DUNDONNELL WIND FARM

Blue Gums Substation

Subdivision – Bushfire Assessment

15 January 2020

Dundonnell Wind Farm

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1.0 Introduction

1.1 Purpose

The purpose of this bushfire assessment is to assess the bushfire risk at the Blue Gum Substation (BGS) site and provide a response to the requirements of the Bushfire Management Overlay (BMO) and Clause 53.02 (Bushfire planning) of the Moyne Planning Scheme. This bushfire assessment has been prepared in support of the permit application to subdivide land to create a new lot for the BGS.

Under the BMO a permit application must meet the requirements of Clause 53.02 (Bushfire Planning). The Decision Guidelines set out in Clause 53.02 specify that the responsible authority must consider the bushfire hazard landscape assessment, the bushfire hazard site assessment and the bushfire management statement submitted with the permit application. Accordingly, this bushfire assessment is structured as follows:

- Section 2 - Bushfire Hazard Landscape Assessment
- Section 3 – Bushfire Hazard Site Assessment
- Section 4 – Response to Relevant Bushfire Planning Provisions
- Section 5 – Bushfire Management Statement

This bushfire assessment has been prepared by Tilt Renewables Australia Pty Ltd (Tilt Renewables) in accordance with the *Technical Guide: Planning Permit Applications, Bushfire Management Overlay* (Department of Environment, Land, Water and Planning, 2017) (the Technical Guide') and *Australian Standards 3959: 2009 Construction of buildings in bushfire prone areas* (AS3959:2009), as relevant.

1.2 Project location and proposed subdivision of land

The Blue Gum Substation (BGS) is currently under construction in the northwest corner of a parcel of land located off Connewarren Lane, Mortlake. The land parcel is formally described as Crown Allotment 3, Section 10, Parish of Connewarren (SPI: 3~10\PP2425).

It is proposed to subdivide the existing parcel of land into two lots to enable the transfer of ownership of the BGS to AusNet (see Figure 1 below). The two proposed lots are briefly described as follows:

- **Proposed Lot 1:** Located in the northwest corner of the existing land parcel, this proposed new lot is generally rectangular in shape and measures 270 metres (m) from east to west, and between 150 m and 175.3 m from north to south, with an area of 4.16 hectares (ha). Ownership of this newly created lot will be transferred to AusNet who will own and operate the BGS.
- **Proposed Lot 2**: This proposed new lot extends over the remainder of the existing land parcel, (i.e. excludes proposed Lot 1). Proposed Lot 2 is generally square in shape and measures between 534.7 m and 804.7 m from east to west, and between 654.7 m and 804.7 m from north to south, with an area of 60.6 ha.

It is proposed to create an easement in favour of AusNet along the western boundary of proposed Lot 2 for the purposes of an access track between Connewarren Lane and the BGS site on proposed Lot 1. The easement is proposed to be a minimum of 25 m wide and approximately 655 m long, with a widened section adjacent to Connewarren Lane to provide appropriate turning area for larger vehicles to enter and exit the site. The proposed Lot 2 is not required for the BGS and therefore transfer of ownership to AusNet is not required.

1.3 The site (as defined in AS3959: 2009)

For the purposes of this bushfire assessment the 'BGS site' is defined as the BGS only which includes all associated electrical equipment (i.e. transformers, lattice gantries etc), control room and associated security perimeter fencing around the BGS. This is consistent with the definition set out AS3959: 2009 which defines the term 'site' as "[t]he part of the allotment of land on which a building stands or is to be erected". As such,

the BGS site does not include the access track from Connewarren Lane or approved landscape planting around the BGS.

Development plans for the BGS endorsed by the Minister for Planning on 21 January 2019 show that the BGS is located entirely on proposed Lot 1 and contained within a rectangular-shaped security perimeter fence on that measures 144 m east to west and 80 m north to south (see Figure 2). The perimeter security fencing is set back 72 m and 25 m from the existing western and northern property boundaries respectively, 54 m from the proposed eastern boundary of the new lot to be created, and 45 m from the proposed southern boundary of the new lot to be created. The endorsed development plans also require landscape planting approximately 8 m wide to be provided around the BGS that is set back 15 m from the perimeter security fencing to provide a fire buffer zone.

No change in land use or intensification of development is proposed on Lot 2 as part of the subdivision application. This bushfire assessment therefore is primarily focused on the bushfire risk associated with the BGS and proposed subdivision to create Lot 1.

1.4 Bushfire Management Plans

The BGS Wildfire Prevention and Emergency Response Management Plan

The Environmental Management Plan (EMP) for the BGS was endorsed by the Minister for Planning on 21 January 2019. The EMP contains the *Wildfire Prevention and Emergency Response Management Plan* (WPERMP) that was developed in accordance with *Chapter 25 – Environmental Management Framework of the Dundonnell Environmental Effects Statement (EES), June 2015*. The WPERMP sets out a range of detailed measures to be implemented during construction and operations phases to minimise fire risk emanating from the BGS site and to minimise the risk from bushfire to life and property at the BGS (see Appendix A). The construction and ongoing operations at the BGS site will be undertaken in accordance with the detailed measures set out in the WPERMP.

AusNet Services' Bushfire-related Management Plans

The purpose of the BGS subdivision application is to enable the transfer of ownership of proposed Lot 1 to AusNet Services (AusNet). AusNet has prepared the following management plans that seek to manage bushfire-related risks associated with the transmission of extra-high voltage electricity to ensure the safety of the public, personnel and assets, and maintain the reliability of electricity supply:

- ***Bushfire Mitigation Plan – Electricity Transmission Network*** sets out the preventative strategies, procedures and processes AusNet uses to monitor, investigate, report, analyse and implement programs to mitigate the risk of fire ignition associated with its supply networks. (This plan is included as part of the endorsed WPERMP, see Appendix A).
- ***Vegetation Management Plan*** sets out vegetation management procedures in the vicinity of electric lines to, amongst other things, minimise the risk of fire starts from vegetation coming into contact with lines that could become a wildfire and threaten public safety and property and mitigate the fire risks associated with fuel load below transmission lines (see Appendix B).

Ongoing operations at the BGS site will be undertaken in accordance with the detailed measures set out in the *Bushfire Mitigation Plan* and *Vegetation Management Plan*.

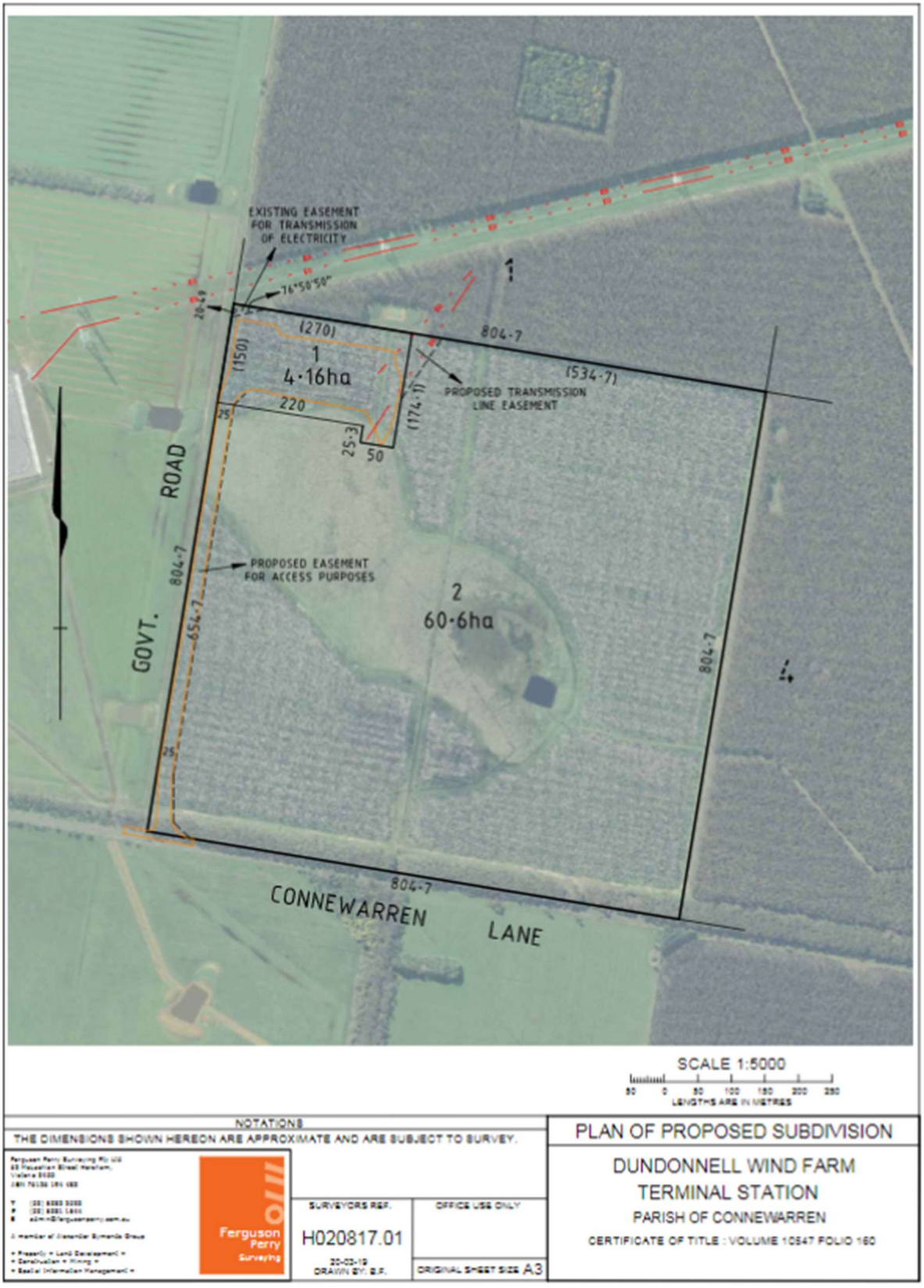

Figure 1: Proposed Blue Gum Substation (BGS) subdivision

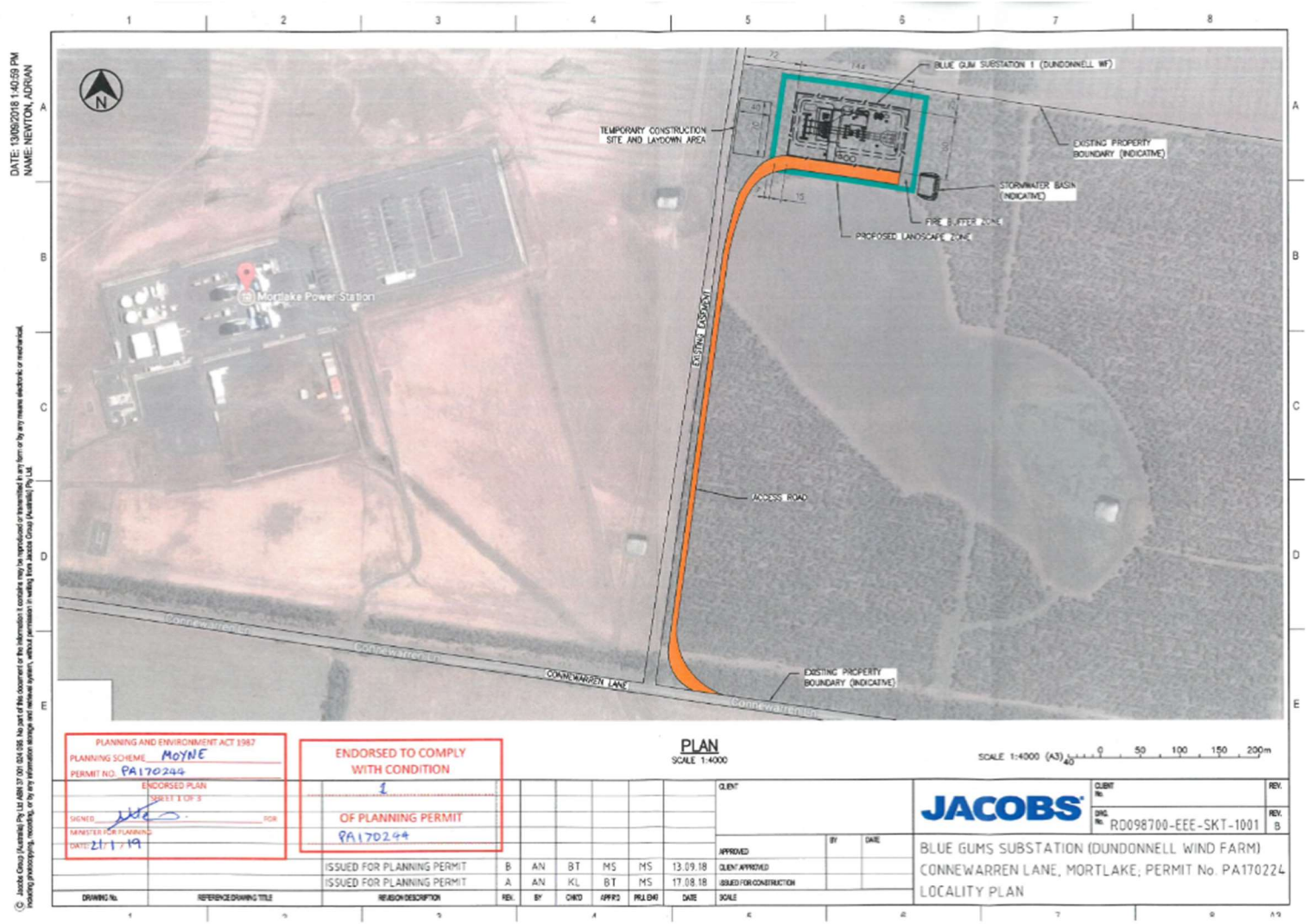

Figure 2: Endorsed development plan for the Blue Gum Substation (BGS)

2.0 Bushfire Hazard Landscape Assessment

2.1 Background

Under the BMO a bushfire hazard landscape assessment (landscape assessment) must accompany a planning permit application to subdivide land. The landscape assessment provides information on the bushfire hazard more than 150 m away from the site. The landscape assessment presents contextual information on a site and informs the Bushfire Hazard Site Assessment (set out in Section 3 below).

