Australian Government
Department of the Environment and Energy

Title of Proposal - Prosser Plains Raw Water Scheme

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Water Management and Use

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

The Action is the construction of an in stream dam on the Tea Tree Rivulet. The dam storage will be a nominal 3000 ml. The construction of the dam requires the clearance of about 52 ha of native vegetation. The dam would be filled by natural inflows.

Water from the dam will be released via a surface offtake to flow 17 km down the Tea Tree Rivulet and the Prosser River where it will be held behind an existing weir. The water will be released from the weir to a new pump station below the weir which will pump the raw water through a new pipeline to Louiseville Point, about 7 km away, on the coast. These aspects are not part of the referred Action.

The proposed route of the pipeline is predominantly terrestrial but a section along the Prosser River is proposed to be submarine. The type of pipe and construction techniques will differ between a terrestrial and submarine route. The end of the pipeline at Louisville Point is the end of the PPRWS.

Four water users have been identified and they would construct their own distribution systems. The users are Taswater, a golf course, a fish farm and other (yet to be identified but likely to be agricultural irrigation). The first three uses are for purposes already approved by the State and Council assessment processes. The existing TasWater Water Treatment Plant has reserved 200ML pa emergency supply for local, urban treated water delivery in case of drought. The golf course will use the water for irrigation and the salmon farm will use the water to bathe fish to control amoebic gill disease.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Approximate dam area	1	-42.648841502727	147.7866204363
Approximate dam area	2	-42.648778372522	147.79013949453
Approximate dam area	3	-42.654017961465	147.7918561083

Area	Point	Latitude	Longitude
Approximate dam area	4	-42.659067749919	147.78945284902
Approximate dam area	5	-42.659825182819	147.78979617177
Approximate dam area	6	-42.660140777137	147.78842288076
Approximate dam area	7	-42.663044169707	147.78567629873
Approximate dam area	8	-42.663233516687	147.78456049978
Approximate dam area	9	-42.658057825034	147.78644877492
Approximate dam area	10	-42.65591168019	147.78730708181
Approximate dam area	11	-42.655659187692	147.78498965322
Approximate dam area	12	-42.654838579993	147.78524714528
Approximate dam area	13	-42.654838579993	147.7873929125
Approximate dam area	14	-42.648904632867	147.78670626699
Approximate dam area	15	-42.648841502727	147.7866204363

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 PPRWS is located between Buckland and Orford on the east coast of Tasmania. The landscape features numerous rolling forested hills to about 400 m asl. The two lane Tasman Highway connects Orford to Hobart which is about 80 km west.The region is dominated by forests and to a lesser extent farm enterprises. Forestry has been a mainstay of the economy but is now much less active. Agriculture cannot develop intensively with existing water infrastructure.

The Twamley property is a grazing property supporting sheep and cattle. The geology is predominantly igneous dolerite and alluvial sediments. The homestead is on a low hill about 1 km downstream of the proposed dam wall. Exotic pasture accounts for about 20% of the property. This area is suitable for irriagated cropping. The property backs onto State forest to the south. The property has a number of tracks traversing it. The main track supports forestry activity to the south where a number of plantations have been established on Twamley. The balance is native forest.

1.6 What is the size of the development footprint or work area?

50 ha +/- Dam footprint 7 km pipeline in 10 m corridor.

1.7 Is the proposed action a street address or lot?

Street Address

Twamley Road
Buckland TAS 7190

Australia

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?

No

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

Yes

1.10.1 Is there a local government area and council contact for the proposal?

Yes

1.10.1.0 Council contact officer details

1.10.1.1 Name of relevant council contact officer.

David Metcalf

1.10.1.2 E-mail

David@freycinet.tas.gov.au

1.10.1.3 Telephone Number

03 6256 4755

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 06/2017

End date 04/2018

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The project is undergoing a feasibility assessment. The EPBC Act assessment is the only Commonwealth approval that is required for the project.
The legislative and planning framework that governs the protection and management of Tasmania's

environment includes the following regulatory requirements and instruments.The text below describes the relevant planning instruments and their application.

Dam Permit: A permit may be issued where it is demonstrated that a dam can be constructed with adherence to national dam building standards. The process requires the assessment of biodiversity values where present. Where impacts are not acceptable the process requires offset for residual impacts on threatened species and vegetation communties and ensures clearing and sediment and erosion controls and weed and pathogen management during construction.

Water Management Act 1999 -

Water licence

Purpose: To ensure that water is sustainably allocated in accordance with NWI principles. The licence sets environmental flows to protect aquatic values, daily take limits and cease to take limits for watercourses.

Watercourse Authority

Purpose: The Authority provides conditions that ensure that all water transfered down the Tea Tree Rivulet and Prosser River is accounted for and transferred in a manner that protects the hydrological regime of the watercourse.

Crowns Land Act 1976???

Land Use Planning and Approvals Act 1994

A permit under this Act ensures that all activities are consistent with the relevant local government planning schemes. In this case the Glamorgan Spring Bay Interim Planning Scheme 2013.

Threatened Species Protection Act 1995

A Permit is required under this Act to "take" threatened species. However, the requirement for Permits under this Act is transferred to the Water Management Act where the "take" is related to a Dam Permit and so dam construction is exempt from the TSPA. Any works that occur outside of the dam permit process must comply with this Act.

Nature Conservation Act 2002

This Act supports the schedule of Threatened Vegetation in Tasmania. A Permit to take products of wildlife allows for the decommissioning of dens and burrows and destruction of unused nests or the translocation of species.

Aboriginal Relics Act 1979

This Act regulates and protects all items and places of Aboriginal heritage in Tasmania. Section 14 of the *Act* provides that no person shall destroy, damage, deface, conceal, remove, take, cause excavation to be made, or otherwise interfere with a relic unless that action is in accordance with a permit granted under the Act. An assessment of the likely impact of development upon Aboriginal Heritage has been completed for this Action.

Forest Practices Act 1985

A Forest Practices Plan ensures that clearing activities outside of the Dam Permit are consistent with the Forest Practices Code. A Forest Practices Plan is required for any "vulnerable land" and clearing where the volume of timber is over 100 tonnes. A Dam Works Practices Plan under the WMA replaces the FPP for works approved under the Dam Permit.

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

The GSBC will consider the Developmnent Application for the pipeline and pump ststaion in May 2017. The council approved the business case for the PPRWS in January 2017. The process included advertising the meeting and adgenda at which the proposal was discussed. Both meetings are open to the public.

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.

A flora and fauna habitat assessment has been completed for the dam footprint and for the terrestrial pipeline - Required for a Dam Permit.

An aquatic survey has been completed for the run of river between the dam wall and the weir on the Prosser River - Required for a Dam Permit.

An aquatic and river bed survey has been completed for the Prosser River where a submarine route for the pipeline is proposed.

A survey of shore bird nesting habitat on a sand spit adjacent to the pipeline route has been considered - supporting an unrelated Action previously referred.

An Aboriginal relics survey has been completed - Required for a Dam Permit.

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

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

The proposed dam is part of the PPRWS. The three "components" of the PPRWS are the dam, the 17 km run of river flow to a weir on the Prosser River and a 7 km pipeline as described above. The dam and the pipeline are the only elements requiring infrastructure to be constructed.

The pipeline can be constructed and operated independently of the dam. The pipeline can operate independently during periods when there is sufficent water inflow to the weir to allow the required rate of extraction and or if an alternative source of water were available (a viable alternative is yet to be identified). There are no MNES affected by the regulated flow of the river or the construction of the pipeline.

As such the dam can be identified as a discrete Action for the purposes of the EPBC.

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

Yes

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

The PPRWS has identified four water users . The users are Taswater, a golf course, a salmon farm and other (yet to be identified but likely to be agricultural irrigation). The golf course will use the water for irrigation and the salmon farm will use the water to bathe fish to control amoebic gill disease.

Each user will have to construct distribution systems from offtakes provided in the PPRWS.

The golf course and the salmon farm have already been approved by the State and or Council assessment processes.

The users could potentially operate without the dam with an alternative water source.

There are no MNES reported as impacted by the operation of the water users.

