

**From:** [James Stewart](#)  
**To:** [TPC Enquiry](#)  
**Subject:** BODC - Representation 43- Flora and Fauna Report obo Marguerite Gee  
**Date:** Monday, 19 September 2022 11:50:36 AM  
**Attachments:** [image001.jpg](#)  
[Annexure 4 - Flora and Fauna Report.pdf](#)  
[WOO008\\_NBES\\_ResponseToSubmissionParkside\\_20191009.pdf](#)

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Good Morning

In response to TPC directions for the Break O' Day Draft LPS, **Representation 43 – Woolcott Surveys for Marguerite Gee** - please find attached the following:

- Flora and Fauna report that relates to land at 50 St Helens Point Rd, CT43185/2 and CT181454/1. – Dated DEC 2017
- Annexure to the Original Flora and Fauna Report – Dated OCTOBER 2019

If you have any questions in relation to the attachments, please don't hesitate to let me know.

Kind regards

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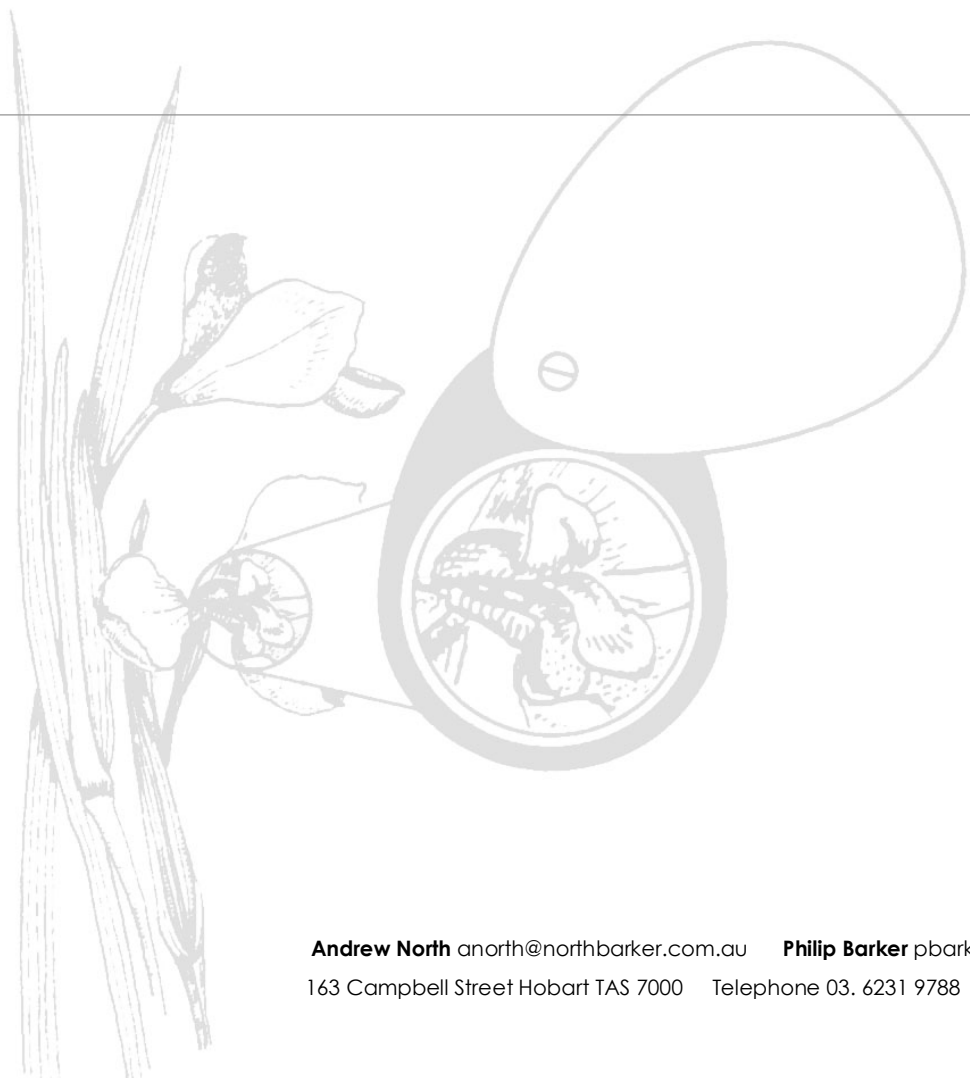
**Parkside Farm, St Helens  
Proposed Subdivision**

**Flora Survey and Fauna Habitat Assessment**

22<sup>nd</sup> December 2017

For Woolcott Surveys obo Ian Gabbedy

(WOO008)



**Field survey:** Joe Quarmby, Philip Barker and Grant Daniels (NBES)

**Report:** Joe Quarmby and Phil Barker (NBES)

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**Project management:** Phil Barker (NBES)



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## Summary

The following report assesses the natural values of Parkside Farm at St Helens for which rezoning and a residential subdivision is currently being investigated. Potential constraints on development were identified so that measures to avoid impacts could be considered during the design process. The assessment has been undertaken in 2016 in accordance with the *Guidelines for Natural Values Assessment – Terrestrial Development Proposals*<sup>1</sup>.

A draft report in 2016, identifying known constraints, allowed the proponent to design a layout that minimises impacts on those known constraints. That layout is now considered in the regulatory context.

## Vegetation Communities

Nine native vegetation communities are found within the study area.

- *Eucalyptus sieberi* forest and woodland not on granite (DSO)
- *Eucalyptus amygdalina* coastal forest and woodland (DAC)
- *Eucalyptus ovata* heathy woodland (DOW) - **Threatened**
- *Eucalyptus viminalis* - *Eucalyptus globulus* coastal forest and woodland (DVC) - **Threatened**
- *Eucalyptus viminalis* wet forest (WVI) - **Threatened**
- *Eucalyptus obliqua* forest with broad leaf shrubs (WOB)
- *Melaleuca ericifolia* swamp forest (NME) – **Threatened**
- *Melaleuca squarrosa* scrub (SMR)
- Saline sedgeland / rushland (ARS) – **Threatened**

Four of these communities are listed as threatened under the Tasmanian *Nature Conservation Act 2002*<sup>2</sup>. ARS is listed as Vulnerable under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* as part of threatened ecological community “Subtropical and Temperate Coastal Saltmarsh”. *Eucalyptus ovata* woodland is also currently being considered for listing under the EPBCA with a decision pending.

## Threatened Flora

Four threatened flora species listed as ‘rare’ under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were recorded within the subject land.

- *Acacia ulicifolia* (juniper wattle)
- *Plantago debilis* (shade plantain)
- *Hibbertia virgata* (twiggy guineaflower)
- *Hierochloa rariflora* (cane holygrass)

No nationally threatened species listed under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* (EPBCA) were recorded on site.

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<sup>1</sup> Natural and Cultural Heritage Division 2015

<sup>2</sup> Schedule 3a NCA, 2002



## Threatened Fauna

A number of threatened fauna species may potentially utilise the study area. In particular these include, the Tasmanian devil, the Swift parrot (*Lathamus discolor*) and the Chaostola skipper (*Antipodia chaostola*). Targeted assessment of Chaostola habitat and den searches within impact areas were undertaken. No potential breeding structures were detected during the survey (including nests, dens, larval shelters etc.).

## Weeds

Three weed species listed as 'declared weeds' under the Weed Management Act 1999 were recorded.

- Spanish heath (*Erica lusitanica*)
- blackberry (*Rubus fruticosus*)
- pampas grass (*Cortaderia selloana*)

These weeds are mainly confined to watercourses and disturbed sites, with the majority of the property being relatively weed-free. Spanish heath is the most abundant weed on the property, especially in the south and west.

## Impact and Mitigation

A design is included which avoids all of the constraints identified and mapped during surveys.

Based on the avoidance of habitat constraints identified the proposal complies with the Break O Day Interim Planning Scheme 2013 under the Performance Criteria P2.1 of the Biodiversity Code.

There are two wetlands that should be considered under the Water Quality Code with regard to potential impacts to hydrological processes and effluent management.

## Environment Protection and Biodiversity Conservation Act 1995

Based on survey findings in relation to direct impact footprints (HMA's and roads) no significant impacts are likely to occur.

## Threatened Species Protection Act 1995

There are a number of threatened species listed under the TSPA which have been identified but excluded from impact. Any proposal that is likely to impact on a species listed on this Act will require a Permit.

## Recommendations:

1. Develop a weed management plan for the control of pampas grass, Spanish heath and blackberry, including the construction phase of the development, post construction phase and ongoing control.
2. Develop a *Phytophthora cinnamomi* hygiene strategy including the construction phase and ongoing control.

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# 1. Introduction

## 1.2 Background

Woolcott Surveys is investigating the possibility of rezoning the Parkside Farm property at St Helens from Environmental Living to Rural Living and a subsequent subdivision in accordance with this zoning.

North Barker Ecosystem Services have been engaged to undertake a natural values assessment of the property as a prerequisite of a planning application to Break O'Day Council. The aim of the survey was to determine the location and extent of significant values such that potential constraints on development could be identified and potentially avoided during the planning process.

The following report provides an assessment of the flora and fauna habitat values of the area and considers the proposal in the context of relevant legislation and the local planning scheme.

### Study area

The study area is located on the southern outskirts of St Helens, immediately south-east of the intersection between the Tasman Highway and St Helens Point Rd. It occupies an area of 156 ha and is dominated by dry eucalypt woodland on moderately sloping hills. The property has a number of seasonal drainage lines, as well as significant wetland and estuarine habitats. It is situated within the municipality of Break O'Day in the Flinders bioregion of Tasmania<sup>3</sup> (Figure 1). The underlying geology is comprised of Cenozoic sediments including gravels, sands, silts and clays. The altitude ranges from sea level in the north and rises to approximately 50 m a.s.l in the south. The annual average rainfall for the area is less than 800 mm.

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<sup>3</sup> IBRA7



Figure 1: Location of the study area

## 2. Methodology

### 2.1 Background research

The following data sources were interrogated during the background research for this assessment:

- Natural Values Atlas – a natural values report<sup>4</sup> was generated which identifies previously recorded threatened flora and fauna observations within 500 m and 5 km of the study area;
- The EPBCA Protected Matters Search Tool which identifies any MNES within a 5 km buffer of the study area;
- Management Plan for property (ARM 2010);
- NRM Coastal Lagoon Assessment (North Barker 2010);
- Previous survey reports for adjacent NBN easements within the property and other areas (North Barker 2012, North Barker 2006).

### 2.2 Field assessment

Fieldwork was undertaken on foot by a single observer over a two day period on the 25<sup>th</sup> - 26<sup>th</sup> October 2016. Vegetation was mapped at the community level in accordance with TASVEG 3.0 units<sup>5</sup>. At the species level all flora species were recorded in accordance with the most recent census of Tasmanian flora<sup>6</sup> using an area search technique based on the Timed Meander Search Procedure<sup>7</sup>. Fauna habitat values were documented concurrently, with particular emphasis on species listed as threatened (Appendix A and B) at the State and/or national level under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

No detailed fauna surveys have been undertaken. However observations of threatened fauna habitat have been noted. Direct observations of threatened species, environmental and 'declared'<sup>8</sup> weeds, and large habitat trees were recorded using a handheld GPS.

### 2.3 Assessment of significance

Vegetation types are classified according to TASVEG<sup>9</sup>. The State and Federal Governments are committed to achieving a Comprehensive Adequate and Representative (CAR) Reserve System based on TASVEG mapping.

The reservation target of a vegetation type relates to its current extent compared with the modelled extent prior to European settlement. This comparison provides an estimate of the proportion lost due to land clearing. Those vegetation types that are rare (generally less than 1000 ha), or have suffered considerable loss (approaching 70% for vulnerable and 90% for endangered) qualify for listing as "threatened" on the *Nature Conservation Act 2002*<sup>10</sup>.

For forests, reservation targets were set using the nationally agreed JANIS criteria as part of the Tasmanian Regional Forest Agreement (RFA). These aim to achieve a 15% reservation level of area extent prior to European settlement (often referred to as pre

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<sup>4</sup> Natural Values Report (17th Aug 2016), DPIPWE

<sup>5</sup> Kitchener and Harris 2013; DPIPWE 2013

<sup>6</sup> de Salas and Baker 2015

<sup>7</sup> Goff *et al.* 1982

<sup>8</sup> Tasmanian *Weed Management Act 1999*

<sup>9</sup> Kitchener & Harris 2013

<sup>10</sup> Schedule 3a NCA 2002

1750). The reservation targets reflect the extent of loss with “threatened” vegetation types having higher targets. The JANIS principles also include the consideration of the bioregional representation of each vegetation type within the CAR reserve system.

The reservation at state and bioregional level has been calculated for all TASVEG v2 communities<sup>11</sup>. This does not include any modelling of pre 1750 levels, but is based on a tenure analysis of what is currently mapped.

The most recent bioregional and state analysis reservation against JANIS criteria was completed for the Independent Verification Group for the Tasmanian Forests Intergovernmental Agreement<sup>12</sup>. This analysis calculates areas required to achieve a CAR Reserve system based on the RFA modelling. No similar modelling has been undertaken for the current TASVEG non forest communities, although native grassland communities have been assessed at the State level<sup>13</sup>.

Vegetation matters of national environmental significance (MNES) are listed on the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

The conservation significance of species is determined at a State and Federal level by the Tasmanian *Threatened Species Protection Act 1995* and Commonwealth EPBCA (Appendix 1), the implications of which are considered in light of the relevant legislation (Appendix 2).

#### **2.4 Limitations**

The botanical survey was undertaken in mid spring which is an optimal time for detecting most plant species. The property was also recently burnt which may have promoted fire stimulated species which could have been otherwise unapparent. However, some species had not regenerated sufficiently post-fire to enable identification. There are also a number of species that do not flower at this time (i.e. grasses, orchids, and some shrubs) and could not be confidently identified to a species level. It is also possible that inconspicuous perennials, ephemerals, or highly localised species may have been overlooked.

To compensate for this to some extent all threatened plant species known from the area are considered in regard to habitat suitability within the study area.

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<sup>11</sup> DPIPWE 2010

<sup>12</sup> Knight 2012

<sup>13</sup> Lowland Grassland Review Expert Group 2008

### 3. Biological Values

#### 3.1 Vegetation communities

The field survey identified nine native vegetation communities within the study area. These are:

- *Eucalyptus sieberi* forest and woodland not on granite (DSO)
- *Eucalyptus amygdalina* coastal forest and woodland (DAC)
- *Eucalyptus ovata* heathy woodland (DOW) - **Threatened**
- *Eucalyptus viminalis* - *Eucalyptus globulus* coastal forest and woodland (DVC) - **Threatened**
- *Eucalyptus viminalis* wet forest (WVI) - **Threatened**
- *Eucalyptus obliqua* forest with broad leaf shrubs (WOB)
- *Melaleuca ericifolia* swamp forest (NME) – **Threatened**
- *Melaleuca squarrosa* scrub (SMR)
- Saline sedgeland / rushland (ARS) - **Threatened**

Four of these vegetation communities (DOW, DVC, WVI and NME) are listed as threatened under the Tasmanian *Nature Conservation Act 2002*<sup>14</sup>. In addition, Saline sedgeland / rushland (ARS) is listed as Vulnerable under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* (EPBCA) as part of threatened ecological community "Subtropical and Temperate Coastal Saltmarsh". *Eucalyptus ovata* woodland (DOW) is also currently being considered for listing under the EPBCA with a decision pending.

There is also an area of modified land around the Parkside Farm homestead which is classified as a mixture of Agricultural land (FAG), Urban areas (FUR) and *Pteridium esculentum* fernland (FPF).

The distribution of the vegetation communities in the study area is illustrated in Figure 2. The extent and reservation status of native vegetation communities is outlined in Table 1. A description of each native vegetation community is provided below.

