

# Northern Midlands Irrigation Scheme

Application Number: **01297**Commencement Date: **27/06/2022**Status: **Locked**

## 1. About the project

### 1.1 Project details

#### 1.1.1 Project title \*

Northern Midlands Irrigation Scheme

#### 1.1.2 Project industry type \*

Water Management and Use

#### 1.1.3 Project industry sub-type

Irrigation

#### 1.1.4 Estimated start date \*

1/09/2022

#### 1.1.4 Estimated end date \*

1/09/2024

## 1.2 Proposed Action details

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

Northern Midlands Irrigation Scheme (NMIS) is part of the Pipeline to Prosperity (Tranche 3) suite of schemes proposed by Tasmanian Irrigation Pty Ltd (TI). The scheme covers the regions of Cressy, Powranna, Barton, Conara, Epping Forest, the Lower Macquarie and Isis Rivers, Campbell Town, and Ross.

The NMIS is proposed to be gravity fed from the Poatina Tailrace, with an offtake channel to a small buffer dam adjacent to the tailrace. Water will be pumped from here to a balance tank (BT) located at a localised high point (Poatina BT). The balance tank then gravity feeds the ring main distribution network. Two additional pump stations (Valleyfield and Epping Forest) and several branch lines will further disperse water through the region. An additional balance tank will be constructed near Kirklands (Valleyfield BT). The pipeline network consists of approximately 157.2km of large diameter (predominantly 1000mm) high-density polyethylene pipeline, with a design peak flow of 170ML/day (see Pages 1-2 of Attachment 1). The pipeline alignment broadly follows the Macquarie River, with the main lines following Valleyfield and Macquarie Roads, with several additional branches distributing water along Barton Road, Mount Joy Road, Mona Vale Road, and the Isis River (see Figure 1, Page 2 of Attachment 2). The proposed construction corridor consists of 24.67ha of native vegetation, and 412.57ha of modified land. The construction corridor has been narrowed in places to avoid conservation significant values. The corridor is typically 30m wide, with a 17km section between Poatina and Quarry Rd at 40m wide to accommodate dual pipelines.

The NMIS is proposed to distribute 25,500ML of water annually to 40 landholders in the NMIS project area. The infrastructure has a design lifespan of 100 years.

The proposed scheme will enable TI to service the majority of properties that submitted an EOI. The scheme will allow for irrigation water to be provided to an estimated area of 128,400ha.

The works proposed will require excavation along the route, as well as several aquatic crossing points, some of which . The work will occur largely through private land. Excavation in the form of trenching will occur only within the proposed construction corridor. Trenching width varies depending on the diameter of pipe required, ranging from 1m to 5m depending on whether it is a single trench or dual trench. The

depth of the trench varies in depth, ranging from 1m to 3.5m, with an average depth of 1.5m. Figure 5 of Attachment 25 shows an indicative works area.

Where conditions permit, pipe crossings of permanent water courses will be installed using trenchless processes. This will be determined by the pipe size, type and size of rock present if any, shape and length of the crossing and other geotechnical considerations. Transient water course crossings will be conducted using a combination of trenched and trenchless processes to be selected by the construction contractor based on the time of year, presence of water, size of pipe and geotechnical considerations.

A dam is proposed at the northern end of the project area, adjacent to the Hydro Tasmania tail race, north of Poatina Road. This dam is situated within existing agricultural land. The design and footprint for the dam is yet to be determined.

The proposed pump stations vary in size and output, ranging from ~400m<sup>2</sup> to ~1000m<sup>2</sup>. In total, the pump stations will have an impact footprint of approximately 2100m<sup>2</sup> across three sites (see Section 7 and Appendix 5 of Attachment 1). All three sites are located within modified land.

The Poatina BT (see Section 8.2 of Attachment 1; Figure 3 and 4 of Attachment 25) will have an impact footprint (including overflow pond) of ~2500m<sup>2</sup> (27m in diameter) and will hold 3.45ML of water. This site is located within modified land. The Valleyfield BT (see Section 8.5 of Attachment 1) is smaller, with an impact footprint of ~2000m<sup>2</sup> (20.7m in diameter) and will hold 1.35ML of water. This is situated on the margins of a patch of eucalypt forest, however impact to native vegetation is minimal. Access roads (See Figures 2 and 4 of Attachment 25) to each balance tank are proposed to be 4m wide on average, with a passing bay at Valleyfield adding an additional 3m. Road shoulders are on average 0.5m. Impact due to roads are estimated to be ~2200m<sup>2</sup> at Poatina, and 3500m<sup>2</sup> at Valleyfield.

Prior to water distribution, individual irrigators must meet with TI staff to confirm a Farm Water Access Plan (Farm WAP) area (see Attachment 3), to collect data such as water licences and NVA records, and any existing farm plans. Further to this, the Farm WAP process is completed by having prequalified consultants conducting soil and biodiversity assessments. The consultants then provide TI with the completed Farm WAP for quality assurance processes and is then verified by the irrigator.

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

No

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

The legislative and planning framework that governs the protection and management of Tasmania's environment and heritage has been considered in the planning and design of the NMIS. The relevant instruments and their relationship to the protection of matters listed on the EPBC Act are discussed below. The EPBC Act assessment is the only Commonwealth approval that is required for the project.

The project will not require assessment as a project of State significance or via the major projects planning pathway. However, the project will need to meet the requirements of various State Acts, including the *Tasmanian Water Management Act 1999*, *Threatened Species Protection Act 1995* and the *Nature Conservation Act 2002*. The purpose of the latter two acts is to provide for the protection and management of threatened native flora and fauna and to enable and promote the conservation of native flora and fauna. Under these acts, the crown can issue a 'permit to take' a threatened species or the product of a threatened species (e.g. a possible burrow) for the planned activity, with mitigation and offset requirements determined by the nature of the proposed impact.

Further details regarding relevance to the proposed action is in Attachment 4.

\*Protocols have been developed to comply with potential permit conditions under these Acts (See Attachment 21, Attachment 22, Attachment 23, and Attachment 24)

#### **Tasmanian Water Management Act 1999**

[Water Licence \(Part 6, Section 54\)](#)

[Dam Permit \(Part 8, Section 146\)](#)

[Water Entity Status \(Part 9, Section 166\)](#)

[Irrigation District \(Part 9, Section 176\)](#)

#### **Tasmanian Irrigation Clauses Act 1973**

[Power to Grant Irrigation Rights \(Section 23\)](#)

#### **Tasmanian Land Use and Planning Approvals Act 1993 (LUPA)**

[Development Application](#)

#### **Tasmanian Threatened Species Protection Act 1995 (TSPA)\***

[Permit to Take \(Flora and Fauna\)](#)

#### **Tasmanian Nature Conservation Act 2002 (NCA)\***

[Permit to Take \(Products of Wildlife\)](#)

**Tasmanian Forest Practices Act 1985\***

[Application for Certification of Forest Practices Plan \(Part 3, Section 18\)](#)

**Tasmanian Aboriginal Lands Act 1995**

[Land Vested in Council \(Part 3, Section 27\), Local Management of Certain Areas \(Part 3, Section 31\)](#)

**Tasmanian Aboriginal Relics Act 1975**

[Permit to Take, Destroy, Conceal, or Remove](#)

**Tasmanian Weed Management Act 1999 (WMA)**

[Weed Management Plan](#)

**Tasmanian Crown Land Act 1976**

[Works Permit](#)

**Northern Midlands Interim Planning Scheme 2013**

[Planning Permit](#)

**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. \***

Tasmanian Irrigation has completed extensive public consultation regarding the NMIS. The consultation process is summarised in Attachment 5. Public consultation has been on-going for the past 4 years. The project commenced in 2018 and a Business Case was submitted to the Tasmanian Irrigation board in June 2021.

