

FOLIO PLAN

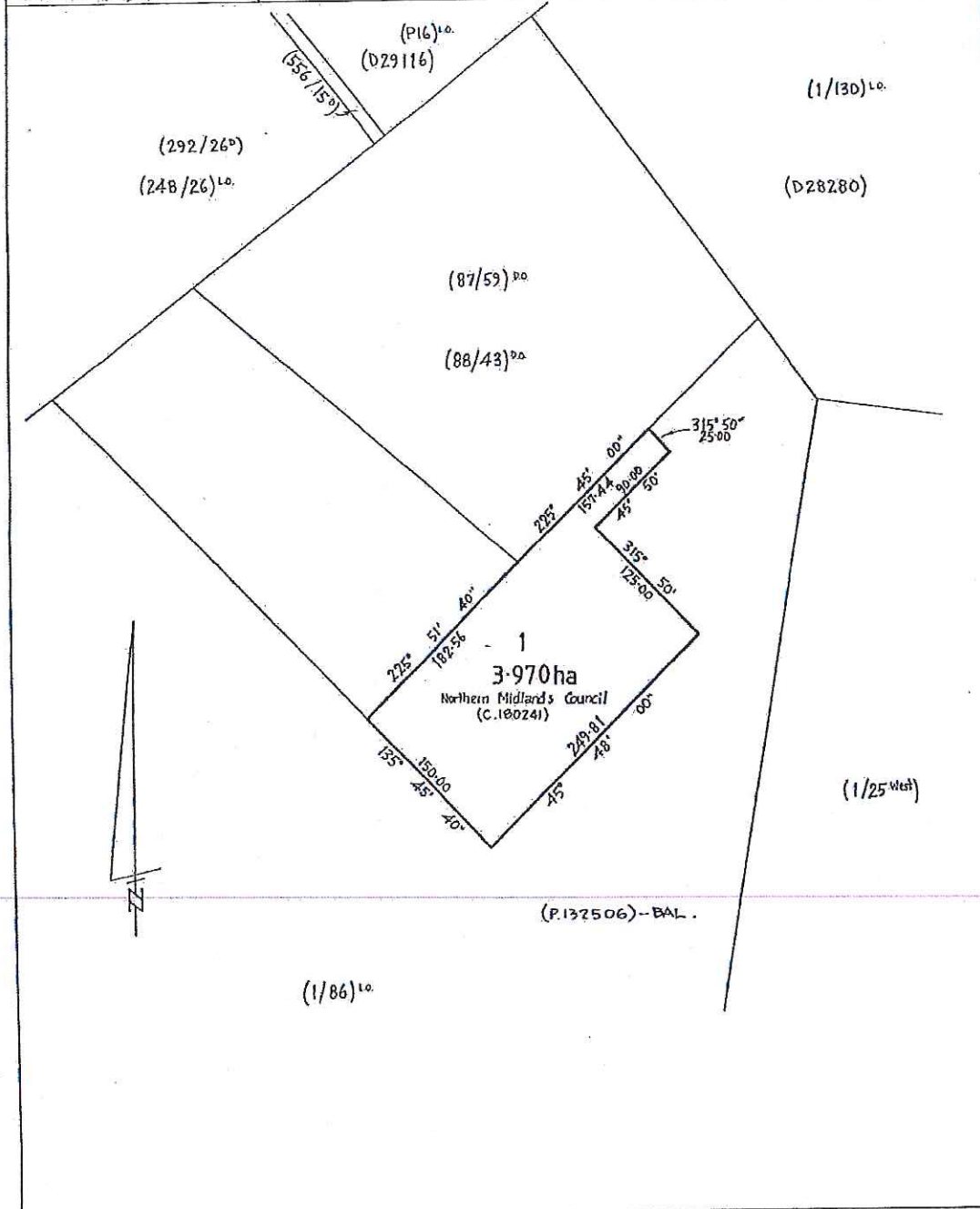
DEPUTY RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980



OWNER Robin Doreen Cox	<b>PLAN OF SURVEY</b> BY SURVEYOR P.N. Anderson of PEACOCK, DARVEY & ANDERSON PTY LTD. JUDICIAL SURVEYORS 65 TAMAR STREET - LAUNCESTON LAND DISTRICT OF WESTMORLAND PARISH OF LONGFORD SCALE 1:3000 LENGTHS IN METRES	REGISTERED NUMBER <b>P132421</b>
FOLIO REFERENCE <del>C/151/9052</del> F/R131591-1 <del>others.</del> GRANTEE Part of 445 <sup>A</sup> 1 <sup>R</sup> 0 <sup>P</sup> , Lot 13 Granted to Malcolm Laing Smith.		APPROVED EFFECTIVE FROM 23 JUL 1993 <i>Mark Collins</i> Recorder of Titles

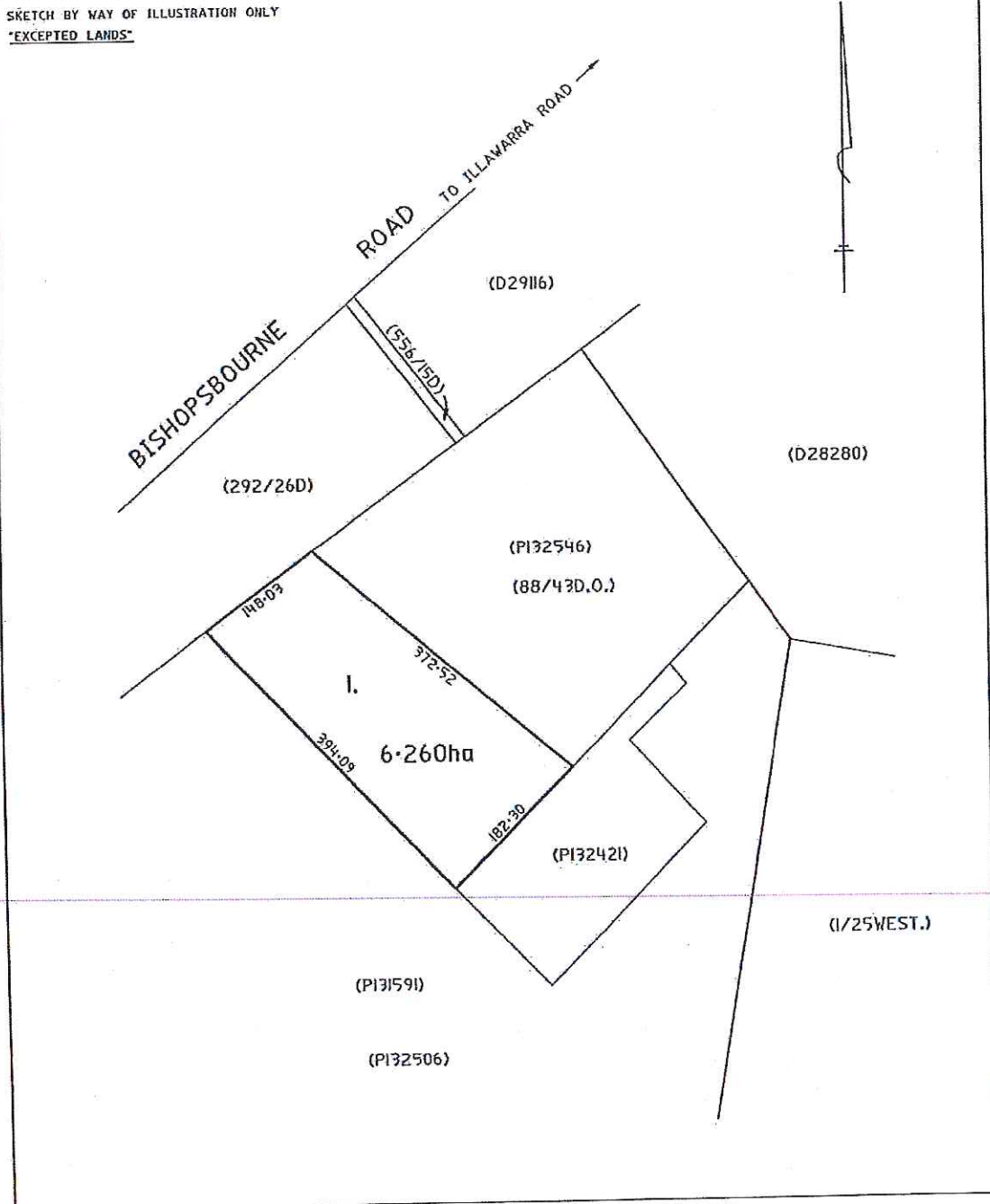
MAPSHEET MUNICIPAL CODE No. (5039) 123	LAST UPT No. 5600612	LAST PLAN No. P131591	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN
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FILE NUMBER A17579  GRANTEE PART OF LOT 13, 445-I-0 GTD TO MALCOLM LAING SMITH	<b>CONVERSION PLAN</b>		Registered Number <b>P.132545</b>
	LOCATION WESTMORLAND-LONGFORD	CONVERTED FROM 51/9068	APPROVED 31 AUG 1999  Recorder of Titles
NOT TO SCALE		LENGTHS IN METRES	

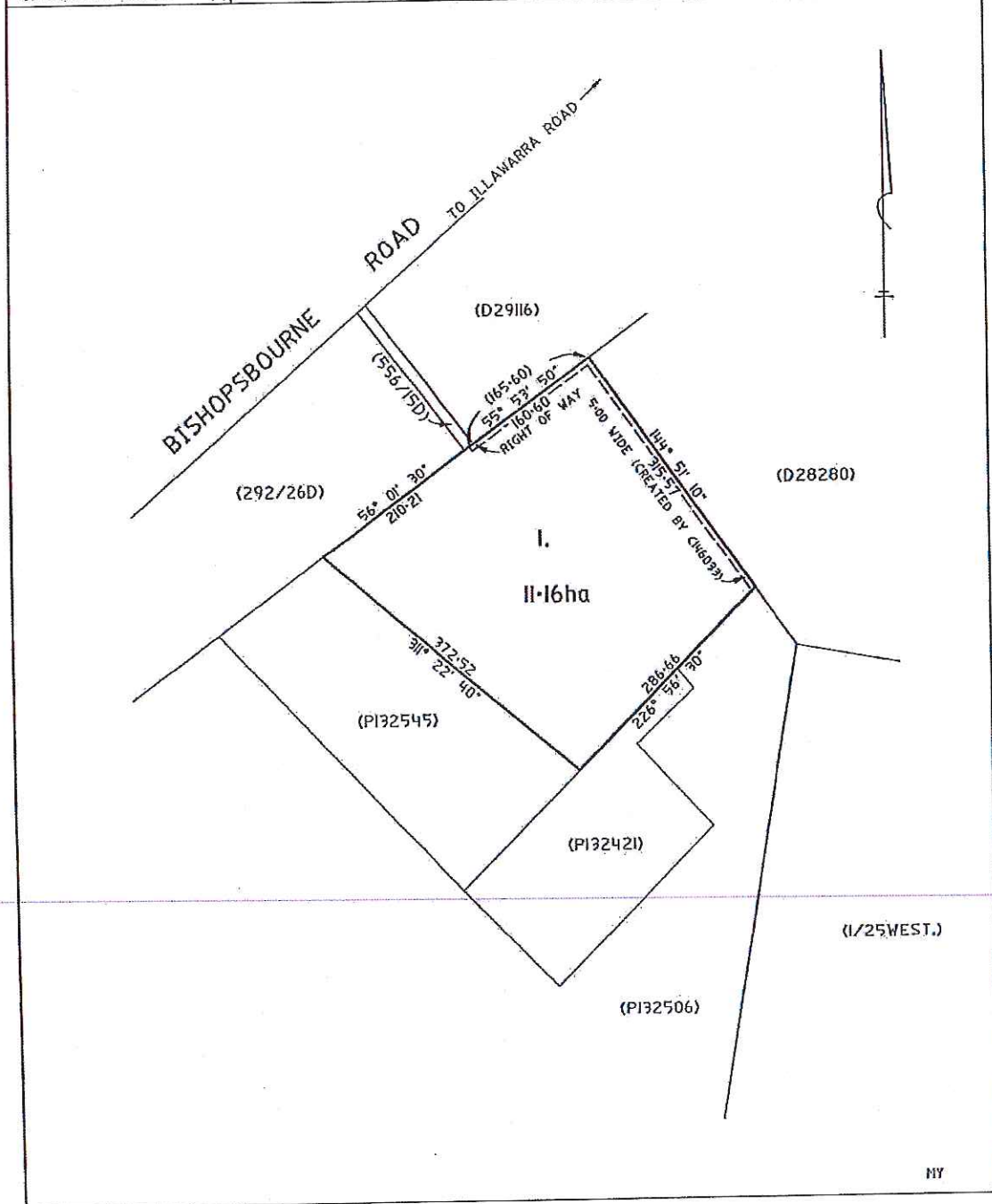
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SKETCH BY WAY OF ILLUSTRATION ONLY  
"EXCEPTED LANDS"

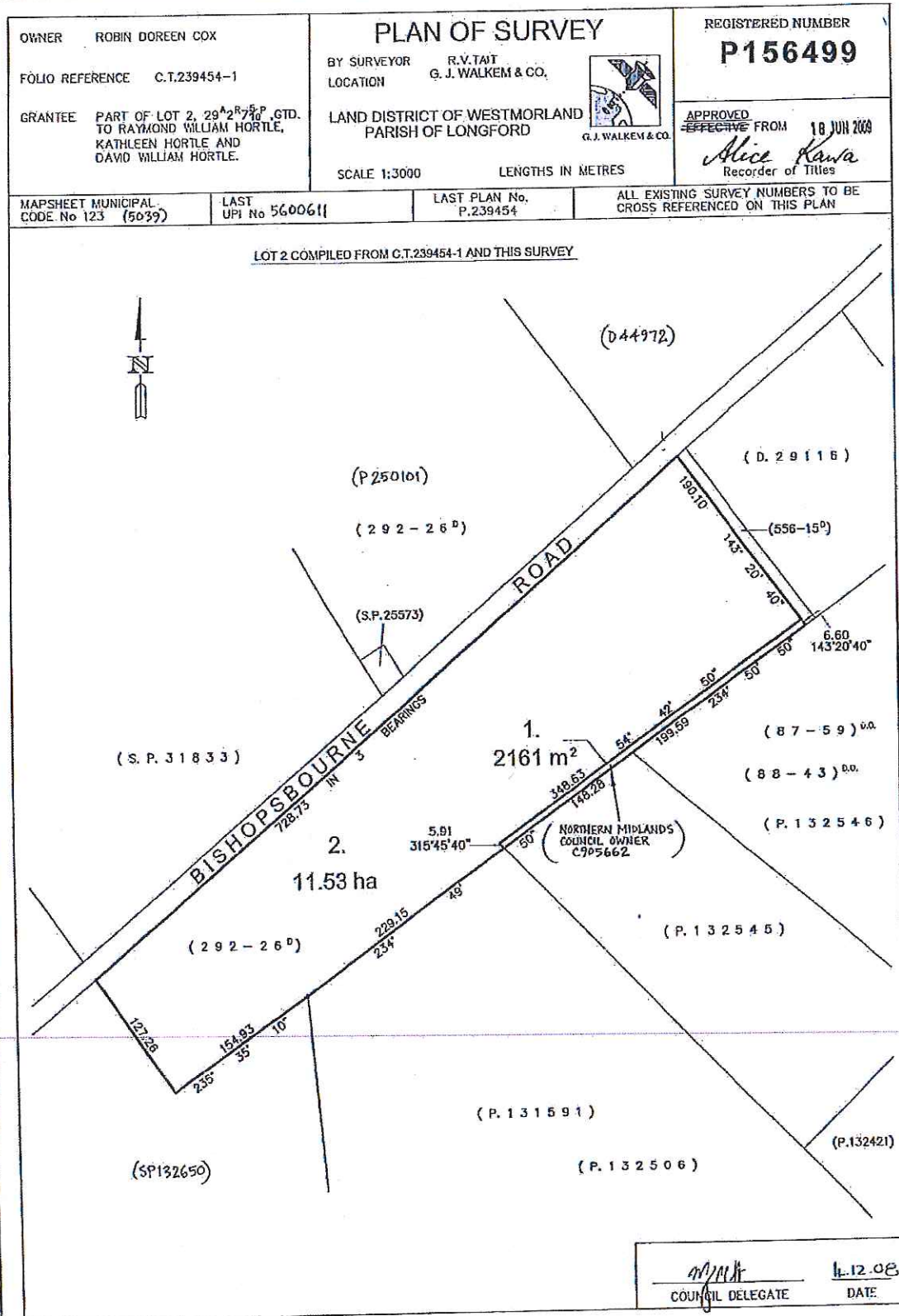


OWNER LT ACT 1980  FOLIO REFERENCE A17580  GRANTEE PART OF LOT 13, 445-1-0 GTD TO MALCOLM LAING SMITH	PLAN OF TITLE  LOCATION WESTHORLAND-LONGFORD  FIRST SURVEY PLAN No. 88/43D.0.  COMPILED BY  SCALE 1: 4000      LENGTHS IN METRES		Registered Number <b>P.132546</b>
			APPROVED 1 SEP 1999 <i>M. L. L. L.</i> Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 123 (5039)	LAST UPI No. 5600606	LAST PLAN No.	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN
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7.4 Appendix 4: Odour Assessment



**CONSULTING ENVIRONMENTAL ENGINEERS**  
**Environmental Scientists and Engineers**

Level 1, 90 Bridge Road, PO Box 201, Richmond VIC 3121  
 Phone 03 9429 4644 Fax 03 9428 0021  
 Email wallis@cee.com.au

20 August 2018

Tim Wilson  
 KBR  
 441 St Kilda Road  
 Melbourne VIC 3004

Dear Tim,

**Odour Modelling of Longford New Treatment Plant**

Using the schedule of pond dimensions and coordinates you sent, we have added surface odour emission rates and carried out some preliminary odour modelling for the Longford treatment plant. A wind file for nearby Launceston Airport obtained from the Bureau of Meteorology and the robust Ausplume dispersion model were used in the modelling.

Figure 1 shows the predicted odour contours for the existing plant plotted on the base map you supplied, including the sensitive receptors (shown as blue dots). In this model, we have adopted the lagoon sizes and odour emission rates listed in the PAE report. The total odour emission rate is 14,800 OU/s, all from ground level sources.

Figure 1 shows the extent of noticeable odour (encompassed by the 2 OU contour at 99.5 %) extends for about 500 m north and south of the site, and for about 300 m to the east and west.

Figure 2 shows the predicted odour contours for the proposed new plant, based on the list of emission sources you sent. We have included the odour emissions from the biofilter stack, and a small diffuser emission from the digester, none from the flare and relatively conservative emissions from the Nerada tanks. The total odour emission rate is 6,650 OU/s from ground level sources and 1,410 OU/s from the stack.

Figure 2 shows the extent of noticeable odour (encompassed by the 2 OU contour at 99.5 %) extends for about 500 m north and south of the site, and for about 200 m to the east and west. No sensitive receptor is impacted by the 2 OU contour.

Figure 3 shows the scenario where the bioscrubber is deleted. The 2 OU contour will extend for a considerable distance and cause odour nuisance. Thus a bioscrubber is essential.

