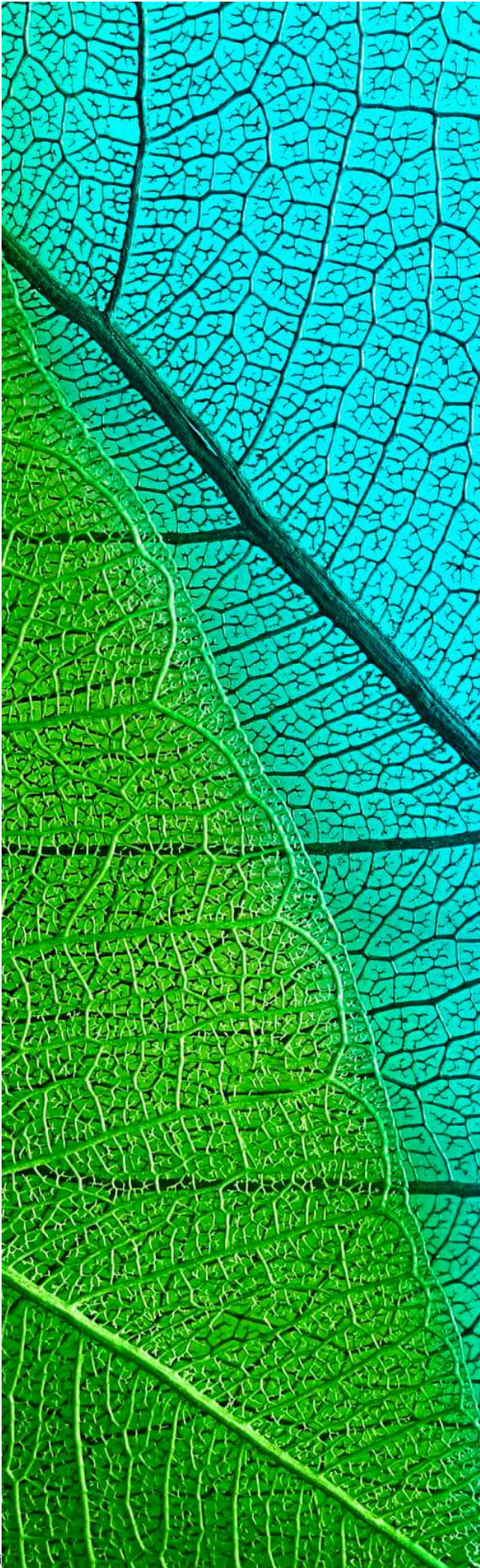




Macorna Wind Farm

Flora and Fauna Assessment

**Prepared for
Atmos MWV Pty Ltd, as Trustee for
Atmos MWV Trust**

August 2026
Report No. 24129.09 (1.4)



**Nature
Advisory**

5/61-63 Camberwell Road
Hawthorn East, VIC 3123
PO Box 337, Camberwell VIC 3124
(03) 9815 2111
www.natureadvisory.com.au

Nature Advisory acknowledges the traditional owners and sovereign custodians of the land on which we work from—the Wurundjeri people of the Woi Wurrung language group. We extend our respect to their Ancestors and all First Peoples and Elders past and present.

Document history and status

The following table outlines the revisions made to this document.

Version	Date of issue	Description	Prepared by	Reviewed by	Approved by
v1.0	27/3/2026	First draft	Danielle Eastick, Elinor Ebsworth, Mike Hitchcock, Ezra Janetzki, Robin Leppitt, Sergio Nolasco Plasier, Michael Sebastian	Mike Hitchcock & Inga Kulik	Inga Kulik
v1.1	22/04/2026	Respond to client comments	Mike Hitchcock, Juliet Talarico, Sergio Nolasco Plasier, Inga Kulik	Mike Hitchcock & Inga Kulik	Inga Kulik
v1.2	29/04/2026	Respond to client comments	Danielle Eastick, Robin Leppitt, Inga Kulik	Inga Kulik	Inga Kulik
v1.3	31/07/2026	Respond to DTP/DEECA feedback and additional survey results	Robin Leppitt, Arend Kwak, Juliet Talarico, Mike Hitchcock, Rodney Armistead, Rebecca Spence, Danielle Eastick, Elinor Ebsworth	Mike Hitchcock & Inga Kulik	Bernard O'Callaghan
v1.4	14/08/2026	Respond to client comments	Danielle Eastick, Dan Delany, Arend Kwak, Elinor Ebsworth, Declan Blackburn, Lotus Hackenberger, Mike Hitchcock	Mike Hitchcock & Bernard O'Callaghan	Bernard O'Callaghan

Executive summary

Atmos MWV Pty Ltd, as Trustee for Atmos MWV Trust engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment for the proposed Macorna Wind Farm, located near Kerang, Victoria (herein referred to as MAWF or the 'Project Area', including all lots within the Macorna Wind Farm boundary).

The purpose of this report is to accompany the EES Referral and provide information on flora and fauna values at the Project Area and surrounds, assess potential impacts on these from the project, and recommend avoidance and mitigation measures.

Project and Site Description

The Project Area is located 7 km south-east of Kerang, 8.5 km north-west of Pyramid Hill and 12 km south-west of Cohuna. The township of Macorna is located in the centre of the Project Area. The Loddon Valley Highway forms the western boundary of the Project Area.

The MAWF will comprise up to 114 wind turbine generators (WTGs) with a capacity of 820.8 MW as well as associated infrastructure, such as substations, battery energy storage systems, access tracks and grid connections.

Assessment results

Native vegetation – Wind farm

The current distribution of vegetation across the Wind Farm Project Area reflects the agricultural use of the land, with many areas of private property used for cropping, including cereals and legumes. In these areas, remnant grassland has been historically cleared through cultivation and herbicide use. In some fallow areas, high cover of opportunistic natives was noted, qualifying as patches of native vegetation, although most were species depauperate.

A total of 443 patches comprising Plains Grassland (EVC 132), Chenopod Grassland (EVC 829), Riverine Chenopod Woodland (EVC 103), Lignum Swamp (EVC 104) and Lignum Swampy Woodland (EVC 823) were recorded within the area surveyed (study area). This totalled 1,656 ha of native vegetation in patches and 30 large trees, of which 683 ha were low quality, 727 ha moderate quality and 246 ha of high quality.

The scattered trees in the study area would once have comprised the canopy component of Riverine Chenopod Woodland (EVC 103) and Lignum Swampy Woodland (EVC 823).

A total of 36 scattered trees occurred in the study area, including 16 large scattered trees (≥ 70 cm DBH for River red-gum *Eucalyptus camaldulensis* individuals in EVC 823, otherwise ≥ 50 cm DBH) and 20 small scattered trees (< 70 cm DBH, for River red-gum *Eucalyptus camaldulensis* individuals in EVC 823, otherwise < 50 cm DBH).

It was concluded that 8.216 ha of Plains Grassland and Chenopod Grassland habitat zones qualified for the 10-year regrowth exemption. These habitat zones were located in the northern and centre section of the study area. Table 14-2 details the habitat zones which are exempt from Clause 52.17.

Native vegetation – Transport route swept paths

Field-based assessments of the transport route swept paths are yet to be undertaken. A desktop assessment has been conducted, which considers the EVCs (DEECA 2026a) modelled to be present within the transport route. Aerial imagery (Figure 5-2) indicates that much of the proposed swept path occurs within areas already occupied by existing road corridors or other infrastructure (e.g. the Geelong

Port). As such, the majority of the transport route from the Port of Geelong is not expected to have impacts on native vegetation.

Scattered tree occurrence could not be confirmed from the desktop assessment of the swept path, given many of the EVCs modelled to occur support open grassy understories (Figure 5-2). Therefore, what may appear to be a scattered tree, could in fact be classified as a patch tree within a broader area of native grassy groundcover.

A field assessment will be undertaken to ground-truth the presence or absence of native vegetation and scattered trees, to support the assessment of the Project.

Flora species

The following threatened flora species were recorded during the field survey:

- Spiny Lignum (*Duma horrida*) (FFG Act: Critically Endangered)

The likelihood of occurrence analysis indicates that 49 listed flora species have the potential to occur in the study area. Of these species, 20 have the potential to only occur in swamps, watercourses and man-made waterbodies. These are areas located outside of the development footprint and thus will not be impacted. The remaining 30 species require further targeted surveys to verify their presence, with the aim of being avoided through layout changes and micro-siting.

Fauna

The following listed fauna species were recorded within the Project Area or within the wider 10 km search region during the field surveys.

- Within the 10 km search region
 - Australasian Bittern (EPBC: endangered; FFG: critically endangered)
 - Australasian Shoveler (FFG: vulnerable)
 - Australian Gull-billed Tern (FFG: endangered)
 - Musk Duck (FFG: vulnerable)
 - Southern Whiteface (EPBC: vulnerable)
 - White-bellied Sea-Eagle (FFG: endangered)
- Within the Project Area:
 - Black Falcon (FFG: critically endangered)
 - Blue-winged Parrot (EPBC: vulnerable)
 - Brolga (FFG: endangered)
 - Brown Treecreeper (EPBC: vulnerable; FFG: vulnerable)
 - Eastern Great Egret (FFG: vulnerable)
 - Little Eagle (FFG: vulnerable)
 - Magpie Goose (FFG: vulnerable)
 - Plumed Egret (FFG: critically endangered)
 - Bearded Dragon (FFG: vulnerable)

In addition, the likelihood of occurrence analysis indicated that 15 listed fauna species are 'likely to occur' and 25 have the 'potential to occur' in the Project Area, as detailed in Table 6-2.

Listed threatened ecological communities

The following EPBC and FFG Act-listed threatened ecological communities were recorded in the Project Area:

- Natural Grasslands of the Murray Valley Plains (EPBC: Critically Endangered)
- Northern Plains Grassland Community (FFG: Threatened)

One FFG Act-listed threatened bird community has the potential to occur in the Project Area:

- Victorian Temperate Woodland Bird Community (FFG: Threatened)

Design evolution and avoidance of impacts

The Proponent has undertaken a significant effort to adapt the design of the project in response to ecological values and with consideration of the mitigation hierarchy. The Project's layout has been refined over several iterations, with a focus on avoidance as the first step that has so far included:

- General layout design:
 - Avoidance of native woodland patches;
 - A 2 km turbine-free buffer from the Kerang Wetlands Ramsar sites, Hird and Johnson Swamps;
 - A 100 m buffer around wetlands deemed as medium-quality for Growling Grass Frog, where possible;
 - A 100 m buffer along designated watercourses within the Project Area, where possible; and
 - A 30 m buffer around artificial drains and channels.
- Turbine adjustments:
 - Removal of 12 turbines within areas of greater ecological sensitivity
 - Substantial refinement of all other infrastructure to avoid native vegetation, Brolga Breeding and potential Brolga Breeding Wetland buffers and fauna habitat impacts as far as practicable
 - Removal of 1 turbine within the Brolga home range identified adjacent to Hird and Johnson Swamps Infrastructure adjustments
 - Removal of roadside entrances for 2 turbines that intersect native vegetation;
- Rerouting of 9 access tracks to avoid native vegetation;
- Removal of temporary laydown areas from native vegetation; and
- Refinement of all entranceways for OSOM access that intersect native vegetation.

Over five iterative layout updates, these principles have reduced native vegetation impacts from 130.8 ha to 45.523 ha. Key reductions to native vegetation values include:

- Impacts to the EPBC Act-listed *Nature Grasslands of the Murray Valley Plain* (NGMVP) ecological community reduced from 58,790 to 25,254 ha, including confirmed occurrences reduced from 27,882 ha to 12,063 ha.
- Impacts to the FFG Act-listed Northern Plains Grassland Community reduced from 72,146 ha to 40,470 ha.

These changes have also minimised impacts on listed flora and fauna habitat through targeted design refinements. Further refinements of the layout are planned to follow listed raptor nest searches, targeted flora surveys and confirmation of listed ecological communities during Spring 2026.

[Impact assessment](#)

Native vegetation

The Project will impact a total of 45,523 ha of native vegetation. Impacts to native vegetation comprise the following:

- 45,210 ha of native vegetation in patches (including one large tree in a patch)
 - Of this, 1,216 ha are DEECA-mapped wetlands.
- Five scattered trees (namely four large scattered trees and one small scattered tree), equating to an area loss of 0,313 ha

An analysis using aerial photography and landowner information concluded that 8,216 ha of native vegetation proposed for removal was regrowth and qualifies for the 10-year regrowth exemption under Clause 52.17-7. In accordance with the Guidelines, this regrowth is not included in the Native Vegetation Removal Report (NVRR) provided by DEECA (Appendix 6).

Impacts to 45,210 ha of native vegetation in patches (including 8,216 ha of exempt regrowth) represent 2.73 % of the 1,656,769 ha of native vegetation patches recorded in the study area. Accordingly, 1,611,559 ha of native vegetation in patches (97.27 %) will be retained.

Of the impacted native vegetation, 19,886 ha qualified as low quality (habitat score <0.3), 21,692 ha as moderate (habitat score 0.3 to 0.4) and 2,416 ha as high quality (habitat score >0.4). The 1,216 ha of DEECA-mapped wetland impacts were not able to be classified into quality as they did not relate to EVCs.

Impacts to native vegetation are considered moderate in extent but occur predominantly within a highly modified agricultural landscape and will be managed through the avoid–minimise–offset framework.

Flora species

Of the 50 species likely to occur in the Project Area, 20 are avoided through avoidance of suitable habitat (swamps, watercourses, and waterbodies). The remaining 30 listed flora species have the potential to occur within the Development Footprint. Targeted flora surveys are required in 2026/2027 to verify the presence or absence of these species and inform whether further avoidance and mitigation measures are required. These surveys are planned to begin in October 2026, with several surveys targeting the various flowering times of the species. Impacts on the threatened flora species are subject to the results of these surveys and subsequent avoidance through layout refinements.

Fauna

A summary of impacts and implications on threatened fauna species and species groups is given below. Across all key threatened species assessed, impacts are expected to be low to moderate, highly localised, and unlikely to result in population-level effects.

Birds (exc. Brolga, Plains-wanderer, and migratory shorebirds)

The results of bird surveys undertaken to-date indicate that there are unlikely to be high impacts on listed species and Species of Concern, provided the recommended mitigation measures are implemented.

There is a potential for higher impacts to non-listed waterbirds (specifically the Straw-necked Ibis and Australian Shelduck) that are noted as values in the Ecological Character Description of the Kerang Wetlands Ramsar Site. A residual risk to non-listed waterbirds protected through the Ramsar wetland was identified from flight height data, with Australian Shelduck and Straw-necked Ibis being two of the most observed birds flying at RSA, sometimes in large flocks. Both species are common at many wind farm sites across Victoria, yet there are only two recorded collisions for Shelducks and six for Straw-necked Ibis in Nature Advisory's extensive mortality database of 22 wind farms where the company performs operational monitoring, going back to 2005 (Nature Advisory unpublished mortality data). This may suggest that these species are generally avoidant of turbine blades, and have a relatively low collision risk. Further studies are planned, including completion of BUS and raptor nest searches, which will further inform mitigation measures to reduce risks to these species.

The Proponent has already undertaken design changes to reduce impacts on bird species through the avoidance of habitat through the micro-siting of turbines and other infrastructure. Residual risks on listed bird species will be managed through the preparation and implementation of a Bat and Avifauna Management (BAM) Plan.

Cumulative risk remains difficult to quantify for many bird species due to limitations in available data, particularly for highly mobile taxa. While the Project represents a small and localised contribution to potential residual impacts, the cumulative effects of similar developments across the broader landscape cannot be entirely discounted for species with large home ranges and/or high mobility. It is expected that all projects are subject to the same requirements of avoidance, minimisation, and adaptive management measures. Accordingly, cumulative impacts would be expected to be lower owing to all projects undergoing such processes.

Bats

Two listed bats have the potential to occur in the Project Area: the Corben's (South-eastern) Long-eared Bat (EPBC: Vulnerable, FFG: Endangered) and the Yellow-bellied Sheath-tail Bat (FFG: Vulnerable). Both species were considered to potentially occur in the Project Area, but have not been directly recorded yet. Corben's Long-eared Bat cannot reliably be detected by ultrasonic methods and is addressed by the presence/absence of the long-eared bat species complex, which has been recorded.

Mitigation measures, when incorporated into project design and operational management, are expected to substantially reduce potential impact pathways, including collision risk and habitat disturbance. This assessment concludes that, with the current knowledge of site utilisation, that with the implementation of the recommended mitigation hierarchy, as also outlined in the guidance (DEECA 2025a), the Project is unlikely to result in significant impacts to listed bat species.

Notwithstanding this, low residual risk to bats may remain following mitigation. Such residual risk will be addressed in the BAM Plan, which will follow guidance documents for the adaptive management of residual risk (DEECA 2025b).

Brolga

There are no breeding wetlands within the Project Area. All mapped traditional flocking records are 5 km or more away, and none of the sites where 10 or more Brolga have been recorded in the past qualify as flocking areas according to the Handbook (DEECA 2025c). Additional field surveys are planned to confirm these outcomes, currently planned for the 2026 breeding season and 2027 flocking season.

Impacts to Brolga from the construction and operation of the Project will be largely avoided through the application of Brolga breeding wetland and potential breeding wetland buffers as per guidance (DEECA 2025c). The Proponent is committed to further design refinements and micro-siting to avoid areas where infrastructure currently encroaches into buffers. Where this is not possible, compensatory measures will be enacted in accordance with the mitigation hierarchy to address residual risk.

Further layout refinements are expected to result in no significant impacts on Brolga from the Project regarding habitat degradation or collision with turbines. The implementation of a BAM Plan, and if required, a Compensation Plan, will address any residual risk through clearly defined measures.

Migratory shorebirds

The field surveys and examination of historical data provided in this assessment indicate that whilst there are large numbers of migratory shorebirds using wetland habitat across the Kerang Wetlands Ramsar site, most of this activity is to the northwest of the Project Area, with comparably few shorebirds using the wetlands in closest proximity to the Project Area.

Impacts to migratory shorebirds from the construction and operation of the Project have been largely avoided through the placement of turbines a minimum of 2 km away from the closest wetland habitat (Hird and Johnson Swamps, part of the Kerang Wetlands Ramsar site). Hydrological analysis showed that construction will not lead to any downstream effects on the Kerang Wetland's Hird and Johnson Swamps. This measure avoids impacts to both the Kerang Wetland Ramsar site and shorebird habitat, and reduces the risk of turbine collision and barrier effects.

The most likely residual risk for shorebirds is from those that may use Hird Swamp, as it is the closest to the Project Area, with flight lines from some other major wetlands intersecting with proposed turbine locations. However, both the collision risk and barrier effect regarding this swamp is reduced by the fact that the wetland is only intermittently used by shorebirds, with just 8 birds recorded during surveys by NA, EHP, and REC between 2021–2026, and no nationally significant numbers of any shorebird species since 2006. Residual risk to shorebirds by the Project can be further reduced through the implementation of a BAM Plan, which will provide for the ongoing monitoring of shorebirds during construction and part of the operation of the wind farm, monitor for shorebird carcasses and, in the event of a shorebird mortality, provide triggers for the adoption of adaptive and responsive mitigation measures.

