

STATEMENT OF EVIDENCE
IN THE
TASMANIAN PLANNING COMMISSION

Reference: **PDSPAMEND-2021-022802 (Rezone Land at Howrah to Landscape Conservation Zone)**

Author: Mr Andrew North

Field of Expertise (if any) Ecology – Biodiversity Conservation

Filed on behalf of: **The Representor**

Date: 22 February 2023

Representor: **Howrah Hills Landcare Group**

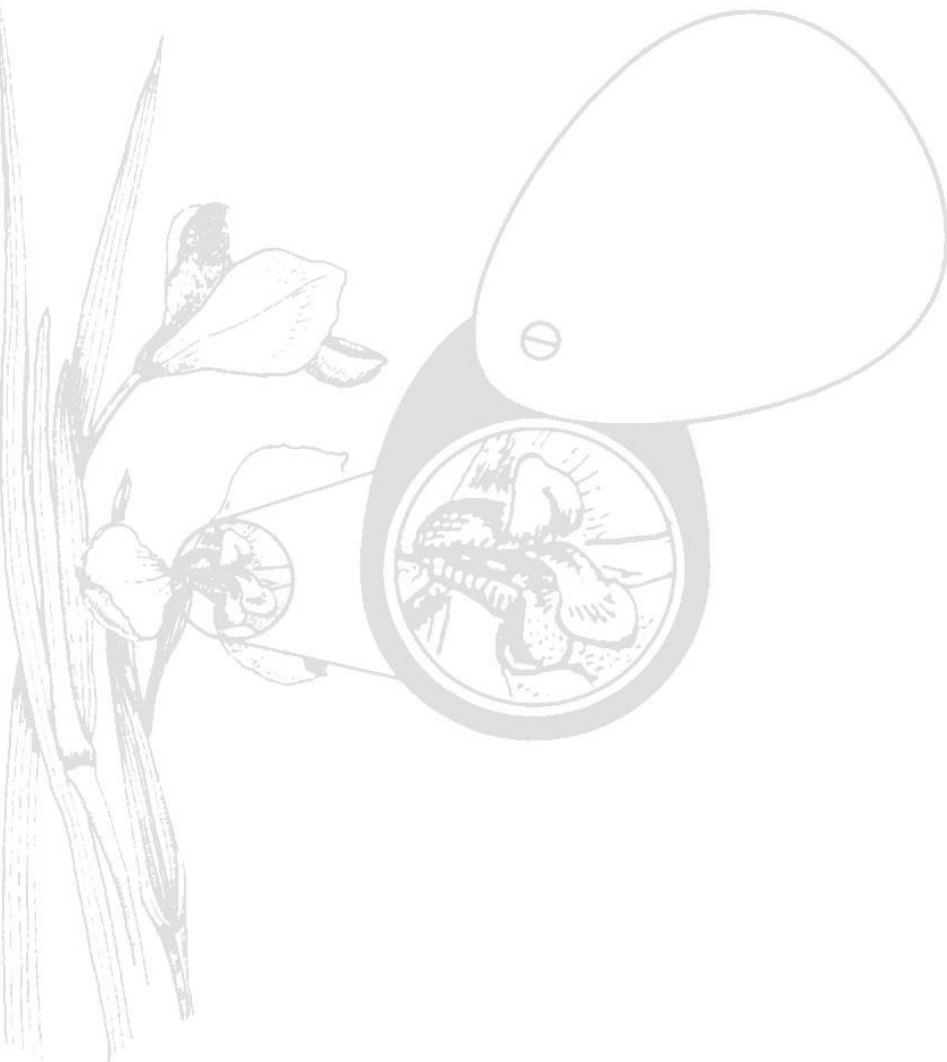
Planning Authority: **Clarence City Council**



Draft Amendment
PDSPAMEND-2021-022802
Rezone Land at Howrah to Landscape Conservation Zone

Statement of Evidence

22 February 2023



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List of Abbreviations and Acronyms

DPIPWE – Department of Primary Industries, Parks, Water and the Environment, Tasmania

EPBCA – *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (Cth)

GPS – Global Positioning System

LPS – Local Provisions Schedule

LUPAA – *Tasmanian Land Use and Planning Approvals Act 1993* (Tas)

NCA – *Tasmanian Nature Conservation Act 2002* (Tas)

NBES – North Barker Ecosystem Services

NVA – Natural Values Atlas database (DPIPWE, Tasmania)

TSPA – *Tasmanian Threatened Species Protection Act 1995* (Tas)

TPS – Tasmanian Planning Scheme

TASVEG – An Integrated vegetation map for Tasmania

TASVEG mapping codes:

- DAM – *Eucalyptus amygdalina* forest and woodland on mudstone
- DGL – *Eucalyptus globulus* dry forest and woodland
- DRI – *Eucalyptus risdonii* forest and woodland
- NAV – *Allocasuarina verticillata* forest
- FRG – Regenerating cleared land
- FUR – Urban Areas

1 Introduction

1.1 Qualifications

1.1.1. This statement of evidence is prepared by Mr Andrew North of North Barker Ecosystem Services, 163 Campbell Street, Hobart.

1.1.2. I have a Bachelor of Science with Honours and 30 years professional experience undertaking ecological impact assessments. I have provided input into the design of numerous applications for planning approval. A copy of my curriculum vitae is attached.

1.1.3. Examples of my experience include:

- a) preparing biodiversity reports for developers;
- b) appearing as an expert witness in the Tasmanian Planning Commission regarding multiple rezoning applications and planning scheme amendments including matters pertaining to the Tasmanian Planning Scheme.

- c) appearing as an expert witness in the Resource Management and Planning Appeal Tribunal and the Civil and Administrative Tribunal (Tribunal) regarding the approval of planning applications for developments including several in Clarence;
- d) identifying and assessing native flora, fauna habitat and fauna in general;
- e) managing numerous targeted surveys and providing impact management plans for swift parrot, and other threatened fauna species;
- f) sitting as a member on the Tasmanian Threatened Species Scientific Advisory Committee as a vascular plant expert;
- g) assessing impacts to native vegetation as a consequence of fulfilling bushfire hazard management requirements; and
- h) contributing to the development of Tasmania's natural values priorities through membership of Ministerial and other advisory bodies for many years.

1.2 Background

- 1.2.1 I am familiar with the site having undertaken previous botanical assessments in 1995. Firstly an assessment of areas zoned Landscape Conservation in the Eastern Shore Planning Scheme 1963 which included all of the northern portion of the subject land (part of 100 Skyline Drive, 125 Norma Street, 18 Newhaven Court and 5 Zenith Court)¹. Secondly an assessment capturing some of the southern portion of the subject land including 60 c and 100 Skyline Drive².

