## **EPBC Act referral**



Australian Government
Department of Agriculture, Water and the Environment

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Title of proposal	2022/9165 - Blackwater South Mine Silica Deposit
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

Tasmanian Advanced Minerals (TAM) is seeking to develop a new silica mine in north-west Tasmania, off Blackwater Road, referred to as South Blackwater Mine (SBM). There are two locations of key silica deposits, these are: known as the Kuppe deposit and the Big Keppel deposit, with Big Keppel being the largest of the two. The SBM will complement the existing Blackwater Mine 1.5 km north of Big Keppel and 2.5 km northeast of Kuppe.

Operations will include mechanical extraction of silica (typically 13t-20t excavator) and primary processing onsite, which will include screening, chemical analysis and stockpiling and then transporting to Wynyard for further processing. The deposit sites will include a waste placement location and sediment control pond location. The requested extraction limit is 75,000 tonnes per year. The anticipated mine life is 20 years.

Existing forestry roads occur within the mining lease. Two extensions of these roads will be constructed to link the SBM with the existing internal network at Blackwater.

The activities proposed to be undertaken at the SBM as per the SBM NOI (2021) will include:

• Removal & stockpiling of roadside vegetation and debris to improve visibility on the existing internal gravel road, typically removing vegetation overhanging the existing road to re-establish the driving 'window';

 Removal & stockpiling of vegetation & topsoil along new road formation and importation of gravel to improve trafficability;

- Removal & stockpiling of vegetation & topsoil at extraction areas (Big Keppel & Kuppe);
- Construct sedimentation ponds for operational runoff;
- Construct silica waste storage facilities;
- Progressively extract silica resource using 14-30 tonne excavators and screen oversize rock;

• Progressively transporting silica resource via articulated dump truck to be held in a temporary storage facilities at the adjacent Blackwater Mine using internal roads before the silica resource is then transported via heavy vehicle truck and trailer combinations to the Wynyard processing facility;

• Establishment of a storage facility at the Big Keppel deposit after a sufficient area has been cleared during mining operations for storing products prior to transporting to Wynyard; and

• Progressively rehabilitate worked-out resources areas via backfilling to surrounding ground levels with silica waste materials, stockpiled topsoil, and vegetation.

The SBM site layout would consist of:

• Two new gravel roads into the mining areas (Road 1D - 1 km and Road 1E - 900 m long and nominally 5 m wide) linking existing gravel roads;

- New vehicle crossing across existing watercourses;
- Two resource extraction areas, Kuppe and Big Keppel
- Gravel Pit
- Resource stockpiling, transport and screening facilities;
- Operational water runoff treatment ponds;
- Operational waste silica storage area.

The only equipment required for operations will be:

- 14-30 tonne Excavator (pit and bund construction, extraction and rehabilitation, loading trucks);
- Water Cart (dust suppression); and
- Articulated truck movements carting silica to the main processing area, north east of the site.

The only infrastructure at the South Blackwater during operations will be:

- Existing access road, and a new extension into the proposed ML;
- Resource extraction area;
- Runoff settlement ponds; and
- Waste silica storage facility.

There is no need to have the following facilities or infrastructure on site because it is provided for at the existing Blackwater Mine:

- Office space and staff amenities.
- Light and heavy vehicle parking (including visitors).



#### Fuel storage/hazardous substances bunded areas.

## 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 lease area is located just south of the Arthur River in north-west Tasmania. It is located approximately 12 km to the south-west of the town of Trowutta and is immediately south of the operational Blackwater Mine (See Figures 2-4, pages 5 and 6 of Att 6). The current access is off Blackwater Road. The site is within the King Bioregion.

Big Keppel is a hill around 80 m high and is surrounded by Keppel Creek on the east and Stevens Rivulet on the west. Keppel Creek flows into Stephens Rivulet. To the north west of Big Keppel where Road 1E is proposed the land is relatively flat.

On the western side of the mining lease where Kuppe is located is a little more hilly. Road 1D extends into the western facing hill side to 160 m.

The gravel pit sits on a northern slope, to the north of Road 1D.

## 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 site, 3M/2020 is 1676 ha (see 1.3 above) and the five disturbance areas (including buffers) (see Attachment 1 Disturbance Areas, Figure 1, Page 2) within the mining lease cover approximately 55.4 hectares and include:

- Big Keppel – 30.2 ha

- Road 1E (Keppel) - 3.6 ha

- Kuppe 12.2 ha
- Road 1D (Kuppe) 4.8 ha
- Road C 4.5 ha

As these are buffered the disturbance footprint will be less than 55.4 ha, although the exact disturbance footprint is not known at this point.

The avoidance footprint will be 1620.6 ha or less.

#### 1.7 Proposed action location

Other - Blackwater Rd, West Coast TAS, coordinates: 41°06'35.5"S, 144°58'19.0"E

1.8 Primary jurisdiction Tasmania		
1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project		rant funding to undertake this project?
🗋 Yes 🗹 No		
1.10 Is the proposed action subject to local government planning approval?		
🗹 Yes 🔲 No		
1.10.1 Is there a local government area and council contact for the proposal?		
🗹 Yes 🔲 No		
1.10.1.0 Council contact officer details		
1.10.1.1 Name of relevant council contact officer	Ashley Thorton	
1.10.1.2 E-mail	athornton@warwvn.ta	as.gov.au
1.10.1.3 Telephone Number	0408 570 671	
1.11 Provide an estimated start and estimated end date for the	Start Date	01/09/2022
proposed action	End Date	01/05/2031
1.12 Provide details of the context, planning framework and sta	te and/or local Governm	ent requirements



## Tasmanian Land Use and Planning Approvals Act 1993

LUPAA states that 'in determining an application for a permit, a planning authority must (amongst other things) seek out the objectives set out in Schedule 1'. Schedule 1 includes the 'objectives of the Resource Management and Planning System of Tasmania', which includes (amongst other things):

to promote sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity'.