As specified in the Technical Guide the purpose of the landscape assessment is to:

- provide factual information on the bushfire hazard (vegetation extent and slope)
- provide information on key features of the general locality that are relevant to better understanding the protection provided by the location
- provide contextual information on a site

The key aspects of this landscape assessment are discussed in further detail in the following sections, and presented spatially in Figure 3 overleaf.

2.2 Landscape context

Vegetation extent

The BGS site is located within a broader rural landscape that is dominated by large land parcels devoid of expansive areas of woodland or forest vegetation (see Figure 3). The landscape is generally characterised by several water features including the Hopkins River and Lake Connewarren, and a mix of cleared cropping land, scattered dams and wetlands, windrow plantings, and several nearby blue gum plantations.

To the north and east of the BGS site are multiple contiguous commercial blue gum plantations that have a combined area of approximately 1,100 hectares (ha). The plantations are cleared periodically to harvest timber products. The blue gum plantations are largely disconnected from surrounding areas of dense vegetation. A separation distance of approximately 3 km exists between the blue gum plantations adjacent to the BGS site and the nearest highly vegetated areas located further to the north and to the east of the blue gum plantations.

Road network connections

The BGS site has good connection to the broader road network via a dedicated access track between the BGS and Connewarren Lane and associated intersection at Connewarren Lane that has been upgraded as part of the BGS (see Figures 1 and 2). Connewarren Lane provides a sealed road connection to Mortlake township and the Hamilton Highway located approximately 10 kms to the east, and Woolsthorpe-Hexham Road and Hexham-Ballangeich Road located approximately 5 kms to the west. Roadside vegetation along Connewarren Lane is sporadic and disconnected from larger areas of vegetation in the broader landscape, providing a safe and efficient connection to Mortlake township and the broader public road network.

Regional Bushfire Planning Assessment

The Regional Bushfire Planning Assessment (RBPA) for the Barwon South-West Region applies to the BGS site. The RBPA was prepared in 2012 in response to Recommendation 38 of the Victorian Bushfires Royal Commission.

The RBPA does not identify the site or the surrounding landscape as areas warranting further bushfire mitigation measures to be implemented. The nearest area identified in the RBPA is located in Purnim, which is approximately 20 kms to the south of the site.

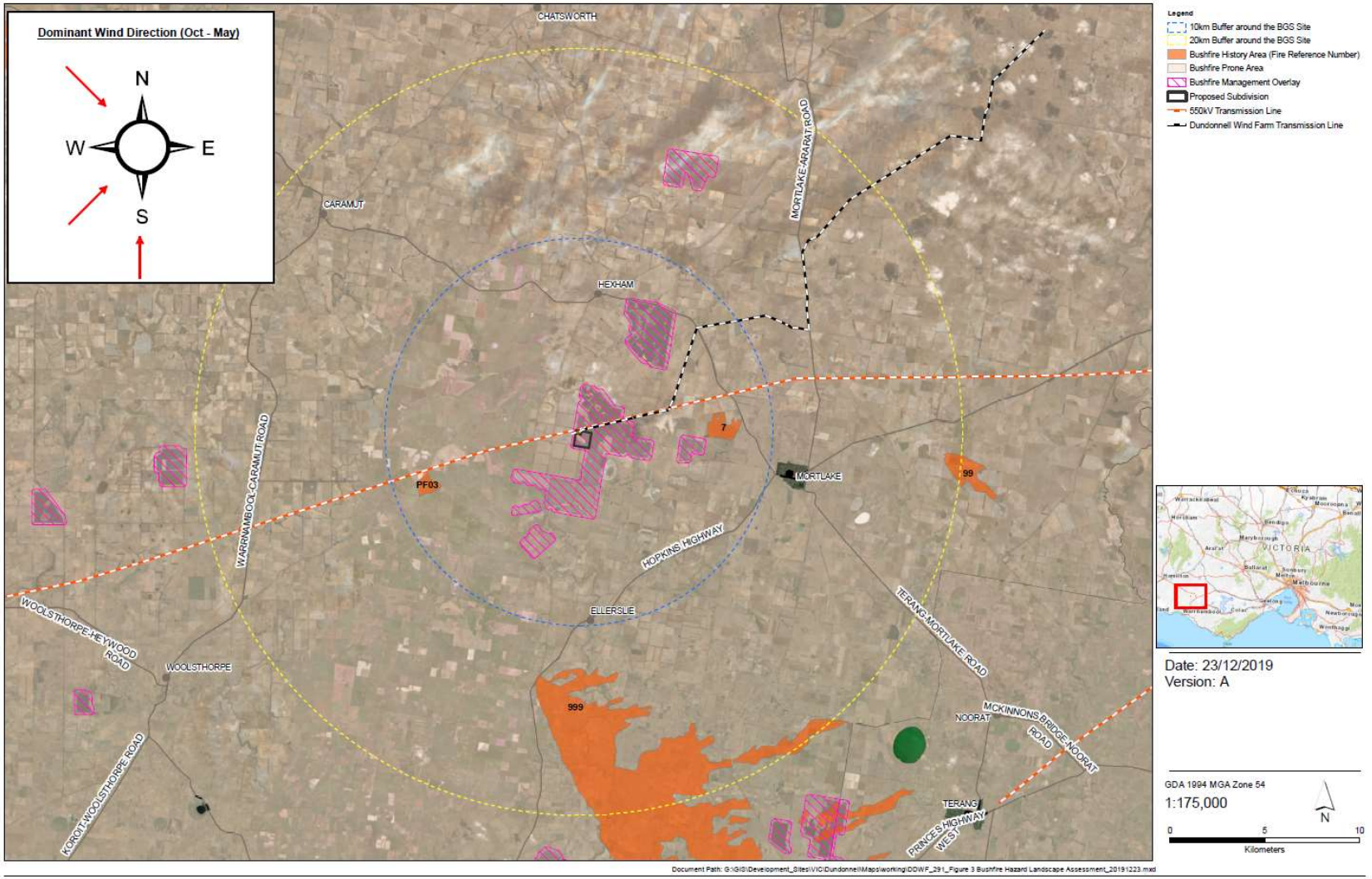

Figure 3: Bushfire Landscape Hazard Assessment Plan

Bushfire History

A review of the bushfire history of the area shows that the site and the surrounding area have not been subject to extensive bushfires. According to the state-based Fire History Overlay of Most Recent Fires spatial layer a total of 4 bushfires have occurred within 20 kms of the site since 1983. These bushfires are briefly described in Table 1 below and shown spatially in Figure 3 above.

Table 1: Bushfire history within 20 kms

Fire History Year	Fire Ref. No. (see Figure 3)	Fire type	Bushfire Name	Total Burnt Area	Approximate Distance from BGS site
1983	999	Bushfire	No name	35,757 ha	12 km to the south of BGS site
2004	PF03	Bushfire	No name	90 ha	9 km to the west of BGS site
2012	7	Bushfire	Mortlake-Mortlake Common	164 ha	8 km to the east of BGS site
2016	99	Bushfire	Hamilton Highway	276 ha	19 km to the east of BGS site

Bushfire direction of travel

According to the Technical Guide, the direction that a bushfire is likely to travel is primarily influenced by the dominant wind directions at the site and surrounding area.

At the BGS site the dominant wind direction changes throughout the year. The Country Fire Authority (CFA) declares the Fire Danger Period for each municipality in the lead up to the fire season. For the Moyne area the Fire Danger Period for 2019/20 is between 23 December 2019 to 1 May 2020. The CFA can however declare a Fire Danger Period from as early as October through to May. Adopting a conservative approach, the dominant wind directions between October and May in any given year move between the southwest, south, and northwest

2.3 Landscape assessment

The Technical Guide presents four landscape typologies and associated criteria that describe each typology. Based on this the BGS site and surrounding landscape is considered to meet the criteria for a Type 2 Broader Landscape. The Type 2 landscape criteria and assessment is set out in the Table 2 below.

Table 2: Landscape typology for the BGS site and surrounding landscape

Type 2 Broader Landscape considerations	Project response
The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site.	Several contiguous blue gum plantations are located adjacent to the BGS site. The plantations have a combined area of approximately 1,100 hectares (ha) and extend beyond 150m from the BGS site to the north and east.
Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition.	A bushfire in the area is likely to approach BGS site from the northeast. Whilst the BGS site is not located in a suburban, township or urban area, the remainder of the surrounding landscape is predominately land used for cropping that is generally managed in a minimum fuel condition.

Type 2 Broader Landscape considerations	Project response
Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area.	The BGS site has good access to nearby cleared farming areas, as well as Mortlake township which is located approximately 10 kms to the east of the BGS site.

2.4 Potential Bushfire Scenario

Due to the location of the BGS site within a largely cleared landscape and the significant separation distance between the blue gum plantations and the nearest significant areas of treed vegetation in the broader landscape, it is considered that a bushfire burning for many hours and running across the landscape and creating neighbourhood scale damage is not likely to occur.

A localised fire within the blue gum plantation is possible (due to lightning strike, arson etc.). However, the likelihood of fire spreading well beyond the blue gum plantation areas is minimal due to the largely cleared cropping land that surrounds the plantations in all directions. A fire that starts within the blue gum plantations may quickly take hold and impact on directly adjoining properties, including the BGS site. While the intensity of the bushfire may be severe it is unlikely to be sustained for any significant length of time due to the substantial separation distances between the plantations and other significant areas of treed vegetation.

In addition, the threat of bushfire emanating from the BGS site or the risk of nearby bushfire to life and property at the BGS site is further minimised through the detailed measures set out in the endorsed BGS Wildfire Prevention and Emergency Response Management Plan to be implemented during construction and operation phases of the BGS (see Appendix A).

3.0 Bushfire Hazard Site Assessment

3.1 Background

Under the BMO a bushfire hazard site assessment (site assessment) must accompany a planning permit application to subdivide land. The site assessment must include a plan that describes the bushfire hazard within 150 m of the proposed development. The description of the hazard must be prepared in accordance with Sections 2.2.3 to 2.2.5 of *AS3959:2009 Construction of buildings in bushfire prone areas* (AS3959:2009), excluding paragraph (a) of section 2.2.3.2.1

As specified in the Technical Guide the purpose of the site assessment is to:

- provide factual information on the bushfire hazard (vegetation type and slope)
- inform defendable space and building construction requirements
- be informed by the methodology contained in *AS3959:2009* to provide contextual information on a site.

Under *AS3959:2009* the description of the bushfire hazard must detail the classification of vegetation, distance of the site from classified vegetation, and effective slope of land under the classified vegetation. These are described in detail in the following sub-sections and shown in the Bushfire Hazard Site Assessment Plan provided in Figure 4 overleaf.

3.2 Vegetation classification

For the site assessment, all vegetation within 150 m of the site is to be classified according to whether it is forest, woodland, scrub, shrublands, mallee/mulga, rainforests or grassland. Vegetation that does not fit into these classifications may be classified as “low threat” or “modified” vegetation.

Under Section 2.2.3.1 of *AS3959:2009* vegetation is to be classified in accordance with Table 2.3 and Figures 2.4(a-g) of *AS3959:2009.* Where there is more than one vegetation type, each vegetation type is to be classified separately with the worst-case scenario applied which assumes vegetation at full maturity or its long-term condition.

Under Section 2.2.3.2 (Exclusions -low threat vegetation and non-vegetated areas) of *AS3959:2009* the Bushfire Attack Level (BAL) shall be classified as BAL-LOW where the vegetation is one or a combination of any of the criteria listed under Section 2.2.3.2.

The surrounding area within 150 m of the BGS site has a combination of Forest and Low threat and non-vegetated areas. A small area of blue gum plantation (0.17 ha) is located on the land adjacent to the south of the site. This small triangular area is disconnected from the broader plantation as a result of the construction of the BGS. Directly to the south of the BGS site is a 14 ha area of land that is devoid of trees and supports an ephemeral wetland. This entire area provides a buffer between the BGS site and the blue gum plantation located to the south of the site. To the west of the site the land has been cleared for cropping with scattered windrow plantings.