1.3 Scope

- 1.3.1 I was engaged by Howrah Hills Landcare Group 21 December 2022 to provide an independent expert opinion in relation to the biodiversity values of the subject land within the rezoning area (Amendment).
- 1.3.2 For the purposes of this assessment the subject land is limited to the areas of affected titles identified in the draft amendment PDPSAMEND – 2021/02802 to be rezoned from Low Density Residential Zone to Landscape Conservation Zone. (Appendix A).
- 1.3.3 I have been asked to assess the ecological biodiversity values of the land and consider the implications to priority vegetation resulting in the planning amendment with the Local Provisions Schedule (LPS) in the Tasmanian Planning Scheme.
- 1.3.4 I also consider how the Natural Assets Code of the Local Provisions Schedule (LPS) would apply under each zoning.
- 1.3.5 In assessing the Amendment, I have reviewed various documents prepared in 1996 and 2020 by a wide range of respected experts in their specialised fields of botany and zoology. I consider the relevance of their findings today and applicability to the provisions of the Tasmanian Planning scheme.
- 1.3.6 I understand that my evidence will inform a determination whether a particular zoning outcome could result in unacceptable impacts to biodiversity values.

¹ Howrah Hills Botanical Reconnaissance (19 February 1995) for Acer Wargon Chapman

² Two Areas in the Vicinity of Skyline Driver, Howrah Hills. Botanical Survey August 1995. For Clarence City Council

1.4 Declaration

1.4.1 In preparing this statement of evidence I have made all enquiries which I believe to be reasonable and appropriate. No matters of significance have been withheld from the Commission.

1.4.2 I have read the Tasmanian Planning Commission Expert Evidence Practice Note 14 and agree to be bound by it.

1.5 References

1.5.1 The subject land has been subject to numerous ecological assessments, notably from 1996:

- Blake, G. Conservation Values of Howrah Hills Vegetation focussing on the Gully north of Skyline Drive.
- Bryant, S. Letter to Howrah Hills Landcare Group Inc. 9 September 1996.
- Mooney N. Letter to Howrah Hills Landcare Group Inc. 4 June 1996.
- Mallick, S. The eastern barred bandicoot in the Skyline Drive Gully Area, Howrah Hills, 1996.
- McQuillan, P. Comments on the Fauna of Howrah Hills gully. November 1996.
- North, A. Howrah Hills Botanical Reconnaissance for Acer Wargon Chapman. 19 February 1995.
- North, A. Two Areas in the Vicinity of Skyline Driver, Howrah Hills. Botanical Survey. For Clarence City Council. August 1995.
- Kirkpatrick, J.B. Comments on the proposed subdivision of part of the Howrah Hills above Skyline Drive. 15 November 1996.
- Mills, A. Native vegetation / fungi in the proposed extension to Skyline Drive. Undated. C 1996.
- Wiltshire, R. A preliminary report on the vegetation of the area adjacent to the proposed extension of Skyline Drive. Undated (c 1996).
- Wiltshire, R. Natural vegetation at 100 Skyline Drive. 9 November 2020.

1.5.2 In preparing this statement of evidence I have had regard to the following information:

- Blowfield, J. Clarence LPS – Skyline Drive, Norma Street, Newhaven Court and Zenith Court. Planning Submission Representation 34. 17 November 2020.
- Commonwealth of Australia (1999). Environment Protection and Biodiversity Conservation Act 1999. No. 91, 1999.
- Commonwealth of Australia (2011). Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999. Commonwealth of Australia, Canberra. Howrah Hills Landcare Group. Response to Clarence Local Area Provisions. 17 March 2020.

- Department of Primary Industries, Parks, Water and Environment. TASVEG 4.0, Released July 2020. Tasmanian Vegetation Monitoring and Mapping Program, Natural and Cultural Heritage Division.
- Department of Primary Industries, Parks, Water, and Environment (2021). Department of Primary Industries, Parks, Water and Environment. TASVEG 4.0 area by VEGCODE. Tasmanian Vegetation Monitoring and Mapping Program, Resource Management and Conservation Division.
- Entura (2011). Clarence City Council Natural Assets Information Manual.
- Kitchener, A. & Harris, S. (2013). From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation. Edition 2. Department of Primary Industries, Water and Environment, Tasmania.
- Tasmanian Planning Commission. Clarence Draft Local Provisions Schedule. Landscape Conservation Zone or Rural Living B Zone – Howrah Hills. Extract undated.
- Tasmanian Planning Scheme – State Planning Provisions (TPS).
- Tasmanian Land Conservancy (undated likely 2023). Summary report - Cameras at 5 Zenith Court, Howrah.
- Tasmanian State Government (1995). Threatened Species Protection Act 1995. No.83 of 1995. Government Printer, Hobart, Tasmania.

2 Biodiversity Values

2.1 Survey

- 2.1.1 The site was inspected on 10 January 2023. With the specific purpose of identifying attributes that correspond to priority vegetation under the Natural Assets Code. These include threatened vegetation, threatened fauna habitat and threatened flora.
- 2.1.2 All properties were viewed from various vantage points on public roads and from Knopwood Hill NRA.
- 2.1.3 The following properties were accessed and inspected on the ground:
- 5 Zenith Court, Howrah (folio of the Register 26629/144);
 - 100 Skyline Drive, Howrah (folios of the Register 136183/1, 2, 3, 4, 5, 6, & 7);
 - 73 Skyline Drive, Howrah (folio of the Register 136183/8);
 - 60A Skyline Drive, Howrah (folio of the Register 104949/6);
 - 60B Skyline Drive, Howrah (folio of the Register 104949/5); and
 - 60C Skyline Drive, Howrah (folio of the Register 136183/11).
- 2.1.4 Vegetation communities were assessed and mapped applying TASVEG classification³ in line with TASVEG 4⁴. Boundaries were confirmed on the ground or extrapolated for aerial photographic interpretation.
- 2.1.5 One threatened flora species (*Eucalyptus risdonii*) was recorded, and locations plotted using hand held GPS⁵.
- 2.1.6 Threatened fauna habitat was considered during site inspections and survey. Species habitat identified for the subject land include swift parrot and eastern barred bandicoot.⁶
- 2.1.7 Any habitat features were considered and mapped, including likely habitat trees which were plotted using hand held GPS.

2.2 Threatened Vegetation

- 2.2.1 Figure 1 presents the distribution of vegetation communities comparing the findings of this assessment with the mapping in TASVEG 4.
- 2.2.2 *Eucalyptus risdonii* forests and woodland (DRI) and *E. globulus* dry forest and woodland (DGL) are both listed as threatened communities under Schedule 3 A of the *Nature Conservation Act 2002*.
- 2.2.3 The extent of DGL with the subject land is less than presented on TASVEG 4 (Figure 1). The triangle of forest in the far north of the land (part of 100 Skyline Drive) has been

³ Kitchener, A. & Harris, S. 2013

⁴ Department of Primary Industries, Parks, Water and Environment. 2020

⁵ Garmin GPSMAP 66sr

⁶ Bryant 1996, Mallick 1996, McQuillan 1996,

reallocated to NAV (*Allocasuarina verticillata* forest). All emerging *E. globulus* are dead and the canopy she oaks (*A. verticillata*) has closed preventing recruitment. This outcome is a function of previous disturbances, a particular fire regime and drought stress. It is likely irreversible without significant management intervention.

