ABZECO
Applied Botany, Zoology & Ecological Consulting

Biodiversity Assessment Report: Bowen Street, Malmsbury

Prepared for Planning Studio on Peel & Rush V Rush

Report 20019, Version 1.1
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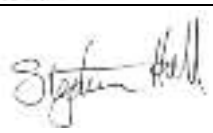
Version Control

Version	Responsibility	Name	Date	Signature
1.0	Author/Field Assessment	Matt Hatton	27 April 2020	
1.0	GIS Mapping	Stephen Hall	26 March 2020	
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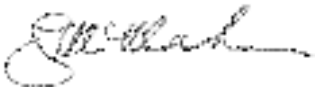
1.1	GIS Mapping	Jamie McMahon	02 December 2020	

Front cover image: Looking south-east across the southern extent of the study area.

Acknowledgements

Abzeco staff acknowledge the following people for their assistance with this assessment:

- Ed Zagami (Managing Director – Planning Studio on Peel – Planners & Urban Designers) – for project information and design;
- Nicholas Rush (Civil Engineer – Rush V Rush) – for report feedback and latest plans; and,
- The current property owners for access.

1 Introduction

The following report details the results of a Biodiversity Assessment conducted at a relatively large landholding at Bowen Street, Malmsbury, Victoria (Standard Parcel Identifier: 1~31\PP5495) (Figure 1). The subject land is proposed for residential subdivision into 29 lots, of which some are less than 0.5 hectares. An annotated survey plan has been provided for the proposed subdivision for the purposes of this assessment (Cardno TGM, Drawing Reference ACAD-PF-6459-03-PP01-02, dated 17/11/2020).

The site assessment considers the Victorian *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines, DELWP 2017a) and Clause 52.17 of the Macedon Ranges Shire Council Planning Scheme, including the applicable overlays, in order to identify any relevant matters and address potential impacts to native flora and fauna and other ecological matters from the proposed development.

The purpose of this brief report is to provide a summary of relevant biodiversity and legislative considerations that are likely to be required as part of the approval process for the project. Relevant matters include the:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act): potential habitat and/or presence of listed ecological communities and threatened species;
- Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act): potential habitat and/or presence of listed or protected flora; and,
- Victorian *Planning and Environment Act 1987* (PE Act): for any proposed removal of native vegetation.

Further investigations to inform the proposed development are outlined, where required.

1.1 Study Area and Surrounding Context

The study area covers approximately 21 hectares between Bowen Street and Bever Street, Malmsbury and is dissected in half by the east-west alignment of Service Street (Figure 1; Attachment 1).

Bowen Street runs along a shallow north-south ridge line that wraps around the northern and southern ends of the study area. The majority of the study area therefore occurs on the eastern and south-eastern face of the ridgeline ranging from approximately 270m to 265m ASL (see cover image). The site supports no substantial crests, ridges, hilltops or slopes exceeding 20%.

Several disused dams and bores are present within both the northern and southern portions of the site (Images 1-4). The dam in the south is effectively dry and the old bore sites in the north are full of rubbish and old building materials, however, the most northern bore has standing water 3-4 meters below ground level. The dam is connected to a shallow depression line that crosses the southern half of the property. No other waterways or wetlands occur within the study area, however, the site is within 1km of Malmsbury Reservoir to the south-east, which feeds into the Coliban River and Lauriston Reservoir.

The site has a long history of agricultural use, predominantly grazing, however, has also been cropped many times in the past as evidenced by a Google Earth image taken in 2013 (Capture 1). Evidence of recent harvesting (crop stubble) was observed during the field assessment and stock, vehicle, plough and seeding lines are all obvious throughout the site (Images 5 & 6).

Image 1. Dry dam along the southwest boundary (Abzeco 24/03/2020).

Image 2. Abandoned bore in the northern section of the property (Abzeco 24/03/2020).

Image 3. Old small dam filled with rubbish in the northern part of the property (Abzeco 24/03/2020).

Image 3. Bore hole in the north of the property still supporting water (Abzeco 24/03/2020).