Community consultation

The project was discussed and interest gauged with various community groups and interested parties within the Northern Midlands regional communities between 2018-2020.

A six person working group was elected to represent interested community members and to work with TI to develop an irrigation scheme for the district. NMIS irrigators continue to be represented by this group. Meetings with individual landowners, the irrigator working group as a whole and other interested parties are held as required. During the development of the scheme design, the working group committee met formally several times. In addition, numerous site meetings with individuals have occurred to ensure that any issues of concern were considered in the scheme design.

Since 2018, TI has produced community newsletters providing information relating to the scheme design progress. These newsletters are either mailed or emailed to about 120 landowners and 45 interested parties. Newsletters are available on Tasmanian Irrigation's website (Tasmanian Irrigation 2022). In addition, the local community newspaper has run a number of articles on the scheme. The NMIS scheme has been the subject of a number of Local ABC radio and television interviews and has also been discussed in a general context for the past 4 years.

An eight-week water sales period commenced in December 2020, which resulted in 45 acceptable applications significantly exceeding the initial indicated volume for the scheme. Following the water sales period, the scheme volume of 25,500ML was determined.

Local government consultation

Tasmanian Irrigation has had ongoing communications with representatives of the Northern Midlands Council throughout the project. The scheme project manager along with Tasmanian Irrigation CEO has briefed the council members within a July 2021.

The Council has indicated its support for scheme and continue to assist wherever possible. The councils has been consulted regarding pump station and pipeline locations, road crossings and other key infrastructure with this items to be finalised as part of the Development Application.

State government consultation

Tasmanian Irrigation has engaged closely with the Tasmanian Department of Natural Resources and Environment Tasmanian (NRE) to ensure appropriate surveys are undertaken relating to the environment, heritage and water. The Business Case for the scheme has been assessed by NRE and the Treasury Department of the Tasmanian government.

Tasmanian Irrigation has consulted and been supported by both State and Federal Members of Parliament as the scheme proposal has been progressed.

Traditional landowner consultation

Following an examination of alignment options, and the development of an initial preferred option, Aboriginal heritage surveys and consultation with the Aboriginal community were progressed. Indigenous stakeholder bodies that are being consulted include the regulator; Aboriginal Heritage Tasmania (AHT), and various Aboriginal community representative groups including the Aboriginal Heritage Council. Consultation with the Aboriginal community includes the involvement of an Aboriginal Heritage Officer in both the identification of artefacts and the completion of any on-ground survey work.

## 1.3.1 Identity: Referring party

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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.

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

### 1.3.1.1 Is Referring party an organisation or business? \*

Yes

Referring party organisation details	
<b>ABN</b>	79897900835
<b>Organisation name</b>	North Barker Ecosystem Services Pty Ltd
<b>Organisation address</b>	163 Campbell St, Hobart, 7000, TAS, Australia
Referring party details	
<b>Name</b>	Grant Daniels
<b>Job title</b>	Managing Director
<b>Phone</b>	0262319788
<b>Email</b>	admin@northbarker.com.au
<b>Address</b>	163 Campbell St

## 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	
<b>ABN</b>	95722799075
<b>Organisation name</b>	Tasmanian Irrigation Pty Ltd
<b>Organisation address</b>	201 Evandale Road, Western Junction, Tasmania, 7212
Person proposing to take the action details	
<b>Name</b>	Steve Powell
<b>Job title</b>	General Manager - Environment, Health and Safety
<b>Phone</b>	(03) 63988433
<b>Email</b>	steve.powell@tasirrigation.com.au
<b>Address</b>	201 Evandale Road, Western Junction, Tasmania, 7212

**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. \***

Tasmanian Irrigation has a satisfactory record of responsible environmental management. Tasmanian Irrigation has gained approval to construct seventeen irrigation schemes under the EPBCA and are operating in accordance with the approvals. Tasmanian Irrigation has not had any fines or notices issued to it under any Commonwealth or Tasmanian environmental legislation during this time.

There has been no past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action.

Tasmanian Irrigation schemes are designed and operated in accordance with its environmental policy. The environmental policy is underpinned by internally developed Environmental Protection Requirements (EPRs), construction audit protocols, the Farm Water Access Planning Framework, and a Landscape Monitoring Program.

**Previous submissions made by Tasmanian Irrigation (Name of Proposal and EPBC Act No):**

Sassafras-Wesley Vale Irrigation Scheme (EPBC 2010/5327)

Whitemore Irrigation Scheme (EPBC 2010/5335)

Headquarters Road Irrigation Scheme (EPBC 2010/5305)

Winnaleah Irrigation Scheme (EPBC 2011/5798)  
 Kindred North Motton Irrigation Scheme (EPBC 2012/6401)  
 Upper Ringarooma Irrigation Scheme (EPBC 2013/6787)  
 South East Irrigation Scheme (EPBC 2013/6843)  
 Dial Blythe Irrigation Scheme (EPBC 2013/7058)  
 Southern Highlands Irrigation Scheme (EPBC 2015/7491)  
 Swan Valley Irrigation Scheme (EPBC 2015/7560)  
 Lower South Esk Irrigation Scheme (Strategic Assessment Midlands Water Scheme)  
 Arthurs Pipeline Irrigation Scheme (Strategic Assessment Midlands Water Scheme)  
 Duck Irrigation Scheme (EPBC 2016/7778)  
 North Esk Irrigation Scheme (EPBC 2017/7936)  
 Scottsdale Irrigation Scheme (EPBC 2017/7981)

### 1.3.3 Identity: Proposed designated proponent

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

Yes

#### Proposed designated proponent organisation details

**ABN** 95722799075  
**Organisation name** Tasmanian Irrigation Pty Ltd  
**Organisation address** 201 Evandale Road, Western Junction, Tasmania, 7212

#### Proposed designated proponent details

**Name** Steve Powell  
**Job title** General Manager - Environment, Health and Safety  
**Phone** (03) 63988433  
**Email** steve.powell@tasirrigation.com.au  
**Address** 201 Evandale Road, Western Junction, Tasmania, 7212

### 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** 79897900835  
**Organisation name** North Barker Ecosystem Services Pty Ltd

Organisation address	163 Campbell St, Hobart, 7000, TAS, Australia
Representative's name	Grant Daniels
Representative's job title	Managing Director
Phone	0262319788
Email	admin@northbarker.com.au
Address	163 Campbell St

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### 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.

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ABN	95722799075
Organisation name	Tasmanian Irrigation Pty Ltd
Organisation address	201 Evandale Road, Western Junction, Tasmania, 7212
Representative's name	Steve Powell
Representative's job title	General Manager - Environment, Health and Safety
Phone	(03) 63988433
Email	steve.powell@tasirrigation.com.au
Address	201 Evandale Road, Western Junction, Tasmania, 7212

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### 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.

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Same as Person proposing to take the action information.

## 1.4 Payment details: Payment exemption and fee waiver

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

No

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

No

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

No

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

No

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

No

## 1.4 Payment details: Payment allocation

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

Person proposing to take the action

## 2. Location

### 2.1 Project footprint

## 2.2 Footprint details

### 2.2.1 What is the address of the proposed action? \*

Macquarie River Catchment - Northern Midlands Council region, between Poatina / Powranna and Mona Vale Tasmania.

### 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 majority of the proposal area is private freehold, with small areas on the Macquarie River Public Reserve. Barton Road contains several areas of Conservation Covenant, as well as the Tom Gibson Nature Reserve, which are both administered under the Tasmanian *Nature Conservation Act 2002*. Small areas of Crown Land occur around Epping Forest and Campbell Town.