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

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

No

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

No

2.3 Is the proposed action likely to impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to impact on the members of any listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Swift Parrot	The impact is the loss of 21.65 ha of pre and

Species	Impact
	early breeding season foraging habitat and potential nest hollows. The habitat is Eucalyptus ovata forest and woodland. The stand of forest occurs in the Wielangta Swift Parrot Important Breeding Area (SPIBA). SPIBA's are areas of habitat that support areas of blue gum forest as well as black gum forest and nesting hollows that are known to be important to the breeding success of the swift parrot. The EPBC significant impact criteria indicate that this impact is likely to be significant. The criteria that are met are the "likelihood" to: 1. lead to a long term decrease in the population 2. reduce the area of occupancy of the species 3. adversely affect habitat critical to the survival of the species 4. modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. 5. Interfere with the recovery of the species
Tasmanian devil	52 ha of hunting and some potential denning habitat will be lost. In the landscape context the loss of 52 ha is unlikely to result in the death of any animals; they are more likely to adjust their home ranges. The clearance of the study area (0.52 km2) is less than 10% of one home range (8 - 20 km2) and this relates to the likely density of between 0.3 and 0.7 devils per km2 for a productive area. The productivity in this case being moderate and driven by the creek lines which attract prey. However, as a result of a high degree of overlapping ranges among devils, the impact is likely to affect more than one devil. Considering the reported range and density figures for unproductive and productive areas, then a few devils may utilise the foraging habitat if pre disease densities were present. However, the density is likely to be lower because the study area is well within the infected area of habitat and has been for some years. Prey: The conversion of the study area is unlikely to affect the abundance of larger mobile prey species (wallabies and small mammals and birds) that preferentially utilise the fertile valley bottom because the peri agricultural location provides abundant grazing land for

Species	Impact
	prey species. In the context of the scale of the landscape, the demography of the devil and the size of the impact area the loss of prey species across the seasons is likely to be negligible. Road kill: The intensification of road traffic over the construction period will be relatively low level. The traffic involved in the clearance of vegetation from the dam site will be infrequent and slow moving. Significant increases in traffic levels are not anticipated and so an increase in the frequency of road kills is not anticipated. The vast majority of traffic associated with the proposal will be day time traffic. A small portion may traverse the area in the high risk dusk and pre-dawn periods if works are undertaken when days are short.
Spotted tailed quoll	The habitat is interpreted as within the range of an important population.The clearance of the dam footprint will result in the loss of 52 ha of foraging habitat. Denning opportunities are localised being limited to a narrow band of borrowable ground and tree hollows the up stream portion. Nevertheless it is possible that small portions of the core range of 1 or 2 female quolls will be converted as a result of the proposal. The response of the animals is not certain. The adult females may adjust their territories or if the loss of core range is too large they may be displaced and die. Males are likely to be more resilient than females due to their tolerance of others within their home range and lack of philopatric behaviour. In the landscape context of 1000’s of hectares of continuous habitat, the conversion of 52 ha is unlikely to result in the loss of a male quoll. If displaced, philopatric sub-adult females on the other hand will either establish themselves in vacant/adjusted territories or if they do not are naturally destined to die without breeding (less than 2 years). In the context of the area of habitat loss, and the ecology discussed above, as well as the extent of habitat that is continuous with the study area, no significant impact is anticipated.
Eastern quoll	The presence has not been confirmed. The clearance of the dam will result in the

Species	Impact
	conversion of 52 ha of foraging and potential burrow/nesting habitat. The home range is reported to be about 35 -45 ha for females and males respectively. The longevity of animals is between 2-4 years (SAC 2015 Conservation Advice). The animals tend to be solitary. The impact is likely to be the displacement of 1 to a few animals from all or a part of their territory. The probability of survival of displaced animals is not known but competitive behaviour that may exclude intruders from territories has been reported (Jones and Rose 2001). If competitive exclusion is effective, displaced animals may die of starvation/exposure or predation relatively quickly, otherwise carrying capacity may be re established over a couple of years.
Eastern barred Bandicoot	The presence has not been confirmed. The clearance of the dam will result in the conversion of about 25 ha of foraging and potential nesting habitat. Because home ranges are potentially considerably smaller than the area of inundation; perhaps as small as 2-4 ha for females and males respectively but may be as large as 20 ha, the likely outcome is displacement of individuals from home ranges. The probability of survival of displaced animals is not known. Overlap in home ranges does occur; particularly for females but less for males. Due to the short lifespan and early sexual maturity of the species the readjustment to carrying capacity is likely to be rapid.
Wielangta stag beetle	The beetle was not located. Not impact is anticipated based on survey results. If the beetle is present then the area of suitable habitat (assuming the riparian forest) that would be lost to inundation is about 2 ha. This equates to less than 0.05 % of the potential habitat in its range.
Lowland Poa grassland	Approximately 1.2 ha of lowland poa tussock grassland will be inundated.

2.4.2 Do you consider this impact to be significant?

Yes

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

Yes

2.5.1 Impact table

Species	Impact
Swift parrot	As above

2.5.2 Do you consider this impact to be significant?

Yes

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

No

2.7 Is the proposed action likely to impact on any part of the environment in the Commonwealth land?

No

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

No

2.9 Will there be any impact on a water resource related to coal / gas / mining?

No

2.10 Is the proposed action a nuclear action?

No

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

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

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

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

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

A detailed report on the flora and fauna habitat values can be viewed in Attachment 3.1.

Flora

The flora is typical of east coast dolerite and valley bottom vegetation. The lower slopes of the valley are dry grassy woodlands and the valley bottom is riparian forest and shrubby forest. 151 species were recorded in the study area. An inventory of vascular plant species recorded during field surveys is presented in Appendix 3 of **Attachment 3.1**. These lists include samples from each of the vegetation types in the study area. The lists were compiled from representative plots within each Tasveg mapping unit and augmented by the addition of species observed in the same mapping unit during a timed meander search. The search targeted the variation within each mapping unit.

Attachment 3.1 lists threatened plant species previously recorded within a 5 km radius of the study area. Species returned by the Protected Matters Search Tool have been included with notes on the habitat and the likelihood of the species being in the study area (**Attachment 3.1b**), the report from the EPBC search tool is in **Attachment 3.1c.**

No flora listed on the EPBC Act are present and none are likley to occur.

Three additional reports considering the values associated with the pipeline route are in **Attachments 3.1d,e and f**. These demonstate that the construction and operation of the pipeline has no significant impact on MNES. Note: the pipeline is NOT part of the Action.

Fauna

Attachment 3.1b describes the likelihood of occurrence of each fauna species returned by the Protected Matters Search Tool.

The context and findings in relation to the occurrence of habitat for threatened fauna species is described below.

Survey methods are described in **Attachment 3.1b.**

All figures referred to below are in Attachment 3.1.

Fauna Habitat

The dam footprint occupies the bottom of the narrow valley of the Tea Tree Rivulet. The valley broadens somewhat toward the dam wall. The vegetation is almost entirely forest. Much of the lower area is dominated by black gum which is early season breeding foraging habitat of the swift parrot.

The forest is regrowth but with some old growth elements remaining. The presence of old growth eucalypt trees provides nesting and roosting habitat for hollow using mammals, birds and potentially eagles within 1000 m line of sight.

Logs and hollow bases in mature trees are potential habitat for mammals but large logs are rare in the study area. Deep litter is restricted to patchy accumulations of flood debris.

Grass and herbs are common and so grazing animals are also common. Browsers such as pademelons are also common. Echidna and other small mammal diggings are occasional.

Small birds have good cover, particularly along the riparian area. Larger birds include predominantly currawongs and magpies (in January) and eagles, which were observed foraging above the canopy. The presence of riparian eucalypts in protected riparian situations present some nesting opportunities for goshawks and other canopy nesting birds. Nests were observed but were most likely crow/currawong and magpie nests.

The stream has clear water flowing and trout were obvious. The bed is cobble. There is only very occasional aquatic vegetation present. The riparian vegetation is differentiated from the surrounding vegetation by the presence of ground ferns and broad leaves such as Pomaderris or Beyeria.

Due to the mosaic of native vegetation within a context of more extensive native vegetation there are suitable habitat patches for nesting or denning for a number of threatened fauna species. Others that are reported on the NVA or the Protected Matters Search tool are highly unlikely or do not occur.

Threatened Fauna For Which Habitat May Be Suitable

Spotted-tailed Quoll (*Dasyurus maculatus maculatus*) - Vulnerable

Context:

The spotted-tailed quoll occurs throughout Tasmania and also in eastern Australia. On the mainland their numbers have declined and Tasmania is now their remaining stronghold. In the south east the spotted-tailed quoll is most abundant in areas containing rainforest and wet forest.

Highest quality habitat is fertile extensive un-fragmented lowland wet forest vegetation, although

the species persists in native forest fragmented by agricultural land use. The core range for the spotted-tailed quoll is lowland forested areas of northern Tasmania and the central and north-eastern highlands. Lower densities of animals occur elsewhere in suitable habitat throughout Tasmania and an important population area includes the dam footprint.

The species requires forested areas with suitable shelter sites such as hollow logs, burrowable soil or rocky caverns for denning habitat. This is distinguished from foraging habitat, which can include non-forest and dry forest areas adjacent to suitable denning habitat[1]. The best foraging habitat is characterised by an abundance of mammalian prey species, which tends to be on fertile land and is often associated with riparian or alluvial sites such as present in the dam footprint.

There are currently estimated to be 3,000-4,000 animals in Tasmania with a density of about 1 animal per 3 km2 in core habitat[2]. They are known to have a large home range[3]. Home ranges extend to more than 1,500 ha of continuous suitable habitat for a male and less for a female. Female ranges are often exclusive and male ranges overlap. Continuous habitat patches (denning and hunting) totalling more than 15,000 ha may be required to sustain a minimum viable population of 50 spotted–tailed quoll based on an exclusive home range of 300 ha[4].