Yours sincerely  
 Consulting Environmental Engineers

Ian Wallis

Figure 1. Predicted Odour Contours for Base Case – Existing Plant

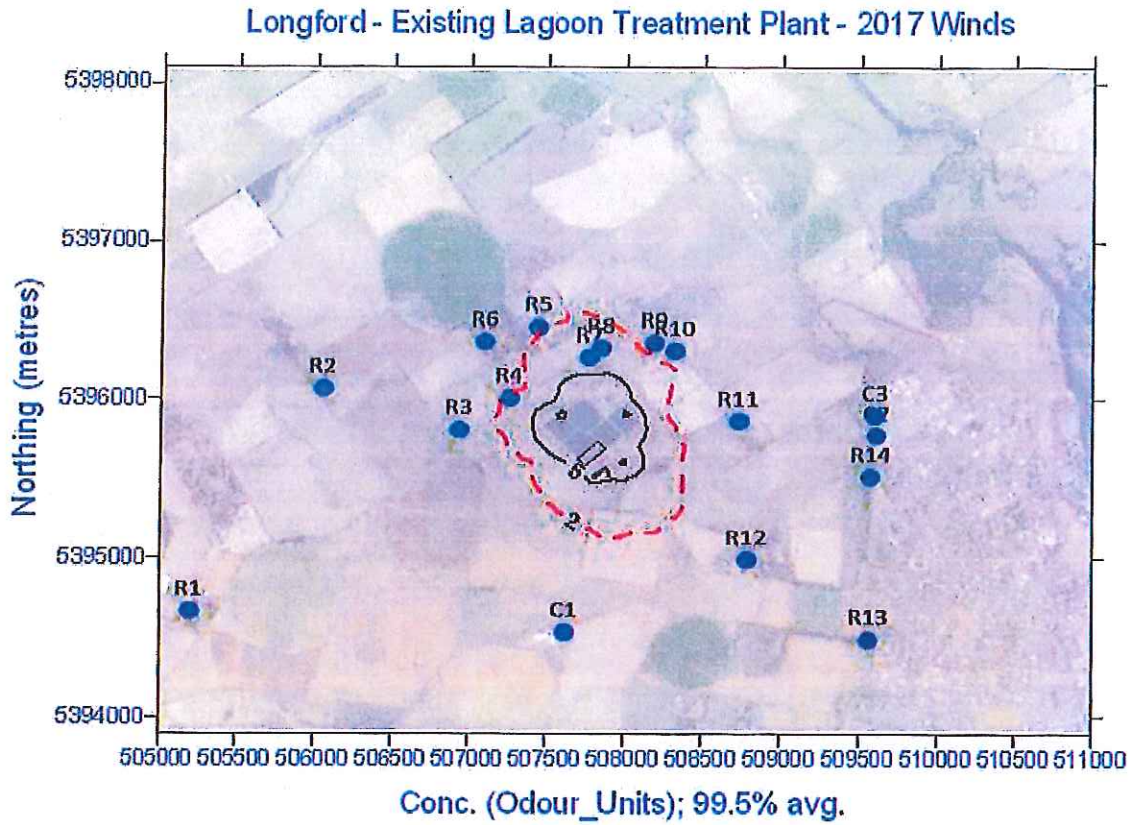




Figure 2. Predicted Odour Contours for New Plant – with Bioscrubber

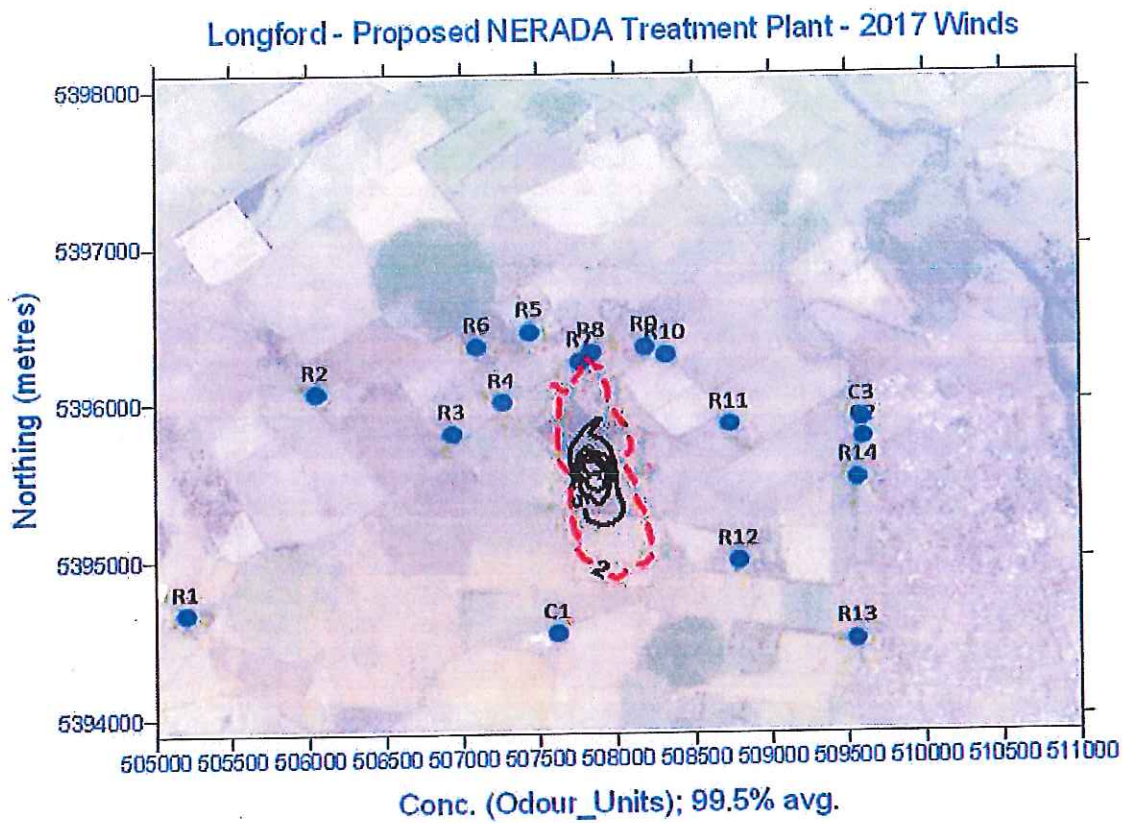
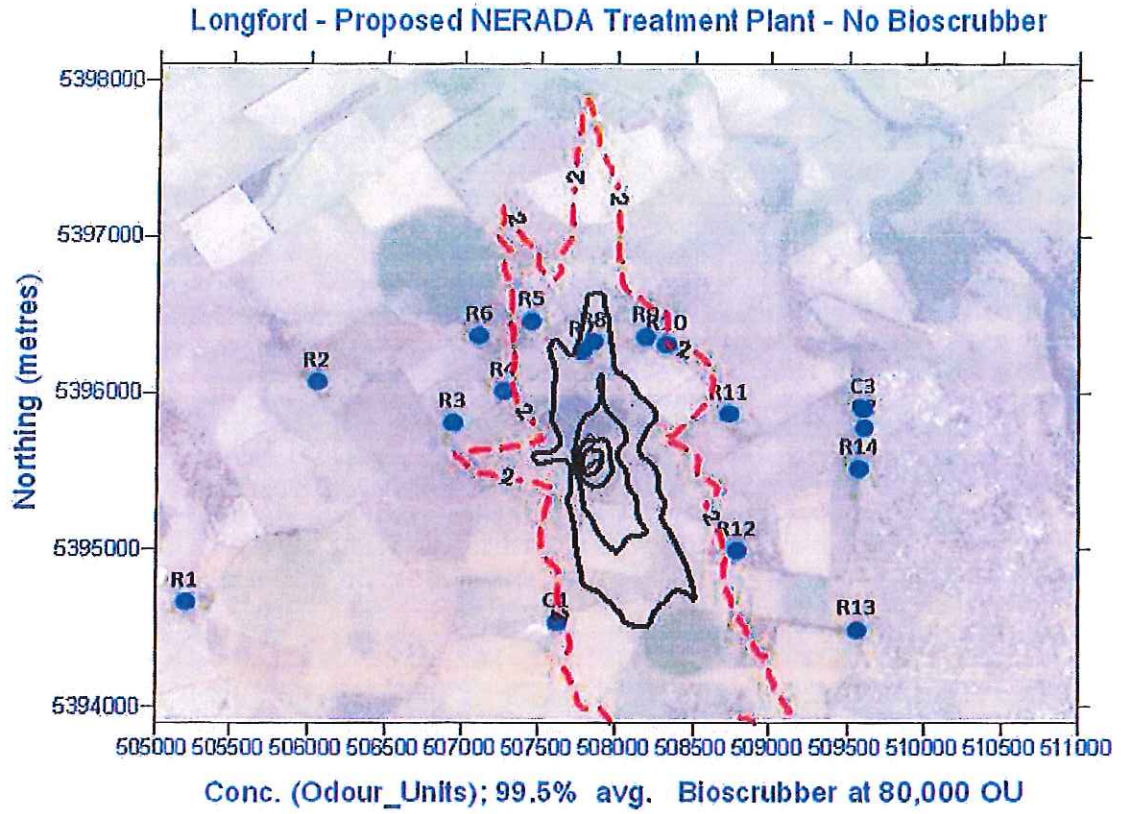


Figure 3. Predicted Odour Contours for New Plant – Without Bioscrubber



7.5 Appendix 5: Flora Fauna Assessment





**FLORA AND FAUNA SURVEY REPORT  
LONGFORD SEWAGE TREATMENT PLANT**

**TasWater**



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This document has been prepared in accordance with the scope of services agreed upon between Van Diemen Consulting (VDC) and the Client.

To the best of VDC's knowledge, the report presented herein represents the Client's intentions at the time of completing the document. However, the passage of time, manifestation of latent conditions or impacts of future events may result in changes to matters that are otherwise described in this document. In preparing this document VDC has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, VDC has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

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#### Document Status

Revision	Author	Review	Date
1	R Barnes C McCoull	R Barnes and C McCoull	7-10-2018
1	R Barnes C McCoull	C Thomas, Taswater	8-10-2018
2	R Barnes C McCoull	R Barnes and C McCoull	11-10-2018
2	R Barnes C McCoull	C Thomas, Taswater	11-10-2018



## EXECUTIVE SUMMARY

TasWater will be upgrading the Longford Sewage Treatment Plant (STP) to improve the treatment of sewage received at that site.

The Longford STP is located off Bishopsbourne Road, Longford. It was constructed in the early 1960s, with upgrades in 1968, 1974, 1993 and 1998. It is expected that all work associated with this current upgrade will be contained within the existing site.

The flora and fauna survey covered the entire site including the access road off Bishopsbourne Road.

### Vegetation Communities

The Survey Area supports pasture grass dominated areas, open ponds, shelterbelts and associated infrastructure to operate a sewage treatment plant.

No native vegetation communities listed on Schedule 3A (Threatened native vegetation communities) of the *Nature Conservation Act 2002* or ecological communities listed under section 181 of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* occur in the Survey Area.

### Threatened Flora Species

No threatened flora species listed on the *Tasmanian Threatened Species Protection Act 1995* or *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* growing in a natural situation occur in the Survey Area.

### Declared and Environmental Weeds

Two plant species listed on the *Weed Management Act 1999* as a *Declared Weed* were recorded in the Survey Area;

- Gorse (*Ulex europaeus*);
- Slender thistle (*Carduus pycnocephalus*).

Environmental weeds present include –

- Onion grass (*Romulea rosea*);
- Spear thistle (*Cirsium vulgare*); and
- Cumbungi (*Typha latifolia*).

### Threatened Fauna Species

The Survey Area provides habitat for several threatened species – quolls, Tasmanian devil, some bird species (eg eagle foraging) and the green and gold frog. It also provides habitat for other (non-threatened) fauna species, such as black swan, waterbirds and native birds that utilise open grassy habitats with only intermittent tree cover and/or shelterbelt plantings.

### Recommendations

#### *Threatened Flora and Native Vegetation Management*

The Survey Area does not support native vegetation communities or threatened flora species (other than *Callitris oblonga* ssp. *oblonga* which is an amenity planting on the site), hence no recommendations for their management are made.

FLORA AND FAUNA SURVEY - LONGFORD STP, TASWATER

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*Weed Management*

It is recommended that a pasture covering be maintained where possible (ie it is not blanket sprayed) and that the current weed spraying program continue to target priority weeds, including gorse and thistles.

*Threatened Fauna Management*

The use by the Survey Area by any threatened species would likely be opportunistic rather than as ongoing use for foraging and breeding. On this basis, no specific recommendations for their management are made.

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*FLORA AND FAUNA SURVEY – LONGFORD STP, TASWATER*

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- Figure 2 Longford STP Survey Area in detail
- Figure 3 Geology (1:25000 (MRT)) within the Longford STP Survey Area
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**ATTACHMENTS**

- Attachment A Natural Values Atlas Report
- Attachment B Flora Species recorded in the Survey Area

## PART A - INTRODUCTION

### A.1 Development Description

TasWater will be upgrading the Longford Sewage Treatment Plant (STP) to improve the treatment of sewage received at that site.

The Longford STP is located off Bishopsbourne Road, Longford. It was constructed in the early 1960s, with upgrades in 1968, 1974, 1993 and 1998. It is expected that all work associated with this current upgrade will be contained within the existing site.

The flora and fauna survey covered the entire site including the access road off Bishopsbourne Road.

### A.2 Scope

The following tasks were undertaken as part of the flora and fauna values assessment:

1. A review of flora and fauna values recorded previously in the area within and adjacent to a geographically defined Survey Area using the Natural Values Atlas Database (NVA, Department of Primary Industries, Parks, Water and Environment).
2. Field assess the Survey Area to investigate and verify the potential fauna and flora values identified in the desktop assessment. The field survey included:
  - (a) The ground-truthing and mapping of vegetation communities in the Survey Area;
  - (b) Surveys of terrestrial and riparian flowering annual and perennial plants and aquatic flora<sup>1</sup>, including potential habitat for conservation significant species;
  - (c) Habitat assessment for threatened raptor and mammal species; and
  - (d) The identification and mapping of declared weeds listed on the schedules of the *Weed Management Act 1999* within the Survey Area.
3. Provide recommendations on matters relevant to the findings of the surveys.

### A.3 Acronyms

DPIPWE	Department of Primary Industries, Parks, Water and Environment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
NVA	Natural Values Atlas (database maintained by DPIPWE)
TSP Act	<i>Threatened Species Protection Act 1995</i>

<sup>1</sup> . Excluding micro-flora such as algae, lichen, fungi.

## PART B - METHODS

### B.1 Survey Area and Personnel

The Survey Area is the Longford Sewage Treatment Plant facility located to the north-west of Longford (Figure 1). The Survey Area comprises three Land Titles – Volume 132546 Folio 1, Volume 132421 Folio 1 and Volume 132545 Folio 1 plus the access road which is located on Volume 85856 Folio 2.

Volume 132546 Folio 1, Volume 132421 Folio 1 and Volume 132545 Folio 1 are owned by Taswater while Volume 85856 Folio 2 is owned by the Northern Midlands Council.

The Natural and Cultural Heritage Division (2015) note that -

‘The proponent or their representative must ensure that the personnel undertaking surveys and preparing reports have appropriate skills, qualifications and experience in identification and documentation of all natural values of interest, including a knowledge of Tasmanian species, their habitat and other ecological requirements, and vegetation communities.’

In this case, the surveyor of the natural values has a PhD in a relevant field of science and over 25 years of field expertise in natural values assessment, identification, mapping, reporting and impact assessment/mitigation.

### B.2 Vegetation Classification and Mapping

All vegetation types in the Survey Area were assessed and the variation within each explored. A hand-held GIS/GPS unit was used to navigate within the Survey Area.

Flora species present within representative plots were recorded and additional species were added to the list as they were encountered in a meandering survey. Scientific names for flora species follow de Salas and Baker (2017).

Vegetation communities were identified and attributed to Tasmanian Vegetation Mapping Units (Kitchener and Harris 2013). The geology of the Survey Area and surrounds is shown in Figure 3 as the geological substrate upon which native vegetation occurs, if present, can be a determining factor to classify vegetation types. In this case, the Survey Area is predominantly lateritic substrates (ie decomposed in situ dolerite and basalt parent rocks).

### B.3 General Flora and Fauna Species Survey

A query of the Natural Values Atlas (NVA) managed by the Department of Primary Industries, Parks, Water and Environment (DPIPWE) was generated for the Survey Area to focus the on-ground survey.

The conservation status of flora and fauna species follow the:

- *Threatened Species Protection Act 1995*; and
- *Environment Protection and Biodiversity Conservation Act 1999*.

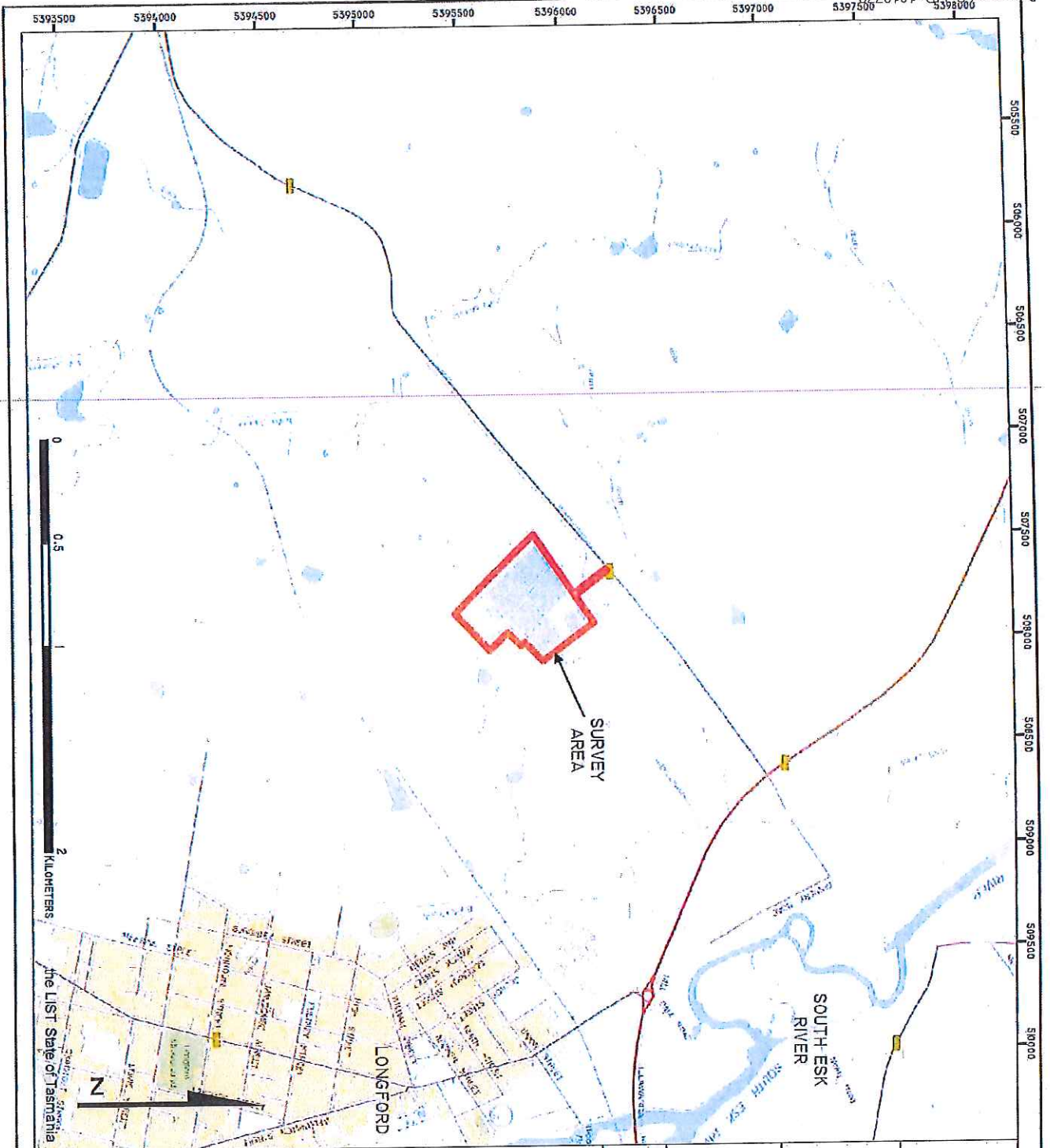
The survey directly assessed the range of habitat types present in the Survey Area.