Sustainable development includes 'avoiding, remedying or mitigating any adverse effects of activities on the environment' Over and above threatened species and forest clearance issues it should be incumbent on the proponent to demonstrate that the works will include measures to fulfil this aim by:

- incorporating measures to control environmental weeds; and
- maintain water quality through the proper management of erosion and drainage.

## Tasmanian Threatened Species Protection Act 1995

Flora

No species listed as threatened under the TSPA were recorded in the study area. Thus, there are no implications for flora under this Act.

Fauna

The definitions of the TSPA "take" does not extend to the disturbance of foraging habitat but does include nests and dens. which are "products of wildlife".

Environmental Management and Pollution Control Act 1994

Under this act, a person must "take such steps as are practicable or reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity conducted by that person"

## Aboriginal Lands Act 1995

The Aboriginal Lands Act 1995 establishes Tasmania's Aboriginal Land Council. Section 27 of the Act permits the Council to bestow in trust areas of land in perpetuity for Aboriginal people as protected Aboriginal Land. Part 3 of the Act details how Aboriginal land is managed and Section 31 identifies that the Council can invite local Aboriginal people with an important association with that land to manage it if they possess the ability to do so.

## Aboriginal Heritage Act 1975

Under the Aboriginal Heritage Act 1975 any Aboriginal artefacts encountered during works or evidence of the land being an Aboriginal site must result in complete cessation of works immediately, with advice on management sought from Aboriginal Heritage Tasmania.

Tasmanian Weed Management Act 1999 (WMA)

This Act states that landowners and managers must take all reasonable measures to control the impact and spread of declared weeds, particularly to prevent the spread into the habitat of threatened species, threatened communities and reserves.

## Tasmanian Planning Scheme – Circular Head

The native vegetation recorded for this area is located within the Rural Zone. The purpose of the Rural Zone is: 20.1.1 To provide for a range of use or development in a rural location:

Where agricultural use is limited or marginal due to topographical, environmental or other site or regional characteristics;

- that requires a rural location for operational reasons;
- is compatible with agricultural use if occurring on agricultural land;
- minimises adverse impacts on surrounding uses.

20.1.2 To minimise conversion of agricultural land for non-agricultural use.

20.1.3 To ensure that use or development is of a scale and intensity that is appropriate for a rural location and does not compromise the function of surrounding settlements.

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

Little consultation has been undertaken due to the small scale and nature of the proposed SBM on an existing approved mining lease. Given the existing activity and operations by TAM which will be the same as already approved, future consultation is limited to regulatory agencies only at this stage of the project. The advertising period will provide time for public comment, should there be any issues not adequately addressed in the approval documentation.

Consultation includes:

- Face to face conversations with the Circular Head Council to discuss the proposal for SBM and the need for a new Development Application, which is required.

- Email/phone conservations with Mineral Resources Tasmanian regarding the New mining lease which was Granted on the



12th April 2021.

- Consultants – Environmental and heritage consultants have been engaged with (See question 1.14 below)

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 following Environmental assessments were undertaken:

- Natural Values Assessment (2022) – North Barker Ecosystem Services (See Attachment 3 NBESNVA SouthBlackwater\_Final, Sections 1-6, pages 1-96) (note this attachment has been updated from Attachment 3 to Attachment 3\_Final in this referral.

- Aboriginal Heritage Assessment (2020) - Stuart Huys and Vernon Graham (See Attachment 5 Aboriginal Heritage Assessment, Sections 1-10, pages 1-91)

1.15 Is this action part of a stage	ed development (or a	a component of a larger proje	ect)?
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Yes Yo

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)

Existing silica pits in the region and operated by TAM occur at Blackwater and Hawkes Creek. The operations are open pits with current approvals, the most recent being Hawkes Creek (See EPBC Referral 2021 – 8896). The operating Blackwater Mine north is about 1500 m north west of the SBM. The SBM proposal will rely on the adjacent Blackwater Mine north for staff, management oversight, amenities, and machinery to undertake the extraction effort. No significant change is expected to the overall material throughput at the existing Wynyard silica processing facility.



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		
Spotted-tailed quoll (Dasyurus maculatus maculatus) (r/VU)		

## Impact

The study area occurs within an area considered to hold an 'Important Population' for this species- the north-west wet forests (Bryant and Jackson 1999). There have been 36 records attributed to this species within 5 km of the site, with the most recent occurring in 2020. No dens were observed within the study areas, although the forests throughout the five study areas, the site and the greater landscape have the potential to contain dens and are foraging habitat for spotted-tailed quolls.

Figure 10, page 40 of Att.3 illustrates the state-wide distribution of the spotted tailed quoll and indicates the widespread nature of records. Figure 11, page 41 of Att. 3 illustrates the location of key sites and important populations. The significance of the potential impact of this project is considered against the EPBCA significant impact criteria in Table 5, pages 42 and 43 of Att.3\_Final.

The habitat proposed to be cleared is known as a key site for this species but is not considered to be critical habitat due to the lack of denning resources and its small footprint. The scale of habitat when considered in isolation, is expected to have a minimal impact on the carrying capacity of the local population (defined as >15000 ha of continuous habitat (Jones and Rose 1996). There is 55.15 ha within the survey area that is considered suitable foraging habitat for this species, which represents 0.36 % of the range of a viable population for this species (lower home range estimates of females and male, respectively: 88 and 359 ha). Clearance of habitat may impact the home range of one or more female individuals, but the scale of the proposal is unlikely to have a significant impact on the occupancy of any local population.