## 3. Existing environment

### 3.1 Physical description

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

The scheme covers the regions of Cressy, Powranna, Barton, Conara, Epping Forest, the Lower Macquarie and Isis Rivers, Campbell Town, and Ross. The pipeline alignment broadly follows the Macquarie River, with the main lines following Valleyfield and Macquarie Roads, with several additional branches distributing water along Barton Road, Mount Joy Road, Mona Vale Road, and the Isis River.

The NMIS region has a strong agricultural history, with much of the study area containing modified pasture and cropping land. Forest remnants are scattered throughout the NMIS region.

**Vegetation** - The vast majority (92.2%) of the proposed impact area is agricultural land, and a further 2.2% is other modified land classes (i.e. non-native vegetation units). Native vegetation is generally in a moderate condition, with condition improving away from the fringes of remnants, where weeds are often prevalent. Native forests contain few large trees and have been selectively logged in the past. Grazing is frequent within many native vegetation patches.

A total of 142 introduced species were recorded during surveys, 15 of which are listed as declared under the Tasmanian *Weed Management Act 1999*. The declared weeds (see Pages 29-37 and 53 of Attachment 2) are as follows:

**Pathogens** - According to the Tasmanian Natural Values Atlas, root rot (*Phytophthora cinnamomi*) is the only known biosecurity risk within 5 km of the pipeline alignment (3 records near Powranna Road). Based on verified observation points for this pathogen, the most likely area where the pathogen may be present around the proposal footprint is around Barton Road. No symptomatic evidence of the pathogen was noted during the ecological assessments.

Chytrid fungus (*Batrachochytrium dendrobatidis*) causes the infectious disease, chytridiomycosis, which is affecting amphibians worldwide, including Tasmania. The spread of the pathogen is likely to be promoted by human activity and in Tasmania has been associated with gravel roads near water bodies. It can be expected to be present within the irrigation district but no known observations of the pathogen are evident from within five kilometres of the project area. Testing conducted for source and receiving waters as part of the Midlands Water Scheme returned negative results ~10 years ago (see Page 22 of Attachment 6). The proposal is unlikely to further contribute the proliferation of this fungus.

Fauna - The Devil Facial Tumour Disease (DTFD) - The occurrence of DTFD is documented throughout the Midlands region according to the most recent distribution maps (see Attachment 7). The scope of the proposal will not conceivably cause further spread or virility of this disease within the Tasmanian devil population.

Toxoplasmosis – *Toxoplasmosis gondii* is a parasite that has been reported to be a significant cause of morbidity and mortality in marsupials. Impacts of toxoplasmosis on marsupials can include blindness, ataxia, incoordination, head tilt, and limb paralysis. Cats are a common host of this parasite, although it is thought that all endothermic vertebrates are capable of acting as hosts. It is likely that it is present throughout the irrigation district as feral cats are effectively ubiquitous in such environments, however the proposed actions are unlikely to cause the further spread of the parasite nor vectors.

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

The proposal area is predominantly used for agricultural activities including meat production, vegetable and cereal cropping, stone fruits, and fodder, as well as dry-land grazing. Private production timber plantations occur within the irrigation district. The Macquarie River is a State-managed trout fishery, and the Tom Gibson Nature Reserve is used recreationally.

The Poatina region contains a power station that is powered through hydroelectric activity. Several areas of hydro infrastructure occur near to the proposed pipeline.

A TasRail freight line follows the Midland Highway and is crossed by the proposed pipeline at Campbell Town (3 crossings) and Epping Forest (2 crossings).

There are several townships of various populations located within the irrigation district, including Campbell Town, Epping Forest, Conara, Powranna, Delmont, and Isis. Further to this, several historic homesteads are located throughout the district. Towns along the Midlands Highway are popular rest stops for travellers, and they contain various facilities such as cafes, hotels, fuel stations and truck stops, as well as recreational facilities such as sporting fields, golf courses, and parks. There are several historic cemeteries located throughout the district.

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

The geology of the proposal area (derived from Mineral Resources Tasmania Geological Polygons 250K data) is largely comprised of Quaternary sands and gravels, with intermittent seams of Jurassic dolerite on rises, and occasional areas of sandstone and mudstone. The area around Campbell Town is made up of Quaternary gravels and Tertiary basalt.

Within the NMIS district, 56,461 ha of land is classed as suitable for long-term irrigation (largely class 4 and 5), 8,015 ha of which is classed as prime agricultural land. The majority of the proposal area is private freehold, with small areas on the Macquarie River Public Reserve. Barton Road contains several areas of Conservation Covenant, as well as the Tom Gibson Nature Reserve, which are both administered under the *Tasmanian Nature Conservation Act 2002*.

The following provides an overview of the landscape features and condition within each recorded vegetation community:

**AHL – Lacustrine Herbland – Lentic wetlands near the Campbell Town Golf Course** occur on a transition zone of Tertiary basalt and Quaternary sands and gravels. All other patches occur on sands and gravels. The AHL community is treeless and is seasonally inundated. Agricultural weeds are present but not dominant. TSPA listed flora are present within this community across several sites.

**ASF – Aquatic Sedgeland and Rushland –** All recorded areas of ASF occur on Quaternary gravels and sands. The ASF community is treeless and dominated by tall sedges, however a wetland at Rokeby Road is surrounded by a dense infestation of gorse.

**DAZ - *Eucalyptus amygdalina* forest and woodland on Cainozoic deposits –** This community occurs exclusively on sand and gravel deposits, which differentiate it from other *E. amygdalina* forest communities. There is evidence to suggest that the areas of DAZ have been subject to selective logging in the past, and landscape-level clearance has occurred in places (best seen on Barton Road where DAZ has been left as a shelter belt). The community is generally in good condition, with weeds only prevalent on the edge of remnant patches where disturbance is most evident.

**DPO – *Eucalyptus pauciflora* forest and woodland not on dolerite –** This community occurs as small remnant patches across the survey area, and one larger remnant near Mount Joy Road. It occurs on Quaternary sands and gravels. There is evidence of disturbance, and likely a history of fire given the prevalence of bracken fern in the understory. The forest canopy is more closed than the other eucalypt communities in the survey area.

**DVG – *Eucalyptus viminalis* grassy forest and woodland –** This community occurs on a series of dolerite ridges on a single property on Valleyfield Road. Vegetation structure is very open, and large trees are scarce due to selective logging.

**GCL - Lowland grassland complex –** Patches of GCL typically occur on flats, often adjacent to a forest patch. The substrate consists of Quaternary gravels, sands, and silts. An exception to this is two patches near Campbell Town which occur on basalt derived soils.

**GSL - Lowland grassy sedgeland –** The single patch of GSL occurs on gravels and sands. The community occurs in a mosaic of GCL and agricultural land. The community is dominated by large tussocks, however there is a high frequency of herbaceous weeds throughout.

**GTL - Lowland *Themeda triandra* grassland –** Themeda grasslands on Valleyfield Road occur on Quaternary sands and gravels, and a patch near Campbell Town occurs on Tertiary basalt. In all cases of GTL, the patch quality is relatively poor, with very low herb diversity and a high number of herbaceous weeds. Gorse is a common occurrence at the patch near Campbell Town.

There are 8 geoconservation sites within 5 km (see Pages 36-38 of Attachment 8) of the proposed pipeline, however the impact area does not intersect with any of the following:

- Epping Forest Soils
- Horton Hill Interbedded Aeolian and Slope Deposits
- Grimes Lagoon

- White Lagoon Lunette
- Deflation Basins of Eastern Tasmania in Good Condition (4 sites)
- Poatina Group Type Section
- Great Western Tiers Escarpment
- Central Plateau Terrain

### 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 proposal area varies in elevation between 160 and 250m above sea level, however the proposed works will take place within a broad river valley that is relatively flat.