### B.4 Targeted Flora Species Surveys

Flora species of focus were those listed in the Natural Values Atlas (Attachment A) as having known records, or potential habitat, within and near (approx. 5km radius) the Survey Area.

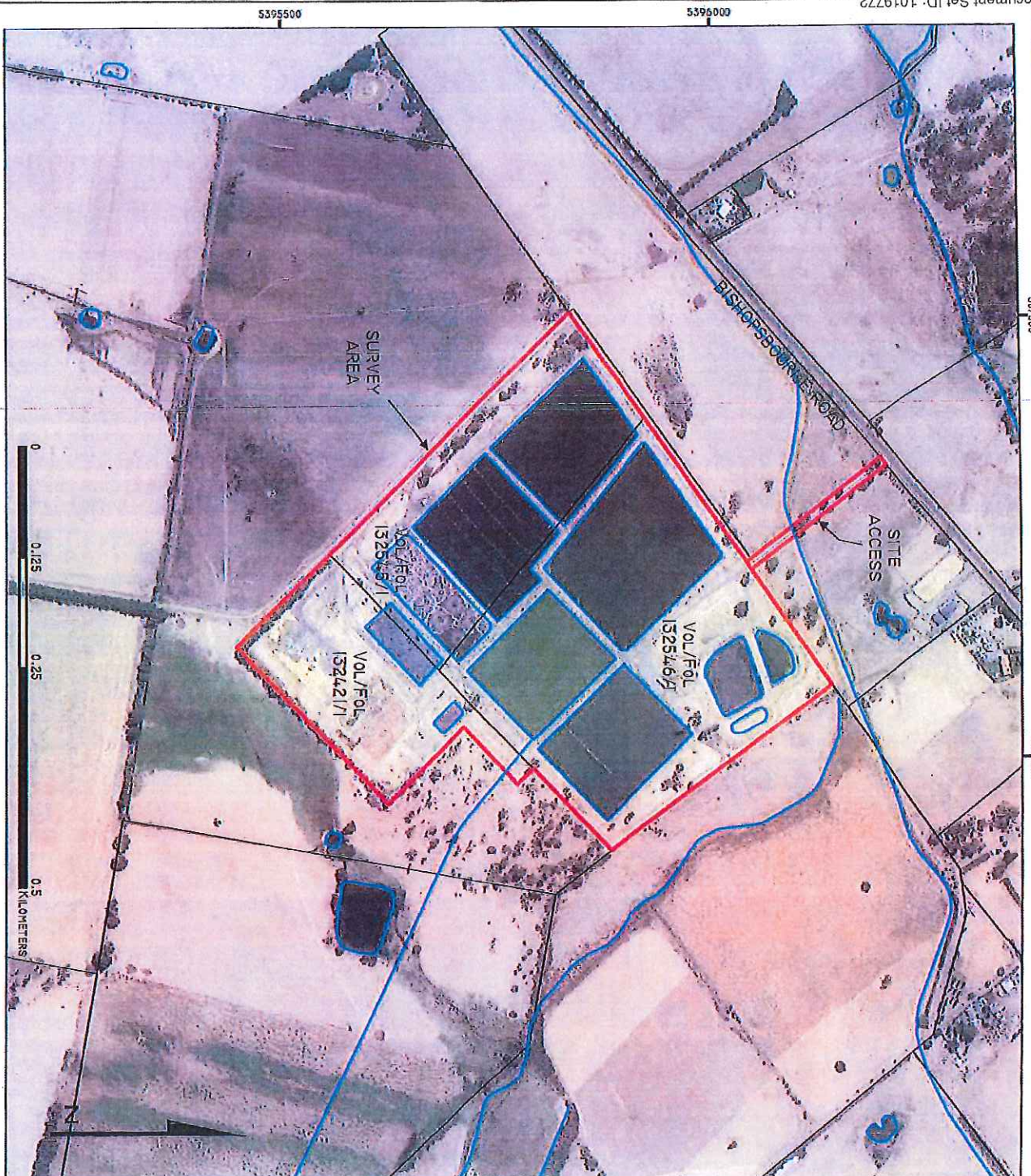
The flora surveys were limited to vascular species: species of mosses, lichens and liverworts were not recorded. However, consideration was made of species (vascular and non-vascular) likely to be present based on available habitat information and database records.





LONGFORD SEWAGE TREATMENT PLANT	
FLORA AND FAUNA SURVEY	
FIGURE 1: LOCATION OF THE LONGFORD SEWAGE TREATMENT PLANT	
TASMAP: LONGFORD 5039	LGA: NORTHERN MIDLANDS
BASE DATA BY TASMAP © STATE OF TASMANIA BASE IMAGE BY TASMAP © STATE OF TASMANIA	
 an Diemen CONSULTING PO BOX 1 NEW TOWN TAS 7008	
	
DATUM: GDA94 GRID: MGA ZONE 55 SCALE: @A4 - 1:25,000 CLIENT:  DATE: 29TH SEPT 2018	





LONGFORD SEWAGE  
TREATMENT PLANT

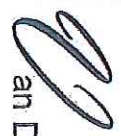
FLORA AND FAUNA  
SURVEY

FIGURE 2: LONGFORD STP SURVEY  
AREA IN DETAIL

TASMAR:  
LONGFORD  
5039

LGA:  
NORTHERN  
MIDLANDS

BASE DATA BY TASMAR, © STATE OF TASMANIA  
BASE IMAGE © GOOGLE EARTH



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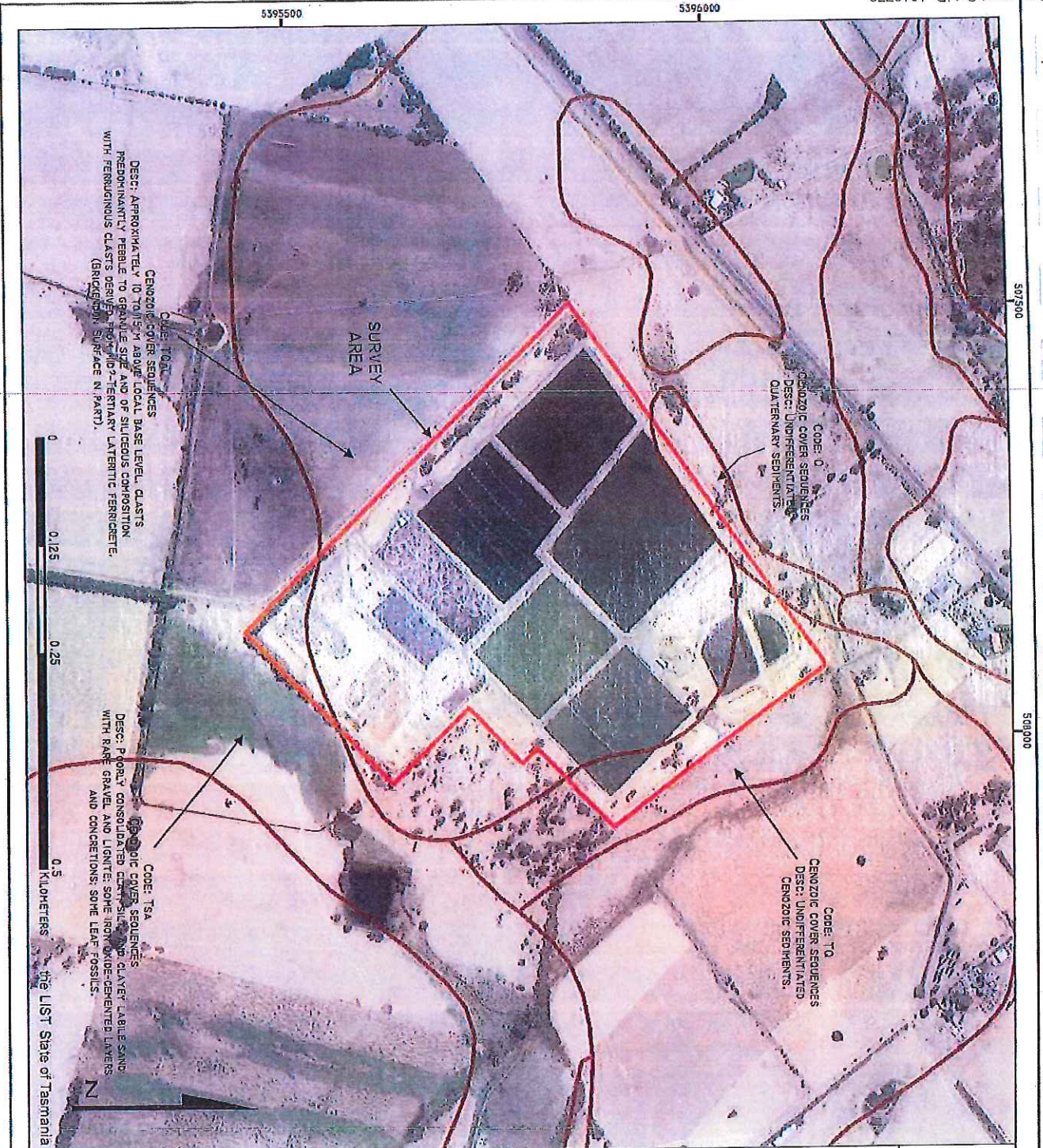
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SCALE: @A4 - 1:6,000

CLIENT:



DATE: 29TH SEPT 2018





**LONGFORD SEWAGE TREATMENT PLANT**

**FLORA AND FAUNA SURVEY**

**FIGURE 3: GEOLOGY (1:25000 (MRT)) WITHIN THE LONGFORD STP SURVEY AREA**

**TASMAP:** LONGFORD 5059  
**LGA:** NORTHERN MIDLANDS

BASE DATA BY TASMAP, © STATE OF TASMANIA  
 BASE MADE BY GOOGLE EARTH

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**Taswater**  
 CLIENT:  
 DATE: 29<sup>TH</sup> SEPT 2018



**B.5 Fauna Species Surveys**

Surveys for threatened fauna initially focussed on the identification of suitable habitat for species. Potential habitat for threatened fauna was assessed by reference to the vegetation communities present and the associated characteristics of the habitat values each provided to fauna species - assessments were made by comparing the characteristics of known fauna habitat with the habitat present in the Survey Area.

**B.6 Data Sources**

The data presented in this report include (i) the data collected during the survey for the project and (ii) those already existing within the NVA.

**B.7 Limitations**

Due to varying flowering times and seasonality of occurrence not all flora species that occur in the Survey Area may have been recorded during the survey. Short lived annuals, orchids and lilies that may be present at the site may have been missed because they were not able to be identified (they were not flowering), they were not evident at this time of year (they were annual plants that had died back or not emerged at the time of survey) or the seasonal conditions may have been such that the species had not emerged in the year when the surveys were done (this is occasionally the case with orchid species which can be strongly dependent upon the seasonal conditions to initiate flowering).

The fauna assessment (except for direct searches for raptor nests and dens etc as outlined above) was limited to a habitat assessment for fauna species, including the ground truthing of potential habitats for significant fauna species that were identified in database searches.

The flora and fauna surveys excluded micro-flora and micro-invertebrates such as algae, lichen, fungi and zooplankton.

## PART C - RESULTS

### C.1 Vegetation Communities

The Survey Area supports pasture grass dominated areas, open ponds, shelterbelts and associated infrastructure to operate a sewage treatment plant.

There is no native vegetation present in the Survey Area. Accordingly, there are no native vegetation communities listed on Schedule 3A (Threatened native vegetation communities) of the *Nature Conservation Act 2002* in the Survey Area nor are there any ecological communities listed under section 181 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* in the Survey Area.

The flora species observed within the Survey Area are listed in Attachment B.

Descriptions of each TASVEG mapping unit with representative images are provided below.

#### C.1.1 Extra Urban Miscellaneous (TASVEH code - FUM)

This mapping unit includes the pasture/grass areas, drains, shelterbelts, buildings, internal roads and tracks, and fencing.

South-western corner of Survey Area showing open grass area, drain and shelterbelt along boundary





FLORA AND FAUNA SURVEY – LONGFORD STP, TASWATER

Bund on southern boundary of Survey Area showing shelterbelt



North-eastern corner of Survey Area showing grass area with boundary fencing and pond embankment in background



C.1.2 Water (TASVEG code - OAQ)

Open water areas associated with the aeration and settling ponds are included in this unit.



A settling pond associated with the treatment of sewage.



## C.2 Threatened Flora Species

There is one recorded location of a threatened flora species within 5 km of the Survey Area based on data contained within the Natural Values Atlas (Figure 5). This species, blue grasslily (*Caesia calliantha*) is typically associated with dry eucalypt dominated woodlands and forests and native grasslands, semi-native pastures and roadside remnant native vegetation.

Most threatened flora listed in the region in the NVA report occur on or in association with habitats of the South Esk River.

### C.2.1 Survey Area

Subject to the comments made under section C.2.2, no flora species listed on the *Threatened Species Protection Act 1995* were observed in the Survey Area.

### C.2.2 South esk pine plantings

The species *Callitris oblonga* ssp. *oblonga* (south esk pine) was noted growing in shelterbelts around the southern and western boundaries of the Survey Area. In the 1980's and 1990's this species was grown from seed and planted prolifically in shelterbelts throughout the Midlands and Fingal Valley. It was part of a threatened species education program as well as Landcare programs to promote the use of native species for rehabilitation works.

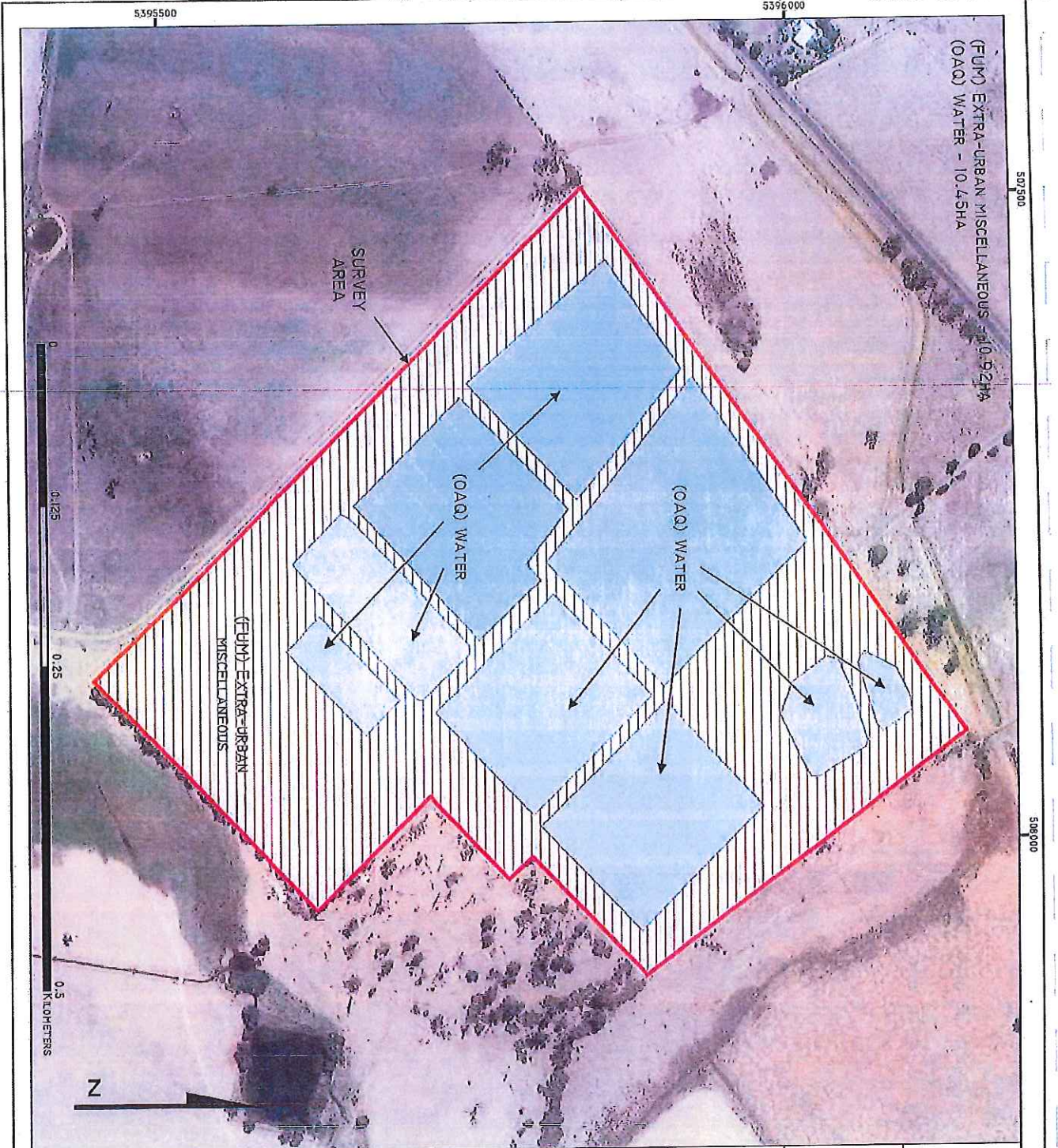
Natural stands occur in the in the Midlands and the east with the most extensive stands on the St. Pauls, Apsley and South Esk Rivers, with smaller stands on the Swan River, West Swan River, Cygnet River, Brushy Rivulet and Wye River. A non-riparian stand occurs on Tertiary ironstone gravels near Cranbrook. The Survey Area is not a natural stand for the species.

In the Survey Area the species occurs within a mixed tree planting comprised of *Melaleuca pallida* (broad-leaved bottlebrush), *Dodonaea viscosa* (hopbush), *Eucalyptus ovata* (black gum), *Acacia melanoxylon* (blackwood) and *Leptospermum lanigerum* (woolly tea-tree). *Callitris oblonga* ssp. *oblonga* in its location in the Survey Area is not the subject of the *Threatened Species Protection Act 1995*.

