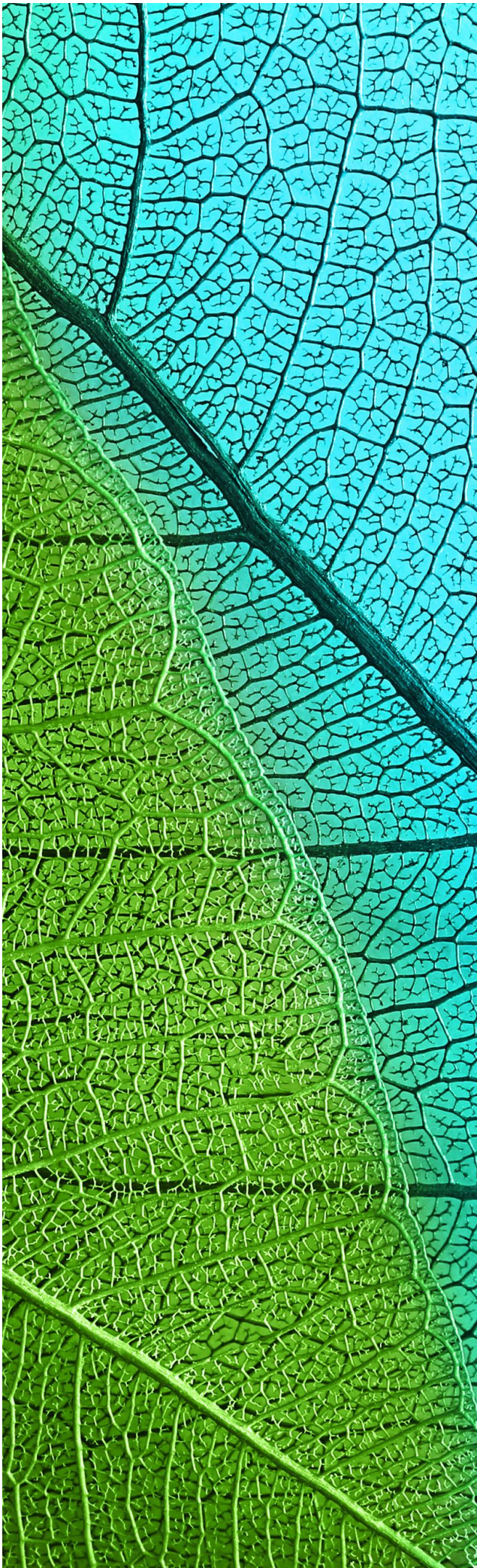




**PLANNING and ENVIRONMENT ACT
MOYNE PLANNING SCHEME**

PERMIT NO. PA2202010

CONDITION 6

ENDORSED PLAN

Sheet 1 of 156

Signed:  for
MINISTER FOR PLANNING
Date: 16 May 2023

Hawkesdale Wind Farm Transmission Line to Tarrone Terminal Station

Native Vegetation Plan

**Prepared for Hawkesdale Asset Pty
Ltd as trustee for Hawkesdale Asset
Trust (HAPL)**

April 2023
Report No. 14144.28 (3.3)



**Nature
Advisory**

(Formerly Brett Lane & Associates Pty Ltd)

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1. Introduction

Hawkesdale Asset Pty Ltd as trustee for Hawkesdale Asset Trust (HAPL) engaged Nature Advisory Pty Ltd to prepare a Native Vegetation Plan (NVP) for a 132 kV transmission line (the project), associated with the approved Hawkesdale Wind Farm, in the localities of Hawkesdale, Tarrone and Willatook, in south-western Victoria.

The transmission line alignment is approximately 15 kilometres long, running in an east-west direction to connect Hawkesdale Wind Farm in the east to Tarrone Terminal Station in the west.

The transmission line route has been assessed and presented to the Department of Energy, Environment and Climate Action for approval. Approval of native vegetation impacts associated with this alignment has been sought, in accordance with the following report:

- *Hawkesdale Wind Farm to Tarrone Terminal Station - Flora and Fauna Assessment* prepared by Nature Advisory December 2022 (Report No 14144.28 (1.3)).

This NVP aims to provide management and mitigation measures for the removal of native vegetation associated with the transmission line. Upon endorsement, this NVP will form part of the planning permit for the removal of native vegetation and will be the reference document for the details of the native vegetation approved to be removed and required to be offset in accordance with Attachment 1.

The abovementioned Flora and Fauna Assessment is referred to in this NVP as 'the report'.

The report identified 52 patches of native vegetation totalling 8.732 hectares, within the transmission line study area, including one DELWP-mapped Wetland. The specific area investigated, comprised a 30-metre wide corridor along the proposed transmission line route, as well as a 20-metre-wide corridor along proposed access tracks and existing access track upgrades from Hawkesdale Wind Farm's internal substation to the existing Tarrone Terminal Station.

The transmission line, access track footprint and associated civil works will require the removal of 0.818 hectares of native vegetation and includes no DELWP-mapped Wetlands.

1.1. Purpose of the plan

This NVP provides the following:

- A description of the area that will host the transmission line;
- Maps outlining areas of native vegetation to be removed and retained, current mapped wetlands and locations of detected threatened flora and fauna species;
- Methods for the identification of potential threats to areas of retained native vegetation and methods for protection of these areas; and
- Risk management measures with management indicators for managing risks to retained native vegetation.

The aim of this NVP is to provide guidance on the management of the construction phase of the project to avoid impact on areas of native vegetation to be retained, as well as to minimise unnecessary impacts on the site, as a whole.

1.2. Avoid and minimise impacts to biodiversity (Three-step Approach)

As defined under the Guidelines for the removal, destruction or lopping of native vegetation:

The three-step approach (avoid, minimise, offset) is the key policy in relation to the removal of native vegetation to achieve no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. It is a precautionary approach that aims to ensure that the removal of native vegetation is restricted to only what is reasonably necessary, and that biodiversity is appropriately compensated for any removal of native vegetation that is approved.

Efforts to avoid the removal of, and minimise the impacts on, native vegetation should be commensurate with the biodiversity and other values of the native vegetation and focused on areas of native vegetation that have the most value.

Areas of native vegetation to be retained must be able to maintain the same values in the future and should not be degraded over time by a proposed use or development associated with the removal.

The associated Flora and Fauna Assessment adheres to these principles as follows:

1. Impacts to native vegetation were avoided in the first instance (particularly high biodiversity-value areas)
2. Where impacts were deemed unavoidable, they were reduced to the minimum extent deemed feasible to carry out the necessary works
3. The residual impacts will be offset under a 3rd party offset credit agreement. This type of offset secures a net gain of native vegetation within an established offset site to compensate for the removal of native vegetation on site. The offset site is and will continue to be effectively managed and is secured in perpetuity.

Opportunities to continue to apply the avoid and minimise principles

During construction, opportunities may arise to further reduce the impact to native vegetation. Therefore, construction personnel must always consider the avoid and minimise principles by reducing the construction footprint in areas identified as containing native vegetation, wherever the opportunity exists to do so. For example, there is likely an opportunity to restrict the on-ground footprint of the equipment laydown areas for pole construction. This is because a precautionary approach was adopted during the design phase and these areas were allocated a 20 metres x 20 metres area to ensure there were no additional impacts beyond what is detailed in the Flora and Fauna Assessment. Areas of native vegetation approved to be impacted is illustrated in Figure 2 of this plan and will also be replicated in the series of A3 maps (as detailed below), to be printed and displayed in the site office.

A series of A3 maps summarising the requirements of the NVP will be prepared upon endorsement of this document by the Minister for Planning. Upon completion, the maps and this NVP will be provided to the construction contractors to assist in understanding the obligations they have in relation to native vegetation protection, removal and management. The summary will communicate key messages for each management/mitigation component and reference relevant parts of the plan. These maps will not replace this NVP, but rather will be a quick reference guide for personnel working on site. The maps will be updated as required to reflect any changes made to this NVP and approved by the Minister for Planning.

This NVP was prepared by a team from Nature Advisory, comprising Cara Cappelletti (Ecologist and Project Manager) and Chris Armstrong (Senior Botanist and Project Manager).

2. Project Description

The current proposal will involve the construction and operation of a 132 kV transmission line that will connect the Hawkesdale Wind Farm to the Tarrone Terminal Station. The transmission line will extend for approximately 15 kilometres, the majority of which is on private land. The route crosses the following roads:

- Tarrone North Road;
- Coomete Road;
- Poyntons Road;
- Willatook-Warrong Road;
- Malseeds Road;
- McGillivrays Road;
- Woolsthope-Heywood Road; and
- Penshurst-Warnambool Road.

Three hardstands and power poles occur within the road reserve along Poyntons Road. All other hardstands and power poles are positioned on private property.

The transmission line will be constructed with steel monopole type poles with a single tube-like pole which will have one foundation which minimises the area and vegetation affected. The line will incorporate approximately 54 steel poles spaced on average 250 metres apart. The poles will be polygonal in shape and made from galvanised steel. The poles are between 28 and 40 metres in height.

The top of the foundation, above ground, is called the “plinth” and is 1.8 metres to 2.4 metres in diameter. The visible portion of the foundation will protrude approximately 300 millimetres above ground. The maximum working area required around a structure position is 20 metres x 20 metres.

Foundations will be mechanically excavated where access to the pole position is readily available. The same applies to the pouring of concrete required for the setting of the foundations. Prior to construction of the foundations, the excavated foundations will be covered to safeguard animals and people from injury.

Considerable work has been undertaken during detailed design to microsite hardstands and access tracks to minimise the impact to native vegetation and cultural heritage.

Impacts have been determined based on the footprint provided by AusNet Services (AusNet), commissioned by HAPL to construct the transmission line, including:

- 5 to 6 metre wide access track (including the entire construction footprint), topped with a crusher run 100-150 millimetres deep (when water is apparent and vehicles are in danger of getting bogged). All native vegetation within the access track footprint is considered removed;
- A hardstand area of 20 metres X 20 metres has been assumed for each pole location (including temporary storage of material and equipment);
- In order to comply with the Electricity Safety (Electric Line Clearance) Regulations 2020 for a 132kV transmission line, where the transmission line passes over native woody vegetation taller than three metres, all vegetation within these patches is considered removed (Figure 2).

Construction personnel will make use of existing facilities such as toilets, offices and break rooms at either Hawkesdale Wind Farm or Tarrone Terminal Station to minimise the extent of disturbance required for the construction. Any facilities required to be on site will be confined to the identified laydown areas. Stockpiling sites and plant parking areas will be contained within the easement and restricted to areas where there is no vegetation present. The precise location of such areas is not illustrated in the Figures due to the requirement to shift materials and vehicles constantly throughout the construction process.

Entry and exit points are shown on Figure 1. These entry and exit points would also be used for access in the event of an emergency during construction of the transmission line.

The development footprint is indicated in Figure 2 of the Flora and Fauna Assessment prepared by Nature Advisory (2022) which is provided as Attachment 1 of this NVP. These figures provide a defined area that contractors will be confined to when working adjacent to native vegetation, to eliminate unintentional impacts on retained native vegetation.

2.1. Objectives of the NVP

The objectives of this NVP include, but are not limited to the following:

- Clearly and accurately show the location and extent of native vegetation to be removed along the alignment as permitted in the planning permit;
- Clearly and accurately show the location and extent of native vegetation to be retained, and define protection parameters for any areas of native vegetation that occur in the proximity of the development footprint ('No Go Zones');
- Provide methods to avoid impacts on native vegetation within these 'No Go Zones' that may be directly or indirectly affected by the development;
- Clearly and accurately show the location and extent of any current mapped wetlands as defined in the Guidelines for the removal, destruction or logging of native vegetation (DELWP 2017); and
- Clearly and accurately show the locations of any threatened flora or fauna that have been detected within 10 kilometres of the alignment.

2.2. Micro-siting

An accurate representation of the native vegetation to be removed and retained along the transmission line alignment is included in Figure 2 of the attached Flora and Fauna Assessment report (Attachment 1).

For the purposes of this project, micro-siting is defined as an alteration to the siting of a power pole within the current proposed hardstand area, which has already been surveyed for native vegetation (as shown in Figure 2). Micro-siting of power poles beyond the definition provided above will not be undertaken. As detailed design for the project has already been undertaken, no further micro-siting of hardstand areas or access tracks is proposed. Therefore, micro-siting will occur only as defined above and will not result in increased impacts to native vegetation.

If there are unforeseen circumstances which warrant alteration to the alignment illustrated in Figure 2, supplementary reporting will be prepared and submitted to the responsible authority. This reporting will clearly identify the location of the proposed alteration and demonstrate that it will not lead to additional impacts to native vegetation.

2.3. Threatened flora, fauna and communities

EPBC Act

The locations of threatened flora and fauna species recorded within a 10-kilometre radius of the transmission line alignment are provided in Figure 1. This figure was created by Nature Advisory primarily based on records from the Victorian Biodiversity Atlas, as well as any additional records resulting from ecological surveys conducted by Nature Advisory. The results are included in the attached Flora and Fauna Assessment (Attachment 1), which includes information from surveys undertaken in 2020 and 2021.

One ecological community - *Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains* (SHWTLP) listed under the *Environment Protection and Biodiversity Conservation* (EPBC) Act was recorded in the study area. The proposed design avoids directly impacting on this community.

Access tracks have been designed with consideration for relevant waterways to ensure development does not alter natural waterflow in the landscape. The installation of culverts at minor waterway crossings for access tracks will be constructed at appropriate locations to maintain the natural flow.

Therefore, the proposal is unlikely to alter the existing water regime in the landscape which could lead to indirect impact on the function of existing areas of SHWTLP. Due to both direct and indirect avoidance of SHWTLP, there are no implications under the EPBC Act listed community.

Suitable habitat for the EPBC Act-listed fauna species, Growling Grass Frog is assumed to occur within 30 metres of waterways, such as Moyne River, Austins Creek, Nardoo Creek and Back Creek.

Based on the relevant guidelines and targeted surveys, the proposed development is unlikely to result in a significant impact on any EPBC Act listed flora, fauna or listed communities. All areas in the study area which support, or potentially support these values will be avoided during construction and operation of the transmission line, with the exception of impact to 0.215 hectares of Growling Grass Frog habitat (within 30 metres of a waterway). This is not considered to be a significant impact, as the majority of this encroachment occurs in discrete locations on the margins of this buffer area and does not disturb the waterway itself, except for the crossing of a tributary to Back Creek. Appropriate mitigation measures and design requirements, as documented in the Works on Waterways permit and the project CEMP, will avoid any detrimental impacts to all waterways and associated aquatic habitat throughout the construction process.

Additionally, the collision risk posed by the transmission line is deemed not to have a significant impact on any listed avifauna species.

FFG Act

No species listed under the FFG threatened species list (DELWP 2021a) or species listed as protected under the FFG Act (DELWP 2019) are proposed to be impacted by this proposal. One common species listed as protected under the FFG Act was recorded in the study area on public land on two occasions, namely, Black Wattle, *Acacia mearnsii* in the following locations:

- Habitat zone EG (one plant); and
- Habitat zone EJ (one plant).

Neither of these plants are proposed to be impacted, therefore there are no implications under the FFG Act.



3. Management Actions

3.1. Summary of management actions to be undertaken

This plan details measures to be incorporated into the construction contractors' Construction Environmental Management Plan (CEMP) to ensure impacts to retained native vegetation are avoided. These include:

- Restriction of unauthorised access;
- Provision of signage to deter prohibited activities;
- Limiting of all machinery and vehicular traffic to defined 'development footprint' (see Figure 2);
- Temporary fencing and signage along the edge of the development footprint where there is retained native vegetation within 30 metres of the defined 'development footprint' (see Figure 3) during construction;
- Where there are patches of native vegetation that occur beyond 30 metres but within 50 metres of the defined 'development footprint', temporary visible signage will be installed at a maximum of every 50 metres at the edge of the defined 'development footprint' during construction;
- Where the development footprint is sited along the edge of the study area, temporary visible signage will also be installed every 50 metres during construction. This is a precautionary approach, in which it is assumed that native vegetation could occur adjacent to the development footprint, in an area that has not been surveyed (i.e. beyond the study area);
- Induction of all contractors accessing the transmission line alignment into the prescriptions of this plan;
- Figure 2, showing native vegetation allowed for removal, and that to be retained, will be printed in A3 and displayed in the site office;
- Manage all rubbish and construction waste during the construction phase of the project;
- Manage the threat of weed invasion throughout the construction phase of the project through vehicle and personnel clothing hygiene practices (See Section 3.3.1); and
- The removal, destruction or lopping of native vegetation is restricted to what is allowed to be removed under the associated permit. There is an exemption under Cl. 52.17-7 that allows for the lopping and pruning of native vegetation for maintenance purposes. This must be to the minimum extent necessary, be no more than a 1/3rd of the foliage of each plant (see Section 3.5 for full explanation of exemption) and be in accordance with Australian Standard 4373-2007 – Pruning of Amenity Trees and subject to the Electrical Safety Regulations 2020. The location and extent of removal is defined within the Flora and Fauna Assessment (Attachment 1) and will be to the minimum extent necessary.

Table 1 Management actions and monitoring and auditing requirements

Timeframe	Action	Responsibility	Monitoring/auditing
All times	All vehicles are to remain within the defined 'development footprint'.	HAPL Construction contractors and sub-contractors.	Construction contractor to undertake daily checks that impacts are within approved areas and to report any non-compliance. HAPL Health Safety Environment Quality (HSEQ) Manager to inspect vehicle tracks monthly and photograph and report any impacts outside approved areas. Independent auditor to check three monthly during construction.
All times	All contractors to be trained in issues relating to protection of native vegetation and weed hygiene at a compulsory induction prior to commencing works.	HAPL, except where HAPL specifically delegate responsibilities in writing.	Independent Audit three monthly on site during construction to check training and induction records are being maintained.
Pre-construction	All native vegetation to be removed and native vegetation to be retained is to be shown on construction drawings.	HAPL, except where HAPL specifically delegate responsibilities in writing.	Moyne Shire Council inspectors
All times	Figure 2, showing native vegetation allowed for removal, and that to be retained, will be printed in A3 and displayed in the site office.	HAPL	HAPL HSEQ Manager to maintain and check monthly. Independent compliance check every three months during construction.
Pre-construction	"No Go Zones" are to be delineated as follows: - Temporary fencing will be erected along the edge of the defined 'development footprint' where patches of native vegetation occur within 30 metres of the footprint. - Where there are patches of native vegetation that occur beyond 30 metres but with 50 metres of the defined 'development footprint', temporary visible signage will be installed at a maximum of every 50 metres at the edge of the defined 'development footprint'. - Where the development footprint is sited along the edge of the study area, temporary visible signage will also be installed every 50 metres. This is a precautionary approach, in which it is	HAPL, except where HAPL specifically delegate responsibilities in writing.	Moyne Shire Council inspectors

Timeframe	Action	Responsibility	Monitoring/auditing
	assumed that native vegetation could occur adjacent to the development footprint, in an area that has not been surveyed (i.e. beyond the study area); These areas will be appropriately signed "Significant Vegetation – No Go Zone". Note: Once access tracks have been constructed, temporary fencing and signage will be removed for the safety of cattle. Vehicles would then be contained to the constructed access track.		
Post-construction	The requirement to remain on access tracks/hardstands will be communicated in site inductions.	HAPL	HAPL HSEQ Manager to undertake monthly checks to ensure vehicles are not deviating from the access tracks/hardstand areas. Independent auditor to check three monthly during construction.
Pre-construction	Offsets must be obtained prior to removal of any native vegetation	HAPL	Moyne Shire Council
During construction	The following activities are not to be undertaken within "No Go Zones". - Vehicular or pedestrian access - Parking areas - Turning points - Trenching or soil excavation - Storage or dumping of any soils, materials, equipment, vehicles, machinery or waste products - Entry and exit pits for underground services - Any other actions or activities that may result in adverse impacts to retained native vegetation All stock piles must be located in areas within the surveyed and assessed development footprint where there is no identified native vegetation.	HAPL, except where HAPL specifically delegate responsibilities in writing.	Construction contractor to undertake daily checks that impacts are within approved areas and to report any non-compliance. HAPL HSEQ Manager to inspect vehicle tracks monthly and photograph and report any impacts outside approved areas. Independent auditor to check three monthly during construction.
During construction	The following 'clearing protocol' will be followed: The day before any clearing of native vegetation approved to be removed is	HAPL, except where HAPL specifically delegate	HAPL HSEQ Manager. Independent auditor to check every three

Timeframe	Action	Responsibility	Monitoring/auditing
	to be cleared, the site environment officer is to clearly delineate native vegetation that is permitted be removed and ensure “No Go Zones” are in place. - Personnel undertaking clearing of native vegetation approved to be removed are to be briefed prior to work on the exact extent of what is permitted to be impacted. - Any non-compliance will be reported to the Responsible Authority within no more than 5 days, but preferably within 48 hours	responsibilities in writing.	months during construction.
During construction	The following hygiene protocols will be implemented, as detailed in Section 3.3.1 below: - All earthmoving equipment that is delivered to site is clean and free of soil, seed and plant material before being taken to the works site. Any vehicles not meeting the required standards of hygiene and cleanliness shall be refused access onto the site. - Movement of vehicles and machinery between different properties will be restricted as much as practical to limit the risk of spreading noxious weeds. They must also utilise designated entry and exit points, within the development footprint. - Hygiene wash facilities will be provided at the entry/exit point of each property. All machinery and equipment that may contain noxious weeds or soil pathogens, will have excess soil and organic material removed prior to leaving the property. - All construction personnel must have clothing and footwear that is clean and free of soil, seed and plant material before entering the works site.	HAPL, except where HAPL specifically delegate responsibilities in writing.	Construction contractor to comply with hygiene protocols as applicable (i.e. when entering site or moving between properties). HAPL HSEQ Manager to monitor contractor compliance with use of hygiene wash facilities. Hygiene wash facilities to be monitored for weed outbreaks monthly. Independent auditor to check three monthly during construction.
During construction	Regular monitoring of rubbish/construction waste adjacent to construction works areas must be carried out and any rubbish/construction waste found occurring within or adjacent to areas of native vegetation must be removed immediately.	HAPL, except where HAPL specifically delegate responsibilities in writing.	Construction contractor to undertake daily checks that all rubbish is contained and disposed of appropriately. HAPL HSEQ Manager to assess monthly and photograph and report any non-compliance.

Timeframe	Action	Responsibility	Monitoring/auditing
During construction and operation	The following weed control protocols will be implemented: - A program of spot spraying of any noxious weeds will be implemented throughout construction of the transmission line. Weed control will be undertaken on a quarterly basis within and adjacent to the development footprint, where earthmoving equipment has been operating and vehicles have been entering. - Weed control must be undertaken by a suitably qualified contractor with experience in controlling weeds in sensitive areas. Noxious weed outbreaks must be targeted and treated with an appropriate herbicide or control method that does not result in inadvertent impacts to areas of retained native vegetation. Weed control must be undertaken on days of little to no wind to avoid spray drift. - The site environment officer must undertake regular inspections of the works area and alert the engaged weed control contractor of the locations of any noxious weed outbreaks within or adjacent to the development footprint.	HAPL, except where HAPL specifically delegate responsibilities in writing.	HAPL HSEQ Manager to inspect vehicle tracks weekly and photograph and report any noxious weed outbreaks. Weed control to be undertaken quarterly. Independent auditor to check three monthly during construction.
During construction and operation	Monitoring and review of this NVP will be regularly undertaken by the site environment officer. Should the requirements of this Plan be found to not be met at a particular location, work is to stop at that location until this Plan can be complied with.	HAPL, except where HAPL specifically delegate responsibilities in writing.	HAPL HSEQ Manager. Independent auditor to check three monthly during construction.
Post-construction	In accordance with commercial arrangements entered into with individual landowners, areas of disturbance to be rehabilitated will be done so in accordance with individual landowner requirements. Where no individual landowner requirements exist, areas of disturbance to be reinstated will be sown with sterile Rye Grass as soon as practical to limit the potential for disturbance specialist weeds from colonising these areas.	HAPL, except where HAPL specifically delegate responsibilities in writing.	HAPL HSEQ Manager. Independent auditor to check three monthly during construction.
During construction and operation	Avoidance of indirect impacts on wetlands. Ensure drainage patterns are maintained and are in accordance with the specific drainage design requirements at each location identified in the waterway and wetland inspection report.	HAPL, except where HAPL specifically delegate responsibilities in writing.	HAPL HSEQ Manager. Independent auditor to check three monthly during construction.

Figure 1: Locations of Threatened Species

Project: HDWF to Tarrone Terminal Station TXL
Client: Hawkesdale Wind Farm Pty Ltd
Date: 15/08/2022

- Development footprint
- 10km buffer
- DELWP wetlands
- Swamp Fireweed - EPBC Act listed (Nature Advisory)
- Curly Sedge (Nature Advisory)

Threatened flora

- Arching Flax-lily
- Basalt Leek-orchid
- Basalt Peppergrass
- Clover Glycine
- Coast Bitter-bush
- Curly Sedge
- Dense Leek-orchid
- Fine-hairy Spear-grass
- Giant Honey-myrtle
- Glaucous Flax-lily
- Lanky Buttons
- Maroon Leek-orchid
- Matted Flax-lily
- Pale-flower Crane's-bill
- Pretty Leek-orchid
- Purple Blown-grass
- Slender Stylewort
- Small Sickle Greenhood
- Swamp Diuris
- Swamp Flax-lily
- Tuberous Bitter-cress

Threatened fauna

- Australasian Shoveler
- Brolga
- Bush Stone-curlew
- Eastern Great Egret
- Glossy Grass Skink
- Growing Grass Frog
- Hairy Burrowing Crayfish
- Hardhead
- Hooded Robin
- Little Eagle
- Little Galaxias
- Macquarie Perch
- Maggie Goose
- Musk Duck
- Plumed Egret
- Tussock Skink
- Yarra Pygmy Perch



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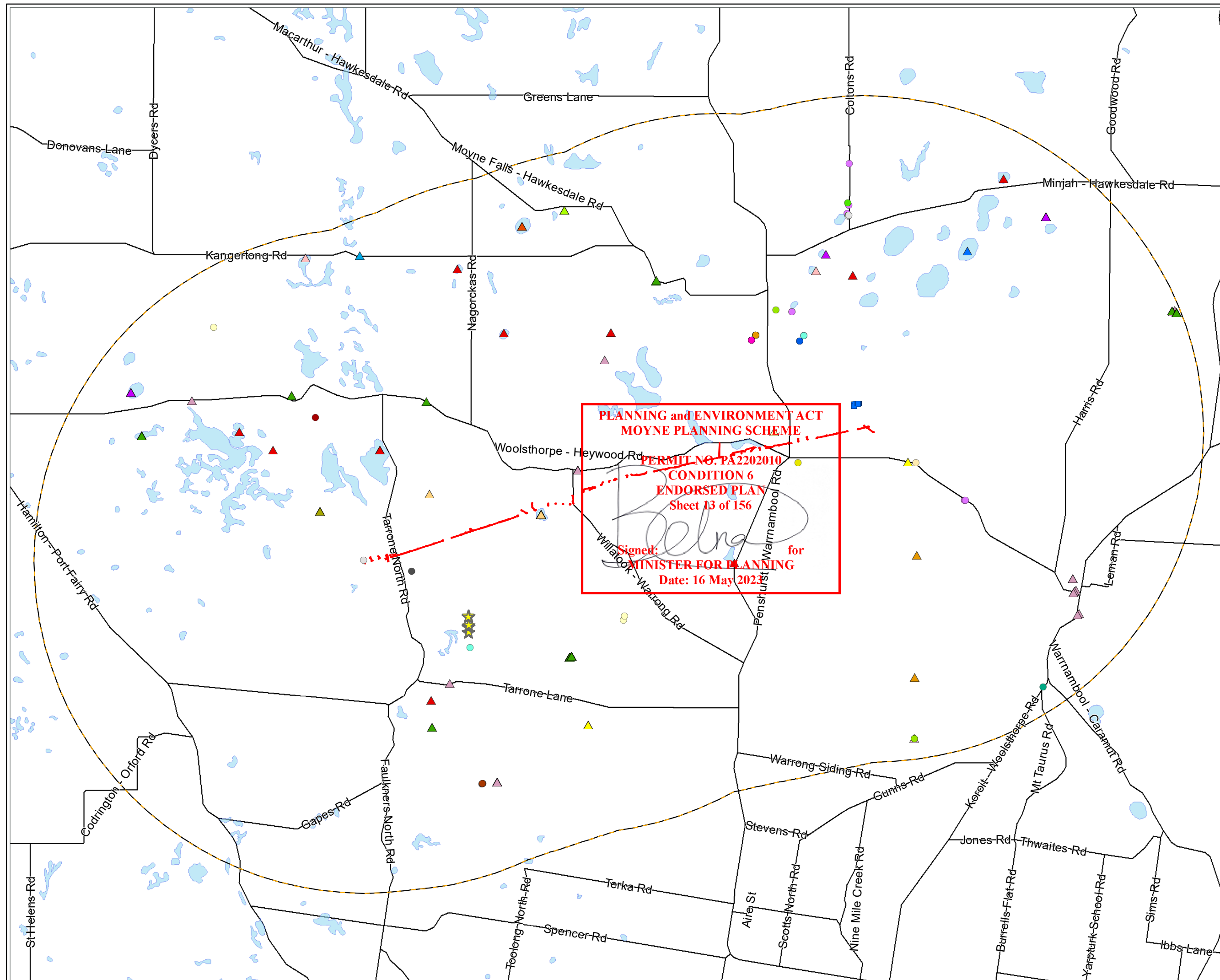
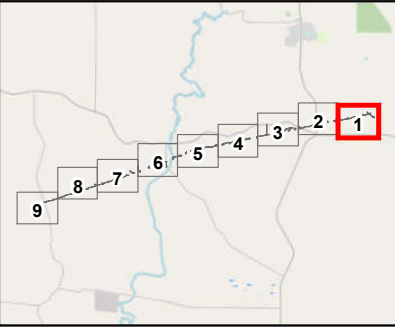


Figure 2-1: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
- Swamp Scrub (EVC 53)



N

Metres

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Figure 2-2: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxI Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Basalt Shrubby Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - Black Wattle - FFG Act listed
 - DELWP wetland
 - Native vegetation to be removed

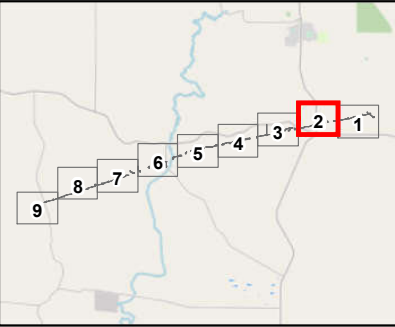
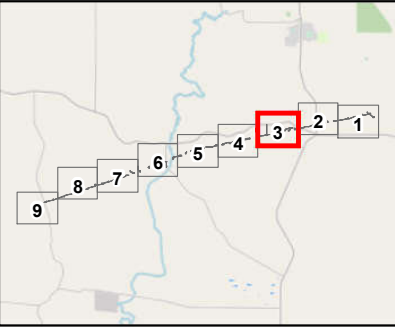
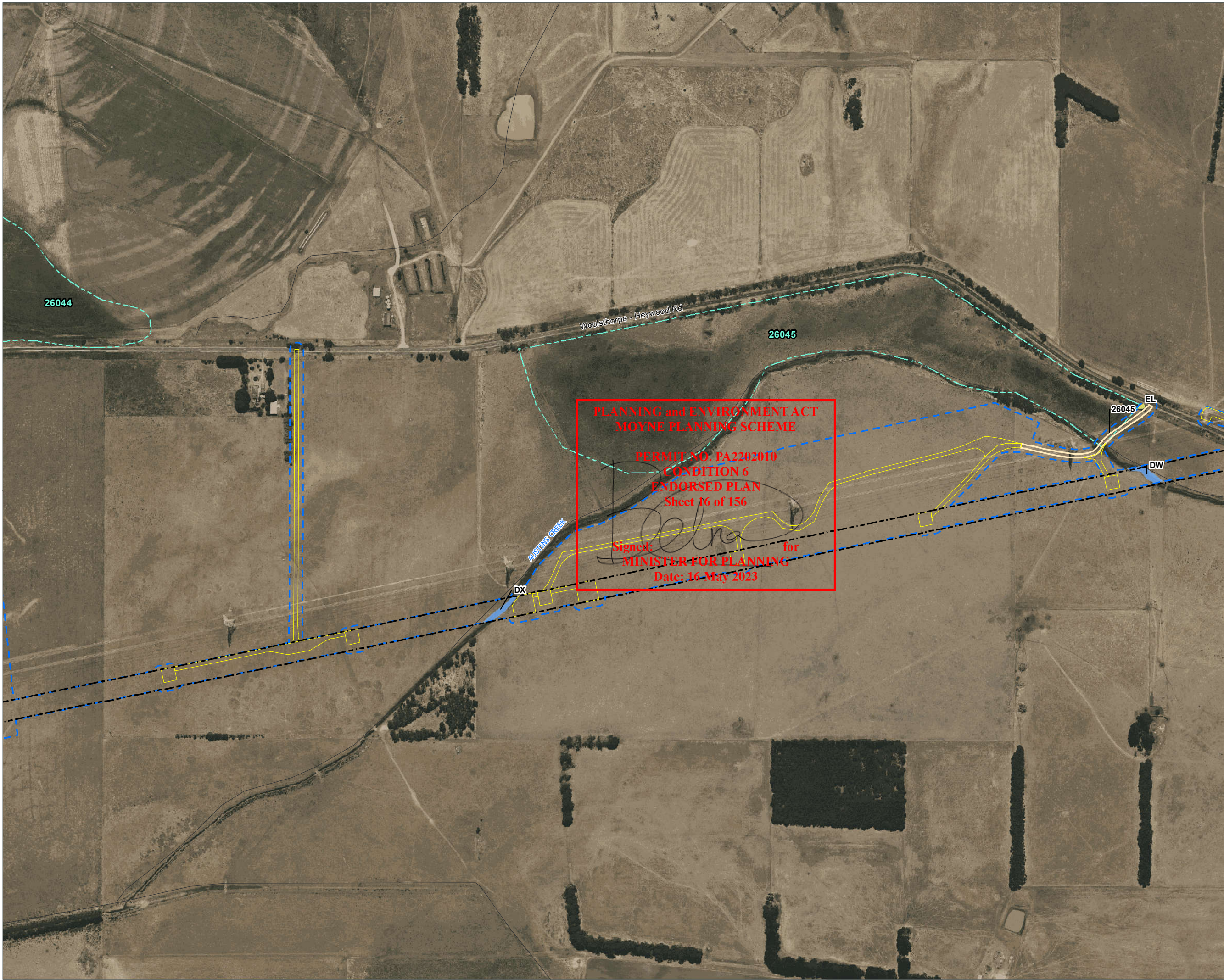


Figure 2-3: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxI Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Basalt Shrubby Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - DELWP wetland
 - Native vegetation to be removed



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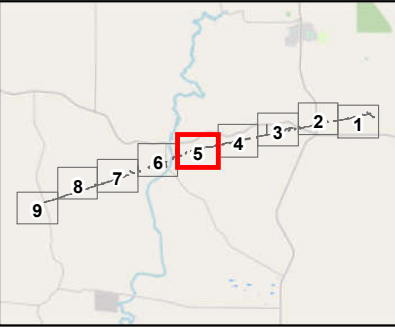
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Figure 2-5: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxI Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Higher Rainfall Plains Grassy Woodland(EVC 55_63)
 - Stony Knoll Shrubland (EVC 649)
 - Native vegetation to be removed