## 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.

#### Vegetation – Design Corridor

Within the project area 263 native and 141 introduced species of plant were identified (see Attachment 9) along with nine native vegetation communities. The predominate flora species within each vegetation community are described in the natural values assessment report (See Attachment 2, Pages 10-19).

#### Vegetation – Dam Footprint

The vegetation within the proposed dam footprint area is largely modified. The preferred dam site is currently a poppy crop (south of the Poatina tailrace), with a small areas containing paddock trees adjacent to Poatina Road. The alternative dam site on the northern side of the Poatina tailrace is entirely agricultural land, with weedy riparian vegetation on the margins of Palmers Rivulet. There are some common native trees along this margin, none of which are suitable for supporting threatened fauna species.

#### Fauna – Project Area

Habitat quality in the survey area varies in relation to potential use by fauna species.

Tussock skinks *Pseudemoia pagenstecheri* (TSPA Vulnerable) were found within patches of higher quality grasslands in and around the project area. Green-lined ground beetles *Catadromus lacordairei* (TSPA Vulnerable) were observed in log piles near the tussock skink survey sites (see Attachment 2, Pages 38-41, and Attachment 10, Page 4). Other amphibians observed at these sites include the eastern three-line skink *Bassiana duperreyi*, southern grass skink *Pseudemoia entrecasteauxii*, spotted marsh frog *Limnodynastes tasmaniensis*, and brown tree frog *Litoria ewingii*.

Forest patches provide habitat for marsupials, most frequently observed being Bennett's wallaby *Macropus rufogriseus* and the pademelon *Thylogale billardierii*. Occasional burrows that may be utilised by wombats *Vombatus ursinus* and other marsupials were observed. The project area contains habitat suitable for the eastern-barred bandicoot *Perameles gunnii*, as well as wide ranging carnivores such as the Tasmanian devil *Sarcophilus harrisii* and the eastern quoll *Dasyurus viverrinus*.

Habitat suitable for the nesting of non-threatened avian fauna occurs throughout the forest patches. Nine wedge-tailed eagle nests are known from within 1.2 km of the proposed pipeline (see Page 1 of Attachment 11), and a white-bellied sea eagle was observed during ground surveys. Trees suitable for the nesting of masked owls occur throughout the survey area, however these trees are largely exposed paddock trees and are unlikely to provide optimal nesting habitat. Masked owl nests are known from within the greater area, with several nesting trees occurring along the Midland Highway near Cleveland and Conara (see Attachment 12, Page 9).

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

The geology of the project area (derived from Mineral Resources Tasmania Geological Polygons 250K data) is largely comprised of Quaternary sands and gravels, with intermittent seams of Jurassic dolerite on rises, and occasional areas of sandstone and mudstone. The area around Campbell Town is made up of Quaternary gravels and Tertiary basalt.

Within the NMIS district, 56,461 ha of land is classed as suitable for long-term irrigation (largely class 4 and 5), 8,015 ha of which is classed as prime agricultural land.

Eighteen TASVEG mapping units occur within the design corridor area, nine of which are native communities and nine are non-native communities. A total of 24.67 ha of native vegetation will be impacted within the construction corridor (as well as 412.57 ha of modified land), with the corridor modified substantially from its initial design to reduce the impact on native vegetation as much as possible. The remaining avoidance area within the design corridor is 2,283 ha (122 ha of native vegetation, 2,161 ha). The status of the nine native vegetation communities in both a state & local context is in Attachment 2, Pages 10-19.

AHL – Lacustrine Herbland – Lentic wetlands near the Campbell Town Golf Course occur on a transition zone of Tertiary basalt & Quaternary sands and gravels. All other patches occur on sands and gravels. The AHL community is treeless and is seasonally inundated. Agricultural weeds are present but not dominant. TSPA listed flora are present within this community across several sites. This community is listed as threatened under the Tasmanian *Nature Conservation Act 2002* (NCA).

ASF – Aquatic Sedgeland & Rushland – All recorded areas of ASF occur on Quaternary gravels and sands. The ASF community is treeless and dominated by tall sedges, however a wetland at Rokeby Road is surrounded by a dense infestation of gorse. This community is listed as threatened under the Tasmanian NCA.

DAZ - *Eucalyptus amygdalina* forest & woodland on Cainozoic deposits – This community occurs exclusively on sand & gravel deposits, which differentiate it from other *E. amygdalina* forest communities. There is evidence to suggest that the areas of DAZ have been subject to selective logging, and landscape-level clearance has occurred in places (best seen on Barton Road where DAZ has been left as a shelter belt). The community is generally in good condition, with weeds only prevalent on the edge of remnant patches where disturbance is most evident. This community is listed as threatened under the Tasmanian NCA.

DPO – *Eucalyptus pauciflora* forest & woodland not on dolerite – This community occurs as small remnant patches across the survey area, and one larger remnant near Mount Joy Road. It occurs on Quaternary sands & gravels. There is evidence of disturbance, and likely a history of fire given the prevalence of bracken fern in the understory. The forest canopy is more closed than the other eucalypt communities in the survey area. This community is not listed as threatened under any State or Commonwealth Acts.

DVG – *Eucalyptus viminalis* grassy forest & woodland – This community occurs on a Jurassic dolerite ridge on Valleyfield Road, and on Quaternary sands & gravels east of Campbell Town. Vegetation structure is very open, and large trees are scarce, likely due to selective logging. This community is not listed as threatened under any State or Commonwealth Acts.

GCL - Lowland grassland complex – Patches of GCL typically occur on flats, often adjacent to a forest patch. The substrate consists of Quaternary gravels, sands, and silts. An exception to this is two patches near Campbell Town which occur on basalt derived soils.

GSL - Lowland grassy sedgeland – The single patch of GSL occurs on gravels & sands. The community occurs in a mosaic of GCL and agricultural land. The community is dominated by large tussocks, however there is a high frequency of herbaceous weeds throughout.

GTL - Lowland *Themeda triandra* grassland – Themeda grasslands on Valleyfield Road occur on Quaternary sands & gravels, and a patch near Campbell Town occurs on Tertiary basalt. In all cases of GTL, the patch quality is relatively poor, with very low herb diversity and a high number of herbaceous weeds. Gorse is a common occurrence at the patch near Campbell Town.

The grassland communities are not listed under the Tasmanian NCA, however if certain criteria are met, this community can qualify as the EPBCA critically endangered Lowland Native Grasslands of Tasmania, which is determined from criteria listed in Policy Statement 3.18 of the EPBCA. The patches recorded during the surveys were assessed under the listing criteria, all of which failed to qualify on multiple criteria (largely due to herb diversity, tussock cover, and/or weed cover).

## 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.

Cultural Heritage Management Australia (CHMA) was engaged by Tasmanian Irrigation (TI) to undertake the Historic heritage assessment for the NMIS. The field survey assessment was undertaken over a period of 6 months, between November 2021 and May 2022. The field survey covered the original network of proposed pipeline corridors (approximately 157km in length) and subsequent realignment options (approximately 30km of realignments).

A total of 15 heritage features were recorded within the surveyed section of the pipeline corridors. These include:

Seven (7) Heritage tree plantings, all of which are likely to be associated with the heritage memorial plantings along the Midland Highway.

Four (4) Hawthorn hedgerows which have cultural rural landscape significance.

Two (2) well features.

One set of building foundations.

One cemetery (Isis Cemetery).

None of these recorded historic heritage features are listed on any State or Commonwealth heritage registers. They are all assessed as being of local heritage significance, but would not meet the threshold requirements for State significance.

It is confirmed that the two recorded well features, the building foundations and the Isis cemetery will be avoided by construction works. It is noted that the headstones in the Isis cemetery have been previously relocated, as such, the graves are currently unmarked, and careful designation of exclusion areas will be required to avoid any disturbance.