South esk pines (arrows)  
growing in a shelterbelt  
at the south-western  
corner of the Survey  
Area.







LONGFORD SEWAGE TREATMENT PLANT

FLORA AND FAUNA SURVEY

FIGURE 4: TASVEG 3.0 COMMUNITIES WITHIN THE LONGFORD STP SURVEY AREA

TASMAP: LONGFORD 5039

LGA: NORTHERN MIDLANDS

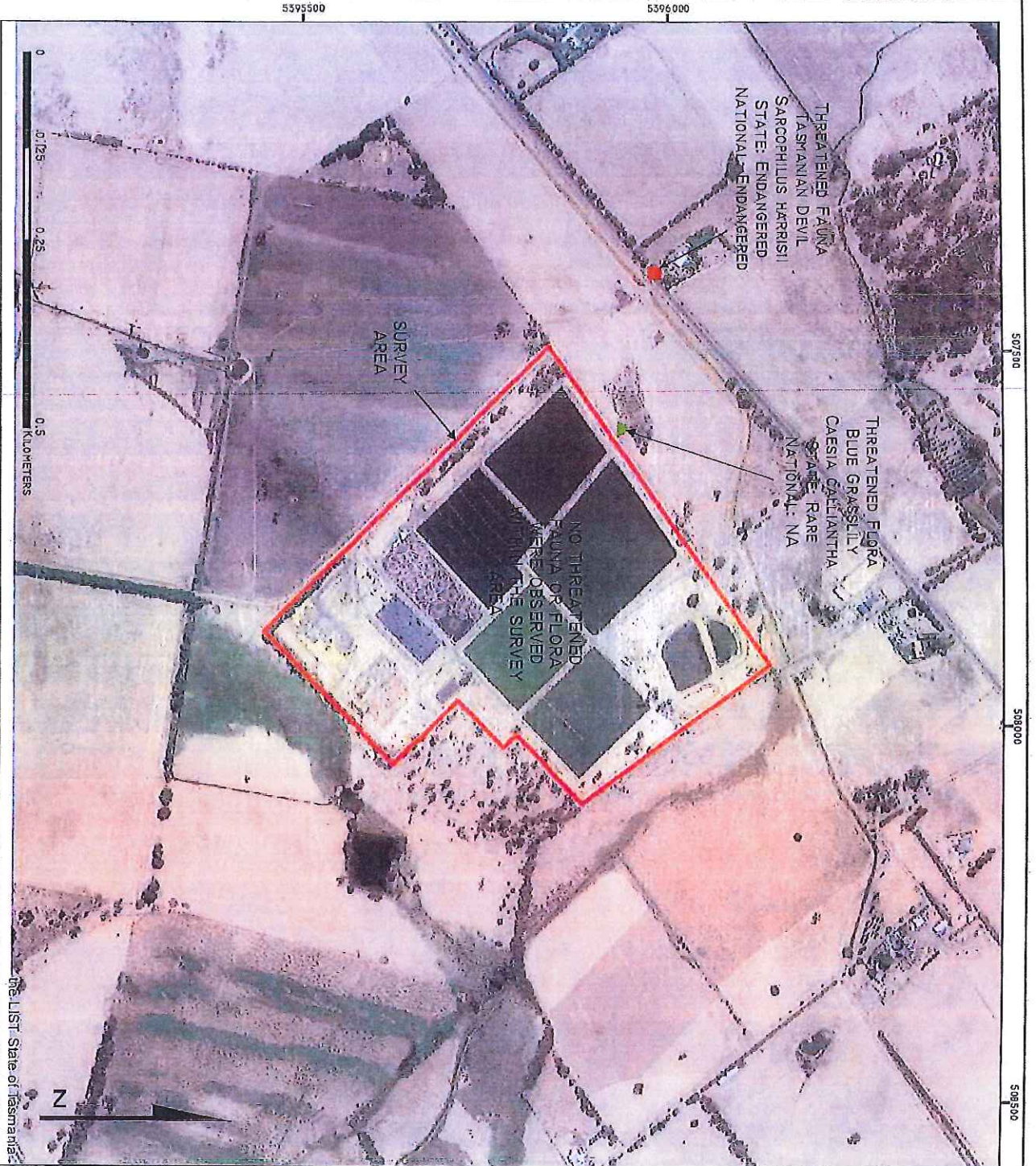
BASE DATA BY TASMAP, © STATE OF TASMANIA  
BASE IMAGE © GOOGLE EARTH

  
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PO BOX 1 NEW TOWN TAS 7008



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GRID: MGA ZONE 55  
SCALE: @A4 - 1:4,000  
CLIENT:  
  
DATE: 29TH SEPT 2018





LONGFORD SEWAGE  
TREATMENT PLANT

FLORA AND FAUNA  
SURVEY


FIGURE 5: THREATENED FLORA  
AND FAUNA (NVA) NEAR TO THE  
LONGFORD STP SURVEY AREA

TASMAP:  
LONGFORD  
5039

LGA:  
NORTHERN  
MIDLANDS

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BASE IMAGE © GOOGLE EARTH

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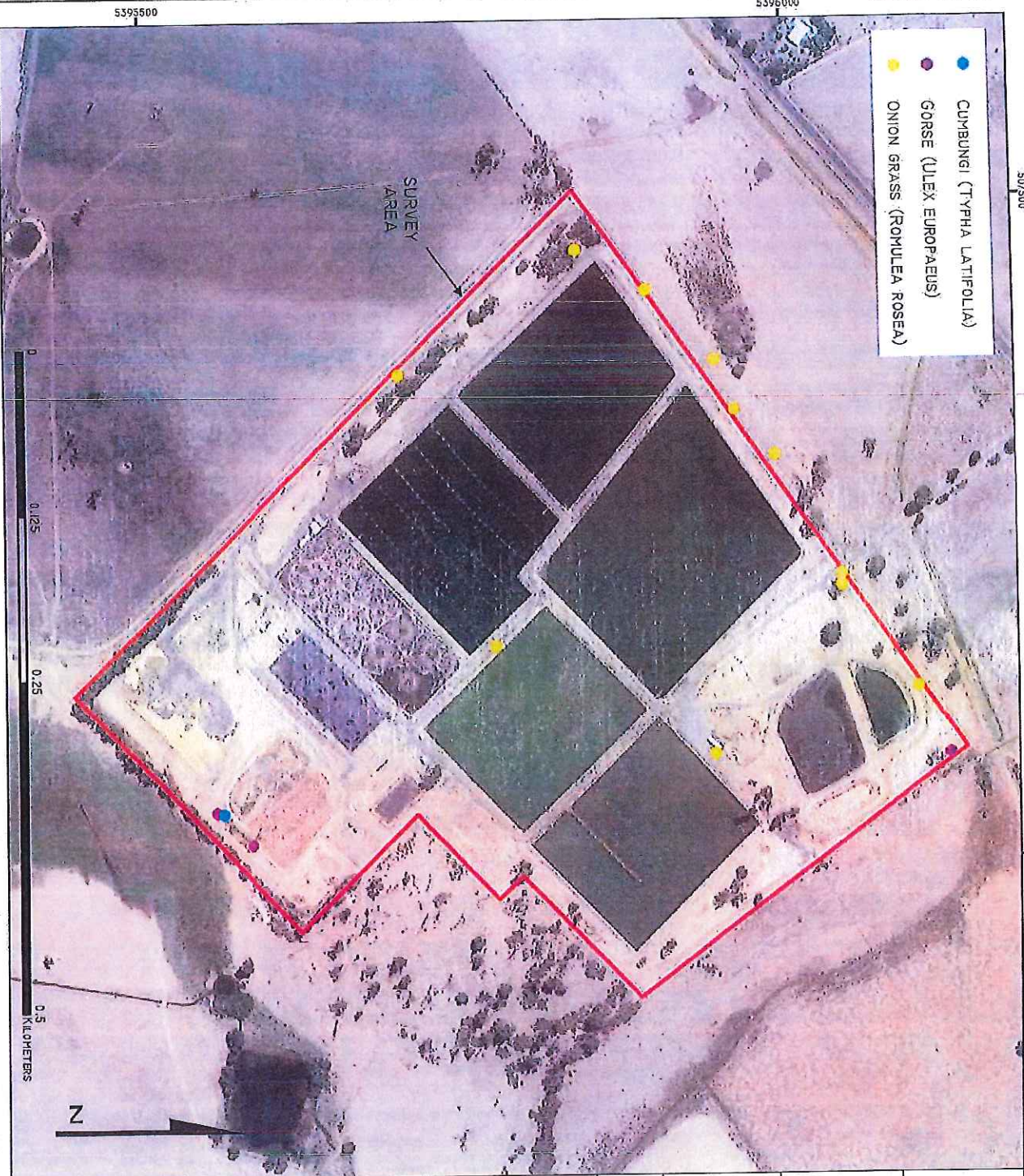
PO BOX 1 NEW TOWN TAS 7008

DATUM: GDA94,  
GRID: MGA ZONE 55  
SCALE: @A4 - 1:6,000

CLIENT:  
**Taswater**

DATE: 29TH SEPT 2018





LONGFORD SEWAGE  
TREATMENT PLANT

FLORA AND FAUNA  
SURVEY

FIGURE 6: WEED SPECIES  
WITHIN THE LONGFORD STP  
SURVEY AREA

TASMAP:  
LONGFORD  
5039

LGA:  
NORTHERN  
MIDLANDS

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CLIENT:  
**Taswater**

DATE: 29TH SEPT 2018

DATA: GDA94  
GRID: MGA ZONE 55  
SCALE: @A4 - 1:4,000



### C.3 Declared weeds

Two plant species listed on the *Weed Management Act 1999* as a Declared Weed were observed in the Survey Area –

- Gorse (*Ulex europaeus*); and
- Slender thistle (*Carduus pycnocephalus*).

Gorse was observed in two locations - one associated with a small pond in the south-western corner of the Survey Area while the other was in pasture adjacent to a much larger patch on the adjoining property.

Slender thistle was not specifically mapped as they were low in abundance due to the high coverage of grasses and they tend to be transitory – where they may be now they may not be next season or the one thereafter.

Environmental weeds present include –

- Onion grass (*Romulea rosea*);
- Spear thistle (*Cirsium vulgare*); and
- Cumbungi (*Typha latifolia*).

The general spatial distribution of gorse, onion grass, and cumbungi is shown in Figure 6.

A pond at the southern edge of the Survey Area has several gorse (*Ulex europaeus*) bushes around it and cumbungi (*Typha latifolia*) growing in it.



Onion grass (*Romulea rosea*) occurs throughout the Survey Area with the biggest infestations observed along the northern boundary and nearby embankments and road verges



#### C.5 Threatened Fauna Species with Potential Habitat in Survey Area

The Natural Values Atlas search report (Attachment A) lists species which may occur in the region based on habitat boundaries and historical recorded observations.

##### C.5.1 Eastern barred bandicoot (*Perameles gunnii gunnii*)

The Survey Area is within the known geographic range of this marsupial.

The DEWHA Species Profile and Threats Database for this species states:

This subspecies was previously widely distributed in northern, central and south-eastern Tasmania (Rounsevell, 1991). However, it has now declined in the Midlands region (Hocking, 1990). The subspecies is most abundant in the south-eastern quarter of the State with lower numbers in the north-eastern and north-western coastal regions and least abundant in the Midlands and eastern coastal areas (Hocking, 1990). It is absent from the south-western regions except for a single recorded specimen from Strahan and is also absent from Bruny Island and the islands in Bass Strait but was introduced to Maria Island in 1969–1970 and was still thriving there in the late 1980s (Hocking, 1990) (their current status on Maria Island is unknown).

It occurs in open habitats, generally at mid to low altitudes, including woodlands and open forests with a grassy understorey, and native and exotic grasslands (Hocking, 1990), and is regarded as a 'habitat generalist'. The subspecies requires understorey plants to provide shelter, nest sites and food. Analysis of habitat characteristics based on distribution records has identified a mosaic of agricultural, mainly pastoral land and remnant bushland as primary habitat for existing populations.

Nests are constructed on the ground, generally under some form of vegetation cover, which may include non-native species such as gorse, blackberry thickets and rank pasture grass areas (associated with low stocked paddocks or drains).'



No nests attributable to the eastern barred bandicoot were recorded in the Survey Area during the survey. Suitable/preferred habitat for eastern barred bandicoot is present in the Survey Area especially in the undergrowth of shelterbelts and areas where the grass has become long (ie rank).

#### C.5.2 Tasmanian devil (*Sarcophilus harrisii*)

The Survey Area is within the known geographic range of this carnivorous marsupial, and one observation of the species has been made to the north-west of the Survey Area (Figure 5).

The DEWHA Species Profile and Threats Database for this species states:

##### Habitat

Tasmanian Devils are found throughout Tasmania, in all native habitats, as well as in forestry plantations and pasture, from sea level to all but the highest peaks of Tasmania (Jones & Barmuta 2000; Jones & Rose 1996). Densities are lowest in the buttongrass plains of the south-west and highest in the dry and mixed sclerophyll forests and coastal heath of Tasmania's eastern half and north-west coast.

Open forests and woodlands are preferred, while tall or dense wet forests are avoided (Jones & Barmuta 2000; Jones & Rose 1996). The highest population densities are found in mixed patches of grazing land and forest or woodland. Relative trapping success and spool-and-line tracking indicates that Tasmanian Devils travel through lowlands, saddles and along creeks, avoiding steep slopes and rocky areas, and favouring predictably rich sources of food such as carcasses, rubbish dumps, and roads (Jones & Barmuta 2000).

Dens are typically underground burrows (such as old wombat burrows), dense riparian vegetation, thick grass tussocks and caves. Adults are thought to remain faithful to their dens for life so den disturbance is destabilising to populations (Owen & Pemberton 2005).

The Tasmanian devil is not part of, nor does it rely on any listed threatened ecological community. The species is directly associated with an invertebrate, *Dasyurotaenia robusta*, which is currently listed as Rare under the *Tasmanian Threatened Species Protection Act 1995*. This invertebrate is a tapeworm found only in Tasmanian Devils.

##### Movement Patterns

Devils are primarily nocturnal. There is no data to suggest seasonal changes in patterns of movement, apart from reduced activity of females with young in their dens (Pemberton 1990). Tasmanian Devils occupy several different dens, changing dens every 1–3 days, and travelling an average nightly distance of 8.6 km (Pemberton 1990). However, individuals have occasionally been observed to move up to 50 km in a single night (M. Jones, pers. comm. 2006). Home ranges overlap considerably. A typical home range across a two to four week period is estimated to be 13 km<sup>2</sup>, ranging from 4–27 km<sup>2</sup> (Pemberton 1990).<sup>4</sup>

The highest population densities of this species are found in mixed patches of grazing land and native forest or woodland. Relative trapping success and spool-and-line tracking indicates that Tasmanian devils travel through lowlands, saddles and along creeks, avoiding steep slopes and rocky areas, and favouring, predictably, rich sources of food such as carcasses, rubbish dumps, and roads (DEWHA, 2010a). Dens are typically underground burrows (such as old wombat burrows), dense riparian vegetation, thick grass tussocks and caves. Adult devils are thought to remain faithful to their dens for life, so den disturbance is destabilising to populations (DEWHA, 2010a).

As reported in the DRAFT Recovery Plan (DPIPWE 2010; and references cited therein):

'Tasmanian devils are primarily nocturnal (active at night) in most of their range. They will come out during the day to sun bathe, but mostly rest in hollow logs, caves, dense vegetation,

dens or burrows. If hot, they pant to reduce body heat, as they do not sweat (Hulbert and Rose 1972). Devils may occupy several dens or resting sites and they change dens every 1-3 days (Pemberton 1990). Adult devils are faithful to particular den sites (Owen and Pemberton 2005), and maternal dens may be clustered together if there is limited soil suitable for burrows (D. Pemberton unpublished). Tasmanian devils are mostly solitary, but do not defend territories.'

No dens attributable to the Tasmanian devil were recorded in or around the Survey Area during the survey. The species may move and/or forage within the Survey Area.

#### C.5.3 Spotted-tailed quoll (*Dasyurus maculatus maculatus*)

The spotted-tailed quoll is a carnivorous marsupial which occurs in Tasmania and eastern Australia from Queensland to Victoria. On mainland Australia, the species population has declined dramatically and now Tasmania is its stronghold. It is primarily a forest-dwelling species being most abundant in higher rainfall areas containing rainforest, wet forest and blackwood swamp forest. Important habitat components appear to be structurally complex forest, old growth forest with tree hollows and coastal scrub (such areas provide opportunities for arboreal hunting and avoidance of Tasmanian devils which compete for prey).

The DEWHA Species Profile and Threats Database for this species states:

##### 'Habitat

The Spotted-tailed Quoll (Tasmanian population) is a forest dependent species that occupies a large range of habitats. The species habitat is characterized by high annual rainfall and predictable rain patterns. The southern subspecies has been recorded in rainforests, wet and dry sclerophyll forest, coastal heathland, scrub and dunes, woodland, heathy woodland, swamp forest, mangroves, on beaches and sometimes in grassland or pastoral areas adjacent to forests. High densities of the species have been recorded in both dry and wet forests (Andrew 2005; Jones & Barmuta 2000).

The species has an extensive home range, from several hundred to several thousand hectares. They are known to use multiple dens and change dens every 1-4 days. Den sites have been recorded at a variety of locations including rock crevices, hollow logs, hollow tree buttresses, tree hollows, windrows, clumps of vegetation, caves, boulder tumbles, under buildings, and in the dens of rabbits and wombats. Maternal den sites are similar to those mentioned above. Female Spotted-tailed Quolls (Tasmanian population) are known to dig burrows when a suitable substrate is available (Long & Nelson 2010a).

A study of Spotted-tailed Quolls in south-eastern Australia (mainland population) revealed that prey density and den availability are the two main factors in the use of habitat. These results are likely to apply to the Tasmanian population in which suitable prey habitat is associated with predictable rainfall patterns and warm mean annual temperatures. Habitat critical to both subspecies of the Spotted-tailed Quoll contain adequate denning resources in large forest areas. This provides the species with a high density of mammalian prey (Long & Nelson 2010a).

Spotted-tailed quolls tend to disappear in highly fragmented environments and where canopy cover is reduced by over 50%. Home ranges (non-mating season) are large (in the order of 20 square kilometres for males and 10 square kilometres for females), and female ranges are virtually exclusive for large parts of the year. These two attributes contribute to low natural population densities and natural rarity. This means that the species is vulnerable to population decline.'

Bryant and Jackson (1999) identify key sites as being –



- Forested areas of the north bounded by Wynyard, Gladstone and the central and north-eastern highlands;
- Northwest wet forests, encompassing the entire catchments of the Arthur and Montagu Rivers;
- Dry eucalypt forests in the central north coast area bounded by the Tamar, Devonport and the Western Tiers (Dazzler Range, Wurra Wurra Hills); and
- Patches between the King River and Strahan, the Gordon River and Huon River catchments, and the coastal strip from Strahan to Temma.

The Survey Area is not within a key site identified by Bryant and Jackson (1999) nor not within an important population identified by Long and Nelson (2010). The species may move and/or forage within the Survey Area.

