WOOLCOTT SURVEYS

EAST COAST SURVEYING
CONSULTING SURVEYORS & LAND PLANNERS

S43A-Planning Scheme Amendment and Development Application

Council Meeting - Agenda Item 9.1 - Attachment 2 - Amendment 68 - Application Documents - UPDATED
27-99 Opossum Road, Kings Meadows - 2 December 2021

Partial Rezone and subdivision of Land at 27-99 Opossum Road Kings Meadows

Woolcott Surveys

September 2021

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Version control	Description	Date
1	Draft	6 August 2021
2	Review	27 August 2021
3	Final	6 September 2021

Contents

1. Introduction

This application is to be read in conjunction with the following supporting documentation:

Document	Consultant
Proposed Rezone Plan	Woolcott Surveys
Subdivision Proposal Plan - 13 Lot Subdivision (plus Road and Pedestrian Connectivity) and 2 Balance Lots	Woolcott Surveys
Road Layout & Concept Services Plan	Hydrodynamica
Natural Values Assessment	ECO Tas
Traffic Impact Assessment	Andrew Howell
Bushfire Report and Hazard Management Plan.	Woolcott Surveys

1.1 Application summary

The following is a summary of the representation information:

Proposal	To rezone a section of the land at 27-99 Opossum Road Kings Meadows, from Recreation Zone to General Residential Zone and; To subdivide the land from two (2) lots to 13 lots (plus two (2) balance lots; one (1) new road; and two (2) pedestrian access lots).
Address	'Launceston Golf Club', 27-99 Opossum Road, Kings Meadows TAS 7249
Property ID	6883203
Title:	198059/1 and 16/4964
Part 5 Agreements of Covenants	Nil
Land area:	42.34ha and 12.81ha
Special or significant features	Currently operates as the 'Launceston Golf Club' which provides an 18-hole course.
Current zone	Recreation Zone
Proposed zone	General Residential Zone (portion of site)
Overlays	Bushfire Prone Area Scenic Management Area
Planning Authority	Launceston City Council (the Council)
Planning Scheme	*Launceston Interim Planning Scheme 2015 (*the 'Scheme'*)*
Legislative instrument	*Land Use Planning and Approvals Act 1993*
Applicable Section	S.43A of the *Land Use Planning and Approvals Act 1993*

Services	
Water and Sewer	TasWater
Stormwater	Available at Negara Street and North of the Golf Course
Access	Access is currently available to the property from Opossum Road. The new subdivision will be accessed via Negara Street.
Buildings and development – Existing	Formed golf course; club rooms and various outbuildings and ancillary buildings.
Vegetation	Planted vegetation and lawn (mixed native and introduced species)
Topography	Gently falling to the north 1:30 Various topographic elements associated with the golf course.
Watercourses	Kings Meadows Rivulet (200m to the north)

1.2 Background

Woolcott Surveys has been engaged by the Launceston Golf Club (LGC), to undertake a Planning Scheme Amendment to rezone part of the land known as CT198059/1 and CT16/4964, from Recreation Zone to General Residential Zone. The rezoning will facilitate a proposed 13 lot residential subdivision.

The LGC is a private member club governed by a board of appointed directors and is incorporated under the Corporations Act 2001 (limited by guarantee). The Club's engagement of Woolcott Surveys to undertake this project was approved by the Board at the Club's Special General Meeting held on 20 May 2021.

This application is made under the former provisions of section 43A of the *Land Use Planning and Approvals Act 1993*.

1.3 Rationale for the amendment.

The Launceston Golf Club is the oldest established golf club in Tasmania. During 2020, and as a result of the COVID-19 pandemic, the club suffered from revenue loss, despite receiving various small grants and financial relief. 'Future-proofing' the club became an important consideration during this time. Subsequently, the Launceston Golf Club board made the decision to undertake rezoning and subdivision of a portion of land in the east of the site. The subdivision would provide 13 residential lots, which will be subsequently sold and developed by future owners.

The land is within the municipality of Launceston City Council and subject to the planning provisions of the *Launceston Interim Planning Scheme 2015* (the Scheme). Under the Scheme, the potential to develop Recreation zoned land is limited and does not allow residential uses.

The subject site (land to be re-zoned) is suited to the purpose of the General Residential Zone (GRZ) and, it adjoins the GRZ to the east. The development allows a continuous progression of Negara Street and the GRZ.

The subject site enjoys a high standard of amenity and can be fully serviced for sewer, stormwater and water. The development will in part contribute to the availability of residential land in Launceston. The excision of the subject site from the surrounding golf course land will make no significant difference to the appearance and usability of the golf course. The portion of land being subdivided is currently not used for any purpose other than providing a small section of unmanaged bushland. The surrounding golf club grounds will retain more than 54ha over two titles. While the 6th tee will need to be shifted slightly to the south, the change is minimal and considered inconsequential to the development on the whole. The golf course will still represent a sizable area of recreational space across the site.

2. Subject Site

2.1 Site location

The subject site is located within the Launceston Golf Club grounds (golf course). The property comprises four parcels: 88212/19; 16/4964; 198059/1; 59765/35. Only CT16/4964 & CT198059 are part of this application. There is no use or development occurring on the other two titles associated with the golf club land.

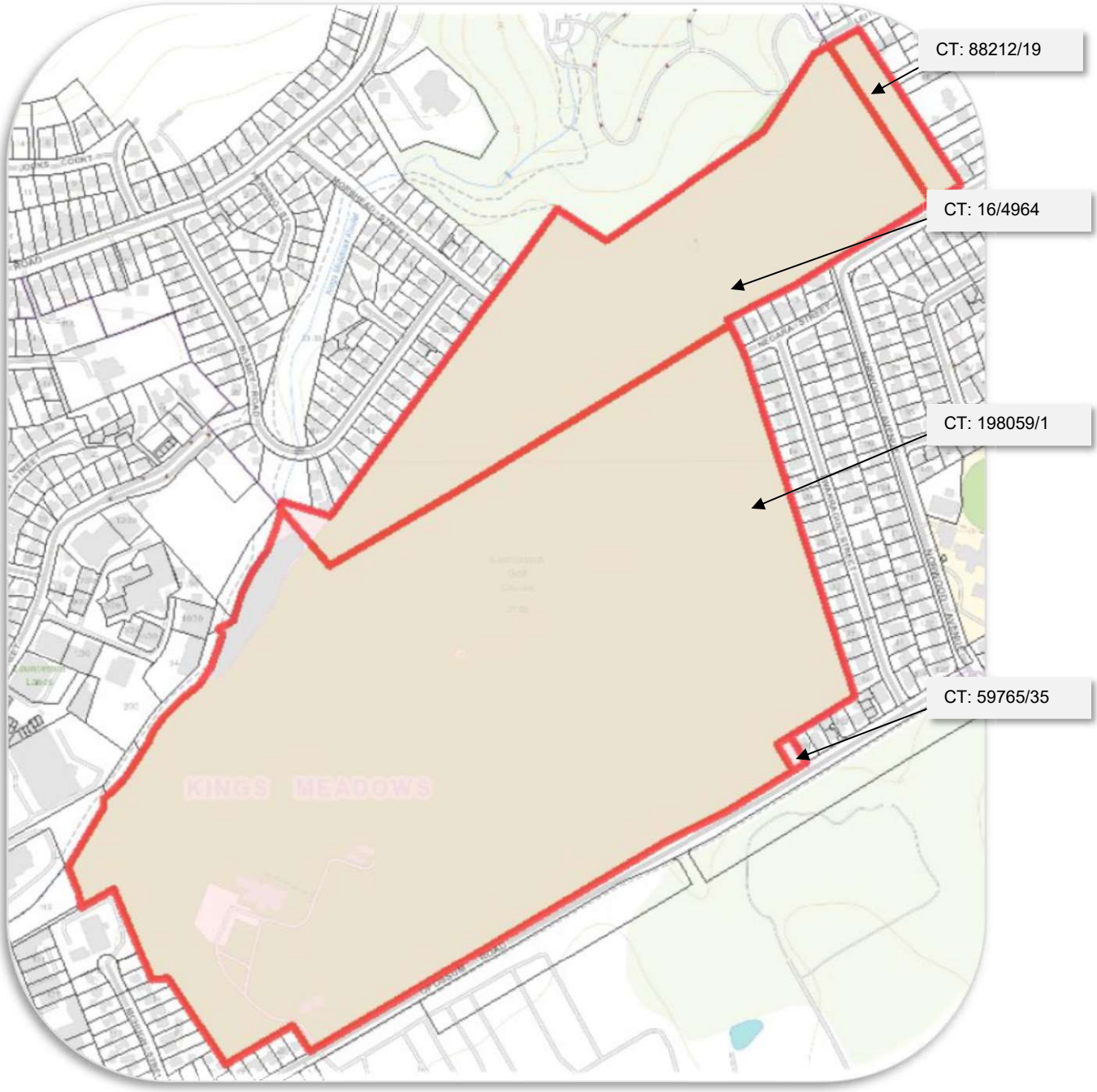

Figure 1 - Launceston Golf Club Property ID 6883202 comprising four parcels (Source: the LIST Premium Property Information Report; 18 August 2021)

The section of land to be rezoned (subject site) is located on the eastern side of the property, adjoining Negara Street, Norwood. The subject site occupies a portion of two separate lots, CT:16/4964 and CT:198059/1 (Kings Meadows).

The site currently consists of the golf course, which occupies approximately 55.32ha. The golf course contains a formed 18-hole course with associated landscaping; a club house with car parking area; two large outbuildings (maintenance sheds); smaller outbuildings together with a tennis court and pool; and, two dams. All buildings are located in the western portion of the land, several hundred metres from the area being developed.

Figure 2 - Subject site locality and detail showing Negara Street

2.2 Adjoining land and surrounds

The subject site is in Kings Meadows and adjoins the locality boundary of Norwood to the east. To the west of the golf course is Hobart Road which is central to a range of uses from residential to commercial. Hobart Road is classified as a major thoroughfare for the area, running north south and providing a direct route to Launceston City Centre.

Land to the north is predominantly residential but is landmarked by the Punchbowl Reserve, which shares a boundary with the golf course and is owned and managed by the Launceston City Council. There is also a small commercial/industrial precinct located to the north west of the property. This area is several hundred metres from the portion of land subject to rezoning.

Land to the east is dominated by residential development, being primarily made up of established single dwellings. Areas to the east are contained within the suburb of Norwood.

Figure 3 - Aerial view of the subject site (Source: LISTMap)

The area to the south of the property is the Carr Villa Cemetery and Reserve. This area occupies approximately 58ha, half of which is associated with the cemetery. The Council maintained Carr Villa Reserve occupies the remainder of that site. This area consists of walking and bike riding trails within a bush setting.

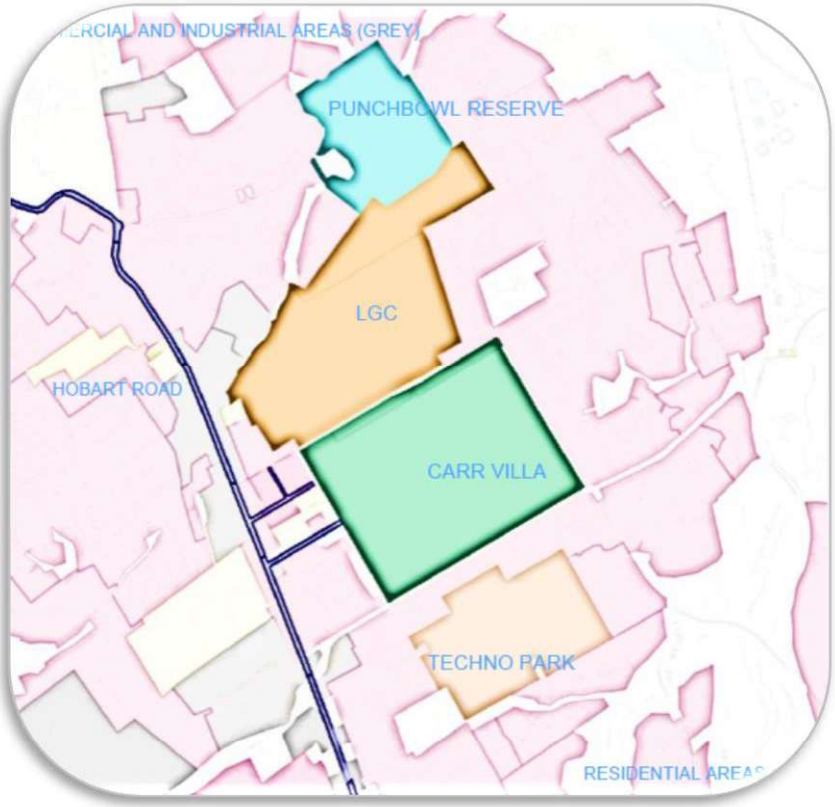

Figure 4 - Notable landmarks in the surrounding area (Source: LISTMap

2.3 Existing infrastructure

The site is serviced by TasWater for water and sewer. Existing infrastructure is shown within close proximity of the subject site. Negara Street contains Council maintained Stormwater (kerb and channel and piped infrastructure.

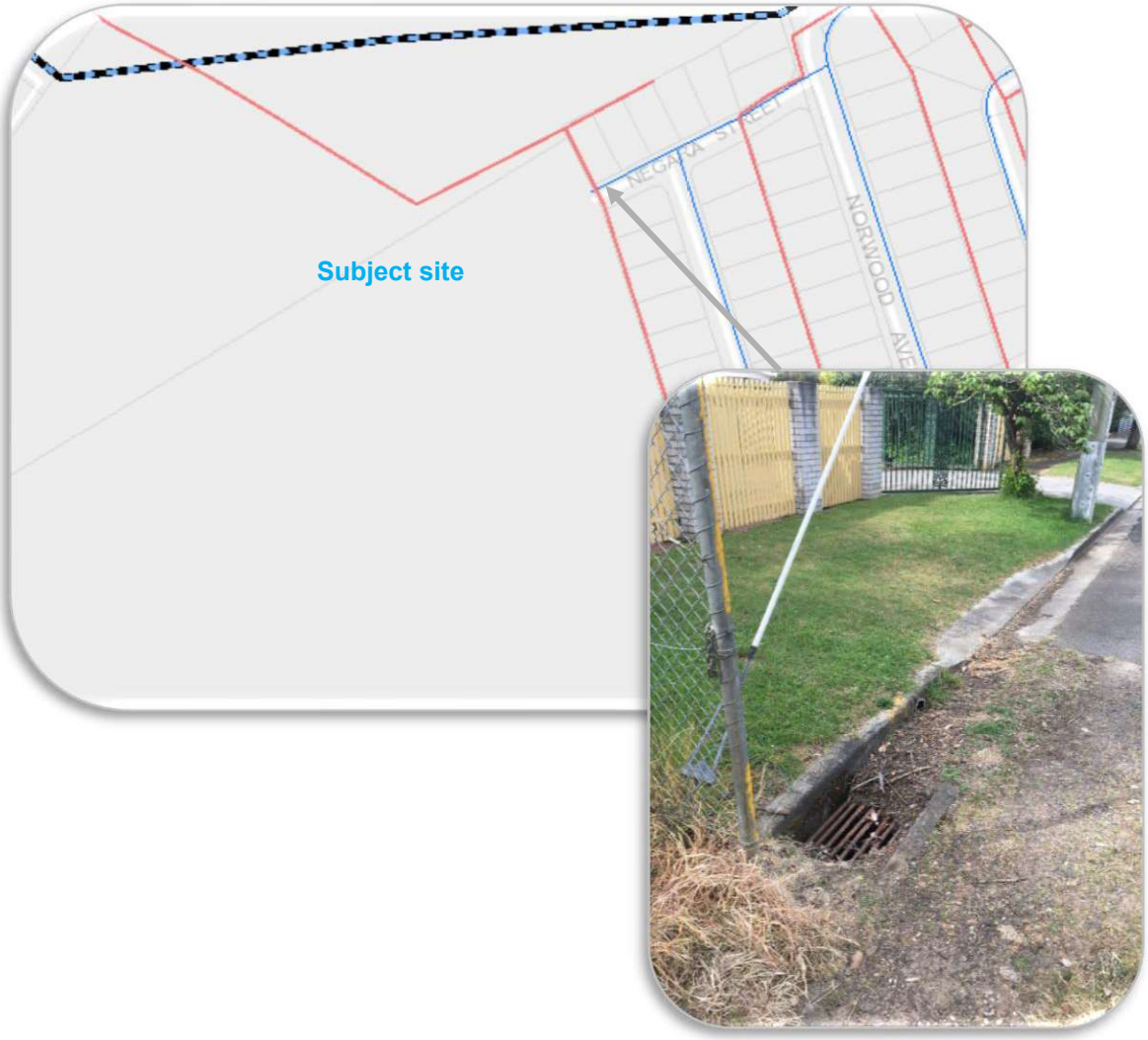

Figure 3 – Water and Sewer identified mains, as well as Stormwater drainage in Negara Street. Source: LISTMAP & photo.

2.4 Road and access

Negara Street ends at the subject site's eastern property boundary with no further public vehicular access provided onto the golf course (figure 6 & 7). Primary access to the subject sites clubrooms and facilities is via an existing access and driveway from Opossum Road (figure 8).

Figure 6 Access point from Negara Street, facing west

Figure 7 - Access point from Negara Street, facing east

Figure 8 - Existing access to LGC from Opossum Road (facing north)

2.5 Heritage

There is no identified or known Aboriginal or cultural heritage on the site or adjoining land. The land has previously been disturbed and developed.

2.6 Current zone

The subject site falls within the municipal area of Launceston City Council and is currently zoned Recreation. The site is adjoined by the General Residential Zone to the east and to the north west.

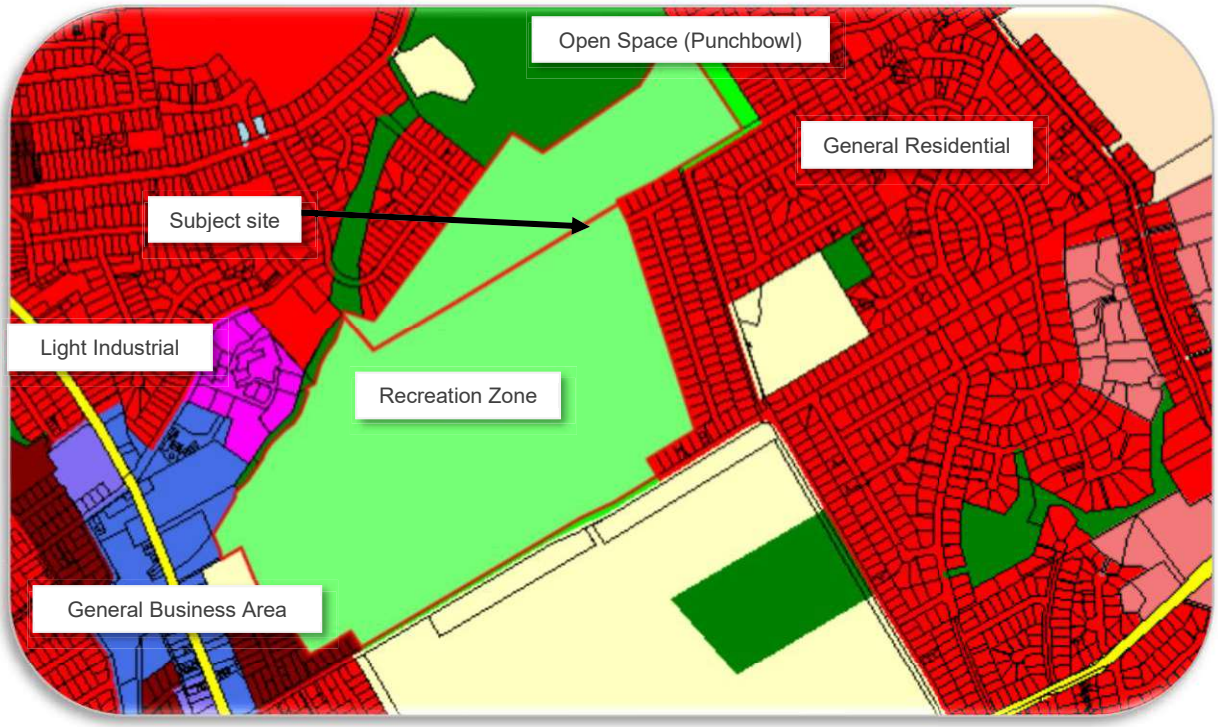

Figure 9 - The subject site and surrounding area zoning (Source: LISTMap)

2.7 Current overlays

The subject site is affected by the Scenic Management Area Overlay (pink shade) and the Bushfire Prone Areas Overlay (Hatched area).

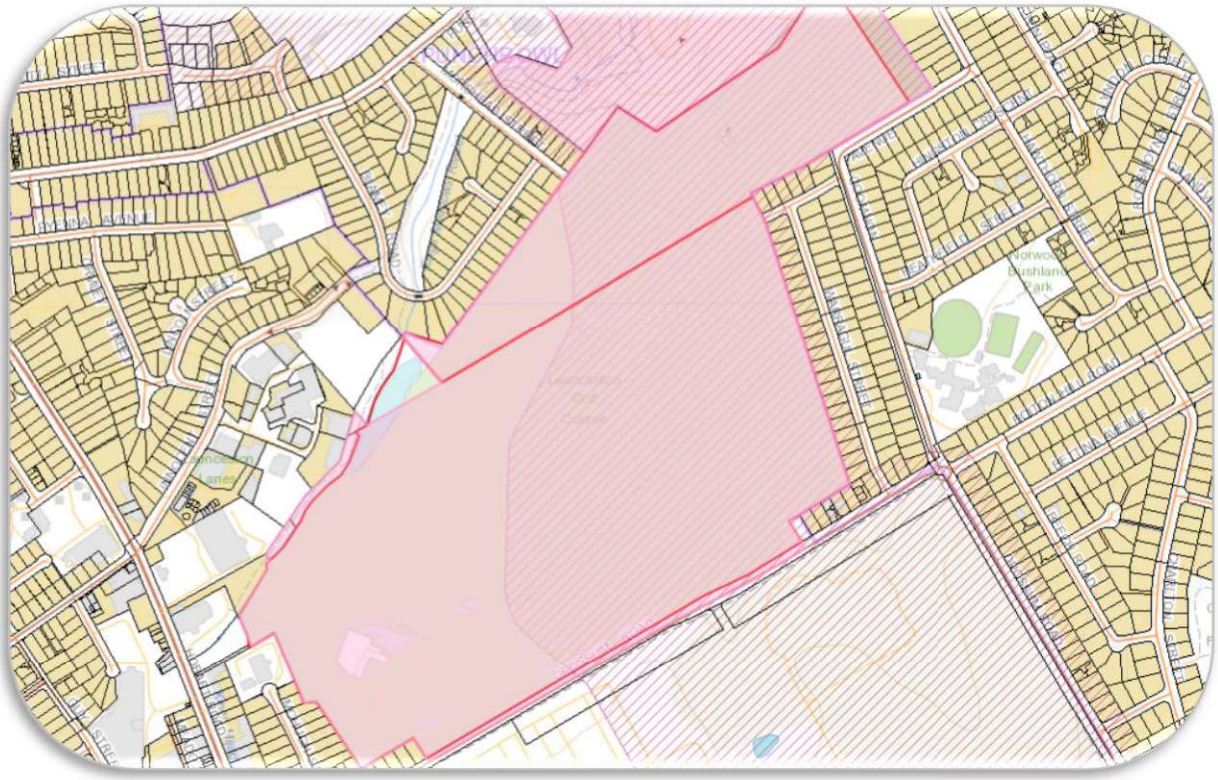

Figure 10 - The subject site and overlays (Source: LISTMap)

2.8 Photos

Figure 11 - Looking west, where proposed cul-de-sac road will be located.

Figure 12 - Looking west, from lot 10 towards lot 9

Figure 13 - Looking south along lot 101, pedestrian access

Figure 14 - Looking south from balance lot, towards lot 8 and 9

Figure 15 - Looking north from 6th tee, towards lot 4

3. Planning Scheme amendment

3.1 Proposal

A request is made pursuant to section 43A of the *Land Use Planning and Approvals Act 1993* to rezone a portion of land from Recreation Zone to General Residential Zone under the *Launceston Interim Planning Scheme 2015* The rezoning of land is to facilitate a 13-lot residential subdivision. The subdivision includes a cul-de-sac road lot, two remaining balance lots associated with the existing golf course, and two lots to provide for pedestrian connectivity for users of the golf course.

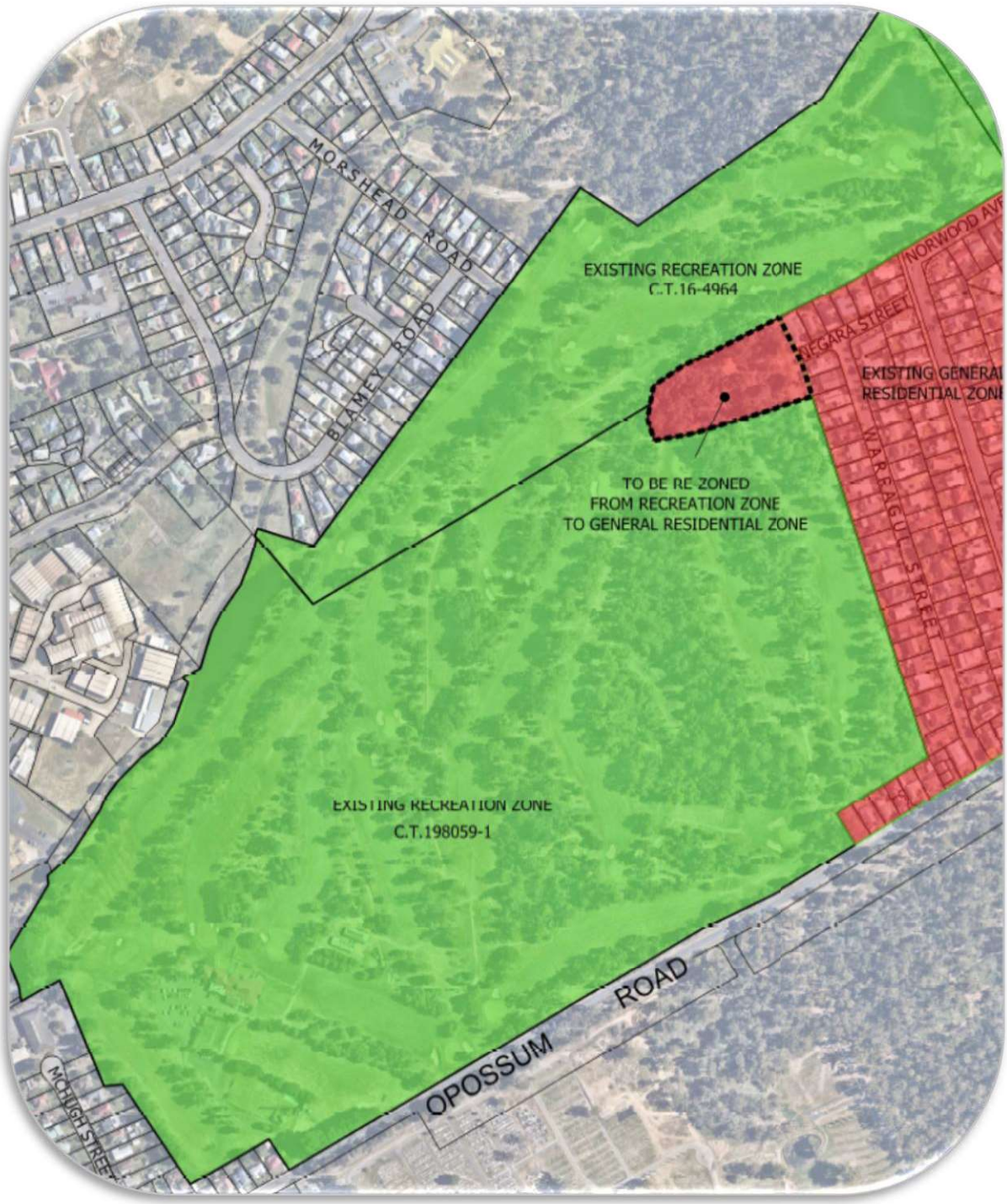

Figure 16 – Subject site; Extract of rezone plan - See Annexure 2 for full detail.

3.2 Land Use and Planning Approvals Act 1993

3.2.1 Land Use and Planning approvals Act 1993 – Sections 43a and 33

This application is made in accordance with section.43A of the *Land Use Planning and Approvals Act 1993.* The relevant section under the act is shown below.

Division 2A - Combined permit and amendment process

43A. Application for a permit when amendment requested

(1) A person who requests a planning authority to amend a planning scheme may also request the planning authority to consider, in accordance with this Division, an application for a permit which would not be allowed if the planning scheme were not amended as requested.

(2) Where a planning authority has decided to initiate an amendment under section 33(3) , it may consider the application for a permit referred to in subsection (1) concurrently with the preparation of the requested amendment to the planning scheme.

(3) An application may be made for a permit under this section even if it could not be granted under the existing planning scheme.

Pursuant to section 33(1) of the *Land Use Planning and Approvals Act 1993* an amendment to the scheme is requested as part of this application. The relevant section under the act is shown below.

33. Request for amendment of planning scheme

(1) A person may request a planning authority to amend a planning scheme administered by it.

Response

This application requests that the Launceston City Council amend the *Launceston Interim Planning Scheme 2015*, to change the zone for the subject site, as detailed at Annexure 2, from Recreation Zone to General Residential Zone. The Rezone Plan provided at Annexure 2 provides full detail.

(2) A request is to be in a form approved by the planning authority or, if a form has been approved by the Commission, is to be in that form.

Response

The request to amend the Launceston Interim Planning Scheme 2015 includes a form approved by the Tasmanian Planning Commission, and a Council application form.

(2A) If a request under subsection (1) is in respect of one parcel or several parcels of land covered by the planning scheme and is requested by a person who is not the owner of the land to which the proposed amendment applies, the request must be –

a) signed by the owner or owners of the land; or

b) accompanied by the written permission of the owner or owners to the making of the request.

Response

The amendment affects two titles under the ownership of the Launceston Golf Club Ltd. Woolcott Surveys, as the applicant, is requesting the scheme amendment.

a) The form has been signed by the relevant signatories of the owners of the land.
b) There is no requirement for written permission as the form has been signed by the owners.

(2B) Before making a decision as to whether or not to initiate an amendment of the planning scheme, the planning authority must consider –

a) whether the requested amendment is consistent with the requirements of section 32;

Response

The planning scheme amendment, must be consistent with section 32 of the Act. A response to this part of the Act is provided for at Item **3.2.2** of this report.

The remaining parts of section 33, being section (2B); (ab), through to section (7), relate to responsibilities of Council as a planning authority and the Tasmanian Planning Commission as the decision maker. These sections are not addressed in this report.

3.2.2 Land Use Planning and Approvals Act 1993 – Section 32

32. Requirements for preparation of amendments

(1) A draft amendment of a planning scheme, and an amendment of a planning scheme, in the opinion of the relevant decision-maker within the meaning of section 20(2A) –

a) . . . . . .

b) . . . . . .

c) . . . . . .

d) . . . . . .

e) must, as far as practicable, avoid the potential for land use conflicts with use and development permissible under the planning scheme applying to the adjacent area

Response

Although not a specific requirement under section 32, a draft amendment is taken to be a relevant scheme (section 20(2A), and therefore section 20(1) is applicable and the draft amendment must comply with relevant:

- State policies (refer Item **3.5** of this report),
- further the objectives contained in Schedule 1 (refer Item **3.4** of this report),
- have regard to the Council Strategic Plan (refer Item **3.8** of this report),
- and any safety requirement prescribed under the Gas Pipelines Act 2000 (refer Item **3.6** of this report).

Section e) of s32 requires that the amendment must as far as practicable, avoid the potential for land use conflicts with use and development permissible under the planning scheme which apply to adjoining land.

A response to land use conflict is provided at Item **3.10** of this report.

(1) ea) must not conflict with the requirements of section 30O

Response

Item **3.2.3** of this report provides a response to section 30O, demonstrating that the amendment will not conflict with the provisions of this clause.

(1) f) must have regard to the impact that the use and development permissible under the amendment will have on the use and development of the region as an entity in environmental, economic and social terms.

Response
Item **3.3** of this report provides a response to section 1(f), in relation to the impact that the development will have from an environmental, economic and social perspective.

(2)	The provisions of section 20 (2), (3), (4), (5), (6), (7), (8) and (9) apply to the amendment of a planning scheme in the same manner as they apply to planning schemes.

Response
The provisions of section 20 (2) – (9) do not apply to this draft amendment.

3.2.3 Land Use Planning and Approvals Act 1993 – Section 30O

30O. Amendments under Divisions 2 and 2A of interim planning schemes

(1)	An amendment may only be made under Division 2 or 2A to a local provision of a planning scheme, or to insert a local provision into, or remove a local provision from, such a scheme, if the amendment is, as far as is, in the opinion of the relevant decision-maker within the meaning of section 20(2A), practicable, consistent with the regional land use strategy, if any, for the regional area in which is situated the land to which the scheme applies.

Response
This draft amendment is shown to be consistent with the Northern Tasmania Regional Land Use Strategy. A full response is provided at Item **3.7** of this report.

(2)	An amendment, of a planning scheme, that would amend a local provision of the scheme or insert a new provision into the scheme may only be made under Division 2 or 2A if – a) the amendment is not such that the local provision as amended or inserted would be directly or indirectly inconsistent with the common provisions, except in accordance with section 30EA, or an overriding local provision; and b) the amendment does not revoke or amend an overriding local provision; and c) the amendment is not to the effect that a conflicting local provision would, after the amendment, be contained in the scheme.

Response
The amendment is consistent with the common provisions as set out in the General Residential Zone and according to the scheme. No variations are proposed.

(3)	Subject to section 30EA, an amendment may be made to a local provision if – a) the amendment is to the effect that a common provision is not to apply to an area of land; and b) a planning directive allows the planning scheme to specify that some or all of the common provisions are not to apply to such an area of land.

Response
The amendment is consistent with the common provisions as set out in the General Residential Zone and according to the scheme. No variations are proposed to the common provisions or to a planning directive.

(4)	An amendment may not be made under Division 2 or 2A to a common provision of a planning scheme unless the common provision, as so amended, would not be inconsistent with a planning directive that requires or permits the provision to be contained in the planning scheme.

Response
Not applicable. The amendment does not seek to alter a common provision.

(5)	Subject to section 30EA, an amendment of a planning scheme may be made under Division 2 or 2A if the amendment consists of – a) taking an optional common provision out of the scheme; or b) taking the provision out of the scheme and replacing it with another optional common provision.

Response
Not applicable. The amendment does not seek to remove an optional common provision

3.3 Impact on the region

Section f) of section 32 of the act requires that the effects and impacts of the proposed draft amendments use and development be considered against environmental, economic and social terms.

3.3.1 Environmental

The development of the site for residential use would have an environmental impact, as does all residential use. Provisions to minimise this are within the clauses of the zone and codes. The connection of sewer and stormwater for all lots are a part of the proposal plan and in accordance with acceptable solutions. Given the location is within an existing developed area, and the underlying infrastructure networks are already in place, the development represents a sustainable outcome as minimal infrastructure is needed to service the new lots when considered against greenfield development.

The development would require the removal of some native vegetation to allow development to proceed, and to reduce risk from bushfire. The Natural Values Assessment provided at Annexure 7 demonstrates that the loss is generally insignificant and the removal of the understory will allow for better maintenance of the existing vegetation and more efficient weed control. The area of vegetation is not listed as being within a priority habitat overlay and does not have any threatened flora or fauna species identified. The area does not provide a wildlife corridor which connects to the punchbowl reserve. The pocket of vegetation sits relatively isolated from other parts of established vegetation in the area.

The bushfire hazard management plan allows for select trees to remain within the hazard management area. The bushfire plan does not require a wholesale clearing of land. The retention of some established vegetation ensures the area remains in compliance with the criteria of the scenic management code of the scheme.

3.3.2 Economic

The benefits of allowing a residential development to the local economy are explained in the Launceston Residential Strategy (Launceston City Council, 2010).

The construction industry, including the housing industry supports 6% of the population (2010 figures). In addition to supporting the construction industry, support for this development would have flow on effects to supporting industries and ongoing economic effects to the local commercial district. Future residents will ultimately participate in the local economy and support the local shops and services within Kings Meadows.

The following figures from The Australian Bureau of Statistics are for the whole of Tasmania (not Launceston alone) but provide an indication that throughout 2020, the rate of arrivals was higher than the number of departures from the State.

March 2020 Quarter			December 2020 Quarter			March 2021 Quarter		
Arrivals	Departures	**Net**	Arrivals	Departures	**Net**	Arrivals	Departures	**Net**
3032	2734	**+298**	3841	3542	**+299**	3808	3531	**+277**

Table 1 - Interstate migration (ABS; sourced 25 August 2021; https://www.abs.gov.au/statistics/people/population/regional-internal-migration-estimates-provisional/latest-release)

Anecdotal reports from new residents and real estate agents confirm that demand within Launceston is unprecedented, putting upward pressure on prices and supply. Tasmania (and Launceston) is proving to be an attractive destination for interstate migration, however residential land is needed to facilitate this migration.

3.3.3 Social

In part, the social implications of allowing the proposed rezone and subdivision are related to the economic factors. The current demand on property within Launceston means prices are rising, potentially excluding first time home buyers or lower income buyers. While this proposal will not impact the supply of land significantly, it is a contribution.

The social benefits to the location include the proximity to services and retail outlets as well as local schools, all of which contribute towards established and thriving neighbourhoods. The local area has existing residences with established gardens and tree lined streets. The Punchbowl Reserve to the north is an excellent open space destination, as is Carr Villa Reserve to the south. All these factors contribute to the wellbeing and living standards that are recognised as desirable by the Launceston Residential Strategy and by the Planning Scheme itself as it aims to protect amenity for residents where possible.

In summary, the proposal would have a net positive impact when considered against environmental, economic and social terms and is a good development outcome.

3.4 Objectives of the Land Use and Approvals Act 1993

3.4.1 Schedule 1, Part 1 Objectives

Section 20(1)(a) and 43C (1)(a) of the *Land Use Planning and Approvals Act 1993* (The Act) require that in determining an application, the planning authority must seek to further the objectives set out in Schedule 1 of the Act. Schedule 1, Part 1 has been examined and responded to below.

Objective	Response
a) to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity; and	The land is currently used for recreational purposes and has been developed as such. The portion of land subject to this proposal is currently vegetated and maintained to a degree through routine maintenance of the golf course. The land is relatively level and suitable for building. Development means the loss of a section of the vegetation, but as the report for Natural Values Assessment at Annexure 7 shows, the vegetation does not have high biodiversity values and the development will likely lead to better land management and weed control. Importantly, the Bushfire report shows that selective clearing is possible and retaining some of the established vegetation is desirable. In addition to any bushfire management benefits, this is also desirable for the visual character of the development.
(b) to provide for the fair, orderly and sustainable use and development of air, land and water; and	The development is a logical and orderly expansion of the residential area to the east and a contiguous development of Negara Street. The development makes provision for shared walkway access for users of the golf course which also allows for the continuous casual use of the site by locals.
(c) to encourage public involvement in resource management and planning; and	The planning application process under section 43A of LUPAA provides a public consultation period of 28 days. During this period, the public can make comment on the proposed application. Following this period, the Tasmanian Planning Commission hold hearings to ensure all stakeholders have an opportunity to have input and have their views heard.
(d) to facilitate economic development in accordance with the objectives set out in paragraphs (a) , (b) and (c) ; and	The development will facilitate economic development for the construction and land use industries with expected flow on effects. The addition of residents to the area means increased participants in the local economy, contributing to the sustainment of local trade and employment.
(e) to promote the sharing of responsibility for resource management and planning between	Each level of government and the private sector have their distinct roles to play in the

the different spheres of Government, the community and industry in the State.	development process. This proposal is compliant and dependant on these processes.

3.4.2 Schedule 1, Part 2 Objectives

Objective	Response
(a) to require sound strategic planning and co-ordinated action by State and local government; and	The rezone is demonstrably sound and in compliance with the policies and actions of the Regional Land Use Strategy, (See Item **3.7**) and other relevant strategies associated with residential development. It represents continuous and contiguous development on what is, by definition, brownfield land.
(b) to establish a system of planning instruments to be the principal way of setting objectives, policies and controls for the use, development and protection of land; and	The proposal will seek to set aside the provisions of the Recreation Zone and install those of the General Residential Zone, to be enforced accordingly by the Launceston City Council.
(c) to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land; and	The rezone and subdivision proposal seeks to provide additional residential land in an orderly manner. It will contribute to the supply of residential land in a well-suited location in the greater Launceston area. The proposal represents a positive outcome socially and environmentally. Section **3.3** of this report provides an expanded response on the impacts of the rezoning.
(d) to require land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels; and	The proposal is subject to existing policies that guide land use and development. The proposal seeks to be compliant with these and make good use of the land.
(e) to provide for the consolidation of approvals for land use or development and related matters, and to co-ordinate planning approvals with related approvals; and	The section 43A application provides for a development application to be assessed simultaneously to a scheme amendment. The development application has been purposefully included with the rezone application to provide some sense of context and to ensure the process is efficient and consolidated.
(f) to promote the health and wellbeing of all Tasmanians and visitors to Tasmania by ensuring a pleasant, efficient and safe environment for working, living and recreation; and	The subdivision provides residential allotments in a pleasant, safe and efficient environment. The subdivision and rezone are within walking distance to bus stops and shops. The subdivision will provide all appropriate infrastructure to encourage foot and cycling traffic, thus creating a pleasant and safe

	environment for both residents and visitors.
(g) to conserve those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value; and	There are no identified buildings, areas or places which are of scientific, aesthetic, architectural or historical interest. While the golf club itself has a long and proud history, this remains intact and unaffected by this proposal. There is no known record of European heritage sites and the blocks are not on the Tasmanian Heritage Register.
(h) to protect public infrastructure and other assets and enable the orderly provision and co- ordination of public utilities and other facilities for the benefit of the community; and	The proposal and the expansion of public infrastructure will be done in a sustainable manner. All parts of the development will be connected to TasWater reticulated water and sewer, as well as the Council stormwater system (Negara Street extension). A new road and pedestrian access way will be provided to service the development, providing a benefit to the community through future pedestrian and vehicular connection.
(i) to provide a planning framework which fully considers land capability.	As the land is not currently, nor, ever likely, to be used for agricultural production, the proposal represents a good land use outcome by allowing residential development within an existing and established urban area.

