Tarraleah Redevelopment Project

Application Number: **01679** Commencement Date: **27/02/2023** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Tarraleah Redevelopment Project

1.1.2 Project industry type *

Energy Generation and Supply (renewable)

1.1.3 Project industry sub-type

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1.1.4 Estimated start date *

1/09/2024

1.1.4 Estimated end date *

1/01/2108

1.2 Proposed Action details

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

The existing Tarraleah Hydropower Scheme is located in the Central Highlands of Tasmania and is part of Hydro Tasmania's Derwent Hydropower Scheme. The scheme has very high utilisation and generates around 634 GWh/annum of largely base load power, which is approximately 6.5% of Hydro Tasmania's total annual generation. Hydro Tasmania operates the Tarraleah Power Scheme, and its other hydropower schemes, in accordance with its Special Licence granted under Tasmania's *Water Management Act 1999 (Tas)*.

The headwater storage of the Tarraleah Hydropower Scheme, Lake King William, was formed by the construction of Clark Dam on the River Derwent. Water from Lake King William is discharged from Butlers Gorge Power Station and Nieterana mini-hydro Power Station and is then transferred via two conveyances; No. 1 Canal and No. 2 Canal, to the Tarraleah Power Station located on the western bank of the Nive River. No. 1 Canal transfers water directly to No. 1 Pond, while No. 2 Canal transfers water via Mossy Marsh Pond and No. 2 Pond to No. 1 Pond. Water from No. 1 Pond is transferred to the Tarraleah Power Station via a hilltop pipeline and penstocks.

The Tarraleah Hydropower Scheme was first commissioned in 1938. Much of the scheme is more than 80 years old and many of its assets are nearing the end of their operational life. As the scheme is ageing, it is in need of significant investment to ensure it can avoid risk of failure and continue to deliver renewable energy reliably and safely well into the future. A feasibility study looked at how to reimagine the scheme to deliver more energy and improve flexibly to suit the needs of a future National Electricity Market (NEM) that has a substantially higher portion of variable renewable energy. This study demonstrated the technical feasibility of redeveloping the Tarraleah Hydropower Scheme, with potential to transform the scheme to increase capacity and flexibility.

The proposed action is the redevelopment of the Tarraleah hydropower scheme (Tarraleah Redevelopment Project). An overview of the Tarraleah Redevelopment Project is shown in Attachment 1 - Tarraleah Redevelopment Project Scheme Overview.

The purpose of the Tarraleah Redevelopment Project is to increase the schemes capacity, operational flexibility and efficiency to better meet the needs of the future NEM and to address the risks associated with aging and end of life assets – in particular the No. 1 conveyance, the hillside penstocks and the generating units in the existing station.

The proposed Tarraleah Redevelopment Project would increase the capacity of the Tarraleah Hydropower Scheme from 90 megawatts (MW) to approximately 190 MW and increase its operational flexibility and efficiency, by providing a direct pressurised connection between the scheme's headwater and a new power station. The No. 1 Canal, existing Tarraleah Power Station and hillside penstocks would be decommissioned. Mossy Marsh and No. 2 ponds would transfer less water than current as the pressurised tunnel would bypass these storages and water from Derwent Pumps and natural pickup would be pumped from Pond No. 2 to a surge tower. The proposed Tarraleah Redevelopment Project would utilise a new intake on Lake King William and an associated approximately 1 km tunnel currently being constructed as part of a program of upgrade works scheduled to be completed in 2025.

The key components of the Tarraleah Redevelopment Project are:

- A headrace pipeline, approximately 4.2 km long up to 4 m diameter, connected to the intake on Lake King William and tunnel completed during upgrade works
- An arched headrace tunnel, approximately 9.8 km long, up to 6.5 m high and 5.5 m wide
- An arched power tunnel, approximately 2.4 km long, up to 6.5 m high and 5.5 m wide
- Access tunnels and portals to headrace and power tunnels and associated permanent spoil storage stockpiles
- A surge tower, approximately 70 m high (above ground level) and 16 m diameter and associated underground surge shaft to control water pressure in the headrace and power tunnels
- An approximately 4 cumec pumping station and approximately 1.1 km long pipeline to transfer water from the existing No. 2 Pond to the surge tower.
- A new hydropower station with an installed capacity of approximately 190 MW and a rated flow of approximately 60 cumecs located adjacent to the existing Tarraleah Power Station
- A new, approximately 16 km long 220 kilovolt (kV) transmission line connecting the new Power Station to the existing Liapootah to Palmerston transmission line located to the east.
- An up to approximately 60 m by 100 m switchyard located either adjacent to the existing Tungatinah Power Station or within the easement of the existing Liapootah to Palmerston transmission line.

Much of the existing Tarraleah hydropower scheme has heritage value. The decommissioning of elements of the existing scheme that would no longer be used as part of the Tarraleah Redevelopment Project will be planned in consultation with Heritage Tasmania and other stakeholders.

The activities during the construction and operation of Tarraleah Redevelopment Project that may have a direct or indirect impact on the environment are:

- Clearance of up to 176.8 ha of native vegetation (of which approximately 90 ha has previously been harvested for forestry) and 103.8 ha of modified vegetation communities to allow construction of above ground infrastructure including tunnel portals and associated spoil stockpiles, access tracks, a surge tower and transmission line (the proposed new Tarraleah Power Station would be located on the site of the existing Tarraleah Power Station switchyard and does not require additional vegetation clearance).
- Noise and vibration generated by blasting for tunnel construction as well as operation of construction plant and equipment, and concrete batching plants.
- Increase in light and heavy vehicle movements on Butlers Gorge Road and the Lyell Highway associated with the transport of materials, equipment and workforce during construction.
- The hydrological regime of the Nive River between the Tarraleah Power Station and its confluence with the River Derwent at Wayatinah Lagoon, the River Derwent from below Clark Dam to Lake Catagunya, Mossy Marsh Pond, No. 1 Pond and No. 2 Pond are all influenced by the operation of the Tarraleah hydropower scheme. The increased flexibly and increased capacity of the proposed Tarraleah Redevelopment Project would change the way in which the scheme is operated compared to present and affect the flow regime in associated reaches of the Nive River and River Derwent as well as Mossy Marsh Pond and No. 2 Pond.

The Tarraleah Redevelopment Project has a project area of 4208.8 ha including a total disturbance footprint (direct surface impact area) of up to 280.6 ha and an avoidance footprint of at least 3928.2 ha. The project area and disturbance footprint are shown in Attachment 1 - Tarraleah Redevelopment Project Scheme Overview.

An MNES Summary Report is attached to this Referral (Attachment 2 – Tarraleah Redevelopment Project MNES Summary, all pages) and provides further detail of the potential impacts of the proposed Tarraleah Redevelopment Project on Matters of National Environmental Significance (MNES).

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

Yes

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

No

1.2.4 Related referral(s)

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

Hydro Tasmania is assessing the commercial viability of the Tarraleah Redevelopment Project and a Final Investment Decision (FID) is expected around mid-2024. If Hydro Tasmania does not reach a positive FID and the Tarraleah Redevelopment Project does not proceed, ageing assets, including No. 1, Canal must still be replaced to ensure the continued safe and reliable operation of the Tarraleah hydropower scheme. Options to replace and/or refurbish ageing assets have been assessed. The options assessed do not meet the redevelopment objectives as, whilst they mitigate risks associated with ageing assets, they would not allow the scheme to respond well to the predicted operating requirements of a future NEM (see Section 4.3 Impacts and Mitigation: Alternatives for further detail).

Due to the risks associated with the current alignment of No 1. Canal, refurbishment or replacement of the canal in its current location is not considered prudent. Relocating No. 1 Canal from its current alignment also requires that the existing No. 1 Canal intake on Lake King William at Clark Dam is relocated.

Hydro Tasmania have commenced a program of upgrade works that includes the construction of a new intake arrangement on Lake King William to prepare for the replacement of No. 1 Canal. The new intake arrangement is located approximately 800 m to the north of the existing intake at Clark Dam (refer Attachment 3 - Tarraleah Upgrade Works Location). The new intake arrangement consists of a new approach channel in Lake King William, intake structure consisting of gates and associated hydro mechanical and electrical equipment, an approximately 1 km long tunnel adjacent and a tunnel portal.

The new intake arrangement has been designed such that it supports both the proposed Tarraleah Redevelopment Project as well as the possible future replacement of No.1 Canal should the Tarraleah Redevelopment Project not proceed.

While the Tarraleah Redevelopment Project is dependent on the construction of the new intake arrangement, the intake arrangement would also form part of a future No. 1 Canal relocation should the Tarraleah Redevelopment Project not proceed. As such, the intake arrangement is considered a separable parcel of work that is required for either the Tarraleah Redevelopment Project or No. 1 Canal relocation.

In April 2022, the Federal Government announced a funding commitment of up to $65M to progress both the FID for the redevelopment of the Tarraleah Hydropower Scheme and to proceed with upgrade works, including the new intake arrangement.

The potential environmental impacts of the upgrade works, including the new intake arrangement, have been self-assessed and were determined not to have a potentially significant impact on any MNES. In addition, the upgrade works have been assessed under relevant State law, including but not limited to the *Forest Practices Act 1985 (Tas), Environmental Management and Pollution Control Act 1999 (Tas),* and the *Land Use Planning and Approvals Act 1993 (Tas)*.

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

In parallel to referring the Tarraleah Redevelopment Project to the Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) under the *Environment Protection & Biodiversity Conservation Act 1999* (**EPBC Act**) (this document), Hydro Tasmania intends to submit the project to the Tasmanian Environmental Protection Authority (**EPA**) for assessment in accordance with the *Environmental Management and Pollution Control Act 1994 (Tas)* (**EMPC Act**). Should the project be deemed a controlled action under the EPBC Act, Hydro Tasmania will seek to have the project assessed under the bilateral assessment agreement pursuant to Part 5 of the EPBC Act.

The use and development of land in Tasmania is primarily regulated through the *Land Use Planning and Approvals Act 1993 (Tas)* (**LUPA Act**) and given effect through planning schemes administered by Local Government. The Tarraleah Redevelopment Project is located within the Central Highlands Council local government area and therefore subject to the provisions of the *Tasmanian Planning Scheme – Central Highlands*, which took effect on 8 February 2023. A planning permit application for the redevelopment will be made to the Central Highlands Council under the LUPA Act.

Notwithstanding, some aspects of the redevelopment may be exempt from the need for a permit under the LUPA Act. This may include the construction or modification of power distribution or transmission infrastructure under Section 57 of the Tasmanian *Electricity Industry Supply Act 1995 (Tas)*.

Additionally, in accordance with s.60A(2)(a) of the LUPA Act, Hydro Tasmania, as a Water Entity administering a Water District, is not required to hold a planning permit for any activities necessary for the operation, maintenance, repair, minor modification, upgrading or replacement of existing assets owned by Hydro Tasmania, provided the works will not cause an environmental nuisance, material or environmental harm.

The taking and management of water in Tasmania is principally regulated under the *Water Management Act 1999 (Tas)* (**WM Act**). In accordance with Schedule 4 - Savings and transitional provisions of the WM Act, Hydro Tasmania's rights under the previous Act continue, and Hydro Tasmania holds a Special Licence under section 115(2) of the WM Act.

7. Saving for certain rights of Corporation under repealed Act

(1) A right of the Corporation, as in force under the repealed Act immediately before the commencement day, continues in full force and effect, notwithstanding any other provision of this Act, on the same terms and conditions as were applicable at that time.

(2) The Corporation is taken to hold a special licence under section 115(2) with an endorsement that Division 6 of Part 6 applies to the licence, conferring on the Corporation the rights mentioned in subclause (1) with the conditions applicable to those rights under that subclause and also confers such other rights and is subject to such other conditions as the Minister may agree with the Corporation.

The existing Tarraleah Power Scheme is located within the River Derwent hydro-electric district (originally called the River Derwent hydro-electric water district) appointed under statutory rule No. 111 of 1958, and forms part of the rights to take and manage water afforded by the Special Licence.

The surge tower, including the access track from Butlers Gorge Road and pipeline from No. 2 Pond, is located within the Tarraleah Conservation Area and will be subject to assessment and approval by the Tasmanian Parks and Wildlife Service through the Reserve Activity Assessment process under the *National Parks and Reserve Management Act 2002*.

Hydro Tasmania will require approval from the Tasmanian Parliament under the *Hydro-Electric Corporation Act 1995 (Tas)* to construct a major new power facility with a capacity exceeding 40 MW.

The Tarraleah Redevelopment Project may also require additional approval under the following Tasmanian statutes, and will be confirmed during detailed design:

- *Aboriginal Heritage Act 1975 (Tas)*
- *Threatened Species Protection Act 1995 (Tas)*
- *Nature Conservation Act 2020 (Tas)*

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

Given the context of the Project area, that is, predominantly production forestry and hydropower generation, there are very few directly and indirectly impacted landholders and communities in the vicinity of the Project. The key impacts from a community perspective are those related to visual changes in the landscape (during construction and enduring) and traffic and noise impacts during construction. The Tarraleah scheme (and other infrastructure associated with the River Derwent hydro-electric scheme) has been a feature of the local and regional landscape for over 80 years. Regional communities are therefore acclimated to the features of the landscape associated with hydropower generation and transmission.

Given the social and cultural context of the project, consultation and engagement activities have mainly been focussed on the following key stakeholders:

- Aboriginal communities/groups;
- Local government authorities;
- anglers and other recreational user groups;
- the owner of Tarraleah Estate;
- Sustainable Timber Tasmania;
- the Tasmanian Parks and Wildlife Service; and
- the owner of Wayatinah Lakeside Caravan Park.

Community engagement has been in the form of early community information sessions and interest group briefings, social media, local print media, public notices on community notice boards, all complemented by a project webpage (https://connect.hydro.com.au/reimagining-tarraleah). The project webpage includes FAQ's, the ability to ask a question and a 'subscribe' facility to enable interested parties to receive updates, notifications and general information through direct mail-outs. In addition, a specific section on the EPBC referral process is provided on the Project webpage.