Plains-wanderer

Within the Project Area, habitat suitable for the Plains-wanderer is relatively limited as a result of extensive historical and ongoing cropping and grazing. The assessment has conservatively estimated 28,846 ha of 'likely suitable' habitat and 7,549 ha of 'potentially suitable' habitat within the development footprint. These areas appear to consist mostly of smaller, largely disconnected patches. Of all 'likely suitable' habitats in the Project Area, 97.38 % have been avoided, along with 99.63 % of 'potentially suitable' habitats. An analysis of all patches impacted found that suitably-sized patches of habitat (18 ha or over) (DoE 2016) were largely remaining intact. Overall, impacts to Plains-wanderer habitat are considered low in the context of the surrounding area. The Proponent is also committed to further design refinement, including micro-siting of turbines and tracks, to further avoid identified habitat where practicable.

The Plains-wanderer has strongholds to the south-east (Patho Plains Grasslands) and north-west (Lower Avoca Grasslands). It is currently unknown if or how the birds move between these areas and if the Project could introduce risk to the birds during such movements. Current evidence suggests that collision risk is low with RSA 20 m beyond that of known flight heights, though residual impacts cannot be discounted.

Growling Grass Frog

Wetlands within the Project Area are mostly ephemeral and capable of supporting suitable habitat only intermittently. Some scattered farm dams may provide a level of habitat, with connectivity possible through the various creek lines, and likely to a lesser extent, artificial drains and channels. Considering the lack of historical Growling Grass Frog records within the Project Area, the general lack of suitable habitat features at most wetlands near the Project Footprint, and the limited connectivity to higher-quality wetlands, most wetlands within the Project Area were considered unlikely to support the species for either breeding or dispersal.

Key habitat within the search region includes the high-quality and more permanent habitat outside the Project Area, including the large systems of Hird, Johnson, Tragowel, and Two Mile Swamps, and areas associated with the Loddon River, which are expected to retain water for longer periods and offer more consistent breeding opportunities over the summer period when most other areas dry out.

The design of the project will incorporate a 100 m buffer around wetlands classed as 'moderate suitability' for GGF, 100 m around designated watercourses, and a 30 m buffer around artificial drains and channels as far as practicable. In some instances, the current layout of Project-related infrastructure encroaches on these buffers, however, the majority of these are associated with existing road upgrades or temporary construction impacts. Further refinement of project layout will seek to further avoid impacts to potentially suitable wetlands. Where this is not possible, additional mitigation measures such as frog-proof fencing is recommended. Overall, these measures are expected to result in a low impact to the species.

Threatened ecological communities

The following listed communities were deemed to be impacted by the proposed development plan:

- Natural Grasslands of the Murray Valley Plains (EPBC Act: Critically Endangered) – 25.254 ha.
Impacts to the community by likelihood of occurrence are summarised below:
 - Confirmed – 12.063 ha
 - Likely – 1.912 ha
 - Potential – 4.493 ha
 - Potential but unlikely – 6.786 ha
- Northern Plains Grasslands Community (FFG Act: Threatened) – 40.470 ha

It should be noted that the above impacts include regrowth that is exempt under Clause 52.17. This is due to the fact that the listing advice for the above communities does not differentiate between regrowth and long-standing remnants, and instead classifies remnant native vegetation on the basis of meeting key diagnostic criteria and condition thresholds alone. Therefore, impacted regrowth that qualifies as the above TECs still requires separate consideration under the EPBC Act and FFG Act.

One FFG Act-listed bird community has the potential to occur - the Victorian Temperate Woodland Bird Community. The occurrence of this community will therefore be confirmed following further surveys. However, potential impacts are considered low (0.644 ha; 0.517 ha on public land), as woodland patches have largely been avoided.

Cumulative impacts

Cumulative impacts have been considered in the context of other renewable energy projects either in development or operational within 35 km, in line with methods used in New South Wales and consistent

with feedback received by the Proponent from DTP IAU on 24 March 2026. Several renewable energy projects are referred, approved, or operational within the broader region, resulting in the potential for cumulative impacts during both construction and operation. Construction-related cumulative impacts are primarily associated with the removal of native vegetation and habitat, while operational cumulative impacts principally relate to collision risk, barrier effects and roadkill.

The assessed footprint represents a preliminary design, and the Proponent has committed to ongoing avoidance and minimisation during detailed design, including micro-siting and infrastructure refinement. Accordingly, the final extent of native vegetation and habitat loss is expected to be lower than that assessed here.

It is not currently possible to precisely quantify cumulative collision mortality, as no wind farms within the assessment area are currently operational and data on regional operational impacts are therefore unavailable. In addition, several nearby projects are yet to receive approval or be referred, and may not proceed in their current form. Should these projects be developed, they are expected to be subject to similar avoidance, mitigation and adaptive management requirements, including operational monitoring and Bat and Avifauna Management (BAM) Plans. Consequently, while cumulative operational impacts are likely to exceed those associated with the Project in isolation if multiple wind farms become operational, the nature and significance of those cumulative impacts cannot currently be reliably quantified.

Implications under legislation and policy

The Guidelines

A permit for the proposed removal of native vegetation is required under Cl. 52.17.

The proposal must be assessed under the Detailed assessment pathway. This would trigger a referral to the Department of Energy, Environment and Climate Action (DEECA).

Offsets required to compensate for the proposed removal of native vegetation from the study area are:

- 1.3790 general habitat units (GHUs), with the following offset attribute requirements:
 - A minimum strategic biodiversity value (SBV) of 0.3918
 - Located within the North Central CMA boundary or the Gannawarra Shire, Loddon Shire Council municipal district
 - Include protection of at least four large trees
- 31.397 species habitat units (SHUs), with the following offset attribute requirements:
 - Comprises mapped habitat according to the habitat importance map for
 - 9.027 SHUs of habitat for Downs Nutgrass *Cyperus bifax*
 - 8.165 SHUs of habitat for Soft Sunray *Leucochrysum molle*
 - 14.205 SHUs of habitat for Annual Buttons *Leptorhynchos orientalis*
 - Include protection of at least one large tree.

Suitable GHU credits are currently available on the Native Vegetation Credit Register. Suitable SHU credits are not currently available on the register. A desktop assessment identified a potential third-party offset opportunity capable of satisfying the project's SHU requirements (Appendix 25), subject to landholder agreement and confirmation of offset suitability.

Other ecology related planning provisions

A permit is required to remove, destroy or lop any native vegetation under VPO1 and VPO2. A permit is also required to complete works under zoning and ES01.

EPBC Act

A Referral under the EPBC Act will be prepared as the project has the potential to impact MNES values. An MNES assessment will also be prepared for the project, including significant impact assessments, which will contribute to the EPBC Referral. Offsets for EPBC Act values will be required, currently, there are 12.063 ha of confirmed and 13.191 ha of potential NGMVP impacts. These values will be confirmed following Spring 2026 targeted surveys.

FFG Act

A Protected Flora Permit under the FFG Act would be required for the current proposal for impacts to 8,310 ha of the Northern Plains Grassland Community on public land, as well as any FFG Act-listed threatened values if targeted surveys determine that they occur on public land.

A permit may also be required for the removal of 0.517 ha of native patch vegetation potentially qualifying as the Victorian Temperate Woodland Bird Community on public land. However, the occurrence of this community must first be confirmed before impacts and obligations under the FFG Act can be finalised.

EE Act

The *Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effects Act 1978* (DTP 2023a) identifies criteria that trigger a Referral to the state Minister for Planning. Based on the Project meeting one of the relevant criteria (>10 ha removal of an endangered EVC), a Referral to the state Minister for Planning will be required under the EE Act. This report has been prepared to inform the Referral.

Recommendations

Further assessments

The following surveys are recommended based on the outcomes of this assessment:

- Targeted surveys for listed flora species and ecological communities commencing in Spring 2026, and continuing to target all flowering periods of listed flora likely or having the potential to be present;
- Continuation of BUS surveys to complete two full years of seasonal bird surveys;
- Continuation of Bat utilisation surveys to complete two years of ultrasonic surveys;
- A second season of Brolga breeding surveys from July to December 2026 (commenced);
- A Brolga flocking survey during the non-breeding season (e.g. December to June);
- Targeted surveys to confirm the presence or likely absence of the Plains-wanderer; and
- Targeted Raptor surveys during breeding season to identify any active nests of Black Falcon, Little Eagle, and White-bellied Sea-eagle, if present.

Design recommendations

Micro-siting of all infrastructure is recommended to avoid direct disturbance to areas mapped as native vegetation, particularly continued avoidance of woodland habitat, which is generally present only in small, isolated patches. Further design changes should focus upon the following:

- Avoid impacts to the EPBC Act-listed community NGMVP, where feasible, once the extent of the ecological community in the Project Area has been confirmed.
- Further avoid impacts to wetlands and waterbodies to avoid impacts to GGF and Brolga, unless unavoidable due to other constraints.
- Further avoid impacts to patches of 'likely suitable' grassland to reduce impacts to potential habitat of Plains-wanderer, unless unavoidable due to other constraints.
- Further avoidance should focus on the loss of scattered trees (esp. hollow-bearing trees) and the fragmentation of intact habitat patches to such an extent as to create a movement barrier for those listed species that are present.
- Avoid or minimise impacts as identified from further assessments outlined in Section 15.1.

Response to the application requirements of the Guidelines

The table below summarises the compliance of the information in this report with the application requirements of the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (DELWP 2017a).

Application requirement		Response
1.	Information about the native vegetation to be removed.	See Section 13.2
2.	Topographic and land information relating to the native vegetation to be removed.	See Section 5
3.	Recent, dated photographs of the native vegetation to be removed.	See Appendix 5
4.	Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or contiguous land in the same ownership as the applicant, in the five-year period before the application for a permit is lodged.	Not applicable
5.	An 'avoid and minimise' statement.	See Section 14.2.2
6.	A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the <i>Conservation, Forests and Lands Act 1987</i> that applies to the native vegetation to be removed.	Not applicable
7.	Where the removal of native vegetation is to create defensible space, a written statement explaining why the removal of native vegetation is necessary. This statement is not required when the creation of defensible space is in conjunction with an application under the Bushfire Management Overlay.	Not applicable
8.	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations (at decision guideline 8).	Not applicable

Application requirement		Response
9.	An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Guidelines.	See Section 14.1 and Appendix 23.
Additional requirements for applications in the Detailed assessment pathway		
10.	A site assessment report of the native vegetation to be removed, including the following: ▪ A habitat hectare assessment of any patches of native vegetation, including the condition, extent (in hectares), Ecological Vegetation Class and bioregional conservation status. ▪ The location, number, circumference (in centimetres measured at 1.3 m above ground level) and species of any large trees within patches. ▪ The location, number, circumference (in centimetres measured at 1.3 m above ground level) and species of any scattered trees, and whether each tree is small or large.	See Appendix 1, Appendix 2 and Figure 5-1
11.	Information about impacts on rare or threatened species habitat, including the following: The relevant section of the habitat importance map for each rare or threatened species requiring a species offset. For each rare or threatened species that the native vegetation to be removed is habitat for, according to the Habitat importance maps: ▪ The species' conservation status; ▪ The proportional impact of the removal of native vegetation on the total habitat for that species; and ▪ Whether the habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat.	See Section 13 and Appendix 6

Glossary and acronyms

Acronym	Definition
BAMP	Bat and Avifauna Management Plan
BBHSM	Brolga Breeding Habitat Suitability Model, managed by DEECA (DEECA 2025i)
BUS	Bird utilisation surveys
CaLP	<i>Catchment and Land Protection Act 1994 (VIC)</i>
CRM	Collision risk model
Cth	Commonwealth of Australia
DBH	Diameter at breast height
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEECA	Department of Energy, Environment and Climate Action (Victoria)
Development Footprint	Construction footprint, including all key components of the proposed wind energy facility, excluding the transport route
DTP IAU	Department of Transport and Planning, Impact Assessment Unit (Victoria)
EE Act	<i>Environmental Effects Act 1978 (VIC)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
EVC	Ecological Vegetation Class
FFG Act	<i>Flora and Fauna Guarantee Act 1988 (VIC)</i>
GGF	Growling Grass Frog
Handbook	Handbook for the Development of Renewable Energy in Victoria (DEECA 2025d)
HDM	Habitat Distribution Model, managed by DEECA through NatureKit (DEECA 2026a)
HIM	Habitat Importance Model, managed by DEECA through <i>NatureKit</i> (DEECA 2026a)
HZ	Habitat Zone, related to patches assessed by the Habitat Hectare Scoring system.
IBRA	Interim Biogeographic Regionalisation for Australia
MBC	Mallee Bird Community of the Murray Darling Depression Bioregion, EPBC Act-listed ecological community
MAWF	Macorna Wind Farm

Acronym	Definition
NGVPM	Natural Grasslands of the Murray Valley Plains, EPBC Act-listed ecological community
PMST	Protected Matters Search Tool
Project Area	All lots within the Macorna Wind Farm boundary
RSA	Rotor Swept Area
Search Region	10 km around the Project Area used for database searches
Study Area	The area of land encompassed by a study, with the exact areas varying with the survey (see methods in respective sections of the report)
TEC	Threatened Ecological Community
VBA	Victorian Biodiversity Atlas
VQA	Vegetation Quality Assessment
VWI	Victorian Wetland Inventory, as developed by DEECA (DEECA 2026b)
YBSB	Yellow-bellied Sheath-tailed Bat

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1. Introduction

Atmos MWV Pty Ltd, as Trustee for Atmos MWV Trust engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment for the proposed Macorna Wind Farm, located near Kerang, Victoria (herein referred to as MAWF or the 'Project Area').

This investigation was commissioned to provide information on the extent and condition of native vegetation in the Project Area according to Victoria's *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (DELWP 2017a) and potential impacts on flora and fauna listed under the *Flora and Fauna Guarantee Act 1988* (Vic; FFG Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth; EPBC Act). This report outlines any implications under relevant national, state and local legislation and policy frameworks.

The purpose of this report is to assess the potential biodiversity and habitat impacts associated with the proposed MAWF in order to inform the preparation of EPBC and EES Referrals.

This investigation was undertaken by a team from Nature Advisory comprising: Ezra Janetzki (Botanist), Declan Blackburn (Botanist), Michael Sebastian (Zoologist), Dr Sergio Nolasco Plasier (Senior Zoologist), Arend Kwak (Senior Botanist), Dr Robin Leppitt (Senior Zoologist), Juliet Talarico (Senior Botanist), Oli Aylen (Senior Ecologist & Bat specialist), Elinor Ebsworth (Senior Botanist), Danielle Eastick (Senior Zoologist & Bat specialist), Emma Wagner (GIS Analyst), Maya Zaeim (GIS Analyst), Mehmet Ali Bilgin (GIS Analyst), Mike Hitchcock (Senior Ecologist & Project Manager), and Dr Inga Kulik (Director).

2. Project description

2.1. Project Area

The Macorna Wind Farm (MAWF) is proposed around Faulkner Road, Tragowel in northern Victoria. It is located 7 km south-east of Kerang, 8.5 km north-west of Pyramid Hill and 12 km south-west of Cohuna (Figure 2-1). The township of Macorna is located in the centre of the Project Area. The Loddon Valley Highway forms the western boundary of the Project Area.

The Project Area lies within the localities of Kerang East, Loddon Vale, Macorna, Macorna North, Mincha West, Pyramid Hill and Tragowel. The north of the Project Area falls within the Gannawarra local government area, and the south within the Loddon local government area. The Project Area lies within the Victorian Riverina Bioregion, the Riverina IBRA bioregion and the North Central CMA region. The Project Area occurs on the lands of the Baraba Baraba people (AIATSIS 1994), although no traditional owner group is formally recognised for the Project Area (ACHRIS 2025).

2.2. Key project and construction activities

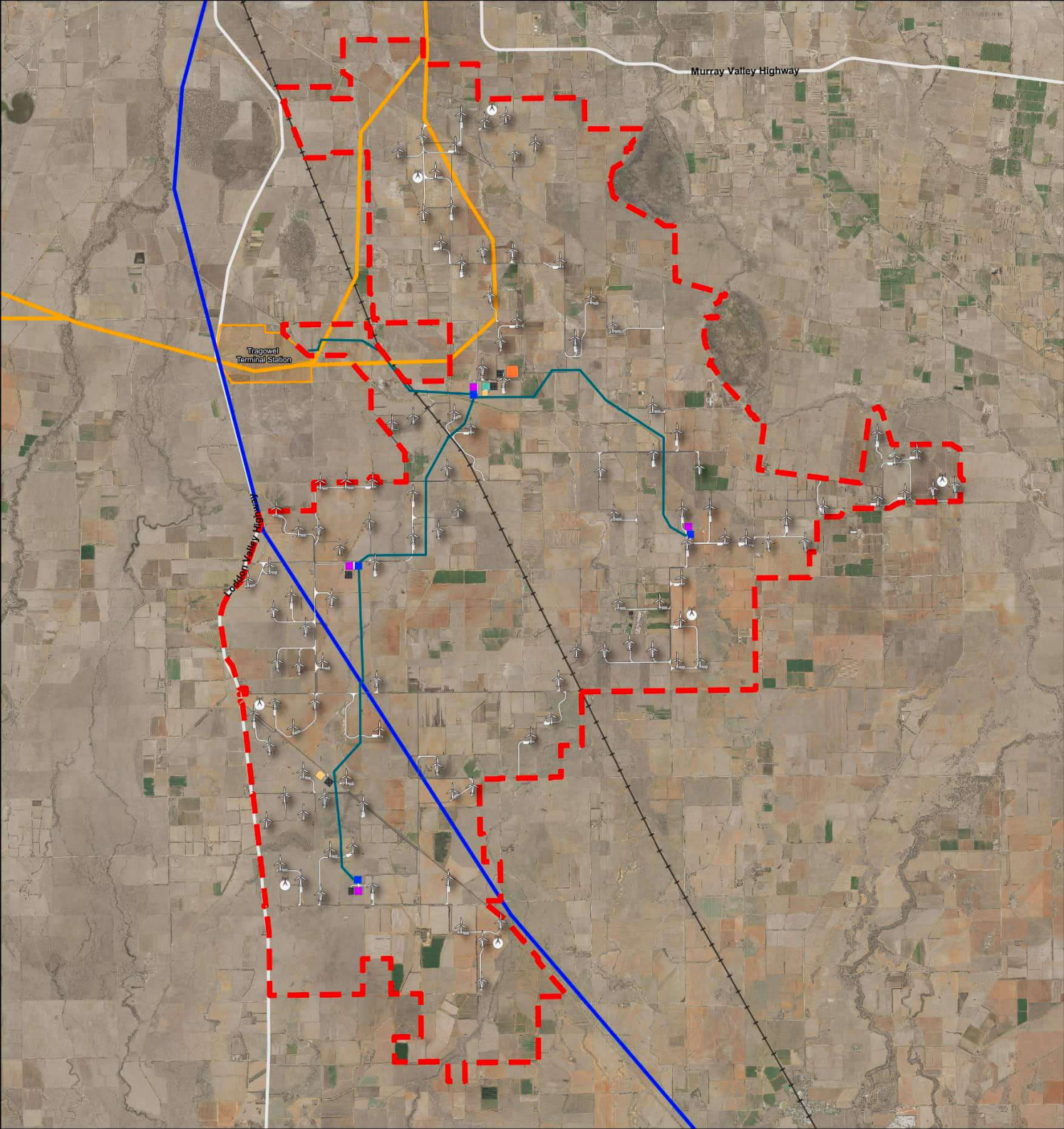
The MAWF is an approximately 820.8 MW wind farm, with the following key components:

- Wind Turbine Generators, WTG (up to 114):
 - WTGs are anticipated to have a minimum rotor swept area (RSA) of 60 m and a maximum of 252 m,
 - Foundations, crane hardstands, and crane boom laydown, blade laydown, and rotor assembly areas.
- Transport routes and access tracks, including:
 - New and upgraded tracks within the Project Area, comprising a nominal 6.5 m wide access track for light vehicles,
 - Oversize overmass (OSOM) corridor of 30-40 m within the Project Area,
 - Upgrades to the proposed transport access route, as required.
- Cabling and transmission lines within the Project Area:
 - Underground cabling (low and medium voltage)
 - Overhead transmission lines (medium and high voltage)
- Collector substations (up to four) with associated battery energy storage systems (BESS), size and duration to be determined;
- Electrical switching station;
- Permanent meteorological masts (up to 7);
- Grid connecting via the adjacent proposed Victoria to New South Wales Interconnector (VNI) West Tragowel terminal station;
- Other ancillary and temporary infrastructure, including:
 - Construction compounds and laydown areas, concrete batching plants, operations and maintenance facilities, a potential construction worker accommodation facility,

potential communications towers, native vegetation removal and vegetation screenings (as required by technical assessments), and fencing, gates, and signage.