3.5 State Policies

3.5.1 State Policy on the Protection of Agricultural Land 2009

The provisions of this State policy are captured in the Rural Resource Zone in the Scheme and aim to preserve agricultural land for appropriate uses. The provisions do not affect the Recreation or General Residential Zone and are not applicable to this application.

3.5.2 State Coastal Policy 1996

The subject site is not located near a coastal zone and this policy is not applicable.

3.5.3 State Policy on Water Quality Management 1997

The provisions of this State policy are practically captured in the Water Quality Code in the Scheme. As the subject site is more than 30m from a wetland or watercourse, the relevance of the policy is minimal. The Kings Meadows Rivulet, approximately 200m to the north, currently captures a large amount of stormwater from Kings Meadows and will accommodate the additional stormwater from the development.

In additional to being connected to reticulated stormwater, the subdivision will be connected to full reticulated sewer.

3.5.4 Natural Environment Protection Measures

The Natural Environment Protection Measures (NEPMs) apply to factors such as air quality, land contamination and waste control and other pollutant matters between states and territories in Australia. The NEPMs relate to matters that are not affected by this proposal. The site is not considered to be contaminated.

3.6 Gas Pipelines Act 2000

The subject site is not affected by the gas pipeline corridor and the requirements of the *Gas Pipelines Act 2000* are not applicable.

3.7 Northern Tasmania Regional Land Use Strategy (RLUS)

Section 30O (1) requires that an amendment be consistent with the regional land use strategy for the regional area to which the amendment relates to. The subject site sits within the City of Launceston municipality and the Regional Land Use Strategy of Northern Tasmania applies. The draft amendment has been examined against relevant sections of the strategy and is discussed as follows.

3.7.1 Regional Strategic Planning Framework

C.4.1 Goal 1: Economic Development

To facilitate economic development and productivity through integrated land use and infrastructure planning.

Strategic Direction G1.2

Adopt an integrated and coordinated approach to government infrastructure, transport and land use planning.

This will be achieved by the following strategies:

a) Coordinate provision of transport, energy, communications and other infrastructure services with appropriately zoned and located land for development.

b) Coordinate transport planning and land use planning by:
   - Safeguarding planned network improvements;
   - Identifying key transport networks and future networks; and
   - Understanding transport growth predictions.

c) Encourage sustainable modes of transport by:
   - Protecting the rail and road network from encroachment by sensitive uses;
   - Ensuring traffic impacts and car parking are adequately considered; and
   - Encouraging cycling, walking and public transport use.

d) Coordinate land use, future sewerage and water provision whilst promoting effective and efficient use of existing service infrastructure.

e) Maximise provision of communications technology including the broadband network to commerce and industry, and create opportunities for new development.

Response

The subject site is located within an urban environment, predominantly made up of dwellings within the residential use class. The surrounding land provides reticulated sewer, water and stormwater services which can be extended to the subject site. This will allow for a coordinated and efficient use of infrastructure. The Road Layout and Concept Services Plan provided as Annexure 6, Drawing number 332.31-SK01, from Hydrodynamica, provides detail on proposed sewer, water and stormwater infrastructure.

The subject site is located within 1km of Hobart Road. Hobart Road acts as a major thoroughfare from Kings Meadows to Launceston CBD and connects to major transport networks. Hobart Road is serviced with bus stops, and Norwood Avenue (east of the subject site) also has several bus stops in walking distance to the subject site. The subject site is within an existing transport network for Metro Bus services which can be easily accessed from the proposed lots.

Pedestrian networks have been considered and provision for walking and cycling networks have been included on the Road Layout and Concept Services Plan.

All proposed lots are listed as being within a serviceable area for NBN connection.

C.4.2 Goal 2: Liveability

To promote liveability measures for social and community development and the betterment of healthy, strong and vibrant urban and rural settlements.

Strategic Direction G2.2

Plan for socio-demographic changes

This will be achieved by the following strategies:

a) Plan for the needs of an ageing population including retaining and attracting a skilled labour supply, particularly people aged 15 – 29, to provide for a sustainable future workforce.

b) Promote and plan for a diverse range of dwelling types and sizes, including small lot housing and multiple dwellings (to match changes in household size and composition) in locations highly accessible to community services.

Response

The proposed rezoning and subdivision will provide residential land within an urban environment. The plan promotes a range of dwelling types and sizes, with proposed Lot 7 being suited to a potential multiple dwelling development. The land itself is well suited to building and convenient living, being flat and unconstrained by landform hazards. The location is highly accessible to community services. In all, the proposed rezoning is consistent with this strategic direction.

Strategic Direction G2.4

Enhance social inclusion

This will be achieved by the following strategies:

a) Improve accessibility through improved walking and cycling networks, and integrated public transport.

b) Promote accessibility of services for new dwellings and in response to issues of affordability.

c) Provide for a mix of integrated and complementary land uses.

Response

The subject site has excellent accessibility for road, pedestrian and public transport networks that exist in the locality. The land is proposed to be zoned General Residential which allows for a range of complementary uses which may be assessed as discretionary and determined to be suitable. The development will integrate with the surrounding area which has a range of complimentary land uses in existence, including the Major Activity Centre of Kings Meadows.

C.4.2 Goal 3: Sustainability

To promote greater sustainability in new development and develop stronger community resilience to social and environmental change.

Strategic Direction G3.1

Promote and protect the Region's unique environmental assets and values.

This will be achieved by the following strategies:

a) Protect sensitive landforms and ecosystems, including coastal landforms and karst (limestone area shaped by erosion).

b) Manage the relationship between development and impacts of natural hazards (for example salinity, land instability, acid sulfate soils, bushfire and flood potential, contamination).

c) Promote regionally significant open space and outdoor recreational opportunities.

d) Enable opportunities for renewable energy production including wind, geothermal, tidal, and wave energy.

e) Protect the future capacity of the natural resource base including productive soils, minerals, hard rock and significant forest assets.

f) Protect and enhance water quality including significant wetlands and waterways.

g) Protect and manage available agricultural land for sustainable productive use and values.

h) Preserve and protect areas of natural environmental significance, particularly:

- Areas of biodiversity and important flora and fauna communities and threatened species;
- land and coastal areas sensitive to climate change, tidal and storm surges, rising sea levels and other natural hazards (including acid sulfate soils, bushfire and flooding); and
- Regionally significant open space, scenic landscape amenity areas and outdoor recreation reserves.

Response

The subject site is not within a sensitive landform and is classified as land which has been previously developed. The site is free from land form hazards (apart from bushfire risk which has been addressed as part of this submission). The golf course provides an outdoor recreation reserve that also contributes to the area's sense of place and open space. Although a section of land will be taken out of this space, it is minor when considered against the whole of the site. The sale of land will help to future proof the recreational use of the site and retain the sense of open space and vegetation for the benefit of the community.

The Punchbowl Reserve and Carr Village Reserve are within walking distance and each provide an excellent community recreational open space. The land is not in close proximity to any watercourse or wetlands, the closest being the Kings Meadows Rivulet and wetland approximately 200-300m north of the site. Sewerage and stormwater are able to be managed through infrastructure solutions.

The site is vegetated but it is not assessed as significant. Selective clearing is proposed so that bushfire risk is mitigated but scenic benefit is preserved. The vegetation being removed is not considered to be of regional significance to the bioregion.

3.7.2 Regional Land Use Categories

D.2.1.2 Urban Growth Areas

Comprise land within the developed urban settlement or in areas intended for urban development as identified in a Priority Consolidation Area, Supporting Consolidation Area, Growth Corridor or Future Investigation Area shown in the Regional Framework Plan Maps D.1, D.2 and D.3.

The areas indicated in the Regional Framework Plan are indicative only, and represent a contiguous urban form that will be subject to local strategy which:

- provides for growth that will occur in or contiguous to Urban Growth Areas;
- determines the nature of development and linkages to the greater urban area;
- determines the appropriate boundaries of the Urban Growth Area on a particular site; - considers the Key Principles in D.2.1.1.

Response

The subject site is within land identified as Supporting Consolidation Area (see Figure 12). The supporting consolidation area is classified as an urban growth area. The intent of the urban growth area is to provide for urban development which meets the needs of a changing population.

Supporting consolidation areas

- Comprising land in established suburbs which is separate from Priority Consolidation Areas as shown in the Regional Framework Plan Maps D.1, D.2 and D.3;
- Support reliable and effective transportation and reduce vehicle dependency;
- Physically connect new urban settlements to existing communities wherever possible, or otherwise provide new development with direct transport linkages to established urban areas;
- Promote cohesive communities;
- Support a wide range of services and facilities;
- Support access to existing or planned activity centres; and
- Comprise a suitable and complementary mix of land uses to support the Regional Settlement Hierarchy and the Regional Activity Centre Hierarchy

Response

The subject site is firmly located within the Supporting Consolidation Area See (Figure 17). The area is an established and connected suburban environment, located near schools, open space reserves and community services.

The Major Activity Centre of Kings Meadows services the area which is accessible by pedestrians, vehicles and public transport. The area at large accommodates a wide range of integrated land uses, including residential, recreational, commercial and industrial uses.

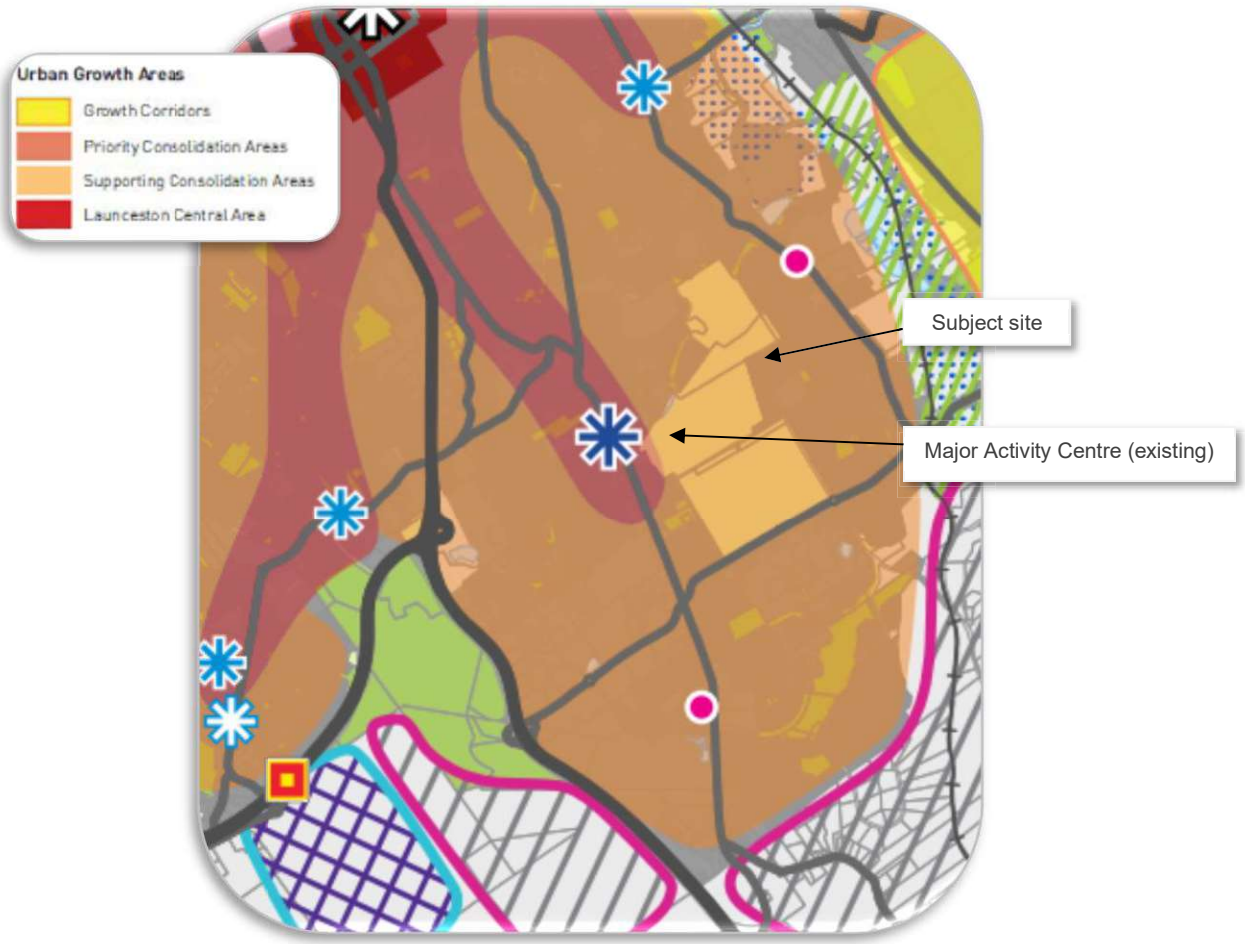

Figure 17 - Extract, Map D.1 Regional Framework Plan (Source: Northern Tasmania Regional Land Use Strategy)

3.7.3 Regional Planning Policies

E.2 Regional Settlement Network Policy
E.2.3 Key Settlement Network Strategies
Settlement pattern

Planning for and development of the Regional Settlement Network should apply the following strategies:

- Support sustainable growth in identified Urban Growth Areas.
- Contain settlements within identified Urban Growth Areas with a focus on consolidating and developing the Greater Launceston Area and sub-regional centres identified in the Regional Settlement Hierarchy.
- Support development of the Greater Launceston Area consistent with the Regional Framework Plan Maps D.1, D.2 and D.3 to promote efficient function, servicing and future development of the area.
- Consolidate existing land use patterns and identify infill opportunities within existing settlements and urban centres, and around activity centres and key public transport nodes and networks.
- Complement and support a viable Regional Activity Centres Network to maximise regional productivity, economic activity and employment opportunities.

Response

The proposed rezone and subdivision development is an opportunity to provide infill development within an existing and well connected urban area. As the subject site has previously been developed (for recreational purposes) the site is considered to be brownfield development. The proposed subdivision allows the continuous and seamless extension of Negara Street consolidating development to the east of the golf course.

The location is central to both open space localities and to services and is connected by an established transport network within Norwood and Kings Meadows.

E.2.4 Specific Policies and Actions	
Regional Settlement Networks	
Policy	**Actions Response**
RSN-P1 Urban settlements are contained within identified Urban Growth Areas. No new discrete settlements are allowed and opportunities for expansion will be restricted to locations where there is a demonstrated housing need, particularly where spare infrastructure capacity exists (particularly water supply and sewerage).	**RSN-A1** The proposed re-zone makes provision for the supply of well-located and serviced residential land. **RSN-A2** The site is located within a Supporting Consolidation Area **RSN-A3** The proposed zoning of GRZ allows for flexible use of the land within the provisions of the GRZ on a section of land that is currently underutilised by the golf club and by the public.
RSN-P2 Provide for existing settlements to support local and regional economies, concentrate investment in the improvement of services and infrastructure, and enhance quality of life.	**RSN-A4** The area surrounding the proposed residential land is serviced by TasWater. The land can be developed to be fully serviced for water and waste. This is shown by the engineering drawings provided at Annexure 6, Drawing 332.31-SK01. **RSN-A5** The re-zone allows for residential development choices that match demand within the limits of the GRZ. **RSN-A6** The subject site is in convenient proximity to the Major Activity Centre and transport options.
Housing Dwellings and Densities	
Policy	**Actions Response**
RSN-P5 Encourage a higher proportion of development at high and medium density to maximise infrastructure capacity. This will include an increased proportion of multiple dwellings at infill and redevelopment locations across the region's Urban Growth Areas to	**RSN-A10** The proposed rezone and development will allow for appropriate density growth to occur in a well serviced area and appropriate location. The development pattern is in line with the existing residential development pattern with similar sized lots and

meet residential demand.	development potential.
RSN-P7 In new development areas include a diversity in land uses, employment opportunities and housing types at densities that support walkable communities, shorter vehicle trips and efficient public transport services.	**RSN-A12** The development proposal integrates into the existing community and development pattern. There are employment opportunities nearby (walkable) for a broad demographic, and within a short commute (Greater Launceston). The local primary school and public transport bus stops are within walking distance.

Integrated land use and transport	
Policy	**Actions Response**
RSN-P8 New development is to utilise existing infrastructure or be provided with timely transport infrastructure, community services and employment.	**RSN-A14** Complies. The proposal is in alignment with the Urban Growth Area purpose and objectives. There is existing transport infrastructure within the surrounding area to rely on and utilise.

E.4 Regional Infrastructure Network Policy

E.4.3 Key Infrastructure Network Strategies

Planning and development of the Regional Infrastructure Network should apply the following strategies:

- Support development that consolidates and maximises the use of existing infrastructure capacity and planned infrastructure;
- Develop and protect transport assets and systems to promote a sustainable transportation network, having regard for access and choice and including public transport, cycling and walking movements;
- Promote greater coordination between government sectors in infrastructure planning to achieve greater alignment with land use planning and more efficient and effective land use outcomes;
- Promote infrastructure planning that leverages renewable energy opportunities;
- Support transport planning initiatives that improve accessibility; and
- Advance and demonstrate consistency with the strategic planning projects and priorities promoted by the Tasmanian Infrastructure Strategy (2010).

Response

Kings Meadows is classified as a Major Activity Centre (MAC) according to the Table E.2 of the strategy. The role of MACs is to provide for a wide range of services and facilities (including offices for business and government) to serve the surrounding subregion, with a strong focus on the retail and commercial sector (See Figure 18). The area is well developed with existing transport networks including Metro Bus services throughout.

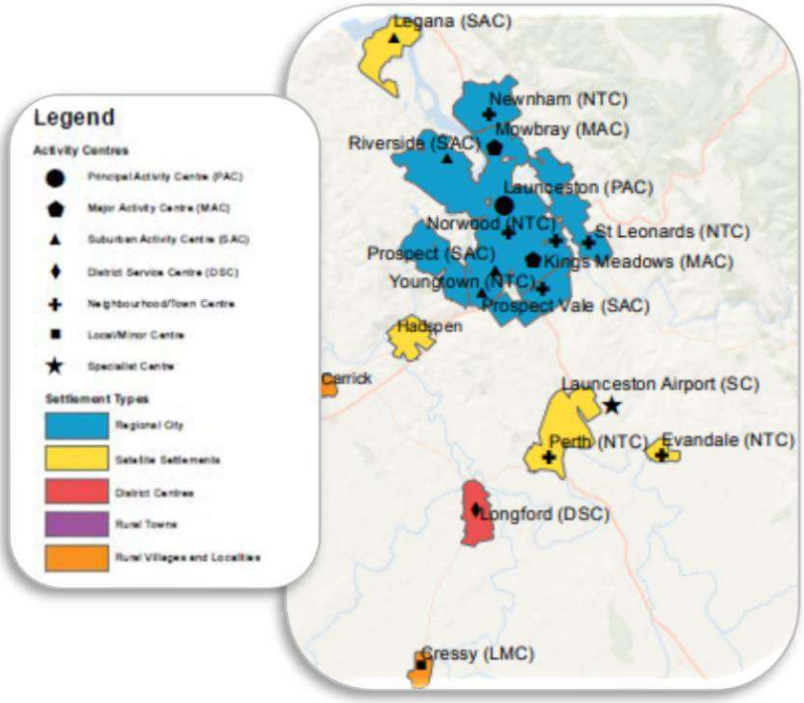

Figure 18 - Extracted from the Northern Tasmania RLUS - Map E1 Regional Settlement and Activity Centre Networks.

E.4.4 Specific policies and actions

Policy	Actions Response
RIN-P6 Facilitate and encourage active modes of transport through land use planning.	**RIN-A10 RIN-A11** The potential development will include a road that connects to the existing transport network. There are bus stops on Norwood Avenue and Hobart Road and many services and destinations are easily in walking distance. **RIN-A16** The development also allows for pedestrian access. The pedestrian access on Negara Street will be extended and the built pedestrian walkways will allow continued use of the area by casual users and as a through way to Opossum Road from Negara Street.
RIN-P7 Facilitate an efficient and convenient public transport system through land use planning.	**RIN-A18** The rezone allows for residential development appropriate to the land that is closely tied, by proximity and access, to the available public transport services. **RIN-A22 RIN-A23 RIN-A24** The GRZ is an appropriate zone to encourage densities that support public transport, and being in proximity to the MAC, make excellent use of the network by being in walkable distance to public transport options. With growth and residential demand currently experienced in Launceston, the demand for public

	transport is likely to increase and dwelling lots with easy access to transport networks and services will be needed.

E.7 Regional Environment Policy

E.7.3 Key Environment Strategies

- Support measures to adapt to climate change and reduce growth of greenhouse emissions.
- Avoid locating land designated for housing, industry, community and infrastructure services within or adjacent to areas which are vulnerable to an unacceptable level of risk, including coastal inundation, landslip, flooding or contaminated land.
- Support 'early action' against climate change and advance strategic planning initiatives that identify and prioritise response to environmental issues and limit associated future costs.
- Advance regional integration and coordination to align planning policy and strategy between local councils and at different levels of government to provide consistency in environmental response.
- Measures for climate change adaptation are to inform municipal planning schemes including technological, infrastructure, planning and regulatory measures.
- Build and protect a strong network of open space to advance conservation and natural cultural values, enhance urban area amenity, encourage healthy lifestyles, promote climate change mitigation and maintain utilitarian values.
- Provide for development that adequately considers water quality and potential impacts on coasts, waterways and wetlands.
- Promote landscape management and policy initiatives to recognise the importance of scenic landscapes for natural values and tourism outcomes.
- Advance and demonstrate consistency with State and regional planning policies, projects and initiatives.

Response

Maintaining a compact urban environment with consolidated infrastructure development is considered desirable against sustainability measures, which are important in the combat against climate change. The subject site is so located and also free from land form hazards such as landslide and inundation. The identified bushfire risk can be mitigated through selected clearing.

As waste and wastewater can be managed through infrastructure and established services, the impact to the environment is manageable. Scenic aspects and values can be managed to be retained as much as is practical, making the development low impact and integrated into the existing urban form.
The proposed rezone and subdivision are consistent with the State and regional policies, and the objectives of local strategies.

E.7.4 Specific policies and actions

Biodiversity and Native Vegetation

Policy	Actions Response
BNV-P01 Implement a consistent regional approach to regional biodiversity management, native vegetation communities and native fauna habitats including comprehensive spatial regional biodiversity mapping.	**BNV-A01** The proposed rezone does not incorporate any further protective overlays as the area is shown to be low in natural values significance (See Annexure 7 for full report).
BNV-P02 Except where planning scheme provisions provide for exemptions, restrict land clearing and disturbance of	It is acknowledged the subject site is affected by the Scenic Management Area Overlay which seeks to protect, retain and maintain vegetated areas where

intact natural habitat and vegetation areas, including areas of forest and non-forest communities declared under the Nature Conservation Act, coastal wetlands and remnant and appropriate cultural vegetation within settlement areas. BNV-P03 Land use planning is to minimise the spread and impact of environmental weeds. BNV-P04 Land use planning processes are to be consistent with any applicable conservation area management plans or natural resource management strategy	possible, acknowledging that the surrounding urban area cannot maintain full vegetative cover. The flora and fauna report identified no threatened flora or fauna species as part of the assessment. **BNV-A02** The subject site must be cleared to the extent that the development can take place and bushfire risk is mitigated. The development seeks to minimise the clearing of vegetation through selective clearing of hazard management areas. **BNV-A04** No offsets are proposed.

Landscape and scenic amenity	
Policy	**Actions Response**
LSA-PO1 Consider the value of protecting the scenic and landscape amenity of key regional tourism routes having regard to the routes identified in Map E3 and local circumstances, as well as the: ▪ Importance of scenic landscapes as viewed from major roads and tourist routes/destinations as contributing to economic basis of the tourism industry as well as local visual amenity; ▪ Importance of natural/native vegetation in contributing to scenic values of rural and coastal areas generally, with particular emphasis on prominent topographical features; and ▪ Need to protect skylines and prominent hillsides from obtrusive development/works. LSA-PO2 Protect specific topographic or natural features of significant scenic/landscape significance.	**LSA-A01** The subject site is within an identified Scenic Management Area according the Launceston Interim Planning Scheme 2015. A full response is provided at Item 4.2-E7 of this report. **LSA-A03** The response at Item 4.2-E7 shows the proposed subdivision complies with the provisions of the overlay and seeks to retain vegetation for scenic values while mitigating bushfire risk.

3.8 City of Launceston Strategic Plan 2014-2024

The City of Launceston Strategic Plan 2014-2024 is prepared according to the Local Government Act 1993 and outlines Council's direction to the operations to be undertaken with regard to goals, strategy and actions.

Relevant overarching goals to this application are:

Goal	Actions/Results
To promote Launceston as a unique place to live, work, study and play.	Showcase Launceston as an attractive city in which to live. Provide for a liveable and amenable environment through the delivery and maintenance of public places, open spaces and facilities.

To reduce the impacts on our natural environment and to build resilience to the changing intensity of natural hazards.	Well managed stormwater flooding events. A reduction in our and the community's impact on the environment.
To drive appropriate development opportunities as well as infrastructure, land use planning and transport solutions.	Levels of investment and development in the CBD and other urban areas, including (mixed) residential uses. Increased customer satisfaction for planning and approval services. Increased number of Development Applications and Building Applications.
To develop a strategic and dedicated approach to securing economic investment in Launceston.	Increased population numbers.

Response:
This proposal is consistent with the strategic direction of the Plan, and will contribute to the goals by developing appropriate residential development. The rezoning will facilitate a liveable and amenable development while ensuring the impact on the environment is relativity insignificant. The development will contribute to an increased number of development applications and increased population numbers within the municipality.

3.9 Launceston Residential Strategy 2009-2029

The Launceston Residential Strategy 2009-2029 provides strategic direction for housing in the Launceston Municipality. It is designed to be compliant with State legislation and to be consistent with the goals of Launceston Vision 2020; to manage housing supply and to achieve community benefits such as access to services and reduced car dependency.

Among the relevant responses set out in the strategy, is the imperative to cater to housing and transport network diversity at the subdivision stage and seek opportunities for infill opportunities that prevent outward sprawl and maximise existing infrastructure.

Social and economic factors touched on in the strategy include the economic contribution of the construction industry and flow on effects; and, the increase of an aging population and expectations around residential density and access to services. Careful planning can help to ensure appropriate densities and access to transport and services is met.

In considering how to increase density without detriment, the strategy states that a mix of lot sizes should be presented within subdivision applications, to provide for a range of housing development types. Subdivision design should integrate with the existing urban fabric and consider the incorporation of transport networks and open spaces into residential layout.

In assessing housing supply and demand, there needs to be opportunities sufficient to satisfy the needs of the population, and to direct growth to appropriate locations. Council should aim to provide sufficient opportunity for viable development with economical and sustainable provision of infrastructure. This means working with developers proactively to address current issues and maximise housing opportunities.

The current demand for residential lots has not been predicted by the strategy. Projections for a high-level growth scenario estimate a general population of 72,903 by 2024, whereas, the current population

of Launceston, in 2021 is 80,916 according to the last census (Australian Bureau of Statistics, 2020). It is evident that a growing population is a current trend and the provision of suitable land for residential development is paramount.

The Strategy seeks to prioritise brownfield development where possible, which is fully serviced and within proximity to identified centres of activity. Vacant residential land is recognised as desirable also and locations and servicing should also be considered.

When measured against this summarised strategic criterion, the proposal meets the overarching objectives and predicted demands for residential land. Whether the land can be categorised as 'brownfield' development (given the site has been previously developed, albeit for recreation purposes), or vacant land, it is ideally located in a walkable area that is integrated with transport networks (pedestrian, vehicle and public transport) and with close proximity to a major activity centre. The activity centre at Kings Meadows has an abundance of retail and other outlets and is virtually self-contained. Most residential needs can be met by the activity centre in Kings Meadows, reducing the need to travel to the Launceston CBD which contributes to more congestion in the city centre.

While not recognised in any documentation, the current demand for real estate has been observed and residential opportunities are scarce, particularly within localities serviced as completely as the subject site. The proposed rezone and subdivision will, in a small way, contribute to the provision of well-suited residential land which is in line with the goals of this strategy.

3.10 Land Use Conflict

Section 32 (1)(e) requires land use conflict to be considered.

This application seeks to rezone the land from Recreation Zone to General Residential Zone and then to subdivide the land.

The rezoning allows the following use classes, according the *Launceston Interim Planning Scheme 2015,* within the General Residential Zone.

10.0 General Residential Zone

10.2 Use Table

No Permit Required	
Use Class	**Qualification**
Educational and occasional care	If for home based child care
Residential	If for a single dwelling
Natural and cultural values management	
Passive recreation	
Permitted	
Use Class	**Qualification**
Residential	If for multiple dwellings
Utilities	If for minor utilities

Discretionary	
Use Class	**Qualification**
Business and professional services	If for a medical centre
Community meeting and entertainment	If not a cinema or function centre
Educational and occasional care	
Food services	If for a cafe or takeaway food premises
General retail and hire	If for a local shop
Residential	If not listed as No Permit Required or Permitted *Except for assisted housing* on land at 242-254 St Leonards Road, St Leonards, as shown on the overlay maps, which is restricted to single person tenancies for each dwelling of no more than 6 months per tenant.* **means housing provided by an organisation for higher needs tenants or residents, including those with physical or intellectual disabilities, and may include associated support services.*
Utilities	
Visitor accommodation	

The adjoining land to the subject site is in the Recreation Zone.

The use of the golf club is considered to be relatively passive. The use does not generate emissions (noise, dust) to a degree that would affect residents. It would be similar to, and likened with pedestrian activity, which would be an expected activity for the zone. The golf course and any potentially conflicting tees are to be remodelled to ensure the direction of ball flight is away from the residential area, eliminating the risk of damage or injury from golf balls in play. There will also be a border of trees and vegetation retained and replaced where necessary, between the main play area and the residential area.

As there has been residential use adjacent to the golf course, and sharing a boundary, for some time, it is demonstrated that the two zones and relative provisions are not in conflict. The open, vegetated space provided by the golf course increases the vista of green space, or borrowed scenery, enjoyed by residents. Perimeters to the course that are close to the residential areas are frequently used by dog walkers and other pedestrians without detriment or conflict. The main area of play on the golf course is set well within the site boundaries.

Residential uses and golf courses have operated in harmony around the state since their development. There are multiple examples of golf courses within the region which are developed adjacent to residential zonings. It is assessed that there is no risk of conflict between the General Residential Zone and the permissible uses provided for under the adjoining Recreation Zone.

4. The Development

The development application is assessed against the provisions of the General Residential Zone of the *Launceston Interim Planning Scheme 2015*.

The development seeks to subdivide 13 residential lots, whilst allowing for a cul-de-sac road lot, and pedestrian access lots. The two balance lots which contain the surrounding golf course will be slightly reduced in size as a result of the subdivision.

The development will extend west from Negara Street, providing a logical expansion of the area. Details of the lots, including their size and frontages is provided below:

Table 2 - Proposed lots and dimensions

Lot	Area	Frontage
1	638m^2	19.04m
2	644m^2	20.04m
3	556m^2	18.04m
4	564m^2	19.09m
5	508m^2	23.24m
6	509m^2	13.79m
7	2339m^2	15.00m
8	567m^2	13.91m
9	500m^2	20.23m
10	604m^2	20.08m
11	640m^2	20.08m
12	642m^2	19.08m
13	602m^2	17.08m
14 Balance	12.60ha	NA
15 Balance	41.46ha	NA
100 Road	1963m^2	15.25m
101 Pedestrian access	146m^2	4.00m
102 Pedestrian access	137m^2	4.00m

4.1 Zone assessment

10.0 General Residential Zone

10.1 Zone Purpose

10.1.1 Zone Purpose Statements

10.1.1.1	To provide for residential use or development that accommodates a range of dwelling types at suburban densities, where full infrastructure services are available or can be provided.
10.1.1.2	To provide for compatible non-residential uses that primarily serve the local community.
10.1.1.3	Non-residential uses are not to adversely affect residential amenity, through noise, activity outside of business hours, traffic generation and movement, or other off site impacts.
10.1.1.4	To encourage residential development that respects the existing and desired neighbourhood character.
10.1.1.5	To encourage residential use and development that facilitates solar access, integrated urban landscapes, and utilisation of public transport, walking and cycling networks.

10.1.2 Local Area Objectives

There are no local area objectives

10.1.3 Desired Future Character Statements

There are no desired future character statements

Response:
The proposed does not present a conflict to the purpose of the zone.

10.4.15 Lot size and dimensions

Objective	
To ensure the area and dimensions of lots are appropriate for the intended use of the lots.	
Acceptable Solutions	Performance Criteria
A1.1 Each lot, or a lot proposed in a plan of subdivision, must: a) have a minimum area of no less than 500m²; and b) be able to contain a rectangle measuring 10m by 15m; or A1.2 Each lot, or a lot proposed in a plan of subdivision, must: a) be required for public use by the Crown, an agency, or a corporation all the shares of which are held by Councils or a municipality; or b) be required for the provision of public utilities; or c) be for the consolidation of a lot with	P1 Each lot, or a lot proposed in a plan of subdivision, must have sufficient useable area and dimensions suitable for its intended use, having regard to: a) the relevant acceptable solutions for development of buildings on the lots; b) the likely location of buildings on the lots; c) the likely provision of on-site parking and manoeuvrability for vehicles; d) the topography of the site; e) the presence of any natural hazards; f) adequate provision for private open space; and g) the existing pattern of development in the

	another lot, provided each lot is within the same zone; and	area.
A1.3	Each lot, or a lot proposed in a plan of subdivision, must have new boundaries aligned from buildings that satisfy the relevant acceptable solutions for setbacks.	

Response:

A1.1 The acceptable solution is achieved. Each lot is at least 500m^2 and appropriately dimensioned to accommodate a rectangle 10m x 15m with acceptable setbacks. See Table 2 for all proposed lot dimensions.

A1.2 Not applicable

A1.3 The acceptable solution is achieved. The portion of land being subdivided contains no buildings. While there are buildings on the balance lots, these buildings are several hundred metres from the site.

10.4.16 Frontage and access

Objective	
To ensure that lots provide: a) appropriate frontage to a road; and b) safe and appropriate access suitable for the intended use.	
Acceptable Solutions	**Performance Criteria**
A1 Each lot, or a lot proposed in a plan of subdivision, must have a frontage to a road maintained by a road authority of no less than 3.6m.	P1 Each lot, or a lot proposed in a plan of subdivision, must be provided with a frontage, or legal connection to a road by a right-of-carriageway, of no less than 3.6m width, having regard to: a) the width of frontage proposed, if any; b) whether any other land has a right-of-carriageway as its sole or principal means of access over the frontage; c) the number of immediately adjacent rights-of-carriageway; d) the topography of the site; e) the proposed use of the lot; f) the construction and maintenance of the road; g) the existing pattern of development in the surrounding area; and h) the advice of the road authority.
A2 No acceptable solution.	P2 Each lot, or a lot proposed in a plan of subdivision, is capable of being provided with reasonable vehicular access to a boundary of a lot or building area on the lot, if any, having regard to: a) the topography of the site; b) the distance between the lot or building

	area and the carriageway; c) the nature of the road and the traffic; d) the character of the area; and e) the advice of the road authority.

Response:

A1 The acceptable solution is achieved. Each new lot has frontage of at least 3.6m which will be accessible by the proposed new road. See Table 2 for all proposed lot dimensions.

P2 The performance criteria are addressed. Each lot can provide vehicle access from the new road (Negara Street) and;

a) the lots are relatively flat and even and pose no topographical constraints to access;
b) the distance to the carriageway is acceptable and in line with the surrounding development;
c) the road will be a cul-de-sac anticipated to have local traffic and no thoroughfare; The TIA provided at Annexure 4 provides further detail on the nature of the traffic impact;
d) The surrounding area is suburban in character and away from the major traffic routes;
e) This application is subject to the approval of the road authority which is Launceston City Council.

10.4.17 Discharge of stormwater

Objective	
To ensure that the subdivision layout, including roads, provides that stormwater is satisfactorily drained and discharged.	
Acceptable Solutions	**Performance Criteria**
A1 Each lot, or a lot proposed in a plan of subdivision, including roads, must be capable of connecting to a public stormwater system.	P1 All stormwater runoff is to be collected and discharged from the subdivision in a manner that will not cause adverse impacts, having regard to: a) the location of the discharge point (if any); b) stormwater flow paths both internal and external to the site; c) the location of building areas within the site; d) the topography of the site; e) the characteristics of the site, including rainfall; f) the development on the site and adjoining land; g) the additional runoff from the subdivision development and likely future development of the land; and h) any onsite storage devices, detention basins or other water sensitive urban design techniques within the subdivision.
A2 The Council's General Manager has provided written advice that the public stormwater system has the capacity to accommodate the stormwater discharge from the subdivision.	P2 Stormwater discharge flows from the subdivision are mitigated to a level that the public stormwater system can accommodate, having regard to: a) the location of the discharge point (if any);

	b) stormwater flow paths both internal and external to the site; c) the topography of the site; d) the characteristics of the site, including rainfall; e) the development of the site; f) the additional runoff from the subdivision development and likely future development of the land; and g) any onsite storage devices, detention basins or other water sensitive urban design techniques within the subdivision.

Response:

A1 The acceptable solution is achieved. Each lot, including the new road, is catered to for stormwater connection. The Road Layout & Concept Services Plan (Hydrodynamica Drawing 332.31-SK01) at Annexure 6 provides detail.

A2 The acceptable solution is dependent on the General Manager's advice. Council's engineering department have been involved in discussions relating to stormwater.

10.4.18 Water and sewerage services

Objective	
To ensure each lot provides for appropriate water supply and wastewater disposal.	
Acceptable Solutions	Performance Criteria
A1 Each lot, or a lot proposed in a plan of subdivision, must be connected to a reticulated water supply.	P1 No performance criteria.
A2 Each lot, or a lot proposed in a plan of subdivision, must be connected to a reticulated sewerage system.	P2 No performance criteria.

Response:

A1 The acceptable solution is achieved. Each new lot will be connected to reticulated water supply in accordance with TasWater standards. See: Hydrodynamica Drawing 332.31-SK01 at Annexure 6.

A2 The acceptable solution is achieved. Each new lot will be connected to reticulated sewerage system in accordance with TasWater standards. See: Hydrodynamica Drawing 332.31-SK01 at Annexure 6.

10.4.19 Integrated urban landscape

Objective	
To provide landscaping of lots, roads and public open spaces that contributes to the character and identity of urban places and the character of the surrounding area.	
Acceptable Solutions	Performance Criteria

A1 Subdivision does not create any new road, public open space or other reserves.	P1 Subdivision must be designed to enhance the amenity of the area having regard to: a) the topography of the site; b) any significant natural and cultural features of the site; c) access to public open spaces and roads; d) the retention of existing vegetation; e) linking areas of significant local habitat; and f) the character of the surrounding area.

Response:

P1 The performance criteria are addressed. The subdivision has been designed with a new road, that extends Negara Street westwards. The new road forms an orderly and logical progression of the existing road, which currently ends as a dead-end.

a) The topography is relatively flat and even and poses no constraints to the road construction or access;

b) No significant features have been identified;

c) The road creates access necessary to develop the residential lots. The pedestrian access allows a walkable thoroughfare for local use.

d) Existing vegetation will be selectively cleared so as to retain a degree of vegetative cover and screening between uses and retain (as much is possible without compromise to safety) the existing character of the area.

e) Significant habitat has not been identified. A full assessment is provided at Annexure 7 (Natural Values Assessment).

f) The surrounding area to the east is developed suburban and the area to the west, north and south is the golf course. The golf course contains a combination of lawn and greens with stands of mature trees, that form the course. A buffer of trees will be retained a as part of the development to retain the character as much as practicably possible.

10.4.20 Walking and cycling network

Objective	
To: a) provide safe and convenient movement through and between neighbourhoods by pedestrians and cyclists; b) design footpaths, shared path and cycle path networks that are safe and accessible; and c) accommodate wheelchairs, prams, scooters and other footpath bound vehicles.	
Acceptable Solutions	Performance Criteria
A1 Subdivision does not create any new road, footpath or public open space.	P1 Subdivision provides roads, footpaths or public open spaces that are designed to provide safe and convenient walking and cycling networks, having regard to:

	a) linkages to any existing pedestrian and cycling networks; b) connection of footpaths, shared paths, cycle paths and bicycle lanes; c) access for cycling and walking to activity centres, community facilities, bus stops and public transport routes and public open spaces; d) the road network and public open spaces; and e) passive surveillance.

Response:

P1 The performance criteria are addressed. The subdivision creates a new road and two pedestrian access lots as a part of the subdivision design. Regard has been given to the safe and convenient networks and:

a) linking to the existing pedestrian network (Negara Street) and allowing access for pedestrians and users of the golf course with 4m wide passageway.

b) The newly created footpath connection to the existing in similar fashion providing continuous use through Negara Street.

c) Connection to the existing network which allows passage to the activity centre, bus stops and services.

d) Appropriate and seamless continuation of the road network.

e) Open and accessible pathways that allow safe passage with surrounding development containing activity and overlooking suited for passive surveillance. While these are private, they are addressed as relevant due to the nature of expected use.

10.4.21 Lot diversity

Objective	
To provide a range and mix of lot sizes to suit a variety of dwelling and household types.	
Acceptable Solutions	Performance Criteria
A1 Subdivision is for 10 lots or less.	P1 Subdivision provides a range and mix of lot sizes suitable for the development of a variety of dwelling and household types, having regard to: a) lot sizes suitable for single dwellings, multiple dwellings and other forms of residential use; b) the topography of the site; c) demand for a variety of housing types; d) the proximity of activity centres; e) the proximity and access to public open space; f) the proximity, availability and accessibility

	of pedestrian, cycling, and bus stops and public transport, routes; and g) the character of the surrounding area.