2.2.4 The gully extending from the northern end of Skyline Drive supports less DGL than suggested by TASVEG 4. DGL is confined to the western boundary and southern portion adjoining Bandicoot Reserve. This gully is regenerating previously cleared land although now supporting a dense cover of silver wattle over significant areas with open grassy areas along the gully bottom and a small dam. Likely ground disturbance associated with sewer infrastructure has resulted in dense weedy infestations of blackberry, periwinkle, thistles and serrated tussock. Over time those areas mapped as FRG will regenerate to DGL on the east facing slopes and gully bottom and to DAM on the drier west facing slope.

2.2.5 There is a small patch of DRI supporting some mature and relatively large trees of *Eucalyptus risdonii* in very good health located on 76 and 60C Skyline Drive. This is not picked up by TASVEG which overlooks significant stands of native forest, mostly corresponding to *E. amygdalina* forest and woodland on mudstone (DAM). Here the dominant tree is white gum (*E. viminalis*), forming a localised and significant facies of this community.

2.2.6 The mapped extent of DRI on TASVEG 4 north of the Skyline Drive extends much further to the south although is still retained within the Landscape Conservation portion of the relevant lots. This has been mapped by Wiltshire (2020).

2.3 **Threatened Flora Species**

2.3.1 One threatened flora species is confirmed present. Risdon peppermint (*Eucalyptus risdonii*) is listed under Schedule 5 of the Tasmanian *Threatened Species Protection Act* 1995 (TSPA) under the rare category. Figure 2 identifies the distributions of this species. Most occur in a small stand with scattered individuals records elsewhere - all on the southern part of the subject land. No other threatened flora species are documented on the Natural Values Atlas at this site. One other threatened flora species (daddy longlegs orchid *Caladenia filamentosa*) is recorded within 500 m. The record is from 1955 of low accuracy (500m) The DAM community provides the most suitable habitat for this species which would only be identified, if present, by a targeted spring survey. No threatened flora species have been identified from other surveys of the subject land (North 1995 and Wiltshire 1996).

2.4 **Threatened Fauna and habitat**

2.4.1 The subject land has been recognised as important for two vertebrate species of threatened fauna⁷.

2.4.2 Swift parrot is listed as endangered on the TSPA and as critically endangered on the EPBCA. Habitat trees identified in the form of foraging habitat (blue gums *E. globulus*) and potential nesting habitat (large eucalypts and other hollow bearing trees) are present. Figure 2 identifies the occurrence of swift parrot habitat noting that those

⁷ Bryant 1996, Mooney 1996, Mallick 1996, McQuillan 1996, Kirkpatrick, 1996, Mills 1996.

present in the western part of 125 Norma Street are captured within an indicative polygon based on remote observation and aerial interpretation.

2.4.3 The subject land falls within the Meehan Range Important Breeding Area (SPIBA), and as such the preferred foraging resource (*Eucalyptus globulus*) constitutes significant fauna habitat, and thus accords to priority vegetation.

2.4.4 The eastern barred bandicoot (*Perameles gunnii*) is listed under the EPBC Act as vulnerable but does not appear on the TSPA. This species has been recorded present within the gully at the head of Skyline Drive in 1996⁸. It "can occur in native grasslands, grassy woodlands and forests, and areas of pastoral development where there are patches of dense ground cover, often composed of weeds.... They also commonly occur in suburban areas and rural towns" ⁹ favouring "open habitats including woodlands and open forests with a grassy understorey, and native and exotic grasslands. It needs understorey plants to provide shelter, nest sites and food."¹⁰. No recent deployment of cameras has been utilised at the Skyline Drive gully. However, the gully continues to provide excellent quality habitat with damp grassland over deep soils surrounded by dense cover. The larger grassy lawns in large established gardens of 125 Norma Street, 18 Newhaven Court and 5 Zenith Court all provide good quality eastern barred bandicoot habitat. Although no evidence of the distinctive conical bandicoot diggings was observed in my 2023 inspection, this was not a comprehensive search. The Tasmanian Land Conservancy reported diggings from 5 Zenith Court¹¹ but did not pick up any on camera.

2.4.5 The significance of the gully has been articulated by several wildlife biologists¹². It provides moist conditions and secure shelter. This provides a key local habitat resource in the local area and significant habitat for the eastern barred bandicoot. As such this accords to priority vegetation. The extensive grassy lawns of the larger lots described in 2.4.4 are unique in the local area and a likely preferred habitat choice and as such also are significant habitat and so qualify as priority vegetation.

2.5 Native Vegetation of local importance

2.5.1 It is not clear how or who can identify vegetation to be of local importance.

2.5.2 The areas of intact native vegetation mapped as *Eucalyptus amygdalina* on mudstone (DAM) should be considered to be of local significance. When I previously assessed this community for Clarence Council ¹³ using floristic classifications and priority criteria at that time I classified this community as being of high conservation significance. The facies of DAM in the Meehan Range is recognised as distinct having a local dominance of *Eucalyptus viminalis* and having *E. risdonii* locally present¹⁴. Statewide

⁸ McQuillan 1996

⁹ Commonwealth of Australia 2011

¹⁰ Conservation Advice in Eastern Barred Bandicoot Species Profile and Threats Database - http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66651

¹¹ TLC undated (likely 2023) – cameras deployed 30 Oct-23 Dec 2022

¹² McQuillan 1996, Mills 1996, Mallick 1996

¹³ North 1995

¹⁴ Dry eucalyptus forest and woodland (revised April 2019) Description of dry eucalyptus forest and woodland vegetation communities > on line update of Kitchener, A. & Harris, S. (2013). <https://nre.tas.gov.au/conservation/flora-of-tasmania/from-forest-to-fjaeldmark-descriptions-of-tasmanias-vegetation>

TASVEG 4.0 maps 40,700 ha of DAM¹⁵ with the vast majority associated with the Mathinna sediments of Northern Tasmania. In the South East IBRA bioregion 5700 ha are mapped of which 1800 ha occur within Clarence. These can be differentiated for being associated with Permian mudstones supporting a distinct flora from the northern version. With 800 ha secured in reserves the fate of the balance is dependent on other planning outcomes such as zoning overlays to regulate its clearance. If recognised as being of Local Significance then the provisions of the Natural Assets Code can apply, as expanded in paragraph 3.1.2.

