Vegetation Quality Assessment (VQA) 204 Killingworth Rd., Killingworth 3717.

March 2022

Bill (W.E.) Richdale: Consulting Ecologist BSc., Dip EnvSc., MAppSc. (Member of the Ecological Society of Australia) ABN: 88 825 148 662 Email: richdale@optusnet.com.au
Website:https://sites.google.com/site/ecologicalconsultant/

& Aisha Richdale BA., MIR

Summary

- A Vegetation Quality Assessment was conducted at 204 Killingworth Road Killingworth on March 28, 2022.

- It is proposed to subdivide the approximately 36-hectare property into rural living residential lots that are greater than 0.4 hectares in size.

- With the proposed lots of land all being larger than 0.4 hectares in size means that there will be no consequential loss of any native vegetation that may occur on the property.

- The bioregion is Central Victorian Uplands and the Ecological Vegetation Classes that historically occurred on the property was EVC 55: Plains Grassy Woodland which has a bioregional conservation status of endangered and EVC 47: Valley Grassy Forest which has a bioregional conservation status of vulnerable.

- As of 2005, except for a very small area in the south-west corner of the property, EVC 55 is no longer mapped as occurring on the property. Similarly, EVC 47 is no longer mapped as occurring on the property.

- As of today, no EVC's remains on the property – it has been replaced by an exotic agricultural pasture community that is grazed by cattle.

- There are very widely scattered small *Eucalyptus* trees on the property that are not going to be removed or deemed lost.

- There are no patches of native understorey vegetation.

- There is a planted shelter-belt of *Eucalyptus* trees and shrubs adjacent to Killingworth Road.

- There are four dams on the property, none of which will be filled in or removed. One of the dams is fenced off from cattle grazing. Within the environs of this dam there are some scattered small *Eucalyptus* trees. There are also some scattered *Juncus* tussocks and very isolated Wallaby Grass tussocks, which would not constitute a patch of native vegetation. In the centre of the dam next to Willow tree there is a small patch of *Typha.* None of this native vegetation is lost to the proposed housing estate development.

- A native vegetation removal report and offset was not required because no naturally occurring native vegetation is going to be removed from the property.

Contents **Page Number**

Appendices

Vegetation Quality Assessment for 204 Killingworth Road Killingworth

1. Introduction

A Vegetation Quality Assessment (VQA) was requested by Ellen Hogan and Associates for the proposed subdivision for a residential estate at 204 Killingworth Road, Killingworth (henceforth the study site).

The study site is located within Killingworth, along Killingworth Road and is approximately 2.7 kilometres north-east of the Yea township (and over a kilometre north-east of Yea Wetlands John Cummins Reserve).

The study site is approximately 36 hectares in size and the proposed lots of land are all larger than 0.4 hectares in size.

A VQA had to be conducted to determine the potential impact that the subdivision would have on; any native flora growing on the property, the surrounding environs and if an offset is required. In addition, any native fauna seen on the property was recorded.

The purpose VQA was to assess the quality of the vegetation on the study site in accordance with relevant planning and legislative requirements and the Department of Environment, Land, Water and Planning (DELWP) guidelines.

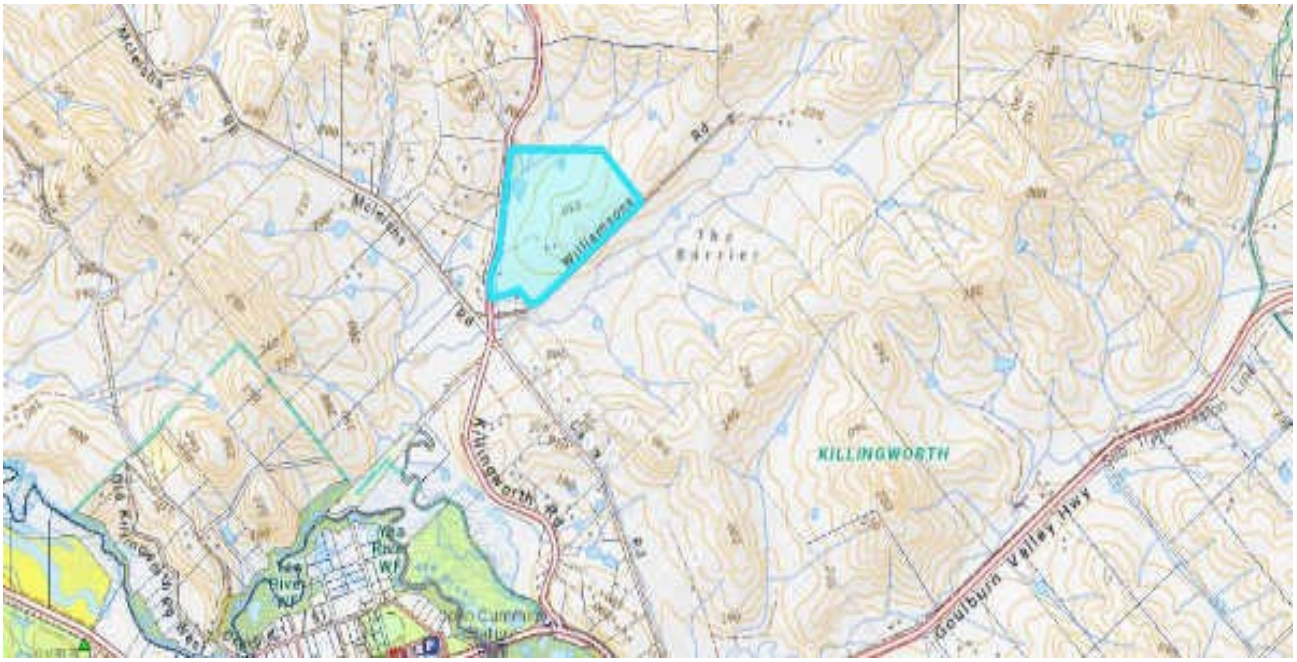


Figure 1: location of the property or study site (the property is shaded in blue)

1.1. Site Description

Topographically the property is hilly.