N

Metres

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Figure 2-6: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Native vegetation**
 - Aquatic Herbland (EVC 653)
 - Plains Sedgy Wetland (EVC 647)
 - Swamp Scrub (EVC 53)
 - DELWP wetland
- Listed ecological communities**
 - SHWTLTP
 - Native vegetation to be removed

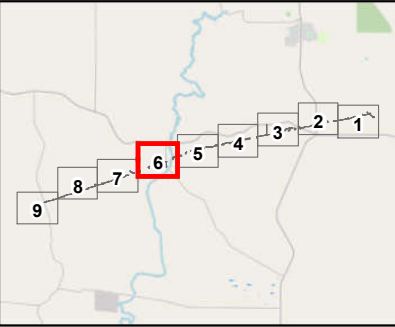
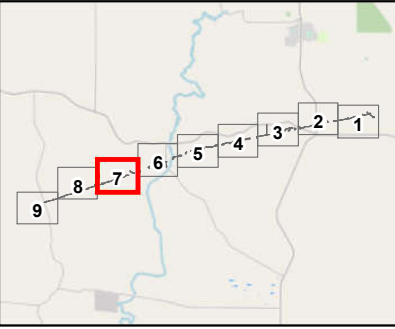
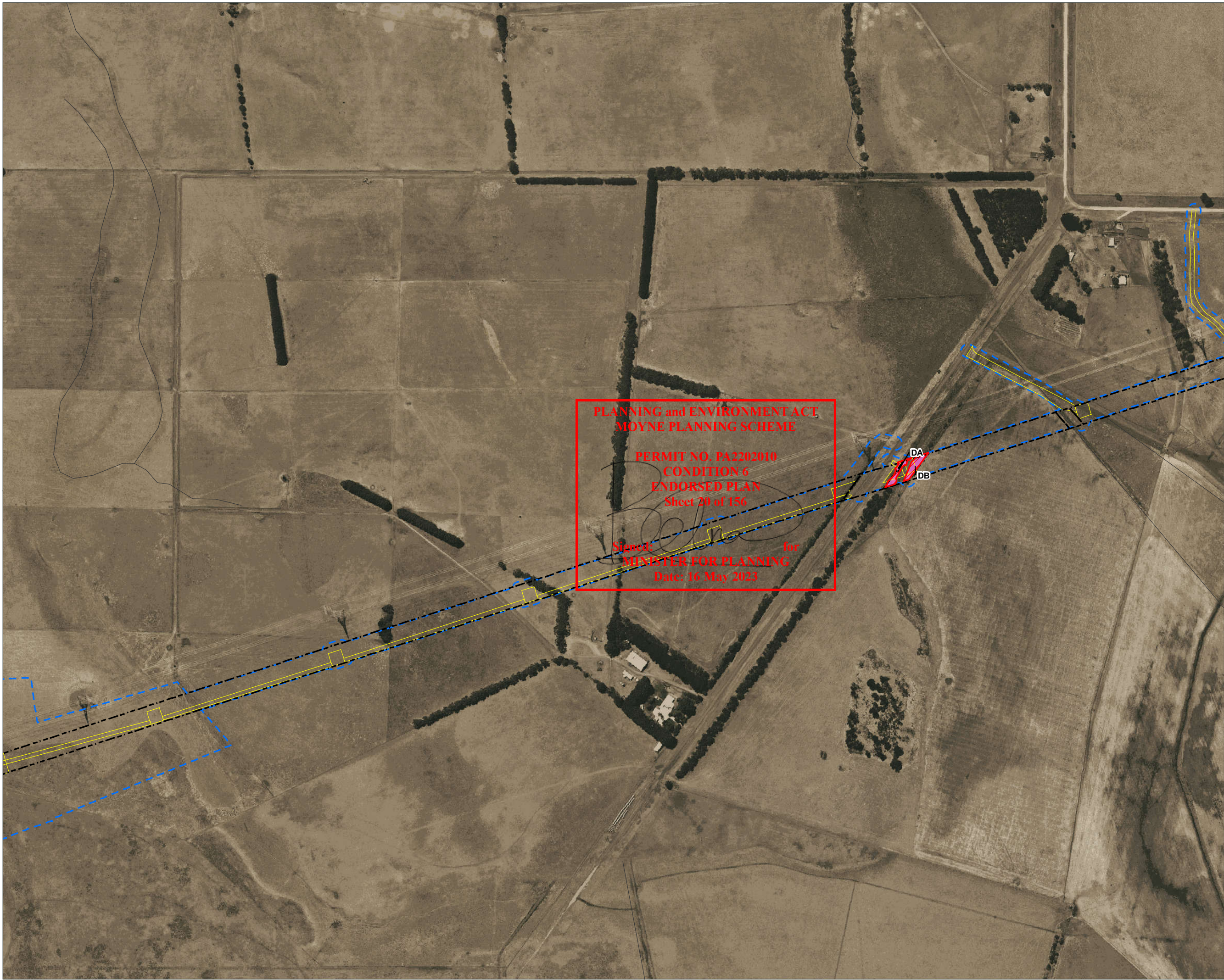


Figure 2-7: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Native vegetation**
 - Plains Sedgy Wetland (EVC 647)
 - Plains Swampy Woodland (EVC 651)
 - DELWP wetland
- Listed ecological communities**
 - SHWTLP
 - Native vegetation to be removed



N

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Figure 2-8: Native vegetation to be impacted

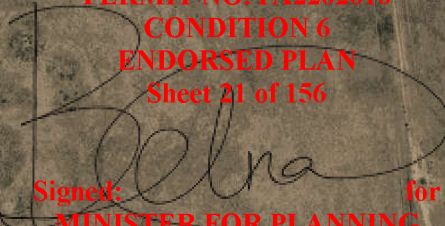
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Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

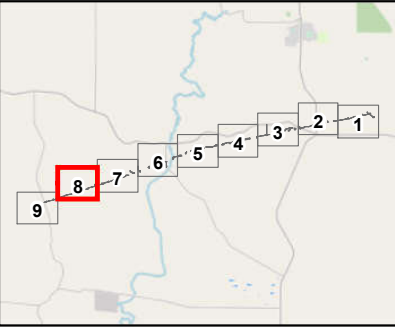
-  TxI Alignment HDWF to Tarrone study area
-  Development footprint
-  Easement corridor (30m)



PLANNING and ENVIRONMENT ACT
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PERMIT NO. PA2202010
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Sheet 21 of 156

Signed:  for
MINISTER FOR PLANNING
Date: 16 May 2023



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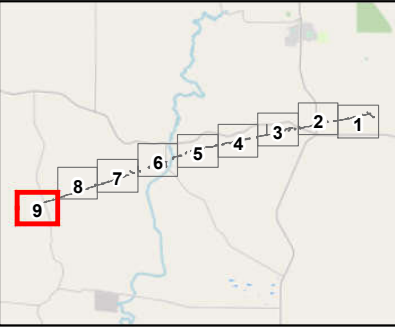
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Figure 2-9: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Native vegetation**
 - Stony Knoll Shrubland (EVC 649)
 - DELWP wetland
 - Native vegetation to be removed



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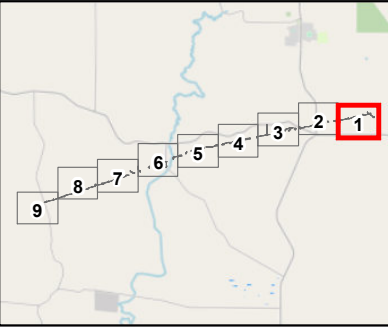
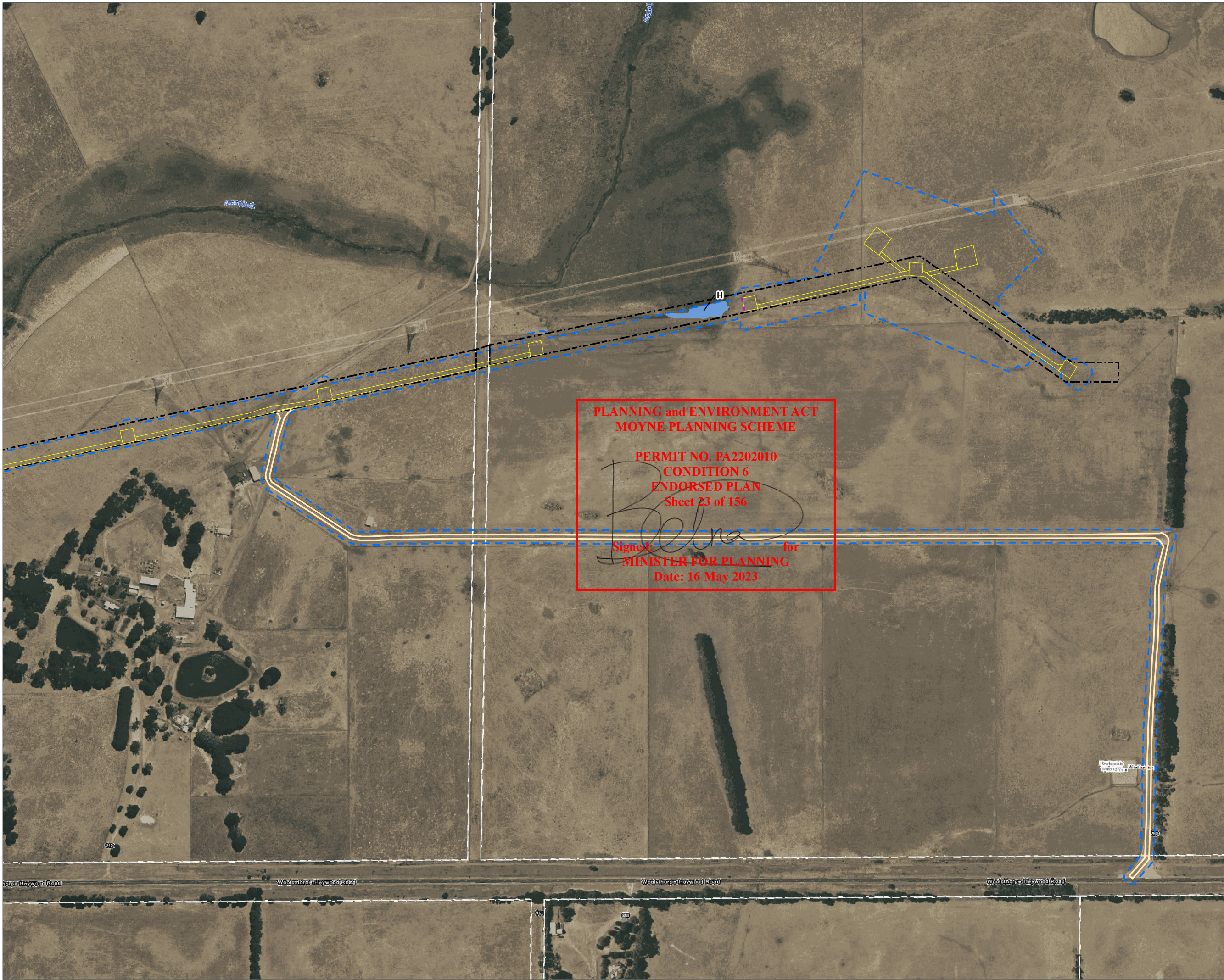
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Figure 3-1: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

- - - TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Temporary visible signage
- Native vegetation**
 - Swamp Scrub (EVC 53)



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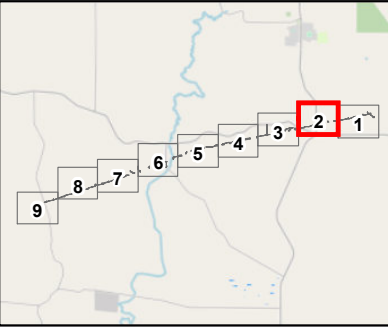
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Figure 3-2: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

- - TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- - Temporary fencing
- - Temporary visible signage

- Native vegetation**
- Basalt Shrubby Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - Black Wattle - FFG Act listed



N

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Figure 3-3: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

- Txl Alignment HDWF to Tarrone study area
- Additional survey area (Nov 2022)
- Development footprint
- Easement corridor (30m)
- Existing track
- Temporary fencing
- Temporary visible signage
- Native vegetation**
 - Basalt Shrubby
 - Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - DELWP wetlands

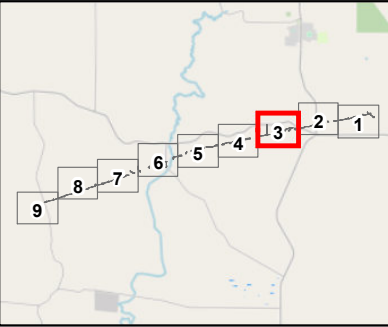
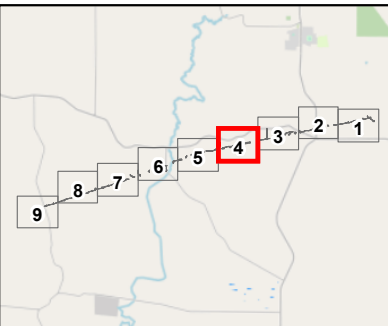


Figure 3-4: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

--- TxL Alignment HDWF to
--- Tarrone study area

- Development footprint
- Easement corridor (30m)
- Existing track
- Temporary fencing
- Temporary visible signage
- Native vegetation**
 - Higher Rainfall Plains
 - Grassy Woodland(EVC 55_63)
 - Stony Knoll Shrubland (EVC 649)
 - Swamp Scrub (EVC 53)
 - Large tree in patch
 - Large scattered tree
 - DELWP wetlands



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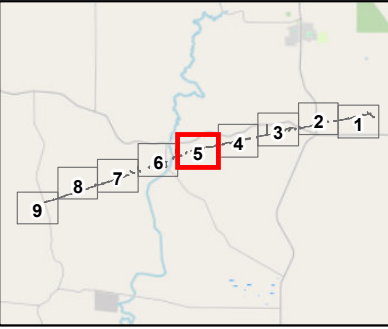
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Figure 3-5: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

- - TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- - Temporary fencing
- - Temporary visible signage

Native vegetation
Stony Knoll Shrubland (EVC 649)



N

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Figure 3-6: Native vegetation and fencing plan

Project: HDWF to Tarrone Terminal Station TXL
Client: Hawkesdale Wind Farm Pty Ltd
Date: 21/03/2023

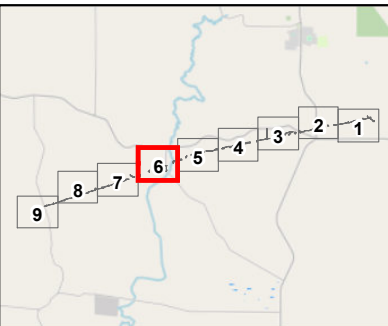
- - TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- - Temporary fencing
- Native vegetation**
- Aquatic Herbland (EVC 653)
- Plains Sedgy Wetland (EVC 647)
- Swamp Scrub (EVC 53)
- DELWP wetlands



PLANNING and ENVIRONMENT ACT
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PERMIT NO. PA2202010
CONDITION 6
ENDORSED PLAN
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Signed: *[Signature]* for
MINISTER FOR PLANNING
Date: 16 May 2023



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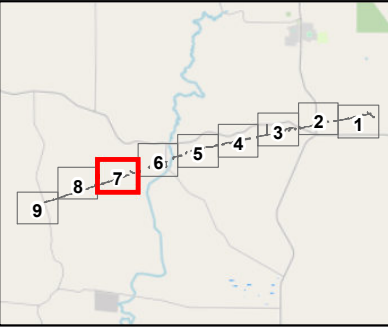
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Figure 3-7: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

- - TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- - Temporary fencing
- Native vegetation**
 - Plains Swampy
 - Woodland (EVC 651)



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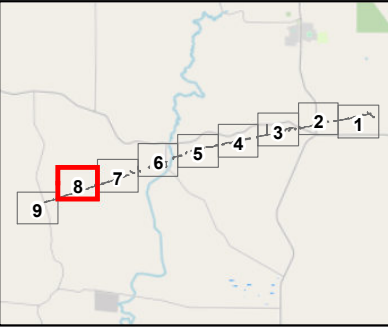
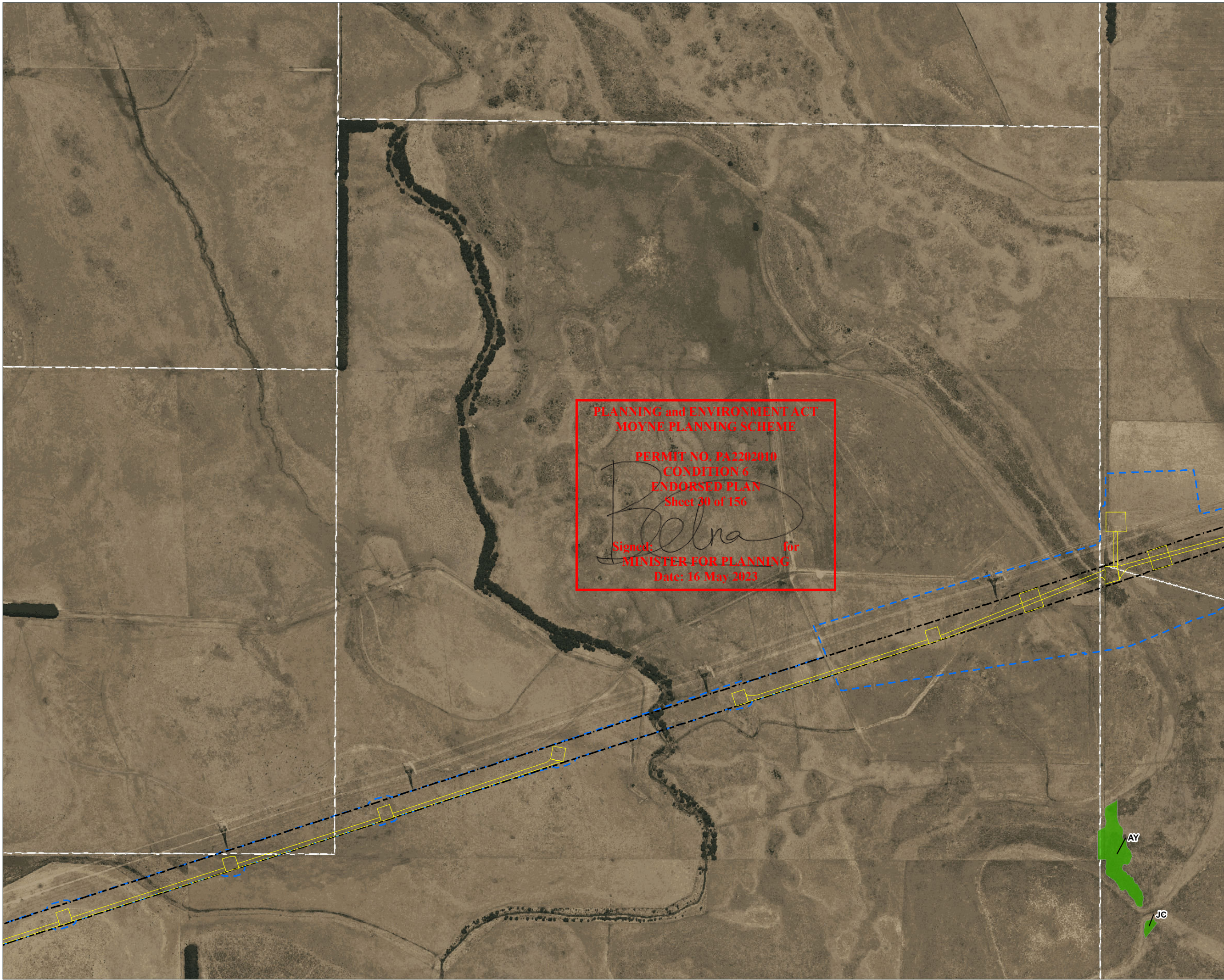
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Figure 3-8: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

- Txl Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Native vegetation**
 - Stony Knoll Shrubland (EVC 649)



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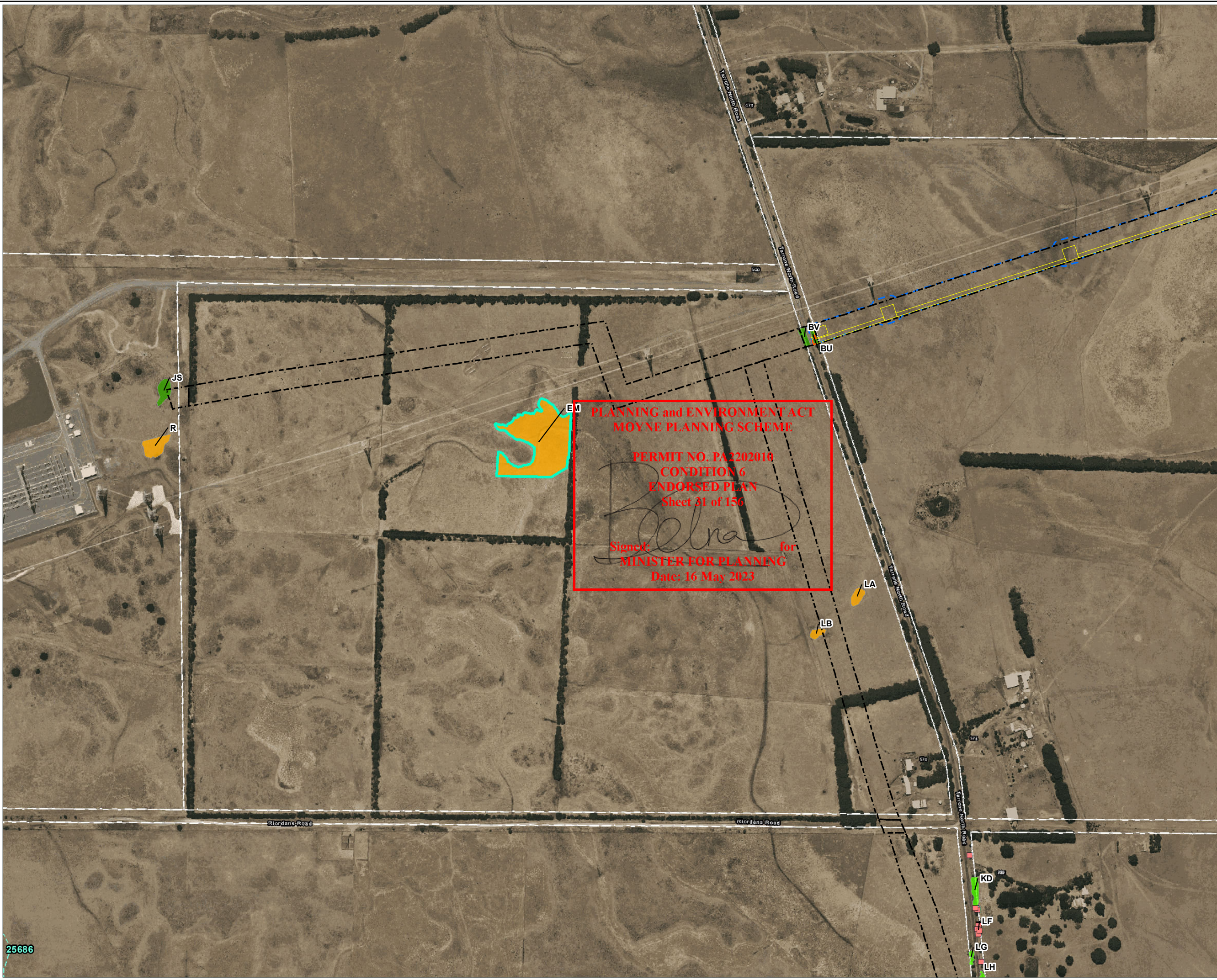


Figure 3-9: Native vegetation and fencing plan

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/03/2023

- Txl Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Temporary fencing

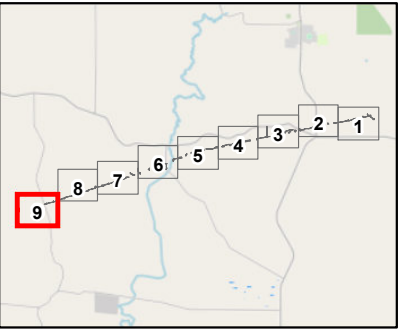
Native vegetation

- Higher Rainfall Plains
- Grassy Woodland(EVC 55_63)
- Plains Grassy Wetland (EVC 125)
- Stony Knoll Shrubland (EVC 649)
- Black Wattle - FFG Act listed

- DELWP wetlands

Listed ecological communities

- SHWTLTP



Construction during wet conditions

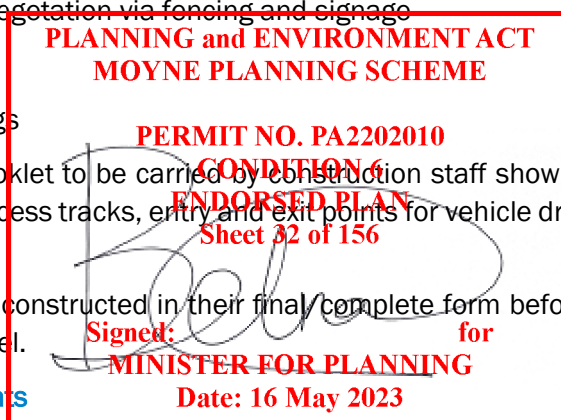
Appropriate consideration has been given to the construction of the access tracks during boggy and wet conditions by detailing effective construction and mitigation measures to ensure there is no additional impacts to native vegetation associated with working in boggy conditions. The construction standards for the access tracks are as follows:

- Excavate the 150mm topsoil profile, within the defined construction footprint (to remove the soil profile which becomes waterlogged and creates boggy conditions)
- Check that the subgrade is of a suitable standard to build a road base
- Spread a suitable large aggregate road base within the excavated access track
- Compact with a roller in 100 metre sections and test that the compaction is suitable for vehicle use
- The tracks are then sealed with suitable material e.g type 3, type 4 crush rock or limestone and finished to the natural ground level. Any material used will be certified weed free.

Mitigation and control measures to ensure that impacts to native vegetation are restricted to the planning permit, as illustrated in Figure 3, are detailed below:

- Protection of native vegetation via fencing and signage
- Staff inductions
- Pre-start daily briefings
- Native vegetation booklet to be carried by construction staff showing all the necessary layers of Native Vegetation, Access tracks, entry and exit points for vehicle drivers and must be always kept in vehicles.
- Access tracks will be constructed in their final complete form before they are used by powerline construction personnel.

3.2. Training requirements



All personnel, including HAPL employees, contractors and sub-contractors, will be required to attend a compulsory project induction before commencing any work on the project.

The induction will be delivered by HAPL or the contractor's Site Safety and Environment Officer (or delegate) and include:

- The NVP overview;
- The requirements of the planning permit as they relate to native vegetation removal and protection;
- Responsibilities under the NVP in relation to implementing mitigation measures, monitoring, and reporting;
- Key management and protection controls; and
- Consequences of departure from specified procedures or other controls

"Toolbox" training will also be undertaken to ensure that the workforce is regularly updated on relevant information, issues of interest or concern, and regularly reminded of their duties to protect and minimise impacts to native vegetation.

Figures showing the areas of native vegetation to be impacted and those to be retained will be provided to site personnel to reference during induction sessions and toolbox training, as well as being printed in A3 and displayed in the site office.

3.3. Measures used to protect native vegetation to be retained during construction

Native vegetation to be retained along the transmission line alignment from Hawkesdale Wind Farm to Tarrone Terminal Station is included in Figure 2 of the attached Flora and Fauna Assessment report (Attachment 1). Native vegetation to be retained occurs on private land and public roadside. One large, scattered tree (≥ 40 -centimetre DBH) and one large tree in a patch, a Blackwood *Acacia melanoxylon*, occurred in the study area (Habitat Zone EE). The tree protection zones must be appropriately protected with temporary fencing prior to construction.

Any opportunities to avoid or minimise impacts to native vegetation that has been approved for clearing during operations will be identified and implemented where possible.

Any contractor engaged by HAPL is not authorised to be privately commissioned by a landowner to undertake any works beyond the scope of this development. Any additional works must be undertaken independent of this project and must gain the relevant regulatory approvals.

3.3.1. Management actions

The management actions required for the protection of native vegetation to be retained are as follows:

Temporary fencing requirements

- Prior to construction, temporary fencing will be erected along the edge of the defined 'development footprint' where patches of native vegetation occur within 30 metres of the footprint, for the duration of construction.
- Where there are patches of native vegetation that occur beyond 30 metres but with 50 metres of the defined 'development footprint', temporary visible signage will be installed at a maximum of every 50 metres at the edge of the defined 'development footprint'.
- Where the development footprint is sited along the edge of the study area, temporary visible signage will also be installed every 50 metres. This is a precautionary approach, in which it is assumed that native vegetation could occur adjacent to the development footprint, in an area that has not been surveyed (i.e. beyond the study area);
- Install temporary fencing around the TPZ of all scattered and large trees to be retained;
- These areas will be appropriately signed "Significant Vegetation – No Go Zone".

Vehicle access restrictions

- All vehicles are to remain within the defined 'development footprint', to avoid inadvertent damage to native vegetation that is to be retained. Construction personnel must familiarise themselves with the localities of native vegetation, threatened flora, fauna habitat and communities, with access strictly prohibited within these areas.
- No turning points are to be created in the "No Go Zones". Turning points will take advantage of existing paddock access points, driveways or roads.
- No parking areas are to be created in the "No Go Zones". Parking areas will be established on adjacent private land or side roads.

Rubbish control

- Weekly monitoring of rubbish/construction waste adjacent to construction works areas must be carried out and any rubbish/construction waste found occurring within or adjacent to areas of native vegetation must be removed immediately.

Vehicle and personnel clothing hygiene

- All contractors to be trained in issues relating to protection of native vegetation and weed hygiene at a compulsory induction prior to commencing works.
- Vehicle and machinery operators, and the site manager must ensure all earthmoving equipment that is delivered to site is clean and free of soil, seed and plant material before being taken to the works site. Any vehicles not meeting the required standards of hygiene and cleanliness will be refused entry onto the site.
- Movement of vehicles and machinery between different properties will be restricted as much as practical to limit the risk of spreading noxious weeds. They must also utilise designated entry and exit points, within the development footprint.
- All construction personnel must have clothing and footwear that is clean and free of soil, seed and plant material before entering the works site.
- Designated washdown facilities will be provided at the defined entry/exit point of each property, in accordance with the following requirements:
 - The designated washdown area will be clearly marked with signage
 - They will consist of a trailer mounted water tankers, pump and a high-pressure hose as well as a boot washing facility to ensure personnel footwear can be adequately cleaned
 - They will be established within the assessed survey area, and must be located at least 20 meters from identified areas of native vegetation, as well as waterways
 - The washdown area will be located in an area whereby runoff is directed away from retained areas of native vegetation and waterways
 - Areas around the wash down facility will be regularly inspected (monthly) for emergent weed outbreaks
 - An equipment and vehicle cleaning register will be kept and maintained at each washdown station.

Emergent weed control

- A program of spot spraying of any noxious weeds will be implemented throughout construction of the transmission line. Weed control will be undertaken on a quarterly basis within and adjacent to the development footprint, where earthmoving equipment has been operating and vehicles have been entering.
- Weed control must be undertaken quarterly by a suitably qualified contractor with experience in controlling weeds in sensitive areas. Noxious weed outbreaks must be targeted and treated with an appropriate herbicide or control method that does not result in inadvertent impacts to areas of retained native vegetation. Weed control must be undertaken on days of little to no wind to avoid spray drift.

- The site environment officer must undertake regular inspections of the works area and alert the engaged weed control contractor of the location of any noxious weed outbreaks within or adjacent to the development footprint.
- Any materials required for construction (e.g. road making materials) must be free of weeds and weed seeds.
- In accordance with commercial arrangements entered into with individual landowners, areas of temporary disturbance to be rehabilitated will be done so in accordance with individual landowner requirements. Where no individual landowner requirements exist, areas of disturbance to be reinstated will be sown with sterile Rye Grass as soon as practical to limit the potential for disturbance specialist weeds from colonising these areas.
- There is no temporary disturbance anticipated to occur on crown land as vegetation removal will be to the minimum extent necessary and will be permanent to facilitate the installation of infrastructure. However, if any unforeseen instances of temporary disturbance do occur, they will be rehabilitated in accordance with the responsible authorities request.

3.4. Measures used to protect native vegetation to be retained during maintenance and decommissioning

Native vegetation beyond the construction footprint will be adequately protected during the maintenance and decommissioning phase of the project as vehicles will utilise the constructed tracks to access the hardstand areas and poles. There are no foreseen circumstances where vehicles would be required to deviate from the hardstand/access tracks.

3.5. Measures used to protect wetlands beyond the development footprint

Indirect impacts to wetlands along the alignment were considered during the design of hardstands and access tracks. The design aims to preserve the drainage elements that already exist and identify additional drainage elements necessary to achieve continuity of the natural runoff, both to preserve the flow feeding of the existing wetlands and to respect the natural drainage along the alignment. These requirements are managed in consultation with Glenelg Hopkins Catchment Management Authority to ensure the design and drainage measures implemented will adequately protect or minimise impacts to wetlands and waterways. The following mitigation measures have been implemented:

- All access tracks and hardstand areas avoid directly intercepting with all DELWP-mapped wetlands and named waterways.
- Drainage has been designed to maintain the existing water flow of waterways, rural drainage channels and wetlands. Where required, floodways and culverts have been designed for the specific conditions at each location identified in the waterway and wetland inspection report prepared by Austral Research and Consulting (July 2022).

3.6. Avoidance of roadside vegetation

Ausnet have provided assurance that all construction materials can be transported to site by following regular traffic movements on public roads and do not anticipate a requirement to widen or clear roadways. However, if there are any unforeseen obstacles along the transport route that require the removal or pruning of vegetation, it will be surveyed by a suitably qualified ecologist, to determine if the vegetation is native (as defined in the Victoria Planning Provisions and *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017)). A permit is not required under Cl. 52.17-7 if lopping or pruning of native vegetation is done for maintenance only, provided no more than 1/3 of the foliage of each individual plant is lopped or pruned. Any required pruning will be undertaken in accordance with Australian Standard 4373-2007 – Pruning of Amenity Trees.

This exemption does not apply to:

- the pruning or lopping of the trunk of a native tree; or
- native vegetation on a roadside or railway reservation.

The purpose of this exemption is to not require a permit for limited lopping or pruning of native vegetation for maintenance of an existing asset. This exemption only allows lopping and pruning of native vegetation that is interfering with a physical asset, not just to maintain native vegetation in a certain size or form.

In the unlikely event that additional clearing is required, HAPL will liaise with the relevant Responsible Planning Authority regarding any removal of native vegetation and, if required, approvals will be obtained having regard to the provisions of the relevant Planning Scheme prior to vegetation being removed.

Roadside vegetation adjacent to the construction boundary will be adequately protected by temporary fencing in locations where the access track crosses through the road reserve, as illustrated in Figure 3. Existing farm fencing also acts as a physical barrier to prevent machinery and vehicle disturbance in the road reserve whilst operating within the adjacent private property.