The seven recorded Heritage tree plantings will also be avoided and measures will be put in place to minimise any potential impacts to the root systems of these trees. There is the potential that there may be minor impacts to the four recorded hawthorn hedgerows. Management strategies will be implemented to ensure that impacted sections of hedgerows will be re-instated post construction.

In addition, the heritage registers search undertaken for the project shows that the pipeline corridor intersects with the boundaries of three properties that are listed on the Tasmanian Heritage Register (THR). Works to places included in the THR require approval, either through a Certificate of Exemption for works which will have no or negligible impact, or through a discretionary permit for those works which may impact on the significance of the place. The preferred pipeline corridor will not impact on any buildings or heritage features on these three properties and that any impacts on heritage values will be negligible. TI will therefore apply for a Certificate of Exemption for pipeline construction works undertaken on these three properties.

An Unanticipated Discovery Plan (UDP) has been developed for the NMIS project to deal with historic heritage during pipeline construction works.

The Tasmanian Wilderness World Heritage Area boundary is located 5 km south of Poatina, and two Australian Convict Sites (Brickendon and Woolmers) are located approximately 7 km northwest of the northernmost extent of the pipeline at Powranna.

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

Cultural Heritage Management Australia (CHMA) has been engaged by Tasmanian Irrigation (TI) to undertake the Aboriginal heritage assessment for the NMIS. The CHMA personnel who participated in this project are:

Stuart Huys (Principal Archaeologist);

Rocky Sainty (Aboriginal Heritage Officer);

Vernon Graham (Aboriginal Heritage Officer);

Shay Hannah (CHMA Archaeologist);

Tom Taverner (CHMA Archaeologist);

Mike Walsh (GIS Officer).

The field survey assessment was undertaken over a period of 6 months, between November 2021 and May 2022. The field survey covered the original network of proposed pipeline corridors (approximately 157km in length) and subsequent realignment options (approximately 30km of realignments). Two CHMA archaeologists and an Aboriginal Heritage Officer was involved in all survey assessments.

The survey assessment works undertaken to date for the NMIS corridor alignments have resulted in the recording of 30 Aboriginal heritage sites. These include:

Twenty two (22) Isolated artefacts;

Seven (7) Artefact scatters;

One (1) Aboriginal stone quarry/procurement site.

In addition, there are five Potential Archaeological Deposits (PADs) that were recorded. These are areas where there is an elevated potential for sub-surface cultural heritage deposits to be present. Three of these PAD areas are associated with recorded Aboriginal sites (Site N2 – PAD1, Site N19 – PAD2, Site AH1424 – PAD3). At the other two PAD areas (PAD4 and PAD5) there are no confirmed sites as yet.

As part of the Aboriginal heritage assessment, a search was undertaken of the Aboriginal Heritage Register (AHR) in order to determine whether there were any previously registered Aboriginal site located within the pipeline corridors. The search results show that whilst there are numerous registered Aboriginal sites in the vicinity of the pipeline corridors, none of these sites are situated directly within the pipeline corridors.

TI have been examining options for avoiding the 30 identified Aboriginal heritage sites and the five PAD areas. It is now confirmed that 18 of the recorded Aboriginal sites and four of the PAD areas can be avoided. This includes the Aboriginal stone quarry site. Appropriate measures will be put in place during construction to ensure that these sites and PADs will be protected and conserved in-situ.

Pipeline construction works are likely to impact on 12 of the recorded Aboriginal sites. This includes nine (9) isolated artefacts and three (3) low density artefact scatters. One of these low density artefact scatters will only be partially impacted. Construction works will also impact on PAD4.

All Aboriginal relics are protected under the Aboriginal *Heritage Act 1975* and it is illegal to destroy, damage, deface, conceal, or otherwise interfere with a relic, unless in accordance with the terms of a permit granted by the Minister. TI will be submitting Permit applications to impact these 12 Aboriginal heritage sites. PAD4 will be managed under an Unanticipated Discovery Plan (UDP). The UDP will also apply for all pipeline construction works.

## 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. \*

Mean annual rainfall for the area is around 503 mm per annum, with precipitation consistent across all seasons.

The project area is located within the broad valley of the Macquarie River, with the Elizabeth River and Lake River the major tributaries flowing into it. The Macquarie River flows from the near Lake Leake in the Eastern Tiers, and meanders south and then west, before flowing north through Ross and Campbell Town, before flowing into the South Esk River at Longford. The Macquarie River is the central river system with catchments areas originating in both the Eastern and Western Tiers.

This catchment is one of the driest areas in the state, lying in a rain shadow from the Western Tiers. Historic rainfall data for the catchment indicates a trend towards a drier climate in the catchment. This contrasts with a rising trend in evaporation rates within the catchment (annual average evaporation is 1000 mm).

The project area is heavily cropped and grazed and is subject to pivot irrigation in places. Water is diverted from smaller streams into farm dams and irrigation channels.

Tasmanian Irrigation have developed a Turbidity Management Framework to monitor water quality impacts due to the proposed construction works (Attachment 37). Baseline data was obtained from the Tasmanian Department of Natural Resources and Environment, as well as the Tasmanian Environment Protection Authority's default guideline values for the Macquarie and Brumbies Lake Catchments.

## 4. Impacts and mitigation

### 4.1 Impact details

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

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	No	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

EPBC Act section	Controlling provision	Impacted	Reviewed
S27B	Commonwealth heritage places overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

#### 4.1.1 World Heritage

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

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

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

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

No

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

The proposed development will not have a direct and/or indirect impact on a World Heritage Area (WHA). The Tasmanian Wilderness World Heritage Area boundary is located 5 km south of Poatina, and is not within the proposal area.

#### 4.1.2 National Heritage

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

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

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

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

No

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

No features of heritage value identified during surveys are listed on the National Heritage register. No impacts due to the proposal.

**4.1.3 Ramsar Wetland**

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

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

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

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

No

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

There are no Ramsar wetlands within the proposal area, or within the proposed irrigation district.

**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	Yes	Aquila audax fleayi
No	No	Galaxias fontanus
No	Yes	Pterostylis ziegeleri
Yes	No	Tyto novaehollandiae castanops

**Ecological communities**

Direct impact	Indirect impact	Ecological community
No	Yes	Lowland Native Grasslands of Tasmania

**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. \***

Lowland Native Grasslands of Tasmania - Patches that are intersected by the proposed design corridor that were deemed to have potential to qualify for listing were assessed against the listing criteria. The pipeline design corridor contains no grasslands that qualify for listing and therefore no direct impacts to these communities are expected. Although no listed grasslands were recorded within the design corridor, they are present within the irrigation district (i.e. Merton Vale, Carnarvon, Campbell Town Golf Course, Somerset), and it can be expected there are further patches in the district that are currently unmapped or untested against condition criteria (see Attachment 15, Page 2). Further indirect impacts to native grasslands include erosion, changes in hydrology, salinity, flow regime, weed and/or disease introduction, and degraded habitat.

Pterostylis ziegeleri - A single colony of this species was recorded within a grassland mosaic along Valleyfield Rd, opposite the Kirkland's Presbyterian Cemetery (Attachment 10, Page 6). The species is widespread throughout the patch; however, the density is highest closer to the road. The extent of the distribution of this species within the patch totals ~0.9 ha, with a potential range of up to 6 ha. The population may contain upwards of 1000 plants. Given the low numbers across the state, this subpopulation at Kirkland's is a significant site and efforts should be made to conserve this population. As a result of the discovery of this population, the pipeline route has been realigned to avoid significant impacts on this population. The route is now aligned on the southwest side of Valleyfield Rd, opposite to the *Pterostylis* population, and micro-siting has avoided direct impact to a further 10-15 plants in this area. If the route was not realigned, the impact is likely to have been >500 plants, and a greater risk of indirect impacts such as the introduction of weeds. Potential indirect impacts to *P. ziegeleri* include erosion, changes in hydrology, salinity, flow regime, weed and/or disease introduction, and degraded habitat.