There are four dams on the property located close to drainage lines, though there appear to be no creeks on the property.

There is one house and outbuildings on the property, with an established garden around the dwelling.

A planted shelter belt of *Eucalyptus* trees and some native shrubs, exists close to the property fenceline adjacent to Killingworth Road.

Presently the study site can be described as an exotic pasture community with widely scattered small *Eucalyptus* trees.

Currently, the property is grazed by cattle.

1.1.1. Bioregion and Ecological Vegetation Class

Bioregions are generally defined as 'patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity values' (DSE 2011).

An Ecological Vegetation Class (EVC) are the standard unit for classifying vegetation types in Victoria, it is composed of a number of ecological characteristics, floristics and lifeforms.

'The combination of EVC and bioregion is used to determine the bioregional conservation status (BCS) of an EVC. This is a measure of the current extent and quality of each EVC, when compared to its original (pre-1750) extent and condition. On this basis a BioEVC will have BCS of endangered, vulnerable, depleted, least concern or rare' (DELWP).

The study site lies within the **Central Victorian Uplands (CVU)** bioregion.

The historical, pre-1750,Ecological Vegetation Classes (EVCs) mapped as once occurring on the property are EVC: 55 Plains Grassy Woodland which occurs on the lower slopes, and EVC: 47 Valley Grassy Forest occurs on the upper slopes and the valley facing Williamsons Road. **EVC 55** has a bioregional conservation status of **endangered**, whilst **EVC 47** conservation status is **vulnerable**.

The description of EVC 55 and EVC 47 are as follows:

EVC 55: Plains Grassy Woodland is described as 'an open, eucalypt woodland to 15m tall occurring on a number of geologies and soil types. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species rich grassy and herbaceous ground layer' (DSE 2004a).

EVC 47: 'Valley Grassy Forest occurs under moderate rainfall regimes of 700-800 mm per annum on fertile well-drained colluvial or alluvial soils on gently undulating lower slopes and valley floors. Open forest to 25 m tall may carry a variety of eucalypts, usually species that prefer more moist or more fertile conditions, over a sparse shrub cover. In season, a rich array of herbs, lilies grasses and sedges dominate the ground layer but at the drier end of the spectrum the ground layer may be sparse and slightly less diverse, but with moisture-loving species still remaining' (DSE 2004 a1).

As of today, both EVC 55 and EVC 47 have been removed from the study site. The understorey layer has been removed. In addition, the canopy layer appears to have been removed as well; within the interior of the property there are a number of extremely scattered and isolated, small eucalyptus trees that are protected with cattle guards. These trees appear to be planted, due to their size, cattle guards and distribution within the property.

Furthermore, there is a fairly extensive shelter-belt running along Killingworth Road; once again, the shelter-belt appears to be planted, due to the species composition, size of the trees (the majority appeared small), and formation of the plantings.

EPBC Act Significant Ecological Communities

The EPBC Act (1999) significant ecological communities (or matters of national environmental significance [MNES]) suggested to occur in the immediate area, endangered Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia, and the critically endangered White box – yellow box – Blakely's red gum grassy woodlands and derived native grasslands, do not exist at the property.

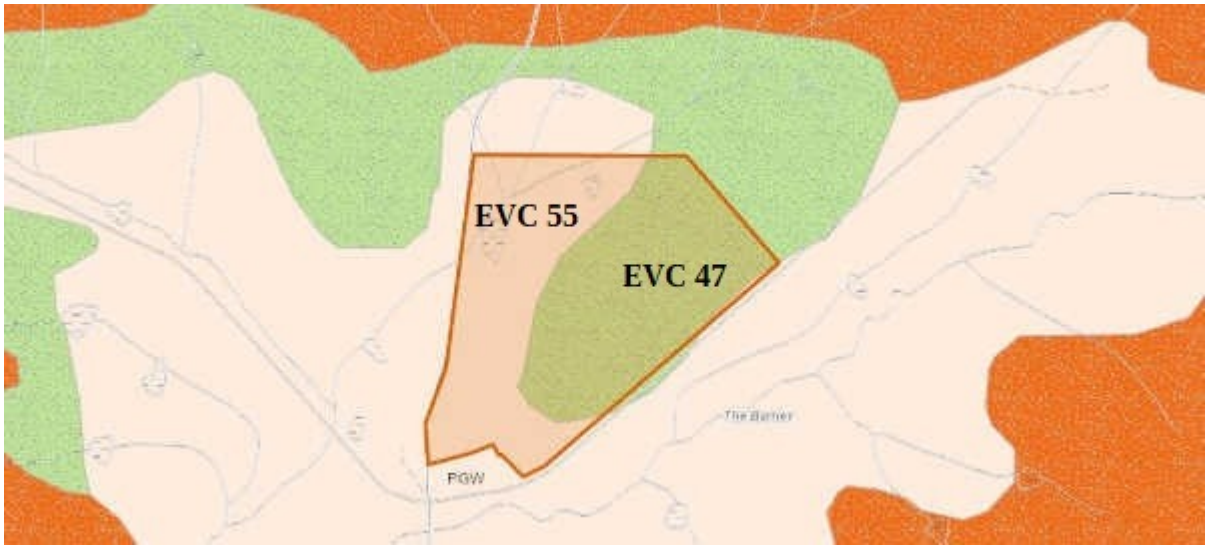


Figure 2: the historic EVCs mapped as occurring on the property (DELWP Nature Kit)

1.2. General Planning and Legislation

This VQA adheres to the relevant local, state and federal planning regulations and legislation.