The following construction buffers (i.e. areas cleared for construction activities) have been generally applied to the wind farm and infrastructure layout, with isolated exceptions where buffers were reduced around native vegetation impacts:

- A 5 m buffer has been applied to all proposed bench areas (substation, BESS, laydown etc);
- A 13 m buffer has generally been applied to all other civil works areas (turbine hardstands, crane pads, access tracks). This provides a general works corridor of 34 m, in areas that have an access track with a finished width of approximately 8m. A reduction in this buffer and general works corridor has been proposed in more sensitive areas;
- A 10 m corridor has been applied to the HV overhead line route;
- A 6 m corridor has been applied to all UG cables, with a 3 m buffer each side;
- Hardstand areas provided for the inclusion of internal transport access upgrades; and
- A 7 m wide buffer has also been included for internal public roads that have been identified as requiring upgrading.



Indicative Layout Plan

2447 - Marcona Wind Farm

0 1.5 3 km



Proposal

- Project Area
- Turbines
- Construction Footprint
- Proposed High Voltage Cable
- Met Mast

Proposed Ancillary Infrastructure

- Accomodation Camp
- Batching Plant
- BESS
- General Laydown
- O&M Facility
- Substation

Other Infrastructure

- Railway Line
- Existing 220 KV Transmission Line
- Proposed VNI West Corridors
- Tracowell Terminal Station

Version: 2

Date: 20/03/2026

3. Planning and legislative considerations

This report addresses the application of relevant legislation and planning policies that protect biodiversity in the context of the study area. Local, state and Commonwealth controls are summarised below.

3.1. Victorian Planning provisions

The study area is located within both the Gannawarra and Loddon local government areas. The majority of the study area is currently zoned Farming Zone (FZ), with Transport Zone (TRZ2 and TRZ3) along major roads, including the Loddon Valley Highway, as well as small areas of Public Conservation Resource Zone (PCRZ).

Planning provisions are established under the *Victorian Planning and Environment Act 1987* and are incorporated into all Victorian Planning Schemes. Relevant planning provisions are discussed below.

3.1.1. Victorian Planning policy framework

Clause 12.01 - Biodiversity

Clause 12.01 of all Victorian Planning Schemes provides an overarching framework to protect and enhance Victoria's biodiversity. The responsible authority is obligated to refer to Clause 12.01-1S – *Protection of biodiversity*, Cl. 12.01-2S – *Native vegetation management* and Cl. 12.01-1L – *Flora and Fauna protection (Gannawarra)*. The objectives and strategies relating to the current proposal for each of these relevant Clauses are outlined below.

Clause 12.01-1S – *Protection of biodiversity*

The objective of this Clause is to protect and enhance Victoria's biodiversity through the following strategies:

- Use biodiversity information to identify important areas of biodiversity, including key habitats for rare or threatened species and communities, and strategically valuable biodiversity sites.
- Strategically plan for the protection and conservation of Victoria's important areas of biodiversity.
- Ensure that decision-making takes into account the impacts of land use and development on Victoria's biodiversity, including consideration of:
 - Cumulative impacts.
 - Fragmentation of habitat.
 - The spread of pest plants, animals and pathogens into natural ecosystems.
- Avoid impacts of land use and development on important areas of biodiversity.
- Consider impacts of any change in land use or development that may affect the biodiversity value of national parks and conservation reserves or nationally and internationally significant sites; including wetlands and wetland wildlife habitat designated under the Convention on Wetlands of International Importance (the Ramsar Convention) and sites utilised by species listed under the Japan-Australia Migratory Birds Agreement (JAMBA), the China-Australia Migratory Birds Agreement (CAMBA), or the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

- Assist in the identification, protection and management of important areas of biodiversity.
- Assist in the establishment, protection and re-establishment of links between important areas of biodiversity, including through a network of green spaces and large-scale native vegetation corridor projects.
- Support land use and development that contributes to protecting and enhancing habitat for indigenous plants and animals in urban areas.

Clause 12.01-2S – Native vegetation management

The objective of this Clause is to ensure there is no net loss to biodiversity as a result of removal, destruction or lopping of native vegetation through the following strategies:

- Ensure decisions that involve, or will lead to, the removal, destruction or lopping of native vegetation, apply the three-step approach in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (the 'Guidelines') (DELWP 2017b):
 - Avoid the removal, destruction or lopping of native vegetation.
 - Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
 - Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

Clause 12.01-1L – Flora and Fauna protection

The objective of this Clause is to protect and enhance remnant native vegetation and native flora and fauna habitat through the following strategies:

- Restrict uses and development in native grassland areas to grazing and other farming that is compatible with their preservation and maintenance.
- Encourage the maintenance and development of vegetated links between remnant vegetation areas through tree planting, farm forestry and re-establishment of understorey.
- Discourage use or development that would result in the loss of riparian flora and fauna habitat and wetland environments in the Murray River corridor.
- Encourage the provision of areas of open space directly adjacent to existing vegetation or areas of public land to support native flora and fauna habitats.
- Place high priority on retaining remnant vegetation and habitat corridors in areas identified as habitat for species that are listed under the *Environment Protection and Biodiversity Conservation Act 1999* or identified as Rare or Threatened Flora or Fauna Species under the *Flora and Fauna Guarantee Act 1988*.
- Encourage development to retain and enhance roadside vegetation as a wildlife corridor and repository for flora species.
- Ensure developments are sited to limit adverse impacts on the environmental quality of any abutting Crown land (other than a road).

A response of how this application addresses the relevant Clauses is provided in Section 14.3.1.

Clause 12.03 – Water bodies and wetlands

Clause 12.03 of all Victorian planning schemes provides an overarching framework to protect and enhance waterway systems. The responsible authority is obligated to refer to Clause 12.03-1S - *River and riparian corridors, waterways, lakes, wetlands and billabongs*. The objectives and strategies relating to the current proposal for this clause are outlined below.

Clause 12.03-1S – River and riparian corridors, waterways, lakes, wetlands and billabongs

The objective of this clause is to protect and enhance waterway systems including river and riparian corridors, waterways, lakes, wetlands and billabongs through the following strategies relevant to this investigation:

- Protect the environmental, cultural, landscape values of all waterway systems as significant economic, environmental and cultural assets.
- Conserve waterway systems and the landscapes and environmental values surrounding them by protecting ecological values, indigenous vegetation, terrestrial and aquatic habitats and encouraging biodiversity.
- Sensitively design and site development to maintain and enhance the waterway system and the surrounding landscape setting, environmental assets, and ecological and hydrological systems.
- Protect geomorphology, bank stability and flood management capacity to strengthen the environmental value and health of waterway systems by:
 - Retaining, enhancing and re-establishing indigenous riparian vegetation along waterway systems, ensuring it responds to the bushfire risk of a location.
 - Enhancing and re-establishing both terrestrial and aquatic habitats and their linkages along and surrounding waterway systems.
 - Limiting earthworks in proximity to waterway systems to minimise alterations to geomorphology, natural drainage, natural flows and water quality.
 - Facilitating the restoration of waterway systems through the removal of weeds, invasive species and pests.

3.1.2. Zoning

The study area is primarily zoned Farming Zone (FZ) in the Gannawarra and Loddon Planning Schemes. There are also small areas that are zoned:

- Public Conservation and Resource Zone (PCRZ)
- Public Park and Recreation Zone (PPRZ)
- Transport Zone 1 - State Transport Infrastructure (TRZ1); Transport Zone 2 - Principal Road Network (TRZ2); and Transport Zone 3 – Significant Municipal Road (TRZ3)
- Township Zone (TZ).

Any relevant application requirements and implications under this zoning relevant to this assessment are addressed in Section 14.3.3.

3.1.3. Overlays

The study area is subject to the following overlays in the Gannawarra and Loddon Planning Schemes, which are relevant to this investigation:

- Vegetation Protection Overlay – Schedule 2 (VPO2) under the Gannawarra Planning Scheme, and Vegetation Protection Overlay – Schedule 1 (VPO1) under the Loddon Planning Scheme – These two overlays cover only small parts of the study area.
- Environmental Significance Overlay – Schedule 1 (ESO1) – Covers waterways under the Gannawarra Planning Scheme

A Floodway Overlay (FO), Land Subject to Inundation Overlay (LSIO) and Environmental Significance Overlay – Schedule 4 (ESO4) also cover large parts of the study area, but are not considered relevant to this investigation as they relate to flooding. As such, they are not discussed further. No other overlays that cover the study area are considered relevant to this investigation.

3.1.4. Particular provisions – Native vegetation (Clause 52.17)

This report addresses the requirements under Clause 52.17 – *Native vegetation*.

The purpose of Clause 52.17 is to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved by applying the following three-step approach in accordance with the Guidelines (DELWP 2017b).

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.

This provision states that a permit is required to remove, destroy or lop native vegetation, including dead native vegetation. This does not apply to the following:

- If an exemption in Table 52.17-7 specifically states that a permit is not required, e.g. for regrown native vegetation on land lawfully cleared of naturally established native vegetation that is less than 10 years old (regrowth).
- The native vegetation is specified in a schedule to Clause 52.17.

Application requirements

Any application to remove, destroy or lop native vegetation must comply with the application requirements specified in the Guidelines (DELWP 2017b).

Referral to DEECA

Clause 66.02-2 of the planning scheme sets out the role of the Department of Energy, Environment and Climate Action (DEECA) in assessing native vegetation removal permit applications. If an application is referred, DEECA may make certain recommendations to the responsible authority regarding the permit application.

Any application to remove, destroy or lop native vegetation must be referred to DEECA if any of the following apply:

- The impacts to native vegetation fall within the Detailed Assessment Pathway
- A property vegetation plan applies to the site

- The native vegetation is on Crown land that is occupied or managed by the responsible authority

Implications under this particular provision are discussed in Section 14.1.

3.2. EPBC Act

The EPBC Act is federal legislation designed to protect matters of national environmental significance (MNES) including nationally listed threatened species, habitats, listed migratory species and ecological communities of national conservation significance. Any potential for significant impacts on MNES that a development may cause these species requires referral to, and potentially the approval of, the Australian Minister for the Environment.

On referral, the Minister will decide whether the project will be a 'controlled action' under the EPBC Act, in which case the project can only be undertaken with the approval of the Minister. This approval depends on a further assessment and approval process (lasting between three and nine months, depending on the level of assessment).

Implications under the EPBC Act for the current proposal are discussed in Section 14.4.

3.3. FFG Act

The FFG Act includes a:

- *Threatened List* (DEECA 2025e); and
- *Declared Protected Flora List* (DEECA 2024a)

The FFG Act applies to all land in Victoria, with public authorities legally required to consider the impacts on threatened species and communities on all land tenures as part of their decision-making. A permit from DEECA is only required if there are to be impacts on FFG Act-listed values on public land.

Threatened List

The FFG Act *Threatened List* (DEECA 2025e) represents Victoria's single operational list of threatened flora, fauna and communities. Each species is assigned a threatened status that aligns with the listing categories and criteria for the International Union for the Conservation of Nature (IUCN) Red List.

These values should be avoided wherever possible, in recognition of their threatened status at a state level.

Any application for a planning permit may also be assessed by the responsible or referral authority for potential impacts to FFG Act-listed threatened values as part of broader considerations of impacts to biodiversity, regardless of land tenure. Under the FFG Act, the removal of FFG Act-listed threatened flora and communities from public land requires a Protected Flora Permit. Impacts to these species should be avoided wherever possible, in recognition of the species' threatened status at the state level.

Declared Protected Flora List

The *Declared Protected Flora List* includes plants from three sources:

- Plant taxa (species, subspecies or varieties) listed as threatened under the FFG Act
- Plant taxa belonging to communities listed as threatened under the FFG Act

- Plant taxa that are not threatened but require protection for other reasons. For example, some species that are attractive or highly sought after, such as orchids and grass trees, are protected so that the removal of these species from the wild can be controlled (DEECA 2024a).

Under the FFG Act, the removal of protected flora from public land requires a Protected Flora Permit. The FFG Act provides two different categories for protected flora species - 'restricted use protected flora', and all other protected flora (referred to as 'generally protected flora'). Removal of 'restricted use protected flora' species only requires a permit when it is impacted by take for commercial or personal use, and as such, this list is not relevant to this investigation.

However, a Protected Flora Permit must be obtained from a regional DEECA office for impacts to any 'generally protected flora' on public land for any reason other than commercial or personal use, including impacts arising from this proposal. This permit can only be obtained after the removal of this flora is approved as part of a planning permit.

Implications under the FFG Act for the current proposal are discussed in Section 14.5.

3.4. EE Act

One or a combination of several criteria may trigger a requirement for a *referral* to the Victorian Minister for Planning, who will determine whether an Environmental Effects Statement (EES) will be required according to the *Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effects Act 1978* (DTP 2023b).

The criteria related to flora, fauna and native vegetation that trigger a referral are listed below.

One or more of the following would trigger a referral:

- Potential removal, destruction or lopping of 10 or more ha of native vegetation (defined in the Guidelines) that consists of, or comprises a combination of:
 - An EVC classified as endangered; or
 - An EVC that is classified as vulnerable (with a condition score of 0.5 or more) or rare (with a condition score of 0.6 or more); and
 - That is not authorised for removal under an approved Forest Management Plan (defined as an approved working plan under section 22 of the Forests Act 1958) or Fire Protection Plan
- Potential clearing of an area determined as 'critical habitat' under the *Flora and Fauna Guarantee Act 1988*.
- Potential for loss of a significant proportion (for example, 1 percent or greater) of known remaining habitat or population of a threatened species within Victoria.
- Potential long-term change to the ecological character of a wetland listed under the Ramsar Convention or in the *Directory of Important Wetlands in Australia*.
- Potential for extensive or major effects on the use and environmental values of water resources due to changes in water quality, water availability, stream flows, water system function, or the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term.

A combination of two or more of the following potential effects would trigger a referral:

- Potential removal, destruction or lopping of 10 or more ha of native vegetation (defined in the Guidelines), unless it is authorised for removal under an approved Forest Management Plan or Fire Protection Plan.
- Matters listed under the FFG Act:
 - Potential loss of a significant area of a listed ecological community; or
 - Potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including from loss or fragmentation of habitats; or
 - Potentially significant effects on habitat values of a wetland supporting migratory bird species
- Potential for extensive or major effects on landscape values of regional importance, especially:
 - where recognised by a planning scheme overlay;
 - declared as a distinctive area and landscape under the *Planning and Environment Act 1987*; or
 - within or adjoining land reserved under the *National Parks Act 1975*.
- Potential for extensive or major effects on the environment due to changes in land stability, disturbance of acid sulphate soils or project-induced soil erosion over the short or long term.

Implications under the EE Act for the current proposal are discussed in Section 14.1.

3.5. The Handbook for the Development of Renewable Energy in Victoria

The *Handbook for the Development of Renewable Energy in Victoria* (herein referred to as the 'Handbook'), released by the Department of Energy, Environment and Climate Action (DEECA 2025d; DCCEEW 2026a) on 29 May 2025, provides comprehensive guidance for assessing and managing the environmental impacts of renewable energy projects, particularly on threatened bird and bat species. It introduces a risk-based approach to planning and approval processes, incorporating a mitigation hierarchy (avoid, minimise, mitigate, and compensate) to address biodiversity concerns associated with onshore wind energy facilities. The Handbook applies to all approval pathways for such projects, including Development Facilitation Programs and Environmental Effects Statements.

The Handbook (DEECA 2025d) includes several appendices (see those relevant here in Section 3.5.2 and 3.5.3).

3.5.1. Mitigation hierarchy

The Handbook (DEECA 2025d) outlines a specific mitigation hierarchy to be used to structure measures to counter potential impacts at wind farms. The following terms and definitions are used to describe mitigation hierarchies applied to the MAWF:

- **Avoidance** – Measures implemented to prevent impacts from occurring, including the complete avoidance of activities or locations that would result in adverse effects on species or habitats.
- **Minimisation** – Measures designed to reduce the duration, intensity, frequency, or spatial extent of impacts that cannot be avoided.
- **Mitigation** – Measures applied after avoidance and minimisation measures, with the intention to manage unavoidable and ongoing impacts.
- **Compensation** – Measures implemented to compensate for residual impacts that remain after the application of avoidance, minimisation, and restoration measures, with the objective of achieving zero-net loss, or in some cases, a net gain in ecological values.

3.5.2. Appendix 2 of the Handbook: Brolga

Appendix 2 is the *Species Specific Guidance for Onshore Wind Energy Facilities – Victorian Brolga* (DEECA 2025c) provides detailed species-specific guidance for managing impacts on the Victorian Brolga (*Grus rubicundus*) resulting from onshore wind energy facilities. This guidance only applies to projects within the 'Brolga Area of Interest', under which the proposed project falls (Figure 3-1).



Figure 3-1: Brolga area of interest, where the Handbook (DEECA 2025d) and where Brolga species-specific guidance apply.

Note: the yellow star denotes the approximate location of Macorna Wind Farm.

The appendix outlines the process under which wind energy facilities must assess, mitigate, and compensate impacts on Brolga. The process is displayed Figure 3-2, with the detailed assessment process and implications described in Table 3-1.