Figure 3 (Attachment 3.1) illustrates the distribution of important populations and key sites in Tasmania. This is a map derived from descriptions in the Draft Recovery Plan and from the Threatened flora handbook referred to on the map. Without definitive population boundaries habitat suitability and evidence of occupation are important. The dam site is within the intended range of important population 5. The habitat and its characteristics are contiguous and contribute to a patch of > 15000 ha.

A recent study in the north west of Tasmania provided some local insight into the behaviour of female quolls in dry eucalypt forest[5].

In Troy's study, the core ranges of female quolls (50% kernel [time spent]) varied between about 30 and 100 ha while the greater range (95% kernel [time spent]) varied between about 150 and 520 ha. Contrary to the exclusive home ranges described in the Recovery Plan; all of the female ranges had at least some overlap at the 95% kernel (time spent), and most had considerable overlap in the core range, with the others being essentially exclusive in the core range. Such overlap is likely to be facilitated by high productivity in the habitat.

The size of the females range appears to be related to the extent and productivity of native forest within the range, the smaller the range the greater the cover and productivity of native forest and vice versa.

Based on core range sizes measured by Troy, the study area is equivalent to less than 1 female range. However, the actual distribution and partitioning of ranges in the landscape may mean that portions of more female ranges, perhaps 1 or 2, occur in the study area.

Findings:

Spotted-tailed quoll have commonly been recorded from the type of habitat that is found in the study area and from the vicinity. The habitat area is from within the range of an important population.

The entire habitat area in the dam footprint is foraging habitat with suitable burrowing habitat is present in sandy soils near the rivulet and potentially in tree hollows in old growth trees.

No records of quolls were obtained from the 5 motion cameras set on tracks in the study area.

Tasmanian devil (*Sarcophilus harrisii*) - Endangered

Context:

This species was listed on the *TSPA* and *EPBCA* following the significant impact of Devil Facial Tumour Disease (DFTD) on the population.

Persecuted along with the Tasmanian tiger, the species was in threat of extinction by the early 20th century. However changes in policy allowed the species to recover so that it reached historically high levels by the 1990's. Some estimates suggest the population may have exceeded 150, 000 individuals at that time[7].

The Tasmanian devil (*Sarcophilus harrisii*) is Australia's largest surviving marsupial carnivore and only specialist scavenger. Although variable in size, adult males can weigh up to 12 kg and be 30 cm high at the shoulder. The species is now confined to Tasmania where it is widely distributed across all environments throughout the State.

Devils are usually solitary animals but they share continuously overlapping home ranges and come into contact with other devils around prey carcasses and during the mating season[8]. They mate once a year giving birth in April through to July, and can produce up to four young which develop for up to 20 weeks in the pouch. The young are fully weaned at 10 months of age.

The animals can be active during the day where there is no human disturbance but otherwise hunt during the night (Pemberton pers. comm.). In daytime animals hole up in shelter, including underground dens, wombat burrows, hollows and caves. Communal denning, particularly natal dens, occurs in clusters associated with suitable geomorphology in secure sites above the water table. Females are careful to select dens that are difficult to find without the use of electronic tracking devices. Mating occurs in copulation dens which are male dominated and distinct from the natal dens.

Animals typically travel around 8 km a night, although individuals have been recorded covering more than 50km in a single night[9]. They have home ranges of 8 to 20 km2 (800 to 2,000 ha), although more recent studies suggest smaller ranges[10] probably reflecting higher carrying capacity. The home ranges overlap to a very large extent with other individuals but they forage separately and are antagonistic toward each other on meeting. The density of devils ranges

between 0.3 and 0.7 per km2.

The overlapping ranges and high density of animals results in a population of devils that utilises the whole of the landscape as a single entity.

Devils thrive in a landscape mosaic of native habitat and agricultural land due to the prevalence of prey.

Fragmentation of the landscape by forest clearance disrupts home ranges. Devils displaced by habitat loss will move to other home ranges but ultimately the population may decrease if there are the limit of carrying capacity is exceeded. This is likely to be over a period of the lifespan of the displaced animals.

Studies of Devil Facial Tumour Disease (DFTD) have shown that it has spread across more than 60% of Tasmania (Figure 4) with population declines averaging 84%, although the population in the northeast has declined by up to 96%[11]. The last remaining stronghold for the Tasmanian devil is in the northwest, with the west and southwest areas supporting much lower densities of disease free devils.

The devil facial tumour disease (DFTD) is the single most significant cause of mortality and therefore threat to the conservation of the Tasmanian devil.

A reduced population due to DFTD is considered highly vulnerable to other causes of mortality such as road kill or loss of denning habitat.

Findings:

Given the relatively small area of impact compared to range size, the effort required to estimate the number of devils that utilise the site could not be justified on the basis that it would offer little additional relevant information to that described above for general ecology and expected density. The south east of Tasmania has carried DFTD for years and so the density of devils is likely to be below carrying capacity.

Seven observations recorded by motion cameras confirm that the site is utilised by devils. At least 3 individual devils are represented by the photos. The existing habitat in the study area and adjacent habitat provides continuous home ranges.

The location of natal dens is most likely to be in habitats that have suitable dry habitat above the water table.

A habitat survey in January 2017 found that the most likely denning opportunities were wombat burrows that were present in burrowable soils near the rivulet. Motion cameras did not record devils utilising either of two wombat burrows. Others are likely to be present.

Other denning areas are likely to occur on the upper slopes high above the dam footprint. These areas offer dry denning opportunities in rocks caverns and logs.

Eastern barred bandicoot (*Perameles gunnii*) - Vulnerable

Context:

The eastern barred bandicoot was previously widespread across Tasmania, but is now most abundant in the south-east of the state. During the day it rests in a grass nest, sometimes in Poa tussocks. This small mammal also requires cover of low vegetation in which to take refuge from predators.

It feeds throughout the night on earthworms, insects, bulbs, tubers and fungi. It is sensitive to disturbance and is known to eject young from its pouch if distressed.

The species is not considered to be threatened in Tasmania due to its relative abundance, absence of a key exotic predator (the fox), and its adaptability to the woodland and pasture interface. Nevertheless, it has declined severely in the midlands of Tasmania and this may reflect the scale of land clearancecleared land to woodland interfaces.

Findings:

The grassy habitat that is prevalent in the white gum and parts of the black gum forest and woodland in the dam footprint is ideal native habitat for this species. Although the animal was not recorded by motion cameras set in this habitat it is highly likely to be present. The bandicoot may not utilise tracks as thoroughfares due to its relatively small home range.

Eastern quoll (*Dasyurus viverrinus*) - Endangered

Context:

It is extinct on mainland Australia. The assessment criterion used for its listing relates to inferred decline of the surviving Tasmanian population, over a 10 year period to 2009, exceeding 50%. The initial severe decline occured over an 18 month period between 2001 and 2003. The cause for the decline is not fully understood. The EPBC Scientific Advisory Committee has based great credence on a correlation of the decline with successive mild wet winters between 2001 and 2003, followed by very limited recovery in the population since[1]. Although subject to predation from domestic pets and feral cats it has persisted with these pressures for over a century.

A notable distinction between Tasmania and mainland Australia is the absence of the European fox, although another major factor in the mainland decline is thought to be from disease. Changes in predator population biology, resulting from decline in Tasmanian devil populations, and subsequent behavioural change in feral cat behaviour, (increased nocturnal activity plus likely increase in population size) has been proposed as being a likely factor. Currently the eastern quoll is not listed on the Tasmanian TSPA and continues to be widespread and not uncommon throughout much of eastern Tasmania.

It is mostly solitary and is active at night: hunting for prey such as insects, small mammals, birds and reptiles. Eastern quolls can be either fawn or black, with white spots; but no spots on the

tail. The home range is reported to be about 35 -45 ha for females and males respectively. The longevity of animals is between 2-4 years (SAC 2015 Conservation Advice). The animals tend to be solitary.

Findings:

The habitat is suitable for the eastern quoll but the presence has not been confirmed. It is likely to be present. The probability of occurrence is enhanced by the mosaic of vegetation types with good cover and a relatively productive landscape.

Wedge-tailed eagle (*Aquila audax* subsp*. fleayi*) - Endangered

Context:

Adults are resident, highly territorial and have very large home ranges. Although considered to be widespread but uncommon at the time of European settlement, the breeding success has decreased to a point where it is now considered that fewer than 100 pairs are successful at breeding each year[13].

Wedge-tailed eagles nest in a range of old growth native forests and the species is dependent on forest for nesting. It nests almost exclusively in mature eucalypts capable of supporting their nests. Nests can be developed over many years of use and grow to over 2m in diameter. The eagles choose old growth trees in relatively sheltered sites for locating their nests. Territories can contain multiple nests and up to five alternative nests have been located in a single territory. Nests within a territory are usually close to each other but may be up to 1 km apart where habitat is locally restricted. Wedge-tailed eagles prey and scavenge on a wide variety of fauna including fish, reptiles, birds and mammals.