Spotted-tail quolls are susceptible to road mortality due to their scavenging, where they often use the roads to find roadkill to eat (Department of Environment, Land, Water and Planning (2016). A moderate increase in traffic levels, in otherwise low traffic areas is anticipated in the South Blackwater Mine area and so an increase in the frequency of road kills is anticipated. However, the increase in tonnage at South Blackwater Mine is intended to be offset by a corresponding decrease from the Blackwater mine, thus intensification of overall traffic in the greater area is not anticipated. In addition, the vast majority of traffic associated with the proposal will be daytime traffic. A small portion may traverse the area in the high-risk dusk and predawn periods.

#### Species or threatened ecological community

Tasmanian devil (Sarcophilus harrisii) (e/EN)

Impact



Australian Government Department of Agriculture, Water and the Environment

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Evidence of Tasmanian devil activity in the area was confirmed with the presence of scats along an access road into Kuppe within the newly regenerated eucalypt forest. Unlogged and mature forests have the potential to contain denning habitat and high foraging habitat value for Tasmanian devils. Targeted survey (, secAtt.3\_Final section 2.4 page 11) didn't locate any denning sites. No rocky outcrops were seen and the sandy soils where the silica resource is present makes burrowing difficult, although there is the potential for fallen logs to create denning opportunities.

In this case the lack of denning sites across the five survey areas demonstrates that the den opportunities that may be present are not considered significant. The productivity of a closed forest is generally low for mammalian predators. Open forests and woodlands are preferred, while tall or dense wet forests are avoided. For context in the vicinity and state-wide the distribution of Tasmanian devil records is illustrated in Figure 12, page 46 of Att.3. The significance of the potential impact is considered against the EPBCA significant impact criteria in Table 6, page 47 - 49 of Att.3.

The development footprint's habitat is not considered critical for the survival of the species due to the lack of distinctive structural opportunities to support significant den clusters, such as cavernous rocky outcrops. Nor does the area support suitable soil for burrowing, particularly in the areas of silica deposits. There is a large number of Tasmanian devil records close to the proposed mine site, particularly along the Blackwater road with many records entered into the Natural Values Atlas as carcass observations. This suggests that Tasmanian Devils likely frequent the site on occasion, particularly for foraging.

There will also be a loss of up to 55.15 ha of foraging habitat for this species. The surrounding habitat is very extensive in the region and thus the small area within the development footprint isn't considered critical when observed in the context of the larger region

A moderate increase in traffic levels, in otherwise low traffic areas is anticipated and so an increase in the frequency of road kills is anticipated. Tasmanian devils are susceptible to road mortality due to their scavenging, where they often use the roads to find roadkill to eat (Department of Primary Industries, Parks, Water and Environment, 2010). The intensification of road traffic over the operation period at high-risk times will be low in summer where dawn and dusk are earlier and later in the day and moderate-high in winter where days are shorter. However, the vast majority of traffic associated with the proposal will be daytime traffic. A moderate portion of individuals will likely traverse the area in the high-risk dusk and pre-dawn periods.

#### Species or threatened ecological community

Wedge-tailed eagle (Aquila audax fleayi) (e/EN)

#### Impact

Targeted nest searches (Att.3\_Final section 2.4, page 11) did not detect any new eagle nests within the site and a 1 km buffer. All the known nests are further than 1 km line of sight from development footprint and thus disturbance from the mine development is very unlikely.

Suitable habitat for this species, based on aspect and tree size exists within the range between Kuppe and the existing Blackwater mine. It is estimated that up to 169 large trees with a diameter at breast height (DBH of > 70 cm could be impacted. A select number of these trees could be considered suitable for nesting.

Eagle are likely to utilise the area on occasion for foraging. The development footprint represents a small fraction of the likely territory of an individual pair. Clearance of the habitat is unlikely to have any impact on the size of the territory but birds may utilise the cleared area for hunting.

For context in the vicinity and state-wide the distribution of Tasmanian wedge-tailed eagle nest records is illustrated in Figure 14 page 52 of Att.3\_Final. The significance of the potential impact is considered against the EPBCA significant impact criteria in Table 7, page 53- 56 of Att.3\_Final.

#### Species or threatened ecological community

Tasmanian Masked owl - Tyto novaehollandiae subsp. castanops (e/VU)

## Impact

The Tasmanian masked owl is endemic to Tasmania. The species inhabits a diverse range of forests and woodlands, including agricultural and forest mosaics. Highest densities occur in the east and the north of the State, with lowest densities at elevations above 600 m asl. Particularly favoured are forests with relatively open understory, especially when this habitat adjoins areas of open or cleared land. Nesting occurs in large tree hollows (15 cm entrance diameter) of living or dead trees, sometimes in vertical spouts or horizonal limbs but generally in the main trunk. The presence of such trees is thus used to define habitat value. If hollows can't be observed, trees over 100 cm DBH (diameter at breast height) having a higher probability of containing such hollows. Significant habitat includes native dry forest areas that contain trees with large hollows.

Due to the difficulty in identifying hollows from the ground, particularly in tall mature eucalyptus forest, measuring tree diameter can be useful in determining whether the tree has the potential to contain hollows. Trees less than 100 cm DBH are unlikely to contain hollows suitable for masked owls. Older, larger trees in areas with greater densities of older large trees constitute higher quality habitat for this species. The site supports 161 trees with a DBH > 100 cm and a further 8 trees with a DBH > 80 cm (see Plate 2 and 3, page 60 and 61 as well as Figure 6 and 7 page 34 and 35 of Att. 3). A large number of



suitable hollows for masked owls were observed (Plate 4, page 62 of Att. 3) from different aspects on the ground. Significant habitat for masked owls however is generally defined as native dry forest than wet forest such as the site. The significance of the potential impact is considered against the EPBCA significant impact criteria in Table 8 page 64- 66 of Att. 3. Significant impact test with regard to the Tasmanian masked owl For context in the vicinity and state-wide the distribution of Tasmanian nest records is illustrated in Figure 16, page 63 of Att.3\_Final.