The Hydro Tasmania external website (www.hydro.com.au) also provides project information for the Tarraleah redevelopment and a direct link to the engagement site. The website also shares broader information around Battery of the Nation and the changing market.

The Central Highlands Progress Association and Great Lakes Community Centre have been directly engaged and have been active in sharing project information with local shack owners through posters and flyers. Face-to-face briefings with community organisations and 'community drop-in sessions' are planned for February 2023 and April-May 2023, respectively. Early-stage community drop-in sessions and interest group briefings were held previously and more will be held periodically as the Project progresses through to construction.

The angling community has been engaged through briefing sessions with the Anglers Alliance (October 2022) and Trout Guides and Lodges Association of Tasmania (October 2022), as well as regular communications with Inland Fisheries Service and Marine and Safety Tasmania, as key communications channels for recreational users of the lakes and waterways within the Project area.

Central Highlands Council have been closely engaged since the early stages of the Project and ongoing engagement is planned. This has included a briefing in March 2022 and a site tour for Council staff in November 2022. A site tour for Councillors is scheduled for February 2023. Other municipalities (Derwent Valley Council, Brighton Council) have been informed about the project and offered briefings (which have not yet been taken up).

Aboriginal community members have been engaged in several ways. This has included Aboriginal Heritage Officers and community members being involved in the survey, identification and relocation of Aboriginal heritage artefacts from sites directly impacted by (current) scheme upgrade works. Aboriginal consultants are currently involved in the process of architectural design and interpretation of the proposed new Tarraleah Power Station. These and other engagement activities have enabled consultation with community around the broader Redevelopment Project to be undertaken simultaneously. The Tasmanian Aboriginal Heritage Council was briefed in October 2022 and an Aboriginal Liaison officer has recently been engaged by Hydro Tasmania to further develop and implement plans for Aboriginal community engagement and participation.

To date, the Project has been well accepted by community, with most feedback concerning broader issues around other energy projects in Tasmania and power prices for Tasmanians, rather than Project-specific impacts.

A detailed community engagement and communication process is planned from March 2023 to provide opportunities for the community to be informed, provide feedback into social impact assessment studies and participate in the development of social mitigation and benefit sharing measures.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

Personal information may be disclosed to other Australian government agencies, persons or organisations where necessary for the above purposes, provided the disclosure is consistent with relevant laws, in particular the Privacy Act 1988 (Privacy Act). Your personal information will be used and stored in accordance with the Australian Privacy Principles.

See our Privacy Policy to learn more about accessing or correcting personal information or making a complaint. Alternatively, email us at privacy@awe.gov.au.

☑ **Confirm that you have read and understand this Privacy Notice ***

1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	48072377158
Organisation name	Hydro-electric Corporation t/a Entura
Organisation address	GPO Box 355 Hobart Tasmania 7001

Referring party details

Name	David Procter
Job title	Senior Environmental Consultant
Phone	+61 3 6245 4500
Email	david.procter@entura.com.au
Address	4 Elizabeth Street, Hobart TAS 7000, Australia

1.3.2 Identity: Person proposing to take the action

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

No

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

Yes

Person proposing to take the action organisation details

ABN/ACN	48072377158
Organisation name	HYDRO-ELECTRIC CORPORATION
Organisation address	GPO Box 355 Hobart Tasmania 7001

Person proposing to take the action details

Name	Paul Molnar
Job title	Project Director BotN Projects– Hydro Tasmania
Phone	1300 360 441
Email	paul.molnar@hydro.com.au
Address	GPO Box 355 Hobart Tasmania 7001

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

No

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

No

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

As custodians of 60% of Tasmania's freshwater resources and significant hydropower infrastructure, Hydro Tasmania is committed to reducing its environmental and social impacts. Hydro Tasmania has been operating the Tasmanian hydropower system for over 100 years and has a mature environment program and strong scientific understanding of the waterbodies and land that are managed by Hydro Tasmania and their multiple use demands. Hydro Tasmania manages waterbodies that provide essential habitat for various threatened species listed at the Commonwealth and State level and works to minimise its impacts on these threatened species and to effectively manage the environment for future generations.

Environmental protection and management is a core part of Hydro Tasmania's business and Hydro Tasmania employs and works with environmental experts to monitor, manage and research threatened species, environmental flows, fish migration, and the general health of its waterways. Hydro Tasmania's water licence gives stewardship of six Tasmanian water catchments, making Hydro Tasmania the largest freshwater manager in Australia. Hydro Tasmania monitors river and lake levels, water quality, and biological condition to support its sustainable management and to help keep Tasmanians informed.

Hydro Tasmania will undertake the proposed Tarraleah Redevelopment Project in accordance with its Environmental Policy and Sustainability Principles.

Hydro Tasmania has not been and is not currently subject of proceedings under Commonwealth or State law for actions against the protection of environment or the conservation and sustainable use of natural resources.

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

Hydro Tasmania has environmental governance in place that ensures environmental considerations are integrated into decision making at all levels. Hydro Tasmania's Environmental Policy and Sustainability Principles guide catchment management practices so that future generations can enjoy Tasmania's wealth of natural attractions. The Executive General Manager Assets and Infrastructure is responsible for overall management of the Environmental Management System (**EMS**) for the business.

Hydro Tasmania operates under an EMS that is accredited to ISO 14001 which allows management and identification of environmental risk and opportunities while encouraging continual improvement. Hydro Tasmania's EMS includes procedures and programs to ensure compliance with legal and regulatory obligations, for environmental monitoring, and to manage and improve environmental outcomes. This includes defining accountabilities and responsibilities, effectively outlining business and operational risks, developing procedures and protocols to effectively control and manage these risks. In addition, the EMS includes methods to check and review system performance and implementation and ensure a systematic continuous improvement cycle is established and implemented.

Through the Environmental Policy Hydro Tasmania aims to *go beyond compliance and conservation by leading changes in our business and behaviours that will protect and restore the environment.* Our policy seeks to achieve this by:

- **Maintaining a strong system** - we seek opportunities to innovate and be leaders in environmental management through continual improvement of our Environmental Management System to enhance our environmental performance, products, services and activities.
- **Being proactive and accountable** - we proactively review our performance in meeting environmental and social objectives and targets, and openly communicate our progress to stakeholders.
- **Managing risks** - we understand and manage our social and environmental risks with the goal of eliminating or minimising those risks.
- **Empowering people** - we empower our employees, stakeholders and contractors to speak up if something could be improved and support our people to fulfil their environmental responsibilities.
- **Going beyond compliance** - we fulfil our environmental legislative and regulatory obligations and place great value in meeting a range of voluntary environmental and social commitments.
- **Ensuring healthy catchments** - we have a collaborative and holistic approach to how we manage aquatic, land and heritage aspects across our catchments and adapt to the impacts caused by climate change.
- **Avoiding waste** - we prevent pollution and reduce waste by embedding a circular economy, committing to waste reduction targets and introducing sustainable procurement guidelines.
- **Investing sustainably** - we ensure our communities and the environment are considered in our investment and corporate strategies, new projects, procurement and the products and services we offer.

Hydro Tasmania's Sustainability Principles guide how we operate sustainably by:

- **Governance** - we're guided by our ethics and acknowledge failure, welcoming the opportunity to improve.
- **Finance** - our investment decisions deliver long-term benefits for the environment, our communities, customers and owners
- **Communities** - we seek to understand the needs of our local communities, and our actions are for their benefit.
- **Wellbeing** - our employee experience leaves our people feeling safe, connected, empowered and recognised.
- **Environment** - we go beyond compliance and conservation by leading changes in our business and behaviours that will protect and restore the environment.
- **Customers** - we put our customers' needs at the heart of our business, balancing environmental expectations with value for money.
- **Assets** - our whole-of-system, whole-of-life approach lets us manage our assets and resources in a way that enhances our communities.

1.3.3 Identity: Proposed designated proponent

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

No

1.3.3.2 Is Proposed designated proponent an organisation or business? *

Yes

Proposed designated proponent organisation details

ABN/ACN	48072377158

Organisation name	HYDRO-ELECTRIC CORPORATION
Organisation address	GPO Box 355 Hobart Tasmania 7001

Proposed designated proponent details

Name	Donna Brown
Job title	Manager Stakeholder Relations, Environment and Planning – Battery of the Nation
Phone	1300 360 441
Email	donna.brown@hydro.com.au
Address	GPO Box 355 Hobart Tasmania 7001

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

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

ABN/ACN	48072377158
Organisation name	Hydro-electric Corporation t/a Entura
Organisation address	GPO Box 355 Hobart Tasmania 7001
Representative's name	David Procter
Representative's job title	Senior Environmental Consultant
Phone	+61 3 6245 4500
Email	david.procter@entura.com.au
Address	4 Elizabeth Street, Hobart TAS 7000, Australia

Confirmed Person proposing to take the action's identity

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

ABN/ACN	48072377158
Organisation name	HYDRO-ELECTRIC CORPORATION
Organisation address	GPO Box 355 Hobart Tasmania 7001
Representative's name	Paul Molnar
Representative's job title	Project Director BotN Projects– Hydro Tasmania
Phone	1300 360 441
Email	paul.molnar@hydro.com.au

Address	GPO Box 355 Hobart Tasmania 7001

Confirmed Proposed designated proponent's identity

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

ABN/ACN	48072377158
Organisation name	HYDRO-ELECTRIC CORPORATION
Organisation address	GPO Box 355 Hobart Tasmania 7001
Representative's name	Donna Brown
Representative's job title	Manager Stakeholder Relations, Environment and Planning – Battery of the Nation
Phone	1300 360 441
Email	donna.brown@hydro.com.au
Address	GPO Box 355 Hobart Tasmania 7001

1.4 Payment details: Payment exemption and fee waiver

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

No

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

No

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

No

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

No

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

No

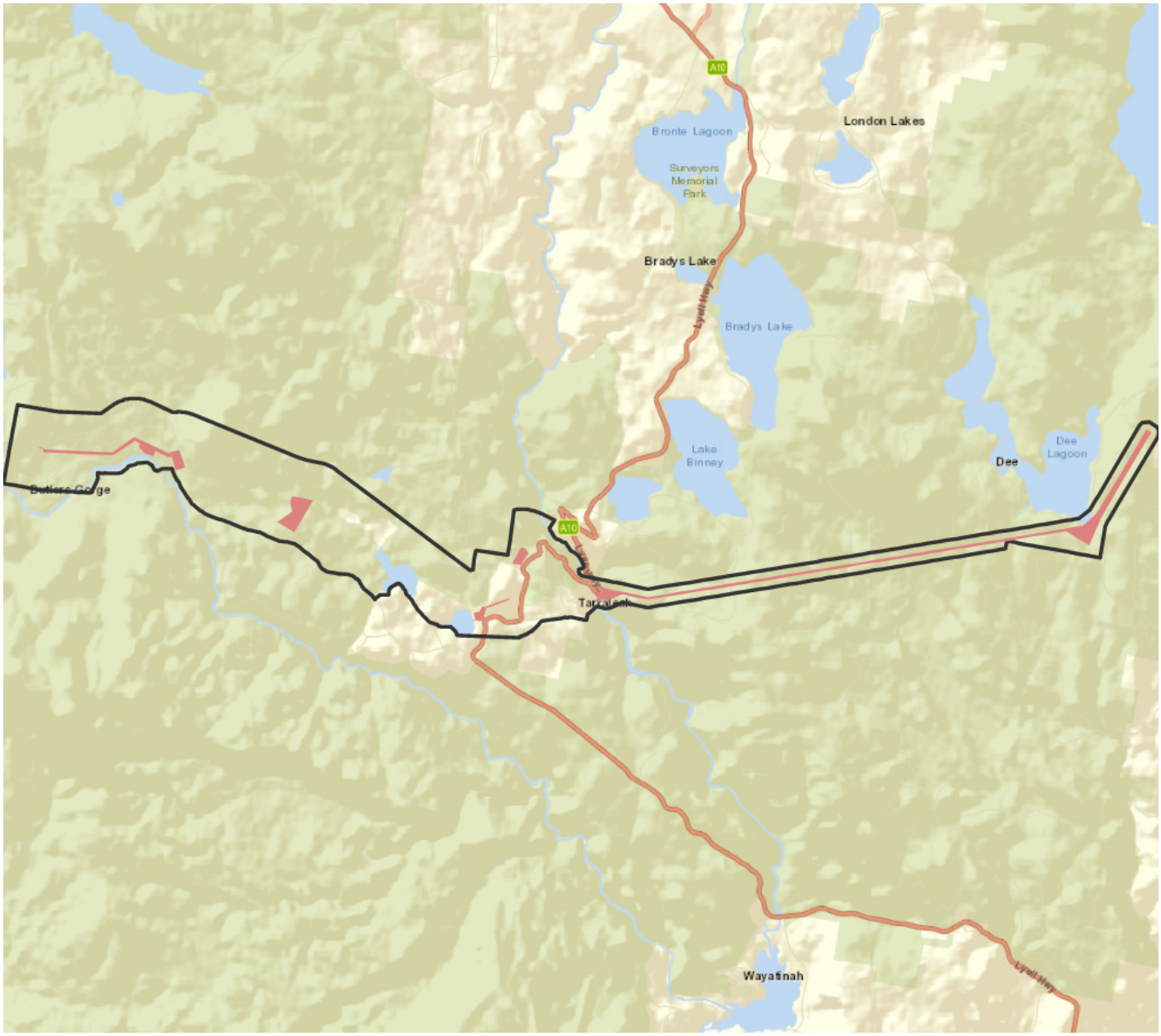
1.4 Payment details: Payment allocation

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

Proposed designated proponent

2. Location

2.1 Project footprint



2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Tarraleah Power Station, Lyell Highway, Tarraleah, Tasmania 7140

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

Tasmania

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

No

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

The project is located on land owned or managed by Hydro Tasmania, land managed by Sustainable Timbers Tasmania (**STT**) and land managed by the Tasmanian Parks and Wildlife Service.

Land managed by STT is classed as Permanent Timber Production Zone Land under the *Forest Management Act 2013 (Tas)*.