Capture 1. Aerial photograph of subject land from 2013 showing virtually the entire site under cropping (Source: Google Earth ©).

Image 5. Stock and plough lines throughout the study area (Abzeco 24/03/2020).

Image 6. Old plough lines and residual stubble from recent harvesting (Abzeco 24/03/2020).

The local region has a long history of agricultural use and most areas have been historically cleared of indigenous species and altered through grazing, cropping and incursion of pasture and weed species. Large rural lots typify the immediate local area with higher density lots present to the east and north-east.

Some erosion and compaction is present within the Bowen Street and Service Street corner of the property from repeat camping of sheep (Image 7), however, no substantial areas of erosion were observed within other parts of the study area.

Image 7. Bare ground, erosion and compaction from stock camping in the south-west corner of the northern section (Abzeco 24/03/2020).

Based on the Department of Environment, Land, Water and Planning (DELWP) Native Vegetation Information Management (NVIM) Tool (DELWP 2020a), the study area occurs within the Central Victorian Uplands bioregion, as well as the North Central Catchment Management Authority (NCCMA) region and the municipality of Macedon Ranges Shire Council. The property is covered under the Rural Living Zone – Schedule 5 (RLZ5), as well as the Environmental Significance Overlay – Schedule 4 (ESO4) and the Erosion Management Overlay – Schedule 1 (EMO1).

1.2 Methods

A site inspection was conducted on 24 March 2020 by a qualified ecologist to determine the occurrence of native vegetation communities, flora and fauna and potential habitat within and adjacent to the study area. Any native vegetation and scattered trees within and adjacent to the boundary of the study area were identified and mapped in accordance with the Vegetation Quality Assessment (VQA), Habitat hectare method (DSE 2004) and the Guidelines for the removal, destruction and lopping of native vegetation (the Guidelines) (DELWP 2017a).

The following resources were also reviewed as part of the desktop assessment:

- The DELWP Native Vegetation Information Management (NVIM) Tool (DELWP 2020a) and NatureKit (DELWP 2020b) for modelled data for Location categories (1, 2 and 3), habitat importance mapping for rare and threatened flora and fauna, and the modelled extent of current and historic Ecological Vegetation Classes (EVCs);
- EVC benchmarks for descriptions and characteristics of each bioregion (DELWP 2020c);
- The Victorian Biodiversity Atlas (VBA) for previously documented records of flora and fauna in the locality (DELWP 2020d);
- The Commonwealth Department of the Environment and Energy (DOEE) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act; DOEE 2020a);
- Relevant literature, including the following:
    - The Guidelines (DELWP 2017a) and other explanatory documents relating to measuring value of native vegetation (DELWP 2017b), the Assessor's Handbook (DELWP 2018a), Applicant's Guide (DELWP 2018b) and relevant planning permit exemptions (DELWP 2017c).
- The latest Threatened and Protected Species Lists (DELWP 2019a, 2019b) under the Victorian Flora and Fauna Guarantee Act 1988 (FFG Act);
- VicPlan (DELWP 2020e) and Planning Schemes Online (DELWP 2020f) for the zoning and overlays relevant to the study area; and,
- Aerial photography of the study area.

Scientific and common names of flora and fauna follow the determinations of Walsh and Stajsic (2007), DEPI (2014), the Flora of Victoria Online (VicFlora 2020) and the VBA (DELWP 2020d). Names of plants are generally introduced in-text by use of the common name followed by the scientific name, and subsequently only referred to by the common name.

Where an asterisk (*) appears in-text as a prefix to all scientific names (flora and fauna), this indicates the entity to be introduced to Australia. A hash (#) prior to a plant scientific name

denotes those species native to Australia or Victoria but non-indigenous to the study area or to the relevant vegetation type.

1.3 Limitations

A Biodiversity Assessment encompassing targeted surveys was not undertaken as these tasks were beyond the agreed scope of works or considered unnecessary given the context of the site.