Depending on the productivity of the landscape the territories will vary in size and so too the distance between nests of different breeding pairs.

The main threat to the species is the continuing decline in productivity as a result of disturbance of breeding birds and loss of nesting habitat[14]. High levels of unnatural mortality because of persecution (illegal shooting, trapping and poisoning); electrocution and collision (with powerlines, vehicles, fences and wind turbines) have led to a reduction in the mean age of the population, resulting in a reduction in breeding success[15]. They are sensitive to disturbance during the breeding season, which occurs between August and January.

Findings: There are five records of eagle’s nests within +/-5 km of the dam footprint.

Figure 5 (Attachment 3.1) illustrates a habitat quality model produced by the Forest Practices Authority 2013. This figure illustrates the extent and location of moderate to high quality habitat within 1 km line of sight of the dam footprint. Contours lines assist in determining line of sight.

A helicopter based search of moderate to high quality nest habitat was undertaken at the end of the breeding season on February 16 2017. No nests were observed.

Masked owl (*Tyto novaehollandiae castanops*) - Vulnerable

Context: There are estimated to be between about 500 and 1,300 breeding birds in Tasmania. The highest densities are below 600 m elevation in the east and the north of Tasmania. Breeding pairs occupy home ranges of between 1800 and 2500 ha.[16]

The endemic race of this Australia wide species is widely distributed in Tasmania particularly in lowland dry forests and woodlands. It has extensive foraging territories; however, the bird is threatened by the loss of breeding habitat which is old growth eucalypts with nesting hollows.

Significant habitat for this species is currently defined as all nesting habitat within the core range; which is eucalypt forests and woodlands containing old growth trees or isolated old growth trees containing large hollows.

Findings:

The masked owl is unlikley to be currently nesting in the dam footprint.

A masked owl habitat model indicates that the habitat is in core habitat range and the habitat present along the rivulet is mapped as high maturity (potentially suitable for nesting) reflecting our observation of old growth trees (Figure 6).

Regardless of the presence or absence of nests in the footprint the habitat is likely to be part of the range of a pair of masked owls.

The songmeter did not record a masked owl call in the vicinity of its placement (Figure 2) in the week of January 11-19 in the lower footprint and February 20 – March 9 higher in the footprint.

The study area is within a larger area of forest much of which retains old growth elements but extensive areas of forestry activity have reduced the nesting opportunities in the vicinity, particularly to the south east. In the context of the range of this bird this forestry activity in the vicinity could have displaced birds.

Swift Parrot (*Lathamus discolor*) Critically - Endangered

Context: The entire proposal is within the Wielangta SPIBA (swift parrot important breeding area). Suitable forest in a SPIBA is considered important to the breeding success of swift parrots. SPIBA's are predominantly in the south east of Tasmania from about Triabunna to the southern forests (Figure 7).

SPIBA's support regional scale blue gum flowering events in association with suitable nesting habitat. These events are supported early in the breeding season by black gum flowering.

Within SPIBA's the blue gum and black gum flowers provide the nectar on which the young birds are reared to fledglings. Forests nearby these forage resources that are dominated by

other tree species and supporting nesting hollows are just as important as the forage resource.

The intensity of flowering varies from year to year in any one SPIBA; this spatial and temporal variation in flowering intensity is reflected in the utilisation of SPIBA's. The SPIBA(s) with the most intense flowering tends to support the breeding in that year. However, it is the persistence of all SPIBA's that is necessary to provide for swift parrot breeding success in all years.

Findings:

The dam footprint supports 21.65 ha of black gum forest and woodland and occasional blue gums. This is an important early breeding season forage resource.

There are potential nesting hollows in mature and old growth trees. However, detailed evaluation was not undertaken.

Stands of blue gum exist in the vicinity but the extent of these stands has not been mapped. Tasveg 3.0 mapping indicates the forest type in the vicinity to be virtually entirely *E. puchella* complex. This mapping unit can include dominant or co dominant blue gum and stands of blue gum.

Wielangta stag beetle (*Lissotes latidens*) Endangered

Context:

The Wielangta Stag Beetle occurs at more than 106 sites in south-eastern Tasmania in the area between Orford and Copping, and on Maria Island. Its distribution is centred on the Wielangta State Forest (Bryant & Jackson 1999b; TSSC 2002p) and covers an area of about 280 km² and it has been reported that the range holds about 43 km² of suitable habitat.

Meggs (1999) found the beetle in a range of wet forest types including damp eucalypt forest, wet eucalypt forest, rainforest and riparian areas amongst drier forest types. Relative to other Tasmanian stag beetles, the Wielangta stag beetle was found to occur at quite low population densities. The species had a preference for forest with a well-developed overstorey and greater than 10% ground cover of coarse woody debris (CWD). Although the Wielangta stag beetle is soil-dwelling throughout its life-cycle, it has a close association with CWD, occurring under logs at the interface of soil and CWD.

Since Meggs (1999) reported 20% of the habitat had been cleared, further areas of forest have been converted to plantation within the range of the beetle and the current extent of loss has not been calculated. Much of the range has been harvested and regenerated and a significant portion has been converted to plantation. In 1999 Meggs reported that around 15% of the species' area of occurrence consists of potentially suitable habitat. This has possible serious consequences for the species as small isolated populations are at risk from localised extinction (Meggs 1999; TSSC 2002p). This was interpreted by Clarke & Spier-Ashcroft 2003 as being severely fragmented and is one of the criteria considered by the Scientific Advisory Committed for its listing as endangered.

Findings:

The dam footprint is within the range of the beetle and consequently there are a number of records within 5 km of the dam footprint. A number of records occur higher in the catchment of Tea Tree Rivulet in wet forest. At one site on the edge of Stoney Creek very near the dam footprint, Meggs (1999) was unable to find a stag beetle. At nearly half of the sites sampled Meggs did not find Wielangta stag beetles.

Despite the number of records this species is notoriously difficult to locate. This is also evident in the results of an intensive and extensive search in the Wielangta State forest completed by Groves (2006). Groves found 2 dead specimens after searches of more than 1000 m of logs and more than 3800 trap days using 162 pitfall traps. Groves also had the assistance of an excavator to move logs.

In the dam footprint a very narrow riparian strip (2-5 m each side) is the only habitat that is potentially suitable for the beetle (according to published habitat descriptions). In this habitat large logs are rare and litter is thin on the ground or else confined to piles of flood debris (CWD).

Small logs and litter in flood debris were searched during 4 * 4 hr surveys. No Wielangta stag beetles were found. It remains possible that the beetle is present and could have been missed during sampling if it is sparse and or in very low numbers.

[1] Mallick 2003

[2] Meander Dam Mitigation Strategy for spotted-tailed quoll (North Barker 2003).

[3] Tasmania's Threatened fauna handbook, Bryant & Jackson, 1999

[4] PLUC 1996

[5] Troy et al 2011 (poster presentation)

[6] Philiopatric – behaviour of animals whereby they tend to return to or stay in the maternal home range or other particular area.

[7] N. Mooney cited in McGlashan *et. al.* 2006

[8] Hamede *et. al.* 2009

[9] Tarkine Devil Forum (2009)

[10]S. Troy *pers. comm.* –" Landscape ecology of the Tasmanian devil and spotted-tailed quoll"

[11] Based on sightings - Save The Tasmanian Devil website (**www.tassiedevil.com.au),** DPIWE threatened species website (4 Oct 2011)

[12] Bryant and Jackson 1999

[13] B. Brown *pers. com.*

[14] Threatened Species Section 2006

[15] Threatened Species Section 2006

[16] Young, D. (2006).

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

The water catchment and water release are the two hydrological issues relevant to the project.

Catchment:

A reliability model of the proposed Tea Tree Rivulet storage and the Prosser River catchment has been developed from Tasmanian Sustainable Yields data and models. A map of key components of the model, including data collection stations, sub catchments, existing water license (WIMS) offtakes, SILO grid cell1, is given in Figure 4.1 of Attachment 3.2a.

Critical values of the proposed Tea Tree Rivulet Storage are:

Storage volume - 3000 ML
Licence Take - 1795 ML/year
Demand - 1000 ML/year
Surface area at FSL - 0.5 km2
Catchment area - 50.65 km2
Transmission loss - TBA

Demand:

For the purposes of water licensing and demand, seasons are defined as follows:
? Winter: May – October inclusive (184 days)
? Summer: November – April inclusive (181 days; 182 in a leap year)

The demand profile has been split into 3 components:

500 ML Tassal
300ML Golf course
200ML TasWater reserve (drought emergency use)
Others - either use TasWater allocation or TBC by Stage 2 Hydrology report and licencing conditions.
o Includes 200 ML reserved for TasWater (State Water Authority) to use under drought conditions, but assessed as required every summer in this assessment
This gives the following demand profile:

Winter: 1.37 ML/day
Summer: 4.13 ML/day

Reliability

Gross reliablility (without transmission loss) reliability has been assessed on the storage's ability to meet the demands set out above. The reliability model has been found to be 100% reliable in all scenarios. A plot of the reservoir volume under the Cdry with Eflow release (the scenario with the lowest inflow) is given in Figure 4.2 (Attachment 3.2a). It can be seen that once the two year filling period has passed the reservoir operates within a range of 900ML and full supply, and is never emptied. Initial gross yield reliability is >100% for 1795ML winter take and 1000ML extraction but overall transmission losses could be >30% so the Stage 2 Entura report will provide nett yield in April.