3. Existing environment

3.1 Physical description

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

Project area (including the disturbance footprint)

The Project is located in the vicinity of Tarraleah in the Central Highlands of Tasmania and approximately 125 km north-west of Hobart, Tasmania. Access to the Project area is provided by the Lyell Highway and Butlers Gorge Road, an approximately 17 km unsealed road connecting the Lyell Highway to Lake King William and Butlers Gorge Power Station.

The environment of the Project area has been influenced by past disturbance, particularly from hydropower development, timber harvesting and plantation development for production forestry. Hydropower infrastructure including dams, canals, flumes, penstocks and transmission lines are prominent features of the landscape.

Vegetation within the project area is predominately eucalyptus forest. Of 176.8 ha of native vegetation recorded during ecological surveys within the disturbance footprint (i.e. the surface area that will be directly impacted by construction of the Project), 160.6 ha was made up of wet or dry eucalypt forest, of which approximately 90 ha has previously been harvested and is regenerating (Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 3 – Page 19 and Section 5.3 – Page 77).

The Project area supports a range of wet and dry forest habitats which support species that are characteristic of highland forests in Tasmania including several endemic bird and mammal species. Four species of mammal and eight species of birds that are listed under the EPBC Act are likely to occur within the disturbance footprint (Attachment 4 – Tarraleah Redevelopment Project Terrestrial Ecology Baseline – Section 3.4 – Pages 46 to 54). No flora species listed under the EPBC Act are likely to occur within the disturbance footprint (Attachment 4 – Tarraleah Redevelopment Project Terrestrial Ecology Baseline – Section 3.3 - Pages 43 to 42).

Under the *Tasmanian Planning Scheme – Central Highlands*, land within the disturbance footprint is zoned Rural, with the exception of land within the Tarraleah Conservation Area which is zoned Environmental Management and land which contains existing hydro generation assets which is zoned Utilities.

Under the *Forest Management Act 2013 (Tas),* much of the land within the disturbance area is classed as Permanent Timber Production Zone Land. Should the Tarraleah Redevelopment Project proceed, the revocation of the classification of land within the disturbance area as Permanent Timber Production Zone Land would be required.

Associated waterbodies

Associated waterbodies of the Tarraleah Redevelopment Project (River Derwent from Clark Dam to Lake Catagunya, the Nive River from Tarraleah Power Station to Wayatinah Lagoon, Lake King William, Lake Liapootah, Wayatinah Lagoon, Mossy Marsh Pond, No. 1 Pond and No. 2 Pond), are all regulated through Hydro Tasmania's current operation of the Derwent Power Scheme.

The Derwent Catchment covers an area of approximately 8,800 km2 in south-east and central Tasmania. The River Derwent is the second longest river in Tasmania, originating at Lake St Clair and flowing south-east over approximately 187 km to New Norfolk where it enters the Derwent Estuary.

The River Derwent and a number of its main tributaries have been impounded by, or diverted to, 21 storages for the generation of hydro-electricity. The headwaters of the River Derwent begin at Lake St Clair, where the flow is regulated by St Clair Dam after which the river flows south east for 5 km to the hydropower storage of Lake King William, formed by Clark Dam. Water from Lake King William is diverted to the Tarraleah Power Station, where it enters the Nive River upstream of Lake Liapootah. The course of the River Derwent continues downstream of Clark Dam for approximately 31 km south east to Wayatinah Lagoon where the Nive River then joins the River Derwent. Downstream from Wayatinah Lagoon, the river runs southeast for 6 km to Lake Catagunya. Water from Wayatinah Lagoon is diverted through the Wayatinah Power Station into Lake Catagunya.

The Nive River is one of the main tributary rivers of the Derwent catchment and originates from Lake Nive in the Walls of Jerusalem National Park. The unregulated portion of the Nive River flows southeast for approximately 25 km to Pine Tier Lagoon which diverts all water from the Nive River to Bronte Lagoon. Below Pine Tier Lagoon, the regulated channel of the Nive River runs south for approximately 31 km to the hydro storage of Lake Liapootah. The existing Tarraleah Power Station discharges directly into the upstream end of Lake Liapootah. Apart from occasional spill, all water in Lake Liapootah is diverted to Liapootah Power Station. Below Lake Liapootah, the Nive River runs south for another 9 km before flowing into the hydropower storage of Wayatinah Lagoon.

Reaches of the River Derwent associated with the Tarraleah Redevelopment Project (i.e. downstream of Clark Dam to upstream Lake Catagunya) are within a steep narrow valley and there are no wetland or floodplain habitats present. Similarly, the Nive River associated with the Tarraleah Redevelopment Project (Tarraleah Power Station to Wayatinah Lagoon) is within a narrow river valley with no wetland or floodplain habitats connected to the river channel downstream of Lake Liapootah. All the flow present below Clark and Wayatinah dams, apart from occasional dam spill, is derived from tributary inflows. The Counsel River and Beech Creek are the only major tributaries which join the river downstream – approximately 22 km downstream of Clark Dam; above this point, much of the river channel is dry or comprises long sections of pool habitat. Tributary inflows to the 6 km reach of the River Derwent downstream of Wayatinah Lagoon are minor and comprise Robinson Creek, which enters approximately halfway down the 6 km reach, in addition to five small unnamed tributaries. As a result, the channel downstream of Wayatinah Dam has a low baseflow and mostly comprises dry channel or long sections of pool habitat.

The baseline health of ecosystems in the associated waterbodies of the Tarraleah Redevelopment project is generally poor. Aquatic habitats on the River Derwent and Nive River downstream of dams are historically impacted by flow regulation, although the condition of aquatic habitat in the River Derwent improves between the Counsel River and Wayatinah Lagoon. Associated waterbodies of the Tarraleah Redevelopment Project are all regulated through Hydro Tasmania's current operation of the Derwent Power Scheme with Lake King William, Lake Liapootah, Wayatinah Lagoon, Mossy Marsh Pond, No. 1 Pond, and No. 2 Pond, all artificial water bodies. Native fish diversity is poor, primarily as downstream dams impact migration, although macrophyte and invertebrate diversity is reasonable where suitable habitat exists (Attachment 5 – Tarraleah Redevelopment Project Aquatic Ecology Baseline – Section 3 5 - Pages 56 to 59).

The Alpine *Sphagnum* Bogs and Associated Fens ecological community and the riparian flora species *Barbarea australis,* both of which are listed under the EPBC Act, are known to occur in association with associated waterbodies of the Tarraleah Redevelopment Project (Attachment 4 – Tarraleah Redevelopment Project Terrestrial Ecology Baseline – Section 3.1 - Pages 29 and Attachment 5 – Tarraleah Redevelopment Project Aquatic Ecology Baseline – Section 3.1 - Pages 24 to 25).

Lake King William, the River Derwent and storages below and including Lake Catagunya were not assessed as the greatest hydrological changes are in rivers and storages upstream of Lake Catagunya. While the Project will affect water levels in Lake King William, and spills downstream, Lake King William is an artificial waterway with no recorded aquatic or cultural heritage MNES or potential for them to occur. There are no recorded aquatic or cultural heritage MNES in the River Derwent from Lake Catagunya to Meadowbank Lake, and there is no potential for aquatic MNES to occur based on known distributions, the habitat present and the presence of dams blocking fish migration. There are existing operating water level ranges for each lake and these levels will not change as a result of the Project Attachment 5 – Tarraleah Redevelopment Project Aquatic Ecology Baseline – Section 2.2 - Pages 16 to 17).

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

Project area (including disturbance footprint)

Land use in the Project area is dominated by hydroelectric generation and forestry with the existing Tarraleah hydropower scheme located adjacent to the proposed Tarraleah Redevelopment Project.

The proposed Tarraleah Redevelopment Project is predominately located on land managed by Sustainable Timbers Tasmania that is classed as Permanent Timber Production Zone Land (under the *Forest Management Act 2013 (Tas)*) and is actively managed for forestry operations. Forest operations include hardwood plantations dominated by *Eucalyptus delegatensis*, and land that has been clear felled or partially logged and is regenerating.

With the exception of the conversion of land from forestry operations to use for hydroelectric generation, no change in land use is proposed.

In addition to hydroelectric generation and forestry, Tarraleah Estate is located on the hillside above the existing Tarraleah Power Station. Tarraleah Estate was originally constructed in the 1930s to house the workforce required to construct the existing Tarraleah Power Scheme. It has since been repurposed as tourist accommodation and an event venue with a focus on the hydroelectric history of the location.

Tarraleah Estate is currently outside the Project area. However, a range of options for workforce accommodation are currently being considered and this may include consideration of Tarraleah Estate in the future.

Associated waterbodies

In addition to the Tarraleah scheme, other operating hydropower infrastructure, including Tungatinah Power Station, Lake Liapootah and Wayatinah Lagoon, are located in the vicinity of the Project area. Hydropower assets that form Hydro Tasmania's Derwent Power Scheme are also located further downstream on the River Derwent and upstream of Tungatinah Power Station.

Associated waterbodies of the Project are used recreationally, primarily for fishing, including Lake King William, Lake Liapootah, Wayatinah Lagoon, Mossy Marsh Pond, No. 1 Pond, No. 2 Pond, and the River Derwent below Wayatinah Lagoon. By comparison, there is limited access to the River Derwent from Clark Dam to Wayatinah Lagoon, and the Nive River from Lake Liapootah to Wayatinah Lagoon, providing limited opportunities for fishing or walking.

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

Project area (including disturbance footprint)

The Project area is adjacent to the Tasmanian Wilderness World Heritage Area (**TWWHA**). The TWWHA was first inscribed on the World Heritage List in 1982 in recognition of its natural and cultural values and now covers an area of more than 1.5 million hectares in South West Tasmania. The TWWHA is also listed as a National Heritage Place.

Hydro Tasmania currently manages approximately 14,000 ha of land within the TWWHA for hydropower generation. At its closest point at the upstream headrace tunnel portal, the disturbance footprint is approximately 70 m from the TWWHA boundary. The Tarraleah Redevelopment Project will not have any significant direct or indirect impact on the TWWHA.

The disturbance footprint overlaps a section of the Tarraleah Conservation Area (Attachment 1 – Tarraleah Redevelopment Project Scheme Overview). The Tarraleah Conservation Area is an approximately 970 ha reserve established under the *Nature Conservation Act 2002 (Tas)*. The disturbance footprint will have a direct impact on the Tarraleah Conservation Area but it is not expected to be significant and will be fully assessed as part of the State regulatory process.

The Franklin-Gordon Wild Rivers National Park is located to the southwest of the Project area from the southwestern bank of the River Derwent and is encompassed by the TWWHA (Attachment 1 - Tarraleah Redevelopment Project Scheme Overview). The Tarraleah Redevelopment Project disturbance footprint will not have a direct or indirect impact on the Franklin-Gordon Wild Rivers National Park.

There are no other outstanding natural features or important or unique values applicable to the Project area.

Associated waterbodies

Approximately 23 km of the River Derwent downstream of the Clark Dam is within the TWWHA (Attachment 1 – Tarraleah Redevelopment Project Scheme Overview). The Tarraleah Redevelopment Project will not have a significant direct or indirect impact on the World Heritage values of the TWWHA (Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5 5 – Pages 91 to 105).

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

The Tarraleah Redevelopment Project traverses undulating topography but generally falls from Lake King William towards the proposed new power station. The highest point within the project area is 814 m (AHD83) at the termination of the proposed transmission line to the northeast of Dee Lagoon while the lowest is 341 m (AHD83) at the site of the proposed new Tarraleah Power Station.

The proposed redeveloped Tarraleah scheme has a static head of approximately 380 m when Lake King William is at full supply level. Static head is the vertical distance from Lake King William to the power station.

3.2 Flora and fauna

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

Ecological surveys of the disturbance footprint and associated waterbodies were completed between 2018 and 2022. The results of the surveys are described in detail in Attachment 4 – Tarraleah Redevelopment Project Terrestrial Ecology Baseline – Section 3.2 – Pages 32 to 42 and Section 3.4 Pages 43 to 54 and Attachment 5 – Tarraleah Redevelopment Project Aquatic Ecology Baseline – Section 3.1 - Pages 24 to 26 and Sections 3.3 to 3.5 – Pages 41 to 72.

Flora

Surveys recorded 133 flora species of which 117 were native species. Thirteen flora species listed under the Tasmanian *Threatened Species Protection Act 1995 (Tas)* (**TSP Act**) have previously been recorded within 5 km of the disturbance footprint, two of which are also listed under the EPBC Act. A further seven flora species were identified by the EPBC Act Protected Matters Search Tool (**PMST**) as potentially occurring in the disturbance footprint.

Barbarea australis (native wintercress) was recorded from the River Derwent and Nive River during surveys of the waterbodies associated with the Tarraleah Redevelopment Project. *B. australis* is a riparian species that is listed under both the EPBC Act and TSP Act.

The other eight species listed under the EPBC Act are not considered likely to occur in the disturbance footprint or associated waterbodies as they were not recorded during field surveys and are outside their known range and/or no suitable habitat was recorded.

Two flora species listed under the TSP Act were recorded during the field surveys, *Westringia angustifolia* (narrowleaf westringia), from two locations within the transmission line alignment and *Pherosphaera hookeriana* (Mount Mawson pine) associated with the Derwent River downstream of Clark Dam.

Fauna

Surveys recorded three habitat types within the disturbance footprint; dry sclerophyll forest, wet sclerophyll forest and buttongrass moorland. Wet and dry forest provides suitable habitat for the following three species listed under both the TSP Act and EPBC Act;

- Tasmanian devil (*Sarcophilus harrisii*);
- spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*); and
- eastern quoll (*Dasyurus viverrinus*).

Surveys did not record devil or quoll dens, however, there are records of all three species within 5 km of the disturbance footprint and all are considered likely to occur within the disturbance footprint.

The eastern barred bandicoot (*Perameles gunnii*) was identified by the PMST as potentially occurring, however, it is considered unlikely to be present in the disturbance footprint as the closest record is 14 km from the disturbance footprint and there is no suitable habitat in the disturbance footprint.