These areas and associated vegetation classifications are discussed following and shown in Figure 4.

[1] The BMO requirements for the site assessment differ slightly from the process set out in *AS3959:2009*. For instance, paragraph (a) of Section 2.2.3.2 requires the site assessment to extend out 100 m from the site, whereas the BMO requires the site assessment to extend out to 150 m from the site. In addition, under the BMO the relevant Fire Danger Index (FDI) is specified in the defendable space tables set out in Clause 53.02 (Bushfire Planning). Therefore the FDI assessment process set out in *AS3959:2009* is not required for a site assessment under the BMO.

Figure 4: Bushfire Hazard Site Assessment Plan

Class A Forest: Blue gum plantation areas

Blue gum forest plantations are located on the land adjacent to the north and east within 150 m of the subject site. A blue gum forest plantation also covers a large proportion of the subject site to the east and south of the proposed BGS substation. The blue gum plantation at the subject site does not encroach into a large area towards the middle of the subject site as it is a designated wetland that provides a waterway connection between a series of smaller wetlands/retarding basins.

A review of aerial imagery dating back to 2002 shows that the blue gum plantations in and around the BGS site have been periodically cleared and allowed to regrow. The BGS site was last cleared in March 2019 to enable construction of the BGS. The majority of the blue gum plantations adjacent to the north and east of the BGS site were last cleared in 2016 and have since been allowed to regrow. A small triangular area of the plantation adjacent to the north of the BGS site was last cleared at some point between late 2016 and early 2018, and has since been allowed to regrow. The blue gum plantation on the larger land parcel that is proposed to be subdivided for the BGS was last cleared at some point between December 2011 and December 2012, and has since been allowed to regrow.

Despite being periodically cleared, the blue gum plantations around the BGS site meet the definition of Class A Forest (Tall open forest/Tall woodland) as specified in AS3959: 2009. In particular, the blue gum species grown in the plantations are typically harvested every 10-12 years at a height of approximately 20 m, and are planted in high densities that easily meet the 30-70% foliage cover. The blue gum plantations therefore generally meet the relevant criteria to be classified as Class A Forest as set out in *AS3959:2009*. Relevant excerpts from *AS3959:2009* are provided below in Figure 5.

TABLE 2.3

CLASSIFICATION OF VEGETATION

Vegetation classification (see Tables 2.4.2–2.4.5)	Vegetation type	Figure No. in Fig. 2.3 and Figs 2.4(A) to 2.4(G)	Description
A Forest	Tall open forest Tall woodland	01 02	Trees over 30 m high; 30–70% foliage cover (may include understorey ranging from rainforest and tree ferns to low trees and tall shrubs). Found in areas of high reliable rainfall. Typically dominated by eucalypts.
	Open forest Low open forest	03 04	Trees 10–30 m high; 30–70% foliage cover (may include understorey of sclerophyllous low trees and tall scrubs or grass). Typically dominated by eucalypts.
	Pine plantation	Not shown in Figure 2.3	Trees 10–30 m in height at maturity, generally comprising Pinus species or other softwood species, planted as a single species for the production of timber.

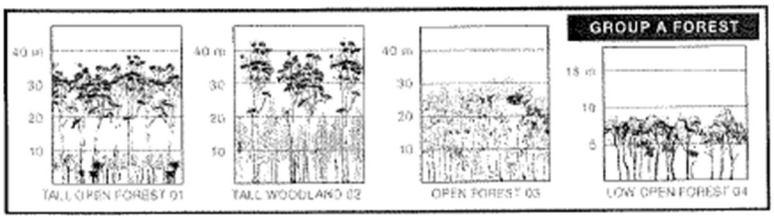

Figure 5: Classified vegetation (Class A Forest) – Excerpts from AS3959: 2009

Exclusions - Low threat vegetation and non-vegetated areas

There are multiple areas within 150 m of the subject site that are considered to meet the criteria for Low-threat vegetation or non-vegetated areas which are to be excluded from consideration in the site assessment. The relevant criteria as set out in Section 2.2.3.2 of *AS3959:2009* are listed in Table 3 below. The location

and extent of the relevant vegetation is shown in Figure 4.

Table 3: Low threat and non-vegetated areas

Low-threat vegetation and non-vegetated area criteria	Location and extent
(a) Vegetation of any type that is more than 100 m from the site.	Not applicable under the BMO.
(b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified.	The small triangular area of Blue gum plantation adjacent to the south of the proposed new subdivided lot for the BGS extends 0.16 ha and is located approximately 150 m and 185 m from the classified Forest vegetation in the blue gum plantations to the east and south of this triangular area. This area satisfies this criteria, and is therefore considered to be Low threat vegetation.
(c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other.	Does not exist within 150 m of the BGS site.
(d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified.	The approved landscape planting at the BGS site is set back 15 m from the BGS site and will be managed to be less than 20 m wide. The windrow planting located in the northwest corner of the 150 m buffer from the BGS site measures approximately 19 m wide and is located 270 m from the BGS site. The windrow planting and approved vegetation screening satisfy this criteria, and are therefore considered to be Low threat vegetation.
(e) Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.	The proposed access track from Connewarren Lane to the BGS site and several dams/wetlands scattered around the BGS site satisfy this criteria and are considered to be non-vegetated areas.
(f) Low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks.	The large area adjacent to the south of the BGS site is a grassland area, is devoid of treed vegetation, and is not used for blue gum plantations. In addition, there are narrow strips of cleared areas along the northern common property boundary and to the east of the BGS site. The 60 m wide transmission line easement to the north of the BGS site has also been cleared and is managed in a minimal fuel condition. These areas satisfy this criteria and is considered to be Low threat vegetation.

Modified Vegetation

Modified vegetation refers to vegetation that is different from the other vegetation types shown in *AS3959:2009* and Table 1 and Table 2 of Clause 52.47-3 because it has been altered from its natural state. The defendable space and construction standards are highest at sites within 150 m of modified vegetation.

There are no areas of modified vegetation within 150 m of the site.

3.3 Distance of the site from classified vegetation

Under Section 2.2.4 of *AS3959:2009* for each classified vegetation type the distance of the site from the

classified vegetation, measured in the horizontal plane, must be determined.

The BGS site is being constructed on flat land in the northwest corner of the existing land parcel that is proposed to be subdivided. The entire area of the proposed new lot for the BGS site has been cleared of vegetation to enable construction of the BGS and associated access track from Connewarren Lane to the BGS site.

The BGS site is set back of 25 m from the northern property boundary and 54 m from the proposed eastern boundary of the new lot to be created for the BGS site. The adjacent blue gum plantation to the north of the BGS site is set back 10 m from the northern property boundary. These setbacks create a minimum separation distance of 35 m and 54 m from the BGS site to the edge of the blue gum plantations (classified as Forest) located to the north and to the east of the BGS site, respectively.

3.4 Effective slope of land under the classified vegetation

The slope of the land under classified vegetation has the potential to influence fire behaviour. Generally, as the slope of the land under classified vegetation increases, the intensity and rate of spread of bushfire can also increase.

Section 2.2.5 of *AS3959:2009* specifies that, for each classified vegetation type within 150 m of the site (as per Clause 2.2.3), the effective slope of the land under the classified vegetation must be determined and whether it is upslope or downslope in relation to the site. Effective slope of land under classified vegetation is to be presented in degrees, approximate slope ratios and percentages.

The BGS site and surrounding land within 150 m is flat with little to no variation in topography (see Figure 4).

The effective slope under the classified vegetation within 150 m of the site is therefore considered to be 0 degrees.

4.0 Response to Relevant Bushfire Planning Provisions

4.1 Introduction

This section provides an assessment of the proposed subdivision application against the relevant bushfire planning provisions set out in the Moyne Planning Scheme. In particular, the assessment considers the following objectives and approved measures:

- Clause 53.02-4.4 - Subdivision objectives
- Clause 53.02-4.1 – Landscape, siting and design objectives
- Clause 53.02-4.3 – Water supply and access objectives
- Clause 53.02-4.5 – Decision guidelines

It is noted that the objectives and approved measures set out in Clause 53.02-4.2 (Defendable space and construction objective) and Clause 53.02-4.3 (Water supply and access objectives) are not relevant to this subdivision application as they relate to buildings used for a range of land uses that do not include Utility installation (e.g. Dwelling, Office, Retail premises, Child care centres and the like).

4.2 Clause 53.02-4.4 - Subdivision objectives

Clause 53.02-4.4 (Subdivision objectives) sets out a series of approved measures (AM) and alternative measures (AltM) that apply to subdivision permit applications.

The relevant approved measures for this application to subdivide land to create a new lot for the BGS are AM5.1 and AM5.4. All other approved and alternative measures set out in Clause 53.02-4.4 do not apply to the BGS subdivision application as they relate to subdivision applications for residential or rural residential purposes or to create 10 or more lots. An assessment against the requirements of AM5.1 and AM5.4 is detailed below in Sections 4.2.1 and 4.2.2 respectively.

Assessment against Approved Measure AM5.1

Approved Measure (AM) 5.1 specifies that an application to subdivide land, other than where AM5.2 applies, demonstrates that each proposed lot is capable of meeting:

- The defendable space in accordance with Table 2 Columns A, B or C (Defendable space and construction) and Table 6 to Clause 53.02-5 (Vegetation management requirement).
- The approved measures in Clause 53.02-4.1 (Landscape, siting and design objectives) and Clause 53.02-4.3 (Water supply and access objectives).

An assessment of the proposed subdivision against the defendable space distance requirements and associated vegetation management requirements are discussed in-turn below.

An assessment of the proposed subdivision against the approved measures in Clause 53.02-4.1 and Clause 53.02-4.3 is set out further below.

Defendable space distance requirements

Table 2 to Clause 53.02-5 sets out the required defendable space distance requirements for each classified vegetation type. As described above, the only classified vegetation within 150 m of the BGS site are the blue gum plantations which are located adjacent to the north and east. As described above, the blue gum plantations are classified as Forest and the effective slope of the land under the blue gum plantation is 0 degrees.

Significant areas of classified Low threat vegetation are located around the BGS within the proposed new lot and adjacent to the south on the existing lot, along the existing transmission line easement to the north, and on the cropping land adjacent to the west.

In accordance with AM5.1 the relevant defendable space distance requirements set out in Table 2 to Clause 53.02-5 are provided in Table 4 below.

Table 4: Defendable space distance requirements (as per Table 2 to Clause 53.02-5)

Slope	Vegetation type	Defendable space distance from building facade (metres)		
		Column A	Column B	Column C
All upslopes and flat land (0 degrees)	Forest	48	35	25
		BAL12.5	**BAL19**	**BAL29**
All slopes	Low threat vegetation	Defendable space is to be provided for a distance of 50 metres, or the property boundary whichever is the lesser, for buildings constructed to all bushfire attack levels. The minimum construction standard is BAL 12.5.		

The proposed subdivision and siting of the BGS is capable of providing the required defendable space requirements specified in Table 2 to Clause 53.02-5. The proposed BGS site is set back a minimum of 35 m and 54 m from the vegetation classified as Forest located to the north and east of the BGS site respectively. The relevant construction standard at the BGS site would therefore be BAL19.

Vegetation management requirements within the defendable space areas

Table 6 to Clause 53.02-5 sets out the vegetation management requirements within the required defendable space areas. The vegetation management requirements and associated project response are set out in Table 5 below.

Table 5: Vegetation management requirement (Table 6 to Clause 53.02-5)

Vegetation management requirement	Project response
Defendable space is provided and is managed in accordance with the following requirements ▪ Grass must be short cropped and maintained during the declared fire danger period. ▪ All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period. ▪ Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building. ▪ Plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building. ▪ Shrubs must not be located under the canopy of trees. ▪ Individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres. ▪ The canopy of trees must be separated by at least 5 metres. ▪ Trees must not overhang or touch any elements of the building ▪ There must be a clearance of at least 2 metres between the lowest tree branches and ground level. Unless specified in a schedule or otherwise agreed in writing to the satisfaction of the relevant fire authority.	**Can be achieved.** The proposed lot to be created for the BGS is capable of implementing all of the vegetation management requirements set out in Table 6 to Clause 53.02-5.

4.3 Clause 53.02-4.1 – Landscape, site and design objectives

Clause 53.02-4.1 (Landscape, site and design objectives) sets outs bushfire protection objectives and approved measures related to the siting and design of buildings. The list of approved measures under Clause 53.02-4.1 and a project response are provided in Table 6 below.