Significant habitat for masked owl includes lowland dry forest in the east and old growth eucalyptus forest in the west of Tasmania. Hollow bearing trees potentially suitable for masked owl nesting were located along the routes of roads 1D and 1E and so there is potential for the loss of suitable nesting habitat (Attachment 3, Section 3.4.2 Page 34).

#### Species or threatened ecological community

Giant freshwater crayfish - Astacopsis gouldi (v/VU)

#### Impact

Headwater streams can be important breeding habitat for juvenile giant freshwater crayfish (GFC). Eight juveniles were found during targeted surveys (Plate 5, Page 68 of Att.3). The location of the juvenile sightings were clustered within an optimal section of Stephens rivulet where there was an abundance of rocks and small boulders with spaces under them for shelter. No juvenile crayfish were caught in Keppel Creek despite using the same survey techniques. The lack of success in netting juveniles in Keppel Creek would support the idea that the habitat quality is low in a number of areas.

The presence of optimal habitat for GFC adults was found in both Keppel Creek and Stephens Rivulet with the presence of permanent water, deeper pools, large woody debris and overhanging banks with riparian vegetation. Four adult GFC were found during targeted surveys, two in Keppel Creek using baited survey techniques and two in Stephen's rivulet using unbaited survey techniques. It is likely adult GFC occupy the entire river system where water is permanent, and juveniles occupy sections of the river where the substrate is well suited.

The Arthur catchment is considered an important location for GFC and it is likely that these small headwater streams are part of source populations, particularly Stephens Creek for breeding based on the findings in Att.3\_Final. For context, in the vicinity and the state-wide distribution of GFC records are illustrated in Figure 17, page 69 of Att. 3.

The habitat within the survey areas and surrounding rivers, such as Arthur River is considered critical habitat, based on the presence of juveniles. Targeted surveys indicate that Stephens Rivulet supports a breeding population. The survival of this species is based on the protection of habitat critical for the young to grow. Being a slow-growing and long-lived species, suitable habitat must be maintained over a long period of time.

Clearance of vegetation at and near streams and the construction of road crossing can change flow velocities (through culverts and piped crossings) and increase erosion at the site of impact and downstream and this can destroy instream habitat features by infilling of pools and undermining and removal of instream vegetation (NSW Department of Primary Industries 2005).

Furthermore, siltation or run off of the silica powder resource from the site could have a significant impact on the quality of the water. Road networks within forested areas, in particular unsealed roads and tracks are significant sources of runoff and sedimentation NSW Department of Primary Industries (2005) and this will be exacerbated with the removal of vegetation at and near streams.

The significance of the potential impact is considered against the EPBCA significant impact criteria in Table 9, page 70-72 in Att.3\_Final. A significant impact on this species is likely. If not mitigated effectively excess sediment and runoff from the pits could lead to a long-term decrease in the breeding success of the population of GFC in Stephens Rivulet.

## 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	S	No	
2.7 ls	s the pro	posed a	ction	likely to be taken on or near Commonwealth land?
	Yes	$\mathbf{\nabla}$	No	
2.8 ls	s the pro	posed a	ction	taking place in the Great Barrier Reef Marine Park?
	Yes	$\mathbf{\nabla}$	No	
2.9 ls	the pro	posed a	ction	likely to have any direct or indirect impact on a water resource from coal seam gas or large coal
	iy ueve		ſ	
	Yes	${\bf \bigtriangledown}$	No	
2.10	ls the pr	roposed	actio	n a nuclear action?
	Yes	$\mathbf{\nabla}$	No	
2.11 Is the proposed action to be taken by a Commonwealth agency?				
	Yes	S	No	
2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?				
	Yes	S	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	V	No	



## **Section 3**

#### Description of the project area

#### 3.1 Describe the flora and fauna relevant to the project area

#### Flora

Seventy-five vascular plant taxa were recorded within the study area of which 73 are native species with 8 endemic species and 2 introduced species. A full species list is given in Appendix A, page 80-83 of Att.3\_Final.

No threatened flora was observed in the study area.

A search of the EPBC Protected Matters database did not record any flora species that may occur within the study area or a buffer of 5 km. A search of the Natural Values Atlas (DPIPWE database), registered four threatened flora species (two listed as 'rare' under the TSPA and one listed as 'vulnerable' under the TSPA) previously recorded within a 5 km radius of the study area. These are: Epacris curtisiae, Hypotrachyna laevigata, Isolepis Habra and Menegazzia minuta. Details in Table 2, page 19-20 of Att.3\_Final, state that there is a possibility for H. laevigata to occur on the bark of Nothofagus cunninghamii and M. minuta to occur in the canopy of Eucryphia lucida as these are both lichen species associated with these plants. The habitat is unsuitable for E. curtisiae and I. Habra has a low likelihood of occurring in the riparian areas of Stephens Rivulet and Keppel Creek.

#### Fauna

All fauna species listed in Table 3 and Table 4, pages 22 – 32 of Att.3\_Final, could potentially occur or have suitable habitat in the study area.

The study area contains a range of fauna habitats including mature and new growth eucalyptus forest and rainforest creating a mix of regrowth and mature age and structure with the occasional old growth tree with hollows. This type of forest is generally not highly productive and so the carrying capacity for mammal predators such as devils and quolls can be relatively low. Similarly, for raptors, the habitat is suboptimal compared to the productive parts of their ranges such as dry sclerophyll forests and woodlands. Nevertheless, devils, quolls and eagles are known within the area. The grey goshawk, which is endangered in Tasmania under the Threatened Species Protection Act 1995 is the most likely of them to nest in the area where there is high-quality nesting and foraging habitat.