Table 1: Extent of vegetation communities in Subject Land

Vegetation community*	Threatened Community)	Area extent ha TASVEG 4	Area extent ha Current Assessment
DAM		0.33	3.25
DGL	YES	4.04	1.53
DRI	YES	0	0.16
FRG		0	0.66
FUR		4.64	4.29
NAV			0.94
TOTAL		10.82	10.82

Table 2: Extent of priority vegetation in Subject Land

Category	Value	Area extent ha
Threatened vegetation	DGL/DRI	1.68
Threatened flora	Eucalyptus risdonii	0.28
Significant threatened fauna habitat	Swift parrot foraging and/or nesting habitat Eastern barred bandicoot foraging habitat	2.27
Native vegetation of local significance	DAM	3.25
Priority Vegetation – amalgamated		6.55

Refer list of Abbreviations and Acronyms for full community names

¹⁵ DPIWE 2021



Figure 1: Comparison of vegetation between TASVEG 4 and this study

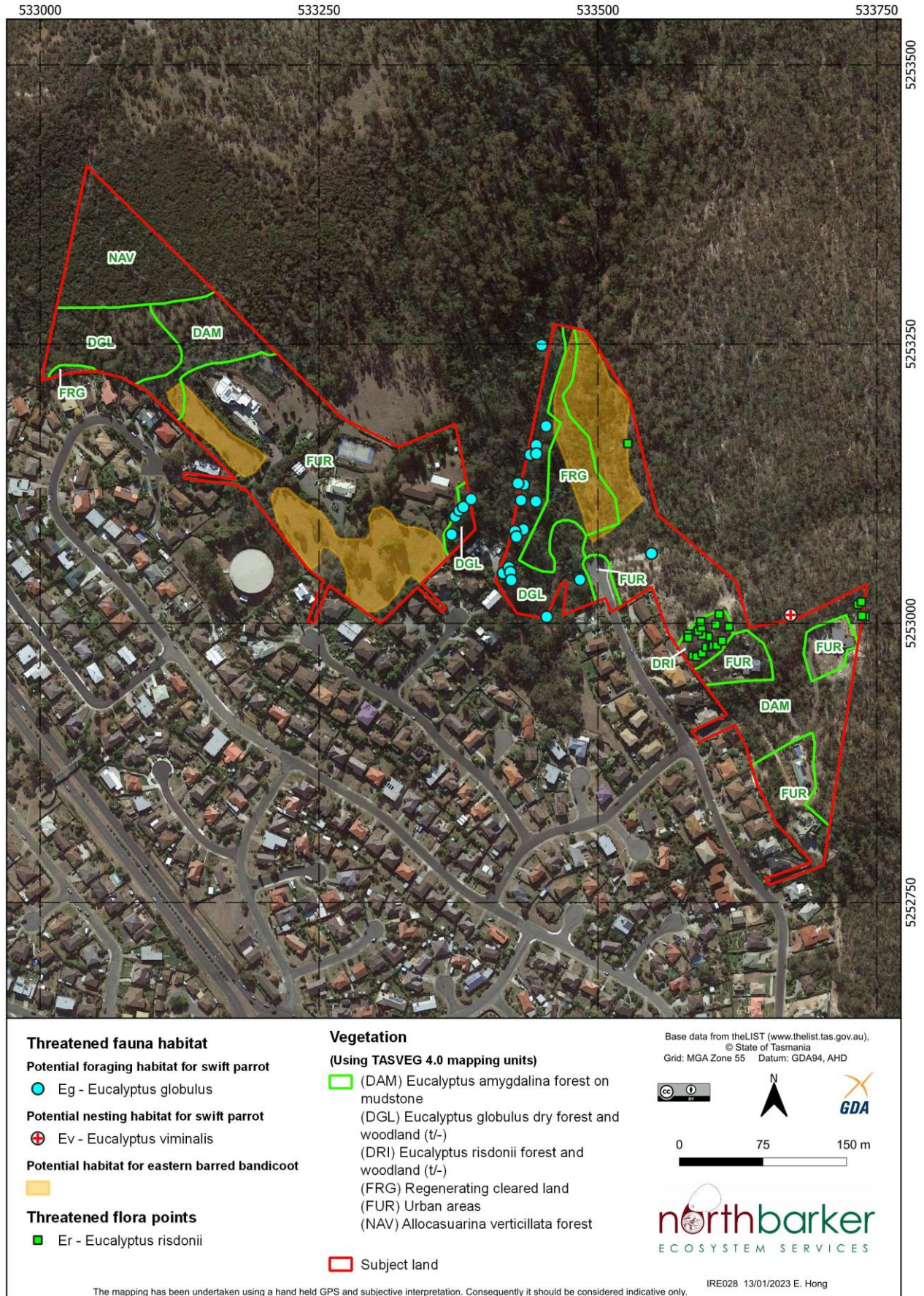


Figure 2:Vegetation, Threatened Flora and Threatened Fauna Habitat

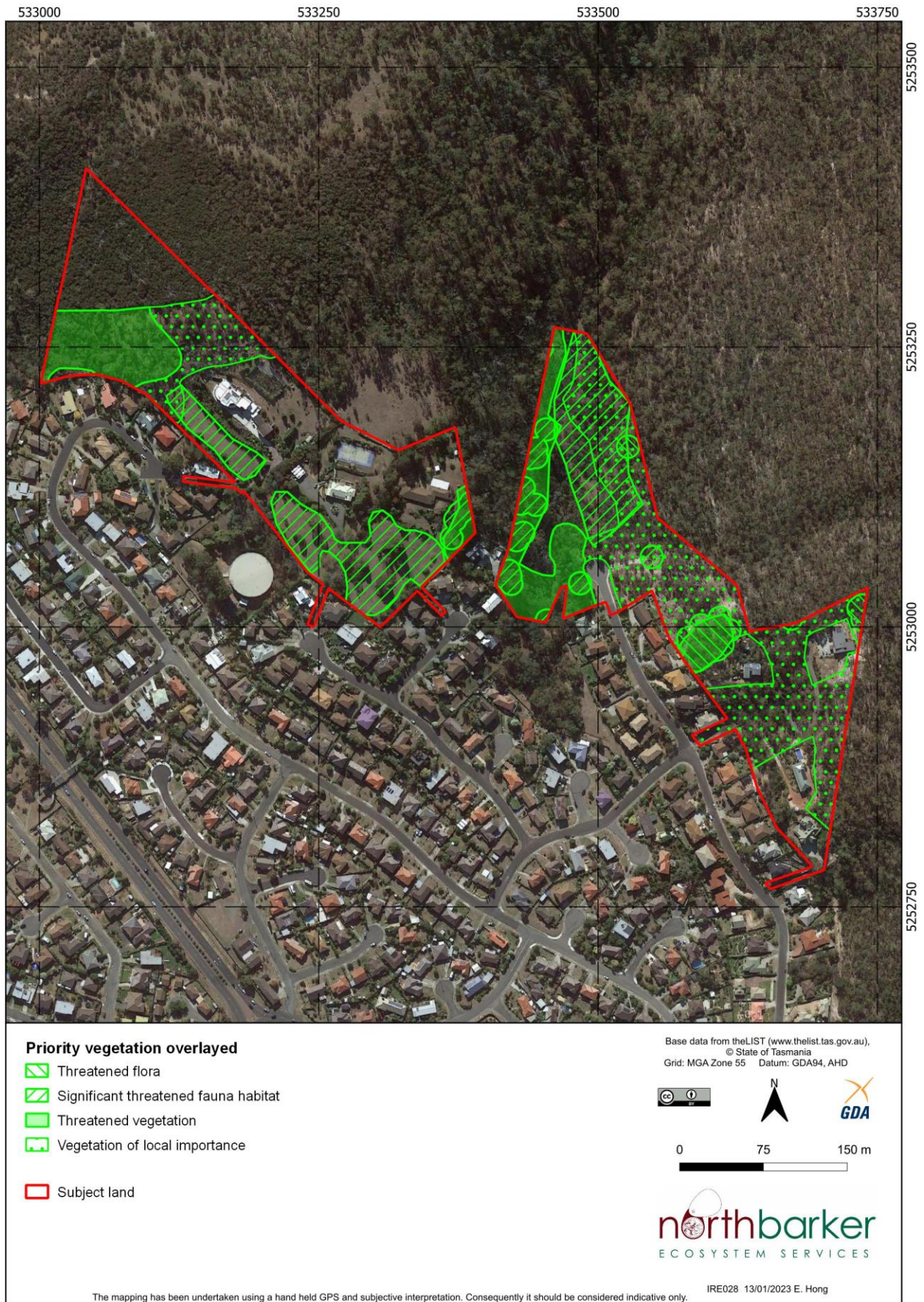


Figure 3: Priority vegetation

3 Planning Considerations

3.1 Natural Assets Code of the Tasmanian Planning Scheme

3.1.1 The Natural Assets Code Purpose statements relevant to this matter include:

- C7.1.4 - To minimise impacts on identified priority vegetation
- C7.1.5 To manage impacts on threatened fauna species by minimising clearance of significant habitat.

3.1.2 Priority vegetation is defined as native vegetation where any of the following apply:

- (a) it forms an integral part of a threatened native vegetation community as prescribed under Schedule 3A of the Nature Conservation Act 2002;
- (b) is a threatened flora species;
- (c) it forms a significant habitat for a threatened fauna species; or
- (d) it has been identified as native vegetation of local importance.

3.1.3 Figure 3 identifies priority vegetation based on my assessment. It includes justification as to how the priority vegetation status has been attributed following the definitions given in 3.1.2. I have buffered GPS located threatened flora species by 10 m and site-specific habitat features, notably trees likewise¹⁶. These have been amalgamated to form collated polygons. They have then been further smoothed to avoid narrow slithers of non-priority vegetation to create a more consolidated polygon. I have also included the central portion of the gully off Skyline Drive. Although it is heavily weed infested it forms an integral part of shelter for the eastern barred bandicoot and is essential to provide ecosystem services for the adjacent habitat values.

3.1.4 The confirmed priority vegetation differs somewhat from the priority vegetation area identified for the amendment (Appendix B) which is largely informed by Vegetation Communities Risk Map and associated Natural Assets Information Manual¹⁷, although that amendment coupled with existing overlay effectively captures most key areas of priority vegetation picked up in my assessment.

3.1.5 Unless priority vegetation is identified on an overlay map in the relevant Local Provisions Schedule it is not a priority vegetation area. The priority vegetation overlay should be amended to capture additional area of confirmed priority vegetation and to remove areas of residential development and intensive gardens. Figure 4 shows priority vegetation and the priority vegetation area, prior to the amendment. This includes areas not included in the amendment priority vegetation area (Appendix A) but overlooks some native vegetation included in the amendment. Arguably all native vegetation on site could be included in the amendment as there may prove to be values currently not known that would qualify the land as priority vegetation, if excluded then that cannot be considered in any planning application. However, there is good argument to exclude existing residences and gardens as it does seem unnecessary to