There are three recorded Tasmanian wedge tailed eagle (*Aquila audax fleayi*) nests within 1 km of the disturbance footprint, all located to the south of the transmission line alignment. The wedge-tailed eagle is listed under the TSP Act and EPBC Act. A further six fauna species listed under the EPBC Act are considered likely to potentially occur in the disturbance footprint due to the presence of suitable foraging and/or breeding habitat, namely:

- satin flycatcher (*Myiagra cyanoleuca*);
- swift parrot (*Lathamus discolor*);
- white-throated needletail (*Hirundapus caudacutus*);
- fork-tailed swift (*Apus pacificus*);
- Latham's snipe (*Gallinago hardwickii*); and
- Tasmanian masked owl (*Tyto novaehollandiae castanops*).

The grey goshawk *(Accipiter novaehollandiae*), listed under the TSP Act, is also considered likely to occur within the disturbance footprint.

Another six species of birds were identified by the PMST as potentially occurring in the disturbance footprint and there are records of an additional species within 5 km of the disturbance footprint but none of these species are considered likely to occur due to the lack of suitable habitat.

No aquatic fauna species listed under either the TSP Act or EPBC Act were recorded during surveys of the associated waterbodies nor are they considered likely to occur.

One species of fish – Clarence galaxias (*Galaxias johnstoni*) – was identified by the PMST as potentially occurring but is considered unlikely to occur as the waterbodies associated with the Tarraleah Redevelopment Project are outside the known range of the Clarence galaxias.

Other aquatic fauna either recorded or considered likely to occur in the waterbodies associated with the Tarraleah Redevelopment Project include the native species freshwater crayfish (*Astacopsis tricornis*), short-finned eel (*Anguilla australis*) rakali (*Hydromys chrysogaster*) and *Ornithorhynchus anatinus* (platypus) and the introduced species brown trout (*Salmo trutta*) and rainbow trout(*Oncorhynchus mykiss*). None of these species are listed under either the TSP Act or EPBC Act.

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

Vegetation surveys of the disturbance footprint and associated waterways were completed between 2018 and 2022. The results of the surveys are described in detail in Attachment 4 - Tarraleah Redevelopment Project Terrestrial Ecology Baseline – Section 3.1 – Pages 12 to 31.

Sixteen Tasmanian Vegetation Map (TASVEG 4) vegetation communities were recorded in the disturbance footprint including twelve native vegetation communities (combined 176.8 ha) and four modified communities (combined 103.8 ha). The native vegetation communities recorded included six eucalypt forest communities, predominately *Eucalyptus delegatensis* and *E. dalrympleana* communities, two buttongrass moorland communities, *Acacia dealbata* and *Leptospermum* forest communities and a small patch of Subalpine *Diplarrena latifolia* rushland. Subalpine *Diplarrena latifolia* rushland is listed under the TSP Act.

The following three ecological communities were identified by the PMST as potentially occurring within 5 km of the disturbance footprint:

- Alpine *Sphagnum* Bogs and Associated Fens;
- Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (*Eucalyptus ovata* / *E. brookeriana*); and
- Tasmanian white gum (*Eucalyptus viminalis*) wet forest.

No *Eucalyptus ovata*, *E. brookeriana* or *E. viminalis* forest communities were recorded during surveys and the disturbance footprint is outside their known range.

Targeted surveys recorded a 3.9-ha patch of the TASVEG vegetation community *Sphagnum* peatland, adjacent to Mossy Marsh Pond, a waterbody associated with the Tarraleah Redevelopment Project. *Sphagnum* peatland is a component of the endangered ecological community Alpine *Sphagnum* Bogs and Associated Fens ecological community listed under the EPBC Act.

Vegetation within the disturbance footprint has been influenced by geology as well as past disturbance. The dominant soils across the Project area are Quaternary aged soils, which can be grouped as follows:

- Alluvial deposits: gravels to boulders;
- Colluvial deposits: rock fragments, boulders and clay;
- Glacial moraine deposits: soil with gravel to boulder rock fragments; and
- Swamp deposits: Poorly drained areas developed on glacial moraine deposits.

Additionally, residual soils of weathered dolerite, basalt and sandstones, siltstones and mudstones occur in places.

3.3 Heritage

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

With the exception of the TWWHA, there are no places listed on the National Heritage List or Commonwealth Heritage List in the disturbance footprint or associated waterways.

The section of River Derwent between Derwent Pumps and Wayatinah Lagoon passes through the TWWHA which is listed under three cultural World Heritage criteria (iii), (iv) and (vi) as per the following Outstanding Universal Value (OUV) statements.

Criterion (iii) Bear a unique or at least exceptional testimony to a civilisation which has disappeared

- The Tasmanian Wilderness bears a unique and exceptional testimony to an ancient, ice age society, represented by Pleistocene archaeological sites that are unique, of great antiquity and exceptional in nature, demonstrating the sequence of human occupation at high southern latitudes during the last ice age.

Criterion (iv) Be an outstanding example of a type of landscape which illustrates a significant stage in human history

- The Tasmanian Wilderness provides outstanding examples of a type of landscape which illustrates a significant stage in human history. The world heritage values include archaeological sites which provide important examples of the hunting and gathering way of life, showing how people practised this way of life over long time periods, during often extreme climatic conditions and in contexts where it came under the impact of irreversible socio-cultural and economic change.

Criterion (vi) Is directly or tangibly associated with events or with ideas or beliefs of outstanding universal significance

The Tasmanian Wilderness is directly associated with events of outstanding universal significance linked to the adaptation and survival of human societies to glacial climatic cycles. The world heritage values include archaeological sites including Pleistocene sites, which demonstrate the adaptation and survival of human societies to glacial climatic cycles and periods of long isolation from other communities (e.g. the human societies in this region were the most southerly known peoples on earth during the last ice age).

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

Aboriginal and Torres Strait Islander heritage is an indelible part of Australian heritage. As well as being historically and archaeologically important, Indigenous heritage is of continuing cultural significance, creating and maintaining continuous links between the people and the land.

Archaeological research carried out since the 1980s, including several large-scale regional studies supplemented by forestry coupe and linear infrastructure surveys, suggest that social and economic life in the highlands was heavily focussed around lakes and the margins of chains of grassy plains that were maintained by cultural burning. Occupation places were clustered rather than dispersed, forming villages of huts that were used and maintained for several seasons before being re-made. Activity areas were connected by managed 'road' corridors for ease of travel, contrasting with the higher mobility occupation and more general movement patterns observed in low-lying and coastal areas. The economy and lifestyle was largely transhumant with clans residing in their homelands during the summer and visiting coastal neighbours during the cooler months, a pattern that appears to have commenced around 3000 years ago when the highlands are thought to have been re-occupied following a long post-glacial hiatus. The archaeological record of this highland way of living comprises substantial artefact scatters around many of the major lakes and marsh/plain edges, with a preference for just inside the forest interfaces which provided the desired degree of shelter, construction resources and strategic amenity. Open sites away from these favoured high-resource zones are small and low density, suggesting rapid movement between targeted activity areas and travel destinations.

Ethnohistorical accounts suggest that the major tributaries of the Derwent, including the Clyde, Ouse, Dee, Kenmore Rivulet etc. that drained the eastern portion of the Central Plateau were favoured routes for clans of the Big River people to move between the Derwent valley and major upland lakes and wetlands (i.e. yingina/Great Lake, Arthurs Lake, Lakes Crescent, Sorell, Echo etc.) rather than the Derwent above the Nive, which was heavily wooded and steep with few resources. This scenario is supported by the archaeological record, which shows a high density of occupation sites around the lakes and along the waterways and ridges of the open valley systems connecting them.

The TWWHA portion of the River Derwent passes through a steep dolerite ravine and does not contain known Pleistocene sites and cultural deposits, rock art or ceremonial sites, or places associated with significant cultural resources including stone and ochre. Predictive criteria based on over 25 years' archaeological study suggests that it is extremely unlikely to contain such sites. The narrowness of the valley and steepness of terrain, which typically ranges between 10-50o, is extremely prejudicial to both the formation and preservation of archaeological sites and is an exclusion factor for surveys under the Forest Practices Code which is endorsed under the *Aboriginal Heritage Act 1975* (Tas).

Consequently, and owing to the hazards associated with surveying in this terrain, negative findings of the desktop assessment and lack of identifiable heritage impacts no ground surveys with Aboriginal Heritage Officers and associated community consultation have been conducted of the River Derwent within the TWWHA. The assessment of potential values and impacts is based on desktop review. Hydro Tasmania provided a briefing to the Aboriginal Heritage Council on Oct 28, 2022 with a project overview and discussion of proposed mitigation measures. An Aboriginal Liaison officer has been engaged to facilitate ongoing engagement.

3.4 Hydrology

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

A hydrological assessment of the associated water bodies has been completed. The baseline flow of each of the river sections are described in detail in Attachment 6 – Tarraleah Redevelopment Project Hydrology Baseline, Impact and Flow Mitigation - Section 3 – Pages 23 to 32**.**

River Derwent between Clark Dam and Wayatinah Lagoon

The River Derwent between Clark Dam and Wayatinah Lagoon is a 31 km reach which has experienced altered flow regimes since 1938 when a portion of the River Derwent flow was diverted to Tarraleah Power Station. The commissioning of additional turbines in 1943 to 1948 lead to additional flow diversions from the River Derwent. The construction of Clark Dam, Butlers Gorge Power Station, the Tarraleah conveyances and Derwent Pumps in 1951 further altered the pattern and volume of flow discharged down the river. The raising of Clark Dam by 6 m in 1961 was the last major construction project affecting the flow regime in the River Derwent between Clark Dam and Wayatinah Lagoon.

Derwent Pumps picks up the inflows of several small tributaries in the first 6 km downstream from Clark Dam and pumps up to 2.8 cumecs into No. 2 Canal. The baseflow in the river is derived from tributary inflows and groundwater. On average, water spills from Derwent Pumps Weir for 38 per cent of the time and thus the channel is often dry immediately downstream of Derwent Pumps Weir, although isolated pools are present. The baseflow from tributary and groundwater inputs gradually increases with distance downstream, however, the river valley is in a steep gorge setting which provides only minor tributary inflows. Thus, the baseflow, median, fresh and high flow regimes are substantially attenuated until the Counsel River joins the River Derwent approximately 22 km downstream from Clark Dam and 16 km downstream from Derwent Pumps Weir. Beech Creek enters 1.8 km further downstream and together, these are the only major tributaries in the entire reach. The inflows from the Counsel River and Beech Creek leads to a more natural flow regime in the lower section of the reach. Flow gauging at the bottom of the reach indicates that peak flow events of approximately 80 cumecs can occur in the absence of any dam spill and hydrological modelling suggests most of these peak events are derived from inflows from the Counsel River and Beech Creek.

Spills from Clark Dam occur sporadically and range from a few cumecs to occasional events > 200 cumecs. Large spills from Clark Dam do not occur every year and gaps of two to three years between events are common in the record. In other years, multiple large spills have occurred. These dam spills represent the largest peak flows recorded in the reach.

Nive River downstream of Tarraleah Power Station to Wayatinah Lagoon

Tarraleah Power Station discharges into the upstream end of Lake Liapootah on the Nive River. Liapootah Dam diverts all water (except spills) from the Nive River to Liapootah Power Station which was commissioned in 1960. There is no baseflow release and tributary inflows are minor as the catchment is steep and narrow. The first few kilometres of this reach appears to be dry or experience subterranean flow, a small baseflow appears from small unnamed tributaries and, presumably, groundwater inflows. Two to 3 km downstream, the baseflow provides a narrow wetted channel a few metres wide within a channel which is approximately 30 to 35 m wide. Liapootah Dam spills for approximately six per cent of the time on an annual basis, mostly over winter and spring with peak flows of 100 to 300 cumecs frequently occurring. Tributary inflows would only provide a minor contribution to peak flows in this reach.

River Derwent downstream of Wayatinah Lagoon

Wayatinah Dam was commissioned in 1957 and diverts all the flow (except spills) of the River Derwent and Nive River to Wayatinah Power Station. On average, Wayatinah Dam spills approximately 16 per cent of the time. Spills can occur in any month but are most common from May to October. There is no baseflow release from the dam and the catchment below the dam is narrow with only a few unnamed tributaries entering the 6 km reach between the dam and Lake Catagunya. Therefore, apart from during spill, the flow regime of this reach comprises a substantially attenuated baseflow, median, fresh and high flow regime.

Hydrogeology of the Project area

The hydrogeology of the Project area reflects the complexity of both the variable topography and geology. Groundwater recharge from rainfall occurs across the whole area with more recharge occurring over areas with higher permeable geology surface expressions, such as basalt or alluvial sands and gravels, however, the bulk of surface or near-surface geology across the project area is fractured and jointed bedrock, namely dolerite, sandstone and basalt. These are the major aquifers in the Project area, with dolerite being the most prevalent, especially at depth. The fractured rock aquifers can be expected generally to have low permeability, however, occasional higher permeability zones occurring along brecciated faults or in isolated fractures that can have wide defect spacings due to local ground stress conditions. Groundwater flow will tend to mimic topography whereby groundwater migrates from elevated areas and catchments towards depressions or river valleys.

In general, therefore, groundwater migration through the interconnected fractured rock aquifer system in the western half of the project area would be expected to be from north-west to south-east towards the River Derwent valley and in the eastern half of the project area from north-west to east, towards the Nive River valley. The depth to the watertable will vary due to the variable topography with greatest depth below elevated prominences and shallow, near-surface watertables towards and below river/creek valleys (providing stream baseflow) or catchment depressions. Fracture-controlled groundwater discharge may occur as springs (permanent or ephemeral) on slopes where there are abrupt changes in elevation especially at the contact surfaces of differing geological units (such as basalt and dolerite). Local perched watertables can also occur in isolated slope-wash (colluvial or talus) deposits. Groundwater quality is generally expected to be good (i.e., low salinity) across the area.

