedia of Australian Animals: Reptiles, Angus and Robertson, Sydney.

Reliability

All reference sources utilised are considered sufficiently robust and reliable for the purpose of use, and in assisting the overall consideration of whether the Action is likely to cause significant impacts to MNES.

Uncertainties

None known.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

Yes ☑ No

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action an organisation or business?

☑ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)	BOWEN COKING COAL LIMITED
Business name	
ABN	72064874620
ACN	
Business address	1 Eagle St, Level 19, Brisbane City, 4000, QLD, Australia
Postal address	
Main Phone number	(07) 3360 0837
Fax	
Primary email address	michael@bowencokingcoal.com
Secondary email address	

9.1.2 I qualify for exemption from fees under Regulation 5.23(1)(ii) of the EPBC Regulations because I am:

☐ Small business
☑ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Regulation 5.21A of the EPBC Regulations

☐ Yes ☑ No

9.1.3 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name	Michael
Last name	McKee
Job title	Chief Operating Officer
Phone	(07) 3360 0837
Mobile	0429 992 190
Fax	
Email	michael@bowencokingcoal.com
Primary address	1 Eagle St, Level 19, Brisbane City, 4000, Queensland, Australia
Address	

Declaration: Person proposing the action (To be signed by the person at 9.1.3)

I, Michael McKee **, 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.**

Signature: MB McKee **Date:** 5 July 2021

I, Michael McKee **, the person proposing the action, consent to the designation of** Michael McKee **as the proponent for the purposes of the action described in this EPBC Act Referral.**

Signature: MB McKee **Date:** 5 July 2021

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent

9.2.1 Is the proposed designated proponent an organisation or business?

☑ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)	BOWEN COKING COAL LIMITED
Business name	
ABN	72064874620
ACN	
Business address	1 Eagle St, Level 19, Brisbane City, 4000, Queensland, Australia
Postal address	
Main Phone number	(07) 3360 0837
Fax	
Primary email address	michael@bowencokingcoal.com
Secondary email address	

9.2.2 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name	Michael
Last name	McKee
Job title	Chief Operating Officer
Phone	(07) 3360 0837
Mobile	0429992190
Fax	
Email	michael@bowencokingcoal.com
Primary address	1 Eagle Street, Level 19, Brisbane, 4000, Queensland, Australia
Address	

Declaration: Proposed Designated Proponent

I, Michael McKee **,the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.**

Signature: MB McKee **Date:** 5 July 2021

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)

9.3.1 Is the referring party an organisation or a business?

☑ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)	CDM SMITH AUSTRALIA PTY LTD
Business name	
ABN	88152082936
ACN	
Business address	51 Alfred St, Level 4, Fortitude Valley, 4006, Queensland, Australia
Postal address	
Main Phone number	(07) 3828 6900
Fax	
Primary email address	imberms@cdmsmith.com
Secondary email address	

9.3.2 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name	Mark
Last name	Imber
Job title	Managing Principal
Phone	0418660915
Mobile	
Fax	
Email	imberms@cdmsmith.com
Primary address	Level 4, 51 Alfred Street, Fortitude Valley, 4006, Queensland, Australia
Address	

Declaration: Referring party (person preparing the information)

I, Mark Imber **, 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.**

Signature: ..... **Date:** 5 July 2021

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Appendix A

Attachment

Document Type	File Name
action_area_images	Attachment B - Figure 1 Proposed Action Layout and Boundary Coordinates.pdf
action_area_images	Attachment B - Figure 2 Ornamental Snake Habitat Disturbance Footprint.pdf
govt_approval_conditions	AttachmentA_Part 1_PRD_V1_16062021b.pdf
govt_approval_conditions	AttachmentA_Part 2_PRD_V1_16062021b.pdf
govt_approval_conditions	Attachment A - Appendix A_MNES Protectd Matters Search Results.pdf
govt_approval_conditions	Attachment A - Appendix B_MSESReport-MLa700062.pdf
govt_approval_conditions	Attachment A - Appendix C_MSESReport-MLa700063.pdf
govt_approval_conditions	Attachment A - Appendix D_Quaternary and Tertiary Assessments.pdf
govt_approval_conditions	Attachment A - Appendix E_DES Mapped Ornamental Snake Habitat.pdf
govt_approval_conditions	Attachment A - Appendix F_Stygofauna report.pdf
govt_approval_conditions	Attachment A - Appendix G_Conceptual ESCP.pdf
govt_approval_conditions	Attachment A - Appendix H_Olive Downs Water Monitoring Lab Results.pdf
supporting_tech_reports	Attachment A - Appendix I_Olive Downs Sediment Monitoring Lab Results.pdf
supporting_tech_reports	Attachment A - Appendix J_Isaac River Water Balance.pdf
supporting_tech_reports	Attachment A - Appendix K_Well_construction_logs.pdf
supporting_tech_reports	Attachment A - Appendix L_Aqtesolv Slug Test Graphs.pdf
supporting_tech_reports	Attachment A - Appendix M_Groundwater Analysis Results.pdf
supporting_tech_reports	Attachment A - Appendix N_GroundwaterModel_Report_REVC.pdf
supporting_tech_reports	Attachment C - Environment and Community Policy.pdf

Appendix B

Coordinates

Area 1
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