#### C.5.4 Wedge-tailed eagle (*Aquila audax fleayi*)

This eagle subspecies is found only in Tasmania and occurs throughout the State including large offshore islands. It hunts over a wide range of habitats, but nests only in old-growth trees in native forests. Bird densities are highest in areas with mosaics of forest, farmland, grassland, wetlands and rivers. Eagles feed mainly on rabbits, hares, wallabies, possums, birds such as native hens and ravens and carrion.

Nests are usually in tall eucalypt trees in large tracts (more than 10 ha) of old-growth eucalypt or mixed forest. Nest trees are amongst the largest in a locality. They are in sheltered positions on leeward slopes, between the lower and mid slopes and with the top of the tree usually lower than the ground level of the top of the ridge. Nests are not constructed close to sources of disturbance such as quarries or houses. Nests are traditional, with some having been used for at least 50 years. More than one nest may occur within a territory but only one is used in any one year. Breeding failure often promotes a change of nest in the next year. The breeding season occurs between August and January inclusive with eagles being particularly sensitive to disturbance early in this period.

The Recovery Plan (2006-2010) states for this species:

'Habitat critical to the survival of the Tasmanian Wedge-tailed Eagle is defined by nesting habitat (see Mooney & Holdsworth 1991, Brown & Mooney 1997), as forests of predominantly old growth trees greater than 10ha in area and occurring on sites sheltered from prevailing strong winds. Trees selected for nesting are greater than 27 m in height, with few exceptions. Most nest sites have an eastern, south-eastern or southern aspect and the height of the nest is usually positioned below that of the ridge to the windward side.'

No nests were recorded within the Survey Area nor are any recorded from within 1 km of the Survey Area. The Survey Area contains low quality foraging habitat for this species.

#### C.5.5 White-bellied sea eagle (*Haliaeetus leucogaster*)

This eagle species is a large and powerful bird of prey with long broad wings and a short wedge-shaped tail. Adult birds are predominantly white and grey. The head, breast and belly, and the feathering on the legs, are white. The back and upper surfaces of the wings are grey, although the wings have black tips. The undersides of the wings are greyish-black around the distal edges, with a smaller area of white along the leading edge. The tail is grey at the base and has a white tip. The bill is bluish-grey with a blackish tip, and the legs and feet are a cream colour. Young birds are mottled pale brown and may take five years to reach adult plumage.



The nests are usually very large structures constructed of sticks, often in tall eucalypts on sheltered leeward slopes. Birds will often perch for long periods on branches of live or dead trees near lagoons, rivers and estuaries, and on rocks and in trees along the coast (Donaghey 2003). The birds hunt by a gliding attack from a prominent perch, taking eels, birds and fish from the water's surface, as well as lizards, small mammals and carrion on land (Bryant and Jackson 1999).

No nests were recorded within the Survey Area nor are any recorded from within 1 km of the Survey Area. The Survey Area represents medium quality foraging habitat for this species.

#### C.5.6 Green and gold frog or Growling grass frog (*Litoria raniformis*)

Green and golden frogs are active during both day and night throughout the warmer months and can sometimes be seen basking out of the water amongst vegetation or on rocks and logs, the only Tasmanian frog to exhibit this behaviour.

The DEWHA Species Profile and Threats Database for this species states:

'They have keen eyesight in daylight and as they are approached they will jump into the water with a distinctive 'plop'. This is often the only way to know that they are there. At night, however, they can be approached with relative ease.

The breeding season in Tasmania spans September to January when males can be heard calling.

Green and golden frogs occurrence is dependent upon permanent freshwater lagoons for breeding. Ideal breeding habitat is the shallow part of lagoons (to approx. 1.5m) where there is generally a complex vegetation structure. Breeding sites often contain vegetation communities dominated by emergent plants such as water ribbons (*Triglochin*) and spike-rush (*Eleocharis*), and submerged plants such as (*Myriophyllum*), marsh-flower (*Villarsia*) and pondweed (*Potamogeton*). However, other plant communities can form equally suitable habitat.

The range of the green and golden frog is restricted to lowland areas, mainly in coastal zones with the exception of the Deloraine – Longford – Launceston region, and historically it was common in the Midlands region. This frog was once common on King Island and Flinders Island, but is now rare on both islands.

#### Habitat

This species is found mostly amongst emergent vegetation (Robinson 1993), including *Typha* sp. (bullrush), *Phragmites* sp. (reeds) and *Eleocharis* sp. (sedges), in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds and farm dams (NSW DEC 2005a). The Growling Grass Frog can be found floating in warmer waters in temperatures between 18–25°C.

Additionally, this species occurs in:

- clays or well-watered sandy soils;
- open grassland, open forest, and ephemeral and permanent non-saline marshes and swamps;
- montane eucalypt forest, dry sclerophyll forest in coastal Victoria;
- steep-banked water edges (like ditches and drains) and gently graded edges containing fringing plants; and
- formerly, areas of high altitudes (Ehmann & White 1997; NSW DEC 2005a)

Submerged vegetation is important habitat for breeding success as it provides egg-laying sites, calling stages for males, and food and shelter for tadpoles. Grassland provides habitat for foraging, dispersal and shelter, and may also provide overwintering sites for Growling Grass Frogs (Clemann & Gillespie 2004; Hamer & Organ 2006). Hamer and Organ (2006) found that large and relatively permanent waterbodies, with a high proportion of emergent vegetation cover, were more likely to be occupied by the Growling Grass Frog.

The Growling Grass Frog can also inhabit agricultural and higher rainfall pastoral lands so long as permanent and non-permanent water sites are available with dense emergent or fringing vegetation (Ehmann & White 1997; S. Wassens pers. comm. cited in NSW DEC 2005a).

The wetland systems that the Growling Grass Frog occupies in NSW consist of a mosaic of permanent and ephemeral waterbodies which flood in the spring of most years. Within these habitats, the greater the water depth and aquatic vegetation cover, the higher the probability that the Growling Grass Frog will be present. In the Lowbidgee Irrigation Area, NSW, Growling Grass Frogs occur in a series of small water bodies. The species is thought to retreat to these small water bodies during the dry season (between January and August). When the area is flooded during the wet season, these small water bodies flood to form a large wetland, which is used by the species for breeding, tadpole habitat and tadpole morphosis (NSW DEC 2005a; Wasseins 2005; Wassens *et al.* 2008).

In the Coleambally Irrigation Area, NSW, the Growling Grass Frog occurs in irrigation channels and crops (NSW DEC 2005a). The species also occurs in lignum shrublands, black box and river red gum woodlands (S. Wassens undated, pers. comm. cited in NSW DEC 2005a) and alongside rivers in the southern parts of NSW (NSW DEC 2005a).

#### *Basking Habitat*

Growling Grass Frogs are active during both day and night throughout the warmer months and can be seen basking out of water amongst vegetation or on rocks and logs. In Tasmania, it is the only frog to exhibit this behaviour (Threatened Species Unit 2001). Growling Grass Frogs are known to bask in filtered sunlight, that is, under partly cloudy conditions or in deep vegetation (Ehmann & White 1997). The Growling Grass Frog is frequently found basking on grassy banks near water (Courtice & Grigg 1975). Its behaviour during winter is not well known, although it is speculated that it hibernates in warm, moist areas such as the mud at the bottom of ponds, under logs, rocks and debris or beneath thick vegetation (Ayers *et al.* 1996; G. Pyke undated, pers. comm. cited in NSW DEC 2005a, S. Wassens undated, pers. comm. cited in NSW DEC 2005a). Radio-tracking of some individuals has suggested that the species winter under dense vegetation (S. Wassens undated, pers. comm. cited in NSW DEC 2005a).

#### *Breeding Habitat*

The Growling Grass Frog is dependent upon permanent freshwater lagoons for breeding. The ideal breeding habitat is the shallow part of lagoons (up to approximately 1.5 m) where there is generally a complex vegetation structure. Breeding sites in Tasmania often contain vegetation communities dominated by emergent plants such as water ribbons (*Triglochin*) and spikerush (*Eleocharis*) and submerged plants such as water milfoil (*Myriophyllum*), marsh-flower (*Villarsia*), and pondweed (*Potamogeton*). However, other plant communities can form equally suitable habitat (Threatened Species Unit 2001).

The variety of habitats this species utilises for refuge includes soil cracks, fallen timber, debris and dense vegetation on low, frequently inundated floodplains (Cogger 2000; S. Wassens undated, pers. comm. cited in NSW DEC 2005a).



### Movement Patterns

The Growling Grass Frog is a highly mobile species, capable of moving up to one kilometre in 24 hours (K. Jarvis undated, pers. comm. cited in Robertson et al. 2002; S. Wassens undated, pers. comm. cited in NSW DEC 2005a). Recent research suggests that, in areas other than the semi-arid/riverine part of the species' range, there are interactions between neighbouring populations (Clemann and Gillespie 2004).

When the Growling Grass Frog is restricted to small, permanent waterbodies, dispersal is low indicating high levels of site fidelity with individuals tending to move shorter distances. When occupying ephemeral waterbodies, the Growling Grass Frog has significantly higher levels of dispersal, indicating lower site fidelity, with individuals moving large distances (Wassens 2005).'

There are relatively few areas of potential habitat for this species in the Survey Area, the most notable being the ponds associated with sewage treatment.

#### *C.5.7 Eastern quoll (Dasyurus viverrinus)*

The eastern quoll has a patchy distribution across Tasmania but is more predominant in the eastern half of the State in areas of lower mean annual rainfall. They particularly flourish in agricultural areas where there is a bush-pasture interface, coming onto pastures at night to hunt for rodents and insects. The eastern quoll is solitary and non-territorial with a home range varying from 50 ha on agricultural land to several square kilometres.

The Survey Area contains low quality foraging habitat. The Survey Area is surrounded by a similar mosaic of vegetation communities that connect areas of foraging and denning habitat for this species.

#### *C.5.8 Australasia bittern (Botaurus poiciloptilus)*

The Australasian Bittern is a heavy-set, partially nocturnal heron with upperparts that are patterned dark brown, buff and black, and underparts that are streaked brown and buff. The eyebrow and throat are pale, and the side of the neck is dark brown. The bill is brown, and the legs are greenish. The species forages mainly at night on a wide range of small animals, including birds, mammals, fish, frogs, yabbies, snails, insects and spiders. Like other herons, these birds use several techniques to capture prey, including: standing and waiting, slow stalking, and active pursuit. Wing and leg movements are used to confuse or attract prey items.

The species has a regular breeding season. The nest is a shallow structure of dry or green reeds, within a clump of reeds in water or a swamp and is built on a platform of bent-over reeds. Several females will nest within one male's territory.

The sewage treatment plant has areas of open water associated with potential sites for the nesting of this species (eg areas of reeds and tall grass). However, as black swans (*Cygnus atratus*) utilise the STP for breeding and foraging in large numbers, their aggressive behaviour tends to prevent habitat use by the shy/more secluded Australasian Bittern.

#### *C.5.9 Masked owl (Tyto novaehollandiae castanops)*

The Masked Owl is the largest of Tasmania's nocturnal birds, reaching 530 mm. The upper parts are a blackish-brown with chestnut and orange barring, while the undersurface is rufous to white, speckled with dark brown. The conspicuous facial disc is chestnut to white, with a darker margin and darker around the bill and below the eyes. Males and females are similar in colouring, though females are markedly larger. Tasmanian birds are considerably larger than their mainland counterparts. The

Masked Owl is found singularly or in pairs in forests, woodlands, parks and adjacent open country; they are territorial, and pairs remain in or near the territory all year round.

The nest is a bare chamber located deep in a tree hollow, lined with soil, sand or soft wood mulch. Two to three eggs are laid and are incubated by the female, while the male provides the food. The young birds remain near the nest and are fed by the parent birds for a further month after fledging.

The Survey Area does not support trees of suitable size with hollows large enough for masked owls to utilise the site for breeding. Foraging habitat (open pasture-dominated areas where mice, rats, snakes, lizards and other prey items may be captured) only is present.

#### C.5.10 Swift parrot (*Lathamus discolor*)

The Swift Parrot occurs in south-eastern Australia. It is a migratory bird that only breeds in Tasmania and over winters on mainland Australia. The breeding range is largely restricted to the east of Tasmania within the range of the blue gum, *Eucalyptus globulus*, with some outliers at locations like Devonport – Spreyton.

The Swift Parrot usually arrives in Tasmania in August. Nest sites in eastern Tasmania are predominantly located near the coast in dry forests on upper slopes and ridge tops. They make their nests inside a hollow tree branch or trunk in very old or dead trees, which can take hundreds of years to form. Such hollows are very important homes for many birds, and animals like possums and bats.

In the breeding season, males and females form pairs. It is not unusual to find more than one pair nesting close to each other. Nest sites may be re-used but not necessarily in successive years. The use of a particular nest site depends on the availability of food in that area.

After the breeding season, in February and March, the entire population flies north, dispersing throughout Victoria and NSW. Like other migratory species, swift parrots form into flocks prior to migrating. Some of these can be quite large consisting of up to 500 birds. It appears they break up into small flocks of 10-20 birds to cross Bass Strait during the day.

The Survey Area is not within a formally recognised breeding area for this species and only *Eucalyptus ovata* (black gum) amenity plantings are present within the Survey Area. While they provide some nectar resource for birds passing through the area to a breeding area in southern or eastern Tasmania there is not enough resource on site or nearby to support a colony of breeding birds. Consequently, the foraging resource in the Survey Area is of little value to the species. There is no nesting habitat present.

### C.6 Threatened Fauna Species without or with unlikely habitat in Survey Area

#### C.6.1 Swan galaxias (*Galaxias fontanus*)

The Survey Area does not provide habitat for this species; there are no streams or rivers of enough size to be habitat for this species.

#### C.6.2 Australian grayling (*Prototroctes maraena*)

The Survey Area does not provide habitat for this species; there are no streams or rivers of enough size to be habitat for this species.



*C.6.3 Green-lined ground beetle (Catadromus lacordairei)*

The Survey Area does not contain habitat for this species; the soils are of a lateritic formation not black cracking clays with gilgai formations.

*C.6.4 Grey goshawk (Accipiter novaehollandiae)*

The Survey Area does not provide habitat for this species; there are no blackwood or swamp paperbark forests present that could be used as a nesting location for this species.

*C.6.5 Tussock skink (Pseudemoia pagenstecheri)*

The Survey Area does not provide habitat for this species; the Survey Area lacks native grassland and grassy woodlands with structural elements that could be used by the species (ie the Survey Area is pasture grasses and associated works areas).

**C.7 Recommendations***C.7.1 Threatened Flora and Native Vegetation Management*

The Survey Area does not support native vegetation communities or threatened flora species (other than *Callitris oblonga* ssp. *oblonga* which is an amenity planting on the site), hence no recommendations for their management are made.

*C.7.2 Weed Management*

The Survey Area does support weeds of significance – gorse and slender thistle. For the most part the Survey Area is 'weed-free' owing to the well-developed pasture covering the soil surface.

It is recommended that a pasture covering be maintained where possible (ie it is not blanket sprayed) and that the current weed spraying program continue to target priority weeds, including gorse and thistles.

*C.7.3 Threatened Fauna Management*

The Survey Area does provide habitat for several threatened species – quolls, Tasmanian devil, some bird species (eg eagle foraging) and the green and gold frog. It also provides habitat for other fauna species, such as black swan, waterbirds and native birds that utilise open grassy habitats with only intermittent tree cover and/or shelterbelt plantings.

The use by the Survey Area by any threatened species would likely be opportunistic rather than as ongoing use for foraging and breeding. On this basis, no specific recommendations for their management are made.

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- Wassens, S., Watts, R. J., Jensen, A. and Roshier, D. (2008). Movement patterns of southern bell frogs (*Litoria raniformis*) in response to flooding. *Wildlife Research*. 35:50-58.

**ATTACHMENTS**

- Attachment A** Natural Values Atlas Report
- Attachment B** Flora Species recorded in the Survey Area



**Attachment A Natural Values Atlas Report**

# Natural Values Atlas Report

*Authoritative, comprehensive information on Tasmania's natural values.*

Reference:

Requested For:

Report Type: Summary Report

Timestamp: 02:22:10 PM Saturday 29 September 2018

Threatened Flora: buffers Min: 500m Max: 5000m

Threatened Fauna: buffers Min: 500m Max: 5000m

Raptors: buffers Min: 500m Max: 5000m

Threatened Communities: buffer 1000m



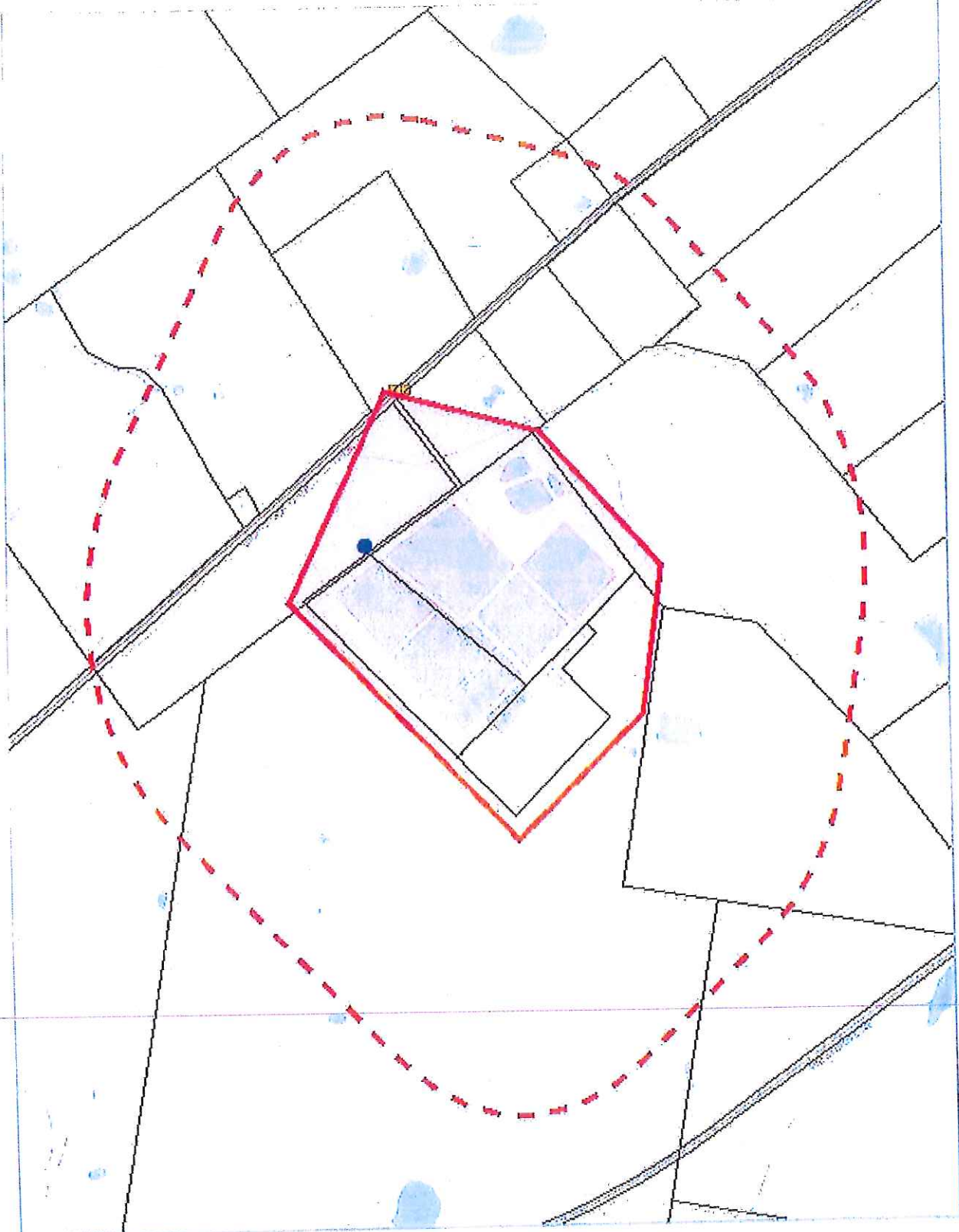
The centroid for this query GDA94: 507826.0, 5395833.0 falls within:

Property: 3035452



### Threatened flora within 500 metres

508679, 5396912



506930, 5394704

Please note that some layers may not display at all requested map scales

### Threatened flora within 500 metres

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

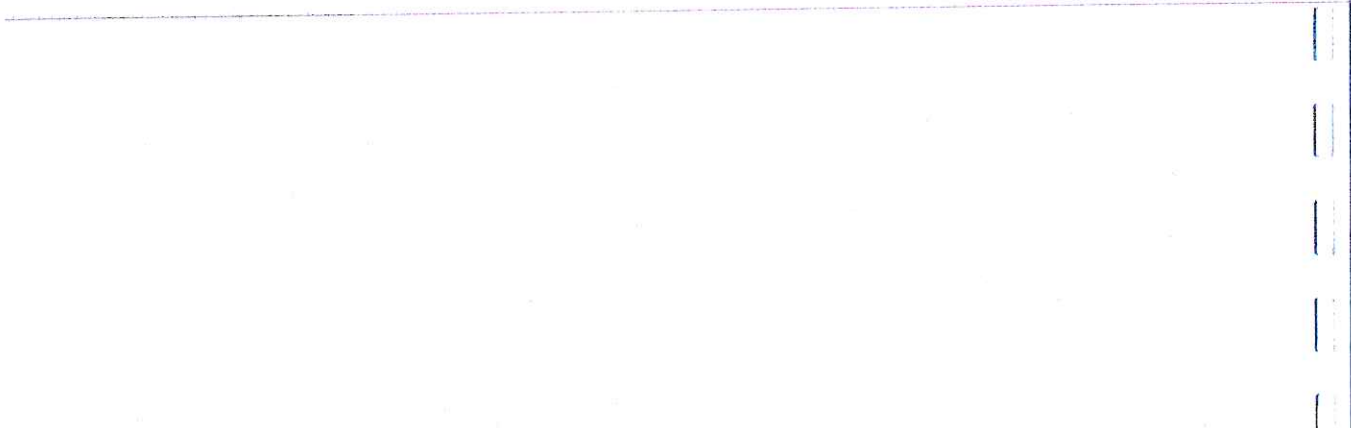
— Line Verified

— Line Unverified

■ Polygon Verified

■ Polygon Unverified

Legend: Cadastral Parcels





## Threatened flora within 500 metres

## Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Caesia calliantha	blue grasslily	r		n	1	27-Nov-2008

## Unverified Records

No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.

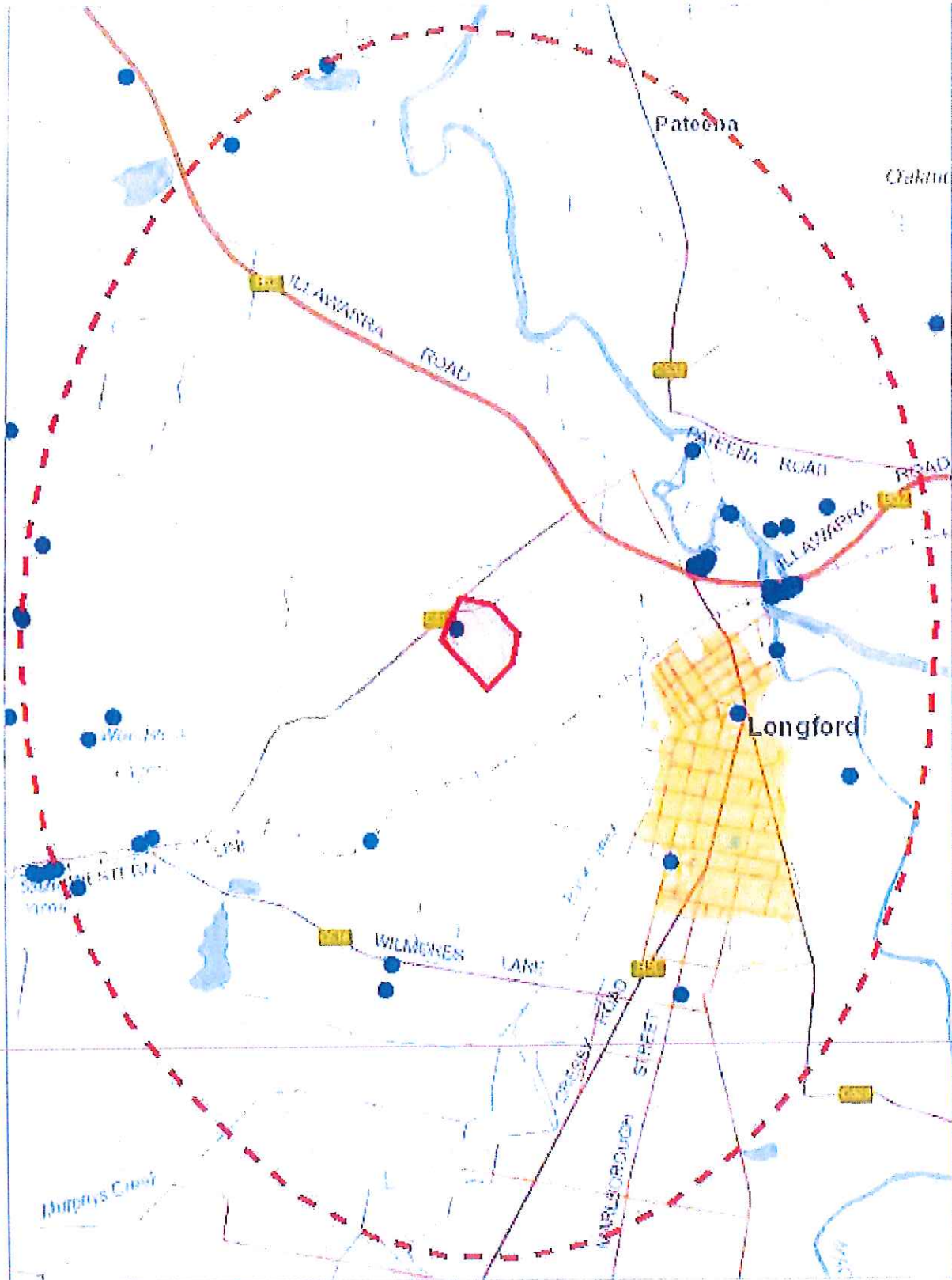
Telephone: 1300 368 550

Email: [ThreatenedSpecies.Enquiries@dpiwve.tas.gov.au](mailto:ThreatenedSpecies.Enquiries@dpiwve.tas.gov.au)

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened flora within 5000 metres

512063, 5401413



503560, 5390213

Please note that some layers may not display at all requested map scales.



## Threatened flora within 5000 metres

Legend: Verified and Unverified observations

- Point Verified
- Polygon Verified

- Point Unverified
- Polygon Unverified

— Line Verified

— Line Unverified

Legend: Cadastral Parcels



## Threatened flora within 5000 metres

## Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Alternanthera denticulata</i>	lesser joyweed	e		n	21	30-Jan-2018
<i>Aphella pumilio</i>	dwarf fanwort	r		n	1	05-Nov-1992
<i>Asperula subsimplex</i>	water woodruff	r		n	5	13-Oct-2015
<i>Bolboschoenus caldwellii</i>	sea clubsedge	r		n	2	09-Dec-2017
<i>Brunonia australis</i>	blue pincushion	r		n	12	09-Dec-2002
<i>Caesia calliantha</i>	blue grasslily	r		n	4	27-Nov-2008
<i>Callitriche umbonata</i>	winged waterstarwort	r		n	2	15-Feb-1985
<i>Centipeda cunninghamii</i>	erect sneezeweed	r		n	2	19-Mar-1985
<i>Dianella amoena</i>	grassland flaxlily	r	EN	n	1	01-Nov-1984
<i>Discaria pubescens</i>	spiky anchorplant	e		n	1	01-Nov-1891
<i>Gynatrix pulchella</i>	fragrant hempbush	r		n	2	01-Jan-1600
<i>Haloragis heterophylla</i>	variable raspwort	r		n	1	19-Nov-2014
<i>Isoetes elatior</i>	tall quillwort	r		e	2	15-Apr-1972
<i>Juncus amabilis</i>	gentle rush	r		n	1	09-Dec-2002
<i>Lobelia pratioides</i>	poison lobelia	v		n	2	26-Mar-1964
<i>Lythrum salicaria</i>	purple loosestrife	v		n	2	06-Mar-1975
<i>Muehlenbeckia axillaris</i>	matted lignum	r		n	1	08-Dec-1842
<i>Myriophyllum integrifolium</i>	tiny watermilfoil	v		n	2	15-Feb-1985
<i>Persicaria decipiens</i>	slender waterpepper	v		n	24	18-Oct-2016
<i>Persicaria subsessilis</i>	bristly waterpepper	e		n	1	16-Feb-1951
<i>Pilularia novae-hollandiae</i>	australian pillwort	r		n	1	27-Nov-1988
<i>Prostanthera cuneata</i>	alpine mintbush	x		x	2	01-Jan-1880
<i>Prostanthera rotundifolia</i>	roundleaf mintbush	v		n	1	01-Oct-1885
<i>Pterostylis ziegeleri</i>	grassland greenhood	v	VU	e	1	05-Nov-1992
<i>Ranunculus pumilio</i> var. <i>pumilio</i>	fenny buttercup	r		n	1	28-Oct-1997
<i>Rumex bidens</i>	mud dock	v		n	1	08-Nov-1978
<i>Scleranthus fasciculatus</i>	spreading knawel	v		n	1	17-Mar-2000
<i>Trithuria submersa</i>	submerged watertuft	r		n	1	11-Dec-1998
<i>Vallisneria australis</i>	river ribbons	r		n	3	19-Mar-1985
<i>Velleia paradoxa</i>	spur velleia	v		n	1	01-Jan-1988
<i>Wilsonia rotundifolia</i>	roundleaf wilsonia	r		n	2	09-Dec-2017
<i>Xerochrysum palustre</i>	swamp paperdaisy	v	VU	n	12	13-Oct-2015

## Unverified Records

No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

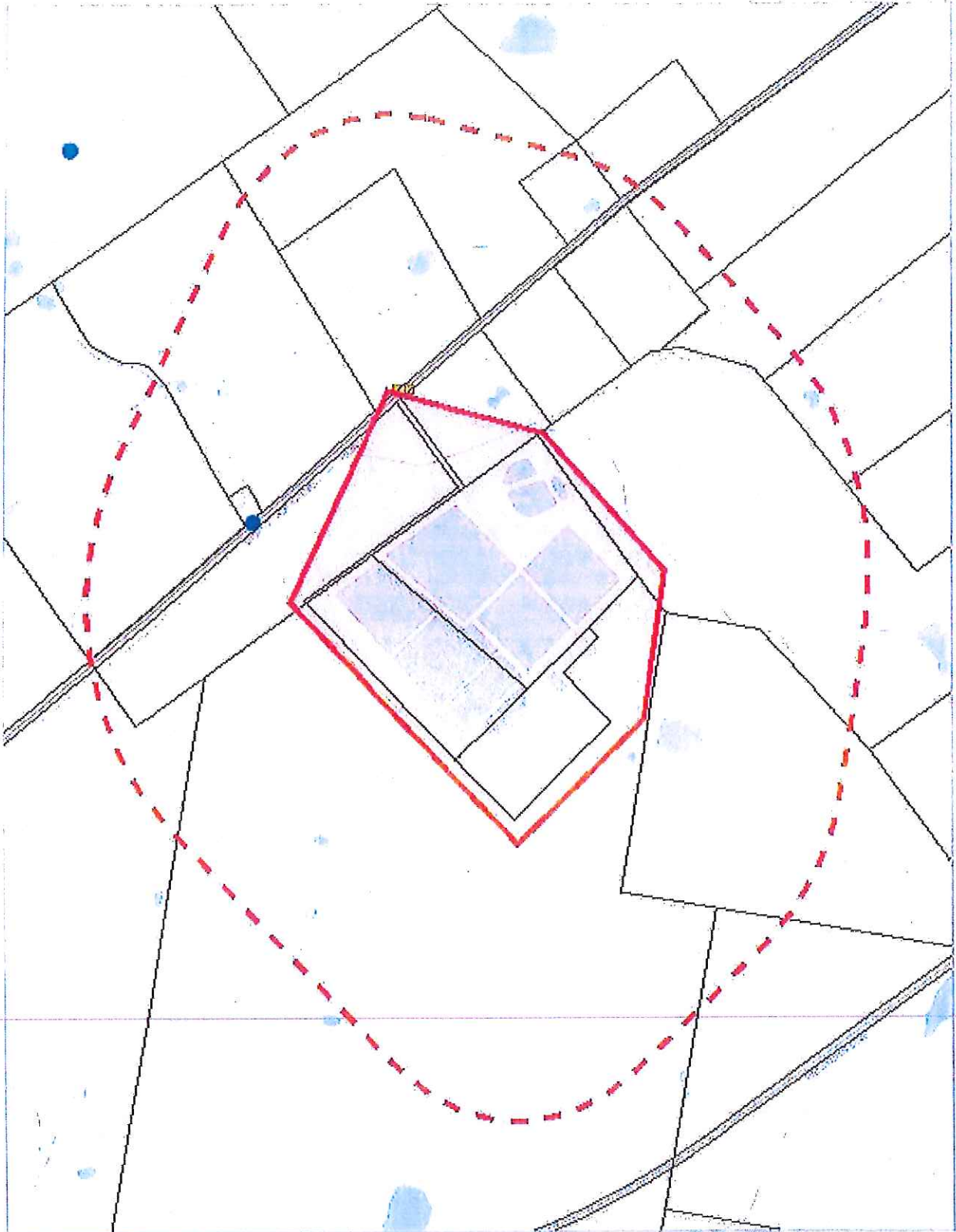
Email: [ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au](mailto:ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au)

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



Threatened fauna within 500 metres

508679, 5396912



506938, 5394704

Please note that some layers may not display at all requested map scales

### Threatened fauna within 500 metres

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Polygon Verified
- Polygon Unverified
- Line Verified
- Line Unverified

Legend: Cadastral Parcels





## Threatened fauna within 500 metres

## Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	e	1	19-Apr-2010

## Unverified Records

No unverified records were found.

Threatened fauna within 500 metres  
(based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
<i>Litoria raniformis</i>	green and gold frog	v	VU	n	1	0	1
<i>Pseudemoia pagenstecheri</i>	tussock skink	v		n	1	0	0
<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
<i>Aquila audax</i>	wedge-tailed eagle	pe	PEN	n	1	0	0
<i>Galaxias fontanus</i>	swan galaxias	e	EN	e	1	0	0
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	n	1	0	1
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	1	0	1
<i>Dasyurus maculatus</i>	spotted-tail quoll	r	VU	n	1	0	0
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	0	0	1
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	e	1	0	0
<i>Accipiter novaehollandiae</i>	grey goshawk	e		n	1	0	0
<i>Prototroctes maraena</i>	australian grayling	v	VU	ae	1	0	0
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	1	0	0
<i>Catadromus lacordairei</i>	Green-lined ground beetle	v		n	1	0	0

For more information about threatened species, please contact Threatened Species Enquiries.

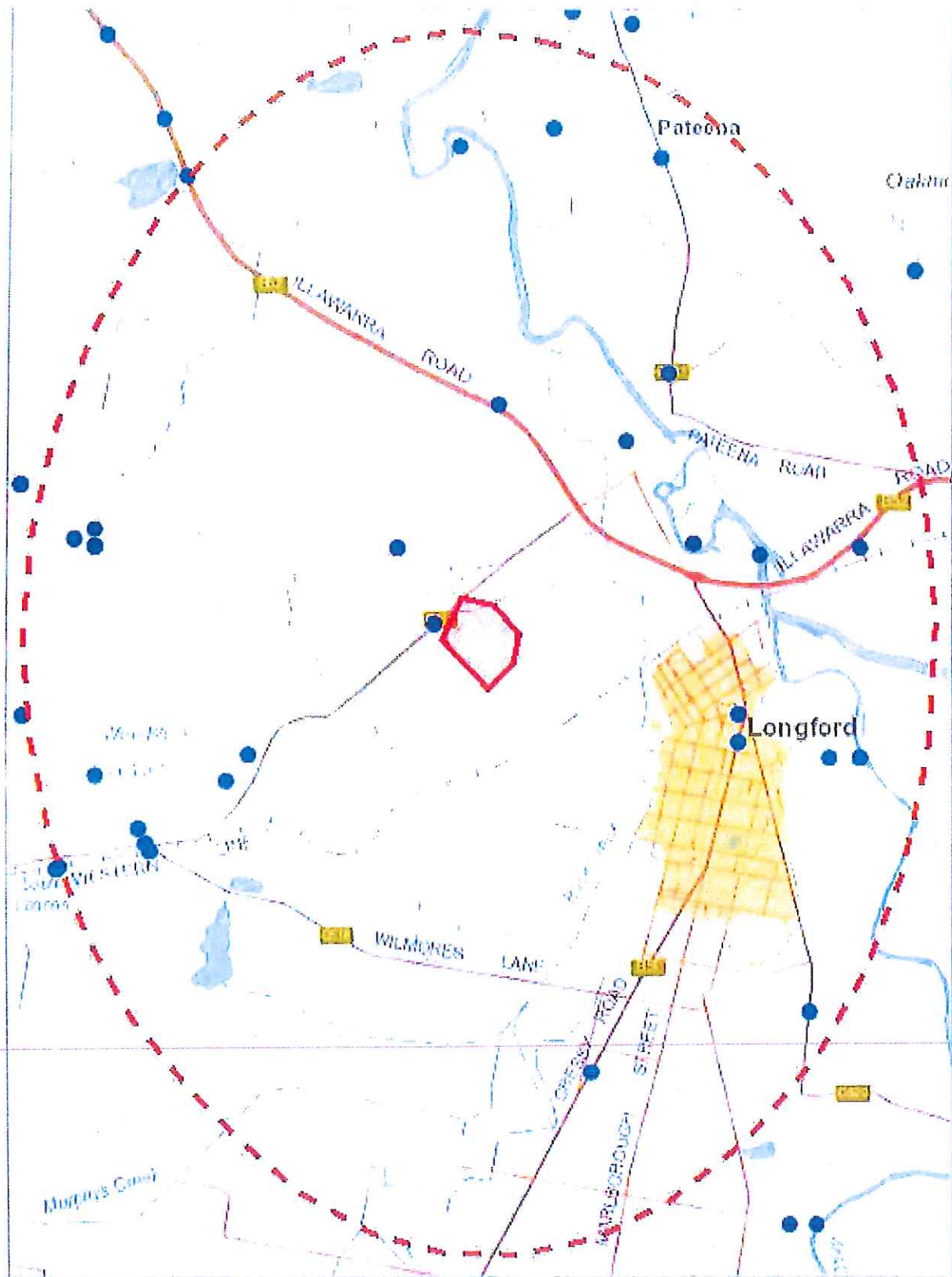
Telephone: 1300 368 550

Email: [ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au](mailto:ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au)

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened fauna within 5000 metres

512063, 5401413



503560, 5390213

Please note that some layers may not display at all requested map scales



## Threatened fauna within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

— Line Verified

— Line Unverified

■ Polygon Verified

■ Polygon Unverified

Legend: Cadastral Parcels



## Threatened fauna within 5000 metres

## Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	6	14-Jul-2008
<i>Botaurus poiciloptilus</i>	australasian bittern		EN	n	1	09-Dec-2017
<i>Catadromus lacordairei</i>	Green-lined ground beetle	v		n	2	19-Jul-2007
<i>Dasyurus maculatus</i>	spotted-tail quoll	r	VU	n	2	14-Feb-2016
<i>Dasyurus maculatus subsp. maculatus</i>	spotted-tail quoll	r	VU	n	1	07-May-1976
<i>Lathamus discolor</i>	swift parrot	e	CR	mbe	1	05-Oct-1988
<i>Litoria raniformis</i>	green and gold frog	v	VU	n	10	13-Oct-2015
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	5	07-Sep-2011
<i>Sarcophilus harrisi</i>	tasmanian devil	e	EN	e	9	02-Feb-2016
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	n	4	25-May-1996

## Unverified Records

No unverified records were found!