¹⁶ The existing priority vegetation area overlay buffers threatened flora records by 25m. Within the subject land is a circular priority vegetation patch which is 25m buffer of a *Eucalyptus risdonii* record on the Natural Values Atlas. That record has an accuracy of 100 m and observation date of 2002. It is likely to represent the patch of trees 50m to the east. Ironically there are no *E.risdonii* occurring within that circular priority vegetation patch

¹⁷ Entura 2011

have to consider the Natural Assets Code for minor extensions or outbuildings within these areas considering the intensity of current use.

3.2 Landscape Conservation Zone

- 3.2.1 The amendment proposes to place the subject land into Landscape Conservation Zone.
- 3.2.2 The Landscape Conservation Zone is not specifically intended to protect or manage biodiversity values with a clear focus on landscape values. It can indirectly benefit the retention of vegetation through provisions that seek consideration of “the extent of vegetation to be removed”¹⁸, “the ability to retain vegetation and protect landscape values”¹⁹. However, the role of retaining vegetation is solely for the purpose of how it impacts on landscape values. This is not likely to apply consistently across the property considering the range of topography and aspect.
- 3.2.3 Some uses are compatible with the Landscape Conservation Zone although most are discretionary.
- 3.2.4 Multiple dwellings are not permitted and site coverage in excess of 400 m² must meet Performance Criteria and consider the need to remove vegetation.
- 3.2.5 Minimum subdivision size for Lots is 20 ha where certain Performance Criteria can be met (22.5.1P1).
- 3.2.6 The Natural Assets Code operates within the Landscape Conservation Zone. For it to be effective it is important that the overlay incorporates all priority vegetation on site.

3.3 Low Density Residential Zone

- 3.3.1 The proposed zoning by Clarence City Council and ‘like for like’ with the Clarence Interim Planning Scheme 2015 would place the subject land into Low Density Residential under the Local Provisions Schedule (LPS).
- 3.3.2 There are no provisions for responding to biodiversity values in the Low Density Residential Zone, under the Tasmanian Planning Scheme except for subdivision (C7.2.1 (xi)). Development and Use are both excluded from the Natural Assets Code. So, for example establishment of greater housing intensity such as units under strata title would not trigger the provisions of the Natural Assets Code as it does not require subdivision.
- 3.3.3 A broader range of uses are compatible with the Low Density Residential Zone (10.2) that are not available under the Landscape Conservation Zone such as visitor accommodation (permitted) and a range of public uses for recreation catering and sport (discretionary). These potentially bring a more intensive scale of activity to the land.
- 3.3.4 Multiple dwellings are permitted, and development can cover up to 30 % of a lot and more if several performance criteria are met including consideration of vegetation removal.