Table 6: Approved Measures in Clause 53.02-4.1

Measure	Requirement	Project response
AM 2.1	The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.	**Achieved**. The bushfire risk from the landscape beyond the BGS site can be mitigated to an acceptable level. As detailed in the landscape assessment and site assessment in the previous sections, there are adequate separation distances between the BGS and nearby classified vegetation, and the required defendable space distances to classified vegetation can be provided. In addition the required vegetation management measures can also be implemented at the BGS site.
AM 2.2	A building is sited to ensure the site best achieves the following: ▪ The maximum separation distance between the building and the bushfire hazard. ▪ The building is in close proximity to a public road. Access can be provided to the building for emergency service vehicles.	**Achieved.** The BGS site has been generally located towards the middle of the proposed new lot, which provides a minimum separation distance of 35 m and 54 m from the nearest classified vegetation located to the north and east of the BGS site. The BGS site is located in close proximity to a public road. A proposed 650 m long access track will provide direct access to Connewarren Lane which provides access to Mortlake township (10 kms to the east) and the broader arterial road network. The access track will provide easy access for emergency service vehicles to enter and exit the BGS site. The access track is to be located within an easement that is a minimum of 25 m wide with a widened turning area at Connewarren Lane to accommodate large sized vehicles.
AM 2.3	A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building.	**Achieved.** The BGS has been designed and constructed to the relevant electrical standards. The landscape bushfire risk is generally considered to be low given the separation distances between the BGS site and nearby classified vegetation and the extent of Low threat and non-vegetated areas within 150 m of the BGS site.

4.4 Clause 53.02-4.3 – Water supply and access objectives

Clause 53.02-4.3 (Water supply and access objectives) sets outs approved bushfire protection measures related to the provision of appropriate water supplies and vehicle access. However, the approved measures apply only to a range of buildings types that are not relevant to the BGS subdivision application. Therefore, the approved measures under Clause 53.02-4.3 do not require any further consideration as part of the subdivision application to create a new lot for the BGS.

Notwithstanding this, the BGS has been designed to include 2 x steel-lined fire tanks with a nominal capacity of 55 kilolitres (kL) and associated fire hydrant pumps, to minimise the risk of fire spread at the BGS site. The fire services provided at the BGS site are shown in Figure 6 overleaf.

Assessment against Approved Measure AM5.4

Approved Measure (AM) 5.4 requires that a subdivision manages the bushfire risk to future development from existing or proposed landscaping, public open space and communal areas.

As described above, landscape planting approximately 8 m wide is to be provided around the BGS, in accordance with the development plans endorsed by the Minister for Planning (see Figure 2). This planting is offset 15 m from the BGS to reduce the risk of bushfire hazard at the site.

In addition, as described in Section 1.4 above, the *Wildfire Prevention and Emergency Response Management Plan* endorsed by the Minister for Planning and AusNet's *Bushfire Mitigation Plan* and *Vegetation Management Pla*n together set out detailed measures to be implemented during construction and operation phases to minimise fire risk emanating from the BGS site and to minimise the risk from bushfire to life and property at the BGS (see Appendix A).

Taken together, it is considered that the proposed subdivision provides an appropriate response to the requirements of AM5.4.

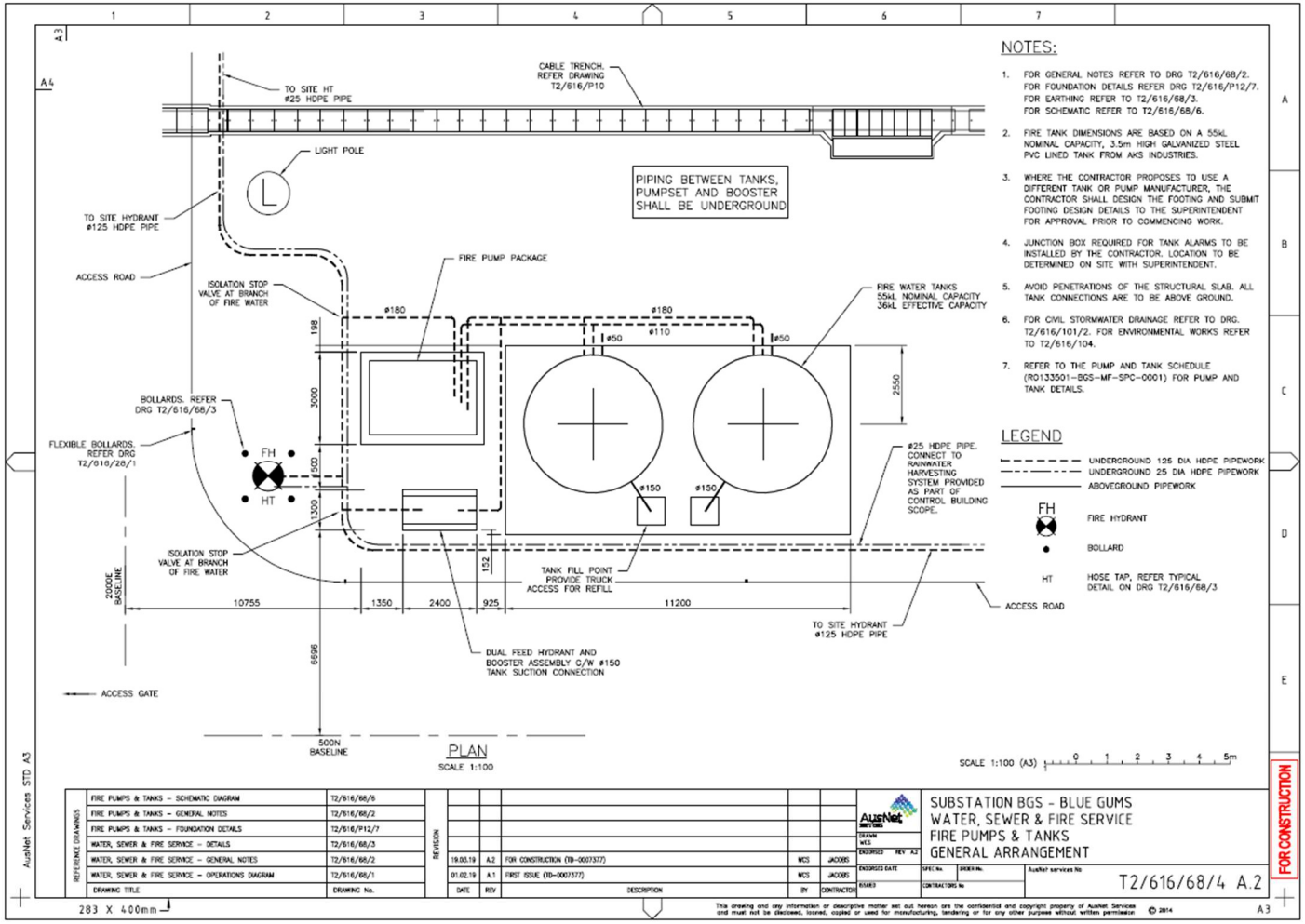

Figure 6: Fire services at the BGS site

4.5 Clause 53.02-4.5 – Decision guidelines

Clause 53.02-04.5 (Decision guidelines) sets out the matters that the responsible authority must consider (as relevant) for a planning permit application under the BMO. The relevant decision guidelines and a project response are provided in Table 7 below.

Table 7: Response to the relevant decision guidelines under Clause 53.02

Decision guideline	Project response
The Municipal Planning Strategy and the Planning Policy Framework.	The proposed subdivision of land for the BGS provides an appropriate response to the bushfire planning objectives and policies set out in Clause 13.02-1S (Bushfire planning) of the Planning Policy Framework. This bushfire assessment has assessed the bushfire hazard at the landscape and site scale and identified appropriate bushfire protection measures to be implemented at the BGS site. The assessment has been undertaken generally in accordance with *AS3959:2009* Construction of Buildings in Bushfire-prone Areas.
The bushfire hazard landscape assessment, the bushfire hazard site assessment and the bushfire management statement submitted with the application.	This bushfire assessment accompanies the subdivision permit application for the BGS site, and includes a bushfire hazard landscape assessment, bushfire hazard site assessment and bushfire management statement.
The impact of any State, regional or local bushfire management and prevention actions occurring around the site and in the wider area on the bushfire hazard and the level of risk to the proposed development.	No known State, regional or local bushfire management and prevention actions occur around the BGS site.
Whether the proposed development meets the objectives of Clause 53.02-4 regardless of other measures which may be available, including private bushfire shelters, community shelters and the presence of places of last resort.	The proposed subdivision for the BGS meet the relevant bushfire protection objectives and approved measures. This bushfire assessment provides a response to the relevant objectives and approved measures set out under Clause 53.02-4.4 (Subdivision objectives) and Clause 53.02-4.1 (Landscape, siting and design objectives).
Whether the proposed measures can be practically implemented and maintained in conjunction with the ongoing use of the land.	All relevant approved measures can be practically implemented and maintained in conjunction with the ongoing use of the land. The relevant approved measures for the BGS subdivision application are set out under Clause 53.02-4.4 (Subdivision objectives) and Clause 53.02-4.1 (Landscape, siting and design objectives).
Whether the use of an alternative measure meets the relevant objective having regard to the bushfire hazard and the nature of any constraint that prevents the applicable approved measure from being implemented.	Not applicable, as no alternative measures are proposed.
If one or more of the objectives in Clause 53.02-4 will not be achieved in the completed development, whether the development will, taking all relevant factors into account, reduce the bushfire risk to a level that warrants it proceeding.	All relevant objectives and approved measures for the BGS subdivision application can be achieved. The relevant approved measures for the BGS subdivision application are set out under Clause 53.02-4.4 (Subdivision objectives) and Clause 53.02-4.1 (Landscape, siting and design objectives).

Decision guideline	Project response
Whether the risk arising from the broader landscape can be mitigated to an acceptable level or warrants the development not proceeding.	The BGS site is located within a Type 2 landscape area that is generally considered to be a lower risk from bushfire attack. The BGS site is located at the edge of the nearby blue gum plantations, and the areas surrounding the adjacent blue gum plantations have been largely cleared for farming purposes. The dominant wind directions during the Fire Danger Periods are likely to be from the southwest, south, and northwest. This provides additional protection for the BGS site from bushfire that may originate in the blue gum plantations to the north and east.

5.0 Bushfire Management Statement

5.1 Background

Under the BMO a bushfire management statement (BMS) must accompany a planning permit application to subdivide land. The BMS must describe how the proposed development responds to the requirements of the BMO and Clause 53.02 (Bushfire planning). If the application proposes an alternative measure, the BMS must explain how the alternative measure meets the relevant objective.

If in the opinion of the responsible authority any part of these requirements is not relevant to the assessment of an application, the responsible authority may waive, vary or reduce the requirement.

As specified in the Technical Guide the purpose of the BMS is to:

- show how a proposal has responded to the bushfire hazard site assessment and bushfire hazard landscape assessment
- document the way an application has applied the approved measures in Clause 52.47
- justify any alternative measures in Clause 52.47 that have been applied
- show how a proposal has responded to the relevant decision guidelines
- demonstrate to the council that a planning permit should be granted.

5.2 Bushfire Management Statement

Bushfire hazards

The Bushfire Landscape Hazard Assessment set out in Section 3 of this report demonstrates that the BGS site is located in a Type 2 landscape area that has been largely cleared, has not been subject to significant fire history, and is generally assessed as being a lower risk area for bushfire attack. It is acknowledged that the BGS site is located adjacent to blue gum plantations to the north and east that are classified as Forest (blue gum plantations) under *AS3959:2009*. The BGS site is however located at the very edge of the classified Forest vegetation to the north and east, surrounded by Low threat vegetation to the south and west, and a significant distance (approximately 150 m) from classified Forest vegetation to the south.

The dominant wind directions at the site however lower the risk of bushfire affecting the BGS site. The dominant wind directions during declared Fire Danger Periods (which conservatively have been assumed to be October and May in any given year) move between the southwest, south, and northwest. These dominant wind directions are likely to provide significant added protection from any bushfire threat that may arise from within the blue gum plantations to the north and the east. Taken together, the bushfire threat within the broader landscape is likely to come from within the blue gum plantations but the bushfire is unlikely to cross the BGS site and spread further to the west and south into adjacent properties.

The Bushfire Site Hazard Assessment demonstrates that the BGS site is located in an area that has a generally good level of bushfire protection. Despite its location within 150 m of vegetation classified as Forest there are significant areas within 150 m of the BGS site that are considered to be Low threat or non-vegetated areas. There is no vegetation classified as Modified Vegetation within 150 m of the BGS site. As the land within 150 m of the BGS site to the south and west is devoid of classified vegetation any bushfire that may arise from within the blue gum plantations is unlikely to spread further across the BGS site into adjacent land to the south and west.

Siting and design considerations

The siting and design of the BGS provides an appropriate response to the identified bushfire hazards at the landscape scale and within 150 m of the BGS site. In addition, the proposed subdivided lot for the BGS is capable of meeting the required defendable space distance requirements and associated vegetation management measures set out in Clause 53.02 (Bushfire planning) of the Moyne Planning Scheme.

The BGS site is set back a minimum of 35 m and 54 m from the adjacent blue gum plantations to the north and to the east respectively. The approved landscape planting is set back 15 m from the BGS site plans for the purpose of providing a fire buffer, however due to the narrow width this vegetation is considered to be Low threat vegetation (see Figures 2 and 4). The 650 m long dedicated access track to be located within a 25 m wide easement along the western property boundary provides a good vehicular connection between the BGS site and Connewarren Lane. Connewarren Lane in turn provides a good connection to the broader public road network (e.g. Hexham-Ballangeich Rd and Hamilton Hwy), as well as nearby cleared cropping land, and urban areas such as Mortlake located approximately 10 kms from the site.

