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PLANNING ASSESSMENT REPORT

Planning Permit Application for Use of Utility Installation, Buildings and Works, and Removal of Native Vegetation at Tarrone Terminal Station

FINAL

December 2021

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FINAL

[redacted]

Project Director: [redacted]
Project Manager:
Report No. 21637/R01
Date: December 2021

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
1	David Knight	18/08/2021	David Knight	19/08/2021
2	Grace Abou Abdallah	9/12/2021	David Knight	10/12/2021

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1.0 Introduction

This planning permit application seeks approval for use of a utility installation, buildings and works, and the removal of native vegetation at the existing Tarrone Terminal Station located on Lot 2 on Plan of Subdivision 218923A (subject site). The use, building and works, and native vegetation removal is associated with proposed augmentations to the existing Tarrone Terminal Station (by way of installing an additional transformer within the existing station) and the installation of a substation to connect two approved wind energy facilities to the Victorian electricity grid (Ryan Corner Wind Farm and Hawkesdale Wind Farm).

Umwelt (Australia) Pty Ltd acts on behalf of Ryan Corner Development Pty Ltd and Hawkesdale Asset Pty Ltd, both of which are wholly owned subsidiaries of Global Power Generation Australia Pty Ltd and the proponents of this application. AusNet have been commissioned to design the proposed buildings and works and develop them should approval be granted.

[redacted]

2.0 Background

Ryan Corner Wind Farm and Hawkesdale Wind Farm were approved by the Minister for Planning in 2008 and Planning Permits 20060222 and 20060221 were issued respectively. In 2017, the Minister for Planning approved amendments to the planning permits for each wind farm, including changes to the wind farm layout, increase in turbine height, and changes to planning permit conditions (amongst other things). As such, Planning Permit No. 20060222 – A and Planning Permit No. 20060221 – A were issued.

The Planning Reports pertaining to the 2017 planning permit amendment applications for each wind farm identify the intended connection to the 500kV electricity grid via the existing Tarrone Terminal Station (the Terminal Station). The Terminal Station is located approximately 10km north of Ryan Corner Wind Farm and 13 km southwest of Hawkesdale Wind Farm. The connection would occur by way of a transmission line extending from the internal substation of each wind farm to the Terminal Station (subject to separate approvals). Refer to **Appendix 1** for an understanding of the location of the two wind farms with respect to the Terminal Station, and an indicative transmission line route from each wind farm to the Terminal Station.

On 26 April 2012, Planning Scheme Amendment C047 was gazetted by the Minister for Planning to allow the rezoning of land described as Lot 2 on Plan of Subdivision 218923A (Volume 09933, Folio 939), from Farming Zone to Special Use Zone 5. The rezoning facilitates the development and use of Tarrone Gas Fired Power Station. The Explanatory Report relating to amendment C047 further clarifies that the amendment:

- introduces Schedule 6 to the Special Use Zone (SUZ6: Tarrone Terminal Station);
- introduces Schedule 5 to the Environmental Significance Overlay (ESO5 Tarrone Power Station environs) and includes the land surrounding the power station site in the ESO5;
- amends the Schedule to Clause 52.03 to exempt the land from planning approval for the removal of native vegetation in accordance with requirements included in the Incorporated Document;
- amends maps within Clause 61.03 in the planning scheme; and
- introduces *Tarrone Power Station, December 2011* to Clause 81.01 as an incorporated document in the planning scheme.

It is understood from the Panel Report dated April 2011 that the Tarrone Power Station Project is described as follows,

> *"The Project comprises:*
>
> - *A gas-fired power station in the rural locality of Tarrone approximately 23 kilometres north of Port Fairy.*
> - *A gas pipeline connecting to the existing SEAGas pipeline at Willatook (not addressed in Amendment C47).*
> - *A 500kV substation and connection point to the electricity Grid immediately to the east of the power station"*

[redacted]

Tarrone Power Station (December 2011) is an incorporated Document within the Moyne Planning Scheme (C62). This document applies to the subject site, the intersection of Tarrone North Road and Woolsthorpe-Heywood Road, Tarrone North Road from the intersection of Tarrone Lane to the Woolsthorpe Road, and Woolsthorpe-Heywood Road between the Penshurst-Warrnambool Road and the Hamilton-Port Fairy Road. In relation to the subject site, the document allows for the lopping, removal or destruction of native vegetation associated with buildings and works in accordance with a Development Plan and Flora and Fauna Management Plan approved under SUZ6.

The introduction of ESO5 aimed to control the establishment of sensitive uses proposed to be located surrounding the subject site from the potential amenity impacts of Tarrone Power Station.

Tarrone Terminal Station, constructed in 2012, is located on the subject site which has also been developed to host a substation, relating to Macarthur Wind Farm (approved by the Minister for Planning on 26 October 2006 in accordance with Planning Permit No. PL-SP/05/0283) to the north of the Terminal Station.

Tarrone Terminal Station has also since been augmented to accommodate Macarthur Wind Farm's connection to the grid in accordance with development plans approved by the Minister for Planning on 14 June 2012, to form part of Planning Permit No. PL-SP/05/0283.

This planning permit application seeks approval for use of utility installation, buildings and works, and the removal of native vegetation to implement augmentations to Tarrone Terminal Station and the installation of a substation to allow for the connection of Ryan Corner and Hawkesdale Wind Farms to the electricity grid. The proposal is wholly within the land to which C047 applies. A planning permit is required for the use of utility installation and buildings and works as the proposed use is a Section 2 use within Schedule 6 to the Special Use Zone applicable to the land, and exemptions provided in Clause 2.0 and 4.0 of SUZ6 of the Planning Scheme are not applicable to the proposal. A planning permit for the removal of native vegetation is also required in accordance with Clause 52.17 of the Planning Scheme.

Planning approval was previously granted by the Minister for Planning for the proposed use and buildings and works that are the subject of this application, and Planning Permit No. PA18003300 was issued on 12 February 2018. Planning Permit No. PA18003300 allowed,

> *"Use and development of land for a utility installation (substation)"*

Planning Permit No. PA18003300 has since expired as development did not commence within the timeframes required by the planning permit, and no extension of time was sought.

[redacted]

3.0 Subject Site

The subject site is in Tarrone, west of Tarrone North Road and south of Woolsthorpe-Heywood Road. The subject site is bounded by Riordans Road to the south and Landers Lane to the west. The subject site hosts the Terminal Station and a substation associated with Macarthur Wind Farm to the south of the Terminal Station. The subject site is affected by the planning policies, controls, and provisions of the Moyne Planning Scheme (the Planning Scheme).

Macarthur Wind Farm is located approximately 20 km north of the subject site. Ryan Corner Wind Farm and Hawkesdale Wind Farm are located approximately 10 km south and 13 km south west of the subject site respectively (Refer to **Figure 3.1**)

Figure 3.1 Subject Site Context

The subject site is within a rural area. There are four dwellings in proximity to the subject site (refer to **Figure 3.2**) with the nearest dwelling to the proposed works located more than 1km away. It is noted that Dwelling 4 shown on the figure below is owned by GPG Australia Pty Ltd.

[redacted]

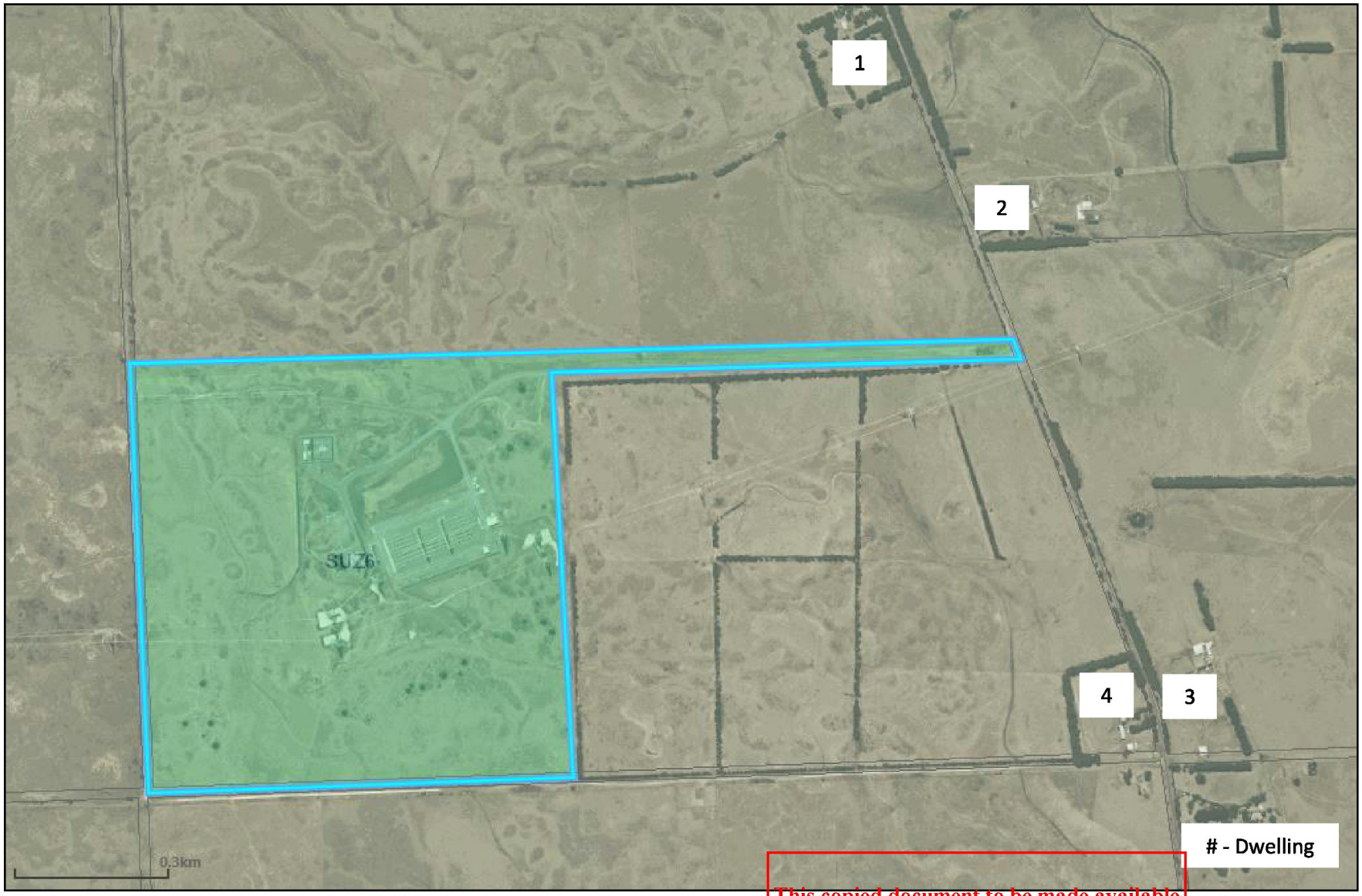


Figure 3.2 Dwellings in proximity to the Terminal Station

[redacted]

The subject site is within a mapped Bushfire Prone Area and within an Area of Cultural Heritage Sensitivity, as shown in **Figure 3.3** and **Figure 3.4** respectively.

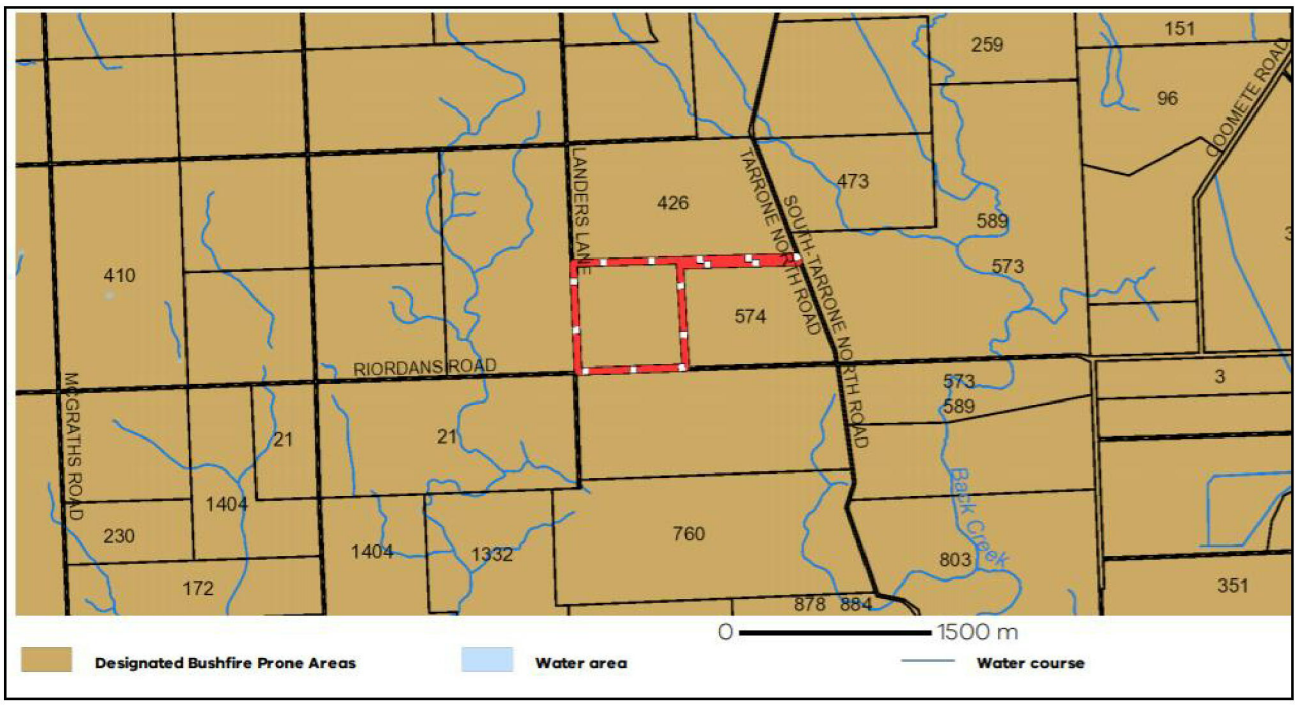


Figure 3.3 Bushfire Prone Area

(VicPlan Maps, 2021)

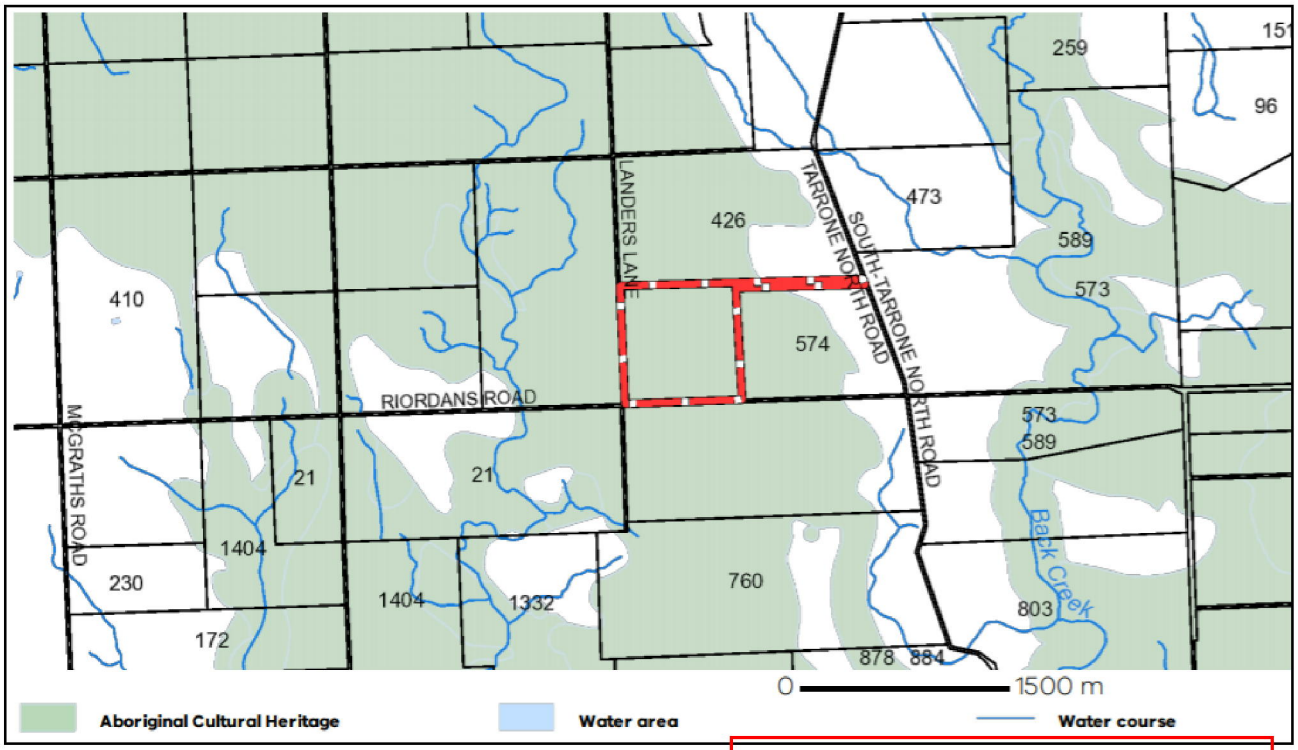


Figure 3.4 Area of Cultural Heritage Sensitivity

(VicPlan Maps, 2021)

[redacted]

4.0 The Proposal

This planning permit application seeks approval for the use of utility installation, building and works, and the removal of native vegetation.

Works would occur within the subject site, to the east of the 500 kv yard that forms part of Tarrone Terminal Station. Works are expected to be completed within 10 months of commencement.

The proposal includes the following buildings and associated works:

- 500 kV circuit breaker
- 500 kV Disconnectors
- 500 kV Instrument Transformers
- 500 kV transformer and gantry area
- 132 kV busbar and switchgear
- 3 conductors extending from the proposed 500kV transformer gantry area to the proposed 500 kV circuit breaker
- A bench to house 132/500 kV step-up power transformer and the required busbars, bays and additional equipment to receive the transmission lines
- A temporary construction laydown area of approximately 4,800 m^2
- Security fence extension
- 132 kV Yard Lighting/Lighting poles
- Overhead Earth wire pole
- Environmental Drainage System (Puraceptor).

Refer to **Appendix 2** for the proposed location of the works with respect to the Terminal Station and other existing infrastructure, surrounding easements, and native vegetation on site.

The maximum height of the proposed infrastructure is approximately 30m, consistent with the height of the existing infrastructure on site. **Appendix 3** includes the development plans which provide more detail on the layout and elevations of the proposed works and which accompany this submission for endorsement. Drainage plans are provided in **Appendix 4** for information.

A flora and fauna impact assessment, provided at **Appendix 5**, concludes that the proposal will impact on 0.118 hectares of native vegetation in addition to grazing paddock and ephemeral wetland fauna habitat types. The proposal is unlikely to impact on any listed fauna species and will not result in any loss of EPBC Act listed ecological communities or flora species. More details on the native vegetation investigations are provided in Section 6.1 below.

A heritage statement provided at **Appendix 6** concludes that the proposed works do not require a CHMP. More details on the conclusions of the heritage statement are provided in Section 6.3 below.

[redacted]

Appendix 7 includes a noise assessment which predicts the proposal's noise emissions and the cumulative noise emissions from the proposal and the existing Macarthur Wind Farm substation transformer in operation on the site. The noise assessment concludes that predicted noise levels comply with the EPA Publication 1826.4 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* (May, 2021) (Noise Protocol) night period noise limit by a margin of at least 10dB. Negligible noise impacts are therefore predicted for receptors in the vicinity of the proposal.

[redacted]

5.0 Relevant Victorian Planning Provisions

The policies and provisions of the Planning Scheme applicable to the subject site are set out below.

5.1 Planning Policy Framework

The following planning policies apply to the subject site and proposal:

Clause 12.01-1S Protection of biodiversity – This clause seeks to assist with the protection and conservation of Victoria's biodiversity and encourages decision making to take into account the impacts of proposals on Victoria's biodiversity.

Clause 12.01-2S Native vegetation management – This clause seeks to ensure that the removal, destruction or lopping of native vegetation does not result in any net loss to biodiversity. This clause requires decision making around impacts on native vegetation to apply the three-step approach in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* developed by the Department of Environment, Land, Water and Planning (2017) (the native vegetation guidelines). The three steps are around avoidance, minimisation of impacts, and the provision of offsets to compensate for the impacts.

Clause 13.02-1S Bushfire planning – This clause seeks to strengthen the resilience of settlements and communities to bushfire through risk based planning that prioritises the protection of human life. This clause is applicable to land that is within a designated bushfire prone area, subject to a Bushfire Management Overlay, or proposed to be used or developed in a way that may create a bushfire hazards.

Clause 15.03-2S Aboriginal cultural heritage – This clause seeks to protect and conserve places of Aboriginal cultural heritage significance. Most relevant is the aim to ensure that permit approvals align with the recommendations of any relevant Cultural Heritage Management Plan endorsed pursuant to the *Aboriginal Heritage Act 2006.*

Clause 19.01-1S Energy Supply – This clause seeks to enable appropriate development of energy supply infrastructure and aims to support the development of energy facilities in appropriate locations where they take advantage of existing infrastructure and provide benefits to industry and the community.

Clause 19.01-2S Renewable energy – This clause promotes the provision of renewable energy while ensuring appropriate siting and design considerations. Strategies include facilitating renewable energy development in appropriate locations and setting aside suitable land for future energy infrastructure.

5.2 Local Planning Policy Framework

The following local planning policies are relevant to the subject site and proposal:

Clause 21.07 Economic development – This clause recognises wind farms and other energy facilities to be an industry that diversifies the region's economic development. The policy aims to support and facilitate the development of local employment opportunities.

[redacted]

Clause 22.02-2 Rare and Threatened Species – This clause seeks to give consideration to the importance of Sites of Victorian Rare or Threatened Species of Flora and Fauna within the municipality, as part of the planning permit process. It is policy for 'Selected Biodiversity Components – LGA of Moyne' (DNRE, 1996) to be referred to in determining whether the land could potentially contain the habitat of a Victorian Rare or Threatened Species, which are included but not limited to Schedule 2 of the *Flora and Fauna Guarantee Act 1988.*

Clause 22.02-5 Pest Plant Management – This clause applies to all land within the Planning Scheme and aims to contain the spread of noxious and pest weeds and to continuously reduce the areas affected.

Clause 22.02-8 Flora and fauna local policy – This clause seeks to protect and enhance flora and fauna communities throughout the Shire by encouraging the conservation of ecological communities hosting native flora and fauna.

5.3 Planning Controls

5.3.1 Zone

The subject site is affected by Schedule 6 to Clause 37.01 Special Use Zone (SUZ6) 'Tarrone Power Station', as shown in **Figure 5.1** below. The purpose of SUZ6 is to facilitate the development and use of a gas-fired power station and to provide for electricity generation using natural gas as the energy source.

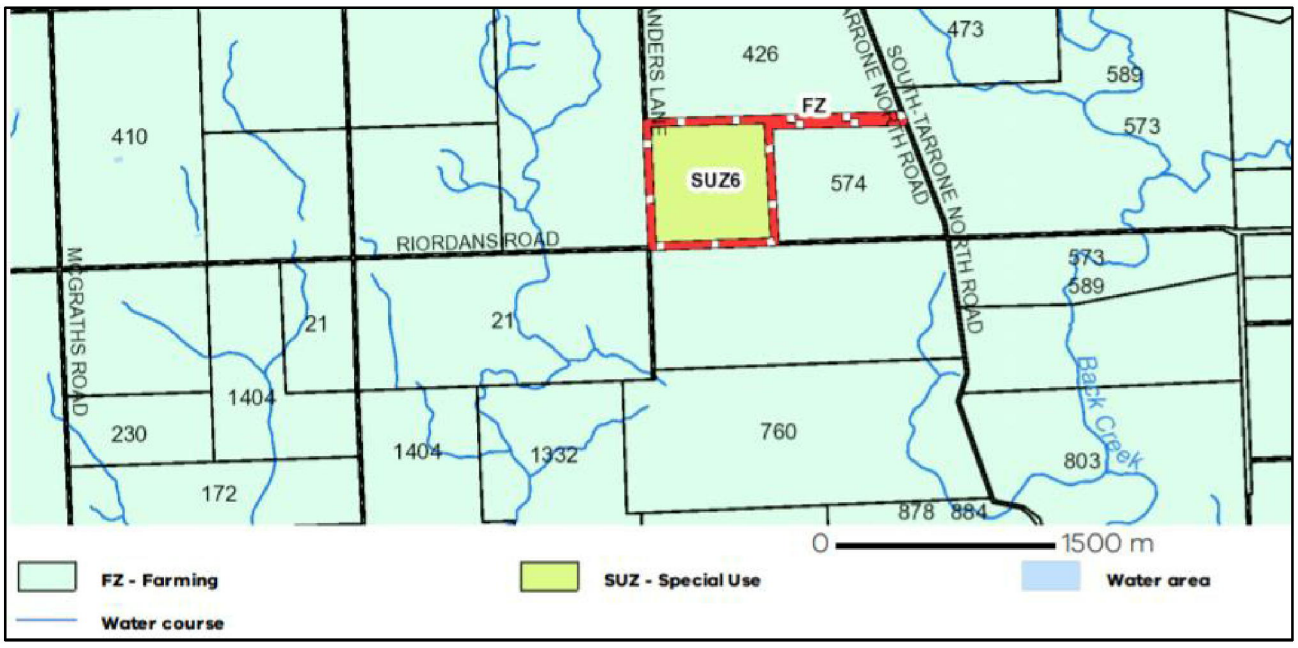


Figure 5.1 SUZ6 affecting the subject site

(VicPlan Maps, 2021)

Clause 2.0 of SUZ6 specifies that a permit is not required to use the land for a gas-fired power station in accordance with this clause. For the purposes of the schedule, a gas-fired power station is defined to be an industrial complex or utility installation using plant, equipment and facilities for the generation of electricity for public use and for connection and export of the electricity into the high voltage transmission systems.

[redacted]

An application for the use of land for a utility installation is being made in accordance with the Table of Uses in Section 1.0 of Schedule 6 to Clause 37.01, where a utility installation is a Section 2 – Permit required use.

Under Clause 4.0 of the SUZ6 'Buildings and works', buildings and works do not require a planning permit if they:

- Are in accordance with a Development Plan approved by the responsible authority;
- Rearrange, alter or renew existing plan if the area or height of the plant is not increased; or
- Are amenities provided for construction and commissioning personnel undertaking works on the subject site.

A planning permit for buildings and works is also required for the proposed works as they do not satisfy the abovementioned exemptions.

5.3.2 Overlay

The subject site is not affected by overlays. As explained in C047's explanatory report, ESO5 surrounds the subject site (refer to **Figure 5.2**) to ensure that any proposed sensitive uses are either located with regard to the likely impacts of the power station and its ancillary uses or are constructed to include appropriate acoustic mitigation measures. ESO5 particularly seeks to ensure that the development and use of the Tarrone Power Station is not constrained by potential conflicting accommodation uses and developments surrounding the subject site. ESO5 aims to ensure that potential noise impacts are considered in any decision regarding surrounding sensitive land uses.

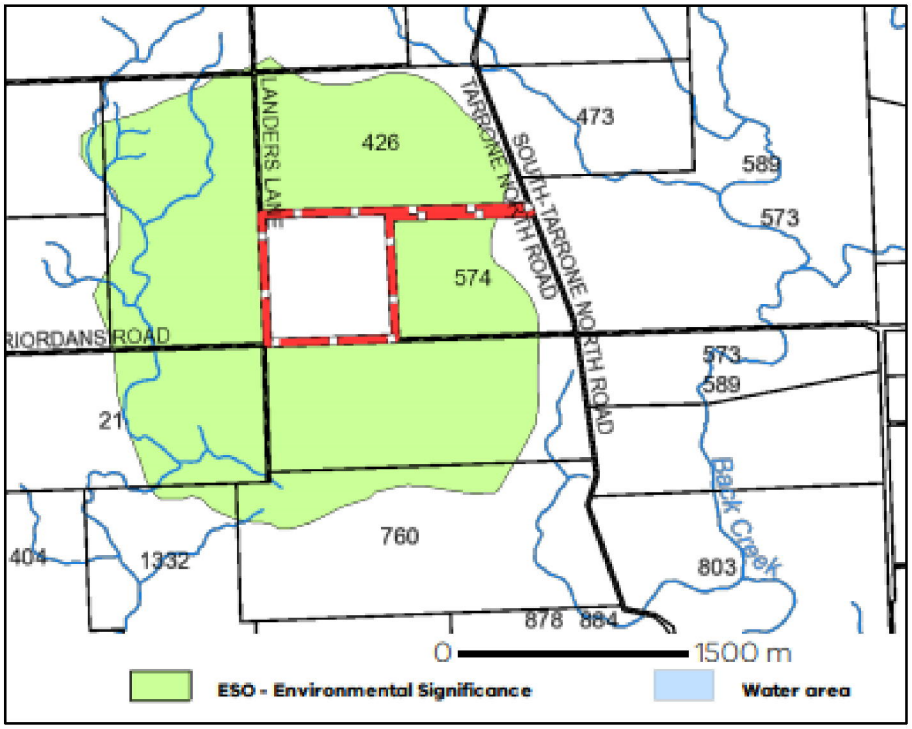


Figure 5.2 ESO5 surrounding the subject site

(VicPlan Maps, 2021)

[redacted]

5.3.3 Particular Provisions

Clause 52.17 Native vegetation – This clause seeks to ensure that there is no net loss to biodiversity as a result of impacts on native vegetation by applying the three-step approach in accordance with the native vegetation guidelines (avoidance of impact, minimisation of impacts, and provision of offsets). A planning permit is required for the proposed removal of native vegetation in accordance with this clause.

5.4 Referral and Notice Requirements

Section 52 and 55 of the *Planning and Environment Act 1987* (P&E Act) relate to notice of application and referral requirements respectively, a response to which is provided in **Table 5.1**.

Table 5.1 Referral and Notice of application requirements

P&E Act Requirement	Response
52(1)(a) Notice of an application must be given to the owners and occupiers of allotments or lots adjoining the land to which the application applies, unless the responsible authority is satisfied that the grant of the permit would not cause material detriment to any person.	The proposal seeks approval for use of a utility installation, buildings and works, and the removal of native vegetation to allow the the augmentation of Tarrone Terminal Station and installation of a substation to accommodate the connection to the electricity grid of the approved Ryan Corner and Hawkesdale Wind Farms. The proposed buildings and works are an augmentation of the existing terminal station and the installation of a substation adjacent to the Terminal Station to accommodate the two wind farms. and are to be undertaken within the boundaries of the subject site, effected by SUZ6, which currently hosts Tarrone Terminal Station and a substation relating to Macarthur Wind Farm. The proposed works are immediately adjacent to the existing Terminal Station and are of a similar height to existing infrastructure. The proposed works would be marginally closer to existing residences to the east of the subject land, but would be consistent in their scale and appearance and therefore would not materially change visual amenity for those residences or adjoining land uses. There is also substantial vegetated screening between the proposal and existing dwellings. A noise assessment has been undertaken to understand potential noise impacts associated with the operation of the proposed works. The noise assessment is provided at **Appendix 7** and demonstrates that the predicted noise levels are low and expected to be comparable to or less than background noise levels. The noise assessment concludes that the predicted cumulative noise levels comply with the applicable Noise Protocol night period noise limit by at least 10dB. Based on the above and having regard to the existing site context and the separation distances to nearby receptors, and the surrounding ESO5 which aims to protect the site from the encroachment of incompatible uses, the proposal is not considered to cause material detriment to any person. It is therefore requested that notice of this planning permit application is not given to the owners and occupiers of the land adjoining the subject site.
52(1)(b) Notice of an application must be given to a municipal council, if the application applies to or may materially affect land within its municipal district.	While the proposal is not considered to materially affect the subject site, the planning permit application applies to land within the municipal district of Moyne Shire Council. As such, notice of the application must be given to Moyne Shire Council.

[redacted]

P&E Act Requirement	Response
52(1)(c)) Notice of an application must be given to any person to whom the planning scheme requires it to give notice	**Clause 66.02-4 Major electricity line or easement** of the Planning Scheme specifies that an application to "*construct a building or construct or carry out works on land within 60 metres of a major electricity transmission line (220 kilovolts or more) or an electricity transmission easement*" must be referred to the relevant electricity transmission authority, as a determining referral authority. The proposed works are within 60 metres of easement *E-4 Transmission of electricity to SPI Powernet VIDE AJ358492C*. As such, the planning permit application must be referred to AusNet. We note that AusNet are undertaking the design and construction of the infrastructure. **Clause 66.02-7 Industry, utility installation or warehouse** includes referral requirements for buildings and works on land for a utility installation. The application does not trigger referral requirements to the Victorian Environment Protection Authority because the works proposed are not for a purpose listed in the table to Clause 53.10. The proposed works do not trigger the referral requirements to the Victorian WorkCover Authority.
55(1) A responsible authority must give a copy of an application, together with the prescribed information, to every person or body that the planning scheme specifies as a referral authority for applications of that kind without delay unless the applicant satisfies the responsible authority that the referral authority has – a. Considered the proposal for which the application is made within the past three months; and b. Stated in writing that it does not object to the granting of the permit for the proposal	**Clause 66.02-2 Native Vegetation** of the Planning Scheme specifies that an application to "remove destroy or lop native vegetation in the Detailed Assessment Pathway as defined in the *Guidelines for the removal, destruction or lopping of native vegetation* must be referred to the Secretary to the Department of Environment, Land, Water and Planning (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987)* as the recommending referral authority. The assessment pathway for native vegetation removal is determined by the location category and the extent of native vegetation, as detailed for the study area as follows: • Location Category: Location 1 • Extent of native vegetation: A total of 0.118 hectares of native vegetation (including no large trees). Based on these details, and as confirmed by the flora and fauna assessment, the native vegetation guidelines stipulate that the proposal is to be assessed under the Basic assessment pathway. Therefore, the proposal would not trigger a referral to the Secretary to the Department of Environment, Land, Water and Planning.

The subject site is not affected by a registered restrictive covenant. Therefore, the notice requirements of Section 52(1)(ca) and Section 52(1)(cb) of the P&E Act do not apply. Responsible Authority

Pursuant to **Clause 72.01-1** of the Planning Scheme, the Minister for Planning is the responsible authority for matters under Divisions 1, 1A, 2 and 3 of Part 4 of the Act in relation to the use and development of land for a (amongst other things) utility installation used to transmit or distribute electricity or store electricity if the installed capacity is 1 megawatt or greater.

[redacted]

Guidelines for the removal, destruction or lopping of native vegetation **(Department of Environment, Land, Water and Planning, 2017)**

The native vegetation guidelines aim to stipulate the application of Victoria's policy for assessing and compensating for the removal of native vegetation. The guidelines ensure that the proposed removal of native vegetation is appropriately assessed, opportunities to avoid and minimise removal are considered, and appropriate offsets are secured. The guidelines include a three step approach which applies a precautionary method to ensure that the removal of native vegetation is restricted to what is reasonably necessary and that there are no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. The three step approach is as follows:

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; and
3. Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

6.0 Assessment

6.1 Biodiversity

Tarrone Terminal Station: Flora and Fauna Assessment (Nature Advisory, 2021) is an assessment of the impacts of the proposal on flora and fauna, accompanying this submission at **Appendix 5**. This assessment was commissioned to investigate the extent and condition of native vegetation within the subject site, as defined by the native vegetation guidelines. The assessment also provides information on any potential impacts on flora and fauna listed under the *Environment Protection and Biodiveristy Conservation Act 1999* (EPBC Act).

The preparation of this assessment included a desktop review of available information on flora, fauna and native vegetation of the subject site and surrounds, as well as a site survey to assess the subject site with respect to the native vegetation guidelines and the likelihood of occurrence of EPBC Act listed flora, fauna and communities.

6.1.1 Native Vegetation

The assessment identified 18 patches of native vegetation within the subject site, totalling 1.188 ha. These patches are comprised of Plains Grassy Wetland (EVC 125) and Stony Knoll Shrubland (EVC 649), as shown in Figure 2 of the Flora and Fauna Assessment.

The proposed footprint will result in the loss of a total extent of 0.118 hectares (or 10 per cent of the native vegetation identified) of native vegetation, comprising:

- 0.118 hectares of native vegetation in patches (including no large trees in patches)
- No scattered trees; and
- No DELWP mapped wetlands.

It is noted that the layout of the hardstand area has been designed to avoid impacts on native vegetation as much as practical by not fully encroaching on the native vegetation identified to the north west of the site.

Designing and locating the proposal on the subject site to avoid impacts on native vegetation as much as practical demonstrates the proposal's alignment with the objectives of **Clause 12.01-1S, Clause 12.01-2S, Clause 22.02-2** and **Clause 22.02-8,** and the native vegetation guidelines.

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

- Location Category: Location 1
- Extent of native vegetation: A total of 0.118 hectares of native vegetation (including no large trees).

Based on these details, the native vegetation guidelines stipulate that the proposal is to be assessed under the Basic assessment pathway.

The flora and fauna assessment identified the possibility of the following species listed under the EPBC Act and the *Flora and Fauna Guarantee Act 1988* (FFG Act) occurring on site, all of which would occur within patches of native vegetation within the subject site:

[redacted]

- Gorae Leek-orchid (EPBC Act and FFG Act listed)
- Maroon Leek-orchid (EPBC Act and FFG Act listed)
- Swamp Fireweed (EPBC Act listed)
- Swamp Everlasting (EPBC Act and FFG Act listed)
- Curly Sedge (FFG Act listed)

None of these listed species were detected on site during targeted surveys undertaken in December 2021.

6.1.2 Fauna

Three key fauna habitat areas (Tower Hill Wildlife Reserve, Belfast Coastal Reserve, and Budj Bim National Park) occur within the region, all of which are at a minimum distance of 19km from the subject site and isolated from native vegetation occurring within the subject site by roads and large tracts of agricultural land.

The subject site supports three fauna habitat types:

- Rocky outcrops;
- Grazing paddocks (native and exotic pastures); and
- Ephemeral wetlands

The flora and fauna assessment concludes that that the proposal will result in impacts on grazing paddocks (exotic pastures) and ephemeral wetland habitat types.

The flora and fauna assessment indicates that 11 fauna species listed under the FFG Act and/or the EPBC Act are likely to occur or have the potential to occur on the subject site.

Table 6.1 provides a list of these fauna species and the proposal's likelihood of impacting the associated fauna.

Table 6.1 Likelihood of impact of proposal on fauna

Fauna species	Listing	Likelihood to occur	Impacts posed by proposal
Brolga	FFG Act: Listed	Potential to occur	Unlikely
Eastern Great Egret	FFG Act: Listed	Potential to occur	Unlikely
Magpie Goose	FFG Act: Listed	Likely to occur	Unlikely
Plumed Egret	FFG Act Listed	Potential to occur	Unlikely
Glossy Ibis	EPBC Act: Migratory	Likely to occur	Unlikely
Latham's Snipe	EPBC Act: Migratory	Likely to occur	Unlikely
Pectoral Sandpiper	EPBC Act: Migratory	Potential to occur	Unlikely
Sharp-tailed Sandpiper	EPBC Act: Migratory	Potential to occur	Unlikely
Fork-tailed Swift	EPBC: Migratory	Potential to occur	Unlikely

[redacted]

Fauna species	Listing	Likelihood to occur	Impacts posed by proposal
White-throated Needletail	EPBC: Vulnerable & Migratory, FFG: Listed	Potential to occur	Unlikely
Southern Bent-wing Bat	EPBC: Critically Endangered; FFG: listed [as subspecies of Common Bent-wing Bat]	Potential to occur	Unlikely

The proposal is in line with the objectives of **Clause 12.01-1S, Clause 22.02-2 and Clause 22.02-8**, as it is unlikely to impact on listed fauna species.

6.1.3 Listed Ecological Communities

The following ecological communities were modelled to potentially occur in the subject site:

- Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP)
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (SHWTLP)
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Based on an assessment of native vegetation within the subject site against published descriptions and condition thresholds, the abovementioned communities do not occur within the subject site. As such, the proposal is in line with the objectives of **Clause 12.01-1S, Clause 22.02-2 and Clause 22.02-8.**

6.1.4 Pest Plant

The flora and fauna assessment includes recommendations that assist the proposal with managing pest weeds and achieving the objectives of **Clause 22.02-5.** The subject site hosts Spear Thistle *Cirsium vulgare* which is recommended to be minimised using precision control methods to minimise off-target kills.

6.1.5 Avoid and Minimise Statement

In accordance with the native vegetation 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 focus on areas of native vegetation that have the most value.

Efforts to avoid and minimise impacts on native vegetation in the current application are presented as follows:

- Site level planning – the footprint of the proposed terminal station upgrade has been placed as close as possible to the existing terminal station and has been sited to avoid as much native vegetation as possible. The outcome of this is that only 10% of the native vegetation recorded on site will be impacted.
- The layout of the hardstand area has been designed to avoid impacts on native vegetation as much as practical.

[redacted]

- Furthermore, no feasible opportunities exist to further avoid and minimise impacts on native vegetation without undermining the key objectives of the proposal.

6.1.6 Offsets

To compensate for the proposed native vegetation removal the following offsets would be required:

- 0.025 general habitat units and must include the following offset attribute requirements:
    - Minimum strategic biodiversity value (SBV) of 0.312; and
    - Occur within the Glenelg Hopkins CMA boundary or the Moyne municipal district

Under the native vegetation 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 offset is currently available for purchase from a native vegetation credit owner. Evidence that the required offset is available is provided in the flora and fauna assessment (refer to **Appendix 5**)

The required offset would be secured following approval of the planning permit application and prior to the removal of the native vegetation.

6.2 Bushfire

The subject site is within a bushfire prone area which **Clause 13.02-1S Bushfire planning** is applicable to. *Uses and development control in a Bushfire Prone Area* lists the uses and development which require bushfire risk consideration when assessing planning permit applications. Utility installations are not listed as one of the uses and development requiring bushfire risk consideration.

6.3 Heritage

The subject site is within an area of cultural heritage sensitivity. A Cultural Heritage Management Plan (CHMP) (ref: 11187) was prepared by Murphy et al. in 2010 for the construction and maintenance of Tarrone Power Station. The CHMP considered *"works including, foundations power line pylons, low and high voltage electrical equipment, buried services (including pipes and cabling), transformers, towers, site drainage, ponds and other ancillary works"*. A Heritage Statement prepared by Tardis (and accompanying this submission at **Appendix 6**) concludes that the proposed works are covered under the activity description of CHMP 11187. Therefore, the proposal does not trigger a mandatory CHMP.

The approved contingency plans within CHMP 11187 will be followed in the event that Aboriginal cultural heritage is uncovered during the activity. This demonstrates the proposal's achievements of **Clause 15.03-2S**.

The Heritage Statement also concludes that there are no historic archaeological or heritage matters that need to be addressed prior to the commencement of works.

6.4 Planning Controls

As discussed in Section 6.1, the proposal will impact on 0.188 ha of native vegetation. Therefore, planning approval for the removal of native vegetation is required pursuant to **Clause 52.17**.

[redacted]

An application for the use of land for a utility installation is being made in accordance with the Table of Uses in Section 1.0 of Schedule 6 to Clause 37.01, where a utility installation is a Section 2 – Permit required use.

The proposal does not meet the requirements of SUZ6 to be exempt from a planning permit for buildings and works. Therefore, this application also seeks approval to undertake buildings and works to Tarrone Terminal Station to augment it (by adding a transformer) and install a substation to allow for the connection of Ryan Corner Wind Farm and Hawkesdale Wind Farm.

6.5 Amenity Impacts

The subject site is surrounded by the ESO5 which seeks to protect the development and use of Tarrone Power Station and its ancillary uses (such as utility installations) by ensuring that potentially conflicting sensitive uses developed in its surrounds are appropriately considered. Potential amenity impacts associated with the proposal are assessed in this Section, with additional consideration given to potential noise impacts associated with the operation of the transformer forming part of the proposal.

6.5.1 Visual Impacts

The Terminal Station and proposed works are screened from the surrounding dwellings by existing vegetation on the surrounding land, as shown in **Figure 6.1** and **Figure 6.2** below.

Figure 6.1 Existing vegetation screening surrounding the subject site (to the north)

[redacted]

Figure 6.2 Existing vegetation screening surrounding the subject site (to the east and south)

Dwelling 1 is sufficiently screened from the subject site and the proposed works due to the existing rich vegetation surrounding the dwelling, as shown in **Figure 6.3**.

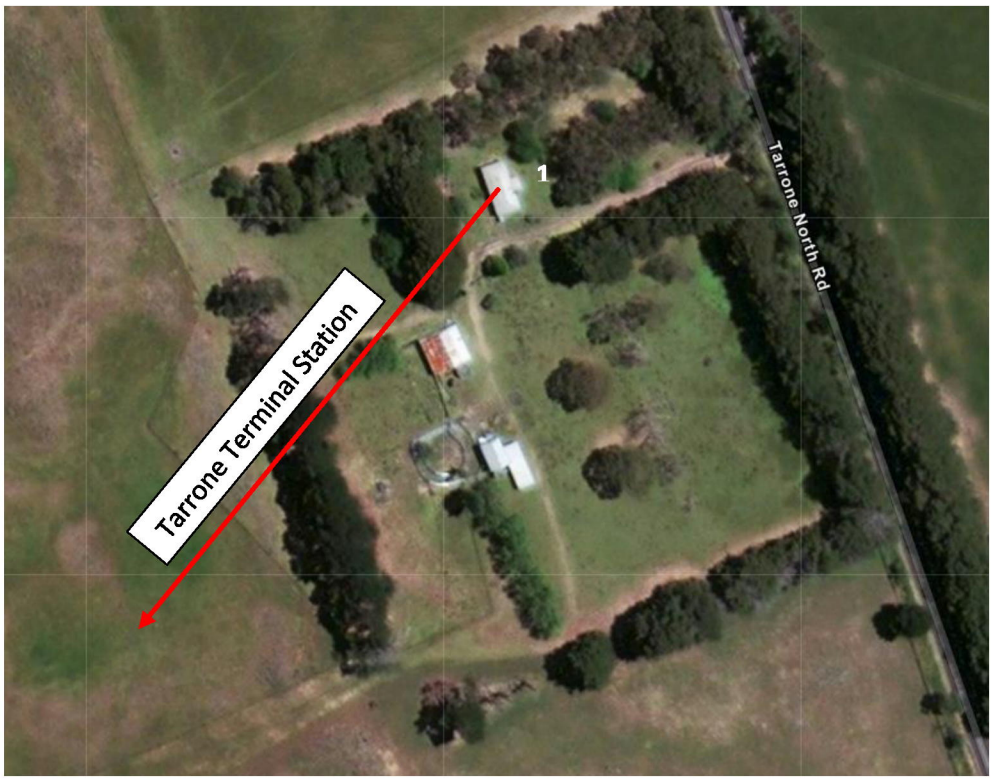


Figure 6.3 Existing vegetation screening surrounding Dwelling 1

Similarly, views from Dwellings 2, 3 and 4 to the Terminal Station and proposed works are restricted due to the rich vegetation surrounding each dwelling, particularly to the west of the dwelling, in the Terminal Station's direction, as shown in **Figure 6.4** and **Figure 6.5**.

Figure 6.4 Existing vegetation screening around Dwelling 2

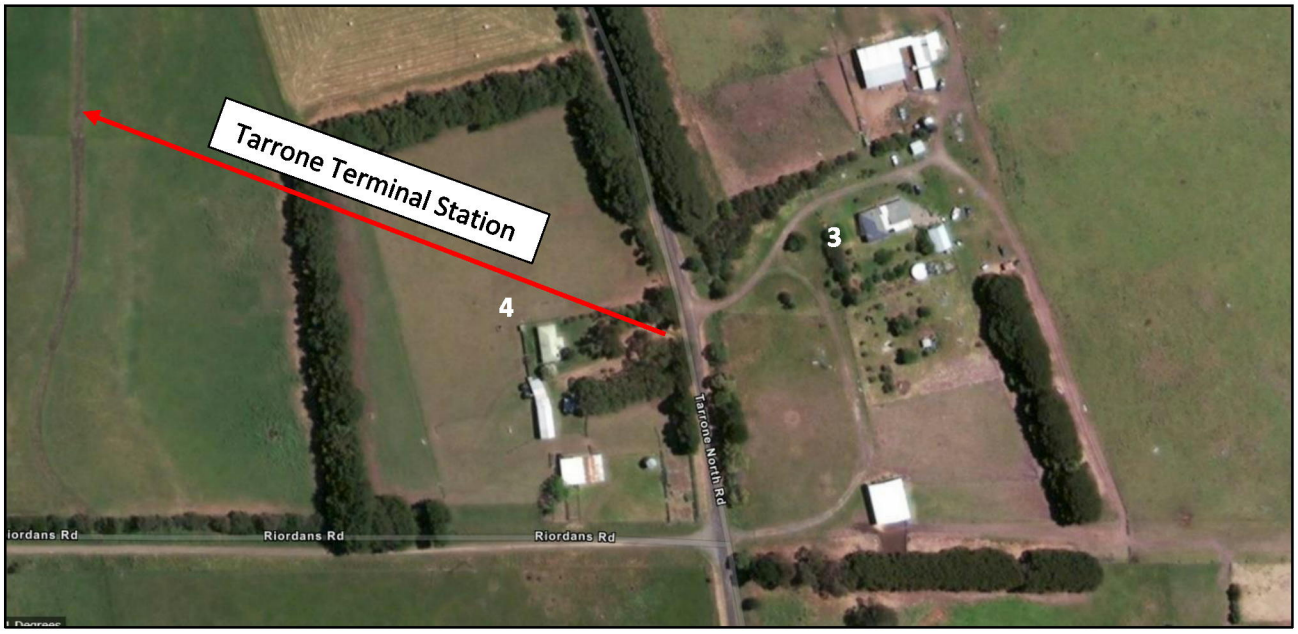


Figure 6.5 Existing vegetation screening around Dwellings 3 and 4

Existing vegetation screening surrounding the subject site and the dwellings is considered sufficient to screen the dwellings from any increased visual impacts of the Terminal Station due to the proposed works. It is understood from AusNet, who are commissioned to undertake the design and construction of the buildings and works at the Terminal Station, that the installation of vegetation screening within the terminal station creates:

- a fire risk due to increased vegetation; and
- a security risk, as the installation of additional vegetation within the subject site reduces visibility within the station bounds

It is also understood that AusNet do not own the land. The works they will be undertaking are limited to the proposal's footprint. As such, additional vegetation outside the proposal's footprint, within the subject land owned by AGL, cannot be installed.

Finally, it is also understood that there is not sufficient space within the proposal's footprint to add vegetation without restricting the Australian Energy Market Operator (AEMO) from achieving their ultimate plan for the subject site.

6.5.2 Noise Impacts

As per the existing equipment at the Terminal Station, the primary noise source included in the proposal is the transformer. The noise assessment provided at **Appendix 7** considers the noise impacts of the proposal in addition to cumulative noise impacts of the proposal and the existing transformer relating to the Macarthur substation on the 4 dwellings identified to be in proximity to the subject site.

In accordance with the *Environment Protection Act 2017* and the Noise Protocol, the noise assessment provides predicted noise level of the proposed works by adopting the methodology required by the Noise Protocol. Details of the adopted methodology can be found in **Appendix 7.**

The noise assessment considers a 420 MVA transformer with 98 dB L_{WA} total sound power level, as provided by AusNet at the time of commencement of the noise assessment. Marshall Day Acoustics Pty Ltd reviewed the suitability of this value at the time by comparing it with the data from AS 60076-10:2009 *Power transformers – Part 10: Determination of sound levels* which indicates sound power levels ranging from 95 to 103 dB. The AusNet quoted values were within the range provided by the Australia Standard and therefore deemed suitable.

Table 6.2 includes the total predicted effective noise level against the night period noise limit at every dwelling and a conclusion around whether the predicted noise levels are compliant.

Table 6.2 Predicted noise levels and compliance assessment (MDA 2021)

Receiver	Total predicted effective noise level (ENL), dB ENL	Night period noise limit	Compliance
1	26	39	Achieved
2	26	42	Achieved
3	24	36	Achieved
4	25	35	Achieved

The predicted noise levels expected to be comparable to or less than background noise levels, subsequently reducing the likelihood of tonality being an audible characteristic at receivers. The inclusion of the + 2 dB adjustment for tonality in the predictions is therefore conservative (i.e. the noise level would likely be lower).

The assessment demonstrates that the cumulative noise levels of the existing Macarthur transformer and the proposed transformer are predicted to comply with the applicable Noise Protocol night period noise limit by a margin of at least 10dB.

Since the completion of the noise assessment provided as part of this application, AusNet has confirmed that the 420 MVA power transformer to be installed on site is designed to meet a maximum A-weighted sound power level (L_{WA}) of 96 dB. This is within the 98 dBA assumed in the noise assessment. AusNet have confirmed that this maximum value will be verified before leaving the factory during Factory Acceptance Testing. If it does not comply, the transformer will be rejected until it meets the required noise

specifications. Therefore, the predicted noise levels presented in Table 6.2 above are considered conservative.

As the transformers are the primary sources of environmental noise, the results are representative for the overall proposed works at the Terminal Station.

6.5.3 Construction

Construction is expected to occur over 10 months. Construction impacts will be managed in accordance with Environment Protection Authority Publication 1834 *Civil construction, building and demolition guide* (November 2020). This publication considers environmental impacts of construction such as noise and vibration, erosion, sediment and dust, contaminated land and groundwater.

Transport to the site is expected to occur from Melbourne for the majority of deliveries, personnel and general transport. Travel to the site from Port Fairy and Warrnambool is also expected to occur for personnel residing locally during construction works and for the delivery of local materials such as concrete and bulk fill (expected to occur from Holicm Australia and Hanson Australia). Construction personnel residing locally, and materials being sourced locally where feasible, enable the proposal to assist in achieving the objectives of **Clause 21.07,** in supporting the local economy.

Indicative key transport routes are shown in **Figure 6.6**, **Figure 6.7** and **Figure 6.8**.

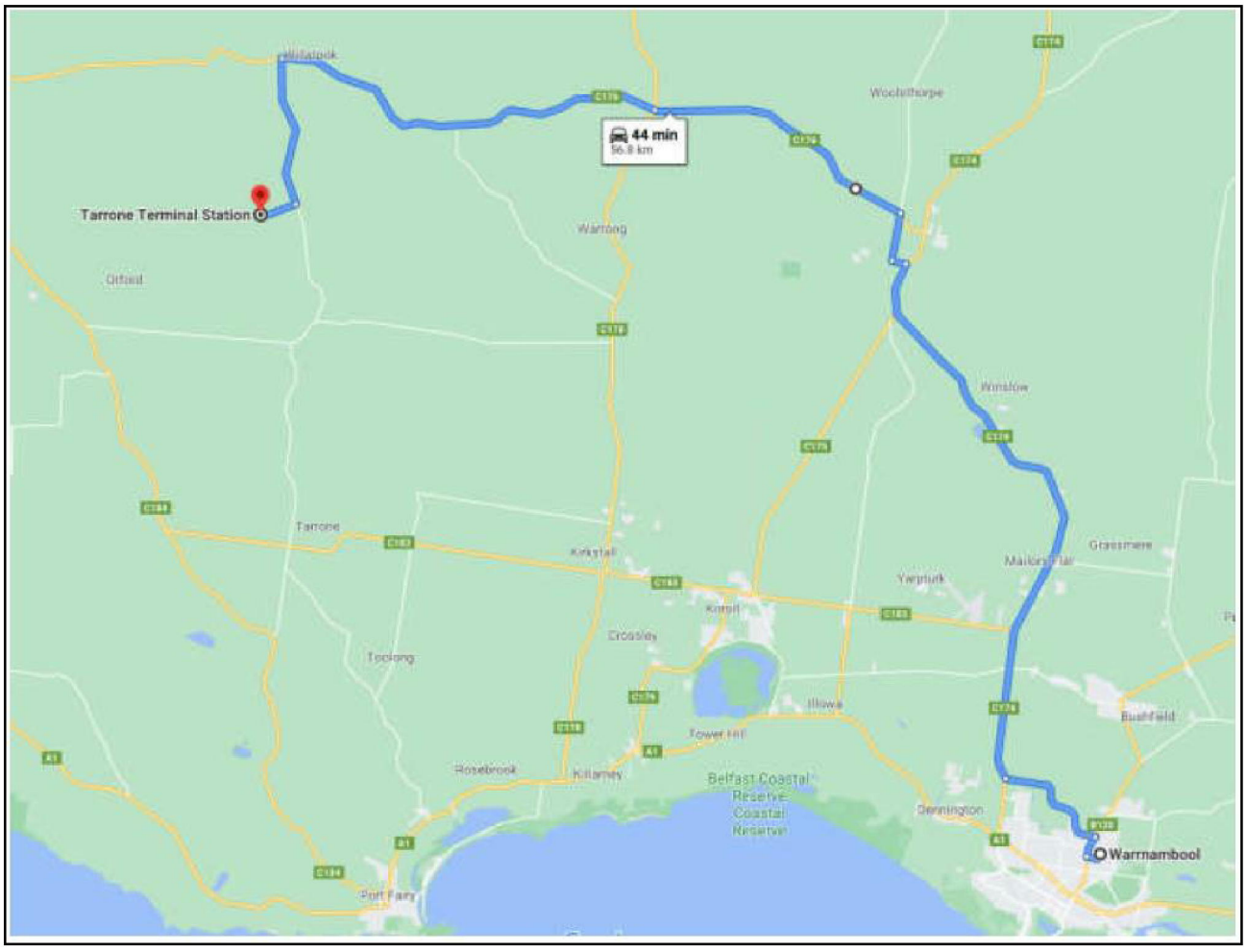


Figure 6.6 **Indicative transport route from Warrnambool to the subject site**

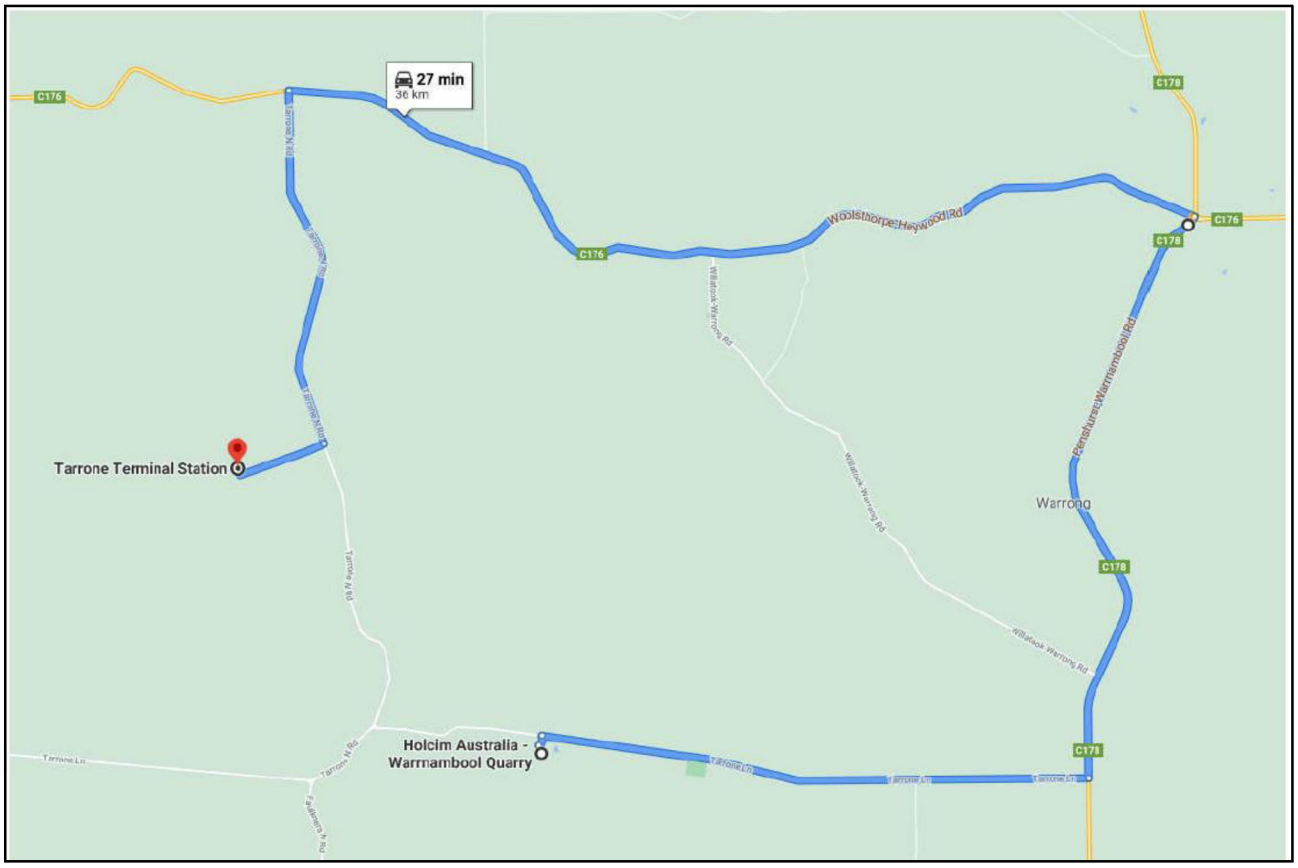


Figure 6.7 **Transport route from Holcim Australia – Warrnambool Quarry to subject site**

[redacted]

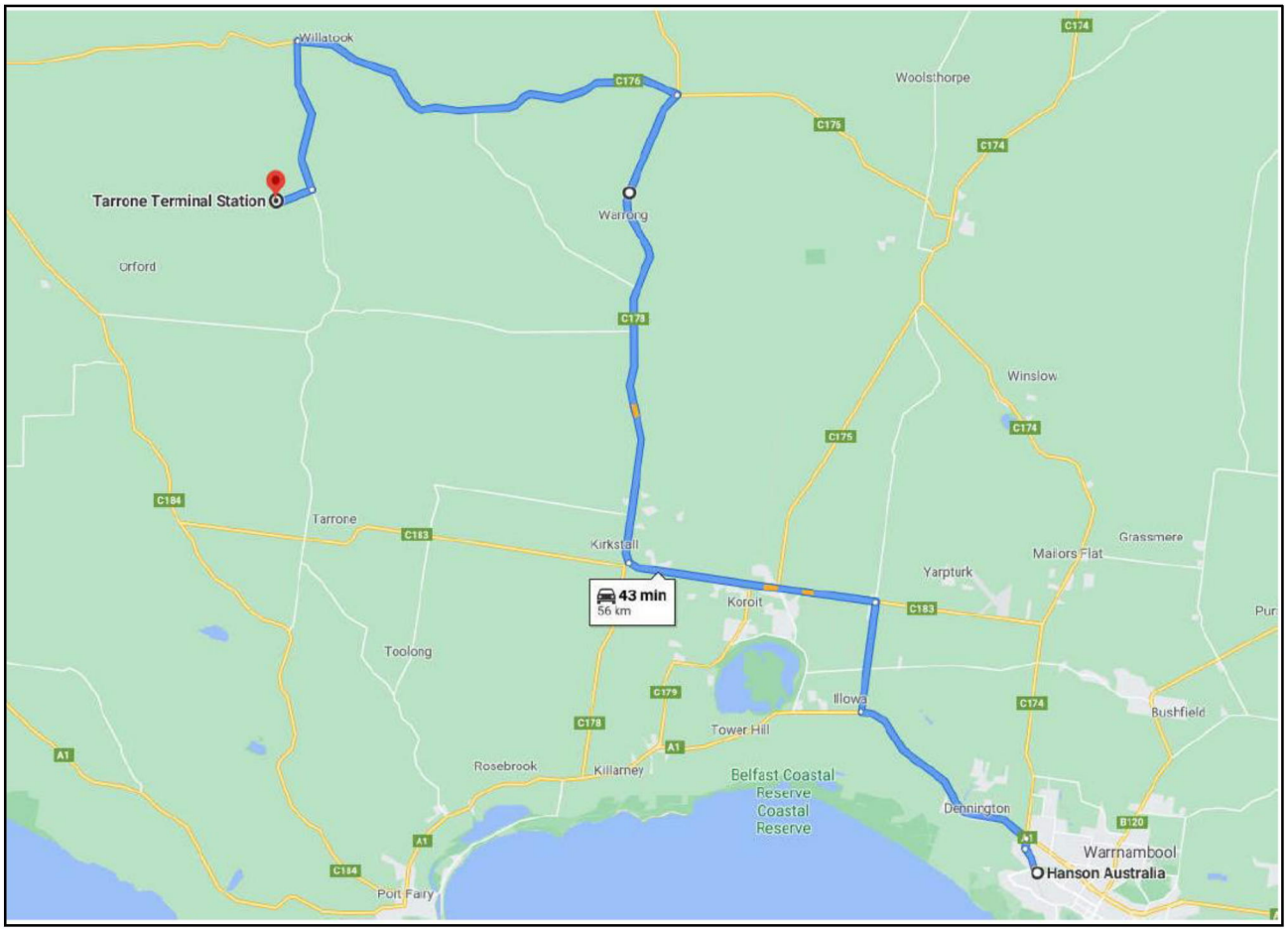


Figure 6.8 Transport route from Hanson Australia to the subject site

A preliminary review of restricted roads and access recommendations is set out below. This has been informed by discussions between the proponent of the Ryan Corner Wind Farm and Hawkesdale Wind Farm and Moyne Shire Council during preparation of the Traffic Management Plans for those projects, on the basis that similar access roads would be used for this proposal.

Roads which Council has previously recommended to avoid:

- McGillivray Road: Unsealed and in poor condition
- Malseeds Road: Sealed but requiring maintenance
- Poyntons Road: Unsealed and in poor condition. Poor visibility on some sections of this road
- Coomete Road: Unsealed and in fair condition
- Tarrone N Road (South of the Terminal Station): Single lane, winding and has poor visibility.

Restricted Road:

- Faulkners Road: Narrow, winding road (no access)
- Woolsthorpe – Heywood Road from Penshurst Warrnambool Road, east to Willatook – Warrong Road: (Recommendation is to limit access to this section of road).

[redacted]

Roads which Council has previously recommended to avoid at certain times:

- Willatook – Warrong Road: Sealed in good condition, note this road is a bus route (Recommended time for use – outside bus scheduled times).
- Tarrone Lane (East of Tarrone N Road): Sealed in good condition, note this road is a bus route (Recommended time for use – outside bus scheduled times).

Estimated traffic volumes associated with the development of the proposed works are shown in **Table 6.3** and include return loaded trips.

Table 6.3 Estimated traffic volumes during construction

Load Type	Load Vehicle	No. Trips	Construction Phase
Work Crew/Visitors	Utilitarian 4x4 or passenger vehicle	Daily	Earth Works
Work Crew/Visitors	Utilitarian 4x4 or passenger vehicle	Daily	Civil Works
Concrete	Agitator Truck	60	
Plant Mob/Demob	Low Loader/Semi Trailer	12	
Steel (Reinforcing)	Semi-Trailer	20	
Road Base & Bulk Fill Material	30t Tandem-Tipper	275	
Stormwater Drainage	Semi-Trailer	6	
Conduit & Misc	Semi-Trailer	8	
Blue Metal Screenings	Tipper & Trailer	10	
Fencing Materials	Flatbed Truck	2	
Work Crew/Visitors	Utilitarian 4x4	Daily	Substation Construction
Plant Mob/Demob	Low Loader/Semi Trailer	10	
Steel (structural)	Semi-Trailer	6	
Equipment & Materials	Semi-Trailer	15	
Transformers	Oversized Semi-Trailer	2	
Slew Crane	Crane	2	

On the basis of the above estimated traffic volumes and the existing appreciation for road hierarchy and constraints in the area, significant impacts on traffic, access or road user safety are not anticipated.

The indicative routes, which will have regard to restricted access to any roads, traffic volumes, safety measures and consultation requirements will be set out in a Traffic Management Plan that will be prepared for the project. The Traffic Management Plan will be written in consultation with Moyne Shire Council and submitted to the Minister for Planning for endorsement prior to the commencement of construction.

[redacted]

7.0 Conclusion

This report supports a planning permit application for use of utility installation, buildings and works, and the removal of native vegetation associated with the further augmentation of Tarrone Terminal Station and installation of a substation to allow the connection of Ryan Corner Wind Farm and Hawkesdale Wind Farm to the electricity grid. The proposal would occur on the subject site, which Tarrone Terminal Station is located within.

The proposal will impact on 0.118 hectares of native vegetation in addition to grazing paddock and ephemeral wetland fauna habitat types. The proposal is unlikely to impact on any listed fauna species and will not result in any loss of EPBC Act listed ecological communities and flora species.

To compensate for the proposed native vegetation removal the following offsets would be required prior to the removal of any native vegetation:

- 0.025 general habitat units and must include the following offset attribute requirements:
    - Minimum strategic biodiversity value (SBV) of 0.312; and
    - Occur within the Glenelg Hopkins CMA boundary or the Moyne municipal district

Considering the context of the subject site, the proposal is not considered to pose additional bushfire impacts, and its bushfire impacts are not required to be considered by policy.

The proposal is subject to the cultural heritage impact mitigation measures included within endorsed CHMP 11187 for the Tarrone Terminal Station.

The proposal is considered to be sufficiently screened from neighbouring dwellings by existing vegetation screening surrounding the subject site and the dwellings. There are limited opportunities within the subject site to provide onsite vegetation screening, particularly due to security and bushfire concerns.

ESO5 surrounding the proposal protects the subject site from the establishment of future incompatible uses. The proposal is consistent with the permitted use for the site and will not compromise the objectives of the ESO5.

The operation of the proposed works is predicted to comply with the Noise Protocol.

Construction of the proposed works will occur over approximately 10 months and in accordance with Environment Protection Authority Publication 1834 *Civil construction, building and demolition guide* to manage environmental impacts of construction such as noise and vibration, erosion, sediment and dust, contaminated land and groundwater.

Traffic impacts including network performance and safety for road users will be managed in accordance with a Traffic Management Plan which will be prepared in consultation with Moyne Shire Council and to the satisfaction of the Minister for Planning prior to commencement of construction.

APPENDIX 1

Indicative layout of external transmission line

Hawkesdale Wind Farm

Tarrone Terminal Station

Ryan Corner Wind Farm

Legend

- Proposed Transmission Line
- Proposed Turbine Location
- Proposed Underground Cabling
- Underground Cable Crossing
- On-site Substation
- Site Boundary

Proposed Transmission Line

Drawing No:	0105123_001_HDWF_TL_210222.mxd		**Hawkesdale / Ryan Corner Wind Farms**
Date:	22/02/2021	Drawing Size: A3	
Drawn By:	GR	Reviewed By: GAA	Client: Ryan Corner Development Pty Ltd

Coordinate System: GDA 1994 MGA Zone 54

0 1 2 3km

N

ERM

APPENDIX 2

Context of Proposed Works

SCALE 1:2500
25 0 25 50 75 100 125
LENGTHS ARE IN METRES

Ferguson Perry Surveying Pty Ltd
62 McLachlan Street Horsham,
Victoria 3400
ABN 76126 194 483

T (03) 5382 2023
F (03) 5381 1544
E admin@fergusonperry.com.au

A member of Alexander Symonds Group

+ Property + Land Development +
+ Construction + Mining +
+ Spatial Information Management +

Ferguson Perry Surveying

NOTATIONS

LEGEND

- NATIVE VEGITATION
- LEASE BOUNDARY
- FENCE
- TITLE BOUNDARY
- EASEMENT REFER TO TITLE
- LAYDOWN AREA
- SWITCHYARD PAD
- NEW ACCESS
- TOWER STRUCTURE
- TRANSMISSION LINE POLE

N°.	DATE	REVISION
A	2/12/2021	ADDED EXISTING LAND USE AND STRUCTURES

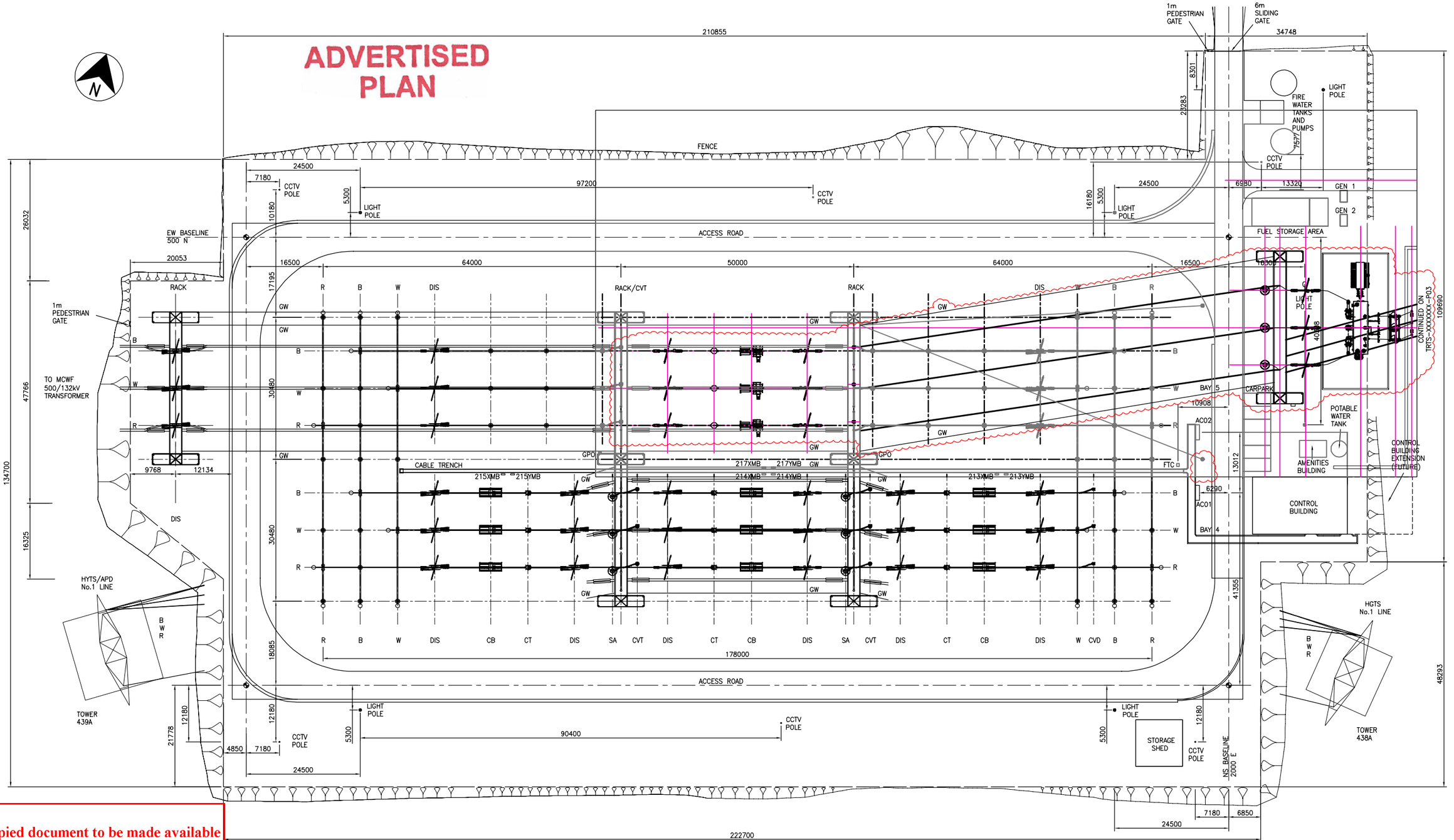
SCALE: 1:2500 (A1)
DESIGNED:
DRAWN: M.H. 08-11-21
APPROVED:

SITE PLAN
TARRONE TERMINAL STATION
Lot 2 on Plan of Subdivision 218923A
Volume 09933 Folio 939

SHEET 1 OF 2 | DRAWING N°. 21H0111 | REV. A

APPENDIX 3

Proposed Development Plans



0 8000 16000 24000 32000 40000 48000 56000 64000

SCALE 1:400
DIMENSIONS IN MILLIMETRES

AusNet Services STD A1

561 X 801 A1

REFERENCE DRAWINGS		
500kV SWITCHYARD CONTROL ROOM LAYOUT	T2/603/1	
500kV SWITCHYARD CABLE EASEMENT PLAN	T2/603/91	
500kV SWITCHYARD EARTHING PLAN	T2/603/90	
500kV SWITCHYARD MATERIAL SCHEDULE SHEETS 1&2	T2/603/88/1&2	
500kV SWITCHYARD SECTIONS SHEETS 1–4	T2/603/87/1–4	
500kV SWITCHYARD PLAN	T2/603/86	
DRAWING TITLE	DRAWING No.	

REVISION					
18.08.21	4.0	K2 TRANSFORMER & 132kV YARD ADDED (TC–0012062)	WCS	JACOBS
13.7.18	C	REVISED LINE NAMING (TC–0008190)	GLS	JACOBS
22.10.11	B	REVISED TRENCH DETAILS, AC C/O BOARDS, FTC, CCTV AND CB MBs (Z909)	RL	BECA
29.09.11	A	FIRST ISSUE (Z829 & Z909 & ZA33).	RL	BECA
DATE	REV	DESCRIPTION	BY	CONTRACTOR

AusNet services

DRAWN

ENDORSED REV 3.1 G.SMITH

ENDORSED DATE 25-09-2018

ISSUED 27/09/2018

TARRONE TERMINAL STATION
SITE PLAN SHOWING ELECTRICAL LAYOUT

Spec No. | Order No. | Legacy No T2/603/85

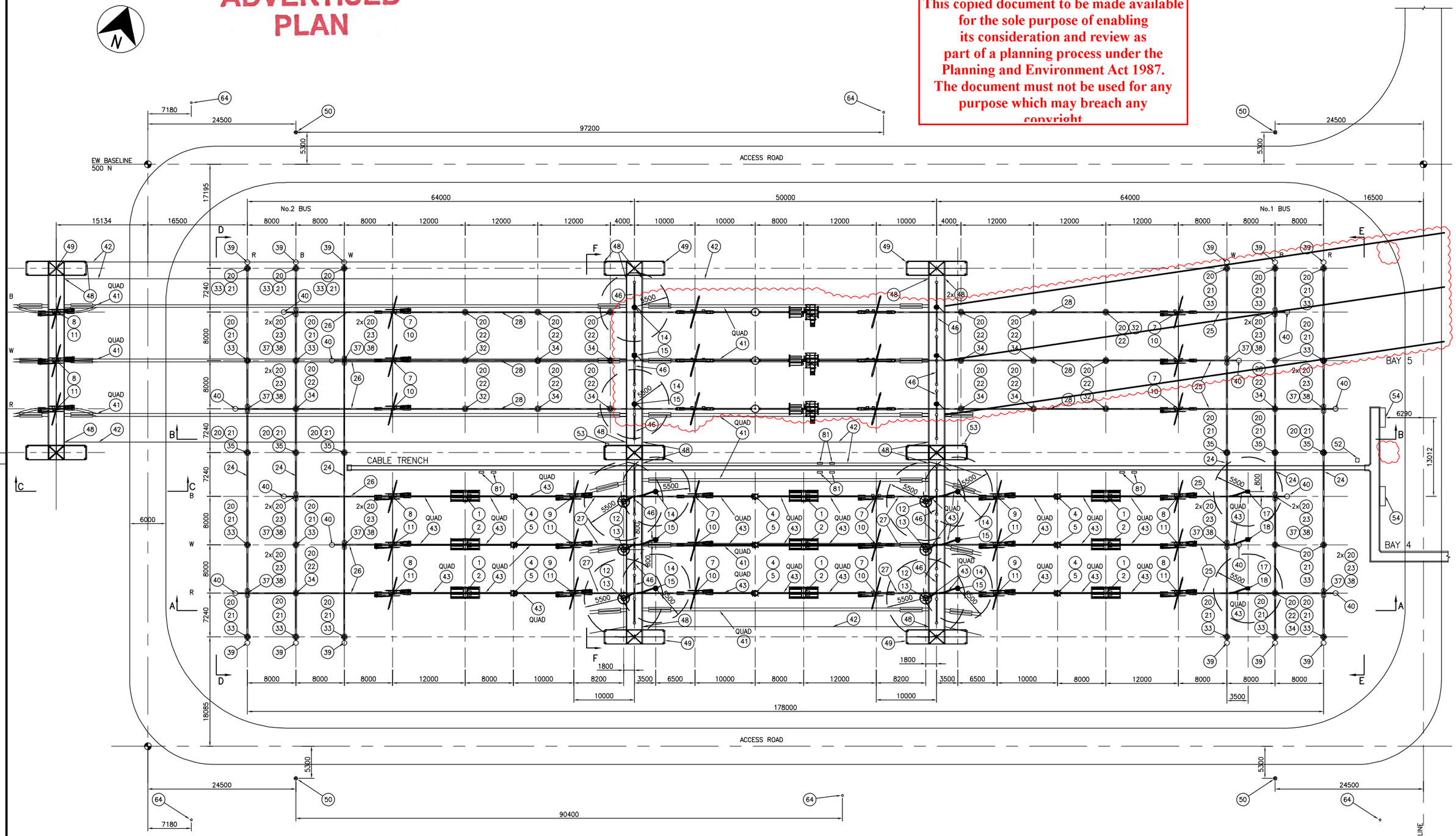
Contractors No. | Drawing No TRTS-0161081-001 | 3.1

FOR INFORMATION

[UNCONTROLLED WHEN PRINTED]

[A1]

ADVERTISED PLAN



NOTE:
1. REFER TO DRG T2/603/92 FOR 500kV SWITCHYARD LIGHTING ARRANGEMENT

0 6000 12000 18000 24000 30000 36000 42000 48000

SCALE 1:300
DIMENSIONS IN MILLIMETRES

AusNet Services STD A1

561 X 801
A1

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING No.
500kV SWITCHYARD LIGHTING PLAN	T2/603/92
500kV SWITCHYARD CABLE EASEMENT PLAN	T2/603/91
500kV SWITCHYARD EARTHING PLAN	T2/603/90
500kV SWITCHYARD MATERIAL SCHEDULE SHEETS 1&2	T2/603/88/1&2
500kV SWITCHYARD SECTIONS SHEETS 1–4	T2/603/87/1–4
SITE PLAN SHOWING ELECTRICAL LAYOUT	T2/603/85

REVISION

DATE	REV	DESCRIPTION	BY	CONTRACTOR
18.08.21	3.0	K2 TRANSFORMER & 132kV YARD ADDED (TC–0012062)	WCS	JACOBS
20.10.11	B	REVISED TRENCH DETAILS, AC C/O BOARDS, FTC, CCTV AND CB MBs (Z909)	RL	BECA
29.04.11	A	FIRST ISSUE (Z829 & Z909 & ZA33).	RL	BECA

AusNet services

DRAWN BECA
ENDORSED REV 2.1 MBG
ENDORSED DATE 18-11-2011
ISSUED 18/11/2011

TARRONE TERMINAL STATION
500kV SWITCHYARD
PLAN

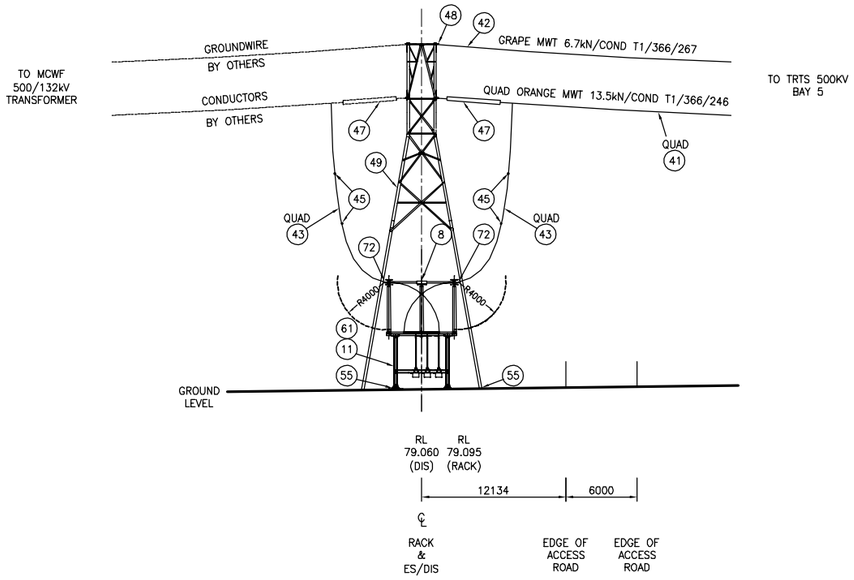
Spec No. | Order No. | Contractors No.
Legacy No T2/603/86
Drawing No TRTS-0161082-001
2.1

FOR INFORMATION

[UNCONTROLLED WHEN PRINTED]

[A1]

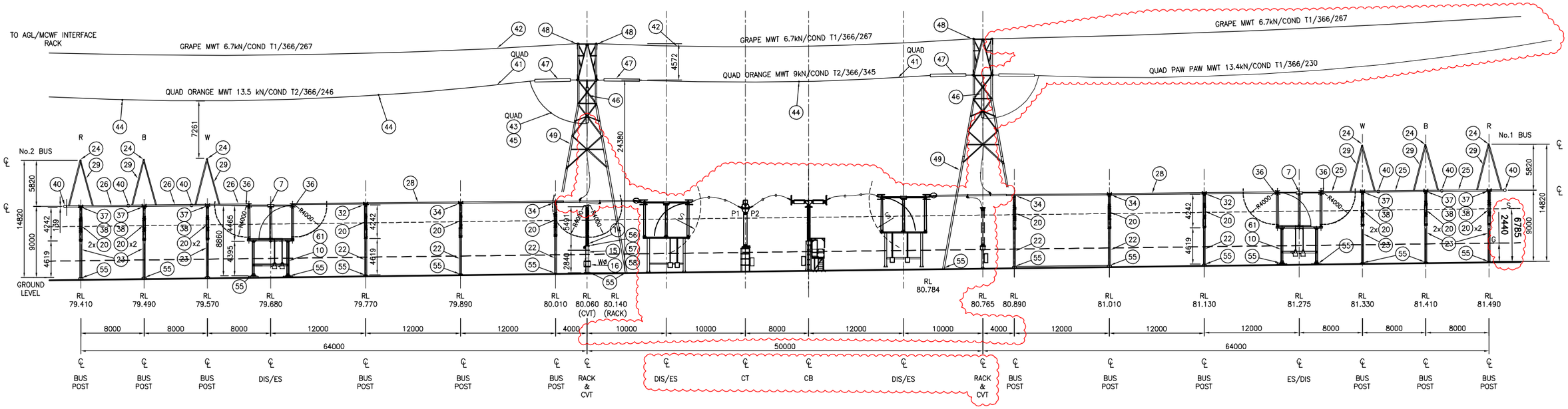
ELECTRICAL CLEARANCES – POST AUGUST 2021		
SYMBOL	CLEARANCE TYPE	500 kV DIM (mm)
G	GROUND SAFETY	2440
S	SECTION SAFETY	6785
E	PHASE TO EARTH	4100
P	PHASE – PHASE	5000
V	VERTICAL SAFETY	5685
H	HORIZONTAL SAFETY	6245



SECTION C–C

NOTES:

1. RLs REFER TO BOTTOM OF BASE PLATE UNLESS NOTED OTHERWISE. TOC TYPICALLY 40mm BELOW THIS LEVEL.
2. EQUIPMENT HEIGHT DIMENSIONS ARE REFERENCED TO BOTTOM OF BASE PLATE.
3. EARTHING OF CVT AND CVD RECEPTACLES TO BE RUN SEPARATELY FROM MAIN CVT EARTHING.
4. EARTH RECEPTACLES TO BE POSITIONED WITHIN CORONA RING TO MINIMISE CORONA DISCHARGE.
5. THE GROUNDWIRE AND CONDUCTOR STRUNG CONNECTIONS INCLUDING THE TERMINATION ASSEMBLIES AND SPACERS FROM THE MCWF 500/132kV TRANSFORMER TO AGL/MCWF INTERFACE RACK TO BE PROVIDED BY OTHERS.
6. THE NUMBER OF SPACERS REQUIRED FOR INTERPLANT CONNECTION ARE AS FOLLOWS:
   - BUS TO CVT/CVD (ONE OFF PER PHASE – QUAD VENUS)
   - DIS TO STRUNG CONDUCTOR (TWO OFF PER PHASE – QUAD VENUS)
   - V–STRING TO BUS (TWO OFF PER PHASE – QUAD VENUS)
   - V–STRING TO STRUNG CONDUCTOR (ONE OFF PER PHASE – QUAD VENUS)
   - BAY 5 INTER–RACK SPAN (ONE OFF PER PHASE – QUAD ORANGE)
   - AGL/MCWF RACK TO BAY 5 RACK SPAN (TWO OFF PER PHASE – QUAD ORANGE)



SECTION B–B

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SCALE 1:250
DIMENSIONS IN MILLIMETRES

REFERENCE DRAWINGS		
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500kV SWITCHYARD EARTHING PLAN	T2/603/90	
500kV SWITCHYARD MATERIAL SCHEDULE SHEETS 1&2	T2/603/88/1&2	
500kV SWITCHYARD SECTIONS SHEETS 1,3,4	T2/603/87/1,3,4	
500kV SWITCHYARD PLAN	T2/603/86	
SITE PLAN SHOWING ELECTRICAL LAYOUT	T2/603/85	
DRAWING TITLE	DRAWING No.	

REVISION					
18.08.21	2.0	ISSUED FOR HLD (TC–0012062)	WCS	JACOBS
29.04.11	A	FIRST ISSUE (Z829 & Z909 & ZA33).	RL	BECA
DATE	REV	DESCRIPTION	BY	CONTRACTOR

DRAWN
ENDORSED MN REV 1.1
ENDORSED DATE 13-15-2111
ISSUED 13/15/2111
Spec No. Order No. Contractors No.

TARRONE TERMINAL STATION
500kV SWITCHYARD
SECTIONS
BAY 5

Legacy No T2/603/87/2
Drawing No TRTS-0161083-002
1.1

FOR INFORMATION

AusNet Services STD A1

561 X 801 A1

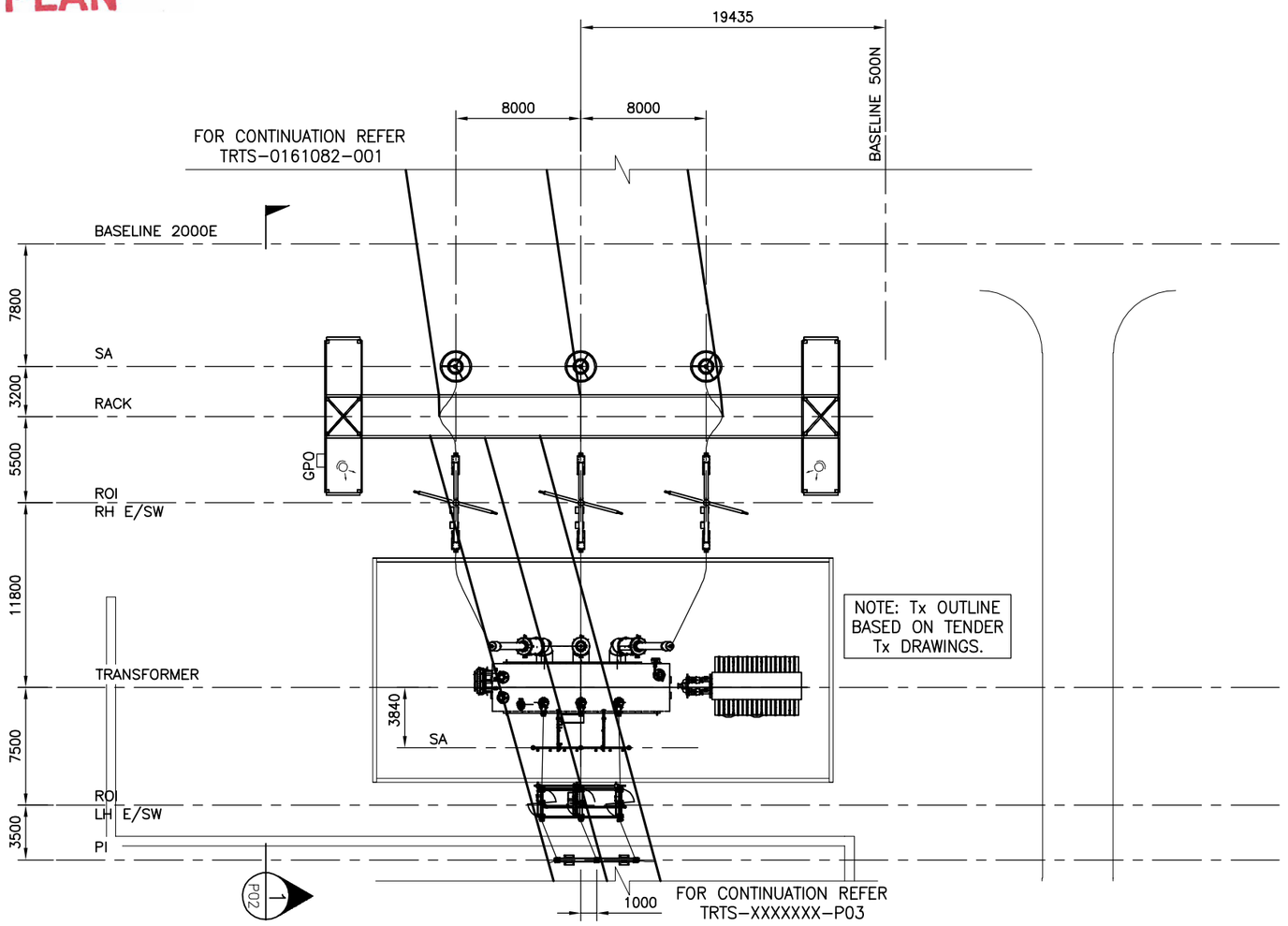
[UNCONTROLLED WHEN PRINTED]

[A1]

ADVERTISED PLAN

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.



PLAN

LEGEND

	FLOOD LIGHTS
P	POWER DISTRIBUTION BOARD
ROI	REMOTE OPERATED ISOLATOR
PI	POST INSULATOR
SA	SURGE ARRESTER
E/SW	EARTH SWITCH

0 2500 5000 7500 10000 12500 15000 17500 20000 22500 25000

SCALE 1:250
DIMENSIONS IN MILLIMETRES

REFERENCE DRAWINGS	
132kV SWITCHYARD – PLAN	TRTS-XXXXXXX-P03
500/132kV SWITCHYARD – K2 TRANSFORMER ELEVATIONS	TRTS-XXXXXXX-P02
500kV SWITCHYARD – MATERIAL SCHEDULE	TRTS-0161084-001 & 002
500kV SWITCHYARD – PLAN	TRTS-0161082-001
DRAWING TITLE	DRAWING No.

REVISION				
DATE	REV	DESCRIPTION	BY	CONTRACTOR
18.08.21	1.0	FIRST ISSUE (TC-0012062)	WCS	JACOBS

AusNet services

DRAWN WCS
ENDORSED REV 0.1
ENDORSED DATE
ISSUED

TARRONE TERMINAL STATION
500/132kV SWITCHYARD
K2 TRANSFORMER PLAN

Spec No. | Order No. | Legacy No
Contractors No. | Drawing No TRTS-XXXXXXX-P01 | 0.1

FOR INFORMATION

AusNet Services STD A2

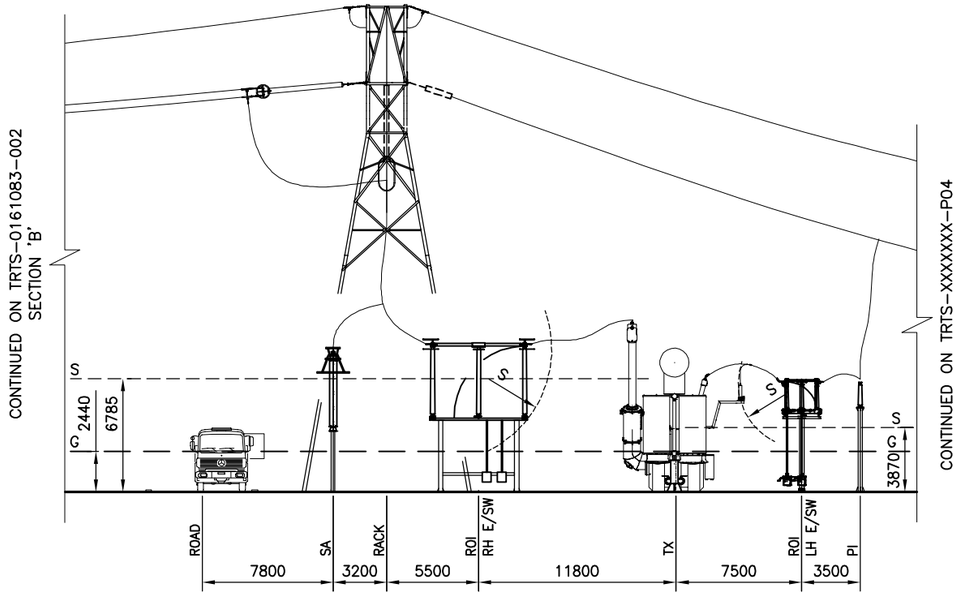
400 X 566mm
A2

[UNCONTROLLED WHEN PRINTED]

[A2]

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.



SECTION 1
SCALE 1: 250 P01

NOTE: Tx OUTLINE BASED ON TENDER Tx DRAWINGS.

LEGEND

⊂⊃	FLOOD LIGHTS
P	POWER DISTRIBUTION BOARD
ROI	REMOTE OPERATED ISOLATOR
PI	POST INSULATOR
SA	SURGE ARRESTER
E/SW	EARTH SWITCH

ELECTRICAL CLEARANCES			
SYMBOL	CLEARANCE TYPE	500 kV DIM (mm)	132kV DIM (mm)
G	GROUND SAFETY	2440	2440
S	SECTION SAFETY	6785	3870
E	PHASE TO EARTH	4100	1300
P	PHASE – PHASE	5000	1495
V	VERTICAL SAFETY	5685	2770
H	HORIZONTAL SAFETY	6245	3330

0 2500 5000 7500 10000 12500 15000 17500 20000 22500 25000

SCALE 1:250
DIMENSIONS IN MILLIMETRES

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING No.
132kV SWITCHYARD – PLAN	TRTS-XXXXXXX-P03
500/132kV SWITCHYARD – K2 TRANSFORMER PLAN	TRTS-XXXXXXX-P01
500kV SWITCHYARD – MATERIAL SCHEDULE	TRTS-0161084-001 & 002
500kV SWITCHYARD – PLAN	TRTS-0161082-001

REVISION

DATE	REV	DESCRIPTION	BY	CONTRACTOR
18.08.21	1.0	FIRST ISSUE (TC-0012062)	WCS	JACOBS

AusNet services
DRAWN WCS
ENDORSED REV 0.1
ENDORSED DATE
ISSUED

TARRONE TERMINAL STATION
500/132kV SWITCHYARD
K2 TRANSFORMER ELEVATIONS

Spec No. | Order No. | Legacy No
Contractors No. | Drawing No TRTS-XXXXXXX-P02 | 0.1

FOR INFORMATION

AusNet Services STD A2

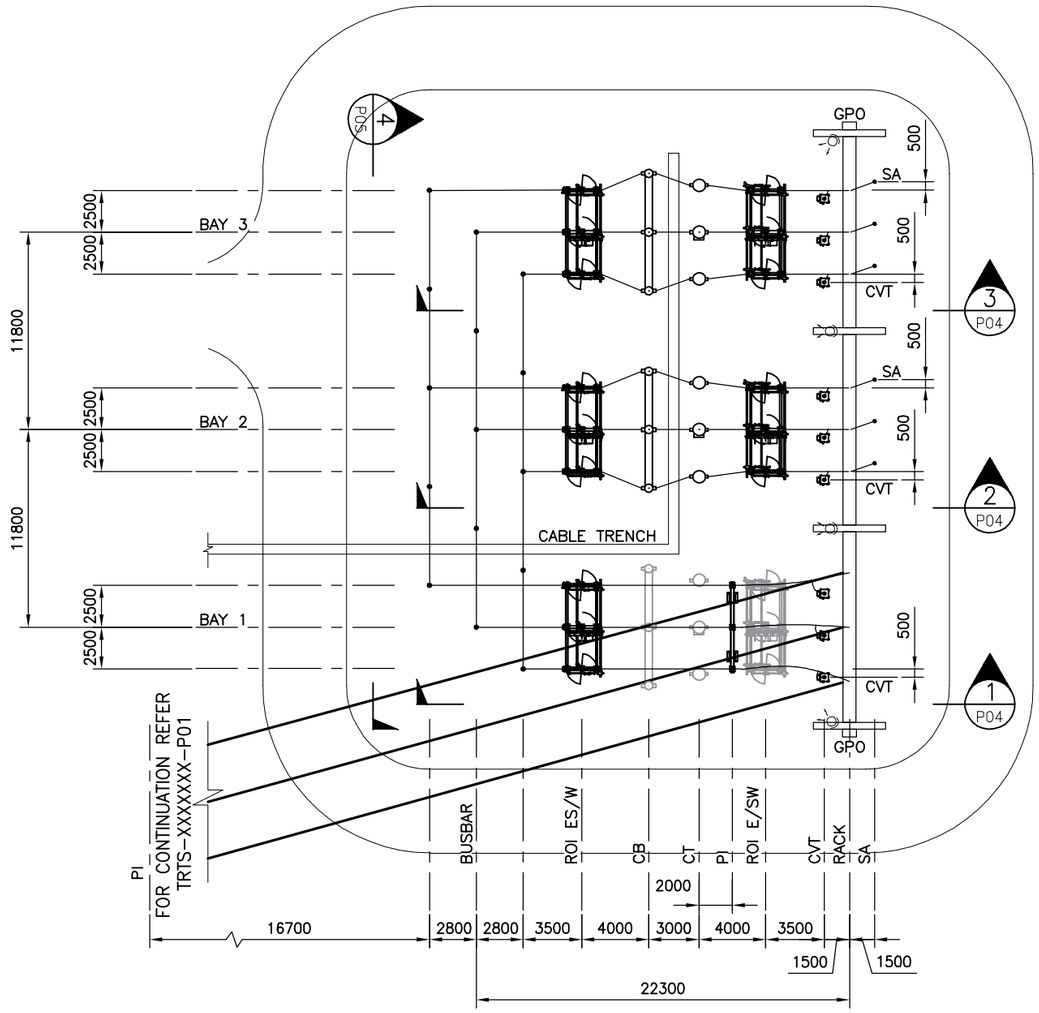
400 X 566mm A2

[UNCONTROLLED WHEN PRINTED]

[A2]

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.



PLAN

LEGEND

	FLOOD LIGHTS
GPO	GENERAL PURPOSE OUTLET
ROI	REMOTE OPERATED ISOLATOR
CB	CIRCUIT BREAKER
CVT	CAPACITIVE VOLTAGE TRANSFORMER
CT	CURRENT TRANSFORMER
PI	POST INSULATOR
SA	SURGE ARRESTER
E/SW	EARTH SWITCH

0 2500 5000 7500 10000 12500 15000 17500 20000 22500 25000

SCALE 1:250
DIMENSIONS IN MILLIMETRES

REFERENCE DRAWINGS	
500/132kV SWITCHYARD – K2 TRANSFORMER PLAN	TRTS-XXXXXXX-P01
500/132kV SWITCHYARD – K2 TRANSFORMER ELEVATIONS	TRTS-XXXXXXX-P02
500kV SWITCHYARD – MATERIAL SCHEDULE	TRTS-0161084-001 & 002
500kV SWITCHYARD – PLAN	TRTS-0161082-001
DRAWING TITLE	DRAWING No.

REVISION				
DATE	REV	DESCRIPTION	BY	CONTRACTOR
18.08.21	1.0	FIRST ISSUE (TC-0012062)	WCS	JACOBS

AusNet services
DRAWN WCS
ENDORSED REV 0.1
ENDORSED DATE
ISSUED

TARRONE TERMINAL STATION
132kV SWITCHYARD
PLAN

Spec No. | Order No. | Legacy No
Contractors No. | Drawing No TRTS-XXXXXXX-P03 | 0.1

FOR INFORMATION

AusNet Services STD A2

400 X 566mm A2

[UNCONTROLLED WHEN PRINTED]

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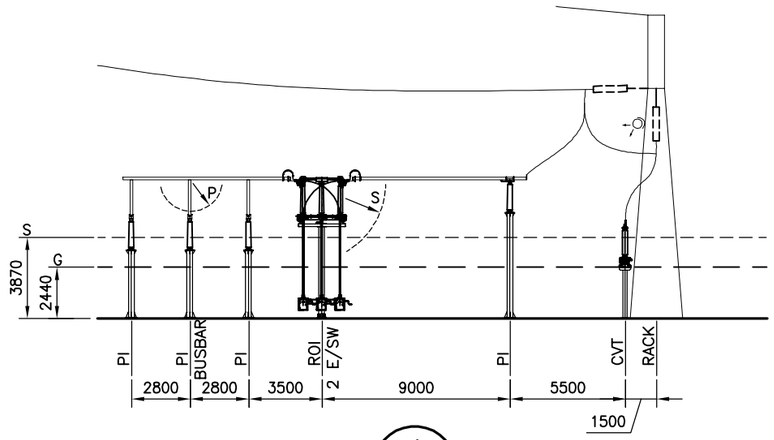
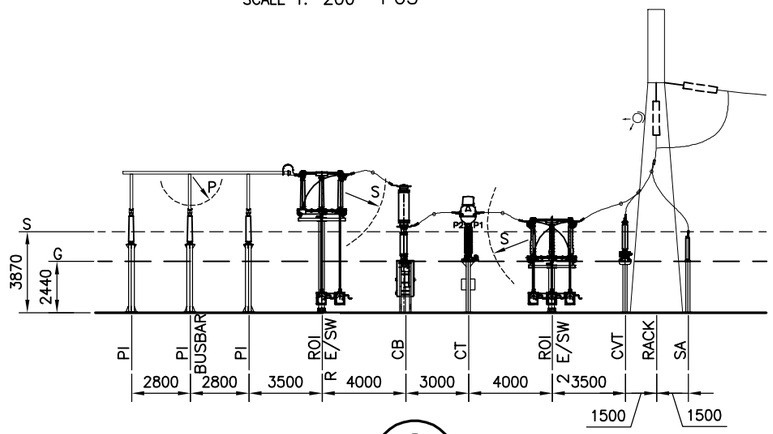
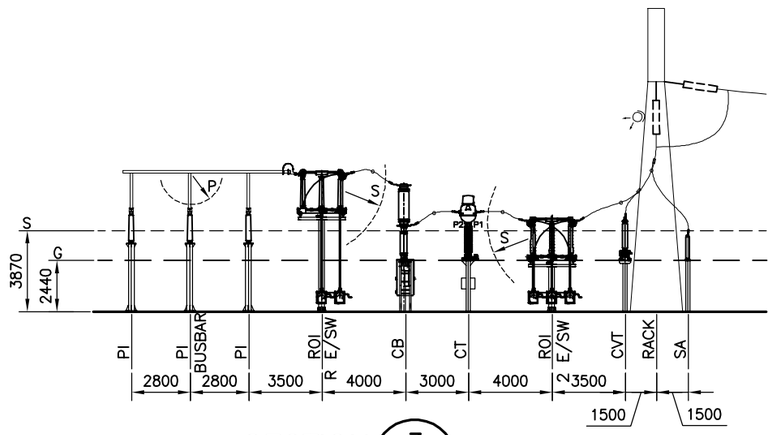


SECTION 1
SCALE 1: 200 P03



SECTION 2
SCALE 1: 200 P03



SECTION 3
SCALE 1: 200 P03

ADVERTISED PLAN

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.

ELECTRICAL CLEARANCES		
SYMBOL	CLEARANCE TYPE	132kV DIM (mm)
G	GROUND SAFETY	2440
S	SECTION SAFETY	3870
E	PHASE TO EARTH	1300
P	PHASE – PHASE	1495
V	VERTICAL SAFETY	2770
H	HORIZONTAL SAFETY	3330

LEGEND

	FLOOD LIGHTS
P	POWER DISTRIBUTION BOARD
ROI	REMOTE OPERATED ISOLATOR
CB	CIRCUIT BREAKER
CVT	CAPACITIVE VOLTAGE TRANSFORMER
CT	CURRENT TRANSFORMER
PI	POST INSULATOR
SA	SURGE ARRESTER
E/SW	EARTH SWITCH

0 2000 4000 6000 8000 10000 12000 14000 16000 18000 20000

SCALE 1:200
DIMENSIONS IN MILLIMETRES

REFERENCE DRAWINGS		
132kV SWITCHYARD – PLAN	TRTS–XXXXXX–P03	
500/132kV SWITCHYARD – K2 TRANSFORMER PLAN	TRTS–XXXXXX–P01	
500/132kV SWITCHYARD – K2 TRANSFORMER ELEVATIONS	TRTS–XXXXXX–P02	
500kV SWITCHYARD – MATERIAL SCHEDULE	TRTS–0161084–001 & 002	
500kV SWITCHYARD – PLAN	TRTS–0161082–001	
DRAWING TITLE	DRAWING No.	

REVISION					
DATE	REV	DESCRIPTION	BY	CONTRACTOR	
18.08.21	1.0	FIRST ISSUE (TC–0012062)	WCS	JACOBS	

AusNet services

DRAWN WCS
ENDORSED REV 0.1
ENDORSED DATE
ISSUED

TARRONE TERMINAL STATION
132kV SWITCHYARD
ELEVATIONS
SHEET 1

Spec No. | Order No. | Legacy No
Contractors No. | Drawing No TRTS–XXXXXXX–P04 | 0.1

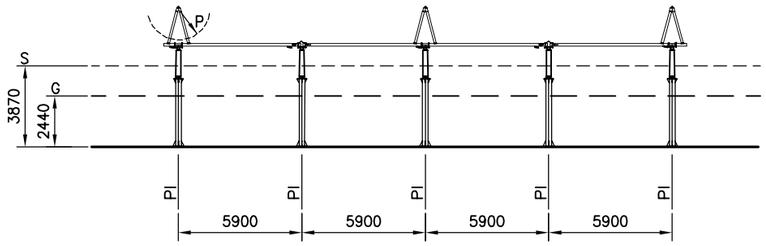
FOR INFORMATION

AusNet Services STD A2

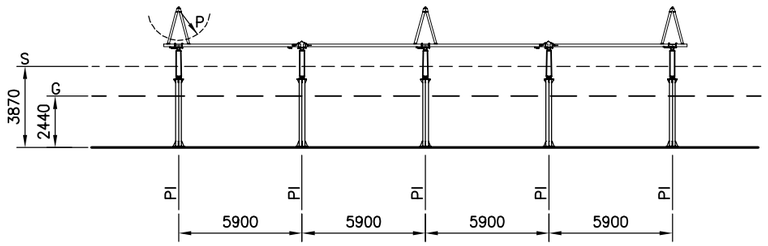
400 X 566mm
A2

[UNCONTROLLED WHEN PRINTED]

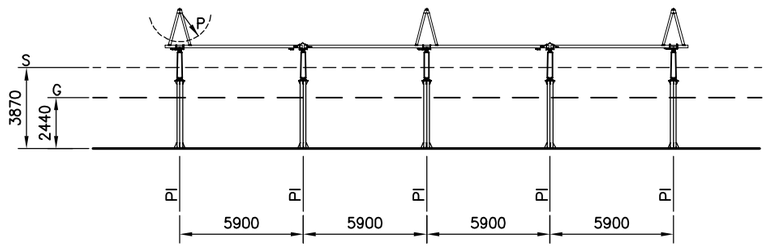
[A2]



SECTION 4
SCALE 1: 200 P03
RED PHASE



SECTION 4
SCALE 1: 200 P03
WHITE PHASE



SECTION 4
SCALE 1: 200 P03
BLUE PHASE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.

ADVERTISED PLAN

ELECTRICAL CLEARANCES		
SYMBOL	CLEARANCE TYPE	132kV DIM (mm)
G	GROUND SAFETY	2440
S	SECTION SAFETY	3870
E	PHASE TO EARTH	1300
P	PHASE – PHASE	1495
V	VERTICAL SAFETY	2770
H	HORIZONTAL SAFETY	3330

LEGEND

PI POST INSULATOR

0 2000 4000 6000 8000 10000 12000 14000 16000 18000 20000

SCALE 1:200
DIMENSIONS IN MILLIMETRES

REFERENCE DRAWINGS		
132kV SWITCHYARD – PLAN	TRTS-XXXXXXX-P03	
500/132kV SWITCHYARD – K2 TRANSFORMER PLAN	TRTS-XXXXXXX-P01	
500/132kV SWITCHYARD – K2 TRANSFORMER ELEVATIONS	TRTS-XXXXXXX-P02	
500kV SWITCHYARD – MATERIAL SCHEDULE	TRTS-0161084-001 & 002	
500kV SWITCHYARD – PLAN	TRTS-0161082-001	
DRAWING TITLE	DRAWING No.	

REVISION					
DATE	REV	DESCRIPTION	BY	CONTRACTOR	
18.08.21	1.0	FIRST ISSUE (TC-0012062)	WCS	JACOBS	

AusNet services
DRAWN WCS
ENDORSED REV 0.1
ENDORSED DATE
ISSUED

TARRONE TERMINAL STATION
132kV SWITCHYARD
ELEVATIONS
SHEET 2

Spec No. Order No. Legacy No
Contractors No. Drawing No TRTS-XXXXXXX-P05 0.1

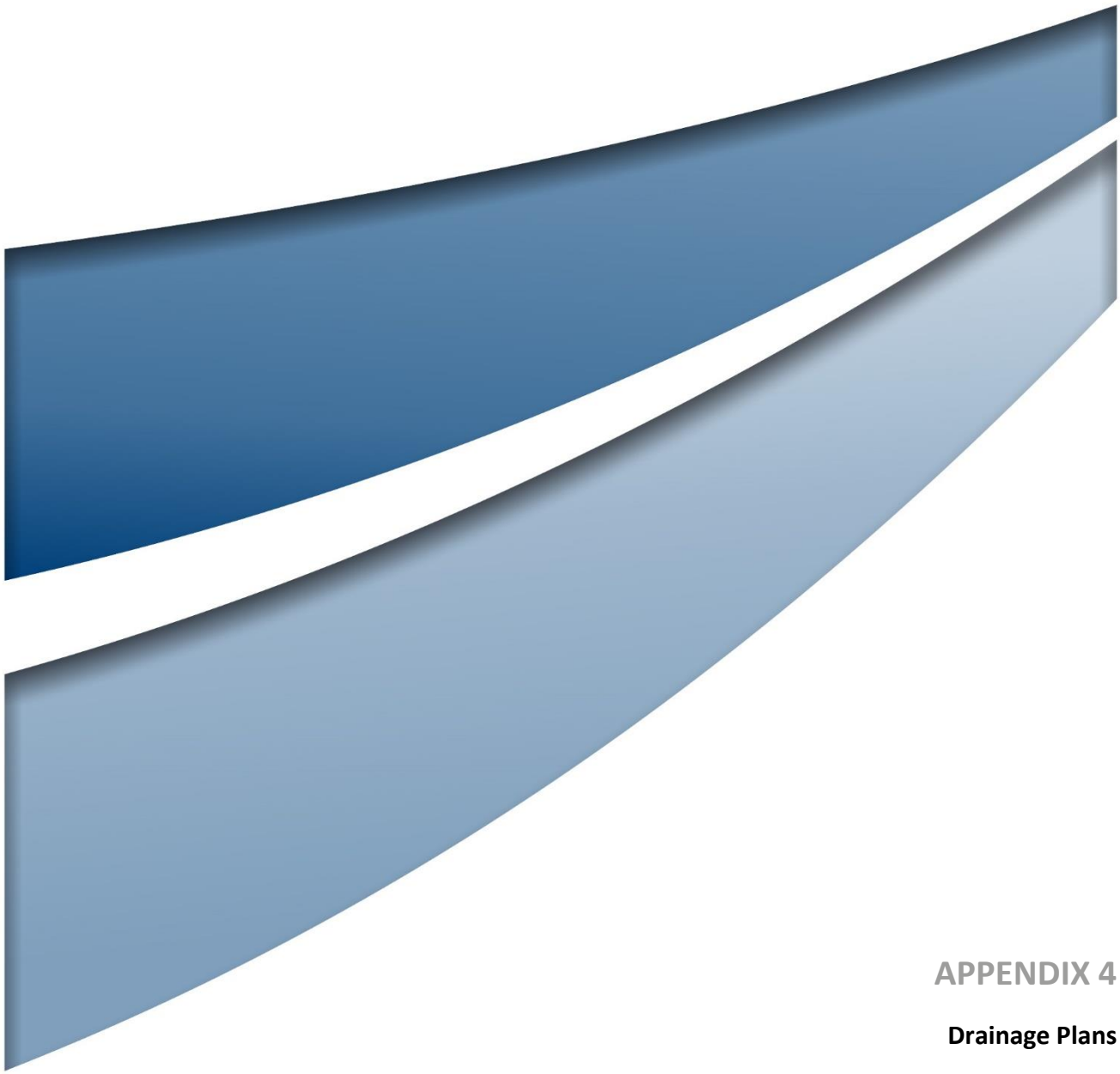
FOR INFORMATION

AusNet Services STD A2

400 X 566mm A2

[UNCONTROLLED WHEN PRINTED]

[A2]



APPENDIX 4

Drainage Plans

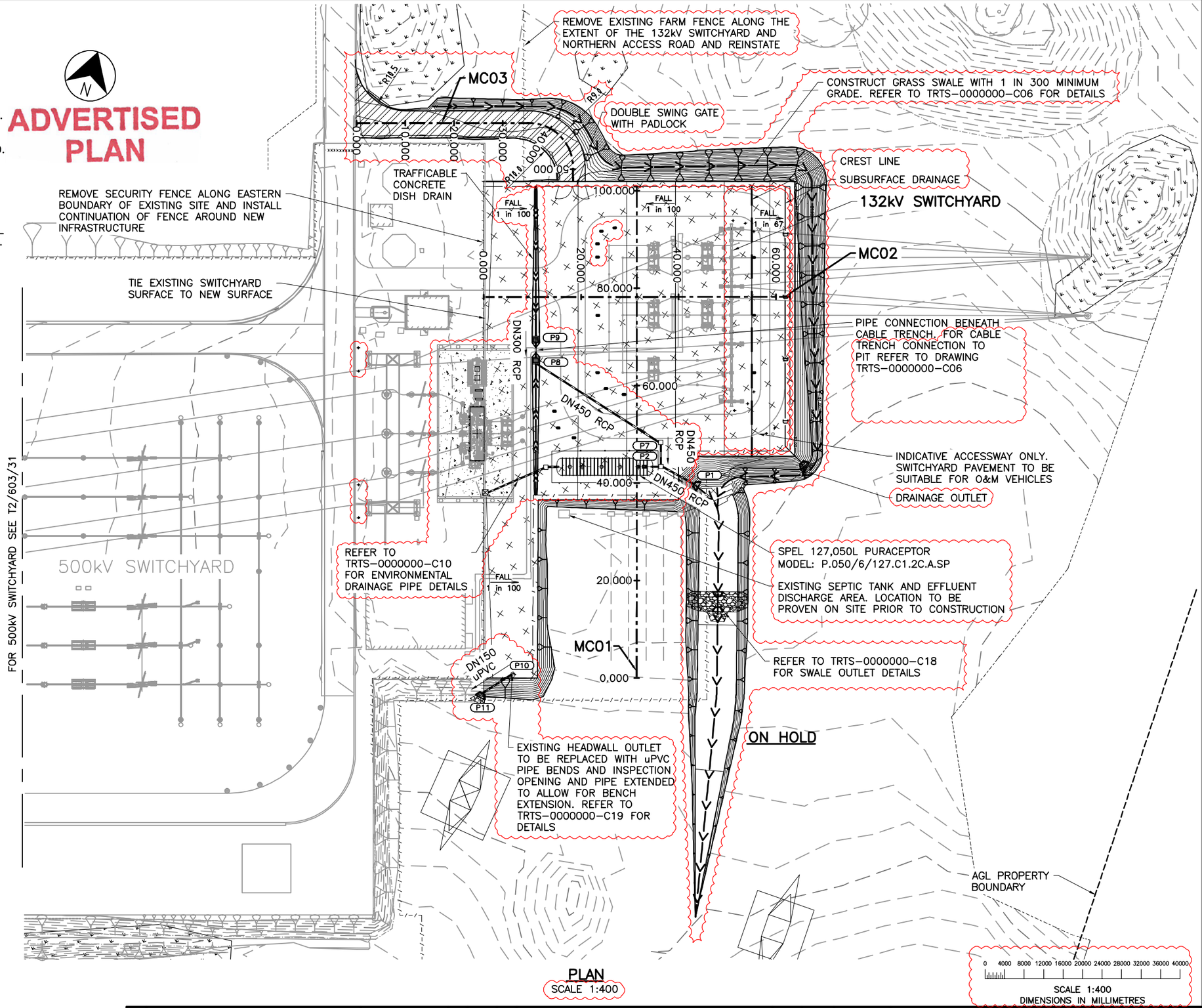
NOTES:

1. LEVELS ARE IN METRES TO AHD, COORDINATES ARE IN METRES TO MGA 94 ZONE 54.
2. REFER TO STATION DESIGN MANUAL SDM 05–10400 EARTHWORKS, ROAD, PAVEMENTS AND DRAINAGE CONSTRUCTION SPECIFICATION.
3. EXISTING SERVICES TO BE PROVEN PRIOR TO CONSTRUCTION.
4. FOR MISCELLANEOUS DETAILS REFER TO DRG. TRTS–0000000–C06.
5. FOR PAVEMENT DETAILS REFER TO DRG. TRTS–0000000–C20.
6. REMOVE EXTERNAL PERIMETER STOCK FARM FENCE AND REINSTATE.
7. WHERE SUBGRADE SHRINK/SWELL > 2.5%, MINIMUM 150mm THICK TYPE A CAPPING LAYER IN ACCORDANCE VICROADS SPECIFICATION SECTION 204 SHALL BE APPLIED TO SUBGRADE PRIOR TO SWITCHYARD PAVEMENT CONSTRUCTION. FOR ALTERNATIVE MATERIALS REFER STATEWIDE GEOTECHNICAL REPORT 26057–10 DATED 21 DECEMBER 2020 SECTION 6.3.
8. PROVIDE ROCK BEACHING MIN. 3m UPDATREAM AND DOWMSTRAM OF ALL DRAINAGE CULVERTS. WIDTH TO MATCH HEADWALL. ROCK BEACHING TO BE PLACED AT ALL BATTER CHUTE OUTLETS. 1.5m WIDTH TO MATCH HEADWALL. ALL ROCK BEACHING 2xD50 THICK. D50=200mm

LEGEND

- SECURITY FENCE
- EXISTING FENCE
- EXISTING CONTOURS (78.60)
- DESIGN CONTOURS (78.60)
- CONCRETE DISH DRAIN
- SWALE
- SUBSURFACE DRAINAGE
- SWITCHAYRD PAVEMENT
- NATIVE VEGETATION (NO–GO AREA)
- ROCK BEACHING
- CONCRETE
- CRUSHED ROCK ACCESS ROAD
- GRATED PIT
- JUNCTION PIT
- FLAME TRAP PIT
- STORMWATER DRAINAGE PIPE
- ENVIRONMENTAL DRAINAGE PIPE
- CONTROL LINE AND LABEL
- DOUBLE SWING GATE
- P1 STORMWATER PIT LABEL
- REFLECTIVE FLEXIBLE GUIDE POST
- STEEL BOLLARD
- RECYCLED PLASTIC BOLLARD

ADVERTISED PLAN



PLAN
SCALE 1:400

0 4000 8000 12000 16000 20000 24000 28000 32000 36000 40000
SCALE 1:400
DIMENSIONS IN MILLIMETRES

REFERENCE DRAWINGS	
500kV SWITCHYARD EARTHWORKS ARRANGEMENT	T2/603/31
EARTHWORKS DETAILS	T2/603/38
EARTHWORK AND DRAINAGE CONSTRUCTION NOTES	T2/603/28
DRAWING TITLE	DRAWING No.

REVISION					
DATE	REV	DESCRIPTION	BY	CONTRACTOR
18.08.21	1.0	FIRST ISSUE (TC–0012062)	MT	JACOBS

AusNet services

DRAWN
ENDORSED REV 1.2
ENDORSED DATE
ISSUED

TARRONE TERMINAL STATION
132KV SWITCHYARD
EARTHWORKS, ROADS AND DRAINAGE ARRANGEMENT

Spec No. | Order No. | Legacy No
Contractors No. | Drawing No TRTS–0000000–C01 | 0.2

FOR REVIEW

PowerNet STD A1
561 X 801
A1

[UNCONTROLLED WHEN PRINTED]

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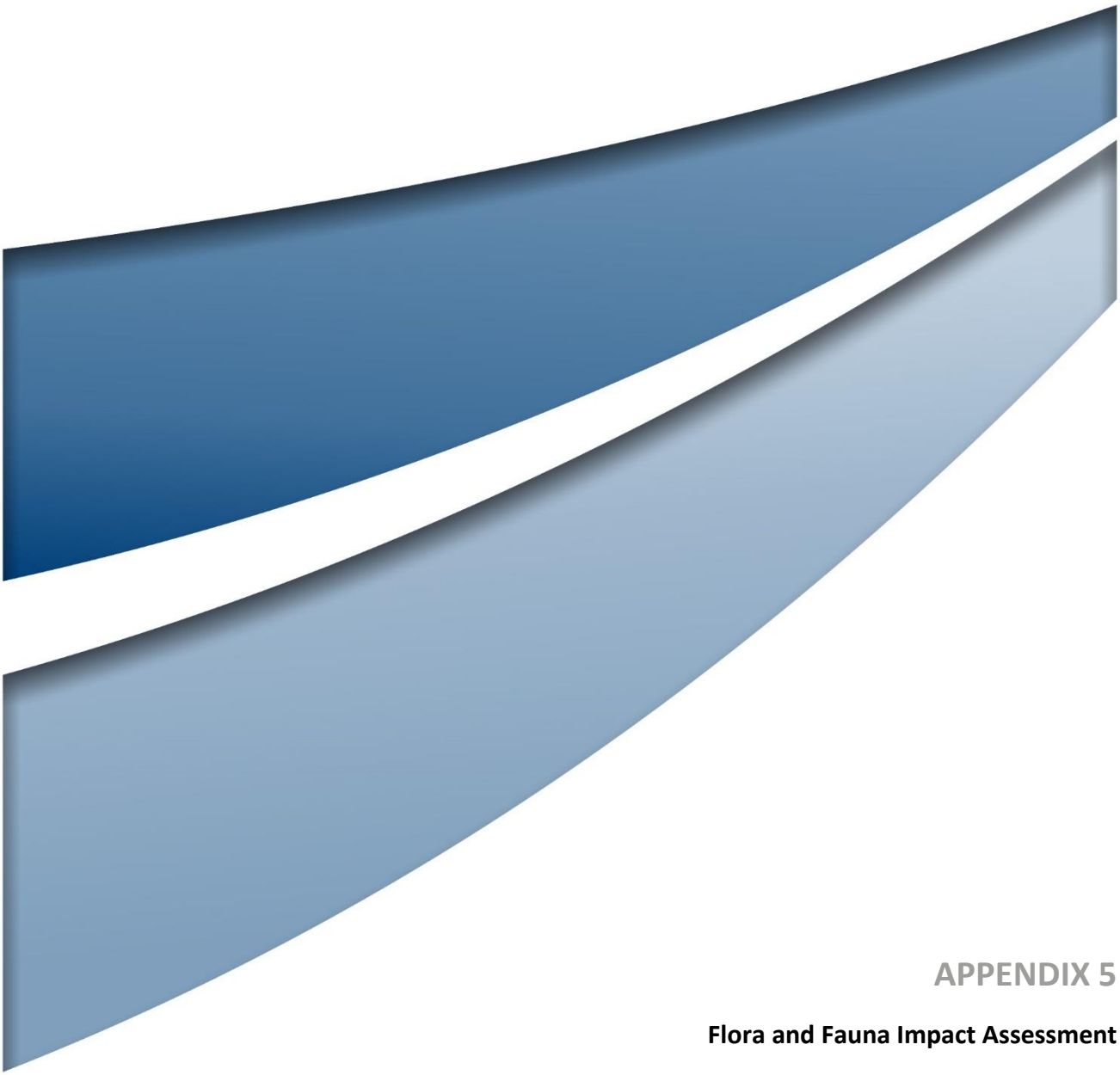
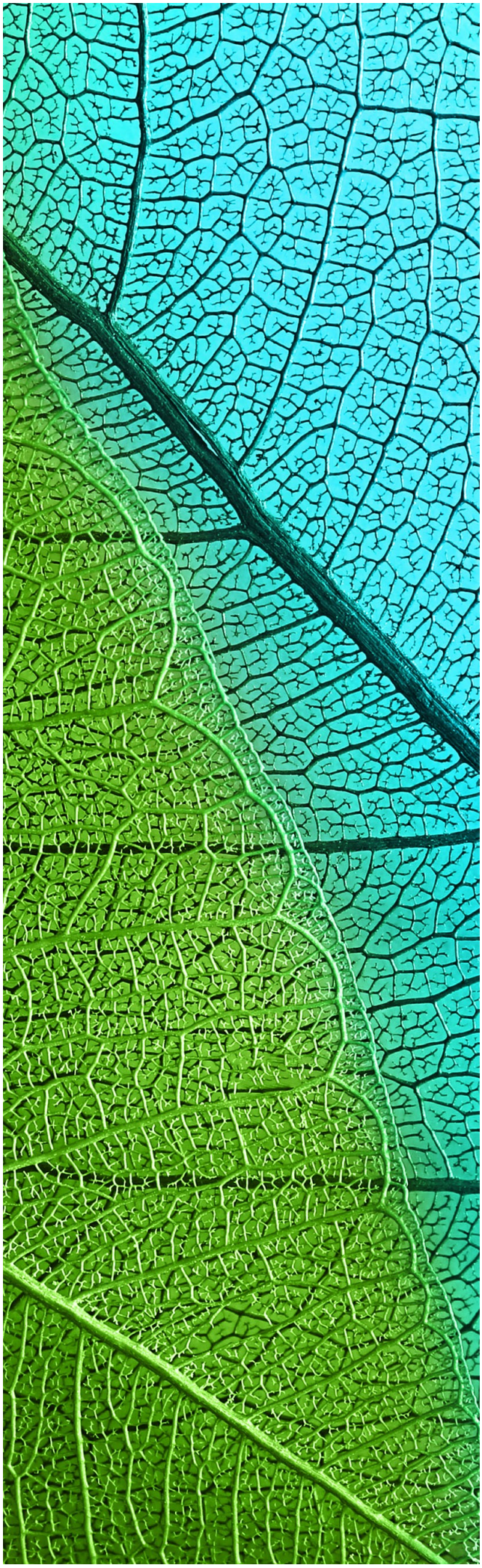


APPENDIX 5

Flora and Fauna Impact Assessment



Tarrone Terminal Station

Flora and Fauna Assessment

Prepared for Ryan Corner Development Pty Ltd

December 2021
Report No. 14144.14 (17.4)

Nature Advisory
(Formerly Brett Lane & Associates Pty Ltd)
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Contents

Tables

Figures

Appendices

1. Executive summary

Nature Advisory Pty Ltd undertook a flora and fauna assessment of a 12.47-hectare area of private land located at Tarrone, 35 kilometres north-west of Warrnambool and 250 kilometres west of Melbourne. The installation of additional infrastructure (such as transformers) within the existing Tarrone Terminal Station, the construction of additional infrastructure to the east of the existing Tarrone Terminal Station, the construction of new perimeter fence, the construction of a new hardstand area to the north of the terminal station, and the construction of new access points. is proposed for the study area.

The study area supported basalt soils on a gently undulating landscape, which formed wet depressions at the low points and stony rises, exposing granitic rock at the high points. A formed drainage line extended along the western perimeter of the sub-station, which then ran in a south-eastern direction beyond the study area.

The land has historically been used for grazing prior to the construction of Tarrone Terminal Station. Surrounding land predominantly supported farmland in all directions.

Vegetation in the study area primarily consisted of pasture grasses and associated weeds. The broader property was surrounded by planted windrows and native shrubs. Areas containing native vegetation were restricted to the wet depressions or stony rises. The wet depressions supported wetland species typical of Plains Grassy Wetland, such as Spike Sedge (*Eleocharis sp.*), Rushes (*Juncus spp.*), Australian Sweet-grass (*Glyceria australis*), Common Blown-grass (*Lachnagrostis filiformis*) and Common Tussock-grass (*Poa labillardierei* subsp. *labillardierei*). The stony rises supported Stony Knoll Shrubland and were characterised by the presence of Weeping Grass (*Microlaena stipoides* var. *stipoides*), Austral Bracken (*Pteridium esculentum*) and occasionally Tree Violet (*Melicytus dentatus* s.s.).

Fauna habitat within the study area comprised rocky outcrops, grazing paddocks and ephemeral wetlands.

18 patches of native vegetation were identified in the study area. This totalled an area of 1.188 hectares of native vegetation in patches. The current proposed footprint will result in the loss of 0.118 hectares of native vegetation. The *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017), herein referred to as 'the Guidelines', stipulate that the proposal is to be assessed under the **Basic** assessment pathway. Offsets required to compensate for the proposed removal of native vegetation from the study area are provided below.

- 0.025 general habitat units and must include the following offset attribute requirements:
    - Minimum strategic biodiversity value (SBV) of 0.312; and
    - Occur within the Glenelg Hopkins Catchment Management Authority boundary or the Moyne municipal district.

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

This proposal will not trigger a referral to the Secretary to the Department of Environment, Land, Water and Planning (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, based on the applicable assessment pathway.

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.

The following EPBC and/or FFG Act listed species could potentially occur within the study area in areas of native vegetation. Targeted surveys in areas of proposed impact will be undertaken in December 2021, to coincide with the flowering time for all species:

- Curly Sedge FFG
- Gorae Leek-orchid EPBC FFG
- Maroon Leek-orchid EPBC FFG
- Swamp Fireweed EPBC FFG
- Swamp Everlasting EPBC FFG

As the study area occurs on private land, 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 for the removal, destruction or lopping of native vegetation* (DELWP 2017).

Application requirement		Response
1.	Information about the native vegetation to be removed	See Sections 5.2 and 6.2.1
.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 4
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	NA
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 *Conservation, Forests and Lands Act 1987* that applies to the native vegetation to be removed	NA
7.	Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This statement is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	NA

	Application requirement	Response
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).	NA
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

2. Introduction

Ryan Corner Development Pty Ltd and Hawkesdale Asset Pty Ltd engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment of a 12.47-hectare area of land in Tarrone. The specific area investigated, referred to herein as the 'study area', comprised the existing terminal station and adjacent grazing land which may be impacted by development, all of which are located on Lot 2 of Lot Plan 218923A. The installation of additional infrastructure (such as transformers) within the existing Tarrone Terminal Station, the construction of additional infrastructure to the east of the existing Tarrone Terminal Station, the construction of new perimeter fence, the construction of a new hardstand area to the north of the terminal station, and the construction of new access points 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 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). As the study area occurs on private land, there are no implications under the FFG Act. This report outlines any implications under relevant national, state and local legislation and policy frameworks.

Specifically, the scope of the investigation included:

- Reviewing information on the flora, fauna and native vegetation of the study area and surrounds, including:
  - Victorian Biodiversity Atlas administered by the Department of Environment, Land, Water and Planning (DELWP 2021a);
  - The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool (DAWE 2021); and
  - DELWP Native Vegetation Information Management system (NVIM) (DELWP 2018b).
- A site survey, involving:
  - Characterisation and mapping of native vegetation on the site, as defined in Victoria's *Guidelines for the removal, destruction or lopping of native vegetation* (the 'Guidelines');
  - Assessment of native vegetation in accordance with the Guidelines, including habitat hectare assessment and/or scattered tree assessment;
  - Compilation of flora and fauna species lists for the site; and
  - Assessment of the likelihood of occurrence of EPBC Act listed flora, fauna, and communities on the site.

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), Brett Macdonald (Senior Ecologist) and Jim Grant (Senior Ecologist & Project Manager).

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 and is currently zoned Special Use Zone – Schedule 6 in the Moyne Planning Scheme.

The study area is located within a Bushfire-prone Area.

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

3.2. Local Planning Policies

Local provisions can override state provisions.

The following local planning policies are relevant to the investigation:

3.2.1. LPP 21.06 – Environment

This local planning policy aims to protect and enhance the region's indigenous genetic biodiversity by maintaining the extent and diversity of the various ecosystems.

The strategies of this policy are implemented through overlays and other local planning policies.

3.2.2. LPP 22.02 – Environment

LPP 22.02-2 – Rare and Threatened Species

Policy objectives:

- To maintain and enhance biodiversity in Moyne.
- To recognise the location of Victorian Rare and Threatened Flora and Fauna Species including but not limited to those listed under Schedule 2 of the *Flora and Fauna Guarantee Act 1988*.
- To maintain and enhance the habitat, particularly the critical habitat, of Victorian Rare and Threatened Flora and Fauna species including but not limited to those listed under Schedule 2 of the *Flora and Fauna Guarantee Act 1988*.

LPP 22.02-5 – Pest Plant Management

Policy objectives:

- To contain the spread of noxious and pest weeds and to progressively reduce the areas affected.

LPP 22.02-8 – Flora and Fauna Local Policy

Policy objectives:

- To protect and enhance flora and fauna communities throughout the Shire.

3.3. Overlays

No overlays relevant to this investigation cover the study area.

3.4. 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:

- An exemption in Table 52.17-7 specifically states that a permit is not required.
- A native vegetation precinct plan corresponding to the land is incorporated into the planning scheme and listed in the schedule to Clause 52.16.
- The native vegetation is specified in a schedule to Clause 52.17.

3.4.1. Exemptions

No exemptions to planning permit requirements included in Clause 52.17 are relevant to this project.

3.4.2. Application requirements

Any 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* (Version 1.1) (DELWP 2018c).
- Statewide biodiversity information maintained by DELWP.

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

3.4.3. Referral to DELWP

Clause 66.02-2 of the planning scheme determines the role of the Secretary to the Department of Environment, Land, Water and Planning (as constituted under Part 2 of the *Conservation Forests and Lands Act 1987)* DELWP Environment Portfolio in the assessment of native vegetation removal permit applications. If an application is referred, DELWP's Environment Portfolio may make certain recommendations to the responsible authority in relation to the permit application.

Any application to remove, destroy or lop native vegetation must be referred to DELWP's Environment Portfolio 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.

3.5. EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* (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.

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. The Minister will

decide after 20 business days whether the project will be a 'controlled action' under the EPBC Act, in which case it cannot be undertaken without the approval of the Minister. This approval depends on a further assessment and approval process (lasting between three and nine months, depending on the level of assessment).

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

3.6. FFG Act

The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) lists threatened and protected species and ecological communities (DELWP 2019, DELWP 2021b). 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.

3.7. 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).

The criteria related to flora, fauna and native vegetation which trigger a Referral are outlined below.

<u>One or more</u> of the following would trigger a Referral:

- Potential clearing of 10 hectares 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 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

<u>Two or more</u> of the following would also trigger a Referral:

- Potential clearing of 10 hectares 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.

Implications under the *Environment Effects Act 1978* (EE Act) for the current proposal are discussed in Section 7.5.

3.8. CaLP Act

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

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

4. Existing information and 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 Plain bioregion[1] (DSE 2004a);
- *NatureKit* (DELWP 2018a).

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 approximate centre point of the study area (coordinates: latitude 38˚ 10' 46" S and longitude 142˚ 10' 49" E).

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* (DAWE 2021) was consulted to determine whether nationally listed species or communities potentially occurred in the search region based on habitat modelling.

4.2. Field methods

The field assessment was conducted on the 8th October 2020 and 12th October 2021. During these assessments, the study area was surveyed 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). Species and ecological communities listed as threatened under the EPBC Act were also mapped using the same method.

4.2.1. Native vegetation

Native vegetation is currently defined in Clause 73.01 of all Victorian planning schemes as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'. The Guidelines (DELWP 2017) further classify native vegetation as belonging to two categories:

[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).

- 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 trees[2] where the drip line[3] of each tree touches the drip line of at least one other tree, forming a continuous canopy; or
- Any mapped wetland included in the *Current wetlands map*, available at *MapShareVic* (DELWP 2021c).

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 2018b) provides modelled condition scores for native vegetation to be used in certain circumstances.

Scattered tree

A scattered tree is:

- A native canopy tree[2] 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 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

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

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

- 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 or flora listed under the EPBC Act and/or 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.

4.2.3. Fauna species and habitats

The techniques below were used to detect fauna species utilising the study area.

- Incidental searches for mammal scats, tracks and signs (e.g. diggings, signs of feeding and nests/burrows).
- Turning over logs/rocks and other ground debris for reptiles, frogs and mammals.
- Daytime bird observations.
- General searches for reptiles and frogs.

Fauna habitats are described using habitat components that include rocky outcrops, grazing paddocks and ephemeral wetlands.

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 *NatureKit* (DELWP 2018a).

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. Threatened ecological communities

The presence or otherwise of listed threatened ecological communities in the study area was determined by checking general field observations 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).

4.3. Limitations of field assessment

The site assessments were carried out in spring. 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. However, spring provides the optimum conditions to survey for native vegetation, particularly in grasslands.

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

5. Assessment results

5.1. Site description

The study area for this investigation (Figure 1) was approximately 12.47 hectares of private land located at Tarrone, 35 kilometres north-west of Warrnambool and 250 kilometres west of Melbourne.

The study area supported basalt soils on a gently undulating landscape, which formed wet depressions at the low points and stony rises, exposing granitic rock at the high points. A formed drainage line extended along the western perimeter of the sub-station, which then ran in a south-eastern direction beyond the study area.

The land has historically been used for grazing prior to the construction of a terminal station. Surrounding land predominantly supported farmland in all directions.

Vegetation in the study area primarily consisted of pasture grasses and associated weeds. The broader property was surrounded by planted windrows and native shrubs. Areas containing native vegetation were restricted to the wet depressions or stony rises. The wet depressions supported wetland species typical of Plains Wetland, such as Spike Sedge (*Eleocharis sp.*), Rushes (*Juncus spp.*), Australian Sweet-grass (*Glyceria australis*), Common Blown-grass (*Lachnagrostis filiformis*) and Common Tussock-grass (*Poa labillardierei*). The stony rises supported Stony Knoll Shrubland and were characterised by the presence of Weeping Grass (*Microlaena stipoides var. stipoides*), Austral Bracken (*Pteridium esculentum*) and occasionally Tree Violet (*Melicytus dentatus* s.s.). Other native species Kidney Weed (*Dichondra* sp.), Wiry Dock (*Rumex dumosus*) and Crane's Bill (*Geranium* sp.).

Fauna habitat within the study area comprised rocky outcrops, grazing paddocks and ephemeral wetlands.

The following key fauna habitat areas occurred within the region:

- Tower Hill Wildlife Reserve approximately 21 kilometres south-east of the study area. Native vegetation in the study area was isolated from this habitat by roads and large tracts of agricultural land.
- Belfast Coastal Reserve approximately 25 kilometres south-east of the study area. Native vegetation in the study area was isolated from this habitat by roads and large tracts of agricultural land.
- Budj Bim National Park approximately 19 kilometres north-west of the study area. Native vegetation in the study area was isolated from this habitat by roads and large tracts of agricultural land.

The study area lies within the Victorian Volcanic Plains bioregion and falls within the Glenelg Hopkins catchment management area.

5.2. Native vegetation

5.2.1. Patches of native vegetation

Pre–European EVC mapping (DELWP 2018a) indicated that the study area and surrounds would have supported Stony Knoll Shrubland/Plains Grassy Woodland/Plains Grassy Wetland Mosaic (EVC 714), and Plains Grassy Wetland (EVC 125) prior to European settlement based on modelling

of factors including rainfall, aspect, soils and remaining vegetation. No DELWP wetlands are mapped on this site.

Evidence on site, including floristic composition and soil characteristics, suggested that Plains Grassy Wetland (EVC 125) and Stony Knoll Shrubland (EVC 649) were present within the study area (Figure 1). Descriptions of these EVCs are provided within the EVC benchmarks in Appendix 4.

18 patches (referred to herein as habitat zones) comprising the abovementioned EVCs, were identified in the study area (Table 1). This totalled an area of 1.188 hectares of native vegetation in patches and included no large trees.

Table 1: Description of habitat zones in the study area

Habitat Zone	EVC	Description
E, F, L, O, S and T	Plains Grassy Wetland (EVC 125)	Plains Grassy Wetland was recorded within wet depressions. These areas supported native species such as Spike Sedge, Rushes, Australian Sweet-grass, Common Blown-grass and Common Tussock-grass at a high cover of 60%. The native herbs, Variable Willow-herb (*Epilobium billardiereanum*) and Buttercup (*Ranunculus* sp.) were also recorded, but at a negligible cover. Weed cover was high, at approximately 40%, and leaf litter cover was moderate (10%). Habitat Zone F presented in a modified state, as it occurred along a modified drainage line.
A, A1, B, C, D, G, H, I, J, K, M and N	Stony Knoll Shrubland (EVC 649)	The stony rises scattered throughout the landscape supported Stony Knoll Shrubland and were characterised by the presence of Weeping Grass (5% cover), Austral Bracken (40% cover), Rock Fern (*Cheilanthes tenuifolia s.l.*) and occasionally Tree Violet (Habitat Zone J). Other native species occurred at a negligible cover and included Kidney Weed, Wiry Dock and Crane's Bill. Weed cover was moderate (30%), with leaf litter occurring at a cover of 10%. A high cover of bryophytes and lichens were observed within these zones.

The habitat hectare assessment results for these habitat zones are provided in Table 2 More detailed habitat scoring results are presented in Appendix 2.

Table 2: Summary of habitat hectare assessment results

Habitat Zone	Ecological Vegetation Class	Area (ha)	Condition Score (out of 100)	Number of Large Trees recorded
A	Stony Knoll Shrubland (EVC 649)	0.041	25	N/A
A1	Stony Knoll Shrubland (EVC 649)	0.026	25	N/A
B	Stony Knoll Shrubland (EVC 649)	0.066	25	N/A
C	Stony Knoll Shrubland (EVC 649)	0.103	25	N/A
D	Stony Knoll Shrubland (EVC 649)	0.039	25	N/A

E	Plains Grassy Wetland (EVC 125)	0.068	20	N/A
F	Plains Grassy Wetland (EVC 125)	0.083	20	N/A
G	Stony Knoll Shrubland (EVC 649)	0.029	25	N/A
H	Stony Knoll Shrubland (EVC 649)	0.036	25	N/A
I	Stony Knoll Shrubland (EVC 649)	0.239	25	N/A
J	Stony Knoll Shrubland (EVC 649)	0.022	25	N/A
K	Stony Knoll Shrubland (EVC 649)	0.008	25	N/A
L	Plains Grassy Wetland (EVC 125)	0.176	20	N/A
M	Stony Knoll Shrubland (EVC 649)	0.015	25	N/A
N	Stony Knoll Shrubland (EVC 649)	0.091	25	N/A
O	Plains Grassy Wetland (EVC 125)	0.028	20	N/A
S	Plains Grassy Wetland (EVC 125)	0.044	20	N/A
T	Plains Grassy Wetland (EVC 125)	0.074	20	N/A
Total		**1.188**		**0**

Figure 1: Study area and native vegetation

Project: Tarrone Terminal Station
Client: Ryan Corner Development Pty Ltd
Date: 23/11/2021

Legend

Study area

Native vegetation

Plains Grassy Wetland (VVP_0125)

Stony Knoll Shrubland (VVP_0649)

N

Metres
0 40

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

5.2.2. Scattered trees

No scattered trees were recorded in the study area.

5.3. Flora species

5.3.1. Species recorded

During the field assessment 34 plant species were recorded. Of these, 15 (44%) were indigenous and 19 (56%) were introduced or non-indigenous native in origin (Appendix 3).

5.3.2. Listed species

VBA records (DELWP 2021a) and the EPBC Protected Matters Search Tool (DAWE 2021) indicated that within the search region there were records of, or there occurred potential suitable habitat for, 16 species listed under the Commonwealth EPBC Act and 16 listed under the state FFG Act, including 12 listed under both Acts. No flora species listed under the EPBC Act were recorded during the field survey.

The likelihood of occurrence in the study area of species listed under the EPBC Act and FFG Act is addressed in Table 3. 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 for which suitable habitat exists, but recent records are scarce.

This analysis indicates that the following six listed flora species are likely to occur or have the potential to occur:

- Curly Sedge
- Gorae Leek-orchid
- Maroon Leek-orchid
- Basalt Leek-orchid
- Swamp Fireweed
- Swamp Everlasting

Table 3: Listed flora species and the likelihood of their occurrence in the study area

Common Name	Scientific name	Conservation status		Habitat	Number of records	Date of last record	Likelihood of occurrence
		EPBC	FFG				
River Swamp Wallaby-grass	*Amphibromus fluitans*	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 (DAWE 2020).	-	-	Limited suitable habitat, beyond known distribution. No records within 10km. **Unlikely to occur**
Curly Sedge	*Carex tasmanica*		vu	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, but is often grassy/sedgy and generally lacks trees (Carter 2010).	2	3/04/2018	Suitable habitat within areas of Plains Grassy Wetland (EVC 125) exist, although it was not recorded during the site assessment. Not detected in targeted surveys **Unlikely to occur.**
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).	1	2/10/2016	Lack of areas with suitable habitat. Not known to occur on rocky outcrops. **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).	1	22/11/2011	Lack of areas with suitable habitat. Not known to occur on rocky outcrops. **Unlikely to occur**
Adamson's Blown-grass	*Lachnagrostis adamsonii* subsp. *adamsonii*	VU		Occurs on saline sites such as ephemeral swamps, depressions and drainage line between Portarlington to around Cavendish. The species cannot tolerate prolonged inundation (RBGV 2021).	-	-	Lack of suitable habitat. Wetland areas are not saline. Lack of nearby records. **Unlikely to occur**
Purple Blown-grass	*Lachnagrostis punicea* subsp. *filifolia*		en	Seasonally wet, heavy clay soils (Walsh 1994).	4	21/11/2011	Lack of suitable heavy clay soil habitat. **Unlikely to occur**
Basalt Peppercress	*Lepidium hyssopifolium* s.s.	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 (DAWE 2020).	1	25/11/2009	Lack of suitable treed habitat. **Unlikely to occur**
Pretty Leek-orchid	*Prasophyllum anticum*		cr	Only one known population at Orford, where it grows in Kangaroo Grass dominated Grassland on moist to wet black basaltic loam (RBGV 2021).	12	23/10/2018	Some recent nearby records. However, there is no suitable areas of habitat. **Unlikely to occur**
Gorae Leek-orchid	*Prasophyllum diversiflorum*	EN	cr	Wet grasslands or inundated swamps among tussocks (Jones 2006).	2	19/12/1995	Suitable habitat within areas of Plains Grassy Wetland (EVC 125). Not detected in targeted surveys **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 (DAWE 2020).	-	-	Lack of nearby records, however suitable habitat within areas of Plains Grassy Wetland (EVC 125) exists. Not detected in targeted surveys **Unlikely to occur.**

Common Name	Scientific name	Conservation status		Habitat	Number of records	Date of last record	Likelihood of occurrence
		EPBC	FFG				
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).	2	1/11/2000	Lack of suitable coastal habitat. **Unlikely to occur**
Basalt Leek-orchid	*Prasophyllum viretrum*		cr	Moist to wet grassland on dark basaltic loam (Jones & Rouse 2006).	58	13/11/2019	Lack of suitable grassland habitat. **Unlikely to occur**
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).	-	-	Lack of suitable treed 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).	-	-	Lack of suitable shrub coastal habitat. **Unlikely to occur**
Button Wrinklewort	*Rutidosis leptorhynchoides*	EN	en	In Victoria 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 (RBGV 2021).	-	-	Lack of suitable treed and/or grassland habitat. **Unlikely to occur**
Swamp Fireweed	*Senecio psilocarpus*	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 2008a).	-	-	Suitable habitat within areas of Plains Grassy Wetland (EVC 125). Recorded nearby during targeted surveys by Nature Advisory. Not detected in targeted surveys **Unlikely to occur.**
Coast Dandelion	*Taraxacum cygnorum*	VU	cr	Woodland and scrub on limestone (Scarlett 1999).	-	-	Lack of suitable treed habitat. **Unlikely to occur**
Metallic Sun-orchid	*Thelymitra epipactoides*	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 (DAWE 2020).	-	-	Lack of suitable treed habitat. **Unlikely to occur**
Spiral Sun-orchid	*Thelymitra matthewsii*	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).	-	-	Lack of suitable treed habitat. **Unlikely to occur**
Swamp Everlasting	*Xerochrysum palustre*	VU	cr	Grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils. Commonly associated genera include Amphibromus, Baumea, Carex, Chorizandra, Craspedia, Eleocharis, Isolepis, Lachnagrostis, Lepidosperma, Myriophyllum, Phragmites australis, Themea triandra and Villarsia (DAWE 2020).	-	-	Suitable habitat within areas of Plains Grassy Wetland (EVC 125). Not detected in targeted surveys **Unlikely to occur.**

Notes: EPBC = threatened species status under EPBC Act (EN = endangered; VU = vulnerable); **FFG** = threatened species status under the FFG Act (cr = critically endangered; en = endangered; vu = vulnerable)

5.4. Fauna habitats

The study area supported three fauna habitat types.

- Rocky outcrops;
- Grazing paddocks (exotic pastures); and
- Ephemeral wetlands.

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 greatly reduced and dominated by graminoids. Outcropping rocks and soil cracks occurred, but large woody debris was absent.

Grazing paddocks (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. This habitat provided the least habitat value within the study area.

Ephemeral wetlands

Aquatic habitat within the study area was ephemeral and mostly dry at the time of survey. It included small watercourses and grassy 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.

5.5. Fauna species

5.5.1. Listed species

The review of existing information (including VBA records (DELWP 2021a) and the results of the EPBC Protected Matters Search Tool (DAWE 2021) indicated that within the search region there were records of, or there occurred potential suitable habitat for, 45 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 4.

This analysis of potential occurrence of listed fauna species excludes:

- Marine fauna given that the study area is inland
- Migratory oceanic bird species (such as albatrosses and petrels) and migratory shorebirds 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 11 listed fauna species are likely to occur or have the potential to occur. These species are:

- **Brolga** (FFG Act: endangered)
- **Eastern Great Egret** (FFG Act: vulnerable)
- **Magpie Goose** (FFG Act: vulnerable)

- **Plumed Egret** (FFG Act: critically endangered)
- **Glossy Ibis** (EPBC Act: Migratory)
- **Latham's Snipe** (EPBC Act: Migratory)
- **Pectoral Sandpiper** (EPBC Act: Migratory)
- **Sharp-tailed Sandpiper** (EPBC Act: Migratory)
- **Fork-tailed Swift** (EPBC: Migratory)
- **White-throated Needletail** (EPBC: Vulnerable & Migratory, FFG: vulnerable)
- **Southern Bent-wing Bat** (EPBC: Critically Endangered; FFG: critically endangered [as subspecies of Common Bent-wing Bat])

The susceptibility of these species to impacts from development is discussed in Section 5.5.2.

Table 4: Listed fauna species and the likelihood of their 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	*Botaurus poiciloptilus*	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).	None	N/A	No suitable habitat or records within the search region. **Unlikely to occur.**
Australian Painted-snipe	*Rostratula australis*	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 Muehlenbeckia or canegrass or sometimes tea-tree (Melaleuca). Sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber (DAWE 2020).	None	N/A	No suitable habitat or records within the search region. **Unlikely to occur.**
Brolga	*Grus rubicunda*			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).	13	12/11/2019	Marginal suitable habitat on site within areas of Plains Grassy Wetland (EVC 125). Records occurring within Cockatoo Swamp. **Potential to occur.**
Bush Stone-curlew	*Burhinus grallarius*			cr	Open woodlands with Grey Box, Yellow Box and/or River Red Gum, with a grassy understorey. The species is mainly found in northern and western Victoria; the bird has declined since European settlement, especially in the south of the state (Robinson & Johnson 1997).	1	18/01/1963	No suitable habitat or records within the search region. **Unlikely to occur.**
Common Greenshank	*Tringa nebularia*		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).	None	N/A	Limited suitable habitat. Rare vagrant and site is 20 km from the coast. **Unlikely to occur.**
Common Sandpiper	*Actitis hypoleucos*		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).	None	N/A	No suitable habitat. **Unlikely to occur.**
Curlew Sandpiper	*Calidris ferruginea*	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).	None	N/A	No suitable habitat. **Unlikely to occur.**
Eastern Curlew	*Numenius madagascariensis*	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).	None	N/A	No suitable intertidal habitat. **Unlikely to occur.**
Fork-tailed Swift	*Apus pacificus*		M (CAMBA, ROKAMBA, JAMBA)		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 1999).	1	25/02/2019	Suitable habitat. Highly mobile species that may occasionally utilise habitat on site. **Potential to occur.**
Glossy Ibis	*Plegadis falcinellus*		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 within Plains Grassy Wetland (EVC 125). Recent records near the coast and Moyne River. **Likely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Great Egret	*Ardea alba*			vu	Occurs in a variety of wetlands including: permanent water bodies on flood plains; shallows of deep permanent lakes, either open or vegetated with shrubs or trees; semi-permanent swamps with tall emergent vegetation (e.g. bulrush) and herb dominated seasonal swamps with abundant aquatic flora (Marchant & Higgins 1990).	3	1/11/2011	Suitable habitat within the search region, suboptimal on site within Plains Grassy Wetland (EVC 125). Records found within Cockatoo Swamp and Swan River. **Potential to occur.**
Grey Falcon	*Falco hypoleucos*	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 north western regions (Marchant & Higgins 1993).	None	N/A	More commonly found in northwest Victoria. No records within the search region. Unlikely to occur.
Grey Goshawk	*Accipiter novaehollandiae*			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.**
Ground Parrot	*Pezoporus wallicus*			en	Inhabits mainly heathlands, sedgeland or button-grass plains providing dense cover. In Victoria the species is largely restricted to closed coastal heathland and sedgeland, which is generally found in Gippsland (Higgins 1999). The species is also known to occur in similar habitats in western Victoria, namely Discovery Bay National Park and Lake Connewarre (Higgins 1999).	1	17/04/1907	No suitable habitat. **Unlikely to occur.**
Hooded Plover	*Thinornis cucullatus*	VU		vu	Inhabits sandy ocean beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding. Widespread and scattered across coastal Victoria. Numbers reduced due to disturbance by recreational activities on beaches (Marchant & Higgins 1993).	None	N/A	No suitable marine habitat on site or recent records. **Unlikely to occur.**
Hooded Robin	*Melanodryas cucullata*			vu	Occur mostly in open Grey Box, White Box, Yellow Box, Yellow Gum and Ironbark woodlands with pockets of saplings or taller shrubs, an open shrubby understorey, sparse grasses and patches of bare ground and leaf-litter, with scattered fallen timber. The population has declined throughout range, especially since the early 1980s. This species typically occurs north of the great divide in shrubland or woodland dominated by acacias (Higgins & Peter 2002; Tzaros 2005).	2	18/01/1963	No suitable habitat. **Unlikely to occur.**
Latham's Snipe	*Gallinago hardwickii*		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).	4	29/10/2019	Suitable habitat within Plains Grassy Wetland (EVC 125) and nearby records. **Likely to occur.**
Magpie Goose	*Anseranas semipalmata*			vu	Terrestrial and aquatic habitats, but activities cantered on wetlands, mainly those on floodplains of rivers (Marchant & Higgins 1990).	2	11/11/2019	Suitable habitat within Plains Grassy Wetland (EVC 125). Records nearby close to the coast and in Tower Hill Wildlife Reserve. **Likely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Osprey	*Pandion cristatus*		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).	None	N/A	No suitable habitat. **Unlikely to occur.**
Painted Honeyeater	*Grantiella picta*	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).	None	N/A	No suitable habitat or recent records. **Unlikely to occur.**
Pectoral Sandpiper	*Calidris melanotos*		M (Bonn A2H, ROKAMBA, JAMBA)		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).	None	N/A	Limited suitable habitat within Plains Grassy Wetland (EVC 125). No records within 10km. **Potential to occur.**
Plains-wanderer	*Pedionomus torquatus*	CR		cr	This species is highly sensitive to changes in grassland cover and density. Typically inhabits treeless native grasslands with sparse cover, with a preference for grasslands composed of wallaby grass and spear grass (Marchant & Higgins 1993). Habitat becomes unsuitable when grassland becomes dense (CA 2016). Evidence suggests it avoids areas of tree cover, with no records of the species within 300m of trees (>10m high) in their strongholds in New South Wales or Victoria (CA 2016).	None	N/A	No suitable habitat. **Unlikely to occur.**
Plumed Egret	*Ardea plumifera*			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	Limited suitable habitat within Plains Grassy Wetland (EVC 125). **Potential to occur.**
Rufous Fantail	*Rhipidura rufifrons*		M (Bonn A2H)		In east and south-east Australia, mainly inhabits tall wet sclerophyll forests, often in gullies. When on passage in warmer months, they are sometimes recorded in drier sclerophyll forests and woodlands, as well as parks and gardens (Higgins et al. 2006). Virtually absent from south-eastern Australia during winter (Higgins et al. 2006).	None	N/A	No suitable habitat. **Unlikely to occur.**
Satin Flycatcher	*Myiagra cyanoleuca*		M (Bonn A2H)		Mostly found in eucalypt forest, particularly tall wet forests and woodland within gullies (Higgins et al. 2006). Also inhabits eucalypt woodland comprising an open understorey and a grassy ground layer (Higgins et al. 2006). Generally absent from rainforest (Higgins et al. 2006).	None	N/A	No suitable habitat. **Unlikely to occur.**
Sharp-tailed Sandpiper	*Calidris acuminata*		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).	1	2/11/2009	Limited suitable habitat within Plains Grassy Wetland (EVC 125). **Potential to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Swift Parrot	*Lathamus discolor*	CR		cr	Prefers a select range of eucalypts in Victoria, including Yellow Gum, Grey Box, White Box, Red Ironbark and Yellow Box, as well as River Red-gum when this species supports abundant 'lerp' (Saunders & Tzaros 2011). The species is also known to forage within planted stands of Spotted Gum and Sugar Gum (Nature Advisory; unpublished data). 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 & Tzaros 2005). Though it is also not uncommonly sighted in urban areas (Nature Advisory; unpublished data). Occurrence of this species on the mainland can substantially change from year to year depending on food availability, giving potential for this species to occur almost anywhere throughout its range (Emison et al. 1987).	None	N/A	No suitable habitat. **Unlikely to occur.**
White-throated Needletail	*Hirundapus caudacutus*	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. Highly mobile species, may fly over the site. **Potential to occur.**
Yellow Wagtail	*Motacilla flava*		M (CAMBA, JAMBA, ROKAMBA)		Regular non-breeding visitor in northern Australia mainly spring-summer, vagrant to the south. Occupies a wide range of habitats, usually open areas with low vegetation such as crop, grassland and even parkland. Often recorded near water (Higgins, Peter & Cowling 1999)	None	N/A	No suitable habitat. **Unlikely to occur.**
Mammals								
Brush-tailed Phascogale	*Phascogale tapoatafa*			vu	Dry forest and woodland in association with box, ironbark and stringybark eucalypts (Menkhorst 1995). Closely associated with remnant vegetation, this species occupies large home ranges of woodland habitat (M=100Ha; F=20-70Ha) (Menkhorst 1995).	1	1/06/1946	No suitable habitat. **Unlikely to occur.**
Common Bent-wing Bat (southern ssp.)	*Miniopterus schreibersii bassanii*	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).	None	N/A	Habitat likely to be traversed on migration. **Potential to occur.**
Eastern Barred Bandicoot	*Perameles gunnii*	VU		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.	2	1/01/1976	No suitable habitat within 5km. No connectivity exists between the site and blocks of woodland within the search region. **Unlikely to occur.**
Grey-headed Flying-fox	*Pteropus poliocephalus*	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).	None	N/A	Closest camp is in Warrnambool, 35km from the site. No available foraging habitat. **Unlikely to occur.**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Southern Brown Bandicoot	*Isoodon obesulus obesulus*	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 (Rubus spp.), can and often does, provide important habitat (DAWE 2020).	None	N/A	No suitable habitat within 5km. No connectivity exists between the site and blocks of woodland within the search region. **Unlikely to occur.**
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	EN		en	Rainforest, wet and dry forest, coastal heath and scrub and River Red-gum woodlands along inland rivers (Menkhorst 1995).	None	N/A	No suitable habitat within 5km. No connectivity exists between the site and blocks of woodland within the search region. **Unlikely to occur.**
Swamp Antechinus	*Antechinus minimus maritimus*	VU		vu	Dense wet heath, tussock grassland, sedgeland heathy woodland and coastal heath and scrub (Menkhorst 1995). Requires mature, dense vegetation with thick ground cover (DAWE 2020). Shelters in short burrows or underneath dense leaf litter. Rarely occurs more than 200m above sea level. Though this species has also previously been detected at sites which had experienced some structural disturbance in the South Gippsland region (Nature Advisory; unpublished data).	None	N/A	No suitable habitat within 5km. No connectivity exists between the site and blocks of woodland within the search region. **Unlikely to occur.**
Reptiles								
Striped Legless Lizard	*Delma impar*	VU		en	Grassland specialist. Known to occur in some areas dominated by introduced species such as Harding Grass Phalaris aquatica, Serrated Tussock Nasella trichotoma and Flatweed Hypocharis radicata 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 underground 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).	None	N/A	No suitable habitat or recent records. **Unlikely to occur.**
Fish								
Australian Grayling	*Prototroctes maraena*	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).	None	N/A	No suitable permanent aquatic habitat. **Unlikely to occur.**
Dwarf Galaxias	*Galaxiella pusilla*	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 (Saddlier, Jackson & Hammer 2010). Dwarf Galaxias is also often found in association with burrowing freshwater crayfish (Engaeus spp.), with the crayfish burrows reportedly providing refuge from predators and dry conditions for the species (Saddlier, Jackson & Hammer 2010).	None	N/A	Suitable (but marginal) habitat. No records within 10km. **Unlikely to occur.**
Macquarie Perch	*Macquaria australasica*	EN		en	Cool, clear water of rivers and lakes. Favours slower moving water (Allen et al. 2002).	1	1/01/1970	No suitable permanent aquatic habitat. **Unlikely to occur.**
Yarra Pygmy Perch	*Nannoperca obscura*	VU		vu	Streams and small lakes, prefers flowing water with abundant aquatic vegetation (Allen et al. 2002).	14	4/02/2016	No suitable permanent aquatic habitat. Majority of records within Shaw River which has little to no connectivity to the site. **Unlikely to occur.**
Invertebrates								

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Golden Sun Moth	*Synemon plana*	CR		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). Also known to be closely associated with exotic grass species, with populations found in grassland almost entirely composed of Chilean needlegrass (Richter et al. 2013).	None	N/A	Habitat within the site 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 the search region. **Unlikely to occur.**
Amphibians								
Brown Toadlet	*Pseudophryne bibronii*			en	Wet and dry forest, grassy areas besides small creeks, alpine grasslands and mossy bogs (Cogger 2000). In Victoria, the Brown Toadlet is distributed from the north-east through to central and western Victoria with scattered records in Gippsland (SWIFFT 2020).	2	28/05/1976	Marginal suitable habitat. Records dating back to 1976 found 7km away. **Unlikely to occur.**
Growling Grass Frog	*Litoria raniformis*	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	No suitable habitat. Closest record 3km with no connectivity. **Unlikely to occur.**
Mussels, decapod crustacea								
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.	None	N/A	No suitable habitat. **Unlikely to occur.**

Notes: 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).

5.5.2. Susceptibility of listed fauna to impacts

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; and
- 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.

Targeted surveys will be required to determine the presence or absence of any listed fauna species considered to be susceptible to impacts from development.

Birds (non-migratory)

Four listed non-migratory bird species are 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.

- **Brolga** (FFG Act: endangered)
- **Eastern Great Egret** (FFG Act: vulnerable)
- **Magpie Goose** (FFG Act: vulnerable)
- **Plumed Egret** (FFG Act: critically endangered)

These 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, the relatively small area of the site, it is considered unlikely that these species would be impacted by the proposed development.

Migratory Birds

Six 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.

- **Glossy Ibis** (EPBC Act: Migratory)
- **Latham's Snipe** (EPBC Act: Migratory)
- **Pectoral Sandpiper** (EPBC Act: Migratory)
- **Sharp-tailed Sandpiper** (EPBC Act: Migratory)

These 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 proportionally small impact of the proposed project on this habitat, it is considered unlikely that these species would be impacted by the proposed development.

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

These species are likely to occasionally occur aerially over the study area. Given the aerial nature of these species and the large amount of similar habitat available in the surrounding region, it is considered unlikely that these species would be impacted by the proposed development.

Mammals

One listed mammal species are 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.

- **Southern Bent-wing Bat** (EPBC: Critically Endangered; FFG: critically endangered [as subspecies of Common Bent-wing Bat])

The Southern Bent-wing Bat has not been recorded within search region. However, the species' main breeding site in Victoria is at Starlight Cave, 8 km east of Warrnambool, and it is known to winter at caves at Byaduk and other caves to the west and north of the terminal station (Lumsden & Jemison 2015). It is reasonable to assume it may therefore migrate through the site between the breeding and wintering sites. Given the small number of the species which concentrate at only two known breeding caves in summer and disperse widely to wintering caves, it is expected that only small numbers would pass through the site. Given that a Terminal Station already exists in this location, and the nature of the proposed development, it is considered unlikely that these species would be impacted by the proposed development.

Reptiles, Frogs & Invertebrates

No listed reptile, frog or invertebrate species are considered to have the potential to occur in the study area. These species are therefore not considered susceptible to possible impacts from any development in the study area.

5.6. Listed ecological communities

The EPBC Protected Matters Search Tool (DAWE 2021) indicated that four ecological communities listed under the EPBC Act had the potential to occur in the search region (Table 5). Their occurrence in the study area was determined based on an assessment of the native vegetation present against published descriptions and condition thresholds for these communities.

Table 5: 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	Although suitable habitat does exist, it does not occur within 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 the EPBC Act (CR = Critically Endangered).

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.

- *Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (SHWTLP)* – listed as Critically Endangered under the EPBC Act (~~EVC 125~~).

The aquatic vegetation in habitat zones E, F, L, O, S and T comprising of the EVC Plains Grassy Wetland (EVC 125) were found not to meet the key diagnostic criteria and condition thresholds (TSSC 2012) for this community, as they did not meet the minimum size requirement of 0.5 hectares threshold.

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

No EVCs associated with this community (namely Plains Grassy Woodland (EVC 55)) were recorded within the study area.

- *Natural Temperate Grassland of the Victorian Volcanic Plain* – 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.

- *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. Assessment of impacts

6.1. Proposed development

The current proposal will involve the installation of additional infrastructure (such as transformers) within the existing Tarrone Terminal Station, the construction of additional infrastructure to the east of the existing Tarrone Terminal Station, the construction of new perimeter fence, the construction of a new hardstand area to the north of the terminal station, and the construction of new access points is proposed for the study area.

To determine impacts to native vegetation, the proposed plan was overlaid with the native vegetation mapped as part of this investigation. Native vegetation occurring in the following locations was considered to be removed based on the proposed plan:

- Direct removal: All native vegetation affected by the proposed footprint

6.2. 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 7.1.

6.2.1. Native vegetation

The current proposal footprint will result in the loss of a total extent of 0.118 hectares of native vegetation as represented in Figure 2 and documented in the *Native Vegetation Removal* (NVR) report provided by DELWP (Appendix 5).

This comprised:

- 0.118 hectares of native vegetation in patches (including no large trees in patches);
- No scattered trees; and
- No DELWP mapped wetlands.

It is understood that no native vegetation has been approved for removal on the property within the last five years.

Photographs of native vegetation proposed for removal are provided in Appendix 4.

6.2.2. Modelled species important habitat

The current proposal footprint will not have a significant impact on any habitat for any rare or threatened species as determined above.

6.2.3. Listed flora species

The analysis of the likelihood of occurrence of listed flora species presented in Section 5.3.2 identified that the following species could occur within the study area. Targeted surveys in areas of proposed impact were undertaken in December 2021, to coincide with the flowering time for all species:

- Gorae Leek-orchid
- Maroon Leek-orchid
- Swamp Fireweed
- Swamp Everlasting
- Curly Sedge

None of these species were detected in targeted surveys.

6.2.4. Fauna habitat

The proposed development will result in impacts to grazing paddock (exotic pastures) and ephemeral wetland fauna habitat types.

6.2.5. Listed fauna species

The analysis of susceptibility of listed fauna species to impacts presented in Section 5.5.2 identified that no listed fauna species were likely to be impacted by development in the study area.

6.2.6. Listed ecological communities

The proposed development footprint will not result in any losses to EPBC Act listed ecological communities, as none were identified within the study area.

6.2.7. Cumulative impacts

The TXL line associated with this project will include this proposed clearing, if permitted, as past clearing in any reporting or calculations so cumulative effects will be accounted for in a broader perspective.

Figure 2: Native vegetation to be impacted

Project: Tarrone Terminal Station
Client: Ryan Corner Development Pty Ltd
Date: 10/12/2021

Legend

- Study area
- Lease boundary
- Access area
- Site office area
- Hardstand
- Development footprint
- Proposed fence

Native vegetation

- Plains Grassy Wetland (EVC 125)
- Stony Knoll Shrubland (EVC 649)
- Native vegetation to be removed

N

Metres
0 40

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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 from the study area.

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:

- Site level planning – the footprint of the proposed terminal station upgrade has been placed as close as possible to the existing terminal station and access tracks/roads, and has been sited to avoid as much native vegetation as possible. The outcome of this is that only 10% of the native vegetation recorded on site will be impacted.
- The layout of the hardstand area has been designed to avoid impacts on native vegetation as much as practical.
- Furthermore, no feasible opportunities exist 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 as detailed for the study area as follows:

- **Location Category:** Location 1
- **Extent of native vegetation:** A total of 0.118 hectares of native vegetation (including no large trees).

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

This proposal **would not** trigger a referral to DELWP's Environment Portfolio based on the criteria specified in Section 3.4.3.

7.2.3. Offset requirements

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

- 0.025 general habitat units and must include the following offset attribute requirements:
    - Minimum strategic biodiversity value (SBV) of 0.312; 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 offset is currently available for purchase from a native vegetation credit owner (DELWP 2021d).

Evidence that the required offset is available is provided in Appendix 6. The required offset would be secured following approval of the application to remove native vegetation.

7.3. 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.

The following EPBC Act listed species could potentially occur within the study area in areas of native vegetation. Targeted surveys in areas of proposed impact were undertaken in December 2021, to coincide with the flowering time for all species:

- Gorae Leek-orchid
- Maroon Leek-orchid
- Swamp Fireweed
- Swamp Everlasting

No plants of any of these species were found in December 2021 surveys.

7.4. FFG Act

The Victorian FFG Act lists threatened and protected species and ecological communities (DELWP 2019, DELWP 2021b). 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.

The land addressed in this assessment is private land; therefore, a Protected Flora Licence or Permit under the FFG Act would not be required for the current proposal.

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 State Minister for Planning.

Based on the relevant criteria, a Referral to the State 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 landowners (or a third party to whom responsibilities have been legally transferred) must eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds.

Property owners who do not eradicate regionally prohibited weeds or prevent the growth and spread of regionally controlled weeds for which they are responsible, may be issued with a Land Management Notice or Directions Notice that requires specific control work to be undertaken.

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.

- Spear Thistle *Cirsium vulgare* (regionally controlled)

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

7.7. Construction mitigation recommendations

Recommendations to mitigate impacts to vegetation during construction are provided below:

- Establish appropriate vegetation protection zones around areas of native vegetation to be retained prior to works.
- Ensure all construction personnel are appropriately briefed prior to works, and that no construction personnel, machinery or equipment are placed inside vegetation protection zones.

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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-green on the Location Map; occurring over most of Victoria.
  - Location 2 – shown in dark blue-green on the Location Map; includes areas mapped as endangered EVCs and/or sensitive wetlands and coastal areas.
  - Location 3 – shown in brown on the Location Map; includes areas where the removal of less than 0.5 hectares 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 ten-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* (DELWP 2018b).

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			A	A1	B	C	D	E	F	G	H
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP
EVC Number			VVP_0649	VVP_0649	VVP_0649	VVP_0649	VVP_0649	VVP_0125	VVP_0125	VVP_0649	VVP_0649
Total area of Habitat Zone (ha)			0.041	0.026	0.066	0.103	0.039	0.068	0.083	0.029	0.036
Site Condition	Large Old Trees	/10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	No. large trees in habitat zone		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
	Lack of Weeds	/15	4	4	4	4	4	4	4	4	4
	Understorey	/25	5	5	5	5	5	5	5	5	5
	Recruitment	/10	3	3	3	3	3	0	0	3	3
	Organic Matter	/5	5	5	5	5	5	4	4	5	5
	Logs	/5	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
	Site Condition subtotal		*23*	*23*	*23*	*23*	*23*	*18*	*18*	*23*	*23*
Landscape Context	Patch Size	/10	1	1	1	1	1	1	1	1	1
	Neighbourhood	/10	0	0	0	0	0	0	0	0	0
	Distance to Core	/5	1	1	1	1	1	1	1	1	1
Total Condition Score		**/100**	**25**	**25**	**25**	**25**	**25**	**20**	**20**	**25**	**25**
EPBC Act listed ecological communities			-	-	-	-	-	-	-	-	-
FFG Act listed ecological communities			-	-	-	-	-	-	-	-	-

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

Habitat Zone			I	J	K	L	M	N	O	S	T
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP
EVC Number			VVP_0649	VVP_0649	VVP_0649	VVP_0125	VVP_0649	VVP_0649	VVP_0125	VVP_0125	VVP_0125
Total area of Habitat Zone (ha)			0.239	0.022	0.008	0.176	0.015	0.091	0.028	0.044	0.074
Site Condition	Large Old Trees	/10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	No. large trees in habitat zone		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
	Lack of Weeds	/15	4	4	4	4	4	4	4	4	4
	Understorey	/25	5	5	5	5	5	5	5	5	5
	Recruitment	/10	3	3	3	0	3	3	0	0	0
	Organic Matter	/5	5	5	5	4	5	5	4	4	4
	Logs	/5	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
	Site Condition subtotal		*23*	*23*	*23*	*18*	*23*	*23*	*18*	*18*	*18*
Landscape Context	Patch Size	/10	1	1	1	1	1	1	1	1	1
	Neighbourhood	/10	0	0	0	0	0	0	0	0	0
	Distance to Core	/5	1	1	1	1	1	1	1	1	1
Total Condition Score		**/100**	**25**	**25**	**25**	**20**	**25**	**25**	**20**	**20**	**20**
EPBC Act listed ecological communities			-	-	-	-	-		-		
FFG Act listed ecological communities			-	-	-	-	-		-		

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

Appendix 3: Flora species recorded in the study area

Origin	Common name	Scientific name	CaLP Act
*	Sheep Sorrel	*Acetosella vulgaris*	
*	Hair Grass	*Aira* sp.	
*	Sweet Vernal-grass	*Anthoxanthum odoratum*	
*	Cape weed	*Arctotheca calendula*	
*	Lesser Quaking-grass	*Briza minor*	
*	Great Brome	*Bromus diandrus*	
*	Soft Brome	*Bromus hordeaceus*	
*	Common Mouse-ear Chickweed	*Cerastium glomeratum s.l.*	
	Rock Fern	*Cheilanthes tenuifolia s.l.*	
*	Spear Thistle	*Cirsium vulgare*	C
*	Water Buttons	*Cotula coronopifolia*	
*	Rough Dog's-tail	*Cynosurus echinatus*	
	Kidney Weed	*Dichondra* sp.	
	Common Spike-sedge	*Eleocharis acuta*	
	Variable Willow-herb	*Epilobium billardiereanum*	
*	Cudweed	*Euchiton* sp.	
	Crane's Bill	*Geranium* sp.	
	Australian Sweet-grass	*Glyceria australis*	
*	Yorkshire Fog	*Holcus lanatus*	
	Pennywort	*Hydrocotyle* sp.	
*	Flatweed	*Hypochaeris radicata*	
	Rush	*Juncus* spp.	
	Common Blown-grass	*Lachnagrostis filiformis s.s.*	
*	Perennial Rye-grass	*Lolium perenne*	
	Tree Violet	*Melicytus dentatus s.l.*	
	Weeping Grass	*Microlaena stipoides var. stipoides*	
*	Water Couch	*Paspalum distichum*	
*	Toowoomba Canary-grass	*Phalaris aquatica*	
	Common Tussock-grass	*Poa labillardierei*	
	Austral Bracken	*Pteridium esculentum* subsp. *esculentum*	
	Buttercup	*Ranunculus* sp.	
	Wiry Dock	*Rumex dumosus*	
*	Clover	*Trifolium* spp.	
*	Squirrel-tail Fescue	*Vulpia bromoides*	

Notes:

CaLP Act: declared noxious weeds under the CaLP Act (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].

* = introduced to Victoria

Appendix 4: EVC benchmarks

Plains Grassy Wetland (EVC 125) – VVP

Stony Knoll Shrubland (EVC 649) – VVP

Department of Sustainability and Environment

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	Common Name
LH	*Epilobium billardierianum*	Variable Willow-herb
LH	*Villarsia reniformis*	Running Marsh-flower
LH	*Epilobium billardierianum ssp. cinereum*	Grey Willow-herb
MH	*Potamogeton tricarinatus s.l.*	Floating Pondweed
MH	*Lilaeopsis polyantha*	Australian Lilaeopsis
MH	*Utricularia dichotoma s.l.*	Fairies' Aprons
SH	*Eryngium vesiculosum*	Prickfoot
SH	*Neopaxia australasica*	White Purslane
SH	*Lobelia pratioides*	Poison Lobelia
LTG	*Juncus flavidus*	Gold Rush
LTG	*Deyeuxia quadriseta*	Reed Bent-grass
LTG	*Amphibromus nervosus*	Common Swamp Wallaby-grass
LTG	*Poa labillardierei*	Common Tussock-grass
MTG	*Triglochin procerum s.l.*	Water Ribbons
MTG	*Glyceria australis*	Australian Sweet-grass
MTG	*Juncus holoschoenus*	Joint-leaf Rush
MTG	*Austrodanthonia duttoniana*	Brown-back Wallaby-grass
MNG	*Eleocharis acuta*	Common Spike-sedge
MNG	*Eleocharis pusilla*	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)

Weediness:

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

Published by the Victorian Government Department of Sustainability and Environment May 2004

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%	*Allocasuarina verticillata*	Drooping Sheoak
	Bursaria spinosa	Sweet Bursaria

Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	3	10%	MS
Prostrate Shrub	1	1%	PS
Large Herb	2	1%	LH
Medium Herb	11	10%	MH
Small or Prostrate Herb	4	5%	SH
Medium to Small Tufted Graminoid	10	25%	MTG
Tiny Tufted Graminoid	2	5%	TTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Ground Fern	2	5%	GF
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C
Total understorey projective foliage cover		**85%**	

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

Recruitment:
Continuous

Organic Litter:
20 % cover

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

Weediness:

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

Published by the Victorian Government Department of Sustainability and Environment May 2004

Appendix 4: Photographs of native vegetation proposed for removal

Appendix 5: 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: **19/11/2021**
Time of issue: **1:06 pm**

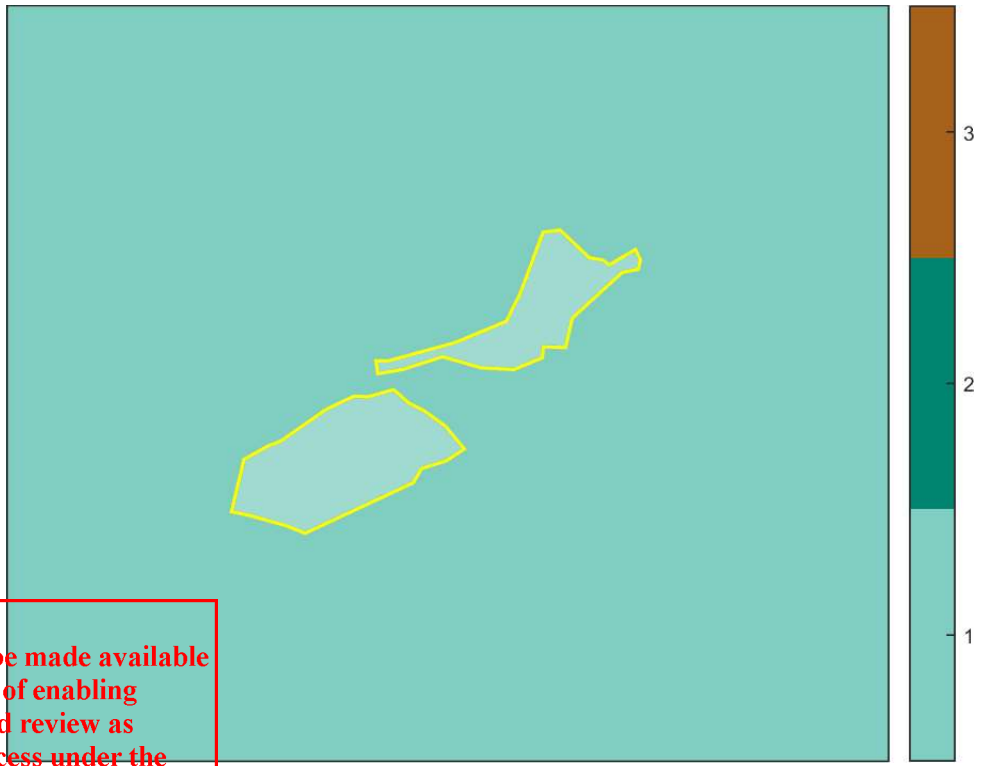
Report ID: NAA_2021_138

Project ID	14144_Substation_impact_211116

Assessment pathway

Assessment pathway	**Basic Assessment Pathway**
Extent including past and proposed	0.118 ha
Extent of past removal	0.000 ha
Extent of proposed removal	0.118 ha
No. Large trees proposed to be removed	0
Location category of proposed removal	Location 1 The native vegetation is not in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map), sensitive wetland or coastal area. Removal of less than 0.5 hectares 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 amount[1]	0.025 general habitat units
Vicinity	Glenelg Hopkins Catchment Management Authority (CMA) or Moyne Shire Council
Minimum strategic biodiversity value score[2]	0.312
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

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Basic Assessment Pathway and it will be assessed under the Basic 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 (met unless you wish to include a site assessment)
- Maps showing the native vegetation and property
- 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
- An offset statement that explains that an offset has been identified and how it will be secured.

Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

For more information contact the DELWP Customer Service Centre 136 186

www.delwp.vic.gov.au

Appendix 1: Description of native vegetation to be removed

All zones require a general offset, the general habitat units each zone is calculated by the following equation in accordance with the Guidelines:

General habitat units = extent x condition x general landscape factor x 1.5, where the general landscape factor = 0.5 + (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

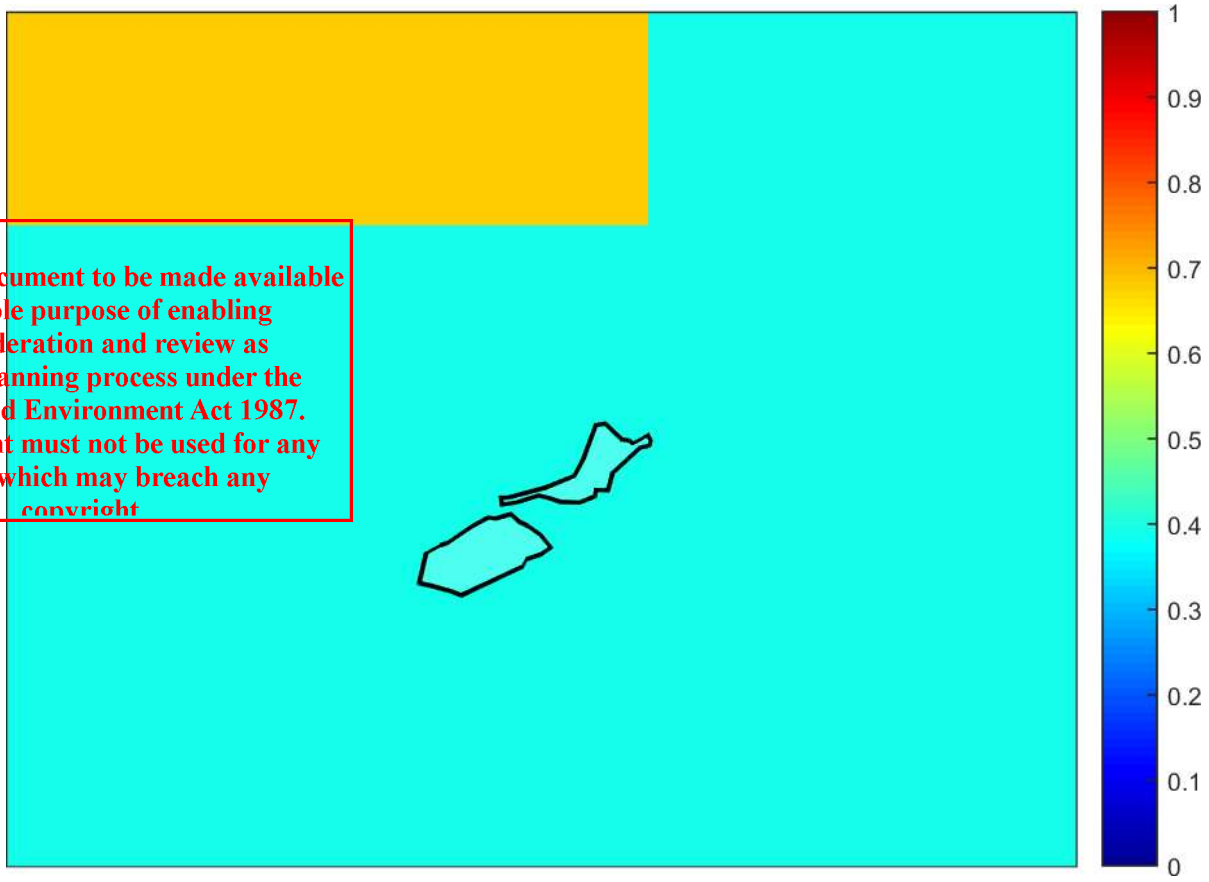
Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	**Type**	**BioEVC**	**BioEVC conservation status**	**Large tree(s)**	**Partial removal**	**Condition score**	**Polygon Extent**	**Extent without overlap**	**SBV score**	**HI score**	**Habitat units**	**Offset type**
1-T	Patch	vvp_0125	Endangered	0	no	0.200	0.074	0.074	0.390		0.015	General
1-S	Patch	vvp_0125	Endangered	0	no	0.200	0.044	0.044	0.390		0.009	General

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

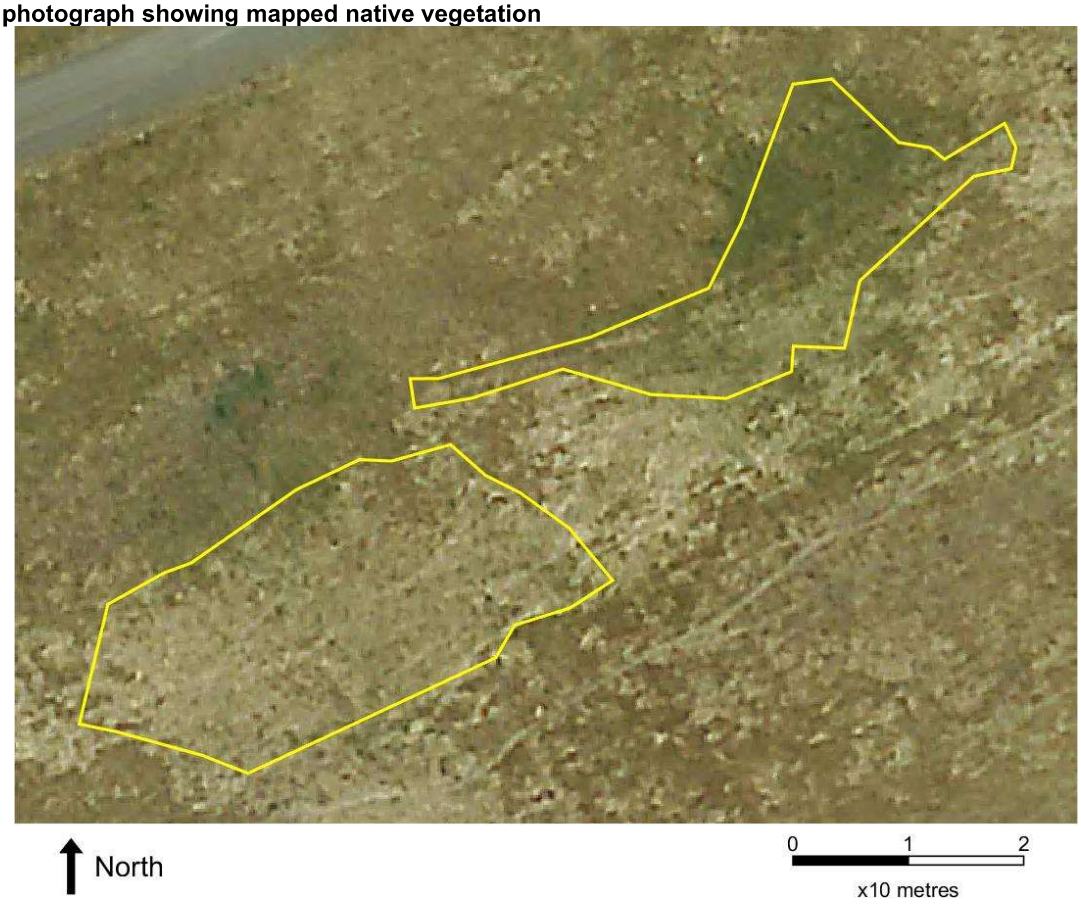
This is not applicable in the Basic Assessment Pathway.

Appendix 3 – Images of mapped native vegetation

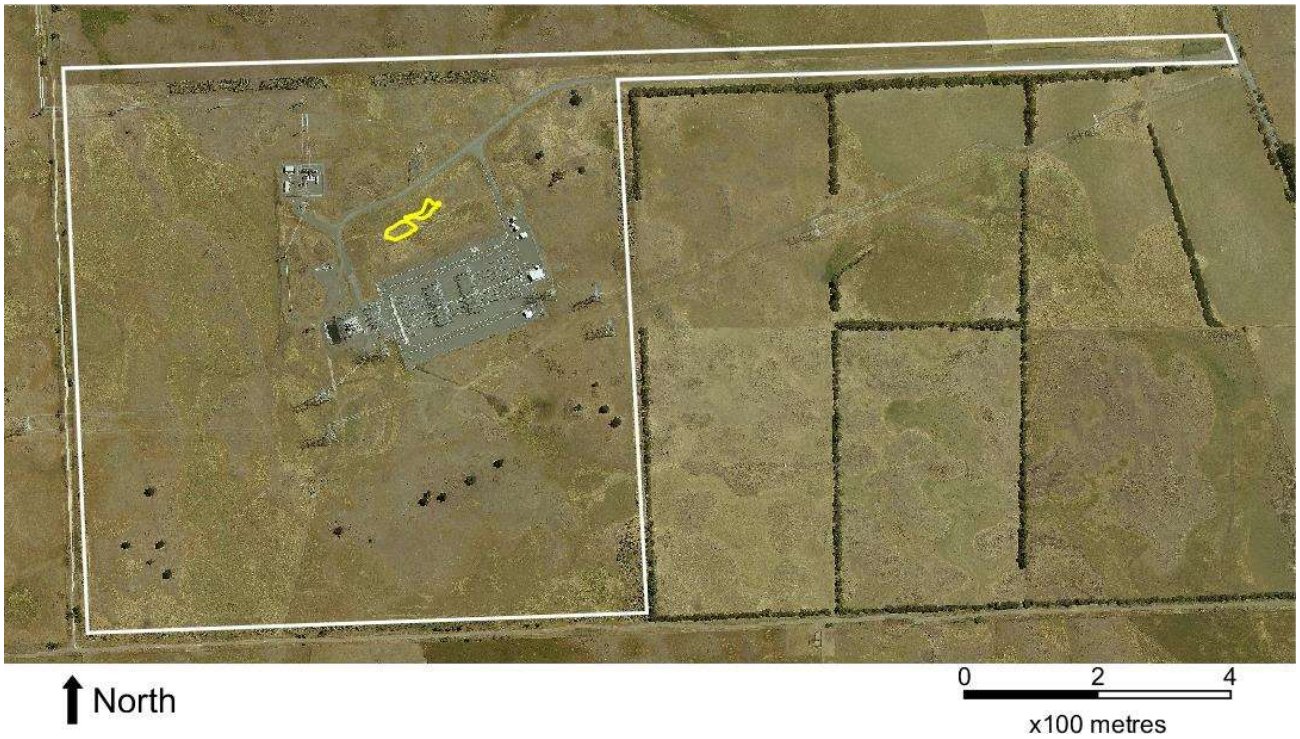
2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation



4. Map of the property in context



Yellow boundaries denote areas of proposed native vegetation removal.

Appendix 6: Evidence that native vegetation offset requirement is available

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: 29/11/2021 11:44

Report ID: 12037

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.025	0.312	0	CMA	Glenelg Hopkins
			or LGA	Moyne Shire

Details of available native vegetation credits on 29 November 2021 11:44

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0101	0.513	0	Glenelg Hopkins	Southern Grampians Shire	No	Yes	No	VegLink
BBA-0110	0.070	5	Glenelg Hopkins	Ararat Rural City	Yes	Yes	No	Contact NVOR
BBA-0639	7.437	0	Glenelg Hopkins	Moyne Shire	Yes	Yes	No	Bio Offsets
BBA-0667	1.582	0	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	Contact NVOR
BBA-0668	0.102	0	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	VegLink
BBA-1139_05	1.559	0	Glenelg Hopkins	Moyne Shire	Yes	Yes	No	VegLink
BBA-2088	0.212	5	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	VegLink
BBA-2467	3.017	40	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	4.144	283	Glenelg Hopkins	Moyne Shire	Yes	Yes	No	VegLink
TFN-C0543	0.407	7	Glenelg Hopkins	Southern Grampians Shire	No	Yes	No	Bio Offsets
TFN-C1668	0.121	12	Glenelg Hopkins	Glenelg Shire	Yes	Yes	No	VegLink
VC_CFL-1139_06	0.331	0	Glenelg Hopkins	Moyne Shire	Yes	Yes	No	VegLink
VC_CFL-3693_01	4.058	686	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_TFN-C2046_01	10.597	1460	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	Ecocentric, Ethos, VegLink
VC_TFN-C2109_01	1.029	0	Glenelg Hopkins	Pyrenees Shire	Yes	Yes	No	VegLink
VC_TFN-C2109_02	0.853	0	Glenelg Hopkins	Pyrenees Shire	Yes	Yes	No	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)

There are no sites listed in the Native Vegetation Credit Register that meet your offset requirements when applying the alternative arrangements as listed in section 11.2 of the Guidelines for the removal, destruction or lopping of native vegetation.

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)
VC_CFL-3755_01	4.926	0	Glenelg Hopkins	Glenelg Shire	Yes	Yes	No	Contact NVOR

LT - Large Trees *CMA - Catchment Management Authority* *LGA - Municipal District or Local Government Authority*

Next steps

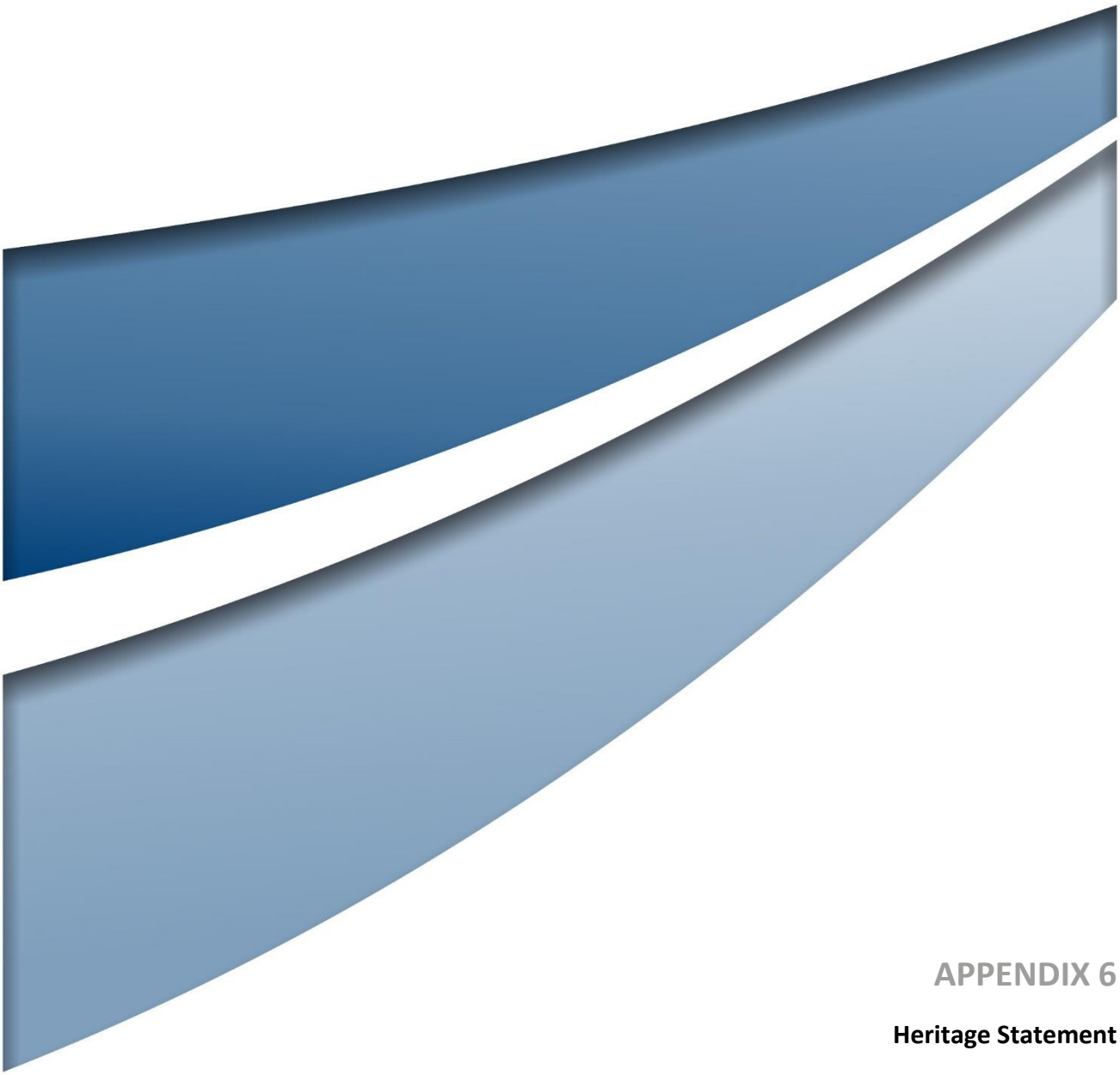
If applying for approval to remove native vegetation
Attach this report to an application to remove native vegetation as evidence that your offset requirement is currently available.

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 2411	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 avaliable
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

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



APPENDIX 6

Heritage Statement

Tardis Archaeology Pty Ltd
heritage advisors

ABN: 29 639 085 948

PO Box 776
Beaconsfield VIC 3807

Beaconsfield Office: 03 9769 7765
Port Melbourne Office: 03 9676 9009
enquiries@tardisenterprises.com.au
www.aatardis.com.au

Our Ref: 4414.000

30 March 2021

Ms Fiona Koutsivos
ERM Pty Ltd
Level 6/99 King Street
Melbourne Victoria 3000

Re: Tarrone Station Extension, Tarrone – Cultural Heritage Statutory Obligations

Dear Fiona,

I am writing in response to your request for an investigation into the cultural heritage statutory obligations regarding the land situated at Tarrone Station Extension, Tarrone [the activity area] (Map 1). This land is currently proposed for extension works [the activity]. Extension works at Tarrone station will include a new bench housing a 132/500kV step-up power transformer and the required busbars, bays and additional required equipment to receive the transmission lines from Ryan Corner and Hawkesdale Wind Farms.

This summary focuses on the obligations under the *Aboriginal Heritage Act 2006*, the *Aboriginal Heritage Regulations 2018* and *Heritage Act 2017*. It includes a review of the Victorian Aboriginal Heritage Register (VAHR), the Victorian Heritage Database (VicPlan), and the relevant Heritage Overlay on the Planning Scheme for previously recorded sites and relevant reports.

The advice in this letter examines legislative requirements in relation to cultural heritage. It does not assess the likelihood of unknown Aboriginal or European cultural heritage being present within the activity area.

The advice contained in this letter is based on our interpretation of the above Acts and Regulations and is considered to be true and accurate. This letter is not legal advice.

Emma McNeil is the heritage advisor who authored this heritage statement. Emma is. A suitably qualified heritage advisor pursuant to Section 189 of the *Aboriginal Heritage Act 2006.*

Cultural Heritage Management Plan (CHMP) Triggers

Pursuant to Regulation 7, *Aboriginal Heritage Regulations 2018*, a CHMP is required for an activity if:

> (a) All or part of the activity area for the activity is an area of cultural heritage sensitivity; ***and***
> (b) All or part of the activity is a high impact activity.

If only one of these two conditions apply, then the preparation of a mandatory CHMP is not required. Areas of cultural heritage sensitivity are specified in Division 3 and Division 4 of Part 2 of the Regulations. High impact activities are specified in Division 5 of the Regulations.

A CHMP is also required:

1. If the Minister directs a CHMP to be prepared pursuant to Section 48 of the Act;
2. If an Environmental Effects Statement, Impact Management Plan or Comprehensive Impact Statement is required pursuant to Section 49 and 49A of the Act; or
3. If the Secretary has certified a preliminary Aboriginal Heritage Test (PAHT) that has determined that an activity requires a CHMP pursuant to Section 46(e) of the Act.

None of these three conditions are known to currently exist.

High Impact Activities

Division 5 of the Regulations lists high impact activities. A review shows that the activity ***is*** a high impact activity pursuant to Regulation 46(1)(a)(b)(xxx) of the *Aboriginal Heritage Regulations* 2018.

> **46 Buildings and works for specified uses**
>
> (1) The construction of a building or the construction or carrying out of works on land is a high impact activity if the construction of the building or the construction or carrying out of works—
>
> (a) Would result in significant ground disturbance; and
>
> (b) Is for, or associated with, the use of the land for any one or more of the following purposes—
>
> (xxx) Land used to generate electricity, including a wind energy facility.

Since the activity is a high impact activity, a mandatory CHMP is required ***only if*** all or part of the activity area is an area of cultural heritage sensitivity and the area of cultural heritage sensitivity has not been subject to significant ground disturbance.

Exempt Activities

Division 2 of the Regulations lists exempt activities. A review shows that the activity is not an exempt activity under Division 2 of the *Aboriginal Heritage Regulations* 2018.

Areas of Cultural Heritage Sensitivity

Divisions 3 and 4 of the Regulations list areas of cultural heritage sensitivity. These are also shown on the Aboriginal Cultural Heritage Register Information System (ACHRIS). A review of both the Regulations and ACHRIS shows that ***all*** of the activity area is an area of cultural heritage sensitivity pursuant to Regulation 36(1)of the *Aboriginal Heritage Regulations* 2018 (Map 1).

> 36 Stony rises
>
> (1) Subject to subregulation (2), the stony rises associated with the Mt Eccles, Mt Napier and Mt Rouse lava flows are areas of cultural heritage sensitivity.
>
> (2) If part of an area specified in subregulation (1) has been subject to significant ground disturbance, that part is not an area of cultural heritage sensitivity.
>
> (3) In this regulation, ***stony rises associated with the Mt Eccles, Mt Napier and Mt Rouse lava flows*** means the areas identified as "Neo2" in the Surfacer Geology of Victoria 1:250 000 ap book and which are associated with the Mt Eccles , Mt Napier and Mt Rouse lava flows.

Since ***all*** of the activity area is an area of cultural heritage sensitivity and the activity is a high impact activity, a mandatory CHMP is required.

However, if the area of cultural heritage sensitivity has been subject to significant ground disturbance (SGD), then a mandatory CHMP is ***not*** required (see SGD section below). Similarly, if the activity has been previously covered under an existing CHMP then an additional mandatory CHMP ***will not*** be required.

ACHRIS Search

A search of ACHRIS shows that there are no registered Aboriginal heritage places within the activity area or within 50m of the activity area boundary. ACHRIS also shows that the activity area has been previously been subject to archaeological assessment.

Relevant Assessments and Aboriginal Places

There has been one previous assessment relevant to the project area.

Murphy et al. (2010) undertook a CHMP (11187) for the construction and maintenance of the proposed Tarrone Power Station. The CHMP was work "works including, foundations, power line pylons, low and high voltage electrical equipment, buried services (including pipes and cabling), transformers, towers, site drainage, ponds and other ancillary works." (Map 3).

An initial standard assessment was undertaken by Biosis in an earlier investigation of the area (Meara & Slavin 2009), no Aboriginal cultural heritage was identified during the assessment. A further standard assessment was undertaken for CHMP 11187 and confirmed that there were areas of sensitivity associated with the stony rises within the activity area. No Aboriginal cultural heritage was identified. A complex assessment comprised a one 1m x 1m test pit and forty-two 0.50m x 0.50m test pits, totalling an excavated are of 11.5m^2. No Aboriginal cultural heritage was identified during the complex assessment and the CHMP concluded that the activity was unlikely to harm unknown cultural heritage. There were no salvage requirements.

The current proposed works are covered under the activity description of CHMP 11187, and therefore a Mandatory CHMP *will not* be required.

Significant Ground Disturbance (SGD)

If the activity is a high impact activity and part of the activity area is a legislated area of cultural heritage sensitivity, then a mandatory CHMP is required. However, if the entire area of cultural heritage sensitivity in the activity area (other than a cave or an Aboriginal place) has been subject to SGD, then it is not an area of cultural heritage sensitivity. This means that a mandatory CHMP is *not* required. This is because the condition relation to the area of cultural heritage sensitivity in Regulation 7 has not been met (see CHMP Triggers above).

It has been demonstrated above that the activity is covered under the activity description of CHMP 11187; therefore, a mandatory CHMP is not required.

Statutory Obligations under the *Aboriginal Heritage Act 2006*

The above investigation demonstrates that the proposed activity at Tarrone Station Extension, Tarrone does *not* require the preparation of a mandatory CHMP because the activity is covered under previously approved CHMP 11187 (Murphy et al. 2010). The approved contingency plans within CHMP 11187 must be followed in the event that Aboriginal cultural heritage is uncovered during the activity.

Statutory Obligations under the *Native Title Act 1993*

Native Title is the recognition by Australian law that Indigenous people have the right to their land, water, traditional laws and customs. In order to acquire Native Title, a Native Title determination decision must be administered by the Federal Court or High Court of Australia. Claims can only be made on un-alienated Crown Land or water. Native Title cannot be ascribed to past or present alienated Crown Land such as residential freehold or public land such as roads, schools or hospitals.

A search of the Aboriginal Cultural Heritage Register Information System (ACHRIS) demonstrates that under the *Native Title Act* 1993 there is one National Native Title Tribunal registered application relevant to the activity area (the Eastern Maar People). The land is not vacant or unallocated, and no future Native Title claims can include the activity area. Therefore, no action is required regarding the *Native Title Act 1993*.

Historic Cultural Heritage

Statutory Obligations under the *Heritage Act 2017*

All historic sites are protected under the *Heritage Act 2017* which requires appropriate Consents or Permits to be obtained before any historic site is disturbed. In addition, all historic sites must be reported to the Executive Director of the Heritage Council. Any archaeological site older than 75 years is considered to have potential archaeological value. Historic archaeological sites with above low scientific significance are listed on the Heritage Inventory. Historic sites with State significance to the Government of Victoria are listed on the Victorian Heritage Register.

Historic Heritage Databases Search

A search of Heritage Victoria's Victorian Heritage Database (VHD), the VicPlan online map and Moyne Shire Council Planning Scheme Online Heritage Overlay shows (Map 2) shows that there are no previously recorded historic sites in or immediately adjacent to the activity area.

Statutory Obligations under the *Planning and Environment Act 1987*

Local councils are responsible for issuing Permits for the use and development of local heritage places under the *Planning and Environment Act 1987*. Heritage places are listed on the Heritage Overlay on the Local Council Planning Scheme. The Heritage Overlay includes places of local significance as well as places of State significance to the Government of Victoria on the Victorian Heritage Register.

Planning Scheme Search

A search of LGAs Planning Scheme (Heritage Overlay) (Planning Schemes Online, Map 3) shows that there are no previously recorded historic sites in or immediately adjacent to the activity area.

Summary of Statutory Obligations

This investigation has reviewed the statutory obligations in relation to the relevant Aboriginal and historic heritage Acts and Regulations. The obligations are summarised in the table below.

Table 1 Summary of Cultural Heritage Statutory Obligations

Aboriginal	*Is the activity a high impact activity?*	Yes Regulation 46(1)(a)(b)(xxx)
	Is part of the activity area a legislated area of cultural heritage sensitivity?	Yes Regulation 36(1)
	Is a mandatory CHMP required?	No The activity is covered under the activity description of CHMP 11187
Historic	*Are there any Heritage Inventory (HI) or Victorian Heritage Register (VHR) places within or immediately abutting the activity area?*	No
	Are there any Moyne Shire Council Heritage Overlays within or immediately abutting the activity area?	No
	Are any Permits or Consents required from Heritage Victoria required prior to the activity commencing?	No
	Are any Permits required from Moyne Shire Council required to manage a Heritage Overlay prior to the activity commencing?	No

Tardis provides the following heritage advice in relation to the activity:

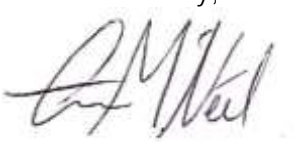
Aboriginal Cultural Heritage:

The proposed activity does not require a mandatory CHMP prior to the activity commencing. All relevant conditions and contingencies must be followed according to CHMP 11187 (Murphy et al. 2010).

Historic Heritage:

There are no further historic archaeological, or heritage matters that need to be addressed prior to the works commencing.

Yours sincerely,

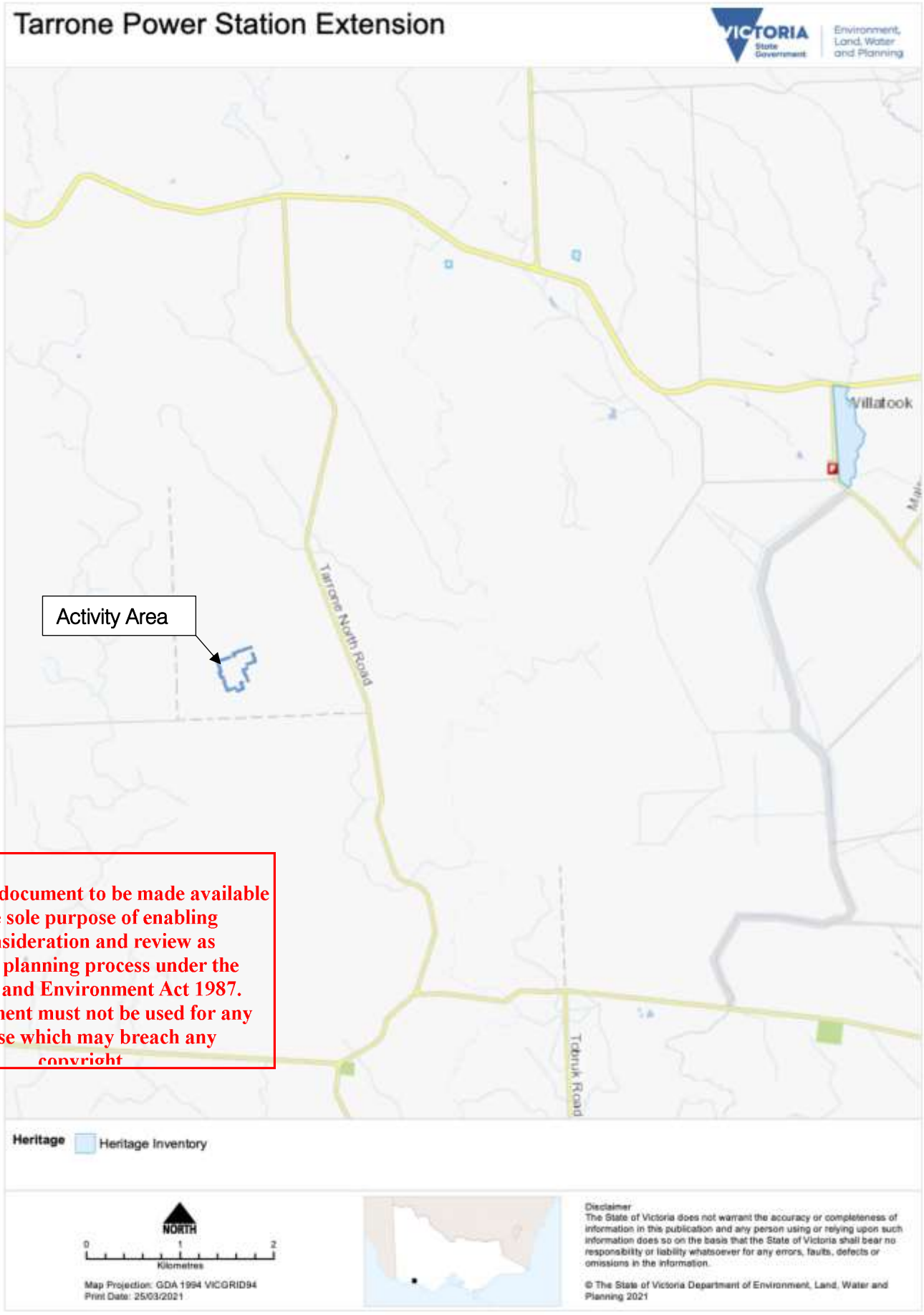


Emma McNeil
Project Archaeologist

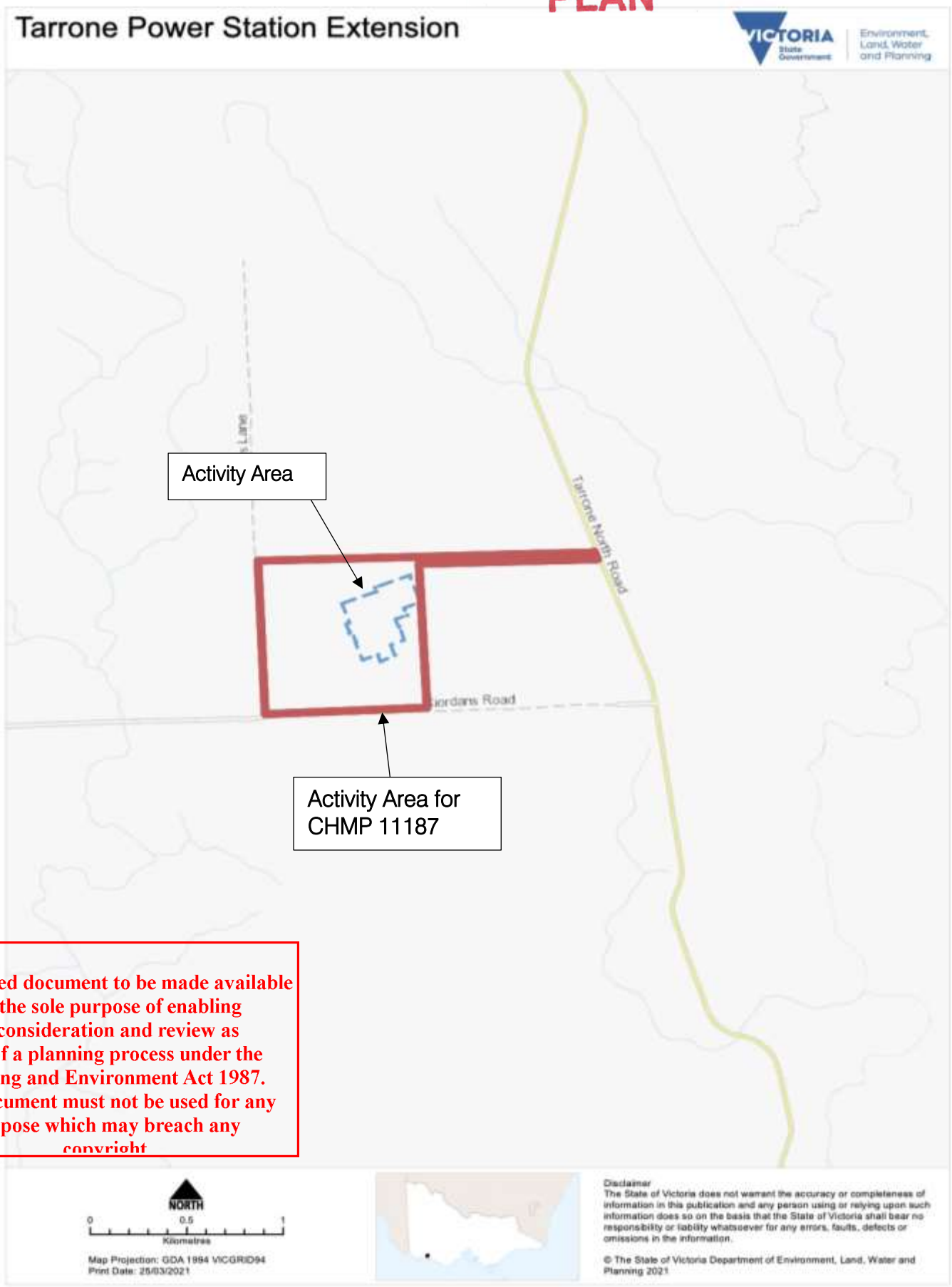
REFERENCES

Meara T & Slavin B	2009	Tarrone Gas-fired Power Station and Gas Pipeline, Victoria, Cultural Heritage Assessment, prepared for URS Australia Pty Ltd by Biosis Research.
Murphy A, Morris A & Thomson S	2010	Proposed Tarrone Power Station, Tarrone, Approved CHMP 11187, prepared for AGL Energy Limited by Tardis Enterprises Pty Ltd.
Murphy BW & CL Murphy	2000	'The Soil Profile.' In PEV Chapman & BW Murphy eds. *Soils: Their Properties and Management*. 2nd Edition. Oxford University Press: 79-82.

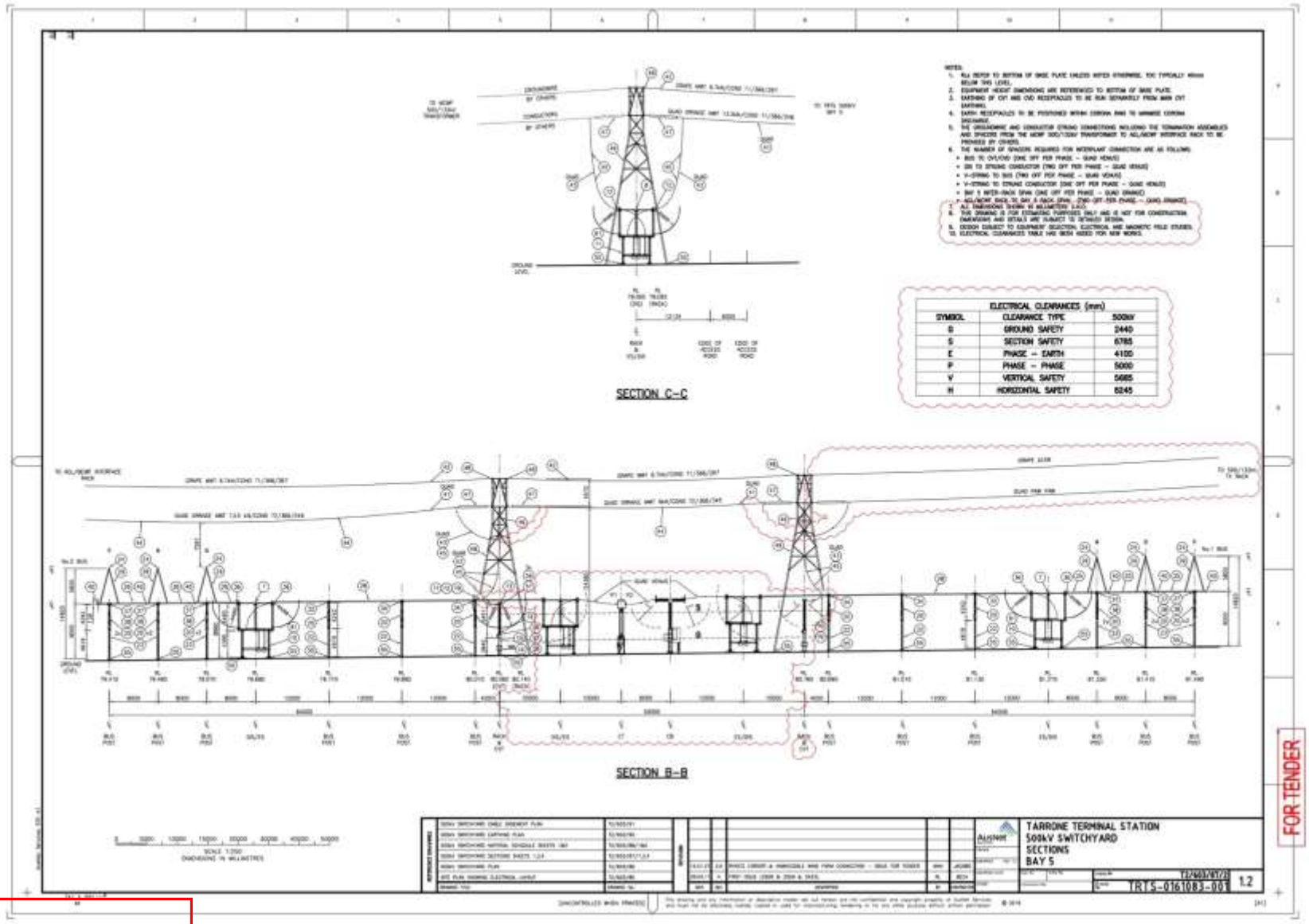
Map 1 Activity Area and Areas of Statutory Cultural Heritage Sensitivity



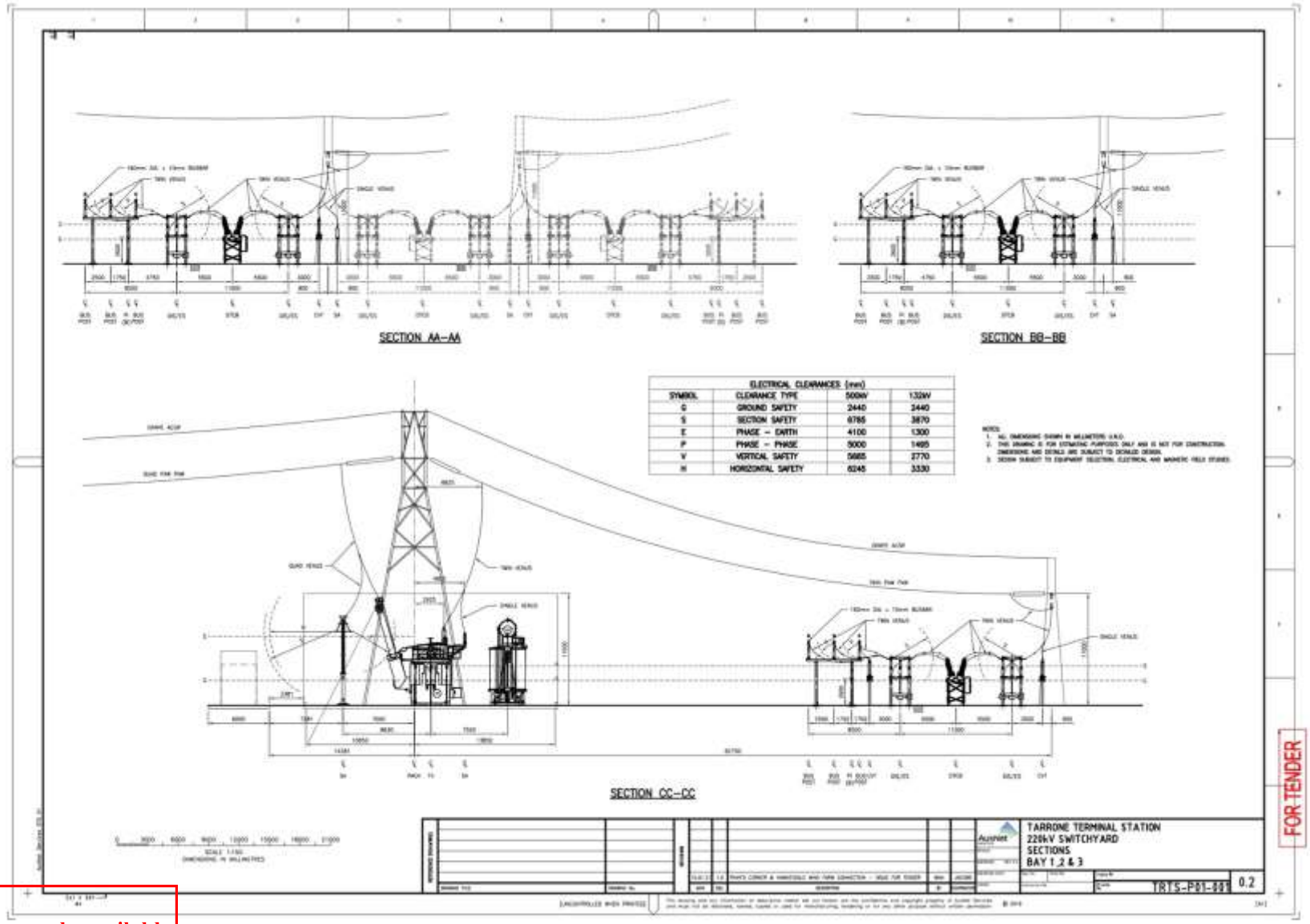
Map 2 Activity Area and Heritage Inventory Sites



Map 3 **Activity Area and Area of Approved CHMP 11187 (Murphy et al. 2010)**



Preliminary Plans for Works



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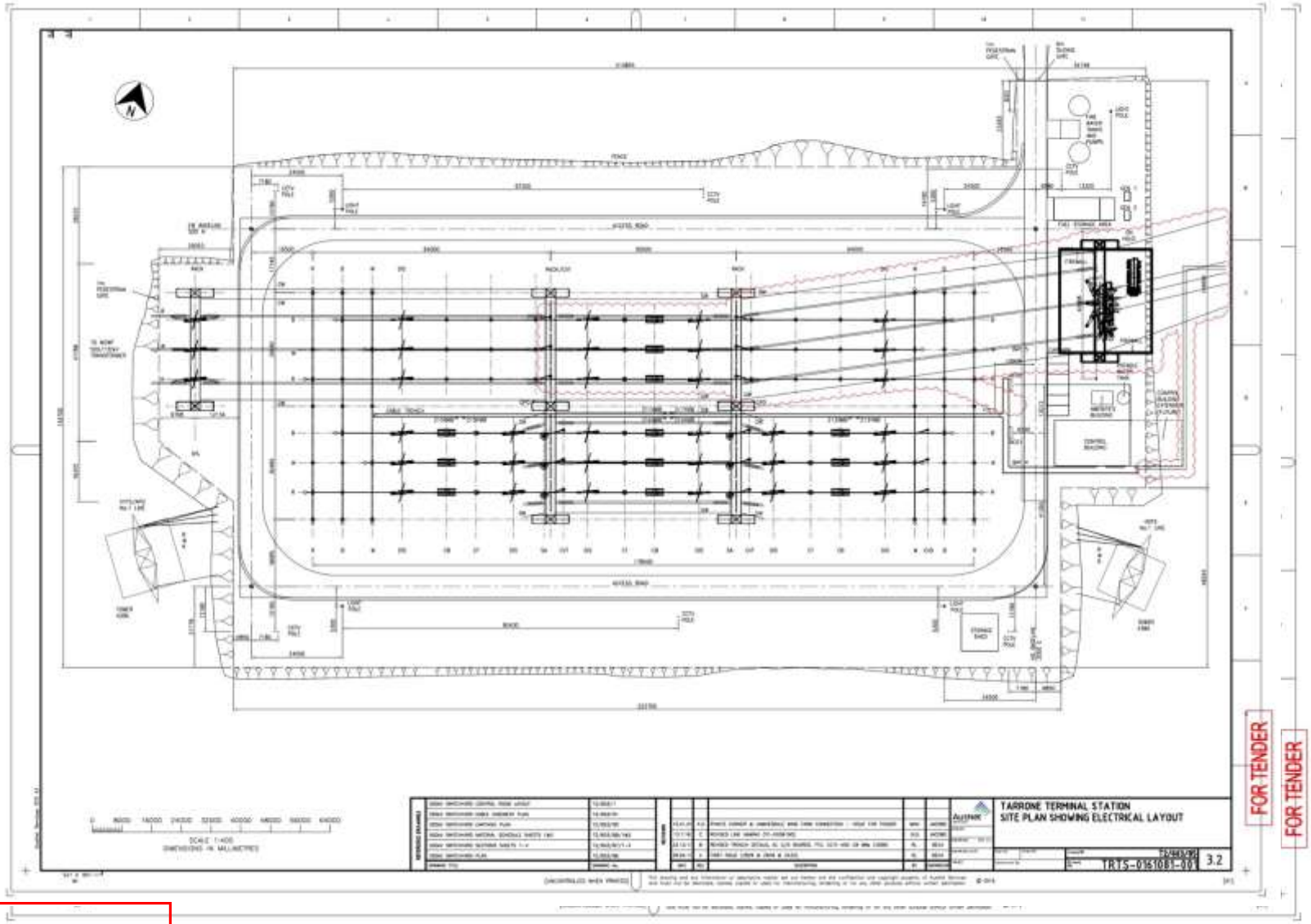

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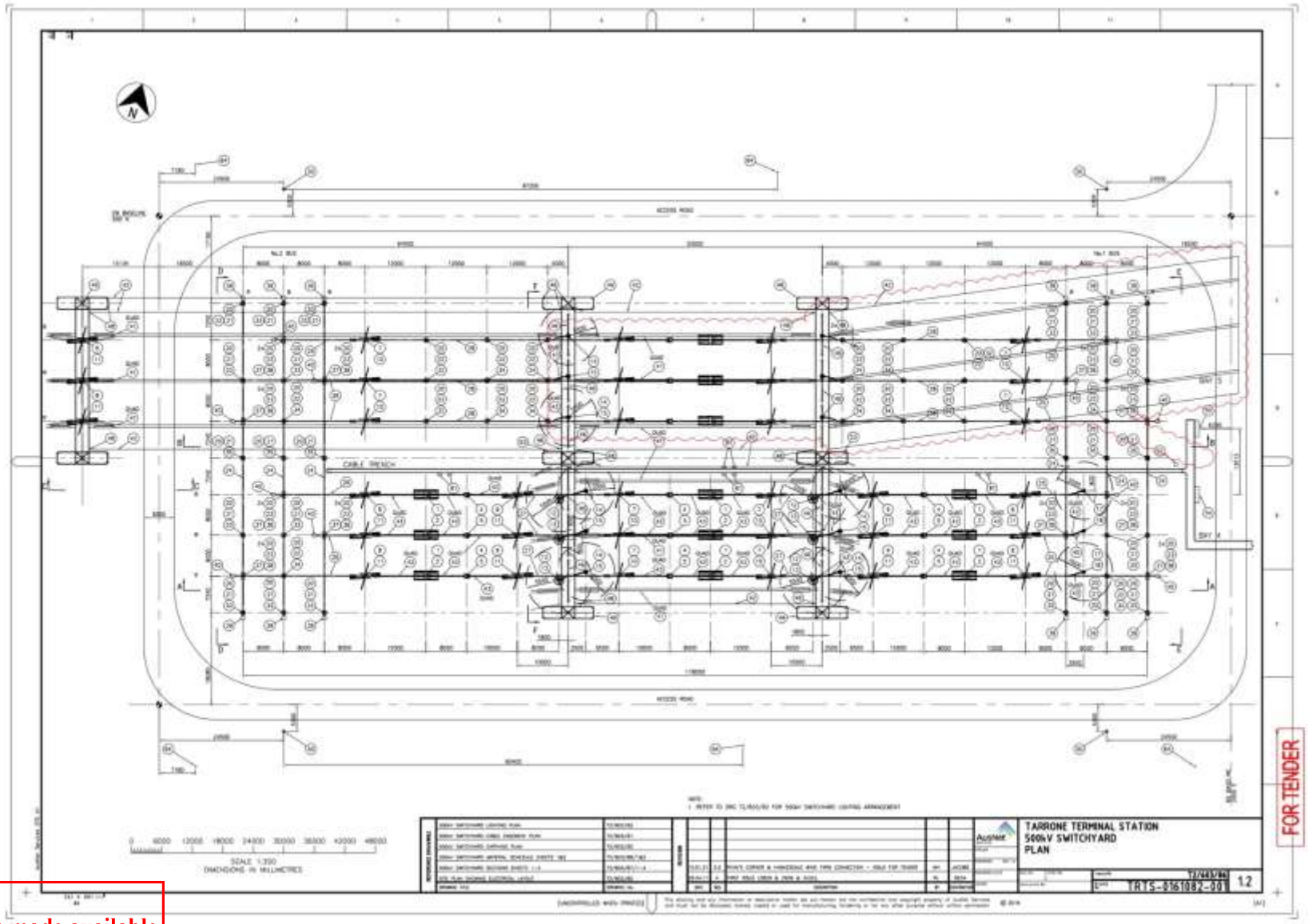
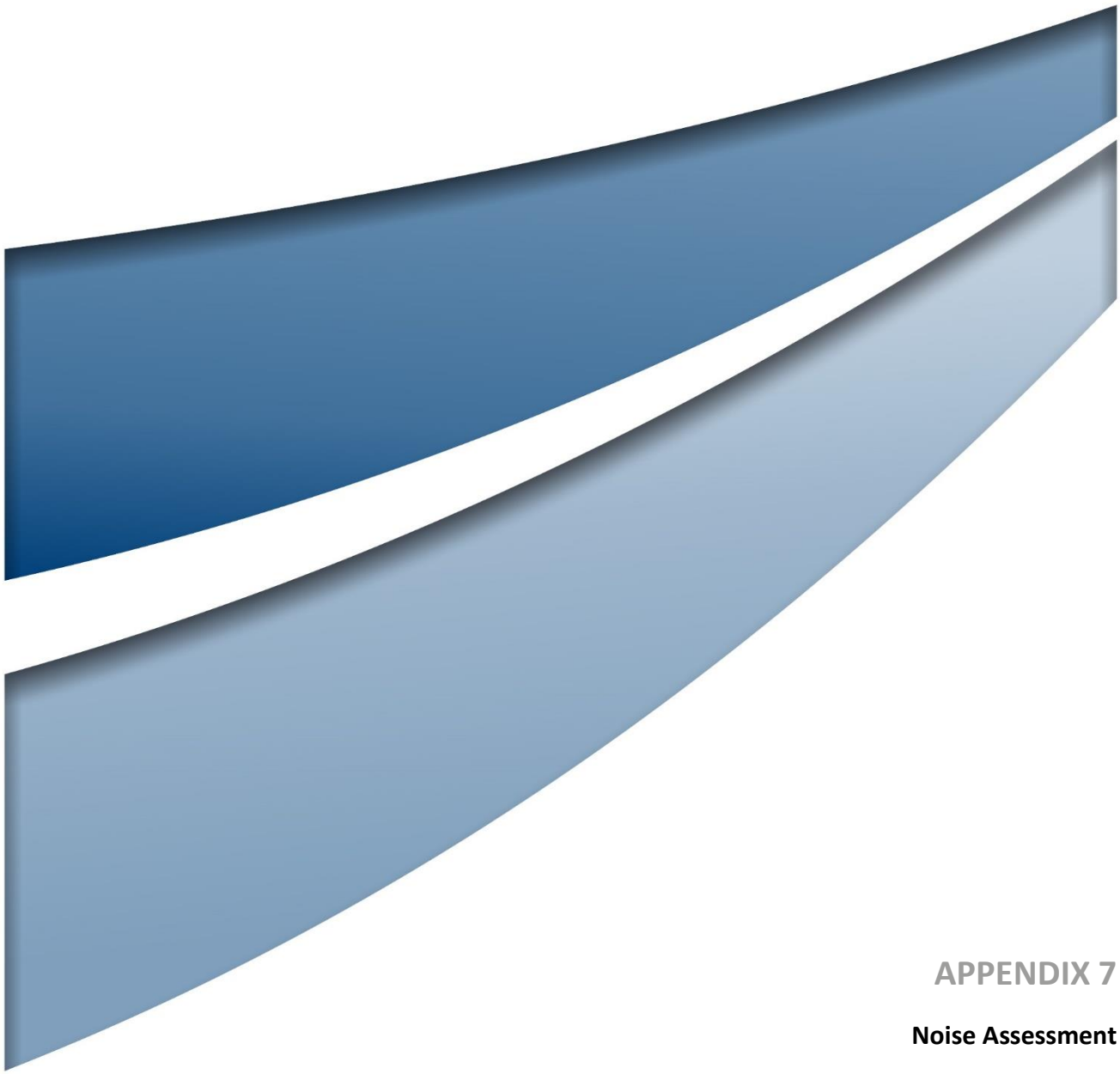


Preliminary Plans for Works



APPENDIX 7

Noise Assessment

MARSHALL DAY Acoustics

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Australia
T: +613 9416 1855
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1 July 2021

[redacted]

Attention: [redacted]

Dear Guillermo

HAWKESDALE AND RYAN CORNER SUBSTATION ENVIRONMENTAL NOISE LEVELS

The Hawkesdale Wind Farm and Ryan Corner Wind Farm are consented projects located in Moyne Shire.

A separate planning permit was issued in 2018 for the development of a new off-site substation facility for the wind farms. It is understood that the planning permit was not acted upon and subsequently expired.

A revised application is to be submitted to DELWP, accounting for changes to the proposed arrangement of the substation.

An assessment of noise levels associated with the substation was previously prepared by Marshall Day Acoustics Pty Ltd (MDA) to support the original application[1]. This letter presents an updated assessment for the revised application.

PROPOSED DEVELOPMENT

The off-site substation is proposed to be located within the existing Tarrone Terminal Station, located approximately 5 km south of Willatook, as indicated in the site plan in Figure 1.

The main existing source of environmental noise is a 600 MVA transformer associated with the Macarthur Wind Farm, located at the west end of the Tarrone Terminal Station. Other plant at the terminal station comprises ancillary equipment such as circuit breakers and 132 kV switchgear. However, the noise emissions of ancillary equipment are typically much lower than that of transformers, such that the transformers represent the primary consideration with respect to substation noise levels.

The Hawkesdale Wind Farm and Ryan Corner Wind Farm (HDRC) substation is proposed to be located at the east end of the Tarrone Terminal Station. The substation is to comprise a single 420 MVA transformer and associated ancillary equipment. As per the existing equipment at the Tarrone Terminal Station, the primary noise consideration for the proposed HDRC substation is the transformer.

A review of aerial photography for the area indicates noise sensitive areas (receivers) consisting of four (4) existing residential dwellings located to the east of the Tarrone Terminal Station.

The locations of the existing Macarthur transformer, the proposed HDRC transformer, and the identified receivers are indicated in Figure 1.

[1] Reference MDA letter Lt 001 R01 20170909 dated 24 January 2018

Figure 1: Location map - receivers, existing Macarthur Wind Farm transformer, and proposed HDRC transformer

LEGISLATION & GUIDANCE

Legislation and guidance relevant to the proposed substation is detailed in Table 1.

Table 1: Relevant Victorian noise legislation and guidelines

Document	Overview
Environment Protection Act 2017 (the Act), as amended by the *Environment Protection Amendment Act 2018*	The Act provides the overarching legislative framework for the protection of the environment in Victoria. It establishes a general environmental duty to minimise the risks of harm to human health or the environment from pollution or waste, including noise, so far as reasonably practicable. The Act does not specify noise limit values, but prohibits the emission of unreasonable or aggravated noise from non-residential premises. The Act provides general definitions of unreasonable and aggravated noise; definitions that are specific to commercial, industrial and trade premises are provided in supporting publications (see below). Section 93 of the Act provides for the creation of an environmental reference standard to be used to assess and report on environmental conditions in the whole or any part of Victoria (see below).
Environment Protection Regulations 2021 (the Regulations)	The objectives of the Regulations are to further the purposes of, and give effect to, the Act. Part 5.3 of the Regulations sets out requirements that are specific to environmental noise. It states that the prediction, measurement, assessment or analysis of noise within a noise sensitive area for the purposes of the Act or the Regulations, must be conducted in accordance with the Noise Protocol (see below). Division 3 of Part 5.3 stipulates requirements that are specific to commercial, industrial and trade premises. In particular, noise from these types of premises is prescribed as unreasonable if it exceeds a noise limit or alternative criterion determined in accordance with the Noise Protocol. Additional matters addressed in this Division include assessment time periods, minimum noise limit values, management of cumulative noise from multiple premises, noise sensitive areas where assessment requirements apply, definition of frequency spectrum as a prescribed factor, and a definition for aggravated noise.
EPA Publication 1826.4 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* dated May 2021 (Noise Protocol)	The Noise Protocol defines the method for setting the noise limits for new and existing commercial, industrial and trade premises and entertainment venues in Victoria. It also outlines the steps that must be followed to undertake an assessment (measurement or prediction) of the effective noise level within a noise sensitive area or at an alternative assessment location. A comparison between the effective noise level and the relevant noise limit or the relevant alternative assessment criterion will determine whether the noise that is emitted from the premises is unreasonable under the Regulations. The noise limits for commercial, industrial and trade premises are determined on the basis of land zoning and background noise levels, and are separately designated for day, evening and night periods.
Environment Reference Standard dated 25 May 2021 (ERS)	The ERS is made under section 93 of the Act. The ERS sets out environmental values for ambient sound that are sought to be achieved and maintained in Victoria and standards to support those values. The indicators and objectives within the standard provide a benchmark for comparing desired outcomes to the actual state of the environment and a basis for assessing actual and potential risks to the environmental values. The ERS is not a compliance standard, and the values listed within the ERS for different land uses are explicitly not noise limits nor design criteria. The primary function of the ERS is to provide assessment and reporting benchmarks for environmental values.

NOISE LIMITS

In accordance with the Act, Regulations and Noise Protocol, an assessment of the predicted noise level of the proposed HDRC substation must be carried out in accordance with the method set out in the Noise Protocol.

The noise limits that apply at receivers near the proposed substation are determined using the rural area procedures detailed in the Noise Protocol.

The procedures for rural areas are based on determining the zone levels according to the land zoning of the area in which the noise source and receivers are located. These zone levels are then adjusted for a range of factors as required.

The zone levels are determined on the basis of the substation and the nearest receivers being located on land designated as Special Use Zone (SUZ6) and Farming Zone (FZ) respectively as shown in Figure 2.

Figure 2: Zoning map

The applicable zoning levels are detailed in Table 2.

Table 2: Zoning levels, dB L_{Aeq}

Period	Day	Evening	Night
Zoning level	58	48	43

Distance adjustments to the zone levels are applicable in this instance as the proposed substation and the receiver are not located in land use zones with the same zone codes. The distance adjustment is determined by accounting for the distance between the zone where the noise source is located and the location of the noise receiver in the noise sensitive area. Adjustments for 'background relevant areas' are not warranted in this instance, as the background noise levels during the relevant assessment conditions for the substation (i.e. low wind speeds) are expected to be low.

The applicable distance adjustments are detailed in Table 3.

Table 3: Distance adjustments that apply to the zone levels

Receiver	Approximate development zone to receiver distance, m	Distance adjustment, dB
R1	490	-4
R2	150	-1
R3	770	-7
R4	820	-8

Based on the zone levels and distance adjustments, the Noise Protocol noise limits which apply to the effective noise level (ENL) are detailed in Table 4. The noise limits apply to the cumulative ENL, accounting for the noise of existing and proposed sources of noise at the terminal station.

Table 4: Noise Protocol noise limits, dB ENL

	Period		
Receiver	Day	Evening	Night
R1	49	44	39
R2	52	47	42
R3	46	41	36
R4	45	40	35

As the proposed HDRC substation would operate 24 hours a day and 7 days a week, the noise limits for the night period are used to assess the predicted noise levels.

NOISE EMISSION DATA

Noise emission data for the existing Macarthur transformer and the proposed HDRC transformer has been provided for the assessment by AusNet Services. The sound power levels are presented in Table 5.

Table 5: Supplied transformer sound power data

Transformer	Rating	Sound power level, dB L_{WA}
Macarthur	600 MVA	92
Proposed HDRC	420 MVA	98

To gauge the suitability of the noise emission data detailed in Table 5, reference has been made to Australian Standard AS 60076-10[2] which provides a method for estimating transformer sound power levels. Reference has also been made to Marshall Day Acoustics' (MDA) database of measurements for comparable equipment. Comparison with this reference data indicates that the supplied sound power levels are consistent with the range of values expected for contemporary transformer units.

The available data relates to the total A-weighted sound power levels of the equipment, but does not include information about the frequency spectrum of the noise emissions, nor does AS 60076-10 provide example frequency spectrum information. In lieu of this data, and to provide a suitable basis for noise modelling, a frequency spectrum has been assigned using empirical data from MDA's own measurement database. For this purpose, a conservative frequency spectrum has been selected which is representative of the upper noise emission levels observed in the lower frequencies. The frequency spectra are provided in Table 6.

Table 6: Octave band sound power levels for noise modelling, dB L_W

	Octave band centre frequency, Hz							
Item	63	125	250	500	1000	2000	4000	A-weighted total
Macarthur	90	101	98	89	79	71	64	92
Proposed HDRC	96	107	104	95	85	77	70	98

[2] AS 60076-10:2009 *Power transformers – Part 10: Determination of sound levels*

NOISE PREDICTIONS

Prediction method

Noise levels have been calculated using the International Standard ISO 9613-2[3] for atmospheric conditions which increase receiver noise levels comprising either:

- a wind directed from the substation to the nearest receivers; or
- a moderate ground-based thermal inversion (a condition when temperatures increase with height above ground, as may occur on clear and still nights).

The following additional details of the modelling are noted:

- Ground conditions in the surrounding area were assigned a ground factor of G = 0.5

  The adopted value of G = 0.5 assumes that 50 % of the ground cover is acoustically hard (G = 0) to account for variations in ground porosity. Flat ground conditions have been accounted for in the modelling.

- Receiver calculation height of 1.5 m

  This corresponds to the normal measurement height for conducting compliance measurements at receiver locations.

- Temperature 10 C and relative humidity 70 %

  These represent conditions which result in relatively low levels of atmospheric sound absorption.

An adjustment of +2 dB has then been applied to the predicted noise levels to account for the potential tonal characteristics of transformer noise. The relevance and magnitude of the adjustment in practice is dependent on several variables. This is discussed below.

Predicted noise levels

The predicted total noise levels of the Macarthur and proposed HDRC transformer are presented in Table 7, along with the applicable night period noise limit and assessment of compliance.

Table 7: Predicted noise levels and compliance assessment

Receiver	Total predicted effective noise level, dB ENL	Night period noise limit	Compliance?
R1	26	39	✓
R2	26	42	✓
R3	24	36	✓
R4	25	35	✓

The predicted noise levels are low and expected to be comparable to or less than background noise levels, subsequently reducing the likelihood of tonality being an audible characteristic at receivers. The inclusion of the + 2 dB adjustment for tonality in the predictions is therefore conservative (i.e. the noise level would likely be lower).

[3] ISO 9613-2: 1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation*

CONCLUSION

The assessment demonstrates that the total noise levels of the existing Macarthur transformer and the proposed transformer for the Hawkesdale Wind Farm and Ryan Corner Wind Farm are predicted to comply with the applicable Noise Protocol night period noise limit by a margin of at least 10 dB.

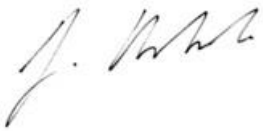
As the transformers are the primary sources of environmental noise, the results are representative for the overall changes to the Tarrone Terminal Station associated with the development of an off-site substation for the Hawkesdale Wind Farm and Ryan Corner Wind Farm.

Prior to development of the substation, we recommend that predicted noise levels are verified by revised noise modelling using updated noise emission data for the final transformer selection for the site.

We trust the above information is suitable for your immediate purposes.

Yours sincerely

MARSHALL DAY ACOUSTICS PTY LTD



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