The survey was conducted in early autumn, which is typically a sub-optimal time of year for ecological assessments. However, the unusually wet summer has resulted in a flush of new vegetation growth over summer and nearly all species were readily identifiable as they possessed either flowers, fruit or seed. The information collected was therefore considered adequate for the purposes of the assessment.

1.4 Native Vegetation Permitted Clearing under the Guidelines

Clause 52.17 of the Victorian Planning Provisions and the Guidelines are publicly available documents covering regulatory and technical requirements of assessing applications that propose to impact native vegetation.

In accordance with the Guidelines, native vegetation is defined by two categories (DELWP 2017a):

- **A patch** of native vegetation:
    - An area of vegetation where at least 25% of the total perennial understory plant cover is native;
    - Any area with three (3) or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy; or,
    - Any mapped wetland included in the Current wetlands map (DELWP 2017a).
- **A scattered tree –** defined as a native canopy tree that does not form part of a patch.

2 Results

2.1 Description of Vegetation

A total of 43 flora taxa, including nine indigenous species, two Australian native species (not indigenous to the local area) and 32 introduced species were recorded within the study area (Appendix 1). The total includes four noxious weed species considered regionally Controlled within the North Central region of Victoria. No rare or threatened species were recorded within the study area.

The site has been historically cleared with only one indigenous canopy tree (Eurabbie *Eucalyptus globulus* subsp. *bicostata*) remaining in the south-east corner of the property (Figure 1). The tree is large (approximately 110cm Diameter at Breast Height), however, is in poor condition as it appears to have been struck by lightning in the past and has partially collapsed (Image 8). All other canopy species associated with the study area are exotic and most are confined to property boundaries where they have been planted in rows as wind breaks (Images 9 & 10). The dominant species is Radiata Pine **Pinus radiata,* however, several large Monterey Cypress **Hesperocyparis*

macrocarpa are also present and a dense windbreak of Hawthorn **Crataegus monogyna* defines the south-east corner. Additional trees scattered throughout the property include several small English Oak **Quercus robur* trees in the southern section, a small Desert Ash **Fraxinus angustifolia* near to the sheep camp and a small diseased clump of suckering Elm **Ulmus* spp. along the southern boundary of the northern parcel associated with Service Street. All shrubs are absent from the property other than a single Ovens Wattle #*Acacia pravissima* in the north-west corner and a Scented Paperbark #*Melaleuca squarrosa* amongst the stand of Radiata Pine near to the sheep camp, neither of which are indigenous to the local area.

Image 8. Large Eurabbie impacted by lightning within the south-east (Abzeco 24/03/2020).

Image 9. Facing south - Radiata Pine along the western boundary (Abzeco 24/03/2020).

Image 10. Hawthorn hedge defining the south western boundary of the study area (Abzeco 24/03/2020).

Vegetation throughout the remainder of the site is dominated by crop stubble and a range of pasture grasses and herbaceous weeds beginning to opportunistically germinate post-harvest. Species include several common thistles and other pasture weeds such as Common Sow-thistle **Sonchus oleraceaus*, Spear Thistle **Cirsium vulgare*, Cape Weed **Arctotheca calendula*, Sheep Sorrel **Acetosella vulgaris*, Big Heron's-bill **Erodium botrys* and Mallow of Nice **Malva nicaeensis*. Several indigenous groundcover species persist within the dry dam in the south west including Creeping Knotweed *Persicaria prostrata*, Small River Buttercup *Ranunculus amphitricus* and Reeds *Juncus* spp. Scattered plants of Clammy Goosefoot *Dysphania pumilio*, Common Purslane *Portulacca oleracea* and Wallaby-grass *Rytidosperma* spp occur within the Service Street road reserve and scattered Naked Crane's-bill *Geranium* sp. 5 is also present in both sections of the property. However, none of these species occur in sufficient cover to warrant inclusion as a patch of native vegetation.

A small, degraded stony knoll with embedded rock is present in the north-west section of the property (Image 11). This section has not been ploughed due to the density of subsurface rock and could retain some indigenous species, however, the likelihood is very low as the area is highly disturbed and regularly grazed.