4. Impacts and mitigation

4.1 Impact details

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

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

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

4.1.1 World Heritage

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

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

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

Direct impact	Indirect impact	World heritage
No	Yes	Tasmanian Wilderness

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

Yes

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

The River Derwent is located within the Tasmanian Wilderness World Heritage Area (**TWWHA**) from approximately 6 km below Clark Dam, immediately downstream of the Derwent Pumps Weir, to approximately 2.8 km upstream from where the river enters Wayatinah Lagoon. This approximately 23 km reach of the River Derwent has experienced altered flow regimes since 1938 and commissioning of Tarraleah Power Scheme, which have influenced geomorphic processes as well as the riparian and aquatic ecological values present. A detailed description of the current condition of the River Derwent within the TWWHA is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 4.5.1 – Pages 38 to 51.

The baseflow in the River Derwent within the TWWHA below Clark Dam is derived from tributary inflows and ground water. The Counsel River is the only large tributary inflow and enters River Derwent approximately 9 km upstream of Wayatinah Lagoon (approximately 6 km upstream of the downstream boundary of the TWWHA). Flow events are also provided by spill events over Clark Dam. Large spills from Clark Dam do not occur every year and gaps of two to three years between events are common. Larger spill events are the biggest contribution to peak flows in the entire reach.

Hydrological modelling indicates that the proposed Tarraleah Redevelopment Project would result in further diversion of water from the channel of the River Derwent within the TWWHA by reducing the overall frequency and magnitude of spills. Further reduction in spill has the potential to impact TWWHA values as follows:

- decreasing the mobilisation and redistribution of riverbed and bank sediments which will accelerate encroachment of terrestrial vegetation into the river channel which in turn would reduce the area of mobile river bed and contract the active river channel;
- reducing habitat suitability for instream fauna;
- modifying/inhibiting ecological processes which are driven by the flow regime, including habitat provision and maintenance (disturbance events), nutrient cycling and behavioural cues;
- impact the character of riparian vegetation, through reduction in seed dispersal; seed germination, nutrient cycling, recharge of groundwater, survival of sapling and mature vegetation; and
- reducing the population or fragmenting, isolating or damaging habitat for rare, endemic or unique species including the MNES *Barbarea australis* as well as species listed under the Tasmanian TSP Act or that are endemic to Tasmania.

A detailed description of potential impacts to TWWHA values is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5– Pages 91 to 105.

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

No

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

In accordance with the EPBC Act Matters of National Environmental Significance Significant impact guidelines 1.1 *an action is likely to have a significant impact on a World Heritage property if there is a real chance or possibility that it will cause one or more of the World Heritage values to be lost, degraded, damaged, notably altered, modified, obscured or diminished.* The guidelines also describe values associated with both the natural heritage and cultural heritage aspects of World Heritage properties that facilitate assessment of the significance of an action. The TWWHA has both natural and cultural heritage values.

Hydro Tasmania proposes to mitigate potential impacts to TWWHA values. A detailed description of the proposed mitigation is contained in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5.1.2 - Pages 93 to 94 and Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline and Flow Mitigation Sections 4.1.9 and 4.1.10 – Pages 47 to 50. Mitigation includes both a planned alternating annual high flow release from Clark Dam of 60 cumecs in one year and up to 100 cumecs in the following year as well as three annual low flow releases from 5 to 10 cumecs.

Provided below is a summary of the detailed assessment of the proposed Action against the World Heritage Properties criteria found in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5.1.3 – Pages 94 to 105. Only those criteria where there is a potential unmitigated impact as a result of the Tarraleah Redevelopment Project are discussed, along with proposed mitigation.

Natural heritage values - Values associated with geology or landscape

Modify, alter or inhibit landscape processes, for example, by accelerating or increasing susceptibility to erosion, or stabilising mobile landforms, such as sand dunes, in a National Heritage place

Hydraulic modelling indicates that a reduction in larger spills from Clark Dam would decrease the mobilisation and redistribution of riverbed and riverbank sediments in the TWWHA. This may result in further stabilisation of the river bed which remains mobile during current high flow events. Acceleration of encroachment by terrestrial vegetation would also reduce the mobility of the river channel and alter its current form. Existing encroachment by terrestrial vegetation has reduced the active area of the channel by decreasing the area of substrate which can be mobilised during high flow events. Both reduced mobilisation of sediments and further encroachment by terrestrial vegetation would impact habitat suitability for the MNES *B. australis*.

The proposed high flow releases will ensure at least one high flow event (≥ 60 cumecs) occurs each year. Under the current spill regime, events of ≥ 60 cumecs do not occur each year. The proposed mitigation will keep the mobile areas of substrate active and prevent further encroachment of terrestrial vegetation.

The Tarraleah Redevelopment Project will not significantly impact natural heritage values of the TWWHA associated with geology or landscape as it will not significantly modify, alter or inhibit landscape processes.

Divert, impound or channelise a river, wetland or other water body in a National Heritage place

A reduction in spill from Clark Dam and Derwent Pumps Weir would further divert water from the River Derwent within the TWWHA whose flows have been altered since 1938.

The proposed annual high flow and low flow releases will ensure at least one high flow event (≥ 60 cumecs) occurs each year in addition to at least three smaller fresh flow releases (5 to 10 cumecs). The current spill regime is unpredictable with gaps of one to two years between large spills common. Introduction of annual high flow together with low flow fresh events is considered to be a benefit to downstream habitats and species.

The Tarraleah Redevelopment Project will not significantly impact natural heritage values of the TWWHA associated with geology or landscape as it will not significantly divert, impound or channelise a river, wetland or other water body.

Natural heritage values - Biological and ecological values

Reduce the diversity or modify the composition of plant and animal species in National Heritage place

A reduction in spill from Clark Dam and Derwent Pumps Weir has the potential to reduce the diversity or modify the composition of species occurring in the TWWHA including populations of macroinvertebrates, platypus, crayfish *Astacopsis tricornis*, native fish and riparian plant species, by reducing the habitats suitability through habitat damage/fragmentation, increased algae/biofilms and reduced temporary inundated habitats, water quality, nutrient cycling and flow-induce life history cues.

A reduction in spills may also impact the character of riparian vegetation through reduction in seed dispersal, seed germination, nutrient cycling, recharge of groundwater, and survival of sapling and mature vegetation.

The proposal to provide at least one annual high flow event, in addition to at least three smaller low flow freshes, will ensure higher flow events occur more frequently than currently occur, where gaps of one to two years between large spills are common. Provision of more frequent higher flow events is considered likely to support ecological process within the channel and maintain the diversity and composition of plant and animal species in the TWWHA.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by reducing the diversity or modifying the composition of plant and animal species.

Fragment, isolate or substantially damage habitat important for the conservation of biological diversity in a National Heritage place.

A reduction in spill from Clark Dam and Derwent Pumps Weir may fragment, isolate or damage habitat for species occurring in the River Derwent within the TWWHA by:

- Reducing habitat connectivity
- Reducing temporary inundated habitats
- Reducing water quality, particularly in pools where stagnant water may experience high temperatures and low dissolved oxygen during extended dry periods
- Increasing accumulation of algae and biofilms in the channel which can smother instream benthic surfaces
- Reducing nutrient cycling between riparian, exposed bank and instream habitats from less frequent high flow events, affecting aquatic food webs.

The proposed annual high flow release, in addition to up to three smaller low flow freshes, will ensure high flow events occur more frequently than current. Provision of more frequent high flow events together with lower freshes is considered likely to maintain or improve aquatic and riparian habitats.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by fragmenting, isolating or substantially damaging habitat important for the conservation of biological diversity.

Cause a long-term reduction in rare, endemic or unique plant or animal populations or species in a National Heritage place.

Rare, endemic or unique species that are likely to occur in the TWWHA and that may be impacted by a reduction in spill from Clark Dam and Derwent Pumps Weir include:

- *Barbarea australis* (native wintercress) which is listed under the EPBC Act and Tasmanian TSP Act
- Endemic native Tasmanian crayfish *Astacopsis tricornisI* and *Pherosphaera hookeriana* (mount mawson pine) listed under the TSP Act
- Platypus (*Ornithorhynchus anatinus*) classified as a special value in Tasmania as a phylogenetically distinct fauna species.

As outlined above, a reduction in spill from Clark Dam and Derwent Pumps Weir has the potential to reduce habitat suitability for species, including rare, endemic or unique species. The proposed annual high flow release, in addition to up to three smaller low flow freshes flow, are likely to maintain habitat suitability and hence populations of rare, endemic and unique species in the River Derwent within the TWWHA.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by causing a long-term reduction in rare, endemic or unique plant or animal populations or species.

Fragment, isolate or substantially damage habitat for rare, endemic or unique animal populations or species in a National Heritage place.

Rare, endemic or unique animal populations or species that are likely to occur in the TWWHA and that may be impacted by a reduction in spill from Clark Dam and Derwent Pumps Weir include the endemic crayfish, Platypus, *Pherosphaera hookeriana*, and *Barbarea australis*.

As outlined above, a reduction in spill from Clark Dam and Derwent Pumps Weir has the potential to fragment, isolate or substantially damage habitat suitability for species, including rare, endemic or unique species. The proposed annual high flow release, in addition to up to three smaller low flow freshes, are likely to maintain habitat for endemic and unique species in the River Derwent within the TWWHA.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by fragmenting, isolating or substantially damaging habitat for rare, endemic or unique animal populations or species.

With mitigation, the Tarraleah Redevelopment Project is not likely to have a significant impact on natural or cultural heritage values of the TWWHA.

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

No

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

The flow regime in the reach of the River Derwent within the TWWHA has been altered since the 1930s when the construction of the Tarraleah hydropower scheme commenced, which has impacted the habitat and ecological values present. Hydrological modelling indicates that the flow regime in the River Derwent within the TWWHA will be further altered by the proposed Tarraleah Redevelopment Project, through a reduction in spill from Clark Dam and Derwent Pumps Weir. While the modelled predicted change in flow regime has the potential to indirectly impact TWWHA values, these impacts can be mitigated.

Mitigation is targeted at maintaining the existing natural heritage values of the TWWHA. The provision of a planned annual high flow spill event, plus up to three smaller fresh events, will:

- maintain geomorphic processes e.g. mobilisation and redistribution of riverbank and riverbed sediments and reduced encroachment by terrestrial vegetation;
- maintain riparian species/vegetation and habitats e.g. by preventing the encroachment of terrestrial vegetation and maintaining seed dispersal, germination;
- maintain water quality and nutrient cycling and reduce algal and biofilm accumulation;
- prevent instream habitat fragmentation; and
- provide high flow behavioural, migration and reproductive cues for macroinvertebrates and fish.

There are no potential direct impacts to the TWWHA from the proposed Tarraleah Redevelopment Project.

Given the above, it is considered unlikely that, with Hydro Tasmania's proposed mitigation, the change in flow regime resulting from the proposed Tarraleah Redevelopment Project would result in a significant impact to the TWWHA.

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

The proposed measure to mitigate the impact of a reduced spill/high flow regime is to have planned spill events of sufficient magnitude and frequency to maintain processes, habitat and species values in the TWWHA. The proposed mitigation measures are one annual high flow release and three annual lower fresh releases

High flow releases

To compensate for the modelled reduction in overall spill frequency and the reduction in the spills which currently exceed 100 cumecs, the proposed high flow release will be an alternating annual release of 60 cumecs in one year and up to 100 cumecs in the following year. Each release will be ramped up over one day, held at the maximum release for one day and ramped down over another day. The high flow releases would occur outside the main growth and flowering period (November to April) for *B. australis.* Where possible, releases will be timed to coincide with naturally high flows in the downstream environment with the aim that the peak of the actual event will be higher than the provided spill release. If high flow events of these sizes occur naturally then no environmental releases will be provided (i.e. environmental releases are unnecessary in such circumstances).

Compared to the current/historic spill regime, the proposed mitigation will increase the frequency that events of this magnitude pass Derwent Pumps and would ensure at least one event ≥ 60 cumecs occurs each year. The current spill regime often results in multiple years between high flow events. High flow events provide a beneficial impact by providing episodic disturbance for habitat maintenance, behavioural cues and increased nutrient cycling. The hydraulic model indicates that events of 60 cumecs will mobilise up to small cobbles to the channel margin through the majority of 25 km reach downstream of Derwent Pumps Weir.

Lower flow releases (freshes)

It is proposed to provide 24-hour duration environmental releases that range from 5 to 10 cumecs once at the end of summer, once in the first month of winter, and once in December each year. As for the high flow releases, no low flow releases would be required if similar events occur naturally in the previous two months. Provision of smaller freshes will assist in flushing algae and biofilms from instream habitats; provide high flow cues for instream species; increase nutrient exchange between the banks and low flow channel; and recharge water supply to banks and riparian zone.

The proposed high and low releases are likely to benefit instream and riparian values by providing more frequent high flow events that will support ecological process and maintain or improve aquatic and riparian habitats for natural values associated with the TWWHA. If monitoring indicates a decline in natural heritage values within the TWWHA as a result of the proposed action, then the releases will be reviewed and adaptively managed. A detailed description of proposed mitigation is contained in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5.1.2 - Pages 93 to 94 and Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline and Flow Mitigation Sections 4.1.9 and 4.1.10 – Pages 47 to 50.

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

No offsets are proposed, as the action is unlikely to have a significant impact on the TWWHA.

4.1.2 National Heritage

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

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

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

Direct impact	Indirect impact	National heritage
No	Yes	Tasmanian Wilderness

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

Yes

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

The River Derwent is located within the Tasmanian Wilderness World Heritage Area (**TWWHA**) from approximately 6 km below Clark Dam, immediately downstream the Derwent Pumps Weir, to approximately 2.8 km upstream from where the river enters Wayatinah Lagoon. The TWWHA is also a National Heritage Place. This approximately 23 km reach of the River Derwent has experienced altered flow regimes since 1938 and commissioning of the Tarraleah hydropower scheme, which have influenced geomorphic processes as well as the riparian and aquatic ecological values present. A detailed description of the current condition of the River Derwent within the TWWHA is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 4.5.1 – Pages 38 to 51.