Transmission loss

Transmission loss has been addressed in a separate study, Attachment 3.2c. These transmission loss estimates have been calculated using a conceptual model which considered the various components which makeup the total transmission loss. The results could be refined through the implementation of an appropriate gauging programme either using natural flows prior to construction or during the first period of operation using controlled releases from the new Twamley dam.

The scheme aims to deliver water to Lower Prosser Dam at a continuous daily rate in the order of 1 – 5 ML/day, with a monthly profile. During Summer an average loss of 2 ML/day is estimated, rising to 2.9ML/day during periods of low natural flows. During Winter an average loss of 0.4 ML/day is estimated, rising to 1.5ML/day during periods of low natural flows. DPIPWE have indicated that "the Low flow loss rate should be adopted for summer period – we are reasonably comfortable using the average for winter period." (Bill Shackcloth, pers.comm., 28 Feb 2017). Based on this advice, to deliver a target volume at Lower Prosser Dam, an additional 2.9ML/day is required to be released from Twamley Dam in Summer, and 0.4ML/day in Winter. For example if 3ML/day is required at Lower Prosser in Summer then 5.9ML should be released from Twamley Dam, if 1.5ML/day is required at Lower Prosser in Winter then 1.9ML/day should be released from Twamley Dam.
At the time of writing the intent was to release water at a continuous daily rate, with a monthly profile, from Twamley Dam to Lower Prosser Dam. If a stop-start release profile is employed then an initial loss, when transfers are started, is also applicable in addition to the ongoing daily loss. The worst case scenario will occur under dry conditions when there are no naturally occurring flows. Under these conditions the instream pools, watercourse banks and bed will need to be recharged by released water before flows can be transferred. Under dry conditions it is anticipated that losses will continue at a rate similar to the low flow losses presented, for a period of time until the watercourse dries out. This water would need to be recharged before water transfer can be restarted. For example, if Tea Tree Rivulet was experiencing dry conditions, and water transfer was stopped for 5 days, then the initial loss would be estimated at 5 times the total daily low flow loss for this reach, equating to 9.5ML.

The net reliability of the system has not been assessed to take account of transmission loss.

Release of Demand

The outflow from the scenario described above has been used to determine the environmental impact at locations downstream of the proposed dam site as documented in the aquatic environment baseline assessment (Entura 2017 Attachment 3.2 b). The water is transfered from the dam to a weir on the Prosser River as a regulated run of river flow.

This Entura assessment did not identify any aquatic MNES values and none have been previously recorded in Tea Tree Rivulet. The potential for MNES fish species is very low as the Prosser Dam (weir) impedes upstream migration of fish such as the migratory listed Australian grayling (Prototroctes maraena) and Tea Tree rivulet is outside the known range of listed Galaxiidae species.

The condition of aquatic habitat in Tea Tree Rivulet is quite good in the 2.5 km reach immediately downstream from the proposed dam site. This reach also contains the Threatened Riparian Scrub community that is listed as threatened under the Nature Conservation Act 2002 (Tas). Instream and riparian condition deteriorates below this point due to agricultural activities and eucalypt plantations. These reaches have extensive stream bank erosion and weed infestations. However; the threatened flora species Haloragis heterophylla and Asperula subsimplex were recorded in Gatehouse Marsh which is associated with the lower reach of Tea Tree Rivulet bisected by the Tasman Highway.

Operation will change the flow regime in Tea Tree Rivulet from a watercourse that is currently intermittent to one that would be regulated and constant. Scheme releases are equivalent to current fresh magnitude flows in the summer months and median or elevated baseflow conditions in the winter months. Elevated baseflows are unlikely to cause significant in channel fluvial geomorphological changes as the scheme releases are still relatively small flows; however, this is presumed from observations during the field survey and without having detailed hydraulic information.
Conversely, due to the dam capturing inflows except under spill conditions, operation will reduce the magnitude of the high flow regime (i.e. fresh and high flows in the approximate percentile 70 to 97 range), particularly from January to May. However, modelled peak flows (i.e. ? percentile 98 flows) are similar during pre-scheme and scheme conditions in all months except January and March and thus the scheme is unlikely to significantly change the influence of peak flow events on wetland inundation. From the data collected to date, it is not possible to estimate the flow magnitudes required to inundate the wetlands and thus it is unknown if a reduced high flow regime during operation significantly alters the frequency that the wetland areas are inundated. However, collection and analysis of hydraulic survey data would enable this to be done.

A reduced frequency of inundation of the wetlands associated with Tea Tree Rivulet has the potential to affect flora and fauna values; none of which are MNES. However, a Poa labillardierei lowland grassland that is present in the marsh may also be affected by less frequent inundation; however, it is uncertain how dependant the grassland is on overbank flows from the rivulet. **Additional note - This grassland has since been assessed against EPBC criteria to determine if it is an endangered ecological community (MNES). The grassland does

not meet the condition criteria for the endangered ecological community (P. Barker Macrh 23 2017).

A changed hydrological regime also has the potential to affect habitat, life history cues and or behaviours for general instream aquatic fauna and flora values; none of which are MNES.

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

Native vegetation types

In this section vegetation within the study area is described under its Tasveg mapping unit. The area of each unit in the dam footprint is indicated in Table 2 and illustrated in Figure 2 of Attachment 3.1.

The soils are predominantly jurasic dolerite origin. The lower portion is overlain by cainozoic deposits, particularly quaternary alluvium.

The vegetation reflects landscape and soil characteristics. In the upstream area where the valley is narrow the slopes are steep and dominated by grassy white gum forest. This gives way to a very narrow band of riparian forest also dominated by white gum, just a few metres wide. This has not been differenciated.

Lower in the catchment the valley broadens. The eastern slope is still white gum forest but the valley bottom and western margin is dominated by black gum (E. ovata). This occurs in three facies, shrubby, sedgy and grassy.

Black peppermint (E. amygdalina) is present in both white gum and black gum forest and dominates in small patches (these have not been differentiated).

Most forest is regrowth forest but some old growth elemenst exhiitjng tree hollows are obvious along the rivulet.

A small area of lowland Poa grassland is present low in the catchement.

Other small areas that have been repeatedly burnt is now domianted by tea trea scrub.

The likely area of conversion and location of each vegetation type is set out in (Table 2) and Figure 2 of Attachment 3.1.

Table 2. The area (ha) of each Tasveg 3 mapping unit in the dam footprint.

Vegetation code type and description	**Area (ha)**
(DAD) Eucalyptus amygdalina forest and woodland on dolerite	7.65

(DOV) Eucalyptus ovata forest and woodland	21.64
(DVG) Eucalyptus viminalis grassy forest and woodland	20.47
(GPL) Lowland Poa labillardierei grassland	1.25
(NAD) Acacia dealbata forest	0.26
(SLL) Leptospermum lanigerum scrub	1.43
Grand Total	**52.74 ha**

***Dry Eucalyptus amygdalina forest* on dolerite (DAD)**

There are relatively small areas of this forest on the upper slopes and dry rocky edges of the rivulet in the dam footprint. A typical species list and structure is set out below.

The likely area and location of conversion is set out in (Table 2).

Trees: *Eucalyptus amygdalina, Bursaria spinosa subsp. spinosa*

Tall Shrubs: *Acacia dealbata subsp. dealbata, Pomaderris apetala*

Shrubs: *Coprosma quadrifida, Daviesia ulicifolia, Epacris impressa, Leptecophylla divaricata, Leucopogon collinus, Leucopogon ericoides*

Low Shrubs: *Acrotriche serrulata, Astroloma humifusum, Hibbertia hirsuta, Hibbertia riparia, Pimelea humilis*

Herbs: *Acaena novae-zelandiae, Brachyscome sp., Dichondra repens, Drosera peltata, Euchiton sp., Gonocarpus tetragynus, Goodenia lanata, Hydrocotyle sp., Hypericum gramineum, Hypoxis hygrometrica, Lagenophora stipitata, Leptorhynchos squamatus, Microtis sp., Oxalis perennans, Stylidium graminifolium, Wahlenbergia*

Graminoids: *Lepidosperma curtisiae, Lepidosperma gunnii, Lepidosperma laterale, Lomandra*

longifolia, Schoenus apogon

Grasses: *Austrostipa stuposa, Ehrharta distichophylla, Ehrharta stipoides, Poa labillardierei,*

Rytidosperma caespitosum, Rytidosperma geniculatum, Themeda triandra

Weeds: *Centaurium erythraea*

Climbers: *Clematis aristata*

***Dry Eucalyptus ovata shrubby/grassy forest and woodland* (DOV) - Threatened**

This is the predominant forest and woodland present in the dam footprint. This vegetation occurs in the downstream half of the footprint. Along the rivulet the riparian forest understorey is predominantly sedges and poa tussock. On the drier slopes beyond the understorey is open dry sclerophyll shrubs and native grasses and herbs.