Local government area (Council): Murrindindi

Catchment Management Authority (CMA): Goulburn Broken CMA

Zoning

Rural Living Zone: Purpose of this zone is to:

To implement the Municipal Planning Strategy and the Planning Policy Framework.

To provide for residential use in a rural environment.

To provide for agricultural land uses which do not adversely affect the amenity of surrounding land uses.

To protect and enhance the natural resources, biodiversity and landscape and heritage values of the area.

To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision (Murrindindi Planning Scheme)

Overlays

DPO 3: Development Plan Overlay – schedule 3

There are no vegetation protection or conservation overlays over the property (VicPlan).

Planning Clause 52.17

Also applicable is Planning Clause 52.17 which covers Native Vegetation – Victorian species, Under Clause 52.17 there is the need to:

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.

A number of exemptions exist under the clause. Refer to planning clause 52.17 for the list of exemptions: https://planning-schemes.api.delwp.vic.gov.au/schemes/vpps/52_17.pdf

One exemption that is applicable to this project is planted native vegetation. Planted native vegetation can also be removed without the requirement of a planning permit or an offset: “Native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding” (Planning Clause 52.17, DELWP 2017 b).

Legislation Pertinent to the Study

Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth Environment Protection and Biodiversity Conservation Act (1999) (EPBCAct) applies to sites where proposed developments or projects may have a significant impact on ‘matters of national environmental significance’ (MNES). There are currently seven MNES:

• World Heritage Properties• National Heritage Place
• nationally listed threatened species and ecological communities
• listed migratory species
• Ramsar wetlands of international importance
• Commonwealth marine areas• nuclear actions (including uranium mining).

Under the EPBC Act (1999), a proponent must refer proposed actions that may have a significant impact on matters on national environmental significance to the Australian Government Environment Minister (or delegate).

Flora and Fauna Guarantee Act 1988

The Flora and Fauna Guarantee Act 1988 (FFG Act) was legislated to ensure the continued survival of all Victorian species of flora and fauna and all Victorian communities of plants and animals. The FFG Act provides a number of ways to assist in achieving its objectives, including:

• listing of threatened taxa, communities of flora or fauna and potentially threatening processes, and creation of Action Statements and Management Plans for all listed taxa communities of flora or fauna and processes.

• declaration of a Critical Habitat if the habitat is critical for the survival of a species or a community of flora or fauna, if listed as Critical Habitat, the Minister for Environment may then make an Interim Conservation Order (ICO) to conserve the Critical Habitat (NB: no Critical Habitat

has been declared in the State).

• protection of flora and fauna through listing offences such as penalties relating to not following an ICO and taking, trading in, keeping, moving or processing protected flora without a licence (NB: this does not apply to taking protected flora from private land (other than land which is part of the critical habitat for the flora) except for taking tree-ferns, grass, trees or sphagnum moss for the purpose of sale).

• the Department of Environment, Land, Water and Planning (DELWP) is the referral authority for matters under the FFG Act.

The FFG Act 1988 is applicable to crown land, though the Act lists threatened species within the State.

Environment and Planning Act 1987

The Act sets out procedures for preparing and amending the Victoria Planning Provisions and planning schemes. It is an enabling legislation and does not specifically define the scope of, or how planning should be done in detailed rules. The functions of the Act are to:

• Set broad objectives for planning in Victoria.
• Set the main rules and principles for how the Victorian planning system works.
• Set up the key planning procedures and legal instruments in the Victorian planning system.
• Define the roles of responsibilities of the Minister, councils, government departments, the community and other stakeholders in the planning system.

Wildlife Protection Act 1975 & Associated Regulations

All native wildlife in Victoria is protected by the Wildlife Protection Act (1975) and subsequent regulations.
Under the Act a person must not hunt, take or destroy endangered, notable or protected wildlife; this includes all native vertebrate animals, all kinds of deer, non-indigenous quail, pheasants, and partridges, and all terrestrial invertebrate animals listed under the *Flora and Fauna Guarantee Act*(1988). The Wildlife Regulations 2013 provide further detail relating to the Act, including that a person not to damage, disturb or destroy any wildlife habitat (s42). Although, this does not apply if the person is authorised to do so under any other Act such as the *Planning and Environment Act*(1987).

The Wildlife Regulations 2013 provide further detail relating to the act, including that a person not to damage, disturb or destroy any wildlife habitat (s42). Although this does not apply if the person is authorised to do so under any other Act such as the *Planning and Environment Act* (1987).

Catchment and Land Protection Act 1994

Under the CaLP Act 1994, a landowner must:
Under section 20 of the CaLP Act, all landowners, including the Crown, public authorities and licensees of Crown lands, must, in relation to their land, take all reasonable steps to (Agriculture Victoria):
• avoid causing or contributing to land degradation which causes or may cause damage to land of another landowner;
• eradicate regionally prohibited weeds;
• prevent the growth and spread of regionally controlled weeds on their land;
• prevent the spread of, and as far as possible, eradicate established pest animals.

2. Methodology

The vegetation survey was carried out referring to the *Vegetation Quality Assessment Manual* – guidelines for applying the habitat hectares scoring method (Version 1.3 DSE, DELWP 2004). In addition, Kent and Coker (1995) were utilised. Kent and Coker (1995) provide the random walk methodology to survey the ground covering vegetation of the study site, whilst adhering to the Vegetation Quality Assessment Manual (DSE 2004) and other DELWP guidelines.

The vegetation within the study site was initially surveyed to determine what was exotic, what was naturally occurring (not planted) or planted native vegetation, and whether any EVCs were present or significant flora.

By definition, only indigenous canopy trees can be considered either scattered or a patch of native vegetation. A patch of native vegetation occurs when three or more canopy trees outer driplines touches the dripline of at least one tree, thus, forming a continuous patch of native vegetation. Additionally, a patch of native vegetation can be defined as an area where at least 25 percent of total perennial plant understorey cover is native (DELWP 2017a).

