VEGETATION ASSESSMENT

BRIODY DRIVE WEST DEVELOPMENT PLAN

PREPARED FOR: BRIODY DRIVE PROJECTS PTY LTD

ÖKOLOGIE CONSULTING

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Document Information

Vegetation assessment for the Briody Drive West Development Plan

Report prepared by Okologie Consulting Pty Ltd for Briody Drive Projects Pty Ltd

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Document Control

Version	Review	Author	Approval	Date
M730_BriodyDrive_Vegetation_Assessment_Report_01092021_V3	Luke Hynes	Mark Stockdale		01/09/2021

Acknowledgements

Okologie Consulting acknowledges the following people in their contribution to this project:

- Naomi Scully (Development Manager) for project information.

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Summary

Okologie Consulting Pty Ltd was engaged by Briody Drive Projects Pty Ltd to prepare a vegetation assessment for the Briody Drive West Development Plan.

The vegetation assessment was undertaken to inform the revised development plan and ascertain the presence/absence of any listed threatened flora or fauna species or associated habitats within the project area.

The project area was characterised by areas of planted vegetation along windrows and around residential dwellings, interspersed with managed exotic grassland. Native vegetation was limited to a modified cover of Grassy Woodland in private property and along the road reserves of Briody Drive, Messmate Road and Grossmans Road, with modified Heathy Woodland along Grossmans Road.

One listed threatened flora species, Bellarine Yellow-gum *Eucalyptus leucoxylon* subsp*. bellarinensis*, was recorded in the project area. No listed threatened fauna species or associated habitats were recorded the field assessment, and none are considered likely to occur due to the absence of suitable habitat.

An *Environment Protection Biodiversity Conservation Act 1999* referral will not be required as no Matters of National Environmental Significance are present or likely to be significantly impacted by future works in the project area.

One *Flora and Fauna Guarantee Act 1988* listed threatened species (Bellarine Yellow-gum) and four listed protected flora species (Austral Grass-tree, Golden Wattle, Varnish Wattle and Black Wattle) occur along Messmate Road and Grossmans Road reserves. A permit will be required from the Department of Environment, Land, Water and Planning to remove any listed threatened or protected species from road reserves.

The proposed removal of any native vegetation will require a permit under Clause 52.17 of the Surf Coast Planning Scheme. A basic, intermediate or detailed assessment pathway application will also be required in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*, depending on the extent and location of vegetation removal. A native vegetation removal application and associated offset requirements will be provided with the future planning permit application for subdivision

It is recommended that the principles of avoid and minimise are applied during the design process to ensure the final project design avoids adverse impacts on existing biodiversity values as much as practicable. Efforts to avoid the removal and minimise the impacts on native vegetation should focus on areas of native vegetation that have the most value, particularly road reserves.

1 Introduction

1.1 Project Background

Okologie Consulting Pty Ltd was engaged by Briody Drive Projects Pty Ltd to prepare a vegetation assessment for the Briody Drive West Development Plan.

The vegetation assessment was undertaken to inform the revised development plan and ascertain the presence/absence of any listed threatened flora or fauna species or associated habitats within the project area.

The Briody Drive West Development Plan was endorsed by Council in 2017. The proposed amendment to the development plan requires review of the development impacts to native vegetation. The 2017 development plan included a 'Vegetation Assessment and Biodiversity Impact and Offset Requirements Report' (Mark Trengrove Ecological Services 2016) that was based on the previous Biodiversity Assessment Guidelines (DELWP 2013). An arboricultural assessment of trees within the development area was also prepared by Axiom Tree Management (2019).

The assessment includes a review of the permit requirements for removal of native vegetation under Clause 52.17 (Native Vegetation) and the *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) (DELWP 2017). The development area is now subject to Environmental Significance Overlay – Schedule 1 (ESO1) and Environmental Significance Overlay – Schedule 4 (ESO4). The assessment also reviews the relevant provisions under these overlays.

This report details the findings of the assessment and discusses environmental legislation and policy implications associated with the proposed development.

1.2 Objectives

The objectives of the assessment were to:

- Assess terrestrial ecological values (i.e. vegetation communities, flora and fauna species and associated habitats) within the project area.
- Review the application requirements under Clause 52.17 and the Guidelines.
- Ensure ecological values are identified in the early planning phase.
- Identify environmental legislation and policy requirements.

1.3 Site Description

The project area consists of the Briody Drive West Development Plan area, comprising numerous private properties bound by Briody Drive and private property to the north, Illawong Drive to the east, Grossmans Road to the south and Messmate Road to the west. The assessment area also included the adjacent road reserves along Briody Drive,

Illawong Drive, Grossmans Road and Messmate Road and a Council reserve at Blackwattle Mews (Figure 1).

The topography comprises low undulating slopes towards the southwest, with moderate undulating slopes towards the north on the properties at 150 and 170 Briody Drive. Deep Creek intersects the northern section of the project area and a minor unnamed ephemeral waterway associated with Deep Creek extends across the project area, south of Briody Drive.

The project area supports numerous existing dwellings and associated infrastructure, interspersed with planted vegetation and open grassland. Native vegetation was present along road reserves and across several properties. The project area was historically used for agriculture. The surrounding land use includes agriculture, public utility (Barwon Water facility) and residential development.

The project area occurs within the Otway Plain bioregion, the Corangamite Catchment Management Authority boundary and the Surf Coast Shire municipality (DELWP 2021a). The Native Vegetation Location mapping shows the project area occurs within Location 1 and 2 (DELWP 2021b). The project area is subject to Development Plan Overlay – Schedule 10 (DPO10), the Bushfire Management Overlay, and is partially subject to ESO1 and ESO4 (DELWP 2021c). The details of properties within the development plan area are outlined in Table 1.

Table 1: Property details within the project area

Property	Lot Number	Zoning	Environmental Overlays
95 Briody Drive	Lot 3 LP204878	General Residential Zone - Schedule 1 (GRZ1)	None
105 Briody Drive	Lot 4 LP204878	GRZ1	None
111 Briody Drive	Lot 2 PS338340	GRZ1	None
119 Briody Drive	Lot 1 PS338340	GRZ1	None
125 Briody Drive	Lot 3 PS645026	GRZ1	None
129 Briody Drive	Lot 2 PS645026	GRZ1	None
135 Briody Drive	Lot 1 PS645026	GRZ1	None
150 Briody Drive	Lot 3 LP219180	GRZ1	ESO1
170 Briody Drive	Lot 4 PS604122	GRZ1	ESO1
90 Grossmans Road	Lot 6 LP204878	GRZ1	None
96 Grossmans Road	Lot 5 LP204878	GRZ1	None
120 Grossmans Road	Lot 3 PS531300	GRZ1	ESO4
140 Grossmans Road	Lot 2 PS531300	Low Density Residential Zone (LDRZ)	None
150 Grossmans Road	Lot 1 PS531300	GRZ1	None
170 Grossmans Road	Lot 1 TP208530	GRZ1	None
3A Blackwattle Mews	Council Reserve	LDRZ	ESO4
15 Illawong Drive	Lot 1 LP134716	GRZ1	None
25 Illawong Drive	Lot 2 LP149563	GRZ1	None

Source: DELWP (2020c)

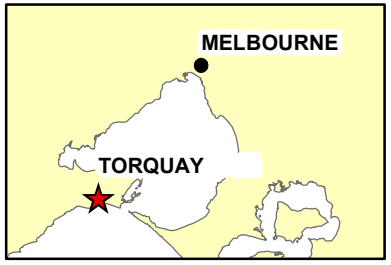
Figure 1

Site Location

Briody Drive West Development, Torquay

Legend

Subject Site



N

0 55 110 220

Metres

Coordinate System: GDA 1994 MGA Zone 55

Map Scale when printed @ A4 1:7,000

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2 Methodology

2.1 Species Information

Scientific and common names of flora species and terrestrial vertebrate fauna follow the Victorian Biodiversity Atlas (VBA) (DELWP 2021d). Vegetation communities follow the Ecological Vegetation Class (EVC) bioregion benchmarks (DELWP 2021a).

Native flora and fauna referred to as 'threatened' include species:

- Listed as critically endangered, endangered or vulnerable under the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) (DAWE 2021).
- Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (FFG Act) (DELWP 2021e).
- Listed as critically endangered, endangered, vulnerable or rare on Victoria's rare or threatened flora and fauna advisory lists (DEPI 2014; DSE 2013).