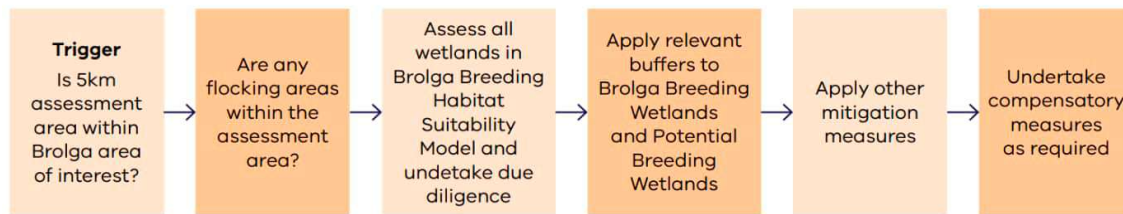


Figure 3-2. Assessment process for applying the Brolga assessment guidance (DEECA 2025c).

Table 3-1: Implications for the assessment of Brolga under the Handbook.

Area of concern	Handbook guidance
Flocking areas	Brolga flocking areas are to be identified and avoided. Several flocking areas are mapped by DEECA (DEECA 2025c), with proposals required to undertake due diligence to ensure there are no unmapped flocking areas within (wholly or in part) the assessment area.
Identification of breeding events and habitat	A project must identify all wetlands mapped in the assessment area from the Brolga Breeding Habitat Suitability Model (BBHSM), with due diligence required to identify any other wetlands that are not mapped. These wetlands must be assessed for potential for Brolga breeding records and breeding habitat, including a combination of desktop data review, field studies, hydrological analysis, and consultation with local landholders, representatives of local environmental agencies, councils and community environment groups.
Application of Brolga Breeding and Potential Breeding Wetland Buffers	Breeding wetland buffers and potential breeding wetland buffers are designed to protect three key habitat elements related to pre-fledging chick and adult breeding pair movements: ▪ Wetlands used for nest, egg incubation and night roosting; ▪ Wetland and non-wetland areas around Breeding Wetlands that are used for foraging; and ▪ Areas used as movement corridors between breeding wetlands, foraging areas and wetlands associated with their home range. Buffers to these values must be applied under the process outlined in Appendix 2 (DEECA 2025c).
Mitigation and compensation measures	Proponents must apply at a minimum the Brolga breeding and potential breeding wetland buffers. Other mitigation measures can be implemented to reduce the impacts of the proposed wind energy facility on Brolga. If the avoidance and minimisation measures outlined in the Handbook (DEECA 2025c) are applied to the Brolga breeding wetlands and potential breeding wetlands, there should be no or minimal residual risk. However,

Area of concern	Handbook guidance
	compensation may be required if the Project's siting does not allow for the application of these mitigation measures.

3.5.3. Appendix 3 of the Handbook: Bat Species of Concern

Appendix 3 of the Handbook is the *Species Specific Guidance for Onshore Wind Energy Facilities – Bat Species of Concern* (DEECA 2025a). It provides detailed species-specific guidance for managing impacts on the following bat species (relevant species highlighted in bold):

- Southern Bent-Wing Bat
- Eastern Bent-wing Bat
- **Corben's (South-eastern) Long-eared Bat**
- **Yellow-bellied Sheath-tail Bat**
- Grey-headed Flying-fox

Appendix 3 outlines the process under which wind energy facilities must assess, mitigate, and compensate impacts on these bat Species of Concern.

3.6. CaLP Act

The *Catchment and Land Protection Act 1994* (CaLP Act) requires that landowners (or a third party to whom responsibilities have been legally transferred) must eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds.

Weed species listed under the CaLP Act that have been recorded in the study area are discussed in Section 14.6.

4. Existing site conditions

4.1. Location and context

The Project Area is located 7 km south-east of Kerang, 8.5 km north-west of Pyramid Hill and 12 km south-west of Cohuna. The township of Macorna is located in the centre of the Project Area. The Swan Hill (Piangil) railway line bisects the Project Area, running from Pyramid Hill through Macorna to Kerang. The Loddon Valley Highway forms the western boundary of the Project Area. There are several proposed and existing wind farms in the region. See Figure 4-1, which shows the Project Area location and context.

The Project Area lies within the localities of Kerang East, Loddon Vale, Macorna, Macorna North, Mincha West, Pyramid Hill and Tragowel. The north of the Project Area falls within the Gannawarra local government area, and the south within the Loddon local government area. The Project Area lies within the Victorian Riverina Bioregion, the Riverina IBRA bioregion and the North Central CMA region. The Project Area occurs on the lands of the Baraba Baraba people (AIATSIS 1994), although no registered Aboriginal party is formally recognised for the Project Area (ACHRIS 2025).

4.2. Kerang Wetlands Ramsar Site

The Project Area is located adjacent to the Kerang Wetlands Ramsar site, an internationally recognised wetland system of 23 lakes, marshes, and swamps (DEPI 2013; DELWP 2019). These wetlands vary in size, depth, and salinity, and are spread from north-west to south-east (Figure 4-1). Hird and Johnson Swamp Wildlife Reserves (about 434 ha and 516 ha, respectively) are the south-eastern most inclusions in the Ramsar site, and border the eastern extent of the Project Area (noting there is a 2-km turbine-free buffer from Hird and Johnson Swamps). These swamps comprise high-quality wetland habitats within an otherwise dry regional context. They provide an important source of water for the regional fauna when flooded and contain a density of woodland habitats that are generally scarce across the surrounding farmland and grasslands. Both wetlands are hydrologically managed, with regulated water levels maintained to support irrigation and ecological values.

The Ecological Character Description (ECD) of the Kerang Wetlands Ramsar site sets out the ecosystem services that led to the system's listing and what the listing seeks to protect. The ECD describes the following seven features that the wetlands support:

- Supports areas of the State's most depleted wetland types,
- Supports a high diversity of waterbird species,
- Regularly supports more than 20,000 waterbirds,
- Supports waterbird species listed under international agreements, including supporting 1 % of the population of several waterbird species,
- Supports breeding waterbirds,
- Supports threatened vegetation communities, and
- Supports threatened species.

The values listed in the ECD will be assessed in relation to potential impacts from the proposed MAWF wind farm.

4.3. Geology

The Project Area sits on the southern edge of the Murray Basin, on a low-relief, alluvial riverine plain (Shepparton formation) (DEECA 2023) on Pliocene-Pleistocene fluvial mudstone, sandstone and conglomerate (Costermans and Vanden Berg 2022). These deposits are the result of periodic flooding events broadly associated with the westwards flow of the Murray River drainage system. The much older Pyramid Hill granites rise from this more recent alluvium to the south-east of the Project Area, forming Pyramid Hill, Mount Hope and Mount Terrick Terrick (Costermans and Vanden Berg 2022). Soils are predominantly clay, with sand, silt and gravel more prominent in current and former drainage lines (paleochannels) (Costermans and Vanden Berg 2022; DEECA 2023).

4.4. Hydrology

The Project Area is located within a highly modified hydrological landscape that supports both irrigation and drainage functions. Waterways within and adjacent to the project boundary are generally managed systems, reflecting the long-standing agricultural use of the region. A detailed hydrological assessment was undertaken by DCE, from which much of the sites' characterisation is derived (DCE 2026a).

The Project Area is situated between two major regional waterways: the Loddon River to the west and Pyramid Creek to the east. Both waterways form key components of the regional waterway network and are heavily modified and actively managed for irrigation and drainage purposes. The Loddon River drains a large catchment of approximately 15,000 km², while the natural catchment of Pyramid Creek is substantially smaller; however, Pyramid Creek receives managed inflows from Kow Swamp to support irrigation demands.

North of the Project Area, the Loddon River and Pyramid Creek converge near Kerang, after which the flow continues north across the floodplain before discharging into the Murray River approximately 15 km north of Macorna. The Murray River lies to the east and north of the study area and represents the primary receiving environment for regional surface water flows.

In addition to these major waterways, the project boundary contains numerous minor waterways, drainage channels and irrigation infrastructure. These minor waterways are also heavily modified and form part of a broader network of managed and semi-natural flow paths. Even where natural flow paths persist, many have been channelised or receive regulated inflows from the irrigation network to achieve land and water management outcomes. Minor waterways with a drainage function may also be subject to pluvial (flash) flooding during intense rainfall events.

4.5. Vegetation

Vegetation type across the Project Area is driven by soil type, salinity, current flood hydroperiod and land-use history. Prior to European settlement, the wettest areas would have been dominated by Lignum Swamp and Lignum Swampy Woodland, fringed by Chenopod Grassland or Riverine Chenopod Woodland on the heavier, more sodic soils, and Plains Grassland on the adjacent clay plains (DEECA 2026a).

The current distribution of vegetation across the Project Area reflects the agricultural use of the land, with many areas of private property used for cropping, including cereals and legumes. In these areas, remnant grassland has been historically cleared through cultivation and herbicide use. In some fallow areas, high cover of opportunistic natives such as Spider-grass were noted, qualifying as patches of native vegetation although species depauperate. Areas with evidence of cropping

within the last 10 years where native vegetation has regrown are considered regrowth under the exemptions of Clause 52.17 and do not require a permit for removal.

Some areas of farmland that support grazing retain more intact remnant Plains Grassland or Chenopod Grassland, with Spider-grass, wallaby-grasses, spear-grasses and Rigid Panic, in addition to a suite of low chenopod shrubs, including Berry Saltbush, Wingless Bluebush, Black Roly-poly, Ruby Saltbush and Hedge Saltbush.

Most roadsides have been similarly cleared for road construction and maintenance, and most Plains Grassland and Chenopod Grassland vegetation persisting on roadsides had a similar suite of species to that in private property, with a high cover of annual weeds such as Oat.

Lower-lying areas supported Lignum Swamp or Lignum Swampy Woodland, dominated by Tangled Lignum, but often with the presence of the FFG Act-listed Spiny Lignum.

Treed areas within the Project Area were limited to scattered occurrences, generally along watercourses and drainage lines, primarily supporting Riverine Chenopod Woodland with sparse canopies of River Red Gum or Black Box. These zones featured understoreys of chenopod shrubs, including Berry Saltbush, Nodding Saltbush, Black Roly-poly and Prickly Saltwort, alongside grasses such as Wallaby Grass and Spider Grass. Lignum Swampy Woodland patches occasionally included immature River Red Gum regeneration, though rarely forming a true canopy except in isolated remnants.

Agricultural modification has substantially reduced treed EVC extent, with many former riparian zones now dominated by weeds such as Wild Oat, Brome Grass, Sow Thistle and Wimmera Rye-grass under remnant eucalypt scatters. Roadside and grazed fringes retain patchy native understorey diversity, but cultivation and flood management limit mature tree recruitment.

4.6. Land-use history

The Baraba Baraba people were the first occupants of the land in the Project Area (AIATSIS 1994), with activity likely to have been focused around watercourses and swamps. A large burial ground discovered on the edge of Kow Swamp, 8 km east of the Project Area, is the largest single localised population group of late Pleistocene antiquity yet found anywhere in the world. Some forty burials have been excavated and date from 20,000 years ago (Stone and Cupper 2003).

The first European exploration of the area was by Major Mitchell in 1836, a year of heavy rains (Ballinger 2008). From the summit of Mount Hope, 6.5 km south-east of the Project Area, Mitchell wrote that (Ballinger 2008):

“The...country consisted as far as the glass enabled me examine it, of open, grassy plains, beautifully variegated with serpentine lines of wood.”

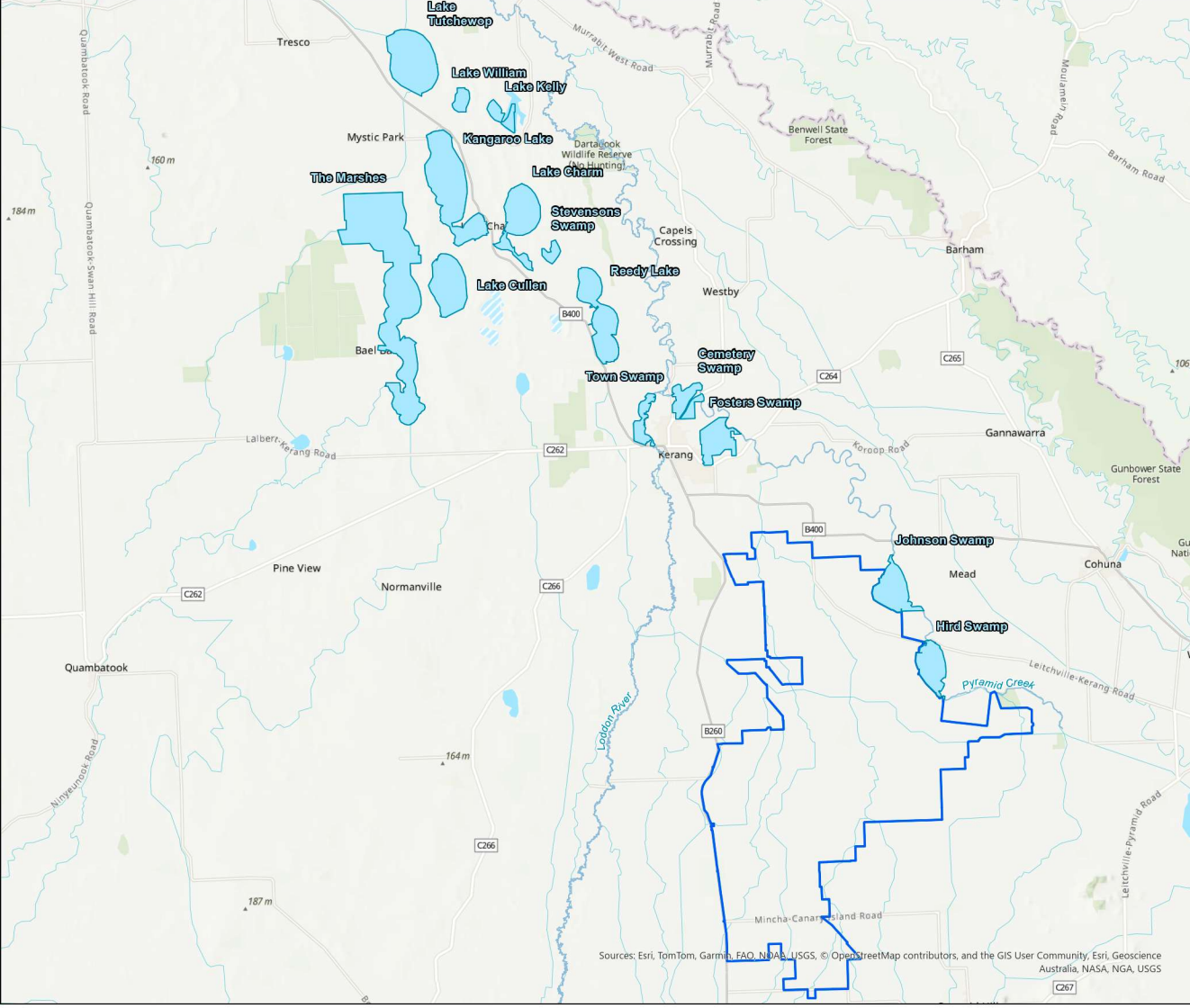
Squatters settled the area from the early 1840s (Gannawarra Shire Council 2010), with the northern plains of Victoria recognised as excellent winter lamb-fattening country by the mid-1840s (Ballinger 2008). More permanent occupation came with selection from the 1860s. Runs were established along the same watercourses that Aboriginal peoples depended upon, and grazing regimes mirrored traditional Aboriginal movements: in winter, animals were fed and watered in the ‘back country’ away from rivers, and in summer, they were moved to water frontages (Ballinger 2008). Remnant vegetation was cleared as farmland was sown to crops, including cereals and legumes, facilitated by irrigation infrastructure (c. 1885) and the Kerang railway line (constructed in 1884) (Victorian Places 2015). Irrigation infrastructure, including the Macorna Channel, has

allowed for diversification in agriculture, including more water-intensive crops, horticulture and dairying (Gannawarra Shire Council 2010).

Figure 4-1: Project Area and context

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/04/2026

 Project Area
 Kerang Ramsar Wetlands
 Waterway



Nature Advisory

PO Box 337, Camberwell, VIC 3124, Australia
www.natureadvisory.com.au
03 9815 2111 - info@natureadvisory.com.au

5. Flora and native vegetation

This section presents the flora and native vegetation within the Macorna Wind Farm. Its objective was to identify the likelihood of occurrence for flora species and communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and/or the *Flora and Fauna Guarantee Act 1988* (FFG Act), and to assess the impact to these values through the removal of native vegetation.

5.1. Methodology

5.1.1. Desktop assessment

Native vegetation

Pre-1750 (pre-European settlement) vegetation mapping administered by DEECA was reviewed to determine the type of native vegetation likely to occur in the study area and its surrounds. Information on Ecological Vegetation Classes (EVCs) was obtained from published EVC benchmarks. These sources included the following:

- Relevant EVC benchmarks for the Victorian Riverina bioregion¹ (DSE 2004a)
- *NatureKit* (DEECA 2026a)

Threatened species and ecological communities

Existing flora species records and information regarding the potential occurrence of listed matters were obtained for the 'search region', defined here as the area within 10 km of the Project Area.

A list of the flora species recorded in the search region was obtained from the *Victorian Biodiversity Atlas* (VBA), a database administered by DEECA.

The online EPBC Act-associated *Protected Matters Search Tool* (PMST; DCCEEW 2026) was consulted to determine whether nationally listed species or communities may potentially occur in the search region. This is based on a habitat modelling process.

A likelihood of occurrence analysis was undertaken using these flora records in combination with field observations. Species considered 'likely to occur' are considered to have a very high potential of occurring in the Project Area, as there are numerous records within the search region and suitable habitat in the Project Area. Species considered to have the 'potential to occur' are those for which suitable habitat exists, but recent records are scarce.

Regrowth assessment

Patches of native vegetation which may qualify as exempt regrowth under Clause 52.17-7 were assessed utilising desktop methods and landholder information. This involved viewing high-resolution historical aerial imagery, as administered by NearMap (Nearmap 2026). A record of

¹ A *bioregion* is defined as "a geographic region that captures the patterns of ecological characteristics in the landscape, providing a natural framework for recognising and responding to biodiversity values". In general, bioregions reflect underlying environmental features of the landscape (DNRE 1997).

landholder activities (e.g. ploughing, paddock irrigation) was also provided by Cogency Planners, to further clarify possible causes of past native vegetation removal.

Where native vegetation could be conclusively confirmed to have been removed <10-years ago, it was considered to comprise exempt regrowth. In such cases, it was excluded from the final impact assessment calculations for removals under Clause 52.17-7, but not for impacts on fauna habitat or ecological communities. This ultimately required both confirmation of landholder activities and clear visual evidence derived from historical aerials. Where historical aerials failed to provide sufficient clarity, the vegetation was precautionarily assumed not to qualify as exempt regrowth.

Definitions

Native vegetation

Native vegetation is currently defined in Clause 73.01 of all Victorian Planning Schemes as ‘*plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses*’. The Guidelines further classify two categories of native vegetation: patches and scattered trees (DELWP 2017b).