3.7. Opportunities for Revegetation

Given that the proposed development is linear infrastructure traversing multiple different landowners and tenures, there is limited opportunity to provide a formal revegetation plan. However, HAPL will engage with the landowners and be responsible for any replanting or screening requirements. Although the decision for plant species and density is ultimately at the discretion of the landowner, HALP's preference is to utilise locally indigenous species for the relevant modelled Ecological Vegetation Class (EVC) where there is no specific species detailed. No CalPI or MONS listed weed species will be planted or seeded. A suggested planting schedule for the major EVCs within the study area is detailed in Table 2.

Table 2: Suggested planting schedule for different vegetation types

Common name	Scientific name	EVC 649	EVC 55_63	EVC 53	EVC 125
Signed: <i>[Signature]</i> for MINISTER FOR PLANNING Date: 16 May 2023					
River Redgum	<i>Eucalyptus camaldulensis</i>				✓
Swamp Gum	<i>E. ovata</i>		✓		
Manna Gum	<i>E. viminalis</i>		✓		
Drooping Sheoak	<i>Allocasuarina verticillata</i>	✓	✓		
Sweet Bursaria	<i>Bursaria spinosa</i>	✓			
Blackwood	<i>Acacia melanoxylon</i>		✓	✓	
Medium Shrubs (tube-stock)					
Hedge Wattle	<i>Acacia paradoxa</i>	✓	✓		✓
Golden Wattle	<i>Acacia pycnantha</i>		✓		✓
Tree Violet	<i>Melicytus dentatus</i>	✓			✓
Woolly Tea-tree	<i>Leptospermum lanigerum</i>			✓	
Scented Paperbark	<i>Melaleuca squarrosa</i>			✓	
Grasses and tufted perennials (tube-stock)					
Tussock-grass	<i>Poa spp.</i>	✓	✓		✓
Kangaroo Grass	<i>Themeda triandra</i>	✓	✓		

Common name	Scientific name	EVC 649	EVC 55_63	EVC 53	EVC 125
Rush	<i>Juncus sp.</i>			✓	✓
Common Spike-sedge ^E	<i>Eleocharus acuta</i>			✓	✓
Grasses (seeds)					
Wallaby-grasses	<i>Rytidosperma spp.</i>	✓	✓		
Spear-grass	<i>Austrostipa spp.</i>	✓	✓		
Weeping Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	✓	✓		



4. Monitor and Review

If changes to the transmission line and access track layout are sought, native vegetation impact assessments must be undertaken to investigate whether there will be additional impact on native vegetation. The assessments must include additional native vegetation surveys if the proposed changes to the layout are to occur in areas that have not been previously investigated. If impacts are concluded to increase as an outcome of the layout changes, an amendment to the planning permit and Native Vegetation Plan must be sought, and the new impacts must not occur until approval is achieved. If the assessment concludes that there are no additional impacts to native vegetation, evidence must be provided to the relevant authority to demonstrate this.

Additional approvals may also be required depending on the additional native vegetation being impacted and its location. As such, a review by a qualified ecologist of the additional impacts against the *Flora and Fauna Guarantee* (FFG) Act and the EPBC Act would be required. If any outcomes of the review warrant necessary changes to this NVP and other documentation, they will be made accordingly.

Monitoring and review of this NVP must be regularly undertaken by the site environment officer during construction and operation. Should the requirements of this NVP be found to not be met, work is to stop until this NVP can be complied with.



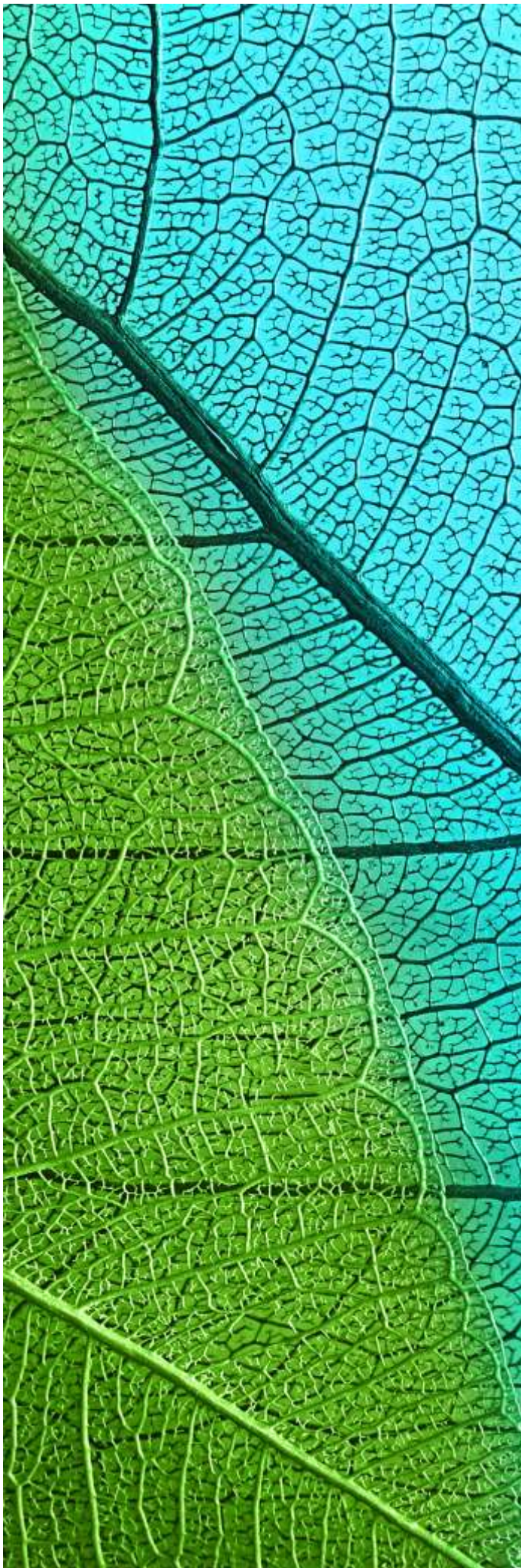
5. References

- DELWP 2017, *Guidelines for the removal, destruction or lopping of native vegetation*-, Department of Energy, Environment and Climate Action, East Melbourne.
- Nature Advisory Pty Ltd 2022, *Hawkesdale Wind Farm Transmission Line to Tarrone Terminal Station: Flora and Fauna Assessment, Report No. 14144.28 (1.2)*, Report prepared for Hawkesdale Asset Pty Ltd by Nature Advisory Pty Ltd, Hawthorn East, Victoria.
- Austral Research and Consulting 2022, *AusNet waterway and wetland inspections – Ryan’s Corner Windfarm*, Report prepared for Ausnet by Austral Research and Consulting Pty Ltd, Kirkstall, Victoria.



Attachment 1: Hawkesdale Wind Farm Transmission Line to Tarrone Terminal Station: Flora and Fauna Assessment, Report No. 14144.28 (1.3) prepared by Nature Advisory Pty Ltd (2022).





Hawkesdale Wind Farm Transmission Line to Tarrone Terminal Station

Flora and Fauna Assessment

**Prepared for Hawkesdale Asset
Trust Pty Ltd**

December 2022
Report No. 14144.28 (1.3)



**Nature
Advisory**

(Formerly Brett Lane & Associates Pty Ltd)

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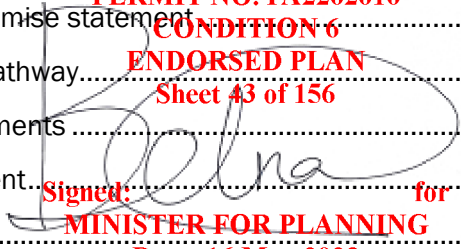
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1. Executive Summary

Nature Advisory Pty Ltd undertook a flora and fauna assessment of approximately 15 kilometres of proposed 132 kV transmission line, associated with the approved Hawkesdale Wind Farm, in the localities of Hawkesdale, Willatook and Tarrone. The specific area investigated, referred to herein as the 'study area', comprised a 30-metre wide corridor along the proposed transmission line route, as well as a 20-metre-wide corridor along proposed access tracks and existing access track upgrades from Hawkesdale Wind Farm's internal substation to the existing Tarrone Terminal Station. The route of the transmission line has been planned over the last 10-years to an alignment that minimises impacts on native vegetation.

The study area supported soils derived from basalt on a volcanic landscape, which has formed a mosaic of rocky outcrops, broader plains and wet depressions. The study area predominantly comprised farming land, with farm use mostly determined by the degree of outcropping rock and level of inundation in the landscape.

Vegetation in the study area consisted mainly of exotic pasture species, with the dominant species being Ryegrass, Soft Brome, Phalaris and Rough Dog's-tail. Some rocky outcrops retained native vegetation of varying quality, dominated by native grasses (including Wallaby-grass, Kangaroo Grass and Weeping Grass) with scattered shrubs (mainly Tree-violet). Some lower-lying areas amongst rocky outcrops supported wetlands dominated by Common Tussock-grass and sedges. Other vegetation included roadside vegetation dominated by wattles, and vegetation found along ephemeral watercourses.

Fauna habitat within the study area comprised native grasslands, rocky outcrops, ephemeral watercourses and wetlands and used vegetation along roadsides. The proposed transmission line will involve the removal of small, disparate patches of rocky outcrops, grassland, ephemeral aquatic habitat and shrubby vegetation. It is considered that the residual impacts of the proposal on fauna habitat would not impact any listed fauna species, provided construction mitigation measures to protect watercourses are in place during construction.

A total of 52 patches of native vegetation were identified in the study area, including one DELWP-mapped Wetland. This totalled approximately 8.732 hectares of native vegetation in patches. The current proposed footprint will result in the loss of an extent of 0.818 hectares of native vegetation (including no DELWP mapped wetlands). In addition, 0.292 hectares of removal associated with the Hawkesdale Wind Farm (0.056 hectares of native vegetation removal), the Tarrone Terminal Station upgrade (0.186 hectares of native vegetation removal) and the intersecting section of the Ryan Corner Transmission line (0.050 hectares of native vegetation removal) has been included as past removal.

Offsets required to compensate for the proposed removal of native vegetation from the study area are provided below.

- 0.193 *general habitat units* and must include the following offset attribute requirements:
 - Minimum strategic biodiversity value (SBV) of 0.398; and
 - Occur within the Glenelg Hopkins CMA boundary or the Moyne municipal district.

Under *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017) (the Guidelines) all offsets must be secured prior to the removal of native vegetation.

The offset target for the current proposal will be achieved via a third-party offset.

An online search of the Native Vegetation Credit Register (NVCR) has shown that the required general offset **is** currently available for purchase from a native vegetation credit owner (DELWP 2021b).

The proponent will preferentially secure native vegetation offsets within the Moyne municipal district where available.

Evidence that the required general offset is available is provided in Appendix 8. The required general offset would be secured following approval of the planning permit application to remove native vegetation.

A planning permit under Clause 52.17 of the Moyne Planning Scheme is required for the removal of native vegetation.

This proposal will trigger a referral to the DELWP Secretary (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*) in accordance with Clause 66.02-2 of the Moyne Planning Scheme and Section 55(1) of the *Planning and Environment Act 1987*, based on the criteria, specifically as a project that requires a detailed assessment pathway due to both the proposed removal of more than 0.5 hectares of native vegetation, and the removal occurring in Location Category 2.

One EPBC Act-listed ecological community - *Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains* (SHWLP) was recorded in the study area (habitat zones DC and DD). Additionally, suitable habitat for the EPBC Act-listed fauna species, Growling Grass Frog is assumed to occur within 30 metres of waterways, such as Moyne River, Austins Creek, Nardoo Creek and Back Creek. Based on the relevant guidelines and the outcomes of targeted surveys, the proposed development is unlikely to result in a significant impact on any EPBC Act-listed values, as all areas in the study area which support, or potentially support listed values, will be avoided during construction and operation of the transmission line, with the exception of impact to 0.215 hectares of Growling Grass Frog habitat (within 30 metres of a waterway). This is not considered to be a significant impact, as the majority of this encroachment occurs in discrete locations on the margins of this buffer area and does not disturb the waterway itself, except for the crossing of a tributary to Back Creek. Appropriate mitigation measures and design requirements will avoid any detrimental impacts to all waterways and associated aquatic habitat throughout the construction process.

Therefore, there are no implications under the EPBC Act.

One species listed as protected under the FFG Act was recorded in the study area on public land on two occasions, namely Black Wattle, *Acacia mearnsii*. These plants occurred in the following locations:

- Habitat zone EG (one plant); and
- Habitat zone EJ (one plant).

Neither of these plants are proposed to be impacted, therefore there are no implications under the FFG Act.

The table below summarises the compliance of the information in this report with the application requirements of the Guidelines.

Application requirement		Response
1.	Information about the native vegetation to be removed	See Section 5.2, and Appendix 7
2.	Topographic and land information relating to the native vegetation to be removed	See Section 5.1
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 on contiguous land in the same ownership as the applicant, in the five-year period before the application for a permit is lodged	N/A
5.	An avoid and minimise statement	See Section 7.2.1
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	N/A
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.	N/A
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).	N/A
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 7.2.4 and Appendix 8.

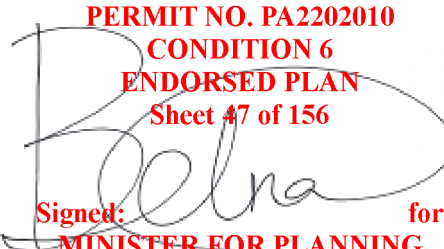
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Additional requirements for applications in the Detailed Assessment Pathway		
10.	A site assessment report of the native vegetation to be removed, including: - A habitat hectare assessment of any patches of native vegetation, including the condition, extent (in hectares), Ecological Vegetation Class and bioregional conservation status. - The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any large trees within patches - The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any scattered trees, and whether each tree is small or large.	See Sections 4.2.1 and Appendix 3; 1 large tree in a patch was recorded; and 1 large scattered tree. Both of which are to be retained.
11.	Information about impacts on rare or threatened species habitat, including: - 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 - whether their habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat.	See Appendix 7

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2. Introduction

Hawkesdale Asset Trust Pty Ltd engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment of approximately 15 kilometres of proposed 132 kV transmission line, associated with the approved Hawkesdale Wind Farm, in the localities of Tarrone, Willatook and Hawkesdale. The specific area investigated, referred to herein as the 'study area', comprised a 30-metre-wide corridor along the proposed transmission line route, as well as a 20-metre-wide corridor along proposed access track installations and upgrades, as shown in Figure 1. Construction of a transmission line to link the Hawkesdale Wind Farm to the Tarrone Terminal Station is proposed for the study area.

This investigation was commissioned to provide information on the extent and condition of native vegetation in the study area according to Victoria's *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017), herein referred to as 'the Guidelines', as well as any potential impacts on flora and fauna matters listed under the state *Flora and Fauna Guarantee Act 1988* (FFG Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This report outlines any implications under relevant national, state and local legislation and policy frameworks.

This report is divided into the following sections:

Section 3 provides the legislative background including details of all relevant Commonwealth, State and local legislation and policies.

Section 4 describes the sources of information, including the methods used for the field survey.

Section 5 presents the assessment results, including details of the native vegetation, flora and fauna of the study area.

Section 6 discusses the proposed impacts of the project.

Section 7 details the implications of the findings under the relevant legislation and policy.

This investigation was undertaken by a team from Nature Advisory, comprising Elinor Ebsworth (Senior Ecologist), Justin Sullivan (Senior Ecologist), Brett Macdonald (Senior Ecologist), Bernard O'Callaghan (Senior Ecologist & Project Manager), Jim Grant (Senior Ecologist & Project Manager) and Chris Armstrong (Botanist & Project Manager).

2.1. Proposed development

The current proposal will involve the construction and operation of a 132 kV transmission line that will connect the Hawkesdale Wind Farm to the Tarrone Terminal Station, as per Figure 1. The transmission line connecting these facilities will extend for a total of approximately 15 kilometres, the majority of which is on private land. The route crosses the following roads:

- Tarrone North Road;
- Coomete Road;
- Poyntons Road;
- Willatook-Warrong Road;
- Malseeds Road;
- McGillivrays Road
- Woolsthope-Heywood Road; and
- Penshurst-Warnambool Road.



Three hardstands and power poles occur within the road reserve along Poyntons Road. All other hardstands and power poles are positioned on private property.

The transmission line will be constructed with steel monopole type poles with a single tube-like pole which will have one foundation which minimises the area and vegetation affected. The line will incorporate approximately 54 steel poles spaced on average 250m apart. The poles will be polygonal in shape and made out of galvanised steel. The poles are between 28 and 40 metres in height.

The top of the foundation, above ground, is called the “plinth” and is 1.8m to 2.4m in diameter. The visible portion of the foundation will protrude approximately 300mm above ground. The minimum working area required around a structure position is 20 metres × 20 metres.

Foundations will be mechanically excavated where access to the pole position is readily available. The same applies to the pouring of concrete required for the setting of the foundations. Prior to construction of the foundations, the excavated foundations will be covered in order to safeguard animals and people from injury.

Considerable work has been undertaken during detailed design to microsite poles and access tracks to minimise the impact to native vegetation and cultural heritage.

Impacts have been determined based on the footprint provided by AusNet, including:

- 5 to 6 metre wide access track, topped with a crusher run 100-150mm deep (when water is apparent and vehicles are in danger of getting bogged down). All native vegetation within the access track footprint, that could not be avoided, is considered removed;
- A working and vehicle/equipment laydown area of 20 metre X 20 metre has been assumed for pole installation;
- A working area of up to 20 metres by 20 metres is considered for hurdles, which are temporary structures required where the alignment crosses the existing power lines or roads;
- Stringing pads are required at each bend in the transmission line, an area of 30 metres by 30 metres has been allowed at these locations; and
- In order to comply with the Electricity Safety (Electric Line Clearance) Regulations 2020 for a 132kV transmission line, where the transmission line passes over native woody vegetation taller than three metres, all vegetation within these patches is considered removed (Figure 2).

Once construction is complete and the line moves into operation, ongoing maintenance is required.

Helicopters and drones may be used for the initial inspection of the lines.

During maintenance works, vehicles will access the affected pole from the nearest road, from existing access tracks, or from areas that have been surveyed and confirmed to not contain native vegetation so that any further impacts to native vegetation can be avoided. Bog matting, boards or runners will be used in wet weather if maintenance is urgent.

3. Planning and Legislative Considerations

This investigation and report address the application on the site of relevant legislation and planning policies that protect biodiversity. Local, state and Commonwealth controls are summarised below.

3.1. Local planning provisions

The study area is located within the Moyne local government area. It is primarily zoned Farming Zone (FZ), with areas of Transport Zone 2 – Principal Road Network (TRZ2) along Woolsthope-Heywood Road and Peshurst-Warnambool Road in the Moyne Planning Scheme.

Local planning provisions apply under the Victorian *Planning and Environment Act 1987*.

3.1.1. Overlays

No overlays relevant to this investigation cover the study area.

3.2. State planning provisions

State planning provisions are established under the Victorian *Planning and Environment Act 1987*.

Clause 52.17 of all Victorian Planning Schemes states that:

A permit is required to remove, destroy or lop native vegetation, including dead native vegetation.

A permit is not required if:

- If an exemption in Table 52.17-7 specifically states that that a permit is not required.
- If a native vegetation precinct plan corresponding to the land is incorporated into the planning scheme and listed in the schedule to Clause 52.17.
- If the native vegetation is specified in a schedule to Clause 52.17.

3.2.1. Exemptions

No exemptions within Clause 52.17 are applicable to this project. As such, a planning permit is required for the removal of native vegetation in accordance with Clause 52.17.

3.2.2. Application requirements

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

When assessing an application, Responsible Authorities are also obligated to refer to Clause 12.01-2 (Native vegetation management) in the Planning Scheme which in addition to the Guidelines, refers to the following:

- Assessor's handbook – applications to remove, destroy or lop native vegetation (DELWP 2018a); and
- Statewide biodiversity information maintained by DELWP.

The application of the Guidelines (DELWP 2017) is explained further in Appendix 1.

3.2.3. Referral to DELWP

Clause 66.02-2 of the Moyne Planning Scheme determines the role of DELWP as a recommending referral authority in the assessment of native vegetation removal permit applications. If an application is referred, DELWP may make certain recommendations to the responsible authority in relation to the permit application.

In accordance with S55(1) of the *Planning and Environment Act 1987* and Clause 66.02-2 of the planning scheme, any application to remove, destroy or lop native vegetation must be referred to the DELWP Secretary (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*) as the recommending referral authority if:

- The impacts to native vegetation are in the Detailed Assessment Pathway;
- A property vegetation plan applies to the site; or
- The native vegetation is on Crown land which is occupied or managed by the responsible authority.

Referral requirements are further discussed in Section 7.2.2.

3.3. EPBC Act

The EPBC Act protects a number of threatened species and ecological communities that are considered to be of national conservation significance. Any significant impacts on these species require the approval of the Australian Minister for the Environment.

Implications under the EPBC Act for the current proposal are discussed in Section 7.3.

3.4. FFG Act

The Victorian FFG Act lists threatened and protected species and ecological communities (DELWP 2019, DELWP 2021a). Any removal of protected flora, which includes threatened flora species and the plants that make up threatened communities, listed under the FFG Act from public land requires a Protected Flora Licence or Permit under the Act, obtained from DELWP.

The FFG Act only applies to private land where a license is required to remove grass trees, tree ferns and sphagnum moss for sale, or where an Interim Conservation Order has been made to protect critical habitat for a threatened species or community. As no such habitat has ever been declared, this mechanism under the FFG Act has never been implemented.

Implications under the FFG Act for the current proposal are discussed in Section 7.4.

3.5. EE Act

One or a combination of a number of criteria may trigger a requirement for a Referral to the Victorian Minister for Planning who will determine if an Environmental Effects Statement (EES) is required according to the “Ministerial Guidelines for Assessment of Environmental Effects under the *Environment Effects Act 1978*” (DSE 2006).

Implications under the EE Act for the current proposal are discussed in Section 7.5.

3.6. CaLP Act

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

Weed species listed on the CaLP Act that have been recorded in the study area are discussed in Section 7.6.



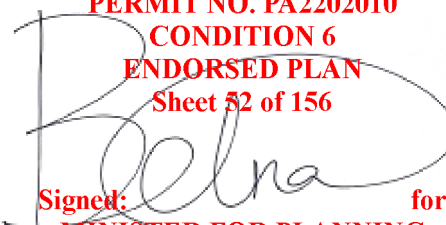
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4. Existing Information & Methods

4.1. Existing information

Existing information used for this investigation is described below.

4.1.1. Existing reporting and documentation

The existing documentation below, relating to the study area was reviewed.

- Moyne Planning Scheme

4.1.2. Native vegetation

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

- Relevant EVC benchmarks for the Victorian Volcanic Plains bioregion¹ (DSE 2004a); and
- NatureKit (DELWP 2018b).

4.1.3. Listed matters

Existing flora and fauna species records and information about the potential occurrence of listed matters was obtained from an area termed the 'search region', defined here as an area with a radius of ten kilometres from the study area boundary.

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

The online EPBC Act Protected Matters Search Tool (DoEE 2018a) was consulted to determine whether nationally listed species or communities potentially occurred in the search region based on habitat modelling.

4.2. Field methods

Field assessments including native vegetation mapping, condition scoring and fauna habitat assessment were conducted on the following dates:

- 19th – 22nd March 2018;
- 3rd – 6th April 2018;
- 26th – 28th April 2021;
- 18th & 19th October 2021;
- 22nd November 2021;
- 6th – 9th & 15th December 2021;
- 25th January 2022;
- 25th May 2022; and
- 2nd – 3rd November 2022.

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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).

During these assessments, the study area was surveyed initially by vehicle and 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 through a combination of aerial photograph interpretation and ground-truthing using a hand-held GPS (accurate to approximately five metres).

Additional targeted surveys were undertaken in all areas which were identified as potentially suitable habitat for species and ecological communities listed under the EPBC and/or FFG Act, as detailed in section 4.2.2. Species records or areas determined to be suitable habitat were mapped during targeted surveys using the same method as defined above.

4.2.1. Native vegetation

Native vegetation is currently defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'. The Guidelines (DELWP 2017) further classify native vegetation as belonging to two categories:

- Patch; or
- Scattered tree.

The definitions of these categories are provided below, along with the prescribed DELWP methods to assess them. Further details on definitions of patches and scattered trees are provided in Appendix 1.

Patch

A patch of native vegetation is either:

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native; or
- 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; or
- Any mapped wetland included in the current wetlands map, available in DELWP systems and tools.

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 its original condition.

The Native Vegetation Information Management (NVIM) system (DELWP 2018c) provides modelled condition scores for native vegetation to be used in certain circumstances.

Scattered tree

A scattered tree is:

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

³ The drip line is the outermost boundary of a tree canopy where the water drips on to the ground.

- A native canopy tree² that does not form part of a patch.

Scattered trees are counted and mapped, the species identified and their circumference at 1.3 m above the ground is recorded.

4.2.2. Flora species and habitats

Records of flora species were made in conjunction with sampling methods used to undertake habitat hectare assessments of native vegetation described above. Specimens requiring identification using laboratory techniques were collected.

Species protected under the FFG Act were determined by crosschecking recorded species against the FFG Act Protected Flora List (DELWP 2019).

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

- The presence of suitable habitat for flora species such as soil type, floristic associations and landscape context; and
- 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. Where insufficient evidence was available on the potential occurrence of a listed species, it is assumed that it could be in an area of suitable habitat.

Targeted flora surveys

Targeted flora surveys for the eight-EPBC and FFG listed flora species listed in Table 1 below were undertaken between October and December 2020 (Refer to section 4.2.4 for details on targeted surveys for listed communities). Surveys for listed flora species were undertaken on the dates listed below:

- 6/10/20 – 9/10/20 (Clover Glycine);
- 26/11/20 – 27/11/20 (Clover Glycine); and
- 15/12/20 – 18/12/20 (Matted Flax-lily, Gorae Leek-orchid, Maroon Leek-orchid, Basalt Leek-orchid, Curly Sedge, Swamp Fireweed & Swamp Everlasting).

During these surveys, all previously identified and mapped areas of the EVCs listed below in Table 1 were inspected thoroughly along transects spaced 5 metres apart, for each of the relevant species. This transect spacing was chosen as it is consistent with DELWP and the Department of Agriculture, Water and the Environment (EPBC Act) survey standards relevant to each of the EPBC listed species. In some locations, such as along narrow roadsides or discrete patches of vegetation (i.e. >5m width but <10m), transects were undertaken less than 5 metres apart to ensure adequate visual inspection of the area was undertaken.

After the 2020 surveys were completed, the transmission line footprint was updated to include access tracks. Areas of potential impact not surveyed in the 2020 surveys underwent surveys for the same EPBC and FFG listed species in Table 1. The access tracks do not create any impact to habitat for listed species.

Areas of potential impact outside of the 2020 targeted survey study area underwent surveys within EVCs determined to be suitable habitat, as follows:

- 18th and 19th October 2021 in habitat zones identified as:
 - Higher Rainfall Plains Grassy Woodland (EVC 55_63); or
 - Plains Grassy Wetland (EVC 125).
- 6th – 9th and 15th December 2021 in habitat zones identified as:
 - Higher Rainfall Plains Grassy Woodland (EVC 55_63);
 - Swamp Scrub (EVC 53); or
 - Plains Grassy Wetland (EVC 125).

Some areas of suitable habitat were not surveyed for threatened species due to access not being granted at a seasonably appropriate time (habitat zones DC & DD). Threatened species are therefore assumed to have the potential to occur within these habitat zones and have subsequently been avoided.

Additionally, the access track alignment from pole H22 to pole H27 was updated (in December 2022) resulting in impacts to patches of Stony Knoll Shrubland not previously considered during the targeted surveys in 2020. It was not considered necessary to undertake additional targeted surveys within the updated impact areas as they are unlikely to be supportive of threatened flora species and communities for the following reasons:

- low-quality nature of the vegetation,
- the lack of any threatened species being identified during the targeted surveys, and
- the limited extent of removal.

Table 1: Targeted survey schedule for listed flora species and communities

Common Name	EVCs surveyed	Survey timing											
		J	F	M	A	M	J	J	A	S	O	N	D
SHWTLP (EPBC) (Refer Section 4.2.4)	125, 647, 651, 653										X	X	
Curly Sedge (FFG)	53, 125, 647, 651, 653												X
Matted Flax-lily (EPBC and FFG)	55_63												X
Clover Glycine (EPBC and FFG)	55_63										X	X	
Gorae Leek-orchid (EPBC and FFG)	53, 125, 647, 651, 653												X
Maroon Leek-orchid (EPBC and FFG)	125, 647, 651, 653												X
Basalt Leek-orchid (FFG)	55_63												X
Swamp Fireweed (EPBC)	53, 125, 647, 651, 653												X
Swamp Everlasting (EPBC and FFG)	125, 647, 651, 653												X

SHWTLP = Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains community

X = When the survey was conducted. **Shaded green** = Suitable time for targeted survey to be undertaken, as per the relevant guidelines for each species.



**PLANNING and ENVIRONMENT ACT
MOYNE PLANNING SCHEME**

PERMIT NO. PA2202010

CONDITION 6

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[Signature]

**Signed: for
MINISTER FOR PLANNING**

Date: 16 May 2023

4.2.3. Fauna species and habitats

Fauna habitats are described using habitat components that include leaf litter, watercourses and waterbodies, soil cracks and surface rocks.

The study area's habitat connectivity (i.e. degree of isolation/fragmentation), including linkages to other habitats in the region, was determined using field observations, recent aerial photography and DELWP's NatureKit (DELWP 2018b).

Wherever appropriate, a precautionary approach was adopted in determining the likelihood of occurrence or fauna listed under the EPBC Act and FFG Act. That is, where insufficient evidence was available on the potential occurrence of a listed species, it is assumed that it could be in an area of suitable habitat.

4.2.4. Listed ecological communities

The study area was assessed against published descriptions of relevant listed ecological communities modelled to potentially occur in the study area.

Reviewed ecological community descriptions comprised identification criteria and condition thresholds from listing advice for EPBC Act communities as well as FFG Act listed community descriptions (SAC 2015).

Targeted surveys for the EPBC Act listed community, Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (SHWTLP), were undertaken in all previously identified and mapped areas of EVC's 125, 647, 651 & 653 within the study area, as per the schedule in Table 1 above. The surveys were undertaken over several site visits, between the 6/10/20 – 9/10/20 and between the 26/11/20 – 27/11/20, within a seasonably appropriate time, as per the listing advice. The optimum time for surveys is during late spring, following inundation from winter and spring rainfall. This is when indicative biota would most likely be detected within SHWTLP.

Since the above surveys were undertaken, the proposed footprint of the transmission line has been updated to include access track upgrades. Areas of potential impact outside of the 2020 targeted survey study area underwent surveys as follows:

- Spring survey in Plains Grassy Wetland (EVC 125) on 18th and 19th October and 22nd November 2021.

The additional habitat zones identified in the recent surveys in May and November 2022 did not support Plains Grassy Wetland (EVC 125) vegetation. Therefore, targeted surveys for ecological communities was not required.

4.3. Limitations of field assessment

The initial flora and fauna site assessments were undertaken in autumn. The short duration and seasonal timing of field assessments can result in some species not being detected when they may occur at other times. Additionally, some flora species and life-forms may be undetectable at the time of the survey or unidentifiable due to a lack of flowers or fruit.

The timing of the survey and condition of vegetation was otherwise considered suitable to ascertain the extent and condition of native vegetation and fauna habitats.

These limitations were not considered to compromise the validity of the current investigation, which was designed to address the relevant policies and decision guidelines.

Identification of EVCs considers vegetation types which would have naturally occupied the landscape prior to European impacts. Significant past vegetation clearance has resulted, in some cases, in the emergence of vegetation that is likely to be notably different to what would have naturally occupied the study area. Identification of EVCs in altered areas was therefore based upon consideration of:

- Modelled EVC mapping (DELWP 2018b);
- Observations of nearby natural vegetation;
- Any observed indigenous flora species that are useful for determining EVCs; and
- Relevant published EVC benchmark descriptions.



5. Assessment Results

5.1. Site description

The study area for this investigation (See Figure 1) covered approximately 15 kilometres of proposed transmission line and access tracks, across private agricultural land and roadsides in the localities of Tarrone, Willatook and Hawkesdale, 250 kilometres south-west of Melbourne.

The study area supported soils derived from basalt on a volcanic landscape, which has formed a mosaic of rocky outcrops, broader plains and wet depressions. This region predominantly comprised farming land, with farm use mostly determined by the degree of outcropping rock and level of inundation in the landscape. As such, lower lying areas supported both grazing and cropping while areas containing outcropping rock were dominated by grazing (predominantly cattle).

The proposed transmission line will cross the following roads:

- Tarrone North Road;
- Coomete Road;
- Poyntons Road;
- Willatook-Warrong Road;
- Malseeds Road;
- McGillivrays Road
- Woolsthope-Heywood Road; and
- Penshurst-Warnambool Road.

The transmission line also crosses the following named waterways:

- Austins Creek;
- Nardoo Creek;
- Moyne River; and
- Back Creek.

There are also several unnamed, ephemeral watercourses throughout the study area.

Vegetation in the study area consisted mainly of exotic pasture species, with the dominant species being Ryegrass, Soft Brome, Phalaris and Rough Dog's-tail. Some rocky outcrops retained native vegetation of varying quality, dominated by native grasses (including Wallaby-grass, Kangaroo Grass and Weeping Grass) with scattered shrubs (mainly Tree-violet). Some lower-lying areas amongst rocky outcrops supported wetlands dominated by Common Tussock-grass and sedges. Other vegetation included roadside vegetation dominated by wattles, and vegetation found along ephemeral watercourses.

Fauna habitat within the study area comprised derived native grasslands, rocky outcrops, ephemeral watercourses and wetlands and treed vegetation along roadsides.

Key fauna habitat areas within the region include:

- Tower Hill Wildlife Reserve approximately 19 kilometres south-east of the study area. Native vegetation in the study area is isolated from this habitat by roads and large tracts of agricultural land.
- Belfast Coastal Reserve approximately 23 kilometres south-east of the study area. Native vegetation in the study area is isolated from this habitat by roads and large tracts of agricultural land.

- Budj Bim National Park approximately 20 kilometres north-west of the study area. Native vegetation in the study area is isolated from this habitat by roads and large tracts of agricultural land.

The study area lies within the Victorian Volcanic Plains bioregion, falls within the Glenelg Hopkins catchment management area and DELWP's Barwon South West Region.

5.2. Native vegetation

5.2.1. Patches of native vegetation

Pre-European EVC mapping (DELWP 2018b) indicated that the study area and surrounds would have supported the following EVCs prior to European settlement based on modelling of factors including rainfall, aspect, soils and remaining vegetation:

- Aquatic Herbland;
- Basalt Creekline Shrubby Woodland;
- Basalt Shrubby Woodland;
- Plains Grassland;
- Plains Grassy Wetland;
- Plains Grassy Woodland;
- Plains Sedgy Wetland;
- Plains Swampy Woodland;
- Stony Knoll Shrubland;
- Swamp Scrub; and
- Swampy Riparian Woodland.