2.2 Desktop Assessment

A desktop assessment was undertaken of relevant databases and other resources, including:

- NatureKit for modelled biodiversity data (DELWP 2021a).
- Native Vegetation Information Management system tool for native vegetation information (DELWP 2021b).
- Planning Schemes Online for planning information (DELWP 2021c).
- The VBA for threatened flora and fauna species records (DELWP 2021d).
- The Protected Matters Search Tool (PMST) for information relating to Matters of National Environmental Significance (MNES) (listed species and communities) under the EPBC Act (DAWE 2021).
- Relevant environmental legislation, policies and strategies.

2.3 Field Assessment

The field assessment was undertaken on 11 and 12 and 23 June 2020. The project area was traversed on foot to determine the extent of native vegetation and ascertain the presence of any listed threatened flora or fauna species or associated habitats. The extent of native vegetation was mapped using a Trimble Catalyst DA1 differential GPS (sub-metre accuracy post-processing) and recorded to MGA 94, Zone 55 coordinate system. EVCs were determined by reference to the relevant bioregion mapping and benchmarks descriptions (DELWP 2021a), and review of remnant vegetation in the local area.

A habitat hectare assessment was undertaken in conjunction with the vegetation assessment by an accredited assessor (Mark Stockdale VQA Registration Number: HH026). The assessment method followed the *Vegetation quality assessment manual – Guidelines for applying the habitat hectares scoring method Version 1.3* (DSE 2004) and the *Assessor's handbook - Applications to remove, destroy or lop native vegetation* (DELWP 2018).

The habitat hectare assessment involved assessing:

- Patches of native vegetation, including the condition, extent (in hectares) and EVC type;
- The species, location, number and circumference (in centimetres measured at 1.3 metres above ground level) of large trees within patches.
- The species, location, number and circumference (in centimetres measured at 1.3 metres above ground level) of scattered trees and classified as small or large trees (DELWP 2018).

Additional site-based information collected during the field assessment also included the extent of native vegetation, large trees, native vegetation condition, EVCs, and sensitive wetlands or coastal areas:

- The extent of native vegetation is the area of land covered by a patch and/or a scattered tree and is measured in hectares.
- Large trees can be either a large-scattered tree or a large tree contained within a patch. It is a native canopy tree with a Diameter at Breast Height (DBH) greater than or equal to the large tree benchmark for the relevant bioregional EVC.
- Native vegetation condition is a value based on a 'Habitat score' of between 0 and 1 that describes how close native vegetation is to its mature natural state.
- An EVC is a native vegetation type classified on the basis of a combination of its floristics, lifeforms, and ecological characteristics, and follow the relevant bioregion benchmarks.
- Sensitive wetlands or coastal areas consisting of:
    - wetlands designated under the Convention on Wetlands of International Importance (the Ramsar Convention).
    - wetlands listed in the Directory of Important Wetlands of Australia.
    - Internationally important sites for Migratory Shorebirds of the East Asian-Australasian Flyway (DELWP 2018).

2.4 Assessment Guidelines

The Guidelines (DELWP 2017) has been incorporated into the Victoria Planning Provisions and all planning schemes in Victoria. The purpose of the Guidelines is to set out and describe the application of Victoria's statewide policy in relation to assessing and compensating for the removal of native vegetation in response to permit applications under Clause 52.17.

Native vegetation is defined in Clause 72 of the Victoria Planning Provisions as *plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses*. Plants from other states or overseas are not native and the permitted clearing regulations do not apply if they are being removed (DELWP 2017).

The Guidelines considers the biodiversity value of native vegetation by measuring the following two components:

- Site-based information that can be measured or observed at a site.
- Landscape scale information that cannot be measured or observed at the site and is included in maps and models (DELWP 2017).

Under the Guidelines native vegetation is classified as a *patch* or *scattered tree*.

A patch of native vegetation is:

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native[1]; or
- Any area with three or more native canopy trees[2] where the drip line[3] 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.

A scattered tree is:

- A native canopy tree that does not form part of a patch (DELWP 2017).

The assessment pathway for an application to remove native vegetation reflects its potential impact on biodiversity and is determined from the location and extent of the native vegetation to be removed. The three assessment pathways are:

- Basic – limited impacts on biodiversity.
- Intermediate – could impact on large trees, endangered EVCs, and sensitive wetlands and coastal areas.
- Detailed – could impact on large trees, endangered EVCs, sensitive wetlands and coastal areas, and could significantly impact on habitat for rare or threatened species.

[1] Plant cover is the proportion of the ground that is shaded by vegetation foliage when lit from directly above. Areas that include non-vascular vegetation (such as mosses and lichens) but otherwise support no native vascular vegetation are not considered to be a patch for the purposes of the Guidelines. However, when non-vascular vegetation is present with vascular vegetation, it does contribute to cover when determining the percentage of perennial understorey plant cover.

[2] A native canopy tree is a mature tree (i.e. it is able to flower) that is greater than 3 metres in height and is normally found in the upper layer of the relevant vegetation type.

[3] The drip line is the outermost boundary of a tree canopy (leaves and/or branches) where the water drips on to the ground (DELWP 2017).

The assessment pathway of an application is determined in accordance with the requirements in Table 2.

Table 2: Assessment pathways

Extent of native vegetation	Location Category		
	Location 1	Location 2	Location 3
Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
0.5 hectares or more	Detailed	Detailed	Detailed

Source: DELWP (2017).

2.5 Limitations

The preferred survey period for undertaking vegetation assessments in Victoria is spring, which maximises the likelihood of detecting all flora species within a site. Flora surveys provide a valuable 'snapshot' of vegetation at a point in time; however, the limitations of seasonal influence (winter) on the presence/absence of flora species (particularly annuals or cryptic species) must be considered. The short duration of the assessment limited the opportunity to observe migratory, transitory or uncommon fauna species.

The information outlined in this report relies on the accuracy of ecological database information, GIS layers and spatial imagery. To minimise potential errors, the most current available data was obtained from relevant sources.

The Department of Environment, Land, Water and Planning (DELWP) bioregion and EVC mapping are subject to inherently broad environmental and ecological parameters used in the mapping process. Where the observed EVC was not reflective of what would be expected from EVC mapping and classification, it was attributed to the most appropriate EVC based on combination of its floristic, life form and ecological characteristics, and particular environmental conditions.

3 Results

3.1 Ecological Vegetation Classes

NatureKit modelling identifies the pre-1750 EVC mapping for the project area predominantly comprised of Grassy Woodland (EVC 175) and Heathy Woodland/Sand Heathland Mosaic (EVC 892). Extant (2005) EVC mapping shows a modified cover of Grassy Woodland and Heathy Woodland/Sand Heathland Mosaic (DELWP 2021a).

Remnant vegetation within the project area was attributed to Grassy Woodland and Heathy Woodland (EVC 48) based on floristic, life form and ecological characteristics (Figures 2a to 2f).

Note the previous vegetation assessment undertaken by Trengrove (2016) identified various sections of the project area supported Heathy Woodland. However, these areas of native vegetation align with Grassy Woodland as the overstorey supports Manna Gum and Yellow Gum, a shrub layer of Golden Wattle and Black Wattle and a grassy understorey dominated by Weeping Grass, Kangaroo Grass, Wallaby Grass. The project area also supports areas of native vegetation on private property not previously mapped by Trengrove (2016).

The arboricultural assessment (Axiom 2019) includes review of planted native trees and shrubs on private property. The report notes several of these trees as 'Victorian Native', however, this vegetation was identified as planted unless noted otherwise in Figures 2a to 2f.

3.2 Vegetation Condition

The project area was characterised by areas of planted vegetation along windrows and around residential dwellings, interspersed with managed exotic grassland. Native vegetation was limited to a modified cover of Grassy Woodland along road reserves of Briody Drive, Messmate Road and Grossmans Road, with modified Heathy Woodland along Grossmans Road. Sections of the road reserves contain a modified landform from previous road infrastructure works (Figures 2a-2f). A description of the vegetation within the project area is outlined below.

Grassy Woodland

Grassy Woodland is described as *a variable open eucalypt woodland to 15 metres tall or occasionally Sheoak woodland to 10 metres tall over a diverse ground layer of grasses and herbs. The shrub component is usually sparse. It occurs on sites with moderate fertility on gentle slopes or undulating hills on a range of geologies* (DELWP 2021a).