At the dam wall the vegetation has been regularly burnt and while now appears to be either grassland or shrub land, regenerating *E. ovata* are present throughout. According to the EPBC draft listing advice this would qualify as the threatened ecological community because it meets the key diagnostic criteria[1].

A typical species list and structure is set out below. Lists of other quadrats are in Appendix 3 of Attachment 3.1.

The likely area and location of conversion is set out in (Table 2) and Figure 2 of Attachment 3.1.

Trees: *Eucalyptus ovata var. ovata, Eucalyptus viminalis subsp. viminalis, Eucalyptus obliqua, Acacia melanoxylon, Bursaria spinosa subsp. spinosa*

Tall Shrubs: *Acacia dealbata subsp. dealbata, Acacia verticillata, Exocarpos cupressiformis,*

Leptospermum lanigerum, Pomaderris apetala

Shrubs: *Coprosma quadrifida, Rubus parvifolius*

Herbs: *Acaena novae-zelandiae, Geranium potentilloides var. potentilloides, Hydrocotyle*

callicarpa, Mazus pumilio, Myriophyllum sp., Oxalis perennans, Rumex dumosus

Graminoids: *Carex gaudichaudiana, Gahnia grandis, Lepidosperma laterale, Lomandra*

Grasses: *Australopyrum pectinatum, Poa labillardierei*

Ferns: *Blechnum minus, Dicksonia antarctica, Polystichum proliferum, Pteridium esculentum subsp. esculentum*

Climbers: *Clematis aristata*

Weeds: *Cirsium vulgare, Sonchus asper*

A Vegetation Condition Assessment was undertaken of the *E. ovata* forest because it consitutes swift parrot habitat (Critically endangered EPBC). This will provide the qualitative basis for comparison to any offsets that are proposed.

The results of the VCA from 4 sites are tabulated in Attachment 3.1.

***Dry Eucalyptus viminalis grassy forest* (DVG)**

The community is common on the drier slopes of the dam footprint. In some areas *E. amygdalina is also present and can be co dominant.*

The riparian forest type in the upstream section of the dam has been attributed to grassy *E. viminalis* as well. The riparian *E. viminalis* forest has a fern and broadleaf dominated understory which defines it as wet *E. viminalis* forest according to the Tasveg Key. Wet *E. viminalis* forest is a threatened vegetation type. However, this forest occupies a very narrow ecotone and retains scattered dry components such as sagg and poa tussock. The original aim of listing the wet forest type was to capture the wet forests on fertile land that was suitable for agriculture. This forest is not that type but rather simply the riparian margin of dry *E. viminalis* grassy forest. Lists of other quadrats are in Appendix 3.

The likely area and location of conversion is set out in (Table 2) and Figure 2 of Attachment 3.1.

Riparian facies

Trees: *Eucalyptus viminalis subsp. Eucalyptus amygdalina, Eucalyptus obliqua, Eucalyptus ovata var. ovata, Acacia melanoxylon, Bursaria spinosa subsp. spinosa,*

Tall Shrubs: *Acacia dealbata subsp. dealbata, Acacia verticillata, Banksia marginata, Beyeria viscosa, Exocarpos cupressiformis, Leptospermum lanigerum, Notelaea*

ligustrina,

Pomaderris apetala, Zieria arborescens

Shrubs: *Acacia derwentiana, Coprosma quadrifida, Cyathodes glauca, Epacris impressa,*

Leptecophylla divaricata, Lomatia tinctoria, Melaleuca pallida, Olearia ramulosa,

Pimelea drupacea, Tasmannia lanceolata

Low Shrubs: *Hibbertia riparia*

Herbs: *Acaena novae-zelandiae, Brachyscome sp., Crassula helmsii, Dianella tasmanica,*

Dichondra repens, Galium sp., Geranium potentilloides var. potentilloides,

Gonocarpus tetragynus, Goodenia lanata, Hydrocotyle callicarpa, Lagenophora

stipitata, Lythrum hyssopifolia, Mazus pumilio, Oxalis perennans, Pelargonium

australe, Poranthera microphylla, Pterostylis decurva, Senecio minimus, Viola

hederacea, Wahlenbergia sp.

Graminoids: *Carex appressa, Carex iynx, Eleocharis gracilis, Gahnia grandis, Gahnia sieberiana, Juncus sarophorus, Lepidosperma laterale, Lomandra longifolia*

Grasses: *Australopyrum pectinatum, Deyeuxia quadriseta, Ehrharta stipoides, Poa labillardierei, Poa rodwayi*

Ferns: *Adiantum aethiopicum, Blechnum minus, Blechnum wattsii, Polystichum proliferum, Pteridium esculentum subsp. esculentum*

Climbers: *Clematis aristata*

Weeds: *Centaurium erythraea, Cirsium vulgare, Helminthotheca echioides, Hypochaeris*

radicata, Lysimachia arvensis, Rubus fruticosus, Sonchus asper

Climbers: *Clematis aristata*

Lowland *poa labillardierie* grassland (GPL)

This community occurs in the dam footprint and at the dam wall. It is natural occurrence in the river flat. GPL can form part of the EPBC listed threatened ecological community 'Lowland Native Grasslands of Tasmania. In this case the patch at the dam wall does not meet the condition criteria for the listed community. However, the patch within the dam footprint does meet the condition threshold criteria for listing and is >1 ha in size. The likely area and location of conversion is set out in (Table 2).

A typical species list and structure for this community is given below.

Trees: *Eucalyptus ovata var. ovata*

Tall Shrubs: *Acacia dealbata subsp. dealbata*

Herbs: *Acaena novae-zelandiae, Ajuga australis, Geranium potentilloides var.*

potentilloides, Mazus pumilio, Oxalis perennans, Rubus gunnianus, Senecio sp.,

Veronica calycina, Wahlenbergia sp.

Graminoids: *Carex iynx, Lepidosperma longitudinale, Lomandra longifolia*

Grasses: *Deyeuxia sp., Poa labillardierei*

Weeds: *Centaurium erythraea, Cirsium arvense var. arvense, Holcus lanatus, Hypochaeris*

radicata, Lysimachia arvensis, Rubus fruticosus, Verbena officinalis, Vicia sp.

[1] Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) DRAFT Conservation Advice (incorporating listing advice) for the Tasmanian Forests and Woodlands dominated by black gum

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

The area is recognised as occuring with a SPIBA (swift parrot impotant breeding area).

The habitat is considered to part of the range of an important population of spotted tailed quoll.

The flora species contribute to the Tasmanian east coast's centre of endemism.

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

Lowland Poa grassland is a listed ecological community - endangered. There are 1.2 present. This example is a natural grassland but does rely on occasional fire to prevent tea tree and acacia from dominating.

The predomiant forest type is *Eucalyptus ovata* forest (black gum forest) 21.65 ha.
This community has been noiminated for listing on the EPBC Act as critically endangered.

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

The altitude of FSL is 110 m ASL and the base of the dam wall is 95 m ASL.

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

In general the dam footprint is in very good condition. Erosion is virtually absent, the vegetation is essentially in natural condition with minor impacts of selective logging and repeated burning in the vicintiy of the dam wall.

Roads traverse each side of the footprint. Rough grazing of sheep and cattle is undertaken at low intensity.

Blackberry (WON) is present in low abundance near the disturbed dam wall area. Cirsium arvense (California thistle - Declared weed Tasmania) occurs in a number of patches in open, moist grassy areas.

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

NA

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

The following is the executive summary produced by CHMA Pty and Ltd and a qualified Aboriginal Heritage Officer. The summary is based on field observations and desktop research.

This report presents the findings of the Aboriginal heritage assessment. It should be noted that the Aboriginal heritage assessment has been primarily focused on the proposed Twamley Dam site and the delivery pipeline corridor. The river run water transfer scheme between the Twamley Dam site and the existing TasWater Dam on the Prosser River has been excluded from the survey assessment, because there is no proposed infrastructure to be installed along this 16km length.

Registered Aboriginal Sites in the Vicinity of the Study Area

As part of Stage 1 of the present assessment a search was carried out of Aboriginal Heritage Register (AHR) to determine the extent of registered Aboriginal heritage sites within and in the general vicinity of the study area (search results provided on the 21-12-2016 by AHT).
The search results show that there are no registered Aboriginal heritage sites located either within or in the immediate vicinity of the proposed Twamley Dam footprint. The closest registered site is AH10319, which is situated around 1km to the north-east of the dam footprint. The site is classified as an isolated artefact.

There are also no registered Aboriginal sites that are located within the proposed delivery pipeline corridor, between the existing Prosser River dam and Louisville Peninsula. There are two registered Aboriginal sites that are situated within 100m of the pipeline corridor (sites AH24 and AH10184).