Evidence on site, including floristic composition and soil characteristics, suggested that the following EVCs were present within the study area (Figure 1):

- Aquatic Herbland (EVC 653);
- Basalt Shrubby Woodland (EVC 642);
- Stony Knoll Shrubland (EVC 649);
- Swamp Scrub (EVC 53);
- Plains Swampy Woodland (EVC 651);
- Plains Sedgy Wetland (EVC 647); and
- Higher Rainfall Plains Grassy Woodland (EVC 55_63);

Descriptions of these EVCs are provided within the EVC benchmarks in Appendix 6.

A total of 52 patches (referred to herein as habitat zones) comprising the abovementioned EVCs and a DELWP mapped wetland, were identified in the study area. This totalled an area of 8.732 hectares of native vegetation in patches and included one large tree in a patch. Descriptions of a representative selection of habitat zones within the study area are included in Table 2.

Table 2: Description of habitat zones within the study area

Habitat Zone	EVC	Description
BU	Stony Knoll Shrubland (EVC 649)	Small patch of Stony Knoll Shrubland within roadside dominated by recruiting Blackwood trees and shrubs. Understorey dominated by pasture grasses and Mirror Bush shrubs with scattered native Windmill Grass. No bryophytes recorded. Moderate cover of organic litter dominated by native species.
DA	Plains Swampy Woodland (EVC 651)	Small patch of Plains Swampy Woodland along ephemeral watercourse including planted Swamp Gum and Blackwoods. Ground cover dominated by Mat Grass, spear-grasses, wallaby-grasses, Common Tussock-grass and Tall Sedge with scattered native herbs including Cotton Fire-weed and Lesser Loosestrife. Moderate cover of weeds dominated by Phalaris and Yorkshire Fog. No bryophytes recorded. High cover of organic litter dominated by native species.
DB	Plains Swampy Woodland (EVC 651)	Small patch of Plains Swampy Woodland along ephemeral watercourse including planted Swamp Gum and Broad-leafed Peppermint with Blackwoods and Black Wattle. Ground cover dominated by exotic pasture grasses including Phalaris and Yorkshire Fog with scattered native Common Tussock-grass and Black-anther Flax-lily. No bryophytes recorded. High cover of organic litter dominated by exotic species.
DC	Aquatic Herbland (EVC 653)	Large Aquatic Herbland occurring in a seasonal wetland, dominated by Australian Sweetgrass, Tall Spike-sedge, Small Spike-sedge and Common Tussock-grass. High herb diversity, including Matted Pratia, Prickfoot, Small Loosestrife, Creeping Brookweed, Buttercup and Crane's Bill. Weed cover was also high and was dominated by Flatweed and Ribwort. Moderate organic litter cover derived from native wetland species
DD	Plains Sedgy Wetland (EVC 647)	Ephemeral wetland dominated by native sedges. Scattered native Grassland Wood-sorrel. Moderate-low cover of weeds dominated by Phalaris. No bryophytes recorded. High cover of organic litter dominated by native species.
DE	Swamp Scrub (EVC 53)	Patch of Swamp Scrub along ephemeral watercourse including planted Swamp Gum with Prickly Tea-tree, Woolly Tea-tree, Blackwoods and Scented Paperbark. Ground cover dominated by native aquatic species including Common Reed, Cumbungi, Tall Sedge and Water Ribbons. High cover of weeds including the high-threat woody weeds Sweet Briar and Gorse. No bryophytes recorded. High cover of organic litter dominated by native species.

Habitat Zone	EVC	Description
H, EA, DU, DW, DX	Swamp Scrub (EVC 53)	Patch of swamp scrub along Austin's Creek within the Hawkesdale Wind Farm site. Dominated by Narrowleaf Cumbungi and Water Ribbons with the FFG Act listed species Curly Sedge on the margin. Moderate weed cover including the high-threat weed Spear Thistle. Good cover of litter derived from native species, and good recruitment potential.
DI, DK, DL, DM	Stony Knoll Shrubland (EVC 649)	High Quality patches of Stony Knoll Shrubland, dominated by Austral Bracken amongst exposed rocks on rises. The native shrubs, Tree Violet and Sweet Bursaria were also present. The ground layer was characterized by a high cover of Weeping Grass, with some patches supporting Kangaroo Grass and Spear grass as well. There was a sparse cover of Common Tussock-grass and Wallaby grass. Herb cover was moderate and was represented by Dock, Crane's Bill and Kidney-weed. Weed species present included Toowoomba Canary-grass, Rough Dog's-tail, Clover and Rye Grass, although this cover was low. Organic litter cover was mostly native in origin. There was a moderate cover of bryophytes as well as bare ground.
DT, DN, DO, DP, DQ, FK, FR, FT	Stony Knoll Shrubland (EVC 649)	Medium Quality patches of Stony Knoll Shrubland, dominated by Austral Bracken amongst exposed rocks on rises. The native shrubs, Tree Violet and Sweet Bursaria were also present. The ground layer was characterized by a high cover of Weeping Grass, with some patches supporting Kangaroo Grass and Wallaby grass as well. Herb cover was moderate and was represented by Dock, Sheep's Burr and Kidney-weed. Weed species present included many pasture grasses such as Yorkshire Fog, Sweet Vernal-grass, Brown-top Bent, great Brome. Herbs included a moderate cover of White Clover and Cape Weed. High threat woody weed Sweet Briar was also present in some habitat zones. Good cover of mosses and lichens on outcropping rocks. No bare ground was recorded.
FH, FI, FJ, FM, FN, FO, FP, FQ, FS, FU, FV	Stony Knoll Shrubland (EVC 649)	Small patches of Stony Knoll Shrubland dominated by Austral Bracken. Shrubs mostly absent except for a few scattered Tree Violet. Other native ground cover also consisted scattered Wallaby Grass, Kangaroo Grass and Weeping Grass and few scattered herbs such as Sheep's Burr and Dock. High cover of pasture grasses mentioned above as well as moderate Cape Weed cover. Good cover of mosses and lichens on outcropping rocks. Some bare ground recorded.

Habitat Zone	EVC	Description
EB	Stony Knoll Shrubland (EVC 649)	Small patch of Stony Knoll Shrubland on the roadside of McGillivrays Road. Scattered immature Black Wattle over a groundlayer of Kangaroo Grass, speargrass and scattered Bidgee-Widgee. High weed cover, including the high-threat weeds Toowoomba Canary-grass, Sweet Briar and Blackberry. Good cover of mosses and lichens on outcropping rocks. High cover of organic litter dominated by non-native material.
EC, EE	Higher Rainfall Plains Grassy Woodland (EVC 55_63)	Small patches of Higher Rainfall Plains Grassy Woodland on the roadside of McGillivrays Road. Dominated by immature Blackwood over a groundlayer dominated by weedy grass species, including Toowoomba Canary-grass, with scattered native Common Tussock Grass. One large Blackwood in habitat zone EE.
ED	Stony Knoll Shrubland (EVC 649)	Small patch of Stony Knoll Shrubland on the roadside of McGillivrays Road. Lacking a shrub layer, with a groundlayer of Kangaroo Grass and Austral Bracken. High weed cover, including the high-threat weed Toowoomba Canary-grass. Good cover of mosses and lichens on outcropping rocks. High cover of organic litter dominated by non-native material.
EF, EG, EI, EJ, EL	Basalt Shrubby Woodland (EVC 642)	Small patches of Basalt Shrubby Woodland on the roadsides of the Penshurst-Warrnambool Road and the Woolsthorpe-Heywood Road. Dominated by Blackwood and Black Wattle understorey trees with scattered Kangaroo Grass and Bracken in the groundlayer. Very high weed cover, including the high-threat weeds Sweet Briar and Hawthorn. Habitat zone EJ also has Radiata Pine. Very high organic litter cover dominated by non-native material.
EH, EK, J, K	Basalt Shrubby Woodland (EVC 642)	Patches of Basalt Shrubby Woodland on the roadside of the Penshurst-Warrnambool Road. Habitat zone EH has many recruiting Blackwoods, while habitat zone EK lacks a tree and shrub layer. Groundlayer dominated Kangaroo Grass with scattered native herbs. Moderate weed cover, including the high-threat weed Toowoomba Canary Grass. Very high organic litter cover dominated by native material.

The habitat hectare assessment results for habitat zones are provided in Table 3. More detailed habitat scoring results are presented in Appendix 2. Details of large trees in patches are provided in Appendix 3.

Table 3: Summary of habitat hectare assessment results

Habitat Zone	EVC no.	Area (ha)	Condition Score (out of 100)	Number of Large Trees recorded	Listed EPBC Act ecological communities
26045	DELWP Mapped Wetland	0.049	19	0	-
BU	649	0.024	31	0	-
DA	651	0.037	24	0	-
DB	651	0.047	20	0	-
DC	653	0.275	39	0	SHWTLP
DD	647	0.653	28	0	SHWTLP
DE	53	0.260	12	0	-
DI	649	0.012	48	0	-
DJ	649	0.016	Not assessed*	0	-
DK	649	0.239	48	0	-
DL	649	0.099	48	0	-
DM	649	0.063	48	0	-
DN	649	0.181	49	0	-
DO	649	0.631	Not assessed*	0	-
DP	649	0.303	48	0	-
DQ	649	1.278	48	0	-
DR	649	0.018	48	0	-
DS	649	0.003	Not assessed*	0	-
DT	649	0.483	48	0	-
DU	53	0.013	23	0	-
DV	53	0.009	Not assessed*	0	-
DW	53	0.050	23	0	-
DX	53	0.047	23	0	-
EA	53	0.028	25	N/A	-
EB	649	0.008	18	N/A	-
EC	55_63	0.003	9	0	-
ED	649	0.009	12	N/A	-
EE	55_63	0.006	19	1	-
EF	642	0.033	11	0	-
EG	642	0.110	11	0	-
EH	642	0.022	18	0	-
EI	642	0.126	11	0	-

Habitat Zone	EVC no.	Area (ha)	Condition Score (out of 100)	Number of Large Trees recorded	Listed EPBC Act ecological communities
EJ	642	0.040	11	0	-
EK	642	0.004	13	0	-
EL	642	0.006	11	0	-
H	53	0.129	25	0	-
J	642	0.065	18	0	-
M	642	0.074	15	0	-
FH	649	0.145	17	0	-
FI	649	0.072	17	0	-
FJ	649	0.017	17	0	-
FK	649	0.607	30	0	-
FM	649	0.037	17	0	-
FN	649	0.063	17	0	-
FO	649	0.097	17	0	-
FP	649	0.303	17	0	-
FQ	649	0.044	17	0	-
FR	649	0.122	23	0	-
FS	649	0.096	17	0	-
FT	649	1.109	30	0	-
FU	649	0.036	17	0	-
FV	649	0.136	17	0	-
TOTAL		8.732		1	

*Areas not scored but were mapped and the EVC was identified. Although these zones were not assessed, none will be impacted by the proposed footprint. Therefore, there are no implications. All proposed impact areas have been subject to a habitat hectare assessment.

Habitat zones which are shaded in grey are proposed to be impacted by this proposal.



Figure 1-1: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone
- study area
- Native vegetation**
- Swamp Scrub (EVC 53)

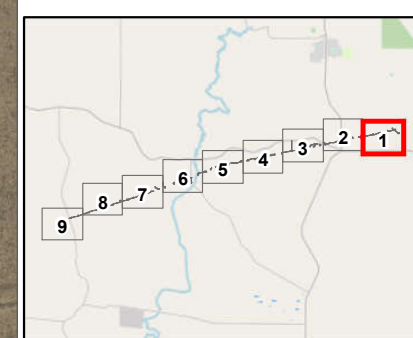
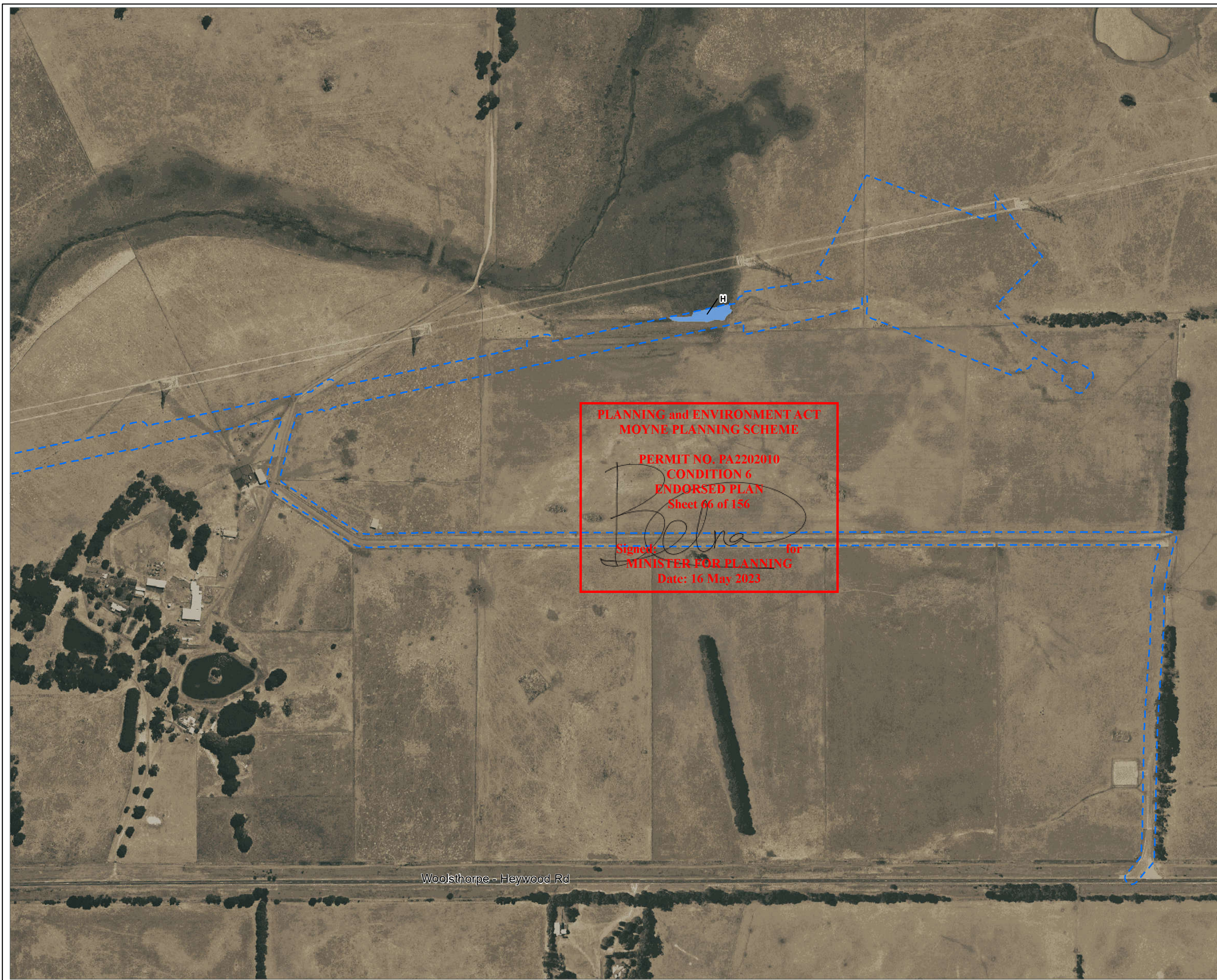


Figure 1-2: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone
study area
- Native vegetation**
- Basalt Shrubby Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - Black Wattle - FFG Act listed
 - DELWP wetland

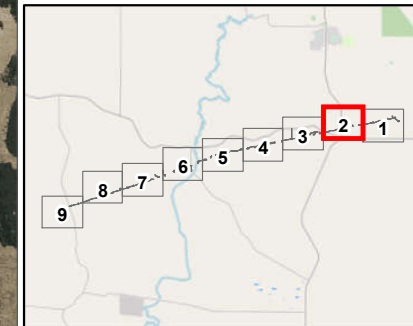
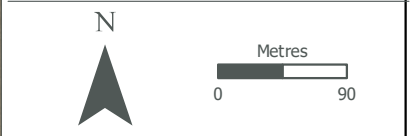
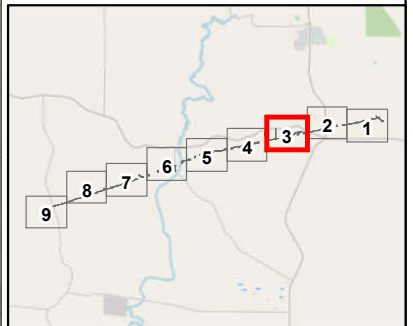




Figure 1-3: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- Legend**
- TxL Alignment HDWF to Tarrone study area
 - Native vegetation**
 - Basalt Shrubby Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - DELWP wetland



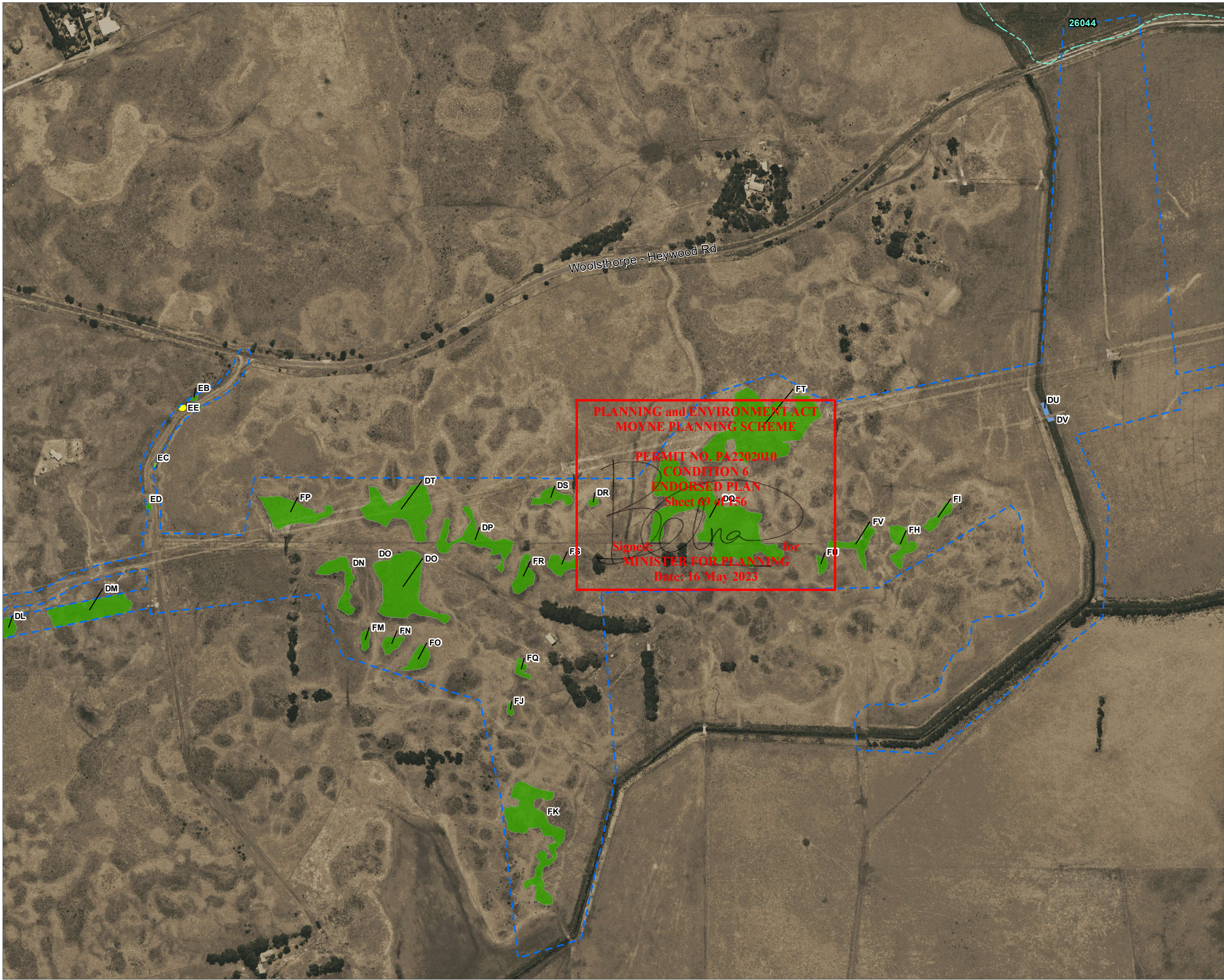


Figure 1-4: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Native vegetation**
 - Higher Rainfall Plains Grassy Woodland(EVC 55_63)
 - Stony Knoll Shrubland (EVC 649)
 - Swamp Scrub (EVC 53)
 - Large tree in patch
 - Large scattered tree
 - DELWP wetland

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Signed: for
MINISTER FOR PLANNING
Date: 16 May 2023

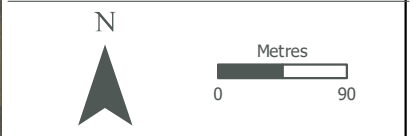
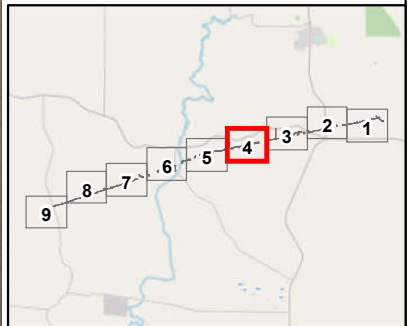




Figure 1-5: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- Native vegetation**
- Higher Rainfall Plains Grassy Woodland(EVC 55_63)
 - Stony Knoll Shrubland (EVC 649)

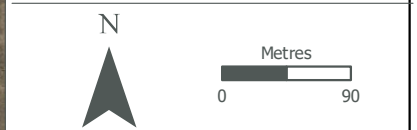
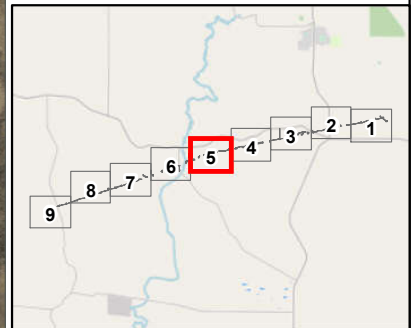




Figure 1-6: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TXL Alignment HDWF to Tarrone
study area
- Native vegetation**
- Aquatic Herbland (EVC 653)
 - Plains Sedgy Wetland (EVC 647)
 - Swamp Scrub (EVC 53)
 - DELWP wetland
- Listed ecological communities**
- SHWTLP

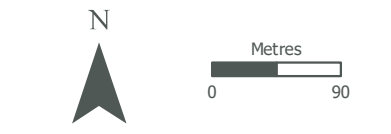
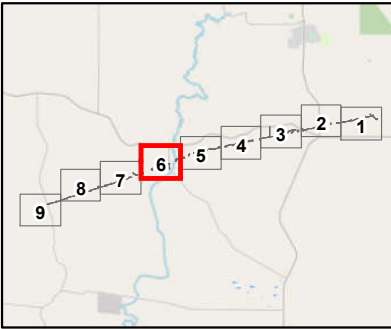


Figure 1-7: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

-  TxL Alignment HDWF to Tarrone
study area
- Native vegetation**
-  Plains Sedgy Wetland (EVC 647)
 -  Plains Swampy Woodland (EVC 651)
 -  DELWP wetland
- Listed ecological communities**
-  SHWTL

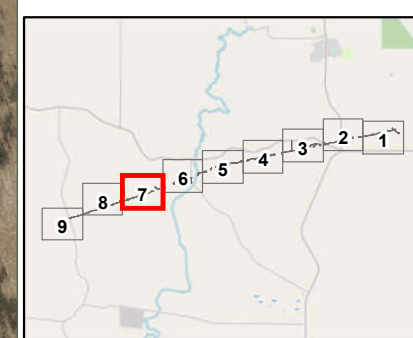


Figure 1-8: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

— Txl Alignment HDWF to Tarrone
— study area

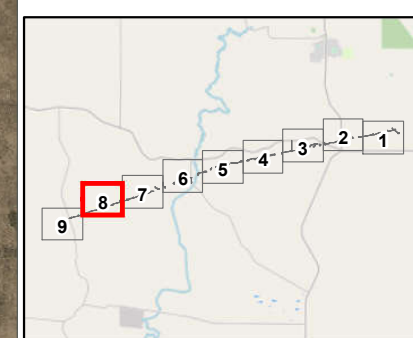
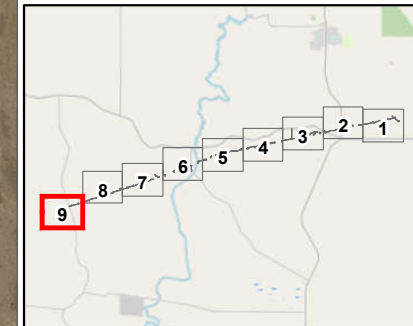


Figure 1-9: Study area and native vegetation

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxI Alignment HDWF to Tarrone study area
- Native vegetation**
 - Stony Knoll Shrubland (EVC 649)
 - DELWP wetland



5.2.2. Scattered trees

Scattered trees recorded in the study area would have once comprised the canopy component of Higher Rainfall Plains Grassy Woodland (EVC 55_63) and therefore must be one of the following species to be considered a scattered tree:

- *Eucalyptus spp.*
- *Acacia melanoxylon*
- *Allocasuarina verticillata*

One large, scattered tree (≥ 40 -centimetre DBH), a Blackwood *Acacia melanoxylon*, occurred in the study area. No small, scattered trees were recorded.

Details of all scattered trees recorded are listed in Appendix 3.

5.3. Flora species

5.3.1. Species recorded

During the field assessments 94 plant species were recorded. Of these, 58 (62%) were indigenous and 36 (38%) were introduced or non-indigenous native in origin.

5.3.2. Listed species

VBA records (DELWP 2022) and the EPBC Protected Matters Search Tool (DCCEEW 2022) indicated that within the search region there were records of, or there occurred potential suitable habitat for, 18 species listed under the Commonwealth EPBC Act and 24 listed under the state FFG Act, including 15 listed under both Acts.

The likelihood of occurrence in the study area of species listed under the EPBC Act and FFG Act is addressed in Table 4. Species considered 'likely to occur' are those that have a very high chance of being in the study area based on numerous records in the search region and suitable habitat in the study area. Species considered to have the 'potential to occur' are those where suitable habitat exists, but recent records are scarce.

This analysis indicated that eight listed flora species are known to occur, likely to occur or have the potential to occur. These species are listed below.

- Curly Sedge (FFG: endangered)
- Matted Flax-lily (EPBC: Endangered; FFG: critically endangered)
- Clover Glycine (EPBC: Vulnerable; FFG: vulnerable)
- Gorae Leek-orchid (EPBC: Endangered; FFG: critically endangered)
- Maroon Leek-orchid (EPBC: Endangered; FFG: endangered)
- Basalt Leek-orchid (FFG: critically endangered)
- Swamp Fireweed (EPBC: Vulnerable)
- Swamp Everlasting (EPBC: Vulnerable; FFG: critically endangered)

Targeted surveys for the above-listed flora species were undertaken in areas of suitable habitat within the transmission line easement in October, November and December 2020. No listed species were detected during these surveys. Therefore, all of the above-listed flora species are now considered unlikely to occur in the transmission line easement.

Since the above surveys were undertaken, the proposed footprint of the transmission line has been updated to include new access tracks and access track upgrades. The design of these access tracks has avoided any habitat for listed species.

Surveys were undertaken within EVCs determined to be suitable habitat on the following dates:

- October surveys on 18th and 19th October 2021 within:
 - Higher Rainfall Plains Grassy Woodland (EVC 55_63); and
 - Plains Grassy Wetland (EVC 125).
- December surveys on 6th – 9th and 15th December 2021 within:
 - Higher Rainfall Plains Grassy Woodland (EVC 55_63);
 - Swamp Scrub (EVC 53); and
 - Plains Grassy Wetland (EVC 125).

No listed species were detected during the 2021 surveys. Some areas of suitable habitat were not surveyed for threatened species due to access not being granted at a seasonably appropriate time (Habitat Zones DC & DD). Threatened species are therefore assumed to have the potential to occur within these habitat zones and have subsequently been avoided.

Additionally, the access track alignment from pole H22 to pole H27 was updated (in December 2022) resulting in impacts to patches of Stony Knoll Shrubland not previously considered during the targeted surveys in 2020. It was not considered necessary to undertake additional targeted surveys within the updated impact areas as they are unlikely to be supportive of threatened flora species and communities for the following reasons:

- low-quality nature of the vegetation,
- the lack of any threatened species being identified during the targeted surveys, and
- the limited extent of removal.

As such, all listed species are now considered **unlikely to occur** within all impact areas as shown in Figure 2.



Table 4: FFG Act and EPBC Act listed flora and species and likelihood of occurrence. Common Name	Scientific name	EPBC	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Adamson's Blown-grass	Lachnagrostis adamsonii	EN	en	Confined to slow moving creeks, swamps, flats, depressions or drainage lines that are seasonally inundated or waterlogged and usually moderately to highly saline. Appear to favour sites that have some shelter from the wind (DoEE 2018b).	0	N/A	Marginal suitable habitat. No records within 10km. Unlikely to occur.
Basalt Leek-orchid	Prasophyllum viretrum		cr	Moist to wet grassland on dark basaltic loam (Jones & Rouse 2006).	32	13/11/2019	Suitable (but species depauperate) habitat within EVCs 125 and 647. Not recorded during targeted surveys – does not occur in footprint.
Basalt Peppercress	Lepidium hyssopifolium	EN	en	Known to establish on open, bare ground with limited competition from other plants. Previously recorded from Eucalypt woodland with a grassy ground cover, low open Casuarina woodland with a grassy ground cover and tussock grassland. Now generally found amongst exotic pasture grasses and beneath exotic trees (DoEE 2018b).	3	25/11/2009	No suitable habitat. Unlikely to occur.
Bell-flower Hyacinth-orchid	Dipodium campanulatum	EN	en	Known from one locality in southwest Victoria near Apsley. Preferred habitat is on deep grey sands or limestone in stringybark woodland (DoE 2015).	0	N/A	No suitable habitat. Unlikely to occur.
Button Wrinklewort	Rutidosia leptorhynchoidea	EN	en	Restricted to open stands of plains grassland and grassy woodlands, on fertile clays to clay loams, usually in areas where the grass cover is more open, either as a result of recurrent fires or grazing by native macropods or stock. It also occurs on low rises with shallow, stony soils at less than 100 m above sea level.	0	N/A	Marginal suitable habitat within EVC 55_63. No records within 10km. Unlikely to occur.
Clover Glycine	Glycine latrobeana	VU	vu	Found across south-eastern Australia in native grasslands, dry sclerophyll forests, woodlands and low open woodlands with a grassy ground layer. In Victoria, populations occur in lowland grasslands, grassy woodlands and sometimes in grassy heath (DAWE 2020).	5	13/11/2019	Suitable (but species depauperate) habitat within EVC 55_63. Not recorded during targeted surveys – does not occur in footprint.
Curly Sedge	Carex tasmanica		en	Occurs in seasonally wet, fertile, heavy basalt clay soils, usually around the margins of slightly saline drainage lines or freshwater swamps. The dominant vegetation type varies and is often grassy/sedgy and generally lacks trees (Carter 2010). Known occurrences are located at Hywood, Portland, Port Fairy, Karish (Lake Weeranganuk), Craigieburn, Kalkallo and Wollert (YBA 2015).	2	23/12/2018	Suitable habitat within EVCs 53, 125, 647, 651, 653. No suitable habitat on public land. Not recorded during targeted surveys – does not occur in footprint.
Dense Leek-orchid	Prasophyllum spicatum	VU	cr	Occurs in coastal and near-coastal heathland and heathy woodland. Soils are generally sandy, with some sites seasonally waterlogged (Duncan 2010).	0	N/A	No suitable habitat. Unlikely to occur.
Fine-hairy Spear-grass	Austrostipa puberula		en	Confined to sandy areas in north-west Victoria, associated with calcareous soils (VicFlora 2022).	1	18/11/2011	No suitable habitat. Unlikely to occur.
Giant Honey-myrtle	Melaleuca armillaris subsp. Armillaris		en	Naturally occurs near coastal sandy heaths in the far east Gippsland near Mallacoota. It is a commonly planted species (Flora of Victoria).	4	29/11/2011	Beyond known geographic range, therefore record is likely planted or alien. Does not occur.
Golden Cowslips	Diuris behrii		en	Flat Grassy areas on heavy soils within the Victorian Volcanic Plain (Entwistle 1994).	1	1/11/2007	Beyond known distribution, all records further north. Unlikely to occur.
Gorae Leek-orchid	Prasophyllum diversiflorum	EN	cr	Wet grasslands or inundated swamps among tussocks (Jones 2006).	2	19/12/1995	Suitable (but species depauperate) habitat within EVCs 53, 125, 647. Not recorded during targeted surveys – does not occur in footprint.
Green-striped Greenhood	Pterostylis chlorogramma	VU	en	Occurs in mixed Box-Stringybark forest with a shrubby understorey, often with Pteridium esculentum as a major component on sandy or clay loam soils (Duncan et al 2009).	0	N/A	No suitable habitat. Unlikely to occur.
Large-headed Fireweed	Senecio macrocarpus	VU	cr	Victoria, occurs most commonly in grasslands on red-brown earth soils; may also occur in grassy woodlands and open woodlands predominantly in the Western (Basalt) Plains grassland on red brown earth soils found on recent Quaternary (basalt) deposits (DAWE 2020).	0	N/A	No suitable habitat. Unlikely to occur.
Leafy Greenhood	Pterostylis cucullata	VU		Tea-tree scrubs on tall sandy and calcareous dunes, in moist, open or even deep shaded locations (Jones 1994).	0	N/A	Marginal suitable habitat within EVC 53. No records within 10km. Unlikely to occur.
Maroon Leek-orchid	Prasophyllum frenchii	EN	en	Grows mainly in open sedge swampland or in wet grassland and wet heathland generally bordering swampy regions. Sites are generally low altitude, flat and moist. Soils are generally moderately rich damp sandy or black clay loams. Climate is mild, with an annual rainfall of 600–1100 mm, occurring predominantly in winter and spring (DoEE 2018b).	3	13/11/2005	Suitable (but species depauperate) habitat within EVCs 125 and 647. Not recorded during targeted surveys – does not occur in footprint.
Matted Flax-lily	Dianella amoena	EN	cr	Lowland grassland and grassy woodlands on well-drained to seasonally waterlogged fertile sandy loams to heavy cracking soils derived from sedimentary or volcanic Geology. It is widely distributed from eastern to south-western Victoria (DAWE 2020).	2	2/10/2016	Suitable (but species depauperate) habitat within EVC 55_63. Not recorded during targeted surveys – does not occur in footprint.