Grassy Woodland along Messmate Road and the western section of the project area comprised a canopy of Manna Gum *Eucalyptus viminalis* and Messmate Stringybark *Eucalyptus obliqua* to 15 metres tall, with Swamp Gum *Eucalyptus ovata* also present. The shrub layer consisted of Golden Wattle *Acacia pycnantha*, Black Wattle *Acacia mearnsii*, Hedge Wattle *Acacia paradoxa* and Varnish Wattle *Acacia verniciflua*. The ground layer comprised a modified cover of Weeping Grass *Microlaena stipoides*, Supple Spear-grass *Austrostipa mollis*, Thatch Saw-sedge *Gahnia radula*, Variable Sword-sedge *Lepidosperma laterale*, Common Wallaby-grass *Rytidosperma caespitosum*, Grey Tussock-grass *Poa sieberiana*, Bristly Wallaby-grass *Rytidosperma setaceum*, Wattle Mat-rush *Lomandra filiformis,* Black-anther Flax-lily *Dianella admixta*, Austral Grass-tree *Xanthorrhoea australis*, Common Raspwort *Gonocarpus tetragynus* and Bidgee-widgee *Acaena novae-zelandiae*. Exotic species included Sugar Gum *Eucalyptus cladocalyx*, Boneseed *Chrysanthemoides monilifera*, Golden Wreath Wattle *Acacia saligna*, Panic Veldt-grass *Ehrharta erecta*, Large Quaking-grass *Briza major*, Paspalum *Paspalum dilatatum*, Yorkshire Fog-grass *Holcus lanatus* and Bluebell Creeper *Billardiera heterophylla* (Plates 1 and 2) (Figures 2a and 2b).

Grassy Woodland along Grossmans Road reserve consisted of Messmate Stringybark and Bellarine Yellow-gum *Eucalyptus leucoxylon* subsp*. bellarinensis* pruned under powerlines, with Golden Wattle, Hedge Wattle and Black Wattle, with native weed species Sweet Pittosporum *Pittosporum undulatum* and Coast Tea-tree *Leptospermum laevigatum* present in the shrub layer. The ground layer consisted of Grey Tussock-grass *Poa sieberiana*, Kangaroo Grass *Themeda triandra*, Weeping Grass, Thatch Saw-sedge, Common Wallaby-grass and Bristly Wallaby-grass, with exotic Cocksfoot *Dactylis glomerata*, Perennial Veldt-grass *Ehrharta calycina*, Flat Weed *Hypochoeris radicata* and Ribwort *Plantago lanceolata* (Plates 3 and 4) (Figures 2b and 2d).

The property at 170 Grossmans Road comprised a modified cover of Grassy Woodland around the boundary that was contiguous with road reserve. The open grassy areas throughout the property comprised a dense cover (60-80%) of native Striped Wallaby-grass *Rytidosperma racemosum*, Weeping Grass, with Kangaroo Grass, Wattle Mat-rush, Common Raspwort, Honey-pots *Acrotriche serrulata* also present. Exotic species included Onion Grass *Romulea rosea*, Perennial Ryegrass *Lolium perenne*, Couch Grass *Cynodon dactylon*, Yorkshire Fog-grass, Flat Weed and Cape Weed *Arctotheca calendula*. This vegetation was attributed to Grassy Woodland (Plates 5 and 6) (Figures 2a and 2b).

The properties at 95 Briody Drive and 25 Illawong Drive also supported modified patches of Grassy Woodland, with a dense cover (60-80%) of native Striped Wallaby-grass and Weeping Grass (Plates 7 and 8) (Figures 2e and 2f).

The vegetation along Deep Creek at 150 Briody Drive, was attributed to Grassy Woodland, comprising a modified cover of Messmate Stringybark and Swamp Gum, with Prickly Tea-tree *Leptospermum continentale*, Coast Wattle *Acacia longifolia* subsp*. sophorae* and exotic Blackberry *Rubus fruticosus* spp. agg., in the shrub layer. The ground layer consisted of Grey Tussock-grass, Weeping Grass, Red-fruit Saw-sedge *Gahnia sieberiana* and Tall Sedge *Carex appressa*, interspersed with exotic Water

Couch *Paspalum distichum*, Toowoomba Canary-grass *Phalaris aquatica*, Kikuyu *Cenchrus clandestinus*, Yorkshire Fog-grass, Cocksfoot, Spear Thistle *Cirsium vulgare*, Sheep Sorrel *Acetosella vulgaris* and Curled Dock *Rumex crispus* (Plates 9 and 10).

Heathy Woodland

Heathy Woodland is described as *Eucalypt-dominated woodland to 10 metres tall, lacking a secondary tree layer, with a diverse understorey of narrow or ericoid-leaved shrubs* (DELWP 2021a).

Native vegetation attributed to Heathy Woodland consisted of modified Messmate Stringybark (pruned under powerlines), with a shrub layer of Prickly Tea-tree and Silver Banksia *Banksia marginata*, with the ground layer dominated by Common Rapier-sedge *Lepidosperma filiforme*, Wire Rapier-sedge *Lepidosperma semiteres* and Thatch Saw-sedge along Grossmans Road reserve (Plate 11).

Planted Vegetation

Planted trees and shrubs were a dominant feature of the project area, which included planted native Southern Blue Gum *Eucalyptus globulus* along Briody Drive road reserve (Plate 12), and native (non-indigenous) trees and shrubs such as Sugar Gum, Spotted Gum *Corymbia maculata*, Red-flowering Yellow-gum *Eucalyptus leucoxylon* subsp*. rosea*, Giant Honey-myrtle *Melaleuca armillaris* and Sweet Hakea *Hakea drupacea* throughout private properties (Plates 11 to 13). Planted exotic Monterey Cypress *Cupressus macrocarpa* was present along windrows of numerous properties (Plate 14).

Predominantly Introduced Vegetation

Exotic dominated vegetation (mapped as predominantly introduced vegetation) throughout the project area and road reserves consisted of Brown-top bent *Agrostis capillaris*, Bearded Oat *Avena barbata*, Rat-tail Grass *Sporobolus africanus,* Onion Grass, Paspalum, Toowoomba Canary-grass, Kikuyu, Perennial Veldt-grass, Cocksfoot, Yorkshire Fog-grass, Ox Tongue *Helminthotheca echioides*, Sow Thistle *Sonchus oleraceus*, Oval Heron's Bill *Erodium malacoides*, Wild Radish *Raphanus raphanistrum*, Wire Weed *Polygonum erectum*, Flat Weed and Ribwort. Native vegetation was limited to a sparse cover (<5% overall perennial cover) of Striped Wallaby-grass, Weeping Grass and Bristly Wallaby-grass (Plates 15 to 18).

3.3 Threatened Flora Species

The VBA (DELWP 2021d) contains records of four listed threatened flora species in local area (within a five-kilometre radius of the project area). The PMST (DAWE 2021) identified 16 EPBC Act listed flora species or species habitats as likely to occur within the local area (Appendix 3).

One listed threatened flora species, Bellarine Yellow-gum, was recorded during the assessment (seven individual trees – Figures 2d and 2e). Bellarine Yellow-gum is listed as endangered in Victoria and Threatened under the FFG Act (DEPI 2014). The VBA (2020d) contains 280 records of Bellarine Yellow-gum in the local area, with several trees previously recorded in the immediate surrounds.

Note the arboricultural assessment (Axiom 2019) notes that Bellarine Yellow-gum within the project were not part of an indigenous population, which is considered to be incorrect, as there is no evidence these individual trees on the road reserve have been planted.

There is a low likelihood of occurrence for any additional listed threatened flora species due to the modified condition of habitat from weed invasion and slashing of road reserves, which reduces or eliminates the habitat potential for many species.

3.4 Threatened Fauna Species

The VBA (DELWP 2021d) contains records of six listed threatened fauna species in the local area. The PMST (DAWE 2021) identified 21 EPBC Act listed fauna species or species habitats (terrestrial) as likely to occur within the local area (Appendix 4).

No listed threatened fauna species were recorded during the field assessment. There is a low likelihood of occurrence for any listed threatened fauna species due to the absence of suitable habitat. The project area has been extensively modified from previous agricultural use and road infrastructure works, which limits habitat availability to generalist species adapted to modified habitats.

3.5 Threatened Ecological Communities

Commonwealth Listed Ecological Communities

Review of the PMST (DAWE 2021) identified five EPBC Act listed ecological communities may or are known to occur within the local area:

- *Grassy Eucalypt Woodland of the Victorian Volcanic Plain* (Critically Endangered).
- *Natural Temperate Grassland of the Victorian Volcanic Plain* (Critically Endangered).
- *Natural Damp Grassland of the Victorian Coastal Plains* (Critically Endangered).
- *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Critically Endangered).
- Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community (Endangered).