The baseflow in the River Derwent within the TWWHA below Clark Dam is derived from tributary inflows and ground water. The Counsel River is the only large tributary inflow and enters River Derwent approximately 9 km upstream of Wayatinah Lagoon (approximately 6 km upstream of the downstream boundary of the TWWHA). Flow events are also provided by spill events over Clark Dam. Large spills from Clark Dam do not occur every year and gaps of two to three years between events are common. Larger spill events are the biggest contribution to peak flows in the entire reach.

Hydrological modelling indicates that the proposed Tarraleah Redevelopment Project would result in further diversion of water from the channel of the River Derwent within the TWWHA by reducing the overall frequency and magnitude of spills. Further reduction in spill has the potential to impact TWWHA values as follows:

- decreasing the mobilisation and redistribution of riverbed and bank sediments which will accelerate encroachment of terrestrial vegetation into the river channel which in turn would reduce the area of mobile river bed and contract the active river channel;
- reducing habitat suitability for instream fauna;
- modifying/inhibiting ecological processes which are driven by the flow regime, including habitat provision and maintenance (disturbance events), nutrient cycling and behavioural cues;
- impact the character of riparian vegetation, through reduction in seed dispersal; seed germination, nutrient cycling, recharge of groundwater, survival of sapling and mature vegetation; and
- reducing the population or fragmenting, isolating or damaging habitat for rare, endemic or unique species including the MNES *Barbarea australis* as well as species listed under the Tasmanian TSP Act or that are endemic to Tasmania.

A detailed description of potential impacts to TWWHA values is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5 – Pages 91 to 105

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

No

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

In accordance with the EPBC Act Matters of National Environmental Significance Significant impact guidelines 1.1 *an action is likely to have a significant impact on a National Heritage place if there is a real chance or possibility that it will cause one or more of the National Heritage values will be lost, degraded, damaged, notably altered, modified, obscured or diminished*. The guidelines also describe values associated with both the natural heritage and cultural heritage aspects of National Heritage places that facilitate assessment of the significance of an action. The TWWHA has both natural and cultural heritage values.

Hydro Tasmania proposes to mitigate potential impacts to TWWHA values. A detailed description of the proposed mitigation is contained in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5.1.2 - Pages 93 to 94 and Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline and Flow Mitigation Sections 4.1.9 and 4.1.10 – Pages 47 to 50. Mitigation includes both a planned alternating annual high flow release from Clark Dam of 60 cumecs in one year and up to 100 cumecs in the following year as well as three annual low flow releases from 5 to 10 cumecs.

Provided below is a summary of the detailed assessment of the proposed Action against the National Heritage Place criteria found in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5.1.3 – Pages 94 to 105. Only those criteria where there is a potential unmitigated impact as a result of the Tarraleah Redevelopment Project are discussed, along with proposed mitigation.

Natural heritage values - Values associated with geology or landscape

Modify, alter or inhibit landscape processes, for example, by accelerating or increasing susceptibility to erosion, or stabilising mobile landforms, such as sand dunes, in a National Heritage place

Hydraulic modelling indicates that a reduction in larger spills from Clark Dam would decrease the mobilisation and redistribution of riverbed and riverbank sediments in the TWWHA. This may result in further stabilisation of the river bed which remains mobile during current high flow events. Acceleration of encroachment by terrestrial vegetation would also reduce the mobility of the river channel and alter its current form. Existing encroachment by terrestrial vegetation has reduced the active area of the channel by decreasing the area of substrate which can be mobilised during high flow events. Both, reduce mobilisation of sediments and further encroachment by terrestrial vegetation, could impact habitat suitability for the MNES *B. australis*.

The proposed planned high flow releases will ensure at least one high flow event (≥ 60 cumecs) occurs each year. Under the current spill regime, events of ≥ 60 cumecs do not occur each year. The proposed mitigation will keep the mobile areas of substrate active and prevent further encroachment of terrestrial vegetation.

The Tarraleah Redevelopment Project will not significantly impact natural heritage values of the TWWHA associated with geology or landscape as it will not significantly modify, alter or inhibit landscape processes.

Divert, impound or channelise a river, wetland or other water body in a National Heritage place

A reduction in spill from Clark Dam and Derwent Pumps Weir would further divert water from the River Derwent within the TWWHA whose flows have been altered since 1938.

The proposed planned annual high flow and low flow releases will ensure at least one high flow event (≥ 60 cumecs) occurs each year in addition up to three smaller fresh flow releases(5 to 10 cumecs). The current spill regime is unpredictable with gaps of one to two years between large spills common. Introduction of annual high flow together with low flow fresh events is considered to be benefit to downstream habitats and species.

The Tarraleah Redevelopment Project will not significantly impact natural heritage values of the TWWHA associated with geology or landscape as it will not significantly divert, impound or channelise a river, wetland or other water body.

Natural heritage values - Biological and ecological values

Modify or inhibit ecological processes in a National Heritage place

A reduction in spill from Clark Dam and Derwent Pumps Weir may modify/inhibit the ecological process which are driven by the current flow regime, including habitat provision and maintenance (disturbance events), nutrient cycling and behavioural cues.

The proposed annual high flow releases, in addition up to three smaller fresh flow releases, will ensure high flow events occur more frequently; currently, gaps of one to two years between large spills are common. Provision of more frequent high flow events is considered likely to support ecological process within the channel.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by modifying or inhibiting ecological processes.

Reduce the diversity or modify the composition of plant and animal species in National Heritage place

A reduction in spill from Clark Dam and Derwent Pumps Weir has the potential to reduce the diversity or modify the composition of species occurring in the TWWHA including populations of macroinvertebrates, platypus, crayfish *Astacopsis tricornis*, native fish and riparian plant species, by reducing the habitats suitability through habitat damage/fragmentation increased algae/biofilms and reduced temporary inundated habitats, water quality, nutrient cycling and flow-induce life history cues.

The proposed annual high flow release, in addition to up to three smaller low flow freshes, will ensure higher flow events occur more frequently than currently occur, where gaps of one to two years between large spills are common. Provision of more frequent higher flow events is considered likely to support ecological process within the channel and maintain the diversity and composition of plant and animal species in the TWWHA.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by reducing the diversity or modifying the composition of plant and animal species.

Fragment, isolate or substantially damage habitat important for the conservation of biological diversity in a National Heritage place.

A reduction in spill from Clark Dam and Derwent Pumps Weir may fragment, isolate or damage habitat for species occurring in the River Derwent within the TWWHA by:

- Reducing habitat connectivity
- reducing temporary inundated habitats
- Reducing water quality, particularly in pools where stagnant water may experience high temperatures and low dissolved oxygen during extended dry periods
- Increasing accumulation of algae and biofilms in the channel which can smother instream benthic surfaces
- Reducing nutrient cycling between riparian, exposed bank and instream habitats from less frequent high flow events, affecting aquatic food webs

The proposed annual high flow release, in addition to up to three smaller low flow freshes, will ensure high flow events occur more frequently than current. Provision of more frequent high flow events together with lower freshes is considered likely to maintain or improve aquatic and riparian habitats.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by fragmenting, isolating or substantially damaging habitat important for the conservation of biological diversity.

Cause a long-term reduction in rare, endemic or unique plant or animal populations or species in a National Heritage place.

Rare, endemic or unique species that are likely to occur in the TWWHA and that may be impacted by a reduction in spill from Clark Dam and Derwent Pumps Weir include:

- *Barbarea australis* (native wintercress) which is listed under the EPBC Act and Tasmanian TSP Act,
- endemic native Tasmanian crayfish *Astacopsis tricornisI* and *Pherosphaera hookeriana* (Mount Mawson pine) listed under the TSP Act
- platypus (*Ornithorhynchus anatinus*) classified as a special value in Tasmania as a phylogenetically distinct fauna species.

As outlined above, a reduction in spill from Clark Dam and Derwent Pumps Weir has the potential to reduce habitat suitability for species, including rare, endemic or unique species. The proposed annual high flow release, in addition to up to three smaller low flow freshes flow, are likely to maintain habitat suitability and hence populations of rare, endemic and unique species in the River Derwent within the TWWHA.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by causing a long-term reduction in rare, endemic or unique plant or animal populations or species.

Fragment, isolate or substantially damage habitat for rare, endemic or unique animal populations or species in a National Heritage place.

Rare, endemic or unique animal populations or species that are likely to occur in the TWWHA and that may be impacted by a reduction in spill from Clark Dam and Derwent Pumps Weir include the endemic crayfish, Platypus, *Pherosphaera hookeriana*, and *Barbarea australis*.

As outlined above, a reduction in spill from Clark Dam and Derwent Pumps Weir has the potential to fragment, isolate or substantially damage habitat suitability for species, including rare, endemic or unique species. The proposed annual high flow release, in addition to up to three smaller low flow freshes, are likely to maintain habitat for endemic and unique species in the River Derwent within the TWWHA.

The Tarraleah Redevelopment Project will not significantly impact biological or ecological values of the TWWHA by fragmenting, isolating or substantially damaging habitat for rare, endemic or unique animal populations or species.

With mitigation the Tarraleah Redevelopment Project is not likely to have a significant impact on natural or cultural heritage values of the TWWHA.

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

No

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

The flow regime in the reach of the River Derwent within the TWWHA has been altered since the 1930s when the construction of the Tarraleah hydropower scheme commenced, which has impacted the habitat and ecological values present. Hydrological modelling indicates that the flow regime in the River Derwent within the TWWHA will be further altered by the proposed Tarraleah Redevelopment Project, through a reduction in spill from Clark Dam and Derwent Pumps Weir. While the modelled predicted change in flow regime has the potential to indirectly impact TWWHA values, these impacts can be mitigated.

Mitigation is targeted at maintaining the existing natural heritage values of the TWWHA. The provision of a planned annual high flow spill event, plus up to three smaller fresh events, will:

- maintain geomorphic processes e.g. mobilisation and redistribution of riverbank and riverbed sediments and reduced encroachment by terrestrial vegetation;
- maintain riparian species/vegetation and habitats e.g. by preventing the encroachment of terrestrial vegetation and maintaining seed dispersal, germination;
- maintain water quality and nutrient cycling and reduce algal and biofilm accumulation;
- prevent instream habitat fragmentation; and
- provide high flow behavioural, migration and reproductive cues for macroinvertebrates and fish.

There are no potential direct impacts to the TWWHA from the proposed Tarraleah Redevelopment Project.

Given the above it is considered unlikely that, with Hydro Tasmania's proposed mitigation, the change in flow regime resulting from the proposed Tarraleah Redevelopment Project would result in a significant impact to the TWWHA.

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

The proposed measure to mitigate the impact of a reduced spill/high flow regime is to have planned spill events of sufficient magnitude and frequency to maintain processes, habitat and species values in the TWWHA. The proposed mitigation measures are one annual high flow release and three annual lower fresh releases

High flow releases

To compensate for the modelled reduction in overall spill frequency and the reduction in the spills which currently exceed 100 cumecs, the proposed high flow release will be an alternating annual release of 60 cumecs in one year and up to 100 cumecs in the following year. Each release will be ramped up over one day, held at the maximum release for one day and ramped down over another day. Where possible, releases will be timed to coincide with naturally high flows in the downstream environment with the aim that the peak of the actual event will be higher than the provided spill release. If high flow events of these sizes occur naturally then no environmental releases will be provided (i.e. environmental releases are unnecessary in such circumstances).

Compared to the current/historic spill regime, the proposed mitigation will increase the frequency that events of this magnitude pass Derwent Pumps and would ensure at least one event ≥ 60 cumecs occurs each year. The current spill regime often results in multiple years between high flow events. High flow events provide a beneficial impact by providing episodic disturbance for habitat maintenance,

behavioural cues and increased nutrient cycling. The hydraulic model indicates that events of 60 cumecs will mobilise up to small cobbles to the channel margin through the majority of 25 km reach downstream Derwent Pumps Weir.

Lower flow releases (freshes)

It is proposed to provide 24-hour duration environmental releases that range from 5 to 10 cumecs once at the end of summer, once in the first month of winter, and once in December each year. As for the high flow releases, no low flow releases would be required if similar events occur naturally. Provision of smaller freshes will assist in flushing algae and biofilms from instream habitats; provide high flow cues for instream species; increase nutrient exchange between the banks and low flow channel; and recharge water supply to banks and riparian zone.

The proposed high and low releases are likely to benefit instream and riparian values by providing more frequent high flow events that will support ecological process and maintain or improve aquatic and riparian habitats for natural values associated with the TWWHA. If monitoring indicates a decline in natural heritage values within the TWWHA as a result of the proposed action, then the releases will be reviewed and adaptively managed. A detailed description of proposed mitigation is contained in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.5.1.2 - Pages 93 to 94 and Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline and Flow Mitigation Sections 4.1.9 and 4.1.10 – Pages 47 to 50.

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

No offsets are proposed, as the action is unlikely to have a significant impact on the TWWHA.

4.1.3 Ramsar Wetland

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

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

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

—

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

No

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

The closest Ramsar Wetland, being the Interlaken Ramsar Site, is located more than 50 km to the east in the upper Clyde Catchment. The River Clyde flows into the Derwent catchment at Lake Meadowbank. Thus the Interlaken Ramsar Site will not be impacted by the Tarraleah Redevelopment Project and the proposed action is unlikely to directly or indirectly cause a significant impact to a Ramsar Wetland.