¹⁸ 22.4.4 P1 (b)

¹⁹ 22.5.1 P (c)

- 3.3.5 Subdivision is permitted to 1200 m² where certain Performance Criteria can be met.
- 3.3.6 The Natural Assets Code does not operate within the Low Density Residential Zone.



Figure 4: Priority vegetation and the current priority vegetation area overlay

4 Conclusion

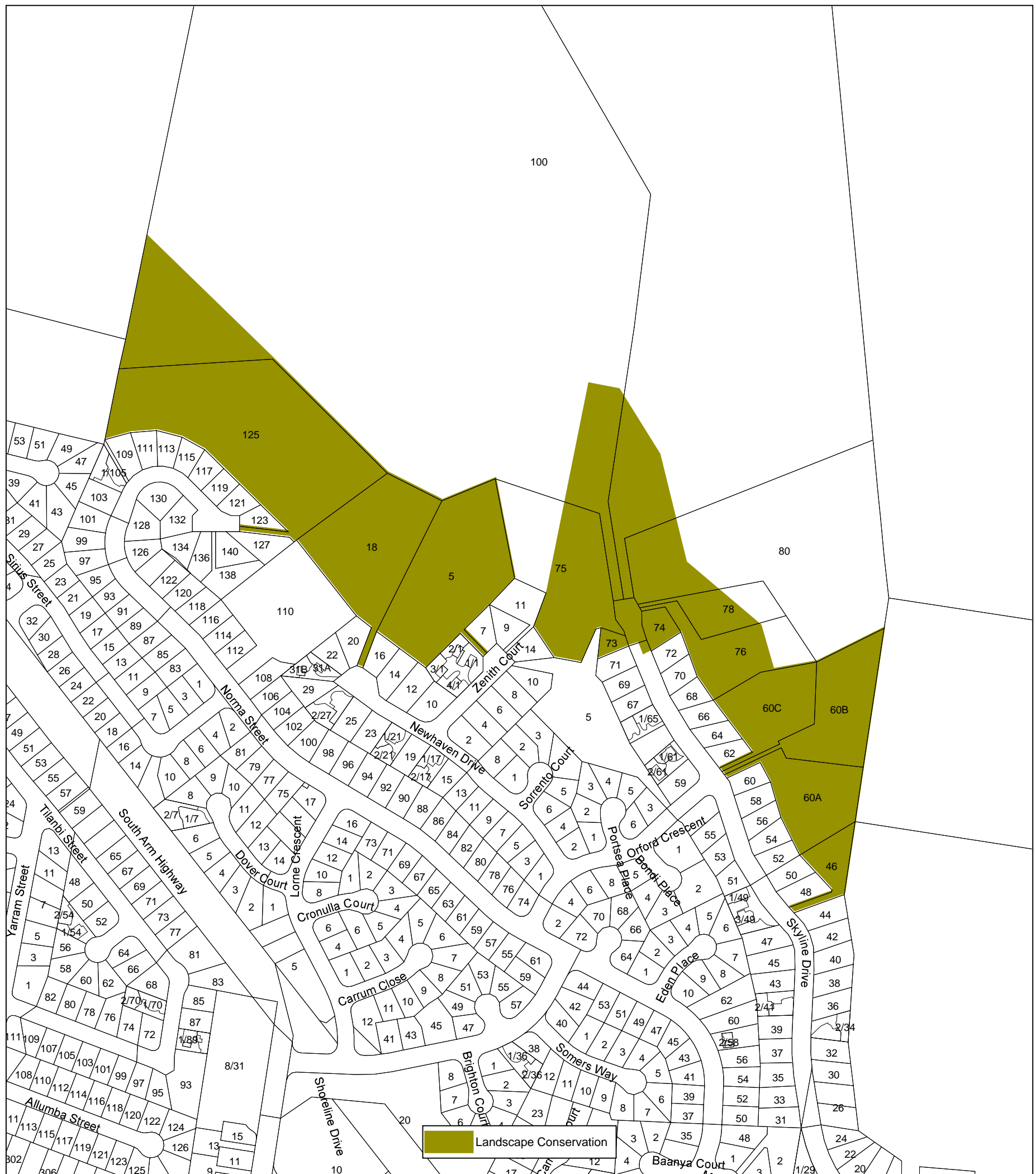
4.1 Implication for Biodiversity Values

- 4.1.1 The subject land supports significant areas of biodiversity values capturing a range of features that qualify as priority vegetation including two threatened vegetation communities, one threatened flora species and habitat for two threatened fauna species. When amalgamated they form a priority vegetation area of 6.55 ha occupying 60 % of the subject land. Many areas qualify as priority vegetation under multiple criteria. There are other areas of native vegetation not identified as priority vegetation that may also if investigated in further detail actually support priority vegetation that arguably could also be included in the priority vegetation area. E.g., the NAV community.
- 4.1.2 The consideration of priority vegetation in future planning applications can only be made if the Natural Assets Code is working and priority vegetation is included in a priority vegetation area overlay.
- 4.1.3 The subject land should be zoned Landscape Conservation to ensure consideration of biodiversity values can be made when assessing all future planning applications including for Use and Development through the Local Provisions Schedules. If zoned Low Density Residential then the Natural Assets Code cannot work except for subdivision.