Threatened fauna within 5000 metres  
(based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
<i>Litoria raniformis</i>	green and gold frog	v	VU	n	1	0	1
<i>Pseudemola pagenstecheri</i>	tussock skink	v		n	1	0	0
<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
<i>Aquila audax</i>	wedge-tailed eagle	pe	PEN	n	1	0	0
<i>Galaxias fontanus</i>	swan galaxias	e	EN	e	1	0	0
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	n	1	0	1
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	1	0	1
<i>Dasyurus maculatus</i>	spotted-tail quoll	r	VU	n	1	0	0
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	0	0	1
<i>Sarcophilus harrisi</i>	tasmanian devil	e	EN	e	1	0	0
<i>Accipiter novaehollandiae</i>	grey goshawk	e		n	1	0	0
<i>ProLotu octes maraena</i>	australian grayling	v	VU	ae	1	0	0
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	1	0	0
<i>Catadromus lacordairei</i>	Green-lined ground beetle	v		n	1	1	0

For more information about threatened species, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

Email: [ThreatenedSpecies.Enquiries@dipwe.tas.gov.au](mailto:ThreatenedSpecies.Enquiries@dipwe.tas.gov.au)

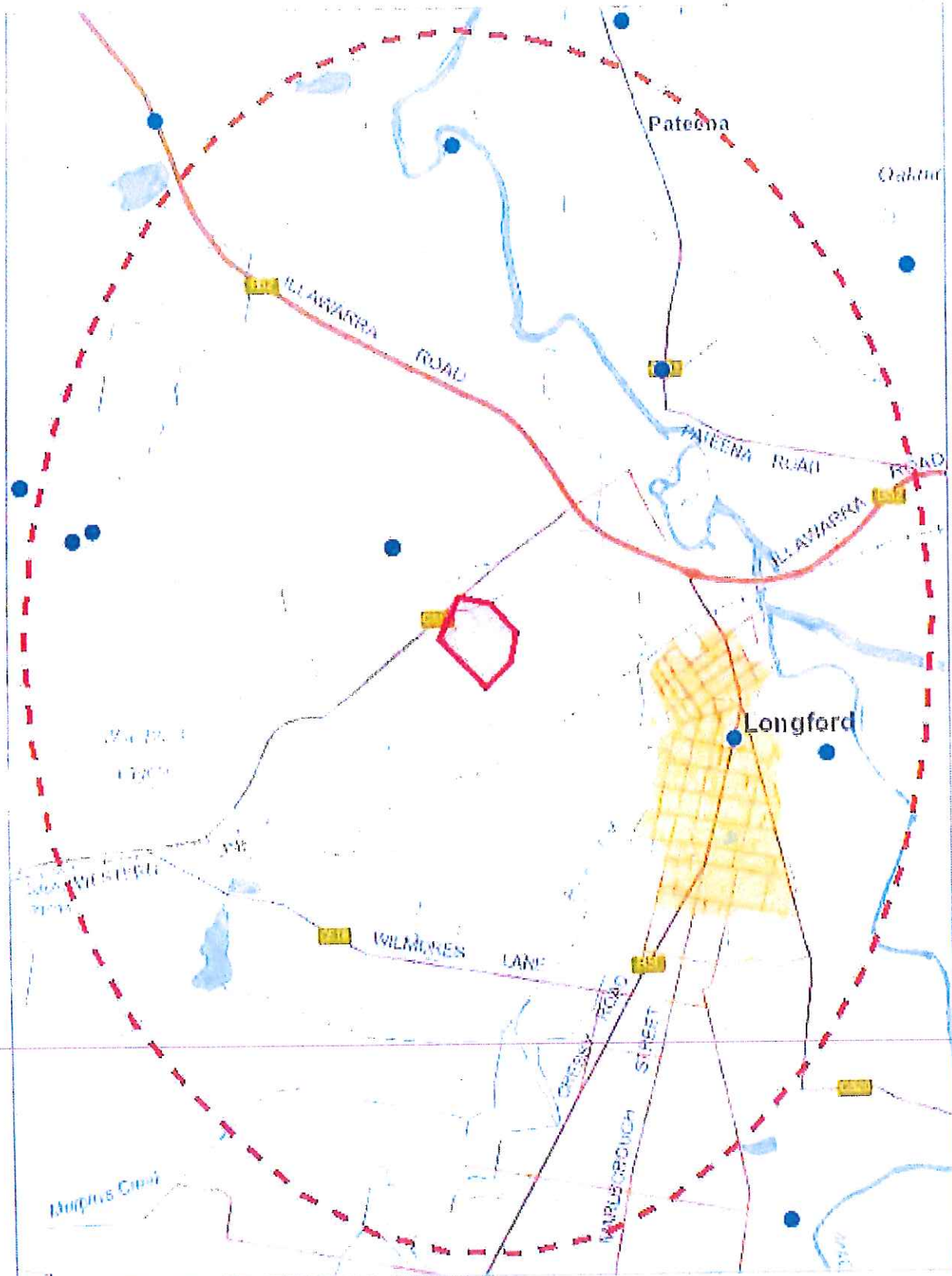
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

\*\*\* No Raptor nests or sightings found within 500 metres. \*\*\*



Raptor nests and sightings within 5000 metres

512063, 5401413



503560, 5390213

Please note that some layers may not display at all requested map scales

## Raptor nests and sightings within 5000 metres

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Polygon Verified
- Polygon Unverified
- Line Verified
- Line Unverified

Legend: Cadastral Parcels





## Raptor nests and sightings within 5000 metres

## Verified Records

Nest Id/Location Foreign Id	Species	Common Name	Obs Type	Observation Count	Last Recorded
1691	<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	Nest	1	14-Jul-2008
1692	<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	Nest	1	14-Jul-2008
959	<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	Nest	1	01-Jan-1985
	<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	Sighting	3	05-Feb-2001
	<i>Falco longipennis</i>	australian hobby	Sighting	1	23-Mar-1979
	<i>Falco peregrinus</i>	peregrine falcon	Sighting	1	25-Feb-2016
	<i>Tyto novaehollandiae</i>	masked owl	Sighting	4	25-May-1996

## Unverified Records

No unverified records were found!

Raptor nests and sightings within 5000 metres  
(based on Range Boundaries)

Species	Common Name	SS	NS	Potential	Known	Core
<i>Aquila audax</i>	wedge-tailed eagle	pe	PEN	1	0	0
<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	e	EN	1	0	0
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	1	0	1
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		1	0	0
<i>Accipiter novaehollandiae</i>	grey goshawk	e		1	0	0

For more information about raptor nests, please contact Threatened Species Enquiries.

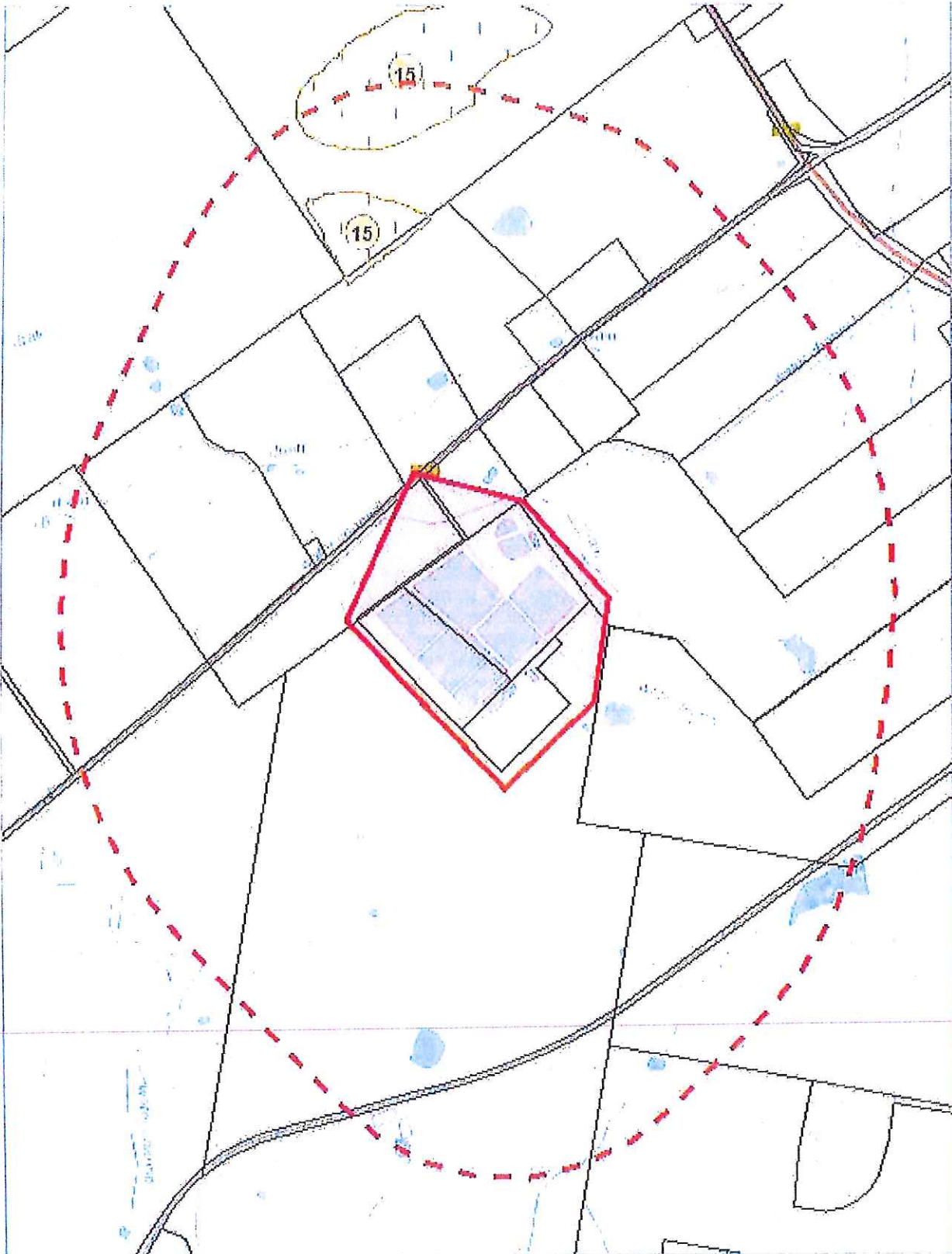
Telephone: 1300 368 550

Email: [ThreatenedSpecies.Enquiries@dipwve.tas.gov.au](mailto:ThreatenedSpecies.Enquiries@dipwve.tas.gov.au)

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened Communities (TNVC 2014) within 1000 metres

509055, 5397412



506563, 5394205

Please note that some layers may not display at all requested map scales



## Threatened Communities (TNVC 2014) within 1000 metres

## Legend: Threatened Communities

- 1 - Alkaline pans
- 2 - *Allocasuarina littoralis* forest
- 3 - *Athrotaxis cupressoides*/*Nothofagus gunnii* short rainforest
- 4 - *Athrotaxis cupressoides* open woodland
- 5 - *Athrotaxis cupressoides* rainforest
- 6 - *Athrotaxis selaginoides*/*Nothofagus gunnii* short rainforest
- 7 - *Athrotaxis selaginoides* rainforest
- 8 - *Athrotaxis selaginoides* subalpine scrub
- 9 - *Banksia marginata* wet scrub
- 10 - *Banksia serrata* woodland
- 11 - *Callitris rhomboidea* forest
- 13 - Cushion moorland
- 14 - *Eucalyptus amygdalina* forest and woodland on sandstone
- 15 - *Eucalyptus amygdalina* inland forest and woodland on calozoic deposits
- 16 - *Eucalyptus brookeriana* wet forest
- 17 - *Eucalyptus globulus* dry forest and woodland
- 18 - *Eucalyptus globulus* King Island forest
- 19 - *Eucalyptus morrisbyi* forest and woodland
- 20 - *Eucalyptus ovata* forest and woodland
- 21 - *Eucalyptus risdonii* forest and woodland
- 22 - *Eucalyptus tenuiramis* forest and woodland on sediments
- 23 - *Eucalyptus viminalis* - *Eucalyptus globulus* coastal forest and woodland
- 24 - *Eucalyptus viminalis* Furneaux forest and woodland
- 25 - *Eucalyptus viminalis* wet forest
- 26 - Heathland on calcareous substrates
- 27 - Heathland scrub complex at Wingaroo
- 28 - Highland grassy sedge land
- 29 - Highland *Poa* grassland
- 30 - *Melaleuca ericifolia* swamp forest
- 31 - *Melaleuca pustulata* scrub
- 32 - *Notelaea* - *Pomaderris* - *Beyeria* forest
- 33 - Rainforest fernland
- 34 - Riparian scrub
- 35 - Seabird rookery complex
- 36 - Sphagnum peatland
- 36A - Spray zone coastal complex
- 37 - Subalpine *Diplarrena latifolia* rushland
- 38 - Subalpine *Leptospermum nitidum* woodland
- 39 - Wetlands

## Legend: Cadastral Parcels



## Threatened Communities (TNVC 2014) within 1000 metres

Scheduled Community Id	Scheduled Community Name
15	Eucalyptus amygdalina inland forest and woodland on calozoic deposits

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.

Telephone: (03) 6165 4320

Email: TVMMPSupport@dpiipwe.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



**Attachment B Flora Species recorded in the Survey Area**

intro	endemic	fam/class	family	genus	cf	sp1
i		Dicotyledoneae	Apiaceae	Daucus		carota
		Dicotyledoneae	Apiaceae	Daucus		glochidiatus
		Dicotyledoneae	Apiaceae	Eryngium		vesiculosum
		Dicotyledoneae	Asteraceae	Arctotheca		calendula
		Dicotyledoneae	Asteraceae	Carduus		pycnocephalus
		Dicotyledoneae	Asteraceae	Cirsium		vulgare
		Dicotyledoneae	Asteraceae	Cotula		coronopifolia
		Dicotyledoneae	Asteraceae	Hypochaeris		glabra
		Dicotyledoneae	Asteraceae	Hypochaeris		radicata
		Dicotyledoneae	Asteraceae	Lactuca		serrifolia
		Dicotyledoneae	Asteraceae	Leontodon		saxatilis
		Dicotyledoneae	Asteraceae	Leptorhynchus		squamatus
		Dicotyledoneae	Asteraceae	Senecio		biserratus
		Dicotyledoneae	Asteraceae	Senecio		quadridentatus
		Dicotyledoneae	Asteraceae	Senecio		vulgaris
		Dicotyledoneae	Asteraceae	Sonchus		asper
		Dicotyledoneae	Asteraceae	Sonchus		oleraceus
		Dicotyledoneae	Asteraceae	Taraxacum		officinale
		Dicotyledoneae	Asteraceae	Leontodon		rhagadioloides
		Dicotyledoneae	Brassicaceae	Lepidium		africanum
		Dicotyledoneae	Brassicaceae	Lepidium		desvauxii
		Dicotyledoneae	Brassicaceae	Raphanus		raphanistrum
		Dicotyledoneae	Brassicaceae	Sisymbrium		officinale
		Dicotyledoneae	Callitricheae	Callitriche		stagnalis
		Dicotyledoneae	Caryophyllaceae	Cerastium		glomeratum
		Dicotyledoneae	Caryophyllaceae	Petrofragia		dubia
		Dicotyledoneae	Chenopodiaceae	Einadia		nutans
		Dicotyledoneae	Crassulaceae	Crassula		sieberiana
		Dicotyledoneae	Dipsacaceae	Dipsacus		fullonum
		Dicotyledoneae	Euphorbiaceae	Euphorbia		lathyris

intro	endemic	fam/class	family	genus	cf	spl
i		Dicotyledoneae	Euphorbiaceae	Euphorbia		peplus
i		Dicotyledoneae	Fabaceae	Medicago		arabica
i		Dicotyledoneae	Fabaceae	Melilotus		albus
i		Dicotyledoneae	Fabaceae	Trifolium		alexandrinum
i		Dicotyledoneae	Fabaceae	Ulex		europaeus
i		Dicotyledoneae	Fabaceae	Vicia		sativa
i		Dicotyledoneae	Fumariaceae	Fumaria		densiflora
i		Dicotyledoneae	Fumariaceae	Fumaria		muralis
i		Dicotyledoneae	Geraniaceae	Erodium		botrys
i		Dicotyledoneae	Geraniaceae	Geranium		dissectum
i		Dicotyledoneae	Lamiaceae	Prunella		vulgaris
i		Dicotyledoneae	Malvaceae	Malva		preissiana
		Dicotyledoneae	Malvaceae	Malva		dealbata
		Dicotyledoneae	Mimosaceae	Acacia		melanoxylon
		Dicotyledoneae	Mimosaceae	Acacia		amygdalina
		Dicotyledoneae	Myrtaceae	Acacia		ovata
		Dicotyledoneae	Myrtaceae	Eucalyptus		viminialis
		Dicotyledoneae	Myrtaceae	Eucalyptus		lanigerum
		Dicotyledoneae	Myrtaceae	Leptospermum		pallida
		Dicotyledoneae	Myrtaceae	Melaleuca		corniculata
		Dicotyledoneae	Oxalidaceae	Oxalis		spinosa
		Dicotyledoneae	Pittosporaceae	Bursaria		coronopus
		Dicotyledoneae	Plantaginaceae	Plantago		lanceolata
		Dicotyledoneae	Plantaginaceae	Plantago		major
		Dicotyledoneae	Plantaginaceae	Plantago		vulgaris
		Dicotyledoneae	Polygonaceae	Acetosella		hydropiper
		Dicotyledoneae	Polygonaceae	Persicaria		crispus
		Dicotyledoneae	Polygonaceae	Rumex		amphitrichus
		Dicotyledoneae	Ranunculaceae	Ranunculus		viscosa
		Dicotyledoneae	Ranunculaceae	Dodonaea		latifolia
		Dicotyledoneae	Sapindaceae	Parentucellia		
		Dicotyledoneae	Scrophulariaceae	Parentucellia		