The mature forests likely provide suitable habitat for the threatened keeled snail where the substrate is not dominated by silica sand. A number of small streams occur through the site and some of these have suitable habitat for threatened freshwater hydrobiid snails and suitable habitat for adult and juvenile giant freshwater crayfish, particularly in Stephen's Rivulet and Keppel Creek which are outside of the silica pit footprints.

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

The silica deposits sit on low hills among an otherwise low flat landscape that is drained by the Arthur River. The deposits do not have any class of stream mapped on them.

Stephens Rivulet and Keppel Creek are the two main water courses that occur within the vicinity and flow to the Arthur River. Both flow past the Big Keppel deposit site, with Keppel Creek to the northeast and Stephens Rivulet to the west. Blackwater Rivulet flows past the Kuppe deposit on the western side. All watercourses are small headwaters of the Arthur River. Required buffers around the waterways will be maintained.

No groundwater uses are known to exist in the vicinity of SBM and no uses in the area are recorded on the DPIPWE groundwater information access portal.

No groundwater was intercepted during the SBM resource exploration program which involved the digging of test pits up to 4 m deep and auger drilling up to 18 m deep within the pit shell areas. Given the mining will be conducted on 'elevated' areas it is not anticipated that there will be a need to dewater the mining pits prior to extraction (Att 6, NOI South Blackwater Mine Final, Section 5, page 9).

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

The site includes six native vegetation communities.

The (RMS) Nothofagus – Phyllocladus short rainforest was heavily dominated by Anodopetalum biglandulosum and nothofagus cunninghamii. A large number of burrowing crayfish chimneys were present throughout this dense vegetation community. Atherosperma moschatum, Eucryphia lucida and Cenarrhenes nitida were also found throughout this community, with the ground layer including ferns such as Blechnum wattsii and Histiopteris incisa

The (RMT) Nothofagus - Atherosperma rainforest stands relatively tall with a generally open understorey on the lower ground. Only a small section is found within the south of Big Keppel.

The (WOB) Eucalyptus obliqua forest with broad-leaf shrub is relatively open. Much of the large E .obliqua are new growth regeneration from previous logging and the last 30 or so years. This community is dominated by E. obliqua and Nematolpis squamea.



The (WOR) Eucalyptus obliqua forest over rainforest includes large emergent Eucalyptus obliqua old growth and regrowth trees over a predominantly rainforest understory which is open. The forest has been selectively harvested in the past. The WOR forest to the west of Road A has the greatest amount of mature habitat with high density Eucalyptus obliqua over rainforest.

The (WOL) Eucalyptus obliqua forest over Leptospermum is regenerative forest after selective logging. The dominant species within this community is leptospermum lanigerum.

The most common vegetation community is the Eucalyptus obliqua forest over rainforest (WOR) at 38.74 ha followed by Eucalyptus obliqua forest with broad-leaf shrub at 17.19 ha. The soils are productive with Interbedded siliceous gravel, quartz sand and clay around the Kuppe and western site of road 1 D and Interbedded, massive or banded black, white and grey chert (oolitic in part) and laminated siltstone, with minor dolomite on the eastern end of road 1 D and road C gravel pit. The higher areas of Big Keppel are silicified carbonate rocks, and/or clayey pug, derived from the Smithton Dolomite with the lower levels and Road 1E being stream alluvium, swamp and marsh deposits. These variations are dictated by slope, aspect and drainage.

The nominal pit at Big Keppel is generally summarised as Silicified carbonate rocks, and/or clayey pug, derived from the Smithton Dolomite in the 1:25,000 geological maps. Kuppe has distinctive silica qualities allowing TAM to produce blends for specialty products. Big Keppel will form the major component of the feed blend at the Wynyard processing facility. Big Keppel has some elevated impurity levels and will be unsuitable for processing. This material will be extracted and placed in a waste storage area adjacent to the main deposit.

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

The site is situated just outside the northwest section of the Tarkine/takayna wilderness and forest reserve which is the largest stand of temperate rainforest in Australia. This forest has strong links to the Tasmanian Aboriginal people. Whilst the site itself is considered by the Tasmanian Government to be outside the formal reserve boundaries a number of maps with varying boundary edges include the mining lease stating that all land south of the Arthur River is part of the Tarkine/takayna wilderness area. This wilderness area has undergone over 150 years of mineral exploration and development (Att.3\_Final, References https://en.wikipedia.org/wiki/Tarkine, page 79).

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

The vegetation is in very good condition. Some area have been logged and herbaceous weeds are restricted to these areas. No recent wildfires fires are evident. The structural state whether mature, regrowth or old growth is described in Att. 3\_Final, Section 3.1 page 13-14. Seven TASVEG vegetation mapping units were documented from the impact areas. Of these seven communities Eucalyptus brookeriana forest is listed as threatened under the Nature Conservation Act 2002 and Critically Endangered under the Environment Protection and Biodiversity Conservation Act 1999.

Below is a list of the seven vegetation communities and the proposed hectares to be impacted upon in relation to the amount of hectares these communities represent within the King Bioregion (IBRA) and in the State.

Leptospermum Melaleuca swamp forest (NLM) 2.46 ha Current extent in the King IBRA = 4,500 ha Current extent in Tasmania = 13,500 ha

Nothofagus – Phyllocladus short rainforest (RMS) 7.6 ha Current extent in the King IBRA = 12,900 ha Current extent in Tasmania =161,900 ha

Nothofagus – Atherosperma rainforest (RMT) 6.29 ha Current extent in the King IBRA = 9,600 ha Current extent in Tasmania = 183,100 ha

Eucalyptus obliqua forest with broad-leaf shrub (WOB) 15.64 ha Current extent in the King IBRA = 4,300 ha Current extent in Tasmania = 63,000 ha

Eucalyptus obliqua forest over Leptospermum (WOL) 1.76 ha Current extent in the King IBRA = 48,300 ha Current extent in Tasmania = 264,700 ha

Eucalyptus obliqua forest over rainforest (WOR) 21.36 ha Current extent in the King IBRA = 6,500 ha



Current extent in Tasmania = 98,400 ha

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

The deposits sit on relatively steep sided small low hills in the order of 40 to 80 m above a broad flat valley. The mining lease is approximately 80 m AHD.