Image 11. Degraded stony knoll in the north-west section of the study area (Abzeco 24/03/2020).

2.2 Vegetation Patches

The entire study area is modelled as historically supporting Plains Grassy Woodland (EVC 55), with surrounding areas supporting Valley Grassy Forest (EVC 47) (DELWP 2020a). Vegetation within the site has been significantly altered from its pre-1750 condition and no longer supports any species characteristic of either historical vegetation type. As a result of past clearing and a long history of agriculture, no patches (habitat zones) of native vegetation were recorded within the study area.

2.3 Scattered Trees

One large scattered tree (Eurabbie – see Image 8) was mapped as part of the assessment in the south west. The tree is likely to have been planted and its origin is somewhat questionable, however, it has been included as an indigenous tree for the purposes of this assessment. The tree is in relatively poor condition, however, is likely to have high habitat value in the otherwise

locally treeless environment and should be retained as it is unlikely to interfere with any future development plans as it is well outside the proposed building envelope (Attachment 1).

2.4 Significant Flora Species and Communities

No State or Commonwealth listed flora species were recorded within the study area. A search of the Victorian Biodiversity Atlas (VBA) for previous records of EPBC Act-listed and Victorian rare or threatened flora within five kilometres of the study area identified no EPBC Act listed species and eight State-listed taxa, including Penny-leaf Flat-pea *Platylobium rotundum,* Arching Flax-lily *Dianella longifolia* var. *grandis,* Floodplain Fireweed *Senecio campylocarpus,* Small-flower Mat-rush *Lomandra micrantha* subsp. *tuberculate,* Large-flower Crane's-bill *Geranium* sp. 1, Fryerstown Grevillea *Grevillea obtecta,* Slender Club-sedge *Isolepis congrua* and Hypsela *Isotoma tridens* (DELWP 2020d). The PMST also nominates 13 EPBC Act listed species as having either known or potential habitat and the potential to occur within a 5km radius of the study area (DAWE 2020a). The additional PMST species include a range of orchids (e.g. Candy Spider-orchid *Caladenia versicolor*), aquatic dependent species (e.g. River Swamp Wallaby-grass *Amphibromus fluitans*) and a range of grassland dependent species (e.g. Hoary Sunray *Leucoshrysum albicans* subp. *tricolor*) for which there is no suitable habitat remaining within the study area.

None of the previous VBA records pertain to the study area and most are relevant to Fryers Ridge Nature Conservation Reserve approximately 1.2 km to the west. Given the history of disturbance and long term agricultural use, suitable habitat is considered absent for all listed flora species pertaining to the surrounding area and the likelihood of occurrence is considered very low.

Two listed threatened ecological communities are flagged in the PMST search:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (listed as endangered); and,
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered).

Vegetation within the study area does not meet the condition thresholds for either of the above listed threatened ecological vegetation communities.

2.5 Significant Fauna Species and Fauna Habitat

No State or Commonwealth listed fauna species were recorded within the study area. A search of the Victorian Biodiversity Atlas (VBA) for previous records of EPBC Act-listed and Victorian rare or threatened fauna within five kilometres of the study area identified two EPBC Act listed species (Regent Honeyeater *Anthochaera phrygia* and Golden Sun Moth *Synemon plana*), as well as 21 State or Advisory-listed fauna species (DELWP 2020d). The PMST also nominates an additional 15 EPBC listed species as having the potential to occur or known or potential habitat within a 5 km radius of the study area (DOEE 2020a).