Aquila audax fleayi - 26 eagle nests are known from within 5km (Attachment 8, Page 22) of the proposed pipeline and 6 within 1 km and 3 within 500m (Attachment 11, Page 1). These nests are within the Forest Practices Authorities 500m or 1km line of sight recommended exclusion zone (for active nests) for development during the breeding season. It has been well documented that the wedge-tailed eagle is a very timorous nester, particularly in Tasmania.

Galaxias fontanus - The proposed pipeline broadly follows the Macquarie River with at 206 water crossings identified within the proposal area (27 of which are permanent water bodies). This species has been recorded at 9 times within 5000m of the proposed site with the most recent record occurring in 2021. Records of this species occur in Dairy Creek and a small tributary near Macquarie Tier. There will be some construction impact to the smaller streams that flow into the Macquarie River. It is these smaller rivers which the Swan galaxias is likely to inhabit where they have more protection from the brown trout which are known from the Macquarie River.

Tyto novaehollandiae castanops - The proposal area is within the core range for this species; however, the general region is considered to have low-medium habitat potential, although large paddock trees are still considered to have considerable habitat value. Approximately 100 large trees/stags that have potential to contain habitat suitable for nesting/roosting fauna (including the Tasmanian Masked Owl) were recorded throughout the surveys; many however have been purposefully avoided with alterations to the design corridor, such that only 48 of these are within the modified design corridor, with only 10 occurring within the indicative construction corridor. It is anticipated that complete avoidance of these potential habitat trees will be unavoidable and at least some will be required to be cleared and/or impacted structurally to the degree that failure is likely (thus being equivalent to clearance).

Other MNES identified as having potential to occur in the proposal area (Attachment 16) have been assessed for potential direct and/or indirect impacts. Context and justification is in Attachment 16. Distribution maps for MNES are in the following attachments:

- Threatened Fauna - Attachment 12
- Threatened Vegetation Communities - Attachment 15
- Threatened Flora - Attachment 17
- Threatened Marine and Migratory Fauna - Attachment 19

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

No

#### 4.1.4.6 Describe why you do not consider this to be a Significant Impact. \*

Lowland Native Grasslands of Tasmania - Operation of the irrigation scheme has the potential for facilitated significant impacts on listed grasslands in cases where they may be cleared for agriculture (without mapping or assessment) on the impetus of more readily available irrigation. It is critical that the potential for this to occur is mitigated through Tasmanian Irrigations Farm WAP process (Attachment 3). With mitigation in place, impacts to this MNES will not be significant.

Pterostylis ziegeleri - The proposal design has been purposefully modified to avoid impacting the important population of this species. Operation of the irrigation scheme has the potential for facilitated significant impacts on this species due to erosion, changes in hydrology, salinity, flow regime, weed and/or disease introduction, and degraded habitat. It is critical that the potential for this to occur is mitigated through Tasmanian Irrigations Farm WAP process. With mitigation in place, impacts to this MNES will not be significant.

Aquila audax fleayi - Due to the wedge-tailed eagles low tolerance to disturbance means they are likely to abandon their nest if distressed, even when their nest contains an egg or chick, resulting in an unsuccessful breeding season, which may constitute a significant. Thus, the greatest risk of this development on the wedge-tailed eagle is the disturbance created during the development stage. With mitigation measures in place, the proposal will not have a significant impact on this MNES.

Galaxias fontanus - The proposed pipeline crosses Dairy Creek approximately 1 km downstream of a cluster of records of this species. The point where the pipeline crosses the creek is a modified agricultural drainage channel. As the records are over 1 km upstream of the crossing, and they fact that the stream is already modified, the impact to this species is not likely to be significant provided that the integrity

of the stream is maintained, and the flow of water is not impeded.

*Tyto novaehollandiae castanops* - Whilst the risk to the masked owl is low on account of the relatively small number of trees within the potential construction corridor, coupled with the relatively low likelihood of the species being present in those particular trees, further avoidance is nonetheless advisable and, where avoidance is not possible, pre-clearance mitigation is warranted to limit the likelihood of impacts to individuals (of any species) that may be occupying hollows in the habitat trees at the time of works (including limiting the likelihood of interrupting breeding attempts).

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

No

#### 4.1.4.9 Please elaborate why you do not think your proposed action is a controlled action. \*

Occurrences of MNES within the NMIS district and the design area investigated for the proposal footprint. Measures of direct avoidance of MNES (or potential habitat for MNES) have been applied during the planning and design phase as informed by ecological assessments. Some MNES present within the footprint (and unavoidable) are not considered likely to experience significant impacts due to the only minor potential impacts that may result. To further reduce potential impacts, mitigation measures will be applied during the construction and operation phases in accordance with Tasmanian Irrigation protocols to avoid impacts to MNES and protect their habitats.

These reasons mean that the proposal will not significantly impact any EPBCA listed flora or ecological communities. Potential impacts to EPBCA listed fauna will be limited to minor amounts of potential habitat loss, with no potential significant impacts in relation to breeding activities or population viabilities. Specific impacts to MNES that occur within the proposal area are as follows:

Lowland Native Grassland of Tasmania - This community is not present within the proposal design corridor, and as such there will be no direct impacts to this community. Indirect impacts may occur with the intended use of the project. The scale of these indirect impacts will be identified during the Farm WAP process and will provide property specific mitigation if there are any anticipated impacts.

*Pterostylis ziegelerei* - Impacts to the vulnerable listed *Pterostylis ziegelerei* has been mitigated by realignment of the pipeline to avoid the large population of this species. It is anticipated that 10-15 plants may be impacted, which may be avoidable with strategic micro siting. Given the number of plants that may be impacted, and the number of plants that will remain, impact to a small number of plants will not have a significant impact on the survival of this species at this site. Facilitated impacts due to future irrigation activities will be mitigated under the Farm WAP process.

Tasmanian wedge-tailed eagle - With the recommended mitigation measures in place, there will be no significant impacts to this species.

Tasmanian masked owl - Although the project area is located within the core range for this species, there is a low likelihood of direct impacts to trees supporting the species both due to the relative scarcity of suitable trees and the low likelihood of occupation in this landscape. With the recommended mitigation measures in place, there will be no significant impacts to this species.

#### 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. \*

Tasmanian Irrigation (TI) have established Environmental Protection Requirements (EPRs), which are protocols to ensure that works are undertaken in a manner that avoids & minimises impacts to threatened natural values & MNES. All relevant EPRs will be applied during the construction phase of the proposal & will be incorporated into the contractor's Construction Environmental Management Plan (CEMP).

TI uses the Farm WAP Framework for sustainably managing the application of TI water within an irrigation district (Attachment 3). The framework includes measures for avoiding impacts to MNES. The Farm WAP will be implemented during the operation of the scheme & will thus ensure that future & existing agricultural enterprises that use NMIS water are protecting natural values and implementing best practice irrigation management. Because an equivalent framework is not currently operating within the NMIS district, the introduction of Farm WAPs because of the NMIS is likely to improve the environmental practices of existing enterprises across the scheme area. In addition, the flora and fauna data from Farm WAPs surveys will be uploaded into the Tasmanian Natural Values Atlas & will thus inform any future developments or conservation assessments in the area.

Lowland Native Grasslands of Tasmania (LNGT) - During the operational phase, accurate mapping of threatened grasslands will be a priority on any properties receiving water. Under the Farm WAP process, a 50m buffer will be applied to any areas identified as having potential to qualify as LNGT (as per Attachment 20, Page 6).