Moreover, the threat of bushfire emanating from the BGS site or the risk of nearby bushfire to life and property at the BGS site is further minimised through the implementation of detailed measures set out in the BGS Wildfire Prevention and Emergency Response Management Plan during construction and operation phases of the BGS.

Concluding statement

Ultimately, the proposed subdivision of land to create a new lot for the BGS (proposed Lot 1) and the siting and design of the BGS infrastructure provides an appropriate response to the Planning Policy Framework and the requirements of the Bushfire Management Overlay (BMO) and Clause 53.02 (Bushfire Planning) of the Moyne Planning Scheme. No change in land use or intensification of development is proposed on Lot 2. Taken together, the subdivision application to create proposed Lots 1 and 2 appropriately responds to the relevant bushfire planning provisions and should therefore be supported.

Appendix A: Extract from Endorsed EMP (Wildfire Prevention and Emergency Response Management Plan)

Dundonnell Wind Farm Transmission Line and Blue Gums Substation

Tilt Renewables

Wildfire Prevention and Emergency Response Plan

| 6

20 December 2018

Client Reference

Dundonnell Wind Farm Transmission Line and Blue Gums Substation

APPROVED FOR THE MINISTER FOR PLANNING

SHEET 138 OF 365

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Document Title:	Wildfire Prevention and Emergency Response Plan
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Revision	Date	Description	By	Review	Approved
1	6/7/2018	Draft Wildfire Prevention and Emergency Response Management Sub-Plan	M. Savage	R. Winders	P. Deveney
2	27/7/2018	Draft Wildfire Prevention and Emergency Response Management Sub-Plan for consultation	M. Savage	A. Wallace	P. Deveney
3	13/9/2018	Draft Wildfire Prevention and Emergency Response Management Sub-Plan for contractor consultation	A. Wallace	P. Deveney	P. Deveney
4	19/09/2018	Draft Wildfire Prevention and Emergency Response Management Sub-Plan for agency consultation	A. Wallace	P. Deveney	P. Deveney
5	21/11/2018	Draft WPERMP following agency consultation	A.Wallace	P. Deveney	P. Deveney
6	20/12/2018	Final WPERMP for approval	A.Wallace	P. Deveney	P. Deveney

Contents

1. Introduction

1.1 Purpose

The purpose of this Wildfire Prevention and Emergency Response Management Sub-Plan (WPERMP) is to manage and mitigate fire and emergency events to prevent injury and damage to property and assets, and protect the environment at the Dundonnell Wind Farm Transmission Line and Blue Gums Substation (the Project). The WPERMP establishes protocols for dealing with emergencies and managing risks during construction and operation, including the provision of fire-fighting facilities and water storage, and establishing routes for emergency access to adjoining landowners across the site. This WPERMP forms part of the EMP for planning permits PA170224 issued on 23 June 2016; and PL15/075 issued on 23 October 2016.

The WPERMP aims to:

- Prevent fires from initiating at the Project site
- Maintain preparedness to effectively respond to fire events
- Prevent injury, death or damage to property as a result of fires.

1.2 Document scope

The WPERMP, a sub-plan for the EMP for Dundonnell Wind Farm Transmission line and substation includes the following:

- Consultation activities conducted with the Country Fire Authority (CFA) and Department of Environment Land, Water and Planning (DELWP)
- Description of the wildfire risk at the site and proposed risk management methods
- Fire-related emergency preparedness and response procedure
- The roles and responsibilities of those involved in the implementation of the WPREMP.

General information about the Project is detailed in the overarching EMP document and is not included in the WPERMP.

1.3 Environmental impacts and mitigation measures

This WPERMP has been developed in accordance with *Chapter 25 – Environmental Management Framework* of the Dundonnell Environmental Effects Statement (EES), June 2015.

Table 1.1 : Environmenal impacts and management measures

Impact number	Impact	Relevant section
22-01	**Fire Management** Increased risk of bushfire during construction of the Project	Section 3.2, Section 3.3, Section 4, Section 5.3
22-02	**Fire Management** Operation of the Project increases risk of bushfire ignition or spread	Section 3.3, Section 3.5, Section 4, Section 5.4
22-03	**Fire Management** Bushfire damages infrastructure	Section 3.3, Section 3.7, Section 4
22-04	**Fire Management** Aerial-fighting capabilities are constrained within the Project site and in the vicinity of the Project.	Section 3.3, Section 3.7, Section 4

2. Legislation and building standards

This WPERMP has been designed to respond to the following legislation, regulations, standards and consultation:

- *CFA Act 1958*
- *The Electricity Safety Act 1998*
- *Planning and Environment Act 1987*
- *Building Interim Regulations 2017*
  - Regulation 309 - Requirements for permits involving fire safety matters
- Building Amendment (Bushfire Construction) Further Interim Regulations 2009
  - Regulation 808 - Water supply for fire-fighting purposes
  - Regulation 809 - Access for emergency vehicles
  - Regulation 309A - Requirements for permits involving bushfire safety matters.
- Electricity Safety (Bushfire Mitigation) Regulations (2003)
- Australian Standard AS1940-2107: The Storage and Handling of Flammable and Combustible Liquids
- Guidelines to the Electricity Safety (Electric Line Clearance) Regulations 2015
- Emergency Management Guidelines for Wind Energy Facilities (CFA, 2015).

3. Fire Risks and Prevention

The Project Site lies within a designated wildfire (bushfire) prone area (DELWP 2018) as determined by the Minister for Planning. The Moyne Shire includes large areas that are high to extreme fire risk areas.

The CFA determines the fire danger period, and for Moyne, it is generally from December of each year, and usually runs through until 1 May, but can vary subject to weather conditions. Prevailing weather conditions associated with the bushfire season are generally warm to hot north-westerly winds accompanied by high temperatures and low relative humidity followed by a cool south westerly change.

Under the State Government climate change projections, Moyne Shire can expect:

a) To be hotter with the greatest increases in temperature expected in summer

b) To be drier with greatest decreases in rainfall expected in spring

c) To have fewer rainy days but increasing rainfall intensity.

3.1 Recent fire history

Four bushfires in Victoria's southwest occurred in March 2018, all igniting as a result of operational overhead transmission line incidents. Four separate grassfires ignited during high winds, all located within a 60km radius of the Project site. The first fire in MacArthurs Penshurst Road, Gazette occurred when severe winds caused a tree to fall onto operating power lines, bringing them to the ground and subsequently sparking then igniting the surrounding vegetation. The Terang-Cobden Road fire was a result of power lines clashing in high winds causing electrical arcs and igniting surrounding vegetation. The Occupation Lane, Garvoc fire was caused by a power pole snapping in high winds and falling to the ground. Electrical arcs then ignited vegetation. The Camperdown-Bullen Merri (Gnotuk) fire was also caused by a tree limb falling across powerlines bringing them to the ground. An earth wire on a nearby power pole then became exposed causing the pole to become energised, igniting surrounding vegetation.

3.2 Potential constructional ignition sources

Activities that would take place during construction at the Project site that have potential wildfire hazards include:

- Hot work (welding, use of blow torch, angle-grinding etc.)
- Use of explosive power tools
- Use of vehicles and other equipment with internal combustion engines
- Presence of flammable materials and ignition sources stored onsite (fuel, transformer oil etc.)
- Faulty equipment
- Smoking.

Potential threats arising from these activities include:

- Ignition of fire through the generation of sparks, use of naked flame etc.
- Damage to infrastructure through fire (smoke, radiant heat, flame contact, ember attack and ash)
- Damage to nearby properties or other assets in the event a fire could not be controlled
- Injury/fatality to personnel on site, emergency services personnel or the public.

3.2.1 Project construction ignition potential

The construction of the Project site will likely involve a number of personnel and vehicles accessing the site and the conduct of hot work operations. Consequently, the likelihood of a fire starting during construction is higher than during operation.

3.2.2 External ignition potential

Wildfires starting elsewhere and entering the site are considered more likely to occur than a fire starting at the Project site once construction is complete. The major sources of ignition in the area are arson, lightning strike and escapes from legal burning operations on private property.

3.3 Transmission line operation ignition potential

Potential threats arising from the operation of the transmission line include:

- Vegetation touching or falling across power lines
- Electrical arcing
- Power lines clashing or snapping during severe winds
- Overheating due to system overloading
- Electrical faults.

3.4 Risk assessment

A Risk Assessment was conducted for the main activities involved in the construction and operation of the Project to ascertain those activities with a moderate/high risk of causing bush fire as shown in Table 3.1includes the methodology for assigning risk ratings. {The preliminary risk ratings shown in Table 3.1 will be reviewed in consultation with the CFA and revised accordingly.}

Table 3.1 : Project activity fire risk assessment

Activity/fire source	[Preliminary] Risk rating
Early works/preparatory works: • Hot works associated with activities such as fencing, use of generators, etc. • Sparks from earthworks and general machinery use	HIGH
Access track and hardstand construction: • Sparks from earthworks and general machinery use	HIGH
Installation and trenching: • Sparks from earthworks • Hot works including welding, grinding etc., and • Contractors (e.g., smoking).	HIGH
Delivery of transformers: • Operation of trucks and cranes.	LOW
Commissioning: • Electrical faults.	MEDIUM
Operation: • Routine maintenance works involving hot works, earthworks etc. • Electrical arcing • Overheating due to system overloading • Oil leakage/dirt • Spontaneous ignition through dirty cleaning cloths	MEDIUM

Activity/fire source	[Preliminary] Risk rating
• Transformer insulation breakdown/dirt • Electrical faults (earth fault/short circuit, over current in cable, electrical power lines and transmission towers) • Lightning • Vandalism; • Smoking, and • Bushfire.	

Regular inspection and routine maintenance of all powerlines at the terminal station is the most appropriate measure to reduce risk of fire ignition. The monitoring / inspection frequency will align with AusNet Services' Bushfire Mitigation Plan 10-06.

3.5 General substation and transmission line design

Sound engineering design, use of Australian Standards and principals of fire safety will be considered to reduce the risk of fires at the Project site.

The following risk mitigation measures will be implemented into the design of the terminal station:

1) Hard stand areas surrounding the terminal station, and low vegetation loads adjacent to hard-stand area where practicable
2) Electrical connections and buried underground cables, where practicable.

The proposed transmission line corridor avoids large tracts of vegetation. A cleared easement will be established along the transmission line corridor and vegetation within the easement will be regularly maintained.

3.6 Wildfire risk management

When the Project site becomes operational, personnel will implement the following risk mitigation to prevent wildfires:

- Restriction of activities undertaken on days of Total Fire Ban
- Fuel load management
- Infrastructure requirements including; access and signage and fire-fighting water sources
- Liaison with CFA groups.

The wildfire response procedures are included in **Section 4**, and will be revised as required upon commencement of construction. This will include provision of training to personnel and contractors on the potential wildfire hazards and controls in place to mitigate/manage fires at the Project site. In addition, all personnel will be trained in the use of fire extinguishers and participate in emergency evacuation preparation/response drills.

Appendix B provides the Warden structure regarding fires and emergency response measures.

3.7 Fuel/ vegetation risk management

Whilst the transmission line corridor avoids large tracts of vegetation, a cleared easement will be established along the alignment and vegetation will be regularly maintained to reduce fire risk.

To effectively mitigate the risk of fire ignition and spread, the site management team will ensure that fuel / vegetation risk management measures are implemented during the Fire Danger Period. In addition, the management team will ensure the following:

1) Grass will be maintained to ensure no more than 100mm in height and leaf litter no more than 10mm deep for a distance of thirty (30) m around constructed buildings and viewing platforms
2) A fuel reduced area of four-ten (4-10) m width will be maintained around the perimeter of electricity compounds and substation type facilities
3) A tree clear area of 20 metres radius is generally required at tower sites for line maintenance purposes. Closer trees may be permitted in some locations where the interference caused to access and essential line maintenance is acceptable
4) There will be no long grass or deep leaf litter in areas where plant and heavy equipment will be working;
5) All plant and heavy equipment will have the capacity of at least one 9 Litre Water Stored Pressure fire extinguisher with a minimum rating of 3A, or equivalent firefighting equipment
6) All personnel and contractors will adhere to restrictions and guidance during the Fire Danger Period, high fire danger days and Total Fire Ban days (refer www.cfa.vic.giv.au).
7) Throughout the fire danger period, construction vehicles and the site will be equipped with appropriate firefighting equipment in Appendix B

3.8 Site access

The provision of adequate access to, and within, the Project Site has been considered to assist emergency services in responding to and managing fires on site. The following provisions, as specified by the CFA Guidelines (2015) have been considered and applied to the Blue Gum Substation where practicable:

1) Constructed access roads should be a minimum of 3.5 m in trafficable width (with 0.5metre each side) with a four (4) m vertical clearance for the width of the formed road surface
2) The access road should be constructed to a standard so that the Blue Gum Substation is accessible in all weather conditions and capable of accommodating a vehicle of 15 tonnes and 30 tonnes if a CFA aerial appliance is within the District, for the trafficable road width
3) The average grade should be no more than 1 in 7 (14.4%) (8.1º) with a maximum of no more than 1 in 5 (20%) (11.3º) for no more than 50 m
4) Dips in the access road should have no more than a 1 in 8 (12.5%) (7.1º) entry and exit angle
5) Passing bays should be located every 200 m.