Table 4: FFG Act and EPBC Act listed species and likelihood of occurrence. Common Name	Scientific name	EPBC	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Metallic Sun-orchid	<i>Thelymitra epipactoides</i>	EN	en	Grows primarily in mesic coastal heathlands, grasslands and woodlands, but is also found in drier inland heathlands, open forests and woodlands. Substrates may be moist or dry sandy loams or loamy sands. Critical habitat has not been determined but the species is likely to require open conditions, which may be created by soil disturbance or fire, for recruitment (DoEE 2018b).	0	N/A	No suitable habitat. Unlikely to occur.
Pale-flower Crane's-bill	<i>Geranium sp. 3</i>		en	Open, grassy areas of dry woodlands and forests, known only from Stawell, Yan Yean, Eltham, and Bonegilla (VicFlora 2022).	2	25/09/2019	Beyond known distribution, recent records may be attributed to similar Geranium species that has since undergone reclassification. Unlikely to occur.
Pretty Leek-orchid	<i>Prasophyllum anticum</i>		cr	Grassland on moist to wet black basaltic loam. Only known from a single population within Pretty Hill Flora Reserve near Orford in South-western Victoria (Jeanes 2015).	13	23/10/2018	No suitable habitat, beyond known distribution. Unlikely to occur.
Purple Blown-grass	<i>Lachnagrostis punicea</i> subsp. <i>Filifolia</i>		en	Known to mainly in grassland in slightly saline depressions of the volcanic plain, but also known from seasonal, slightly brackish swampy sites east of Melbourne (Flora of Victoria).	2	21/11/2011	No suitable habitat. Unlikely to occur.
River Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	VU		River Swamp Wallaby-grass grows mostly in permanent swamps and also lagoons, billabongs, dams and roadside ditches. The species requires moderately fertile soils with some bare ground; conditions that are caused by seasonally-fluctuating water levels (DoEE 2018b).	0	N/A	Marginal suitable habitat. No records within 10km. Unlikely to occur.
Spiny Peppercress	<i>Lepidium aschersonii</i>	VU	en	The Spiny Peppercress occurs in periodically wet sites such as gilgai depressions and the margins of freshwater and saline marshes and shallow lakes, usually on heavy clay soil. Almost all sites receive some degree of soil waterlogging or seasonal flooding. Known populations are confined to western Victoria, mostly within the area bordered by Mortlake, Cressy, Colac and Ararat. (Carter 2010).	0	N/A	Beyond known distribution. Unlikely to occur.
Spiral Sun-orchid	<i>Thelymitra matthewsii</i>	VU	en	Slightly elevated sites to 300m in well-drained soils (sandy loams to gravelly limestone soils) in light to dense forest; sometimes in coastal sandy flats (Weber & Entwisle 1994).	0	N/A	No suitable habitat, no nearby records. Unlikely to occur.
Swamp Everlasting	<i>Xerochrysum palustre</i>	VU	cr	Grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils. Commonly associated genera include <i>Amphibromus</i> , <i>Baumea</i> , <i>Carex</i> , <i>Chorizandra</i> , <i>Craspedia</i> , <i>Eleocharis</i> , <i>Isolepis</i> , <i>Lachnagrostis</i> , <i>Lepidosperma</i> , <i>Myriophyllum</i> , <i>Phragmites australis</i> , <i>Themeda triandra</i> and <i>Villarsia</i> (DoEE 2018b).	0	N/A	Suitable (but species depauperate) habitat within EVCs 125, 647 and 653. Not recorded during targeted surveys – does not occur in footprint.
Swamp Fireweed	<i>Senecio psilocarpus</i>	VU		Herb-rich winter-wet swamps on volcanic clays or peaty soils (Walsh 1999). Known from approximately 10 sites between Wallan, about 45 km north of Melbourne, and Honans Scrub in south-eastern South Australia (TSSC 2008).	0	N/A	Suitable (but species depauperate) habitat within EVCs 53, 125, 647, 651 and 653. Not recorded during targeted surveys – does not occur in footprint.
Swamp Flax-lily	<i>Dianella callicarpa</i>		en	Occurs in seasonally inundated, permanently moist or waterlogged basalt soil. Can occupy grasslands, woodlands and swamp-scrub habitats, restricted to the Grampians, Hamilton and Portland areas (Flora of Victoria).	6	1/02/2012	Limited distribution with only a few known discreet populations. Unlikely to occur.

Notes: Species for which suitable habitat occurs in the study area are shaded in grey.

EPBC = threatened species status under EPBC Act: CR = critically endangered; EN = endangered; VU = vulnerable; **FFG** = threatened species status under the FFG Act: ex = extinct in the wild; cr = critically endangered; en = endangered; vu = vulnerable.



5.4. Fauna habitats

The study area supported four habitat types.

- Rocky outcrops;
- Grazing paddocks (native and exotic pastures);
- Aquatic habitat (ephemeral watercourses and wetlands); and
- Treed vegetation.



Rocky outcrops



Grazing paddocks



Aquatic habitat



Treed vegetation

Rocky outcrops

Many outcrops of basalt occurred forming a mosaic with grazing pastures and ephemeral wetlands throughout the study area. These supported both native and exotic pasture grasses and some had scattered native shrubs. These areas were used for grazing (primarily cattle). Native plant species diversity was moderate, but structural diversity was much reduced and dominated by graminoids. Outcropping rocks and soil cracks occurred, but large woody debris was absent.

Grazing paddocks (native and exotic pastures)

This was the most abundant habitat type within the study area, and included exotic pasture dominated by species such as Phalaris, Soft Brome, Ryegrass and Hare's-tail Grass. There were small areas of derived native grassland that would have originally been Plains Grassy Woodland, but which now lack woody vegetation. The derived native grassland supported species including Kangaroo Grass, wallaby grasses and Weeping Grass. Both native and exotic pastures lacked native forb species.

Aquatic habitat (ephemeral watercourses and wetlands)

Aquatic habitat within the study area was ephemeral and mostly dry at the time of survey. It included small watercourses and wetlands that formed a mosaic with grazing pastures and rocky outcrops throughout the study area. These areas supported the highest cover, species diversity and structural diversity of native vegetation within the study area, and included wetlands dominated by grasses, sedges and aquatic herbs.

Treed vegetation

Treed vegetation included planted windbreaks including Sugar Gums and Cypresses, and roadside vegetation dominated by Backwoods and Black Wattles. The understorey lacked structural diversity and was dominated by exotic species.

5.5. Listed fauna species

The review of existing information (including VBA records and the results of the EPBC Protected Matters Search Tool) indicated that within the search region there were records of, or there occurred potential suitable habitat for 50 fauna species listed under the Commonwealth EPBC Act and the state FFG Act. The likelihood of occurrence of these species in the study area was assessed and the results are presented in Table 5.

This analysis of potential occurrence of listed fauna species excludes:

- Marine fauna given that the study area is inland; and
- Migratory oceanic bird species (such as albatrosses and petrels) given that the study area is inland.

Species considered 'likely to occur' are those that have a very high chance of being in the study area given the existence of numerous records in the search region and suitable habitat in the study area. Using the precautionary approach, species considered to have the 'potential to occur' are those for which suitable habitat exists, but recent records are scarce. This analysis indicates that 19 listed fauna species are likely to occur or have the potential to occur. These species are:

Likely to occur

- Australasian Bittern EPBC: Endangered, FFG: critically endangered);
- Australian Painted Snipe (EPBC: Endangered, FFG: critically endangered);
- Australasian Shoveler (FFG: vulnerable)
- Brolga (FFG: endangered);
- Common Greenshank (EPBC: Migratory; FFG: endangered);
- Common Sandpiper (EPBC: Migratory; FFG: vulnerable);
- Curlew Sandpiper (EPBC: Critically Endangered & Migratory, FFG: critically endangered);
- Glossy Ibis (EPBC: Migratory);
- Growling Grass Frog (EPBC: Vulnerable; FFG: vulnerable);
- Hardhead (FFG: vulnerable);
- Latham's Snipe (EPBC: Migratory);
- Magpie Goose (FFG: vulnerable); and
- Sharp-tailed Sandpiper (EPBC: Migratory).

Potential to occur

- Little Galaxias (FFG: endangered);
- Fork-tailed Swift (EPBC: Migratory);
- Pectoral Sandpiper (EPBC: Migratory);
- White-throated Needletail (EPBC: Migratory, FFG: vulnerable);
- Southern Bent-wing Bat (EPBC: Critically Endangered, FFG: critically endangered); and
- Yarra Pygmy Perch (EPBC: Vulnerable; FFG: vulnerable).

The susceptibility of these species to impacts is discussed in the Section 5.5.1.

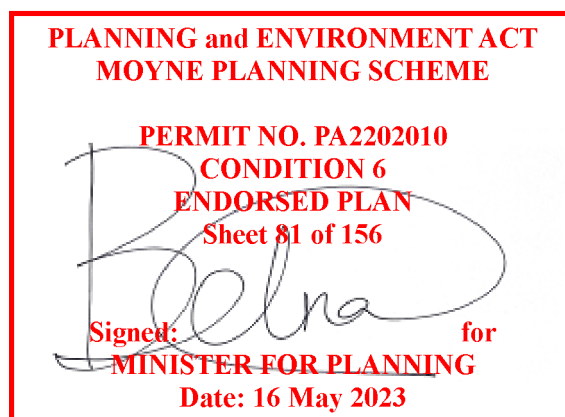


Table 5: FFG Act and EPBC Act listed fauna species from the search region and likelihood of occurrence in the study area

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Birds								
Australasian Bittern	<i>Botaurus poiciloptilus</i>	EN		cr	Terrestrial wetlands, including a range of wetland types but prefers permanent water bodies with tall dense vegetation, particularly those dominated by sedges, rush, reeds or cutting grass (Marchant & Higgins 1990).	0	N/A	Suitable habitat. Likely to occur.
Australian Painted Snipe	<i>Rostratula australis</i>	EN		cr	Generally inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum <i>Muehlenbeckia</i> or canegrass or sometimes tea-tree (<i>Melaleuca</i>). Sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber (DoEE 2018b).	0	N/A	Suitable habitat. Likely to occur.
Australasian Shoveler	<i>Spatula rhynchotis</i>			vu	Large and deep permanent bodies of water and aquatic flora abundant. Also occurs on billabongs, watercourses and flood waters on alluvial plains, freshwater meadows, shallow swamps, reed swamps, wooded lakes, sewage farms and farm dams (Marchant & Higgins 1990).	8	9/12/2019	Suitable habitat. Likely to occur.
Brolga	<i>Grus rubicunda</i>			en	Wetlands that include permanent open water and deep freshwater marsh. Between 500 and 700 Brolgas are known to occur in southwestern Victoria (Marchant & Higgins 1993).	24	15/08/2020	Suitable habitat. Likely to occur.
Common Greenshank	<i>Tringa nebularia</i>		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	en	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	0	N/A	Suitable habitat. Likely to occur.
Common Sandpiper	<i>Actitis hypoleucos</i>		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	vu	Inhabits a wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands. In Victoria, mostly found Westernport and Port Phillip Bay (Higgins & Davies 1996).	0	N/A	Suitable habitat. Likely to occur.
Curlew Sandpiper	<i>Calidris ferruginea</i>	CR	M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	cr	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	0	N/A	Suitable habitat. Likely to occur.
Eastern Curlew	<i>Numenius madagascariensis</i>	CR	M (Bonn A1, ROKAMBA, JAMBA, CAMBA)	cr	Inhabits sheltered coasts, especially estuaries, embayment, harbours, inlets and coastal lagoons with large intertidal mudflats or sandflats, often with beds of sea grass (Higgins & Davies 1996).	0	N/A	No suitable habitat. Unlikely to occur.
Fairy Tern	<i>Sternula nereis</i>	VU		cr	Generally restricted to sheltered coasts both on the mainland, and inshore and offshore islands. Occurs in embayment, such as harbours, inlets, bays, estuaries, lagoons, and ocean beaches. Also found on lakes and salt ponds (Higgins & Davies 1996).	0	N/A	No suitable habitat. Unlikely to occur.
Fork-tailed Swift	<i>Apus pacificus</i>		M (JAMBA, CAMBA, ROKAMBA)		The species can occur in wet sclerophyll forest but mainly prefers open forest or plains. It is almost exclusively aerial and feeds up to hundreds on metres above the ground but can feed among open forest canopy. The species breeds internationally and seldom roosts in trees (Higgins et al 2006b).	1	25/02/2019	Suitable habitat. No records within 10km. Potential to occur.

PLANNING AND ENVIRONMENT ACT
MOYNE PLANNING SCHEME
PERMIT NO. PA12880
CONDITION 6
ENDORSED PLAN
SIGNED: [Signature]
DATE: 16 May 2023

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	EN			In summer generally in tall mountain forests and woodlands, particularly in heavily timbered, mature wet sclerophyll forests and woodlands. Prefer Eucalyptus dominated assemblages. Also occurs in subalpine snow gum woodlands and occasionally in temperate rainforests and regenerating forests. In winter occur at lower altitudes in drier, more open Eucalyptus woodland (Higgins 1999).	0	N/A	No suitable habitat. Unlikely to occur.
Glossy Ibis	<i>Plegadis falcinellus</i>		M (Bonn A2S)		Prefer freshwater inland wetlands, in particular, permanent or ephemeral water bodies and swamps with abundant vegetation (Marchant & Higgins 1990).	3	9/12/2019	Suitable habitat. No records within 10km. Potential to occur.
Grey Falcon	<i>Falco hypoleucos</i>	VU		vu	Inhabits arid and semi-arid zones; mainly on sandy and stony plains of inland drainage systems, lightly timbered with acacia. Hunt far into open areas, over spinifex, tussock grasslands and low shrublands. In Victoria, few records mostly in north and northwestern regions (Marchant & Higgins 1993).	0	N/A	Limited suitable habitat, no nearby records, beyond known range. Unlikely to occur.
Grey Goshawk	<i>Accipiter novaehollandiae</i>			en	Inhabit rainforests, open forests, swamp forests, woodlands and plantations; most abundant where forest or woodland provide cover for hunting from perches. In Vic., most common in Otway ranges (Marchant & Higgins 1993).	2	24/06/2007	No suitable habitat. Unlikely to occur.
Hardhead	<i>Aythya australis</i>			vu	Inhabits large, deep waters where vegetation is abundant; particularly deep swamps and lakes, pools and creeks. Also occur on freshwater meadows, seasonal swamps with abundant aquatic flora, reed swamps, wooded lakes and swamps, rice fields, and sewage ponds (Marchant & Higgins 1990).	9	9/12/2019	Suitable habitat. Likely to occur.
Latham's Snipe	<i>Gallinago hardwickii</i>		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)		Occurs in wide variety of permanent and ephemeral wetlands; it prefers open freshwater wetlands with dense cover nearby, such as the edges of rivers and creeks, bogs, swamps, waterholes. The species is wide spread in southeast Australia and most of its population occurs in Victoria, except in the northwest of the state (Naarding 1983; Higgins & Davies 1996).	3	2/11/2009	Suitable habitat. Likely to occur.
Magpie Goose	<i>Anseranas semipalmata</i>			vu	Territorial and aquatic habitats, but activities centered on wetlands, mainly those on floodplains of rivers. (Marchant & Higgins 1990).	3	11/11/2019	Suitable habitat. Likely to occur.
Musk Duck	<i>Biziura lobata</i>			vu	It inhabits terrestrial wetlands, estuarine habitats and sheltered inland waters. Almost entirely aquatic; preferring deep water of large swamps, lakes and estuaries, where conditions are stable and aquatic flora abundant (Marchant & Higgins 1990).	4	11/11/2000	No suitable habitat. Unlikely to occur.
Osprey	<i>Pandion cristatus</i>		M (Bonn (A2S))		Rare vagrant to Victoria (Marchant & Higgins 1993). Littoral and coastal habitats and terrestrial wetlands. They are mostly found in coastal areas but occasionally travel inland along major rivers (Johnstone & Storr 1998; Marchant & Higgins 1993; Olsen 1995). They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993).	0	N/A	No suitable habitat. Unlikely to occur.
Painted Honeyeater	<i>Grantiella picta</i>	VU		vu	Inhabits box-ironbark forests and woodlands and mainly feeds on the fruits of mistletoe. Strongly associated with mistletoe around the margins of open forests and woodlands. Can also be found in farmland containing remnant treed vegetation. Occurs at few localities. Uncommon breeding migrant from further north, arriving in October and leaving in February (Higgins et al. 2001; Tzaros 2005).	0	N/A	No suitable habitat. Unlikely to occur.
Pectoral Sandpiper	<i>Calidris melanotos</i>		M (JAMBA, ROKAMBA, Bonn (A2H))		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	0	N/A	Suitable habitat. No records within 10km. Potential to occur.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Plains-wanderer	<i>Pedionomus torquatus</i>	CR		cr	This species inhabits native grasslands with sparse cover, preferring grasslands that include wallaby grass and spear grass species (Marchant & Higgins 1993).	0	N/A	No suitable habitat. Unlikely to occur.
Plumed Egret	<i>Ardea plumifera</i>			cr	It mainly inhabits terrestrial wetlands; only occasionally visit coastal wetlands and forages amongst aquatic vegetation in shallow water and requires trees for roosting and nesting. It often occurs in wetlands that contain vegetation, including bulrush (Marchant & Higgins 1990).	1	1/11/2011	No suitable habitat. Unlikely to occur.
Red Knot	<i>Calidris canutus</i>	Endangered	M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	Endangered	In Australasia, the Red Knot mainly inhabits intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs. They are occasionally seen on terrestrial saline wetlands near the coast, such as lakes, lagoons, pools and pans, and recorded on sewage ponds and saltworks, but rarely use freshwater swamps. They rarely use inland lakes or swamps (DAWE 2020).	0	N/A	No suitable habitat. Unlikely to occur.
Rufous Fantail	<i>Rhipidura rufifrons</i>		M (Bonn (A2H))		In east and south-east Australia, mainly inhabits tall wet sclerophyll forests, often in gullies. When on passage, they are sometimes recorded in drier sclerophyll forests and woodlands, as well as parks and gardens (Higgins et al. 2006).	0	N/A	No suitable habitat. Unlikely to occur.
Satin Flycatcher	<i>Myiagra cyanoleuca</i>		M (Bonn (A2H))		Tall forests and woodlands in wetter habitats but not in rainforest (Higgins et al. 2006)	0	N/A	No suitable habitat. Unlikely to occur.
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	2	2/11/2009	Suitable habitat. Likely to occur.
Swift Parrot	<i>Lathamus discolor</i>	CR		cr	Prefers a narrow range of eucalypts in Victoria, including White Box, Red Ironbark and Yellow Gum as well as River Red Gum when this species supports abundant 'lerp'. Breeds in Tasmania and migrates to the mainland of Australia for the autumn, winter and early spring months. It lives mostly north of the Great Dividing Range, passing through two areas of Victoria on migration: the Port Phillip district and Gippsland. (Emison et al. 1987; Higgins 1999; Kennedy and Tzaros 2005).	0	N/A	No suitable habitat. Unlikely to occur.
White-throated Needletail	<i>Hirundapus caudacutus</i>	VU	M (CAMBA, ROKAMBA, JAMBA)	vu	Aerial, over all habitats, but probably more over wooded areas, including open forest and rainforest. Often over heathland and less often above treeless areas such as grassland and swamps or farmland (Higgins 1999).	1	20/03/1986	Suitable (but marginal) habitat. Potential to occur.
Yellow Wagtail	<i>Motacilla flava</i>		M (JAMBA, CAMBA, ROKAMBA)		Extremely uncommon migrant. Few sightings in Victoria. Mostly occurs in well-watered open grasslands on the fringes of wetlands. Roosts in mangroves and other dense vegetation (DoEE 2018b).	0	N/A	No suitable habitat. Unlikely to occur.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Mammals								
Eastern Barred Bandicoot	<i>Perameles gunnii</i>	EN		en	The habitat of the Eastern Barred Bandicoot (mainland) is perennial tussock grassland and eucalypt woodland with a grassy ground layer (Dufty 1994b; Seebeck 1995a, 2001). Drainage lines and areas of high vegetative cover have been identified as prime habitat. The key determining factor for persistence of this species appears to be high structural complexity and heterogeneity within the environment, reflected in its absence from agricultural areas but persistence in rubbish dumps and other variable habitats.	0	N/A	No suitable habitat. Unlikely to occur.
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	VU		vu	Brisbane, Newcastle, Sydney and Melbourne are occupied continuously. Elsewhere, during spring, they are uncommon south of Nowra and widespread in other areas of their range. Roosts in aggregations of various sizes on exposed branches. Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas (DAWE 2020).	0	N/A	No suitable habitat. Unlikely to occur.
Long-nosed Potoroo	<i>Potorous tridactylus tridactylus</i>	VU		vu	in Victoria coastal heathy woodland; in Tasmania moist forest with dense shrub layer; in the north edge of rainforest (Menkhorst 1995).	0	N/A	No suitable habitat. Unlikely to occur.
Southern Bent-wing Bat	<i>Miniopterus orianae bassanii</i>	CR		cr	Roosts in caves during the day, dispersing over a range of habitats at night. Its feeding areas tend to be associated with major drainage systems (Menkhorst 1995).	0	N/A	Habitat likely to be traversed. Potential to occur.
Southern Brown Bandicoot	<i>Isodon obesulus obesulus</i>	EN		en	Suitable habitat for Southern Brown Bandicoots (eastern) is defined to be any patches of native or exotic vegetation, within their distribution, which contains understorey vegetation structure with 50–80% average foliage density in the 0.2–1 m height range. In areas where native habitats have been degraded or diminished, exotic vegetation, such as Blackberry (<i>Rubus</i> spp.), can and often does, provide important habitat (DAWE 2020).	0	N/A	No suitable habitat. Unlikely to occur.
Swamp Antechinus	<i>Antechinus minimus maritimus</i>	VU		vu	Dense tussock grassland, sedge and heathy woodland and coastal heath and scrub (Menkhorst 1995).	0	N/A	Suitable (but marginal) habitat. No records within 10km. Unlikely to occur.
Spot-tailed Quoll	<i>Dasyurus maculatus maculatus</i>	EN		en	Rainforest, wet and dry forest, coastal heath and scrub and River Red-gum woodlands along inland rivers (Menkhorst 1995).	0	N/A	No suitable habitat. Unlikely to occur.
Yellow-bellied Glider	<i>Petaurus australis</i>	VU				0	N/A	No suitable habitat. Unlikely to occur.
Reptiles								
Glossy Grass Skink	<i>Pseudemoia rawlinsoni</i>			en	Swamps, lake edges, salt marsh, and boggy creeks with dense vegetation (Wilson & Swan 2003).	4	27/09/2018	No suitable habitat. Unlikely to occur.
Striped Legless Lizard	<i>Delma impar</i>	VU		en	Grassland specialist. Known to occur in some areas dominated by introduced species such as Harding Grass <i>Phalaris aquatica</i> , Serated Tussock <i>Nasella trichotoma</i> and Flatweed <i>Hypochaeris radicata</i> and at sites with a history of grazing and pasture improvement. Shelter in grass tussocks, thick ground cover, soil cracks, under rocks, spider burrows, and under ground debris such as timber. The majority of sites in Victoria and NSW occur on cracking clay soils with some surface rock which provide shelter for the species (DAWE 2020).	0	N/A	No nearby records. Unlikely to occur.
Grassland Earless Dragon	<i>Tympanocryptis pinguicollis</i>	EN		ce	The species is confined to native tussock grassland on basalt plains north and west of Melbourne, with no confirmed sightings in Victoria since the 1960's (Robertson & Cooper 2000).	0	N/A	No nearby records. Unlikely to occur.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Tussock Skink	<i>Pseudemoia pagenstecheri</i>			EN	Tussock grasslands with few or no trees (Wilson & Swan (2003).	1	25/06/2003	
Amphibians								
Growling Grass Frog	<i>Litoria raniformis</i>	VU		vu	Permanent, still or slow flowing water with fringing and emergent vegetation in streams, swamps, lagoons and artificial wetlands such as farm dams and abandoned quarries (Clemann & Gillespie 2004).	4	9/12/2019	Suitable habitat within Moyne River, Austins Creek, farm dams and wetlands within 200 metres of these waterways. Likely to occur.
Fish								
Australian Grayling	<i>Prototroctes maraena</i>	VU		en	Large and small coastal streams and rivers with cool, clear waters with a gravel substrate and altering pools and riffles (Cadwallader & Backhouse 1983).	0	N/A	No suitable habitat. Unlikely to occur.
Dwarf Galaxias	<i>Galaxiella pusilla</i>	VU		EN	Ranges from the far west of the state through to the Mitchell River basin in central Gippsland. Vegetated margins of still water, ditches, swamps and backwaters of creeks, both ephemeral and permanent (Allen et al. 2002). Some wetlands where it occurs may partially or completely dry up during summer, with such wetlands reliant on seasonal flooding plus linkages to other sites where the species occurs, for habitat and population replenishment (Saddler, Jackson & Hammer 2010). Dwarf Galaxias is also often found in association with burrowing freshwater crayfish (<i>Engaeus</i> spp.), with the crayfish burrows reported as providing refuge from predators and dry conditions for the species (Saddler, Jackson & Hammer 2010).	0	N/A	Split to G. tooortkoourt in the west of the state. Considered below
Little Galaxias	<i>Galaxiella tooortkoourt</i>			en	Occurs in clear pool of small, flowing streams around rocks or logs (Allen et al. 2002).	9	4/02/2016	Suitable habitat within Austins Creek and Moyne River. Potential to occur.
Macquarie Perch	<i>Macquaria australasica</i>	EN		en	Cool, clear water of rivers and lakes. Favours slower moving water (Allen et al. 2002).	0	N/A	No suitable habitat. Unlikely to occur.
Yarra Pygmy Perch	<i>Nannoperca obscura</i>	VU		vu	Streams and small lakes, prefers flowing water with abundant aquatic vegetation (Allen et al. 2002).	22	4/02/2016	Suitable habitat within Austins Creek and Moyne River which are beyond the study area. Potential to occur.
Insects								
Golden Sun Moth	<i>Synemon plana</i>	VU		vu	Areas that are, or have been native grasslands or grassy woodlands. It is known to inhabit degraded grasslands with introduced grasses being dominant, with a preference for the native wallaby grass being present (DEWHA 2009).	0	N/A	Habitat within the site (EVC 55_63) is not suitable for GSM, due to it being a derived grassland, the high rainfall of the region, no nearby plains grassland EVC, and no VBA records within 10 km of whole transmission line. Unlikely to occur.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Crustacean								
Glenelg Spiny Crayfish	Euastacus bispinosus	EN		en	Glenelg Spiny Freshwater Crayfish is considered a specialist species with typically low tolerance to environmental conditions (namely dissolved oxygen concentrations), ensuring that species requires specific habitat requirements. As with other Euastacus species, Glenelg Spiny Freshwater Crayfish have a preference for permanently-flowing, cool (and shaded) and well-oxygenated water (Morgan 1986; Morgan 1997). Other habitat requirements vary across Victorian and South Australian populations.	0	N/A	No suitable habitat, no nearby records. Unlikely to occur.

Notes: Species for which suitable habitat occurs in the study area are shaded in grey. **EPBC-T** = threatened species status under EPBC Act; CR = critically endangered; EN = endangered; VU = vulnerable; **EPBC-M** = migratory status under the EPBC Act; M = listed migratory taxa; Bonn Convention (A2H) – Convention on the Conservation of Migratory Species of Wild Animals – listed as a member of a family; Bonn Convention (A2S) – Convention on the Conservation of Migratory Species of Wild Animals – species listed explicitly; CAMBA – China- Australia Migratory Birds Agreement; JAMBA – Japan-Australia Migratory Birds Agreement; ROKAMBA – Republic of Korea Australia Migratory Birds Agreement; **FFG** = threatened species status under the FFG Act: cr = critically endangered; en = endangered; vu = vulnerable.



5.5.1. Susceptibility of listed fauna to impacts

It can be difficult to definitively ascertain the likelihood and extent of plausible risk for listed fauna species. Potential impacts to threatened fauna species that are likely to occur or known to occur within the study area are discussed below.

The following analysis identifies the susceptibility to development of listed fauna species which may utilise the study area. This analysis includes consideration of the factors below.

- The mobility of the species
- The availability and extent of other suitable habitat in the region and the degree to which each species may rely on habitat in the study area that been impacted

Threatened Birds

Six listed non-migratory bird species are considered to have the potential to occur in the study area.

- **Australasian Bittern** (EPBC: Endangered, FFG: critically endangered)
- **Australian Painted Snipe** (EPBC: Endangered, FFG: critically endangered)
- **Australasian Shoveler** (FFG: vulnerable)
- **Brolga** (FFG: endangered)
- **Hardhead** (FFG: vulnerable)
- **Magpie Goose** (FFG: vulnerable)

The susceptibility of these species to potential impacts from any development in the study area is discussed below.

Australasian Bittern (EPBC: Endangered, FFG: critically endangered)

The Australasian Bittern is the world's most threatened Bittern species (Herring 2005). It has declined appreciably since 2000 to the point of being declared an endangered species at national level. Its estimated population nationwide is less than 2500 individuals including 86 to 248 in Victoria (Garnett et al. 2011; Garnett & Baker 2021).

Australasian Bittern inhabit tall dense vegetation in freshwater wetlands and may occur along the Hawkesdale to Tarrone transmission line alignment, seasonally at low densities, even though there are no records within 10 kilometres of the alignment. However, the species may occasionally move throughout the landscape in proximity to the alignment while foraging in nearby wetlands at seasonably appropriate times. However, the lack of nearby records (within 10km) suggests that there are no nearby areas of core habitat, that the species is known to regularly frequent.

The main risk that the project presents to Australasian Bittern is the potential for this species to collide with powerlines during flight. Ten dead Australasian Bitterns were found under powerlines in 10 years in the Portland district (Farnes 2019) – these were mostly in the vicinity of Alcoa's Portland aluminium smelter (R.F. Farnes, pers. Comm. 11th May 2022). Notably, there is a higher density of electricity transmission lines in the Portland area than at Hawkesdale, because the grid services a town of 10,000 people, together with the largest electricity user in the state (the Alcoa smelter) as well as connecting to the Portland Capes Wind Farm. This region is serviced by a 500kV transmission line with poles that are 63m tall. It is therefore expected there will be fewer transmission lines in the vicinity of Hawkesdale than close to Portland and casualties of Australasian Bittern would be correspondingly lower.

Quantifying the risk to this species from powerline collisions is difficult, but the occasional mortality risk posed by powerlines would be minimal compared to other much more frequent known mortality risks affecting the species, i.e. wetland drainage and diversion, loss of vegetative cover on wetlands due to grazing, predation by feral cats and foxes (Garnett & Baker 2021; DoEE 2018b). In summary, risks to the regional Australasian Bittern population posed by the Hawkesdale Wind Farm to Tarrone transmission line is unlikely to be significant.

Australian Painted Snipe (EPBC: Endangered, FFG: critically endangered)

The Australian Painted Snipe is a rare endemic water bird that occurs intermittently and in small numbers (<10 together at one time) in Victoria (Emison *et al.* 1987). It might occur in vicinity of the Hawkesdale transmission line, but there are no records to date. It is dispersive, occurring only if seasonal conditions are favourable. Their main breeding area is in wetlands of the Murray-Darling basin, particularly inland lignum swamps which fill in years of above-average rainfall (Marchant and Higgins 1993).

Almost nothing is known of the flight heights of Painted Snipe, or temporal movements. Suffice to say, there appear to be no records of collisions with any structures, but this may be a factor related to its relative rarity. Given that the transmission line is not within their main breeding area and there are no nearby records, the Australian Painted Snipe is unlikely to be significantly impacted by the proposed powerline.

Australasian Shoveler (FFG: vulnerable) and **Hardhead** (FFG: vulnerable)

The Australasian Shoveler and Hardhead are found throughout a range of wetlands, with a preference towards large, undisturbed swamps with fringing vegetation. Hardheads are rarely recorded in open areas and require tree vegetation for roosting. Due to there being some records within the 10km search region, these species may occasionally fly over the study area, however this would be infrequent due to the lack of suitable habitat within the immediate vicinity, either side of the transmission line. There is limited information surrounding the collision risk of powerlines to these species. Given the anticipation that these species would rarely cross through the transmission line, there is no reason to believe that its population would be impacted significantly, if the occasional casualty from the transmission line of this proposal occurs.

Brolga (FFG: endangered)

The Brolga guidelines (DSE 2012) outline instances that need to be considered on impacts to Brolga from wind farm developments. The proposed powerline easement has been located outside all known Brolga breeding and flocking home ranges in the area. The review of existing information showed that there are no known Brolga breeding sites within 3.2 kilometres of the proposed transmission line. Similarly, there are no known Brolga flocking sites within five kilometres of the proposed transmission line. This will avoid any impacts to known Brolga breeding and flocking home ranges where Brolga spend the majority of their time.

Herring (2005) listed four instances over a two-year study, of collisions between Brolgas and transmission lines in northern Victoria and southern New South Wales (approximately bounded by Benalla, Rutherglen, Wagga Wagga, Yarrawonga, and Katamatite), comprising three adults and one fledgeling. This is a much larger geographical area than that covered by the Hawkesdale proposed transmission line but that study area only has a small population of Brolga estimated at 80 to 100 birds (Herring 2005).

Farnes (2007) stated that collisions of Brolgas into powerlines in the Portland district 'continue to occur', with two birds killed in 2002. There are now three known powerline casualties in the district, bounded by the South Australian border, Yambuk and Bessie Belle (20 kilometres west of Tarrone

Terminal Station) over c. 30 years (Farnes 2019; R.F. Farnes, pers. Comm. 11th May 2022). Given that the south-western Victorian population number is 600 to 900 individuals (White 1987; DuGuesclin 2003; Sheldon 2004; SWIFFT 2018; Veltheim *et al.* 2019) but is dispersed over a much larger area than the Hawkesdale Wind Farm transmission line itself, it is expected that Brolga casualties would not be so significant as to cause losses to the overall regional population. Further considerations include the expected density of transmission line infrastructure will be lower than that close to Portland, where the electricity grid services a town of 10,000 people and also Alcoa's aluminium smelter – the single largest electricity user in the state – as well as connecting to the Portland Capes Wind Farm. Other types of mortality such as predation of nestlings and juvenile birds by the Red Fox, and lack of breeding success due to loss and degradation of breeding wetlands by drainage, grazing and climate change, continue to be the main impacts on the Brolga population in south-western Victoria.

In summary, it is considered that a Brolga collision with the transmission line between Hawkesdale and Tarrone Terminal Station would be a rare event, especially as there are no nearby known breeding sites. Although a Brolga may collide with transmission lines occasionally, the cumulative impact over periods spanning a decade or more are considered unlikely to amount to a significant impact on the regional population, especially when compared against the likely ongoing annual mortality from the Red Fox, and cumulative losses of and degradation to breeding wetlands.

Magpie Goose (FFG: vulnerable)

The **Magpie Goose** is a large species with somewhat lumbering flight and therefore susceptible to collision with powerlines. It occurs in south-west Victoria seasonally after dispersing from the breeding site at Bool Lagoon, South Australia (Farnes 2007, 2019, DELWP 2018d). It is therefore likely to pass through the study area regularly. The Magpie Goose is a flocking species sometimes seen in large flocks of 700 birds (Farnes 2019) in western Victoria. Given that the species is re-established and its population continues to increase since the 1980s (e.g. Emison *et al.* 1987; Farnes 2007, 2019), there is no reason to believe that its population would be impacted significantly by occasional casualties from the transmission line of this proposal.

Summary

The abovementioned species are likely to occasionally use ephemeral wetland habitat within the study area. Given the seasonal nature of this habitat, the large amount of similar habitat available in the surrounding region, and the lack of impact of the proposed transmission line on this habitat, it is considered unlikely that these species would be impacted by the proposed development. Species that are most likely to be affected are discussed in more detail under Impacts, Section 6.1.6.



Migratory Birds

Nine listed migratory bird species (excluding oceanic species and shorebirds) have the potential to occur in the study area. The susceptibility of these species to possible impacts from any development in the study area is discussed below.