4.1.4 Threatened Species and Ecological Communities

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

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

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

Threatened species

Direct impact	Indirect impact	Species
No	No	Acacia axillaris
Yes	Yes	Aquila audax fleayi
No	Yes	Barbarea australis
No	No	Calidris ferruginea
No	No	Ceyx azureus diemenensis
No	No	Colobanthus curtisiae
Yes	Yes	Dasyurus maculatus maculatus (Tasmanian population)
Yes	Yes	Dasyurus viverrinus
No	No	Eucalyptus gunnii subsp. divaricata
No	No	Galaxias johnstoni
No	No	Glycine latrobeana
No	No	Hirundapus caudacutus
No	No	Lathamus discolor
No	No	Leucochrysum albicans subsp. tricolor
No	No	Litoria raniformis
No	No	Numenius madagascariensis
No	No	Oreixenica ptunarra
No	No	Perameles gunnii gunnii
No	No	Pseudocephalozia paludicola
No	No	Pterodroma leucoptera leucoptera
No	No	Pterostylis pratensis
Yes	Yes	Sarcophilus harrisii
Yes	No	Tyto novaehollandiae castanops (Tasmanian population)
No	No	Xerochrysum palustre

Ecological communities

Direct impact	Indirect impact	Ecological community
No	Yes	Alpine Sphagnum Bogs and Associated Fens
No	No	Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (Eucalyptus ovata / E. brookeriana)

Direct impact	Indirect impact	Ecological community
No	No	Tasmanian white gum (Eucalyptus viminalis) wet forest

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

Yes

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

Alpine *Sphagnum* Bogs and Associated Fens

A 3.9-ha patch of the TASVEG vegetation community *Sphagnum* peatland occurs on the western bank of the unconfined channel which conveys water from the No. 2 Canal to Mossy Marsh Pond. *Sphagnum* peatland is one of the components of the EPBC Act listed Alpine *Sphagnum* Bogs and Associated Fens threatened ecological community.

In the central highlands of Tasmania, *Sphagnum* peatland typically occurs in consistently wet areas in river valleys, adjacent to lakes and streams or areas where drainage is impeded. A hydrogeological assessment found that the patch of *Sphagnum* peatland between No 2 Canal and Mossy Marsh Pond is bedded on saturated marsh deposits and that the water content of the bedding material is sustained in full or part by groundwater.

A peak of up to 12.7 cumecs (median 9 cumecs) of water is currently released from No. 2 Canal where it is dispersed across multiple channels upstream and adjacent to the patch of *Sphagnum* peatland. The proposed Tarraleah Redevelopment Project will decommission No. 2 Canal between the current outlet at Clark Dam and the inlet from Derwent pumps. No. 2 Canal will continue to deliver water into Mossy Marsh Pond from operation of Derwent Pumps (up to 2.8 cumecs) and through the existing diversion of minor creeks which supply the conveyance. However, the peak discharge from No. 2 Canal will be reduced to approximately 4.5 cumecs (median 1 cumec).

The correlation between groundwater in the vicinity of the *Sphagnum* peatland and discharge of water from No. 2 Canal is the subject of an ongoing hydrogeological investigation. However, if a correlation is established, the partial decommissioning of No. 2 Canal as part of the Tarraleah Redevelopment Project may result in the reduction in size or loss of the patch of *Sphagnum* peatland.

A detailed description of potential indirect impacts to Alpine *Sphagnum* Bogs and Associate Fens ecological community is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.1.1 – Pages 63 to 66.

***Barbarea australis* (native wintercress)**

Surveys recorded *Barbarea australis* (native wintercress) in the Nive River downstream of Lake Liapootah and the River Derwent downstream of Wayatinah Lagoon. There are also two records of *B. australis* in the River Derwent between Clark Dam and Wayatinah Lagoon (both within 1 km of Wayatinah Lagoon), however, both observations are more than 20 years old. Despite extensive targeted surveys in 2019, 2021 and 2022, *B. australis* was not recorded in the River Derwent between Clark Dam and Wayatinah Lagoon, although suitable habitat was recorded in reaches downstream of Derwent Pumps.

B. australis is an annual or short-lived perennial that is an opportunistic riparian coloniser, relying on disturbance, particularly flow disturbance, to turn over bank sediments and create suitable ground for its establishment. The operation of the existing Tarraleah scheme has reduced the frequency and magnitude of peak and flood flows, which has limited the creation and maintenance of suitable *B. australis* habitat in the River Derwent downstream of Clark Dam and Wayatinah Lagoon. Also, the entrapment of sediment behind the dam walls has resulted in sediment starvation and bed armouring in these reaches which further reduces the areas of habitat suitable for *B. australis.* Despite flow regulation, there are abundant areas of mobile river bed for *B. australis* to colonise in the Nive River downstream of Liapootah Lagoon. Larger spill events over Clark Dam, Wayatinah Dam and Liapootah Dam are likely to be a key process that maintains remaining suitable habitat for *B. australis* in these reaches of river.

Hydrological modelling was undertaken to estimate dam spill to the River Derwent below Clark Dam and below Wayatinah Dam as well as to the Nive River below Liapootah Dam (Attachment 6 – Tarraleah Redevelopment Project Hydrology Baseline – Section 4 – Pages 33 to 58 and Attachment 7 - Tarraleah Redevelopment Modelling for Environmental Assessment – Section 4 Pages 12 to 18). Modelling compared a Tarraleah Redevelopment Project scenario with a 'business as usual' scenario both operating in a future National Electricity Market and included predicted climate change impacts on inflow patterns. Hydraulic modelling was also undertaken to relate event size with mobilisation of the instream substrate, which was then used to estimate flow requirements for creation/maintenance of *B. australis* habitat.

The results of the modelling indicate the proposed Tarraleah Redevelopment Project would:

- reduce spill events in the River Derwent downstream of Clark Dam which may impact the creation and maintenance of habitat suitable for *B. australis;*
- reduce the frequency and magnitude of spill events in the River Derwent below Wayatinah Lagoon which may impact *B. australis* by reducing habitat availability and seed transportation; and
- change the pattern of spill events in the Nive River below Liapootah Dam with no impact to *B. australis* or its habitat.

A detailed description of potential indirect impacts *B. australis* is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.2.1 – Pages 66 to 76.

Tasmanian devil (*Sarcophilus harrisii*)

There are 29 records of the Tasmanian devil within 5 km of the disturbance footprint, and scats recorded during the field surveys confirmed that wet and dry forest within the disturbance footprint provide suitable habitat. No dens were recorded, although potential denning habitat was recorded. The clearance of devil habitat has potential to directly and indirectly impact breeding by destroying existing and potential den sites and by noise and vibration disturbance to breeding in maternal dens. Due to the scavenging behaviour of devils, an increase in traffic on Butlers Gorge Road and the Lyell Highway during construction of the project also has potential to directly impact devils through increase in roadkill events.

A detailed description of potential impacts to the Tasmanian devil is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.1 – Pages 77 to 82.

Spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*)

There are seven records of *s*potted-tailed quoll within 5 km of the disturbance footprint, although five of these are historic. Surveys confirmed the presence of suitable foraging and denning habitat in forests within the disturbance footprint. The clearance of *s*potted-tailed quoll habitat has potential to directly and indirectly impact breeding by destroying existing and potential den sites and by noise and vibration disturbance to breeding in maternal dens.

A detailed description of potential impacts to *D. maculatus* is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.1 – Pages 77 to 82.

Eastern quoll (*Dasyurus viverrinus*)

There are 17 records of eastern quoll within 5km of the disturbance footprint and surveys identified suitable foraging and denning habitat in dry forest within the project footprint. The clearance of eastern quoll habitat has potential to directly and indirectly impact breeding by destroying existing and potential den sites and by noise and vibration disturbance to breeding in maternal dens. Due to the scavenging behaviour of eastern quoll, an increase in traffic on Butlers Gorge Road and the Lyell Highway during construction of the project also has potential to directly impact eastern quoll through increase in roadkill events.

A detailed description of potential impacts to the eastern quoll is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.1 – Pages 77 to 82.

***Aquila audax fleayi* (Wedge-tailed eagle)**

There are two recorded wedge-tailed eagle nests within 1 km of the disturbance footprint, both associated with the proposed transmission line alignment. There is limited suitable nesting habitat within 1 km of the disturbance footprint. Wedge-tailed eagles are sensitive to disturbance during the breeding season and disturbance may result in nest desertion at any stage during the breeding season. There is the potential for construction activities associated with the transmission line upgrade (e.g. vegetation clearance) to indirectly affect breeding by wedge-tailed eagles. Wedge-tailed eagles are also susceptible to electrocution and collision with powerlines, and there is potential for the new proposed new 220 kV transmission line to increase the direct impact risk of electrocution and collision events.

A detailed description of potential impacts to the wedge-tailed eagle is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.3 – Pages 83 to 86.

***Tyto novaehollandiae castanops* (masked owl)**

There are no records of masked owl nests within 5 km of the disturbance footprint, however, surveys identified potentially suitable nesting habitat in forests within the disturbance footprint. The clearing of *Eucalyptus delegatensis* dry forest, *Eucalyptus dalrympleana–Eucalyptus pauciflora* forest and woodland and *Eucalyptus delegatensis* forest with broad-leaf shrubs with large old trees within the disturbance footprint may directly impact the masked owl by reducing nesting habitat.

A detailed description of potential imp impacts to the masked owl is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.6 – Pages 88 to 90.

Other species

The Eastern Barred Bandicoot (*Perameles gunnii*), Swift Parrot (*Lathamus discolor*) and white throated needletail (*Hirundapus caudacutus*), while likely to occur in the Project area, are not likely to be directly or indirectly impacted by the Tarraleah Redevelopment Project (Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Sections 5.3.2, 5.3.4.3 and 5.3.5.1 – Pages 82 to 88).

Other MNES are considered unlikely to occur (Attachment 4 – Tarraleah Redevelopment Project Terrestrial Ecology Baseline – Section 3 – Pages 12 to 54).

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

Yes

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

Alpine *Sphagnum* Bogs and Associated Fens

By reducing discharge from No. 2 Canal, potentially lowering groundwater levels in the vicinity of the patch of *Sphagnum* peatland, the proposed Tarraleah Redevelopment Project may impact the Alpine *Sphagnum* Bogs and Associated Fens ecological community by:

- reducing the extent of the ecological community either by the reduction in size or complete loss of the recorded patch of *Sphagnum* peatland;
- adversely affecting the consistently wet habitat necessary for the survival of the patch of *Sphagnum* peatland;
- modifying the abiotic factors (groundwater) necessary for the survival of the patch of *Sphagnum* peatland;
- substantially changing the species composition of the patch of *Sphagnum* peatland; and
- interfering with the recovery of the community by reducing the extent of or destroying an existing patch of good quality *Sphagnum* peatland.

In accordance with the EPBC Act Matters of National Environmental Significance Significant impact guidelines 1.1 an action which has *a real chance or possibility that it will* result in the potential impacts listed above is likely to have a significant impact on an endangered ecological community.

A detailed assessment of the potential impacts to and mitigation for Alpine *Sphagnum* Bogs and Associated Fens against the Matters of National Environmental Significance Significant impact guidelines 1.1 is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.1.1.3 – Pages 64 to 65

For potential impacts to other listed threatened species that were not considered to be significant, refer to the following:

- *Barbarea australis* (native wintercress) – Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.2.1.3 – Pages 72 to 75
- Tasmanian devil (*Sarcophilus harrisii*) – Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.1.3 – Pages 79 to 82
- spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*) – Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.1.3 – Page 82
- eastern quoll (*Dasyurus viverrinus*) – Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.1.3 – Pages 79 to 82
- wedge-tailed eagle (*Aquila audax fleayi*) – Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.3.3 – Pages 84 to 85
- masked owl (*Tyto novaehollandiae castanops*) – Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.3.6.3 – Pages 89 to 90.

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

Yes

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

The EPBC Act Public Portal Glossary defines a controlled action as *an action that is likely to have a significant impact on a Part 3 protected matter*. Part 3, Division 1, Subdivision C of the EPBC Act includes listed threatened species and communities as a protected matter. In accordance with s 68(4) of the EPBC Act, the relevant controlling provision is believed to be s 18 of that Act, specifically, with respect to threatened ecological community (s 18(5)).

As described above, the Tarraleah Redevelopment Project is likely to have a significant impact on the listed ecological community Alpine *Sphagnum* Bogs and Associated Fens; it is therefore considered to be a controlled action.

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

A monitoring program has commenced, including drone surveying and the installation of piezometers, to track the extent and condition of the *Sphagnum* peatland community and to monitor changes in groundwater. The results of the monitoring program will be used to assist in determining whether there is a correlation in discharge from No. 2 Canal and groundwater levels in the vicinity of the patch of *Sphagnum* peatland. If a correlation is established, monitoring is proposed to be continued through construction and initial operation of the proposed Tarraleah Redevelopment Project to determine the extent of impact (if any) to the patch of *Sphagnum* peatland.

The options to avoid or mitigate any impacts on the Alpine *Sphagnum* Bogs and Associated Fens ecological community as a result of decommissioning of the No. 2 Canal are limited. Initial investigations have not identified any viable engineered solutions that would maintain a comparable discharge from No. 2 Canal or that would artificially maintain the water level.

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

Hydro Tasmania will seek to offset any impacts to the Alpine *Sphagnum* Bogs and Associated Fens ecological community by establishing an offset in the form of securing and protecting an area of *Sphagnum* peatland greater in area than the 3.9 ha patch at Mossy Marsh Pond. Potentially suitable offsets of sufficient size have been identified, and initial discussions with landowners have commenced. The proposed offset program will be developed to be consistent with the Commonwealth EPBC Act *Environmental Offsets Policy* (2012) and the associated *Offsets Assessment Guide* (2012).

4.1.5 Migratory Species

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

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

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

Direct impact	Indirect impact	Species
No	No	Actitis hypoleucos
No	No	Apus pacificus
No	No	Calidris acuminata
No	No	Calidris ferruginea
No	No	Calidris melanotos
Yes	No	Gallinago hardwickii
No	No	Hirundapus caudacutus
Yes	No	Myiagra cyanoleuca
No	No	Numenius madagascariensis

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

Yes

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

***Gallinago hardwickii* (Latham's snipe)**

Gallinago hardwickii (Latham's snipe) is a regular summer visitor to Tasmania, arriving in August and departing March. There is one record in the vicinity of the disturbance footprint from near a wetland at Tarraleah Estate, and there is also potentially 10.1 ha of suitable habitat within the disturbance footprint in the form of buttongrass and sedge communities. The clearance of vegetation has a potentially indirect impact on *G. hardwickii*.