Appendix A – Howrah Hills Landscape Conservation Zone

Tasmanian Planning Scheme - Clarence

Amendment: PDPSAMEND-2021/022802



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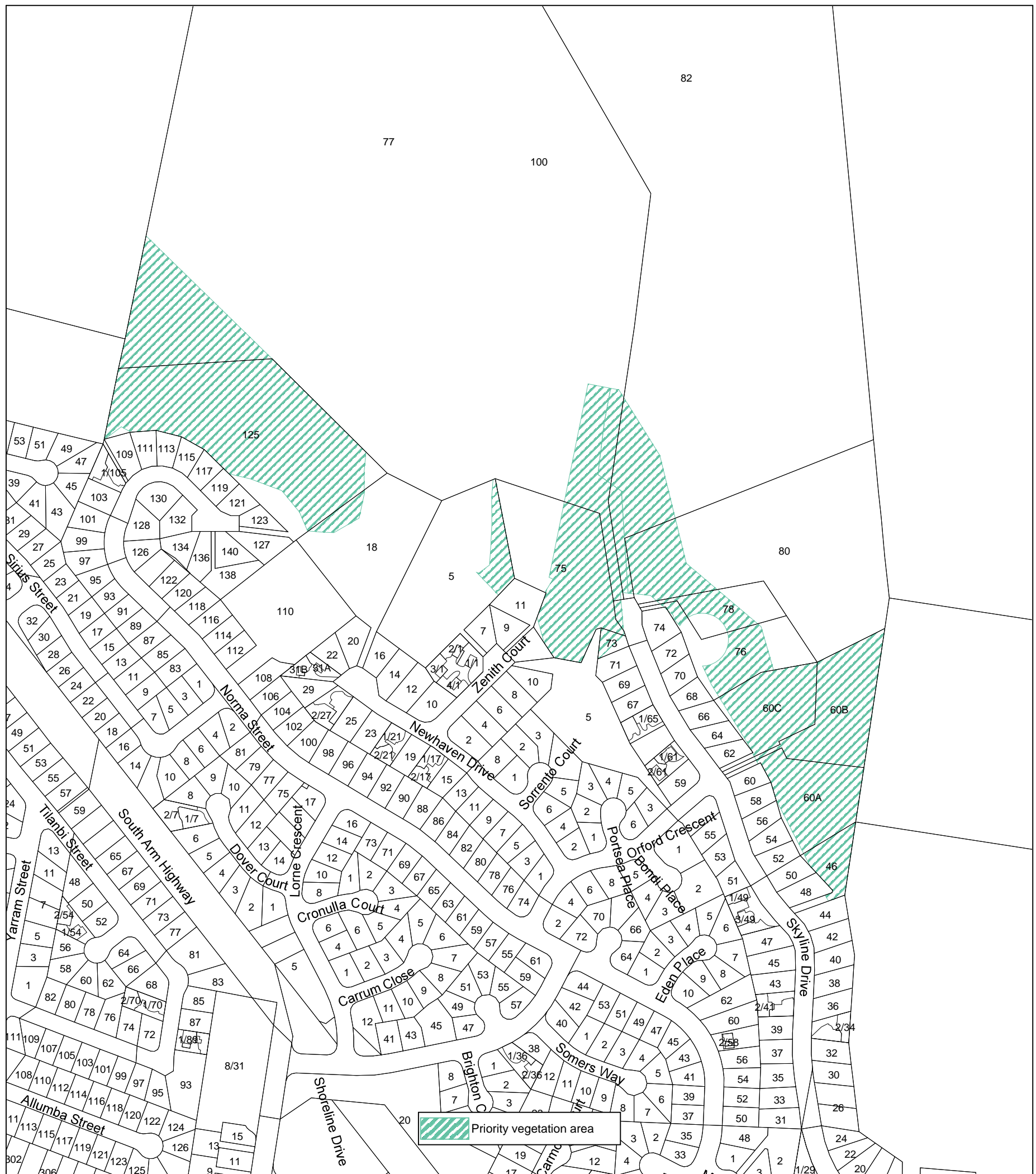
Rezone the following properties from the Low Density Residential Zone to the Landscape Conservation Zone, as shown:

- (a) 125 Norma Street, Howrah (folio of the Register 26606/146);
- (b) 18 Newhaven Drive, Howrah (folio of the Register 26629/145);
- (c) 5 Zenith Court, Howrah (folio of the Register 26629/144);
- (d) 100 Skyline Drive, Howrah (folios of the Register 136183/1, 2, 3, 4, 5, 6, & 7);
- (e) 73 Skyline Drive, Howrah (folio of the Register 136183/8);
- (f) 46 Skyline Drive, Howrah (folio of the Register 48113/13);
- (g) 60A Skyline Drive, Howrah (folio of the Register 104949/6);
- (h) 60B Skyline Drive, Howrah (folio of the Register 104949/5); and
- (i) 60C Skyline Drive, Howrah (folio of the Register 136183/11)

Appendix B – Howrah Hills Priority Vegetation Area

Tasmanian Planning Scheme - Clarence

Amendment: PDPSAMEND-2021/022802



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Apply the priority vegetation area overlay to the following properties as shown:

- (a) 125 Norma Street, Howrah (folio of the Register 26606/146);
- (b) 18 Newhaven Drive, Howrah (folio of the Register 26629/145);
- (c) 5 Zenith Court, Howrah (folio of the Register 26629/144);
- (d) 100 Skyline Drive, Howrah (folios of the Register 136183/1, 2, 3, 4, 5, 6, & 7);
- (e) 73 Skyline Drive, Howrah (folio of the Register 136183/8);
- (f) 46 Skyline Drive, Howrah (folio of the Register 48113/13);
- (g) 60A Skyline Drive, Howrah (folio of the Register 104949/6);
- (h) 60B Skyline Drive, Howrah (folio of the Register 104949/5); and
- (i) 60C Skyline Drive, Howrah (folio of the Register 136183/11)



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Andrew has been operating as a consultant in Tasmania since 1991, establishing the North Barker business in 2000 in partnership with Phillip Barker, after which a transition was made to a company in 2020. He has reported over many hundreds of studies for various Government Departments and proposals throughout Tasmania. He has extensive experience with surveys of reserves and conservation areas and specialises in assessing botanical conservation values, development proposal impacts upon native vegetation and monitoring of site rehabilitation.

Prior to coming to Tasmania Andrew worked in the UK in habitat management, balancing nature conservation with public use for recreation and education. He compiled, promoted and implemented management plans for Country Parks and Nature Reserves.

Education

- 1985 Open University, UK (certificate by correspondence). Changing Countryside (Land Use Conflict)
- 1984 Honours Biology: University of Sussex, Brighton, UK. [upper second class]
Environmental Plant Physiology, Ecology of Pest Control, Animal Behaviour, Population Biology
- 1981-83 Bachelor of Science Biology. University of Sussex, Brighton, UK

Employment

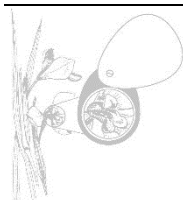
- 2020 – Present Director/ Principal Ecologist in North Barker Ecosystem Services
- 2000 – 2019 Partner/ Principal Ecologist in North Barker Ecosystem Services
- 1991 – 2001 Principal consultant for AJ North & Associates – Biological Consultants
- 1995 – 1997 Project Botanist - Forestry Tasmania – part time
- 1990 – 1991 Project Officer – Tasmanian Parks & Wildlife Service

Present Role and Work Duties

As a principal ecologist for North Barker I engage in all levels of business, including project management, tendering, field work, reporting, mapping and client liaison. The field component of my work involves a substantial amount of botanical surveying, using a variety of methods in diverse habitats from urban roadsides, to wet forests, to coastal heaths, to highland grasslands. In all aspects I am required to operate largely autonomously and to efficiently utilise limited time and resources to deliver projects under budget. My role involves: ecological surveys, assessments of developments, strategic management planning, expert witness in planning tribunals.