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<sup>14</sup> Schedule 3a NCA, 2002

**Table 1: Extent and reservation status of the native vegetation communities recorded in the study area.<sup>15</sup>**

TASVEG community and extent in study area	Pre 1750 / current ha	Reservation ha / %	Pre 1750 / current ha	Reservation ha / %	Status (JANIS)
Region	TAS	TAS	Flinders	Flinders	
Saline sedgeland / rushland (ARS) 2.5 ha	na	na	na	na	Threatened
<i>Eucalyptus amygdalina</i> coastal forest and woodland (DAC) 8.5 ha	258,200 155,400	62,950 24.4%	150,000 84,000	34,000 40.4%	Not threatened
<i>Eucalyptus ovata</i> heathy woodland (DOW) within DOV 4.5 ha	186,600 17,700	4,200 2.3%	21,600 1,200	600 2.8%	Threatened
<i>Eucalyptus sieberi</i> forest and woodland not on granite (DSO) 123 ha	40,500 35,500	11,400 28.2%	12,600 10,700	1,500 12.1%	<b>Not threatened</b>
<i>Eucalyptus viminalis</i> - <i>Eucalyptus globulus</i> coastal forest and woodland (DVC) 1.2 ha	8192 2937	1626 19.8%	2,800 1,450	500 34%	Threatened
<i>Melaleuca ericifolia</i> swamp forest (NME) 5.75 ha	30,900 7,900	2,500 8.2%	8,300 3,200	1,200 14.2%	Threatened
<i>Melaleuca squarrosa</i> scrub (SMR) 1.25 ha	Na	na	Na	na	Not Threatened
<i>Eucalyptus obliqua</i> forest with broad leaf shrubs (WOB) 1 ha	579,000 441,000	141,400 21.4%	2,600 2,360	662 28%	Not threatened

<sup>15</sup> Knight 2012



<i>Eucalyptus viminalis</i> wet forest (WVI)	76,800	2,200	5589	na	Threatened
1.5 ha	7,600	2.9%	0		

Note: the Tasmanian Regional Forest Agreement (RFA) commits Tasmania to a CAR (Comprehensive Adequate and Representative) Reserve System which aims to achieve 15% reservation of pre-1750 extents. This has been superseded by the Aichi 2020 target 11 of the Convention on Biological Diversity Strategic Plan For Biodiversity 2011-2020 which aims to achieve 17%<sup>16</sup>

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<sup>16</sup> Australia is a signatory to this convention

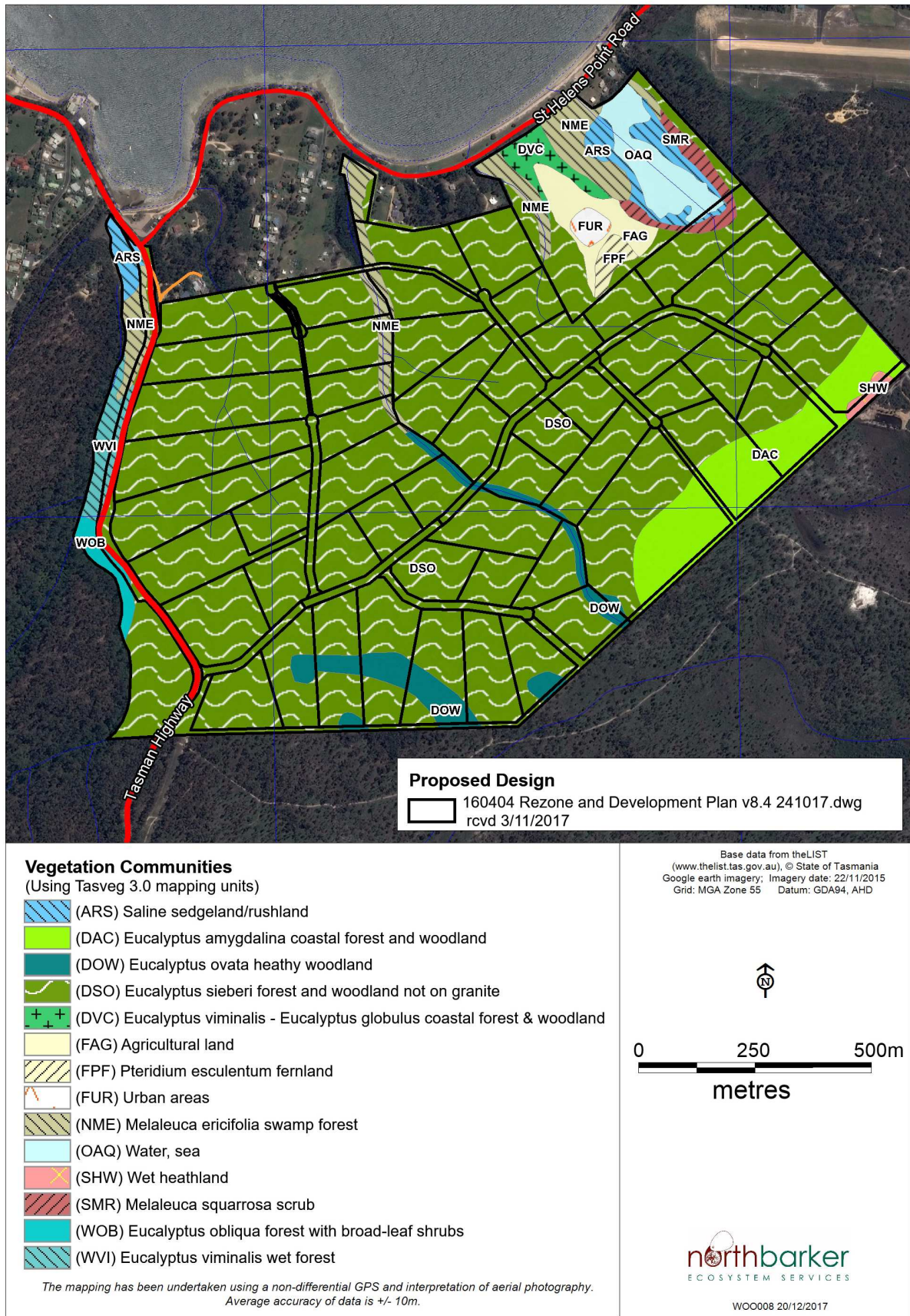


Figure 2: Vegetation communities and lot layout.

Eucalyptus sieberi forest and woodland not on granite (DSO)

*Eucalyptus sieberi* forest and woodland is the dominant vegetation community on the property, covering 123 ha. The canopy is dominated by *Eucalyptus sieberi* up to 35 m in height, with *E. amygdalina* co-dominant in some areas. *E. obliqua*, *E. globulus* and *E. viminalis* also co-occur in some areas, especially on the lower slopes and gullies.

The shrub layer is generally sparse but includes some dense patches of *Allocasuarina littoralis* and *Leptospermum scoparium* with scattered *Exocarpos cupressiformis*, *Lomatia tinctoria*, *Acacia terminalis* and *Xanthorrhoea australis*. The ground layer is dominated by *Pteridium esculentum*, *Lomandra longifolia*, *Diplarrena moraea*, *Dianella revoluta*, *Gahnia radula*, *Aotus ericoides*, *Xanthosia pilosa*, *Bossiaea cinerea* and *Hibbertia empetrifolia*. The understorey is generally depauperate in species, partly due to frequent fires.

#### *Eucalyptus amygdalina* coastal forest and woodland (DAC)

This community occurs in sandy soil on the upper hill slopes along the south-east boundary, and is relatively diverse. The canopy is dominated by *E. amygdalina* to 20 m in height. The shrub layer includes *Allocasuarina littoralis*, *Exocarpos cupressiformis*, *Xanthorrhoea australis* and *Leptospermum scoparium*. The ground layer is diverse and includes *Gahnia radula*, *Lepidosperma concavum*, *Boronia pilosa*, *Aotus ericoides*, *Pteridium esculentum*, *Dillwynia cinerascens*, *Phyllota diffusa* and *Hibbertia virgata*.

#### *Eucalyptus ovata* heathy woodland (DOW)

There are several patches of *Eucalyptus ovata* heathy woodland in poorly drained, low lying areas along the southern boundary. The canopy is dominated by sparse *E. ovata* with the occasional *E. viminalis* and *E. sieberi*. The understorey is mostly open and grassy/sedgy, but there are areas of dense *Leptospermum* and *Melaleuca* which are regenerating post-fire. The shrub layer includes *Melaleuca squarrosa*, *Leptospermum scoparium*, *Acacia verticillata* and *Melaleuca gibbosa*. The ground layer is diverse and includes *Lomandra longifolia*, *Themeda triandra*, *Poa labillardierei*, *Gahnia grandis*, *Gleichenia microphylla*, *Xyris operculata*, *Gonocarpus micranthus*, *Empodisma minus*, *Lindsaea linearis*, *Lepidosperma longitudinale* and *Leptocarpus tenax*.

This community is listed as threatened under the *Nature Conservation Act 2002*.

#### *Eucalyptus viminalis* - *Eucalyptus globulus* coastal forest and woodland (DVC)

This community occurs adjacent to Parkside Lagoon and is in poor condition. The cover of *E. viminalis* is sparse, partly due to extensive dieback, and there are the occasional *E. globulus* some of which are likely to have been planted. The shrub layer includes *Bursaria spinosa*, *Cassinia aculeata*, *Acacia mearnsii* and *Olearia lirata*, as well as dense patches of the introduced *Acacia paradoxa*. The ground layer is generally dominated by grasses and sedges including *Themeda triandra*, *Poa labillardierei*, *Ehrharta stipoides*, *Austrostipa* sp. and *Carex iynx*, but there are also dense areas of *Pteridium esculentum*. It has been highly modified by past grazing, burning and anthropocentric disturbance.

This community is listed as threatened under the *Nature Conservation Act 2002*.

#### *Eucalyptus viminalis* wet forest (WVI)

There is a narrow strip of *Eucalyptus viminalis* wet forest along the edge of Boggy Creek, west of the Tasman Hwy. The canopy is dominated by *E. viminalis*, with the occasional *E. globulus* and *E. obliqua*. The shrub layer includes *Acacia leprosa*, *Pomaderris apetala*, *Olearia argophylla*, *Coprosma quadrifida*, *Bedfordia salicina*, *Beyeria viscosa* and *Exocarpos cupressiformis*. The ground layer includes *Pteridium esculentum*, *Dicksonia antarctica*, *Histiopteris incisa*, *Gahnia sieberiana*, *Dianella tasmanica* and *Dichondra repens*.

This community is listed as threatened under the *Nature Conservation Act 2002*.

#### *Eucalyptus obliqua* forest with broad leaf shrubs (WOB)



This community also occurs along Boggy Creek, and is similar in composition to the WVI community into which it intergrades, except for the dominance of *E. obliqua*. This community contains populations of two rare species *Plantago debilis* and *Hierochloa rariflora* along the creek line.

Melaleuca ericifolia swamp forest (NME)

There are several dense stands of *Melaleuca ericifolia* swamp forest in the drainage lines and surrounding the lagoons along the northern boundary. This community comprises of a tall shrub layer dominated by dense *M. ericifolia*. The understorey includes *Goodenia ovata*, *Acacia verticillata*, *Triglochin procerum*, *Lomandra longifolia*, *Phragmites australis*, *Senecio minimus* and *Pteridium esculentum*. Saltmarsh species are also present where it intergrades into the Saline sedgeland / rushland community (refer to description of this community below).

Melaleuca squarrosa scrub (SMR)

This community occurs around the edge of Parkside Lagoon and in a small poorly drained area on the eastern boundary. The shrub layer is dominated *Melaleuca squarrosa* with *Leptospermum scoparium* and *M. ericifolia* sometimes co-dominant. *Calytrix tetragona*, *Epacris lanuginosa* and *Comesperma ericinum* are also prevalent. Ground layer species include *Patersonia fragilis*, *Eurychorda complanata*, *Leptocarpus tenax*, *Gymnoschoenus sphaerocephalus*, *Xyris operculata*, *Boronia parviflora* and *Selaginella uliginosa*.

Saline sedgeland / rushland (ARS)

The saline sedgeland / rushland community occurs in and around Boggy Creek Lagoon and Parkside Lagoon. This community is dominated by saltmarsh species including *Sarcocornia quinqueflora*, *Samolus repens*, *Suaeda australis*, *Gahnia filum*, *Juncus kraussii*, *Baumea juncea*, *Rhagodia candolleana*, *Carpobrotus rossii*, *Austrostipa stipoides*, *Apium prostratum* and *Distichlis distichophylla*.

This community is listed as Vulnerable under EPBCA as part of the nationally threatened ecological community "Subtropical and Temperate Coastal Saltmarsh".



*E. sieberi* woodland not on granite



*E. amygdalina* coastal woodland



*E. ovata* heathy woodland



*E. viminalis* / *E. globulus* coastal woodland





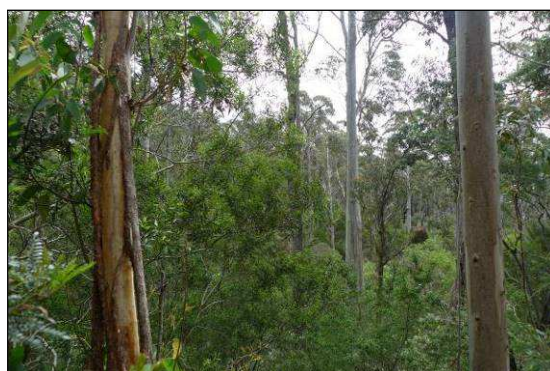
*M. ericifolia* swamp forest



*M. squarrosa* scrub



*E. obliqua* forest with broad leaf shrubs



*E. viminalis* wet forest



Saline sedgeland / rushland



Parkside Lagoon

### 3.2 Flora

179 species of vascular flora were recorded within the study area during the field survey, including 14 introduced species. The full species list is given in Appendix 3. Four of these species are listed as rare under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) as detailed in section 3.2.1. No nationally threatened species listed under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* (EPBCA) were recorded.

#### 3.2.1 Threatened flora recorded within the study area

##### Juniper wattle (*Acacia ulicifolia*) (TSPA Rare)

This is a small wiry shrub that occurs in sandy coastal heaths and open forest and woodlands. It is known to occur extensively in nearby areas on St Helens Point, including adjacent properties to the east and south.



A number of occurrences totalling about 32 plants were recorded. It is possible that other isolated plants may occur within the property given the amount of suitable habitat present; however it is unlikely that any sizable populations would have been overlooked.

Twiggy guineaflower (*Hibbertia virgata*) (TSPA Rare)

This is a slender erect shrub growing to 80 cm tall. It occurs in sand heaths and open woodlands and is known to occur in nearby areas on St Helens Point.

21 plants were found during the survey on a sandy rise near the south east boundary of the property. It is unlikely that any other sizeable populations are present in the study area as this is a relatively conspicuous plant and was flowering at the time of the survey. It is possible that additional isolated plants may occur in the DAC community, however it is unlikely that many flowering plants would have been overlooked.

Shade plantain (*Plantago debilis*) (TSPA Rare)

Shade plantain is a small perennial herb with leaves in a basal rosette and has slender flower stalks. It grows in boulder crevices in both wet and dry forest in the north east and east coast of Tasmania.

Approximately 60 plants were found along the banks of Boggy Creek. It is likely that additional plants occur along this creek line as targeted surveys were not exhaustive given that this area is unlikely to be impacted by the proposal.

Cane holygrass (*Hierochloa rariflora*) (TSPA Rare)

Cane holygrass is a tufted perennial grass growing to 95 cm tall. It occurs along river banks in wet Eucalypt forest on granite and dolerite substrates in the north-east and east coast of Tasmania.

Approximately 15 plants were found along the edges of Boggy Creek. It is possible that additional plants may have been present amongst dense vegetation along Boggy Creek. Surveys for this species were not exhaustive given that this area is unlikely to be impacted by the proposal.



*Hibbertia virgata* twiggy guineaflower



*Acacia ulicifolia* juniper wattle



*Plantago debilis* shade plantain



*Hierochloa rariflora* cane holygrass

### **3.2.2 Other threatened flora with a high potential to occur in the study area**

#### Crested speargrass (*Austrostipa blackii*) (TSPA Rare)

This is a tufted perennial grass growing to 1.3 m tall. It occurs in open woodland up to an altitude of 100 m. It flowers predominantly from November to January.

The Natural Values Atlas indicates that this species has been recorded within, or in very close proximity to Boggy Creek lagoon. Although speargrass (*Austrostipa* sp.) was observed in this area during the survey, none were recognisable to species level as they were not in flower.

### **3.2.3 Threatened flora with the potential to occur**

Previous surveys within 5 km of the study area have identified a number of species of threatened flora variously listed under the EPBCA or the TSPA<sup>17</sup>. These species are listed in Table 2 with a description of their preferred habitat and an assessment of the likelihood of the being overlooked or seasonally absent during our survey.