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

The project area is not affected by the related works at Blackwater and Hawkes Creek. The project area is in excellent ecological condition with only minor degradation caused by roading, harvesting and herbaceous weeds in harvested coupes. Logging has been undertaken in coupes within the vicinity. There are no coupes in planned in the next 3 years. Some roads and vehicular tracks exist that will be utilised by the operation.

Besides the Blackwater Mine site to the north there is no current mining use on the site. A gravel road exists in the west and provides access to Road 1D and near Kuppe from Blackwater Road. A second gravel road that runs through the existing Blackwater Mine in the north provides access to Road C and 1E.

The surrounding area was logged in Mid 2000s and is in varying stages of regrowth with a number of large stand mature Eucalyptus present, particularly to the west of Road 1D.

The water in the streams is relatively silty in some a sections of Stephens Rivulet and Keppel Creek. Stephens Rivulet, did however have sections of bedrock where there was minimal silt and perfect conditions for Giant Freshwater Crayfish. No symptomatic evidence of any plant pathogens recorded from the study area. Vegetation is in good condition.

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

No Commonwealth heritage places are present within the project area or surrounding vicinity. With the closest being the Table Cape Lighthouse in Wynyard which is approximately 65 km to the northeast. The nearest state listed heritage item is the Balfour Cemetery, located 15.5 km to the south at Balfour.

### 3.9 Describe any Indigenous heritage values relevant to the project area

The field survey assessment (Att 5, Aboriginal Heritage Assessment, Section 7, page 52) resulted in the identification of one Aboriginal site (AH13853), which is an Isolated artefact. The site is located within the northern portion of the Kuppe study area. An additional historic Aboriginal Heritage Record (AH7648) that is a registered near Big Keppel was unable to be relocated.

This site and any other Aboriginal sites identified are not to be disturbed without the prior approval of the Director of Mines. These features will have a buffer zone around them and the extraction procedure and training of operators will ensure the buffer zones are not breached. An Unanticipated Discovery Plan will also be in place.

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

The land is Crown land "Permanent Timber Production Zone" managed under the Forest Management Act. The land is within the Tarkine region but not within the formal reserve boundaries. The proposal does not occur within high quality wilderness.

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

To the north of the South Blackwater mine is the existing Blackwater Mine. The Blackwater mine is located 1.5 km from Big Keppel and 2.5 km from Kuppe. It will rely on the Blackwater mine for: existing staff, oversight, amenities and machinery to undertake the extraction effort. Apart from the proposed Action of silica mining the only likley proposed uses are forestry although there are no plans to harvest forest within the next 3 years. The public roadspassign through the project area are open but are not routes along which toursim is encouraged and this is unlikley to change in the near future because dedicated tourism routes have recently been established elsewhere in the region.



## 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

Avoidance and mitigation actions are detailed in Att.3\_Final. NBESNVA SouthBlackwater, Section 5, page 73-74. Vegetation

There are no threatened vegetation communities. The risk of indirect impacts on vegetation outside the 'footprint' of the development could be minimised by following these protocols:

1. Clearly define the extent of clearance required for the project and ensure that any additional impacts are avoided.

2. The works area should be marked, and all works, vehicles and materials should be confined to the works area.

3. Development of a weed and pathogen control hygiene plan to ensure there is no introduction of pathogens or 'declared' weeds or significant environmental weed species into the area or translocation of weeds within the study area.

#### Threatened fauna

1. Undertake a pre-clearance den survey and apply the DPIPWE den decommissioning protocols (See den decommissioning protocol in Appendix B, page 84-89 of Att.3\_Final. This must include:

- Preclearance den survey

- Activity assessment with motion cameras to ensure breeding isn't occurring

- Protection of active dens until vacated

- Decommissioning of non-active of dens to prevent use

2. Protect all affected creeks from unnecessary disturbance, disruption of water flows and deterioration of water quality from excavation, siltation, acidification, pollution and other factors. This includes:

- leave a 20 m buffer around all affected river systems including Stephens Rivulet, Keppel Creek and Blackwater Rivulet and avoid the removal of shade trees and maximise dust filtering by trees.

- avoid stockpiling fill or excavated material in flood prone areas. Sites should be situated above a 1 in 10-year flood level and have effective sediment control works to contain any runoff.

- Any fitting of culverts must be undertaken in a way to reduce muddying of the waters during construction and allow for upstream and downstream movement of fish a GFC during low water levels

- Annual river and stream water quality monitoring should be conducted up stream, mid and downstream of major affected creeks such as Stephens Rivulet Keppel creek and Blackwater Rivulet

- Any changes to water quality as a result of the mine should be remediated immediately and GFC surveys be conducted for presence/absence.

3. Protect Masked Owl nests and habitat, this includes:

-Avoid large old growth trees > 100 cm DBH to the greatest extent possible and buffer with a tree protection zone (the Australian Standard is 12 x the Diameter at Breast Height (DBH) in metres).

- Where avoidance isn't practical trees identified for felling should be examined by an ecologist to determine the suitability for masked owls

- Provide details on the number of trees necessary for felling for an ecologist/arborist to assess for active hollows

- Assess all hollows for the presence of masked owls prior to tree felling to ensure no direct impacts on individuals: -Trees with no sign evidence and vacant hollows should be felled away from trees that are to be retained by a professional

tree feller -Trees with sign evidence and or a masked owl is flushed should be only felled outside of the breeding season (most likely

March to August). -If a tree shows signs of masked owl use a Permit to take a product of wildlife will be required to destroy the nest once the

breeding season is finished. This should occur as soon as possible after the breeding season (non breeding season nominally March to August).