The AHR search also shows that there are another 62 registered Aboriginal sites that are located within a 1km radius of the proposed river run transfer scheme, between the proposed Twamley Dam footprint and the existing TasWater Dam on the Prosser River. All but one of these sites are classified as either Artefact scatters or Isolated artefacts. The remaining site (AH5533) is classified as an Aboriginal stone quarry.
The detailed results of the AHR search are presented in section 4.4 of this report **(Attachment 3.9)**

Results of the Field Survey

The field survey was undertaken over a period of two days (7-1-2017 and 8-1-2017) by CHMA a qualified Aboriginal Heritage Officer. The proponents project manager also accompanied the field team on the survey of the delivery pipeline corridor. The field survey was focused on the proposed Twamley dam footprint and the delivery pipeline corridor route from the existing TasWater Prosser River dam through to the Louisville Peninsula.

The survey resulted in the identification of five Aboriginal sites. Two of the Aboriginal heritage sites were identified during the field survey assessment of the Twamley dam footprint (sites AH13275 and AH13276). Both sites are classified as isolated artefacts, and are located within the dam footprint.

The remaining three sites were recorded during the survey of the Delivery pipeline corridor (sites AH13277, AH13278 and AH13279). All three sites are classified as Shell middens, and are situated just outside the pipeline corridor. This route has now been abandoned in favour of a submarine route.

Table i provides the summary details for the five sites, with Figures i and ii showing the site locations. The detailed descriptions for each of the five sites are presented in Appendix 2 **(Attachment 3.9)**.

The field team were able to confirm that there are no Aboriginal rock shelter sites or Aboriginal stone quarry sites that are located either within or in the immediate vicinity of the dam and delivery pipeline corridor.

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

The entire area of the Action is on private land.

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

There are no existing uses relevant to the project.

There are four proposed uses.

1. The retention of an allocation by Taswater (State water authority) for emergency town water supply.

2. Application as irrigation for a golf course. Untreated water is preferred.

3. Application of water in the salmon farming process. Fresh water is required to bathe salmon to control amoeba that can cause amoebic gill disease.

4. Unknown irrigators. There is a likely demand for water for agricutural irrigation.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

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

Reduce Impact

The impact of inundation is not able to be avoided or directly mitigated. The impact has been minimised to the extent that the dam area is not the maximum that the yield will support.

The State's assessment process, under the Water Management Act, requires that all impacts on threatened fora, fauna and vegetation be considered against a set of formal criteria. The protected values under the Water Management Act and the EPBC Act are not the same. This is because some matters are listed on the EPBC that are not considered threatened in Tasmania and the protection of habitat is treated differently between the two jurisdictions.

Offset

The application of offsets is being considered in the context of the offsets guidelines for dam construction (DPIPWE 2016) (Attachment 4.1) and the EPBC offsets policy.

In this case the requirement for an offset under the WMA is for the inundation of 21.65 ha of threatened vegetation; specifically Eucalyptus ovata forest.

Under the EPBC the predominant need for an offset is due to the loss of Swift Parrot habitat. Coincidently the relevant swift parrot habitat is the same patch of E. ovata forest.

Lowland poa grassland requires offset under the EPBC but not under the WMA because lowland grassland is not listed as threatened in Tasamania.

No Eucalyptus ovata forest that is suitable as an offset occurs on the same private property as the dam proposal.

The proponent is undertaking a search for suitable habitat to offset the impact in accordance with both the WMA requirements and the EPBC offset policy. In this case suitable habitat will be in a SPIBA, preferably the Wielangta SPIBA.

The preliminary results of the EPBC offset metric requires:

70 ha of swift parrot black gum habitat that is in similar condition to be protected under formal protection for the period of the impact (permanent). The 70 ha includes a multiplier applied in the metric.

82 ha of black gum forest may be required to offset the loss of the black gum if the nomination as a critically endangered ecological community is finalised.

4 ha of poa grassland is required to offset the loss of 1.2 ha in the dam footprint.

Construction

A Dam Works Practices Plan will be developed and implemented to manage the clearance of the native vegetation from the dam footprint. The DWPP will be consistent with the Dam Works Practices Code (DPIPWE 2015). The purpose of the Dam Works Code to Clear Vegetation 2015 is to provide a set of standards, for the protection of environmental values, which apply to the clearance of vegetation undertaken as part of dam works authorised under a Division 3 permit (Tasmanian Water Management Act 1999). The content of the DWPP is consistent with many of the requirements of a Forest Practices Plan and in fact has adopted much of the content of an FPP but make adjustemnts where necessary to accommodate unique aspects of managemen related to dam construction.

For potential impacts of construction not included in the DWPP specific evironmental protection requirements will be included in a Construction and Environmental Management Plan (CEMP).

Construction and Environmental Management Plan (CEMP).

All works during the construction phase will be implemented according to practices set out in a CEMP. The CEMP will include measures for the control of erosion and the protection of water quality. The CEMP will include a weed and hygiene management plan and guideline for the protection of fauna including an injured animal protocol (Attachment 4.1a).

Erosion control

Elements of the erosion control regime and protection of water quality will include:

1. Sediment and erosion controls will comply with International Erosion Control Association standards. The Erosion Sediment Control Plan (ESCP) will be approved by DPIPWE.
2. The effectiveness of sediment and erosion controls at the Tea Tree Rivulet dam site will be monitored and managed.
3. Testing of water quality in down stream watercourses will be undertaken before, during and after the construction . The monitoring results will be managedand responded to in accordance a Water Quality Monitoring Framework.
4. Erosion and sediment management controls will be inspected weekly, and daily during significant rain events, to confirm that they are working effectively.
5. Weekly inspections of sediments and erosion controls will be provided to GSBC.

6. An oil spill procedure will be included in the contractors CEMP.
7. Fuels, lubricants and chemicals will be stored within containment facilities (e.g. bunded areas, leak proof trays) and, where practicable, will be handled within these facilities. The fuel storage facilities will be designed to prevent the release of spilt substances to the environment.

Weed and hygiene management.

Weeds

Two Declared weeds are present in the footprint of the dam, these are *Cirsium arvense* (Californian thistle) and *Rubus fruiticosis* (Blackberry). The latter is a Weed of National Significance. Both are scattered in sparse low abundance occurrences.

The introduction of machinery and vehicles in general presents an increased risk of introducing new and spreading the existing weeds. A weed management plan will be developed for inclusion in a CEMP.

Phytophthora cinnamomi

Commonly known as root rot or dieback, *Phytophthora cinnamomi* (PC) is a soil borne fungal pathogen that invades the roots of plants and starves them of nutrients and water. Heath communities are the most susceptible to infection with a consequent serious loss of species diversity. It is generally spread by the transportation of soil on vehicles, construction machinery and walking boots. The establishment and spread of *Phytophthora* is favoured in areas that receive above 600 mm of rainfall per annum and are below about 800 m altitude. Within this suitable climatic envelope some soil types are more conducive to the establishment and spread of *Phytophthora* than others. Conducive soils are generally the low nutrient types that support heathy communities. The combination of these biophysical factors results in patches of susceptible communities on sites across the landscape.

Soil and climate conditions at the dam site are conducive to PC. However, the vegetation proposed for clearing is generally considered to be low susceptibility. No symptomatic evidence of PC was observed.

Chytrid fungus

The pathogen *Batrachochytrium dendrobatidis* (chytrid fungus) causes the disease chytridiomycosis and subsequent death in amphibians.

The priority objective of the national Threat Abatement Plan for Chytrid Fungus is to minimise the potential for the introduction and spread of this pathogen. The study area supports a number of habitat patches that are key habitats for amphibians and are thus susceptible to this pathogen. In this case the status of the habitats and water sources is not known.

Mitigation

(1) A weed management plan will cover all relevant aspects of the control and management of

declared weeds and weeds that are considered to have significant impacts on agriculture and natural values. The plan will cover:

Overarching set of objectives and the context in which they are to be achieved.

An accurate assessment of the distribution of Declared Weeds and significant environmental weeds.

Declared weeds and significant weed distributions should be clearly and accurately mapped.

Priorities developed for management and control of weeds, both in the short term as well as long term.

Strategies for *managing* weeds around the dam footprint, including their eradication.

Strategies for ongoing monitoring and control of weeds around the dam footprint.Identification of appropriate herbicides for control and how they are to be used.

(2) A hygiene plan will be developed so as to ensure there is no introduction into the operational area of new Declared Weeds, PC or Chytrid, translocation of weeds within the property or the export of existing infestation out of the area. The hygiene plan will cover:

Vehicle, machinery and equipment hygiene.The location and management of washdown areas and facilities, including management of effluent.Material hygiene (soils, gravel, plant material etc.) – ensuring that no contaminated materials are imported onto the property.