The transmission line route traverses a long distance with main access along the route possible from Post Office Lane, Woorndoo-Dundonnell Road, Woorndoo-Darlington Road, Nine Mile Land, Mortlake-Ararat Road, Castle Carey Road, Hamilton highway and Boonerah Estate Road. Individual pole and line section access is provided mostly through grazing and cropping paddocks. Where required, minor earthworks will be undertaken to improve the access as required for construction. Gateways may also be installed to facilitate access through paddocks. To assist CFA activities in the event of fire, site access points will be notified to CFA prior to construction commencing in that area.

4. Wildfire and Emergency Response Mitigation Measures

4.1 Identification of impacts

The following impacts may arise as a result of Project construction and operation activities, such as the use of vehicles and operation of the transmission line.

- Grass fire ignition
- Property and infrastructure damage
- Habitat loss
- Loss to flora and fauna

In the event of a wildfire, lack of preparedness will also lead to an inability to effectively fight the fire.

4.2 Construction mitigation actions

The following mitigation measures will be implemented for fire prevention and emergency preparedness at the Project, including:

- Vehicles to remain on cleared access track within the construction site where possible, and avoid driving in heavily grassed areas.
- No construction activities such as welding, cutting or grinding will be undertaken on days of Total Fire Ban.
- Where undertaken at other times, construction activities will be undertaken in accordance with CFA requirements.
- Ensure no construction activities occur on days with a fire danger rating of extreme or Code Red.
- Design, construct and maintain storage facilities in accordance with the requirements of the Australian Standard AS1940: The Storage and Handling of Flammable and Combustible Liquids.
- All plant and heavy equipment will carry at least one 9 litre water stored fire extinguisher.
- No long grass or deep leaf litter in areas where plant and heavy equipment are working. 4-metre-wide perimeter access track around Project works will provide buffer to prohibit spread of fire.
- Limit smoking to defined ‘Smoking Areas’ at the Project site. All cigarette butts must be appropriately disposed of in the waste facilities provided.
- Allocate warden roles during the pre-construction phase as per Appendix B and provide training in emergency response procedures to ensure the ability of wardens to perform their respective duties.
- Demarcate emergency assembly areas on site plans and by using signage throughout the site.
- Ensure roads are of adequate width and have adequate vertical clearance to allow for the efficient movement of fire fighting vehicles where required.
- Locate mobile water access points (mobile 400L firefighting tanks) in safe, easily identifiable areas, accessible in all weather conditions at active worksites away from the Blue Gum Substation.
- The Blue Gum Substation water access point to be able to support a load limit of at least 15 tonnes.
- Demarcate the Blue Gum Substation water access point with signage as specified within the CFA’s Guidelines for Identification of Street Hydrants for Fire Fighting Purposes.
- Provide access for fire brigade appliances to park within 4m of the Blue Gum Substation water supply outlets on a hard standing area.
- Ensure the emergency egress routes are clear and maintained
- Provide fire suppression equipment in accordance with CFA guidelines for construction activities at the site.

- Provide induction training for all personnel that includes the emergency procedure to be followed in the case of a fire event and the roles and responsibilities of wardens
- Install an Emergency Information box/cabinet at the main entrance/access to the Project site. The cabinet will contain a site plan, relevant contact details of key personnel (in particular for after hours), details of any dangerous goods stored on site including Safety Data Sheets (SDSs) and a copy of this WPERMP.
- Lock access gates to the site with Fire Service '003' padlocks in addition to any company padlocks.
- Retain the perimeter road surrounding the Project site to allow easy access across the site.

4.3 Operational mitigation actions

Operation and maintenance of the transmission line and Blue Gums Substation will be undertaken with the Electricity Safety (Electric Line Clearance) Regulations 2015 and AusNet Service's processes (see Appendix C).

5. Emergency Preparedness and Response

As part of the site induction, all visitors and new personnel will undergo induction training prior to construction commencing onsite that will include the Project Emergency Response Procedure, emergency contacts, and the location of the emergency meeting point. The following section outlines the initial response procedure, emergency response protection priorities, and emergency contact details.

All personnel:

1) On discovery of a fire, or in the event of an emergency near the site, inform the person in charge (by phone or in person) e.g. Contractor Construction Site Supervisor, Contractor Site Safety & Environmental Officer, and provide location, nature and extent of the fire

2) Call 000 if the incident presents an immediate threat to human health and/or property.

Site manager:

1) Determine the nature, location, best access and extent of the fire, and the likely development of the fire over the forthcoming hour.

2) Direct visitors, contractors and service personnel to the designated emergency meeting point (muster point)

3) Call 000

4) Advise neighbouring landholders (if accessible)

5) Advise relevant authorities including the EPA, WorkSafe, and Moyne Shire Council

6) Use fire-fighting equipment only if trained and it is safe to do so

7) Determine the need for additional services or evacuation.

Other personnel:

1) Report to the designated emergency meeting point immediately

2) Unless directed otherwise or part of the firefighting crew, stay away from the fire area

3) Assist or vacate the site as instructed.

000 must be called in the event of an emergency if the fire brigade, police or an ambulance are required.

5.1 Emergency contact details

Table 5.1 outlines emergency points of contact in the event of an emergency

Table 5.1 : Emergency contact details

Name	Organisation	Phone
Emergency Services	Fire	000
	Local CFA (South West District 5)	(03) 5551 1500
	Ambulance	000
	Police	000

Name	Organisation	Phone
	SES	1800 226 226
	EPA Victoria	1300 372 842
	Moyne Shire	1300 656 564
	WorkSafe Victoria	13 23 60
	Department of Environment, Land, Water and Planning	136 186
	Vic Emergency Hotline	1800 668 511
Project Staff	Tilt Renewables Project Director	All personnel will be provided with necessary contact details during site induction.
	Principal Construction Contractor	
	Contractor Construction Site Supervisor	
	Contractor Site Safety & Environmental Officer	
Transmission Network Service Provider	AusNet Services	All personnel will be provided with necessary contact details during site induction.

5.2 Spill control procedure

The spill response procedure is detailed in Section 5.3 of the overarching EMP's Hydrocarbon and Hazardous Substances Management Plan (sub-plan D).

5.3 Fire danger and warnings

The Fire Danger Rating for the Project site is available on the Bureau of Meteorology website and will be reviewed daily during the fire season. If a Total Fire Ban is declared for any District by the CFA, activities at the site will cease. Restrictions on construction activities during the Fire Danger Period and days of Total Fire Ban are detailed in Table 5.2.

Table 5.2 : Construction and operational activity restrictions (CFA 2016)

Activity	Restrictions during the fire danger period	Restrictions on total fire ban days
Welding, grinding, charring, soldering or gas cutting, heating bitumen	These activities cannot be carried out unless: • A fire-resistant shield or guard is in place to stop sparks, hot metal or slag from the fire • An area at least 1.5m from the operation is clear of flammable material or wetted down sufficiently to prevent the spread of fire • A connection to a reticulated water supply or water spray knapsack containing at least 9 litres of water is available • All cut-offs and hot materials from the operation are placed in fire-proof containers • A person is in attendance at all times while the fire is alight, and has the capacity and means to extinguish the fire • The fire is completely extinguished before the person leaves • Notification to the Barwon branch of the CFA when high fire risk construction work is being carried out.	These activities are banned on Total Fire Ban Days. In limited circumstances. CFA, MFB or DELWP may issue a section 40 permit on Total Fire Ban Days to allow work with fire or a potential ignition source
Use of tractors, slashers, earth moving, excavating or road-making machines	These cannot be used unless the machinery: • Is free from faults and mechanical defects that could cause an outbreak of fire • Is fitted with a spark arrester in working order, a turbocharger or exhaust	Equipment should be avoided wherever possible because the risk of starting fires is extremely high and the impact of fire

Activity	Restrictions during the fire danger period	Restrictions on total fire ban days
propelled by a heat engine within 9m of any crops, grass, stubble, weeds, undergrowth or other vegetation	aspirated air cleaner • Carries fire suppression equipment comprising either: - At least one knapsack spray pump, in working order, fully charged with water, with a capacity of not less than 9 litres, or - At least one water (stored pressure) fire extinguisher, in working order, fully charged with water and maintained at the correct pressure, with a capacity of not less than 9 litres • Is only diesel operated	these days may be much greater. If the work is essential, follow the guidelines in the adjacent column for Fire Danger Period.

5.4 Operations

Within three months after the commencement of the operation of the transmission line, the operator of Tilt Renewables Project Director will facilitate a familiarisation visit to the site and explanation of emergency services procedures for:

- the CFA (including headquarters level, the CFA Regional Office and local volunteer brigade);
- subsequent familiarisation sessions for new personnel of the CFA; and
- if requested, training of personnel of the CFA, in relation to suppression of wind energy facility fires.

Appendix A. Risk rating methodology

Likelihood	Consequence				
	Minor (A)	Moderate (B)	Major (C)	Critical (D)	Catastrophic (E)
Almost Certain (5)	Low (A5)	Medium (B5)	High (C5)	Very High (D5)	Very High (E5)
Probable (4)	Low (A4)	Medium (B4)	High (C4)	High (D4)	Very High (E4)
Occasional (3)	Very Low (A3)	Low (B3)	Medium (C3)	High (D3)	High (E3)
Improbable (2)	Very Low (A2)	Very Low (B2)	Low (C2)	Medium (D2)	Medium (E2)
Rare (1)	Very Low (A1)	Very Low (B1)	Very Low (C1)	Low (D1)	Low (E1)

Likelihood description

Rating	Likelihood description for systems
Almost certain	Expected to occur several times a year or often during the system lifecycle. Is known to occur frequently in similar systems being used in the same role and operating environment.
Probable	Expected to occur one or more times per year or several times in the system lifecycle. Is known to occur previously but is not certain to occur.
Occasional	Expected to occur less than once per year or infrequently during system lifecycle.
Improbable	Not expected to occur, but possible to experience one or more events during the system lifecycle.
Rare	Only expected to occur in rare or exceptional circumstances or no more than once during the system lifecycle.

Consequence description

Rating	Consequence description
Catastrophic	Multiple fatalities OR 10 or more injuries/illnesses categorised as 'critical'
Critical	Single fatality and/or permanent total disability IR 10 or more industries or illnesses categorised as 'major'.
Major	Serious injury or illness requiring immediate admission to hospital as an inpatient and/or permanent partial disability OR 10 or more major injuries/illnesses categorised as 'moderate'.
Moderate	Injury or illness causing no permanent disability, which requires non-emergency medical attention by a registered health practitioner OR 10 or more injuries or illnesses categorised as 'minor'.
Minor	Minor injury or illness that is treatable in the workplace (first aid) or by a registered health practitioner, with no follow up treatment required.

Appendix B. Warden structure and Equipment requirements

Table 5.3 : Warden structure and equipment requirements for the Project site

Warden structure and responsibilities	
Chief Warden	Proceed to emergency control point Take control of emergency control point Evaluate situation Select preferred Assembly Area Establish communication with wardens Contact emergency services Evacuate all/parts of site Control access to site Deal with mobility impaired / Refusals Obtain all clear from emergency services
Deputy Chief Warden	Proceed to emergency control point Go to emergency control point Assist with Evacuation procedures under directions of the Chief Warden Assume duties of Chief Warden in the absence of Chief Warden Maintain record of all areas evacuated
Warden	Proceed to warden control point Carry out instructions from Chief Warden If required and safe, commence fire fighting Where evacuation required: Search area of responsibility Direct occupants to fire exits and other protected areas Assist the disabled Communicate with the Deputy Chief Warden
Equipment requirements during the fire danger period	
Personal transport vehicles	1kg ABE Dry chemical extinguisher On site communications (mobile phone)
Storage Tanks	Maintenance of the minimum capacity of 22,500L of water on site.
Mobile Equipment	Mobile 400L firefighting tank
Vehicles/ Trucks and Plant	Stored Pressure extinguisher containing 9 litres (minimum) of water, or 15L knapsack or 4.5kg ABE Dry chemical extinguisher Fire rake hoe Appropriately equipped First Aid Kit Tow rope or snatch strap Pair of wire cutters Sufficient fire blankets to cover all passengers (minimum of 2) Communications equipment

Appendix C. AusNet Services operation and maintenance procedures

Bushfire Mitigation Plan

Electricity Transmission Network

Document number	BFM 10-02
Issue number	17
Status	Approved
Author:	Andrew Walsh
Approver	Alistair Parker
Date of approval	25/06/2014

missionzero

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Contact

This document is the responsibility of the Network Safety Manager, Asset Management Division, AusNet Services.

Please contact the indicated owner of the document with any inquiries.

AusNet Services
Level 31, 2 Southbank Boulevard
Melbourne Victoria 3006
Ph: (03) 9695 6000

Foreword

Welcome to AusNet Services' Bushfire Mitigation Plan (the Plan).

The Plan outlines how we will manage our electricity transmission network to mitigate bushfire risk and fulfil our commitment to provide our customers with a reliable and safe electricity supply.