- **Common Greenshank** (EPBC: Migratory)
- **Common Sandpiper** (EPBC: Migratory)
- **Curlew Sandpiper** (EPBC: Critically Endangered & Migratory, FFG: critically endangered)
- **Glossy Ibis** (EPBC: Migratory)
- **Latham's Snipe** (EPBC: Migratory)
- **Pectoral Sandpiper** (EPBC: Migratory)
- **Sharp-tailed Sandpiper** (EPBC: Migratory)

The species listed above are likely to occasionally use ephemeral wetland habitat within the study area. For the same reasons detailed in the previous section regarding threatened bird species, it is considered unlikely that these species would be impacted by the proposed development.

The most likely migratory shorebird species to occur are Sharp-tailed Sandpiper, Latham's Snipe, Red-necked Stint and Common Greenshank. All of these species, number in the thousands in the East Asian-Australasian flyway.

Impacts of the project on migratory shorebirds were assessed against EPBC Act Policy Statement 3.21 *Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (DoEE 2017). Important habitats in Australia for migratory shorebirds under the EPBC Act include those recognised as nationally or internationally important. The widely accepted approach at identifying internationally important shorebird habitat throughout the world has been through criteria adopted under the Ramsar Convention on Wetlands.

According to this approach, wetland habitat should be considered internationally important if it regularly supports (DoEE 2017):

- 1% of the individuals in a population of one species or subspecies of waterbird; or
- A total abundance of at least 20,000 waterbirds.

Nationally important habitat for migratory shorebirds is similarly defined if it regularly supports (DoEE 2017):

- 0.1% of the flyway population of a single species of migratory shorebird; or
- A minimum of 2,000 migratory shorebirds; or
- A minimum of 15 migratory shorebird species.

The review of existing information (DELWP 2022, 2018d) showed that wetlands in the study area are not already identified as internationally important habitats (RAMSAR wetland). The wetlands also do not meet the above criteria for internationally or national important habitat for migratory shorebirds.

Therefore, the small risk of impacts would not amount to a significant adverse impact on the overall population for each species, despite the marginal risk of bird collision with the transmission line in the Hawkesdale area.

- **Fork-tailed Swift** (EPBC: Migratory)
- **White-throated Needletail** (EPBC: Migratory, FFG: vulnerable)

These two aerial species are likely to occur infrequently over the study area. They would likely occur only a few days per year, in the warmer months summer and early autumn when their flying insect prey are on the wing. Both the swift and the needletail range over huge areas (Higgins 1999; Tarburton 2014) so their chances on colliding with a length of transmission line that is proposed for Hawkesdale is expected to be negligible.

The Fork-tailed Swift is not a listed threatened species and remains common; it ranges widely in East and South Asia and Australasia and its estimated breeding population is in the tens of thousands (10,000 to 100,000 pairs) in Japan alone (BirdLife International 2022).

The White-throated Needletail is close to the edge of its known range at Hawkesdale. This species prefers to forage over forested country of the Great Dividing Range, but also uses open country (Higgins 1999). It has recently been listed as vulnerable at national and state level, and the species is now considered uncommon; its population is estimated at 20,000 to 61,000 mature individuals (Garnett & Baker 2021). Tarburton (2014) documented a population decline in Australia which began since the 1950s. Specifically, Tarburton stated that collisions with powerlines, [tree] branches and telephone lines were “of little consequence” in Australia, pointing to only six occurrences, compared to other sources of mortality having much greater impact (e.g. 11 turbine casualties from two wind farms in Tasmania over ten years (Hull 2013)). The main cause of the Needletail’s decline was attributed to clearance of the taiga forests of Siberia (Tarburton 2014).

Given the extreme mobility and infrequency of occurrence of the species across their non-breeding range in Australia, it is unlikely that the collision risk owing to the proposed transmission line between Hawkesdale Wind Farm and Tarrone Terminal Station would amount to a significant adverse impact on either the White-throated Needletail or the Fork-tailed Swift.

Mammals

One listed mammal species is considered to have the potential to occur in the study area. The susceptibility of this species to possible impacts from any development in the study area is discussed below.

- **Southern Bent-wing Bat** (EPBC: Critically Endangered; FFG: critically endangered)

The Southern Bent-wing Bat (SBWB) has not been recorded in the 10 km radius search region (DELWP 2022) though it is within their known distribution range. The species is known to breed in Victoria at a cave near Warrnambool, 46 kilometres south-east of the study area, and it is known to roost at caves at Byaduk, and Mt Eccles non-breeding caves to the west and north of the powerline alignment (DELWP 2020). It is unlikely that the species is susceptible to collision with transmission lines when moving about the landscape foraging or traversing between the breeding and non-breeding caves, as microbats are well equipped to avoid such static structures. There is no available literature to confirm SBWB collision with transmission lines and as such considered unlikely to occur.

In summary, the transmission line is unlikely to pose a significant impact on the population. It is considered that a SBWB collision with the transmission line between Hawkesdale and Tarrone Terminal Station would be a rare event. Although a SBWB may collide with transmission lines occasionally, the cumulative impact over time is considered unlikely to amount to a significant impact on the regional population, especially when compared against the known population size near Warrnambool is around 17,000 individuals (DELWP 2020).

Fish

Two listed fish species is considered to have the potential to occur in the study area. The susceptibility of these species to possible impacts from any development in the study area is discussed below.

Yarra Pygmy Perch (EPBC: Vulnerable; FFG: vulnerable)

The Yarra Pygmy Perch has been recorded in Back Creek and Moyne River as recent as 2016 (DELWP 2022b), therefore the species is assumed to occur within the study area as the proposed alignment crosses Moyne River and Back Creek, as well as Austins and Nardoo Creek which are contiguous to Moyne River. The design of the proposed access track minimises the number of waterway crossings, as well as makes use of existing crossings. The proponent has advised that no upgrading to these crossings is required, therefore there are no anticipated impacts to this species from the proposal, provided that the hydrological regime and water quality of these waterways remain unchanged. The principal contractor's CEMP will include mitigation measures for sedimentation and erosion that will be implemented to avoid any detrimental impacts to the waterways and associated aquatic habitat through the construction process.

Little Galaxias (FFG: endangered)

This species was split into two distinct species after a review in 2015, with the population in eastern Victoria still recognised under the EPBC Act as *Galaxiella pusilla*, while the population in the west is now known as Little Galaxias (*Galaxiella toourtkoort*) and is not protected under the EPBC Act. There are nine records for the species in the search region as recent as 2016 and is therefore considered to have the potential to occur within Moyne River, Nardoo Creek and Austins Creek. For the reasons detailed above in regard to the Yarra Pygmy Perch, the species is not considered to be impacted by the proposal, provided appropriate construction standards and mitigation measures are adhered to.

Frogs

One listed frog species is considered to have the potential to occur in the study area. The susceptibility of this species to possible impacts from any development in the study area is discussed below.

▪ Growling Grass Frog (EPBC: Vulnerable; FFG: vulnerable)

There are limited registered recent records for the Growling Grass Frog (GGF) within the 10 km radius search region (DELWP 2022), though it is within their known distribution range. The species is known to occur along Back Creek and Moyne River, and therefore can be assumed that the species would be recorded within the study area as there is habitat continuity to known populations in the landscape. Optimal 'core' habitat includes any areas within 30 metres of permanent waterbodies with fringing vegetation such as farm dams and slow-moving waterways like Moyne River, Back Creek, Nardoo Creek and Austins Creek. The species will disperse up to 200 metres from these core areas into well vegetated floodplains, including areas of Plains Grassy Wetland, Plains Sedgy Wetland and potentially some DELWP-mapped wetlands, when conditions are suitable after flooding spring rain. GGF are active during spring and summer and are dormant through the cooler months.

As the precautionary approach was considered, whereby their presence was assumed in areas of suitable 'core' habitat, such as Moyne River, Austins Creek, Nardoo Creek and Back Creek, targeted surveys for GGF were not undertaken. The species may opportunistically or transitionally utilise wetlands and tributaries within 200 metres of 'core' areas within the study area, these areas are

considered to be 'secondary' habitat. Although 0.215 ha of habitat (within 30m of a waterway) is proposed to be impacted by the access track and hardstands, this is not considered to be a significant impact, as the majority of this encroachment occurs in discrete locations on the margins of this buffer area and does not disturb the waterway itself. This ensures habitat connectivity will be maintained along the waterway. There is one location where the access track is proposed to cross a tributary to Back Creek. This is considered to be impact to 'secondary' habitat as it provides a dispersal corridor from Back Creek during seasonably favourable conditions, but does not provide suitable habitat for prolonged periods of time (i.e. permanent waterbody and emergent vegetation). Additionally, the proponent has advised that the existing crossing of Nardoo Creek will not be upgraded nor utilised by the contractors during construction.

To avoid any long-term significant impacts to the GGF, the crossing of the tributary to Back Creek will be designed in accordance with the *Growling Grass Frog Crossing Design Standards – Melbourne Strategic Assessment* (DELWP 2017b). These standards are designed to facilitate the movement of Growling Grass Frog through a waterway. Provided that the hydrological regime and water quality of the tributary of Back Creek remain unchanged by the construction of the crossing, the species is not anticipated to be significantly impacted by the proposal. The principal contractor's Construction Environmental Management Plan (CEMP) will include mitigation measures for sedimentation and erosion that will be implemented to avoid any detrimental impacts to all waterways and associated aquatic habitat through the construction process. The construction of the crossing is recommended to occur during late summer after a period of little to no rain, when the water level is at its lowest. This is to avoid or minimise risk of increased turbidity within the waterway from the construction process.

The *Significant impact guidelines for the vulnerable growling grass frog (Litoria raniformis)* (DEWHA 2010) was reviewed when assessing the potential impacts to Growling Grass Frog against the relevant EPBC Act significant impact criteria. This is detailed within a standalone EPBC Act Self-Assessment report (Nature Advisory 2022).

Reptiles and Invertebrates

No listed reptile or invertebrate species are considered to have the potential to occur in the study area, and therefore no impacts are expected.

5.6. Listed ecological communities

The EPBC Protected Matters Search Tool (DoEE 2018a) indicated that five ecological communities listed under the EPBC Act had the potential to occur in the study area (Table 6). One listed ecological community was recorded within the study area.

Table 6: EPBC Act listed ecological communities and likelihood of occurrence in the study area

Ecological Community	EPBC	Occurrence in the study area
Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP)	CR	Does not occur within the study area
Natural Temperate Grassland of the Victorian Volcanic Plain	CR	Does not occur within the study area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (SHWTLP)	CR	This community occurs within habitat zones DC and DD.
Subtropical and Temperate Coastal Saltmarsh	VU	Does not occur within the study area

Ecological Community	EPBC	Occurrence in the study area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CR	Does not occur within the study area

Notes: EPBC = status under EPBC Act: CR = Critically Endangered; VU = Vulnerable.

Based on an assessment of native vegetation in the study area against published descriptions and condition thresholds for these communities, the following listed ecological communities were recorded in the study area:

- **Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (SHWTLP)** – listed as Critically Endangered under the EPBC Act (EVCs 125, 647 and 653).

The aquatic vegetation in habitat zones DC and DD comprising either of Aquatic Herbland EVC 653) or Plains Sedgy Wetland (EVC 647) were found to meet the key diagnostic criteria and condition thresholds (TSSC 2012) for this community.

Neither of these habitat zones are proposed to be impacted by the development.

Additional Ecological Communities

A further four ecological communities were modelled to potentially occur in the study area. Based on an assessment of native vegetation in the study area against published descriptions and condition thresholds, the following communities were found not to occur in the study area based on the factors described below.

- **Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP)** – listed as Critically Endangered under the EPBC Act).

None of Higher-rainfall Plains Grassy Woodland (EVC 55_63) mapped within the study area met the condition thresholds (TSSC 2008a) for this community, being too small (<0.5 hectares) and/or too weedy.

- **Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP)** – listed as Critically Endangered under the EPBC Act

No EVCs associated with this community (namely Plains Grassland (EVC 132) and Creekline Tussock Grassland (EVC 654) (TSSC 2008b)) were recorded within the study area.

- **Subtropical and Temperate Coastal Saltmarsh** – listed as Vulnerable under the EPBC Act

No EVCs associated with this community (namely Coastal saltmarsh aggregate (EVC 9) and Estuarine wetland (EVC 10) (DSEWPAC 2013)) were recorded within the study area.

- **White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland** – listed as Critically Endangered under the EPBC Act

The study area is beyond the extent of this community, which occurs in the Victorian Midlands and Riverina Bioregions (TSSC 2006).

6. Impacts of Proposed Development

6.1. Impacts of proposed development

Various design measures have been undertaken for this proposal to avoid and minimise impacts to native vegetation. These are detailed in Section 7.2.1.

6.1.1. Native vegetation

The current proposed footprint will result in the loss of a total extent of 0.818 hectares of native vegetation, as represented in Figure 2 and documented in the Native Vegetation Removal (NVR) report provided by DELWP (Appendix 7).

The native vegetation to be removed includes areas mapped as an endangered Ecological Vegetation Class.

In addition, the removal of a total extent of 0.292 hectares of native vegetation associated with the Hawkesdale Wind Farm and Tarrone Terminal Station Upgrade has been included as past removal for this proposal. Of the 0.292 hectares of native vegetation included as past removal:

- 0.056 hectares relate to impacts to native vegetation at Hawkesdale Wind Farm. This amount of native vegetation impacts has been applied for by the proponent and assessed by DELWP Environment and DELWP Planning. This impact is approved under an amended planning permit for Hawkesdale Wind Farm (20060221).
- 0.186 hectares relate to proposed impacts to native vegetation at Tarrone Terminal Station, for which a planning permit application has been lodged.
- 0.050 hectares relate to impacts to native vegetation along the portion of the approved Ryan Corner Transmission Line alignment, where it intersects with this proposal before connecting to Tarrone Terminal Station.

Representative photographs of native vegetation proposed for removal are provided in Appendix 5.

6.1.2. Modelled species important habitat

The current proposal footprint will not have a significant impact on modelled habitat for any FFG listed rare or threatened species as determined in the DELWP generated NVR report (Appendix 7).

6.1.3. Listed flora species

The current proposal footprint will not have a significant impact on any EPBC or FFG Act-listed flora species, as any confirmed or potential occurrences of such species have been avoided in the detailed design of the transmission line.

6.1.4. FFG Protected Flora

One species listed as protected under the FFG Act was recorded in the study area on public land on two occasions, namely, Black Wattle, *Acacia mearnsii* from the following locations:

- Habitat zone EG (one plant); and
- Habitat zone EJ (one plant).

Neither of these plants are proposed to be impacted, therefore there are no implications under the FFG Act.

This is indicated in Figure 2-2 and excised below:

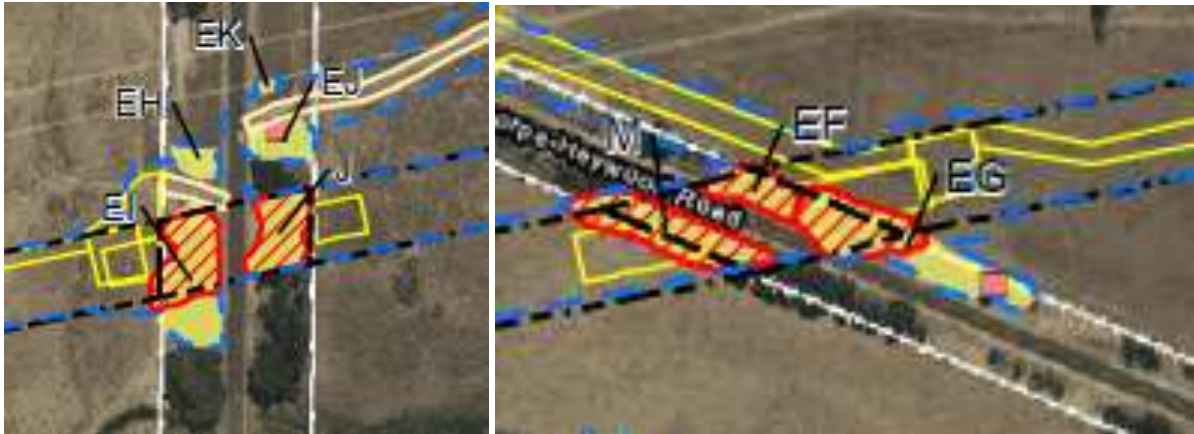


Plate 1: *Acacia Mearnsii* (pink dots) avoided by the development

6.1.5. Fauna

The proposed transmission line will involve the removal of small, disparate patches of rocky outcrops, grassland and ephemeral aquatic habitat as well as some patches of treed vegetation. The removal of this habitat from the landscape would unlikely result in the displacement of fauna species given the extensive areas of similar habitat that will remain in the landscape.

The powerline proposed for this project runs for a distance of several kilometres and therefore potentially pose a collision risk to some birds. Large, slowly reproducing bird species with poor manoeuvrability in flight are at highest risk of population impacts due to collisions with artificial structures including power lines (Bevanger 1994, 1998; Martin and Shaw, 2010).

In the study area, members of the order Anseriformes such as Black Swan, Cape Barren Goose and Magpie Goose, Australian Pelican, Brolga, Australian Bittern, herons and egrets, Wedge-tailed Eagle and other raptors, may potentially be impacted. Swifts, i.e. White-throated Needletail and Fork-tailed Swift may collide with powerlines, but tend to fly at higher levels so there are expected to be few collisions between swifts and powerlines. Impacts on the populations of most susceptible species would be minimal owing to the relative abundance of most species, e.g. swans, herons, egrets and Australian Pelicans.

6.1.6. Listed fauna species

The analysis of susceptibility of listed fauna species to impacts presented in Section 5.5.1 identified that no listed fauna species are anticipated to be significantly impacted by the proposed development.

A total of 0.215 ha of Growling Grass Frog habitat (within 30m of a waterway) is proposed to be impacted by the access track and hardstands. This is not considered to be a significant impact, as the majority of this encroachment occurs in discrete locations on the margins of this buffer area and does not disturb the waterway itself. This ensures habitat connectivity will be maintained along the waterway. There is one location where the access track is proposed to cross a tributary to Back Creek. This is considered to be impact to 'secondary' habitat as it provides a dispersal corridor from Back Creek during seasonably favourable conditions but does not provide suitable habitat for prolonged periods of time (i.e. permanent waterbody and emergent vegetation).

Appropriate construction methods and mitigation measures will ensure that these impacts to habitat will not lead to a significant impact to the population of these species, as outlined in Section 5.5.1.

Additional considerations for avifauna

The main listed threatened avifauna species that could potentially be impacted by collisions with transmission lines are the Australasian Bittern and Brolga. These are wetland species for which the biodiversity index is low for most of the transmission line alignment. It is expected that impacts on these, and all other listed species, would be minimal owing to the infrequent occurrence and subsequent collision risk to these species. In addition to this, the project avoids direct impacts to suitable habitat (wetland habitat) for these listed species, from the construction of the transmission line and access tracks. There are much larger areas of higher quality known habitat in areas beyond the transmission line (e.g. coastal wetlands and estuaries such as Belfast Lough and Yambuk Lake), which provide the foraging and nesting resources for much higher numbers of these threatened waterbirds than Hawkesdale and its surrounds. Therefore, both direct and indirect impact to listed avifauna is considered negligible.

6.1.7. Threatened ecological communities

The proposed development footprint will not result in any loss to EPBC Act listed ecological communities, as all confirmed areas of the *Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains* (SHWTLP) community have been avoided during detailed design of the transmission line, as detailed within Figure 2-6 and illustrated below:

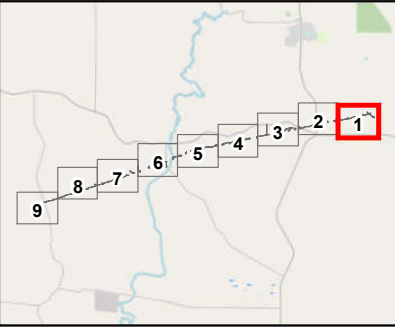
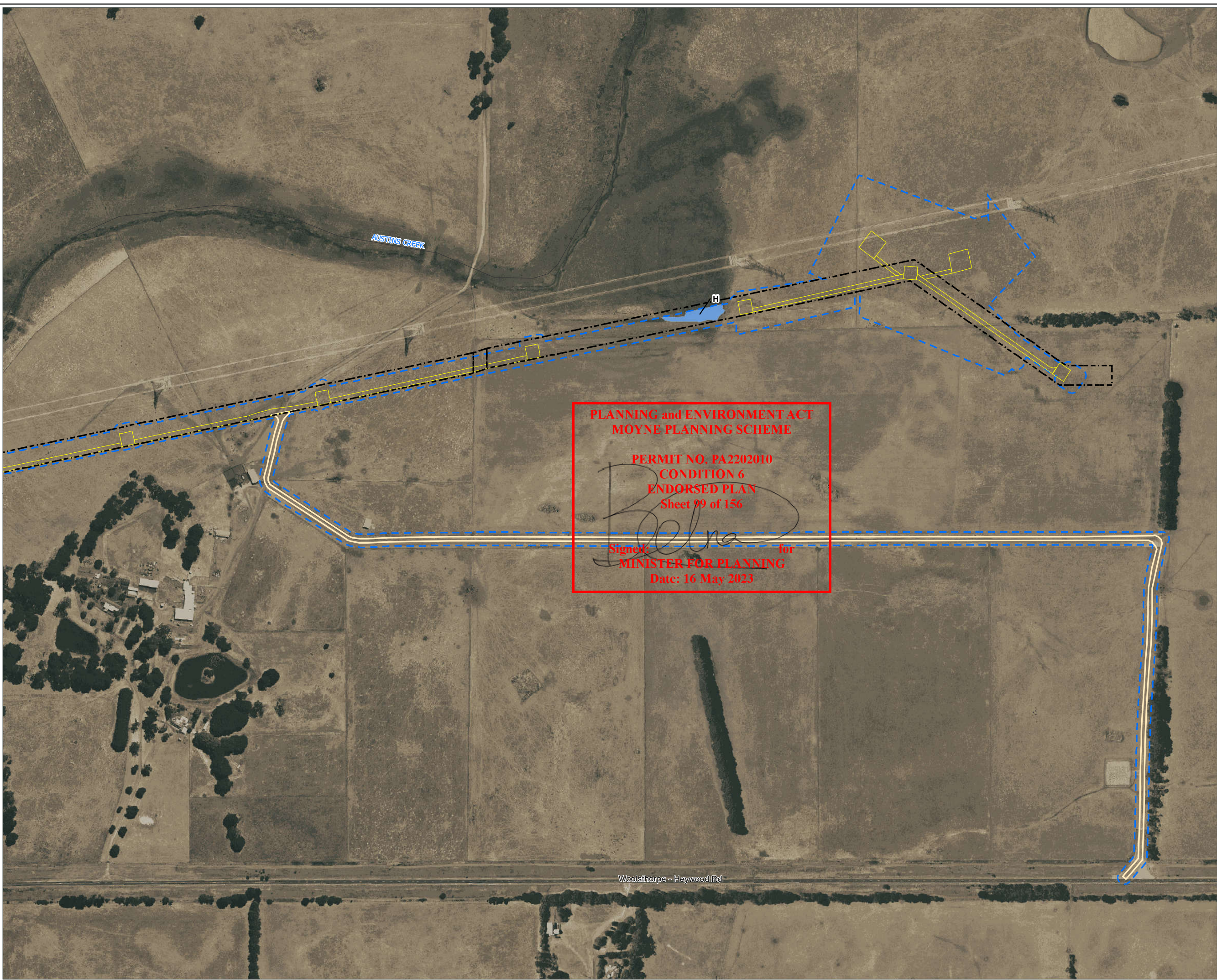


Plate 2: Avoidance of mapped areas of SHWTLP (light blue) along the alignment.

Figure 2-1: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxI Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Swamp Scrub (EVC 53)



N

Metres

0 90

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Figure 2-2: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxI Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Basalt Shrubby Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - Black Wattle - FFG Act listed
 - DELWP wetland
 - Native vegetation to be removed

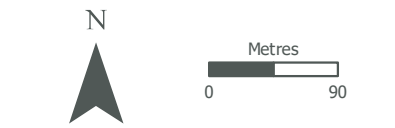
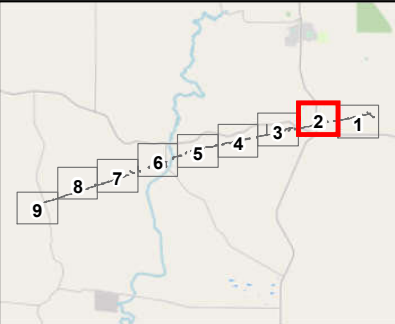
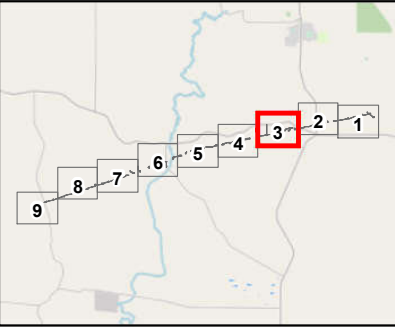
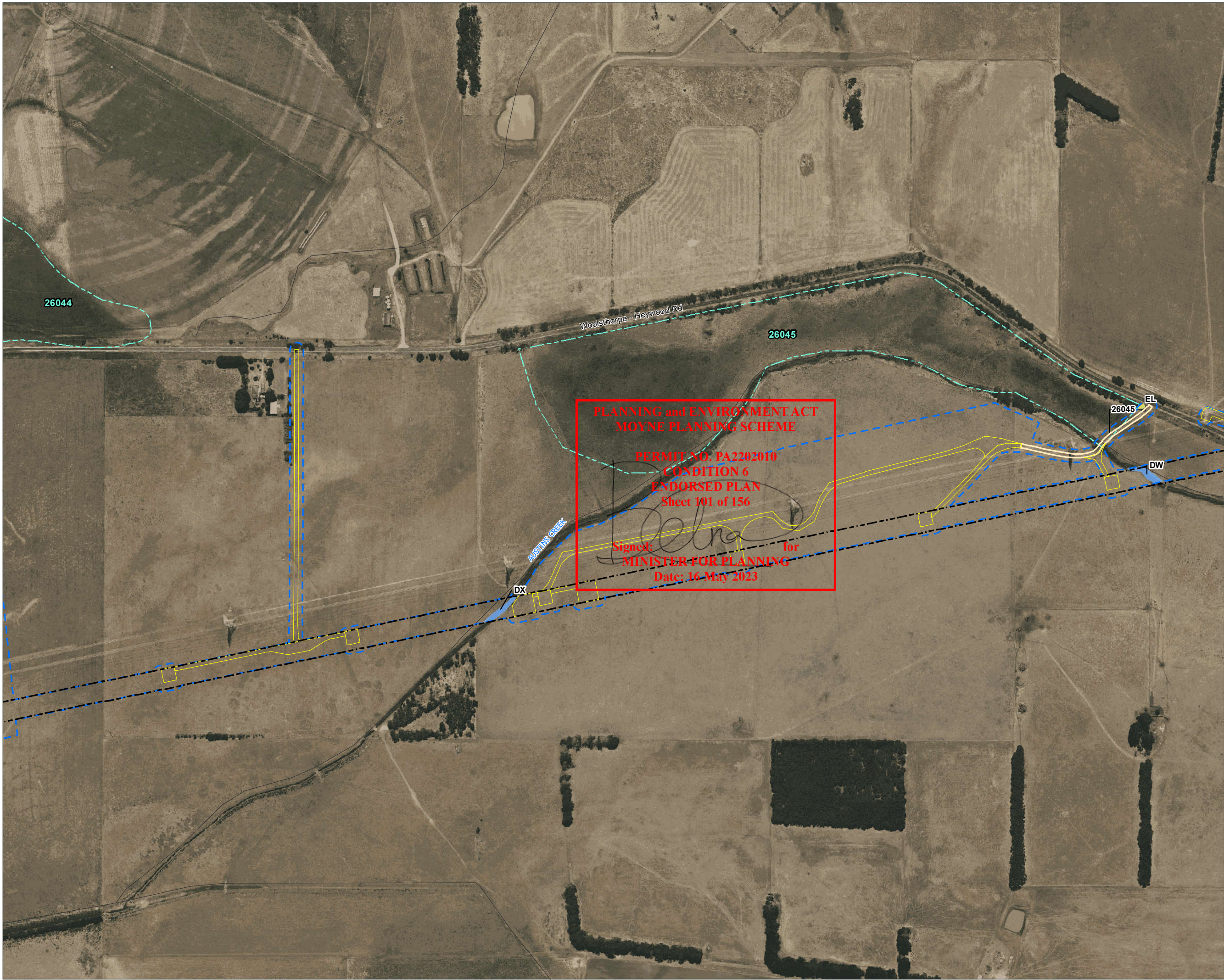


Figure 2-3: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Basalt Shrubby Woodland (EVC 642)
 - Swamp Scrub (EVC 53)
 - DELWP wetland
 - Native vegetation to be removed



N

Metres

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Figure 2-4: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxI Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Higher Rainfall Plains Grassy Woodland(EVC 55_63)
 - Stony Knoll Shrubland (EVC 649)
 - Swamp Scrub (EVC 53)
 - Large tree in patch
 - Large scattered tree
 - DELWP wetland
 - Native vegetation to be removed

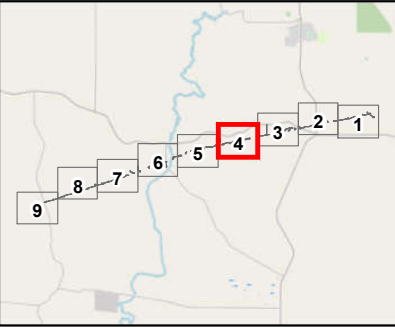


Figure 2-5: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Existing track
- Native vegetation**
 - Higher Rainfall Plains Grassy Woodland(EVC 55_63)
 - Stony Knoll Shrubland (EVC 649)
 - Native vegetation to be removed

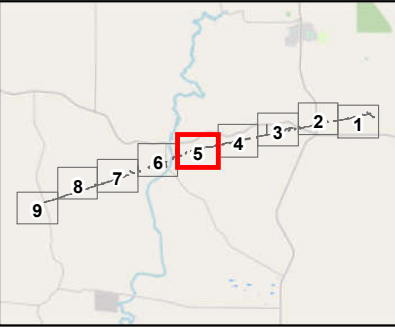


Figure 2-6: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Native vegetation**
 - Aquatic Herbland (EVC 653)
 - Plains Sedgy Wetland (EVC 647)
 - Swamp Scrub (EVC 53)
 - DELWP wetland
- Listed ecological communities**
 - SHWTLP
 - Native vegetation to be removed

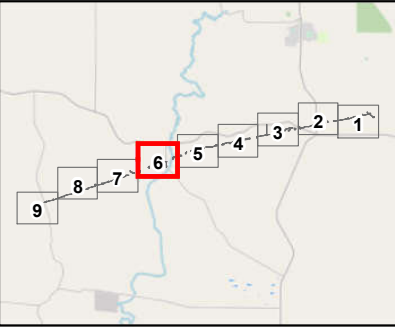


Figure 2-7: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

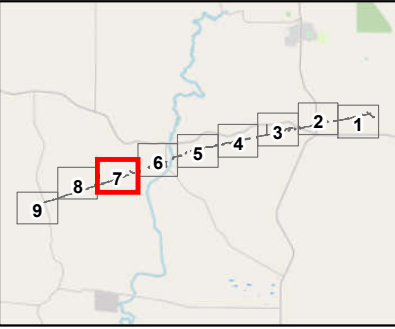
- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Native vegetation**
 - Plains Sedgy Wetland (EVC 647)
 - Plains Swampy Woodland (EVC 651)
 - DELWP wetland
- Listed ecological communities**
 - SHWTL
 - Native vegetation to be removed



PLANNING and ENVIRONMENT ACT
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Signed: _____ for
MINISTER FOR PLANNING
Date: 16 May 2023



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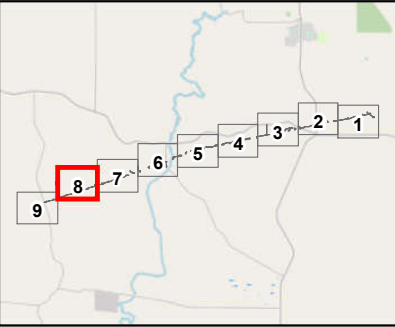
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Figure 2-8: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

-  TxI Alignment HDWF to Tarrone study area
-  Development footprint
-  Easement corridor (30m)



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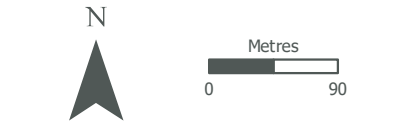
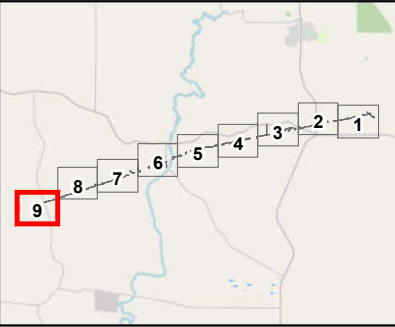
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Figure 2-9: Native vegetation to be impacted

Project: HDWF to Tarrone
Terminal Station TXL
Client: Hawkesdale Wind Farm
Pty Ltd
Date: 21/12/2022

- TxL Alignment HDWF to Tarrone study area
- Development footprint
- Easement corridor (30m)
- Native vegetation**
 - Stony Knoll Shrubland (EVC 649)
 - DELWP wetland
 - Native vegetation to be removed



7. Implications Under Legislation and Policy

7.1. Summary of planning implications

No overlays relevant to this investigation cover the study area.

A planning permit under Clause 52.17 of the Moyne Planning Scheme is required for the removal of native vegetation.

7.2. Implications under the Guidelines

7.2.1. Avoid and minimise statement

In accordance with the Guidelines, all applications to remove native vegetation must provide an avoid and minimise statement which details any efforts undertaken to avoid the removal of and minimise the impacts on biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value. Efforts to avoid and minimise impacts to native vegetation in the current application are presented as follows:

- Strategic level planning – The overall route was initially chosen as it is based off a route surveyed prior to 2012 that sought to avoid and minimise impacts to native vegetation and mapped wetlands. More recent surveys have since been undertaken and the route has subsequently been refined to further avoid impacts on native vegetation.
- Site level planning – Every effort has been made to avoid and minimise impacts on native vegetation. Transmission poles and access tracks have been located to avoid patches of native vegetation where possible, particularly in the following areas:

Description of avoidance	Extract of area
Avoidance of habitat zone H. Refer to Figure 2-1	
Utilisation of an existing access track to avoid impacts to Austins Creek. Refer to Figure 2-2	

Description of avoidance	Extract of area
Utilisation of an existing crossover to cross Austins Creek rather than forming a new crossover and impacting on the creek environs. Refer to Figure 2-4.	
Avoidance of Austins Creek crossing further west along the access track to avoid impacts to native vegetation. Access to the next pole location is from the west rather than creating a new crossing. Refer to Figure 2.4.	
Avoidance of a large area of native vegetation which also classifies as the EPBC listed community SHWTLR. Refer to Figure 2-6. An access track was previously proposed to provide direct access between the two hardstand areas shown on this figure. This has since been removed to avoid impacts.	