4. Reduce risk of road kill. This must include:

- site will display signs warning of the presence of all wildlife and indicate a recommended maximum speed of 60 km between dawn and dusk between the site and public roads. The signs should be located at the exit from the site.

- On public roads all wildlife speed reduction warning signs will be obeyed and compliance reinforced the signs at the exit from the site.

- Remove road killed animals from the road to prevent secondary deaths of threatened species scavenging on road killed carcasses, record and report roadkill

5. Protect all eagle nests and surrounding habitat and Adhere to eagle breeding season constraints:

- undertake an eagle nest search prior to works to identify any new nests

- complete works within 1 km of a nest in the non breeding season (February/March to end of June) if possible, noting breeding season recommences 1st of July or 1st June for white-bellied sea eagles.

- cease all works in the breeding season within 500 m and 1 km Line of sight (line of sight can be determined by



undertaking a viewshed analysis) of a nest until an activity assessment is undertaken to determine the breeding status (activity assessments are undertaken by a qualified ecologist during October/November.

- Constraints can be lifted surrounding a nest if it is deemed inactive

- Constraints will remain in place until the end of the breeding season if nest is deemed active.

# 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

To facilitate the protection of threatened species protected by the EPBCA within the SBM study area the following environmental outcomes must be achieved:

1. No impacts to additional flora or fauna outside the extent of the clearance required .

2. No direct or indirect loss to natal dens or breeding Tasmanian Devil or quolls— therefore the DPIPWE den decommissioning protocols must be implemented. These include:

- a) Preclearance den survey
- b) Activity assessment with motion cameras to ensure breeding isn't occurring
- c) Protection of active dens until vacated
- d) Closure of dens to prevent use

3. No loss of Tasmanian Devils or Quolls as a result of roadkill – therefore, the Tasmanian devil and quoll management plan to mitigate the risk of impact through habitat disturbance and roadkill hazard must be implemented .

4. No loss to any hollows supporting breeding Tasmanian Masked owls – therefore hollows should be assessed before felling and blocked if no breeding is occurring.

5. Minimal loss to large mature eucalyptus trees when building roads by realigning roads to avoid trees and their tree protection zone to the greatest extent practicable.

6. Stephens Rivulet and Keppel Creek habitat and a 20 m buffer will be protected from unnecessary disturbance, disruption of water flows and deterioration of water quality from excavation, siltation, acidification and pollution .



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				
<ul> <li>World Heritage properties</li> <li>National Heritage places</li> <li>Wetlands of international importance (declared Ramsar wetlands)</li> <li>Listed threatened species or any threatened ecological community</li> <li>Listed migratory species</li> <li>Marine environment outside Commonwealth marine areas</li> <li>Protection of the environment from actions involving Commonwealth land</li> <li>Great Barrier Reef Marine Park</li> <li>A water resource, in relation to coal seam gas development and large coal mining development</li> </ul>				
<ul> <li>Protection of the environment from nuclear actions</li> <li>Protection of the environment from Commonwealth actions</li> <li>Commonwealth Heritage places overseas</li> <li>Commonwealth marine areas</li> </ul>				
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				
Without appropriate mitigation it is likely that there will be an impact on Giant Freshwater Crayfish and suitable masked owl hollows. For other MNES the key reasons are: - There is no optimal denning habitat for Spotted-tail guolls and Tasmanian devils and for any den found, den management				
<ul> <li>protocols will be in place to ensure no impact to breed individuals</li> <li>No wedge-tailed eagle nests are known from the vicinity and for any nest found nest management prescriptions will be in place to ensure no impact to breed individuals</li> <li>No threatened flora protected under the EPBCA was found or is known from the area</li> <li>There are no heritage listed properties on site.</li> <li>There are no wetlands of national or international significance on site or nearby.</li> <li>No Commonwealth land or areas are involved.</li> <li>No nuclear actions are proposed.</li> </ul>				



## 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

Yes, continuous operation of Corinna mine since 2007, Blackwater mine 2008, Hawkes Creek mine 2011 and Wynyard Silica Processing Factory since 2008.

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 Hawkes Creek North project from earlier this year (No. EPBC Ref: 2021/8896, Name: Hawkes Creek silica mine expansion) – decision: not controlled action if undertaken in a particular manner.

- in 2018 TAM submitted an Environmental Effects Report to Circular Head Council and the Tasmanian EPA regarding their Blackwater mine expansion. The EER included Botanical Surveys and Fauna Habitat Assessments where the assessment reviewed the implications of the EPBCA Act along with an additional assessment undertaken on the likely MNES and concluded that the works would not constitute a controlled action under the Act, and therefore recommended that the project not be referred.

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 4. Tam\_EnvironmentalPolicy

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

6.4.1 EPBC Act No and/or Name of Proposal

The Hawkes Creek North project from earlier this year (No. EPBC Ref: 2021/8896, Name: Hawkes Creek silica mine expansion) – decision: not controlled action if undertaken in a particular manner.