As the owner and operator of electrical assets, AusNet Services is required under the *Electricity Safety Act (1998)* to provide a Plan (5-yearly), including requirements set out in the *Electricity Safety (Bushfire Mitigation) Regulations (2013),* for approval by Energy Safe Victoria (ESV).

The Plan is subjected to annual internal and external review to provide an objective and robust framework for its continued development, including the adoption of emerging technologies and innovative ideas.

As the chairperson of our Network Safety Management Committee, I trust this Plan conveys key aspects of our Bushfire Mitigation Program and welcome contributions for the continued development of its effectiveness.

APPROVED FOR THE MINISTER FOR PLANNING

SHEET 156 OF 365

Alistair Parker
General Manager
Asset Management

Signatories to the Bushfire Mitigation Plan:

Endorsed by	Recommended by	Prepared by
		
Edoardo Viel Manager Asset Engineering	Phillip Bryant Network Safety Manager	Andrew Walsh Bushfire Mitigation Manager

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1 SCOPE

The Bushfire Mitigation Plan (the Plan) describes AusNet Services' preventative strategies, procedures and processes within its Asset Management System used to monitor, investigate, report, analyse and implement programs to mitigate the risk of fire ignition associated with its supply networks.

The Plan applies to all AusNet Services operations and activities that could affect bushfire conditions.
Where applicable, it incorporates activities of all AusNet Services personnel as well as agents, consultants and contractors to the Company engaged in operation and maintenance of the networks operated under the Electricity Safety Management Scheme (ESMS).

The requirements specified in the Plan are to be treated as the minimum standard to be met and may be supplemented by local procedures if required.

2 OBJECTIVES

2.1 OVERVIEW

The Bushfire Mitigation Management Plan (the Plan), as required by the Electricity Safety Act 1998, forms part of our approved Electricity Safety Management Scheme (ESMS).

The ESMS ensures our Asset Management System has the appropriate structure of policies, processes, procedures and standards that will deliver our strategic objective of providing our customers with a safe and reliable electricity supply.

The Plan describes the policies, strategies and procedures within the Asset Management System that form our bushfire mitigation program, together with the processes for implementation, monitoring and review to ensure the Plan remains effective.

In addition to our ESMS, which is approved by Energy Safe Victoria, AusNet Services maintains quality assurance over its Asset Management System through certification to AS/NZS 4801 -- Occupational Health & Safety Management Systems, ISO9001 – Quality Management Systems, ISO14001 – Environmental Management System and ISO55001 – Asset Management.

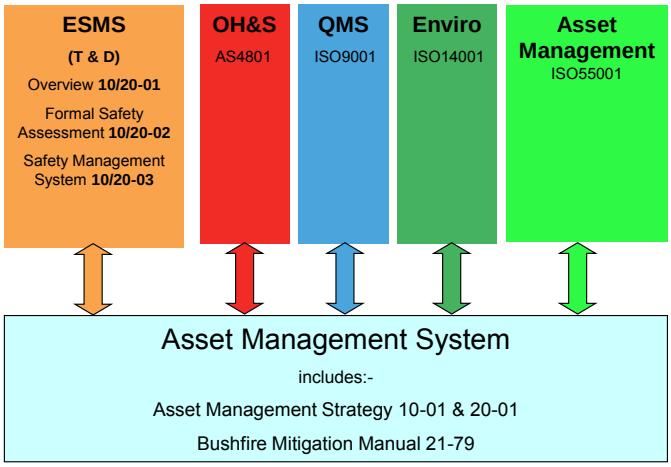


Table 2-1 Asset Management System Certification & Approval

Compliance with relevant legislative obligations, the ESMS and the Plan is monitored by our Network Safety Management Committee. The Plan is subjected to annual internal and external review to provide an objective and robust framework for its continued development, including the adoption of emerging technologies and innovative ideas.

2.2 KEY OBJECTIVES

The objectives of AusNet Services' transmission network bushfire mitigation program are to effectively manage bushfire-related risks associated with the transmission of extra-high voltage electricity in order to ensure the safety of the public, AusNet Services (transmission) personnel and assets, and maintain the reliability of electricity supply.

The key objectives of the Bushfire Mitigation Plan are:

- Describe the strategies and programs implemented to mitigate the risk of fire ignition from supply network assets,
- Describe the processes and procedures for monitoring the implementation and effectiveness of the bushfire mitigation strategies and programs,
- Describe the corrective action processes and procedures for ensuring effectiveness of the bushfire mitigation program,
- Describe the processes and procedures that apply to operation and maintenance of the supply network in high bushfire risk areas during the fire season period and total fire ban days,
- Nominate persons responsible for preparation and implementation of the Plan and their contact details,
- Provide contact details in the event of an emergency, *and*
- Demonstrate compliance with the Electricity Safety (Bushfire Mitigation) Regulations 2013. Appendix 1 provides a compliance matrix for this Plan.

Achievement of these objectives is supported through initiatives that include:

- Use of skilled people and technology to continue the development of safe transmission networks through;
  - Enhanced protection and control
  - Asset condition monitoring and replacement programs
- Consultation with municipalities, landowners and other affected persons to ensure the planting of appropriate trees near powerlines and relocation of powerlines where appropriate.

This Bushfire Mitigation Plan sets out how AusNet Services (transmission) implements these objectives. It should be read in conjunction with the Transmission Vegetation Management Plan and relevant internal policies and procedures.

3 POLICY

3.1 BUSHFIRE MITIGATION

AusNet Services policy is to implement a bushfire mitigation management strategy that complies with legislative requirements and creates a harmonious balance for community safety, preservation of the environment and cost effectiveness.

We aim to:

- Minimise the risk of fire ignitions by AusNet Services' transmission network assets that could become a wildfire and threaten public safety and property;
- Meet the requirements of the Act, Regulations and Code;
- Regularly review and develop management programs, processes, practices, methods and implement efficiencies for the benefit of customers and other stakeholders;
- Minimise the frequency and length of disruptions to the general public;
- Be committed to the safety of the community, as a whole, and employees engaged in the provision of the services;
- Preserve and enhance the environment; *and*
- Raise awareness of all aspects of bushfire mitigation through increased communication

3.2 ASSISTANCE PROVIDED TO FIRE CONTROL AUTHORITIES

AusNet Services' policy in respect to provision of assistance to Fire Control Authorities in their investigation of fires near supply networks' is;

> *AusNet Services will provide assistance and advice to Fire Control Authority personnel to ensure that safe approach distances are maintained in accordance with the relevant 'Limits of Approach' contained within the 'Code of Practice of Electrical Safety for Work on or Near High Voltage Electrical Apparatus' (the Blue Book) for the purposes of their investigation of fire incidents near network assets.*
>
> *Assistance includes ensuring all un-safe electrical assets are made safe before the commencement of investigations and the provision of any reports relating to serious electrical incidents that AusNet Services are required to provide in accordance with the Electricity Safety (Management) Regulations 2009.*

4 REFERENCES

- Asset Management Strategy (AMS 10-01)
- Asset Management Strategy, Transmission Lines (AMS 10-75)
- Bushfire Mitigation Manual (BFM 21-79)
- Electricity Safety Act 1998
- Electricity Safety (Bushfire Mitigation) Regulations 2013
- Electricity Safety (Electric Line Clearance) Regulations 2010
- Electricity Safety Management Scheme (ESMS 20-03)
- Energy Networks Australia, Doc 017-2008, Industry Guideline for the Inspection, Assessment and Maintenance of Overhead Powerlines
- Energy Safe Victoria, Transmission Business Electrical Safety Performance Reporting Guide
- Vegetation Management Plan (BFM 10-06)

5 DEFINITIONS

Act	Electricity Safety Act 1998.
At risk	Overhead electric lines, including their supporting structures and attachments in HBRA.
CEOT	Customer Energy & Operations Team which is the centralised control room for operation of the network.
Code	Code of Practice for Electric Line Clearance (Vegetation) 2010 prescribed for the purpose of Part 8 of the Electricity Safety Act and is the Schedule contained in the Electricity Safety (Electric Line Clearance) Regulations 2010.
ESMS	Electricity Safety Management Scheme as required under the Electricity Safety Act 1998 and Electricity Safety (Management) Regulations 2009 for the provision of an asset management system to safely design, construct, operate, maintain and de-commission supply networks.
Fire danger period	means a period declared under the Country Fire Authority Act 1958.
HBRA	Hazardous bushfire risk area as defined under Section 80 of the Electricity Safety Act. Assets within these areas are defined under the Electricity Safety (Bushfire Mitigation) Regulations as 'at risk supply networks'.
SAMS	Spatial Analysis Management System.
Supply networks	A network consisting of electric lines, substations, circuits and any other thing required for the purposes of the transmission, distribution or supply of electricity; transmission company has the same meaning as in the Electricity Industry Act 2000.
Responsible officer	An AusNet Services employee responsible for initiating, undertaking or approving actions required as part the accountabilities and responsibilities of their job role.

6 GEOGRAPHIC AREA OF RESPONSIBILITY

The AusNet Services transmission network is shown in Figure 6-1 below. For operational purposes the network is divided into three Regions:

Central Region - includes metropolitan Melbourne, with a few areas of high fire hazard in the outer northern and southern suburbs.

Eastern Region - extends from outer eastern metropolitan Melbourne to western Gippsland and into the Latrobe Valley. Beyond metropolitan Melbourne the AusNet Services easements traverse rural land as well as bushland high fire hazard areas including the Bend of Islands and Bunyip State Park.

Northern Region – Extends beyond metropolitan Melbourne to the north and west largely traversing rural agricultural land as well as through and around areas of bushland high fire hazard areas including Kinglake National Park, Alpine National Park, Murray Sunset National Park and Wyperfeld National Park.

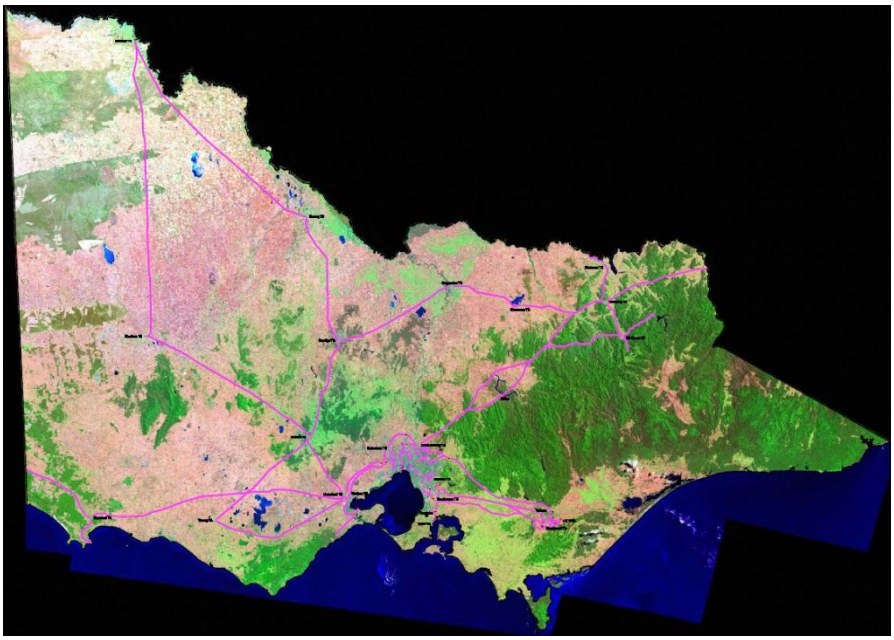


Table 6-1 Satellite Image of AusNet Services Transmission Line Easements

Refer also to Appendix 2 showing an extract of the asset management system (Maximo) that records individual towers and assignment of fire hazard rating of either HBRA (Hazardous Bushfire Risk Areas) or LBRA (Low Bushfire Risk Areas).

7 CONTACTS

Major Electricity Company
AusNet Services Contact Details Level 31, 2 Southbank Boulevard, Southbank 3006 Tel: 9695 6000

Person Responsible for Plan Preparation
Andrew Walsh Contact Details Bushfire Mitigation Manager Level 31, 2 Southbank Boulevard, Southbank 3006 Tel: 9695 6000

Person Responsible for Carrying Out Plan	
Alistair Parker Contact Details General Manager, Asset Management, AusNet Services Level 31, 2 Southbank Boulevard, Southbank 3006 Tel: 9695 6000	Edoardo Viel Contact Details Manager Asset Engineering, Asset Management, AusNet Services Level 31, 2 Southbank Boulevard, Southbank 3006 Tel: 9695 6000

Emergency Contact
Customer & Energy Operations Team 131 799 (24 hours)

Bushfire Mitigation Plan	
AusNet Services Office Level 31, 2 Southbank Boulevard, Southbank Office hours 9.00AM – 5.00PM Mon-Frid; excluding public holidays	AusNet Services Website www.sp-ausnet.com.au/

Table 7-1 AusNet Services Contact List

8 PREVENTATIVE STRATEGIES

8.1 SUMMARY

AusNet Services' ESMS applies a full life cycle asset management philosophy for the management of its electricity networks. This management philosophy supports a continuous improvement approach toward the development and maintenance of preventative strategies. The Asset Management Strategy, Transmission Lines (AMS 10-75) addresses supply network assets and the preventative strategies that mitigate bushfire risk. Implementation of the asset management strategies that mitigate the risk of fire ignition the may result in bushfire is separated into two broad programs:

- General Asset Maintenance & Replacement, *and*
- Targeted Asset Replacement.