Response:

P1 The performance criteria are addressed. There are more than 10 lots created in the subdivision proposal. While the majority of the lots a similarly sized, between 500m^2 and 642m^2, one of the lots is significantly larger at 2339m^2 to allow for diverse development. The layout and dimensions of the lots reflect the existing layout and rhythm of Negara Street while allowing for some variation. Each new lot allows:

a) either single dwelling or multiple dwellings that are suited to the lot size;

b) a relatively flat and even development site free from land form hazards, and,

c) variety to contribute to consumer and developer demand and allow diverse development, and,

d) close proximity to the Kings Meadows MAC by vehicle or walking (around 20-30 minute walk), and

e) access to public open space (Punchbowl Reserve) in close and walkable proximity (approximately 800m to the Leith Street entrance to Punchbowl Reserve).

f) There are bus stops at Norwood Avenue (approximately 200m walking distance) and at Hobart Road.

g) The lot development is in harmony with the existing character of the area.

10.4.22 Solar orientation of lots

Objective	
To provide for solar orientation of lots and solar access for future dwellings.	
Acceptable Solutions	Performance Criteria
A1 Any lot for residential use with an area of less than 500m², in a subdivision of 10 or more lots, must have the long access between 30 degrees west of north and 30 degrees east of north.	P1 Subdivision must provide for solar orientation of lots adequate to provide solar access for future dwellings, having regard to: a) the size, shape and orientation of the lots; b) the topography of the site; c) the extent of overshadowing from adjoining land; d) any development on the site; e) the location of roads and access to lots; and f) the existing pattern of subdivision in the area.

Response:

A1 The acceptable solution is achieved. Each lot meets the minimum lot size and generally sits on a north /south axis.

10.4.23 Neighbourhood road network

Objective	
To provide for convenient and safe movement, through and between neighbourhoods, for motor vehicles, pedestrians, cyclists and public transport using the road network.	
Acceptable Solutions	**Performance Criteria**
A1 Subdivision does not create any new road.	P1 The road network provides for convenient and safe movement for motor vehicles, pedestrians, cyclists and public transport, having regard to: a) the existing network of roads, cycle paths and bicycle lanes, shared paths, footpaths and public transport routes; b) the function of the road and its relationship to arterial and neighbourhood road types; c) the speed limits on roads in the area; d) the location of activity centres; e) the volume of traffic in the area; f) access for service and emergency vehicles; and g) the topography of the site.

Response:

P1 The performance criteria are addressed. The new road:

a) joins the existing road network and transport infrastructure;

b) the road and footpaths will be a local road and will come under council authority. The pedestrian accessways will be maintained by the Launceston Golf Club.

c) The new road will be subject to the local speed limit of 50km/h or as dictated by the road authority.

d) The proximity of the MAC is described as a convenient distance to the subject site. The Kings Meadows precinct is easily within walking distance from the site. It would take less than five minute drive by car.

e) The volume of traffic in the area is not considered unreasonable. It is generally classed as residential traffic consistent with levels seen in surrounding suburbs of Launceston.

f) Access is suitable for service and emergency vehicles

g) The road is proposed on generally level ground. The topography of the site does not have a major impact on the usability of the site for pedestrians and vehicles.

10.4.24 Public transport network

Objective
To provide for access to public transport.

Acceptable Solutions	Performance Criteria
A1 Subdivision does not create any new road.	P1 The subdivision provides for adequate access to public transport, having regard to: a) the number of lots proposed; b) the walking distances from the lots to public transport route; c) any public transport strategy or plan for the area; and d) the likelihood of the provision of public transport for the area.

Response:

P1 The performance criteria are addressed.

a) The total number of lots proposed is eighteen, with thirteen being for residential use (two being for pedestrian access, one for the road and two balance lots that are a part of the golf course).

b) Each lot has similar walking distance to the bus stops at Norwood Avenue (approximately 200m walking distance) and at Hobart Road.

c) The City of Launceston Transport Strategy 2020-2040 (Draft) is available and seeks to increase liveability through active and public transport uptake and provide connection through access to centres, education and services. The subject site has been demonstrated to be in line with these goals.

d) Public transport is available to the area.

4.2 Code assessment

The following Codes under the Scheme are considered applicable to this application.

Code		Comments
E1	Bushfire-prone Areas Code	Applicable. Refer to the following section of the report
E2	Potentially Contaminated Land Code	Not applicable
E3	Landslide Code	Not applicable
E4	Road and Railway Assets Code	Applicable. Refer to the following section of the report
E5	Flood Prone Areas Code	Not applicable
E6	Parking and Sustainable Transport Code	Applicable. Refer to the following section of the report
E7	Scenic Management Code	Applicable. Refer to the following section of the report
E8	Biodiversity Code	Applicable. Refer to the following section of the report
E9	Water Quality Code	Not applicable
E10	Open Space Code	Applicable. Refer to the following section of the report
E11	Environmental Impacts and Attenuation Code	Not applicable
E12	Airports Impact Management Code	Not applicable
E13	Local Historic Cultural Heritage Code	Not applicable
E14	Coastal Code	Not applicable
E15	Telecommunications Code	Not applicable
E16	Invermay/Inveresk Flood Inundation Area	Not applicable
E17	Cataract Gorge Management Area Code	Not applicable
E18	Signs Code	Not applicable
E19	Development Plan Code	Not applicable

E1 Bushfire-prone Areas Code

This code applies to subdivision of land that is located within or partially within a bushfire prone area. As the site is mapped on a planning scheme overlay map as being within a bushfire prone area, the code applies.

The Bushfire Hazard Report and plan are provided at Annexure 5.

E4 Road and Railway Assets Code

This code applies to use or development of the land that will require a vehicle crossing.
The Traffic Impact Assessment provided at Annexure 4 addresses the criteria of this code.

E6 Parking and Sustainable Transport Code

This code applies to all use and development.

E6.5 Use Standards

E6.5.1 Car parking numbers

Objective	
To ensure that an appropriate level of car parking is provided to meet the needs of the use.	
Acceptable Solutions	**Performance Criteria**
A1 The number of car parking spaces must a) Not be less than 90% of the requirements of Table E6.1 (except for dwellings in the General Residential Zone); or b) not be less than 100% of the requirements of Table E6.1 for dwellings in the General Residential Zone; or c) not exceed the requirements of Table E6.1 by more than 2 spaces or 5% whichever is the greater, except for dwellings in the General Residential Zone; or d) be in accordance with an acceptable solution contained within a parking precinct plan.	P1.1 The number of car parking spaces for other than residential uses, must be provided to meet the reasonable needs of the use, having regard to: (a)-(h) P1.2 The number of car parking spaces for residential uses must be provided to meet the reasonable needs of the use, having regard to: (a)-(c) P1.3 The number of car parking spaces complies with any relevant parking precinct plan.

Response:

A1 The acceptable solution is achieved. Each lot requires 2 spaces for residential use and each lot is adequately sized and dimensioned to allow car parking spaces accordingly within the future development.

E7 Scenic Management Code

This Code applies to the development of land within a scenic road corridor, or within a scenic management area shown on the planning scheme overlay maps.

E7.6 Development Standards

E7.6.2 Scenic management areas

Objective	
The siting and design of development is to be unobtrusive in the landscape and complement the character of the scenic management areas.	
Acceptable Solutions	**Performance Criteria**
A3 Subdivision is in accordance with a specific area plan.	P3 Subdivision must have regard to: a) the scenic management precinct existing character statement and management objectives in clause E7.6.3; b) the size, shape and orientation of the

	lot; c) the density of potential development on lots created; d) the need for the clearance or retention of vegetation; e) the need to retain existing vegetation; f) the requirements for any hazard management; g) the need for infrastructure services; h) the specific requirements of the subdivision; i) the extent of works required for roads or to gain access to sites, including any cut and fill; j) the physical characteristics of the site and locality; k) the existing landscape character; l) the scenic qualities of the site; and m) any agreement under s.71 of the Act affecting the land.

Response:

P1 The performance criteria are addressed. The development will include the removal of vegetation including selected trees and understory. Regard has been given to:

a) The area is subject to E7.6.3.4 – 4 Carr Villa and Punchbowl Reserve Precinct:

Existing character statement - description and significance

The Carr Villa and Punchbowl Reserve Precinct is a vegetated corridor, encompassing the Carr Villa Memorial Cemetery and Crematoria and Punchbowl Reserve. These areas contribute to the treed character of the Kings Meadows, Norwood and Punchbowl areas. whilst also providing significant native habitat for threatened flora and fauna. It's significant for its historic, natural and scenic landscape values within an urban setting.

New residential development, particularly near the Punchbowl Reserve, is characterised by large bulky houses with limited opportunity to establish trees and vegetation that contribute to the Precinct.

a) The development will be able to retain some of the trees that contribute to the overall canopy and cover of vegetation to the future urban setting.
b) The lots are appropriately sized, dimensioned and orientated to the requirements of the GRZ.
c) The density potential is according to the provisions of the GRZ. Single and multiple dwellings are permissible under the zone but the majority of the lots will not allow high density development due to the size and dimensions. Proposed Lot 7 could allow more intense development.
d) The requirement to clear vegetation is to allow residential development.
e) Selective vegetation will be retained to preserve character.
f) The clearance can be done selectively according to the advice provided within the Bushfire Hazard Report provided at Annexure 5. The bushfire hazard management plan does not

require the wholesale clearing of hazard management areas currently proposed on the balance lots. This will ensure some large trees can be retained.

g) Clearing will allow infrastructure (roads and connections to water, sewer, stormwater) to be built
h) The subdivision is designed across a vegetated area and will need to be cleared to allow development.
i) These services are required by residential development but only minor earthworks are required.
j) The site, while currently vegetated and part of the golf course, adjoins residential development described as *large bulky houses with limited opportunity to establish trees and vegetation that contribute to the Precinct.*
k) The existing landscape character is vegetated and a part of the golf course.
l) The subject site itself is not significant but is collected within the Carr Villa and Punchbowl Reserve locality, which are characterised as highly valued scenic public open spaces that are well known to residents of Launceston.
m) The development is not affected by and agreements under s.71 of the Act.

E8 Biodiversity Code

This Code applies to use or development of the land which involves the clearing of native vegetation. This code is addressed in the Natural Values report provided at Annexure 7.

E10 Open Space Code

This Code applies to subdivision creating additional lots in the following zones: General Residential; The proposal is exempt from this code according to E10.4.1; a payment will be made instead of public open space.

5.0 Conclusion

This application to rezone a portion of land from Recreation Zone to General Residential Zone, along with a proposal for 13 residential lots has merit when viewed against the relevant strategies and provisions. The rezoning seeks to utilise a vacant and unused portion of land in the eastern part of the site. The vegetation that will be impacted has been assessed as having minimal value, containing no threatened flora or fauna species. The subdivision provides a logical extension of Negara Street, which has always been envisaged as seen by the road layout in this area.

The new lots will be created in close proximity to the Major Activity Centre of Kings Meadows, and are within an Urban Growth Area which adjoins existing General Residential land in Norwood. The application complies with the relevant tests set out by the *Land Use Planning and Approvals Act 1993,* along with all relevant zone and code standards under the *Launceston Interim Planning Scheme 2013*.

This application is considered orderly and with merit, thus appropriate for Council initiation and Tasmanian Planning Commission approval.

Annexure 1 – Certificate of Title Plan and Folio Text

Annexure 2 – Proposed Rezoning Plan

Annexure 3 – Subdivision Proposal Plan

Annexure 4 – Traffic Impact Assessment

Annexure 5 – Bushfire Hazard Report and Plan

Annexure 6 – Preliminary Engineering Design

Annexure 7 – Natural Values Assessment

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BUSHFIRE HAZARD REPORT

Thirteen (13) Lot & Two (2) Balance Lot Subdivision
General Residential Zone
27-29 Opossum Road, Kings Meadows
Prepared for the Launceston Golf Club

August 2021

Job number: L191207
Prepared by: James Stewart (james@woolcottsurveys.com.au)
Town Planner & Bushfire Hazard Practitioner 157
Reviewed by: Tasmania Fire Service
Planning & Assessment Officer
Bushfire Risk Unit
Tasmania Fire Service

Rev. no	Description	Date
1	Draft for TFS review	16/08/2021
2	FINAL	25/08/2021

Disclaimer
This report deals with the potential bushfire risk only, all other statutory assessments sit outside of this report. This report is not to be used for future or further development on the site, other then what has been specifically provided for in the certified plans attached. Woolcott Surveys Pty Ltd accepts no responsibility to any purchaser, prospective purchaser or mortgagee of the property who in any way rely on this report. This report sets out the owner's requirements and responsibilities and does not guarantee that buildings will survive in the event of a bushfire event. If characteristics of the property change or are altered from those which have been identified, the BAL classification may be different to that which has been identified as part of this report. In this event the report is considered to be void.

Executive Summary

Development of a thirteen (13) lot residential subdivision is proposed for 27-99 Opossum Road, Kings Meadows. The subdivision consists of thirteen residential lots, one road lot, two lots for pedestrian connectivity and two balance lots. Access to each residential lot will be via a proposed cul-de-sac road, which is provided as an extension of Negara Street to the east.

The site is entirely within the boundary of a bushfire prone area shown on an overlay of a planning scheme map for the *Launceston Interim Planning Scheme 2015*. A bushfire event at this site or within the immediate area is likely to impact on future buildings at this location and subject development to considerable radiant heat and ember attack.

A bushfire hazard management plan has been prepared and is provided as an appendix to this report. The plan sets out the owner's responsibilities to maintain a managed area for each lot, taking into consideration the relevant requirements under Australian Standard *AS3959-2018 Construction of buildings in bushfire-prone areas*.

Conclusions and recommendations

a) Hazard management areas meeting the requirements of BAL 19 can be achieved for lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13.

b) Lots 14 and 15 are considered exempt in accordance with clause E1.4 (a) of PD 5.1 Bushfire Prone Areas Code.

c) Lot 100, the proposed cul-de-sac road, must be in compliance with Table E, Element A, with the exception of the 12m outer radius for cul-de-sacs.

d) New hydrants are required in accordance with the TasWater Supplement to Water Supply Code of Australia WSA 03-2011-3.1 MRWA Edition 2:0. Hydrants to have a separation of not more than 60m.

e) A 23m wide hazard management area is to be provided to the south and west of lots 1-7. This area is to be managed in accordance with section 5.2 of this report, prior to Council sealing a final plan of subdivision.

f) A 10m wide hazard management area is to be provided to the north of lots 7-13. This area is to be managed in accordance with section 5.2 of this report, prior to Council sealing a final plan of subdivision.

g) Maintenance of hazard management areas must be in perpetuity.

Signed:

Author: James Stewart
Accreditation No: BFP-157

Table of Contents

1. Introduction

This Bushfire Hazard Report and Bushfire Hazard Management Plan (BHMP) has been prepared in support of a proposed thirteen residential lot and two balance lot subdivision at 27-99 Opossum Road, Kings Meadows.

1.1 The subject site

The following is a summary of the application information:

Property address	27-29 Opossum Road, Kings Meadows
Certificate of title	CT 198059/1, CT16/4964
Property ID (PID)	6883203
Property Owners	The Launceston Golf Club Ltd.
Existing Use and Development	Sports and Recreation – Golf Course
Existing Zoning	Recreation Zone
Proposed Zoning	General Residential Zone
Planning Scheme	Launceston Interim Planning Scheme 2015
Identified on a Bushfire Overlay Map	Yes
Priority Habitat identified	No
Proposed Works	Thirteen (13) lot subdivision, road and pedestrian lots, balance lots (2).
Water Supply	Reticulated water supply
Vehicular Access	Negara Street – Council maintained road.

1.2 Bushfire Assessment

A bushfire assessment is a process of analysing information about the potential impacts on a proposed development that is likely to occur in a bushfire hazard scenario. A 'bushfire-prone area' is an area where a bushfire event is potentially likely to occur, and that may result in significant adverse impact on buildings and/or lives.

In Tasmania, most local Councils have a planning scheme overlay map that identifies bushfire-prone areas. Subdivision within a bushfire-prone area triggers the assessment of the Bushfire-Prone Areas Code under the planning schemes and subsequently requires assessment against the provisions of the Code. The assessment generally requires a BHMP to be provided as part of the application.

The bushfire assessment will determine the Bushfire Attack Level (BAL) for the future lots, which measures the possible exposure of a building to bushfire hazard. The BAL is assessed in accordance with Australian Standard *AS 3959-2018 construction of buildings in bushfire-prone areas.*

The subject site falls within the municipal area of Launceston City Council. The assessment has been undertaken in accordance with E1.0 Bushfire-Prone Areas Code and to accompany a

subdivision application under the *Launceston Interim Planning Scheme 2015.* Please refer to Section 6 of the report for detail.

A BAL assessment is required to understand the fuel management requirements for the subject site and to demonstrate that future new buildings within each proposed new lots can be constructed to a BAL19 level under the *Building Act 2016*.

1.3 References

The following documents were referred in the preparation of, and should be read in connection with, this bushfire assessment report:

- Tasmanian Government, Planning Directive No. 5.1 – Bushfire-Prone Areas Code
- Tasmanian Government, Director's Determination – Requirements for Building in Bushfire Prone Areas (transitional) Version 2.2.
- Tasmanian Government, Director's Determination – Application of Requirements for Building in Bushfire Prone Areas (transitional) Version 1.4.
- Launceston Interim Planning Scheme 2015
- Australian Standard, AS3959-2018 construction of buildings in bushfire-prone areas.
- Building Act 2016
- Tasmanian Fire Service, Bushfire Hazard Advisory Notes

2. Site Description

2.1 Site context

A thirteen (13) lot residential and two (2) balance lot subdivision is being undertaken on land owned and managed by the Launceston Golf Club. The entire site currently consists of two titles, with a total area of approximately 54ha.

The site currently provides an 18-hole golf course and associated club rooms and infrastructure. All buildings are located in the south western portion of the site, while the golf course is spread across both titles. The majority of the site is maintained and used as a golf course, while there are two areas on site which contain unmanaged and established vegetation.

The land adjoins residential development on the eastern, and western sides. The Launceston cemetery is located to the south of the site. A light industrial/business area is provided to the north west of the site. To the north lies Punchbowl Reserve, which is a mostly unmanaged 24ha area of land. Residential properties adjoin the Punchbowl Reserve on the eastern and western sides.

The proposed new lots are located in the north eastern part of the site, adjacent to existing residential development along Negara and Warragul Streets. Access to the area being subdivided will be via an extension of Negara Street which is maintained by the Launceston City Council. Access to the balance lots remains via the primary entrance on Opossum road.

The site is generally level with a gentle fall from the south to the north. The northern part of the site includes two dams which form part of the Kings Meadows rivulet.

Figure 1 – Aerial view of the subject site and its surrounding area (source: The LISTMap)

Figure 2 – Looking west along Negara Street to the proposed access point for the subdivision.

The subject site is serviced by a reticulated water supply maintained by TasWater. There is a hydrant located on the eastern property boundary where Negara Street ends.

Figure 3 – Area of subject site being subdivided. Blue lines represent water mains and yellow FH squares represent fire hydrants. (source: The LISTMap)

2.2 Planning controls

The site is within the municipal area of Launceston City Council. Therefore, the planning instrument is the *Launceston Interim Planning Scheme 2015* (The Scheme).

The subject site is currently within the Recreation Zone. This report has been written to accompany a planning scheme amendment application to rezone a portion of the site to General Residential Zone. This report has therefore been written as though the land is General Residential.

The area to the east of the subdivided area is currently General Residential. The balance of the golf course land is within the Recreation zone.

The subject site also entirely falls within the Bushfire-Prone Areas Overlay and the Scenic Management Overlays.

Figure 4 – Zoning Map (source: The LISTMap)

3. The Proposal

It is proposed to subdivide the subject site into thirteen residential lots, whilst retaining two balance lots for the golf course. The lots are intended for residential development, ranging from 500m^2 to 2339m^2 in size. Negara street to the east will be extended approximately 120m, ending in a cul-de-sac head. All lots will be connected to reticulated services.

The details of the lots are as follows:

Lot number	Lot size	Frontage
Lot 1	638m^2	19m
Lot 2	634m^2	20m
Lot 3	556m^2	18m
Lot 4	550m^2	19m
Lot 5	510m^2	23m
Lot 6	500m^2	13.7m
Lot 7	2339m^2	15m
Lot 8	567m^2	13.7m
Lot 9	500m^2	23m
Lot 10	604m^2	20m
Lot 11	640m^2	20m
Lot 12	643m^2	19m
Lot 13	602m^2	17m
Lot 14 (Balance)	12.6ha	NA
Lot 15 (Balance)	41.4ha	NA

Figure 5 – Proposed subdivision layout. Refer to Annexure 2 for detail.

4. Bushfire Site Assessment

4.1 Vegetation Analysis

4.1.1 TasVeg Mapping

The TasVeg map 4.0 provides general information indicating potential bushfire prone vegetation in the area.

The mapping shows the vegetation community in the eastern section of the subject site as dry eucalypt forest and woodland (DAZ), with surrounding areas classified as urban areas (FUR). While the DAZ does extend down to the south, the majority of the site is shown as modified land which fits under the FUR classification on TasVeg. Surrounding residential areas outside of the site are classified as FUR.

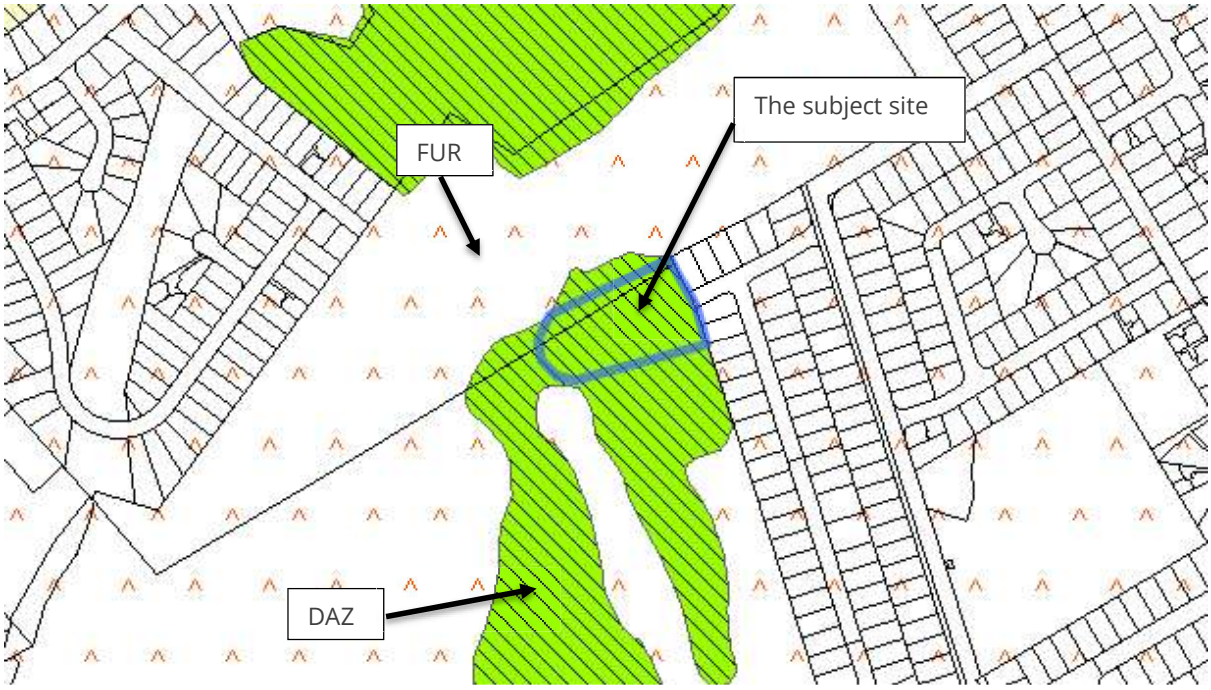


Figure 6 – TasVeg 4.0 map (source: The LISTMap)

4.1.2 Vegetation Type and Separation

A site visit was conducted on Friday 13th of June 2021. Chris Moore from the Tasmanian Fire Service was also present onsite. An analysis of the land and bushfire prone vegetation within 120m from the subject site is provided below.

Direction	Analysis
North	The residential lots being developed adjoin a small section of unmanaged vegetation to the north of lots 7-13. This area vegetation is approximately 3000m^2 in size, 25m – 30m in depth, and contains established forest with unmanaged understory. The area appeared to contain extensive weeds such as gorse. Beyond the unmanaged strip, was the managed area of the golf course. This managed section stretched to the north. There were no additional areas to the north which were classified as unmanaged. Beyond the golf course to the north lies the Punchbowl Reserve. While this area is over 100m from the proposed rezone and

	subdivision, the Reserve does provide a 24ha area of generally unmanaged land.
South	The residential lots being developed adjoin a larger section of unmanaged vegetation. Lots 1-7 adjoin a section of forest which extends to the south. The forest is thickest in the area adjoining the proposed lots, however thins out as it extends to the south. A visual inspection indicated that the land was unmanaged for approximately 80m from the site, then transitioned into managed land with established trees. The non-managed areas were classified as forest.
East	The subject site adjoins an established residential area to the east. This area is made up of single dwellings within the General Residential zone. The land contains urban sized allotments and is managed. There is no bushfire prone vegetation to the east of the site.
West	There is a small section of forest to the west of lot 7. This section of forest is not larger than 1500m^2. While classified as forest it does not present as thick or dense as other areas of forest. The forest stretches for approximately 30m before being classified as managed land forming and part of the golf course curtilage. There were no additional areas to the west which were classified as unmanaged.

Figure 7 – Vegetation analysis within 120m of site.

Legend

Forest

Managed land

4.2 Effective slope Analysis

Figure 9 below shows the effective slope which is the slope of land under the classified vegetation **in relation to** the subject site. The identified bushfire prone vegetation is a combination of subtle upslope in the south and to the east. Land to the north and west is flat.

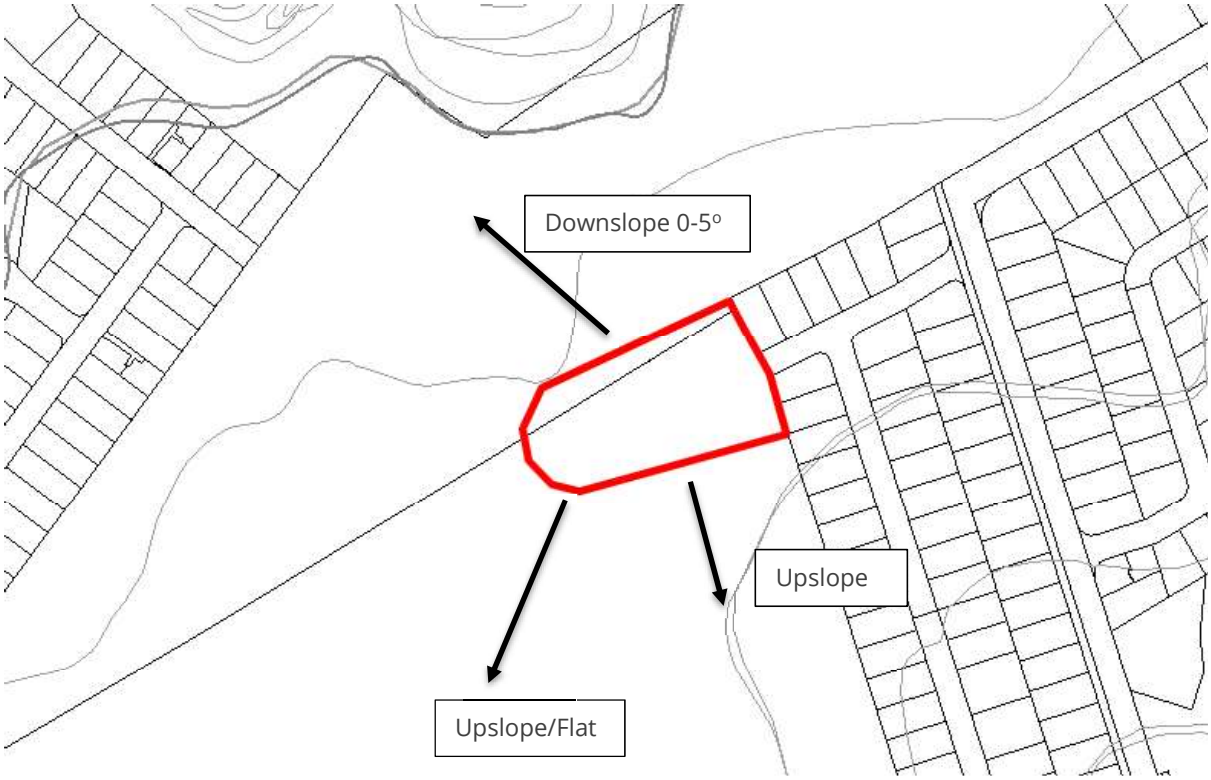


Figure 8 – Effective slope of site and surrounding bushfire prone vegetation.

4.3 Photos

Figure 9 – Looking west from end of Negara Street.

Figure 10 – Looking south along abated area at rear of dwellings on Warragul Street.

Figure 11 – Looking north along hole 6 fairway. Unmanaged vegetation on right of photo.

Figure 12 – Looking south east towards lot 11. Unmanaged forest with dense understory.

Figure 13 – Looking along fairway to the west of lot 7.

Figure 14 – Looking north from lot 11 over managed land and fairways.

Figure 15 – Looking south along pedestrian access adjoining lot 13.

Figure 16 – Looking west along proposed road.

Figure 17 – Existing hydrant at the boundary on Negara Street.

5. Bushfire Protection Measures

5.1 BAL Rating and Risk Assessment

The purpose of the BAL assessment is to identify the minimum separation between the bushfire prone vegetation and a building area within each proposed lot. The assessment aims to achieve the minimum requirements of **BAL 19**.

The definition of BAL 19 and 12.5 are highlighted as follows:

Bushfire attack level (BAL)	**Predicted bushfire attack and exposure level**
BAL-LOW	Insufficient risk to warrant specific construction requirements
BAL-12.5	Ember attack, radiant heat below 12.5kW/m^2
BAL-19	Increasing ember attack and burning debris ignited by windborne embers together with increasing heat flux between 12.5-19kW/m^2
BAL-29	Increasing ember attack and burning debris ignited by windborne embers together with increasing heat flux between 19-29kW/m^2
BAL-40	Increasing ember attack and burning debris ignited by windborne embers together with increasing heat flux between 29-40kW/m^2
BAL-FZ	Direct exposure to flames radian heat and embers from the fire front.

The distances from each lot to the classified vegetation is presented below, along with the slope and type of vegetation. To better demonstrate the required separation as hazard management areas, a 10m x 15m building area is shown on each lot. As per the analysis in Section 4.1, the only identified bushfire-prone vegetation around the site is forest.

Lot 1	**North**	**East**	**South**	**West**
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -23m Managed 23m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	9m	NA

Lot 2	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -23m Managed 23m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	9m	NA

Lot 3	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -23m Managed 23m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	9m	NA

Lot 4	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -23m Managed 23m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	9m	NA

Lot 5	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -23m Managed 23m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	9m	NA

Lot 6	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -23m Managed 23m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	9m	NA

Lot 7	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -23m Managed 23m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	9m	NA

Lot 8	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -80m Managed 80m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	NA	NA

Lot 9	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -80m Managed 80m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	NA	NA

Lot 10	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -80m Managed 80m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	NA	NA

Lot 11	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -80m Managed 80m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	NA	NA

Lot 12	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -80m Managed 80m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	NA	NA

Lot 13	North	East	South	West
Vegetation within 100m of site	0m -100m Managed	0m -100m Managed	0m -80m Managed 80m-100m Forest	0m -100m Managed
Slope (degrees, over 100m)	NA	NA	Upslope/flat	NA
BAL 19 Setbacks	NA	NA	NA	NA
BAL 12.5 Setbacks	NA	NA	NA	NA

5.2 Hazard Management Areas

As outlined in the *Planning Directive 5.1 – Bushfire-Prone Areas Code*, a Bushfire Hazard Management Area (BHMA) will be managed in accordance with the provided plan. Existing vegetation needs to be strategically modified and then maintained within this area in accordance with the BHMP to achieve the following outcomes:

- to reduce the quantity of windborne sparks and embers reaching buildings;
- to reduce radiant heat at the building; and
- to halt or check direct flame attack.

The BHMA will be developed within and up to the property boundaries to provide access to a fire front for firefighting, which is maintained in a minimal fuel condition and in which there are no other hazards present that will significantly contribute to the spread of a bushfire.

The BHMA will be achieved by adoption of the following strategies:

Maintenance of Fuel Management Areas

It is the responsibility of the property owner to maintain and manage the landscaping in accordance with the Bushfire Hazard Management Plan and the current Guidelines for Development in Bushfire-Prone Areas of Tasmania.

This area is to be regularly managed and maintained. Landscaping in this area will be minimised:

- Grass maintained to a maximum height of 100mm, with fuel loads kept to less than 2 tonnes per hectare which will be maintained at this level.
- Trees and any undergrowth will be clear of (BCA) class 1 – 9 buildings on all sides.
- All undergrowth and understorey of trees (up to 2m) will be removed within the bushfire hazard management area.
- Select larger trees can be retained within the BHMA, ensuring a minimum 5m canopy separation is provided between each established tree.
- Pathways to 1 metre surrounding the buildings and landscaping material, will be non-combustible (stone, pebbles etc.).
- The total shrub cover will be a maximum of 20% of the available area.
- There will be a clear space from the buildings of at least four (4) times the mature height of any shrubs planted.
- Shrubs will not be planted in clumps, this is to avoid build-up of debris and dead vegetation materials.

Landscaping

- vegetation along the pathways to comprise non-flammable style succulent ground cover or plants (avoid plants that produce fine fuel which is easily ignited, plants that produce a lot of
  debris, trees and shrubs which retain dead material in branches or which shed long strips of bark, rough fibrous bark or drop large quantities of leaves in the spring and summer, vines on walls or tree canopies which overhang roofs)
- timber woodchip and flammable mulches cannot be used and brush and timber fencing should be avoided where possible

5.3 Access

Private access roads must be constructed as per the following table:

Element		Requirement
A.	Property access length is less than 30m; or access is not required for a fire appliance to access a fire fighting water point.	There are no specified design and construction requirements.
B.	Property access length is 30m or greater; or access is required for a fire appliance to a fire fighting water point.	The following design and construction requirements apply to property access: (a) all-weather construction; (b) load capacity of at least 20t, including for bridges and culverts; (c) minimum carriageway width of 4m; (d) minimum vertical clearance of 4m; (e) minimum horizontal clearance of 0.5m from the edge of the carriageway; (f) cross falls of less than 3 degrees (1:20 or 5%); (g) dips less than 7 degrees (1:8 or 12.5%) entry and exit angle; (h) curves with a minimum inner radius of 10m; (i) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and (j) terminate with a turning area for fire appliances provided by one of the following: (i) a turning circle with a minimum outer radius of 10m; or (ii) a property access encircling the building; or (iii) a hammerhead "T" or "Y" turning head 4m wide and 8m long.
C.	Property access length is 200m or greater.	The following design and construction requirements apply to property access: (a) the requirements for B above; and (b) passing bays of 2m additional carriageway width and 20m length provided every 200m.
D.	Property access length is greater than 30m, and access is provided to 3 or more properties.	The following design and construction requirements apply to property access: (a) complies with requirements for B above; and (b) passing bays of 2m additional carriageway width and 20m length must be provided every 100m.

5.4 Fire Fighting Water Supply

Table E4 Reticulated water supply for fire fighting.

Element		Requirement
A.	Distance between building area to be protected and water supply.	The following requirements apply: (a) the building area to be protected must be located within 120m of a fire hydrant; and (b) the distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.
B.	Design criteria for fire hydrants	The following requirements apply: (a) fire hydrant system must be designed and constructed in accordance with *TasWater Supplement to Water Supply Code of Australia WSA 03 – 2011-3.1 MRWA 2nd Edition*; and (b) fire hydrants are not installed in parking areas.
C.	Hardstand	A hardstand area for fire appliances must be: (a) no more than 3m from the hydrant, measured as a hose lay; (b) no closer than 6m from the building area to be protected; (c) a minimum width of 3m constructed to the same standard as the carriageway; and (d) connected to the property access by a carriageway equivalent to the standard of the property access.

6. Bushfire-Prone Areas Code Assessment

An assessment of E1.0 Bushfire-Prone Areas Code under the Scheme is provided as follows.

E1.6 Development Standards

E1.6.1 Subdivision: Provision of hazard management areas

Objective	
Subdivision provides for hazard management areas that: (a) facilitate an integrated approach between subdivision and subsequent building on a lot; (b) provide for sufficient separation of building areas from bushfire-prone vegetation to reduce the radiant heat levels, direct flame attack and ember attack at the building area; and (c) provide protection for lots at any stage of a staged subdivision.	
Acceptable solutions	**Proposed solutions**
A1 (a) TFS or an accredited person certifies that there is an insufficient increase in risk from bushfire to warrant the provision of hazard management areas as part of a subdivision; or (b) The proposed plan of subdivision: (i) shows all lots that are within or partly within a bushfire-prone area, including those developed at each stage of a staged subdivision; (ii) shows the building area for each lot; (iii) shows hazard management areas between bushfire-prone vegetation and each building area that have dimensions equal to, or greater than, the separation distances required for BAL 19 in Table 2.4.4 of *Australian Standard AS 3959 – 2009 Construction of buildings in bushfire-prone areas*; and (iv) is accompanied by a bushfire hazard management plan for each individual lot, certified by the TFS or accredited person, showing hazard management areas equal to, or greater than, the separation distances required for BAL 19 in Table 2.4.4 of *Australian Standard AS 3959 – 2009 Construction of buildings in bushfire-prone areas*; and	A1a) Not applicable. A1b) The acceptable solution is achieved. The BHMP: i) shows all thirteen lots within the bushfire prone area. Lots 14 and 15 are classified as exempt. ii) shows a 10m x 15m building area on lots 1-13. iii) shows a HMA associated with each building area demonstrating the separation distances required for BAL 19 in Table 2.4.4 of AS 3959 – 2018 *Construction of buildings in bushfire-prone area*. iv) The application provides a bushfire hazard management plan which is prepared by a provisional bushfire hazard practitioner and will be certified by TFS. A1c) Part 5 agreement is not required. A requirement to maintain land in perpetuity on the balance lots is required as part of the recommendations of this report.

(c) If hazard management areas are to be located on land external to the proposed subdivision the application is accompanied by the written consent of the owner of that land to enter into an agreement under section 71 of the Act that will be registered on the title of the neighbouring property providing for the affected land to be managed in accordance with the bushfire hazard management plan.	

E1.6.2 Subdivision: Public and firefighting access

Objective

Access roads to, and the layout of roads, tracks and trails, in a subdivision:

(a) allow safe access and egress for residents, fire fighters and emergency service personnel;

(b) provide access to the bushfire-prone vegetation that enables both property to be defended when under bushfire attack and for hazard management works to be undertaken;

(c) are designed and constructed to allow for fire appliances to be manoeuvred;

(d) provide access to water supplies for fire appliances; and

(e) are designed to allow connectivity, and where needed, offering multiple evacuation points.

Acceptable solutions	Proposed solutions
P1 A proposed plan of subdivision shows access and egress for residents, fire-fighting vehicles and emergency service personnel to enable protection from bushfires, having regard to: a) appropriate design measures, including: i) two way traffic; ii) all weather surfaces iii) height and width of any vegetation clearances iv) load capacity v) provision of passing bays vi) traffic control devices vii) geometry, alignment and slope of roads, tracks and trails viii) use of through roads to provide for connectivity ix) limits on the length of cul-de-sacs and dead-end roads x) provision of turning areas xi) provision for parking areas xii) perimeter access; and	P1) Performance criteria is relied upon due to the outer radius of the proposed cul-de-sac. A response to the criteria and justification has been provided in section 7 of this report.

xiii) fire trails b) the provision of access to i) bushfire-prone vegetation to permit the undertaking of hazard management works; and ii) fire fighting water supplies; and c) any advice from the TFS.	

E1.6.3 Subdivision: Provision of water supply for fire fighting purposes

Objective Adequate, accessible and reliable water supply for the purposes of fire fighting can be demonstrated at the subdivision stage and allow for the protection of life and property associated with the subsequent use and development of bushfire-prone areas.	
Acceptable solutions	**Proposed solutions**
A1 In areas serviced with reticulated water by the water corporation: (a) TFS or an accredited person certifies that there is an insufficient increase in risk from bushfire to warrant the provision of a water supply for fire fighting purposes; (b) A proposed plan of subdivision showing the layout of fire hydrants, and building areas, is included in a bushfire hazard management plan approved by the TFS or accredited person as being compliant with Table E4; or (c) A bushfire hazard management plan certified by the TFS or an accredited person demonstrates that the provision of water supply for fire fighting purposes is sufficient to manage the risks to property and lives in the event of a bushfire.	A1 a) Not applicable b) The acceptable solution is achieved, noting that the proposed plan of subdivision shows the location of hydrants. Building areas are compliant with table E4, being within 120m of a hydrant.
A2 In areas that are not serviced by reticulated water by the water corporation: (a) The TFS or an accredited person certifies that there is an insufficient increase in risk from bushfire to warrant provision of a water supply for fire fighting purposes; (b) The TFS or an accredited person certifies that a proposed plan of subdivision demonstrates that a static water supply, dedicated to fire fighting, will be provided and located compliant with Table E5; or	A2 Not applicable as the subject site is serviced by reticulated water.

(c)	A bushfire hazard management plan certified by the TFS or an accredited person demonstrates that the provision of water supply for fire fighting purposes is sufficient to manage the risks to property and lives in the event of a bushfire.	

7. Justification of Cul-De-Sac Road

As noted in section 6 of this report, the application relies on performance criteria due to the cul-de-sac not proposing a 12m outer radius turning head. The cul-de-sac has instead proposed to be constructed in accordance with LGAT standards, being a 9m outer radius head.