**PLANNING and ENVIRONMENT ACT
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ENDORSED PLAN

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**Signed: [Signature] for
MINISTER FOR PLANNING
Date: 16 May 2023**

Efforts to further avoid and minimise impacts to native vegetation are as follows:

- Where impacts to native vegetation were deemed unavoidable, access tracks have been placed to avoid higher quality vegetation, where possible.
- Access tracks have been designed with consideration for relevant waterbody overlays. Designs for all designated waterway crossings will be provided to, and approval sought from the Glenelg Hopkins Catchment Management Authority (CMA) before proceeding with the works. For minor waterways, crossings/culverts will be constructed at appropriate locations to maintain the natural flow.
- During detailed design, the results of surveys were included to microsite infrastructure to reduce impact and loss, where possible.

- Different pole structures have been used to increase the span length across wetland areas to reduce the impact from pole footings.

Furthermore, given the length of the transmission line, there are limited feasible opportunities to further avoid and minimise impacts on native vegetation without undermining the key objectives of the proposal.

7.2.2. Assessment pathway

The assessment pathway is determined by the location category and the extent of native vegetation to be removed, as detailed for the study area as follows:

- Location Category: Location 2
- Extent of native vegetation: A total of 1.111 ha of native vegetation (including no large trees). This includes:
 - 0.818 hectares of current proposed removal, associated with the proposed transmission line; and
 - 0.292 hectares of removal associated with the Hawkesdale Wind Farm, Tarrone Terminal Station and the intersecting section of the Ryan Corner Transmission line as past removal.

Based on these details, the Guidelines stipulate that the proposal is to be assessed under the **Detailed** assessment pathway.

This proposal will trigger a referral to DELWP based on the criteria specified in Section 3.2.3.

7.2.3. Offset requirements

Offsets required to compensate for the proposed removal of native vegetation from the study area are provided below.

- 0.193 general habitat units and must include the following offset attribute requirements:
 - Minimum strategic biodiversity value (SBV) of 0.398; and
 - Occur within the Glenelg Hopkins CMA boundary or the Moyne municipal district.

Under the Guidelines all offsets must be secured prior to the removal of native vegetation.

7.2.4. Offset statement

The offset target for the current proposal will be achieved via a third-party offset.

An online search of the Native Vegetation Credit Register (NVCR) has shown that the required general offset is currently available for purchase from a native vegetation credit owner (DELWP 2021b).

The proponent will preferentially secure native vegetation offsets within the Moyne municipal district where available.

Evidence that the required general offset is available is provided in Appendix 8. The required general offset would be secured following approval of the application to remove native vegetation.

7.3. EPBC Act

The EPBC Act protects several threatened species and ecological communities that are considered to be of national conservation significance. Any significant impacts on these species require the approval of the Australian Minister for the Environment.

If there is a possibility of a significant impact on nationally threatened species or communities or listed migratory species, a Referral under the EPBC Act should be considered.

Based on the relevant guidelines and targeted surveys, the proposed development is unlikely to result in a significant impact on any EPBC Act listed values detailed in section 5.3.2 (listed Flora), section 5.5.1 (listed Fauna) and section 5.6 (listed communities). All areas in the study area which support, or potentially support these values will be avoided during construction and operation of the transmission line, except for impact to 0.215 ha of Growling Grass Frog habitat (within 30m of a waterway).

However, this is not considered to be a significant impact, as appropriate construction methods and mitigation measures will ensure that these impacts to habitat will not lead to a significant impact to the population of these species, as outlined in Section 5.5.1.

In addition to this, the collision risk posed by the transmission line is deemed not to have a significant impact in the case of some susceptible avifauna species.

Access tracks have been designed with consideration for relevant waterways to ensure development does not alter natural waterflow in the landscape. The installation of culverts for minor waterway crossings for access tracks will be constructed at appropriate locations to maintain the natural flow.

Therefore, the proposal is unlikely to alter the existing water regime in the landscape which may indirectly impact on the function of existing areas of SHWTLP. Due to both direct and indirect avoidance of SHWTLP, there are no implications under the EPBC Act.

7.4. FFG Act

The Victorian FFG Act lists threatened and protected species and ecological communities (DELWP 2019, DELWP 2021a). Any removal of threatened flora species or communities (or protected flora) listed under the FFG Act from public land requires a Protected Flora Permit under the Act, obtained from DELWP.

The FFG Act only applies to private land in relation to the commercial collection of grasstrees, tree-ferns and sphagnum moss.

No species listed under the FFG Act threatened species list (DELWP 2021a) are proposed to be impacted by this proposal.

One species listed as protected under the FFG Act was recorded in the study area on public land. These plants are not proposed to be impacted, therefore there are no implications under the FFG Act.

7.5. EE Act

The “Ministerial Guidelines for Assessment of Environmental Effects under the *Environment Effects Act 1978*” (DSE 2006), identifies criteria which trigger a Referral to the Minister for Planning. The criteria related to flora, fauna and native vegetation are outlined below.

One or more of the following would trigger a Referral:

- Potential clearing of 10 ha or more of native vegetation from an area that:
 - Is of an Ecological Vegetation Class identified as endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria’s Native Vegetation Management Framework); or
 - Is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria’s Native Vegetation Management Framework); and
 - Is not authorised under an approved Forest Management Plan or Fire Protection Plan
- Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) 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 ‘A Directory of Important Wetlands in Australia’
- Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term

Two or more of the following would also trigger a Referral:

- Potential clearing of 10 ha or more of native vegetation, unless authorised under an approved Forest Management Plan or Fire Protection Plan
- Matters listed under the Flora and Fauna Guarantee Act 1988:
 - 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 as a result of loss or fragmentation of habitats; or
 - Potential loss of critical habitat; or
 - Potential significant effects on habitat values of a wetland supporting migratory bird species.

Based on these criteria, a Referral to the Minister for Planning **will not** be required under the EE Act for the aspects covered by the current investigation.

7.6. CaLP Act

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

In accordance with the *Catchment and Land Protection Act 1994*, the noxious weed species listed below, which were recorded in the study area, must be controlled.

- Blackberry
- Gorse
- Sweet Briar

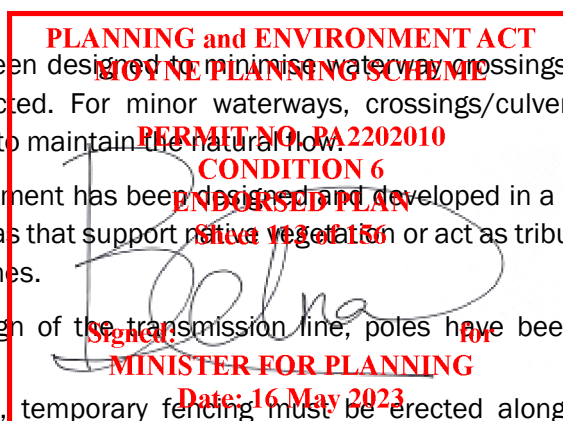
Precision control methods that minimise off-target kills (e.g. spot spraying) will be used in environmentally sensitive areas (e.g. within or near native vegetation, waterways, etc.).

7.7. Construction mitigation measures

The following mitigation measures will form part of a Native Vegetation Plan and be implemented during the construction of the project to ensure there are no additional impacts to native vegetation and fauna habitat:

Pre-construction phase:

- Access tracks have been designed to minimise waterway crossings with no major waterways required to be impacted. For minor waterways, crossings/culverts will be constructed at appropriate locations to maintain the natural flow.
- The proposed development has been designed and developed in a way that does not alter the site's hydrology in areas that support native vegetation or act as tributaries to rivers, creeks and significant drainage lines.
- During detailed design of the transmission line, poles have been micro sited to minimise vegetation loss
- Prior to construction, temporary fencing must be erected along the edge of the defined 'development footprint' where patches of native vegetation occur within 30m of the footprint. Temporary visible signage must be installed along the edge of the defined 'development footprint' where there are patches of Native Vegetation that occur beyond 30m but within 50m (approx.) - "Significant Vegetation - No Go Zone". Where the development footprint is sited along the edge of the study area, temporary visible signage must also be installed every 50 metres. All machinery, vehicles, equipment, personnel, waste materials/spoil and earthworks are to be excluded from these areas and must be contained within the construction footprint.



Construction phase:

- Construction contractors will be inducted into the endorsed Native Vegetation Plan for construction works to ensure all personnel are fully aware of their environmental obligations while they are onsite.
- All environmental controls will be checked for compliance by the site environment officer on a weekly basis. Any non-compliance or breaches must be rectified immediately and reported to the responsible authority.
- Construction will be undertaken in a way that does not alter the site's hydrology, with a particular focus on protection of waterways.
- All machinery will enter and exit works sites along defined routes that do not impact on native vegetation or cause soil disturbance and weed spread.

- All machinery brought on site will be weed and pathogen free. This is important for environmental and agricultural protection. Soil borne pathogens such as Cinnamon Fungus and livestock diseases can be easily transported by machinery.
- All machinery wash down, lay down and personnel rest areas will be defined and located in areas where native vegetation does not occur. (As shown in the Native Vegetation Plan).
- All works will be undertaken in a manner that minimises soil erosion and in adherence to Construction Techniques for Sediment Pollution Control (EPAV 1991), with a particular focus on protecting watercourses.
- The crossing of the Back Creek tributary must be designed in accordance with the Growling Grass Frog Crossing Design Standards – Melbourne Strategic Assessment (DELWP 2017b).

Post-construction phase:

- Weed control, by an experienced bush regenerator, will be carried out along disturbed areas after construction to control any weed outbreaks in native vegetation or along watercourses.



8. References

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Appendix 1: Details of the assessment process in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017)

Purpose and objective

Policies and strategies relating to the protection and management of native vegetation in Victoria are defined in the State Planning Policy Framework (SPPF). The objective identified in Clause 12.01 of all Victorian Planning Schemes 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 to be achieved through the following three-step approach, as detailed in the Guidelines:

1. Avoid the removal, destruction or lopping of native vegetation.
2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

Note: While a planning permit may still be required, if native vegetation does not meet the definition of either a patch or a scattered tree, an offset under the Guidelines is not required.

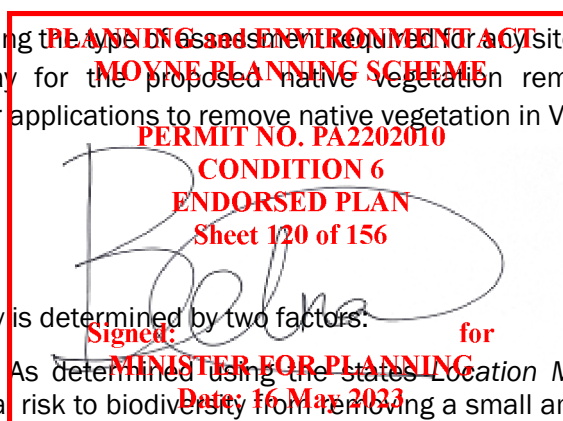
Assessment pathways

The first step in determining the type of assessment required for any site in Victoria is to determine the assessment pathway for the proposed native vegetation removal. The three possible assessment pathways for applications to remove native vegetation in Victoria are:

- Basic;
- Intermediate; or
- Detailed.

This assessment pathway is determined by two factors:

- **Location Category** – As determined using the states Location Map, the location category indicates the potential risk to biodiversity from removing a small amount of native vegetation. The three location categories are defined as:
 - Location 1 – shown in light blue on the Location Map and occurring over most of Victoria.
 - Location 2 – shown in dark blue on the Location Map, and includes areas mapped as endangered EVCs and/or sensitive wetlands and coastal areas.
 - Location 3 – shown in orange on the Location Map and includes areas where the removal of less than 0.5 ha of native vegetation could have a significant impact on habitat for rare and threatened species.
- **Extent of native vegetation** – The extent of any patches and scattered trees proposed to be removed (as well as the extent of any past native vegetation removal), with consideration as to whether the proposed removal includes any large trees. Extent of native vegetation is determined as follows:
 - Patch – The area of the patch in hectares
 - Scattered Tree – The extent of a scattered tree is dependent on whether the scattered tree is small or large. A tree is considered to be a large tree if it is greater or equal to the large tree benchmark diameter at breast height (DBH) for the relevant bioregional EVC. Any scattered tree that is not a large tree is a small scattered tree. The extent of large and small scattered trees is determined as follows:



- *Large scattered tree* – The area of a circle with a 15 metre radius, with the trunk of the tree at the centre.
- *Small scattered tree* – The area of a circle with a 10 metre radius, with the trunk of the tree at the centre.

The assessment pathway for assessing an application to remove native vegetation is then determined as detailed in the following matrix table:

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

Note: If the native vegetation to be removed includes more than one location category, the higher location category is used to determine the assessment pathway.

Landscape scale information - Strategic biodiversity value

The strategic biodiversity value (SBV) is a measure of a location's importance to Victoria's biodiversity, relative to other locations across the state. It is represented as a score between 0 and 1 and determined from the *Strategic biodiversity value map*, available from NVIM.

Landscape scale information - Habitat for rare or threatened species

Habitat importance for rare or threatened species is a measure of the importance of a location in the landscape as habitat for a particular rare or threatened species, in relation to other habitat available for that species. It is represented as a score between 0 and 1 and is determined from the *Habitat importance maps*, administered by DELWP.

This includes two groups of habitat:

- *Highly localised habitats* – limited in area and considered to be equally important, therefore having the same habitat importance score.
- *Dispersed habitats* – less limited in are and based on habitat distribution models.

Habitat for rare or threatened species is used to determine the type of offset required in the detailed assessment pathway.

Biodiversity value

A combination of site-based and landscape scale information is used to calculate the biodiversity value of native vegetation to be removed. Biodiversity value is represented by a general or species habitat score, detailed as follows.

Firstly, the extent and condition of native vegetation to be removed are combined to determine the habitat hectares as follows:

Habitat hectares = extent of native vegetation x condition score

Secondly, the habitat hectare score is combined with a landscape factor to obtain an overall measure of biodiversity value. Two landscape factors exist as follows:

- General landscape factor – determined using an adjusted strategic biodiversity score, and relevant when no habitat importance scores are applicable;
- Species landscape factor – determined using an adjusted habitat importance score for each rare or threatened species habitat mapped at a site in the *Habitat importance map*.

These factors are then used as follows to determine the biodiversity value of a site:

General habitat score = habitat hectares x general landscape factor

Species habitat score = habitat hectares x species landscape factor

Offset requirements

A native vegetation offset is required for the approved removal of native vegetation. Offsets conform to one of two types and each type incorporates a multiplier to address the risk of offset:

- A *General offset* is required when the removal of native vegetation does not have a significant impact on any habitat for rare or threatened species (i.e. the proportional impact is below the species offset threshold). In this case a multiplier of 1.5 applies to determine the general offset amount.

General offset (amount of general habitat units) = general habitat score x 1.5

- A *Species offset* is required when the removal of native vegetation has a significant impact on habitat for a rare or threatened species (i.e. the proportional impact is above the species offset threshold). In this case a multiplier of 2 applies to determine the species offset amount.

Species offset (amount of species habitat units) = Species habitat score x 2

Note: if native vegetation does not meet the definition of either a patch or scattered tree an offset is not required.

Offset attributes

Offsets must meet the following attribute requirements, as relevant:

- General offsets
 - Offset amount:* General offset = general habitat score x 1.5
 - Strategic biodiversity value (SBV):* The offset has at least 80% of the SBV of the native vegetation removed
 - Vicinity:* The offset is in the same CMA boundary or municipal district as the native vegetation removed
 - Habitat for rare and threatened species:* N/A
 - Large trees:* The offset include the protection of at least one large tree for every large tree to be removed
- Species offsets

- *Offset amount:* Species offset = species habitat score x 2
- *Strategic biodiversity value (SBV):* N/A
- *Vicinity:* N/A
- *Habitat for rare and threatened species:* The offset comprises mapped habitat according to the *Habitat importance map* for the relevant species
- *Large trees:* The offset include the protection of at least one large tree for every large tree to be removed



Appendix 2: Detailed habitat hectare assessment results

Habitat Zone			J	H	M	BU	DA	DB	DC	DD	DE	DI	
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	
EVC Number			642	53	642	649	651	651	653	647	53	649	
Total area of Habitat Zone (ha)			0.065	0.129	0.074	0.024	0.037	0.047	0.275	0.653	0.260	0.012	
Site Condition	Large Old Trees		/10	0	N/A	0	N/A	0	0	N/A	N/A	N/A	N/A
	Tree Canopy Cover		/5	0	0	0	N/A	0	5	N/A	N/A	0	N/A
	Lack of Weeds		/15	0	0	4	4	0	9	0	0	4	
	Understorey		/25	15	15	5	5	15	5	5	5	5	15
	Recruitment		/10	0	0	0	0	0	6	3	3	0	0
	Organic Matter		/5	2	5	5	5	3	2	3	4	3	4
	Logs		/5	0	N/A	0	N/A	0	0	N/A	N/A	N/A	N/A
		Site condition standardising multiplier*		1.00	1.25	1.00	1.36	1.00	1.00	1.36	1.36	1.25	1.36
	Site Condition subtotal			17	23	19	26	22	18	27	16	10	31
Landscape Context	Patch Size		/10	1	1	1	1	1	1	6	6	1	8
	Neighbourhood		/10	0	1	0	1	1	1	5	5	1	5
	Distance to Core		/5	0	0	0	3	0	0	1	1	0	4
Total Condition Score			/100	18	25	12	31	24	20	39	28	12	48
EPBC Act listed ecological communities			-	-	-	-	-	-	-	-	-	-	

* Modified approach to habitat scoring - refer to Table 14 of DELWP's Vegetation Quality Assessment Manual (DSE 2004)

Habitat Zone			DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	
EVC Number			649	649	649	649	649	649	649	649	649	649	
Total area of Habitat Zone (ha)			0.239	0.099	0.363	0.069	0.363	0.156	0.194	0.019	0.019	0.033	
Site Condition	Large Old Trees		/10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Tree Canopy Cover		/5	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	
	Lack of Weeds		/15	4	4	4	4	9	4	4	4	4	
	Understorey		/25	15	15	15	15	15	15	15	15	15	
	Recruitment		/10	0	0	0	0	0	0	0	0	0	
	Organic Matter		/5	4	4	4	4	5	4	4	4	4	
	Logs		/5	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	
		Site condition standardising multiplier*		1.36	1.36	1.36	1.36	1.12	1.36	1.36	1.36	1.36	1.36
	Site Condition subtotal			31	31	31	31	32	31	31	31	31	31
Landscape Context	Patch Size		/10	8	8	8	8	8	8	8	8	8	
	Neighbourhood		/10	5	5	5	5	5	5	5	5	5	
	Distance to Core		/5	4	4	4	4	4	4	4	4	4	
Total Condition Score			/100	48	48	48	48	49	48	48	48	48	
EPBC Act listed ecological communities			-	-	-	-	-	-	-	-	-	-	

* Modified approach to habitat scoring - refer to Table 14 of DELWP's Vegetation Quality Assessment Manual (DSE 2004)

Habitat Zone			DU	DV	DW	DX	EA	EB	EC	ED	EE	EF	
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	
EVC Number			53	53	53	53	53	649	55_63	649	55_63	642	
Total area of Habitat Zone (ha)			0.013	0.009	0.050	0.047	0.028	0.008	0.006	0.009	0.006	0.033	
Site Condition	Large Old Trees		/10	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	10	0
	Tree Canopy Cover		/5	0	0	0	0	0	0	N/A	N/A	0	0
	Lack of Weeds		/15	9	9	9	9	0	9	0	0	0	0
	Understorey		/25	5	5	5	5	5	5	10	5	5	5
	Recruitment		/10	0	0	0	0	0	0	0	0	0	3
	Organic Matter		/5	3	3	3	3	2	5	2	2	2	2
	Logs		/5	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	0	0
		Site condition standardising multiplier*		1.25	1.25	1.25	1.25	1.00	1.25	1.36	1.36	1.00	1.00
	Site Condition subtotal			21	21	21	21	24	17	16	10	17	10
Landscape Context	Patch Size		/10	1	1	1	1	1	1	1	1	1	1
	Neighbourhood		/10	1	1	1	1	1	0	1	1	1	0
	Distance to Core		/5	0	0	0	0	0	0	0	0	0	0
Total Condition Score			/100	23	23	23	23	25	19	18	12	19	11
EPBC Act listed ecological communities				-	-	-	-	-	-	-	-	-	-

* Modified approach to habitat scoring - refer to Table 14 of DELWP's Vegetation Quality Assessment Manual (DSE 2004)

Habitat Zone			EG	EH	EI	EJ	EK	EL	FH	FI	FJ	FK
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP
EVC Number			642	642	642	642	642	642	649	649	649	649
Site Condition	Large Old Trees	/10	0	0	0	0	0	0	N/A	N/A	N/A	N/A
	Tree Canopy Cover	/5	0	0	0	0	0	0	N/A	N/A	N/A	N/A
	Lack of Weeds	/15	0	4	0	0	4	0	0	0	0	4
	Understorey	/25	5	5	5	5	5	5	10	10	10	10
	Recruitment	/10	3	5	3	3	0	3	0	0	0	5
	Organic Matter	/5	2	3	2	2	3	2	2	2	2	2
	Logs	/5	0	0	0	0	0	0	N/A	N/A	N/A	N/A
	Site condition standardising multiplier*		1.00	1.00	1.00	1.00	1.00	1.00	1.36	1.36	1.36	1.36
Site Condition subtotal			10	10	10	10	12	10	16	16	16	29
Landscape Context	Patch Size	/10	1	1	1	1	1	1	1	1	1	1
	Neighbourhood	/10	0	0	0	0	0	0	0	0	0	0
	Distance to Core	/5	0	0	0	0	0	0	0	0	0	0
Total Condition Score		/100	11	18	11	11	13	11	17	17	17	30
EPBC Act listed ecological communities			-	-	-	-	-	-	-	-	-	-

* Modified approach to habitat scoring - refer to Table 14 of DELWP's Vegetation Quality Assessment Manual (DSE 2004)

Habitat Zone			FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP
EVC Number			649	649	649	649	649	649	649	649	649	649
Site Condition	Large Old Trees	/10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tree Canopy Cover	/5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Lack of Weeds	/15	0	0	0	0	0	4	0	4	0	0
	Understorey	/25	10	10	10	10	10	10	10	10	10	10
	Recruitment	/10	0	0	0	0	0	0	0	5	0	0
	Organic Matter	/5	2	2	2	2	2	2	2	2	2	2
	Logs	/5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Site condition standardising multiplier*		1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
	Site Condition subtotal		16	16	16	16	16	22	16	29	16	16
Landscape Context	Patch Size	/10	1	1	1	1	1	1	1	1	1	1
	Neighbourhood	/10	0	0	0	0	0	0	0	0	0	0
	Distance to Core	/5	0	0	0	0	0	0	0	0	0	0
Total Condition Score		/100	17	17	17	17	17	23	17	30	17	17
EPBC Act listed ecological communities			-	-	-	-	-	-	-	-	-	-

* Modified approach to habitat scoring - refer to Table 14 of DELWP's Vegetation Quality Assessment Manual (DSE 2004)

Appendix 3: Large trees in patches and scattered trees recorded in the study area

Common Name	Scientific Name	DBH (cm)	Habitat Category	Radius of TPZ (m)	Remove/ Retain	Notes
Blackwood	<i>Acacia melanoxylon</i>	64	Large tree scattered	7.68	Retained	Along existing access track from Woolsthorpe-Heywood Rd.
Blackwood	<i>Acacia melanoxylon</i>	42	Large tree in patch	5.04	Retained	Along existing access track from Woolsthorpe-Heywood Rd.

Notes: DBH = Diameter at breast height (130 cm from the ground); **TPZ** = Tree Protection Zone.



Appendix 4: Flora species recorded in the study area

Origin	Common name	Scientific name	EPBC	FFG-T	FFG-P	CaLP Act
	Black Wattle	<i>Acacia mearnsii</i>			p	
	Blackwood	<i>Acacia melanoxylon</i>				
	Prickly Moses	<i>Acacia verticillata</i> subsp. <i>verticillata</i>			p	
	Sheep's Burr	<i>Acaena echinata</i>				
	Bidgee-widgee	<i>Acaena novae-zelandiae</i>				
*	Sheep Sorrel	<i>Acetosella vulgaris</i>				
*	Brown-top Bent	<i>Agrostis capillaris</i>				
	Chocolate Lily	<i>Arthropodium strictum</i> s.l.				
	Common Wheat-grass	<i>Anthosachne scabra</i> s.l.				
*	Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>				
	Spear Grass	<i>Austrostipa</i> spp.				
*	Oat	<i>Avena</i> spp.				
	Salt Club-sedge	<i>Bolboschoenus caldwellii</i>				
*	Twiggy Turnip	<i>Brassica fruticulosa</i>				
*	Great Brome	<i>Bromus diandrus</i>				
*	Soft Brome	<i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>				
	Sweet Bursaria	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>				
	Bitter Cress	<i>Cardamine</i> spp.				
	Tall Sedge	<i>Carex appressa</i>				
	Curly Sedge	<i>Carex tasmanica</i>		en	p	
	Poong'ort	<i>Carex tereticaulis</i>				
*	Common Centaury	<i>Centaurea erythraea</i>				
	Windmill Grass	<i>Chloris truncata</i>				
*	Spear Thistle	<i>Cirsium vulgare</i>				R
*	Mirror Bush	<i>Goprosma repens</i>				
	Pale Swamp Everlasting	<i>Coronidium gunnianum</i>				
*	Water Buttons	<i>Cotula coronopifolia</i>				
*	Hawthorn	<i>Crataegus monogyna</i>				R
	Common Water-ribbons	<i>Cynogeton procerum</i> s.s.				
*	Couch	<i>Cynodon dactylon</i> var. <i>dactylon</i>				
*	Cocksfoot	<i>Dactylis glomerata</i>				
	Black-anther Flax-lily	<i>Dianella revoluta</i> var. <i>revoluta</i> s.l.				
	Kidney-weed	<i>Dichondra repens</i>				
#	Clammy Goosefoot	<i>Dysphania pumilio</i>				
	Common Spike-sedge	<i>Eleocharis acuta</i>				
	Variable Willow-herb	<i>Epilobium billardierianum</i>				
	Prickfoot	<i>Eryngium vesiculosum</i>				
*	Sugar Gum	<i>Eucalyptus cladocalyx</i>				
	Broad-leaf Peppermint	<i>Eucalyptus dives</i>				
	Swamp Gum	<i>Eucalyptus ovata</i>				
	Cudweed	<i>Euchiton</i> spp.			p	
	Knobby Club-sedge	<i>Ficinia nodosa</i>				
	Crane's Bill	<i>Geranium</i> spp.				
	Australian Sweet-grass	<i>Glyceria australis</i>				
*	Ox-tongue	<i>Helminthotheca echioides</i>				
	Mat Grass	<i>Hemarthria uncinata</i> var. <i>uncinata</i>				
*	Yorkshire Fog	<i>Holcus lanatus</i>				

Origin	Common name	Scientific name	EPBC	FFG-T	FFG-P	CaLP Act
*	Flatweed	<i>Hypochaeris radicata</i>				
	Club Sedge	<i>Isolepis</i> spp.				
	Grassy Rush	<i>Juncus caespiticius</i>				
	Green Rush	<i>Juncus gregiflorus</i>				
	Joint-leaf Rush	<i>Juncus holoschoenus</i>				
	Loose-flower Rush	<i>Juncus pauciflorus</i>				
	Common Blown-grass	<i>Lachnagrostis filiformis</i> s.l.				
*	Hare's-tail Grass	<i>Lagurus ovatus</i>				
	Common Duckweed	<i>Lemna disperma</i>				
	Prickly Tea-tree	<i>Leptospermum continentale</i>				
	Woolly Tea-tree	<i>Leptospermum lanigerum</i>				
	Poison Lobelia	<i>Lobelia pratensis</i>				
*	Perennial Rye-grass	<i>Lolium perenne</i>				
	Small Loosestrife	<i>Lythrum hyssopifolia</i>				
	Scented Paperbark	<i>Melaleuca squarrosa</i>				
	Tree Violet	<i>Melicytus dentatus</i> s.s.				
	Weeping Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>				
	White Purslane	<i>Montia australasica</i>				
	Water Milfoil	<i>Myriophyllum</i> spp.				
*	Watercress	<i>Nasturtium officinale</i>				
	Running Marsh-flower	<i>Ornithoglossum uniflorum</i>				
	Grassland Wood-sorrel	<i>Oxalis perennans</i>				
*	Paspalum	<i>Paspalum dilatatum</i>				
	Slender Knotweed	<i>Persicaria decipiens</i>				
*	Toowoomba Canary-grass	<i>Phalaris aquatica</i>				
	Common Reed	<i>Phragmites australis</i>				
*	Buck's-horn Plantain	<i>Plantago coronopus</i>				
	Narrow Plantain	<i>Plantago gaudichaudii</i>				
*	Ribwort	<i>Plantago lanceolata</i>				
	Common Tussock-grass	<i>Poa labillardierei</i>				
	Grey Tussock-grass	<i>Poa sieberiana</i> var. <i>sieberiana</i>				
*	Hogweed	<i>Polygonum aviculare</i> s.s.				
	Thin Pondweed	<i>Potamogeton australiensis</i>				
	Red Pondweed	<i>Potamogeton cheesemanii</i>				
	Austral Bracken	<i>Pteridium esculentum</i>				
	Buttercup	<i>Ranunculus</i> spp.				
*	Onion Grass	<i>Romulea rosea</i>				
*	Sweet Briar	<i>Rosa rubiginosa</i>				C
*	Blackberry	<i>Rubus fruticosus</i> spp. agg.				C
*	Clustered Dock	<i>Rumex conglomeratus</i>				
*	Curled Dock	<i>Rumex crispus</i>				
*	Dock (naturalised)	<i>Rumex</i> spp. (naturalised)				
	Common Wallaby-grass	<i>Rytidosperma caespitosum</i>				
	Brown-back Wallaby-grass	<i>Rytidosperma duttonianum</i>				
	Bristly Wallaby-grass	<i>Rytidosperma setaceum</i>				
	Wallaby Grass	<i>Rytidosperma</i> spp.				
	River Club-sedge	<i>Schoenoplectus tabernaemontani</i>				
	Shiny Swamp-mat	<i>Selliera radicans</i>				
	Cotton Fireweed	<i>Senecio quadridentatus</i>			p	

Origin	Common name	Scientific name	EPBC	FFG-T	FFG-P	CaLP Act
*	Rat-tail Grass	<i>Sporobolus africanus</i>				
	Kangaroo Grass	<i>Themeda triandra</i>				
*	White Clover	<i>Trifolium repens</i> var. <i>repens</i>				
	Streaked Arrowgrass	<i>Triglochin striata</i>				
	Narrow-leaf Cumbungi	<i>Typha domingensis</i>				
*	Gorse	<i>Ulex europaeus</i>				C
	Ivy-leaf Violet	<i>Viola hederacea</i> sensu Entwistle (1996)				

Notes: EPBC = threatened species status under EPBC Act: CR = critically endangered; EN = endangered; VU = vulnerable; FFG-T = threatened species status under the FFG Act: L = listed as threatened under the FFG Act; FFG-P = protected species status under the FFG Act: p = listed as protected; CaLP Act = declared noxious weeds status under the CaLP Act; S = State Prohibited Weeds (any infestations are to be reported to DELWP. DELWP is responsible for control of State Prohibited Weeds); P = Regionally Prohibited Weeds (Land owners must take all reasonable steps to eradicate regionally prohibited weeds on their land); C = Regionally Controlled Weeds (Land owners have the responsibility to take all reasonable steps to prevent the growth and spread of Regionally controlled weeds on their land); R = Restricted Weeds (Trade in these weeds and their propagules, either as plants, seeds or contaminants in other materials is prohibited).

* = introduced to Victoria



Appendix 5: Representative photographs of native vegetation proposed for removal



Plains Grassy Wetland (EVC 125)



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Plains Sedge Wetland (EVC 647)

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Plains Grassy Woodland (EVC 55_63) – derived grassland form



**PLANNING and ENVIRONMENT ACT
MOYNE PLANNING SCHEME**

Plains Swampy Woodland (EVC 651)

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Swamp Scrub (EVC 53)

Appendix 6: EVC benchmarks

Victorian Volcanic Plain Bioregion:

- Stony Knoll Shrubland (EVC 649)
- Plains Grassy Wetland (EVC 125)
- Higher Rainfall Plains Grassy Woodland (EVC 55_63)



EVC/Bioregion Benchmark for Vegetation Quality Assessment

Victorian Volcanic Plain bioregion

EVC 649: Stony Knoll Shrubland

Description:

Stony Knoll Shrubland is a shrubland to 3 m tall or low non-eucalypt woodland to 8 m tall with a grassy understorey. It occurs on low stony rises on basalt flows. The soils are fertile and well drained but shallow with out cropping rock, causing severe summer dryness.