Native vegetation within the project area does not meet the criteria or condition thresholds for any EPBC Act listed ecological communities.

3.6 Summary of Biodiversity Values

The project area supports the following biodiversity values:

- 8.74 hectares of Grassy Woodland with a bioregional conservation status of Endangered in the Otway Plain bioregion.
- 0.45 hectares of Heathy Woodland with a bioregional conservation status of Least Concern in the Otway Plain bioregion.
- Bellarine Yellow-gum (seven individual trees) listed as endangered in Victoria and Threatened under the FFG Act.
- Native vegetation condition modelling indicates the project area supports areas of moderate value vegetation with condition scores of between 0.41-0.60.
- Strategic biodiversity value modelling indicates the project area supports areas of high value vegetation/habitat with scores of 0.61-0.80 and very high value vegetation/habitat with scores of 0.81-1.00 (DELWP 2021a).

The criteria for determining native vegetation indicates Grassy Woodland within the project area, particularly on road reserves, meets the criteria for Higher Value vegetation due to the Strategic biodiversity value, Habitat for rare or threatened species, EVC conservation status and Landscape value (Appendix 2).

A summary of the vegetation extent within private property throughout the project area is outlined in Table 3.

Table 3: Extent of native vegetation on private property

Property	Vegetation Extent
95 Briody Drive	0.57 hectares of Grassy Woodland. Planted and exotic vegetation
105 Briody Drive	No native vegetation. Planted and exotic vegetation
111 Briody Drive	No native vegetation. Planted and exotic vegetation
119 Briody Drive	No native vegetation. Planted and exotic vegetation
125 Briody Drive	No native vegetation. Planted and exotic vegetation
129 Briody Drive	No native vegetation. Planted and exotic vegetation
135 Briody Drive	No native vegetation. Planted and exotic vegetation
150 Briody Drive	0.145 hectares of Grassy Woodland. Planted and exotic vegetation
170 Briody Drive	0.09 hectares of Grassy Woodland. Planted and exotic vegetation
90 Grossmans Road	0.09 hectares of Grassy Woodland. Planted and exotic vegetation
96 Grossmans Road	0.43 hectares of Grassy Woodland. 0.21 hectares of Heathy Woodland. Planted and exotic vegetation
120 Grossmans Road	1.11 hectares of Grassy Woodland. Planted and exotic vegetation
140 Grossmans Road	No native vegetation. Planted and exotic vegetation
150 Grossmans Road	No native vegetation. Planted and exotic vegetation
170 Grossmans Road	3.3 hectares of Grassy Woodland. Planted and exotic vegetation
3A Blackwattle Mews (Council Reserve)	One scattered native tree. Planted and exotic vegetation
15 Illawong Drive	0.09 hectares of Grassy Woodland. Planted and exotic vegetation
25 Illawong Drive	No native vegetation. Planted and exotic vegetation

Figure 2

Ecological Features

Briody Drive West Development, Torquay

Legend

- Subject Site
- Grassy Woodland
- Heathy Woodland
- Planted Vegetation
- Predominantly Introduced Vegetation
- Large Tree in Patch
- Small Scattered Tree
- Bellarine Yellow Gum

0 45 90 180

Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Map Scale when printed @ A4 1:5,500

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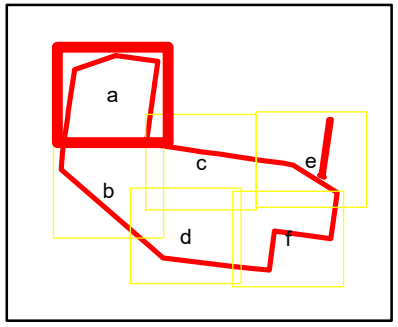
Figure 2a

Ecological Features

Briody Drive West Development, Torquay

Legend

- Subject Site
- Grassy Woodland
- Planted Vegetation
- Predominantly Introduced Vegetation
- Large Tree in Patch



N

0 15 30 60

Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Map Scale when printed @ A4 1:2,200

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Figure 2b

Ecological Features

Briody Drive West Development, Torquay

Legend

- Subject Site
- Grassy Woodland
- Planted Vegetation
- Predominantly Introduced Vegetation
- Large Tree in Patch
- Bellarine Yellow Gum

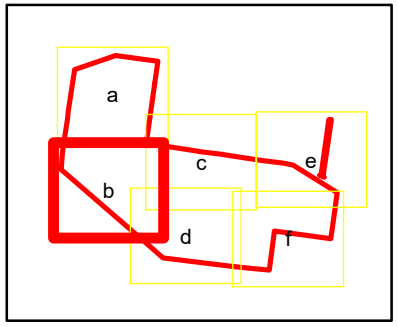

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Figure 2c

Ecological Features

Briody Drive West Development, Torquay

Legend

- Subject Site
- Grassy Woodland
- Planted Vegetation
- Predominantly Introduced Vegetation

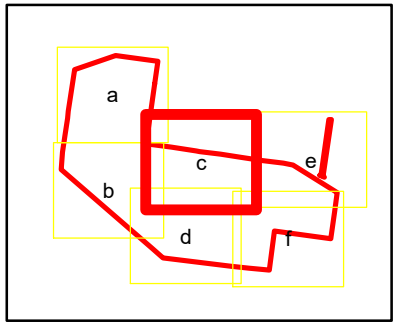

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Figure 2d

Ecological Features

Briody Drive West Development, Torquay

Legend

- Subject Site
- Grassy Woodland
- Heathy Woodland
- Planted Vegetation
- Predominantly Introduced Vegetation
- Large Tree in Patch
- Small Scattered Tree
- Bellarine Yellow Gum

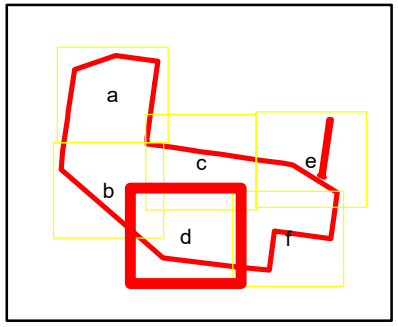

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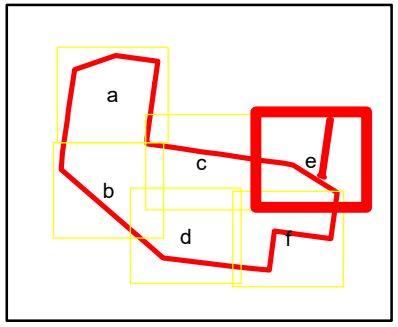
Figure 2e

Ecological Features

Briody Drive West Development, Torquay

Legend

- Subject Site
- Grassy Woodland
- Planted Vegetation
- Predominantly Introduced Vegetation
- Small Scattered Tree
- Bellarine Yellow Gum



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Map Scale when printed @ A4 1:2,200

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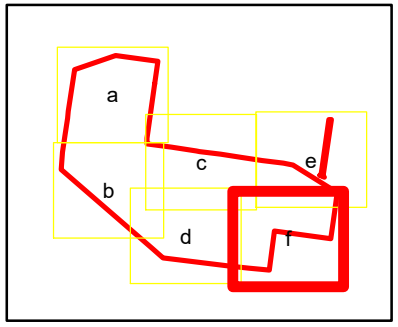
Figure 2f

Ecological Features

Briody Drive West Development, Torquay

Legend

- Subject Site
- Grassy Woodland
- Heathy Woodland
- Planted Vegetation
- Predominantly Introduced Vegetation



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4 Environmental Legislation and Policy Implications

4.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a process for assessment of proposed actions that may have a significant impact on a MNES, which includes EPBC Act listed flora, fauna and ecological communities (DoE 2013).

The EPBC Act affects any group or individual (including companies) whose actions (i.e. proposal or project) are assessed for environmental impacts under the EPBC Act. An action requires approval from the Commonwealth Environment Minister if it is considered likely to have a significant impact on a MNES (DoE 2013).

No EPBC Act listed threatened ecological communities or flora, or fauna species were recorded within the project area, and none are considered likely to occur due to the absence of suitable habitat. An EPBC Act referral to the Commonwealth Environment Minister will not be required as no MNES are present or likely to be significantly impacted by future works in the project area.

4.2 Flora and Fauna Guarantee Act 1988

The FFG Act is the key Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes.