Any patches of native vegetation were marked out by walking around the edge of the extent of the understorey vegetation or around the edge of the canopy of trees (DELWP 2018). If present, patches of indigenous native vegetation were measured and marked out by GPS, whilst walking around the outer canopy drip-line of the trees or the edge of the area of understorey vegetation. Scattered or patches of indigenous understorey were identified and, if present within patches, large old canopy trees were noted.

Native trees that were planted are not considered in the assessment. As aforementioned, under Planning Clause 52.17 planted native vegetation may be removed without the need of a permit or offset (Planning Clause 52.17, DELWP 2017 b).

If necessary the diameter at breast height (trunk circumference) was measured for indigenous *Eucalyptus* canopy trees. The diameter at breast height (DBH) of a tree trunk is measured at 1.3 metres above ground level; the circumference at breast height (CBH) of a tree trunk is also measured at 1.3 metres above ground level.

The extent and final habitat hectare results of the Vegetation Quality Assessment (VQA) of patches of native vegetation are incorporated into a shape file. Also included in the shape file were numbers of large and small scattered canopy size trees and including the assigned extents of coverage given to these trees. The incorporated VQA data on the shape file is sent to DELWP to generate a Native Vegetation Removal (NVR) report. If the extent of native vegetation is less than 0.5 hectares in size and is not in a detailed location category then the Native Vegetation Information Management tool is used to generate an NVR report. In this instance, an NVR was not generated as no native vegetation is to be removed.

Any indigenous native vegetation present are identified on-site and through the taking of samples, and using relevant keys, texts and the *Flora of Victoria*.

Large scattered indigenous canopy trees (or the removal of a canopy tree from a patch of native vegetation) are assigned an area value of 0.0707 hectares and smaller indigenous canopy trees havean area value of 0.0314 hectares per tree (DELWP-ENSym NVR tool). The large tree (*Eucalyptus* spp.) benchmark is DBH 80 centimetres (cm) for EVC 55 Plains Grassy Woodland and 70 centimetres (cm) for EVC 47 Valley Grassy Forest, Central Victorian Uplands bioregion.

The locations of native vegetation for Victoria are as follows (DELWP location categories –DELWP 2017 a):

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

Location 1 – includes all remaining locations in Victoria. These are low-risk areas of native vegetation loss having an impact upon the habitat for rare or threatened species (DELWP 2017 a).

Location 2 – includes locations that are mapped as endangered EVCs and or sensitive wetlands and coastal areas are not included in Location 3.

Location 3 native vegetation – includes locations where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for a rare or threatened species.

Because the property is over 0.5 hectares in size a detailed assessment was required.

2.1 Significant Fauna

Threatened species records were generated using the Victorian Biodiversity Atlas (VBA), which provides species lists within a 5 km radius of the study site. This list is cross-referenced with DELWP Flora and Fauna Guarantee Act (1988) lists and EPBC Act (1999) threatened species status. In addition, online sources such as Birdlife Australia and Museums Victoria are utilised. With this information, it is determined whether the site provides suitable habitat for any threatened or listed native fauna.

A general fauna survey is conducted in conjunction with the vegetation quality assessment. The search effort is conducted for a minimum of 2 person-hours (or longer), during this time the study site is slowly traversed, any species directly sighted or heard are recorded. Any trees if present) bearing hollows and burrows are recorded, animal scats and footprints are also noted.

Birds are identified on site with binoculars and listening for their species-specific vocalisations. Simpson and Day (1999) ‘Field Guide to the Birds of Australia 6th edn’ is referred to on-site to make identifications, in addition, a desktop search is conducted utilising sources such as Birdlife Australia to confirm identifications.

Records of endangered or threatened fauna species within a 5 km radius of the site are given in Appendix 1.

2.2 Limitations

Limitations were GPS drift and the estimating (subjective) process of the VQA (Habitat Hectares)methodology (DSE [DELWP] 2004). In addition, there was lack of flowering material due to the very dry conditions and plants in some instances having set seed. Optimal survey time is in the spring.

3. Results & Discussion

No listed rare or threatened flora species were recorded within the study site or property.

Photographs of the study site or property are given as appendix 2.

No native vegetation is to be removed or compromised by the proposed development. Therefore, an offset is not required.

None of the widely scattered trees growing on the property are going to be removed or are deemed lost. In addition, the proposed lots are all larger than 0.4 hectares in size, this means that the native trees within the property are not automatically deemed lost (DELWP 2018).

Furthermore, there are no consequential loss of trees, as the future lot boundary fences will be more than two metres in distance away from a tree, (DELWP 2018, planning clause 52.17). The proposed internal street is placed away from any trees and will just have a bitumen seal, there will be no deep cutting into any lateral root zone. Therefore, because no trees are lost, what was surveyed for were native graminoids and herbs.

Apart from a planted shelter-belt of Eucalyptus trees adjacent to Killingworth Road, the native trees on the property are very sparse. The *Eucalyptus* trees are small and have metal guards around them to protect the trunks from cattle that are grazed in the paddocks. Nevertheless, there is evidence of soil compaction under the eucalypts caused by cattle congregating under the trees.

The internal street of the proposed subdivision (refer to appendix 3) passes through the shelter-belt of planted *Eucalyptus* trees from its connection with Killingworth Road. The small *Eucalyptus* trees and shrubs of this shelter belt are planted and are currently fenced off from the surrounding paddocks. The possible loss of some of these native trees and shrubs in the construction of the internal street does not require an offset or a permit for their removal, as they are planted (DELWP 2017b).

One of the three dams on the property is fenced off from the cattle. Surrounding the dam, there is what appears to be *Juncus subsecundus* tussocks and few scattered areas of Wallaby Grass (*Rytidosperma* species). There are also some small *Eucalyptus blakelyi, Eucalyptus microcarpa* trees and a *Eucalyptus ovata* tree. *Typha* species was also recorded within the dam growing in a small patch near an island which supports a Willow tree.

None of the scattered native vegetation within the confines of the fenced off dam would constitute a patch of native vegetation. The dam is to be retained, thus the native vegetation within this fenced-dam area is preserved; therefore, no offset is required.

The other dams on the property are not fenced off to cattle, and these dams are also not going to be removed.

The paddocks were walked over in a random walk methodology and except for some isolated *Juncus subsecundus* tussocks, some isolated *Euphorbia dallachyana* plants and small *Eucalyptus* trees, no other native vegetation was present.

The paddocks are covered in exotic grasses and forbs. No native grasses, lilies or herbs were sighted and the sparse shrub layer typical of the two EVCs mapped as occurring on the property has been removed.

Apart from the shelter belt of *Eucalyptus* trees the small *Eucalyptus* trees growing on the property are very sparsely scattered. The property consists of open paddocks largely devoid of trees and are covered in exotic grasses and forbs.

Therefore, the proposed subdivision of the property will have no impact upon any native vegetation and no offset is required.

Apart from the shelter-belt of *Eucalyptus* the species of trees growing on the are:

Species	**Common name**
Eucalyptus blakelyi	Blakey's Red Gum
Eucalyptus camaldulensis	River Red Gum
Eucalyptus microcarpa	Grey Box
Eucalyptus ovata	Swamp Gum

There was also an *Acacia paradoxa* and *Bursaria spinosa* shrub growing in the shelter-belt of eucalypts.

3.1 Weeds

The ground covering pasture grasses consisted of exotic grasses and forbs. Apart for some scattered *Juncus* in places and isolated *Euphorbia dallachyana* plants, there were no indigenous understorey or ground cover vegetation.

There are three (3) listed noxious weeds growing within the study site:

- *Marrubium vulgare* (Horehound), which is a regionally controlled weed within the Goulburn Broken CMA and
- *Cirsium vulgare* (Spear thistle) which is a restricted weed in the Goulburn Broken CMA(Agriculture Victoria 2017).
- *Salix* species* (Willow) are a restricted weed in the whole State.

***Note**: The species of Willow, growing on a small island within the fenced-off dam, could not be determined.

The categories of weeds are as follows:

Weeds of National Significance (WoNS) are invasive weeds that are federally determined to pose a significant socio-economic and environmental risk to the community and environs. Presently there are 20 WoNS.

Under the Catchment and Land Protection Act 1994 (CaLP Act) it is the *responsibility of the landowner* to control and eradicate regionally controlled weeds. The CaLP Act defines 4 categories sof noxious weeds:

State Prohibited: weeds that do not occur in Victoria but pose a significant threat to the community and environs; or weeds that are present in Victoria yet pose a significant threat and are expected to 13 be eradicated. The Victorian Government bears responsibility for their eradication, however CaLP Act section 70(1) it is expected that the landowner prevents their spread.

Regionally Prohibited: weeds that are not widely distributed in a region but are invasive and have

the potential to spread. Landowners must take reasonable steps to control or eradicate regionally prohibited weeds.

Regionally Controlled: Invasive weeds that are usually widespread in a region. Landowners must control or eradicate regionally controlled weeds to prevent their spreading and growth.

Restricted Weeds: Weeds that pose a significant and unacceptable risk of spreading within that state and are a threat to other states and territories.

Weeds recorded at the study site are as follows:

Species	**Common Name**
Centaurium erythraea	Common Centaury
Cirsium vulgare	Spear thistle
Cynodon dactylon	Couch
Dactylis glomerata	Cocksfoot
Hordeum spp	Barley Grass
Hypochoeris radicata	Cat's ear
Lepidium africanum	African Pepperwort
Lolium spp	Rye Grass
Malva parviflora	Small-flower Mallow
Marrumbium vulgare	Horehound
Modiola caroliniana	Red-flower Mallow
Paspalum dilatatum	Paspalum
Phalaris aquatica	Harding Grass
Phalaris minor	Lesser Canary Grass
Polygonum aviculare	Wireweed
Polypogon monospeliensis	Annual Beard-grass
Rumex spp	Dock (dead)
Salix spp.	Willow
Solanum nigrum	Black Nightshade

3.2. Fauna

No threatened diurnal fauna species were recorded during the survey.

The common wildlife species recorded during the survey were:

Species	**Common Name**
Chenonetta jubata	Wood duck
Poliocephalus poliocephalus	Hoary-headed Grebe
Psephotus haematonotus	Red-rumped Parrot
Rhipidura leucophrys	Willie Wagtail

3.2.1. Threatened or Endangered Fauna: 5km radius

Listed threatened fauna recorded within 5 kilometres of the study site and the likelihood providing habitat for threatened species is given in appendix 1. Aquatic or wetland species were not considered. Even though there were dams on the property, the dams generally lacked semi-aquatic and aquatic vegetation, which would provide habitat and cover for wetland species.

The grassy woodland and grassy forest ecological communities have been removed from the property, and replaced with an exotic pasture community and remnant old scattered Eucalyptus trees. Therefore, it is unlikely that the property will provide habitat for a number of threatened wildlife species. One of the main reasons species become threatened is due to the loss of its natural habitat (Lindenmayer D. & Burgman M. 2005).

It is worth noting that due to the study sites proximity to the Yea Wetlands John Cummins Reserve, it is likely that a number of potentially threatened or endangered bird species will be seen flying over-head or they may briefly be seen utilising one of the farm dams.

3.3. Implications of the Proposed Subdivision

No native vegetation is to be removed. The highly scattered and small (most likely planted) eucalyptus species within the interior of the property are to be kept. In addition, the shelter-belt along Killingworth Road and farm dams will also be retained.

As discussed, EVC 55 and 47 have been removed from the study site. An understorey, especially within the interior, has been removed from the site likely due to extensive grazing and other agricultural practices. The canopy layer has also been removed, the scattered trees within the property are extremely isolated from one another and do not form a noticeable canopy or open-forest/woodland composition.

The development of the rural living housing estate will not have detrimental impact upon native wildlife occurring within the area, because the natural ecological communities have already been removed and therefore the habitat requirements, except for some common wildlife species, has been lost (Lindenmayer et al 2016). Thus, given the study sites present condition and retention of native vegetation (planted or otherwise) the proposed subdivision should not adversely impact upon the surrounding environs or biodiversity value of the area.

4. Conclusion

All of the proposed subdivision residential lots are larger than 0.4 hectares in size meaning that there will be no consequential loss of the very scattered small *Eucalyptus* trees growing in the paddocks. These trees are not going to be removed.

The only possible loss of native vegetation is construction of the internal street within the proposed housing estate. This may result in the loss of some of the planted *Eucalyptus* trees within the shelter-belt adjacent to Killingworth Road. The loss of any of these trees doesn't require a permit or subsequent offset for their removal as they are planted (DELWP 2017 b, planning clause 52.17).

The rest of the vegetation on the property comprises of exotic pasture grasses and forbs.

There are no patches of native vegetation of native understorey or ground covering vegetation that is going to be removed, and therefore no permit or offset is required under planning clause 52.17.

In addition, the four dams on the property, including the one fenced off from cattle are not going to be removed. Therefore, the several scattered *Eucalyptus* trees, *Juncus* small isolated cover of Wallaby grass will not be removed from around the eastern half of the fenced off dam.

The development of the rural living housing estate will not have detrimental impact upon the biodiversity within the area.

4.1 References

Agriculture Victoria: Victoria's consolidated lists of declared noxious weeds and pest animals: http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/protecting-victoria/legislationpolicy-and-permits/declared-noxious-weeds-and-pest-animals-in-victoria

Agriculture Victoria: http://agriculture.vic.gov.au/agriculture/pests-diseases-andweeds/protectingvictoria-from-pest-animals-and-weeds/legislation-policy-and-permits/noxiousweed-and-pestanimal-management-your-legal-roles-and-responsibilities

Agriculture Victoria: http://agriculture/farm-management/business-management/legal-information-for-victorian-landholders/noxious-weed-and-pest-management

Agriculture Victoria 2017. Victorian Noxious Weeds List. 20th of July 2017

DELWP: Victorian Department of Environment, Land, Water and Planning
DELWP - ENSym NVR tool-spatial data standards: https://ensym.biodiversity.vic.gov.au/nvr_tool/

DELWP 2017 a. Guidelines for the Removal, destruction or lopping of native vegetation.

DELWP 2017 b. Exemptions from requiring a planning permit to remove, destroy or lop native vegetation. Guidance.

DELWP 2018. Assessors handbook. Applications to remove, destroy or lop native vegetation.

DELWP. Nature Kit: https://www.environment.vic.gov.au/biodiversity/naturekit

DELWP. Native Vegetation Information Management system (NVIM):
https://www.environment.vic.gov.au/native-vegetation/native-vegetation-information-management

DELWP. Victorian Biodiversity Atlas:
https://www.environment.vic.gov.au/biodiversity/victorianbiodiversity-atlas

DSE: former Victorian Department of Sustainability and the Environment (now DELWP)

DSE (DEWLP) 2004 a. EVC 55: Plains Grassy Woodland, Central Victorian Uplands bioregion, EVC/Bioregion Benchmark for Vegetation Quality Assessment.

DSE (DELWP) 2004 a1. EVC 47: Valley Grassy Forest, Central Victorian Uplands bioregion, ,EVC/Bioregion Benchmark for Vegetation Quality Assessment.

DSE (DELWP) 2004. Vegetation Quality Assessment Manual – Guidelines for applying the habitat hectares scoring method. Version 1.3

EPBC Act (1999): Commonwealth, The Environment Protection and Biodiversity Conservation Act 1999

FFG Act (1988): Victorian, The Flora and Fauna Guarantee Act 1988

Flora and Fauna Guarantee Act 1988 – Threatened List, October 2021

Flora of Victoria: https://vicflora.rbg.vic.gov.au/

Kent M. & Coker P. 1995. Vegetation Description and Analysis. A Practical Approach. John Wiley & Sons Ltd., Chichester, England.

Lindenmayer D. & Burgman M. 2005. Practical Conservation Biology. CSIRO Publishing, Collingwood, 3066.

Lindenmayer D., Michael D., Crane M., Okada S., Florance D., Barton P., & Ikin K. 2016. Wildlife Conservation in Farm Landscapes. CSIRO Publishing, Clayton South 3169

Murrindindi Shire Planning Scheme: https://www.planning.vic.gov.au/schemes-and-amendments/browse-planning-scheme/planningscheme?f.Scheme%7CplanningSchemeName=murrindindi

Simpson K. and Day N. 1999 'Field Guide to the Birds of Australia 6th edn', Penguin Group,Camberwell, Victoria.

VicPlan:https://mapshare.vic.gov.au/vicplan/

Appendix 1

Key:

No = Species habitat not present.
Unlikely = small (low) chance that the species may occur
Likely = Species likely to occur/site contains suitable habitat
Yes = Detected during survey
Rationale provided in comments

FFG Act Listed
ex = extinct | ew = extinct in wild
cr = critically endangered
en = endangered
vu = vulnerable

VICADV/DELWP
CR = critically endangered
EN = endangered
VU = vulnerable
NT = near threatened

EPBC
CR = critically endangered
EN = Endangered
VU = Endangered
M = Migratory
m = Marine
# = PMST

Scientific Name	Common Name	Conservation Status			Habitat	Likelihood	VBA	Comments
		FFG	VICADV	EPBC				
Amphibians								
Litoria raniformis	Growling Grass Frog	vu	EN		Found close to or in water or very wet areas in woodlands, shrublands, and open and disturbed areas. Eggs and tadpoles can be found in permanent lakes, swamps, dams and lagoons with still water (Frogs of Australia).	No	1788 ?	Study site is too disturbed and degraded to support species. Dams do not contain the coverage of semi and aquatic vegetation.
Pseudophryne bibroni	Brown Toadlet	en	EN		Frequent dry forest, woodland, shrubland and grassland. Shelter under leaflitter and other debris in moist soaks and depressions. Eggs are spawned in shallow burrows (or nests) under litter, in low areas, near water, that will later be flooded (Frogs of Australia).	No	1966	Study site is too disturbed and degraded to support species.
Birds								
Ardea alba modesta	Eastern Great Egret	vu	VU	M	Wide range of wetland habitats. Species frequents shallow waters.	No	2018	Species preferred habitat is not present. May be seen in Yea Wetland.
Aythya australis	Hardhead	vu	VU		Freshwater swamps and wetlands, occasionally sheltered estuaries. Rarely seen on land; roost on low branches and stumps near water. Prefer deep open water and densely vegetated wetlands for breeding (Birdlife Australia).	No	2018	Species prefer large, deep open dams. Dams on site are too small and shallow to support this species.
Biziura lobata	Musk Duck	vu	VU		Deep water freshwater lagoons or deep water with dense reed beds: swamps, lakes etc., Dive for food. Have been observed on small farm dams and lakes, however, this is unusual (Australian Museum;	No	1999	Species prefer large, deep open dams. Dams on site are too small and shallow to support this species. Last observation some decades ago.

					McCracken 1999).			
Hieraaetus morphnoides	Little Eagle	vu			Seen over woodland, forested lands and open country. Utilise Yellow Box-Red Gum grassy woodland; White Box-Yellow Box-Red Gum Grassy Woodland and derived Native Grassland (Flora and Fauna Guarantee, nomination no. 887).	Unlikely	2018	Study site does not contain preferred habitat. However, may be seen flying or hunting through area. .
Lewinia pectoralis	Lewin's Rail	vu	VU		Wetland areas with dense vegetation, including wetlands, farm dams, swamps, saline lakes and river flats (SWIFFT).	No	2017	Species habitat is not present. May be seen in Yea Wetland.
Ninox Strenua	Powerful Owl	vu	VU		Found in open forest and woodlands, along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Sometime found in open areas near forests such as farmland, parks and suburban areas, as well as in remnant bushland patches. Needs old growth trees to nest (Birds in Backyard).	Unlikely	2019	Study site may be too disturbed and degraded to support species. Possibility that, the large old trees may provide habitat.
Oxyura australis	Blue-billed Duck	vu	EN		Almost wholly aquatic, and is seldom seen on land. Non-breeding flocks, often with several hundred individuals, congregate on large, deep open freshwater dams and lakes in autumn. Daylight hours are spent alone in small concealed bays within vegetation or communally in large exposed rafts far from the shore.	No	1989	Species prefer large, deep open dams. Dams on site are too small and shallow to support this species.
Spatula rhynchotis	Australasian Shoveler	vu	VU		Wetlands, preference for large undisturbed heavily vegetated swamps. Also, along open waters and occasionally along coasts.	No	2018	Species preferred habitat is not present. May be seen in Yea Wetland.
Insects								
Hemiphlebia mirabilis	Ancient Greenling Damselfly	en	EN		Inhabits river, riverine lagoons, permanent ponds, and swamps that may be summer-dry. Cryptic within reed habitat (NSW 2009, Identification Guide to the Australian Odonata).	No	1992	The agricultural pastureland with dams is highly unlikely to provide habitat. Species is particularly sensitive to environmental change. Apparently known from few sites.
Synemon plana	Golden Sun Moth	vu*	CR	VU*/#	Distribution parallels the distribution of native grasslands dominated by the grasses of Austrodanthonia species. GSM is now located at approximately 65 sites in south-eastern Aus in small, isolated remnants of native grasslands (SPRAT). ***Species appears to be downgraded as of Oct-Dec 2021.** Formerly listed as critically endangered under Victoria Advisory List 2009). Formerly listed as critically endangered under EPBC Act.	Unlikely	2013	Study site is an agricultural pastureland. Does not contain species preferred habitat.
Mammals								

Petauroides volans	Greater Glider	vu	VU	VU	Distributed throughout the forested parts of eastern Victoria, including inland and southern falls of the Great Dividing Range, as well as the Strzelecki and Strathbogie Ranges…Greater Gliders are absent from high altitude alpine and sub alpine habitats, Wilson's Promontory and cleared areas… [They] are dependent and prefer old tree age classes in moist forest types… [and] use hollow-bearing trees for shelter and nesting, with each family group using multiple trees within its home range. They eat mainly young eucalypt leaves (DELWP).	No	1995	Species habitat not present. There is not sufficient habitat within urban areas.
Reptiles								
Delma impar	Striped Legless Lizard	en	EN	VU/#	Grassland specialist, found only in areas of native grassland and nearby grassy woodland and nearby exotic pasture. Primary habitat: Natural Temperate Grassland	Unlikely	2019	Highly unlikely. Study site does not contain species preferred habitat as it an exotic agricultural pastureland. Species is particularly sensitive to extended grazing, heavy disturbance, drought etc., and appears reliant on undisturbed refuge areas to persist – which is not available at the site (Robertson & Smith 2010).
Emydura macquarii	Murray River Turtle	cr	VU		Primarily located in the Macquarie River basin and all its major tributaries.	No	1964	Habitat not present.
Note: FFG Amendment Act 2019 effectively made Victoria's Advisory lists obsolete. VBA records have now been updated to reflect the published FFG Threatened List (Oct 2021). For informational purposes, VICADV threat statuses are retained.								

Appendix 2: Photographs taken on 28.3.2022

Looking across a grazed paddock with an isolated small *Eucalyptus* tree.

The planted shelter-belt of eucalypts in the background.

Appendix 2: Photographs taken on 28.3.2022

The existing house on the property.

The fenced-off dam.

Appendix 2: Photographs taken on 28.3.2022

The fenced-off dam with a Willow and patch of *Typha*.

Exotic grass and forbs of the pasture community.

Appendix 2: Photographs taken on 28.3.2022

The planted shelter-belt of *Eucalyptus* trees and shrubs.

A lone small eucalypt with a wire guard.

Appendix 2: Photographs taken on 28.3.2022

A large old *Eucalyptus blakelyi* tree, which will not be removed.

One of the four dams located on the property.

Appendix 2: Photographs taken on 28.3.2022

Except for the lone E*ucalyptus blakelyi* tree the paddock lacks native vegetation.

A small eucalypt in exotic pasture paddock.

Appendix 2: Photographs taken on 28.3.2022

A paddock covered in exotic grasses and forbs

Exotic pasture.

Appendix 3

PLAN OF TENTATIVE SUBDIVISION

LOT 2 on PS 436440P

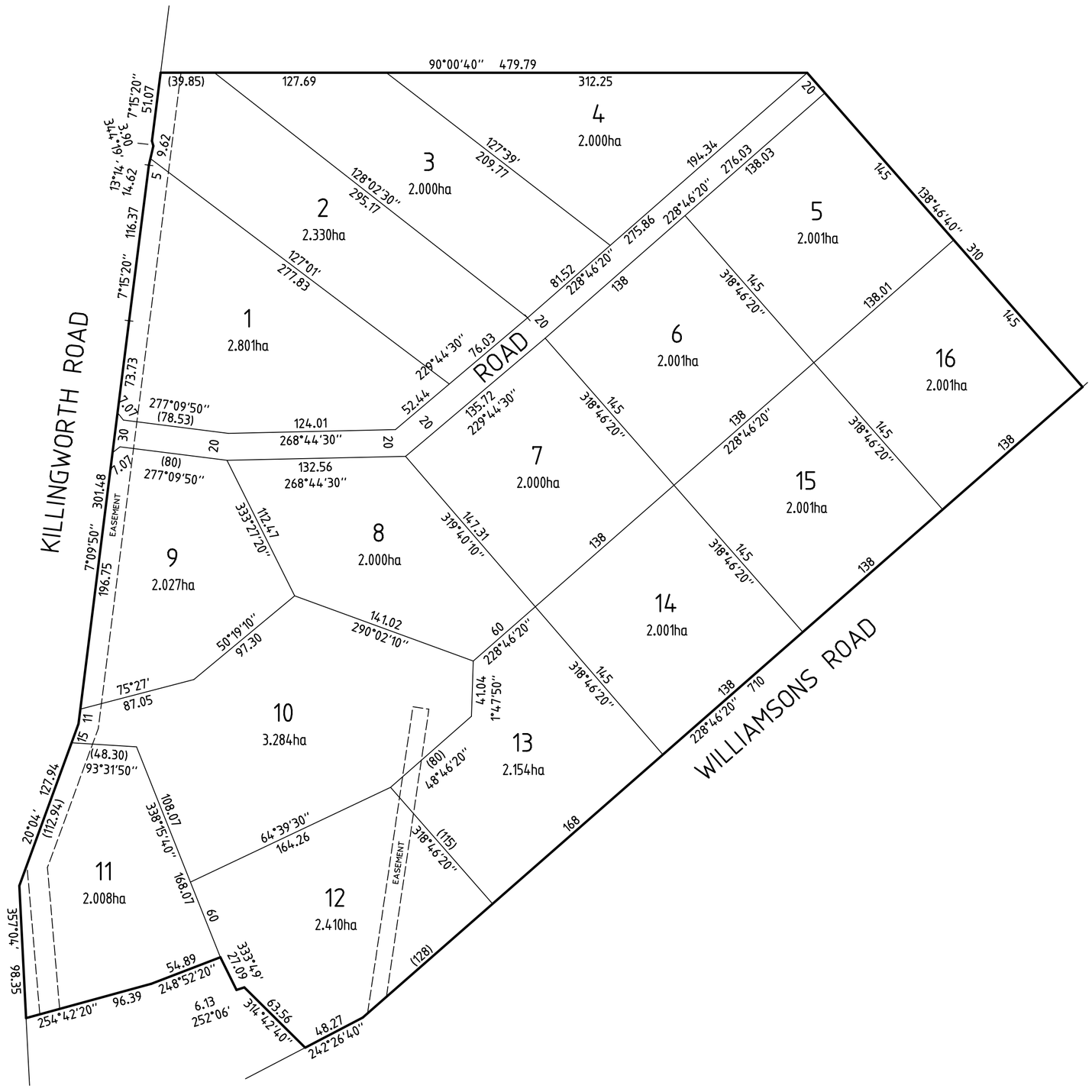
PARISH OF KILLINGWORTH

COUNTY OF ANGLESEY

SCALE 1:2,500 METRIC

ORIGINAL SHEET SIZE (A-2)
COMPUTER REF: 968406
VERSION 2

REF: 19684
31st JANUARY 2022



RODNEY AUJARD & ASSOCIATES
LICENSED LAND SURVEYORS
Level 1, 325 Camberwell Road, Camberwell. 3124.
ph: 9813 2222 fax: 9813 2244
82 HIGH STREET, YEA. 3717. ph. 5797 2056
81 GRANT STREET, ALEXANDRA. 3714.
ph. 5772 1530
EMAIL: aujard@bigpond.net.au

Appendix 4

204 Killingworth Road, Killingworth

Property
Properties
Parcel

NORTH
0 0.1 0.2
Kilometres

Map Projection: GDA 1994 VICGRID94
Print Date: 4/11/2022