***Myiagra cyanoleuca* (Satin flycatcher)**

Myiagra cyanoleuca (Satin flycatcher) is a summer breeding migrant to Tasmania where its preferred habitat is wet and damp tall eucalypt forests. The *M. cyanoleuca* was recorded in surveys in *Eucalyptus delegatensis* wet forest including *Eucalyptus delegatensis* forest over broad-leaf shrubs and *Eucalyptus delegatensis* forest over rainforest. Approximately 85 ha of suitable wet eucalypt forest habitat was recorded within the disturbance footprint. The clearance of up to 85 ha of habitat has a potential indirect impact on *M. cyanoleuca*.

Other species

The fork-tailed swift (*Apus pacificus*) is rare summer visitor occurring from January to April and like the white-throated needletail, it is almost exclusively aerial when it is in Tasmania. Given that the species is not dependent on terrestrial habitats, it is unlikely that the removal of native vegetation will result in an impact to the fork-tailed swift.

A detailed description of potential impacts to migratory species is provided in Attachment 2 – Tarraleah Redevelopment Project MNES Summary – Section 5.4.1 – Page 91 and Attachment 4 – Tarraleah Redevelopment Project Terrestrial Ecology Baseline – Section 3 – Pages 12 to 54.

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

No

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

***Gallinago hardwickii* (Latham's snipe)**

G. hardwickii is widespread on the Central Plateau of Tasmania where it occurs in a range of habitats including tussock grasslands with rushes, reeds and sedges, alpine heathlands, tea-tree scrub, button-grass plains and alpine herbfields. Thus, the clearance of a relatively small area of potentially suitable habitat is unlikely to result in a significant impact on *G. hardwickii*.

***Myiagra cyanoleuca* (Satin flycatcher)**

Vegetation clearance for the project has the potential to impact up to 85 ha of habitat suitable for *M. cyanoleuca*. However, the loss of 85 ha of habitat is below the 1% or 4,400 ha threshold for significant impact as well as the 0.1% or 440 ha threshold for targeted surveys for *M. cyanoleuca* as defined in the Referral guideline for 14 birds listed as migratory species under the EPBC Act. Therefore, the Tarraleah Redevelopment Project is unlikely to have a significant impact on for *M. cyanoleuca*.

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

No

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

As described above, while the Tarraleah Redevelopment Project disturbance footprint contains suitable areas of habitat for both *G. hardwickii* and *M. cyanoleuca*, the loss of habitat is unlikely to result in a significant impact on either species.

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

No avoidance or mitigation measures are proposed as the action is unlikely to have a significant impact on any migratory species.

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

No offsets are proposed, as the action is unlikely to have a significant impact on any migratory species.

4.1.6 Nuclear

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

No

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

The proposed action is not a nuclear action.

4.1.7 Commonwealth Marine Area

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

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

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

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

No

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

There are no Commonwealth Marine Areas within, adjacent to or nearby the Tarraleah Redevelopment Project area. The proposed action is unlikely to directly or indirectly cause a significant impact to Commonwealth Marine Areas.

4.1.8 Great Barrier Reef

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

No

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

The Great Barrier Reef is not within, adjacent to or nearby the Tarraleah Redevelopment Project area. The proposed action is unlikely to directly or indirectly cause a significant impact to the Great Barrier Reef.

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

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

No

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

The proposed action is not a large coal mining or coal seam gas action.

4.1.10 Commonwealth Land

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

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

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

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

No

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

There is no Commonwealth land within, adjacent to or nearby the Tarraleah Redevelopment Project area. The proposed action is unlikely to directly or indirectly cause a significant impact to Commonwealth Land.

4.1.11 Commonwealth Heritage Places Overseas

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

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

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

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

No

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

There are no Commonwealth heritage places overseas within, adjacent to or nearby the Tarraleah Redevelopment Project area. The proposed action is unlikely to directly or indirectly cause a significant impact to any Commonwealth heritage places overseas.

4.1.12 Commonwealth or Commonwealth Agency

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

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

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

- Threatened Species and Ecological Communities (S18)

Conclusion on the likelihood of unlikely significant impacts

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

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

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

No

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

The Tarraleah Redevelopment objectives are to:

- transition the existing Tarraleah and Derwent scheme from baseload to flexible generation, increasing efficiency and capacity in order to suit a future electricity market that has substantially higher proportion of variable renewable energy generation;
- design for inter- and intra-season generation flexibility, capable of turning off for several days to weeks without spill, while running at full output during extended periods of high demand; and
- address the risks associated with aging and end of life assets – in particular the No. 1 conveyance, the hillside penstocks and the generating units in the existing power station.

The following sections outline how the proposed action meets these redevelopment objectives and that following extensive options assessments and development process there were no alternatives that met the objectives. In addition, a ‘do nothing’ strategy, by which the condition of the scheme would be allowed to deteriorate to the point that it would no longer be operational is not considered a prudent position.

Scheme capacity

Lake King William is a substantial storage and its upstream catchment has a yield of close to 30m3/s. The proposed action considers a conveyance capacity of approximately 60m3/s, which provides ability for the scheme to operate at 50% utilisation factor on an annual basis. This allows the scheme to flexibly dispatch power over both short (hours) and medium to long (days-weeks) term timeframes, thus ensuring it can effectively dispatch energy into an electricity market with high penetration levels of variable renewable energy sources. Alternative flow rates are not considered as:

- a lower discharge capacity does not allow for this flexible generation profile; and
- a higher discharge capacity exceeds the downstream capacity of Liapootah Power Station and results in reduced generation output due to spill.

The pre-feasibility study (2017), feasibility study (2018-2020) and project development (2021-2022) has assessed scheme flow rates from 40m3/s (existing scheme flow rate) through to 80m3/s. These assessments have concluded that that a flow rate of approximately 60m3/s is the best configuration that meets the redevelopment objectives.

Conveyance arrangement

A direct or pressurised conveyance system from Lake King William to the Nive River allows the maximum available head difference to be utilised for energy generation while replacing the end-of-life conveyance assets. Alternative design arrangements, which utilise open flow water ways such as canals to transfer the water from Lake King William to a headpond above the power station resulting in 15-20% less energy output for the same water flows, and additional infrastructure, such as large storage ponds which provide significantly less flexibility, fell short of the objectives to provide inter-seasonal flexibility.

The pre-feasibility study (2017) assessed multiple alternative conveyance configurations and undertook a detailed analysis of the following three broad options:

1. a new long pressure tunnel / pipe conveyance from Lake King William to a new power station on the Nive River close to the existing Tarraleah Power Station;
2. the construction of a new No. 3 Conveyance from Lake King William to Mossy Marsh Pond to bypass the existing canal system, raising No. 2 Pond to increase its storage capacity and a new pressurised tunnel from No. 2 Pond to a new power station on the Nive River close to the existing Tarraleah Power Station; and
3. refurbishment of existing assets while maintaining the scheme in its current configuration.

These options were further developed and analysed during the Feasibility Study (2018-2020) and Design development (2021-2022). Assessments conclude that Option 1 is the only redevelopment option meeting all the Project objectives.

Power Station arrangement

A new power station is required to house the larger and more efficient hydro-electric generating units required due to the increased flow and head provided by the redevelopment conveyance arrangement. Several locations and arrangement(s) of the power station were assessed during the Feasibility Study (2018-2020) and Development phase (2021-2022). These assessments showed that the proposed location, adjacent to the existing Tarraleah Power Station, best meets the following Project objectives:

- located on west bank of Nive River and eliminates requirements for both penstock and access bridges across the Nive Rive;
- maximise head available and therefore scheme output; and
- existing terrace provides space for construction and implementation of permanent and temporary flood proofing and limits the extent of in river works.

If Hydro Tasmania does not reach a positive FID to proceed with Redevelopment, the alternative investment decision would be a refurbishment option that involves the replacement or refurbishment of the end-of-life generating assets. A refurbishment option does not meet the redevelopment objectives as it would not allow the scheme to respond well to the predicted operating requirements of a future energy market.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

#1.	Attachment 1 - Tarraleah Redevelopment Project Scheme Overview	Document	Schematic overview map of the Tarraleah Redevelo…

1.2.5 Information about the staged development

#1.	Attachment 3 - Tarraleah Upgrade Works Location	Document	Overview map showing the location of Tarraleah up…

1.2.7 Public consultation regarding the project area

#1.	Hydro Tasmania	Link (Webpage)	https://www.hydro.com.au
#2.	Hydro Tasmania - Reimagining Tarraleah	Link (Webpage)	https://connect.hydro.com.au/reimagining-tar…

1.3.2.17 (Person proposing to take the action) Proposer's history of responsible environmental management

#1.	Hydro Tasmania - Environmental Policy	Link (Webpage)	https://www.hydro.com.au/docs/default-sourc…

#2.	Hydro Tasmania - Sustainability Principles	Link (Webpage)	https://www.hydro.com.au/docs/default-sourc…

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

#1.	Hydro Tasmania - Environmental Policy	Link (Webpage)	https://www.hydro.com.au/docs/default-sourc...
#2.	Hydro Tasmania - Sustainability Principles	Link (Webpage)	https://www.hydro.com.au/docs/default-sourc...

3.1.1 Current condition of the project area's environment

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…
#2.	Attachment 4 - Tarraleah Redevelopment Project Terrestrial Ecology Baseline	Document	Terrestrial Ecology Report
#3.	Attachment 5 - Tarraleah Redevelopment Project Aquatic Ecology Baseline	Document	Aquatic Ecology Report

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

#1.	Attachment 1 - Tarraleah Redevelopment Project Scheme Overview	Document	Schematic overview map of the Tarraleah Redevelo…
#2.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…

3.2.1 Flora and fauna within the affected area

#1.	Attachment 4 - Tarraleah Redevelopment Project Terrestrial Ecology Baseline	Document	Terrestrial Ecology Report
#2.	Attachment 5 - Tarraleah Redevelopment Project Aquatic Ecology Baseline	Document	Aquatic Ecology Report

3.2.2 Vegetation within the project area

#1.	Attachment 4 - Tarraleah Redevelopment Project Terrestrial Ecology Baseline	Document	Terrestrial Ecology Report

3.4.1 Hydrology characteristics that apply to the project area

#1.	Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline, Impact and Flow Mitigation	Document	Hydrology and flow mitigation report

4.1.1.2 (World Heritage) Why your action has a direct and/or indirect impact on the identified protected matters

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…

4.1.1.6 (World Heritage) Why you do not consider the direct and/or indirect impact to be a Significant Impact

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…
#2.	Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline, Impact and Flow Mitigation	Document	Hydrology and flow mitigation report

4.1.1.10 (World Heritage) Avoidance or mitigation measures proposed for this action

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…
#2.	Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline, Impact and Flow Mitigation	Document	Hydrology and flow mitigation report

4.1.2.2 (National Heritage) Why your action has a direct and/or indirect impact on the identified protected matters

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…

4.1.2.6 (National Heritage) Why you do not consider the direct and/or indirect impact to be a Significant Impact

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…
#2.	Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline, Impact and Flow Mitigation	Document	Hydrology and flow mitigation report

4.1.2.10 (National Heritage) Avoidance or mitigation measures proposed for this action

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…
#2.	Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline, Impact and Flow Mitigation	Document	Hydrology and flow mitigation report

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

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…
#2.	Attachment 4 - Tarraleah Redevelopment Project Terrestrial Ecology Baseline	Document	Terrestrial Ecology Report
#3.	Attachment 6 - Tarraleah Redevelopment Project Hydrology Baseline, Impact and Flow Mitigation	Document	Hydrology and flow mitigation report
#4.	Attachment 7 - Tarraleah Redevelopment Modelling for Environmental Assessment	Document	Plexos Hydro modelling report

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

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…

4.1.4.8 (Threatened Species and Ecological Communities) Why you think your proposed action is a controlled action

#1.	EPBC Act Public Portal - Glossary	Link (Webpage)	https://epbcpublicportal.awe.gov.au/guides-r…

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

#1.	Attachment 2 - Tarraleah Redevelopment Project MNES Summary	Document	Summary of potential impacts to MNES for the Tarr…
#2.	Attachment 4 - Tarraleah Redevelopment Project Terrestrial Ecology Baseline	Document	Terrestrial Ecology Report

4.1.5.6 (Migratory Species) Why you do not consider the direct and/or indirect impact to be a Significant Impact

#1.	Referral guideline for 14 birds listed as migratory species under the EPBC Act.	Link (Journal article)	https://www.dcceew.gov.au/sites/default/files/…

5.2 Declarations

Completed Referring party's declaration

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

ABN/ACN	48072377158
Organisation name	Hydro-electric Corporation t/a Entura
Organisation address	GPO Box 355 Hobart Tasmania 7001
Representative's name	David Procter
Representative's job title	Senior Environmental Consultant
Phone	+61 3 6245 4500
Email	david.procter@entura.com.au
Address	4 Elizabeth Street, Hobart TAS 7000, Australia

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

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

☑ By checking this box, I, **David Procter of Hydro-electric Corporation t/a Entura**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

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

Completed Person proposing to take the action's declaration

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

ABN/ACN	48072377158
Organisation name	HYDRO-ELECTRIC CORPORATION
Organisation address	GPO Box 355 Hobart Tasmania 7001
Representative's name	Paul Molnar
Representative's job title	Project Director BotN Projects– Hydro Tasmania
Phone	1300 360 441
Email	paul.molnar@hydro.com.au
Address	GPO Box 355 Hobart Tasmania 7001

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

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

I, **Paul Molnar of HYDRO-ELECTRIC CORPORATION**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

I, **Paul Molnar of HYDRO-ELECTRIC CORPORATION**, the Person proposing the action, consent to the designation of **Donna Brown of HYDRO-ELECTRIC CORPORATION** as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

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

Completed Proposed designated proponent's declaration

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

ABN/ACN	48072377158
Organisation name	HYDRO-ELECTRIC CORPORATION
Organisation address	GPO Box 355 Hobart Tasmania 7001
Representative's name	Donna Brown
Representative's job title	Manager Stakeholder Relations, Environment and Planning – Battery of the Nation
Phone	1300 360 441
Email	donna.brown@hydro.com.au
Address	GPO Box 355 Hobart Tasmania 7001

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

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

I, **Donna Brown of HYDRO-ELECTRIC CORPORATION**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

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