Injured animal protocol

Should any animal be found to be injured during the clearance or construction process, then the Injured Animal Protocol will be followed (**Attachment 4.3**)

Breeding Habitat Protection

Breeding habitats of MNES includes nests, dens and tree hollows. In the event that a den or nest/hollow is found during the forest clearance process, an activity assessment will be udnertaken in accordance with relevant guidelines (the relevant guidelines will be included inthe CEMP). If the breeding structure is active then DPIPWE protocols will be followed to ensure the protection of the den or nest until it is vacated. Once vacated the structure can be destroyed.

Foraging habitat

Ground and arboreal mammals will be encouraged to leave to habitat simply through the disturbance during the florest clearance process. Animals will be specifically encourage to leave tree hollows by banging on each mature tree before it is cleared.

Forest clearance of E. ovata forest will be scheduled to be after Eucalyptus ovata flowers. Likley to be December. This will ensure that the swift parrot is not present at the time of clearance.

Operation of the dam

A surface offtake of water will be employed to ensure that water that is released into Tea Tree Rivulet belwo the dam is at the same or near ambient temperature as downstream of the dam. This will prevent the possibility of thermal shock to any wildlife in the Tea Tree Rivulet. No MNES are present in the Tea Tree Rivulet (Attachment 3.2b).

An environmental flow equal to 20% of summer and 30% of winter flows will be delivered below the dam throughout the months that the dam is capturing water and not releasing it for the consumptive purposes.

Environmental flow (Eflow) requirements have been calculated using the 20/30 rule which is DPIPWE's default method for deriving the minimum constant environmental flow release and the values are given in Table 3.1 (Attachment 3.2a).

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.

Outcome 1: There will a minimum four fold net gain in the area of MNES habitat formally protected within the vicinity.

Outcome 2: Water quality monitoring data sets for the Tea Tree Rivulet and Prosser River will be made available for the community, industry groups and government agencies.

Outcome 3: There will be no reduction in water quality within the Tea Tree Rivulet or Prosser River.

Outcome 4: Flow data for the Tea Tree Rivulet and Prosser River will be made available for the community, industry groups and government agencies.

Outcome 5: There will be no changes to the hydrograph of the Prosser River below the weir as a result of the proposal.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

Listed threatened species and communities - Yes

5.1.5 Listed migratory species

Listed migratory species - Yes

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

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.

NA

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

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

The Action is being undertaken by the Glamorgan Spring Bay Council. This organisation is a local planning authority that oversees the planning and development process and imposes and audits conditions of development related to environmental management. The planning process is set out in the Landuse Planning and Approvals Act 1993. The Environmental Protection and Pollution Control Act 1993 also dictates through regulation how the council operates. The council has a long history of compliance in this regard.

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.

NA

6.3 Will the action be taken in accordance with the corporation's environmental policy and planning framework?

No

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?

No

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
North Barker Ecosystem Services (2017) PPRWS - Tea Tree Rivulet Dam Proposal. Flora and Fauna Habitat Assessment. North Barker Ecosystem Services (2017) PPRWS - Distribution Pipeline. Flora and Fauna Habitat Assessment. Entura (2016) Tea Tree Rivulet Dam- Draft Hydrology Assessment Entura (2016) Tea Tree Rivulet Dam- Draft Aquatic Environment and Hydrology Baseline Assessment. CHMA (2017) Twamley Dam and Delivery Pipeline Aboriginal Heritage Assessment. Survey Guidelines for Australia's threatened mammals - Guidelines for detecting mammals listed as threatened under the EPBC Act 1999. DPIPWE (2015) Weeds and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania. Stephen A. Mallick, Michael M. Driessen and Gregory J. Hocking (2000) Demography and home range of the eastern barred bandicoot (Perameles gunnii) in south-eastern Tasmania. Wildlife Research 27(1) 103 – 115 Jones, M.E.;	High High High High High High High High High High Moderate (old reference) Moderate (old reference)	Moderate (detectability of fauna) Low Low Low Moderate (subsurface visibility) Moderate (detectability of fauna) Low Moderate (single study) Low Low Moderate (old reference) Moderate (old reference)

Reference Source	Reliability	Uncertainties
Rose, R.K. (2001). "Dasyurus viverrinus". Mammalian Species: Number 677: pp. 1–9. NRM (2010) A Tasmanian field hygiene manual to prevent the spread of freshwater pests and pathogens. Clarke, G. & F. Spier-Ashcroft (2003). A Review of the Conservation Status of Selected Australian Non-Marine Invertebrates. Environment Australia, Canberra. Meggs, J. M. (1999). Distribution, habitat characteristics and conservation requirements of the broad-toothed stag beetle Lissotes latidens (Coleoptera: Lucanidae): a report to the Forest Practices Board and Forestry Tasmania. Forestry Tasmania. Hobart, Tasmania.		

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

Amajor issue for the provision of reliable water supply to the coastal region of SE Tasmania is reliable local rainfall - this results in many creeks being ephemeral. Therefore only those creeks or rivers with large catchment areas can be considered for a new winter-take water licence required for this project's proposed water demand of 1000ML pa . Combine this variable annual rainfall constraint with the requirement for a cost-effective dam site (dam fill to water storage volume ratio) then the number of suitable water collection and storage sites in the greater area is very limited. Suitable dam sites in SE Tasmania had previously been researched by the State (Rivers and Water Commission), Tasmanian Irrigation and various consultants on behalf of water utilities and farmers.

Use of, or incrementing existing water licences by enlarging existing local dams was considered but found to be a costly option. One of the significant cost contributors when modifying older, existing dams was the obligation to then meet fully, the current engineering and compliance standards which are more risk averse than those used for earlier approvals.

The preliminary results from reviewing the Tasmanian Sustainable Yields rainfall data (Water Assessment Tool ex CSIRO/DPIPWE) with a desk-top catchment survey, found the Tea Tree Rivulet to be the most suitable source for a high surety 1000ML nominal annual demand. Preliminary hydrology and survey studies confirmed the nominated site's viability.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Australian Government
Department of the Environment and Energy

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

General Manager

9.2.2 First Name

David

9.2.3 Last Name

Metcalf

9.2.4 E-mail

david@freycinet.tas.gov.au

9.2.5 Postal Address

9 Melbourne Street
Triabunna TAS 7190
Australia

9.2.6 ABN/ACN

ABN

95641533778 - GLAMORGAN SPRING BAY COUNCIL

9.2.7 Organisation Telephone

03 6256 4755

Australian Government
Department of the Environment and Energy

9.2.8 Organisation E-mail

david@freycinet.tas.gov.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Declaration

I, David Metcalf, 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 of or for the benefit of any other person or entity.

Signature:... ..... Date: 21 April 2017

I, David Metcalf, the person proposing the action, consent to the designation of Glamorgan Spring Bay Council as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:.... ..... Date: 21 April 2017

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

General Manager

9.5.2 First Name

David

9.5.3 Last Name

Metcalf

9.5.4 E-mail

david@freycinet.tas.gov.au

9.5.5 Postal Address

9 Melbourne Street
Triabunna TAS 7190
Australia

9.5.6 ABN/ACN

ABN

95641533778 - GLAMORGAN SPRING BAY COUNCIL

9.5.7 Organisation Telephone

03 6256 4755

9.5.8 Organisation E-mail

david@freycinet.tas.gov.au

Declaration

I, David Metcalf, 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.

Australian Government
Department of the Environment and Energy

Signature:.... .... Date: 21 April 2017

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

General Manager

9.8.2 First Name

David

9.8.3 Last Name

Metcalf

9.8.4 E-mail

david@freycinet.tas.gov.au

9.8.5 Postal Address

9 Melbourne Street
Triabunna TAS 7190
Australia

9.8.6 ABN/ACN

ABN

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9.8.7 Organisation Telephone

03 6256 4755

9.8.8 Organisation E-mail

david@freycinet.tas.gov.au

Declaration

Australian Government
Department of the Environment and Energy

I, David Metcalf, I 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: 21 April 2017

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. attachment_3.1_flora_and_fauna_habitat_assessment_-dam_site.pdf
2. attachment_3.1b_assessment_of_likelihood_of_occurrence_of_mnes.pdf
3. attachment_3.1c_epbc_pmst.pdf
4. attachment_3.1d_flora_and_fauna_habitat_assessment_-_pipeline.pdf
5. attachment_3.1d_flora_and_fauna_habitat_assessment_pprws_pipeline.pdf
6. attachment_3.1e_marine_values_pipeline.pdf
7. attachment_3.1f_prosser_river_shore_bird_habitat_mast.pdf
8. attachment_3.2a._teatreerivulethydrologyreport_rev_0_2_draft_-_commercial_in_confidence.pdf
9. attachment_3.2a_hydrology_report.pdf
10. attachment_3.2b._tea_tree_rivulet_dam_aquatic_baseline_report_draftv2.pdf
11. attachment_3.2b_aquatic_baseline_and_environmental_flow.pdf
12. attachment_3.2c_transmission_loss_report_.pdf
13. attachment_3.9_aboriginal_heritage_assessment.pdf
14. attachment_4.1_cemp_injured_animal_protocol.pdf
15. tas003_location_dam.jpg
16. teatreerivuletdam.kml