*Pterostylis ziegelerei* - Within the identified population area (including potential habitat) for *P. ziegelerei*, the construction corridor will be narrowed to the extent possible and restricted to the southern side of the road (where relatively few plants occur). Areas of the habitat patch outside of the construction corridor will be treated as an exclusion zone. During the operational phase, a 50m buffer will be applied to the area identified as potential habitat for *P. ziegelerei* to avoid indirect impacts through irrigation runoff or similar (Attachment 20, Page 6).

*Aquila audax fleayi* - If works cannot be completed outside of the breeding season, and route realignment is not possible, breeding season constraints stipulating no potentially disruptive works will be adhered to within 500 m direct distance and/or within 1 km line of sight of active eagle nests (constraints do not need to apply within a season if a nest is definitively inactive). Line of sight models are shown in Attachment 11. In these cases, activity can only be assessed with an aerial survey undertaken in October/November to establish if the

constraints can be lifted for the remainder of that season around inactive nests – from the commencement of any season until an activity assessment proves a nest is inactive, activity must be assumed & constraints applied accordingly. Further mitigation measures are in Attachment 2, Page 48-49)

*Galaxias fontanus* - An aquatic crossing protocol must be implemented as part of a CEMP. All impacted creeks will be protected from unnecessary disturbance, disruption of water flows & deterioration of water quality from excavation, siltation, acidification, pollution, and other factors.

*Tyto novaehollandiae castanops* - The risk to the masked owl is low on account of the relatively small number of trees within the potential construction corridor, coupled with the relatively low likelihood of the species being present in those particular trees, further avoidance is nonetheless advisable and, where avoidance is not possible, pre-clearance mitigation is warranted to limit the likelihood of impacts to individuals (of any species) that may be occupying hollows in the habitat trees at the time of works (including limiting the likelihood of interrupting breeding attempts). It is thus recommended that potential habitat trees within the construction corridor that cannot be avoided are subject to a habitat tree protocol (See Attachment 21) involving targeted hollow use inspections. If the checks established that a hollow requiring clearing was in use by a species listed under Schedule 1, 5 or 8 of the Tasmanian *Nature Conservation (Wildlife) Regulations 2021*, then a permit to take a product of wildlife would be required for removal of the nest. Permits to take are administered under the NCA.

Additional listed Fauna - Although the likelihood of threatened mammals such as the eastern quoll, spotted-tail quoll, and Tasmanian devil are not likely to be directly or indirectly impacted due to the proposal, an unanticipated den discovery protocol has been developed (Attachment 22), to be included within a CEMPs to mitigate and minimise risks to these species, should a den be discovered.

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

No offsets have been proposed.

#### 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.

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

No

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

The proposed development is unlikely to have a direct and/or indirect impact on migratory species (See Attachment 17, Page 12-13, and Attachment 19)

#### 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 development will not have direct and/or indirect impacts on nuclear activities.

#### 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. \***

The proposed development will not have a direct and/or indirect impact on any 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 proposed development will not have a direct and/or indirect impact on 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 development will not have a direct and/or indirect impact on Water resource in relation to large coal mining development or coal seam gas.

#### **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. \***

The proposed development will not have a direct and/or indirect impact on 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.

##### 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. \*

The proposed development will not have a direct and/or indirect impact on 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:

*None*

### 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)
- Threatened Species and Ecological Communities (S18)
- 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? \*

Yes

### 4.3.2 Do you have an alternative timeline you are proposing for your proposed action? \*

No

### 4.3.3 Briefly describe why an alternate timeline for your proposed action was not possible. \*

An alternate timeline could have far-reaching social and economic impacts for the northern Midlands region, and thus is not feasible or desirable in this case.

If timelines are postponed, it can be expected that there will be an increasing demand for water from already heavily allocated natural waterways, and that agriculture within the region will continue to be constrained. The distribution area has moderate annual rainfall with a limited potential for additional water to be sourced from within the district's catchments; landowners who do not have immediate access to water already will have limited opportunity to access alternate water in a future without Northern Midlands Irrigation Scheme (NMIS).

Without delivery of the NMIS, there may be limited growth of agricultural opportunities in the NMIS region; continued exposure of farmers in the region to climate risks – both climate change and rainfall variability which impact on the viability of irrigated enterprises; limited scope for expansion of higher value enterprises reliant on irrigation, due to the lack of viable additional water sources; financial vulnerability of some operators, due to the impacts of periods of low rainfall; limited potential for expansion of Tasmanian agribusiness and tourism-related enterprises in the region; and the potential need for publicly funded drought relief.

### 4.3.4 Do you have an alternative location you are proposing for your proposed action? \*

No

### 4.3.5 Briefly describe why an alternative location for your proposed action was not possible. \*

An alternative location for the proposed action is not possible as it is tied to the geographic region and delivering water to landowners who have submitted an EOI.

### 4.3.6 Do you have alternative activities you are proposing for your proposed action? \*

No

**4.3.7 Briefly describe why an alternative activity for your proposed action was not possible. \***

There are no alternatives for the proposed action.

## 4.3.4 Alternatives: Impact and mitigation

**4.3.4.1 Do these alternatives have a different impact, avoidance, or mitigation measure compared to what you have already provided? \***

No

## 4.3.5 Alternatives: Considered alternatives

**4.3.5.1 Do you have any other alternative actions, including not taking the action, that you have considered but are not proposing as part of this referral? \***

Yes

**4.3.5.2 Describe the details of this possible alternative that you have considered but are not proposing. \***

A no-action alternative would be for the NMIS to not be constructed. As with an altered timeline, the social and economic impacts of a no-action alternative are not desirable. The flow-on impacts discussed in Section 4.3.1 are relevant to this alternative.

# 5. Lodgement

## 5.1 Attachments

## 1.2.1 Overview of the proposed action

#1.	Attachment 1 - Tasmanian Irrigation - Northern Midlands Irrigation Scheme: Engineering Report	Document	This report outlines the engineering design, rationale, and background information in developing the Northern Midlands Irrigation Scheme to the Business Case Design stage.
#2.	Attachment 2 -North Barker Ecosystem Services - Flora and fauna habitat assessment	Document	This report details the potential impacts to natural values, provides recommendations for mitigation, and quantifies residual impacts in relation to relevant environmental legislation that may be triggered by the proposal.
#3.	Attachment 25 - Tasmanian Irrigation - Balance Tank Engineering Plans	Document	This document shows designs for the Valleyfield and Poatina balance tanks, as well as an indicative works area diagram
#4.	Attachment 3 - Tasmanian Irrigation - Farm Water Access Plans Biodiversity Module	Document	This report outlines the Tasmanian Irrigation Farm Water Access Plan process

## 1.2.6 Commonwealth or state legislation, planning frameworks or policy documents that are relevant to the proposed action

#1.	Attachment 21 - North Barker Ecosystem Services - Habitat Tree Management Protocol	Document	This protocol details potential habitat tree management strategies as a measure to mitigate impacts to threatened fauna.
#2.	Attachment 22 - North Barker Ecosystem Services - Unanticipated Den Discovery Protocol	Document	This protocol details unanticipated den discovery management strategies as a measure to mitigate impacts to threatened fauna.
#3.	Attachment 23 - North Barker Ecosystem Services - Green-lined Ground Beetle Mitigation Protocol	Document	This protocol details mitigation measures to minimise impact to this TSPA listed species
#4.	Attachment 24 - North Barker Ecosystem Services - Forest Clearance Guidelines	Document	These guidelines have been developed in lieu of a Forest Practices Plan (due to the project exemption) to provide clearance guidelines that are in accordance with the Forest Practices Act 1985
#5.	Attachment 4 - North Barker Ecosystem Services - Legislation Summary	Document	The document provides more context to the relevant legislation that is applicable to the proposal

## 1.2.7 Public consultation regarding the project area

#1.	
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Attachment 5 - Tasmanian Irrigation - Community Consultation Summary	Document	This document provides a summary of community and stakeholder consultation
#2. Tasmanian Irrigation 2022	Link (Webpage)	<a href="http://www.tasmanianirrigation.com.au">http://www.tasmanianirrigation.com.au</a>

## 3.1.1 Current condition of the project area's environment

#1. Attachment 2 -North Barker Ecosystem Services - Flora and fauna habitat assessment	Document	This report details the potential impacts to natural values, provides recommendations for mitigation, and quantifies residual impacts in relation to relevant environmental legislation that may be triggered by the proposal.
#2. Attachment 6 - Tasmanian Irrigation - Midlands Water Scheme: Landscape Monitoring Protocol	Document	This report provides interim results and presents an adaptive approach to monitoring to report against the objectives of the Midlands Water Scheme - Landscape Monitoring Protocol at a landscape scale under the approved Strategic Assessment
#3. Attachment 7 - Tasmanian Devil Facial Tumour Disease Distribution Map	Document	Map of the most recent distribution statistics for DFTD

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

#1. Attachment 8 - Natural Values Atlas Report	Document	This report identifies recorded natural values within 5 km of the proposal area
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## 3.2.1 Flora and fauna within the affected area

#1. Attachment 10 - North Barker Ecosystem Services - Maps of Natural Values	Document	This attachment contain results maps of the natural values assessment
#2. Attachment 11 - North Barker Ecosystem Services - Eagle Nest Visibility Model	Document	This attachment contain eagle nest viewshed analysis maps relevant to the proposal
#3. Attachment 12 - North Barker Ecosystem Services - MNES Fauna Maps	Document	This attachment contains distribution maps of fauna MNES relevant to the proposal
#4. Attachment 2 -North Barker Ecosystem Services - Flora and fauna habitat assessment	Document	This report details the potential impacts to natural values, provides recommendations for mitigation, and quantifies residual impacts in relation to relevant environmental legislation that may be triggered by the proposal.
#5. Attachment 9 - North Barker Ecosystem Services - Flora Species List	Document	This document contains a list of all flora species recorded during natural values surveys

## 3.2.2 Vegetation within the project area

#1.	Attachment 2 -North Barker Ecosystem Services - Flora and fauna habitat assessment	Document	This report details the potential impacts to natural values, provides recommendations for mitigation, and quantifies residual impacts in relation to relevant environmental legislation that may be triggered by the proposal.
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## 3.4.1 Hydrology characteristics that apply to the project area

#1.	Attachement 37 -NMIS Turbidity Management Framework - Pumps and Pipelines	Document	Turbidity management framework for civil contractors to adhere to.
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## 4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

#1.	Attachment 10 - North Barker Ecosystem Services - Maps of Natural Values	Document	This attachment contain results maps of the natural values assessment
#2.	Attachment 11 - North Barker Ecosystem Services - Eagle Nest Visibility Model	Document	This attachment contain eagle nest viewshed analysis maps relevant to the proposal
#3.	Attachment 15 - North Barker Ecosystem Services - Vegetation Community MNES Maps	Document	This attachment contains distribution maps of vegetation community MNES relevant to the proposal
#4.	Attachment 16 - EPBC Protected Matters Search Tool, December 23, 2021	Document	This is a Protected Matters Search Tool Report relevant to the proposal area
#5.	Attachment 17 - North Barker Ecosystem Services - Table of MNES	Document	This table assesses MNES identified as having potential to occur and provided context and justification regarding potential significant impacts
#6.	Attachment 18 - North Barker Ecosystem Services - MNES Flora Maps	Document	This attachment contains distribution maps of flora MNES relevant to the proposal
#7.	Attachment 19 - North Barker Ecosystem Services - MNES Marine/Migratory Fauna Maps	Document	This attachment contains distribution maps of marine and migratory fauna MNES relevant to the proposal
#8.	Attachment 8 - Natural Values Atlas Report	Document	This report identifies recorded natural values within 5 km of the proposal area

## 4.1.4.6 (Threatened Species and Ecological Communities) Why you do not consider the direct and/or indirect impact to be a Significant Impact

#1.	Attachment 3 - Tasmanian Irrigation - Farm Water	Document	This report outlines the Tasmanian Irrigation Farm Water Access Plan process
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Access Plans Biodiversity  
Module

4.1.4.10 (Threatened Species and Ecological Communities) Avoidance or mitigation measures proposed for this action

#1.	Attachment 11 - North Barker Ecosystem Services - Eagle Nest Visibility Model	Document	This attachment contain eagle nest viewshed analysis maps relevant to the proposal
#2.	Attachment 2 -North Barker Ecosystem Services - Flora and fauna habitat assessment	Document	This report details the potential impacts to natural values, provides recommendations for mitigation, and quantifies residual impacts in relation to relevant environmental legislation that may be triggered by the proposal.
#3.	Attachment 20 - Tasmanian Irrigation - Midlands Water Scheme Priority Species Code	Document	The Priority Species Code represents a set of agreed protocols for priority species and communities that can be implemented via the Farm WAP process
#4.	Attachment 21 - North Barker Ecosystem Services - Habitat Tree Management Protocol	Document	This protocol details potential habitat tree management strategies as a measure to mitigate impacts to threatened fauna.
#5.	Attachment 22 - North Barker Ecosystem Services - Unanticipated Den Discovery Protocol	Document	This protocol details unanticipated den discovery management strategies as a measure to mitigate impacts to threatened fauna.
#6.	Attachment 3 - Tasmanian Irrigation - Farm Water Access Plans Biodiversity Module	Document	This report outlines the Tasmanian Irrigation Farm Water Access Plan process
#7.	Attachment 38 - Pumpstation and Pipelines - Environmental Protection Requirements for Construction	Document	Environmental Protection Requirements (EPRs) are the proponents protocols issued to civil contractors to ensure that works are undertaken in a manner that avoids & minimises impacts to threatened natural values & MNES.

4.1.5.3 (Migratory Species) Why your action is unlikely to have a direct and/or indirect impact

#1.	Attachment 17 - North Barker Ecosystem Services - Table of MNES	Document	This table assesses MNES identified as having potential to occur and provided context and justification regarding potential significant impacts
#2.	Attachment 19 - North Barker Ecosystem Services - MNES Marine/Migratory Fauna Maps	Document	This attachment contains distribution maps of marine and migratory fauna MNES relevant to the proposal

## 5.2 Declarations

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### Completed Referring party's declaration

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

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ABN	79897900835
Organisation name	North Barker Ecosystem Services Pty Ltd
Organisation address	163 Campbell St, Hobart, 7000, TAS, Australia
Representative's name	Grant Daniels
Representative's job title	Managing Director
Phone	0262319788
Email	admin@northbarker.com.au
Address	163 Campbell St

- 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, **Grant Daniels of North Barker Ecosystem Services Pty Ltd**, 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. \*

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### 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.

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ABN	95722799075
Organisation name	Tasmanian Irrigation Pty Ltd
Organisation address	201 Evandale Road, Western Junction, Tasmania, 7212
Representative's name	Steve Powell
Representative's job title	General Manager - Environment, Health and Safety
Phone	(03) 63988433
Email	steve.powell@tasirrigation.com.au
Address	201 Evandale Road, Western Junction, Tasmania, 7212

- 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, **Steve Powell of Tasmanian Irrigation Pty Ltd**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or

misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. \*

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

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### 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.

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Same as Person proposing to take the action information.

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

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

I, **Steve Powell of Tasmanian Irrigation Pty Ltd**, 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. \*