Flora and fauna surveys

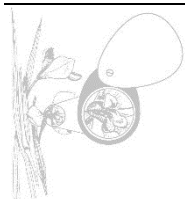
- Threatened species assessments, impact mitigation, permits, monitoring and management
 - Extensive experience in flora surveys and population censuses – quadrats, transects, timed meander searches, etc.



- Targeted surveys for various threatened frogs, skinks, beetles, snails, butterflies, *etc.*, including captures and translocations.
- Translocation of threatened flora species – e.g. *Dianella amoena* and *Scleranthus brockiei*.
- Call-back surveys for owls and spotlight surveys for other nocturnal fauna.
- Design advice to avoid impacts to threatened species and critical habitat elements.
- Vegetation mapping and vegetation condition assessments
 - Extensive experience interpreting aerial imagery for patterns of tone, texture, colour and contrast that indicate patches of vegetation.
 - Extensive experience ground-truthing TASVEG mapping and aerial signatures determined by image interpretation.
 - Experience at multiple scales, from less than 1 ha to over 20,000 ha.
 - Experience across all Tasmanian bioregions and environments.
 - Experience with NCA and EPBCA listed communities and the application of conditional criteria for the latter.
- Plant identification and collection
 - High level skills and over 30 years of experience in field observation and discrimination of Tasmanian flora.
 - Extensive experience in the use and interpretation of stepwise and lucid keys.
 - Specialist skills in the identification of threatened vascular flora and introduced species.
 - High level skills in the collection and preservation of samples for future reference and for lodging at herbaria.
- Fauna habitat assessments
 - Den and hollow surveys.
 - Habitat mapping.
 - Remote monitoring: motion-operated cameras, use of Song Meter bio-acoustics recorder and analysis using Song Scope software.
 - Aerial and ground searches for raptor nests.
- Invasive species and pathogens, including audits of transportable material
 - Targeted weed mapping and weed surveys.
 - Weed management plans and strategies.
 - *Phytophthora cinnamomi* assessments.
- Digital and spatial data treatment/ GIS
 - MapInfo proficient
 - Digitisation, map preparation, *etc.*
- Research and monitoring
 - Biodiversity monitoring.
 - Audits and management prescriptions, such as in Dept State Growth Roadside Conservation Sites.
 - Design of research and monitoring programs as part of offset requirements.

Development approvals and planning requirements – some examples

- Infrastructure projects
 - Extensive involvement with assessment of works within state road network over 30 years eg Tarkine Scenic Drive, SETS, Midland Highway Safety upgrades
- Subdivisions, urban developments and outbuildings
 - White Water Creek development
 - St. Virgil's subdivision



- Dam and mine constructions and expansions
 - Savage River mine expansion
 - Barnbougle sand mine
 - Duck River irrigation dam
 - St. Patrick's Plains trout dam
 - Flagstaff Gully quarry
 - Roseberry MMG tailings storage facility
- Industrial and agricultural diversification and expansion
 - Woolnorth intensification
 - Self's Point treatment plant redevelopment
 - Scottsdale Irrigation Scheme
- Local, state and federal government approvals
- Covenant requirements and proposals
 - Delmore Road irrigation dam
 - Grant's Lagoon offset variation
- Advice on regulations and legislation

Additional Tasks Undertaken in Previous Roles

Negotiator - RFA Private Reserve Program, DPIWE, Tasmania

- Negotiating with private landowners to achieve covenants on properties supporting high conservation forest communities

Principal Consultant - AJ Norths & Associates, Hobart, Tasmania

- Biological surveys
- Habitat assessments
- Management plans and approvals

Project Botanist – Forestry Tasmania, Tasmania

- Botanical surveys of RAPs and forest reserves throughout Tasmania
- Development of reserves database
- Assessment of forest conservation communities

Botanist - Greening Australia, Northern Midlands, Tasmania

- Roadside survey for database of significant tree and rare plant sites

Project Officer - Department of Parks, Wildlife and Heritage

- Monitoring of vegetation on rehabilitation sites in Franklin-Gordon Wild Rivers National Park

Project Officer - Department of Parks, Wildlife and Heritage

- Survey of *Phytophthora cinnamomi* along the South West track in the World Heritage Area

Consultant Botanist – Self Employed, Tasmania

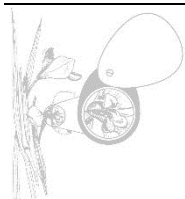
- Botanical surveys
- Management plans
- Database management
- Management of species inventory

Technical Officer - Department of Parks, Wildlife and Heritage

- Cataloguing of Decoda based datasets of existing vegetation surveys from various state agencies

Consultant Biologist – Self Employed

- Botanical surveys for Department of Roads and Transport and for Federal Airports Corporation



Project Officer - Department of Parks, Wildlife and Heritage

- Survey of the Central Plateau Protected Area for weed species to describe their distribution and to determine their relationship with public use of the area

Research Assistant - Department of Geography and Environmental Studies, University of Tasmania

- Project for the Resource Assessment Commission to describe the state of forest reservation in Tasmania and to propose a model for targeting optimum siting for additional reserves
- Collation of existing data and assistance with data analysis

Ranger/Field Officer – Teignbridge District Council, Devon, UK

- Management of a range of sites including woodlands, lakes, commons and long distance footpaths for wildlife conservation and public enjoyment and education
- Control of budgets
- Development of management agreements and plans for all sites
- Biological recording and surveys
- Running a varied interpretation program
- Initiation and implementation of landscaping schemes
- Management and supervision of Manpower Services and volunteer program

Industry Training and Accreditation

- Industry accreditation
 - Education in the Countryside
 - Landrover maintenance
 - Tractor maintenance
 - Changing Countryside (Land Use Conflict)
 - Full driver's licence (Car and Motorbike)
- Safety training
 - First Aid
 - Use of Pesticides (Chemcert)
 - Use of Chainsaws
 - Sports driver's license

Committee Memberships

- 2013 – 2020 Member of the Threatened Species Scientific Advisory Committee (TSPA).
- 2003 – 2018 Member of Tasmanian Vegetation Monitoring and Mapping Program (TASVEG) Scientific Reference Group, responsible for the provision of scientific and technical direction for vegetation mapping in Tasmania.
- 2003 - 2004 RFA CAR Scientific Advisory Group
- 1999 - 2003 Member of the Flora Advisory Network – reviews and nominates listings of plant species on the Tasmanian *Threatened Species Protection Act 1995* -
- 1998 - 2005 Independent Negotiator for the RFA Private Reserve Programme, DPIWE.

Professional References

- Matthew Davis, Senior Environmental Scientist, ERM. Previously worked with Andrew when working at Department of State Growth, GHD and Pitt & Sherry. Matthew.davis@erm.com 0427680861.