	intro	endemic	fam/class	family	genus	cf	sp.1
i			Dicotyledoneae	Scrophulariaceae	Parentucellia		viscosa
i			Dicotyledoneae	Solanaceae	Solanum		nigrum
i			Monocotyledoneae	Alismataceae	Alisma		plantago-aquatica
i			Monocotyledoneae	Cyperaceae	Carex		appressa
i			Monocotyledoneae	Cyperaceae	Isolepis		setacea
i			Monocotyledoneae	Iridaceae	Romulea		rosea
i			Monocotyledoneae	Juncaceae	Juncus		bufonius
i			Monocotyledoneae	Juncaceae	Juncus		holoschoenus
i			Monocotyledoneae	Juncaceae	Juncus		pallidus
i			Monocotyledoneae	Juncaceae	Juncus		pauciflorus
i			Monocotyledoneae	Liliaceae	Hypoxis		hygrometrica
i			Monocotyledoneae	Poaceae	Agrostis		capillaris
i			Monocotyledoneae	Poaceae	Agrostis		stolonifera
i			Monocotyledoneae	Poaceae	Aira		praecox
i			Monocotyledoneae	Poaceae	Austrostipa		stipoides
i			Monocotyledoneae	Poaceae	Austrostipa		stuposae
i			Monocotyledoneae	Poaceae	Briza		maxima
i			Monocotyledoneae	Poaceae	Briza		minor
i			Monocotyledoneae	Poaceae	Bromus		dianthus
i			Monocotyledoneae	Poaceae	Cynosurus		echinatus
i			Monocotyledoneae	Poaceae	Dactylis		glomerata
i			Monocotyledoneae	Poaceae	Distichlis		distichophylla
i			Monocotyledoneae	Poaceae	Glyceria		maxima
i			Monocotyledoneae	Poaceae	Hordeum		marinum
i			Monocotyledoneae	Poaceae	Lolium		multiflorum
i			Monocotyledoneae	Poaceae	Lolium		perenne
i			Monocotyledoneae	Poaceae	Phalaris		aquatica
i			Monocotyledoneae	Poaceae	Phragmites		australis
i			Monocotyledoneae	Poaceae	Poa		annua
i			Monocotyledoneae	Poaceae	Poa		labillardierei

intro	endemic	fam/class	family	genus	cf	spl
		Monocotyledoneae	Poaceae	Poa		siberiana
		Monocotyledoneae	Poaceae	Themeda		triandra
i		Monocotyledoneae	Poaceae	Vulpia		bromoides
		Monocotyledoneae	Xanthorrhoeaceae	Lomandra		nana
	e	Gymnospermae	Cupressaceae	Callitris		oblonga
		Pteridophyta	Dennstaedtiaceae	Pteridium		esculentum





7.6 Appendix 6: Heritage Advice



# Aboriginal Heritage SEARCH RECORD

## **This search for**

2080 BISHOPSBOURNE RD LONGFORD TAS 7301 (PID 3607916)

**has not identified any registered Aboriginal relics or apparent risk of impacting Aboriginal relics.**

This Search Record has been requested for Catherine Thomas at 4:09PM on 15 May 2019 and delivered to [catherine.thomas@taswater.com.au](mailto:catherine.thomas@taswater.com.au).

This Search Record expires on 15 November 2019.

Your personal Search Identification Number is PS0063372.

Please be aware that the absence of records on the [Aboriginal Heritage Register](#) for the nominated area of land does not necessarily mean that the area is devoid of Aboriginal relics. If at any time during works you suspect the existence of Aboriginal relics, cease works immediately and contact Aboriginal Heritage Tasmania for advice.

It is also recommended that you have on hand during any ground disturbance or excavation activities the Unanticipated Discovery Plan, to aid you in meeting requirements under the *Aboriginal Heritage Act 1975* should Aboriginal relics be uncovered. There are requirements that apply under the [Aboriginal Heritage Act 1975](#). It is an offence to destroy, damage, deface, conceal or otherwise interfere with relics without a permit granted by the Minister. There is an obligation to report findings of relics as soon as practicable.

This Search Record is confirmation that you have checked the Aboriginal Heritage Property Search website for this property. This Search Record will expire in six months from the search date.

If you have any queries please do not hesitate to contact [Aboriginal Heritage Tasmania](#) on 1300 487 045 or at [aboriginal@heritage.tas.gov.au](mailto:aboriginal@heritage.tas.gov.au).



# Unanticipated Discovery Plan

Procedure for the management of unanticipated discoveries of Aboriginal relics in Tasmania

For the management of unanticipated discoveries of Aboriginal relics in accordance with the *Aboriginal Heritage Act 1975* and the *Coroners Act 1995*. The Unanticipated Discovery Plan is in two sections.

## Discovery of Aboriginal Relics other than Skeletal Material

### Step 1:

Any person who believes they have uncovered Aboriginal relics should notify all employees or contractors working in the immediate area that all earth disturbance works must cease immediately.

### Step 2:

A temporary 'no-go' or buffer zone of at least 10m x 10m should be implemented to protect the suspected Aboriginal relics, where practicable. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected Aboriginal relics have been assessed by a consulting archaeologist, Aboriginal Heritage Officer or Aboriginal Heritage Tasmania staff member.

### Step 3:

Contact Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible and inform them of the discovery. Documentation of the find should be emailed to [aboriginal@heritage.tas.gov.au](mailto:aboriginal@heritage.tas.gov.au) as soon as possible. Aboriginal Heritage Tasmania will then provide further advice in accordance with the *Aboriginal Heritage Act 1975*.

## Discovery of Skeletal Material

### Step 1:

Call the Police immediately. Under no circumstances should the suspected skeletal material be touched or disturbed. The area should be managed as a crime scene. It is a criminal offence to interfere with a crime scene.

### Step 2:

Any person who believes they have uncovered skeletal material should notify all employees or contractors working in the immediate area that all earth disturbance works cease immediately.

### Step 3:

A temporary 'no-go' or buffer zone of at least 50m x 50m should be implemented to protect the suspected skeletal material, where practicable. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected skeletal remains have been assessed by the Police and/or Coroner.

### Step 4:

If it is suspected that the skeletal material is Aboriginal, Aboriginal Heritage Tasmania should be notified.

### Step 5:

Should the skeletal material be determined to be Aboriginal, the Coroner will contact the Aboriginal organisation approved by the Attorney-General, as per the *Coroners Act 1995*.

## Guide to Aboriginal site types

### Stone Artefact Scatters

A stone artefact is any stone or rock fractured or modified by Aboriginal people to produce cutting, scraping or grinding implements. Stone artefacts are indicative of past Aboriginal living spaces, trade and movement throughout Tasmania. Aboriginal people used hornfels, chalcedony, spongelite, quartzite, chert and silcrete depending on stone quality and availability. Stone artefacts are typically recorded as being 'isolated' (single stone artefact) or as an 'artefact scatter' (multiple stone artefacts).

### Shell Middens

Middens are distinct concentrations of discarded shell that have accumulated as a result of past Aboriginal camping and food processing activities. These sites are usually found near waterways and coastal areas, and range in size from large mounds to small scatters. Tasmanian Aboriginal middens commonly contain fragments of mature edible shellfish such as abalone, oyster, mussel, warrener and limpet, however they can also contain stone tools, animal bone and charcoal.

### Rockshelters

An occupied rockshelter is a cave or overhang that contains evidence of past Aboriginal use and occupation, such as stone tools, middens and hearths, and in some cases, rock markings. Rockshelters are usually found in geological formations that are naturally prone to weathering, such as limestone, dolerite and sandstone

### Quarries

An Aboriginal quarry is a place where stone or ochre has been extracted from a natural source by Aboriginal people. Quarries can be recognised by evidence of human manipulation such as battering of an outcrop, stone fracturing debris or ochre pits left behind from processing the raw material. Stone and ochre quarries can vary in terms of size, quality and the frequency of use.

### Rock Marking

Rock marking is the term used in Tasmania to define markings on rocks which are the result of Aboriginal practices. Rock markings come in two forms; engraving and painting. Engravings are made by removing the surface of a rock through pecking, abrading or grinding, whilst paintings are made by adding pigment or ochre to the surface of a rock.

### Burials

Aboriginal burial sites are highly sensitive and may be found in a variety of places, including sand dunes, shell middens and rock shelters. Despite few records of pre-contact practices, cremation appears to have been more common than burial. Family members carried bones or ashes of recently deceased relatives. The Aboriginal community has fought long campaigns for the return of the remains of ancestral Aboriginal people.

*Further information on Aboriginal Heritage is available from:*

Aboriginal Heritage Tasmania  
Natural and Cultural Heritage Division  
Department of Primary Industries, Parks, Water and Environment  
GPO Box 44 Hobart TAS 7001

Telephone: **1300 487 045**

Email: **aboriginal@heritage.tas.gov.au**

Web: **www.aboriginalheritage.tas.gov.au**

This publication may be of assistance to you but the State of Tasmania and its employees do not accept responsibility for the accuracy, completeness, or relevance to the user's purpose of the information and therefore disclaims all liability for any error, loss or other consequence which may arise from relying on any information in this publication.













Rosemary Jones

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**From:** TasWater - Development <Development@taswater.com.au>  
**Sent:** Tuesday, 20 August 2019 12:06 PM  
**To:** NMC Planning  
**Subject:** TasWater Advice RE: Planning Authority Notice, TWDA 2019/01142-NMC, for Council permit PLN-19-0150

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Dear Sir/Madam

Pursuant to the Water and Sewerage Industry Act 2008 (TAS) Section 56P(1) TasWater has assessed the application for the above mentioned permit and has determined that the proposed development does not require a submission from TasWater.

If you have any queries, please contact me.

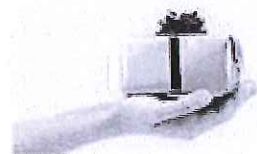
Regards

Phil Papps  
Senior Assessment Officer



D (03) 6237 8246  
F 1300 862 066  
A GPO Box 1393, Hobart TAS 7001  
169 Main Road, Moonah, TAS 7009  
E [phil.papps@taswater.com.au](mailto:phil.papps@taswater.com.au)  
W <http://www.taswater.com.au/>

Have I been helpful? Please provide feedback by clicking [here](#).



**THANKS  
IS ENOUGH**



Tasmanians are often keen to say thanks to our employees for a job well done. Instead of a gift, we'd prefer that you send us a simple card, a letter or an email. We'd appreciate it!

## Disclaimer

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This email, including any attachments, may be confidential and/or legally privileged. You must not use, access or disclose it other than for the purpose for which it was sent. If you receive this message or any attachments or information in it in error, please destroy and delete all copies and notify the sender immediately by return email or by contacting TasWater by telephone on 136992. You must not use, interfere with, disclose, copy or retain this email. TasWater will not accept liability for any errors, omissions, viruses, loss and/or damage arising from using, opening or transmitting this email



Level 6, 134 Macquarie Street, Hobart TAS  
GPO Box 1550, Hobart, TAS 7001 Australia



ENVIRONMENT PROTECTION AUTHORITY

Enquiries: Zoë Brown  
Phone: (03) 6165 4590  
Email: Zoe.Brown@epa.tas.gov.au  
Web: www.epa.tas.gov.au  
Our Ref: EN-EM-EV-DE-252649 | M516033

16 August 2019

Mr Des Jennings  
General Manager  
Northern Midlands Council  
PO Box 156  
LONGFORD TAS 7301

Dear Mr Jennings

**PLN-19-0150 UPGRADE TO LONGFORD WWTP**

I am writing in regard to the proposed upgrade of the Longford Wastewater Treatment Plant (WWTP) by the Tasmanian Water and Sewerage Corporation Pty Ltd (TasWater). I note a development application (Council reference PLN-19-0150) has been lodged with Northern Midlands Council and is currently being publicly advertised on the Council website.

As you are aware the existing Longford WWTP is a level 2 activity regulated by EPA Tasmania.

The proposed development application is for a substantial upgrade of this facility, replacing most of the existing infrastructure and utilising a different wastewater treatment process. As such I am of the view that the proposed development may not be ancillary under the provisions of sections 25(1A) (a) and possibly (c) of the *Environmental Management and Pollution Control Act 1994* (EMPCA).

I would therefore like to establish if the reason PLN-19-0150 was not referred to the EPA Board was because Council determined that the proposal is ancillary and if so, under the provisions of section 25 (1B) of EMPCA, I request Council to provide the reasons for that determination.

If you have any queries regarding this matter please contact Zoë Brown on (03) 6165 4590.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Wes Ford'. The signature is written in a cursive, slightly slanted style.

Wes Ford  
**DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY**  
Delegate for the Board of the Environment Protection



**NORTHERN  
MIDLANDS  
COUNCIL**

Our Ref: PLN-19-0150  
Your Ref: EN-EM-EV-DE-252649 M516033

27 August 2019

Mr Wes Ford  
Director  
Environment Protection Authority  
GPO Box 1550  
HOBART TAS 7001

Dear Mr Ford

**Longford Sewage Treatment Plant Upgrade**

I refer to your letter dated 16 August 2019 and advise as follows.

Section 25(1)(b) & (1A) of *Environmental Management and Pollution Control Act 1994* (EMPCA) states:

*(1) Where an application has been made to a planning authority under the Land Use Planning and Approvals Act 1993 for a permit in respect of a use or development of land that is a permissible level 2 activity or a use or development of land that is on the same land as, and is not ancillary to, an existing level 2 activity, the planning authority must –*

...  
*(b) refer the application to the Board.*

*(1A) For the purposes of subsection (1), a use or development that is on the same land as an existing level 2 activity is not ancillary to that activity if –*

- (a) it constitutes conduct of works within the definition of that level 2 activity in Schedule 2; or*
- (b) it constitutes an intensification of the use or development of the land for the purposes of conducting the works which define that level 2 activity in Schedule 2; or*
- (c) it will, or is likely to, cause serious or material environmental harm; or*
- (d) it constitutes conduct of works within the meaning of any other level 2 activity in Schedule 2.*

*A permissible level 2 activity*

The proposed development is not itself a “permissible level 2 activity”. This phrase is defined in s.25(9) to mean:

*(9) In this section, permissible level 2 activity means a level 2 activity in respect of which a planning authority –*

- (a) has a discretion to refuse a permit; or*
- (b) is bound to grant a permit either unconditionally or subject to conditions.*

P.O. Box 156  
Longford Tas 7301

Telephone (03) 6397 7303  
Facsimile (03) 6397 7331  
[www.northernmidlands.tas.gov.au](http://www.northernmidlands.tas.gov.au)

"Level 2 activity" is defined in s.3 to mean an activity specified in Schedule 2. Section 3 of Schedule 2 relates to "Waste Treatment and Disposal". It states:

*Waste Treatment and Disposal*

(a) *Wastewater Treatment Works: the conduct of wastewater treatment works that involve the discharge of treated or untreated sewage, septic tank effluent or industrial or commercial wastewater to land or water, being works with a design capacity to treat an average dry-weather flow of 100 kilolitres or more per day of sewage or wastewater.*

(ab) *Waste Tyre Storage Depots: the conduct of depots for the storage of waste tyres, being depots which are designed to store, or are likely to store, 100 tonnes or more of waste tyres.*

(b) *Waste Depots: the conduct of depots for the reception, storage, treatment or disposal of waste other than—*

*(i) temporary storage at the place at which the waste is produced while awaiting transport to another place; or*

*(ia) storage, treatment or disposal of clean fill; or*

*(ii) storage, treatment or disposal of domestic waste at residential premises; or*

*(iii) waste transfer stations—*

*and which are designed to receive, or are likely to receive, 100 tonnes or more of waste per year.*

(c) *Waste Transport Business: the transport, whether or not for fee or reward, of any controlled waste to Tasmania from another State or a Territory or from Tasmania to another State or a Territory.*

(d) *Resource recovery: the conduct of works for —*

*(i) the production of compost or mushroom substrate, being works with a production capacity of 100 tonnes per year or more, other than —*

*(A) backyard composting for domestic use; and*

*(B) on-farm composting for use on agricultural land having the same owner as the land on which the compost is produced; and*

*(C) works in respect of silage for use on agricultural land; or*

*(ii) the application to land of class 2 or class 3 biosolids, within the meaning of the Tasmanian Biosolids Re-use Guidelines 1999, as amended from time to time, where the application rate is 50 wet tonnes or more per hectare every 3 years or greater than 50% of the Nitrogen Limited Application Rate per 3 year period; or*

*(iii) anaerobic digesters with a production capacity of 100 or more tonnes per year of solid or liquid fertiliser product.*

The proposed development does not independently fall within any of these categories and will only provide an upgrade to the existing level 2 activity.

*A use or development of land that is on the same land as, and is not ancillary to, an existing level 2 activity.*

The proposed development will be on the same land as an existing level 2 activity.

The Development Application is ancillary by reference to s.25(1A) as follows:

(a) *If it constitutes the conduct of works within the definition of that level 2 activity in Schedule 2 of EMCPA*



The upgrade does not in itself constitute conduct of wastewater treatment works within the relevant definition of the level 2 activity – wastewater treatment works – as it:

- is solely to construct improvements to the STP
- does not involve the operation of the STP, and
- does not involve the discharge of sewage, effluent or wastewater beyond what is already permitted pursuant to EPN 7407/2.

*(b) If it constitutes an intensification of the use or development of the land for the purposes of conducting the work that define the level 2 activity.*

The upgrade will not involve, cause or result in the intensification of the Permitted Level 2 Activity because it:

- will not result in an increase in the existing plant capacity of 2.7ML/day average dry weather flow already authorised under EPN 7407/2
- will not change the effluent concentration limits in EPN 7407/2
- will not change the days and/or hours of operation of the STP, or
- will not result in an overall increase in the scale or size of the operation of the STP, or its footprint on the land, noting that whilst the operation will involve construction of some additional facilities on the southwestern side of the land it will also facilitate the decommissioning of four of the existing lagoons.

*(c) It if will, or is likely to, cause serious or material environmental harm.*

The upgrade will not otherwise involve, cause or result in any 'environmental harm' as defined in section 5 of EMPCA beyond what is already contemplated and permitted under EPN 7404/2.

*(d) If it constitutes conduct of works within any other definition of level 2 activity in Schedule 2 of EMPCA.*

The upgrade does not constitute works within any other definition of level 2 activity in Schedule 2 of EMPCA.

For the reasons given above it was determined that the application was not required to be referred to the EPA Board under section 25 (1) of EMPCA.

If you have any further questions, please contact Council's Senior Planner, Paul Godier, on 6397 7303 or email [planning@nmc.tas.gov.au](mailto:planning@nmc.tas.gov.au).

Yours sincerely,



Des Jennings  
**GENERAL MANAGER**