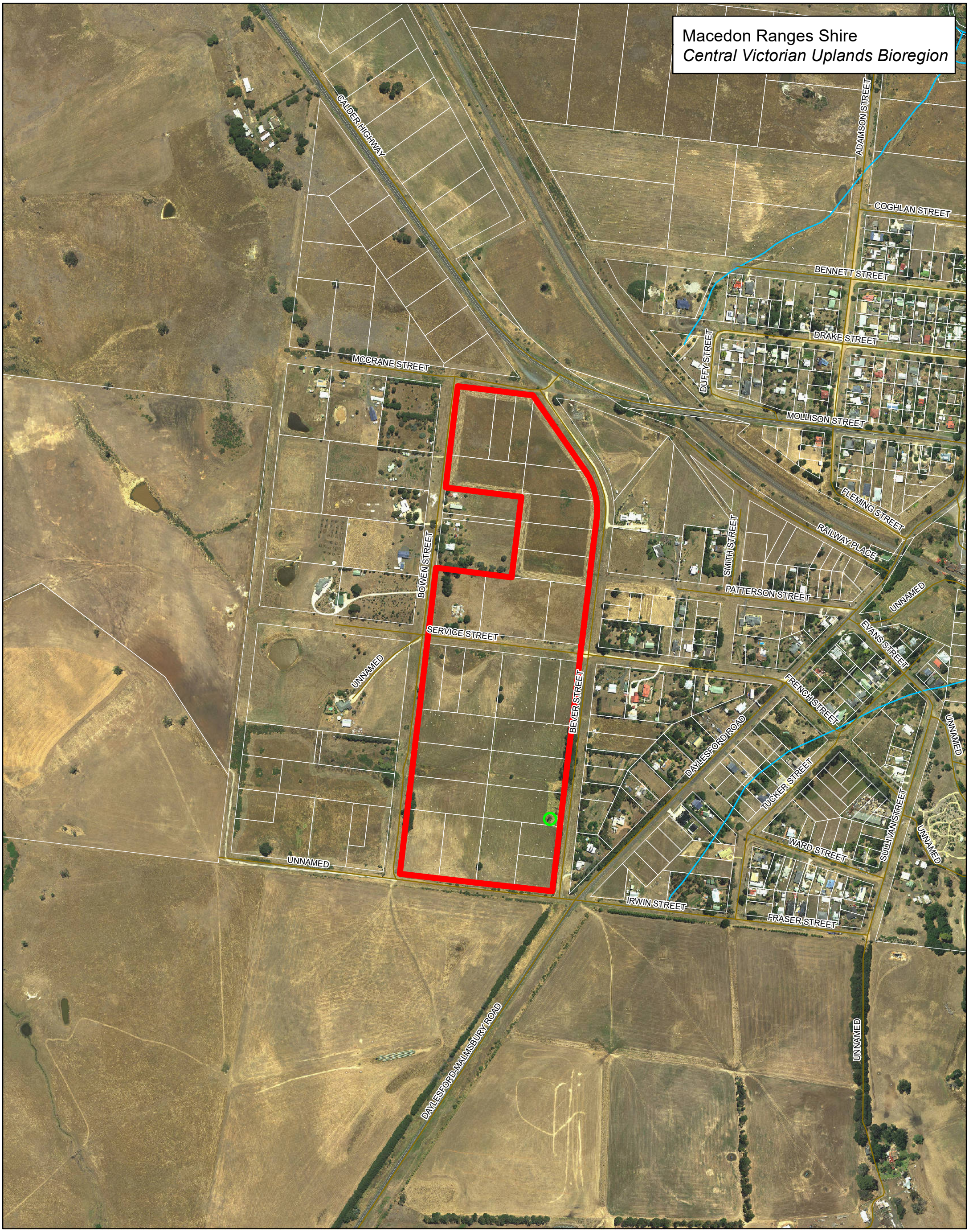
None of the previous VBA records pertain directly to the study area, with most relevant to the nearby Fryers Ridge Nature Conservation Reserve to the west and the Coliban River several kilometers to the south. The majority of records and the most recent records pertain to Brush-tailed Phascogale *Phascogale tapoatafa* and Brown Treecreeper *Climacteris picumnus* for which there is no suitable habitat in the form of large old trees and intact woodland. Similarly, at least 10 records exist for Musk Dusk *Biziura lobata* and other listed duck, heron, egret, kingfisher, cormorant, perch, turtle and toadlet species, however, suitable habitat in the form of waterbodies

is absent. Similarly, the composition of grassy vegetation within the study area is unsuitable for Golden Sun Moth *Synemon plana*.

Given the history of disturbance and the largely treeless environment, the existing vegetation within the study area is considered to provide only low value habitat for a range of common fauna species adapted to modified environments. For example, several Australian Magpie *Cracticus tibicen* families were noted to be nesting within the large Radiata Pine tree windbreaks on either side of the property. Other common species noted either on ground or flying over the study area included Galah *Eolophus roseicapilla,* Little Corella *Cacatua sanguinea* and Little Raven *Corvus mellori.*

Overall, the site is not considered to provide critical or limiting habitat for any rare or threatened fauna species previously recorded within a 5km radius of the local area and the likelihood of occurrence or regular use of the area by any threatened fauna is considered low.

Figure 1. Study Area for Bowen St, Malmsbury



Study Area — Watercourse — Large tree

N

100 0 100 200 Meters

Note: location of property boundaries, watercourse & topography indicative only

Scale: 1:6,000 (A4)

Survey Date: 24/03/2020

Created by: Stephen Hall

Report: 20019 - v1.0

File: Abzeco20019-Fig1-BowenSt Malmsbury-BAR-LMP.mxd

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3 Impacts to native vegetation

3.1 Summary of impacts to native vegetation

Impacts to native vegetation as a result of the planning application will only effect highly scattered and isolated indigenous understorey plants as the site is highly modified and supports no intact patches of native vegetation. The only potential indigenous tree within the south-east corner of the property (the large Eurabbie within proposed lot 21) can be avoided as part of any future development as it is well outside the proposed building envelope. This tree does not require removal.

3.2 Native vegetation offsets

Offset targets for the planning application are not required as no patches of native vegetation or scattered trees will be impacted as a result of the proposal.

3.3 Offset Strategy

As above, an offset strategy is not required as there are no impacts to native vegetation in accordance with the Guidelines (DELWP 2017a) and Clause 52.17.

3.4 Avoidance and Minimisation Statement

The large Eurabbie within the south-east corner of the property (proposed lot 21) can be avoided as part of any future development. This tree is the only native vegetation within the property worthy of concern and does not require removal.

3.5 Legislation and Policy

Environment Protection and Biodiversity Conservation Act 1999 **(EPBC Act)**

No Matters of National Environmental Significance (MNES) are considered relevant to the study area. Critical or limiting habitat for EPBC Act-listed flora and fauna species is absent from the study area and a significant impact to a MNES is considered unlikely, therefore referral of the proposed action to the Commonwealth Minister for the Environment is not required.

Flora and Fauna Guarantee Act 1988 **(FFG Act)**

No flora species were observed within the study area that are considered protected under the FFG Act. A permit for the removal of protected flora species is therefore not required and the study area is also private land.

Catchment and Land Protection Act 1994 **(the CaLP Act)**

Four declared noxious weed species (Spear Thistle **Cirsium vulgare,* Hawthorn **Crataegus monogyna,* Common Blackberry **Rubus anglocandicans* and Gorse **Ulex europeaus*) were recorded in low abundance within the study area (Appendix 1). All species are listed as regionally Controlled under the CaLP Act and the latter two species are also recognised as Weeds of National Significance (WoNS). Landowners have a legal responsibility under the Act to control declared noxious weeds and ensure spreading of weeds is limited and managed during any construction works.

Wildlife Act 1975 and Wildlife Regulations 2002

Any persons engaged in the salvage, translocation and/or handling of native fauna during any construction works must have a management authorization under the *Wildlife Act 1975*. The large Eurabbie is likely to support some hollows however, is not proposed for removal. Many of the large pines on the property boundary also support bird nests and will require consideration should any of the trees require removal as part of future development.

Planning and Environment Act 1987

Although no patches of native vegetation are considered present with respect to the Guidelines (DELWP 2017a) and the Vegetation Quality Assurance (VQA) methodology (DSE 2006), a planning permit to remove, destroy or lop native vegetation is nevertheless required under Clause 52.17 of the Macedon Ranges Shire Council planning scheme, as scattered occurrences of native vegetation (i.e. isolated tussocks of indigenous grass) will be removed as part of the proposed development.

Planning zones and overlays

The study area is zoned Rural Living Zone – Schedule 5 (RLZ5). An Environmental Significance Overlay – Schedule 4 (ESO4) covers the site pertaining to the Eppalock proclaimed catchment. Given the consideration of Lake Eppalock as a major water storage and recreation facility application requirements under the ESO4 include provision of:

- A plan of the whole site indicating the location of all water storages, creeks, streams and springs.
- A plan indicating the location of existing and proposed buildings and points of vehicle access to the site.
- A plan indicating the location of any proposed septic tank system.
- A plan indicating the location of native vegetation on site.

4 Conclusion and Recommendations

The following matters are relevant to the proposed development:

- No flora or fauna species, or ecological communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) are relevant to the study area. As such, targeted surveys are not recommended and a referral under the EPBC Act is not required;
- No State Advisory-listed flora or fauna were recorded within the study area and none are considered likely to occur. As such, targeted surveys are not recommended as part of the proposed development;
- A permit under Victoria's *Flora and Fauna Guarantee Act 1988* (FFG Act) is not required as the property is private land;
- A planning permit to remove, destroy or lop native vegetation is required under Clause 52.17 of the Macedon Ranges Shire planning scheme (*Planning and Environment Act 1987*) as part of the proposed development;

Other considerations and recommendations for the proposed development include the following:

- Appropriate consideration of construction measures to ensure retained vegetation in the study areas and surrounding areas is appropriately delineated and protected during construction works. Suitable measures include signage and temporary fencing/webbing to establish No-Go Zones, which should be also designated on construction plans;
- Ensure all personnel are familiar with the extent of the works area and No-Go Zones and appropriately inducted/aware of ecologically sensitive areas in the study area and immediate surrounds;
- Construction stockpiles, storage of equipment and machinery should be placed in approved and designated zones away from any areas supporting native vegetation;
- The spread of weeds during construction to areas of adjacent high ecological value should be appropriately managed during construction through appropriate hygiene protocols for machinery, vehicles and personnel; and,
- Any landscaping and revegetation works should use plants that are indigenous to Macedon Ranges Shire and/or the local area.

References

DAWE (2020). Protected Matters Search Tool: Interactive Map. URL: http://www.environment.gov.au/epbc/pmst/. Commonwealth Department of Agriculture, Water and Environment, Canberra.

DELWP (2017a). *Guidelines for the removal, destruction or lopping of native vegetation.* Version 1.0, December 2017. Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2017b). *Biodiversity information explanatory document: Measuring value when removing or offsetting native vegetation*. December 2017. Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2017c). *Exemptions from requiring a planning permit to remove, destroy or lop native vegetation: Guidance*. December 2017. Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2018a). *Assessor's handbook: Applications to remove, destroy or lop native vegetation.* Version 1.1, October 2018. Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2018b) *Applicant's guide: Applications to remove, destroy or lop native vegetation*. December 2017. Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2019a). *Flora and Fauna Guarantee Act 1988* Protected List – December 2019. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2019b). *Flora and Fauna Guarantee Act 1988* Threatened Flora List –. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2020a). Native Vegetation Information Management Tool (NVIM), URL: https://nvim.delwp.vic.gov.au/. Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2020b). NatureKit. URL: http://maps.biodiversity.vic.gov.au/viewer/?viewer=NatureKit. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2020c). Ecological Vegetation Class (EVC) Benchmarks for each Bioregion. URL: https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2020d). Victorian Biodiversity Atlas. Sourced from: "VBA_FLORA25", "VBA_FLORA100", "VBA_FAUNA25", "VBA_FAUNA100, Version 3.2.6, 02 Feb 2019. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2020e). VicPlan URL: https://mapshare.vic.gov.au/vicplan/. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (2020f). Planning Schemes Online. URL: http://planning-schemes.delwp.vic.gov.au/. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DELWP (no date). *Flora and Fauna Guarantee Act 1988* – Threatened List: Characteristics of Threatened Communities. Victorian Department of Environment, Land, Water and Planning, East Melbourne.

DEPI (2014). *Advisory list of rare or threatened plants in Victoria*. Victorian Department of Environment and Primary Industries, East Melbourne.

DSE (2004). *Vegetation quality assessment manual: Guidelines for applying the habitat hectare scoring method. Version 1.3.* Victorian Department of Sustainability Environment, East Melbourne.

DSE (2009). *Advisory list of threatened invertebrate fauna in Victoria*. Victorian Department of Sustainability and Environment, East Melbourne.

DSE (2013). *Advisory list of threatened vertebrate fauna in Victoria*. Victorian Department of Sustainability and Environment, East Melbourne.

VicFlora (2020). Flora of Victoria, Royal Botanic Gardens Victoria, <https://vicflora.rbg.vic.gov.au>.

Walsh, N. and Stajsic, V. (2007). A Census of the Vascular Plants of Victoria. 8th Edition. Royal Botanic Gardens, Melbourne.

Appendices

Appendix 1. Flora Recorded in the Study Area

Legend:

* – Introduced/exotic species;
# - native to Australia or Victoria but non-indigenous to the study area;
I – Protected under the FFG Act (DELWP 2017d);
C – Weed listed as regionally controlled under the CaLP Act.

Origin	*Scientific Name*	Common Name	Status
#	*Acacia pravissima*	Ovens Wattle	
*	*Acetosella vulgaris*	Sheep Sorrel	
*	*Arctotheca calendula*	Cape weed	
*	*Avena barbata*	Bearded Oat	
*	*Bromus hordeaceus*	Soft Brome	
*	*Cirsium vulgare*	Spear Thistle	C
*	*Crataegus monogyna*	Hawthorn	C
*	*Cynodon dactylon*	Couch	
	Dysphania pumilio	Clammy Goosefoot	
*	*Erodium botrys*	Big Heron's-bill	
	Eucalyptus globulus subsp. bicostata	Eurabbie	
*	*Fraxinus angustifolia subsp. angustifolia*	Desert Ash	
	Geranium sp. 5	Naked Crane's-bill	
*	*Heliotropium europaeum*	Common Heliotrope	
*	*Helminthotheca echioides*	Ox-tongue	
*	*Hesperocyparis macrocarpa*	Monterey Cypress	
*	*Hypochaeris radicata*	Flatweed	
	Juncus spp.	Rush	
*	*Lolium perenne*	Perennial Rye-grass	
*	*Malus spp.*	Apple	
*	*Malva nicaeensis*	Mallow of Nice	
*	*Medicago minima*	Little Medic	
#	*Melaleuca squarrosa*	Scented Paperbark	
*	*Modiola caroliniana*	Red-flower Mallow	
	Persicaria prostrata	Creeping Knotweed	
*	*Phalaris aquatica*	Toowoomba Canary-grass	
*	*Pinus radiata*	Radiata Pine	
*	*Plantago lanceolata*	Ribwort	
	Portulaca oleracea	Common Purslane	
*	*Prunus cerasifera*	Cherry Plum	
*	*Quercus robur*	English Oak	
	Ranunculus amphitrichus	Small River Buttercup	
*	*Romulea rosea*	Onion Grass	
*	*Rubus anglocandicans*	Common Blackberry	C, WoNS
*	*Rumex crispus*	Curled Dock	
	Rytidosperma spp.	Wallaby Grass	
*	*Solanum nigrum s.s.*	Black Nightshade	
*	*Sonchus asper s.s.*	Rough Sow-thistle	

Origin	*Scientific Name*	Common Name	Status
*	*Sonchus oleraceus*	Common Sow-thistle	
*	*Trifolium subterraneum*	Subterranean Clover	
*	*Ulex europaeus*	Gorse	C, WoNS
*	*Ulmus spp.*	Elm	
	Walwhalleya proluta	Rigid Panic	

Attachment 1: Annotated Subdivision Plan (Cardno TGM, Drawing Reference ACAD-PF-6459-03-PP01-02, dated 17/11/2020)