A permit is required from DELWP to 'take' (kill, injure, disturb or collect) listed flora species, flora species that are members of listed threatened communities or protected flora from public land. Protected flora species includes all members of the following plant families Asteraceae (Daisies), Epacridaceae (Heaths) and Orchidaceae (Orchids), all clubmosses, ferns and fern allies (excluding *Pteridium esculentum*). All species of the following genera are also protected: *Acacia* (excluding *Acacia dealbata, Acacia decurrens, Acacia implexa, Acacia melanoxylon* and *Acacia paradoxa*), *Baeckea*, *Calytrix*, *Correa*, *Darwinia*, *Eremophila*, *Eriostemon, Gompholobium, Grevillea, Prostanthera, Sphagnum, Thryptomene, Thysanotus* and *Xanthorrhoea* (DELWP 2021e).

The project area supports one Threatened flora species (Bellarine Yellow-gum) and four listed protected flora species (Austral Grass-tree, Golden Wattle, Varnish Wattle and Black Wattle) occur along Messmate Road and Grossmans Road reserves.

An FFG Act permit will be required from DELWP to remove any individual Bellarine Yellow-gum trees, or Austral Grass-tree, Golden Wattle, Varnish Wattle and Black Wattle shrubs from road reserves. An FFG Act permit is generally not required for private land.

4.3 Planning and Environment Act 1987

The purpose of the *Planning and Environment Act 1987* is to establish a framework for planning the use, development and protection of land in Victoria. Native vegetation clearance is managed under the Act and through municipal planning schemes (DELWP 2021c).

A permit is required under Clause 52.17 (Native Vegetation) to remove, destroy or lop native vegetation, including dead vegetation, unless the action is exempt. To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation, the following three step approach is applied in accordance with the Guidelines:

1. Avoid the removal, destruction or lopping of native vegetation.
2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Provide an offset to compensate for the biodiversity impact if a permit is granted to remove, destroy or lop native vegetation.

If native vegetation removal is required, a permit application must be categorised as a basic, intermediate or detailed assessment pathway as specified in the Guidelines (DELWP 2017). Each assessment pathway has specific application requirements and decision guidelines that must be considered by the responsible authority.

Clause 66 (Referral and Notice Provisions) requires that the following applications to remove native vegetation be referred to the Secretary to DELWP:

- To remove, destroy or lop native vegetation in the Detailed Assessment Pathway
- To remove, destroy or lop native vegetation if a Property Vegetation Plan applies to the site.
- To remove, destroy or lop native vegetation on Crown land, which is occupied or managed by the responsible authority (DELWP 2021c).

Clause 52.17 – Native Vegetation

The proposed removal of any native vegetation within the project area will require a permit under Clause 52.17 of the Surf Coast Planning Scheme.

The vegetation assessment was undertaken to inform the revised development plan. It is recommended that the proponent applies the principles of avoid and minimise during the design process to ensure the final project design avoids impacts to existing biodiversity values as much as practicable. Efforts to avoid the removal and minimise the impacts on native vegetation should focus on areas of native vegetation that have the most value, particularly road reserves.

The criteria for determining native vegetation indicates Grassy Woodland within the project area, particularly on road reserves, meets the criteria for Higher Value vegetation due to the Strategic biodiversity value, Habitat for rare or threatened species, EVC conservation status and Landscape value (Appendix 2).

A basic, intermediate or detailed assessment pathway application will also be required in accordance with the Guidelines, depending on the extent and location of vegetation removal. A native vegetation removal application will be provided with the future planning permit application for subdivision.

If the final project design requires a detailed pathway application for removal of >0.5 hectares of native vegetation, the application will be referred to the Secretary to DELWP for assessment under Clause 66 (Referral and Notice Provisions). The required offset will need to be sourced as an allocated credit extract through the Native Vegetation Credit Register.

The relevant permit triggers and exemptions under Clause 52.17 relevant to the development plan are outlined below.

The Victoria Planning Provisions specifies that a proponent *assume all native vegetation within lots smaller than 0.4 hectares will be lost when subdivisions are created* (DELWP 2021c). The development plan shows the subdivision comprises lots of <0.4 hectares, which will result in the assumed loss of native vegetation.

The *Fences* exemption under Clause 52.17-7, specifies *Native vegetation that is to be removed, destroyed, or lopped to the minimum extent necessary to enable:*

- *the operation or maintenance of an existing fence; or*
- *the construction of a boundary fence between properties in different ownership.*
- *The clearing along both sides of the fence when combined must not exceed 4 metres in width, except where land has already been cleared 4 metres or more along one side of the fence, then up to 1 metre can be cleared along the other side of the fence.*

The *Planted Vegetation* exemption under Clause 52.17-7 states: *Native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding. This exemption does not apply to native vegetation planted or managed with public funding for the purpose of land protection or enhancing biodiversity unless the removal, destruction or lopping of the native vegetation is in accordance with written permission of the agency (or its successor) that provided the funding* (DELWP 2021c).

Planted native trees within the project area were not planted for conservation purposes using public funding, therefore the future removal of any planted vegetation (native and exotic) in the project area is considered likely to meet this exemption.

Environmental Significance Overlay – Schedule 1

The project area is partially subject to ESO1 (Aquatic Systems - Significant Wetlands and Waterways) under the Surf Coast Planning Scheme (DELWP 2021c). A permit under ESO1 will not be required in this instance. The development plan designed the proposed lot layout, road alignment and water retention basin to avoid impacts to native vegetation in the area subject to ESO1. Native vegetation will be retained in areas of public open space subject to ESO1.

Environmental Significance Overlay – Schedule 4

The project area is partially subject to ESO4 (Habitat Protection and Significant Remnant Vegetation Within the Coastal Settlements of Lorne, Moggs Creek, Fairhaven, Aireys Inlet, Anglesea, Torquay and Jan Juc) under the Surf Coast Planning Scheme (DELWP 2021c).

A permit to remove native vegetation will not be required, as the development plan was designed to avoid impacts to native vegetation in the area subject to ESO4. However, the subdivision triggers the requirement for a permit under ESO4 in this instance. The permit application under ESO4 will be provided with the future planning permit application for subdivision.

5 Potential Impacts and Mitigation Measures

The project area supports a modified cover of Grassy Woodland in private property and along the road reserves of Briody Drive, Messmate Road and Grossmans Road, with modified Heathy Woodland along Grossmans Road. If left unmanaged, construction works have the potential to impact ecological values within the project area. Measures to ameliorate potential impacts include:

- An induction for contractors regarding ecological values adjacent to the development area.
- Designated No Go Zones[4] to avoid any disturbance or damage to native vegetation adjacent to construction areas. No go zones should be fenced with para-webbing or similar material prior to construction.
- Access restrictions to prevent unauthorised access into areas of native vegetation.
- Standard best practice measures to minimise the spread of soil pathogens, and weeds from machinery or through movement of soil on and offsite.
- Best practice sedimentation and erosion control measures.
- The location of construction stockpiles, machinery, and other infrastructure should be away from areas of native vegetation.

[4] A No Go Zone is defined as an area of native vegetation or habitat that requires protection from construction works

6 Conclusion

The project area was characterised by areas of planted vegetation along windrows and around residential dwellings, interspersed with managed exotic grassland. Native vegetation was limited to a modified cover of Grassy Woodland in private property and along the road reserves of Briody Drive, Messmate Road and Grossmans Road, with modified Heathy Woodland along Grossmans Road.

One listed threatened flora species, Bellarine Yellow-gum, was recorded in the project area. No listed threatened fauna species or associated habitats were recorded the field assessment, and none are considered likely to occur due to the absence of suitable habitat.

An EPBC Act referral will not be required, as no MNES are present, or likely to be significantly impacted by future works within the project area. One FFG Act listed threatened species (Bellarine Yellow-gum) and four listed protected flora species (Austral Grass-tree, Golden Wattle, Varnish Wattle and Black Wattle) occur along Messmate Road and Grossmans Road reserves. A permit will be required from DELWP to remove any listed threatened or protected species from road reserves.

The proposed removal of any native vegetation will require a permit under Clause 52.17 of the Surf Coast Planning Scheme. A basic, intermediate or detailed assessment pathway application will also be required in accordance with the Guidelines, depending on the extent and location of vegetation removal. A native vegetation removal application will be provided with the future planning permit application for subdivision.

It is recommended that the principles of avoid and minimise are applied during the design process to ensure the final project design avoids adverse impacts on existing biodiversity values as much as practicable. Efforts to avoid the removal and minimise the impacts on native vegetation should focus on areas of native vegetation that have the most value, particularly road reserves.

7 References

Axiom 2019 'Aboricultural Report - Assessment of Trees through the Briody Drive West Precinct'. Axiom Tree Management Pty Ltd.

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DELWP 2021c. Planning Schemes Online. Department of Environment, Land, Water and Planning: http://planning-schemes.delwp.vic.gov.au

DELWP 2021d. Victorian Biodiversity Atlas. Version 3.2.6. Publication date: 30 January 2021. Department of Environment, Land, Water and Planning: https://vba.dse.vic.gov.au

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DoE 2013. *Matters of National Environmental Significance – Significant Impact Guidelines*: *Significant impact guidelines 1.1.* Environment Protection and Biodiversity Conservation Act 1999. Department of the Environment, Canberra.

DAWE 2021. Protected Matters Search Tool. Department of Agriculture, Water and the Environment: http://www.environment.gov.au/epbc/pmst/

DSE 2013. *Advisory List of Threatened Vertebrate Fauna in Victoria*. Department of Environment and Primary Industries: http://www.dse.vic.gov.au

Mark Trengrove Ecological Services 2016. 'Vegetation Assessment and Biodiversity Impact and Offset Requirements Report - Briody Drive Torquay West'. Report to Briody Drive Landowner Consortium.

8 Plates

Plate 1: Grassy Woodland on Messmate Road reserve

Plate 2: Grassy Woodland on Messmate Road reserve

Plate 3: Modified Grassy Woodland on Grossmans Road

Plate 4: Bellarine Yellow-gum on Grossmans Road

Plate 5: Modified Grassy Woodland – 170 Grossmans Road

Plate 6: Modified Grassy Woodland – 170 Grossmans Road

Plate 7: Modified Grassy Woodland – 95 Briody Drive

Plate 8: Modified Grassy Woodland – 25 Illawong Drive

Plate 9: Modified Grassy Woodland – 150 Briody Drive

Plate 10: Modified Grassy Woodland – 150 Briody Drive

Plate 9: Modified Heathy Woodland – Grossmans Road reserve

Plate 10: Planted native trees along Briody Drive

Plate 11: Planted native trees on private property

Plate 12: Planted native trees on private property

Plate 13: Planted native trees on private property

Plate 14: Planted exotic Monterey Cypress trees

Plate 15: Exotic dominated vegetation – private property

Plate 16: Exotic dominated vegetation – private property

Plate 17: Exotic dominated vegetation – Briody Drive

Plate 18: Exotic dominated vegetation – Blackwattle Mews

Appendices

Appendix 1 – Likelihood of Occurrence

One or more of the following criteria was used to establish the likelihood of occurrence for threatened flora and fauna species within the project area.

Present: Recorded during the field survey.

High likelihood:
- Previously recorded within the site.
- Likely to visit the site during seasonal movements.
- Frequently recorded within the local area.
- Known or likely to maintain resident populations in the local area.
- Presence of preferred habitat within the site.

Moderate likelihood:
- May regularly move through or visit the site as a seasonal visitor.
- Previous records within the local area.
- Some characteristics of a species preferred habitat is present although in a modified condition.
- Unlikely to maintain a population within the site.

Low Likelihood:
- Species likely to occur as a rare or opportunistic visitor.
- Few previous records within the local area.
- Habitat within the site is highly modified and does represent the species preferred habitat.

Unlikely:
- No suitable habitat present on the site or in the surrounding area.
- No species records in the local area.
- Beyond the species natural distribution or considered locally extinct.

The outcome of the assessment of likelihood of occurrence for threatened flora is Appendix 4 and Appendix 5 for threatened fauna.

Appendix 2 – Native Vegetation Value Criteria

Table 4. Values of Native Vegetation

Value	Lower value	Higher value
Extent		
The amount of native vegetation to be removed and the context it is being removed from	• Small extent (less than 0.5. hectares) with no long- term viability (it may be isolated or degraded by surrounding land uses).	• Larger extent (more than 1 hectare).
	• Removal does not impact on viability of remaining vegetation (it does not result in fragmentation).	• Smaller extent (less than 1 hectare) but with good viability in an otherwise cleared landscape.
	• Removal does not include large trees.	• Smaller extent but from within a larger patch and the removal leads to fragmentation of the patch.
		• Removal includes large trees.
Condition		
The condition score of the vegetation to be removed. Scores range from 0.2 to 1.	Condition scores are in the low range when they are less than 0.3.	Condition scores are in the high range, when they are above 0.6, noting 1 means pristine, pre-settlement condition.
	Lower scores indicate the vegetation has experienced a fair amount of disturbance and as a result is in poor condition. Poorer conditions generally support a lower diversity of plants and animals.	Higher scores indicate that the vegetation has not experienced significant disturbance and is in fairly good condition. Good condition vegetation usually supports a higher diversity of plants and animals.
Strategic biodiversity value (SBV)		
The SBV score of the vegetation to be removed. Scores range from 0.1 to 1	SBV scores are in the low range when they are less than 0.3.	SBV scores are in the high range, when that are above 0.8.
	Lower scores indicate locations where either only a few values are found together, or areas where there are many other locations with the same values (and the other locations have better condition and connectivity).	A higher score indicates a location where many values, that are not widespread or common, are found together.
Habitat for rare or threatened species		
This includes those listed as critically endangered, endangered, vulnerable	Few species' habitats are impacted.	Numerous species' habitats are impacted. With few to many species' offsets.

or rare	• Low proportional impact (less than 0.005%).	• Proportional impact is relatively higher than the species threshold (proportional impact represents the percentage of the habitat affected).
	• No or few species offsets.	• Species have higher conservation status (endangered or critically endangered).
	• Species have lower conservation status (rare or vulnerable).	• The species' habitats are highly localised or an important area of habitat within a dispersed species or selected VBA records
	• The species' habitats are dispersed and not an important area of habitat within a dispersed species.	
Ecological Vegetation Class (EVC)		
The Bioregional Conservation Status	it is not an endangered EVC.	it is an endangered EVC (location category 2) in the Location map.
	• the EVC is well represented in existing protected areas	• the EVC is not well represented in existing protected areas.
Landscape values		
	The native vegetation or land where the native vegetation is to be removed does not have to be managed to preserve identified landscape values.	The native vegetation or land where the native vegetation is to be removed has to be managed to preserve identified landscape values.

Source: DELWP 2018

Appendix 3 – Flora Species Recorded

Table 5: Flora species recorded during the field assessment

Scientific Name	Common Name
Acacia iteaphylla	Flinders Range Wattle#
Acacia longifolia	Sallow Wattle*
Acacia longifolia subsp. *sophorae*	Coast Wattle*
Acacia mearnsii	Black Wattle##
Acacia melanoxylon	Blackwood#
Acacia myrtifolia	Myrtle Wattle
Acacia paradoxa	Hedge Wattle
Acacia pycnantha	Golden Wattle
Acacia saligna	Golden Wreath Wattle*
Acacia verniciflua (typical variant)	Varnish Wattle
Acaena echinata	Sheep's Burr
Acaena novae-zelandiae	Bidgee-widgee
Acetosella vulgaris	Sheep Sorrel*
Acrotriche serrulata	Honey-pots
Agapanthus praecox subsp. *orientalis*	Agapanthus*
Agonis flexuosa	Willow Myrtle#
Agrostis capillaris	Brown-top Bent*
Aira caryophyllea subsp. *caryophyllea*	Silvery Hair-grass*
Allocasuarina verticillata	Drooping Sheoak#
Angophora costata	Smooth-barked Apple#
Anthoxanthum odoratum	Sweet Vernal-grass*
Arctotheca calendula	Cape Weed*
Asparagus asparagoides	Bridal Creeper**
Asparagus officinalis	Asparagus
Astroloma humifusum	Cranberry Heath
Austrostipa mollis	Supple Spear-grass
Avena barbata	Bearded Oat*
Banksia marginata	Silver Banksia
Billardiera heterophylla	Bluebell Creeper*
Brassica fruticulosa	Twiggy Turnip
Briza maxima	Large Quaking-grass*
Briza minor	Lesser Quaking-grass*
Bromus catharticus	Prairie Grass*
Bromus hordeaceus	Soft Brome*
Bursaria spinosa	Sweet Bursaria
Carex appressa	Tall Sedge

Scientific Name	Common Name
Cassytha glabella	Slender Dodder-laurel
Cenchrus clandestinus	Kikuyu*
Centaurium erythraea	Common Centaury*
Chenopodium album	Fat Hen*
Chenopodium murale	Sowbane*
Chrysanthemoides monilifera subsp. *monilifera*	African Boneseed**
Cirsium vulgare	Spear Thistle**
Clematis microphylla s.l.	Small-leaved Clematis
Coprosma repens	Mirror Bush*
Cortaderia selloana	Pampas Grass*
Corymbia maculata	Spotted Gum#
Cynodon dactylon var. *dactylon*	Couch*
Cynosurus echinatus	Rough Dog's-tail*
Cyperus eragrostis	Drain Flat-sedge*
Dactylis glomerata	Cocksfoot*
Deyeuxia quadriseta	Reed Bent-grass
Dianella admixta	Black-anther Flax-lily
Dichondra repens	Kidney-weed
Ehrharta calycina	Perennial Veldt-grass*
Ehrharta erecta	Panic Veldt-grass*
Ehrharta longiflora	Annual Veldt-grass*
Eleocharis acuta	Common Spike-sedge
Erodium cicutarium	Common Heron's-bill*
Eucalyptus botryoides	Southern Mahogany#
Eucalyptus camaldulensis	River Red-gum#
Eucalyptus cladocalyx	Sugar Gum#
Eucalyptus conferruminata	Bushy Yate#
Eucalyptus globulus	Southern Blue-gum#
Eucalyptus gomphocephala	Tuart#
Eucalyptus leucoxylon	Yellow Gum#
Eucalyptus leucoxylon subsp. *bellarinensis*	Bellarine Yellow-gum (e)
Eucalyptus obliqua	Messmate Stringybark
Eucalyptus ovata	Swamp Gum
Eucalyptus spathulata	Swamp Mallet#
Eucalyptus viminalis	Manna Gum
Eucalyptus viminalis supsb. *pryoriana*	Gippsland Manna Gum#
Euchiton involucratus	Common Cudweed
Exocarpos cupressiformis	Cherry Ballart
Fumaria bastardii	Bastard's Fumitory*

Scientific Name	Common Name
Gahnia radula	Thatch Saw-sedge
Gahnia sieberiana	Red-fruit Saw-sedge
Galenia pubescens var. *pubescens*	Galenia*
Galium aparine	Cleavers*
Geranium solanderi	Austral Crane's-bill
Gonocarpus tetragynus	Common Raspwort
Hakea drupacea	Sweet Hakea#
Hakea laurina	Pincushion Hakea#
Helminthotheca echioides	Ox-tongue*
Holcus lanatus	Yorkshire Fog*
Hordeum murinum	Barley-grass*
Hydrocotyle hirta	Hairy Pennywort
Hypochaeris glabra	Smooth Cat's-ear*
Hypochaeris radicata	Flatweed*
Juncus pallidus	Pale Rush
Juncus subsecundus	Finger Rush
Lepidosperma semiteres	Wire Rapier-sedge
Leptospermum continentale	Prickly Tea-tree
Leptospermum laevigatum	Coast Tea-tree*
Linum marginale	Native Flax
Lolium perenne	Perennial Rye-grass*
Lomandra filiformis	Wattle Mat-rush
Lomandra filiformis subsp. *coriacea*	Wattle Mat-rush
Lomandra longifolia	Spiny-headed Mat-rush
Lysimachia arvensis	Pimpernel*
Lythrum hyssopifolia	Small Loosestrife
Medicago polymorpha	Burr Medic*
Medicago sativa subsp. *sativa*	Lucerne
Melaleuca armillaris subsp. *armillaris*	Giant Honey-myrtle#
Melaleuca hypericifolia	Hillock Bush#
Melaleuca lanceolata	Moonah#
Melaleuca nesophila	Showy Honey-myrtle#
Microlaena stipoides var. *stipoides*	Weeping Grass
Myoporum insulare	Common Boobialla#
Nassella trichotoma	Serrated Tussock**
Oxalis perennans	Grassland Wood-sorrel
Oxalis pes-caprae	Soursob**
Oxalis purpurea	Large-flower Wood-sorrel*
Paraserianthes lophantha subsp. *lophantha*	Cape Wattle*

Scientific Name	Common Name
Paspalum dilatatum	Paspalum*
Paspalum distichum	Water Couch*
Persicaria decipiens	Slender Knotweed
Phalaris aquatica	Toowoomba Canary-grass*
Phragmites australis	Common Reed
Pinus radiata	Radiata Pine#
Pittosporum undulatum	Sweet Pittosporum*
Plantago coronopus	Buck's-horn Plantain*
Plantago lanceolata	Ribwort*
Plantago major	Greater Plantain
Poa sieberiana	Grey Tussock-grass
Polygala myrtifolia	Myrtle-leaf Milkwort*
Polygonum aviculare	Prostrate Knotweed*
Pteridium esculentum	Austral Bracken
Raphanus raphanistrum	Wild Radish*
Rhagodia candolleana	Seaberry Saltbush
Rhamnus alaternus	Italian Buckthorn
Romulea rosea	Onion Grass
Rubus fruticosus spp. agg.	Blackberry**
Rumex conglomeratus	Clustered Dock*
Rumex crispus	Curled Dock*
Rytidosperma caespitosum	Common Wallaby-grass
Rytidosperma laeve	Smooth Wallaby-grass
Rytidosperma racemosum	Slender Wallaby-grass
Rytidosperma setaceum	Bristly Wallaby-grass
Schoenus apogon	Common Bog-sedge
Senecio quadridentatus	Cotton Fireweed
Sonchus asper	Rough Sow-thistle*
Sonchus oleraceus	Common Sow-thistle*
Sporobolus africanus	Rat-tail Grass*
Stellaria media	Chickweed*
Stenotaphrum secundatum	Buffalo Grass*
Tetragonia implexicoma	Bower Spinach
Themeda triandra	Kangaroo Grass
Trifolium arvense var. *arvense*	Hare's-foot Clover*
Trifolium campestre var. *campestre*	Hop Clover*
Trifolium fragiferum var. *fragiferum*	Strawberry Clover*
Trifolium repens var. *repens*	White Clover*
Trifolium subterraneum	Subterranean Clover*

Scientific Name	Common Name
Ulex europaeus	Gorse
Vicia sativa	Common Vetch*
Vulpia myuros	Rat's-tail Fescue*
Watsonia meriana	Bulbil Watsonia**
Xanthorrhoea australis	Austral Grass-tree
Xanthorrhoea minor subsp. *lutea*	Small Grass-tree

Notes: *Exotic species; **Listed noxious weed; #Planted species; e = Endangered

Appendix 4 – Threatened Flora Records

Table 6. Threatened flora records

Scientific Name	Common Name	Status	Count of Sightings	Last Record	Likely Occurrence	Comments
Diuris palustris	Swamp Diuris	vu L	3	30/6/11	U	Absence of suitable habitat
Poa billardierei	Coast Fescue	r	1	1/10/05	U	Absence of suitable habitat
Juncus revolutus	Creeping Rush	r	1	15/2/00	U	Absence of suitable habitat
Thomasia petalocalyx	Paper Flower	r	1	10/3/14	U	Absence of suitable habitat
Roepera billardierei	Coast Twin-leaf	r	1	7/7/06	U	Absence of suitable habitat
Caladenia orientalis	Eastern Spider-orchid	EN en L	1	1/1/14	U	Absence of suitable habitat
Thelymitra pallidiflora	Pallid Sun-orchid	en l	2	21/10/01	U	Absence of suitable habitat
Acacia uncifolia	Coast Wirilda	r	12	25/4/17	U	Absence of suitable habitat
Pomaderris apetala subsp. *maritima*	Tasman Pomaderris	vu	1	10/5/01	U	Absence of suitable habitat
Eucalyptus leucoxylon subsp. *bellarinensis*	Bellarine Yellow-gum	en L	280	5/3/18	P	7 individual trees recorded in the project area
Xanthorrhoea caespitosa	Tufted Grass-tree	r	1	3/11/11	U	Absence of suitable habitat

Notes: Threatened species records were sourced from the VBA (DELWP 2021d), within a 5 km radius of the project area. Likelihood of occurrence: P = Present; H = High likelihood; M = Moderate likelihood; L = Low likelihood; U = Unlikely to occur (Appendix 1).