+ woodland only components (ignore when assessing treeless areas and standardise final score as appropriate)

Canopy Cover⁺:

%cover	Character Species	Common Name
15%	<i>Allocasuarina verticillata</i>	Drooping Sheoak
	<i>Bursaria spinosa</i>	Sweet Bursaria

Understorey:

Life form

Medium Shrub

Prostrate Shrub

Large Herb

Medium Herb

Small or Prostrate Herb

Medium to Small Tufted Graminoid

Tiny Tufted Graminoid

Medium to Tiny Non-tufted Graminoid

Ground Fern

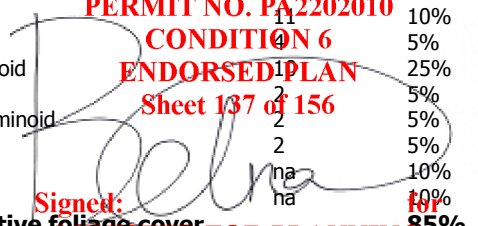
Bryophytes/Lichens

Soil Crust

Total understorey projective foliage cover

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# Spp	%Cover	LF code
8	1%	MS
1	1%	PS
2	1%	LH
11	10%	MH
4	5%	SH
1	25%	MTG
2	5%	TTG
2	5%	MNG
2	5%	GF
na	10%	BL
na	10%	S/C
	85%	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Hymenanthera dentata</i> s.l.	Tree Violet
MS	<i>Acacia paradoxa</i>	Hedge Wattle
PS	<i>Kennedia prostrata</i>	Running Postman
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
LH	<i>Senecio glomeratus</i>	Annual Fireweed
MH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
MH	<i>Rumex brownii</i>	Slender Dock
MH	<i>Hypericum gramineum</i>	Small St John's Wort
MH	<i>Acaena ovina</i>	Australian Sheep's Burr
SH	<i>Dichondra repens</i>	Kidneyweed
SH	<i>Hydrocotyle laxiflora</i>	Stinking Pennywort
SH	<i>Crassula sieberiana</i>	Sieber Crassula
MTG	<i>Themeda triandra</i>	Kangaroo Grass
MTG	<i>Poa sieberiana</i>	Grey Tussock-grass
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
TTG	<i>Carex breviculmis</i>	Short-stem Sedge
MNG	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass
GF	<i>Pteridium esculentum</i>	Austral Bracken
GF	<i>Adiantum aethiopicum</i>	Common Maidenhair
SC	<i>Convolvulus erubescens</i> spp. agg.	Pink Bindweed

Recruitment:

Continuous

Organic Litter:

20 % cover

EVC 649: Stony Knoll Shrubland - Victorian Volcanic Plain bioregion

Logs⁺:

5 m/0.1 ha. (note: large log class does not apply)

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
T	<i>Schinus molle</i>	Pepper Tree	high	high
MS	<i>Lycium ferocissimum</i>	African Box-thorn	high	high
MS	<i>Genista monspessulana</i>	Montpellier Broom	high	high
SS	<i>Marrubium vulgare</i>	Horehound	high	high
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Helminthotheca echinoides</i>	Ox-tongue	high	low
LH	<i>Lactuca serriola</i>	Prickly Lettuce	high	low
LH	<i>Sisymbrium officinale</i>	Hedge Mustard	high	low
LH	<i>Sonchus asper</i> s.l.	Rough Sow-thistle	high	low
LH	<i>Verbascum thapsus</i> ssp. <i>thapsus</i>	Great Mullein	high	high
LH	<i>Echium plantagineum</i>	Paterson's Curse	high	high
LH	<i>Centaurea tenuiflorum</i>	Slender Centaury	high	low
LH	<i>Foeniculum vulgare</i>	Fennel	high	high
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	low
MH	<i>Trifolium subterraneum</i>	Subterranean Clover	high	low
MH	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	high	low
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	low
MH	<i>Lotus suaveolens</i>	Hairy Bird's-foot Trefoil	high	low
MH	<i>Cerastium glomeratum</i> s.l.	Common Mouse-ear Chickweed	high	low
SH	<i>Medicago polymorpha</i>	Burr Medic	high	low
SH	<i>Trifolium glomeratum</i>	Coste Clover	high	low
SH	<i>Modiola caroliniana</i>	Red-flower Mallow	high	low
SH	<i>Aptenia cordifolia</i>	Heart-leaf Ice-plant	high	high
LTG	<i>Phalaris aquatica</i>	Toowoomba Canary-grass	high	high
LNG	<i>Holcus lanatus</i>	Yorkshire Fog	high	high
LNG	<i>Avena fatua</i>	Wild Oat	high	low
MTG	<i>Nassella trichotoma</i>	Serrated Tussock	high	high
MTG	<i>Ehrharta longiflora</i>	Annual Veldt-grass	high	low
MTG	<i>Briza maxima</i>	Large Quaking-grass	high	low
MTG	<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	Soft Brome	high	low
MTG	<i>Sporobolus africanus</i>	Rat-tail Grass	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MTG	<i>Romulea rosea</i>	Onion Grass	high	low
MTG	<i>Pentstemonis airoides</i> ssp. <i>airoides</i>	False Hair-grass	high	low
MTG	<i>Lolium perenne</i>	Perennial Rye-grass	high	low
MTG	<i>Dactylis glomerata</i>	Cocksfoot	high	high
MTG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
MTG	<i>Bromus rubens</i>	Red Brome	high	low
MTG	<i>Avena barbata</i>	Bearded Oat	high	low
MTG	<i>Aira caryophylllea</i>	Silvery Hair-grass	high	low
SC	<i>Vicia sativa</i> ssp. <i>sativa</i>	Common Vetch	low	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Victorian Volcanic Plain bioregion

EVC 125: Plains Grassy Wetland

Description:

This EVC is usually treeless, but in some instances can include sparse River Red Gum *Eucalyptus camaldulensis* or Swamp Gum *Eucalyptus ovata*. A sparse shrub component may also be present. The characteristic ground cover is dominated by grasses and small sedges and herbs. The vegetation is typically species-rich on the outer verges but is usually species-poor in the wetter central areas.

Life Forms:

Life form	# Spp	% Cover	LF code
Large Herb	5	5%	LH
Medium Herb	6	10%	MH
Small or Prostrate Herb	3	10%	SH
Large Tufted Graminoid	3	15%	LTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	8	30%	MTG
Medium to Tiny Non-tufted Graminoid	2	10%	MNG
Bryophytes/Lichens	na	10%	BL

LF Code

Species typical of at least part of EVC range

LH	<i>Epilobium billardierianum</i>
LH	<i>Villarsia reniformis</i>
LH	<i>Epilobium billardierianum</i> ssp. <i>cinereum</i>
MH	<i>Potamogeton tricaratus</i> s.l.
MH	<i>Lilaeopsis polyantha</i>
MH	<i>Utricularia dichotoma</i> s.l.
SH	<i>Eryngium vesiculosum</i>
SH	<i>Neopaxia australasica</i>
SH	<i>Lobelia pratioides</i>
LTG	<i>Juncus flavidus</i>
LTG	<i>Deyeuxia quadriseta</i>
LTG	<i>Amphibromus nervosus</i>
LTG	<i>Poa labillardierei</i>
MTG	<i>Triglochin procerum</i> s.l.
MTG	<i>Glyceria australis</i>
MTG	<i>Juncus holoschoenus</i>
MTG	<i>Austrodanthonia duttoniana</i>
MNG	<i>Eleocharis acuta</i>
MNG	<i>Eleocharis pusilla</i>

Common Name

Variable Willow-herb
Running Marsh-flower
Grey Willow-herb
Floating Pondweed
Australian Lilaeopsis
Fairies' Aprons
Prickfoot
White Purslane
Poison Lobelia
Gold Rush
Reed Bent-grass
Common Swamp Wallaby-grass
Common Tussock-grass
Water Ribbons
Australian Sweet-grass
Joint-leaf Rush
Brown-back Wallaby-grass
Common Spike-sedge
Small Spike-sedge

Recruitment:

Episodic/Flood. Desirable period between disturbances is 5 years.

Organic Litter:

20% cover

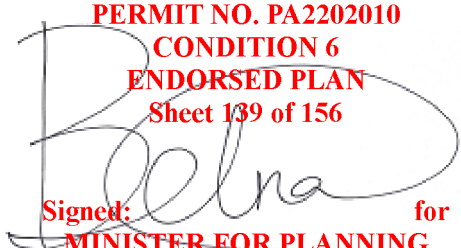
Logs:

5 m/0.1 ha.(where trees are overhanging the wetland)

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EVC 125: Plains Grassy Wetland - Victorian Volcanic Plain bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
MH	<i>Leontodon taraxacoides</i> ssp. <i>taraxacoides</i>	Hairy Hawkbit	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
LTG	<i>Phalaris aquatica</i>	Toowoomba Canary-grass	high	high
LNG	<i>Holcus lanatus</i>	Yorkshire Fog	high	high
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MTG	<i>Romulea rosea</i>	Onion Grass	high	low
TTG	<i>Cyperus tenellus</i>	Tiny Flat-sedge	high	low

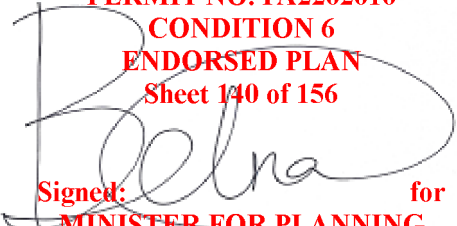
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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Victorian Volcanic Plain bioregion

EVC 55_63: Higher Rainfall Plains Grassy Woodland

Description:

An open, eucalypt woodland to 15 m tall or acacia/sheoak woodland to 10 m tall. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer. This variant occupies areas receiving greater than 700 mm annual rainfall.

Large trees:

Species	DBH(cm)	# / ha
<i>Eucalyptus</i> spp.	70 cm	15 / ha
<i>Acacia melanoxylon</i>	40 cm	
<i>Allocasuarina verticillata</i>	40 cm	

Tree Canopy Cover:

% cover	Character Species	Common Name
20%	<i>Eucalyptus ovata</i>	Swamp Gum
	<i>Eucalyptus viminalis</i>	Manna Gum
	<i>Acacia melanoxylon</i>	Blackwood
	<i>Allocasuarina verticillata</i>	Drooping Sheoak

Understorey:

Life form	# Spp	% Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	3	10%	MS
Small Shrub	2	1%	SS
Prostrate Shrub	1	1%	PS
Large Herb	3	5%	LH
Medium Herb	8	15%	MH
Small or Prostrate Herb	3	5%	SH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	12	45%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Acacia paradoxa</i>	Hedge Wattle
SS	<i>Pimelea humilis</i>	Common Rice-flower
PS	<i>Astroloma humifusum</i>	Cranberry Heath
PS	<i>Bossiaea prostrata</i>	Creeping Bossiaea
MH	<i>Leptorhynchus squamatus</i>	Scaly Buttons
MH	<i>Chysocephalum apiculatum</i>	Common Everlasting
MH	<i>Gonocarpus tetragynus</i>	Common Raspswort
MH	<i>Acaena echinata</i>	Sheep's Burr
SH	<i>Dichondra repens</i>	Kidney-weed
SH	<i>Hydrocotyle laxiflora</i>	Stinking Pennywort
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
LTG	<i>Austrostipa bigeniculata</i>	Knead Spear-grass
MTG	<i>Themeda triandra</i>	Kangaroo Grass
MTG	<i>Poa morrisii</i>	Soft Tussock-grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	Striped Wallaby-grass
MNG	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass

Recruitment:

Continuous

EVC 55_63: Higher Rainfall Plains Grassy Woodland - Victorian Volcanic Plain bioregion

Organic Litter:

10 % cover

Logs:

10 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Lycium ferocissimum</i>	African Box-thorn	high	high
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Plantago lanceolata</i>	Ribwort	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
LNG	<i>Holcus lanatus</i>	Yorkshire Fog	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MTG	<i>Romulea rosea</i>	Onion Grass	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MTG	<i>Briza maxima</i>	Large Quaking-grass	high	low

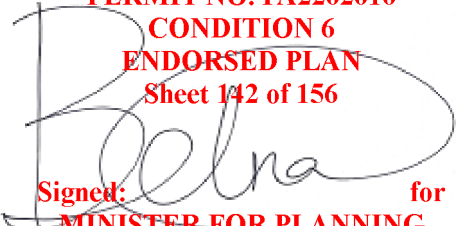
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Date: 16 May 2023

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Appendix 7: Native Vegetation Removal (NVR) report



Native vegetation removal report

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report **is not an assessment by DELWP** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Date of issue: 22/12/2022

Report ID: NAA_2022_198

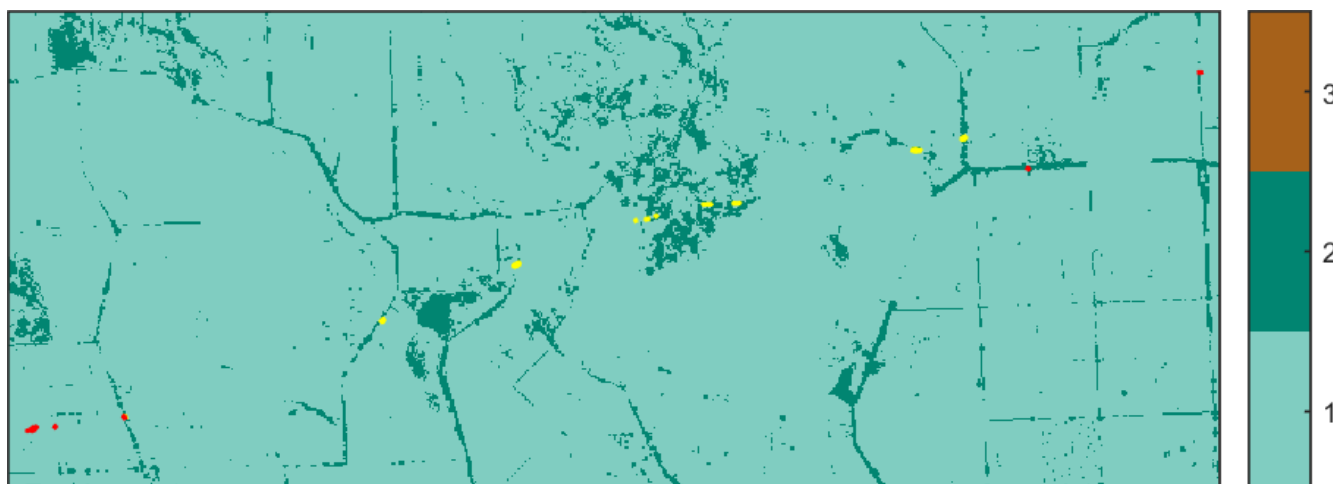
Time of issue: 4:14 pm

Project ID 14144_TXL-HDWF_to_Tarrone_Option2_221212

Assessment pathway

Assessment pathway	Detailed Assessment Pathway
Extent including past and proposed	1.111 ha
Extent of past removal	0.292 ha
Extent of proposed removal	0.818 ha
No. Large trees proposed to be removed	0
Location category of proposed removal	Location 2 The native vegetation is in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map). Removal of less than 0.5 hectares of native vegetation in this location will not have a significant impact on any habitat for a rare or threatened species.

1. Location map



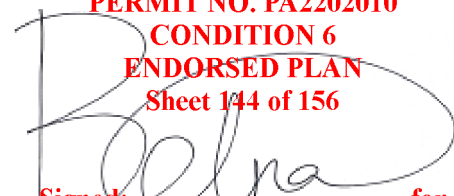
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Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount¹	0.193 general habitat units
Vicinity	Glenelg Hopkins Catchment Management Authority (CMA) or Moyne Shire Council
Minimum strategic biodiversity value score ²	0.398
Large trees	0 large trees

NB: values within tables in this document may not add to the totals shown above due to rounding

Appendix 1 includes information about the native vegetation to be removed

Appendix 2 includes information about the rare or threatened species mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps



¹ The general offset amount required is the sum of all general habitat units in Appendix 1.

² Minimum strategic biodiversity score is 80 per cent of the weighted average score across habitat zones where a general offset is required

Native vegetation removal report

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Detailed Assessment Pathway and it will be assessed under the Detailed Assessment Pathway.

If you wish to remove the mapped native vegetation you are required to apply for a permit from your local council. Council will refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

This *Native vegetation removal report* must be submitted with your application for a permit to remove, destroy or lop native vegetation.

Refer to the *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) for a full list of application requirements. This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway
- A description of the native vegetation to be removed (partly met)
- Maps showing the native vegetation and property (partly met)
- Information about the impacts on rare or threatened species.
- The offset requirements determined in accordance with section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs
- Details of past native vegetation removal
- An avoid and minimise statement
- A copy of any Property Vegetation Plan that applies
- A defendable space statement as applicable
- A statement about the Native Vegetation Precinct Plan as applicable
- A site assessment report including a habitat hectare assessment of any patches of native vegetation and details of trees
- An offset statement that explains that an offset has been identified and how it will be secured.

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Obtaining this publication does not guarantee that an application will meet the requirements of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes or that a permit to remove native vegetation will be granted.

Notwithstanding anything else contained in this publication, you must ensure that you comply with all relevant laws, legislation, awards or orders and that you obtain and comply with all permits, approvals and the like that affect, are applicable or are necessary to undertake any action to remove, lop or destroy or otherwise deal with any native vegetation or that apply to matters within the scope of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes.

Appendix 1: Description of native vegetation to be removed

The species-general offset test was applied to your proposal. This test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the species offset threshold. The threshold is set at 0.005 per cent of the mapped habitat value for a species. When the proportional impact is above the species offset threshold a species offset is required. This test is done for all species mapped at the site. Multiple species offsets will be required if the species offset threshold is exceeded for multiple species.

Where a zone requires species offset(s), the species habitat units for each species in that zone is calculated by the following equation in accordance with the Guidelines:

$$\text{Species habitat units} = \text{extent} \times \text{condition} \times \text{species landscape factor} \times 2, \text{ where the species landscape factor} = 0.5 + (\text{habitat importance score}/2)$$

The species offset amount(s) required is the sum of all species habitat units per zone

Where a zone does not require a species offset, the general habitat units in that zone is calculated by the following equation in accordance with the Guidelines:

$$\text{General habitat units} = \text{extent} \times \text{condition} \times \text{general landscape factor} \times 1.5, \text{ where the general landscape factor} = 0.5 + (\text{strategic biodiversity value score}/2)$$

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

Information provided by or on behalf of the applicant in a GIS file										Information calculated by EnSym		
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-DA	Patch	vvp_0651	Endangered	0	no	0.200	0.037	0.037	0.400		0.009	General
1-DB	Patch	vvp_0651	Endangered	0	no	0.200	0.047	0.047	0.400		0.010	General
1-DI	Patch	vvp_0649	Endangered	0	no	0.480	0.010	0.010	0.460		0.005	General
1-DK	Patch	vvp_0649	Endangered	0	no	0.480	0.039	0.039	0.460		0.021	General
1-DL	Patch	vvp_0649	Endangered	0	no	0.480	0.005	0.005	0.460		0.003	General
1-EG	Patch	vvp_0642	Endangered	0	no	0.110	0.062	0.062	0.240		0.006	General
1-M	Patch	vvp_0642	Endangered	0	no	0.150	0.074	0.074	0.240		0.010	General
1-EF	Patch	vvp_0642	Endangered	0	no	0.110	0.032	0.032	0.240		0.003	General
1-EI	Patch	vvp_0642	Endangered	0	no	0.110	0.078	0.078	0.880		0.012	General
1-J	Patch	vvp_0642	Endangered	0	no	0.180	0.065	0.065	0.880		0.016	General
1-DE	Patch	vvp_0053	Endangered	0	no	0.120	0.260	0.260	0.381		0.032	General

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Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-BU	Patch	vvp_0649	Endangered	0	no	0.310	0.024	0.024	0.370		0.008	General
1-DQ	Patch	vvp_0649	Endangered	0	no	0.480	0.048	0.048	0.850		0.032	General
1-DP1	Patch	vvp_0649	Endangered	0	no	0.480	0.010	0.010	0.900		0.007	General
1-DP	Patch	vvp_0649	Endangered	0	no	0.480	0.026	0.026	0.900		0.018	General

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Appendix 2: Information about impacts to rare or threatened species' habitats on site

This table lists all rare or threatened species' habitats mapped at the site.

Species common name	Species scientific name	Species number	Conservation status	Group	Habitat impacted	% habitat value affected
Curly Sedge	<i>Carex tasmanica</i>	500650	Vulnerable	Dispersed	Habitat importance map	0.0001
Salt Blown-grass	<i>Lachnagrostis robusta</i>	504223	Rare	Dispersed	Habitat importance map	0.0000
Fragrant Leek-orchid	<i>Prasophyllum suaveolens</i>	504567	Endangered	Dispersed	Habitat importance map	0.0000
Wavy Swamp Wallaby-grass	<i>Amphibromus sinuatus</i>	503625	Vulnerable	Dispersed	Habitat importance map	0.0000
Plains Yam-daisy	<i>Microseris scapigera</i> s.s.	504657	Vulnerable	Dispersed	Habitat importance map	0.0000
Showy Lobelia	<i>Lobelia beaugleholei</i>	502733	Rare	Dispersed	Habitat importance map	0.0000
Squat Picris	<i>Picris squarrosa</i>	504827	Rare	Dispersed	Habitat importance map	0.0000
Swamp Everlasting	<i>Xerochrysum palustre</i>	503763	Vulnerable	Dispersed	Habitat importance map	0.0000
Swamp Flax-lily	<i>Dianella callicarpa</i>	505086	Rare	Dispersed	Habitat importance map	0.0000
Large-headed Fireweed	<i>Senecio macrocarpus</i>	503116	Endangered	Dispersed	Habitat importance map	0.0000
Purple Blown-grass	<i>Lachnagrostis punicea</i> subsp. <i>punicea</i>	504206	Rare	Dispersed	Habitat importance map	0.0000
Bog Gum	<i>Eucalyptus kitsoniana</i>	501290	Rare	Dispersed	Habitat importance map	0.0000
Leafy Twig-sedge	<i>Cladium procerum</i>	500786	Rare	Dispersed	Habitat importance map	0.0000
Pale Swamp Everlasting	<i>Coronidium gunnianum</i>	504655	Vulnerable	Dispersed	Habitat importance map	0.0000
Purple Blown-grass	<i>Lachnagrostis punicea</i> subsp. <i>filifolia</i>	504222	Rare	Dispersed	Habitat importance map	0.0000
Plump Swamp Wallaby-grass	<i>Amphibromus pithogastrus</i>	503624	Endangered	Dispersed	Habitat importance map	0.0000
Golden Cowslips	<i>Diuris behrii</i>	501061	Vulnerable	Dispersed	Habitat importance map	0.0000
Southern Bent-wing Bat	<i>Miniopterus schreibersii bassanii</i>	61343	Critically endangered	Dispersed	Habitat importance map	0.0000

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Melbourne Yellow-gum	<i>Eucalyptus leucoxylon subsp. connata</i>	504484	Vulnerable	Dispersed	Habitat importance map	0.0000
Swamp Fireweed	<i>Senecio psilocarpus</i>	504659	Vulnerable	Dispersed	Habitat importance map	0.0000
Grey Billy-buttons	<i>Craspedia canens</i>	504643	Endangered	Dispersed	Habitat importance map	0.0000
Snowy Mint-bush	<i>Prostanthera nivea var. nivea</i>	502746	Rare	Dispersed	Habitat importance map	0.0000
Small Scurf-pea	<i>Cullen parvum</i>	502773	Endangered	Dispersed	Habitat importance map	0.0000
Matted Flax-lily	<i>Dianella amoena</i>	505084	Endangered	Dispersed	Habitat importance map	0.0000
Pale-flower Crane's-bill	<i>Geranium sp. 3</i>	505344	Rare	Dispersed	Habitat importance map	0.0000
Trailing Hop-bush	<i>Dodonaea procumbens</i>	501090	Vulnerable	Dispersed	Habitat importance map	0.0000
Yarra Gum	<i>Eucalyptus yarraensis</i>	501326	Rare	Dispersed	Habitat importance map	0.0000
Arching Flax-lily	<i>Dianella sp. aff. longifolia (Benambra)</i>	505560	Vulnerable	Dispersed	Habitat importance map	0.0000
Clumping Golden Moths	<i>Diuris gregaria</i>	504887	Endangered	Dispersed	Habitat importance map	0.0000
Clover Glycine	<i>Glycine latrobeana</i>	501456	Vulnerable	Dispersed	Habitat importance map	0.0000
Purple Diuris	<i>Diuris punctata</i>	501084	Vulnerable	Dispersed	Habitat importance map	0.0000
Western Peppermint	<i>Eucalyptus falciformis</i>	505358	Rare	Dispersed	Habitat importance map	0.0000
Western Golden-tip	<i>Goodia medicaginea</i>	501518	Rare	Dispersed	Habitat importance map	0.0000
Dwarf Brooklime	<i>Gratiola pumilo</i>	503753	Rare	Dispersed	Habitat importance map	0.0000
Blotched Sun-orchid	<i>Thelymitra benthamiana</i>	503369	Vulnerable	Dispersed	Habitat importance map	0.0000
Lewin's Rail	<i>Lewinia pectoralis pectoralis</i>	10045	Vulnerable	Dispersed	Habitat importance map	0.0000
Fine-hairy Spear-grass	<i>Austrostipa puberula</i>	503988	Rare	Dispersed	Habitat importance map	0.0000
Growling Grass Frog	<i>Litoria raniformis</i>	13207	Endangered	Dispersed	Habitat importance map	0.0000
Branching Groundsel	<i>Senecio cunninghamii var. cunninghamii</i>	503104	Rare	Dispersed	Habitat importance map	0.0000
Small Milkwort	<i>Comesperma polygaloides</i>	500798	Vulnerable	Dispersed	Habitat importance map	0.0000
Parsley Xanthosia	<i>Xanthosia leiophylla</i>	504562	Rare	Dispersed	Habitat importance map	0.0000

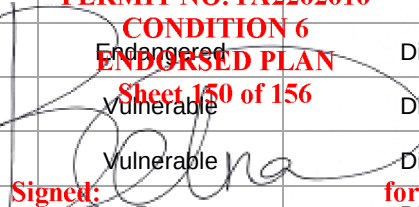
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Small Sickle Greenhood	<i>Pterostylis lustra</i>	504876	Endangered	Dispersed	Habitat importance map	0.0000
Metallic Sun-orchid	<i>Thelymitra epipactoides</i>	503367	Endangered	Dispersed	Habitat importance map	0.0000
Large White Spider-orchid	<i>Caladenia venusta</i>	500533	Rare	Dispersed	Habitat importance map	0.0000
Small-flower Mat-rush	<i>Lomandra micrantha subsp. tuberculata</i>	504711	Rare	Dispersed	Habitat importance map	0.0000
Grey Goshawk	<i>Accipiter novaehollandiae novaehollandiae</i>	10220	Vulnerable	Dispersed	Habitat importance map	0.0000
Black Falcon	<i>Falco subniger</i>	10238	Vulnerable	Dispersed	Habitat importance map	0.0000
One-flower Early Nancy	<i>Wurmbea uniflora</i>	503583	Rare	Dispersed	Habitat importance map	0.0000
White-throated Needletail	<i>Hirundapus caudacutus</i>	10334	Vulnerable	Dispersed	Habitat importance map	0.0000

Habitat group

- Highly localised habitat means there is 2000 hectares or less mapped habitat for the species
- Dispersed habitat means there is more than 2000 hectares of mapped habitat for the species

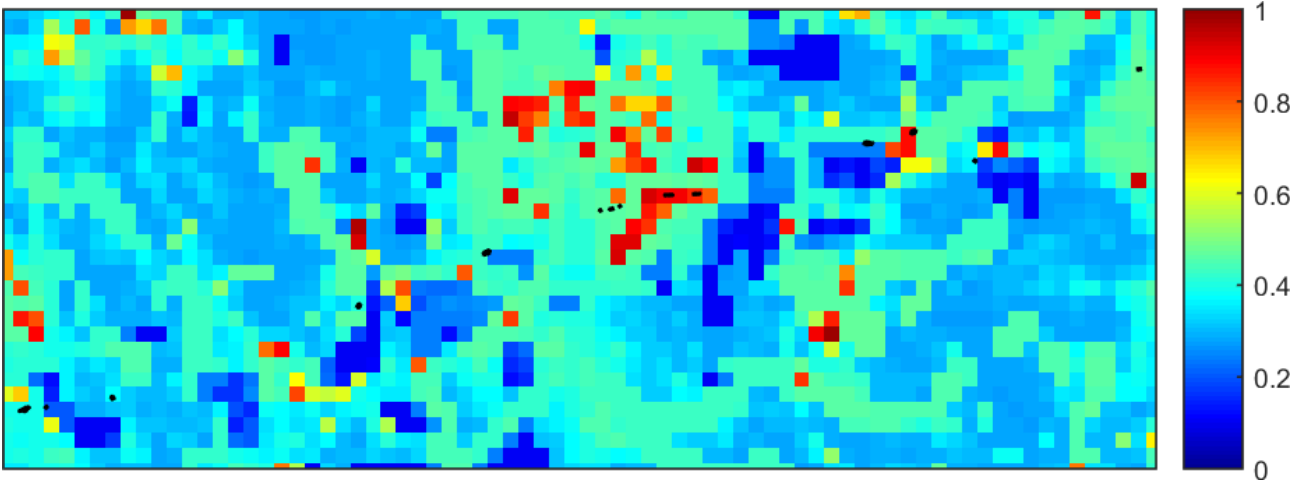
Habitat impacted

- Habitat importance maps are the maps defined in the Guidelines that include all the mapped habitat for a rare or threatened species
- Top ranking maps are the maps defined in the Guidelines that depict the important areas of a dispersed species habitat, developed from the highest habitat importance scores in dispersed species habitat maps and selected VBA records
- Selected VBA record is an area in Victoria that represents a large population, roosting or breeding site etc.



Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation

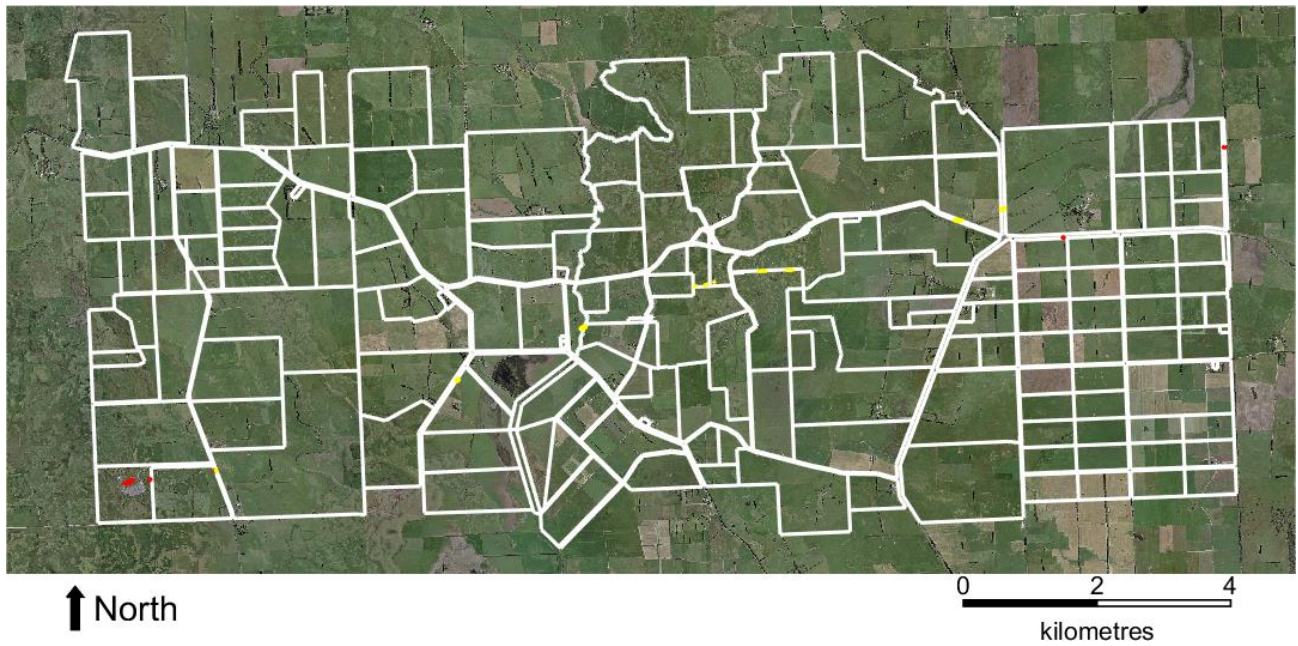


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4. Map of the property in context



Yellow boundaries denote areas of proposed native vegetation removal.

Red boundaries denote areas of past removal.

Appendix 8: Evidence of third party offset availability



Report of available native vegetation credits

This report lists native vegetation credits available to purchase through the Native Vegetation Credit Register.

This report is **not evidence** that an offset has been secured. An offset is only secured when the units have been purchased and allocated to a permit or other approval and an allocated credit extract is provided by the Native Vegetation Credit Register.

Date and time: 21/12/2022 04:14

Report ID: 17190

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.193	0.398	0	CMA	Glenelg Hopkins
			or LGA	Moyne Shire

Details of available native vegetation credits on 21 December 2022 04:14

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0639	5.020	0	Glenelg Hopkins	Moyne Shire	Yes	Yes	No	Bio Offsets
BBA-0667	1.567	0	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	Contact NVOR
BBA-1139_05	1.141	0	Glenelg Hopkins	Moyne Shire	No	Yes	No	VegLink
BBA-2467	1.287	37	Glenelg Hopkins	Glenelg Shire	Yes	Yes	No	VegLink
BBA-2467	0.369	11	Glenelg Hopkins	Glenelg Shire	No	Yes	No	
BBA-3027	2.518	267	Glenelg Hopkins	Pyrenees Shire	Yes	Yes	No	VegLink
BBA-3041	0.572	253	Glenelg Hopkins	Moyne Shire	Yes	Yes	No	VegLink
TFN-C0228	4.637	0	Glenelg Hopkins	Glenelg Shire	No	Yes	No	Bio Offsets
TFN-C0543	0.407	7	Glenelg Hopkins	Southern Grampians Shire	No	Yes	No	Bio Offsets
VC_CFL-3693_01	3.674	661	Glenelg Hopkins	Ararat Rural City	Yes	Yes	No	VegLink
VC_CFL-3714_01	14.430	0	Glenelg Hopkins	Ararat Rural City	Yes	Yes	No	VegLink
VC_CFL-3756_01	26.646	0	Glenelg Hopkins	Ararat Rural City	Yes	Yes	No	VegLink
VC_CFL-3763_01	3.246	266	Glenelg Hopkins	Glenelg Shire	Yes	Yes	No	VegLink
VC_TFN-C2046_01	10.593	1447	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	Ecocentric, Ethos, VegLink

These sites meet your requirements using alternative arrangements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-2088	0.193	5	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	VegLink

These potential sites are not yet available, land owners may finalise them once a buyer is confirmed.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
----------------	-----	----	-----	-----	------------	--------	-------------	-----------

There are no potential sites listed in the Native Vegetation Credit Register that meet your offset requirements.

LT - Large Trees

CMA - Catchment Management Authority

LGA - Municipal District or Local Government Authority

Next steps

If applying for approval to remove native vegetation

Attach this report to an application to remove native vegetation as evidence that your offset requirement is currently available.

If you have approval to remove native vegetation

Below are the contact details for all brokers. Contact the broker(s) listed for the credit site(s) that meet your offset requirements. These are shown in the above tables. If more than one broker or site is listed, you should get more than one quote before deciding which offset to secure.

Broker contact details

Broker Abbreviation	Broker Name	Phone	Email	Website
Abezco	Abzeco Pty. Ltd.	(03) 9431 5444	offsets@abzeco.com.au	www.abzeco.com.au
Baw Baw SC	Baw Baw Shire Council	(03) 5624 8414	bawbaw@bawbawshire.vic.gov.au	www.bawbawshire.vic.gov.au
Bio Offsets	Biodiversity Offsets Victoria	0452 161 013	info@offsetsvictoria.com.au	www.offsetsvictoria.com.au
Contact NVOR	Native Vegetation Offset Register	136 186	nativevegetation.offsetregister@delwp.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not available
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
Nillumbik SC	Nillumbik Shire Council	(03) 9433 3316	offsets@nillumbik.vic.gov.au	www.nillumbik.vic.gov.au
TFN	Trust for Nature	8631 5888	offsets@tfn.org.au	www.trustfornature.org.au
VegLink	Vegetation Link Pty Ltd	(03) 8578 4250 or 1300 834 546	offsets@vegetationlink.com.au	www.vegetationlink.com.au
Yarra Ranges SC	Yarra Ranges Shire Council	1300 368 333	biodiversityoffsets@yarraranges.vic.gov.au	www.yarraranges.vic.gov.au

**PLANNING and ENVIRONMENT ACT
MOYNE PLANNING SCHEME**

PERMIT NO. PA2202010

CONDITION 6

ENDORSED PLAN

Sheet 156 of 180

Signed:

MINISTER FOR PLANNING

Date: 16 May 2023

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For more information contact the DELWP Customer Service Centre 136 186 or the Native Vegetation Credit Register at nativevegetation.offsetregister@delwp.vic.gov.au

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Obtaining this publication does not guarantee that the credits shown will be available in the Native Vegetation Credit Register either now or at a later time when a purchase of native vegetation credits is planned.

Notwithstanding anything else contained in this publication, you must ensure that you comply with all relevant laws, legislation, awards or orders and that you obtain and comply with all permits, approvals and the like that affect, are applicable or are necessary to undertake any action to remove, lop or destroy or otherwise deal with any native vegetation or that apply to matters within the scope of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes