

APPENDIX I

BUSHFIRE MANAGEMENT STATEMENT



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED
PLAN

Bushfire Management Statement

EnergyConnect (Victorian Section)

April 2021

Australian Bushfire Protection Planners Pty Limited.

ACN 083 085 474

32 Old Dog Trap Road
SOMERSBY 2250, NSW

part of a planning process under the
Planning and Environment Act 1987.

The document must not be used for any
purpose which may breach any
copyright

**ADVERTISED
PLAN**



Glossary

| Proposal term / acronym | Definition / notes |
|-------------------------|--|
| ABPP | Australian Bushfire Protection Planners Pty Ltd |
| BMO | Bushfire Management Overlay |
| CEMP | Construction Environmental Management Plan |
| Detailed design | <p>The detailed design of the proposal, including construction methodology.</p> <p>This term represents the next phase of proposal development and will further develop the design and construction methodology of the proposal considering:</p> <ul style="list-style-type: none"> > mitigation measures as recommended in the EIS > any conditions of approval. |
| EnergyConnect | EnergyConnect is a proposed new electricity interconnector between Wagga Wagga in New South Wales and Robertstown in South Australia, with an added connection into north-west Victoria. EnergyConnect is a joint project between TransGrid and ElectraNet, who operate the transmission networks in New South Wales (NSW) and South Australia (SA), respectively. |
| FRACM | Fire Risk Assessment and Control Measures |
| HV | High voltage |
| LGA | Local government area |
| NEM | National Electricity Market |
| NSW | New South Wales |
| Operational footprint | <p>Refers to the areas where the physical infrastructure would be located and the areas where the operational activities would occur. This includes all proposed infrastructure elements such as the proposed transmission line (overhead) and pole structures and permanent access tracks.</p> <p>This also includes the corridor containing the transmission line which would require vegetation maintenance (50 metres in width).</p> |
| (the) proponent | <p>The proposal is proposed to be undertaken by NSW Electricity Networks Operations Pty Ltd as a trustee for NSW Electricity Operations Trust (referred to as TransGrid). TransGrid is the operator and manager of the main high voltage (HV) transmission network in NSW and the Australian Capital Territory (ACT), and is the Authorised Network Operator (ANO) for the purpose of an electricity transmission or distribution network under the provisions of the <i>Electricity Network Assets (Authorised Transactions) Act 2015</i> (NSW).</p> <p>TransGrid's network enables more than three million homes and businesses to access a safe, reliable and affordable supply of electricity. The network comprises more than 100 substations and more than 13,000 km of high voltage transmission lines, underground cables, and interconnections with Queensland and Victoria. As a result, the network is instrumental to the electricity system and, therefore, the economy and facilitates energy trading across the National Electricity Market (NEM). Further information on TransGrid can be found at www.transgrid.com.au.</p> |

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN
EnergyConnect (Victoria)

| Proposal term / acronym | Definition / notes |
|----------------------------|---|
| (the) proposal | <p>The proposal is known as '<i>EnergyConnect (Victoria)</i>'</p> <p>The proposal would involve the following key features:</p> <ul style="list-style-type: none"> > construction of about 1.3 kilometres of new double circuit 220kV transmission line, with four new transmission line pole locations. At two of these locations, two poles would be installed. At the remaining locations only a single pole would be installed > the decommissioning and removal of the existing transmission line and poles > the establishment of a formal 50 metre wide corridor for the new transmission line > upgrade of access tracks for use during construction and operation > establishment of small sections of new access tracks. <p>The description of the proposal as presented in the reports is indicative and based on the current level of design. The proposal would continue to be refined during detailed design.</p> |
| proposal footprint | <p>Refers to the area that would be directly impacted by both construction and operation (including the areas that would be impacted by maintenance activities) of the proposal including all proposal infrastructure elements (including the proposed transmission line alignment, i.e. the operational footprint) as well as locations for currently proposed construction elements such as access tracks, laydown and staging areas, brake/winch sites.</p> |
| proposal study area | <p>The study area for the assessment in this report generally comprises a 200m wide corridor between NSW/Victoria border at Monak and the Red Cliffs substation facility. It also encompasses the Red Cliffs substation facility and access track off Woomera Avenue into the proposal area.</p> <p>The proposal would be located within the proposal study area, however the entirety of the proposal study area would not be subject to direct impacts arising from the proposal.</p> |
| REZ | Renewable Energy Zone |
| SA | South Australia |
| Transmission line corridor | <p>An area up to 50 metres wide containing and directly beneath the transmission lines and other infrastructure in which TransGrid has rights to enter to access and maintain infrastructure and vegetation.</p> |

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN
EnergyConnect (Victoria)

Contents

| | |
|---|-----------|
| Glossary | ii |
| 1. Introduction | 1 |
| 1.1 Proposal context and overview | 1 |
| 1.2 The proposal | 2 |
| 1.3 Purpose of this technical report..... | 4 |
| 2. Legislative context | 5 |
| 3. Bushfire Hazard Site Assessment | 6 |
| 3.1 Development type | 6 |
| 3.2 Vegetation..... | 6 |
| 3.3 Landform..... | 13 |
| 4. Bushfire Hazard Landscape Assessment | 14 |
| 4.1 Land uses and landscape | 14 |
| 4.2 Bushfire history | 14 |
| 4.3 Refuge options..... | 14 |
| 4.4 Plan of hazards | 14 |
| 5. Bushfire Management Statement | 15 |
| 5.1 Overview of BMO requirements | 15 |
| 5.2 Bushfire Protection Risk and Proposed Measures for the Development Proposal | 15 |
| 5.3 Concluding statement | 17 |

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN
EnergyConnect (Victoria)

1. Introduction

1.1 Proposal context and overview

TransGrid (electricity transmission operator in New South Wales (NSW)) and ElectraNet (electricity transmission operator in South Australia (SA)) are seeking regulatory and environmental planning approval for the construction and operation of a new High Voltage (HV) interconnector between NSW and SA, with an additional connection to Red Cliffs in north-west Victoria. Collectively, the proposed interconnector is known as EnergyConnect.

EnergyConnect comprises several components or 'sections' (shown on Figure 1-1). The Victorian Section (referred to as 'the proposal') is the subject of this report.

EnergyConnect aims to secure increased electricity transmission between SA, NSW and Victoria in the near term, while facilitating the longer-term transition of the energy sector across the National Electricity Market (NEM) to low emission energy sources.

EnergyConnect has been identified as an immediate priority project in the Australian Energy Market Operator (AEMO) 2018 Integrated System Plan (ISP) and a 'no regret' actionable project in the 2020 ISP (AEMO, 2020). This is due to its ability to 'increase transfer capacity between SA and NSW by 750 MW, achieve fuel cost savings and unlock already stranded renewable investments' within the REZs in western NSW, SA and north-west Victoria (AEMO, 2020).



Figure 1-1 Overview of EnergyConnect

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

1.2 The proposal

1.2.1 Approvals pathway

TransGrid are seeking approval from Mildura Rural City Council for the upgrade of an existing TransGrid 220kV single circuit transmission line to a 220kV double circuit transmission line within a 50-metre-wide corridor that extends for approximately 1.3 kilometres. The proposal is located within a Public Conservation and Resource Zone (PCRZ).

The proposal requires primary State planning, environmental and Aboriginal heritage approvals under the *Planning and Environment Act 1987*, and *Aboriginal Heritage Act 2006*. The proposal seeks to lodge planning and environmental approvals through a planning permit to the Mildura Rural City Council and a Cultural Heritage Management Plan to the First People of Millewa Mallee Aboriginal Corporation for assessment.

1.2.2 Key features of the proposal

The proposal comprises the upgrade of an existing TransGrid 220kV single circuit transmission line between the NSW/Victorian border and the Red Cliffs substation to a 220kV double circuit transmission line. Specifically this comprises:

- > site establishment works including vegetation clearance, minor access track improvements and construction of tower pad and laydown areas
- > construction of about 1.3 kilometres of new double circuit 220kV transmission line, with four new transmission line pole locations. At two of the four locations, a double arrangement (i.e. two poles) would be installed. At the remaining locations only a single pole structure would be installed
- > the decommissioning and removal of the existing 220kV single circuit transmission line and towers once the new line is operational. Decommissioning activities would include removal of all existing towers, fittings and conductors from the corridor. Some sub surface footings would be left in place to minimise excavation and disturbance.
- > the establishment of a formal 50 metre wide corridor for the new transmission line and poles
- > vegetation removal required to maintain appropriate clearances between ground vegetation and transmission lines in accordance with TransGrid's vegetation clearance requirements for easements. For the purposes of this assessment these clearances have been assumed to need vegetation clearing of vegetation with a growth height above four metres in height. This would be required within a 50-metre corridor below transmission lines and would require ongoing maintenance throughout the operation to ensure electrical safety clearances and protection zones are maintained.
- > upgrade of access tracks for use during construction and operation
- > establishment of small sections of new access tracks.

The connection of the new transmission line to the Red Cliffs substation and disconnection of existing transmission line within the substation boundary would be undertaken as a separate scope of works and planning approvals process by AusNet.

The new line would also connect to a new line on the NSW side of the border (part of the NSW – Western Section of EnergyConnect). The planning approvals for this component are being progressed separately under NSW planning processes.

An overview of the proposal is provided in (Figure 1-2). The final location of transmission poles and transmission line corridor would be confirmed during detailed design.

Construction of the proposal would commence in late-2021. Construction timeframes for the proposal are subject to approvals, and the final program would be confirmed during detailed design.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Figure 1.2 Overview of EnergyConnect – Victoria

ADVERTISED PLAN

1.2.3 Proposal location and proposal study area

The proposal is located in the Kings Billabong Park, Red Cliffs, in the Sunraysia region within the Mildura Local Government Area and approximately 16 kilometres from Mildura and 544 kilometres from Melbourne respectively.

The proposal study area comprises of a 200 metre wide corridor that extends for about 1.3 kilometres and extends from the Red Cliffs substation to the north-east where it meets the Victorian/NSW border at the Murray River. The proposal study area comprises approximately 33.15 hectares of land and follows the existing 220kV transmission line corridor and also encompasses the Red Cliffs substation facility and access track into the proposal study area (see Figure 1-2).

The bulk of the proposal study area is classified as Crown Reserve with the remainder typically freehold land

1.2.4 Existing study area and surrounding site features

Land use in the study area consists largely of conservation usage as well as land dedicated to public infrastructure; including the existing transmission lines and the Red Cliffs substation (Terminal Station).

The closest major residential area is the town of Red Cliffs which is located approximately 5 kilometres south west of the proposal and has a population of 5,060. The closest dwellings to the proposed operational footprint components within the study area are to the south, off Woomera Avenue, approximately 250 metres away.

1.2.5 Proposal need

The proposal would increase transfer capacity between the state markets of Victoria and NSW and would supports the establishment of the missing transmission link between the SA and NSW transmission networks. The upgrade to the existing transmission line between Buronga and Red Cliffs would relieve system constraints and allow for Victorian, NSW and SA consumers to benefit from expanded access to low-cost, large-scale solar generation in north-west Victoria and south-west NSW.

1.2.6 The proponent

The proposal would be carried out by NSW Electricity Networks Operations Pty Ltd as a trustee for NSW Electricity Operations Trust (referred to as TransGrid). TransGrid is the operator and manager of the main high voltage transmission network in NSW and the Australian Capital Territory (ACT) and is the Authorised Network Operator (ANO) for the purpose of an electricity transmission or distribution network under the provisions of the *Electricity Network Assets (Authorised Transactions) Act 2015* (NSW).

1.3 Purpose of this technical report

ABPP has been commissioned on behalf of TransGrid to prepare the Bushfire Management Statement to support the statutory planning approvals for the proposal.

The purpose of the Bushfire Management Statement is to identify potential bushfire impacts and recommend potential appropriate management during the construction and operation of the proposal.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

2. Legislative context

Clauses 13.02-1S, 44.06 and 53.02 of the Victoria Planning Provisions detail the application requirements to address Bushfire Planning.

The identified clauses outline the policy that must be applied for decision making related to developments:

- > within a designated Bushfire Prone Area;
- > subject to a Bushfire Management Overlay (BMO); or
- > proposed to be used or developed in a way that may create a bushfire hazard.

In relation to use and development of lands in a Bushfire Prone Area, which the proposal study area is, bushfire risk is identified as being required to be considered when assessing planning applications for certain types of developments (such as subdivisions, accommodation, places of assembly, etc) however utility infrastructure developments are not included within this list.

In relation to areas subject to a BMO, which the proposal study area is not, an application under the BMO must be accompanied by a:

- > bushfire hazard site assessment including a plan that describes the bushfire hazard within 150 metres of the proposed development. The description of the hazard must be prepared in accordance with Sections 2.2.3 to 2.2.5 of AS3959 – 2018 'Construction of Buildings in Bushfire Prone Areas' excluding paragraph (a) of section 2.2.3.2. Photographs or other techniques may be used to assist in describing the bushfire hazard.
- > bushfire hazard landscape assessment including a plan that describes the bushfire hazard of the general locality more than 150 metres from the site. Photographs or other techniques may be used to assist in describing the bushfire hazard.
- > bushfire management statement describing how the proposed development responds to the requirements in this clause and Clause 44.06. If the application proposes an alternative measure, the bushfire management statement must explain how the alternative measure meets the relevant objective.

Noting that a BMO is not present over the proposal study area and no buildings are to be constructed as part of the proposal consideration has still been given to the relevant requirements of the standard application for sites with a BMO due to the proposal:

- > being located within a Bushfire Prone Area,
- > having potential create a bushfire hazard (as discussed further in Section 5.2), and
- > as good practice.

Figure 1-2 provides the proposal study area overview which is applicable to this assessment.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

3. Bushfire Hazard Site Assessment

3.1 Development type

The proposal involves the upgrade and replacement of an existing high voltage (220kV) transmission line. The proposal would be constructed immediately adjacent to the existing line and the existing line removed once the new line is operational leaving only one transmission line in place.

3.2 Vegetation

Vegetation is classified from Table 2.3 – Classification of Vegetation from AS3959 – 2018 – ‘Construction of Buildings in Bushfire Prone Areas’. All the vegetation is classed as bushfire prone and a high bushfire hazard.

The vegetation has been assessed for the extent of the proposal study area and is described below and shown on Figure 3-1. The vegetation is presented by Ecological Vegetation Class (EVC):

Grassy Riverine Forest EVC 106

This EVC was mapped along the banks of the Murray River at the northern extent of the proposal study area. It is described in the Robinvale Plains Bioregion EVC benchmarks (DSE 2004a) as:

“Occurs on the floodplain of major rivers, in a slightly elevated position where floods are infrequent, on deposited silts and sands, forming fertile alluvial soil. River Red Gum forest to 25 m tall with a ground layer dominated by tussock-forming graminoids. Occasional tall shrubs present.”

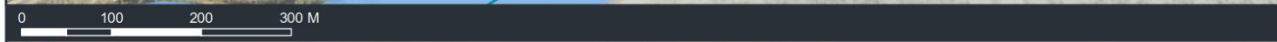
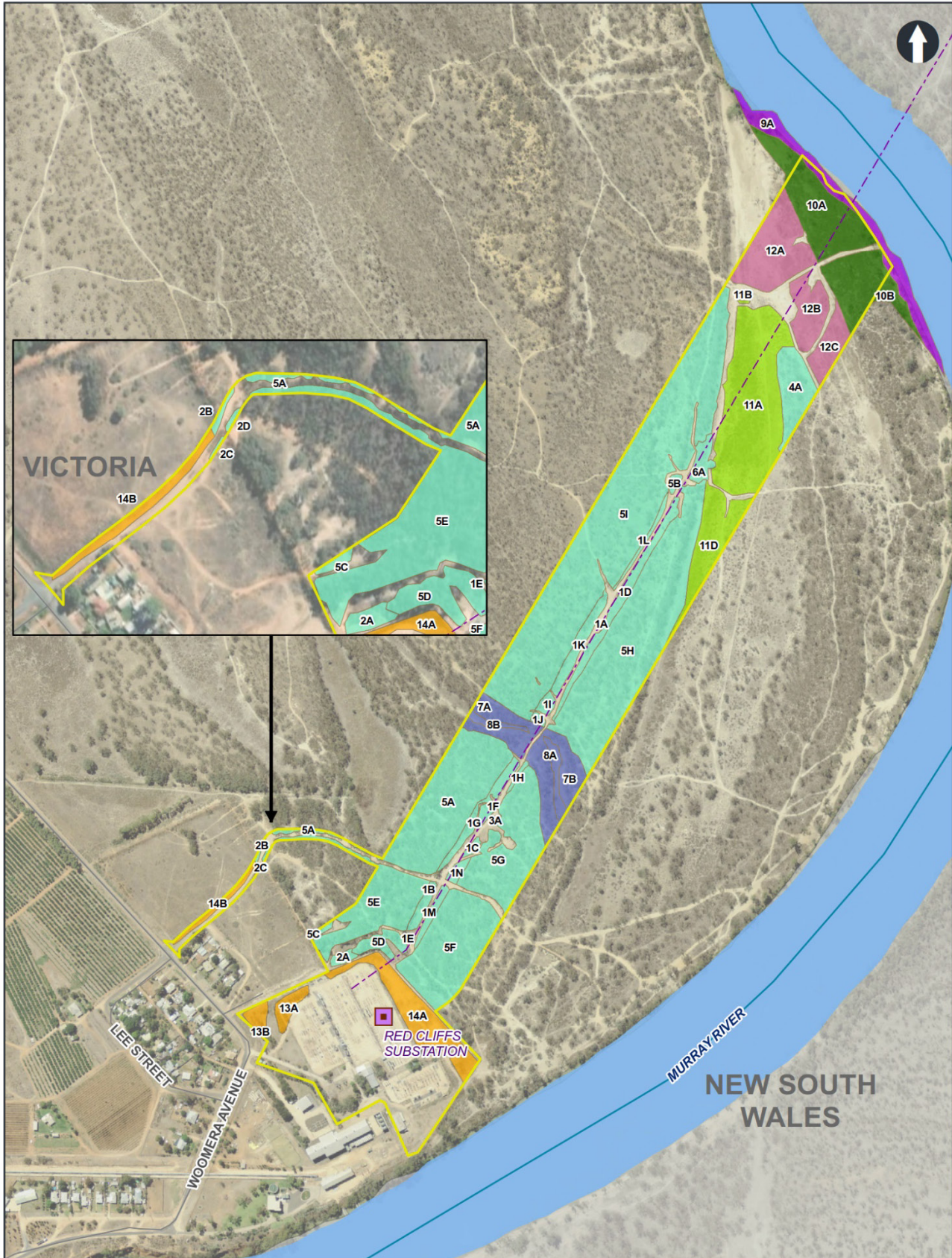
One patch of 0.115 hectares of this EVC was mapped within the proposal study area in a narrow band along the Murray River. It supported a number of large old River Red Gums in the canopy and an understorey of mixed grasses, sedges and herbs, including *Phragmites australis*, *Cyperus gymnocaulos*, Native Couch *Cynodon dactylon* var. *pulchellus* and *Atriplex semibaccata*. Tangled Lignum *Muehlenbeckia florulenta* was also present, particularly on the boundary with the adjacent EVC: Lignum Swampy Woodland. A high number and cover of introduced grasses and other weeds was recorded in this EVC when compared to other EVCs at the proposal study area, including *Vulpia* sp. *Hordeum* sp. and *Rumex* sp. A photo of this EVC is provided in Photo 3-1.



Photo 3-1. Narrow band of Grassy Riverine Forest along the Murray River (Photograph courtesy of WSP July 2020), photograph taken looking west from the existing corridor

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright



| | | | |
|---|---|---------------------------------|---|
| Red Cliffs substation | Ecological Vegetation Classes recorded | Lignum Swampy Woodland | Survey results: Ecological Vegetation Classes recorded |
| Existing transmission line infrastructure | Grassy Riverine Forest | Riverine Chenopod Woodland | |
| Proposal study area | Intermittent Swampy Woodland | Semi-arid Chenopod Woodland | |
| | Lignum Shrubland | Sub-saline Depression Shrubland | |
| | | | |

Source: NSWSES, ESRI, WSP, DataVic, Transgrid
 F:\WSP_0353\EnergyConnect - General\8_Shared\04_Production\Maps\20_ES_Vic\PS117658_EISv_002_A1_EVC.mxd

Figure 3-1 EVC locations in the proposal study area

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

Lignum Swampy Woodland EVC 823

This EVC is to the north of the proposal study area, close to the River but behind the Grassy Riverine Forest. It is described in the benchmarks in the following way:

“Understorey dominated by Lignum, typically of robust character and relatively dense (at least in patches), in association with a low Eucalypt and/or Acacia woodland to 15 m tall. The ground layer includes a component of obligate wetland flora that is able to persist even if dormant over dry periods.”

Two patches of this EVC were mapped on site for a total of 1.696 ha. They supported an understorey dominated by Tangled Lignum and other native species with several large, mainly dead hollow emergent trees. The few remaining living trees were mostly Black Box. A number of small native herbs and small shrubs were recorded in the gaps between lignum, including Nitre Goosefoot *Chenopodium nitrariaceum*, Hedge Salt-bush *Rhagodia spinescens*, Nodding Salt-bush *Einadia nutans*, and Peppercross *Lepidium pseudohyssopifolium*. Some weeds were recorded including Cat’s Ear *Hypochaeris radicata*, as well as *Vulpia* sp and *Hordeum* sp. A photo of this EVC is provided in Photo 3-2.



Photograph courtesy of WSP July 2020

Photo 3-2 Lignum Swampy Woodland present at the proposal study area

Sub-saline Depression Shrubland EVC 820

The next EVC inland from those described above is Sub-saline Depression Shrubland, occurring at a point of low elevation within the landscape. It is described in the EVC benchmarks (DSE 2004a) as:

A low open shrubland/herbland dominated by chenopods and succulents and occurring on the highest terraces of the former (i.e. pre1750) Murray River floodplain in far North-West Victoria. It occupies semi-saline treeless pans in low-lying areas within Riverine Chenopod Woodland on very heavy and mildly saline clay soils.”

Three patches of this EVC totalling 1.819 hectares were mapped within the proposal study area. It was absent of canopy layer and consisted mainly of Streaked Copperburr *Sclerolaena tricuspis*, Prickly Saltwort *Salsola tragus* and Tangled Lignum, with some Sarcozona *Sarcozona praecox* and other smaller chenopods and succulents. A photo of this EVC is provided in Photo 3-3.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**



Photograph courtesy of WSP July 2020.

Photo 3-3 Sub-saline Depression Shrubland at the proposal study area, photograph taken looking south east across the existing corridor

Lignum Shrubland EVC 808

This EVC also occurs on low elevation within the proposal study area, it is described in the benchmarks (DSE 2004a) as:

“Relatively open shrubland of species of divaricate growth form. The ground-layer is typically herbaceous or a turf grassland, rich in annual/ephemeral herbs and small chenopods. Characterised the open and even distribution of relatively small Lignum shrubs. Occupies heavy soil plains along Murray River, low-lying areas on higher-level (but still potentially flood-prone) terraces.”

A total of 3.042 hectares of this EVC were recorded within the proposal study area. This EVC supported Tangled Lignum, as well as Blackseed Glasswort *Tecticornia pergranulata*, Streaked Copperburr, Prickly Saltwort and several other chenopods and herbs common across the proposal study area. A photo of this EVC is provided in Photo 3-4.



Photo 3-4 Lignum Shrubland recorded in the proposal study area looking east from the existing corridor

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

Riverine Chenopod Woodland EVC 103

The next EVC to the south west (inland) and elevated above the swampy floodplain of the previous EVCs is Riverine Chenopod Woodland EVC 103. It is the dominant EVC across the proposal study area with 16.953 hectares mapped. It is described in the benchmarks (DSE 2004a) as:

“Eucalypt woodland to 15 m tall with a diverse shrubby and grassy understorey occurring on most elevated riverine terraces. Confined to heavy clay soils on higher level terraces within or on the margins of riverine floodplains (or former floodplains), naturally subject to only extremely infrequent incidental shallow flooding from major events if at all flooded.”

It supported a canopy almost entirely dominated by Black Box with a shrubby and chenopod understorey, including species such as Old-man Saltbush *Atriplex nummularia*, Sticky Hop-bush *Dodonaea viscosa*, Inland Pigface *Carpobrotus modestus*, Spreading Emu-bush *Eremophila divaricata* subsp. *divaricata*, and Hedge Saltbush.

Within the existing powerline corridor, the canopy has been cleared however the understorey remains in good condition. Very few weeds were observed in this EVC. Photos of this EVC are provided as Photo 3-5 and Photo 3-6.



Photograph courtesy of WSP July 2020.

Photo 3-5 Riverine Chenopod Woodland in the proposal study area with remnant overstorey

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**



Photograph courtesy of WSP July 2020.

Photo 3-6 Riverine Chenopod Woodland in the existing corridor, maintained without canopy vegetation.

Intermittent Swampy Woodland EVC 813

This EVC was mapped along a dry creek bed or billabong running through the middle of the proposal study area. It is described in the benchmarks (DSE 2004a) as:

“Eucalypt woodland to 15 m tall with a variously shrubby and rhizomatous sedgy - turf grass understorey, at best development dominated by flood stimulated species in association with flora tolerant of inundation. Flooding is unreliable but extensive when it happens. Occupies low elevation areas on river terraces (mostly at the rear of point-bar deposits or adjacent to major floodways) and lacustrine verges (where sometimes localised to narrow transitional bands). Soils often have a shallow sand layer over heavy and frequently slightly brackish soils.”

A total of 1.375 hectares of this EVC was mapped within the proposal study area. It supports a canopy of River Red Gums and Black Box. At the time of assessment, the sparse understorey was dominated by Common Blown-grass *Lachnagrostis filiformis* s.l with Nodding Salt-bush and other small shrubs, chenopods and herbs. The River Red Gums in the canopy have largely died back and remain as stags, likely due to lack of water, indicating a change in the flooding regime of the creek line. Small treeless areas in the centre of the dry creek bed were mapped as separate patches/habitat zones of this EVC. A photo of this EVC is provided in Photo 3-7.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**



Photograph courtesy of WSP July 2020.

Photo 3-7 Intermittent Swampy Woodland on the western side of the proposal study area

Semi-arid Chenopod Woodland EVC 97

This EVC was mapped in the south west of the study area around the substation. It is described in the benchmarks (DSE 2004a) as:

“Sparse, low non-eucalypt woodland to 12 m tall of the arid zone with a tall open chenopod shrub-dominated understorey or a treeless, tall chenopod shrubland to 3 m tall. This EVC may occur as either a woodland (typically with a very open structure but tree cover >10%) or a shrubland (tree cover <10%) with trees as an occasional emergent.”

A total of 1.191 hectares of this EVC was recorded within the proposal study area, with some patches supporting canopy and the remainder comprised of modified or regenerating understorey only.

The canopy was predominantly Belah *Casuarina pauper*, with a shrub and chenopod-dominated understorey. The cleared/recolonising Semi-arid Chenopod Woodland to the west of the substation (outside of the proposal study area) was used to indicatively assess the understorey. In this area, understorey species were similar to the cleared Riverine Chenopod Woodland in the existing corridor, although less diverse and with a higher cover of weeds, indicative of past disturbance. A photo of this EVC is provided in Photo 3-8.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**



Photograph courtesy of WSP July 2020.

Photo 3-8 Semi-arid Woodland within the substation

3.3 Landform

The land within the proposal study area forms the flood plain to the Murray River and is level with no notable slope aspects.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

4. Bushfire Hazard Landscape Assessment

The Bushfire Hazard Landscape Assessment examines the bushfire hazard on the land adjoining the land assessed under the site assessment (i.e. outside of the proposal study area).

4.1 Land uses and landscape

The Kings Billabong Park dominates the landscape for a substantial area to the North West of the proposal study area and for a small portion of land immediately to the East. The landscape beyond the proposal study area assessed in the site assessment contains generally the same vegetation communities recorded within the proposal study area. These vegetation communities do provide a bushfire hazard.

The land is generally level with no notable slope aspects.

The Murray River is immediately to the North, approximately 300 metres to the East and to the south (beyond the Red Cliffs substation) of the proposal study area. Typical river widths in the area are greater than 160 metres.

A small residential community is located to the South West, off Woomera Avenue, and agricultural lands are dominant in the lands further South West of the proposal study area.

4.2 Bushfire history

The Victoria Department of Environment, Land, Water & Planning Spatial Datamart (accessed October 2020) identifies that the last bushfire to impact the vegetation immediately adjacent to the west of proposal study area was in 2001 with fires occurring further to the west of the proposal study area in Kings Billabong Park in 2004 and 2018.

4.3 Refuge options

A safe refuge is available within the Woomera Avenue road reserve on the southern side, opposite the Red Cliffs substation (Terminal Station) compound to the south-western side of the proposal study area.

4.4 Plan of hazards

For the area within the proposal study area, hazards would specifically include the following:

- > the Public Conservation and Resource Zone. This is a hazard due to the vegetated nature of this area and its ability to ignite and carry fire through the area.
- > existing 220 kV transmission line – this is a hazard as it has the ability to cause a fire if there is an incident with the infrastructure. Noting that this piece of infrastructure will be decommissioned and removed once the proposed new transmission line is constructed and operational.
- > the existing Red Cliffs substation – this is a hazard as it is a high voltage utility infrastructure component which has potential to cause fire hazard if there was an incident at the site.

For the area adjacent to the proposal study area, hazards specifically include the Public Conservation and Resource Zone. This is a hazard due to the vegetated nature of this area and its ability to ignite and carry fire through the area.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

5. Bushfire Management Statement

5.1 Overview of BMO requirements

Clause 53.02 of the Planning Scheme outlines objectives, measures to address these objectives and decision guidelines as defined below, with particular reference to components relevant to the proposal outlined:

> Clause 53.02-4 Objectives describes the outcome that must be achieved in a completed development:

53.02-4.1 Landscape, siting and design objectives –

- Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.
- Development is sited to minimise the risk from bushfire.
- Development is sited to provide safe access for vehicles, including emergency vehicles.

The approved measure relevant to these objectives is shown in Table 5.1.

Table 5-1 Approved measure with relevance to the proposal

| Measure | Requirement |
|---------|---|
| AM 2.1 | The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level |

> Decision guidelines. The decision guidelines set out the matters that the responsible authority must consider, before deciding on an application, including whether any proposed alternative measure is appropriate.

This section describes how the proposed development has considered the relevant requirements in Clause 53.02-4 Bushfire Planning. It is noted that a BMO is not on the site. However, for good practice, this guide has been referred to as the proposal study area is, in part, within a designated bushfire prone area.

5.2 Bushfire Protection Risk and Proposed Measures for the Development Proposal

5.2.1 General

The proposal is for the upgrade and replacement of the existing 220kV transmission line from the NSW/Victorian border to the Red Cliffs substation (Terminal Station).

Due to the type of the proposal (being a non-habitable building) the standard measures for Bushfire Planning, including Bushfire Attack Level (BAL) construction, defensible spaces and water supplies do not apply. The provision of fire-fighting access requirements during operation of the proposal is addressed in the provision of a service access track to and along the proposed transmission line corridor.

5.2.2 Bushfire risk to the proposal infrastructure from the surrounding environment

There is a high probability that the proposed transmission lines could be impacted by a bush/grass fire when ignition occurs in any unmanaged vegetation during periods of high fire danger, when excessive dry (cured) fuel is available and weather conditions result in high temperatures, low humidity and strong winds travelling across the landscape from the northwest, west and southwest direction.

The risk to the transmission lines under these conditions would be dependent on the scale (size) of the fire. The risk from large scale fire events would be high to extreme.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

However, the transmission line would be constructed within a corridor which would be cleared of vegetation/maintained in line with the following principles which are standard TransGrid transmission line management procedures:

- > All tall growing vegetation on the transmission line corridor shall be removed. Tall growing vegetation is any vegetation species which may intrude on the vegetation clearance requirements at maximum line operating conditions (refer Table 5-2) (maximum conductor sag and maximum conductor blowout) at that location now or at any time in the future. The assessment of tall growing vegetation would be undertaken during detailed design and ongoing through construction by a qualified Level 4 or Level 5 arborist. An arborist's report shall be provided identifying the vegetation to be removed along the transmission line route in relation to the final detailed designed transmission line conductor profiles.
In relation to the transmission lines proposed, the clearance distances required are expected to be 8.3 metre clearance between ground and maximum conductor sag point for the 220kV line. Based on the expected tower and conductor heights vegetation within the transmission line corridors with growth heights of up to four metres from ground level is expected to be able to be retained and this has been assumed for the assessment.
- > All hazard trees located within the transmission line corridor shall be removed. Hazard trees are any tree or part of a tree that if it were to fall would infringe on the vegetation clearance requirements at maximum conductor sag (refer Table 5.2). Hazard trees shall be identified during detailed design based on the transmission line conductor profile.
- > Vegetation within the 20 metres zone surrounding each transmission line pole shall be removed to provide clear access to the structure.

Table 5-2 TransGrid vegetation clearance requirements for transmission line corridors

| Nominal system voltage | Vegetation clearance at maximum line operating conditions (minimum safe working distance + regrowth rate) |
|------------------------|---|
| 220kV | 1.8 metres + regrowth allowance |

Source: (Transmission Line Construction Manual – Major New Build, TransGrid February 2020)

The transmission line pole structures would be about 40 to 45 metres tall and constructed from non-combustible material. This means that the structures would be high enough above the ground so that fires occurring within the grassland and woodland vegetation surrounding the transmission line corridor would not be expected to generate sufficient height to directly impact the conductors with flame contact.

The poles and conductors would be likely to be impacted by radiant heat from these fire occurrences. The levels of radiant heat are not likely to impact upon the integrity of the pole structure, the conductors and their connectors (insulators).

The residual risk of bushfire on the transmission lines and their supporting pole structures from the surrounding environment is therefore reduced to moderate.

5.2.3 Bushfire risk from the proposal infrastructure to the surrounding environment

The distribution of electricity via high voltage transmission lines and associated equipment has the potential to cause ignition of bushfire fuels, either within or adjoining the transmission line corridor.

Ignition sources which can be attributable to high voltage transmission lines and associated equipment include:

- > trees or tree branches falling/touching conductors and bird strikes
- > equipment malfunction – transmission line failure including damage caused by high winds, lightning strike or mechanical damage (i.e. aircraft strike)
- > conductors in contact with each other
- > arc to ground and arc between conductors caused by ionised particles in dense bushfire smoke
- > heat causing power lines to sag and connect with the ground/vegetation/structures

This copied document is not made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

- > lightning strikes
- > human error – faulty installation
- > failure of power line including breakage of wires, poles, cross arms, insulators and associated equipment
- > pole-top fires caused by dust build up on insulators, causing arcing from the conductor to the pole
- > arcing to ground through smoke plumes; and
- > electrically induced fire – current or voltage transfer due to fault and failure of the earthing system at transmission line structures.

The incidence of these ignition sources from transmission lines supported on high structures which are maintained clear of trees and combustible materials is rare.

However, if one of these ignition sources should occur during prolonged drought conditions when combustible fuels are available, the risk of ignition is high. Monitoring and rapid response to any incident/emergency that is likely to cause line failure, and/or the potential for fire ignition within the bushfire prone vegetation, would be necessary.

The bushfire risk from the transmission lines infrastructure to the surrounding environment is therefore moderate.

5.2.4 Proposed management measures for risk management

The following management protocols would be implemented by the appointed contractor and TransGrid to minimise bushfire risks associated with the proposal:

Construction phase:

- > a Fire Safety Management Plan would be developed for the proposal, including the TransGrid Fire Risk Assessment and Control Measures (FRACM) requirements, as part of the proposal response plan. The purpose of the plan would be to ensure the safety and protection of all personnel, infrastructure, plant and equipment from the direct effects of fire resulting from proposal activities and/or from any threat of bushfire which might occur
- > work practices within the control of the contractor would be controlled by the application of the Fire Safety Work Instruction and the TransGrid FRACM. Bushfire Threats would be managed by the implementation of an Emergency Response Plan with preparation and prevention measures detailed in the Fire Safety Management plan
- > a Permit to Work system would be adopted during construction and commissioning phases. A Permit to Work would be required for high risk activities which have the potential to create fire, such as hot works
- > all hot works would be completed in accordance with the Welding and Cutting, Spray Painting and Abrasive Blasting Work Instruction and be in compliance with TransGrid Hot Work and Fire Risk Work protocols (FRACM).

Operation phase:

- > the proposal would be designed, operated and maintained in accordance with TransGrid's Bushfire Risk Management Plan. This includes reduction in fuel loads in the transmission line corridor and inspections of infrastructure.

5.3 Concluding statement

With the implementation of the proposed management measures the proposed development would provide suitable bushfire risk management and an acceptable risk level given:

- > the proposed location of the development (in particular that the development is for an upgrade and replacement of an existing transmission line not a new line in a previously undeveloped area)
- > the type of development (i.e. utility infrastructure, not a development of dwellings)
- > its proposed distance away from dwellings and densely populated areas.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**