In providing justification on a reduced standard, it is noted that all parts of the access standards can be achieved as compliant with Table E1, with the exclusion of the cul-de-sac radius.
The current cul-de-sac is proposed to be 9m outer radius, with regular kerb and channel, consistent with the remainder of Negara Street to the east, and other cul-de-sacs within the surrounding urban environment.

In arguing that that a cul-de-sac constructed to urban standards is appropriate, the following is noted:

- Lots 1-13, which are serviced via this cul-de-sac road, are all large enough to ensure dwellings can be constructed to achieve BAL 12.5 setbacks. The area of bushfire prone vegetation, being primarily in one location to the south, is approximately 50m from the cul-de-sac.
- The surrounding area is not bushland, but predominantly urban in character, made up of residential uses. There are no large areas of unmanaged vegetation within 100m of the new lots.
- Lots 1-13 can all provide compliant accesses, as building areas for each of these lots is less than 30m from a road.
- Hydrants will be installed along the extension of Negara Street, ensuring all lots will have a building area within 120m of a hydrant.

It is subsequently argued that an urban cul-de-sac outer radius of 9m is appropriate for the location, given the nature of the lots and surrounding area, compliant accesses, and water provisions.

The safety of fire fighters has been considered when making this assessment. The short length of the cul-de-sac and urban environment ensures there will be no unmanaged fuels within the road reserve. The lots provide a suitable buffer from radiant heat and direct flame for fire fighters. A large tanker with a turning radius of 19.8m would require a three point turn at the end of the cul-de-sac, however as they are not considered to be in imminent danger (based on above factors), the risk of burn over is assessed as low.

A detailed response to the performance criteria of clause E1.6.2 Subdivision: Public and firefighting access is provided below.

P1) Performance criteria is relied upon as:

a) The cul-de-sac head will be constructed in accordance with LGAT Standard drawings,

having a radius of 9m. The acceptable solution requires a radius of 12m for cul-de-sacs within a bushfire prone area.

i. The road provides for two way traffic, including access for fire vehicles in a bushfire event.

ii. The road will be sealed as per LGAT standards. The road will be suitable for use in all weather conditions.

iii. There is no vegetation above the road. The road has a horizontal separation to any potential threat to the south of some 50m. There is no identified threat to the north or west once hazard management areas are provided on the balance lots. A letter from the golf course is provided stating they will maintain these areas in perpetuity.

iv. The road has an appropriate load capacity to facilitate fire vehicles in a bushfire event.

v. Passing is achievable given the width of the road (6.9m) and road reserve (15m).

vi. There are no recommended traffic control devices as part of the subdivision.

vii. The road is level, on a flat surface. The bushfire threat is upslope of the road. There are no bends or deviations proposed in the road.

viii. The road is a cul-de-sac road. The road joins to Negara Street to the east, with Warragul Street located to the south of Negara Street.

ix. The cul-de-sac has a length of approximately 120m. The limited length of road reduces risk and provides ample opportunity for vehicles to exit in a bushfire event.

x. Turning area is provided. There are numerous access strips in the western end of the proposed roads allowing for a three-point turn if required.

xi. Parking areas at the end of the cul-de-sac will be limited due to the number access strips in this part. It would be expected vehicles would park onsite.

xii. Perimeter access is provided via the golf course. A managed strip is required on the balance lots around the proposed residential lots.

xiii. There are no proposed fire trails.

b) The TFS can access the bushfire prone vegetation on the balance lot should a bushfire event occur. Access is via Opossum Road. The size of lots also ensures a fire vehicle can park on the proposed road, and fight the fire to the south.

c) The application has been signed off by the TFS

The bushfire threat in this area is assessed as low. The lots will be cleared in their entirety to provide for residential development. A hazard management area is provided to the south, west and north, providing sufficient separation from any bushfire threat. The development is within an established urban environment. The requirements to provide a cul-de-sac with 12m radius would be out of character with this area, and not warranted given the level of threat. Land south of the bushfire prone vegetation is managed. Once the development is complete. There will only remain a small area of bushfire prone vegetation within 120m of the site. The risk is considered low based on the site characteristics and nature of the area.

Performance criteria is achieved.

8. Assessment of Risk – Balance Lots 14 & 15

The development includes two balance lots which contain the existing golf course, associated buildings and infrastructure. The proposed subdivision seeks to cut off a 1.15ha portion of land which makes up part of these balance lots. The balance lot currently contains an 18-hole golf course on land that is generally classified as managed.

Outside of the subject site, the majority of the land within 100m has been assessed as managed. The unmanaged eastern portion of Carr Villa lies to the south of the subject site There are no other identified areas of bushfire prone vegetation within 100m of the site.

The existing golf course and associated buildings will continue operations as per usual. There is a minor change on the balance lots, as they reduce by approximately 1.15ha total. The access to the golf course off Opossum Road will remain unchanged. There are no changes or increase in risk in relation to the water supply which services the golf course or associated buildings.

Based on the overall impact, it is assessed that the balance lots 14 and 15 as shown on the plan are suitable to be classified as exempt under clause E1.4 of the *Launceston Interim Planning Scheme 2013*.

9. Conclusions and Recommendations

The proposal seeks planning approval for a thirteen (13) lot residential subdivision, two balance lots, and lots to provide associated infrastructure and connectivity. The proposal provides a logical expansion of Negara Street in the east of the subject site.

All of the lots have demonstrated that a building area can be provided in an area meeting the requirements of BAL 19, with most future dwellings expecting to locate in areas subject to BAL 12.5. Hydrants will be provided along the proposed cul-de-sac road, thus ensuring all building areas can be adequately protected in a bushfire event. Access to each of the lots will be less than 30m in length, thus negating the need for any specific access considerations.

An area surrounding the residential lots must be managed in accordance with this report. Due to the scenic management overlay which currently overlays the site, select clearing of the hazard management can occur to retain larger trees but provide a managed understory. Guidelines for this clearing can be found in section 5.2 of this report.

The following recommendations and conclusions are made:

a) Hazard management areas meeting the requirements of BAL 19 can be achieved for lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13.

b) Lots 14 and 15 are considered exempt in accordance with clause E1.4 (a) of PD 5.1 Bushfire Prone Areas Code.

c) Lot 100, the proposed cul-de-sac road, must be in compliance with Table E, Element A, with the exception of the 12m outer radius for cul-de-sacs.

d) New hydrants are required in accordance with the TasWater Supplement to Water Supply Code of Australia WSA 03-2011-3.1 MRWA Edition 2:0. Hydrants to have a separation of not more than 60m.

e) A 23m wide hazard management area is to be provided to the south and west of lots 1-7. This area is to be managed in accordance with section 5.2 of this report, prior to Council sealing a final plan of subdivision.

f) A 10m wide hazard management area is to be provided to the north of lots 7-13. This area is to be managed in accordance with section 5.2 of this report, prior to Council sealing a final plan of subdivision.

g) Maintenance of hazard management areas must be in perpetuity.

Annexure 1 – Bushfire Hazard Management Plan

Hazard Management and Protection Area Requirements:

Hazard management and protection measures requires:

Roads

Unless the development standards in the zone require a higher standard, the following apply:

(a) two-wheel drive, all-weather construction;
(b) load capacity of at least 20t, including for bridges and culverts;
(c) minimum carriageway width is 7m for a through road, or 5.5m for a dead-end or cul-de-sac road;
(d) minimum vertical clearance of 4m;
(e) minimum horizontal clearance of 2m from the edge of the carriageway;
(f) cross falls of less than 3 degrees (1:20 or 5%);
(g) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads;
(h) curves have a minimum inner radius of 10m;
(i) dead-end or cul-de-sac roads are not more than 200m in length unless the carriageway is 7 meters in width;

Reticulated Water Supply for Fire Fighting.

The following requirements apply:

(a) the building area to be protected must be located within 120m of a fire hydrant; and
(b) the distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.

The following requirements apply:

(a) fire hydrant system must be designed and constructed in accordance with TasWater Supplement to Water Supply Code of Australia WSA 03 – 2011-3.1 MRWA 2nd Edition; and
(b) fire hydrants are not installed in parking areas.

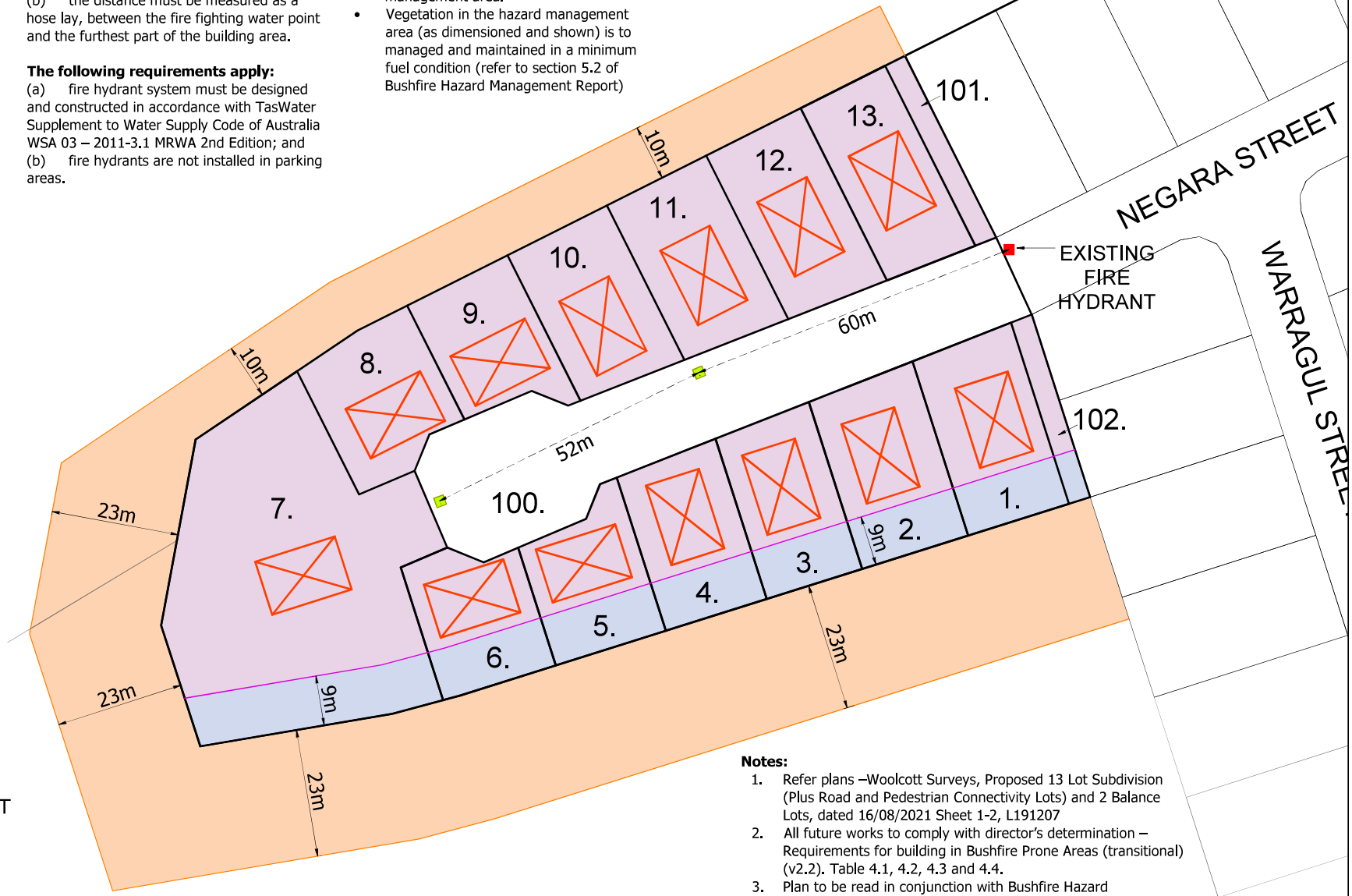
Hazard Management – Vegetation Management

- Lots 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13 in their entirety are to be treated and maintained as a bushfire hazard management area.
- Vegetation in the hazard management area (as dimensioned and shown) is to managed and maintained in a minimum fuel condition (refer to section 5.2 of Bushfire Hazard Management Report)

Chris Moore Bushfire Planning and Assessment Officer On behalf of the Chief Officer Tasmania Fire Service
September 06 2021

C. Moore

Bushfire-Assessment-Based-on-Stamped-Plans¶
James-Stewart---BFP:-157,-Scope-of-Work:-1,2,-3B.¶
WOOLCOTT SURVEYS



LEGEND:

- BAL 12.5 BUILDING AREA
- BAL 19 BUILDING AREA
- HAZARD MANAGEMENT AREA ON BALANCE LOTS
- INDICATIVE BUILDING ENVELOPE (10m x 15m)
- PROPOSED FIRE HYDRANT
- TITLE BOUNDARIES

Notes:

1. Refer plans –Woolcott Surveys, Proposed 13 Lot Subdivision (Plus Road and Pedestrian Connectivity Lots) and 2 Balance Lots, dated 16/08/2021 Sheet 1-2, L191207
2. All future works to comply with director's determination – Requirements for building in Bushfire Prone Areas (transitional) (v2.2). Table 4.1, 4.2, 4.3 and 4.4.
3. Plan to be read in conjunction with Bushfire Hazard Management Report dated 25/08/2021

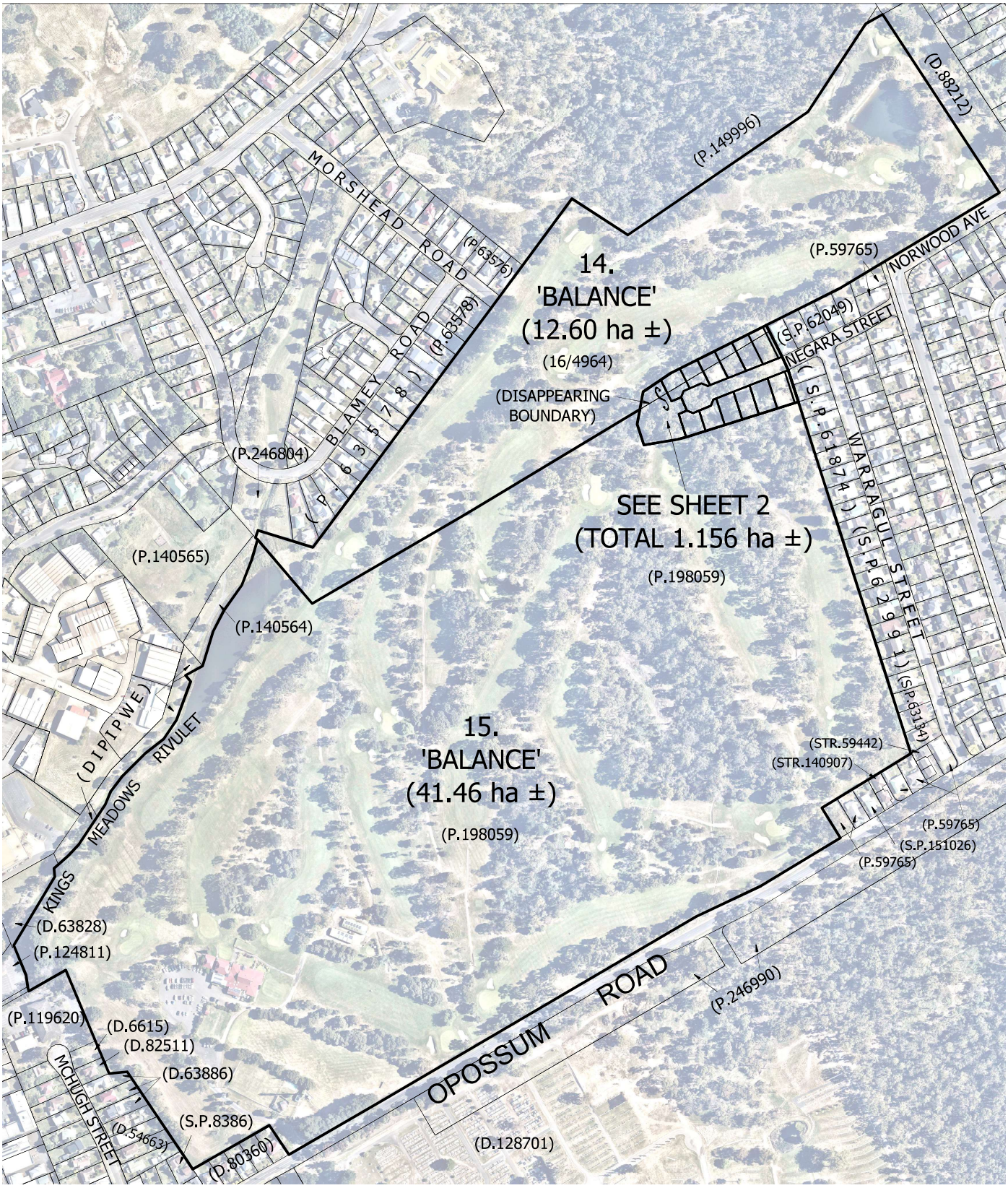
PROPOSED 13 LOT SUBDIVISION (PLUS ROAD AND PEDESTRIAN CONNECTIVITIY LOTS) AND 2 BALANCE LOTS
OWNER: LAUNCESTON GOLF CLUB
27-99 OPOSSUM ROAD, KINGS MEADOWS
C.T. 198059-1 (PID 6883203), C.T. 16/4964 (PID 6883203)

N

WOOLCOTT SURVEYS
10 Goodman Court Invermay TAS 7248
PO Box 593 Mowbray Heights TAS 7248
Phone (03) 6332 3760
Fax (03) 6332 3764
Email: office@woolcottsurveys.com.au

Job Number					
L191207					
Drawn	File name	Date	Scale	Edition	Sheet
GLM/RA	L191207_BHMP_160821_v1.0	16/08/21	1:750@A3	V1.0	1/1

Annexure 2 – Subdivision Proposal Plan



THIS PLAN WAS PREPARED AS A PRELIMINARY PROPOSAL PLAN FOR DISCUSSION AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE
ALL MEASUREMENTS AND AREAS ARE SUBJECT TO SURVEY .

Notes:
Distances are in meters.
All distances and offsets are subject to final survey.

LAUNCESTON GOLF CLUB
PROPOSED 13 LOT SUBDIVISION (PLUS ROAD AND PEDESTRIAN CONNECTIVITY LOTS) AND 2 BALANCE LOTS
27-99 OPOSSUM RD, KINGS MEADOWS
C.T. 198059/1, C.T. 16/4964

N

WOOLCOTT SURVEYS
10 Goodman Court Invermay TAS 7248
PO Box 593 Mowbray Heights TAS 7248
Phone (03) 6332 3760
Fax (03) 6332 3764
Email: office@woolcottsurveys.com.au

Job Number L191207

Drawn	File name	Date	Scale	Edition	Sheet
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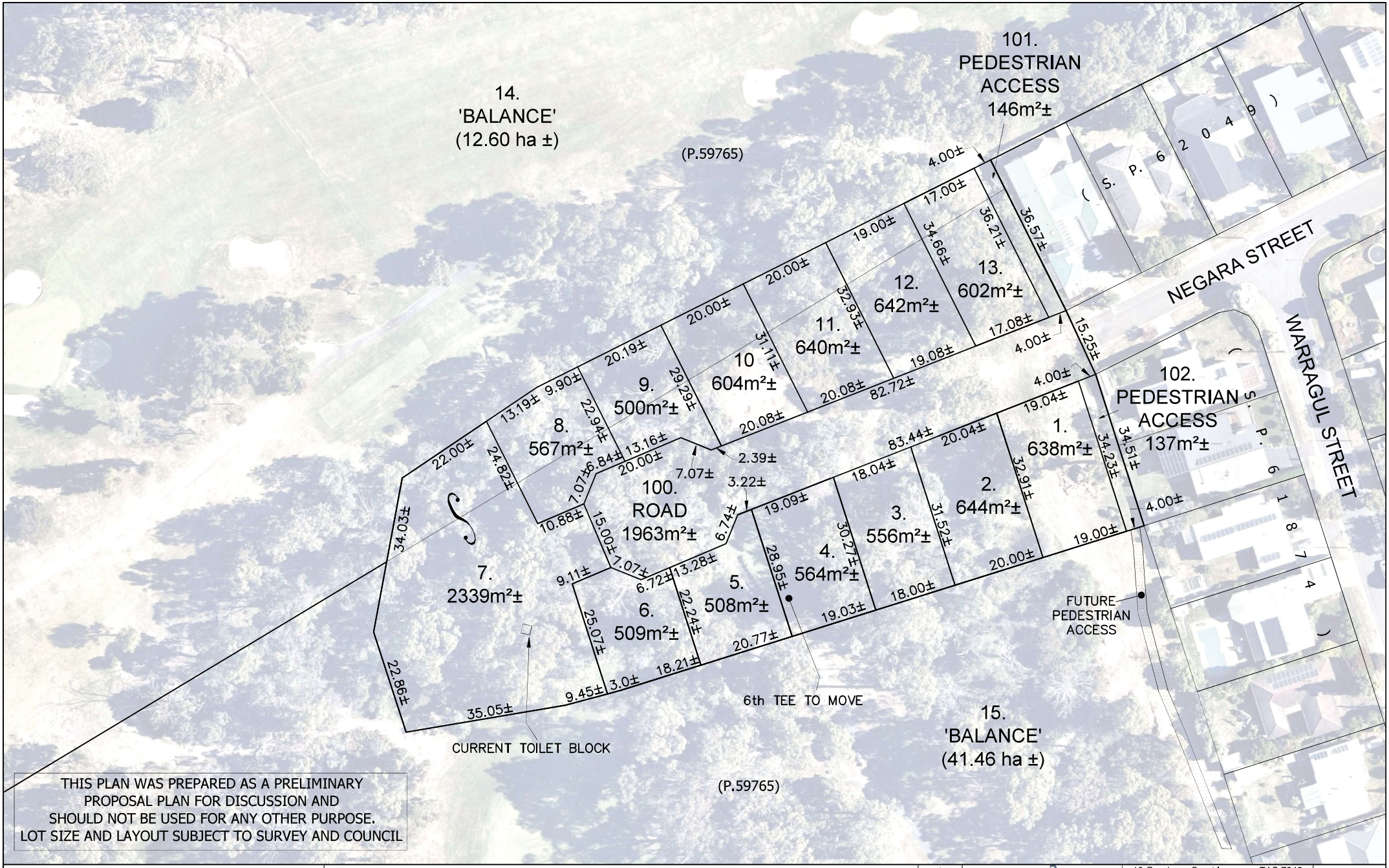

Notes:
Distances are in meters.
All distances and offsets are subject to final survey.

LAUNCESTON GOLF CLUB
PROPOSED 13 LOT SUBDIVISION (PLUS ROAD AND PEDESTRIAN CONNECTIVITY LOTS) AND 2 BALANCE LOTS
27-99 OPOSSUM RD, KINGS MEADOWS
C.T. 198059/1, C.T. 16/4964

N

WOOLCOTT SURVEYS
10 Goodman Court Invermay TAS 7248
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Email: office@woolcottsurveys.com.au

Job Number L191207

Drawn	File name	Date	Scale	Edition	Sheet
GLM/RA	L191207_proposal_plan_160821_v1.0	16/08/21	1:750@A3	V1.0	2/2

Annexure 3 – Planning Certificate

BUSHFIRE-PRONE AREAS CODE

CERTIFICATE[1] UNDER S51(2)(d) *LAND USE PLANNING AND APPROVALS ACT 1993*

1. Land to which certificate applies

The subject site includes property that is proposed for use and development and includes all properties upon which works are proposed for bushfire protection purposes.

Street address:	27-99 Opossum Road, Kings Meadows
Certificate of Title / PID:	**CT198059/1, CT16/4964 PID6883203**

2. Proposed Use or Development

Description of proposed Use and Development:	Proposed 13 Lot Subdivision (plus road and pedestrian connectivity lots) and 2 balance lots.
Applicable Planning Scheme:	Launceston Interim Planning Scheme 2015

3. Documents relied upon

This certificate relates to the following documents:

Title	Author	Date	Version
Bushfire Hazard Report	Woolcott Surveys	25/08/2021	2
Bushfire Hazard Management Plan	Woolcott Surveys	16/08/2021	1
Proposed 13 Lot Subdivision (plus road and pedestrian connectivity lots) and 2 balance lots.	Woolcott Surveys	16/08/2021	1

[1] This document is the approved form of certification for this purpose and must not be altered from its original form.

4. Nature of Certificate

The following requirements are applicable to the proposed use and development:

☒	**E1.4 / C13.4 – Use or development exempt from this Code**	
	Compliance test	**Compliance Requirement**
☒	E1.4(a) / C13.4.1(a)	Insufficient increase in risk (Lots 14 and 15)

☐	**E1.5.1 / C13.5.1 – Vulnerable Uses**	
	Acceptable Solution	**Compliance Requirement**
☐	E1.5.1 P1 / C13.5.1 P1	***Planning authority discretion required. A proposal cannot be certified as compliant with P1.***
☐	E1.5.1 A2 / C13.5.1 A2	Emergency management strategy
☐	E1.5.1 A3 / C13.5.1 A2	Bushfire hazard management plan

☐	**E1.5.2 / C13.5.2 – Hazardous Uses**	
	Acceptable Solution	**Compliance Requirement**
☐	E1.5.2 P1 / C13.5.2 P1	***Planning authority discretion required. A proposal cannot be certified as compliant with P1.***
☐	E1.5.2 A2 / C13.5.2 A2	Emergency management strategy
☐	E1.5.2 A3 / C13.5.2 A3	Bushfire hazard management plan

☒	**E1.6.1 / C13.6.1 Subdivision: Provision of hazard management areas**	
	Acceptable Solution	**Compliance Requirement**
☐	E1.6.1 P1 / C13.6.1 P1	***Planning authority discretion required. A proposal cannot be certified as compliant with P1.***
☐	E1.6.1 A1 (a) / C13.6.1 A1(a)	Insufficient increase in risk
☒	E1.6.1 A1 (b) / C13.6.1 A1(b)	Provides BAL-19 for all lots (including any lot designated as 'balance')
☐	E1.6.1 A1(c) / C13.6.1 A1(c)	Consent for Part 5 Agreement

☒	**E1.6.2 / C13.6.2 Subdivision: Public and fire fighting access**	
	Acceptable Solution	**Compliance Requirement**
☒	E1.6.2 P1 / C13.6.2 P1	***Planning authority discretion required. A proposal cannot be certified as compliant with P1.***
☐	E1.6.2 A1 (a) / C13.6.2 A1 (a)	Insufficient increase in risk
☐	E1.6.2 A1 (b) / C13.6.2 A1 (b)	Access complies with relevant Tables

☒	**E1.6.3 / C13.1.6.3 Subdivision: Provision of water supply for fire fighting purposes**	
	Acceptable Solution	**Compliance Requirement**
☐	E1.6.3 A1 (a) / C13.6.3 A1 (a)	Insufficient increase in risk
☒	E1.6.3 A1 (b) / C13.6.3 A1 (b)	Reticulated water supply complies with relevant Table
☐	E1.6.3 A1 (c) / C13.6.3 A1 (c)	Water supply consistent with the objective
☐	E1.6.3 A2 (a) / C13.6.3 A2 (a)	Insufficient increase in risk
☐	E1.6.3 A2 (b) / C13.6.3 A2 (b)	Static water supply complies with relevant Table
☐	E1.6.3 A2 (c) / C13.6.3 A2 (c)	Static water supply consistent with the objective

5. Bushfire Hazard Practitioner

Name:	James Stewart	**Phone No:**	0467 676 721
Postal Address:	PO BOX 593, Mowbray, Tas, 7248	**Email Address:**	james@woolcottsurveys.com.au
Accreditation No:	BFP – 157	**Scope:**	1, 2, 3B

6. Certification

I certify that in accordance with the authority given under Part 4A of the *Fire Service Act 1979* that the proposed use and development:

☒ Is exempt from the requirement Bushfire-Prone Areas Code because, having regard to the objective of all applicable standards in the Code, there is considered to be an insufficient increase in risk to the use or development from bushfire to warrant any specific bushfire protection measures, or

☒ The Bushfire Hazard Management Plan/s identified in Section 3 of this certificate is/are in accordance with the Chief Officer's requirements and compliant with the relevant **Acceptable Solutions** identified in Section 4 of this Certificate.

Signed:
certifier

Name: James Stewart **Date:** 25/08/2021

Chris Moore Bushfire Planning and Assessment Officer On behalf of the Chief Officer Tasmania Fire Service
September 06 2021

C. Moore

Certificate Number: WS-31

(for Practitioner Use only)

Annexure 4 – Letter from the Launceston Golf Club regarding Bushfire Hazard Management Area

LAUNCESTON GOLF CLUB LIMITED

A.C.N. 009 476 466 A.B.N. 14 009 476 466
Tasmania's Oldest 18-Hole Course **Founded 1899**
Opossum Road, Kings Meadows 7249

LAUNCESTON GOLF CLUB

25 August 2021

To Whom it may concern

The Launceston Golf Club, owners of lot number 1, on plan 198059, and lot number 4964, on plan number 16, agree to maintain an area of land around the proposed 13 Lot residential subdivision which extends west from Negara Street, Norwood.

We understand that a bushfire hazard management area, as dimensioned and shown on the Bushfire Hazard Management Plan, completed by Woolcott Surveys, dated 16/08/2021, requires that a 23m strip of land must be maintained to the south and west of the subdivision, while a 10m strip must be maintained to the north.

We can confirm that these areas will be maintained by the Launceston Golf Club in a minimum fuel condition, and in perpetuity.

Sincerely

Tony Wilks
President
Launceston Golf Club Ltd

Martin Brown
Captain
Launceston Golf Club Ltd

Environmental **C**onsulting **O**ptions **Tas**mania

NATURAL VALUES ASSESSMENT OF PROPOSED REZONING AND SUBDIVISION, 27-99 OPOSSUM ROAD (NEGARA STREET), KINGS MEADOWS, TASMANIA

ADDENDUM: SPRING SURVEY 2021

Environmental Consulting Options Tasmania (ECO*tas*) for Woolcott Surveys

17 November 2021

Mark Wapstra
28 Suncrest Avenue
Lenah Valley, TAS 7008

ABN 83 464 107 291
email: mark@ecotas.com.au
web: www.ecotas.com.au

phone: (03) 62 283 220
mobile: 0407 008 685

CITATION

This report can be cited as:

ECO*tas* (2021). *Natural Values Assessment of Proposed Rezoning and Subdivision, 27-99 Opossum Road (Negara Street), Kings Meadows, Tasmania. Addendum: Spring Survey 2021.* Report by Environmental Consulting Options Tasmania (ECO*tas*) for Woolcott Surveys, 17 November 2021.

AUTHORSHIP

Field assessment: Mark Wapstra

Report production: Mark Wapstra

Habitat and vegetation mapping: Mark Wapstra

Base data for mapping: LISTmap, Woolcott Surveys

Digital and aerial photography: Mark Wapstra, LISTmap, GoogleEarth

ACKNOWLEDGEMENTS

Brett Woolcott & James Stewart (Woolcott Surveys) provided background information on the project.

COVER ILLUSTRATION

View north into proposed project area from existing green.

Please note: the blank pages in this document are deliberate to facilitate double-sided printing.

CONTENTS

SUMMARY

General

Woolcott Surveys engaged Environmental Consulting Options Tasmania (ECO*tas*) to undertake an assessment of the ecological values associated with a proposed rezoning and subdivision proposal at the end of Negara Street (27-99 Opossum Road), Kings Meadows, primarily to ensure that the requirements of the identified ecological values are appropriately taken into account during further project planning under local, State and Commonwealth government approval protocols.

Site assessment

The study area was assessed by Mark Wapstra on 14 Jun. 2021. A follow-up timed-targeted survey for spring-flowering flora species was undertaken on 12 Nov. 2021.

Summary of key findings

Threatened flora

- No plant species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.

Threatened fauna

- No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.
- The study area supports potential habitat (to varying degrees of marginality) of several species, as follows:
  - Tasmanian devil (*Sarcophilus harrisii*);
  - spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*);
  - eastern quoll (*Dasyurus viverrinus*);
  - eastern barred bandicoot (*Perameles gunnii* subsp. *gunnii*);
  - grey goshawk (*Accipiter novaehollandiae*);
  - Tasmanian masked owl (*Tyto novaehollandiae* subsp. *castanops*); and
  - wedge-tailed eagle (*Aquila audax* subsp. *fleayi*).

Vegetation types

- The study area supports the following TASVEG mapping units:
  - *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ); and
  - extra-urban miscellaneous (FUM).

- Neither of these mapping units equate to threatened ecological communities listed on schedules of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
- DAZ is classified as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002.*

Weeds

- Six species classified as a declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* and several additional "environmental weeds" were detected from the study area.

Plant disease

- No evidence of plant disease (*Phytophthora cinnamomi*, rootrot fungus) was detected from the study area.

Animal disease (chytrid)

- The study area does not support habitats conducive to the frog chytrid pathogen.

INTRODUCTION

Purpose

Woolcott Surveys engaged Environmental Consulting Options Tasmania (ECO*tas*) to undertake an assessment of the ecological values associated with a proposed rezoning and subdivision proposal at the end of Negara Street (27-99 Opossum Road), Kings Meadows, primarily to ensure that the requirements of the identified ecological values are appropriately taken into account during further project planning under local, State and Commonwealth government approval protocols.

Scope

This report relates to:

- flora and fauna species of conservation significance, including a discussion of listed threatened species (under the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*) potentially present, and other species of conservation significance/interest;
- vegetation types (forest and non-forest, native and exotic) present, including a discussion of the distribution, condition, extent, composition and conservation significance of each community;
- plant and animal disease management issues;
- weed management issues; and
- a discussion of some of the policy and legislative implications of the identified ecological values.

This report follows the government-produced *Guidelines for Natural Values Surveys - Terrestrial Development Proposals* (DPIPWE 2015) in anticipation that the report (or extracts of it) may be used as part of various approval processes that will be required for works at the site.

The report format will also be applicable to other assessment protocols as required by the Commonwealth Department of Agriculture, Water and the Environment (for any referral/approval that may be required under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*), and under the local planning scheme (at present the *Launceston Interim Planning Scheme 2015*).

Limitations

The main ecological assessment was undertaken on 14 Jun. 2021. Many plant species have ephemeral or seasonal growth or flowering habits, or patchy distributions (at varying scales), and it is possible that some species were not recorded for this reason. However, every effort was made to sample the range of habitats present in the survey area to maximise the opportunity of recording most species present (particularly those of conservation significance). Late spring and into summer is usually regarded as the most suitable period to undertake most botanical assessments. While some species have more restricted flowering periods, a discussion of the potential for the site to support these is presented. Refer to **FINDINGS *Plant species*** Threatened flora species potentially present (database analysis) for more discussion of this matter. A timed-targeted survey was undertaken on 12 Nov. 2021.

The survey was also limited to vascular species: species of mosses, lichens and liverworts were not recorded. However, a consideration is made of threatened species (vascular and non-vascular) likely to be present (based on habitat information and database records) and reasons presented for their apparent absence.

Surveys for threatened fauna were practically limited to an examination of "potential habitat" (i.e. comparison of on-site habitat features to habitat descriptions for threatened fauna), and detection of tracks, scats and other signs.

Qualifications

Except where otherwise stated, the opinions and interpretations of legislation and policy expressed in this report are made by the author and do not necessarily reflect those of the relevant agency. The client should confirm management prescriptions with the relevant agency before acting on the content of this report.

Permit

Any plant material was collected under DPIPWE permit TFL 20167 (in the name of Mark Wapstra). Relevant data will be entered into DPIPWE's *Natural Values Atlas* database by the author. Some plant material may be lodged at the Tasmanian Herbarium by the author.

No vertebrate or invertebrate material was collected. A permit is not needed to undertake habitat-level surveys of the type indicated.

LAND USE PROPOSAL

The land use proposal is for a 13 lot residential subdivision and cul-de-sac to be created at the end of Negara Street (Figures 1-4) on land owned by The Launceston Golf Club Limited, currently zoned as Recreation under the Launceston Interim Planning Scheme 2015 i.e. a rezoning to General Residential in line with the adjoining land use is required.

STUDY AREA

For the purpose of the natural values assessment, the study area was deemed to comprise the extent of the proposed subdivision (Figure 4) and its immediate fringes (for context) as well as the proposed future pedestrian access (also shown in Figure 4). For the purposes of reporting, however, all maps include only the proposed subdivision area to provide the appropriate context to the findings.

The current title details of the study area are as follows:

<u>northern title</u>

- PID 6883203; C.T. 4964/16; LPI JFH84 (27-99 Opossum Road, Kings Meadows)

<u>southern title</u>

- PID 6883203; C.T. 198059/1; LPI FZW86 (27-99 Opossum Road, Kings Meadows)

The study area is currently part of the greater Launceston Golf Course facility.

The study area is private land and is currently zoned as Recreation pursuant to the *Launceston Interim Planning Scheme 2015*. The entire study area is subject to Bushfire Prone Area overlay and the Scenic Management Area overlay pursuant to the *Launceston Interim Planning Scheme 2015*.

The study area is generally flat terrain with essentially no measurable relief at an elevation of ca. 60 m a.s.l. There are no natural drainage features but a trench/drain has been dug along the approximate northern limit of the proposed development area. LISTmap's Fire History layer indicates no recorded fire events and this accords with my field observations.

The study area is bounded to the east by residential dwellings (all fenced and provided with a wide cleared zone between the fences and the remnant native vegetation) and the gated end of Negara Street (Plates 1-4). The northern boundary is formed by a fairway with planted trees and frequently mown grass (Plates 5 & 6). The western and southern boundaries are informally formed by various golf course elements and remnant native vegetation (Plates 7-10).

Plates 1 & 2. Gated end of Negara Street – looking into and out of the existing highly disturbed eastern end of the study area

Plates 3 & 4. Cleared eastern fringe of the study area – LHS: looking north from gated entrance; RHS: looking south from gated entrance

The proposed residential subdivision site is part of a remnant bit of native forest and woodland nestled between existing residential development (Negara Street and Warragul Street) and the existing Launceston Golf Course. The site includes informal hazard and garden management from adjoining houses, as well as use by the golf club for management of vegetation debris, spoil and landscaping materials. The site includes part of a fairway-green complex, tracks, a major drain and

an old toilet shed. It is reasonable to characterise the site as highly modified. Available aerial imagery presents a somewhat "rose-coloured" view of the site and immediate surrounds. Most of the vegetation shown between fairways across the golf course are non-native comprising mature planted trees (some native, some mainland species, several non-Australian) with the patches closer to the proposed development site grading into more natural native vegetation, albeit highly modified by long years of use including infestations of woody and herbaceous weeds.

Plate 5. (LHS) Looking east along fenceline between fairway (with planted trees) and 6-10 Negara Street

Plate 6. (RHS) Looking west along edge of fairway and study area

Plates 7-10. Less formally defined western and southern boundaries of study area showing various golf course elments including paths, old toilet building and green

At a 1;250,000 scale (Figure 5), the study area is mapped as Tertiary (Cainozoic)-age "dominantly non-marine sequences of gravel, sand, silt, clay and regolith" (geocode: Ts). At a 1:25,000 scale, the study area's geology is marginally more complex (Figure 6), mapped mainly as Cretaceous-Tertiary-age "poorly consolidated clay, silt, and clayey labile sand with rare gravel and lignite; some iron oxide-cemented layers and concretions; some leaf fossils" (geocode: Tsa) i.e. "Cainozoic deposits". A small polygon of Jurassic-age "dolerite and related rock" (geocode: Jd) is located to the east of the project area, otherwise surrounded by the Tsa mapping. The geology is mentioned because of its potential influence on the classification of vegetation and supporting threatened flora (and to a lesser extent threatened fauna, usually through the geological influence on vegetation structure and composition). In this part of the State, there has long been confusion and informal debate about the classification of *Eucalyptus amygdalina*-dominated forest and woodland, based largely on substrate (as mapped but also as manifested as soil types and reflected in the structure and composition of the vegetation). Some sites close to the study area (e.g. Carr Villa) are notoriously challenging and whether that area is best mapped as *Eucalyptus amygdalina* forest and woodland on dolerite (TASVEG code: DAD) because of sometimes extensive dolerite exposures and obvious localised dolerite influence in the soil or as *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ) remains, in my opinion, open to some interpretation. The present study area is, however, somewhat less challenging because I did not observe any obvious outcropping of dolerite and all exposed soils on tracks and worked areas were typical "Cainozoic deposits" (Plates 11-14).


Plates 11 & 12. Area of worked over topsoil within the central-eastern part of the study area showing typical clay-sand soils with iron concretions (typical of soils on which the Midlands facies of DAZ occurs)


Plates 13 & 14. Examples of small rocks in upper soil profile with no affinities to dolerite -closer to basalt, bauxite and fine-grained sediments

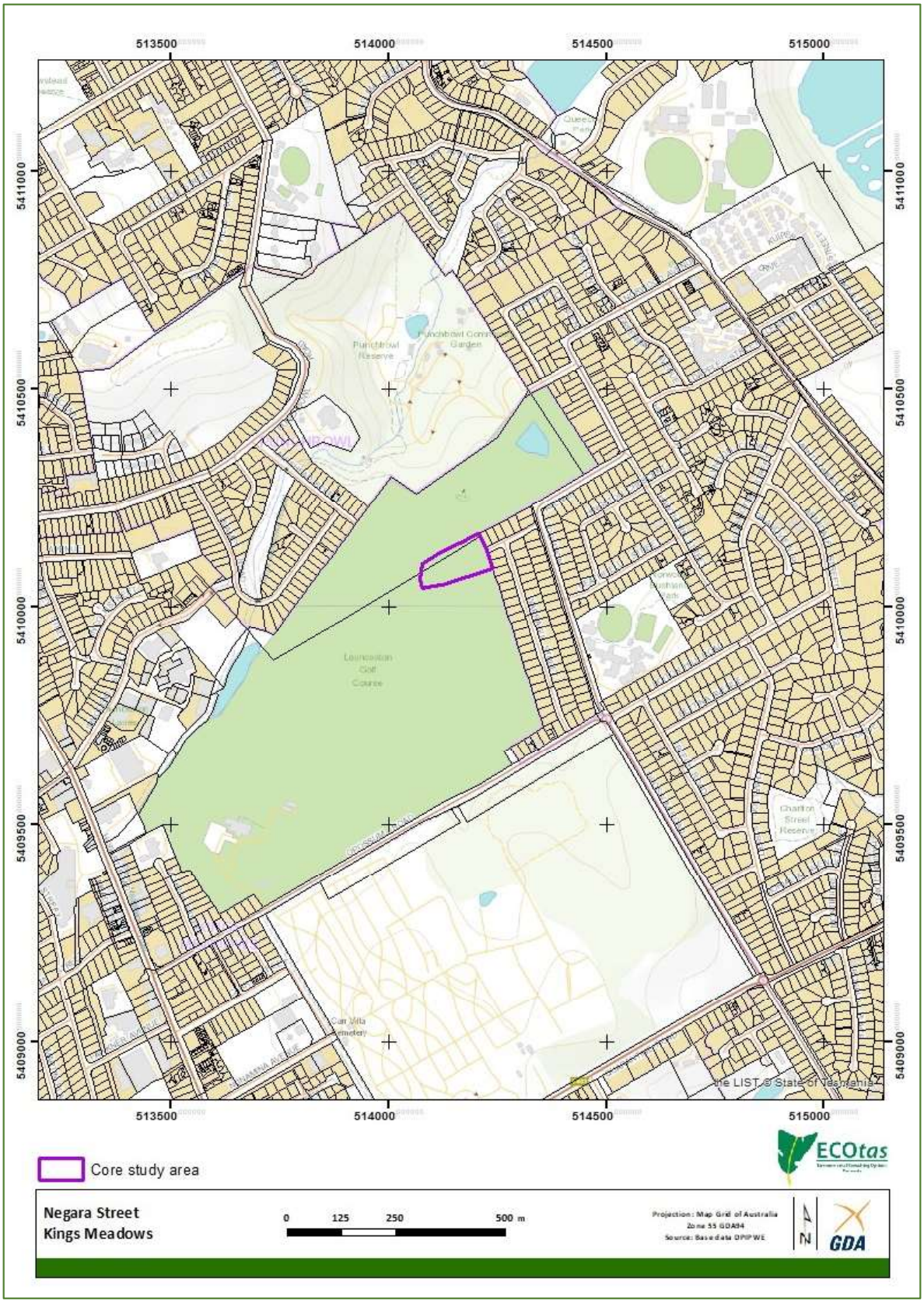

Figure 1. General location of the study area **–** topographic features shown

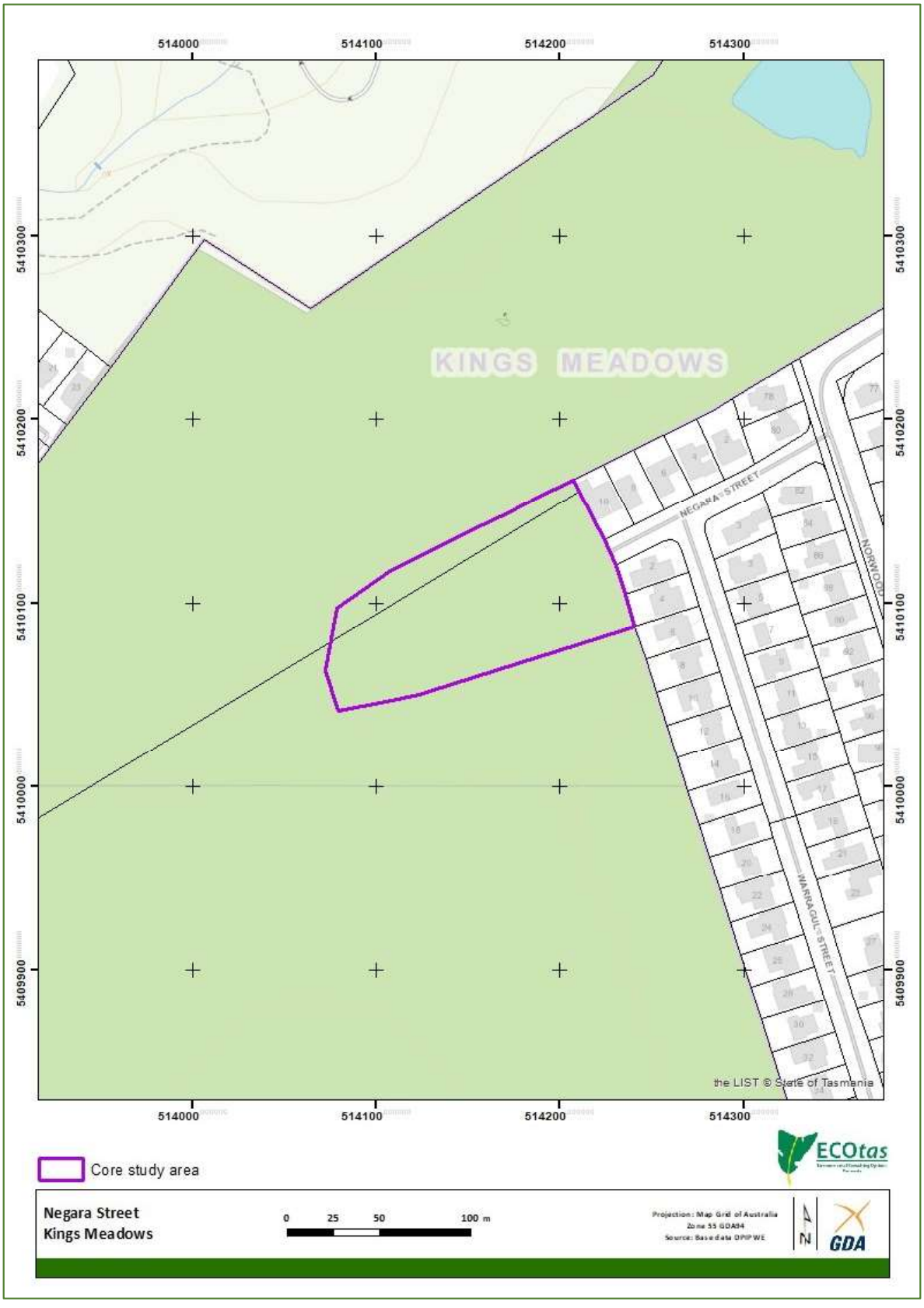

Figure 2. Detail of the study area **–** topographic and cadastral features shown

Figure 3. Detail of the study area **–** aerial imagery shown

Figure 4. Indicative draft subdivision design (included here only for context to findings)

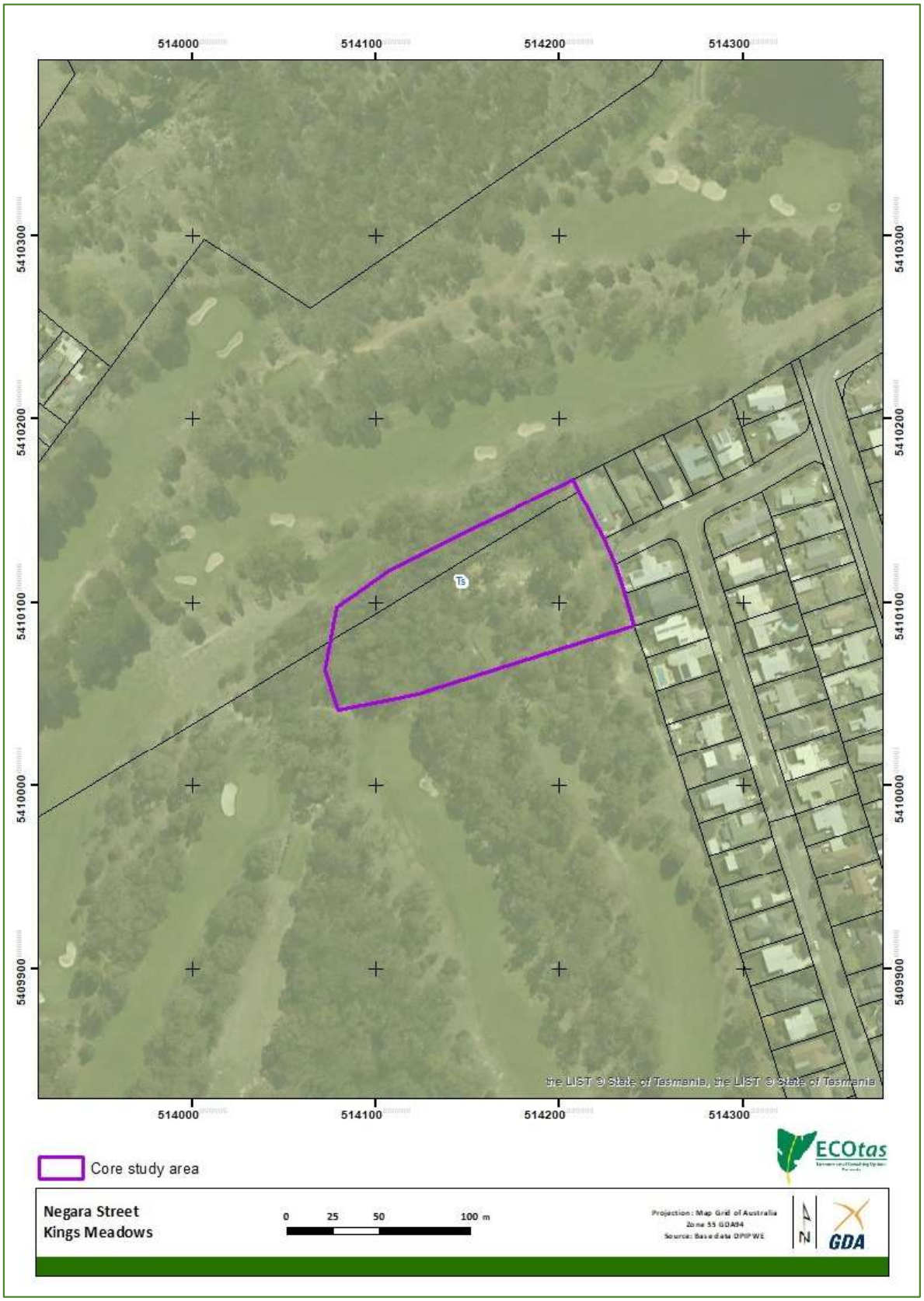

Figure 5. Geology of the study area and surrounds: 1:250,000 scale (refer to text for codes)

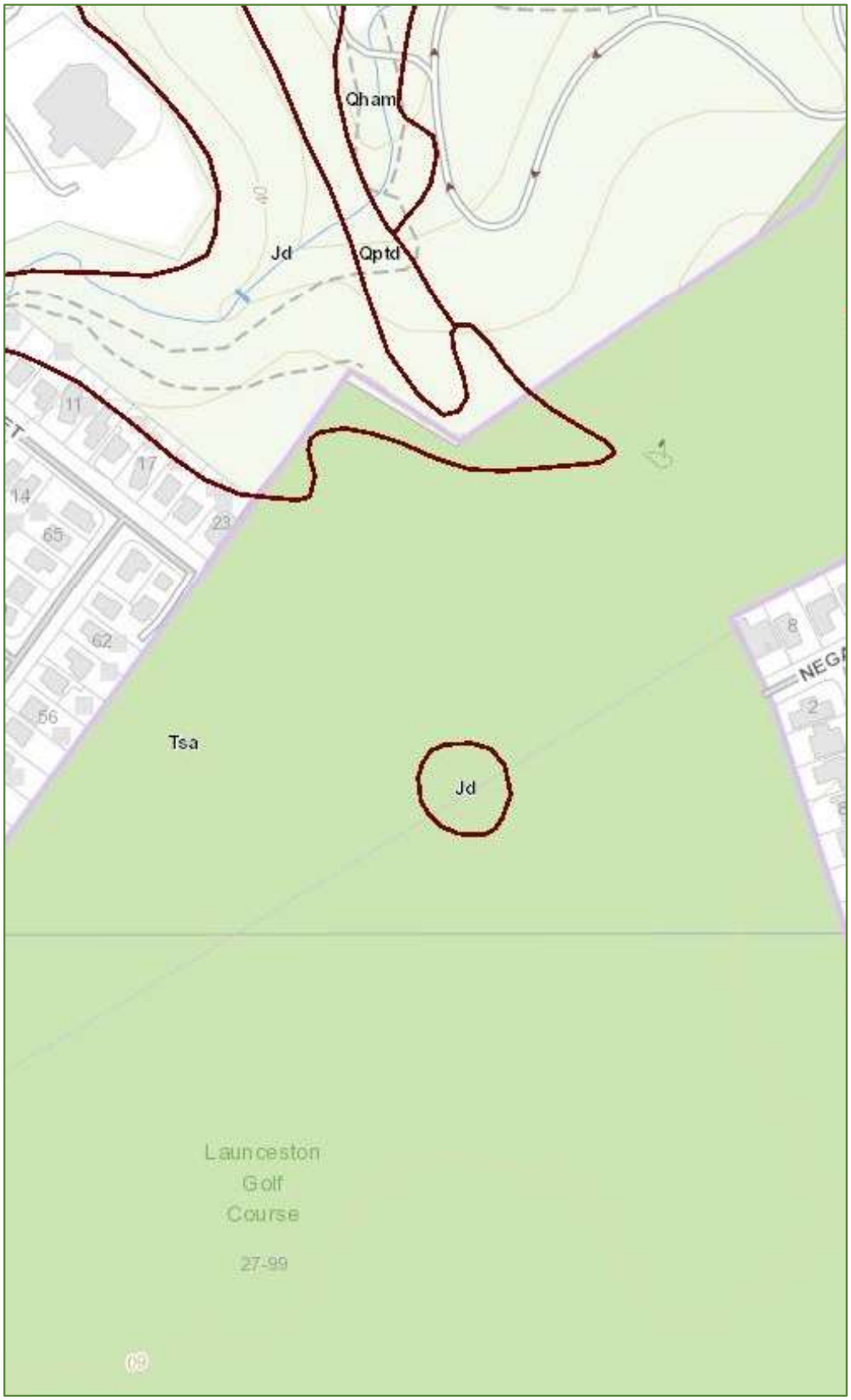

Figure 6. Geology of the study area and surrounds: 1:25,000 scale (refer to text for codes)

METHODS

Nomenclature

All grid references in this report are in GDA94, except where otherwise stated.

Vascular species nomenclature follows de Salas & Baker (2021) for scientific names and Wapstra et al. (2005+) for common names. Fauna species scientific and common names follow the listings in the cited *Natural Values Atlas* reports (DPIPWE 2021).

Vegetation classification follows TASVEG 4.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation (*Kitchener & Harris 2013+).

Preliminary investigation

Available sources of threatened flora records, vegetation mapping and other potential environmental values were interrogated. These sources include:

- Tasmanian Department of Primary Industries, Parks, Water & Environment's *Natural Values Atlas* records for threatened flora and fauna (GIS coverage maintained by the author current as at date of report);
- Tasmanian Department of Primary Industries, Parks, Water & Environment's *Natural Values Atlas Report ECOtas_NegaraStreet* for a point (514170mE 5410100mN) defining the approximate centre of the study area, buffered by 5 km, dated 13 Jun. 2021 (DPIPWE 2021) – Appendix E;
- Forest Practices Authority's *Biodiversity Values Database* report, specifically the species' information for grid reference centroid 514170mE 5410100mN, buffered by 2 km and 5 km for records of threatened flora and fauna, respectively, hyperlinked species' profiles and predicted range boundary maps, dated 13 Jun. 2021 (FPA 2021) – Appendix F;
- Commonwealth Department of Agriculture, Water and the Environment's *Protected Matters Search Tool Report* for a point (-41.46053 147.16972) defining the approximate centre of the study area, buffered by 5 km, dated 13 Jun. 2021 (CofA 2021) – Appendix G;
- the TASVEG 4.0 vegetation coverage (as available through a GIS coverage);
- GoogleEarth and LISTmap aerial orthoimagery; and
- other sources listed in tables and text as indicated.

Field assessment

A detailed site assessment was undertaken by Mark Wapstra on 14 Jun. 2021. The study area was assessed by slow-walking the whole area and immediate surrounds, criss-crossing through both open areas, on tracks, around buildings and golf elements and more intact native bush (albeit densely infested with shrubby and other weeds). Cadastral/proposal data pre-uploaded to the iGIS application (iPhone) guided in-field assessment.

I am comfortable that I have covered sufficient area to determine and describe the vegetation types, potential occurrence of threatened flora and fauna, at least as far as practical at this time of year (for threatened flora) and without more complex methods (for threatened fauna).

Botanical survey – vegetation classification

Vegetation classification follows TASVEG 4.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation* (Kitchener & Harris 2013+). Vegetation was classified by waypointing vegetation transitions using hand-held GPS (Garmin Dakota 10) for later comparison to aerial imagery. The structure and composition of the vegetation types was described using nominal 30 m radius plots at a representative site within the vegetation types, and compiling "running" species lists between plots and vegetation types.

Botanical survey – threatened flora

The study area was assessed for the presence of threatened flora by slow-walking the entire area. Further methods are not provided because no such species were detected. This part of the State is recognised as a "hotspot" for threatened flora. For example, Carr Villa supports several species such as *Brunonia australis* (blue pincushion), *Caladenia patersonii* (patersons spider-orchid), *Caesia calliantha (*blue grasslily) and *Senecio squarrosus* (leafy fireweed). While some species are perennial and detectable/identifiable at any time of the year, others require a timed survey to coincide with the peak flowering period. In this case, while initial discussions indicated that this was a likely scenario, upon site assessment this has been reviewed due to the highly modified nature of the understorey (almost wholly dominated by a mat of *Ehrharta erecta*) and lack of detection of certain species such as *Brunonia australis* that can be a reasonable indicator of the likelihood of other species. Even so, a timed-targeted survey was undertaken on 12 Nov. 2021 (refer to Appendix H).

Zoological survey – general

Surveys for threatened fauna were practically limited to an examination of "potential habitat" (i.e. comparison of on-site habitat features to habitat descriptions for threatened fauna), and detection of tracks, scats and other signs.

Declared and environmental weeds

The presence of declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* or "environmental weeds" (authors' opinion and as included in *A Guide to Environmental and Agricultural Weeds of Southern Tasmania*, NRM South 2017) was also assessed. Due to the widespread weeds and their local density, waypoints were not taken.

Plant and animal disease

The potential presence of plant disease, including *Phytophthora cinnamomi* (rootrot, PC), myrtle wilt and myrtle rust, was assessed by reference to field symptoms in susceptible vegetation types and plant species.

The potential presence of animal disease (chytrid) was assessed by reference to the presence of habitats conducive to supporting populations of amphibians such as waterbodies and drainage features.

FINDINGS

Vegetation types

Comments on TASVEG mapping

This section, which comments on existing TASVEG 4.0 mapping for the study area, is included to highlight the differences between existing mapping and the more recent mapping from the present study to ensure that any parties assessing land use proposals (via this report) do not rely on existing mapping. Note that TASVEG mapping, which was mainly a desktop mapping exercise based on aerial photography, is often substantially different to ground-truthed vegetation mapping, especially at a local scale. An examination of existing vegetation mapping is usually a useful pre-assessment exercise to gain an understanding of the range of habitat types likely to be present and the level of previous botanical surveys.

I usually only refer to the most recent version of TASVEG (i.e. TASVEG 4.0) in this type of review. However, in this case, it is important to review both TASVEG 3.0 and TASVEG 4.0, because the former will inform the incoming Priority Vegetation Overlay (which will affect the Natural Assets overlay in the incoming *Tasmanian Planning Scheme*). In this case, TASVEG 3.0 & 4.0 are similar, with only minor differences within the project area.

TASVEG 3.0 maps the project area as (Figure 7):

- urban areas (TASVEG code: FUR)

FUR is mapped along the back boundaries of the Negara and Warragul street residences, reflecting that aerial imagery shows a wide disturbed strip essentially devoid of a canopy cover.

TASVEG 3.0 maps the golf course as a combination of extra-urban miscellaneous (TASVEG code: FUM), DAZ (see below) and agricultural land (TASVEG code: FAG), the separation of FAG & FUM being a straight east-west line separating AGD66 1:25,000 Tasmap sheets.

- *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ)

DAZ is mapped across the remainder of the project area, extending beyond its boundaries to the north (on site assessment, this area was very clearly planted trees adjacent to a fairway and not DAZ), southwest (on site assessment, this area was a modified form of DAZ) and south (on site assessment, found to be variably modified DAZ and other modified land).

TASVEG 4.0 maps the project area as (Figure 8):

- urban areas (TASVEG code: FUR)

FUR is now mapped for all fairways (under TASVEG 3.0 mapped as a combination of FUM and FAG), with one tiny area extending into the southwest of the project area, but noting the back boundary strip of FUR is re-coded as DAZ (this is an unusual "correction" for TASVEG 4.0, with this version often now recognising modified sites as FUR rather than the original forest).

- *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ)

DAZ is no mapped across essentially the whole of the project area and to the north, southwest and south, but more broadly than TASVEG 3.0 (but also with some minor corrections to reflect more obvious fairways). The most obvious difference is that TASVEG 4.0 extends DAZ to the back boundaries of the residential area, much more appropriately mapped as FUR under TASVEG 3.0

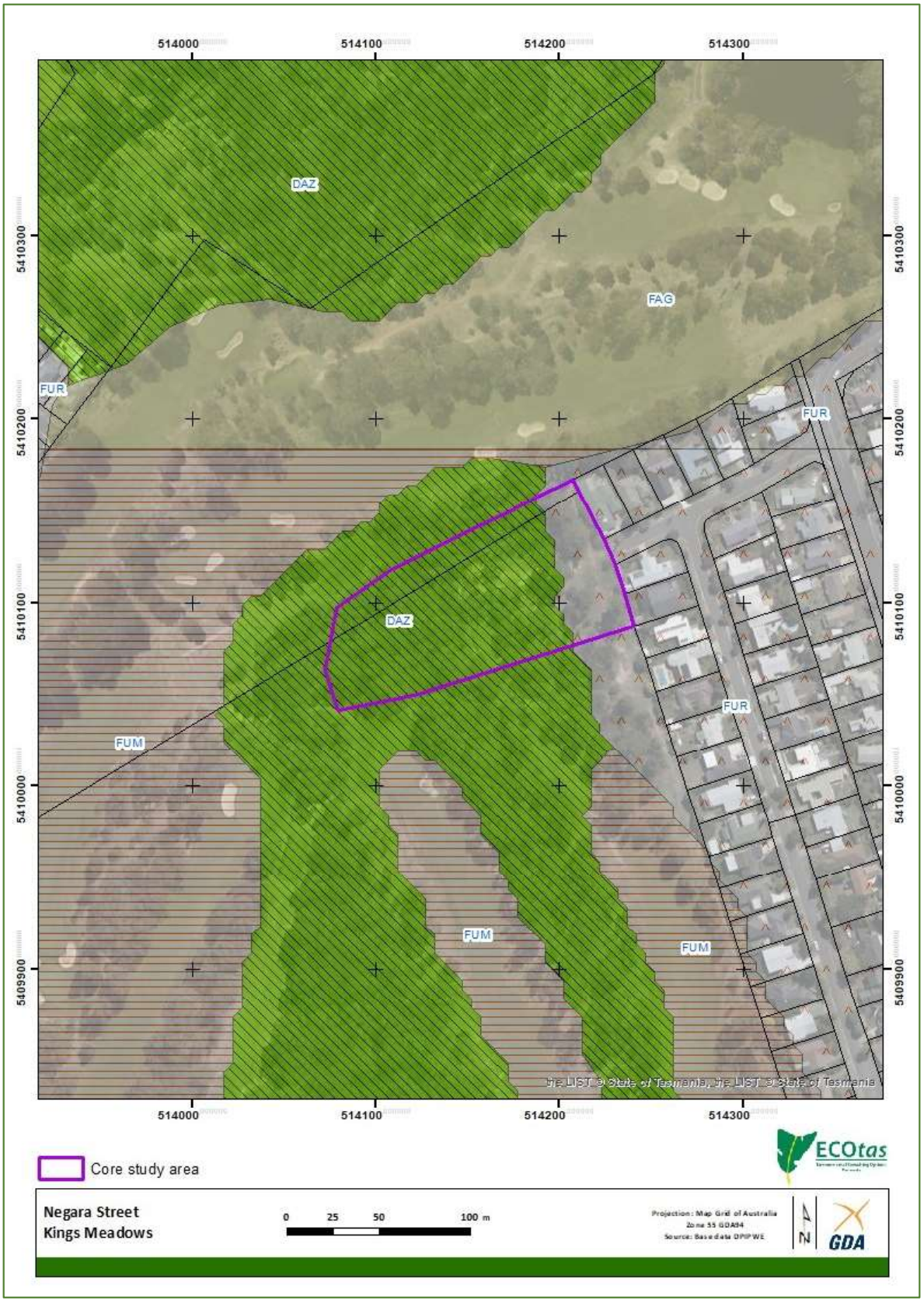

Figure 7. Existing TASVEG 3.0 vegetation mapping for the study area (refer to text for codes)

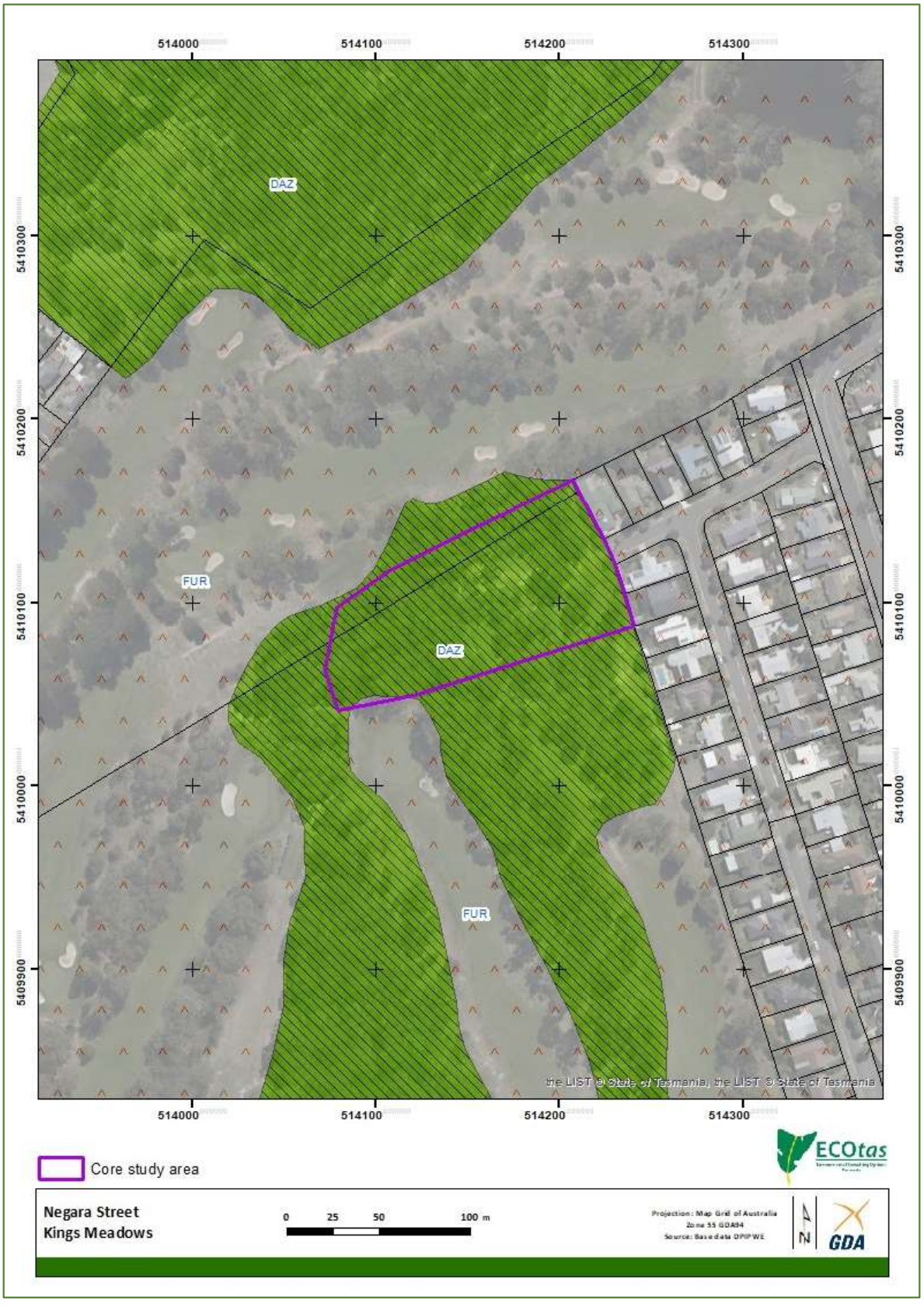

Figure 8. Existing TASVEG 4.0 vegetation mapping for the study area (refer to text for codes)

Vegetation types recorded as part of the present study

Vegetation types have been classified according to TASVEG 4.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation* (Kitchener & Harris 2013+). Table 1 provides information on each of the vegetation mapping units identified from the study area (refer also to Appendix A). Figure 9 indicates the revised vegetation mapping of the study area.

Table 1. Vegetation mapping units present in the study area

[conservation status: NCA – as per Schedule 3A of the Tasmanian *Nature Conservation Act 2002*, using units described by Kitchener & Harris (2013+), relating to TASVEG mapping units (DPIPWE 2021); EPBCA – as per the listing of ecological communities on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, relating to communities as described under that Act, but with equivalencies to TASVEG units]

TASVEG mapping unit (Kitchener & Harris 2013+)	**Conservation priority** NCA *EPBCA*	**Comments**
Dry eucalypt forest and woodland		
Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits (DAZ)	not threatened *not threatened*	The study area presents as a highly modified occurrence of DAZ, confirmed by substrate (see Plates 11-14 & Figures 5 & 6) and dominance by *Eucalyptus amygdalina* and *Eucalyptus viminalis* over a grassy to shrubby understorey (see Plates 1-10). The site is very weedy, almost to the point of some areas no longer properly classifiable as DAZ but perhaps better allocated to weed infestation (TASVEG code: FWU). DAZ occurs as a mosaic with FUM (see below).
Modified land		
extra-urban miscellaneous (FUM)	not threatened *not threatened*	The most disturbed parts of the study area are allocated to FUM – see notes in main text of report.

Site assessment indicated that the project area is complex to classify because of its context and history. At a broad level, ignoring localised disturbance events such as over-the-fence clearing and modification, internal tracks, localised works, etc., I could classify the whole area as *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ) but this would, in my opinion, be disingenuous at a several levels (from both a prospective development potential perspective and consistency of how this level of modified vegetation should be mapped). Consequently, I have elected to map the least disturbed (but still highly modified) parts as DAZ and the balance as extra-urban miscellaneous (TASVEG code: FUM). Areas of the latter include the over-the-fence clearing, tracks, toilet site, fairway/green area and otherwise heavily modified sites lacking a canopy. I have mapped this by reference to a walked GPS route not aerial imagery (which does not properly reflect the extent of canopy and understorey modification at a practical scale). Whether some sites now mapped as FUM are better as FUR is considered moot – both are forms of modified land and the classification is of no practical meaning in terms of management requirements.

The DAZ is highly modified. It includes a sparse taller canopy of mature trees (some hollow-bearing), mainly *Eucalyptus viminalis* but also *Eucalyptus amygdalina*, in turn over a variably dense regrowth layer co-dominated by these two species (the presence of a high proportion of *Eucalyptus viminalis* is entirely consistent with the description of DAZ). The shrub layer is generally dense but dominated by weeds that include *Cotoneaster franchetii*, *Cotoneaster glaucophyllus*, *Coprosma robusta*, *Ulex europaeus*, *Pinus radiata*, *Cytisus scoparius*, *Viburnum tinus* and *Populus alba*. Native

Figure 9 Revised vegetation mapping of study area (refer to text for codes)

shrubs and trees include *Acacia dealbata*, *Acacia mearnsii*, *Bursaria spinosa*, *Exocarpos cupressiformis*, *Acacia genistifolia*, *Allocasuarina verticillata*, *Allocasuarina littoralis*, *Hibbertia riparia*, *Styphelia humifusum* and *Banksia marginata* (note that some of these species were recorded very sparsely). The understorey is almost wholly dominated by exotic grasses (mainly *Dactylis glomerata*, *Agrostis capillaris* and *Ehrharta erecta*, the latter often as dense mats to the exclusion of all other ground stratum species) and herbs, with little opportunity for native herbs and grasses (all of which are sparse).

In my opinion, classifying this site as DAZ is "stretching the friendship" but it does not properly meet the intent of the descriptions of any of the modified land mapping units in the TASVEG system of classification (Kitchener & Harris 2013+). The apparent native vegetation north of the core study area is not DAZ but a form of FUM/FUR i.e. a fairway with planted trees. Some form of DAZ, albeit very much in the ilk of that described above, extends to the west and south of the core study area. Most of the between-fairway vegetation across the golf course is very open and modified "native vegetation" (but unmappable as anything other than a form of modified land) or wholly ornamentally planted (so mappable as part of the concept of FUM/FUR). There are some limited areas with more natural DAZ, most notably the larger consolidated patch to the south-southwest of the study area (although this too is tracked and includes maintenance areas) and to the immediate south (the latter modified but associated with a drainage dip in the topography).

Conservation status of identified vegetation type

DAZ is classified as threatened under Schedule 3A of the Tasmanian *Nature Conservation Act 2002* but does not equate to a threatened ecological community under Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The administrative control of "clearing" threatened vegetation communities is either through the *Forest Practices Regulations 2017* (as threatened vegetation is classified as "vulnerable land" and any clearance would require a Forest Practices Plan) or the local planning scheme (through a planning application). Refer to **DISCUSSION *Legislative and policy implications*** for more information.

Plant species

General information

A total of 100 vascular plant species were recorded from the study area (Appendix B), comprising 68 dicotyledons (including 1 endemic and 45 exotic species), 30 monocotyledons (including 21 exotic species), 1 gymnosperm (exotic) and 1 pteridophyte (native). The very high proportion (66%) of exotic species is noted, with the further observation that several of the native species are represented by one or very few individuals.

Threatened flora species recorded from study area

No plant species listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are known from database information (Figure 10), or were detected as a consequence of field assessment, from the project area.

There is a database record of *Senecio squarrosus* (leafy fireweed), listed as rare on the TSPA from ca. 60 m west of the western edge of the core study area. The record is attributed to S.G. Hannaford on 1 Nov. 1865, with the site listed as "Launceston, near RC cemetery" with a precision of ± 1,000 m (supported by a voucher held at the Tasmanian Herbarium, HO14906). The notional site supporting this species is not managed fairway. No evidence of the species was recorded from both the core study area and immediate surrounds.

Threatened flora species potentially present (database analysis)

Figure 10 indicates threatened flora records within and adjacent to the study area and Table C1 (Appendix C) provides a listing of threatened flora from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Note that the field assessment was not restricted to the species listed in Table C1 but considered any threatened flora with the potential to be present. While the database analysis utilises a nominal buffer of 5,000 m, the author's own experience of the vegetation and flora of the general study area combined with database interrogation, meant that the specific potential for numerous other species previously recorded from the wider area were taken into account.

While the survey was conducted in mid-winter, often considered less than ideal for detecting many species of threatened flora, this is a challenging site to recommend further timed-targeted surveys for. While sites such as Carr Villa support a suite of threatened flora species, the opportunity for this site to support such species, based on its condition, especially the understorey dominated by a dense sward of *Ehrharta erecta* and other exotic grasses) is very low. Species such as *Brunonia australis* (blue pincushion) are detectable at any time of the year from the basal rosettes, although in mid-winter, detection is thwarted by the winter diedown and lack of flowering heads. Several modified bushland reserves in Launceston (e.g. Cambridge Street in West Launceston) support important populations of threatened flora (e.g. *Prasophyllum robustum*, *Caesia calliantha*, *Brunonia australis*, *Senecio squarrosus*) and it is (somewhat remotely) possible this site could support such species. In cases such as this, where there is "time up the sleeve", I usually recommend follow-up informal visits during the year, maximising the opportunity to detect any such species. For the record, I will be genuinely surprised if such follow-up assessment results in the detection from the project area (may be possible in fringing, less disturbed, areas to the south). Refer to Appendix H for findings from spring survey (noting no threatened flora from project area).

Fauna species

Threatened fauna species known from the study area

No fauna species listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are known from database information (Figure 11), or were detected as a consequence of field assessment, from the subject title.

Site assessment indicate the presence of potential habitat of several species. The site provides potential habitat for species such as the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, wedge-tailed eagle and grey goshawk. Development should not require further consideration of these species at any reasonable scale.

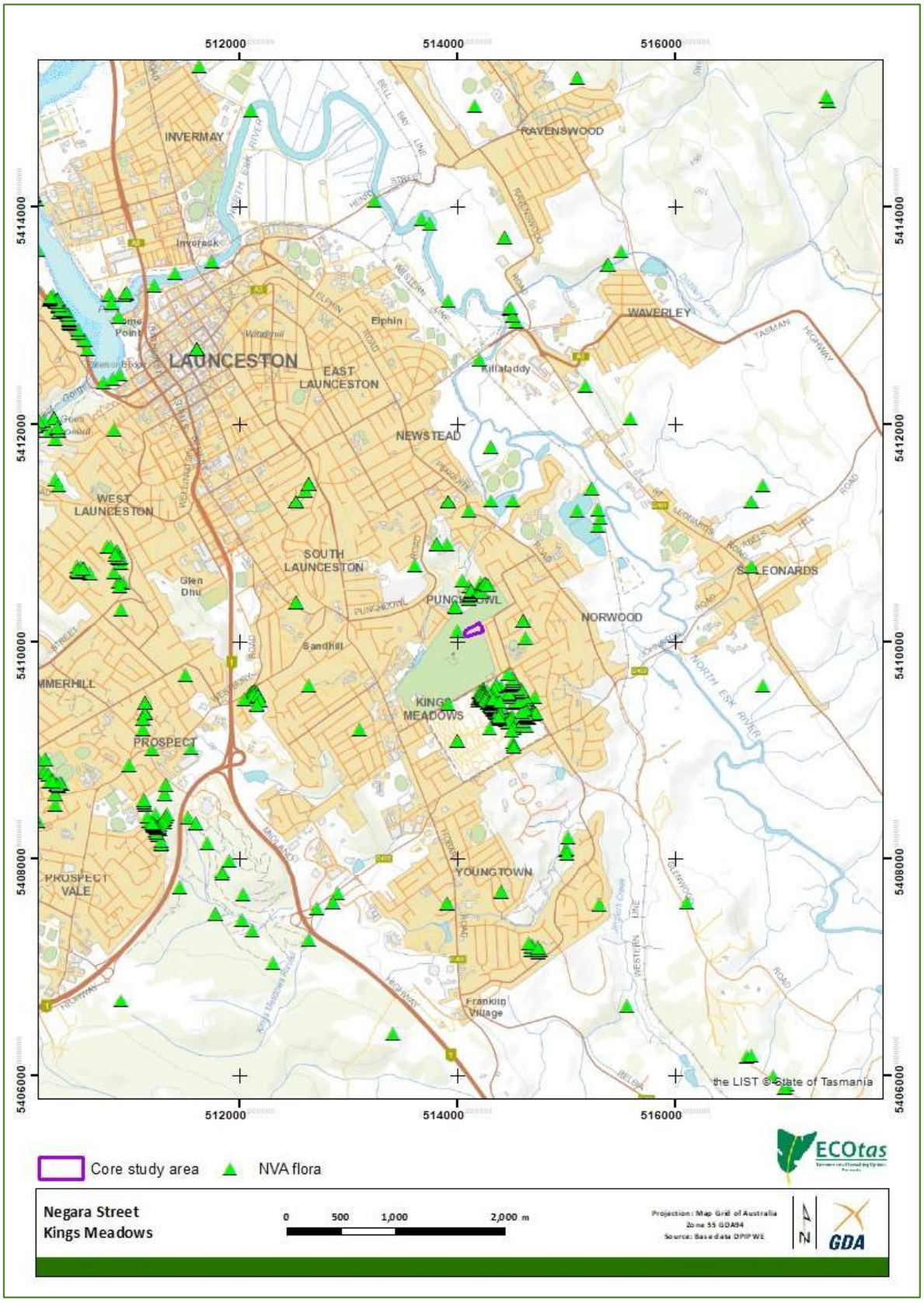

Figure 10a. Distribution of threatened flora adjacent to the study area (overview)

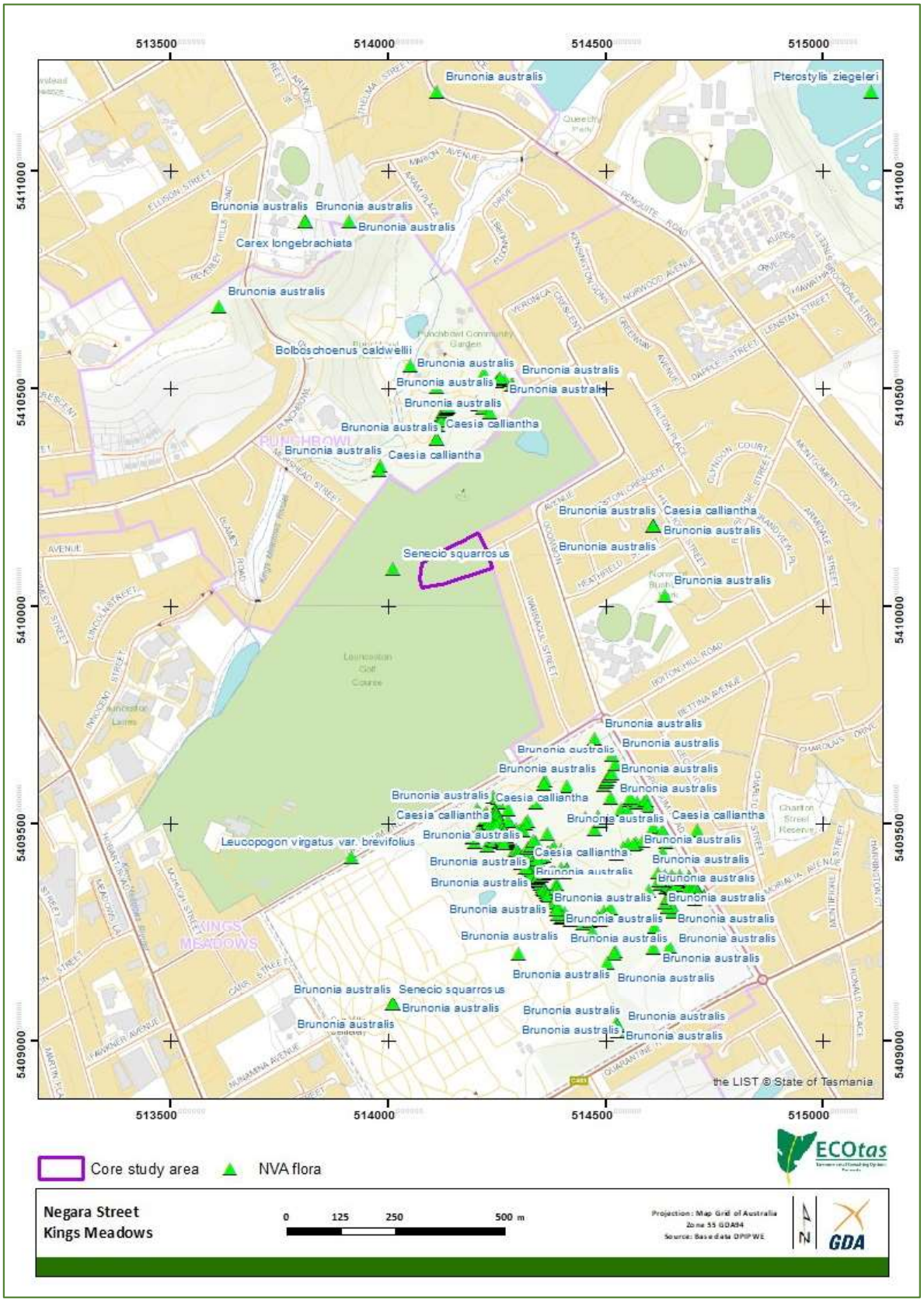

Figure 10b. Distribution of threatened flora adjacent to the study area (closer)

Figure 10c. Distribution of threatened flora closest to the study area

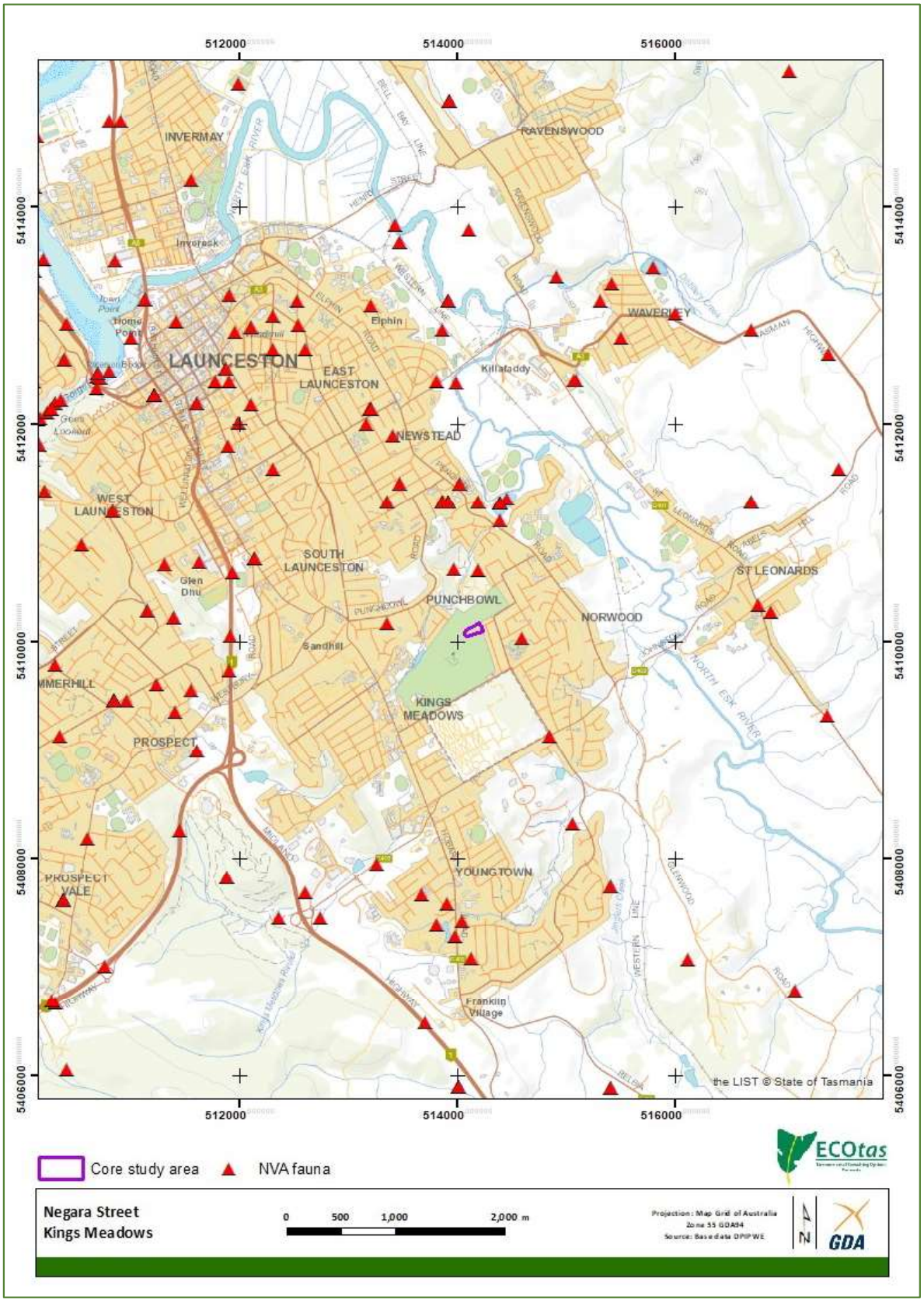

Figure 11a. Distribution of threatened fauna adjacent to the study area (overview)

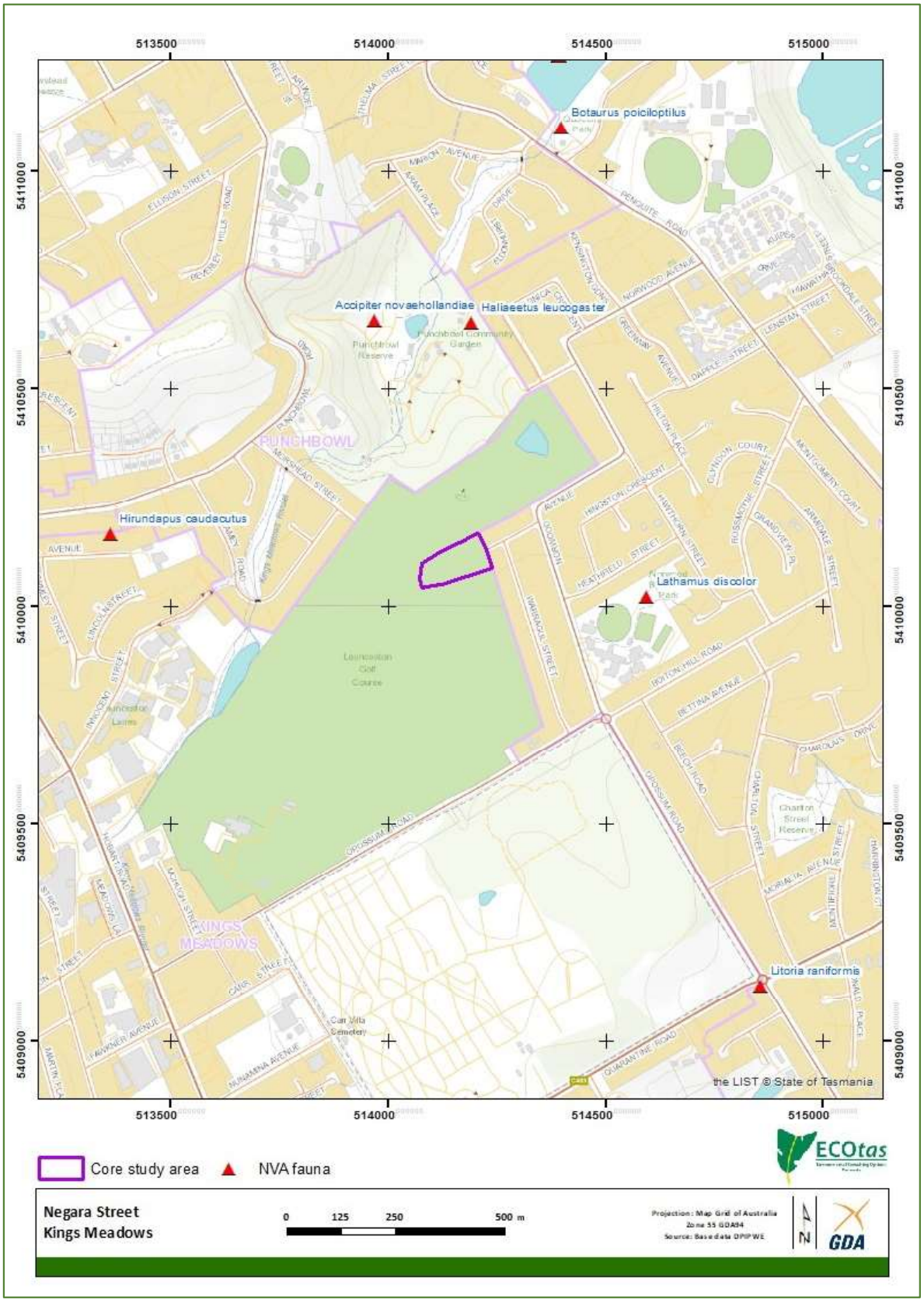

Figure 11b. Distribution of threatened fauna adjacent to the study area (closer)

The occasional larger hollow-bearing tree may need consideration. For other such developments, such trees have been climbed (if safe to do so) and/or staked out at dusk and into the first few hours of dark to determine if being used by a masked owl. If unused, hollows can be covered (basically to prevent use between "now" and "then"). If used, generally the tree is left alone until young fledge. The statistical likelihood of any of the trees in this site being used by masked owls is negligible.

Threatened fauna species potentially present (database analysis)

Figure 7 indicates threatened fauna records within and adjacent to the study area and Table D1 (Appendix D) provides a listing of threatened fauna from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Other ecological values

Weed species

Six plant species [*Cytisus scoparius* (english broom)*, Genista monspessulana* (montpellier broom)*, Ulex europaeus* (gorse)*, Rubus* sp. (blackberry), *Carduus pycnocephalus & C. tenuiflorus* (winged thistles)] classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* were widespread within the study area. Numerous additional species of exotic plant were detected, including several regarded as "environmental weeds". The study area is highly modified with exotic plants dominating the understorey of most parts of the study area. A weed distribution map has not been provided as "noxious" weeds occur across the entire study area. The recommended management actions below are applicable for all weed species present.

Any management actions should aim to minimise the risk of distributing these invasive weed species to other parts of the municipality, although it is recognised that most of the species already occur widely in the greater area. The key management issue will be centred on treating vegetation debris and topsoil as "contaminated" with weed propagules and managing this product accordingly. This may include on- or off-site disposal and for on-site burial and/or burning. If off-site disposal is undertaken, this will need to be in accordance with municipal regulations and the provisions of the Tasmanian *Weed Management Act 1999* in relation to declared weeds.

Several planning manuals provide guidance on appropriate management actions, which can be referred to develop site-specific prescriptions for any proposed works along the easement. These manuals include:

- Allan, K. & Gartenstein, S. (2010). *Keeping It Clean: A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens*. NRM South, Hobart;
- Rudman T. (2005). *Interim* Phytophthora cinnamomi *Management Guidelines*. Nature Conservation Report 05/7, Biodiversity Conservation Branch, Department of Primary Industries, Water & Environment, Hobart;
- Rudman, T., Tucker, D. & French, D. (2004). *Washdown Procedures for Weed and Disease Control*. Edition 1. Department of Primary Industries, Water & Environment, Hobart; and
- DPIPWE (2015). *Weed and Disease Planning and Hygiene Guidelines - Preventing the Spread of Weeds and Diseases in Tasmania*. Department of Primary Industries, Parks, Water & Environment, Hobart.

Rootrot pathogen, *Phytophthora cinnamomi*

Phytophthora cinnamomi (PC) is widespread in lowland areas of Tasmania, across all land tenures. However, disease will not develop when soils are too cold or too dry. For these reasons, PC is not a threat to susceptible plant species that grow at altitudes higher than about 700 m or where annual rainfall is less than about 600 mm (e.g. Midlands and Derwent Valley). Furthermore, disease is unlikely to develop beneath a dense canopy of vegetation because shading cools the soils to below the optimum temperature for the pathogen. A continuous canopy of vegetation taller than about 2 m is sufficient to suppress disease. Hence PC is not considered a threat to susceptible plant species growing in wet sclerophyll forests, rainforests (except disturbed rainforests on infertile soils) and scrub e.g. teatree scrub (Rudman 2005; FPA 2009).

The native vegetation type identified from the study area and this part of the State are not recognised as being particularly susceptible to PC in most circumstances. No evidence of the pathogen was observed. Special management should not be required if machinery and vehicles have come from a disease-free site and have been cleaned. Note that the publications listed under Weed species provide relevant planning information related to management of *Phytophthora cinnamomi* (PC).

Myrtle wilt

Myrtle wilt, caused by a wind-borne fungus (*Chalara australis*), occurs naturally in rainforest where myrtle beech (*Nothofagus cunninghamii*) is present. The fungus enters wounds in the tree, usually caused by damage from wood-boring insects, wind damage and forest clearing. The incidence of myrtle wilt often increases forest clearing events such as windthrow and wildfire.

The study area does not support *Nothofagus cunninghamii*. No special management is required.

Myrtle rust

Myrtle rust is a disease limited to plants in the Myrtaceae family. This plant disease is a member of the guava rust complex caused by *Austropuccinia psidii*, a known significant pathogen of Myrtaceae plants outside Australia. Infestations are currently limited to NSW, Victoria, Queensland and Tasmania (DPIPWE 2015).

No evidence of myrtle rust was noted (possible indicator species present). The longer-term management issue for the site is to ensure that any ornamental plantings source plants from a reputable nursery free from the pathogen (such businesses are already subject to strict biosecurity conditions).

Chytrid fungus and other freshwater pathogens

Native freshwater species and habitat are under threat from freshwater pests and pathogens including *Batrachochytrium dendrobatidis* (chytrid frog disease), *Mucor amphibiorum* (platypus mucor disease) and the freshwater algal pest *Didymosphenia geminata* (didymo) (Allan & Gartenstein 2010). Freshwater pests and pathogens are spread to new areas when contaminated water, mud, gravel, soil and plant material or infected animals are moved between sites. Contaminated materials and animals are commonly transported on boots, equipment, vehicles tyres and during road construction and maintenance activities. Once a pest pathogen is present in

a water system it is usually impossible to eradicate. The manual *Keeping it Clean - A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens* (Allan & Gartenstein 2010) provides information on how to prevent the spread of freshwater pests and pathogens in Tasmanian waterways wetlands, swamps and boggy areas.

The study area does not support any habitats particular strongly associated with amphibian species (on old non-functioning trench/drain is present only). No special management is considered warranted.

Additional "Matters of National Environmental Significance"

CofA (2021) indicates that the following threatened ecological communities listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) are likely to occur within the area:

- *Eucalyptus ovata – Callitris oblonga* Forest [Vulnerable];
- Lowland Native Grasslands of Tasmania [Critically Endangered]; and
- Tasmanian Forests and Woodlands dominated by Black Gum or Brookers Gum *(Eucalyptus ovata* / E*. brookeriana*) [Critically Endangered].

Existing vegetation mapping (Figures 7 & 8) and revised vegetation mapping (Figure 10) indicates that these communities are not present within or adjacent to the study area. No further action is required.

DISCUSSION

Summary of key findings

Threatened flora

- No plant species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.

Threatened fauna

- No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.
- The study area supports potential habitat (to varying degrees of marginality) of several species, as follows:
  - Tasmanian devil (*Sarcophilus harrisii*);
  - spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*);
  - eastern quoll (*Dasyurus viverrinus*);
  - eastern barred bandicoot (*Perameles gunnii* subsp. *gunnii*);
  - grey goshawk (*Accipiter novaehollandiae*);

- Tasmanian masked owl (*Tyto novaehollandiae* subsp. *castanops*); and
- wedge-tailed eagle (*Aquila audax* subsp. *fleayi*).

Vegetation types

- The study area supports the following TASVEG mapping units:
  - *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ); and
  - extra-urban miscellaneous (FUM).
- Neither of these mapping units equate to threatened ecological communities listed on schedules of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
- DAZ is classified as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002.*

Weeds

- Six species classified as a declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* and several additional "environmental weeds" were detected from the study area.

Plant disease

- No evidence of plant disease (*Phytophthora cinnamomi*, rootrot fungus) was detected from the study area.

Animal disease (chytrid)

- The study area does not support habitats conducive to the frog chytrid pathogen.

Legislative and policy implications

Some commentary is provided below with respect to the key threatened species, vegetation management and other relevant legislation. Note that there may be other relevant policy instruments in addition to those discussed. The following information does not constitute legal advice, not represent the views of relevant agencies, and it is recommended that independent advice is sought from the relevant agency/authority.

Tasmanian *Threatened Species Protection Act 1995*

Threatened flora and fauna on this Act are managed under Section 51, as follows:

> 51. Offences relating to listed taxa
>
> (1) Subject to subsections (2) and (3), a person must not knowingly, without a permit –
>
> (a) take, keep, trade in or process any specimen of a listed taxon of flora or fauna; or
>
> (b) disturb any specimen of a listed taxon of flora or fauna found on land subject to an interim protection order; or
>
> (c) disturb any specimen of a listed taxon of flora or fauna contrary to a land management agreement; or

(d) disturb any specimen of a listed taxon of flora or fauna that is subject to a conservation covenant entered into under Part 5 of the *Nature Conservation Act 2002*; or

(e) abandon or release any specimen of a listed taxon of flora or fauna into the wild.

(2) A person may take, keep or process, without a permit, a specimen of a listed taxon of flora in a domestic garden.

(3) A person acting in accordance with a certified forest practices plan or a public authority management agreement may take, without a permit, a specimen of a listed taxon of flora or fauna, unless the Secretary, by notice in writing, requires the person to obtain a permit.

(4) A person undertaking dam works in accordance with a Division 3 permit issued under the *Water Management Act 1999* may take, without a permit, a specimen of a listed taxon of flora or fauna.

The simplest interpretation of this is that any activity that results in a specimen (i.e. individual) of listed flora or fauna being "knowingly taken" would require a permit to be issued through Conservation Assessments, DPIPWE, through a formal application process. Note that the Act does not make reference to "potential habitat" such that activities that result in loss of/disturbance to potential habitat (but not known sites) – which mainly refers to threatened fauna – would not require a permit. In this case, a permit will not be required as no listed threatened flora or fauna were found or are known to be present.

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

Matters of national environmental significance considered under the EPBCA include:

- listed threatened species and communities
- listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- world heritage properties;
- national heritage places;
- the Great Barrier Reef Marine Park;
- nuclear actions; and
- a water resource, in relation to coal seam gas development and large coal mining development.

The Commonwealth Department of Agriculture, Water and the Environment provides a policy statement study titled *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (CofA 2013, herein the *Guidelines*), which provides overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBCA.

The *Guidelines* define a **significant impact** as:

> *"…an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact*

> *depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts"*

and note that:

> *"…all of these factors [need to be considered] when determining whether an action is likely to have a significant impact on matters of national environmental significance".*

The *Guidelines* provide advice on when a significant impact may be likely:

> *"To be 'likely', it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility.*
>
> *If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment".*

The *Guidelines* provide a set of Significant Impact Criteria, which are "intended to assist…in determining whether the impacts of [the] proposed action on any matter of national environmental significance are likely to be significant impacts". It is noted that the criteria are "intended to provide general guidance on the types of actions that will require approval and the types of actions that will not require approval…[and]…not intended to be exhaustive or definitive".

Listed ecological communities

The study area does not support any such communities.

Threatened flora

The study area does not support populations of EPBCA-listed flora, nor significant potential habitat of such species.

Threatened fauna

The study area may support populations of threatened fauna listed on the Act, most notably the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot and masked owl (but no direct evidence of such species). Note that the study area is within the range of several other species listed on the Act but it is unlikely that any proposal will result in a significant impact on these species (this includes wide-ranging species such as the wedge-tailed eagle).

The *Guidelines* consider a "significant impact" to comprise loss that is likely to lead to a long-term decrease in the size of an important population of a species; reduce the area of occupancy of an important population; fragment an existing important population into two or more populations (unlikely); adversely affect habitat critical to the survival of a species; disrupt the breeding cycle of an important population; modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; result in invasive species that are harmful to a threatened species becoming established in the threatened species' habitat; introduce disease that may cause the species to decline; or interfere substantially with the recovery of the species.

With respect to the aforementioned species, it is difficult to anticipate a scenario in which a referral to the Commonwealth Department of Agriculture, Water and the Environment would be become necessary at the scale of the proposal (highly disturbed and modified environment).

Tasmanian *Nature Conservation Act 2002*

Schedule 3A of the Act lists vegetation types classified as threatened within Tasmania. The subject title supports a highly modified form of *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ), which is so listed. The administrative/regulatory mechanism for managing threatened communities is through either the Tasmanian *Forest Practices Act 1985* (and associated *Forest Practices Regulations 2017*) or the local planning scheme (*Launceston Interim Planning Scheme 2015*), depending on the zone and code provisions.

Tasmanian *Land Use Planning and Approvals Act 1993*

The current applicable planning scheme for the study area is the *Launceston Interim Planning Scheme 2015*. The study area is currently zoned as Recreation and proposed for General Residential under the *Launceston Interim Planning Scheme 2015*.

It is understood that a detailed planning application will be made and that the present report will inform the relevant responses to various provisions of the *Scheme*. An initial review of the current Scheme provisions related to natural values is provided below.

I can find no clauses in the General Residential zone provisions that relate directly to any of the findings in this report.

The Biodiversity Code may have application, depending on the interpretation of E8.2.1(b) that states:

E8.2 Application of this Code

E8.2.1 Subject to clause E8.2.2, this code applies to use or development of land:

(a) shown as priority habitat on the planning scheme overlay maps; or

(b) identified in a flora and fauna report prepared by a suitably qualified person, that is lodged with an application for a permit or required in response to a request under section 54 of the Act, which identifies that the removal of native vegetation will have a significant impact on priority vegetation communities.

where clause E8.2.2 states:

E8.2.2 This Code applies in the following zones:

(k) General Residential and Low Density Residential Zones for subdivision, other than a boundary adjustment in accordance with clause 9.3.

That is, the interpretation of the phrase "removal of native vegetation will have a significant impact on priority vegetation communities" is open to interpretation because the *Scheme* does not provide definitions or guidance on terms such as "significant impact" so it falls to professional judgement (i.e. "identified in a flora and fauna report prepared by a suitably qualified person, that is lodged with an application for a permit or required in response to a request under section 54 of the Act") to interpret this in a reasonable manner.

In most proposals that include threatened vegetation types as listed on Schedule 3A of the Tasmanian *Nature Conservation Act 2002*, the starting point is to work towards a solution that allows for the practical retention of such vegetation and its longer-term secure management. In this case, however, the vegetation in question is highly modified to such an extent that its long-term conservation value without active (and significant intervention) is limited. In this scenario, I believe it is reasonable to assess the proportional impact of the removal of this patch of vegetation at different scales, which I usually consider at the Statewide, NRM region, municipality and IBRA region (Table 2). In this case, it is clear that even if all the area conservatively assigned to DAZ (0.6 ha) is totally totally cleared, this would result in an effectively unmeasurable proportional loss

at any applicable scale. That is, the impact can hardly be regarded as "significant" and hence it is uncertain if the Code can have direct application.

Table 2. Spatial extent (and reservation levels) of DAZ at different scales [source: http://dpipwe.tas.gov.au/conservation/development-planning-conservation-assessment/planning-tools/tasmanian-reserve-estate-spatial-layer vers. Jun. 2020]

scale	DAZ	
	area (reserved)	proportional loss
Statewide	22,200 ha (33% reserved)	0.0027%
Northern Midlands bioregion	18,900 ha (32% reserved)	0.0032%
NRM North	21,500 ha (32% reserved)	0.0028%
Launceston	500 ha (22% reserved)	0.12%

The Development Standards (E8.6) are stated as:

> E8.6 Development Standards
>
> E8.6.1 Habitat and vegetation management
>
> Objective: To appropriately protect or manage vegetation identified as priority habitat and priority vegetation communities.

The site does not support "priority habitat" because this is defined in the Code as:

> "the areas shown as priority habitat on the planning scheme overlay maps".

The site does support "priority vegetation communities" because these are defined in the Code as:

> "threatened vegetation and important habitat for threatened species that are listed under the *Threatened Species [Protection – sic] Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)".

The DAZ area, however modified, qualifies as a "priority vegetation community". The objective refers to "appropriately protect or manage [such] vegetation". In this case, in the absence of active (and significant intervention), this patch of DAZ is likely to remain in very poor condition, or more likely, continue to degrade further as weeds become more prevalent and diverse and works continue in the site.

The Acceptable Solution of E8.6.1 is stated as:

> Acceptable Solutions
>
> A1
>
> Clearance or disturbance of priority habitat is in accordance with a certified Forest Practices Plan.

This now refers only to "priority habitat", which is not present (because this relates directly to an overlay, which is absent). It is assumed there will be no certified Forest Practices Plan for any required clearance or disturbance of "native vegetation" (noting no "priority habitat" is present). I am uncertain as to the application of E8.6.1 A1 so will explore E8.6.1 P1.

The Performance Criteria of E8.6.1 is stated as:

> Performance Criteria
>
> P1
>
> Clearance or disturbance of native vegetation within priority habitat or areas identified as priority vegetation communities does not compromise the adequacy of representation of species or vegetation communities, having regard to:

This opening statement is addressed initially. Table 2 has clearly indicated that the proportional loss of DAZ (in its highly modified state) will "not compromise the adequacy of representation of species or vegetation communities".

> (a) the quality of the site to provide habitat of significance to the maintenance or protection of biodiversity in the planning scheme area;

The quality of the DAZ at the site has been extensively discussed. It is reiterated that this site is in very poor condition. On this basis, it is difficult to argue that this sub-clause has any direct application.

> (b) the need for the clearance or disturbance of the vegetation;

This is presumably a matter related to the "need" for the subdivision and how its location is necessary relative to other sites. In this case, I acknowledge that the site has a logical existing access off the formed end of Negara Street, backs on to existing residentially-developed titles, and alternative sites within the golf course's title are limited.

> (c) the method of clearance or disturbance of the vegetation;

I am uncertain as to the application of this sub-clause.

> (d) the extent and quality of the vegetation or habitats affected by the proposal;

See response under sub-clause (a) and opening statement of P1.

> (e) the value of the vegetation as a wildlife corridor;

The *Scheme* does not define a "wildlife corridor". Other interim schemes define the concept as "an area or network of areas, not necessarily continuous, which enables migration, colonisation or interbreeding of flora or fauna species between two or more areas of habitat". A term such as "wildlife corridor" is nebulous, and, in my opinion, should be used with caution because it has little practical application at the scale of this type of small-scale development, because unless there is some specific species known in the area that may be affected by the development (no such species identified – see preceding report), the application of the concept to a development proposal is equally nebulous. In this case, in my opinion, the proposed development should not affect the value of the study area or surrounding areas as a "wildlife corridor".

> (f) the value of riparian vegetation to the protection of habitats and wildlife corridors;

Not applicable – no riparian areas.

> (g) any rehabilitation and maintenance measures;

Presumably not applicable because no such works are proposed as part of the development.

> (h) the impacts of development and vegetation clearance, in proximity to the priority habitat or priority vegetation communities;

Uncertain interpretation of the phrase "…in proximity to..", which has little practical application.

> (i) any conservation outcomes achieved and the long term security of any offset for the loss of the vegetation, provided in accordance with the General Offset Principles document published by the Department of Primary Industries, Parks, Water and Environment, available at http://dpipwe.tas.gov.au/Documents/General-Offset-Principles.pdf;

No formal offsets are proposed for the loss of 0.6 ha of highly modified DAZ in the context described in this report. As such, this sub-clause may have limited or no application.

(j) any agreement under section 71 of the Act relating to vegetation management;

To my knowledge, this is not applicable.

(k) any conservation covenant made under the *Nature Conservation Act 2002*, that exists on or adjacent to the site of the proposed development; and

To my knowledge, this is not applicable (but I have not reviewed title documents).

(l) any recommendations or advice contained in a flora and fauna report.

No specific recommendations have been made herein, such that this sub-clause has limited direct application.

On the basis of the above review of the provisions of the Biodiversity Code, it appears that if the site is re-zoned as General Residential, the Biodiversity Code may have either no, or very little, direct application.

Tasmanian *Wildlife (General) Regulations 2010*

While the assessment of the study area indicated the presence of species listed on schedules of the *Regulations* (i.e. "specially protected wildlife", "protected wildlife", "partly protected wildlife"), no individuals, or products (e.g. nests, dens, etc.), of these species, are likely to be directly physically affected by the works.

Tasmanian *Weed Management Act 1999*

Six plant species [*Cytisus scoparius* (english broom)*, Genista monspessulana* (montpellier broom)*, Ulex europaeus* (gorse)*, Rubus anglocandicans* (blackberry), *Rubus leucostachys* (blackberry), *Salix* x *fragilis* nothovar*. fragilis* (crack willow)] classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* were detected from the study area. Under the Statutory Weed Management Plans for these species (see www.dpipwe.tas.gov.au), the Launceston municipality is classified as "Zone B" for management purposes. Under the Plans, "containment is the most appropriate management objective for Zone B municipalities which have problematic infestations but no plan and/or resources to undertake control actions at a level required for eradication" and "the management outcome for Zone B municipalities is ongoing prevention of the spread of the species from existing infestations to areas free or in the process of becoming free of the species".

As such, any management actions should aim to minimise the risk of distributing these invasive weed species to other parts of the municipality, although it is recognised that most of the species already occur commonly in the greater area. The key management issue will be centred on treating vegetation debris and topsoil as "contaminated" with weed propagules and managing this product accordingly. This may include on- or off-site disposal and for on-site burial and/or burning. If off-site disposal is undertaken, this will need to be in accordance with municipal regulations and the provisions of the Tasmanian *Weed Management Act 1999* in relation to declared weeds.

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APPENDIX A. Vegetation community structure and composition

The table below provides basic information on the structure and composition of the vegetation mapping unit identified from the study area.

***Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (TASVEG code: DAZ)**		
The study area presents as a highly modified occurrence of DAZ, confirmed by substrate (see Plates 11-14 & Figures 5 & 6) and dominance by *Eucalyptus amygdalina* and *Eucalyptus viminalis* over a grassy to shrubby understorey (see Plates 1-10). The site is very weedy, almost to the point of some areas no longer properly classifiable as DAZ but perhaps better allocated to weed infestation (TASVEG code: FWU). DAZ occurs as a mosaic with FUM (see below).		
  Typical weed-infested "DAZ" (see also Plates 1-10)		
Stratum	**Height (m)** **Cover (%)**	**Species** (underline = dominant, parentheses = sparse; + = present)
Trees	30 m 5%	*Eucalyptus viminalis, Eucalyptus amygdalina* [plus *Pinus radiata*]
Trees/tall shrubs	8-15 m variable	*Eucalyptus amygdalina, Eucalyptus viminalis* [plus *Populus alba*]
Tall shrubs	4-6 m 10-30%	*Exocarpos cupressiformis, Acacia dealbata, (Acacia mearnsii), Cassinia aculeata, Bursaria spinosa, (Banksia marginata), Allocasuarina* spp. [plus extensive woody weeds locally dominant incl. *Cotoneaster* spp., *Acacia* spp.]
Shrubs	<3 m variable	*(Epacris impressa), (Hibbertia riparia), Acacia genistifolia, Styphelia humifusum* [plus extensive woody weeds locally dominant incl. *Ulex europaeus, Cytisus scoparius, Genista monspessulana]*
Herbs	variable	*Acaena novae-zelandiae*
Grasses	variable	*Dactylis glomerata, Ehrharta erecta* (to 95% cover in places) [natives sparse]
Graminoids	variable	*Lepidosperma laterale*
Climbers	+	*Comesperma volubile*
Epiphytes	local	*Hedera helix*
Ground ferns	variable	*Pteridium esculentum*

APPENDIX B. Vascular plant species recorded from study area

Botanical nomenclature follows *A Census of the Vascular Plants of Tasmania* (de Salas & Baker 2021), with family placement updated to reflect the nomenclatural changes recognised in the *Flora of Tasmania Online* (de Salas 2021+) and APG (2016); common nomenclature follows *The Little Book of Common Names of Tasmanian Plants* (Wapstra et al. 2005+, updated online at www.dpipwe.tas.gov.au).

i = introduced/naturalised; e = endemic to Tasmania

DW = declared weed under the Tasmanian *Weed Management Act 1999*

EW = environmental weed (author opinion)

\+ = represented by one or very few individuals

Table B1. Summary of vascular species recorded from the study area

	ORDER			
STATUS	**DICOTYLEDONAE**	**MONOCOTYLEDONAE**	**GYMNOSPERMAE**	**PTERIDOPHYTA**
	20	9	-	1
e	1	-	-	-
i	45	21	1	-
Sum	**68**	**30**	**1**	**1**
TOTAL	**100**			

	DICOTYLEDONAE		
	ARALIACEAE		
i	*Hedera helix*	ivy	EW
	ASTERACEAE		
i	*Arctotheca calendula*	capeweed	EW
i	*Bellis perennis*	english daisy	
i	*Carduus pycnocephalus*	slender thistle	DW
i	*Carduus tenuiflorus*	winged thistle	DW
	Cassinia aculeata subsp. *aculeata*	common dollybush	
i	*Cirsium vulgare*	spear thistle	
i	*Conyza bonariensis*	flaxleaf fleabane	
i	*Dittrichia graveolens*	stinkweed	EW
	Euchiton japonicus	common cottonleaf	
i	*Gamochaeta calviceps*	grey cudweed	
i	*Hypochaeris radicata*	rough catsear	
	BRASSICACEAE		
i	*Brassica napus*	rape	
i	*Cardamine hirsuta*	hairy bittercress	
i	*Sinapis arvensis*	charlock	
	CAPRIFOLIACEAE		
i	*Viburnum tinus*	laurustinus	
	CARYOPHYLLACEAE		
i	*Cerastium vulgare*	common mouse-ear	
	CASUARINACEAE		
	Allocasuarina littoralis	black sheoak	+
	Allocasuarina verticillata	drooping sheoak	+
	DILLENIACEAE		
	Hibbertia riparia	erect guineaflower	+
	ERICACEAE		
	Epacris impressa	common heath	+
	Styphelia humifusa	native cranberry	+
	EUPHORBIACEAE		
i	*Euphorbia helioscopia*	sun spurge	

i	*Euphorbia peplus*	petty spurge	
	FABACEAE		
i	*Acacia baileyana*	cootamundra wattle	EW
	Acacia dealbata subsp. *dealbata*	silver wattle	
	Acacia genistifolia	spreading wattle	
i	*Acacia longifolia* subsp. *longifolia*	sydney coast wattle	EW
	Acacia mearnsii	black wattle	
i	*Acacia pravissima*	ovens wattle	EW
i	*Acacia retinodes*	hills wirilda	EW
i	*Chamaecytisus palmensis*	tree lucerne	EW
i	*Cytisus scoparius*	english broom	DW
i	*Genista monspessulana*	montpellier broom	DW
i	*Ulex europaeus*	gorse	DW
i	*Vicia sativa* subsp. *nigra*	narrowleaf vetch	
i	*Vicia sativa* subsp. *sativa*	common vetch	
	GENTIANACEAE		
i	*Centaurium erythraea*	common centaury	
	GERANIACEAE		
i	*Geranium dissectum*	cutleaf cranesbill	
	GOODENIACEAE		
	Goodenia lanata	trailing native-primrose	+
	HYPERICACEAE		
	Hypericum gramineum	small st johns-wort	
	MYRTACEAE		
e	*Eucalyptus amygdalina*	black peppermint	
	Eucalyptus viminalis subsp. *viminalis*	white gum	
	OXALIDACEAE		
i	*Oxalis corniculata* subsp. *corniculata*	yellow woodsorrel	
i	*Oxalis incarnata*	pale woodsorrel	
	PAPAVERACEAE		
i	*Fumaria muralis* subsp. *muralis*	wall fumitory	
	PITTOSPORACEAE		
	Bursaria spinosa subsp. *spinosa*	prickly box	
	PLANTAGINACEAE		
i	*Plantago coronopus* subsp. *coronopus*	slender buckshorn plantain	
i	*Plantago lanceolata*	ribwort plantain	
i	*Plantago major*	great plantain	
	POLYGALACEAE		
	Comesperma volubile	blue lovecreeper	+
	POLYGONACEAE		
i	*Acetosella vulgaris*	sheep sorrel	
i	*Polygonum arenastrum*	small wireweed	
	PRIMULACEAE		
i	*Lysimachia arvensis*	scarlet pimpernel	
	PROTEACEAE		
	Banksia marginata	silver banksia	+
	RESEDACEAE		
i	*Reseda luteola*	weld	EW
	ROSACEAE		
	Acaena novae-zelandiae	common buzzy	
i	*Cotoneaster franchetii*	grey cotoneaster	EW
i	*Cotoneaster glaucophyllus* var. *serotinus*	largeleaf cotoneaster	EW
i	*Rubus* sp.	blackberry	DW
	RUBIACEAE		
i	*Coprosma repens*	mirrorbush	EW
i	*Galium aparine*	cleavers	
	SALICACEAE		
i	*Populus alba*	white poplar	EW
	SANTALACEAE		
	Exocarpos cupressiformis	common native-cherry	
	SCROPHULARIACEAE		
i	*Digitalis purpurea*	foxglove	EW
	SOLANACEAE		
	Solanum laciniatum	kangaroo apple	+
i	*Solanum nigrum*	blackberry nightshade	
	THYMELAEACEAE		
	Pimelea humilis	dwarf riceflower	+

	GYMNOSPERMAE		
	PINACEAE		
i	*Pinus radiata*	radiata pine	EW
	MONOCOTYLEDONAE		
	AMARYLLIDACEAE		
i	*Agapanthus praecox* subsp. *orientalis*	agapanthus	EW
	ASPARAGACEAE		
	Lomandra longifolia	sagg	
	CYPERACEAE		
	Carex breviculmis	shortstem sedge	+
i	*Cyperus eragrostis*	drain flatsedge	EW
	Lepidosperma laterale	variable swordsedge	
	IRIDACEAE		
i	*Romulea rosea* var. *australis*	lilac oniongrass	
	JUNCACEAE		
	Juncus pauciflorus	looseflower rush	+
	Juncus procerus	tall rush	+
	POACEAE		
i	*Agrostis capillaris*	browntop bent	
i	*Agrostis stolonifera*	creeping bent	
i	*Aira caryophyllea* subsp. *caryophyllea*	silvery hairgrass	
i	*Aira praecox*	early hairgrass	
i	*Alopecurus pratensis* subsp. *pratensis*	meadow foxtail	
i	*Anthoxanthum odoratum*	sweet vernalgrass	
	Austrostipa stuposa	corkscrew speargrass	
i	*Briza maxima*	greater quaking-grass	
i	*Briza minor*	lesser quaking-grass	
i	*Bromus diandrus*	great brome	
i	*Bromus hordeaceus*	soft brome	
i	*Cynodon dactylon* var. *dactylon*	couchgrass	
i	*Cynosurus echinatus*	rough dogstail	
i	*Dactylis glomerata*	cocksfoot	
i	*Ehrharta erecta* var. *erecta*	panic veldtgrass	
i	*Lolium perenne*	perennial ryegrass	
	Microlaena stipoides var. *stipoides*	weeping grass	
i	*Paspalum dilatatum*	paspalum	
i	*Poa annua*	winter grass	
i	*Poa infirma*	early meadowgrass	
	Rytidosperma pilosum	velvet wallabygrass	
	Tetrarrhena distichophylla	hairy ricegrass	
	PTERIDOPHYTA		
	DENNSTAEDTIACEAE		
	Pteridium esculentum subsp. *esculentum*	bracken	

APPENDIX C. Analysis of database records of threatened flora

Table C1 provides a listing of threatened flora from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Note that the field assessment was not restricted to the species listed in Table C1 but considered any threatened flora with the potential to be present. While the database analysis utilises a nominal buffer of 5,000 m, the author's own experience of the vegetation and flora of the greater study area combined with database interrogation, meant that the specific potential for numerous other species previously recorded from the wider area were taken into account.

Table C1. Threatened flora records from within 5,000 m of boundary of study area

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from the DPIPWE's *Natural Values Atlas* (DPIPWE 2021) and other sources where indicated. Habitat descriptions are taken from FPA (2016), FPA (2017) and TSS (2003), except where otherwise indicated. Species marked with # are listed in CofA (2021).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Alternanthera denticulata lesser joyweed	e -	*Alternanthera denticulata* displays a preference for rocky (dolerite) river margins, but has also been recorded from disturbed *Melaleuca ericifolia* swamp forest and damp riparian grasslands.	Potential habitat absent.
Anogramma leptophylla annual fern	v -	*Anogramma leptophylla* grows in shallow soil layers over rock, on exposed or semi-exposed outcrops in dry or damp sclerophyll forest. Plants are mostly found on rock ledges, often on, or just inside, the drip line of the overhead rock-face. The substrate is variable, including dolerite, basalt and sandstone.	Potential habitat absent.
Aphelia gracilis slender fanwort	r -	*Aphelia gracilis* inhabits damp sandy ground and wet places in the Midlands and northeast of the State. It may readily colonise sites after fire or other disturbance.	Potential habitat very marginally present. While the survey was conducted outside the peak flowering time of the species, a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence.
Aphelia pumilio dwarf fanwort	r -	*Aphelia pumilio* is found growing on damp flats, often with impeded drainage. The main vegetation types are lowland grassland (*Themeda triandra)* and dry sclerophyll forest and woodland dominated by *Eucalyptus viminalis*, *E. amygdalina* or *E. ovata*.	As above.
Asperula subsimplex water woodruff	r -	*Asperula subsimplex* occurs in sites with impeded drainage, including damp grasslands, floodplains and sometimes in grassy forest and woodland along drainage depressions (even at the outfall of artificial dams).	Potential habitat absent.

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Barbarea australis riverbed wintercress	e EN # only	*Barbarea australis* is a riparian species found near river margins, creek beds and along flood channels adjacent to the river. It tends to favour the slower reaches, and has not been found on steeper sections of rivers. It predominantly occurs in flood deposits of silt and gravel deposited as point bars and at the margins of base flows, or more occasionally or between large cobbles on sites frequently disturbed by fluvial processes. Some of the sites are a considerable distance from the river, in flood channels scoured by previous flood action, exposing river pebbles. Most populations are in the Central Highlands, but other populations occur in the northeast and upland areas in the central north.	Potential habitat absent.
Blechnum spinulosum small raspfern	r -	*Blechnum rupestre* is associated with major rivers in northern Tasmania. It is strictly riparian, occurring on shaded banks (e.g. Pipers River), amongst the shade of boulders (e.g. First Basin, Cataract Gorge) and on steep soil banks in wet forest above the high flood zone (e.g. River Leven).	Potential habitat absent.
Bolboschoenus caldwellii sea clubsedge	r -	*Bolboschoenus caldwellii* is widespread in shallow, standing, sometimes brackish water, rooted in heavy black mud.	Potential habitat absent.
Boronia gunnii river boronia	v VU	*Boronia gunnii* is strictly riparian in habitat, occurring in the flood zone of the Apsley, St Pauls, and Dukes rivers (where extant) and the Denison Rivulet and South Esk River (where presumed extinct) in rock crevices or in the shelter of boulders. The base substrate is always dolerite.	Potential habitat absent.
Brunonia australis blue pincushion	r -	*Brunonia australis* typically occurs in grassy woodlands and dry sclerophyll forests dominated by *Eucalyptus amygdalina* or less commonly *E. viminalis* or *E. obliqua*. Some smaller populations are found in heathy and shrubby dry forests. The species occurs on well-drained flats and gentle slopes between 10-350 m a.s.l. It is most commonly found on sandy and gravelly alluvial soils, with a particular preference for ironstone gravels. Populations found on dolerite are usually small.	Potential habitat very marginally present. While the survey was conducted outside the peak flowering time of the species, a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence because the survey failed to detect any rosettes either within the core study area or less disturbed nearby patches of DAZ.
Caesia calliantha blue grasslily	r -	*Caesia calliantha* is found predominantly in the Midlands in grassland or grassy woodland including wattle and prickly box "scrub" (occasionally extending into forest, then usually dominated by *Eucalyptus viminalis* or *E. amygdalina*). It has also been recorded from grassy roadsides.	Potential habitat very marginally present. While the survey was conducted outside the peak flowering time of the species, a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence.

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Caladenia caudata tailed spider-orchid	v VU # only	*Caladenia caudata* has highly variable habitat, which includes the central north: *Eucalyptus obliqua* heathy forest on low undulating hills; the northeast: *E. globulus* grassy/heathy coastal forest, *E. amygdalina* heathy woodland and forest, *Allocasuarina* woodland; and the southeast: *E. amygdalina* forest and woodland on sandstone, coastal *E. viminalis* forest on deep sands. Substrates vary from dolerite to sandstone to granite, with soils ranging from deep windblown sands, sands derived from sandstone and well-developed clay loams developed from dolerite. A high degree of insolation is typical of many sites.	Potential habitat absent (highly atypical of all known sites due to the very high levels of modification to the understory). While the survey was conducted outside the peak flowering time of the species (Wapstra 2018), a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence.
Caladenia filamentosa daddy longlegs	r -	*Caladenia filamentosa* occurs in lowland heathy and sedgy eucalypt forest and woodland on sandy soils.	As above.
Caladenia patersonii patersons spider-orchid	v -	*Caladenia patersonii* favours coastal and near-coastal areas in northern Tasmania, growing in low shrubby heathland and heathy forest/woodland in moist to well-drained sandy and clay loam.	As above.
Caladenia tonellii robust fingers	e CR	In Henry Somerset Conservation Area, *Caladenia tonellii* occurs in *Eucalyptus obliqua-E. amygdalina* forest with a shrubby understorey, on shallow clay loam and shallow gravelly loam over clay. Topography varies from flats to slopes up to about 80 m a.s.l. Sites near Scottsdale and Sisters Beach require confirmation as the habitat is quite different (e.g. quartzite-based soils on steeper slopes around Sisters Beach).	As above (except that I do not accept the record of this species from this part of the State).
Callitris oblonga subsp. *oblonga* south esk pine	v EN #	*Callitris oblonga* subsp. *oblonga* occurs predominantly in riparian scrub, woodland and forest (where it can extend away from rivers) in areas with low precipitation and usually sandy soil. It is local on the East Coast, particularly on the margins of the Swan, Apsley, South Esk, Cygnet and St Pauls rivers. A small population is also present in Cataract Gorge.	Potential habitat absent.
Calocephalus lacteus milky beautyheads	r -	*Calocephalus lacteus* occurs in open, dry sites in lowland areas of eastern and northern Tasmania and on lower altitudes of the Central Plateau. It requires bare ground for recruitment, and may benefit from disturbance. It is often found on roadsides and beside tracks.	Potential habitat absent.
Calystegia sepium subsp. *sepium* swamp bindweed	r -	*Calystegia sepium* has been recorded from riverbanks and the margins of forests in the north of the State around	Potential habitat absent.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		the Tamar region, where it mainly occurs in *Melaleuca ericifolia* swamp forest and amongst *Phragmites australis* swampland.	
Carex longebrachiata drooping sedge	r -	*Carex longebrachiata* grows along riverbanks, in rough grassland and pastures, in damp drainage depressions and on moist slopes amongst forest, often dominated by *Eucalyptus viminalis, E. ovata* or *E. rodwayi*.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Centipeda cunninghamii erect sneezeweed	r -	*Centipeda cunninghamii* is found in a wide variety of soil types, usually in areas subject to flooding or where water is stagnant. The seasonally dry margins of wetlands and lagoons also have the potential to support this species. It is currently known from the Sea Elephant River on King Island, the lower reaches of the South Esk River near Launceston, and Panatana Rivulet near Port Sorell.	Potential habitat absent.
Chiloglottis trapeziformis broadlip bird-orchid	e -	*Chiloglottis trapeziformis* is known from near Wynyard on sandy soil in damp sclerophyll forest. There is a historical record from dry open forest near Legana. It has also been recorded from *Leptospermum* (teatree) and *Allocasuarina* (sheoak) scrub on sandy humus overlying granite on Great Dog Island (Furneaux group).	Potential habitat absent (highly atypical of all known sites due to the very high levels of modification to the understory). While the survey was conducted outside the peak flowering time of the species (Wapstra 2018), a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence (and the paired leaves of any *Chiloglottis* species were not detected).
Corunastylis nuda tiny midge-orchid	r -	*Corunastylis nuda* occurs in a wide range of habitats from near sea level to 1,000 m a.s.l., on a range of different soil types and geologies. Vegetation types include scrub, subalpine grassland, open rock plates, heathy open forest, shrubby dry sclerophyll forest and wet sclerophyll forest.	Potential habitat absent.
Cryptandra amara pretty pearlflower	e -	*Cryptandra amara* grows in some of the driest areas of the State and is typically associated with fertile rocky substrates (e.g. basalt). Its habitat ranges from near-riparian rockplates to grasslands or grassy woodlands.	Potential habitat absent.
Damasonium minus starfruit	r -	*Damasonium minus* occupies swampy habitat and farm dams and prefers slow-flowing or stationary water.	Potential habitat absent.
Deyeuxia lawrencei lawrences bentgrass	x -	*Deyeuxia lawrencei* is known only from the type specimen collected around 1831 from an unknown location, possibly from the Launceston area. Habitat is unknown because the precise location of the only collection is not known. *Deyeuxia lawrencei* is presumed extinct.	Unknown if site supports potential habitat. The species was not detected (no seasonal constraint on detection and/or identification).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Dianella amoena grassland flaxlily	r EN # only	*Dianella amoena* occurs mainly in the northern and southern Midlands, where it grows in native grasslands and grassy woodlands.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Discaria pubescens spiky anchorplant	e -	*Discaria pubescens* is found sporadically in the Midlands and more abundantly in drier parts of the Central Highlands. It grows on sandy or gravelly soil, in basalt talus slopes and clefts amongst fractured dolerite rocks and flood channels. Many sites are in rough pasture, and it also grows on roadsides. Recent collections indicate the species is occasionally associated with sandstone outcrops.	Potential habitat absent.
Diuris palustris swamp doubletail	e -	*Diuris palustris* occurs in coastal areas in grassy open eucalypt forest, sedgy grassland and heathland with *Leptospermum* (teatree) and *Melaleuca* (paperbark) on poorly- to moderately-drained sandy peat and loams, usually in sites that are wet in winter.	Potential habitat absent.
Epacris exserta south esk heath	e EN #	*Epacris exserta* occurs along the lower reaches of the South Esk, North Esk and Supply rivers. It is a strictly riparian species that grows in areas subject to periodic inundation, mainly on alluvium amongst dolerite boulders within dense riparian scrub, and occasionally in open rocky sites. It has been recorded from 10-310 m a.s.l.	Potential habitat absent.
Epilobium pallidiflorum showy willowherb	r -	*Epilobium pallidiflorum* occurs in wet places (e.g. natural wetlands amongst forest, margins of *Melaleuca ericifolia* swamp forest, scrubby-sedgy *E. ovata* woodland on heavy soils, etc.) mostly in the north and northwest of the State.	Potential habitat absent.
Euphrasia collina subsp. *deflexifolia* eastern eyebright	r -	*Euphrasia collina* subsp. *deflexifolia* occurs in open woodland or heath (sometimes extending to forest), often associated with road edges, tracks and depressions near the headwaters of creeks. Its habitat is associated with the availability of open patches of ground maintained by fire or other disturbance, the proximity of low vegetation and relatively high soil moisture in spring.	Potential habitat absent.
Euphrasia scabra yellow eyebright	e -	*Euphrasia scabra* occurs in moist herb/sedge communities in grassy leads in marshes and in drier open grassy areas at the headwaters of creeks. Its habitat is associated with gaps created by grazing, flooding or other disturbance. It has been recorded from scattered sites throughout lowland areas of Tasmania, including the northwest coast, central north, Midlands, Eastern Tiers and around	Potential habitat absent.

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		Hobart. However, it is considered to be extinct from many of these sites, and populations are low and transient in areas (Eastern Tiers and Hobart) with the greatest probability of still supporting the species.	
Glycine latrobeana clover glycine	v VU # only	*Glycine latrobeana* occurs in a range of habitats, geologies and vegetation types. Soils are usually fertile but can be sandy when adjacent to or overlaying fertile soils. The species mainly occurs on flats and undulating terrain over a wide geographical range, including near-coastal environments, the Midlands, and the Central Plateau. It mainly occurs in grassy/heathy forests and woodlands and native grasslands.	Potential habitat absent (too highly modified).
Gynatrix pulchella fragrant hempbush	r -	*Gynatrix pulchella* occurs as a riparian shrub, found along rivers and drainage channels, sometimes extending onto adjacent floodplains (including old paddocks), predominantly in the north of the State.	Potential habitat absent.
Gyrostemon thesioides broom wheelfruit	r -	*Gyrostemon thesioides* occurs predominately on dolerite or granite in *Allocasuarina* (sheoak) forest in the State's east and northeast, including the Furneaux Group.	Potential habitat absent.
Haloragis heterophylla variable raspwort	r -	*Haloragis heterophylla* occurs in poorly-drained sites (sometimes only marginally so), which are often associated with grasslands and grassy woodlands with a high component of *Themeda triandra* (kangaroo grass). It also occurs in grassy/sedgy *Eucalyptus ovata* forest and woodland, shrubby creek lines, and broad sedgy/grassy flats, wet pasture and margins of farm dams.	Potential habitat absent.
Hovea tasmanica rockfield purplepea	r -	*Hovea tasmanica* occurs in central and northeastern regions. It is usually found on dry, rocky ridges or slopes (mostly dolerite) in forest and riverine scrub.	Potential habitat absent.
Hypolepis muelleri harsh groundfern	r -	*Hypolepis muelleri* occurs along watercourses, swampy areas or deep, rich, alluvial soils below 120 m elevation in northern Tasmania (including King and Flinders islands). It has also been recorded from forest dominated by *Acacia melanoxylon* (blackwood), *Melaleuca* (paperbark) or *Eucalyptus* species.	Potential habitat absent.
Lepidium hyssopifolium soft peppercress	e EN # only	The native habitat of *Lepidium hyssopifolium* is the growth suppression zone beneath large trees in grassy woodlands and grasslands (e.g. over-mature black wattles and isolated eucalypts in rough pasture). *Lepidium*	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
		hyssopifolium is now found primarily under large exotic trees on roadsides and home yards on farms. It occurs in the eastern part of Tasmania between sea-level to 500 m a.s.l. in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. It can also occur on frequently slashed grassy/weedy roadside verges where shade trees are absent.	
Leucopogon virgatus var. *brevifolius* shortleaf beardheath	r -	*Leucopogon virgatus* var. *brevifolius* occurs mainly on low undulating terrain in the drier parts of the State (e.g. Northern Midlands) in heathy forest and woodland extending to open grassland and grassy woodland in disturbed habitats, often associated with rock outcrops (e.g. sandstone patches).	Potential habitat marginally present. Records from this part of the State require clarification. The species was not detected (no seasonal constraint on detection and/or identification).
Lycopus australis australian gypsywort	e -	*Lycopus australis* occurs in moist shaded places including disturbed areas within *Melaleuca ericifolia* swamp forest, *Phragmites australis* reed beds, and rocky (dolerite) riverbeds fringed by riparian scrub.	Potential habitat absent.
Lythrum salicaria purple loosestrife	v -	*Lythrum salicaria* inhabits swamps, stream banks and rivers mainly in the north and northeast of the State. It can also occur between gaps in *Melaleuca ericifolia* forest. This species can act as a weed, proliferating along roadsides and other disturbed areas, and, as horticultural strains are in cultivation and birds can disperse seed, some occurrences may not be native.	Potential habitat absent.
Mentha australis river mint	e -	*Mentha australis* is known from riparian habitats along the lower reaches of the South Esk River, Lake Trevallyn and the Rubicon River, where it occurs along the rocky (dolerite) margins of rivers and lakes.	Potential habitat absent.
Parietaria debilis shade pellitory	r -	*Parietaria debilis* occurs around muttonbird rookeries, on cliffs/rocks in the salt spray zone, in moist shaded areas in dune scrubs, and under rock overhangs in forested gullies.	Potential habitat absent.
Persicaria decipiens slender waterpepper	v -	*Persicaria decipiens* occurs on the banks of rivers and streams, mostly in the north of the State, including King Island. The species may colonise farm dams.	Potential habitat absent.
Persicaria subsessilis bristly waterpepper	e -	*Persicaria subsessilis* is found in a variety of habitats, including rocky (dolerite) river margins, disturbed *Melaleuca ericifolia* (coast paperbark) swamp forest and lagoon margins, *Cyperus lucidus* (leafy flatsedge) sedgeland and within openings in riparian scrub on alluvium. It is known from the Ringarooma River, the South Esk River downstream of Trevallyn Dam, and the West Tamar near Launceston.	Potential habitat absent.

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Phyllangium divergens wiry mitrewort	v -	*Phyllangium divergens* occurs in a wide variety of near-coastal habitats on a range of substrates, a common feature usually being bare ground (e.g. tracks) and rock exposures (e.g. outcrops, coastal cliffs, etc.).	Potential habitat very marginally present. While the survey was conducted outside the peak flowering time of the species, a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence.
Pimelea curviflora var. *gracilis* slender curved riceflower	r -	*Pimelea curviflora* var. *gracilis* occurs in a range of vegetation types from wet and dry sclerophyll forest to hardwood plantations. Understories vary from open and grassy to densely shrubby. It can densely colonise disturbed sites such as firebreaks, log landings and tracks.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Pimelea flava subsp. *flava* yellow riceflower	r -	*Pimelea flava* subsp. *flava* occurs in wet and dry sclerophyll forest and woodland, and extends into hardwood and softwood plantations. It often occurs abundantly on disturbed sites such as in logged forest, firebreaks, powerline easements and road batters.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Poa mollis soft tussockgrass	r -	*Poa mollis* is relatively widespread in the eastern half of the State, in dry sclerophyll forest and woodland (often dominated by *Eucalyptus amygdalina, E. viminalis* or *Allocasuarina verticillata*). Sites are often steep and rocky (e.g. Cataract Gorge).	Potential habitat absent.
Prasophyllum robustum robust leek-orchid	e CR	*Prasophyllum robustum* is now known only from one small site in grassy and shrubby *Eucalyptus amygdalina* forest on well-drained brown loam derived from basalt. The species has a much wider historical distribution.	Potential habitat absent (highly atypical of all known sites due to the very high levels of modification to the understory and substrate). While the survey was conducted outside the peak flowering time of the species (Wapstra 2018), a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence.
Prostanthera cuneata alpine mintbush	x -	On the mainland *Prostanthera cuneata* occurs in the alpine and subalpine heaths of Victoria and New South Wales. Apart from planted specimens, this species appears to be extinct in Tasmania, but was collected from a lowland site (but flood debris in the sample suggests it could have been washed down from higher elevations).	Potential habitat absent.
Prostanthera rotundifolia roundleaf mintbush	v -	*Prostanthera rotundifolia* mainly occurs along flood-prone rocky riverbeds as a component of the dense riparian shrubbery but also extends to adjacent rocky slopes.	Potential habitat absent.
Pterostylis commutata midlands greenhood	e CR # only	*Pterostylis commutata* is restricted to Tasmania's Midlands, where it occurs in native grassland and *Eucalyptus pauciflora* grassy woodland on well-drained sandy soils and basalt loams.	Potential habitat absent (too highly modified).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Pterostylis grandiflora superb greenhood	r -	*Pterostylis grandiflora* occurs mostly in heathy and shrubby open eucalypt forests and in grassy coastal *Allocasuarina* (sheoak) woodland on moderately to well-drained sandy and loamy soils. It prefers to grow amongst undergrowth on lightly shaded sites. A recent population has been detected in wet sclerophyll forests.	Potential habitat absent.
Pterostylis ziegeleri grassland greenhood	v VU #	*Pterostylis ziegeleri* occurs in the State's south, east and north, with an outlying occurrence in the northwest. In coastal areas, the species occurs on the slopes of low stabilised sand dunes and in grassy dune swales, while in the Midlands it grows in native grassland or grassy woodland on well-drained clay loams derived from basalt.	Potential habitat absent (too highly modified).
Pultenaea prostrata silky bushpea	v -	*Pultenaea prostrata* occurs in grassy woodlands or grasslands, mostly on Tertiary basalt or Quaternary alluvium.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Ranunculus pumilio var. *pumilio* ferny buttercup	r -	*Ranunculus pumilio* var. *pumilio* occurs mostly in wet places (e.g. broad floodplains of permanent creeks, "wet pastures") from sea level to altitudes of 800-900 m a.s.l.	Potential habitat absent.
Schenkia australis spike centaury	r -	*Schenkia australis* has been recorded from rainforest, wet sclerophyll forest, dry sclerophyll forest and heathland in the east and north of the State. It has also been recorded from forest sites which were cleared for pasture. Several recent sites are from windswept coastal heathland/scrub.	Potential habitat absent (as now understood by the most recent records from coastal sites).
Schoenoplectus tabernaemontani river clubsedge	r -	*Schoenoplectus tabernaemontani* inhabits the margins of lagoons on King Island, Flinders Island and on some riverbanks in the Midlands.	Potential habitat absent.
Scleranthus fasciculatus spreading knawel	v -	*Scleranthus fasciculatus* is only recorded from a few locations in the Midlands and southeast. The vegetation at most of the sites is *Poa* grassland/grassy woodland. *Scleranthus fasciculatus* appears to need gaps between the tussock spaces for its survival and both fire and stock grazing maintain the openness it requires. Often found in areas protected from grazing such as fallen trees and branches.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Scutellaria humilis dwarf scullcap	r -	*Scutellaria humilis* is found in moist, shady places in the northeast and southeast of the State. Recent sites have been associated with rocky slopes and rises.	Potential habitat absent.
Senecio campylocarpus bulging fireweed	v -	*Senecio campylocarpus* occurs on grassy margins of permanent rivers in the Midlands and on broad floodplains.	Potential habitat absent.

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Senecio macrocarpus largefruit fireweed	e VU	*Senecio macrocarpus* is presumed extinct in Tasmania, having been collected from the north of the State including the South Esk River. In Victoria, the species occurs in poorly-drained basalt grasslands and grassy woodlands.	Potential habitat absent.
Senecio psilocarpus swamp fireweed	e VU # only	*Senecio psilocarpus* is known from six widely scattered sites in the northern half of the State, including King and Flinders islands. It occurs in swampy habitats including broad valley floors associated with rivers, edges of farm dams amongst low-lying grazing/cropping ground, herb-rich native grassland in a broad swale between stable sand dunes, adjacent to wetlands in native grassland, herbaceous marshland and low-lying lagoon systems.	Potential habitat absent.
Senecio squarrosus leafy fireweed	r -	*Senecio squarrosus* occurs in a wide variety of habitats. One form occurs predominantly in lowland damp tussock grasslands. The more widespread and common form occurs mainly in dry forests (often grassy) but extends to wet forests and other vegetation types.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Siloxerus multiflorus small wrinklewort	r -	*Siloxerus multiflorus* occurs in a range of somewhat exposed lowland habitats, including bare soil and rocks amongst dense windswept coastal shrubbery to rock outcrops and bare ground associated with native grassland, grassy woodland and forest.	Potential habitat very marginally present. While the survey was conducted outside the peak flowering time of the species, a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence.
Spyridium eriocephalum var. *eriocephalum* heath dustymiller	e -	*Spyridium eriocephalum* var. *eriocephalum* is known to be extant at a single subpopulation within East Risdon State Reserve where it grows on mudstones in open shrublands or low open eucalypt woodlands, the species being closely associated with Aboriginal middens, with abundant crushed and burnt shell. The dominant eucalypt is *Eucalyptus amygdalina*, with *Eucalyptus risdonii* occurring at the small inland site. *Allocasuarina verticillata* (drooping sheoak) is also prominent at one site. The aspect of the East Risdon sites ranges from west to northwest, the slope from 2-25 degrees, elevation a.s.l. from 5-30 m a.s.l., while the majority of plants are within 150 m of the River Derwent.	Potential habitat absent.
Spyridium vexilliferum var. *vexilliferum* helicopter bush	r -	*Spyridium vexilliferum* occurs in a range of vegetation types, including sandy heaths, rock plates and dry sclerophyll forest and woodland (mainly dominated by *Eucalyptus amygdalina*). It is found on a range of substrates (e.g.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		mudstone, granite, laterite gravels) from near-coastal areas in the east, north and west of the State, to the Midlands and lower Derwent Valley. It is most abundant in open or disturbed areas, as it can proliferate from soil-stored seed after disturbance.	
Tetratheca ciliata northern pinkbells	r -	*Tetratheca ciliata* occurs from near-coastal areas in the State's north at elevations below 70 m, ranging from Rocky Cape in the west to Tomahawk/Boobyalla in the east, and an outlying site near Liffey about 60 km inland and 320 m a.s.l. It has been recorded from heathlands and heathy woodlands on sandy well-drained soils, the woodland dominated by *Eucalyptus amygdalina*.	Potential habitat absent.
Teucrium corymbosum forest germander	r -	*Teucrium corymbosum* occurs in a wide range of habitats from rocky steep slopes in dry sclerophyll forest and *Allocasuarina* (sheoak) woodland, riparian flats and forest.	Potential habitat absent.
Triptilodiscus pygmaeus dwarf sunray	v -	*Triptilodiscus pygmaeus* grows within grasslands, grassy woodlands or rockplates, with the underlying substrate being mostly Tertiary basalt or Jurassic dolerite. The elevation range of recorded sites in Tasmania is 30-470 m a.s.l., with an annual rainfall of about 450-600 mm. The species occurs within native grassland dominated by *Themeda triandra* (kangaroo grass).	Potential habitat very marginally present. While the survey was conducted outside the peak flowering time of the species, a follow-up timed-targeted survey is not considered warranted based on the statistically very low likelihood of occurrence.
Utricularia australis yellow bladderwort	r -	*Utricularia australis* has a widespread distribution, ranging from the Gordon River in the southwest to the northern part of Flinders Island in the far northeast (and also reportedly from the Derwent River in the State's south). It grows in stationary or slow-moving water, including natural lakes, farm dams and reservoirs, where it has been reported as forming 'locally dense swards'.	Potential habitat absent.
Velleia paradoxa spur velleia	v -	*Velleia paradoxa* is known from the Hobart and Launceston areas, the Midlands and the Derwent Valley, where it occurs in grassy woodlands or grasslands on dry sites. It has been recorded up to 550 m a.s.l. at sites with an annual rainfall range of 450-750 mm.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Veronica plebeia trailing speedwell	r -	*Veronica plebeia* typically occurs in dry to damp sclerophyll forest dominated by *Eucalyptus amygdalina* on dolerite or Tertiary sediments, but can also occur in *Eucalyptus ovata* grassy woodland/forest and *Melaleuca ericifolia* swamp forest.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Viola caleyana swamp violet	r -	The habitat of *Viola caleyana* in Tasmania is poorly understood but includes lowland wet grasslands, possibly wet heathlands and a variety of forest types.	Potential habitat absent.
Vittadinia gracilis woolly new-holland-daisy	r -	*Vittadinia gracilis* occurs in native grassland and grassy woodland.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Vittadinia muelleri narrowleaf new-holland-daisy	r -	*Vittadinia muelleri* occurs in native grassland and grassy woodland.	Potential habitat marginally present. The species was not detected (no seasonal constraint on detection and/or identification).
Westringia angustifolia narrowleaf westringia	r -	*Westringia angustifolia* occurs mainly in mid elevations, always on dolerite (but can be close to dolerite-sediment contact zones), in dry to wet sclerophyll forest on broad ridges, slopes and dense riparian shrubberies.	Potential habitat absent.
Xerochrysum bicolor eastcoast everlasting	r -	Species of *Xerochrysum* are poorly understood in Tasmania, especially the identification of coastal species (*X. bicolor* and *X. bracteatum*). *X. bicolor* may be restricted to stabilised dune systems.	Potential habitat absent.
Xerochrysum palustre swamp everlasting	v VU # only	*Xerochrysum palustre* has a scattered distribution with populations in the northeast, east coast, Central Highlands and Midlands, all below about 700 m elevation. It occurs in wetlands, grassy to sedgy wet heathlands and extends to associated heathy *Eucalyptus ovata* woodlands. Sites are usually inundated for part of the year.	Potential habitat absent.

APPENDIX D. Analysis of database records of threatened fauna

Table D1 provides a listing of threatened fauna from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Table D1. Threatened fauna records from 5,000 m of boundary of study area

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from the DPIPWE's *Natural Values Atlas* (DPIPWE 2021), Bryant & Jackson (1999) and FPA (2021). Wholly marine and pelagic species are excluded from the list below. Species marked with # are listed in CofA (2021).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Accipiter novaehollandiae grey goshawk	e -	Potential habitat is native forest with mature elements below 600 m altitude, particularly along watercourses. Significant habitat may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with a relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body (i.e. stream, river, lake, swamp, etc.).	Potential habitat absent. The species may very occasionally utilise the greater study area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.
Apus pacificus fork-tailed swift	- - # only	Occasional non-breeding migrant to Tasmania only.	Potential habitat widespread but this is an aerially-foraging bird that rarely lands. Further consideration of this species should not be required.
Aquila audax subsp. *fleayi* Tasmanian wedge-tailed eagle	e EN #	Potential habitat comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is a wide variety of forest (including areas subject to native forest silviculture) and non-forest habitats. Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year.	Potential nesting habitat absent. No known nests within 1 km of study area. No nests were detected as a consequence of site assessment. The species may utilise the greater study area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Beddomeia launcestonensis Cataract Gorge freshwater snail	e -	Potential habitat is riverine habitats within the potential range.	Potential habitat absent.
Botaurus poiciloptilus Australasian bittern	- EN #	Potential habitat is comprised of wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g. *Phragmites*, *Cyperus*, *Eleocharis*, *Juncus*, *Typha*, *Baumea*, *Bolboschoenus*) or cutting grass (*Gahnia*) growing over a muddy or peaty substrate (TSSC 2011).	Potential habitat absent.
Catadromus lacordairei green-lined ground beetle	v -	Potential habitat is open, grassy/sedgy, low altitude grasslands and woodlands associated with temporary and permanent wetlands and low-lying plains, flats and ephemeral drainages adjacent to rivers and streams. Key habitat elements that need to be present include sheltering sites such as patches of stones, coarse woody debris and/or cracking soils.	Potential habitat absent as the key elements are not present.
Ceyx azureus subsp. *diemenensis* Tasmanian azure kingfisher	e EN # only	Potential foraging habitat is primarily freshwater (occasionally estuarine) waterbodies such as large rivers and streams with well-developed overhanging vegetation suitable for perching and water deep enough for dive-feeding. Potential breeding habitat is usually steep banks of large rivers (a breeding site is a hole (burrow) drilled in the bank).	Potential habitat absent.
Dasyurus maculatus subsp. *maculatus* spotted-tailed quoll	r VU #	Potential habitat is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex and steep rocky areas are present, and includes remnant patches in cleared agricultural land.	Potential habitat present. No evidence (e.g. scats) of the species was observed. The species may utilise the greater study area as part of a home range and for foraging but development at the scale proposed and within the context of surrounding land uses should not have a significant impact on potential habitat of the species.
Dasyurus viverrinus eastern quoll	- EN #	Potential habitat is a variety of habitats including rainforest, heathland, alpine areas and scrub. However, it seems to prefer dry forest and native grassland mosaics which are bounded by agricultural land.	See under spotted-tailed quoll.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
Engaeus orramakunna (Mt Arthur burrowing crayfish)	v VU # only	Not relevant.	Listed in CofA (2021) but both FPA (2021) and DPIPWE (2021) correctly indicate that the species is not known from this part of the State.
Galaxiella fontanus swan galaxias	e EN	Potential habitat is slow to moderately fast flowing streams containing permanent water (even when not flowing), which have good in-stream cover from overhanging banks and/or logs, and shade from overhanging vegetation. A population can only be maintained where barriers have prevented establishment of trout and redfin perch. The nature of these barriers is variable and can include permanent natural structures such as waterfalls and chutes and also low flow-dependent features such as marshes, ephemeral water-losing and remnant channels, and braided channel floodplain features.	Potential habitat absent. The site is also well outside the recognised range of the species (FPA 2021).
Galaxias pusilla eastern dwarf galaxias	v VU #	Potential habitat is slow to moderately fast-flowing streams containing permanent water (even when not flowing), which have good instream cover from overhanging banks and/or logs, and shade from overhanging vegetation. A population can only be maintained where barriers have prevented establishment of trout and redfin perch. The nature of these barriers is variable and can include permanent natural structures such as waterfalls and chutes and also low flow-dependent features such as marshes, ephemeral water-losing and remnant channels, braided channel floodplain features.	Potential habitat absent. The site is also well outside the recognised range of the species (FPA 2021).
Haliaeetus leucogaster white-bellied sea-eagle	v -	Potential habitat comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish). Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (Class 1), lakes or complexes of large farm dams.	No known nests within 500 m or 1 km line-of-sight of study area. Additional potential nesting habitat absent from study area. The species may utilise the greater area for foraging.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
Hirundapus caudacutus (white-throated needletail)	- VU #	Potential habitat is virtually any aerial habitat as this species generally does not land during the Australian portion of the migration. This species forages aerially, generally following frontal weather systems or other air uplift events such as bushfires to feed on insects etc.	Potential habitat present. However, as this species does not land, roost or breed on the Australian migration, any proposal will not have an effect on the white-throated needletail.
Lathamus discolor swift parrot	e CR #	Potential habitat comprises potential foraging habitat and potential nesting habitat. Potential foraging habitat comprises *Eucalyptus globulus* (blue gum) or *Eucalyptus ovata* (black gum) trees that are old enough to flower. For management purposes, potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees.	*Eucalyptus ovata* is absent. *Eucalyptus globulus* is absent. Hollow-bearing trees are present but the site is highly atypical of known breeding sites that typically occur in mature hollow-rich forest on ridges and upper slopes.
Limnodynastes peroni striped marsh frog	e -	Potential habitat is natural and artificial coastal and near-coastal wetlands, lagoons, marshes, swamps and ponds (including dams), with permanent freshwater and abundant marginal, emergent and submerged aquatic vegetation.	Potential habitat absent. Site is outside the recognised range of the species (based on database records).
Litoria raniformis green and golden frog	v VU #	Potential habitat is permanent and temporary waterbodies, usually with vegetation in or around them, including features such as natural lagoons, permanently or seasonally inundated swamps and wetlands, farm dams, irrigation channels, artificial water-holding sites such as old quarries, slow-flowing stretches of streams and rivers and drainage features.	Potential habitat absent.
Limnodynastes peroni striped marsh frog	e -	Potential habitat is natural and artificial coastal and near-coastal wetlands, lagoons, marshes, swamps and ponds (including dams), with permanent freshwater and abundant marginal, emergent and submerged aquatic vegetation.	Potential habitat absent.
Migas plomleyi Cataract Gorge trapdoor spider	e -	Potential habitat is native vegetation (but can be disturbed) with extensive rock exposures that have well-developed moss and/or lichen cover	Potential habitat absent.
Myiagra cyanoleuca satin flycatcher	- - # only	Potential habitat is variable but mainly eucalypt-dominated forests, with a stronger association with wetter forest gullies.	Potential habitat present. This is a spring-summer migrant that may occasionally utilise the greater study area for foraging and possibly nesting. No sightings were made on the single day of assessment in June, which was undertaken outside the species' resident period in Tasmania. It is unlikely that localised land management will significantly deleteriously impact on this species.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
			Further consideration of this species should not be required.
Oxyethira mienica caddis fly (Ouse River)	r -	The potential range is the known location with a buffer of 2 km upstream and downstream of the known site.	Potential habitat absent.
Pasmaditta jungermanniae Cataract Gorge pinhead snail	v -	Potential habitat is intact or disturbed native vegetation with extensive exposed rock faces (usually dolerite), usually greater than 2 m high (e.g. distinct outcrops/cliffs or several large boulders), with well-developed moss and/or lichen cover on rock faces and ledges (such sites often occur in more deeply incised drainage features or steeper slopes).	Potential habitat absent.
Perameles gunnii subsp. *gunnii* eastern barred bandicoot	- VU #	Potential habitat is open vegetation types including woodlands and open forests with a grassy understorey, native and exotic grasslands, particularly in landscapes with a mosaic of agricultural land and remnant bushland.	Potential habitat present. No evidence (e.g. scats, diggings) of the species was observed. The species may utilise the greater study area as part of a home range and for foraging but development at the scale proposed and within the context of surrounding land uses should not have a significant impact on potential habitat of the species.
Prototroctes maraena Australian grayling	v VU #	Potential habitat is all streams and rivers in their lower to middle reaches. Areas above permanent barriers (e.g. Prosser River dam, weirs) that prevent fish migration, are not potential habitat.	Potential habitat absent.
Pseudemoia pagenstecheri tussock skink	v -	Potential habitat is grassland and grassy woodland (including rough pasture with paddock trees), generally with a greater than 20% cover of native grass species, especially where medium to tall tussocks are present.	Potential habitat absent.
Pseudemoia rawlinsoni glossy grass skink	r -	Potential habitat is wetlands and swampy sites, including grassy wetlands, teatree swamps and grassy sedgelands, and margins of such habitat.	Potential habitat absent.
Pteropus poliocephalus grey-headed flying-fox	- VU	Potential habitat is virtually any forest type with eucalypt species flowering including suburban gardens. This species is an infrequent visitor (migrant) to Tasmania.	Potential habitat marginally present. This species will not be affected by the proposal (vagrant only).
Sarcophilus harrisii Tasmanian devil	e EN #	Potential habitat is all terrestrial native habitats, forestry plantations and pasture. Devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat (open understorey mixed with patches of dense vegetation) within their home range (427 km^2). Significant habitat is	See under spotted-tailed quoll.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		a patch of potential denning habitat where three or more entrances (large enough for a devil to pass through) may be found within 100 m of one another, and where no other potential denning habitat with three or more entrances may be found within a 1 km radius, being the approximate area of the smallest recorded devil home range. Potential denning habitat is areas of burrowable, well-drained soil, log piles or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass.	
Tyto novaehollandiae subsp. *castanops* Tasmanian masked owl	e VU #	Potential habitat is all areas with trees with large hollows (≥15 cm entrance diameter). In terms of using mapping layers, potential habitat is considered to be all areas with at least 20% mature eucalypt crown cover (PI type mature density class 'a', 'b', or 'c'). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may constitute potential habitat. Significant habitat is any areas within the core range of native dry forest with trees over 100 cm dbh with large hollows (≥15 cm entrance diameter).	Potential nesting habitat is marginally present (some more mature trees with hollows, doubtfully large enough to support the species). The species may utilise the greater title area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.

APPENDIX E. DPIPWE's *Natural Values Atlas* report for study area

Appended as pdf file.

APPENDIX F. Forest Practices Authority's *Biodiversity Values Atlas* report for study area

Appended as pdf file.

APPENDIX G. CofA's *Protected Matters* report for study area

Appended as pdf file.

ATTACHMENT

- .shp file of revised vegetation mapping

APPENDIX H. Threatened flora spring survey 2021

Preamble

The original report stated:

> The study area was assessed for the presence of threatened flora by slow-walking the entire area. Further methods are not provided because no such species were detected. This part of the State is recognised as a "hotspot" for threatened flora. For example, Carr Villa supports several species such as *Brunonia australis* (blue pincushion), *Caladenia patersonii* (patersons spider-orchid), *Caesia calliantha (*blue grasslily) and *Senecio squarrosus* (leafy fireweed). While some species are perennial and detectable/identifiable at any time of the year, others require a timed survey to coincide with the peak flowering period. In this case, while initial discussions indicated that this was a likely scenario, upon site assessment this has been reviewed due to the highly modified nature of the understorey (almost wholly dominated by a mat of *Ehrharta erecta*) and lack of detection of certain species such as *Brunonia australis* that can be a reasonable indicator of the likelihood of other species.

As part of due diligence for the project, the client engaged ECO*tas* to undertake timed-targeted surveys of the project area, timed to coincide with the peak flowering period of several possible target species. While the original rationale for such a survey was explained and discussed as of likely limited application (because of the condition of the site), following the discovery of *Chiloglottis trapeziformis* (broadlip bird-orchid), a TSPA-listed (endangered) spring-flowering orchid, from the southern end of Carr Villa in October 2021, the impetus for the survey was somewhat heightened.

Site assessment

On 12 Nov. 2021, the site was re-assessed, again by slow-walking the entire project area and fringes using a random meandering transect method designed to cover as much ground as practical, targeting likely micro-habitats for threatened species.

Findings

No species of flora listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) were detected. The poor ecological condition of the site is highlighted.

I did detect a small population of *Brunonia australis* (blue pincushion), listed as rare on the TSPA, from the fringes of one of the fairways south of the project area, well outside the limits of any likely works. This site (Figure H1) is typical habitat (Plates H1-4) for the species (Plates H5 & 6) being semi-slashed grassy woodland. While also a managed site, the habitat quality is vastly "superior" to the project area in so far as the understorey is essentially wholly native grass and quite diverse, rather than dominated by weedy and highly competitive grass species.

Recommendations

No further recommendations are made in relation to natural values for the project area.

Plates H1-4. Habitat of *Brunonia australis* adjacent to the fairway

Plate H5. (LHS) Rosette and early flowerhead of *Brunonia australis* from site

Plate H6. (RHS) Flowering head of *Brunonia australis* [Powranna Nature Reserve, 10 Dec. 2020]

Figure H1. Distribution of *Brunonia australis* based on 12 Nov. 2021 survey

Traffic Impact Assessment (TIA)

Launceston Golf Club
Opossum Road / Negara Street, Kings Meadows

Proposed 13-lot Subdivision Development, Negara Street

Aug 2021

Revision B

Status Rev	Date	Review	Revision Details
A	20/07/2021	A Howell	TIA Draft for Comment
B	19/08/2021	A Howell	TIA report for issue

Contents

1. Introduction

This report is provided as a Traffic Impact Assessment (TIA) relating to a proposed development of a new 13-lot subdivision off Negara Street, Kings Meadows, proposed the by Launceston Golf Club (refer Fig 1.1 – Area Locality Plan).

The development consists of an extension of the existing Negara Street to the West, including a new cul-de-sac turning head. The proposed arrangement is shown in APPENDIX A – PROPOSED SITE LAYOUT PLAN

1.1 Background & Project Scope

The creation of a new road extension and cul-de-sac for the 13 new residential lots, which will generate additional traffic suggests that a TIA would be required to be undertaken to assess traffic impacts and identify any issues arising, and provide comment with reference to local Planning Scheme requirements

This report addresses traffic related aspects where applicable, and attempts to identify and comment on any potential impacts affecting, or arising from, the development.

This report is prepared by Andrew Howell, a senior engineer with 20 years' experience in development and municipal engineering, traffic and transport systems, and civil design. Andrew holds a Bachelor of Engineering (Honours) degree and a Master of Engineering Science with specializations in transport systems and management.

1.2 Objectives

The key objectives of this report are:

- Review of the existing road physical characteristics and arrangements in the vicinity of the site.
- Review of existing traffic conditions.
- Describe the development with regards to arrangements for access, including any implications for traffic efficiency, safety, and service.

1.3 Subject Site Location

The subject site considered in this TIA is located at the western end of NEGARA STREET, which is currently a short dead end road serving three (3) properties, and has no turning facilities. The remainder of Negara Street, to the East of connecting Warragul Street links back to local Collector Norwood Avenue. It is likely that the Warragul-Negara East loop linking higher priority Opossum Road to Norwood Avenue carries some traffic, but the short Negara West stub may see only around 20 vehicles per day servicing the three residences.

The subject site itself as part of the current Launceston Golf Course which abuts on external sides residential development in several areas. This locality is similar in nature to much of the Norwood and Kings Meadows residential areas.

Existing access to the majority of the subject site is off the current Opossum road main entry to the golf course proper. A new access to any residential development for the subject site would be required, and Negara Street, which appears built anticipating a future extension of the road carriageway, appears the logical and most appropriate site access.

Fig 1.1 – Locality Plan

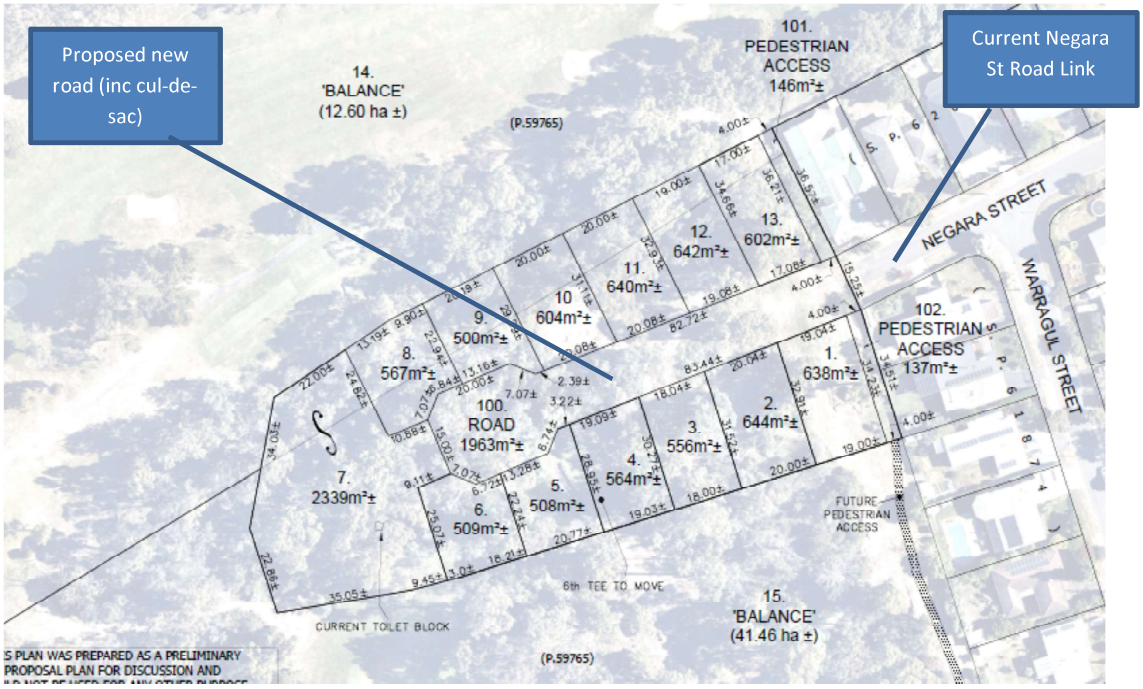


Fig 1.2 – Site Layout, Zoom Plan

1.4 Information Sources & References

The author has been provided with relevant information from the proponent, including preliminary plans being prepared for development application. These details provide an outline of the proposed works, and indicate that generally the development proposes limited change to the existing Negara Street itself other than an extension – which from the current road termination arrangements with no provision for any turning head option, an extension it appears to have been anticipated would at some stage be continued to the West.

The author has reviewed publicly available information including www.THELIST.tas.gov.au and other online mapping tools to ascertain any obvious issues relating to the development, and has undertaken inspection to review site specifics.

Traffic data from the City of Launceston (CoL) has provided indicative vehicle movements, notes provided in Section 5.

The report has utilized the DIER (now Department of State Growth / DSG) document "Traffic Impact Assessment (TIA) Guidelines" in the preparation of this report.

Further referenced documents include:

- DSG Tasmanian State Road Hierarchy
- Launceston Interim Planning Scheme 2015
- Specifically, E4 Road and Rail Assets Code (2015)
- AUSTROADS Publications (various)

1.5 Planning Scheme Aspects (CoL)

The Planning scheme applicable is the Launceston Interim Planning Scheme 2015.
The current zoning for the land and surrounding area is advised as **18.0 Recreation**. It is understood a rezoning is being requested, to change this to **10.0 General Residential**, similar to other adjoining land abutting the golf course site.
The Road and Rail Assets Code (E4) from the planning scheme applies.

2. Existing Conditions

2.1 Transport Network

Negara Street is a City of Launceston (CoL) street, and likely carries mainly residential traffic, being part of the Warragul-Negara link between higher-priority Opossum Road and Norwood Avenue as the nearby main collector roads for the Norwood area and with link back to King Meadows precinct.

Negara Street as a minor residential street and based on current function is likely considered a 4.0 LOCAL ACCESS ROAD (50-1,000 VPD) or perhaps lower for Negara Street West. No changes would be expected by the proposed extension of the road and Negara would remain a 4,0 LOCAL ACCESS ROAD.

CoL advises they do not have recent traffic count or speed data available for Negara Street, however advises that flows of around 104 VPD could be expected on Negara Street. However this is likely to be on the Eastern part of Negara, including flows to and from Warragul St, as noted. Negara West, with only three residential properties, is likely to see only around 20 VPD typically.

The speed limit for Negara St is not signposted, so is default to 50km/hr, and it could reasonably be anticipated that vehicle speeds are probably less than this, based on the short length and proximity to junctions.

2.2 Road Conditions & Road Safety Performance

Negara Street currently appears to operate satisfactorily from inspection, with three (3) residences currently with access to Negara St West. It is proposed that the road was always planned to be extended to the WEST for further development, based on current abrupt carriageway termination (no turning head facilities) – further development extension appears to have been anticipated by original road designers.

On this basis and following site inspection, this extension to a new cul-de-sac to service 13 new lots appears reasonable, considering similar cul-de-sacs in nearby residential zone and the character of surrounding residential area generally, with suitable road layout and appropriate sight distance able to be maintained based on the likely current proposed layout

The new road carriageway, to be constructed to the LGAT-IPWEA standards for residential streets, is believed can achieve the requirements from *TSD-R06-v3 TABLE 1,* which notes a cul-de-sac serving less than or equal to 15 lots and up to 150m approx. length should have minimum road width of 6.9m, minimum reservation width of 15m, and footpath one side. This matches in to the existing road carriageway width for the current Negara Street West section reasonably.

Based on the small traffic numbers likely generated by the new development (approx. 119 VPD, at 7 VPD per tenement including the potential strata title option of lot 6 accommodating possibly up to a suggested 5 dwellings) this volume and any impact on nearby junctions is not considered material in the context of network volumes. This assessment is based on author's experience with vehicle movements in the area, and consideration of likely peak hour volumes expected from the new development as proposed.

Existing site photos NEGARA STREET (West)

Fig 2.2a – Existing Road Termination NEGARA STREET – Looking WEST

Fig 2.2b – Looking East from Negara Street West (Nth side of road kerbside)

Fig 2.2c – Looking East from Negara Street West (Sth side of road kerbside)

As the extension of Negara Street proposed presents no new street junctions there is limited issue with junction design or around sight distance – noting that based on the flat vertical grade in these existing streets and limited horizontal curvature proposed for the new road alignment, safe intersection sight distance is not considered an issue of concern.

However, sight distance to the West from Warragul Street, currently to the existing termination of Negara West is around 38m - following road extension this will be able to continue for the majority of the cul-de-sac, out to around 135m in this direction.

This can thus achieve satisfactory sight distance in this direction with respect to requirements from Planning Scheme Code E4 for SISD, exceeding the minimum 80m SISD requirements of the code for vehicle speeds of 50 km/hr in speed zones up to and including 60km/hr (Table E4.6.4).

Based on the relatively small additional traffic numbers likely generated by the new development and the small number of properties overall serviced from this existing road, capacity of the junction with Warragul Street is not considered an issue.

3. Proposed Development

3.1 Site Development

The development as proposed includes 13 new residential lots and a short extension of Negara Street to provide a new cul de sac, to service the 15 total properties that will thus be serviced by Negara Street West. No new junctions will be created.

3.2 Traffic Generation & Distribution

It is noted that the development as proposed is likely to see a small overall increase in vehicle movements to the area, with around 91 VPD likely generated from the 13 new lots. However, there is some scope for Lot 6 to see potential unit development, being a larger lot of some 2400 sq metres approx., and on this basis some conservative assessment is included to add capacity for another 4 additional dwellings (Assuming lot 6 may see 5 residences potentially). This would take vehicle volumes to around 119 VPD – again this is conservative as unit developments generally see fewer vehicle movements based on the author's historical observations.

Current arrangements and traffic volumes at the existing Negara Street zone appear to operate satisfactorily with no issues identified through crash history.

Distribution for the site is likely to see effectively vehicle movements entering and exiting the site either from the Norwood Avenue junction, or from Warragul Street coming off Opossum Road (and return directions similarly). Based on a suggested split of vehicles considering the nearby centre of Kings Meadows being locally convenient with various services, it may be that the split could be considered to be 60% using Warragul to access Opossum road (in either direction) and 40% using Negara to access Norwood Avenue. This also considers some drivers preferring to access a higher priority road as soon as possible (Norwood Avenue), and noting school and other recreational destinations nearby as well as wider travel intent to the Eastern zones of Launceston.

As noted, the relatively modest number of additional vehicles using the Negara Street link, especially on a peak hour basis, means that off-site impacts are not considered further by this report.

4. Traffic Impacts

4.1 Access & Road Asset Construction

Based on site inspection, it is likely that the road construction for the proposal can be constructed through the Council engineering design process to meet the requirements of the IPWEA/LGAT and AUSTROADS standards. Existing site conditions including levels, drainage, minor earthworks, appropriate sight distances, etc. all appear to be generally feasible. Engineering design approval by CoL will be required for road and access designs as developed.

4.2 Surrounding Road Network Impacts

Whilst assessment of additional road network parameters beyond the new access arrangements are outside the formal remit of this report, it is believed that the small traffic volumes attributable to the development in the scheme of thee surrounding network capacity, would mean off-site impacts arising from this development should not materially affect the wider road network.

4.3 Parking Assessment

Not required to be considered as part of this report.

4.4 Sight Distances

Clause E4.7.4 of the Planning Scheme notes that sight distance for accesses for Acceptable Solution A1 must comply with Safe Intersection Sight Distance (SISD) from table E4.6.4. No new junctions are being created, however considering Warragul Street junction with Negara Street, for a speed limit of 60km/hr (60km/hr or less from E4.7.4) and an assumed vehicle speed of 50km/hr this SISD is 80 metres.

This distance appears able to be achieved based on the new cul-de-sac arrangement as proposed. On this basis, ACCEPTABLE SOLUTION A1 is met.

Based on above analysis, E4.6.4 is met by A1.

4.5 Road Safety & Traffic Service

Due to the sight distances with regard to Planning Scheme Acceptable Solution A1 being met, and new accesses meeting IPWEA/LGAT and AUSTROADS Standards through design and construction, road safety appears to not be compromised by the development works proposed.

Traffic service for the proposed development appears adequately provided with the existing infrastructure (capacity, turning gaps, etc.), based on the low traffic volumes suggested for the site and on observation of existing conditions, for existing and new development traffic (refer Sect 2.2).

4.6 Pedestrian and Cyclist impacts

Currently there is a dedicated pedestrian footpath on both sides of the road on Negara Street up to almost the end of the road termination and the subject site. A new footpath, one side of the road only likely per LGAT-IPWEA standards, will be required in the new development works.

No additional footpath or cycling infrastructure changes to existing arrangements are proposed as part of this development; however provision is noted for potential future pedestrian linkages adjacent to lots 1 and 13 for possible access to future pedestrian links to golf club land either side. No current infrastructure exists to connect to at either end, but the provision of this allocation for an access way, and the general geometry/nature of this access way, appears prudent and reasonably laid out to permit such future opportunity.

Existing cyclist access appears to be informal only in the area (no dedicated infrastructure). No specific impacts or changes are identified.

4.7 Public Transport Provision

Taxis can service the site, and services for buses appear to service the general area. No change to any existing arrangements is proposed or considered warranted.

4.8 Summary of Assessment against Planning Scheme E4 – Road and Railway Assets Code Item Comment/Criteria Met

E4.6.1 – Development adjacent to Road or Rail Infrastructure

A1.1 – REQUIREMENTS ARE MET (NA)

A1.2 – REQUIREMENTS ARE MET (NA)

E4.6.2 – Management of Road Accesses and Junctions

A1 – NA – Not > 60km/hr

A2 – Requirements are met – only one new access to the development, proposed accesses appear can all be constructed safely and efficiently within the new development based on site inspection

E4.6.3 – New Level Crossings

NOT APPLICABLE

E4.6.4 – Sight Distances at Accesses, Junctions and Level Crossings

A1 – REQUIREMENTS ARE MET (Refer above, with sight distances as note based on site specific assessment, subject final engineering design and CoLapproval)

Conclusion: Requirements for E4 are met

5. Regulatory Authority Feedback on Traffic Impacts

5.1 City of Launceston (Council) Comment/Feedback

CoL provided traffic data estimates for this site and a related query around the LGC main entry off Opossum Road.

Data for Negara Street was suggested as below, however this relates to the Eastern section by appearance, which includes the Warragul Street link traffic also, and the more realistic 20 VPD from empirical data is instead realistic for Negara West as previously noted

Council's traffic officer Mr Nigel Coates noted as follows:

> *"….Unfortunately we don't have any recent traffic data for either location.*
> *Estimated flows in Negara Street are 104 aadt*
> *Opossum Road at the golf course entrance is 3200 aadt*
> *I would agree that the only real issue would probably be the golf course junction. ""*

This information presents no material issues relating to the proposed Negara development.

5.2 DSG comment

No specific comment around road access etc. was sought from DSG officers, with no interaction with DSG assets required for the initial works believed required.

CRASH STATISTICS from DSG data were sourced with records for the previous 5 years provided for the local area. No issues are raised by the crash history with no evidence of any issues around the Negara Street site access.

6. TIA Conclusions

This TIA has investigated the potential impacts from the development of the site including the extension of Negara Street as proposed to service the new 13 residential lot subdivision.

Key findings are as follows:

- That the proposed extension of Negara Street with general arrangements as per the proposed site plan, are likely to meet the requirements to service the development (subject final engineering design detail approval by CoL), and such a new road link appears to be able to be designed/constructed to cater for the development and traffic likely generated.
- That traffic service is likely adequately provided for by the new road arrangements, in order to service the proposed development, including the anticipated levels traffic from the development based on the estimated CoL traffic numbers using Negara Street.
- Sight distances can likely comply with the planning scheme E4.7.4 Acceptable Solution A1 for the new road proposed to service the development with respect to existing junction with Warragul Street
- Other Planning Scheme Requirements under Code E4 are deemed met as noted.

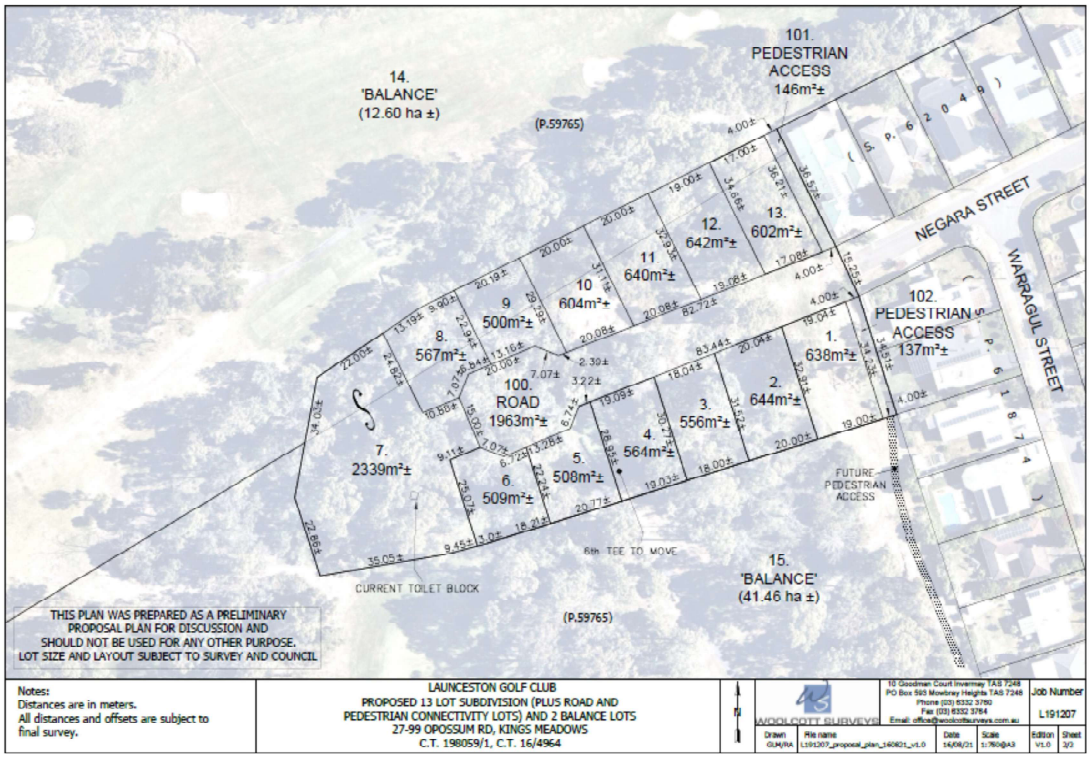
Based on the above assessment of available information, traffic aspects associated with the development are likely to meet the requirements for Traffic Safety and Service, and any potential for adverse effect on the existing traffic situation is unlikely.

Limitations

- *This TIA is based on information provided by the client and available in the public domain, additional information beyond this has not been considered. Any changes or variation to the development proposal should be reviewed further by the author and relevant road authorities.*
- *Based on the nature of the development, this TIA has considered the access and operational aspects for this development only, and has not considered in detail the wider impacts beyond the site (upstream network impacts), this being outside the scope of this report.*
- *Comments on parking and geometric design aspects are of a general nature only, based on design to be undertaken by others as part of formal engineering design approval for road authority*

Appendix A

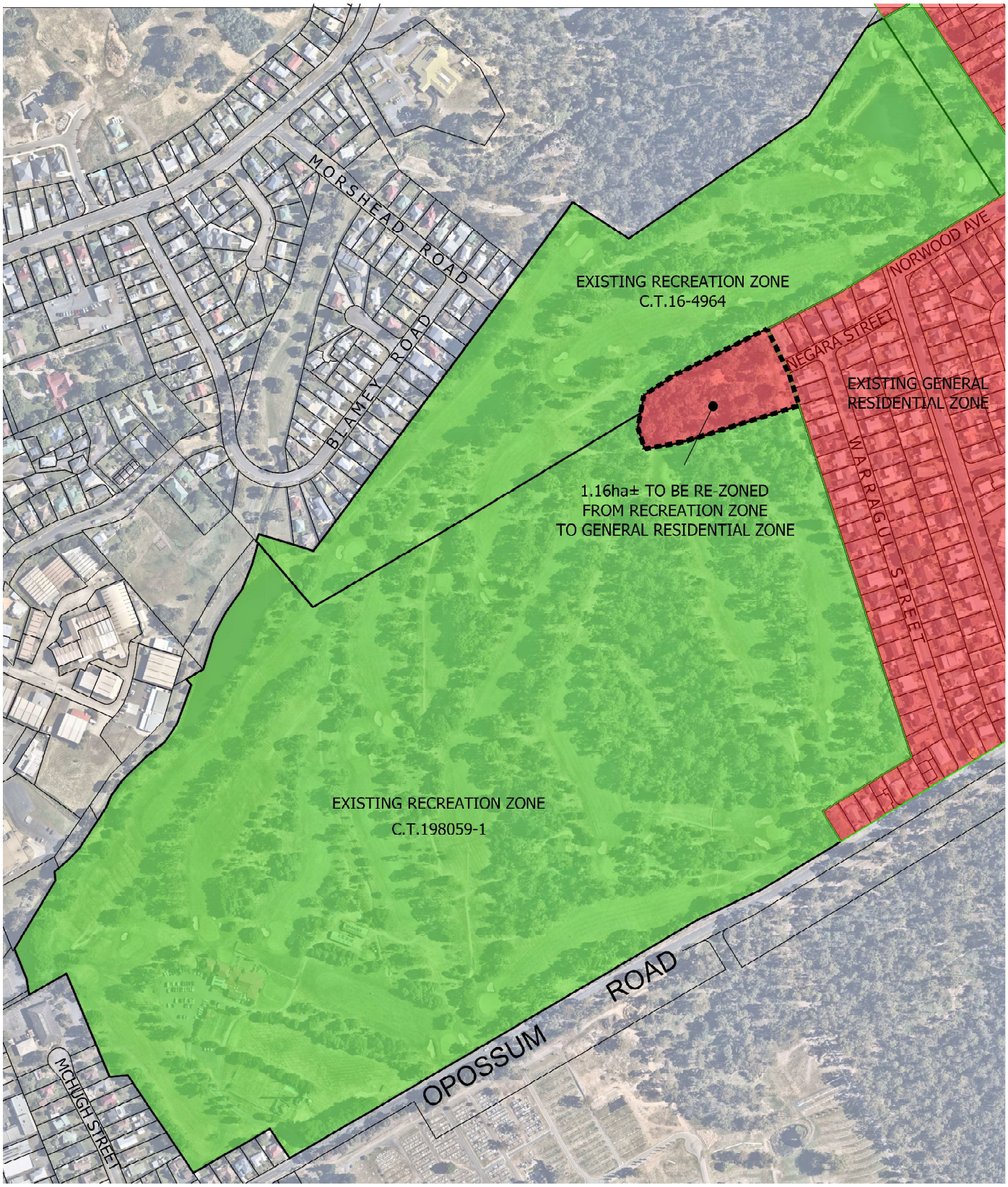
Proposed Development Plan



Appendix B

DSG Crash Statistics Record

(Attached)



THIS PLAN WAS PREPARED AS A PRELIMINARY PROPOSAL PLAN FOR DISCUSSION AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE
ALL MEASUREMENTS AND AREAS ARE SUBJECT TO SURVEY .

PARCEL TO BE RE-ZONED TO GENERAL RESIDENTIAL ZONE

LAUNCESTON GOLF CLUB
PROPOSED RE-ZONE
27-99 OPOSSUM RD, KINGS MEADOWS
C.T. 198059/1, C.T. 16/4964

N

WOOLCOTT SURVEYS
10 Goodman Court Invermay TAS 7248
PO Box 593 Mowbray Heights TAS 7248
Phone (03) 6332 3760
Fax (03) 6332 3764
Email: office@woolcottsurveys.com.au

Job Number L191207

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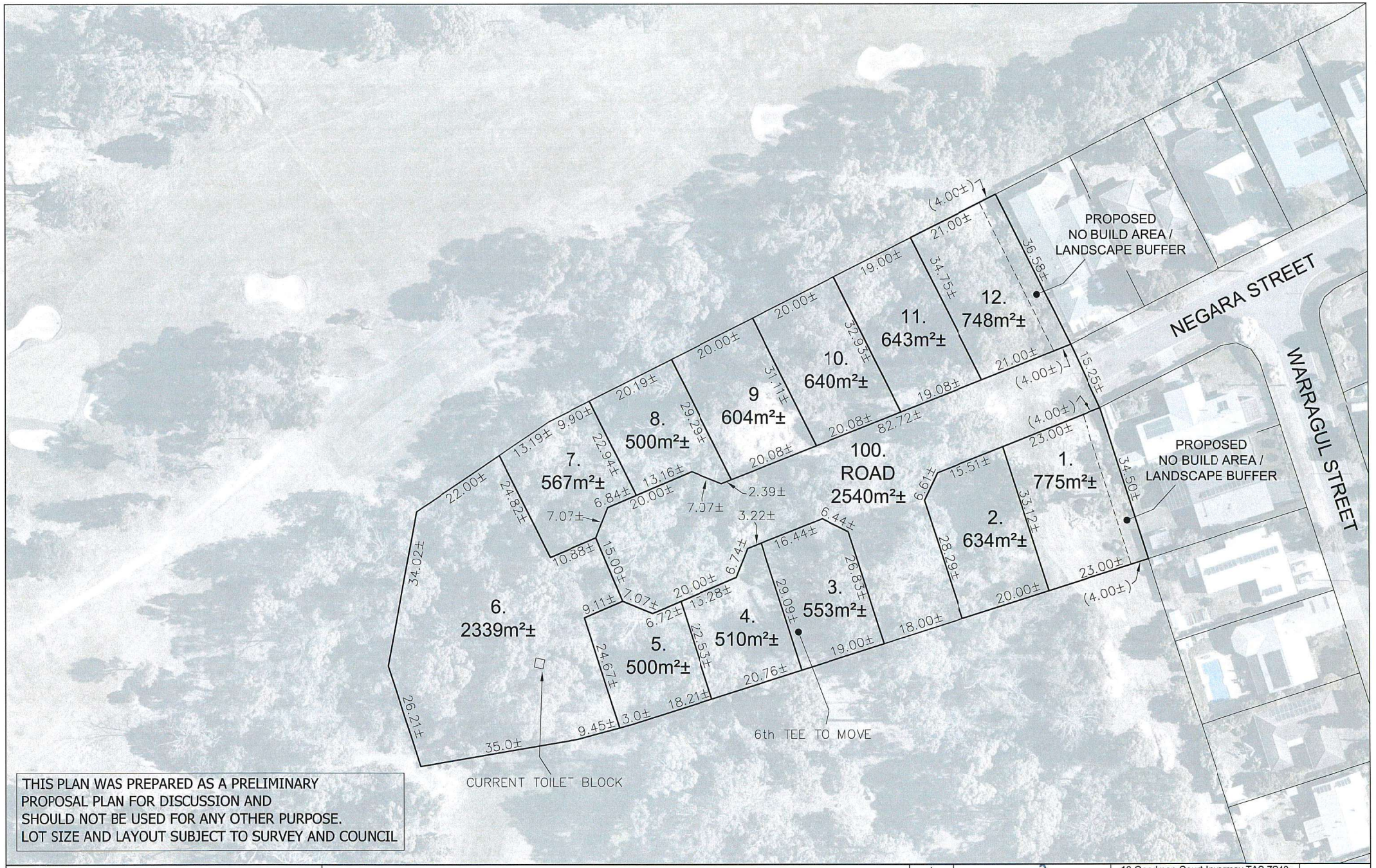

THIS PLAN WAS PREPARED AS A PRELIMINARY PROPOSAL PLAN FOR DISCUSSION AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE. LOT SIZE AND LAYOUT SUBJECT TO SURVEY AND COUNCIL

Notes:

- DIMENSIONS ARE IN METRES

CONCEPT 12 LOT (PLUS ROAD) SUBDIVISION
OWNER: LAUNCESTON GOLF CLUB
27-99 OPOSSUM ROAD, KINGS MEADOWS
C.T. 198059-1, C.T. 16/4964

N

WOOLCOTT SURVEYS
10 Goodman Court Invermay TAS 7248
PO Box 593 Mowbray Heights TAS 7248
Phone (03) 6332 3760
Fax (03) 6332 3764
Email: office@woolcottsurveys.com.au

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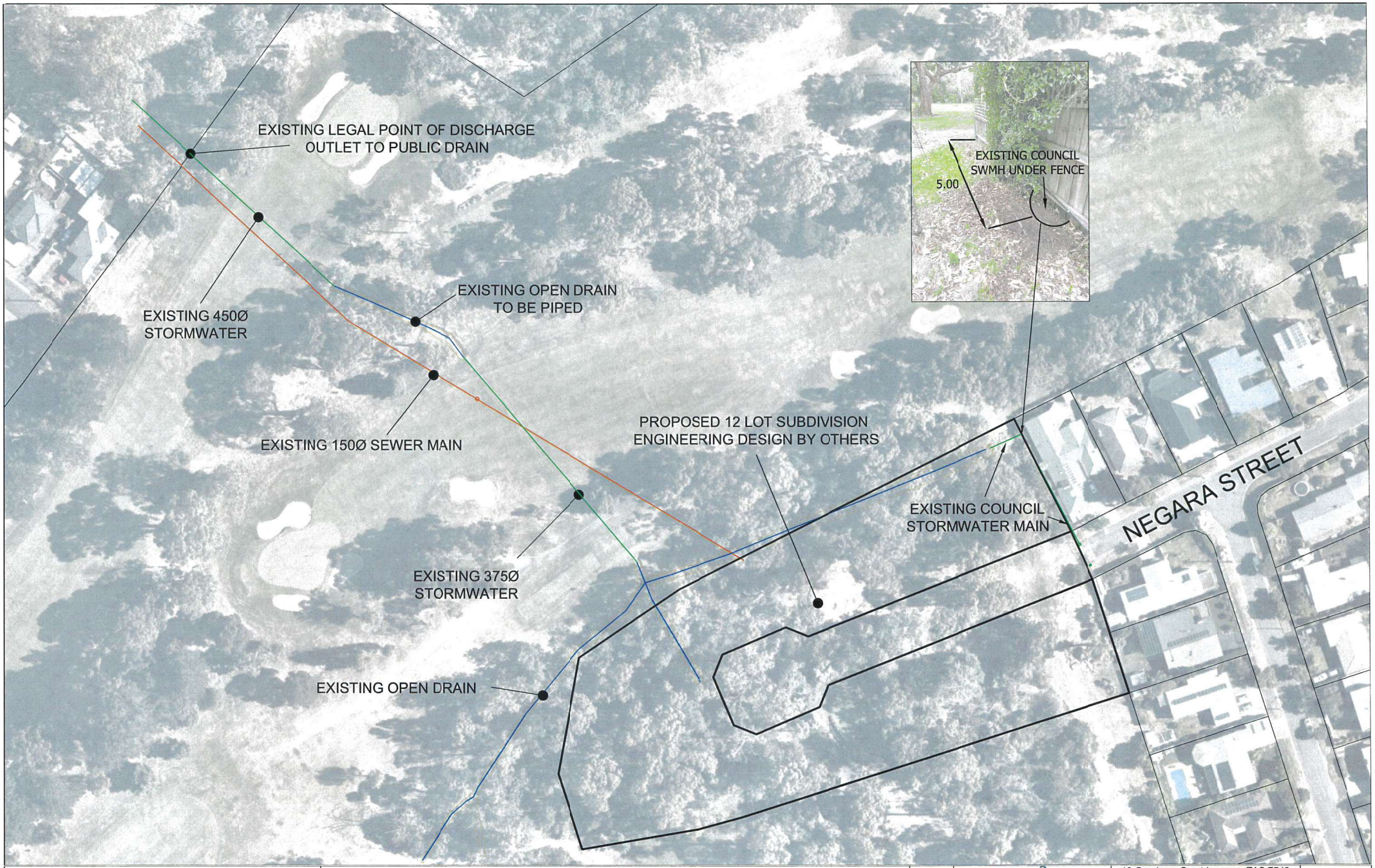

EXISTING STORMWATER INFRASTRUCTURE
LAUNCESTON GOLF CLUB
27-99 OPOSSUM ROAD, KINGS MEADOWS
C.T.198059-1, C.T.16/4964

N

WOOLCOTT SURVEYS
10 Goodman Court Invermay TAS 7248
PO Box 593 Mowbray Heights TAS 7248
Phone (03) 6332 3760
Fax (03) 6332 3764
Email: office@woolcottsurveys.com.au

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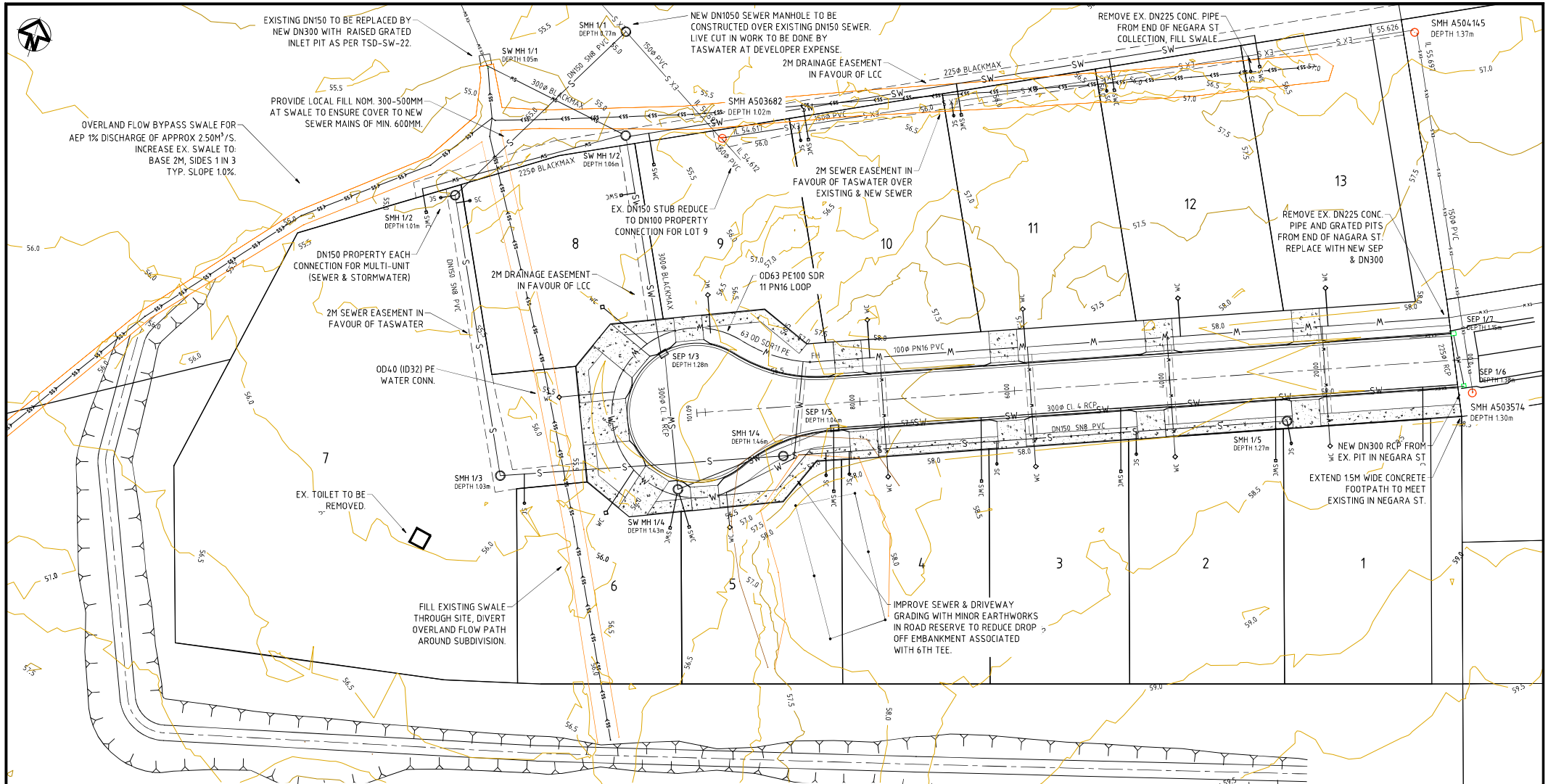

ROADWORKS AND STORMWATER DRAINAGE NOTES

1. NEW 6.9M WIDE SEALED ROAD WITH KCS KERB & CHANNEL.
2. PROVIDE 3.6m WIDE REINFORCED CONCRETE DRIVEWAYS TO ALL LOTS AND 5.5M WIDE TO LOT 7 AS INDICATED ON THE PLAN. DRIVEWAYS TO BE CONSTRUCTED IN ACCORDANCE WITH TSD-R09.
3. PROVIDE NEW 1.8M CONCRETE FOOTPATH FOR THE LOT FRONTAGE TO JOIN TO EXISTING IN NEGARA ST, IN ACCORDANCE WITH TSD-R11.
4. ALL STORMWATER PIPE MATERIAL SHOWN U.N.O:
   - DN100 SN8 PVC SWJ FOR PROPERTY CONNECTION
   - BLACKMAX / RCP CLASS 4 RRJ FOR LCC ASSETS (PRIVATE PROPERTY/ROAD RESERVE).
5. PROVIDE DN100 STORMWATER PROPERTY CONNECTIONS TO EACH LOT AS INDICATED ON THE PLAN. CONNECTIONS TO BE INSTALLED IN ACCORDANCE WITH TSD-SW25.

GENERAL SEWER

1. ALL WORKS ARE TO BE IN ACCORDANCE WITH THE SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V1.0 AND THE TASWATER SUPPLEMENT TO THIS CODE.
2. CONNECTIONS TO THE EXISTING SEWER MAIN TO BE CARRIED OUT BY TASWATER AT THE CONTRACTOR'S EXPENSE.
3. ALL SEWER PIPES TO BE UPVC SCJ. DN100 PIPES TO BE CLASS SN10.
4. PIPE INSTALLATION IS TO BE CONSTRUCTED IN ACCORDANCE WITH WSA 02-2014-3.1 MRWA - TASWATER SUPPLEMENT.
5. UNLESS EXPOSED CONDITIONS WARRANT OTHERWISE, THE TRENCH EMBEDMENT SYSTEM SHALL BE "TYPE A GRADED" AS PER TABLE 202-A ON STD DRG MRWA-S-202.
6. FOR THE PROPOSED TRENCH EMBEDMENT SYSTEM "TYPE A", PIPE BEDDING SHALL BE AS PER TABLE 202-B ON STD DRG MRWA-S-202, ITEM B 5MM MINUS CRUSHED ROCK.
7. TRENCH BACKFILL WITHIN THE DRIVEWAY SHALL BE AS PER TABLE 201-A TYPE R TRAFFICABLE: 20MM FCR CLASS 3 AS PER VICROADS SPEC 812, COMPACTED IN 150MM LAYERS TO 95% MMDD. PAVEMENT & SEAL TO MATCH EXISTING.
8. ALL PRODUCTS USED MUST BE AS PER THE APPROVED PRODUCTS CATALOGUE FOR CITY WEST WATER.
9. PROVIDE DN100 SEWER PROPERTY CONNECTIONS TO THE NEW LOTS AS INDICATED ON THE PLAN. PROPERTY CONNECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH WSAA STANDARD DRAWING MRWA-S-302.
10. THE DN150 PROPERTY SEWER CONNECTION FROM THE EXISTING SEWER MANHOLE SHALL BE RETAINED & DOWNSIZED TO DN100 FOR SERVICING NEW LOT 9.

GENERAL WATER

1. ALL WORKS ARE TO BE IN ACCORDANCE WITH THE WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 MRWA EDITION V2.0 AND THE TASWATER SUPPLEMENT TO THIS CODE.
2. CONNECTIONS TO PUBLIC WATER MAINS TO BE CARRIED OUT BY TASWATER AT CONTRACTOR'S EXPENSE.
3. CONTRACTOR TO PAY WATER METER FEE TO TASWATER PRIOR TO PLACING ON MAINTENANCE.
4. ALL ROAD CROSSINGS TO BE BACKFILLED WITH FCR TO FINISHED SURFACE LEVEL.
5. ALL PRODUCTS USED MUST BE AS PER THE APPROVED PRODUCTS CATALOGUE FOR CITY WEST WATER.
6. PROVIDE NEW OD25 (I.D. 20) PN16 PE PIPE CONNECTION TO NEW LOTS 1-6 AND 8-13. PROVIDE NEW OD40 (I.D 32) IN ACCORDANCE WITH TASWATER STANDARD DRAWING TWS-W-0002.
7. PROVIDE DN100 SN4 PVC CONDUIT SLEEVE FOR ALL NON METALLIC PROPERTY SERVICE PIPES IN TRAFFICABLE AREAS.

SURVEY NOTES

1. PROPOSED LOT BOUNDARY LINES, EXISTING AND PROPOSED DEVELOPMENT AS SHOWN ON WOOLCOTT SURVEY DRAWING L191207-PROP LAYOUT280121 DATED 08.04.2021.
2. SERVICE INVERT LEVELS AND SITE CONTOURS BY SITE SURVEY.

REV.	DESCRIPTION	DRN	CHK	APP.	DATE
B	ISSUED FOR DEVELOPMENT APPLICATION	GA	GA	CO	02.08.21
A	ISSUED FOR CLIENT COMMENT	GA	GA	CO	27.07.21

DRAWING CHECK

	SIGNATURE	DATE
DRAWN	GA	23.07.21
DESIGNED	GA	23.07.21
CHECKED	CO	27.07.21
CLIENT		

HYDRODYNAMICA
HYDRAULIC MODELLING & ENGINEERING
44 PENQUITE ROAD, NEWSTEAD 7250 TAS
PHONE: 0413208450
EMAIL: CAMERON.OAKLEY@H-DNA.COM.AU

CLIENT
LAUNCESTON GOLF CLUB 1899
OPOSSUM ROAD KINGS MEADOWS TASMANIA 7249

PROJECT
PROPOSED SUBDIVISION
27-99 OPOSSUM ROAD
KINGS MEADOWS, TAS 7249
STAGE 1: 13 LOTS NEGARA CRES

TITLE
ROAD LAYOUT & CONCEPT SERVICES PLAN

STATUS: PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

SCALE @ A1: 1:250
DIMENSIONS: METRES
DRAWING No.: 332.31-SK01
REV.: B