The definitions of these categories are provided below, along with the prescribed DEECA methods of assessment.

Patch

A *patch* of native vegetation belongs to an *Ecological Vegetation Class* (EVC) characterised in a DEECA-published benchmark, and defined as one of the following:

- An area of vegetation where at least 25 % of the total perennial understorey plant cover is native
- Any area with three or more native canopy trees² where the drip line³ of each tree touches the drip line of at least one other tree, forming a continuous canopy
- Any mapped wetland included in the *Current Wetlands Map*, available at *MapShareVic* (DEECA 2026c)

Patch condition is assessed using the *habitat hectare* method (Parkes et al. 2003; DSE 2004b) whereby components of the patch (e.g., tree canopy, understorey and ground cover) are assessed against an EVC benchmark. The score effectively measures the percentage resemblance of the vegetation to the original condition.

The *Native Vegetation Regulation Map* (NVR Map) system (DEECA 2026d) provides modelled condition scores for native vegetation to be used in circumstances where scores cannot be obtained.

Scattered trees

A *scattered tree* may be defined as a native canopy tree that does not form part of a patch. A scattered tree can be classified as *large* or *small* according to its *diameter at breast height* (DBH,

² A native canopy tree is a mature (i.e., able to flower) tree taller than 3 m and 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 onto the ground.

measured 1.3 m above ground level) in the relevant EVC benchmark. A scattered tree with a DBH less than that of the large tree DBH is a *small scattered tree*. A *large tree* is defined as a native canopy tree with a DBH greater than or equal to the large tree benchmark for the local EVC. A large tree can be a large scattered tree or a large tree within a patch of native vegetation.

Australian native

Vegetation that is native to Australia, but not necessarily native to Victoria. Several Australian native plants may be declared a noxious weed when growing outside of their natural range.

Locally indigenous

Plants that are native to the region of this study and growing within their natural range.

Victorian native

Vegetation that is native to Victoria but is not locally indigenous to the region of this study. Several Victorian native plants may be declared a noxious weed when growing outside of their natural range.

Planted

Planted vegetation refers to vegetation that has been planted or has grown as a result of direct seeding.

Exotic

Exotic vegetation refers to vegetation that is not native to Australia.

5.1.2. Field methods

The native vegetation assessments were undertaken as per Table 5-1. During these assessments, the 'Study Area', comprising the development footprint, was initially surveyed by vehicle, while areas supporting native vegetation were inspected in more detail on foot.

Sites in the study area found to support native vegetation or with potential to support listed matters were mapped using a combination of aerial-photograph interpretation and ground-truthing. Records were made using ArcGIS Field Maps® (Esri) on a hand-held device.

Table 5-1: Native vegetation survey effort at Macorna Wind Farm.

Date	Number of personnel	Survey effort (person hours)
27-30 October 2025	3	94
14-21 November 2025	5	166
1-4 December 2025	2	63
13-16 January 2026	3	93
3-6 February 2026	3	75.5
23-26 February 2026	2	32
TOTAL		523.5 hrs

EVC determination

Determination of EVCs in the field was based on DEECA's pre-European modelled native vegetation (DEECA 2025f) within or near the study area, and on the methodology outlined in the habitat hectare method (DSE 2004b).

Where native vegetation occurred, pre-1750 EVC mapping (DEECA 2025f) of the Project Area was found to accurately reflect the EVC type, although in species-depauperate patches of grassland, the distinction between Plains Grassland and Chenopod Grassland was difficult to make. Therefore, native vegetation mapping has generally followed the pre-1750 EVC mapping (DEECA 2025f), except where significant evidence existed to the contrary (such as the presence of remnant canopy trees in areas mapped as grassland).

Additionally, a large proportion of patches modelled to comprise Plains Grassland (EVC 132) that were assessed in the north of the Wind Farm Site were determined to be more appropriately designated as Chenopod Grassland (EVC 829). This was primarily due to the conspicuous shrubland structure of these patches, the overwhelming dominance of Chenopod shrubs and a paucity of native graminoids in the ground layer.

Native vegetation assessments

Habitat hectare assessments were undertaken for all patches of native vegetation identified in the study area by Vegetation Quality Assessment (VQA) accredited botanists. Scattered trees and large trees in patches were counted and mapped, with the species and Diameter at Breast Height (DBH) of each recorded.

Patches of native vegetation were further categorised into three levels of quality as follows:

- *Low Quality* – 0 – 0.3 (inclusive of 0.3)
- *Medium Quality* – 0.3 – 0.4 (inclusive of 0.4)
- *High Quality* – > 0.4

Flora species and threatened flora habitat

During native vegetation surveys, a list of flora species was made. Specimens were collected from plants unable to be identified in the field and were identified with additional resources.

The potential for habitats to support listed flora species was assessed based on the following criteria:

- The presence of suitable habitat for flora species, such as soil type, floristic associations and landscape context
- The level of disturbance of suitable habitats by anthropogenic disturbances and invasions by pest plants and animals

Wherever appropriate, a precautionary approach was adopted in determining the likelihood of occurrence of flora listed under the EPBC Act and/or FFG Act. That is, where insufficient evidence on the potential occurrence of a listed species was available, it was assumed that the species had the potential to occur.

Targeted surveys for threatened flora have not yet been conducted, however, the timing of surveys for all species considered potentially or likely to occur in Section 5.3.2 have been planned as shown in Table 5-2.

Table 5-2: Timing of targeted flora surveys.

Month	Species	
October 2026 (planned)	▪ Branching Groundsel ▪ Smooth Minuria ▪ Lagoon Sneezeweed ▪ Long Eryngium ▪ Squat Picris ▪ Twiggy Sida ▪ Twin-leaf Bedstraw ▪ Dwarf Bitter-cress ▪ Spiny Lignum ▪ Flat Spike-sedge ▪ Wimmera Woodruff ▪ Winged New Holland Daisy ▪ Chariot Wheels	▪ Riverina Groundsel ▪ Yellow-tongue Daisy ▪ Ridged Water-milfoil ▪ Sweet Fenugreek ▪ Nealie ▪ Waterbush ▪ Slender Darling-pea ▪ Downy Swainson-pea ▪ Striped Water-milfoil ▪ Winged Water-starwort ▪ Riverina Bitter-cress ▪ Annual Buttons ▪ Soft Sunray
December 2026 (planned)	▪ Scaly Mantle ▪ Tough Scurf-pea ▪ Yakka Grass ▪ Cane Grass ▪ Spreading Emu-bush ▪ River Swamp Wallaby-grass ▪ Slender Water-ribbons ▪ Large-flower Amaranth ▪ Mallee Cucumber	▪ Wavy Marshwort ▪ Downs Nutgrass ▪ Trim Flat-sedge ▪ Buloke ▪ Club-hair New Holland Daisy ▪ Small Monkey-flower ▪ Umbrella Wattle
March 2027 (planned)	▪ Cotton Sneezeweed ▪ Stiff Groundsel ▪ Small Water-fire ▪ Hoary Scurf-pea ▪ Jerry-jerry ▪ Swamp Buttercup ▪ Dwarf Amaranth	▪ Umbrella Grass ▪ Plains Spurge ▪ Bush Minuria ▪ Brown Beetle-grass ▪ Bristly Love-grass ▪ Horned Pondweed ▪ Blackseed Glasswort

NOTE: Species highlighted have the potential to occur within the Development Footprint (see Section 5.3.2).

Threatened ecological communities

EPBC Act-listed threatened communities

The likelihood of EPBC Act-listed threatened ecological communities occurring in the study area was determined by the following process:

- Review of the communities modelled to potentially occur in the study area by the EPBC Act *Protected Matters Search Tool* (PMST; DCCEE 2026), and
- Checking field observations of mapped native vegetation against published descriptions of these communities and assessment against the identification criteria and condition thresholds from the relevant listing advice.

FFG Act-listed threatened communities

The likelihood of FFG Act-listed threatened ecological communities occurring in the study area was determined by the following process:

- Review of the communities modelled to potentially occur within 5 km of the study area (DELWP 2018a),
- Review of any communities without modelled distribution habitat mapping, and
- Checking field observations against published descriptions of the identified communities (SAC 2015).

5.1.3. Limitations

Flora and fauna

The VBA database and PMST were used to gather preliminary information on the threatened species and ecological communities likely to occur in the study area. There are some inherent limitations in these tools. There may be discrepancies between these records and the current features of the study area and surrounds. The PMST uses predictive modelling of the potential distribution of threatened species and ecological communities that is based on historical records and known ranges and habitat requirements. Therefore, certain species and communities listed by the PMST may not occur in the area. The VBA database contains records of species observed or collected at a particular location. Some locations may have no VBA records, indicating that the area is likely under-surveyed or otherwise does not support any ecological values. Subsequently, some threatened species that could occur may be absent from the VBA database. To overcome these limitations, the database results were validated by conducting field surveys.

The site assessments were conducted during the spring and summer. The short duration and seasonal timing of site assessments can result in certain species remaining undetected despite their occasional presence. Additionally, some flora species and lifeforms may be undetectable at the time of survey or unidentifiable due to a lack of flowers or fruit. Furthermore, initial native vegetation surveys were undertaken in a notably dry spring, with September and October 2025 rainfall at the Mincha weather station around half the mean (BoM 2026).

These limitations were not considered to compromise the validity of the investigation, as the habitat hectares scoring method has been intentionally designed to account for seasonal and temporal variation within patches of native vegetation, enabling site assessments to occur year-round. This reduces the subjectivity and variability between assessors and minimises the time taken during the assessment process. In most cases, habitat zones will be placed comfortably within a habitat

component category that is unlikely to change even if additional data were collected during alternative survey times (DSE 2004b). Furthermore, the intention of this field assessment is not to determine the presence or absence of threatened species within the study area.

Endangered ecological communities

The listing advice for the EPBC Act-listed community *Natural Grasslands of the Murray Valley Plain* (NGMVP) notes that “Timing of surveys is an important consideration because the ecological community can be variable in its appearance through the year and between years depending on drought-rain cycles.” Given the low spring rainfall, patches of native vegetation were assessed on the basis of meeting the overarching diagnostic criteria and containing the minimum number of native ground layer species in each patch. Patches which met the key diagnostic criteria but lacked the minimum species diversity (10-15 native ground layer species) were classified based on their likelihood to qualify under suitable seasonal conditions:

- *Likely* – >6 characteristic species present;
- *Potential* – 4 – 6 characteristic species present; or
- *Unlikely* – <4 characteristic species present.

Targeted surveys of any patches deemed to have any degree of potential to qualify (including ‘unlikely’) and proposed to be removed are recommended to be surveyed in spring 2026.

Regrowth exemption

High-resolution historical aerials (Near Map) were utilised to assess whether native vegetation qualified as Regrowth. Some paddocks assessed contained grassland EVCs (Chenopod Grassland and Plain Grassland), which can be difficult to delineate when dry. Some aerial images were taken during summer, and thus, the extent of these patches may result in their extent being underestimated due to a lack of soil moisture and rainfall.

However, the primary means of confirming the applicability of the regrowth exemption was clear visual evidence of ground disturbance (e.g. plough lines) and the loss of a heterogeneous vegetative structure as a result. Where there was insufficient confidence in complete native vegetation removal, the exemption was not applied. Furthermore, given conspicuous chenopods generally formed a prominent component of patches considered in this assessment, the loss of this component was a clear indicator of significant ground disturbance and a high likelihood of past native vegetation removal.

5.2. Results

5.2.1. Patches of native vegetation

The native vegetation assessment comprised site surveys of areas proposed to be impacted within the Project Area of the wind farm site and a desktop assessment of swept paths along the transport route from Geelong.

Wind farm site

Pre-European EVC mapping (DEECA 2025f) indicates that the study area and surrounds would have supported Plains Grassland (EVC 132), Chenopod Grassland (EVC 829), Riverine Chenopod Woodland (EVC 103), Lignum Swamp (EVC 104) and Lignum Swampy Woodland (EVC 823) prior to European settlement. This is based on modelling of factors including rainfall, aspect, soils and remaining vegetation.

Evidence within the Study Area, including floristic composition and soil characteristics, suggested that it supported Plains Grassland (EVC 132), Chenopod Grassland (EVC 829), Riverine Chenopod Woodland (EVC 103), Lignum Swamp (EVC 104) and Lignum Swampy Woodland (EVC 823) (Figure 5-1).

A total of 443 patches (referred to herein as *habitat zones*) comprising the abovementioned EVCs were identified in the study area (Table 5-3). This totalled 1656.769 ha of native vegetation in patches and included 30 large trees. Additionally, 19 DEECA-mapped wetlands were found to intersect with the Project Area.

Some habitat zones had a high cover of annual weeds (including those in grazing pastures), however, these still qualified as patches of native vegetation since annual weeds are not visible at all seasons and are thus excluded from the assessment, as per Appendix 1 of the Handbook (DELWP 2018b). Refer to Table 5-3 for further information on the weed cover within each habitat zone.

Most habitat patches were of low to medium quality, with only 14.88 % classified as high quality. Lignum Swampy Woodland and Riverine Chenopod Woodland contained no high-quality patches. Plains Grassland was predominantly medium quality (58.63 %), with a further 25.88 % of patches of low quality. In contrast, Lignum Swamp had a relatively higher proportion of high-quality patches (27.39 %), and 41.81 % of medium quality. See Table 5-3 for the area of each quality class (low, medium, and high) for each EVC.

Details of all habitat zones mapped in the study area are provided in Appendix 1.

It was concluded that 146.878 ha of Plains Grassland and Chenopod Grassland habitat zones qualified for the 10-year regrowth exemption. These habitat zones were located in the northern and centre section of the study area. Table 14-2 details the habitat zones which are exempt from Clause 52.17.

Table 5-3: Description of EVCs in the study area.

EVC	Bioregional Conservation Status	Number of patches	Area (ha)	Description
Plains Grassland (EVC 132)	Endangered	158	801.160 Low quality: 207.332 Medium quality: 469.706 High quality: 124.122	Plains Grassland was the most extensive EVC mapped within the study area. The ground layer was dominated by disturbance-tolerant grasses Spider Grass and Rigid Panic, with higher quality patches including spear grasses and wallaby grasses. Chenopod shrubs were common, including Berry Saltbush, Black Roly-poly and Ruby Saltbush. Some patches included herbs such as Woolly New Holland daisy. Weed cover varied between patches, with the lowest quality areas having a high cover of perennial weeds such as Perennial Rye-grass. Other areas, particularly on roadsides, had a high cover of annual weeds, including Oat, Wimmera Rye-grass and Squirrel-tail Fescue.

EVC	Bioregional Conservation Status	Number of patches	Area (ha)	Description
Chenopod Grassland (EVC 829)	Endangered	168	656.875 Low quality: 410.939 Medium quality: 174.811 High quality: 71.125	Chenopod Grassland was the second most extensive EVC mapped within the study area. The species composition of Chenopod Grassland was similar to Plains Grassland, with better quality patches of Chenopod Grassland including a higher cover and diversity of chenopod shrubs, including Wingless Bluebush, Nitre-bush and Hedge Saltbush. Weed cover varied between patches, with the lowest quality areas having a high cover of perennial weeds such as Perennial Rye-grass. Other areas, particularly on roadsides, had a high cover of annual weeds, including Oat, Wimmera Rye-grass and Squirrel-tail Fescue.
Riverine Chenopod Woodland (EVC 103)	Vulnerable	26	10.464 Low quality: 6.918 Medium quality: 3.546 High quality: 0	Riverine Chenopod Woodland was mapped in scattered patches within the study area. The canopy layer consisted of scattered River Red Gum or Black Box trees, with the understory dominated by chenopod shrubs such as Berry Saltbush, Nodding Saltbush and Black Roly-poly, alongside Prickly Saltwort, grasses including Wallaby Grass and Spider Grass, and forbs such as Corrugated Sida. Weed cover was generally high across most patches, with abundant introduced species including Great Brome, Wild Oat, Sow Thistle, Wimmera Rye-grass, Barley Grass, and Medic. Lower-quality areas exhibited near-continuous weed infestation, particularly on disturbed edges and roadsides, reducing native diversity. Higher-quality patches retained greater chenopod and grass cover despite pervasive weed presence.

EVC	Bioregional Conservation Status	Number of patches	Area (ha)	Description
Lignum Swamp (EVC 104)	Vulnerable	85	186.945 Low quality: 57.584 Medium quality: 78.164 High quality: 51.197	Lignum Swamp was recorded in lower-lying areas of the study area subject to periodic inundation. It was dominated by Tangled Lignum, with many patches also supporting the FFG Act-listed species Spiny Lignum. The ground layer included a range of chenopod shrubs, including Berry Saltbush and Ruby Saltbush, Nardoo, and, in some slightly saline areas, halophytes such as Blackseed Glasswort and Prickly Saltwort. Weed cover was high across most patches, with abundant introduced species such as Toowoomba Canary-grass, Wild Oat and Great Brome dominating degraded zones. Higher quality areas were likely subject to more consistent and long-lasting inundation, subsequently resulting in fewer weeds and a higher cover of Tangled Lignum.
Lignum Swampy Woodland (EVC 823)	Vulnerable	6	0.514 Low quality: 0.482 Medium quality: 0.032 High quality: 0	Lignum Swampy Woodland was one of the least extensive EVCs mapped within the study area. The ground layer was generally dominated by grasses such as Rigid Panic and Spider Grass, with scattered native herbs including Nodding Saltbush and Nardoo. Shrubs, when present, included Tangled Lignum, Black Roly-poly, Berry Saltbush, and Nitre Bush. Some patches featured patchy occurrences of immature River Red Gum, forming a sparse canopy in only one higher-quality area. Weed cover was high across most patches, with abundant introduced species such as Barley Grass, Wild Oat, Great Brome, Sow Thistle and Wimmera Rye-grass dominating degraded zones. Lower-quality areas showed near-continuous weed infestation.

Swept paths along the transport route

Pre-European EVC mapping (DEECA 2026a) indicates that the swept path area and surrounds would have supported Chenopod Grassland (EVC 829), Coastal Saltmarsh (EVC 9), Escarpment Shrubland (EVC 895), Floodplain Riparian Woodland (EVC 56), Grassy Woodland (EVC 175), Lignum Swamp (EVC 104), Plains Grassland (EVC 132), Plains Grassy Woodland (EVC 55_61), Plains

Woodland (EVC 803), and Swamp Scrub (EVC 53) prior to European settlement. This is based on modelling of factors including rainfall, aspect, soils and remaining vegetation.

A description of the potential native vegetation identified within swept paths along the transport route, including EVCs and their location, is provided in Table 5-4. The modelling of native vegetation is shown in Figure 5-2.

Table 5-4: Description of potential native vegetation in the swept path.

EVC	Description	Location in the project area
Chenopod Grassland (EVC 829)	Typically consists of a low, open shrubland of assorted chenopods, interspersed amongst a broader native tussock grassland. This EVC is generally found on heavy clay floodplains. Chenopod Grassland has the potential to occur in three sections of the swept path.	Modelled to occur in the vicinity of Kerang, where it is present along roadsides and in adjacent private properties.
Coastal Saltmarsh (EVC 9)	Comprises an assortment of halophytic shrubs, succulent herbs, rushes and sedges. This EVC is found immediately above tidal flats, where the specific structure is heavily influenced by tidal zonation. Although modelled within swept paths of the transport route, the desktop assessment determined it was unlikely to occur, due to the degraded condition of the roadside	Modelled to occur at a single location, on the coast of Geelong.
Escarpment Shrubland (EVC 895)	Occurs in the form of either a Eucalypt woodland or a shrubland of Lightwood, Drooping Sheoak and/or Sweet Bursaria. This EVC is associated with limestone or basalt escarpments. Although modelled within swept paths, the desktop assessment determined it was unlikely to occur due to the degraded condition of the roadside.	Modelled to occur on a stretch of roadside along the Old Calder Highway/Calder Freeway, to the northwest of Melbourne.
Floodplain Riparian Woodland (EVC 56)	Consists of an open Eucalypt woodland, overlying a medium-tall shrub layer and assorted aquatic/semi-aquatic herbs and graminoids. This EVC is found along the floodplains of larger watercourses. Floodplain Riparian Woodland is likely to occur in one swept path section	Present at a single location along Colac-Ballarat Road, to the north of Cressy.

EVC	Description	Location in the project area
Grassy Woodland (EVC 175)	A woodland EVC, which typically supports a Eucalyptus or Sheoak canopy. A shrub layer is sparse or absent, while the ground layer supports an abundance of grasses and herbs. This EVC is found on gentle slopes, supporting a range of geologies. This is likely the most extensive EVC in swept paths along the transport route.	Present along numerous roadsides and adjacent private properties, between Geelong and the Bendigo area.
Lignum Swamp (EVC 104)	A shrubland, primarily consisting of native Lignum. This EVC is present in areas subject to periodic inundation from overbank flows and runoff. Lignum Swamp has the potential to occur in one swept path section	Present in the vicinity of Kerang, along Leitchville-Kerang Road and adjacent private properties.
Plains Grassland (EVC 132)	A treeless EVC, which supports a tussock-grassland of assorted native herbs and graminoids. Generally found on cracking basaltic soils. Plains Grassland has the potential to occur throughout the transport route	Present along numerous roadsides and adjacent private properties, between Geelong and the Kerang area.
Plains Grassy Woodland (EVC 55_61)	Supports a Eucalyptus canopy, overlying a sparse to absent shrub layer and a diverse ground layer of herbs and graminoids. Found on poorly drained, fertile plains. Although modelled within the swept paths of the transport route, the desktop assessment determined it was unlikely to occur due to the degraded condition of the roadside	Modelled to occur on public land, in the township of Skipton.
Plains Woodland (EVC 803)	A woodland EVC, which typically supports an Eucalypt canopy and a lesser occurrence of Sheoak. The understory consists of sparse shrubs and a diverse ground layer of herbs and graminoids. This EVC is found on poorly drained, fertile plains. Plains Woodland is likely to occur in three sections of the swept path	Modelled to occur in Bendigo and to its northwest, where it occurs on roadsides and adjacent private properties.

EVC	Description	Location in the project area
Swamp Scrub (EVC 53)	A closed scrub, typically dominated by Woolly Tea-tree and Scented Paperbark. Eucalypts may also be present, though only incidentally. This EVC occurs on alluvial soils, found along streams or in poorly drained areas. Swamp Scrub has the potential to occur in one swept path section	Present on a small section of roadside and private property along the Hamilton Highway, east of Cressy.

It should be emphasised that Figure 5-2 specifically depicts modelled EVC occurrences and does not depict the precise extent of native vegetation. This modelling is instead intended to indicate both the potential extent of native vegetation and the EVCs that may be present. Where EVC modelling overlaps with roads and infrastructure, native vegetation will be absent.

The precise extent of remnant native vegetation can only be confirmed following detailed field assessments of the entirety of the swept path. Aerial Imagery (Figure 5-2) indicates that much of the proposed swept path occurs within areas already occupied by existing road corridors or other infrastructure. Native vegetation is potentially present in the 50m buffer areas, rather than being within the extent of the swept path. As such, there is likely to be scope for avoidance of some of these values and impacts of the transport route from the Port of Geelong on native vegetation are expected to be low.

Relevant swept path locations (as referenced in Figure 5-2) which likely support native vegetation include the following:

- Location 7 (Figure 5-2.7)
- Location 9 (Figure 5-2.9)
- Location 10 (Figure 5-2.10)
- Location 13 (Figure 5-2.13)
- Locations 20-30 (Figure 5-2.14 - Figure 5-2.24)
- Location 32 (Figure 5-2.26)
- Location 39 (Figure 5-2.32)
- Locations 40-43 (Figure 5-2.33 - Figure 5-2.36)
- Locations 46-48 (Figure 5-2.38 - Figure 5-2.40)
- Location 301-302 (Figure 5-2.41 - Figure 5-2.42)

5.2.2. Scattered trees

Wind farm site

Scattered trees recorded in the study area would once have comprised the canopy component of Lignum Swampy Woodland (EVC 823) and Riverine Chenopod Woodland (EVC 103).

A total of 36 scattered trees occurred in the study area (Figure 5-1), including the following:

- 16 large scattered trees (≥ 70 cm DBH for River red-gum *Eucalyptus camaldulensis* individuals in EVC 823, otherwise ≥ 50 cm DBH)
- 20 small scattered trees (< 70 cm DBH, for River red-gum *Eucalyptus camaldulensis* individuals in EVC 823, otherwise < 50 cm DBH)

Details of all scattered trees recorded are listed in Appendix 2.

Swept paths along the transport route

Scattered tree occurrence could not be confirmed from the desktop assessment of the swept path, given many of the EVCs modelled to occur support open grassy understories (see Table 5-4). Therefore, what may appear to be scattered trees could in fact be classified as a patch tree within a broader area of native grassy groundcover. However, aerials clearly demonstrate the presence of treed vegetation across the vast majority of the swept path and its buffer areas. Therefore, it is still anticipated that numerous scattered trees will be present across the swept path.

A field assessment will be undertaken to ground-truth the presence or absence of native vegetation and scattered trees, to support the assessment of the Project.

Figure 5-1.1: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09

Project location: Macorna Wind Farm, VIC

Date: 13/08/2026

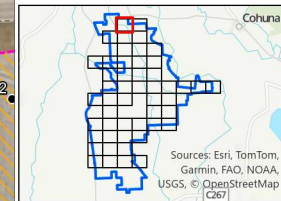
- Project Area
- Investigated area
- Turbine
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Confirmed
- Potential

Native vegetation

- Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
- Lignum Swamp (EVC 104)
- Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community



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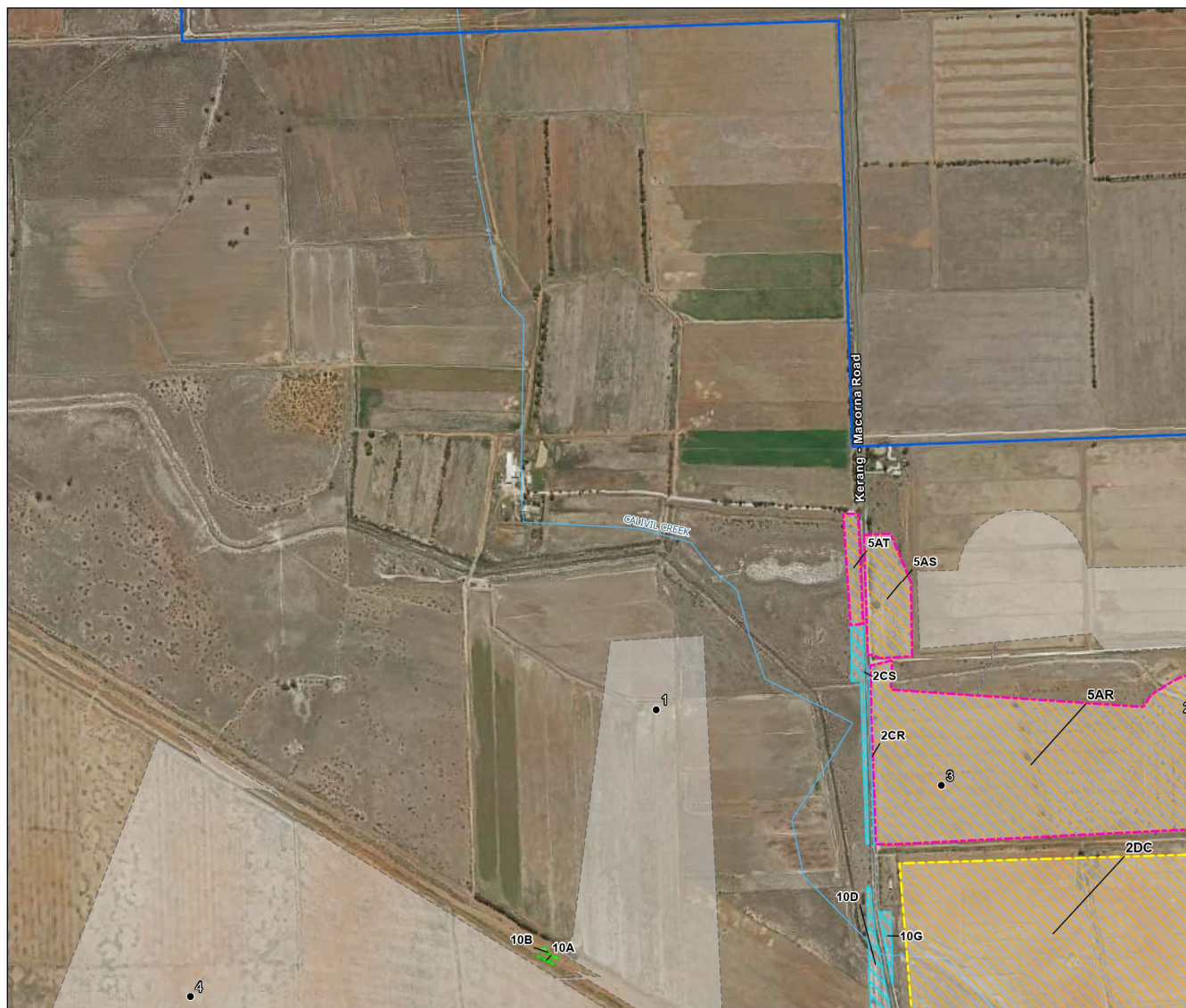


Figure 5-1.2: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

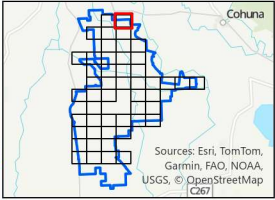
- Project Area
- Investigated area
- Turbine

Natural Grasslands of the Murray Valley Plains community

- Confirmed
- Potential

Native vegetation

- Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community
- Exempt native vegetation under Clause 52.17-7



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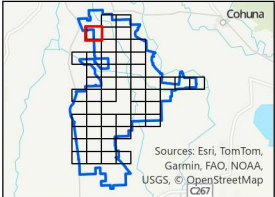
Figure 5-1.3: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Waterway

Native vegetation

- Chenopod Grassland (EVC 829);
- FFG Act listed Northern Plains Grassland Community
- Plains Grassland (EVC 132); FFG
- Act listed Northern Plains Grassland Community



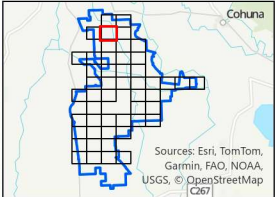
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Figure 5-1.4: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Waterway
- Natural Grasslands of the Murray Valley Plains community**
- Potential
- Native vegetation**
- Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
- Lignum Swamp (EVC 104)
- Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community
- Exempt native vegetation under Clause 52.17-7



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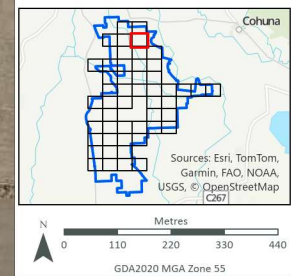
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Figure 5-1.5: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Waterway
- Natural Grasslands of the Murray Valley Plains community**
- Potential
- Native vegetation**
- Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
- Lignum Swamp (EVC 104)
- Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community
- Exempt native vegetation under Clause 52.17-7



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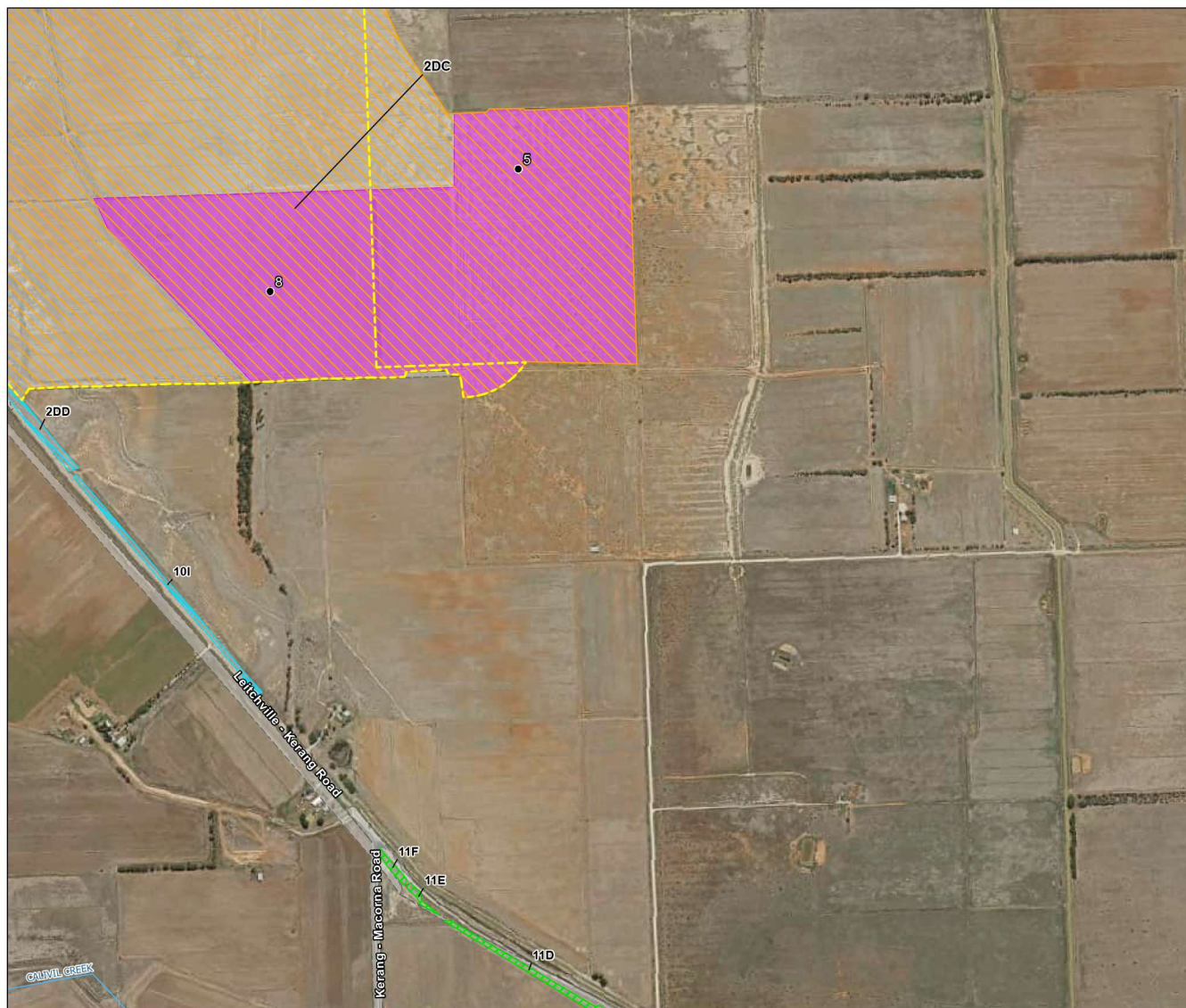


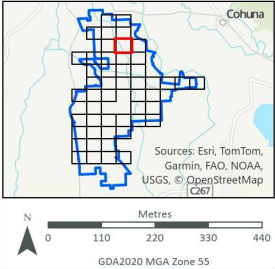


Figure 5-1.7: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

Project Area
Investigated area
Turbine
Waterway

Native vegetation
Chenopod Grassland (EVC 829);
FFG Act listed Northern Plains Grassland Community
Lignum Swamp (EVC 104)



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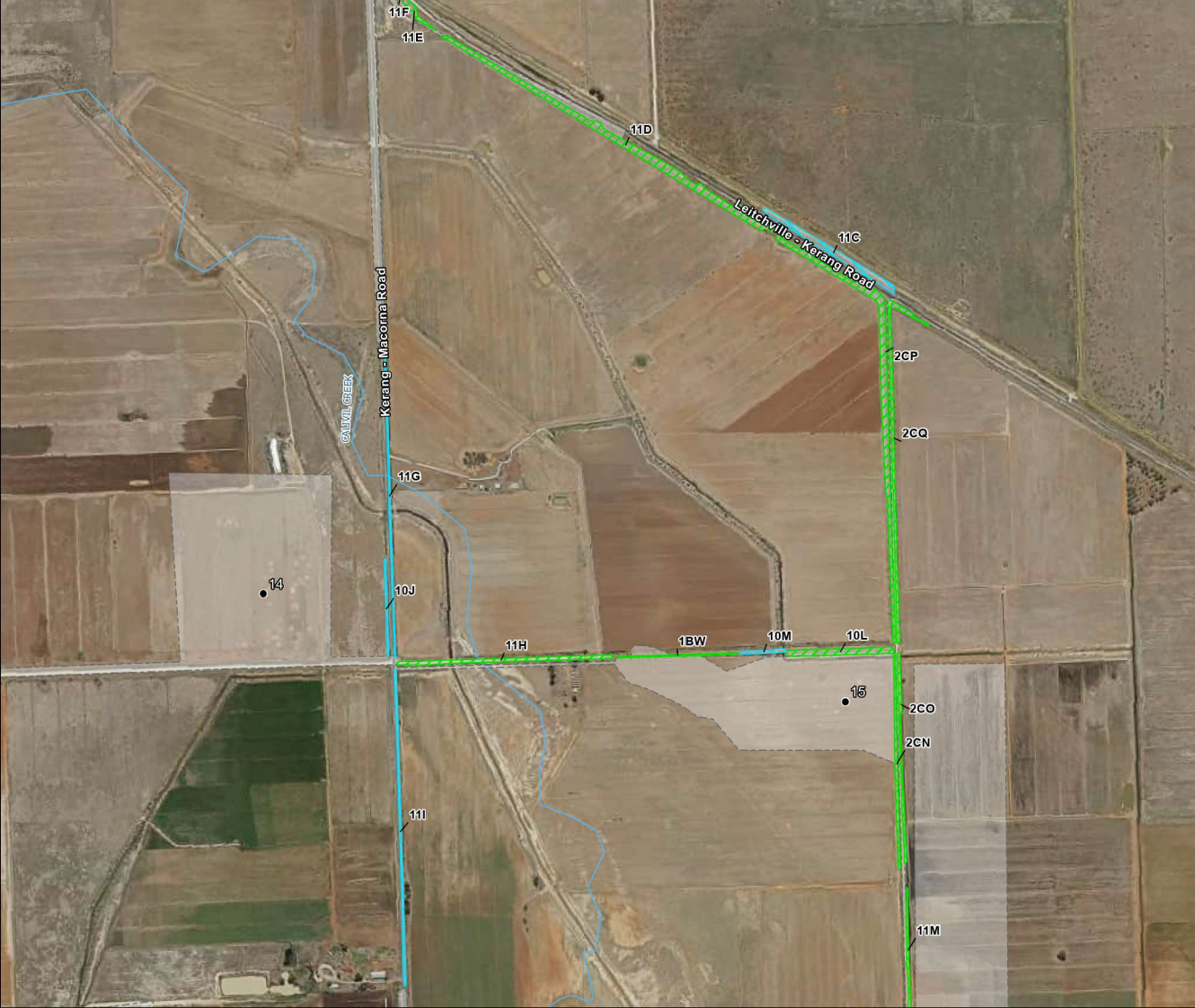
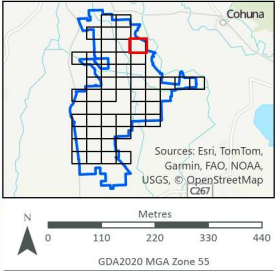


Figure 5-1.8: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
Investigated area
- Native vegetation**
- Chenopod Grassland (EVC 829);
 - FFG Act listed Northern Plains Grassland Community
 - DEECA mapped wetland



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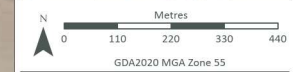
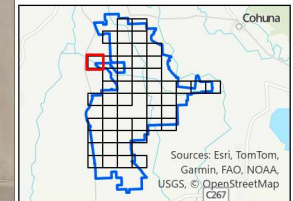
Figure 5-1.9: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Waterway

Native vegetation

- Chenopod Grassland (EVC 829);
- FFG Act listed Northern Plains Grassland Community
- DEECA mapped wetland



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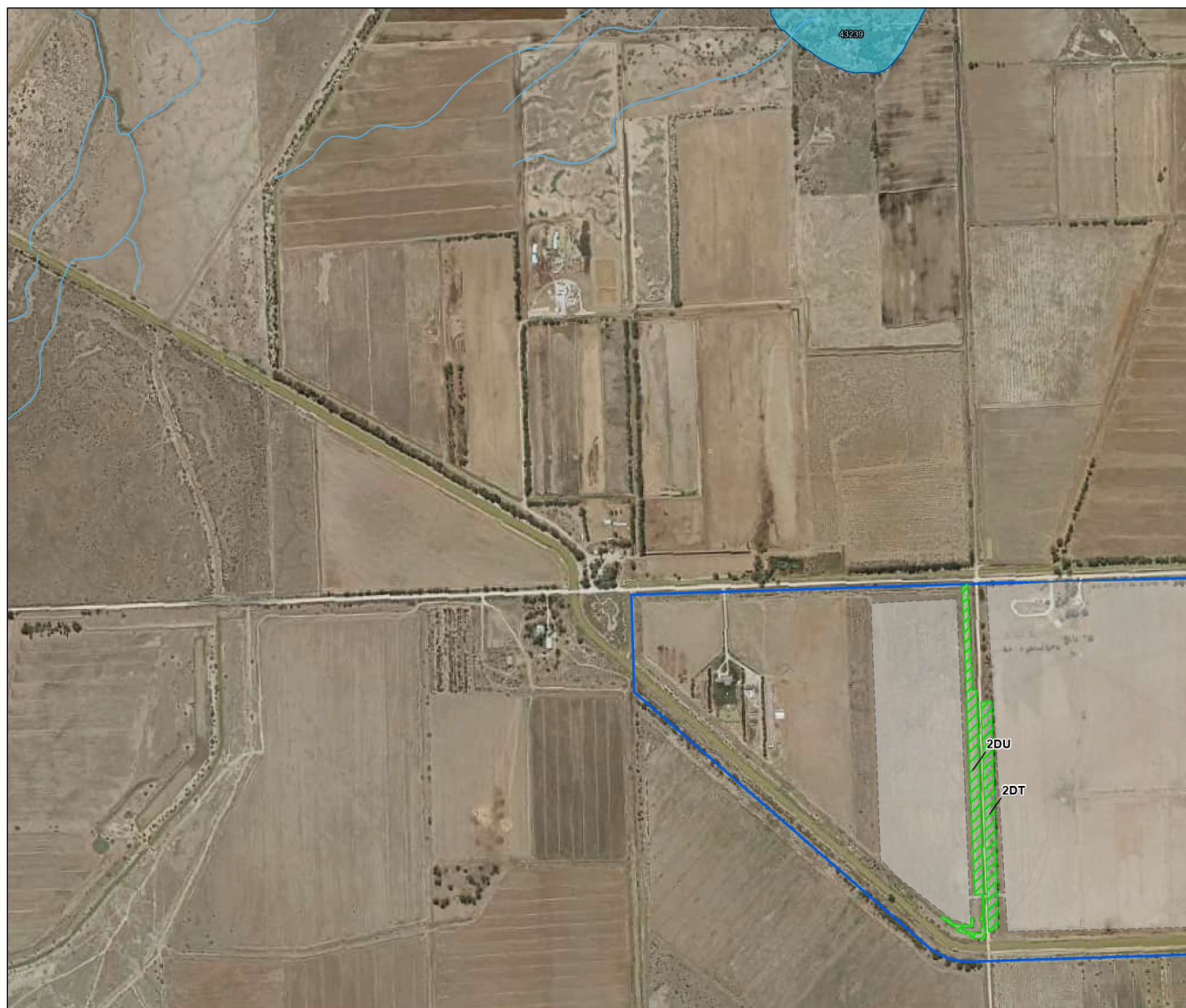


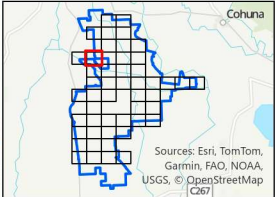
Figure 5-1.10: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Waterway

Native vegetation

Chenopod Grassland (EVC 829);
FFG Act listed Northern Plains
Grassland Community



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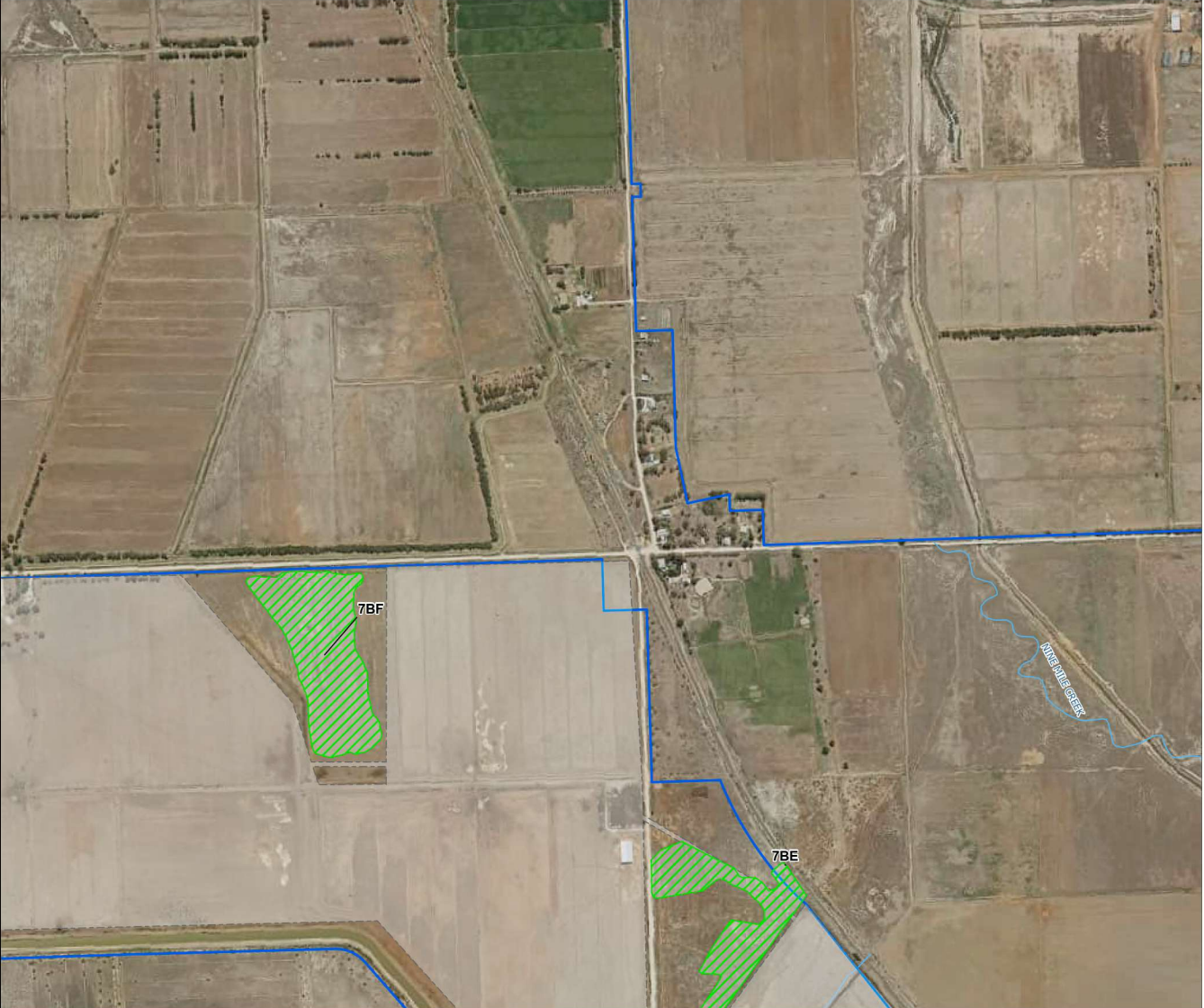
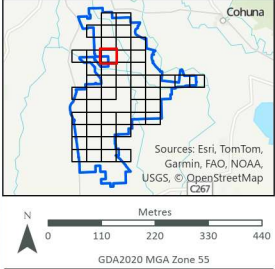


Figure 5-1.11: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

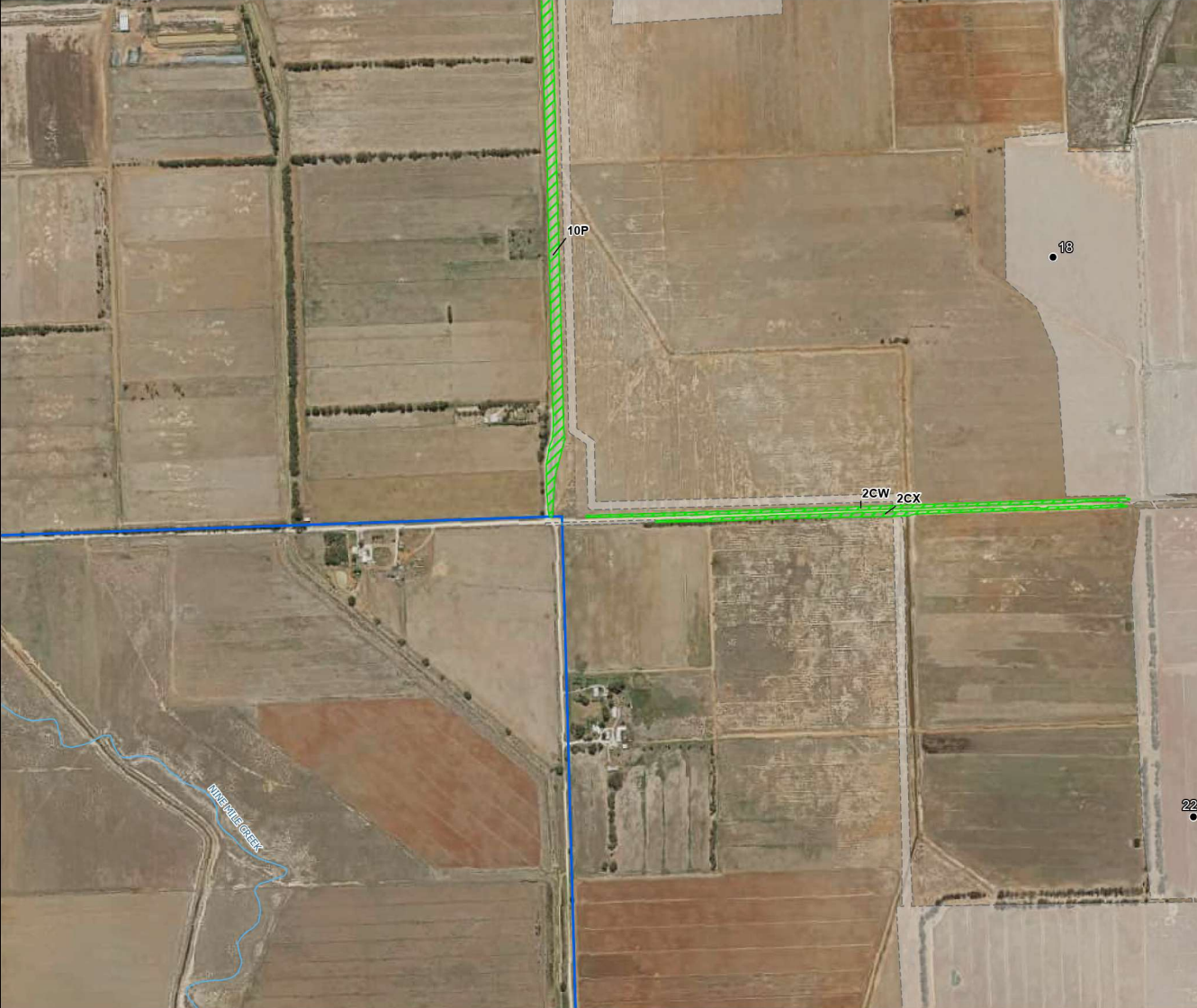
Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

Project Area
Investigated area
Turbine
Waterway

Native vegetation
Chenopod Grassland (EVC 829);
FFG Act listed Northern Plains Grassland Community



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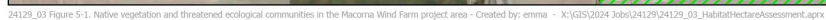
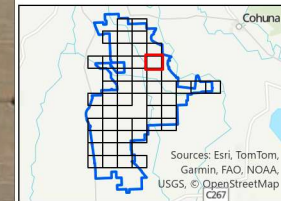


Figure 5-1.13: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Native vegetation**
 - Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
 - Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community
 - Large Scattered Tree
 - Small Scattered Tree
 - DEECA mapped wetland



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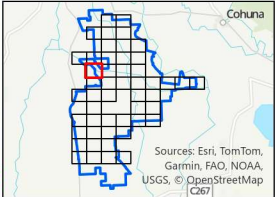
Figure 5-1.14: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Unlikely
- Native vegetation**
 - Chenopod Grassland (EVC 829);
 - FFG Act listed Northern Plains Grassland Community
 - Exempt native vegetation under Clause 52.17-7



N
0 110 220 330 440
Metres
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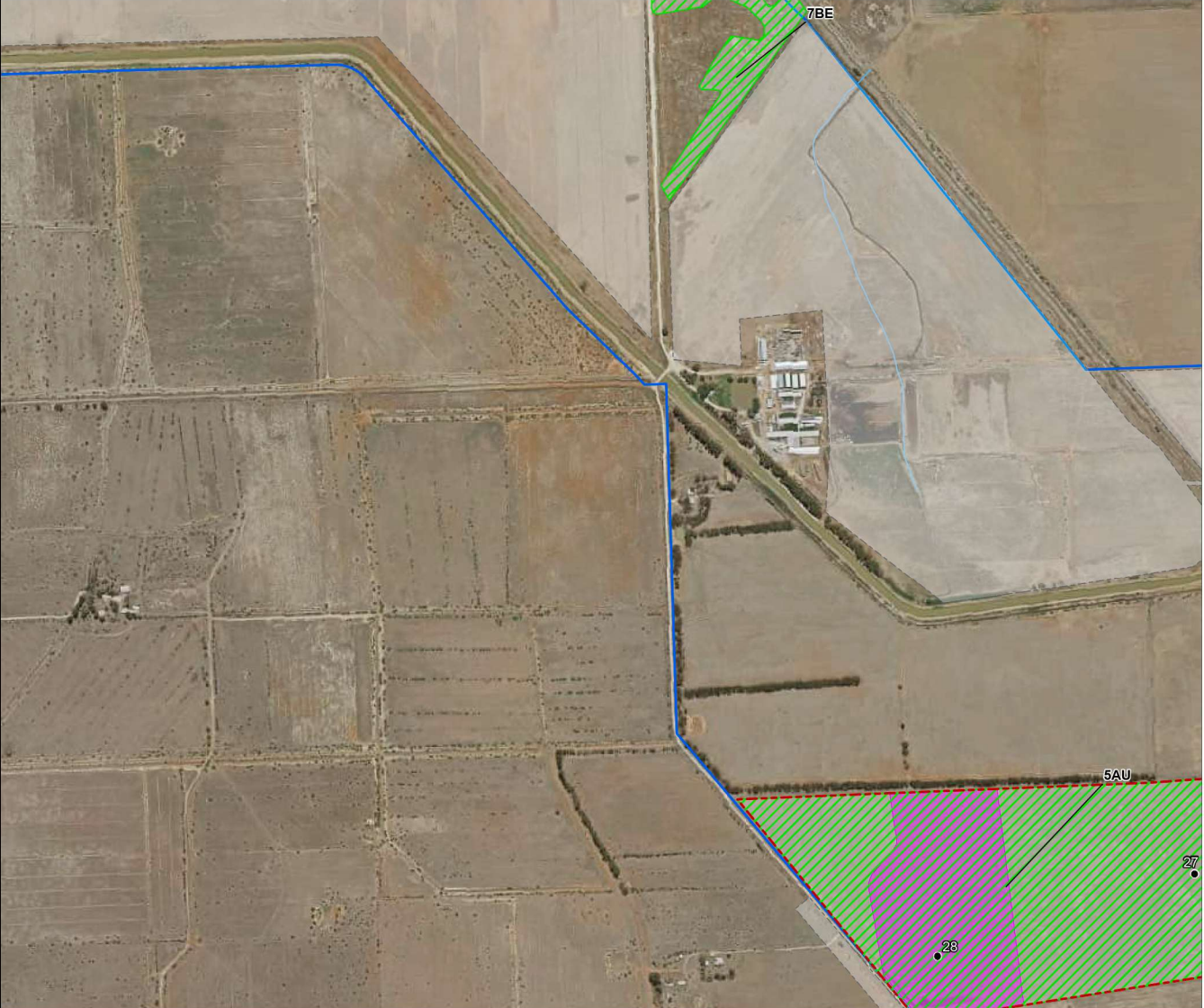