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<sup>17</sup> Natural Values Report: nvr\_17-Aug-2016



**Table 2: Flora species of conservation significance previously recorded within a 5km radius of the site<sup>1819</sup>**

Species	Status <sup>20</sup> TSPA / EPBCA	Potential to Occur	Observations and Preferred Habitat <sup>21</sup>
<b>Recorded from within 500 m</b>			
<i>Austrostipa blackii</i> crested speargrass	Rare/-	High	Previously recorded from roadside adjoining Boggy Creek lagoon and other locations within 5 km. <i>Austrostipa</i> tussocks were detected in this location but could not be identified to species level due to lack of mature seed. Could possibly extend into study area.
<i>Brachyloma depressum</i> spreading heath	Rare/-	Moderate	1 record within 500 m and several other records within 5 km. Occurs in shrubby heathland amongst granite boulder/sheets or on granite soils. Some marginal habitat on slopes of Boggy Creek.
<i>Hierochloa rariflora</i> Cane holygrass	Rare/-	<b>Present</b>	Occurs in several patches along the margins of Boggy Creek.
<i>Plantago debilis</i> Shade plantain	Rare/-	<b>Present</b>	Occurs in scattered patches along Boggy Creek.
<i>Pterostylis squamata</i> ruddy greenhood	Rare/-	Low	1 historical record (1892) with poor spatial accuracy. Uncommon and localised in lowland heathy and grassy open eucalypt forest and heathland on well-drained sandy and loamy soils. Flowers Dec-March. Unlikely to occur, but easily overlooked.
<i>Scleranthus brockiei</i> Mountain knawel	Rare/-	Low	1 record within 500 m (1990). Occurs in grassland and woodland, predominantly in subalpine to alpine areas. Habitat in the study area is marginal.
<b>Recorded from within 5 km</b>			
<i>Acacia ulicifolia</i> juniper wattle	Rare/-	<b>Present</b>	A number of occurrences totalling about 32 plants were recorded. Numerous previous records from within 5 km. Occurs in sandy coastal heaths, open forest and woodland in the north and east.
<i>Anogramma leptophylla</i> annual fern	Vulnerable/-	Low	1 historical record within 5 km (1903). Very rare, known only from a few sites. Grows in skeletal soil with moss, liverworts and small angiosperms in crevices of rocky outcrops. Very sensitive to changes in its environment. No suitable habitat.

<sup>18</sup> Natural Values Report (17<sup>th</sup> Aug 2016), DPIPWE<sup>19</sup> EPBCA Protected Matters Report # Q66NRC<sup>20</sup> Tasmanian *Threatened Species Protection Act 1995*, Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.<sup>21</sup> Threatened Species Section, DPIPWE – various note sheets and listing statements

Species	Status <sup>20</sup> TSPA / EPBCA	Potential to Occur	Observations and Preferred Habitat <sup>21</sup>
<i>Asperula subsimplex</i> water woodruff	Rare/-	Moderate	1 record within 5 km. Occurs in marshes, riverbanks and damp areas. Some suitable habitat present.
<i>Baumea articulata</i> jointed twigsedge	Rare/-	Moderate	6 records within 5 km. A perennial rush that occurs along rivers. Possibly present along Boggy Creek but unlikely to be impacted by the proposal.
<i>Blechnum cartilagineum</i> gristle fern	Vulnerable/-	None	2 historical records within 5 km (late 1800s). Favours sheltered sites on moist, well drained soils within dry sclerophyll forest, but can also be in open positions. Also found on the margins of wet sclerophyll forest. Unlikely to have been overlooked.
<i>Bolboschoenus caldwellii</i> sea clubsedge	Rare/-	Low	1 record within 5 km. Occurs in shallow, standing, sometimes brackish water rooted in heavy black mud. Potential habitat present but unlikely to have been overlooked.
<i>Caladenia caudata</i> tailed spider-orchid	Vulnerable/ VULNERABLE	Low	3 record within 5 km. Occurs in heathy and grassy open eucalypt woodlands often with sheoaks and in heathland on sandy and loamy soil. Marginal habitat present.
<i>Caladenia congesta</i> blacktongue finger-orchid	Endangered/-	Low	1 historical record within 5 km. Localised and uncommon in heathy woodland and open forest usually in dry sites on sandy, loamy and sometimes gravelly soils, frequently among grass tussocks on slopes. Marginal habitat present.
<i>Caladenia filamentosa</i> daddy longlegs	Rare/-	Low	3 historical records within 5 km (Rodway). Found in heathy, sedgy open eucalypt forest and woodland on sandy soils. Marginal habitat present.
<i>Calandrinia granulifera</i> pygmy purslane	Rare/-	None	2 historical records within 5 km. Occurs in gravelly and sandy soils in dry sclerophyll forest or woodland. No suitable habitat present.
<i>Caustis pentandra</i> thick twigsedge	Rare/-	Low	1 historical record within 5 km. Known from sandy soils in coastal heathland and heathy woodland. Potential habitat present but unlikely to have been overlooked.
<i>Conospermum hookeri</i> tasmanian smokebush	Vulnerable/ VULNERABLE	Low	144 records within 5 km. Occurs in open coastal heathland and heathy woodland on granite or sandy acid, low nutrient soils. Potential habitat present but unlikely to have been overlooked.
<i>Corunastylis nuda</i> tiny midge-orchid	Rare/-	Low	1 records within 5 km. Uncommon and localised in coastal and near-coastal areas. Occurs in moorland, sedgeland and heathland on moderately drained peaty soils and in damp mossy skeletal soils on granite slabs. Marginal habitat present.

Species	Status <sup>20</sup> TSPA / EPBCA	Potential to Occur	Observations and Preferred Habitat <sup>21</sup>
<i>Cyrtostylis robusta</i> Large gnat-orchid	Rare / -	Low	1 historical record from within 5 km (1892). Grows in coastal woodland habitats. Flowers in late winter but very unlikely to occur.
<i>Desmodium gunnii</i> southern ticktrefoil	Vulnerable/-	Low	12 records within 5 km. Grows in dampish sclerophyll forest and woodland on a range of substrates. Distinctive species unlikely to have been overlooked.
<i>Euphrasia collina</i> subsp. <i>deflexifolia</i> eastern eyebright	Rare/-	Low	9 records within 5 km. Occurs in open woodland or heath. Generally requires open patches of ground created by fire or other disturbance but with high soil moisture. It is often found along road edges, tracks and depressions near the headwaters of creeks. Marginal habitat present.
<i>Eutaxia microphylla</i> spiny bushpea	Rare/-	None	1 record within 5 km. Known from granite & calcareous soils in low open coastal shrubbery & on cliffs. No suitable habitat.
<i>Glycine microphylla</i> small-leaf glycine	Vulnerable/-	Low	1 record within 5 km (1948). Occurs in dry sclerophyll forest and woodland. Some marginal habitat present but unlikely to have been overlooked unless it occurs in low numbers.
<i>Gratiola pubescens</i> hairy brooklime	Vulnerable/-	Low	1 record within 5 km. Ephemeral species of seasonally damp areas and wetlands. Some potential habitat present.
<i>Hibbertia calycina</i> lesser guineaflower	Vulnerable / -	Low	5 records within 5 km. Found only near Scamander & St Helens. Favours isolated N & W facing slopes, with soils that are extremely shallow, free draining and low in nutrient. Occurs on ridgelines & upper slope areas in <i>E. sieberi</i> forest on Devonian mudstone. Substrate unlikely to be suitable.
<i>Hibbertia virgata</i> twiggy guineaflower	Rare/-	<b>Present</b>	Numerous records within 5 km. Found within the DAC community in the south-east of the property.
<i>Hovea tasmanica</i> rockfield purplepea	Rare/-	Low	7 records within 5 km. Occurs on dry, rocky ridges or slopes, most frequently on dolerite, in forest and riverine scrub. Marginal habitat present.
<i>Lachnagrostis robusta</i> tall blowgrass	Rare/-	Moderate	A coastal grass known from marshy, estuarine habitat and moist sandy flats, predominantly around the north-east and on the East Coast. Potential habitat present in lagoons and adjacent estuarine creeks.
<i>Lepidosperma forsythii</i> stout rapieredge	Rare/-	Low	1 recent record within 5 km. Occurs in damp areas of coastal heath. Some marginal habitat present.

Species	Status <sup>20</sup> TSPA / EPBCA	Potential to Occur	Observations and Preferred Habitat <sup>21</sup>
<i>Lepidosperma tortuosum</i> twisting rapiersedge	Rare/-	Low	1 recent record within 5 km. Grows in open heathy woodland and open heathland. Some marginal habitat present.
<i>Lepilaena patentifolia</i> spreading watermat	Rare/-	Low	1 record within 5 km (undated). In coastal lagoons, creeks, inlets and estuaries and brackish inland lagoons. Potential habitat in lagoons but would not be impacted by the proposal.
<i>Liparophyllum exaltatum</i> erect marshflower	Rare/-	Low	15 records within 5 km. Occurs in shallow slow flowing water or in seasonally inundated areas on the margins of water bodies. Some suitable habitat present but unlikely to be overlooked.
<i>Lobelia rhombifolia</i> tufted lobelia	Rare/-	Low	2 historical records within 5 km. Occurs in dry sclerophyll forest predominantly along the east coast. Unlikely to have been overlooked.
<i>Lotus australis</i> australian trefoil	Rare/-	Low	1 historical record within 5 km. Occurs in Poa grassland, low coastal shrubland and sand dunes. Often associated with disturbance. Unlikely to have been overlooked.
<i>Microtidium atratum</i> yellow onion-orchid	Rare/-	Low	4 records within 5 km (most recent 2009). Uncommon and localised in coastal and near coastal areas. Occurs in herbfields, sedgeland, grassland and heathland on peats and sandy loams in areas subject to periodic inundation. Some suitable habitat present.
<i>Orthoceras strictum</i> horned orchid	Rare/-	Low	2 historical records within 5 km. Uncommon and localised in coastal and near-coastal areas. Occurs in moorland, sedgy and scrubby heathland, sedgy eucalypt shrubland and open forest on poorly to moderately drained peaty, sandy and clay soils that are at least seasonally moist. Sometimes occurs in thin mossy soils at soaks on rock faces. Marginal habitat present.
<i>Persicaria decipiens</i> slender waterpepper	Vulnerable/-	Low	1 record within 5 km. Semi-aquatic species which occurs on the banks of rivers and streams. Some habitat present.
<i>Phebalium daviesii</i> Davies waxflower	Endangered/ ENDANGERED	Low	5 records within 5 km. Grows in riparian zones and regenerates following disturbance events such as fire and floods. Currently it is known only from the George River near St Helens. No suitable habitat present.
<i>Prasophyllum secutum</i> northern leek-orchid	Endangered/ ENDANGERED	None	1 historical record with poor spatial accuracy. Occurs in dense coastal shrub in the swales of sand dunes. No suitable habitat present.

Species	Status <sup>20</sup> TSPA / EPBCA	Potential to Occur	Observations and Preferred Habitat <sup>21</sup>
<i>Pterostylis grandiflora</i> superb greenhood	Rare/-	Low	3 records within 5 km. Uncommon and localised especially in coastal areas. It occurs in heathy and shrubby open eucalypt forest and in grassy sheoak woodland on moderately to well drained sandy and loamy soils. Marginal habitat is present.
<i>Ruppia megacarpa</i> largefruit seatassel	Rare/-	Moderate	Occurs in coastal creeks, estuaries and lagoons along the East Coast. Potential habitat present in lagoons and estuarine creeks but unlikely to be impacted by the proposal.
<i>Schoenus brevifolius</i> zigzag bogseidge	Rare/-	Moderate	10 records within 5 km. Grows in shallow water around the fringes of lagoons. Potential habitat present around Parkside Lagoon.
<i>Utricularia australis</i> yellow bladderwort	Rare/-	Moderate	4 records within 5 km (most recent 2010). Grows in marshy habitats in still or slow flowing water up to several m deep. Habitat present in lagoon.
<i>Xanthorrhoea arenaria</i> sand grasstree	Vulnerable/ VULNERABLE	Low	1 record within 5 km (1945). Occurs in coastal sandy heath. The taxonomy of <i>Xanthorrhoea</i> holds uncertainties. Several non-flowering grasstrees are present within the site. However none exhibit the foliage characteristics of <i>X. arenaria</i> and are probably the more common <i>X. australis</i> .
<b>Other species or species habitat likely to occur within the area<sup>22</sup></b>			
<i>Lepidium hyssopifolium</i> soft peppergrass	Endangered/ ENDANGERED	None	Nearest populations over 20 km away, south of Falmouth. Grows in shaded sites beneath large trees in grassy woodlands and grasslands. Often found under large exotic trees on roadsides and home yards on farms. Occurs on fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. No suitable habitat present.
<i>Prasophyllum apoxychilum</i> tapered leek-orchid	Endangered / ENDANGERED	Low	Closest known population over 60 km away. Occurs in a variety of habitats, including open Eucalypt forest and woodland, low coastal heathland, and sedgy heathland. Some habitat present.
<i>Pterostylis ziegeleri</i> grassland greenhood	Vulnerable / VULNERABLE	Low	Nearest population over 40 km away. In coastal areas it is generally found on the slopes of low stabilised dunes and in grassy dune swales. Marginal habitat present.
<i>Thelymitra jonesii</i> skyblue sun-orchid	Endangered/ ENDANGERED	None	Nearest population over 60 km away near Musselroe Bay. Occurs in moist coastal heath on sandy to peaty soils and in Eucalyptus obliqua forest in deep loam soil over dolerite. No suitable habitat.

<sup>22</sup> Additional species identified in the EPBC Act Protected Matters Report (PMST\_ Q66NRC)

Species	Status <sup>20</sup> TSPA / EPBCA	Potential to Occur	Observations and Preferred Habitat <sup>21</sup>
<i>Xanthorrhoea bracteata</i> shiny grasstree	Vulnerable/ ENDANGERED	None	Nearest record is 9 km away near Binalong Bay. Occurs in sandy soils, often acid and waterlogged, in coastal heathland. Distinctive species unlikely to be overlooked.

Based on the assessment provided in Table 4, it is considered that one additional threatened flora species (*Austrostipa blackii* – listed as rare under TSPA) could also occur within the study area. This species has been recorded immediately adjacent to the study area and suitable habitat is also present within the site, but the species would not have been flowering at the time of the survey. However, it is highly unlikely that this area will be impacted by the proposal.

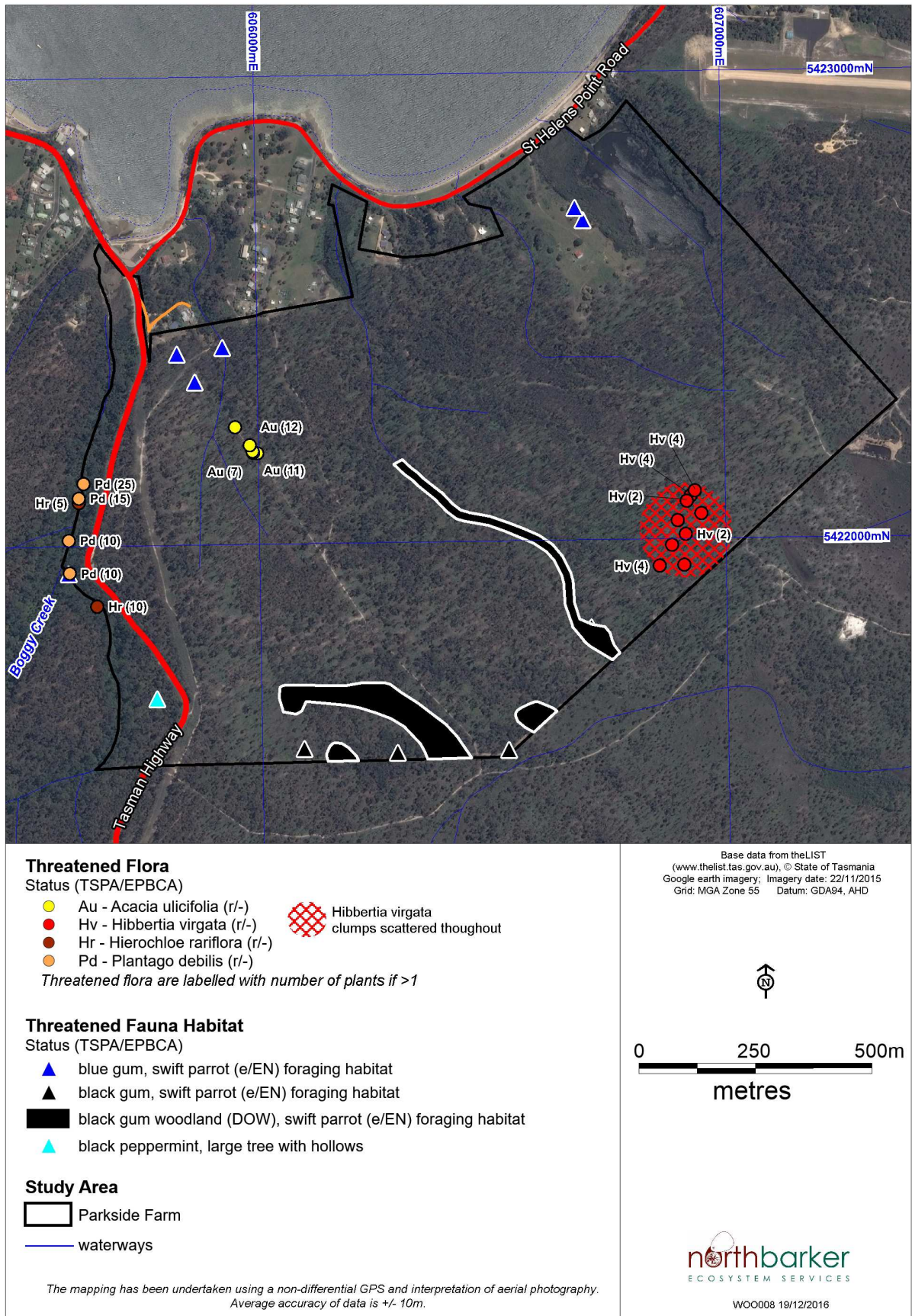


Figure 3: Threatened flora and fauna habitat



### 3.3 Weeds

A total of 10 introduced plants were recorded within the study area, including three species listed as 'declared' under the *Weed Management Act 1999*, namely:

- spanish heath (*Erica lusitanica*)
- blackberry (*Rubus fruticosus*)
- pampas grass (*Cortaderia selloana*)

Willow (*Salix* sp.) has also previously been recorded on the property in the drainage line adjoining the brick works (ARM 2010) but this species appears to have been controlled.