EPBC Act listed species (DAWE 2021)
Cr Critically Endangered
En Endangered
V Vulnerable

FFG Act listed species (DELWP 2015)
L Listed as Threatened

DEPI listed species (DEPI 1014):
cr Critically endangered
e Endangered
v Vulnerable
r Rare

Appendix 5 – Threatened Fauna Records

Table 7. Threatened fauna records

Scientific Name	Common Name	Status	Count of Sightings	Last Record	Likely Occurrence	Comments
Pedionomus torquatus	Plains-wanderer	CR cr L	1	2/2/71	U	Absence of suitable habitat
Lewinia pectoralis	Lewin's Rail	vu L	2	3/7/01	U	Absence of suitable habitat
Porzana pusilla	Baillon's Crake	vu L	5	2/11/13	U	Absence of suitable habitat
Pelagodroma marina	White-faced Storm-Petrel	vu	6	16/3/19	U	Absence of suitable habitat
Pachyptila turtur	Fairy Prion	vu	21	31/1/17	U	Absence of suitable habitat
Thalassarche melanophris	Black-browed Albatross	VU vu	9	18/7/19	U	Absence of suitable habitat
Thalassarche cauta	Shy Albatross	VU vu L	18	24/6/18	U	Absence of suitable habitat
Pluvialis squatarola	Grey Plover	en	1	17/10/06	U	Absence of suitable habitat
Thinornis cucullatus	Hooded Plover	VU vu L	59	9/11/18	U	Absence of suitable habitat
Numenius madagascariensis	Eastern Curlew	CR vu L	1	9/2/64	U	Absence of suitable habitat
Tringa nebularia	Common Greenshank	vu	4	9/6/18	U	Absence of suitable habitat
Egretta garzetta	Little Egret	en L	3	1/2/15	U	Absence of suitable habitat
Ixobrychus dubius	Australian Little Bittern	en L	2	7/11/08	U	Absence of suitable habitat
Spatula rhynchotis	Australasian Shoveler	vu	7	9/6/18	U	Absence of suitable habitat
Stictonetta naevosa	Freckled Duck	en L	20	9/5/19	U	Absence of suitable habitat
Aythya australis	Hardhead	vu	49	22/1/19	U	Absence of suitable habitat
Oxyura australis	Blue-billed Duck	en L	1	18/10/02	U	Absence of suitable habitat
Biziura lobata	Musk Duck	vu	5	1/8/13	U	Absence of suitable habitat
Accipiter novaehollandiae	Grey Goshawk	vu L	21	16/7/16	U	Absence of suitable habitat
Haliaeetus leucogaster	White-bellied Sea-Eagle	vu L	2	13/5/18	U	Absence of suitable habitat
Ninox strenua	Powerful Owl	vu L	1	24/4/13	U	Absence of suitable habitat
Neophema chrysogaster	Orange-bellied Parrot	CR cr L	1	21/7/12	U	Absence of suitable habitat

Scientific Name	Common Name	Status	Count of Sightings	Last Record	Likely Occurrence	Comments
Lathamus discolor	Swift Parrot	CR en L	2	26/4/19	U	Absence of suitable habitat
Hirundapus caudacutus	White-throated Needletail	VU vu L	39	6/2/19	U	Absence of suitable habitat
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren	vu L	1	6/12/15	U	Absence of suitable habitat
Eubalaena australis	Southern Right Whale	EN cr L	22	28/7/19	U	Absence of suitable habitat
Balaenoptera musculus	Blue Whale	EN cr L	1	01/01/1865	U	Absence of suitable habitat
Megaptera novaeangliae australis	Southern Humpback Whale	VU vu L	2	16/7/17	U	Absence of suitable habitat
Pseudophryne bibronii	Brown Toadlet	en L	6	26/3/66	U	Absence of suitable habitat
Pseudophryne semimarmorata	Southern Toadlet	vu	1	26/11/04	U	Absence of suitable habitat
Litoria raniformis	Growling Grass Frog	VU en L	2	12/9/00	U	Absence of suitable habitat
Ardea alba	Great Egret	vu L	27	19/5/19	U	Absence of suitable habitat

Notes: Threatened species records were sourced from the VBA (DELWP 2021d), within a 5 km radius of the project area. Likelihood of occurrence: H = High likelihood; M = Moderate likelihood; L = Low likelihood; U = Unlikely to occur (Appendix 1).

EPBC Act listed species (DAWE 2021)
Cr Critically Endangered
En Endangered
V Vulnerable

FFG Act listed species (DELWP 2015)
L Listed as Threatened

DEPI listed species (DSE 2013):
cr Critically endangered
e Endangered
v Vulnerable
r Rare

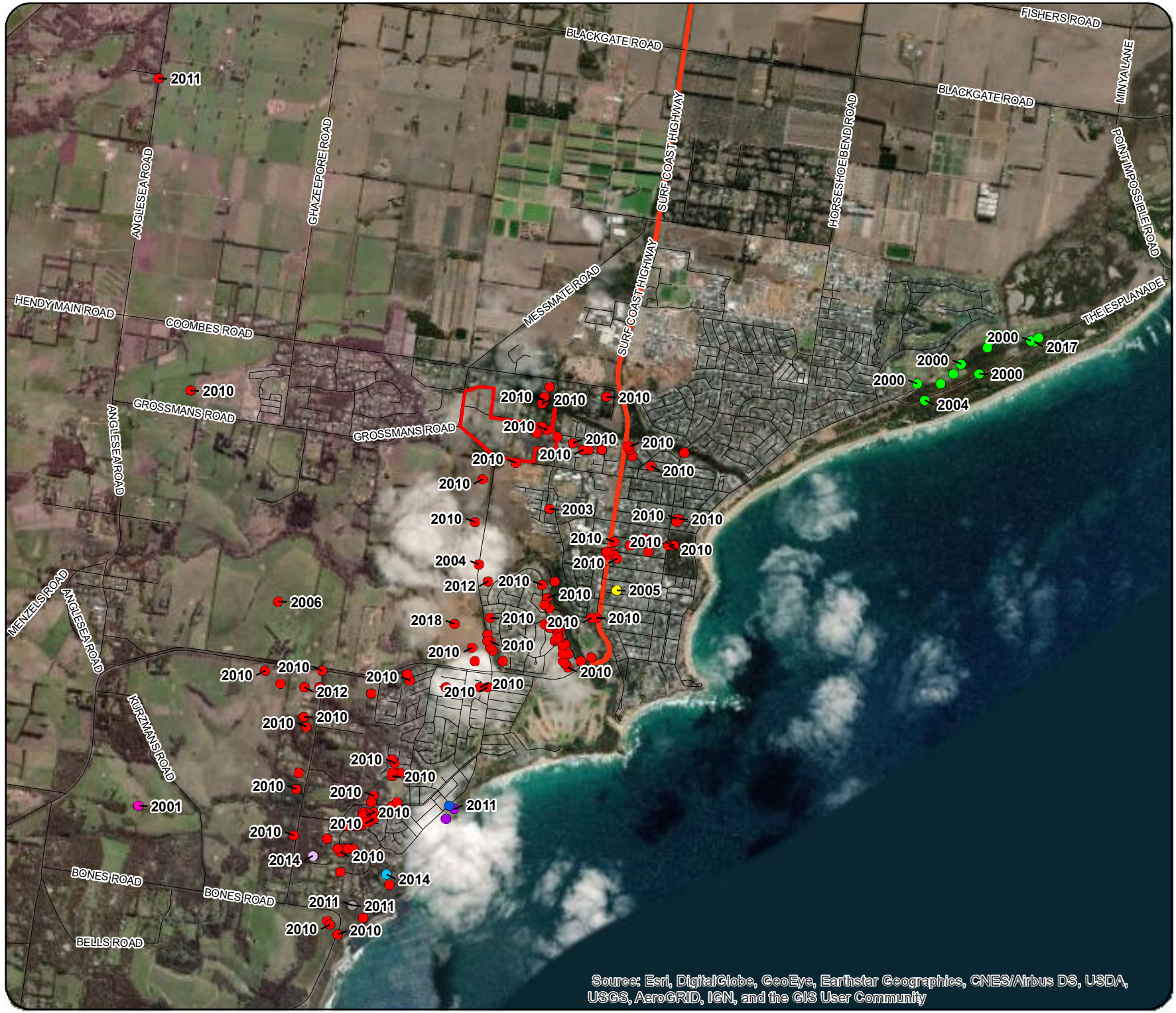
Figure 3

Significant Flora Species within 5km of the Subject Site

Briody Drive Development, Torquay

Legend

- Subject Site
- Bellarine Yellow-gum
- Coast Fescue
- Coast Twin-leaf
- Coast Wirilda
- Eastern Spider-orchid
- Pallid Sun-orchid
- Paper Flower
- Swamp Diuris
- Tasman Pomaderris
- Tufted Grass-tree



0 500 1,000 2,000

Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Map Scale when printed @ A4 1:60,000

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Figure 4

Significant Fauna Species within 5km of the Subject Site

Briody Drive Development, Torquay