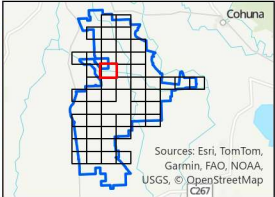
Figure 5-1.15: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Unlikely
- Native vegetation**
 - Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
 - Lignum Swamp (EVC 104)
 - Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community



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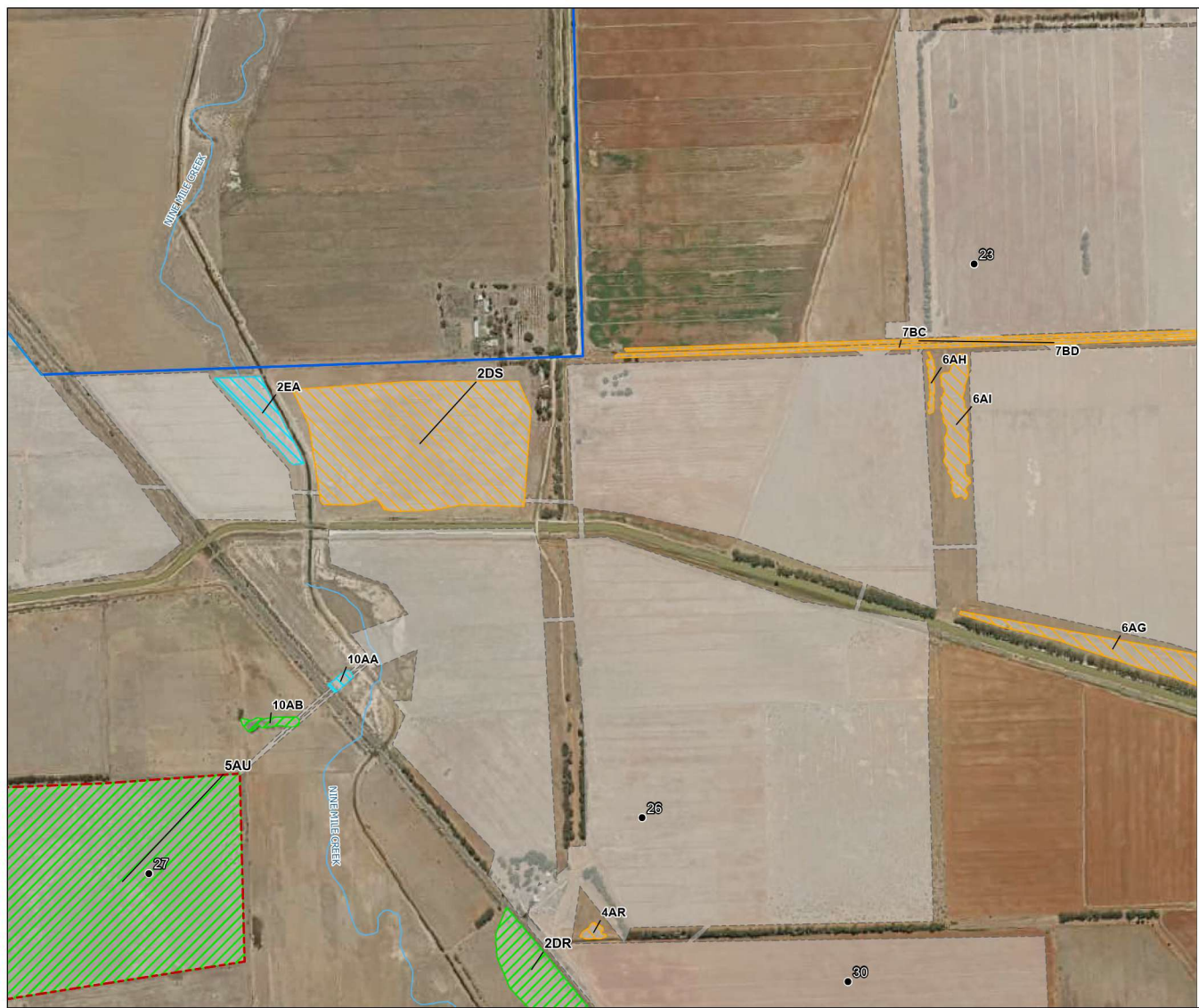
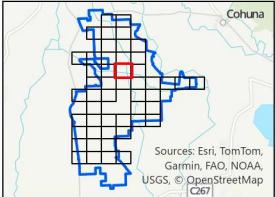


Figure 5-1.16: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

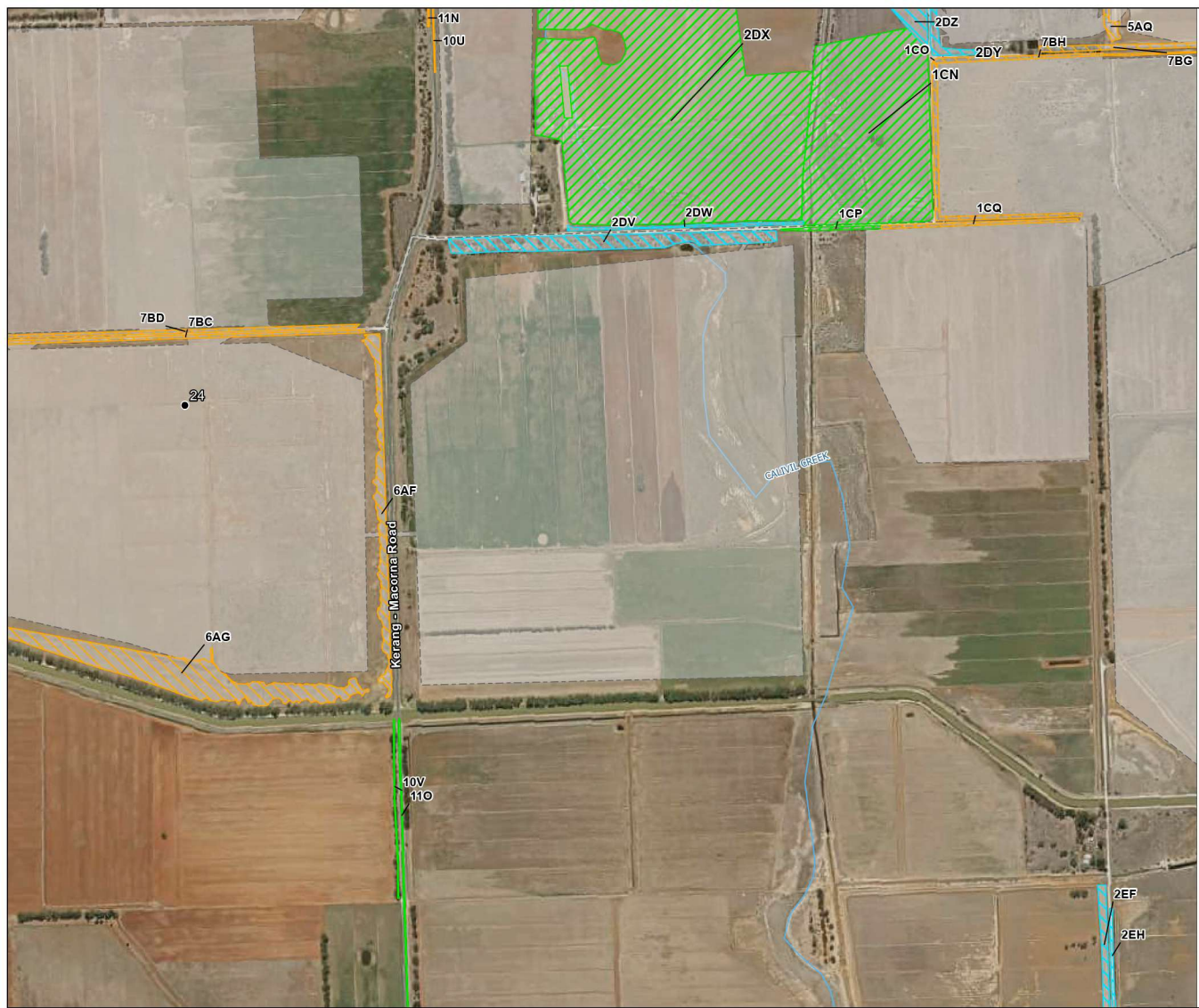
Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Waterway
- Native vegetation**
 - Chenopod Grassland (EVC 829);
 - FFG Act listed Northern Plains Grassland Community
 - Lignum Swamp (EVC 104)
 - Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap (C267)

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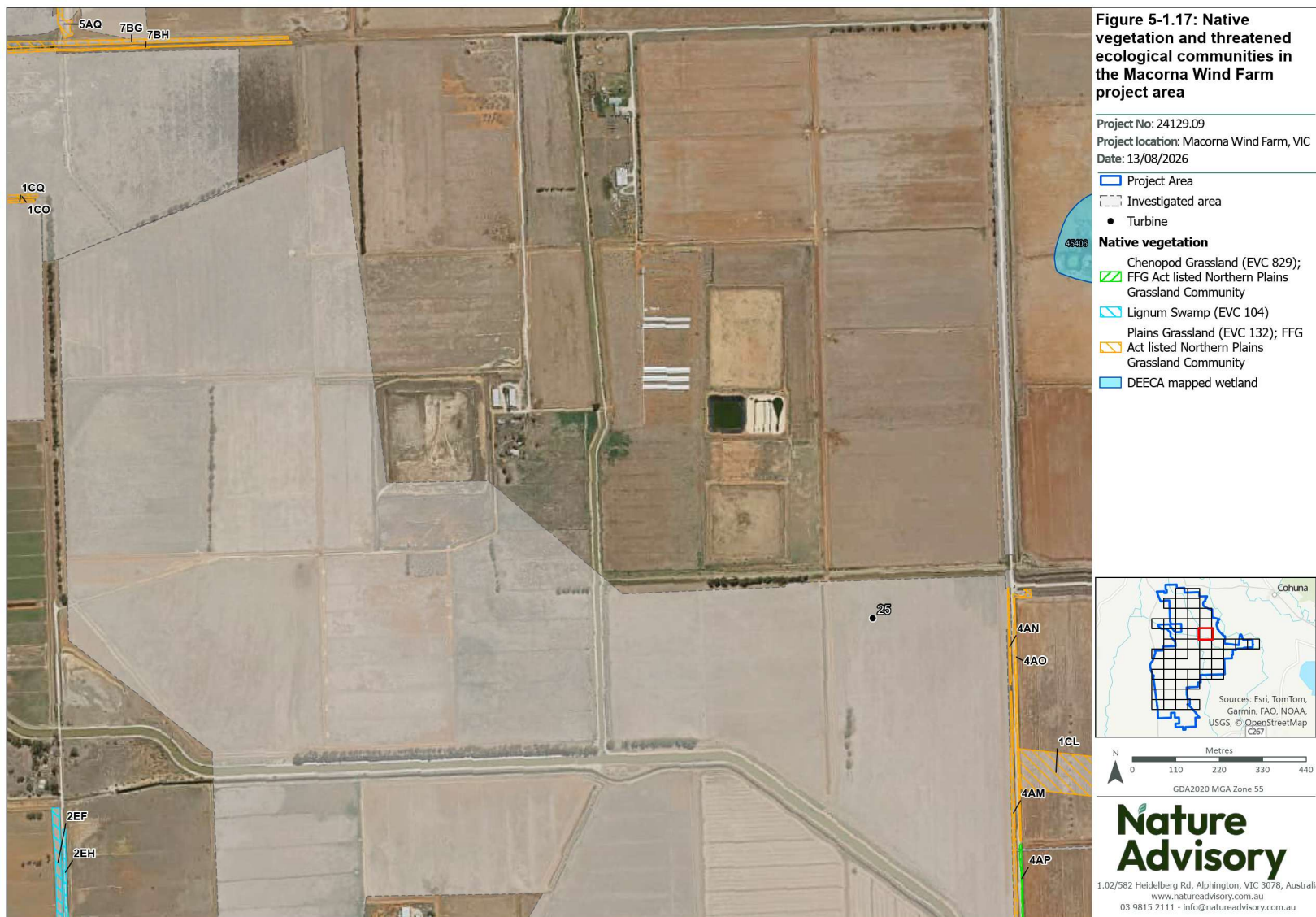


Figure 5-1.18: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

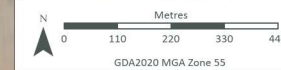
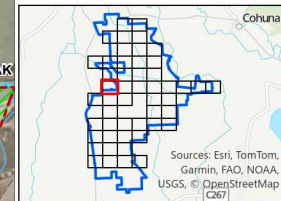
- Project Area
- Investigated area
- Turbine
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Confirmed
- Unlikely

Native vegetation

- Chenopod Grassland (EVC 829);
- FFG Act listed Northern Plains Grassland Community
- Lignum Swamp (EVC 104)
- Riverine Chenopod Woodland (EVC 103)
- Large Scattered Tree
- DEECA mapped wetland
- Exempt native vegetation under Clause 52.17-7



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Figure 5-1.19: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

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 Project location: Macorna Wind Farm, VIC
 Date: 13/08/2026

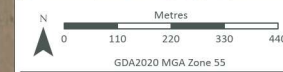
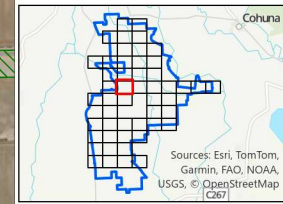
- Project Area
- Investigated area
- Turbine
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Confirmed
- Likely
- Unlikely

Native vegetation

- Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
- Lignum Swamp (EVC 104)
- Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community
- Riverine Chenopod Woodland (EVC 103)
- Large Scattered Tree
- DEECA mapped wetland



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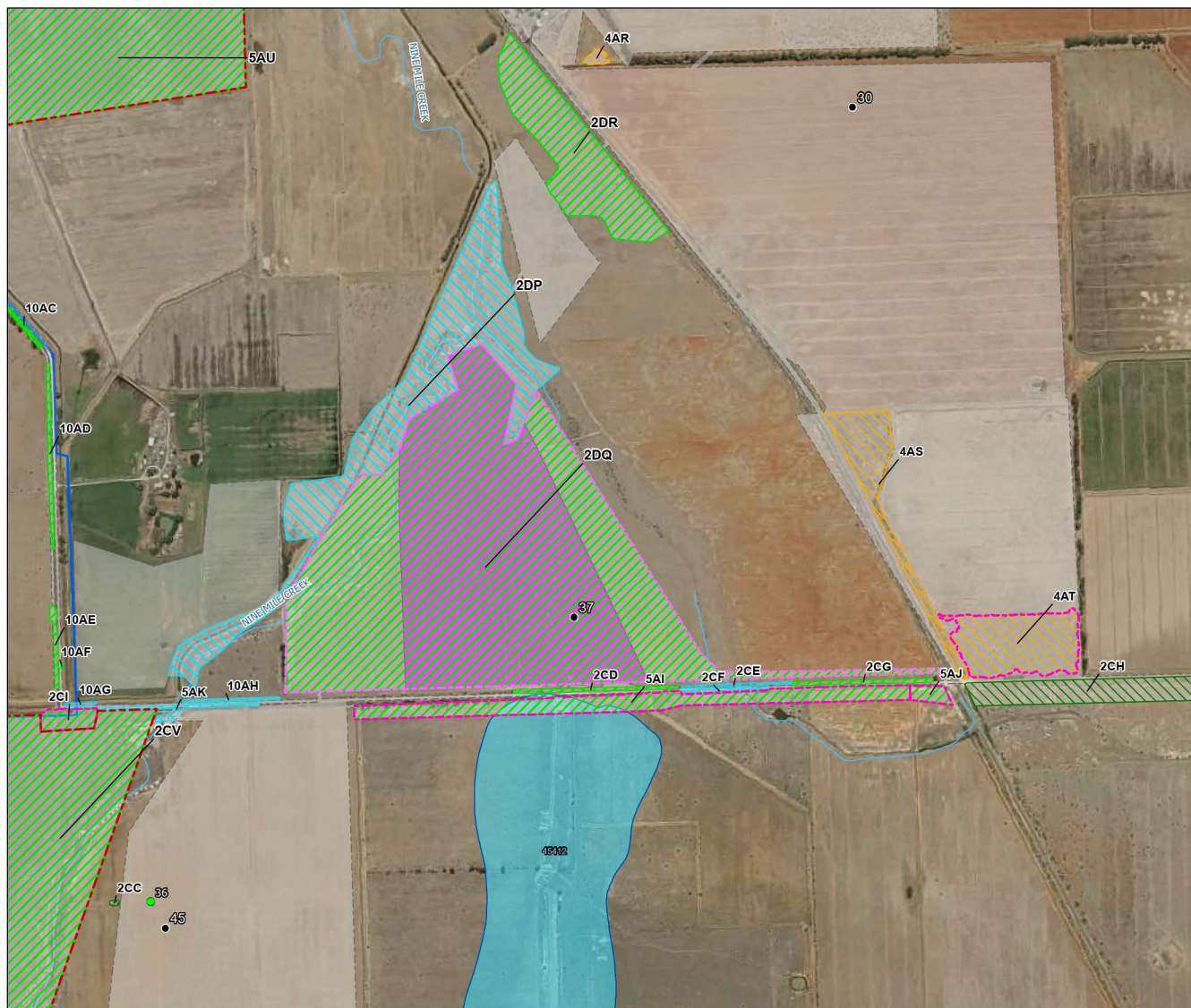


Figure 5-1.20: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

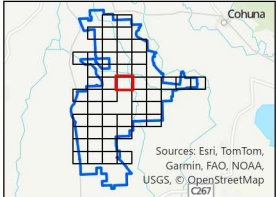
- Project Area
- Investigated area
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Confirmed

Native vegetation

- Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
- Lignum Swamp (EVC 104)
- Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community
- Riverine Chenopod Woodland (EVC 103)



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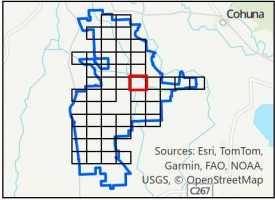
Figure 5-1.21: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

Project No: 24129.09
Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

- Project Area
- Investigated area
- Turbine
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Confirmed
- Native vegetation**
 - Chenopod Grassland (EVC 829); FFG Act listed Northern Plains Grassland Community
 - Lignum Swamp (EVC 104)
 - Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community



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Figure 5-1.22: Native vegetation and threatened ecological communities in the Macorna Wind Farm project area

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Project location: Macorna Wind Farm, VIC
Date: 13/08/2026

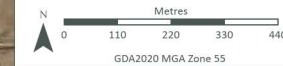
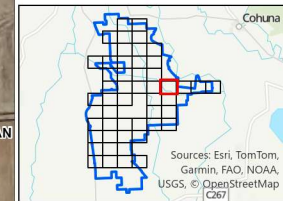
- Project Area
- Investigated area
- Turbine
- Waterway

Natural Grasslands of the Murray Valley Plains community

- Confirmed

Native vegetation

- Chenopod Grassland (EVC 829);
- FFG Act listed Northern Plains Grassland Community
- Plains Grassland (EVC 132); FFG Act listed Northern Plains Grassland Community
- Large Tree in Patch
- Small Tree in Patch



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