Spanish heath is the most abundant declared weed and occurs in dense patches along the drainage lines. Blackberry and pampas are relatively localised, and the latter has previously been sprayed with only a few surviving individuals remaining near the brick works.

The distribution of weeds is illustrated in Figure 4. Images of the declared weeds are shown below.



Spanish heath



Blackberry



Pampas grass



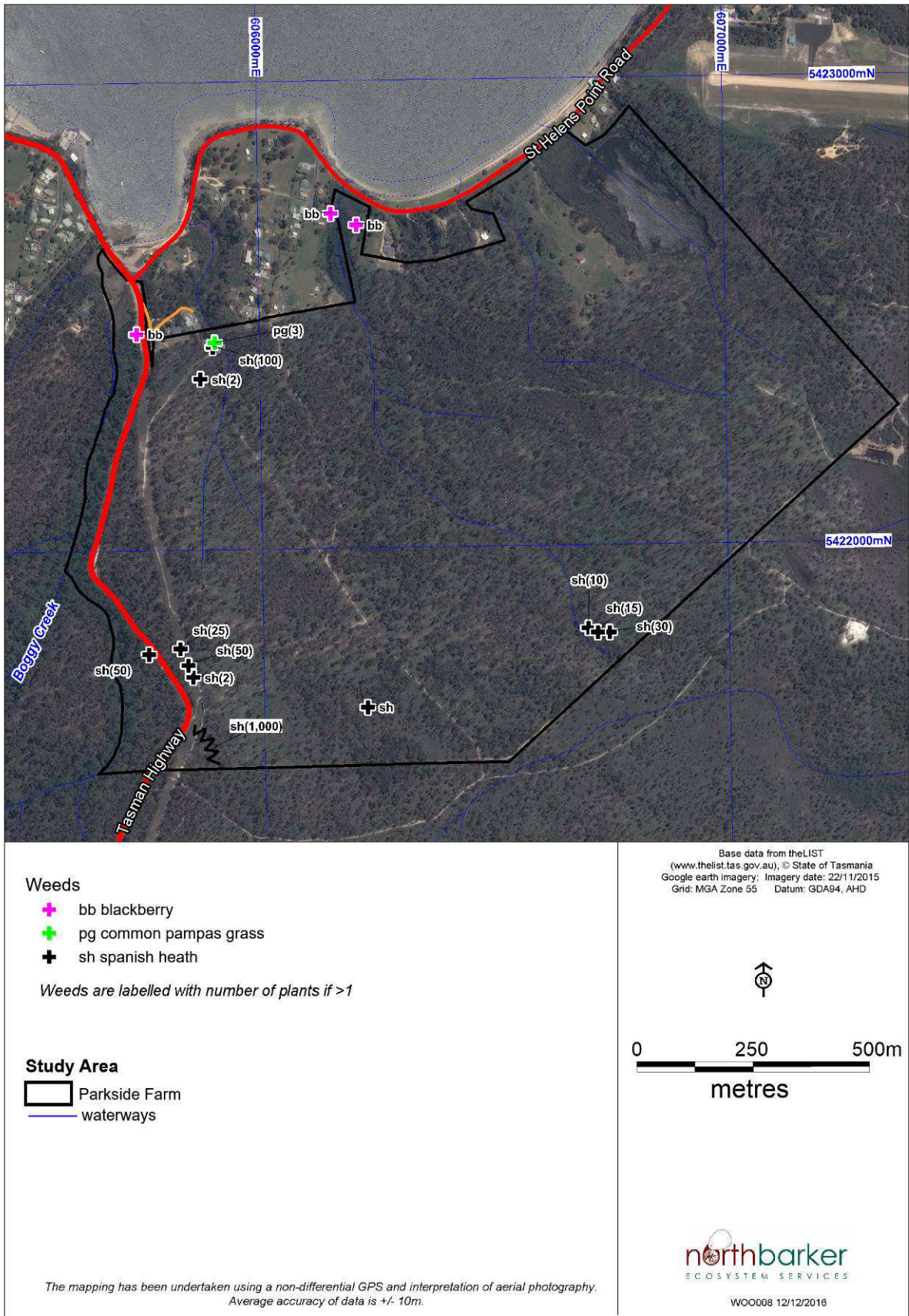


Figure 4: Distribution of weeds

### 3.4 Fauna habitat values

The native vegetation communities within the study area form part of contiguous corridor of coastal habitat extending along St Helens Point connecting to Scamander Tier, which collectively provides a range of habitats for native fauna.

This mosaic of vegetation types and connectivity with habitats elsewhere provide a range of habitat opportunities for mammals, birds, reptiles and invertebrates. Patches of dense cover occur throughout the site, particularly in the damper areas providing shelter to mammals. Open areas, including water bodies, provide opportunities for grazing, hunting and foraging. There is also access to seasonal water in the form of creeks. However, there is a scarcity of coarse woody debris (dead wood and fallen timber) and no mature hollow bearing trees were observed. Likewise, no dens or rocky outcrops were apparent.

Perhaps the most significant fauna habitat is the black gum (*Eucalyptus ovata*) woodland in the south of the study area along with the scattered mature blue gums along Boggy Creek. Collectively these would provide potential foraging habitat for the endangered swift parrot (*Lathamus discolor*), although most black gum trees have small diameters being not mature enough to provide nesting hollows or to produce large flowering canopies.

#### 3.4.1 Threatened fauna with the potential to occur

A search of the Natural Values Atlas indicates that a variety of threatened and/ or migratory fauna are known from the local area (5 km radius) or have the potential to occur there based on habitat mapping. Table 4 provides a description of the preferred habitat of these species and an assessment of the likelihood of their occurrence on site. Note that a 5 km radius captures marine, as well as terrestrial habitats; this is consequently reflected in the presence of marine species within lists of potentially occurring species based on habitat mapping. For the sake of simplicity in the present study, marine species, including coastal birds, that will not conceivably be impacted upon by actions under the present proposal have been excluded from Table 4, including whales, sharks, pelagic birds, etc.

**Table 4: Fauna species of conservation significance previously recorded, or which may potentially occur, within 5 km of the property<sup>23</sup>**

Species	Status TSPA/ EPBCA	Significance of habitat	Observations and Preferred Habitat <sup>24</sup>
<b>BIRDS</b>			
Wedge-tail eagle <i>Aquila audax fleayi</i>	Endangered / ENDANGERED	Low	16 records within 5 km including nest sites (most recent 2003). Requires large sheltered trees for nesting and is highly sensitive to disturbance during the breeding season. No nests observed, but suitable habitat present along Boggy Creek. Likely to hunt over the study area.
White-bellied sea-eagle <i>Haliaeetus leucogaster</i>	Vulnerable / -	Low	3 records within 500 m, including nest sites on the property to the west of Boggy Creek. Occurs in coastal habitats and large inland waterways. Similar habitat requirements to the wedge-tailed eagle but is more tolerant of disturbance. No nests recorded on the site.  No impact of existing nests nearby is anticipated by the proposal. The Tasman Highway exists between the nest and the development area. Building areas are set back a further 250 m within the lots.
Masked owl <i>Tyto novaehollandiae castanops</i>	Endangered / VULNERABLE	Low	2 records within 500 m (most recent 1996) and 4 within 5 km. Requires a mosaic of forest and open areas for foraging and large old-growth hollow-bearing white gum trees for nesting. No suitable nesting habitat recorded, but may hunt over study area.
Grey goshawk <i>Accipiter novaehollandiae</i>	Endangered / -	Low	4 records within 5 km (1998). Inhabits large tracts of wet forest and requires old trees in wet forest for nesting. No nests observed, but some suitable habitat present along Boggy Creek. May hunt over study area.
Swift parrot <i>Lathamus discolor</i>	Endangered / ENDANGERED	Moderate	2 record within 5 km (most recent 2014). Requires tree hollows for nesting and feeds on nectar of blue gum ( <i>E. globulus</i> ) and black gum ( <i>E. ovata</i> ) flowers. There are a large number of mature black and blue gums present but none had visible suitable hollows for nesting (see below).
Great crested grebe <i>Poliocephalus cristatus</i> subsp. <i>australis</i>	Vulnerable / -	Low	1 record within 5 km (1992). An uncommon species that inhabits rivers, lakes and estuaries and nest in heaped floating vegetation anchored in reed beds or drooping branches. Potential habitat in Parkside lagoon.
Eastern curlew <i>Numenius</i>	Endangered / -	Low	16 records within 5 km (most recent 2002). An uncommon summer migrant to Tasmania inhabiting coastal estuaries,

<sup>23</sup> Natural Values Report (17<sup>th</sup> Aug 2016), DPIPW<sup>24</sup> Bryant & Jackson 1999

Species	Status TSPA/ EPBCA	Significance of habitat	Observations and Preferred Habitat <sup>24</sup>
<i>madagascariensis</i>			mudflats and islands but it breeds in the northern hemisphere. May visit the lagoons and estuarine areas.
Australasian bittern <i>Botaurus poiciloptilus</i>	- / ENDANGERED	Moderate	2 record within 5 km. Inhabits wetlands, usually freshwater, with dense reed beds and rushes. Limited potential habitat around Parkside lagoon but unlikely to be impacted by the proposal.
<b>MAMMALS</b>			
Spotted-tailed quoll <i>Dasyurus maculatus</i>	Rare / VULNERABLE	Moderate	1 records within 5 km (most recent 1995). This naturally rare forest-dweller most commonly inhabits wet forest but also occurs in dry forest. The study area may occur within the home range of an animal. No survey for the animal was undertaken. The site is generally suboptimal with pockets that are productive e.g. near wetlands.
Eastern quoll <i>Dasyurus viverrinus</i>	- / ENDANGERED	Moderate	1 record within 500 m and 5 within 5 km. Species is extinct on mainland Australia and was recently listed on the EPBCA as a result of the decline in the Tasmanian population during the last decade. Currently the eastern quoll is not listed on the Tasmanian TSPA and remains widespread across eastern Tasmania. May forage in the area but the habitat is suboptimal in comparison to habitat descriptions.
Eastern barred bandicoot <i>Perameles gunnii</i>	- / VULNERABLE	Low Moderate	1 record within 500 m and 2 within 5 km (most recent 1991). This species favours a mosaic of open grassy areas for foraging with thick vegetation cover for shelter and nesting. It may forage in some sections of the study area but habitat is considered marginal. More suited to brown bandicoot.
Tasmanian devil <i>Sarcophilus harrisii</i>	Endangered / ENDANGERED	Low Moderate	1 record within 500 m (1995) and 4 within 5 km. Species widespread throughout the State in coastal heath, open dry sclerophyll forest and mixed sclerophyll-rainforest. No dens or scats were recorded. Species highly likely to hunt through sections of the study area from time to time.
New holland mouse <i>Pseudomys novaehollandiae</i>	Endangered / VULNERABLE	Low	In Tasmania it is known from coastal dry heath with a diverse understorey as well as adjacent forest and woodlands. It has a strong association with heath plants such as <i>Xanthorrhoea australis</i> , <i>Hypolaena fastigiata</i> , <i>Aotus ericoides</i> and <i>Lepidosperma concavum</i> . Marginal habitat is present.
<b>AMPHIBIANS</b>			

Species	Status TSPA/ EPBCA	Significance of habitat	Observations and Preferred Habitat <sup>24</sup>
Green and gold frog <i>Litoria raniformis</i>	Vulnerable / VULNERABLE	Low-Moderate if lagoon salinity suited.	3 records within 5 km (most recent 2000). Breeds in well vegetated freshwater wetlands. Marginal habitat within lagoon depending on salinity.
<b>INVERTEBRATES</b>			
Giant velvet worm <i>Tasmanipatus barretti</i>	Rare / -	Low	6 records within 5 km (most recent 2005). Preferred habitat is in narrow wet gullies, on creek and river flats and drainage lines on steep hillsides. They live deep within large decaying eucalypt logs or occasionally under moss-covered or shaded stones, in deep litter or on log surfaces among friable composting material. Marginal habitat in the vicinity of Boggy Creek but proposal is unlikely to adversely impact on the species if present.
Chaostola skipper <i>Antipodia chaostola</i>	Endangered/ ENDANGERED	Moderate	Potential to occur based on range boundaries but no records within 5km. Larvae of this species are reliant on the sedge <i>Gahnia radula</i> , which is abundant and widespread across the property. A search for larval shelters completed within HMA's and along roads. No shelters were located and no recent evidence of grazing was recorded.
<b>REPTILES</b>			
<i>Pseudemoia pagenstecheri</i> tussock skink	Vulnerable/-	None	Inhabits tussock grassland habitats where trees are absent, or occasional. Potential to occur based on range boundaries but no records within 5km. No tussock grassland present.
<b>FISH</b>			
Eastern dwarf galaxias <i>Galaxiella pusilla</i>	Vulnerable / VULNERABLE	None	Lives in still or slow-flowing waters such as ponds, swamps, drains and backwaters of streams, often containing dense aquatic or emergent plants. Potential to occur based on range boundaries but no records within 5km. No suitable habitat present.
Australian grayling <i>Prototroctes maraena</i>	Vulnerable / VULNERABLE	None	2 records within 5 km (1990). Occurs in unpolluted streams with large pools and major rivers. No suitable habitat.

Based on the fauna habitat survey and the assessment provided in Table 4, it is considered that a number of threatened fauna species may potentially occur within the study area. No breeding structures such as nests, tree hollows or potential den sites were observed during this survey. However, further surveys may be required for some of these species once a layout for the proposal and building areas have been finalised.

Swift Parrot (*Lathamus discolor*)

The swift parrot is a small fast-flying nectivorous parrot which occurs in eucalypt forests in south-eastern Australia. Swift Parrots breed in Tasmania and migrate to mainland Australia in autumn where they are semi-nomadic, foraging on flowering eucalypts in Victoria and New South Wales. In Tasmania the breeding range is largely restricted to the southeast coast within the range of grassy blue gum *Eucalyptus globulus* forest.

The Swift Parrot is listed as endangered under the TSPA and the EPBCA. It has suffered a significant decline in abundance, as has the extent of its foraging habitat. Blue gum forests within the breeding range of the species have been fragmented and substantially reduced in area by land clearance for agricultural, urban and coastal development, also, black gum forest has been extensively cleared for agriculture throughout its range in Tasmania.

The black gum woodland that occurs in the south of the property along with the blue gums along Boggy Creek and near Parkside Lagoon provides suitable foraging habitat for the Swift Parrot. It is unknown if nest sites occur on the property, but there are numerous large trees along Boggy Creek that may contain suitable hollows. The protection of the black gum woodland and large blue gums is required for both the threatened community value and as habitat for the swift parrot.

Spotted-tailed quoll (*Dasyurus maculatus maculatus*)

The spotted-tailed quoll is listed as vulnerable on the EPBCA and is rare in Tasmania under the TSPA. Tasmania is the stronghold for the spotted-tailed quoll although the species occurs at naturally low densities. The study area is outside of the core habitat areas, which are described as wet forests in a strip across northern Tasmania on lowland fertile sites with predictable rainfall; peripheral habitat and lower densities occur south of this northern strip, and in areas of the southern forests and the south-west.

The spotted-tailed quoll is generally a forest dwelling species, most common in wet forest types, but also found in dry forest, woodland and coastal heath. They are solitary with home ranges of about 1 500 ha and generally occurring at densities of about 1 per 300 ha but can be higher in core habitat<sup>31</sup>. The habitat in the study area is not core habitat. It is possible that the land forms part of the range of a spotted-tailed quoll. If present in the vicinity the animal is likely to be in low density. There is some potential denning habitat amongst rocks and log hollows in Boggy Creek. The animal is able to persist in a mosaic of native habitats and developed land. The spotted-tailed quoll is unlikely to be a constraint on development.

Eastern quoll (*Dasyurus viverrinus*)

The eastern quoll has recently been listed as nationally endangered under EPBCA. It is extinct on mainland Australia. The reason for its listing relates to inferred decline of the surviving Tasmanian population, over a 10 year period to 2009, exceeding 50%. The cause for the decline is not fully understood but The EPBC Scientific Advisory Committee has based great credence on a correlation of the decline with successive mild wet winters between 2001 and 2003, followed by very limited recovery in the population since<sup>25</sup>. Although subject to predation from domestic pets and feral cats it has persisted with these pressures for over a century. A notable distinction between Tasmania and mainland Australia is the absence of the European fox, although another major factor in the mainland decline is thought to be from disease. Changes in predator population biology, resulting from decline in Tasmanian devil populations, and subsequent behavioural change in feral cat behaviour, (increased nocturnal activity plus likely increase in population size) has been proposed as being a likely factor. Currently the eastern quoll is not listed on the Tasmanian TSPA and continues to be widespread and not uncommon throughout much of eastern Tasmania. Residential

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<sup>25</sup> Threatened Species Scientific Committee (2015)

develop and land clearance generally are not listed as threats to this species. The eastern quoll is unlikely to be a constraint on development.

#### Tasmanian devil

The Tasmanian devil is listed as Endangered under the EPBCA and TSPA. The devil 'core habitat' comprises the low to moderate annual rainfall zone of eastern and north-western Tasmania. This includes the eastern half of Tasmania, the northern coastal region, and a narrow strip down the west coast.

Preferred habitats include coastal scrub and sclerophyll forest<sup>26</sup>, with predicted densities highest in mixed patches of grazing land and open forest or woodland, and in coastal heathland<sup>27</sup>. These habitats support high densities of prey and facilitate hunting.

Targeted searches of opportunities for dens were carried out in the HMA's and along the road alignments. No suitable dens opportunities were recorded. Log provide the only opportunities and in the main these did not provide viable protection.

#### Chaostola skipper (*Antipodia chaostola*)

Tasmanian chaostola skipper is a butterfly endemic to Tasmania. It is mainly known from south-eastern and eastern Tasmania in dry lowland vegetation containing the larval food plants *Gahnia radula* (thatch sawsedge) and *G. microstachya* (slender sawsedge). This butterfly is endangered in Tasmania and is known only from a very few locations.

Adults of this butterfly are very rarely seen. The flight season is October and November. Larvae are known to live and feed in looped leaves of the thatch sawsedge *Gahnia radula*. The host plant is widely scattered across the study area, particularly in the east of the study area, providing potential habitat for the skipper.

There are no records of this species in the area, however part of the reason for the lack of records of this species may well be the lack of field searching that has been undertaken.

A targeted survey of the HMA's and roads was completed, this involved an average of 15 minutes of searching in each HMA. The range of search time was < 1 minute for sites with no suitable habitat to 25 minutes on sites with optimal habitat. The sites were characterised as optimal, suboptimal or not suitable (Figure 5). Extensive areas of *Gahnia* are present outside of the HMA's and road routes. No evidence of skippers was found.

#### Giant Velvet Worm (*Tasmanipatus barretti*)

This rare species is about 35-40 mm long, has 15 pairs of legs and lives deep in decaying logs which do not dry out. Giant Velvet Worms are restricted to the north east near Scamander where they occur from sea level to about 500 m ASL in a range of forest and scrub types. The preferred log types are *E. sieberi*, *E. viminalis* and *E. globulus*.

All of the preferred tree species are present in the study area but large decaying logs are uncommon. They do, however, occur along Boggy Creek and are unlikely to dry out in the wet forest, hence providing potential habitat. A survey may be required if the decaying logs in this area were to be disturbed. If the worms are present the logs should remain in place.

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<sup>26</sup> Guiler 1970

<sup>27</sup> Jones and Rose 1996



White-bellied Sea-eagle (*Haliaeetus leucogaster*)

The white-bellied sea-eagle is widely distributed around the coast of Tasmania and inland near lakes. Sea-eagles are a common site on St Helens Point and Humbug Point. Nests sites are known from west of Boggy Creek. Potential nesting habitat in the study area exists along Boggy Creek but no nest sites were observed during the survey.

No impact on existing nests nearby is anticipated by the proposal. The Tasman Highway exists between the known nest and the development area. Building areas are set back a further 250 m within the lots.

No Suitable nest trees were located in the impact areas.

Tasmanian Masked Owl (*Tyto novaehollandiae castanops*)

The Tasmanian masked owl is the largest of the masked owls in Australia. It is listed as endangered under the TSPA. It is a cryptic species and perhaps the least known of all large Australian owls. The masked owl is sedentary, occupying large well-spaced territories. Its home-range has been estimated at between 400 and 1200 ha depending on the quality of the habitat. The masked owl requires large hollows in eucalypts for nesting and sheltered cover or large hollows for roosting<sup>28</sup>. It is a perch and search hunter and forages opportunistically in forest, on forest edges and in open country.

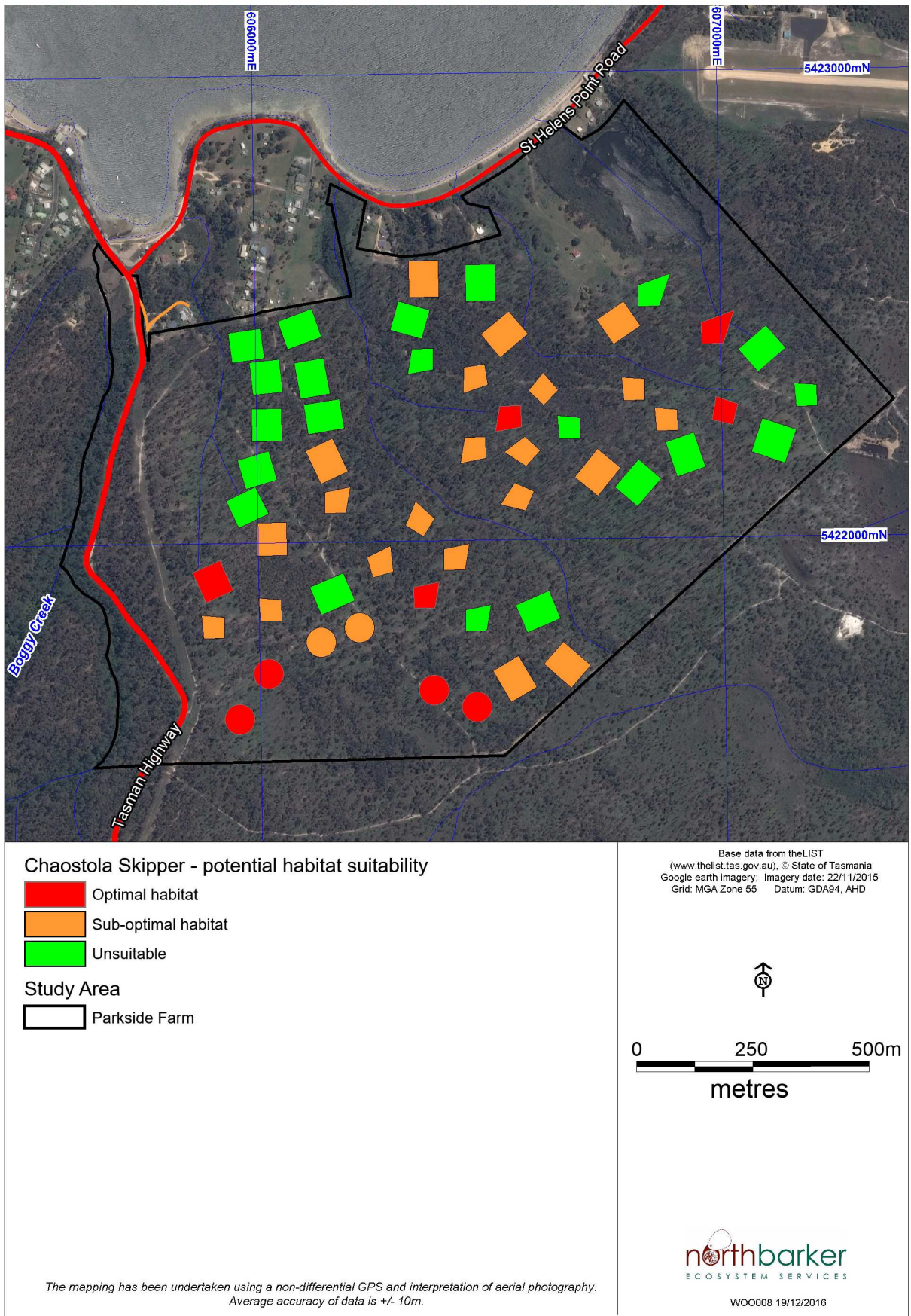
Tasmania is estimated to support only a small population of masked owls which are considered to be in decline as a result of the loss of old growth forest and suitable nesting habitat.

There are several large trees in the study area that are capable of supporting large nesting hollows along Boggy Creek. This area has been excluded from the development.

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<sup>28</sup> Bell & Mooney (2002) Distribution, Habitat and Abundance of Masked Owls (*Tyto novaehollandiae*) in Tasmania





**Figure 5: Distribution of the quality of potential chaostola skipper habitat in HMA's.**

## 4. Assessment of Impact and Mitigation

### 4.1 Native Vegetation

All of the information collected during the 2016 field survey has been collated with the most recent database records and information on threatened species and communities and attributed to constraints classes. The ranked range of values and associated constraint levels used were as follows:

#### Highest

- Records of flora and fauna species listed on the EPBCA 1999. For fauna this only includes confirmed records of den sites or active nest sites.
- Ecological communities listed under the EPBCA 1999. This does not include communities listed as Vulnerable as this category does not trigger the Act.

#### High

- Records and at least moderate potential habitat of flora species listed on the Tasmanian Threatened Species Protection Act 1995 (TSPA 1995) as vulnerable or endangered.
- Habitat of fauna species listed on the TSPA 1995. This includes confirmed records, den sites or active nest sites.
- Vegetation communities listed on the Tasmanian Nature Conservation Act 2002 (NCA 2002) or EPBCA as Vulnerable.

#### Medium

- Records and at least moderate potential habitat of flora species listed on the TSPA 1995 as rare.
- Potential habitat of fauna species listed on the EPBCA 1999 or the TSPA 1995.

The outcomes of this analysis are shown in Table 5 and are mapped in Figure 6.



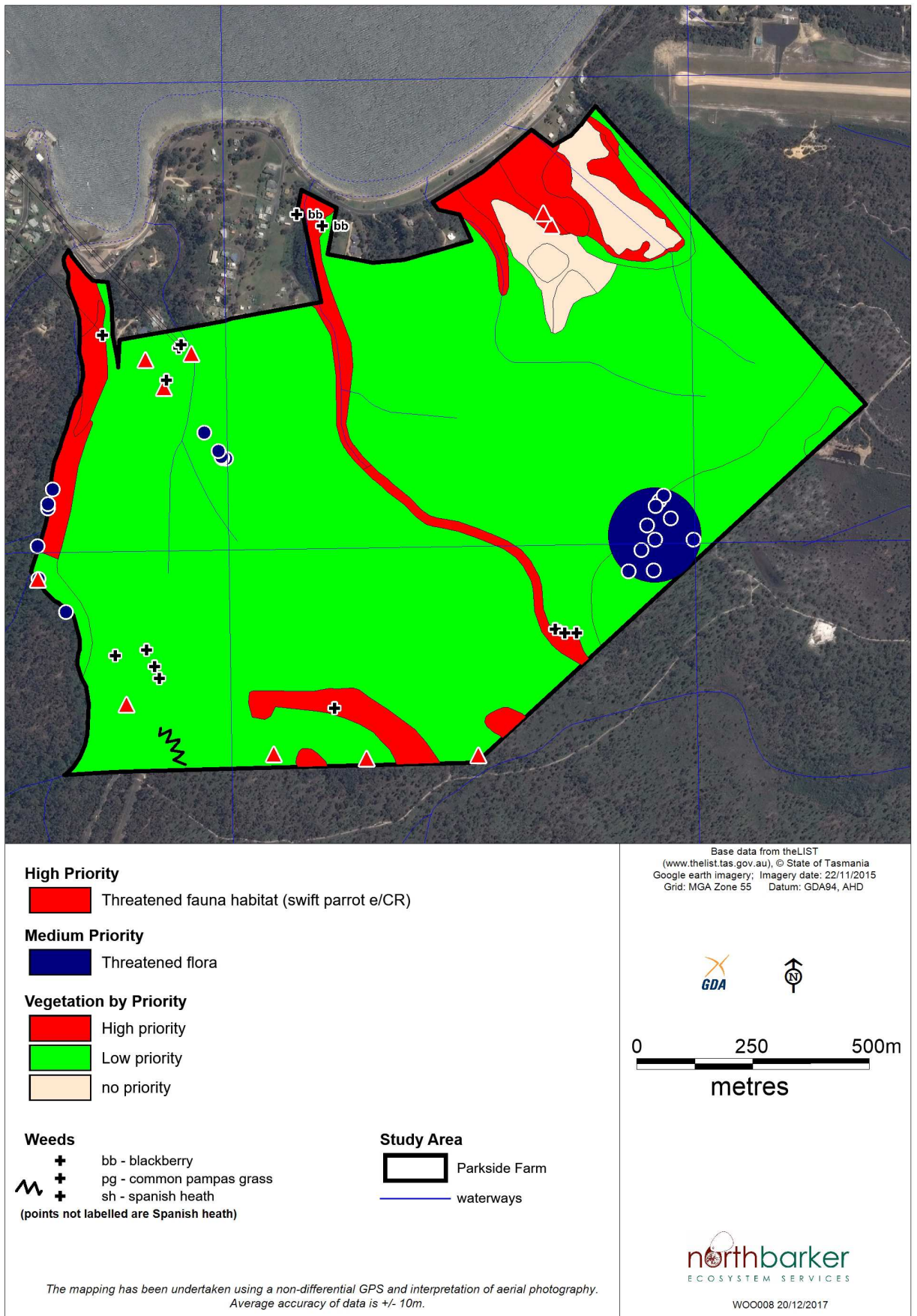


Figure 6: Constraints analysis map.

**Table 5: Results of constraints analysis ranked from highest to low**

<b>Highest</b>
<p>No values were given the highest level of constraint.</p> <p>While there are a number of threatened fauna listed under the EPBCA that are likely to forage across the study area, no eagle nests or potential quoll/devil dens were found and therefore the habitat is not considered to be critical to the survival of the species.</p>
<b>High</b>
<ul style="list-style-type: none"> <li>- <i>Eucalyptus viminalis</i> wet forest</li> <li>- <i>E. viminalis</i> / <i>E. globulus</i> coastal woodland</li> <li>- <i>E. ovata</i> heathy woodland</li> <li>- <i>Melaleuca ericifolia</i> swamp forest</li> <li>- Subtropical and Temperate Coastal Saltmarsh (Vulnerable EPBCA)</li> <li>- Wetland</li> </ul>
<b>Medium</b>
<ul style="list-style-type: none"> <li>- <i>Hibbertia virgata</i> (Rare TSPA)</li> <li>- <i>Acacia ulicifolia</i> (Rare TSPA)</li> <li>- <i>Plantago debilis</i> (Rare TSPA)</li> <li>- <i>Hierochloe rariflora</i> (Rare TSPA)</li> </ul>
<i>Potential habitat for</i>
<ul style="list-style-type: none"> <li>- Swift parrot (Endangered EPBCA, TSPA)</li> <li>- Wedge-tailed eagle (Endangered, EPBCA, TSPA)</li> <li>- Grey goshawk (Endangered, TSPA)</li> <li>- White bellied sea-eagle (Vulnerable TSPA)</li> <li>- Masked owl (Endangered, TSPA)</li> <li>- Giant velvet worm (Rare TSPA)</li> <li>- Spotted-tailed quoll (Vulnerable EPBCA, Rare TSPA) - widespread and not mapped</li> <li>- Eastern quoll (Endangered EPBCA) - widespread and not mapped</li> <li>- Tasmanian devil (Endangered EPBCA, TSPA) - widespread and not mapped</li> </ul>
<b>Low</b>
All other non threatened native vegetation communities.

#### 4.2 Threatened Flora

Two rare flora species occur in areas that may be suited to development – *Hibbertia virgata* and *Acacia ulicifolia*. These populations have been excluded from building areas.

*Plantago debilis* and *Hierochloe rariflora* occur along the banks of Boggy Creek in an area that is unlikely to be suited to development.

Any anticipated impacts to these species will necessitate applying for a 'permit to take' under the TSPA from DPIPW.

#### 4.3 Threatened Fauna

##### Swift parrot

Potential habitat for swift parrot is mainly coincident with the *Eucalyptus ovata* woodland along the southern boundary of the property, but also includes a number of mature *E. globulus* trees along Boggy Creek and elsewhere on the property (Figure 4). This habitat has been excluded from building areas and would benefit from protection by placing an instrument on Title.

Consideration should also be given to potential collision risks associated with housing development adjacent to foraging habitat. Building construction near foraging habitat needs to be sensitive to prevention of birds colliding with windows. This is best achieved by positioning no reflective windows so that birds cannot see reflection or through the building to the landscape on the other side.

##### Chaostola Skipper

Potential habitat for this species in the form of *Gahnia radula* is widespread across the property. Targeted surveys for larval shelters in areas of *G. radula* within the footprint of the HMA's and along roads were undertaken and no evidence of the skipper was found. Despite the occurrence of potential habitat this result is not unusual. While the skipper is rare the apparently suitable habitat is very common in eastern Tasmania.

##### Quolls and devil

The study area provides potential foraging habitat for Tasmanian devil, spotted tailed quoll and eastern quoll. However, no potential den sites were recorded during the surveys and it is unlikely that the proposed development will impact on the carrying capacity of these species. Targeted surveys of the HMA's and roads were undertaken for den opportunities.

##### Raptors

Potential nesting habitat for sea-eagle, wedge-tailed eagle, grey goshawk and masked owl is present in the mature wet forest along Boggy Creek. If this area is proposed for development a thorough nest and hollow search for these species should be completed. If nests are found it is unlikely that Permits for their destruction or disturbance would be granted and appropriate building locations would need to be adopted.

#### 4.4 Weeds

The occurrence of declared weeds in the area is relatively restricted, with the exception of Spanish heath which is prevalent along creek lines and poorly drained areas. The proposal has the potential to exacerbate infestations of weeds and further spread the weeds throughout the site if not managed appropriately.

Adoption of appropriate weed control methods and strict hygiene measures would mitigate the risk of further spread of declared and environmental weeds. A separate weed management plan should be prepared to address hygiene and formalise weed management.

## 5. Legislative Implications

### 5.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBCA)

There are a number of fauna species listed under the EPBCA that may utilise habitat in the study area as described in Section 3. The EPBCA is structured for self-assessment and the proponent must indicate whether or not the project is considered a 'controlled action' which if confirmed would require approval from the Commonwealth Minister. The level of control exerted by the Act will depend upon the level of significance of the proposed impact.

If the impact is likely to be insignificant the proposal may be permitted without further control. If significant impacts are considered likely, and the action is deemed to be a 'controlled action', then the referral will need to be assessed and approved by the Minister before it can go ahead and conditions may be imposed.

The proposal could conceivably impact on a number of EPBC listed values. However, in the main these impacts are potentially the loss of about 24 ha of foraging habitat of mammals that may occur in low density (specifically spotted tailed quoll and Tasmanian devil) and for which extensive habitat is present nearby. The impacts are not listed as key threats and are unlikely to cause a measurable decline.

A survey of *G. radula* within HMA's and along roads was undertaken and no evidence of the skipper was found; it remains possible that the skipper is present on the property but the survey effort was sufficient to provide a high likelihood of detection if it was present in the areas inspected.

### 5.2 Tasmanian Threatened Species Protection Act 1995 (TSPA)

There are a number of threatened species listed under the TSPA which have been identified within the property as described in Section 3. Any proposal that is likely to impact on a species listed on this Act will require a Permit.

See Nature Conservation Act 2002 below.

### 5.3 Tasmanian Weed Management Act 1999 (WMA)

The relevant statutory weed management plans define Break O'Day as a Zone A municipality for pampas grass (*Cortaderia selloana*) and a Zone B for Spanish heath (*Erica lusitanica*) and blackberry (*Rubus fruticosus*).

According to the provisions of the *Weed Management Act 1999* Zone A municipalities are those with isolated occurrences of a declared weed and eradication of existing infestations is recommended. Zone B municipalities are those which host moderate or large infestations of the declared weed that are not deemed eradicable because the feasibility of effective management is low at this time. Therefore, the objective is containment of infestations. This includes preventing spread of the declared weed from the municipality or into properties currently free of the weed or which have developed or are implementing a locally integrated weed management plan for that species. As well there is a requirement to prevent spread of the weeds to properties containing sites for significant flora, fauna and vegetation communities.

Properties containing declared weeds are potentially subject to the directives of the Regional Weed Management Officer.

### 5.4 Tasmanian Nature Conservation Act 2002 (NCA)

The decommissioning of dens, should they be located, requires a Permit under this Act.

The NCA lists Tasmanian threatened vegetation communities; however, it does not impose any regulation over their clearance. State authority is limited to regulation through the Forest Practices Act 1986 which is excluded where approvals are made through LUPAA such as a local authority planning permit. Therefore, the decision to

allow for clearance is left to Council and the Tasmanian Planning Commission where changes to the Planning Scheme are required.

The NCA provides a mechanism for protecting native vegetation through conservation covenants.

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

LUPAA states that 'in determining an application for a permit, a planning authority must (amongst other things) seek out the objectives set out in Schedule 1<sup>29</sup>.

Schedule 1 includes 'The objectives of the Resource Management and Planning System of Tasmania' which are (amongst other things):

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

Sustainable development includes 'avoiding, remedying or mitigating any adverse effects of activities on the environment'<sup>30</sup>.

### **5.6 Break O'Day Interim Planning Scheme 2013**

The property is currently zoned Environmental Living under the interim planning scheme 2013 (IPS). The following assessment responds to a rezoning application to have the land zoned as rural living.

A small part of the site is subject to the Flood Prone Areas Code (E5) and another small area is Priority Habitat. The entire lot is native vegetation.

Figure 2 illustrates the lot and road layout over vegetation. Figure 7 illustrates the lots and Fire HMA's as well as building exclusion areas and priority vegetation.

The relevant Code in respect of natural values is the Biodiversity Code Section E8 of the IPS. The proposal is not exempt from the code.

The purpose of the code is to:

- a) protect, conserve and enhance the region's biodiversity in consideration of the extent, condition and connectivity of critical habitats and priority vegetation communities, and the number and status of vulnerable and threatened species; and
- b) ensure that development is carried out in a manner that assists the protection of biodiversity by:
  - i) minimising vegetation and habitat loss or degradation; and
  - ii) appropriately locating buildings and works; and
  - iii) offsetting the loss of vegetation through protection of other areas where appropriate.

The code applies to development and use of land:

- a) within the area identified as priority habitat on the planning scheme maps; or
- b) for the removal of native vegetation.

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<sup>29</sup> Section 51(2)(b) – Part 4 Enforcement of Planning Control – Division 2 Development Control (*LUPPA 1993*)

<sup>30</sup> page 56 – *LUPPA 1993*



Priority habitat means the areas identified on the planning scheme maps as priority habitat. Similar habitats that are not mapped are not priority habitat.

The Biodiversity Code does not break down Priority habitat into components, for example threatened species or vegetation or specific habitats and as such all priority habitat is treated in the same way by the Biodiversity Code.

Table 2 above illustrates the lot and road layout over the vegetation. Table 6 indicates the area of vegetation in each land use category illustrated in Figure 6. For the purpose of the subdivision the roads and building footprints will be cleared of native vegetation and the vegetation will need to be cleared or managed in the bushfire hazard management areas and possibly along boundary fences.

### **Development Standards**

The relevant Development standard is *habitat and vegetation management*. The objective is to ensure that:

- a) vegetation identified as having conservation value as habitat has priority for protection and is appropriately managed to protect those values; and
- b) the representation and connectivity of vegetation communities is given appropriate protection when considering the impacts of use and development.

### **Compliance with Biodiversity Code:**

The current proposal avoids the clearance of vegetation within priority habitat and so meets Acceptable Solution A1.2 Development does not clear or disturb native vegetation within areas identified as priority habitat. One HMA overlaps priority habitat by 0.05 ha.

The current proposal requires the clearance of areas of native vegetation for roads and so does not meet the Acceptable solution A2 because the proposal does not require a Forest Practices Plan; and so must rely on Performance Criteria (P2.1).

**Performance criteria:** P2.1 applies to native vegetation.

P2.1 Clearance or disturbance of native vegetation must be consistent with the purpose of this Code and not unduly compromise the representation of species or vegetation communities of significance in the bioregion having regard to a-f below:

- a) quality and extent of the vegetation or habitat affected by the proposal, including the maintenance of species diversity and its value as a wildlife corridor; and
- b) means of removal; and
- c) value of riparian vegetation in protecting habitat values; and
- d) impacts of siting of development (including effluent disposal) and vegetation clearance or excavations, in proximity to habitat or vegetation; and
- e) need for and adequacy of proposed vegetation or habitat management; and
- f) conservation outcomes and long-term security of any offset in accordance with the General Offset Principles for the RMPS, Department of Primary Industries, Parks, Water and Environment.

**Compliance with P2.1:** The areas of native vegetation that are proposed to be cleared for roads and managed or cleared from BHMA's 5 ha and 19.4 ha respectively.

Clearance is confined to DSO and DAC vegetation types. Each vegetation type is well represented and well reserved in the Bioregion.

a) the areas proposed to be cleared total about 24.5 ha of native vegetation but do not include areas of significant habitat for a threatened fauna and flora species. The areas identified as significant are protected in no build areas.

b) vegetation will be removed using approved practices complying with hygiene guidelines to minimise the risk of weeds spreading from the site.

c) The central drainage line is protected from building and outside of the BHMA's.

d) Effluent disposal occur within each HMA.

e) The balance of native vegetation may be retained.

f) In keeping with the principals of the RMPS DPIPWE has developed offset guidelines. The guidelines are qualitative and provide no guidance on ratios at which offsets should be applied. In this case no significant extent of priority values, nor values that accord with significant habitat or threatened vegetation are proposed to be cleared. Just 0.04 ha of DOW (a threatened community) is impacted by a road. As such no values or significant areas of threatened values that normally require offsets are being affected.

**Table 6. The area of each Tasveg unit in Bushfire hazard management areas, roads, the balance and total area (ha).**

Description	BHMA	Road	Balance	Grand Total
(ARS) Saline sedgeland/rushland			2.46	2.46
(DAC) Eucalyptus amygdalina coastal forest and woodland	0.17		8.26	8.43
(DOW) Eucalyptus ovata heathy woodland		0.04	4.38	4.42
(DSO) Eucalyptus sieberi forest and woodland not on granite	19.23	4.96	98.73	122.95
(DVC) Eucalyptus viminalis - Eucalyptus globulus coastal forest			1.20	1.20
(FAG) Agricultural land			1.97	1.97
(FPF) Pteridium esculentum fernland			0.60	0.60
(FUR) Urban areas			0.49	0.49
(NME) Melaleuca ericifolia swamp forest			5.78	5.78
(OAQ) Water, sea			2.71	2.71
(SHW) Wet heathland			0.38	0.38
(SMR) Melaleuca squarrosa scrub			1.26	1.26
(WOB) Eucalyptus obliqua forest with broad-leaf shrubs			0.97	0.97
(WVI) Eucalyptus viminalis wet forest			1.49	1.49
<b>Grand Total</b>	<b>19.40</b>	<b>5.00</b>	<b>130.73</b>	<b>155.12</b>

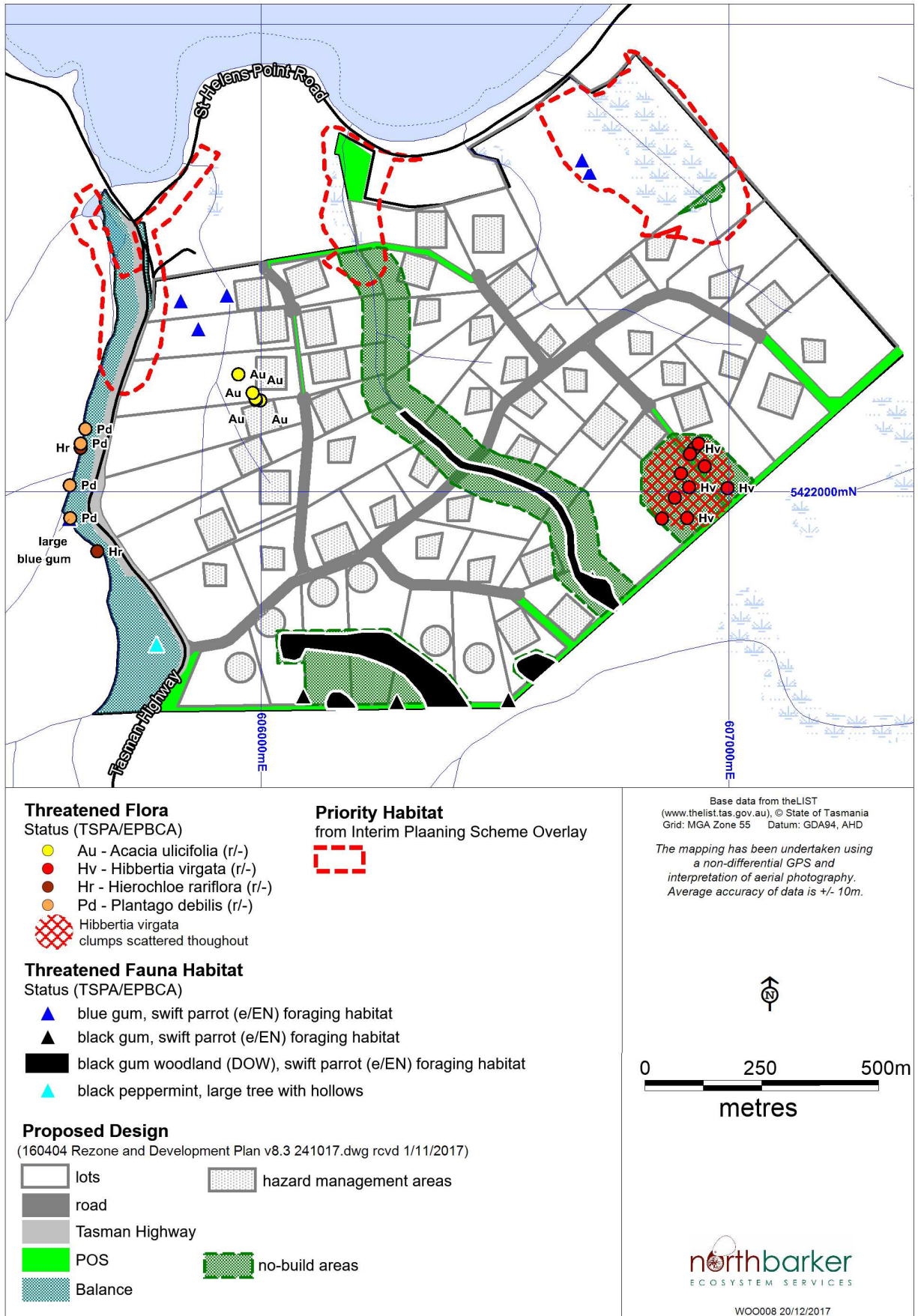


Figure 7. Distribution of constraints, HMA's, roads and priority vegetation.

## 6. Conclusion and recommendations

Parkside Farm supports a large area of native vegetation, including five threatened vegetation communities and wetland ecosystems. The majority of the area is dominated by extensive and well reserved forest types. The land provides habitat for four threatened flora species and potential habitat for a number of threatened fauna species. None of the habitats are priority habitats.

Our earlier draft report made a number of recommendations in respect of minimising and avoiding impact on significant habitats. In response, the habitats have been avoided by the design of the subdivision and placement of roads and BHMA's.

Based on the avoidance of habitat constraints identified on maps and subsequent surveys, the proposal detailed above complies with the IPS under the Performance Criteria P2.1 of the Biodiversity Code.

There are two wetlands that should be considered under the Water Quality Code with regard to potential impacts to hydrological processes and effluent.

### **Recommendations:**

1. Develop a weed management plan for the control of pampas grass, Spanish heath and blackberry, including the construction phase of the development, post construction phase and ongoing control.
2. Develop a *Phytophthora cinnamomi* hygiene strategy including the construction phase and ongoing control.

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## Appendix 1 - Definitions of Conservation Values of Plant and Animal Species

### SPECIES OF NATIONAL SIGNIFICANCE

#### **Listed in Commonwealth *Environment Protection and Biodiversity Conservation Act 1999***

The *EPBC Act* has six categories of threat status for species:

1. **Extinct** - If at a particular there is no reasonable doubt that the last member of the species has died
2. **Extinct in the wild** - If it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or If it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form
3. **Critically endangered** - If at a particular time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria
4. **Endangered** - If it is not critically endangered; and it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria
5. **Vulnerable** - If at a particular time it is not critically endangered or endangered; and it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
6. **Conservation dependent** - If, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years

### SPECIES OF STATE SIGNIFICANCE

#### **Listed in Tasmanian *Threatened Species Protection Act 1995 (TSP Act)***

Threatened flora and fauna species in Tasmania are listed in Schedules 3 (extinct or endangered), 4 (vulnerable) or 5 (rare). These three categories are defined in Section 15 of the Act.

1. **Extinct** - If no occurrence of the taxon in the wild can be confirmed during the past 50 years
2. **Endangered** - If it is in danger of extinction because long-term survival is unlikely while the factors causing it to be endangered continue operating.
3. **Vulnerable** - If it is likely to become an endangered taxon while the factors causing it to be vulnerable continue operating.
4. **Rare** - If it has a small population in Tasmania that is not endangered or vulnerable but is at risk.”

Species that have been nominated and approved by the Scientific Advisory Committee for listing in the Act

### SPECIES OF REGIONAL OR GENERAL SIGNIFICANCE

The following definitions are from three publications: Flora Advisory Committee 1994, Vertebrate Advisory Committee 1994, Invertebrate Advisory Committee 1994

Flora only - Species listed as rare but not necessarily 'at risk' (**r3**)

Fauna only – Species requiring monitoring (**m**)

Both – Species of unknown risk status (**k**) in Tasmania, or thought to be uncommon within region, or a species having a declining range or populations within the area.

Species considered to be outside its normal range or of an unusual form as determined and justified in the body of the report.

Species identified in regional studies as being of conservation significance that are not listed in current legislation

Species that have been recognised but have not been formally described in a published journal that are thought to significant as determined and justified in the body of the report.

Plant species that are not known to be reserved. To be so it must be known to exist in at least one secure Reserve. Secure reserves include reserves and parks requiring the approval of both Houses of Parliament for their revocation. They include: National Parks, Aboriginal Sites, Historic Sites, Nature Reserves, State Reserves, Game Reserves, Forest Reserves, Wellington Park, and insecure reserves in the World Heritage Area which is protected by international agreement under the World Heritage Convention.

## Appendix 2 - Legislative implications of threatened species

### **Tasmanian *Threatened Species Protection Act 1995***

Threatened flora and fauna species in Tasmania are listed in Schedules 3 (endangered) and 4 (vulnerable) of the Threatened Species Protection Act, 1995. Rare species that are considered to be 'at risk' are listed in Schedule 5 of the Act. These three categories are defined in Section 15 of the Act.

1. "An extant taxon of native flora or fauna may be listed as **endangered** if it is in danger of extinction because long-term survival is unlikely while the factors causing it to be endangered continue operating.
2. A taxon of native flora or fauna may be listed as **vulnerable** if it is likely to become an endangered taxon while the factors causing it to be vulnerable continue operating.
3. A taxon of native flora or fauna may be listed as **rare** if it has a small population in Tasmania that is not endangered or vulnerable but is at risk."

The Act provides mechanisms for protecting these species from threatening processes the implementation of 'recovery plans', 'threat abatement plans', 'land management plans', public authority agreements', and 'interim protection orders'.

Section 51 (a) of the TSPA states that: "A person must not knowingly, without a permit - take, trade in, keep or process any listed flora or fauna". The Act defines 'take' as including: "kill, injure, catch, damage, destroy and collect. A land manager is therefore required to obtain a permit from the Tasmanian Department of Primary Industries, Water and Environment (DPIPWE) to carry out management that may adversely affect any of the species listed in the Act

**Commonwealth *Environment Protection and Biodiversity Conservation Act 1999***

The EPBC Act establishes a process for assessing actions that are likely to have impacts of *national environmental significance*. Such impacts include World Heritage Areas, RAMSAR Wetland sites of international importance, migratory species protected under international agreements, nuclear actions, the Commonwealth marine environment and **nationally threatened species and communities**.

Threatened species are defined in several categories:

**1. Extinct**

- If at a particular time there is no reasonable doubt that the last member of the species has died

**2. Extinct in the wild**

- If it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
- If it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form

**3. Critically endangered**

- If at a particular time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria

**4. Endangered**

- If it is not critically endangered; and it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria

**5. Vulnerable**

- If at a particular time it is not critically endangered or endangered; and it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

**6. Conservation dependent**

- If, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years

An action that is likely to affect species that are listed in any of the above categories may require ministerial approval unless the Commonwealth Environment Minister has granted an exemption. The Act establishes a **referral process** to Environment Australia to determine whether an action requires a formal **approval** and thus would be required to proceed through the **assessment and approval process**.

A referral must provide sufficient information to allow the Minister to make a decision. The Minister is then required to make a decision within 20 business days of the referral. The Minister may decide an approval is not necessary if the action is taken in a specified manner. The action may not require approval but may require a **permit** if undertaken on Commonwealth land. If an approval is required then an **environmental assessment** must be carried out. In such instances the environmental assessment approach will be determined by the Minister and may vary from preliminary documentation to a full public inquiry depending on the scale and complexity of the impact.

### Appendix 3 - Vascular Plant Species

#### Status codes:

ORIGIN	NATIONAL SCHEDULE	STATE SCHEDULE
i - introduced	EPBC Act 1999	TSP Act 1995
d - declared weed WM Act	CR - critically endangered	e - endangered
en - endemic to Tasmania	EN - endangered	v - vulnerable
t - within Australia, occurs only in Tas.	VU - vulnerable	r - rare

#### Sites:

1	DSO	25/10/2016	Joe Quarmby
2	DAC	25/10/2016	Joe Quarmby
3	DOW	25/10/2016	Joe Quarmby
4	NME	25/10/2016	Joe Quarmby
5	WOB	25/10/2016	Joe Quarmby
6	DVG	25/10/2016	Joe Quarmby
7	WVI	25/10/2016	Joe Quarmby
8	ARS	25/10/2016	Joe Quarmby
9	SMR	25/10/2016	Joe Quarmby
10	FUR, FAG & FPF	25/10/2016	Joe Quarmby

Site	Name	Common name	Status
	<b>DICOTYLEDONAE</b>		
	<b>AIZOACEAE</b>		
8	<i>Carpobrotus rossii</i>	native pigface	
	<b>APIACEAE</b>		
4 8	<i>Apium prostratum</i>	sea celery	
4	<i>Hydrocotyle hirta</i>	hairy pennywort	
1 2	<i>Xanthosia pilosa</i>	woolly crossherb	
	<b>ASTERACEAE</b>		
5 7	<i>Bedfordia salicina</i>	tasmanian blanketleaf	en
1 6 10	<i>Cassinia aculeata subsp. aculeata</i>	dollybush	
1	<i>Coronidium scorpioides</i>	curling everlasting	
1	<i>Euchiton sp.</i>	cudweed	
1 2 3	<i>Lagenophora huegelii</i>	coarse bottledaisy	
5 7	<i>Olearia argophylla</i>	musk daisybush	
1 4 5 6	<i>Olearia lirata</i>	forest daisybush	
5	<i>Olearia stellulata</i>	sawleaf daisybush	
6	<i>Ozothamnus ferrugineus</i>	tree everlastingbush	
1	<i>Senecio glomeratus</i>	shortfruit purple fireweed	
1 4 6 10	<i>Senecio minimus</i>	shrubby fireweed	
	<b>BORAGINACEAE</b>		
4	<i>Myosotis sylvatica</i>	garden forgetmenot	i
	<b>CAMPANULACEAE</b>		



39	<i>Lobelia anceps</i>	angled lobelia	
12	<i>Wahlenbergia sp.</i>	bluebell	
	<b>CASUARINACEAE</b>		
12	<i>Allocasuarina littoralis</i>	black sheoak	
	<b>CHENOPODIACEAE</b>		
48	<i>Rhagodia candolleana subsp. candolleana</i>	coastal saltbush	
8	<i>Sarcocornia quinqueflora</i>	beaded glasswort	
8	<i>Suaeda australis</i>	southern seablite	
	<b>CLUSIACEAE</b>		
3	<i>Hypericum gramineum</i>	small st johns-wort	
	<b>CONVOLVULACEAE</b>		
57	<i>Dichondra repens</i>	kidneyweed	
	<b>CUNONIACEAE</b>		
25	<i>Bauera rubioides</i>	wiry bauera	
	<b>DILLENiaceae</b>		
1	<i>Hibbertia acicularis</i>	prickly guineaflower	
15	<i>Hibbertia empetrifolia subsp. empetrifolia</i>	scrambling guineaflower	
2	<i>Hibbertia prostrata</i>	prostrate guineaflower	
12	<i>Hibbertia riparia</i>	erect guineaflower	
1	<i>Hibbertia sericea var. sericea</i>	silky guineaflower	
2	<i>Hibbertia virgata</i>	twiggy guineaflower	r
	<b>DROSERACEAE</b>		
13	<i>Drosera macrantha</i>	climbing sundew	
	<b>EPACRIDACEAE</b>		
1	<i>Astroloma humifusum</i>	native cranberry	
1	<i>Epacris impressa</i>	common heath	
9	<i>Epacris lanuginosa</i>	swamp heath	
12	<i>Leucopogon australis</i>	spike beardheath	
1	<i>Leucopogon collinus</i>	white beardheath	
4	<i>Leucopogon parviflorus</i>	coast beardheath	
2	<i>Monotoca linifolia</i>	nodding broomheath	en
9	<i>Sprengelia incarnata</i>	pink swampheath	
	<b>ERICACEAE</b>		
135	<i>Erica lusitanica</i>	spanish heath	d
	<b>EUPHORBIACEAE</b>		
57	<i>Beyeria viscosa</i>	pinkwood	
4	<i>Euphorbia lathyris</i>	caper spurge	i
1	<i>Poranthera microphylla</i>	small poranthera	
2	<i>Ricinocarpos pinifolius</i>	wedding bush	

**FABACEAE**

1 2	<i>Aotus ericoides</i>	golden pea	
1	<i>Bossiaea cinerea</i>	showy bossiaea	
3	<i>Bossiaea prostrata</i>	creeping bossiaea	
1 2	<i>Dillwynia cinerascens</i>	grey parrotpea	
2 9	<i>Dillwynia glaberrima</i>	smooth parrotpea	
2	<i>Dillwynia sericea</i>	showy parrotpea	
2	<i>Gompholobium huegelii</i>	common wedgepea	
1	<i>Kennedia prostrata</i>	running postman	
2	<i>Phyllota diffusa</i>	heath bushpea	en
5	<i>Pultenaea daphnoides</i>	heartleaf bushpea	
1	<i>Pultenaea juniperina</i>	prickly beauty	
3	<i>Sphaerolobium minus</i>	eastern globepea	

**FUMARIACEAE**

4	<i>Fumaria sp.</i>	fumitory	i
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**GERANIACEAE**

1	<i>Pelargonium australe</i>	southern storksbill	
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**GOODENIACEAE**

1 2	<i>Goodenia lanata</i>	trailing native-primrose	
1 4	<i>Goodenia ovata</i>	hop native-primrose	

**HALORAGACEAE**

1 3	<i>Gonocarpus micranthus subsp. micranthus</i>	creeping raspwort	
2 5	<i>Gonocarpus tetragynus</i>	common raspwort	
1 3	<i>Gonocarpus teucroides</i>	forest raspwort	

**MIMOSACEAE**

7	<i>Acacia dealbata subsp. dealbata</i>	silver wattle	
1	<i>Acacia genistifolia</i>	spreading wattle	
5 7	<i>Acacia leprosa var. graveolens</i>	varnish wattle	
4	<i>Acacia longifolia subsp. sophorae</i>	coast wattle	
6 10	<i>Acacia mearnsii</i>	black wattle	
1 7	<i>Acacia melanoxylon</i>	blackwood	
1	<i>Acacia mucronata</i>	variable sallow wattle	
1	<i>Acacia myrtifolia</i>	redstem wattle	
1 6 10	<i>Acacia paradoxa</i>	thorn wattle	i
1	<i>Acacia stricta</i>	hop wattle	
2	<i>Acacia suaveolens</i>	sweet wattle	
1	<i>Acacia terminalis</i>	sunshine wattle	
1	<i>Acacia ulicifolia</i>	juniper wattle	r
1 3 4 5	<i>Acacia verticillata</i>	prickly mimosa	

**MYRTACEAE**

1 2	<i>Eucalyptus amygdalina</i>	black peppermint	en
1 5 6	<i>Eucalyptus globulus subsp. globulus</i>	tasmanian blue gum	
1 5 7	<i>Eucalyptus obliqua</i>	stringybark	
3	<i>Eucalyptus ovata var. ovata</i>	black gum	
1 2 3	<i>Eucalyptus sieberi</i>	ironbark	
1 3 5 6 7	<i>Eucalyptus viminalis subsp. viminalis</i>	white gum	
2	<i>Euryomyrtus ramosissima</i>	heath-myrtle	
1 2 3 9	<i>Leptospermum scoparium</i>	common tea-tree	
4 7 8	<i>Melaleuca ericifolia</i>	coast paperbark	
3	<i>Melaleuca gibbosa</i>	slender honeymyrtle	
3 9	<i>Melaleuca squarrosa</i>	scented paperbark	

**OXALIDACEAE**

6	<i>Oxalis perennans</i>	grassland woodsorrel	
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**PITTOSPORACEAE**

4 5 6	<i>Bursaria spinosa subsp. spinosa</i>	prickly box	
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**PLANTAGINACEAE**

5	<i>Plantago debilis</i>	shade plantain	r
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**POLYGALACEAE**

9	<i>Comesperma ericinum</i>	heath milkwort	
2 3	<i>Comesperma volubile</i>	blue lovecreeper	

**PRIMULACEAE**

6	<i>Lysimachia arvensis</i>	scarlet pimpernel	i
8	<i>Samolus repens var. repens</i>	creeping brookweed	

**PROTEACEAE**

1 3	<i>Lomatia tinctoria</i>	guitarplant	en
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**RANUNCULACEAE**

1	<i>Clematis sp.</i>	clematis	
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**RHAMNACEAE**

5 7	<i>Pomaderris apetala</i>	common dogwood	
1	<i>Pomaderris elliptica</i>	yellow dogwood	

**ROSACEAE**

1 5 6	<i>Acaena novae-zelandiae</i>	common buzzy	
4	<i>Cotoneaster sp.</i>	cotoneaster	i
4 5	<i>Rubus fruticosus</i>	blackberry	d

**RUBIACEAE**

5 7	<i>Coprosma quadrifida</i>	native currant	
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**RUTACEAE**

9	<i>Boronia parviflora</i>	swamp boronia	
1	<i>Correa reflexa</i>	correa	

**SANTALACEAE**

1 2 7	<i>Exocarpos cupressiformis</i>	common native-cherry	
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1 2	<i>Leptomeria drupacea</i>	erect currantbush	
3	<i>Leptomeria glomerata</i>	creeping currantbush	en
	<b>SOLANACEAE</b>		
6	<i>Solanum laciniatum</i>	kangaroo apple	
	<b>STACKHOUSIACEAE</b>		
1 2	<i>Stackhousia monogyna</i>	forest candles	
	<b>STYLIDIACEAE</b>		
1	<i>Stylidium sp.</i>	triggerplant	
	<b>THYMELAEACEAE</b>		
2	<i>Pimelea glauca</i>	smooth riceflower	
1	<i>Pimelea humilis</i>	dwarf riceflower	
	<b>VIOLACEAE</b>		
3	<i>Viola hederacea</i>	ivy leaf violet	
	<b>MONOCOTYLEDONAE</b>		
	<b>CYPERACEAE</b>		
1 4 8	<i>Baumea juncea</i>	bare twigsedge	
4	<i>Carex appressa</i>	tall sedge	
6 10	<i>Carex iynx</i>	tussock sedge	
10	<i>Cyperus eragrostis</i>	drain flatsedge	i
4 8	<i>Gahnia filum</i>	chaffy sawsedge	
1 3 5	<i>Gahnia grandis</i>	cutting grass	
1 2	<i>Gahnia radula</i>	thatch sawsedge	
3 5 6	<i>Gahnia sieberiana</i>	redfruit sawsedge	
9	<i>Gymnoschoenus sphaerocephalus</i>	buttongrass	
4	<i>Isolepis inundata</i>	swamp clubsedge	
1 2	<i>Lepidosperma concavum</i>	sand swordsedge	
1 3	<i>Lepidosperma laterale</i>	variable swordsedge	
5	<i>Lepidosperma longitudinale</i>	spreading swordsedge	
3	<i>Schoenus lepidosperma subsp. lepidosperma</i>	slender bogsedge	
	<b>IRIDACEAE</b>		
1 2 3 5 7	<i>Diplarrena moraea</i>	white flag-iris	
3	<i>Patersonia occidentalis</i>	long purpleflag	
	<b>JUNCACEAE</b>		
4 8	<i>Juncus kraussii subsp. australiensis</i>	sea rush	
4 6	<i>Juncus pallidus</i>	pale rush	
4	<i>Juncus sp.</i>	Rush	
	<b>JUNCAGINACEAE</b>		
4	<i>Cycnogeton procerum</i>	greater waterribbons	
	<b>LILIACEAE</b>		
1 2 3	<i>Burchardia umbellata</i>	milkmaids	
9	<i>Caesia parviflora var. parviflora</i>	pale grasslily	

1 2	<i>Dianella revoluta</i>	spreading flaxlily	
5 7	<i>Dianella tasmanica</i>	forest flaxlily	
	<b>ORCHIDACEAE</b>		
1	<i>Acianthus pusillus</i>	small mosquito-orchid	
3	<i>Caladenia alata</i>	fairy fingers	
1 2	<i>Caladenia carnea</i>	pink fingers	
1	<i>Chiloglottis sp.</i>	bird orchid	
2	<i>Diuris sulphurea</i>	tiger orchid	
2	<i>Eriochilus cucullatus</i>	autumn orchid	
1 2	<i>Glossodia major</i>	waxlip orchid	
3	<i>Pterostylis nutans</i>	nodding greenhood	
1	<i>Pyrorchis nigricans</i>	fire orchid	
2	<i>Thelymitra ixioides</i>	spotted sun-orchid	
1 3	<i>Thelymitra sp.</i>	sun-orchid	
	<b>POACEAE</b>		
6 10	<i>Anthoxanthum odoratum</i>	sweet vernalgrass	i
1 8	<i>Austrostipa sp.</i>	speargrass	
8	<i>Austrostipa stipoides</i>	coast speargrass	
1	<i>Cortaderia selloana</i>	silver pampasgrass	d
4	<i>Dactylis glomerata</i>	cocksfoot	i
8	<i>Distichlis distichophylla</i>	australian saltgrass	
3 4 6 10	<i>Ehrharta stipoides</i>	weeping grass	
5	<i>Hierochloa rariflora</i>	cane holygrass	r
10	<i>Holcus lanatus</i>	yorkshire fog	i
4 8	<i>Phragmites australis</i>	southern reed	
1 3 4 6	<i>Poa labillardierei</i>	silver tussockgrass	
4 8	<i>Poa rodwayi</i>	velvet tussockgrass	
6	<i>Rytidosperma sp.</i>	wallabygrass	
6 10	<i>Sporobolus africanus</i>	ratstail grass	i
3 6 8	<i>Themeda triandra</i>	kangaroo grass	
	<b>RESTIONACEAE</b>		
3	<i>Empodisma minus</i>	spreading roperush	
9	<i>Eurychorda complanata</i>	flat cordrush	
1 2 3 9	<i>Leptocarpus tenax</i>	slender twinerush	
	<b>XANTHORRHOEACEAE</b>		
1 2 3 4 5	<i>Lomandra longifolia</i>	sagg	
6 7 8 10			
1 2	<i>Xanthorrhoea australis</i>	southern grasstree	
	<b>PTERIDOPHYTA</b>		
	<b>ASPIDIACEAE</b>		
5 7	<i>Polystichum proliferum</i>	mother shieldfern	
	<b>BLECHNACEAE</b>		

3 5 7	<i>Blechnum minus</i>	soft waterfern
	<b>DENNSTAEDTIACEAE</b>	
5 7	<i>Histiopteris incisa</i>	batswing fern
1 2 3 4 5	<i>Pteridium esculentum subsp. esculentum</i>	bracken
6 7 10		
	<b>DICKSONIACEAE</b>	
4 5 7	<i>Dicksonia antarctica</i>	soft treefern
	<b>GLEICHENIACEAE</b>	
3	<i>Gleichenia microphylla</i>	scrambling coralfern
	<b>LINDSAEACEAE</b>	
3	<i>Lindsaea linearis</i>	screw fern
	<b>POLYPODIACEAE</b>	
7	<i>Microsorium pustulatum subsp. pustulatum</i>	kangaroo fern
	<b>SELAGINELLACEAE</b>	
3 9	<i>Selaginella uliginosa</i>	swamp spikemoss



**October 9 2019**

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***Response to further submission Break O'Day 01-2018 - North East Bioregional Network Inc + attachments, 24 September 2019***

The following responds to the points raised in the submission that relates to the impact of Bushfire Hazard Management on natural values.

The relevant contribution to the submission is authored by Nick Fitzgerald and entitled "Response to the endorsed Bushfire Assessment Report and Bushfire Hazard Management Plan prepared by Mr Ian Abernathy, dated August 2018". The pages are not numbered but it begins following page 13 of the submission.

The removal and modification of habitat is required to comply with the Bushfire Hazard Management Plan. In our original submission the conservation status of the vegetation was demonstrated to be well reserved and not a bioregional or state priority for protection. So, under other circumstances, governed by the Forest Practices Act, the forest type can be legally completely converted at a scale of up to 40 ha per annum for agricultural use and 20 ha per annum for other uses on a single PID. This is relevant to the impact of managing a Bushfire Hazard Management Area at Parkside because at that scale the regulations require the retention of habitat at far lower proportions than proposed at Parkside.

The area of native vegetation at Parkside is more than 150 ha with something in the order of 45 ha to be cleared but not necessarily converted. The roughly 20 ha of forest in BHMA's does not need to be converted to comply with the BHMP and attendant regulations. In fact the submission details the TFS guidelines on Page 6 (ERA response to Ian Abernathy BHMP). Nick Fitzgerald correctly describes that habitat patches can be retained within the HMA's. For most fauna species retention of habitat at the scale proposed will promote persistence on Parkside Farm.

The fire trail referred to by Nick as going through the patch of *Hibbertia virgata* passes through the polygon mapped as a no build zone but does not pass over clumps of plants recorded in Figure 1 of the BHMP.

The clearance of DOW for fire trails is less than 0.4 ha and that of NME is less than 0.1 ha; this is not a significant impact by any regulatory measure.

The design of the area proposed to be protected by covenant has been developed with a view to promoting connectivity and retaining buffers of adequate dimensions to reduce edge effects (Figure 2). The covenant also excludes substantial fencing from the protected areas.

While invasion by the weed spanish heath is promoted by disturbance this weed spreads unchecked on undeveloped land in the vicinity. The Tasmanian Weed Management Act 1999 obliges each land owner to prevent the weed from entering the DOW and NME protected areas. The BOD council are able to enforce the Weed Management Act through the delegation to the Weed Management Officer or "inspector".

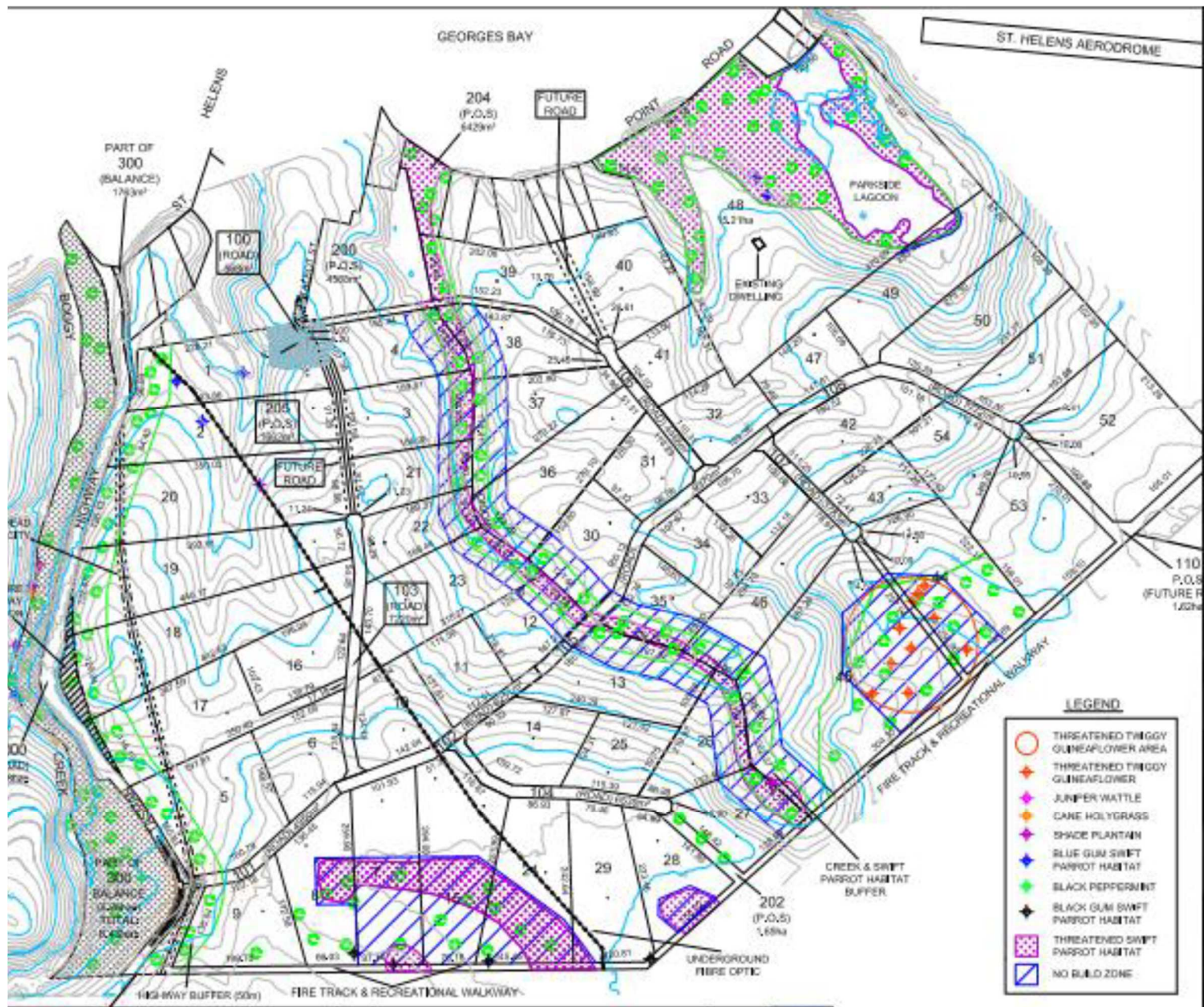


Figure 1. of the bushfire HMP. Hibbertia = orange stars near top left of legend.





## Coastal Policy

The following responds to the points raised in the submission that relates to the protection of natural values in the coastal zone.

The relevant contribution to the submission is authored by Nicole Sommers and entitled "SUBMISSIONS ON BEHALF OF NORTH EAST BIOREGIONAL NETWORK".

1. The ecosystems of Parkside Farm are within the coastal zone as described in the submission. The majority of the vegetation and habitats are characteristic of lowland types and extend to a few hundred m ASL in the vicinity. They are characteristic of the geology but not specifically characteristic of the coastal zone. The lagoon is a coastal characteristic and this is wholly protected.
2. Point 24 The proposal complies with the application of the SCP as per required outcomes listed in point 24 for the coastal zone. The proposal is within the coastal zone it does not itself represent the coastal zone. Nevertheless, in regard to natural values the proposal meets all of the relevant points 1.1.1 -2.4.3 at the relevant scale.
3. Clause 2.1.1 The acknowledgement that there are reserves within the coastal zone acknowledges reserves that are part of the Comprehensive, Adequate and Representative (CAR) National Reserve System (NRS). The vast majority (>99%) of the land proposed to be developed is covered by vegetation considered to be well reserved in the NRS.
4. Point 30. The proponent has set aside areas of high conservation values on Parkside Farm that will not be developed
5. Point 32. Point 24 outcome 2.1.1 says the zone will be developed in a sustainable manner, that point doesn't say all land within the zone will be developed in a sustainable manner. The outcomes explicitly allows for development and hence loss of unreserved examples of otherwise well reserved natural values from within the zone. See outcome 2.1.3 in particular, to which the proposal complies by setting aside threatened and under reserved natural values.
6. Point 48. Argued to be incorrect above in 1-5. There is no rationale provided by Ms Sommers in the context of clauses 1.1.1, 1.1.3 or 2.4.1 to support how the treatment of natural values in the proposal does not conform to these outcomes.
7. Point 60. The habitat values described by NB as most significant are protected by the proposal.
8. Point 62. This statement wholly misrepresents the proposal. 95% of the *E. ovata* is protected from development with less than 0.4 ha to be used as a fire trail. A fire trail is a regulatory requirement. The exclusion of the balance minimises the impact.
9. Point 63. Not true. The EPBC protects patches of DOW > 0.5 ha, the clearance of DOW where a Permit under LUPAA is not required gains the protection of the Forest Practices Act. Clearance of land under the IPS requires a Permit.
10. Point 64 - 69. The main host plant of the *Chaostola* skipper is *Gahnia radula*. *Gahnia radula* is one of the most widespread and common plants along the east coast of Tasmania and throughout the range of the *Chaostola* skipper. Recent surveys for the *Chaostola* skipper have found it to be more common than previously recorded. The survey by Bell substantially increase the number of known colonies and colonies were found in a broader range of habitats than previously known. New records were in widespread, common and well reserved forest types. (Bell, PJ 2017, Assessing the effectiveness of Forest Practices Code provisions for the threatened *Chaostola* skipper *Antipodia chaostola leucophaea*, Forest Practices Authority Scientific Report 21, Forest Practices Authority, Hobart.) While there is a plausible risk that the skipper may occur on Parkside, rather than applying the precautionary principle to such extensive habitats the risk is managed through the CAR reserve system in which adequate reservation is provided for the communities in which the *Chaostola* skipper occurs. The reservation levels of the habitat are among the highest of any in Tasmania. The main habitats being the Tasveg forest communities of DAC,

DSO and DSG which all exceed the CAR targets of 15% reservation. These habitats have also experienced relatively low rates of conversion.

11. Point 74. North Barker report 5 threatened ecological communities not 6. Four of those are entirely protected and 95-98% of the remaining 2 are protected from development.
12. Point 79. No objective assessment provided to substantiate this point. The most important environmental values are almost entirely avoided, those being the threatened communities and threatened flora. The hazard management areas are the minimum separation distances required to meet regulations. For example the separation distances considered to meet the required BAL 19 classification have ranges in the order of 10-13 m on the relevant slope. In all cases the minimum distance in the range has been applied thus minimising the impact.