Section 7
Information sources
Reference source
Bryant, S. & Jackson, J. (1999). Tasmania's Threatened Fauna Handbook: what, where and how to protect. Threatened Species Unit, Parks & Wildlife Service, Hobart.
Reliability
Moderate – out of date
Uncertainties
Low
Reference source
Jones, M. E. and Rose, R. K. (1996) Preliminary assessment of distribution and habitat associations of the spotted-tailed quoll (Dasyurus maculatus maculatus) and eastern quoll (D. viverrinus) in Tasmania to determine conservation and reservation status. Nature Conservation Branch, Parks and Wildlife Service. Report to the Tasmanian RFA Environment and Heritage Technical Committee, Hobart, Tasmania.
Reliability
Moderate – out of date
Uncertainties
Low
Reference source
Forest Practices Authority (2006) Eagle nest searching, activity checking and nest management. Fauna Technical Note No. 1
Reliability
High
Uncertainties
Low
Reference source
NSW Department of Primary Industries (2005) Reducing the impact of road crossings on aquatic habitat in coastal waterways – Southern Rivers, NSW. Report to the New South Wales Environmental Trust. NSW Department of Primary Industries, Flemington, NSW.
Reliability
High
Uncertainties
Low
Reference source
Department of Environment, Land, Water and Planning (2016) National recovery pan for the spotted-tail quoll Dasyurus maculates. Australian Government. Canberra.
Reliability
High
Uncertainties
Low



#### **Reference source**

Department of Primary Industries, Parks, Water and Environment (2010) Recovery plan of the Tasmanian devil Sarcophilus harrisii. Department of Primary Industries, Parks, Water and Environment, Hobart

Reliability	
High	
Uncertainties	
Low	



Section 8
Proposed alternatives
Do you have any feasible alternatives to taking the proposed action?
Yes 🗹 No



Section 9		
Person proposing the action		
<b>9.1.1 Is the person proposing the action an organisation or business?</b>		
Organisation		
Organisation name (as registered for ABN/ACN)	Tasmanian Advanced Minerals Pty Ltd	
Business name		
ABN	51122089221	
ACN		
Business address	19 Stennings Rd, Wynyard, 7325, TAS, Australia	
Postal address		
Main Phone number	03 6442 2600	
Fax Primary email address Secondary email address	chris.stuart@tasam.com.au	
9.1.2 I qualify for exemption from fees under Regulation 5.23(1)(ii) of the Small business	EPBC Regulations because I am:	
9.1.2.2 I would like to apply for a waiver of full or partial fees under Regu	ulation 5.21A of the EPBC Regulations	
🗋 Yes 🗹 No		
9.1.3 Contact (for an organisation - the contact details of the personal sector of the pers	on authorised to sign on behalf of the organisation)	
First name	Chris	
Last name	Stuart	
Job title	Managing Director	
Phone	03 6442 2600	
Mobile		
Fax		
Email	chris.stuart@tasam.com.au	
Primary address	19 Stennings Rd, Wynyard, 7325, TAS, Australia	
Address		
Declaration: Person proposing the action (To be signed by the per	rson at 9.1.3)	
ı, Chris Stuart	, declare that	
to the best of my knowledge the information I have given on, or attached	d to the EPBC Act Referral is complete, current and	
correct. I understand that giving false or misleading information is a set	Tous offence. I declare that I am not taking the action on	
benan of for the benefit of any other person of entity.		
Signature:		
Chris Stuart		
I, Only Oldan	, the person	
purposes of the action described in this EPBC Act Referral.		
Signature:Date:21_March_2022		



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)	Tasmanian Advanced Minerals Pty Ltd			
Business name				
ABN	51122089221			
ACN				
Business address	19 Stennings Rd, Wynyard, 7325, TAS, Australia			
Postal address				
Main Phone number	03 6442 2600			
Fax				
Primary email address	chris.stuart@tasam.com.au			
Secondary email address				
9.2.2 Contact (for an organisation - the contact details of the perso	on authorised to sign on behalf of the organisation)			
First name	Chris			
Last name	Stuart			
Job title	Managing Director			
Phone	0364422600			
Mobile				
Fax				
Email	chris.stuart@tasam.com.au			
Primary address	19 Stennings Rd, Hobart, 7000, TAS, Australia			
Address				
Declaration: Proposed Designated Proponent				
I, CHRIS STUAR) ,the				
proposed designated proponent, consent to the designation of				
Signature:				



Referring party (person preparing the information)	
9.3.1 Is the referring party an organisation or a business?	
Organisation	
Organisation name (as registered for ABN/ACN)	NORTH BARKER ECOSYSTEM SERVICES
Business name	
ABN	79897900835
ACN	
Business address	163 Campbell St, Hobart, 7000, TAS, Australia
Postal address	
Main Phone number	03 6231 9788
Fax	
Primary email address	pbarker@northbarker.com.au
Secondary email address	
9.3.2 Contact (for an organisation - the contact details of the pers	on authorised to sign on behalf of the organisation)
First name	Philip
Last name	Barker
Job title	Ecologist
Phone	0438250713
Mobile	0438250713
Fax	
Email	pbarker@northbarker.com.au
Primary address	163 Campbell St, Hobart, 7000, TAS, Australia
Address	
Declaration: Referring party (person preparing the information)	
I, Philip Barker	, declare that
to the best of my knowledge he information I have given on, or attache	d to this EPBC Act Referral is complete, current and
correct. I understand that giving false or misleading information is a se	rious offence.
Signature: (8)	12/22



Appendix A	
Attachment	
Document Type	File Name
action_area_images	* Att 1. DisturbanceArea_20220216.kml
action_area_images	Att 2. Maps of MNES Habitat.pdf
action_area_images	Att 6. NOI_ South Blackwater Mine Final.pdf
action_area_images	Att 1. Areas of Disturbance.pdf
public_consultation_reports	** Att 5 Aborigional_Heritage_Assessment.pdf
supporting_tech_reports	* Att 3. NBESNVA_SouthBlackwater.pdf
supporting_tech_reports	Att 3. NBESNVA_SouthBlackwater_Final.pdf
corp_env_policy_docs	Att 4. TAM_EnviornmentalPolicy.pdf
Appendix B	* DO NOT PUBLISH - SUPERSEDED
Coordinates	**DO NOT PUBLISH - SENSITIVE
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