The first program contains activities associated with general asset maintenance and replacement. This program consists of a cyclic asset inspection program that identifies assets for maintenance or replacement based upon condition based assessment criteria contained in the Asset Inspection Manual.

The second program of targeted asset replacement is derived through analysis of asset condition and performance monitoring. This process identifies targeted preventative strategies that complement the general maintenance program. Currently, this program consists of a single asset management strategy that is targeting the replacement of 220kV insulator strings to mitigate bushfire risk.

8.1.1 2009 VICTORIAN BUSHFIRES ROYAL COMMISSION RECOMMENDATIONS

The 2009 Victorian Bushfires Royal Commission (VBRC) provided a range of recommendations relating to distribution networks. Recommendations 28 & 29 related to asset inspection intervals in hazardous bushfire risk areas being three years and personnel undertaking inspections to be suitably trained and qualified. These recommendations were subsequently implemented through an amendment to the Electricity Safety (Bushfire Mitigation) Regulations that required transmission networks to comply with these recommendations.

These regulatory obligations are being implemented through a transition from a five year inspection interval for towers in the northern regions to a three year inspection interval by 2015. This will also align with the remaining towers in the network which are already inspected at three year intervals.

Energy Safe Victoria has provided an exemption for the transition to the new three year inspection interval together with acceptance of the training course for personnel undertaking asset inspection activities.

8.2 ASSET MANAGEMENT STRATEGY TRANSMISSION LINES

AusNet Services' Asset Management Strategy, Transmission Lines (AMS 10-75) contains strategies through which transmission lines will be operated and maintained in order to reduce or eliminate asset failures and associated risks which include bushfire. The strategies are maintained through a risk model, illustrated in Figure 8-1. The Model utilises asset condition assessment information derived from the general maintenance and replacement program, together with performance data to identify cost effective targeted program strategies to minimise the risk of asset failures.

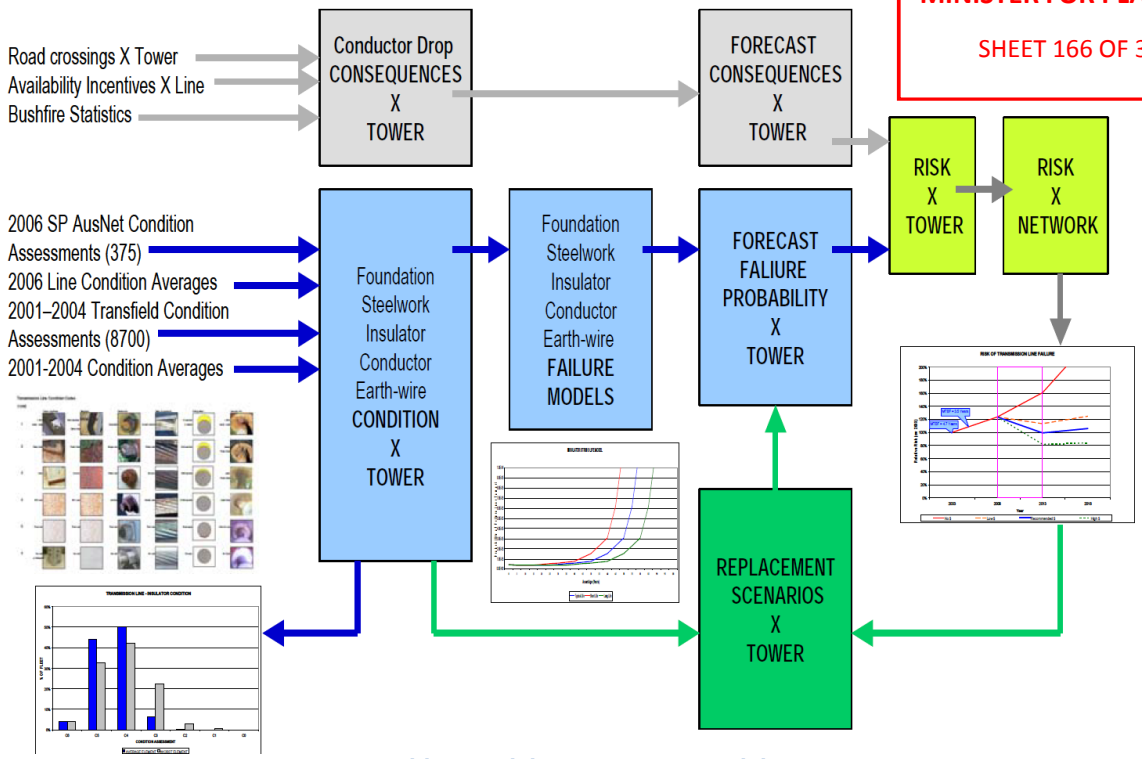


Table 8-1 Risk Assessment Model

8.2.1 GENERAL MAINTENANCE & REPLACEMENT PROGRAM

The general maintenance and replacement program consists of a typical asset inspection program, requiring a climbing inspection by linesmen of individual towers, on a three year interval[1] to undertake condition based assessments of the towers and associated hardware. Linesmen allocate condition assessment ratings of asset components in accordance with asset condition criteria contained in asset inspection procedures. The condition assessment criteria are supported through photographic examples, as partly illustrated in Figure 8-1 of the Risk Assessment Model, of six stages of asset deterioration that support the planning of future asset maintenance and replacement requirements.

The asset inspection program provides a condition based assessment of towers and associated hardware in the following asset groups;

- Tower corrosion
  - Foundation
  - Ground line
  - Above ground line
- Anti-climb devices
- Line hardware
- Insulators
- Conductors & ground wire

The objective of scheduled inspection and maintenance activities is to ensure the safe and reliable operation of electrical assets.

An independent vegetation assessment and maintenance program is also maintained, the details of which are addressed under the Vegetation Management Plan (BFM 10-06), in accordance with the Electricity Safety (Electric Lines Clearance) Regulations 2010, and approved each year by Energy Safe Victoria.

[1] Towers in the northern region are transitioning from a five year inspection interval to a three year interval in accordance with the exemption provided by Energy Safe Victoria.

8.2.1.1. SCHEDULED TOWER INSPECTIONS

A three year interval, cyclic inspection program, is the standard for AusNet Services' supply network assets.

Prior to amendments in 2010 to the Electricity Safety (Bushfire Mitigation) Regulations, towers in the northern region were inspected on a five year interval and all remaining towers inspected on a three year interval. The intervals were established based upon geographical locations and their respective corrosion and pollution levels.

The amendments in 2010 introduced the requirement for at-risk supply networks to be inspected within a maximum 37 month interval and that inspections are undertaken by personnel having been trained in accordance with a course approved by Energy Safe Victoria.

A transition plan has been implemented that will see all towers in the northern region move to a three year inspection interval by 30 June 2015. The plan has been approved and an exemption to the regulations provided by Energy Safe Victoria (ESV) for the transition. ESV have also approved the training course provided for linesmen who undertake asset inspection of transmission lines.

Inspection schedules for towers are set within the asset management system (Maximo) which enables forward planning and forecasting for asset inspection activities. Maintenance and/or replacement activities identified through the cyclic inspections are recorded within the asset management system. Criteria for assessment and prioritisation of asset maintenance are contained within the Asset Inspection Manual.

8.2.1.2. TOWER CORROSION

Inspection of tower corrosion issues focusses on foundations, ground line and above ground line. The general inspection program does not cover foundations, but supports the sampling program that requires excavation of tower footings. The inspection program undertakes corrosion assessment and grading in accordance with asset inspection criteria with results recorded in the asset management system for planning and scheduling of maintenance and replacement activities.

8.2.1.3. ANTI-CLIMB DEVICES

Anti-climb devices reduce the risk of un-authorised access to towers that may result in electrical flashovers, fire, fatality or interruption to supply. The inspection program monitors the condition of the anti-climb barriers to ensure they are maintained in a serviceable condition together with appropriate warning signs.

8.2.1.4. LINE HARDWARE

Ensuring live conductors remain in place relies upon a range of hardware and fittings that may be subject to corrosion, wear and fatigue. Typical issues have been identified and assessment criteria established to assist linesmen in the identification and prioritisation of maintenance and replacement requirements. Preventative strategies for mitigation of wear and fatigue of hardware are addressed through design standards that include the fitting of conductor vibration dampers.

8.2.1.5. INSULATORS

Insulator failures have resulted in conductor drops. Investigation and analysis of these incidents have provided typical failure modes and causes that can be assessed during cyclic inspection. In addition to the condition based assessment and monitoring, the risk of insulator failures is also reduced through preventative maintenance strategies such as insulator washing programs that target lines in areas identified as having higher levels of insulator pollution risk.

The monitoring of insulator condition is also supported through infra-red surveys, forensic testing of insulator samples and in-situ monitoring devices installed in high pollution areas to detect electrical tracking.

8.2.1.6. CONDUCTORS & GROUND WIRES

Conductor wear, fatigue and corrosion are typical conductor failure modes that can result in a conductor drop. Preventative strategies include design standards such as the fitting and maintenance of conductor vibration dampers that extend conductor life through reduction of fatigue and wear caused by vibration.

8.2.1.7. VEGETATION MANAGEMENT

Vegetation clearances along and adjacent to overhead transmission powerlines are managed in accordance with the *Electricity Safety (Electric Line Clearance) Regulations*. Failure to maintain clearance spaces to overhead powerlines provides an increased risk of bushfire ignition through vegetation coming into contact with powerlines.

The Vegetation Management Plan (BFM 10-06) is provided annually to Energy Safe Victoria for acceptance. The Plan includes procedures for the cyclic inspection, customer notification and consultation and the pruning and removal of vegetation to maintain the prescribed clearance spaces.

The Vegetation Management Plan contains procedures for the notification and consultation with customers and stakeholders prior to the commencement of identified pruning and removal works. This process involves the identification of;

- Habitat for endangered species,
- Significant or historical trees,
- Hazard trees.

8.2.2 TARGETED ASSET REPLACEMENT

The general asset maintenance and replacement program includes the cyclic inspection and condition assessment of tower lines. Condition assessment data, together with asset performance data such as in-service failures, combine to inform the identification, development and implementation targeted replacement programs that cost effectively mitigates the risk of asset failure and the potential consequences of bushfire.

8.2.2.1. 220KV INSULATOR REPLACEMENT

The targeted program for the replacement of 220kV insulators on approximately 1,600 towers is scheduled for completion in 2014. These insulators were identified through a combination of post failure analysis and condition assessment data provided through the general maintenance and replacement program. The failure issues identified related to mechanical wear on 16mm and 20mm insulator string fittings.

9 LIST OF WORKS

9.1 GENERAL MAINTENANCE PROGRAM

The general line maintenance program of preventative strategies for network assets in hazardous bushfire risk areas is generated through scheduled cyclic asset inspection and vegetation assessment programs. The works identified from the inspection and assessment programs are assigned a time based prioritisation within which the identified works should be scheduled for action.

The scheduling of works, which includes scheduled asset inspections and vegetation assessments, are monitored through the Bushfire Mitigation Index (BMI). The target during the declared fire season is for the completion of all works within the respective time based prioritisation schedule. Completion of scheduled works within the prioritised dates ensures the BMI produces a zero index. A zero index means that no works are outstanding beyond their scheduled dates.

The table below lists the activities monitored through the BMI and the required times for completion of works.

Inspection Item	**Time Period**
Line Inspection	
All HBRA towers inspected (cyclic)	Inspection interval - 37 month maximum
All LBRA towers inspected (cyclic)	Inspection internal – 61 month maximum
Climbing inspection cycle	
Line Hardware, Insulators, Conductors, Structures.	
Includes mechanical fittings, clamps, spacers, insulators, earth wires, conductors, ground line tower corrosion and above ground line tower corrosion.	
All PT30	rectified within 30 days
All PT180	rectified within 180 days
PT 365	rectified within 365 days
Vegetation Management	
Pre Summer Tree Inspection	Annually by Start of Fire Season
All recorded Code	
PT30	rectified within 30 days
PT 90	rectified within 90 days
Trees actioned by required dates	

Table 9-1 General BFM Maintenance Preventative Strategies Program

9.2 TARGETED ASSET REPLACEMENT

Implementation of preventative strategy programs is monitored by the Network Safety Management Committee to assess the respective impacts on network safety performance outcomes.

10 ASSET INSPECTION

10.1 INSPECTION PLAN

AusNet Services has approximately 13,000 towers which are recorded and managed through an asset management system (Maximo). Inspection of these assets at intervals less than 37 months is achieved through scheduling within Maximo which issues work orders for the climbing inspection of individual towers.

Planning and implementation for the inspection of these assets is co-ordinated through a single management group within AusNet Services and reported monthly to the Network Safety Management Committee (NSMC). A sample of the 2014-2015 program forecast is provided below.

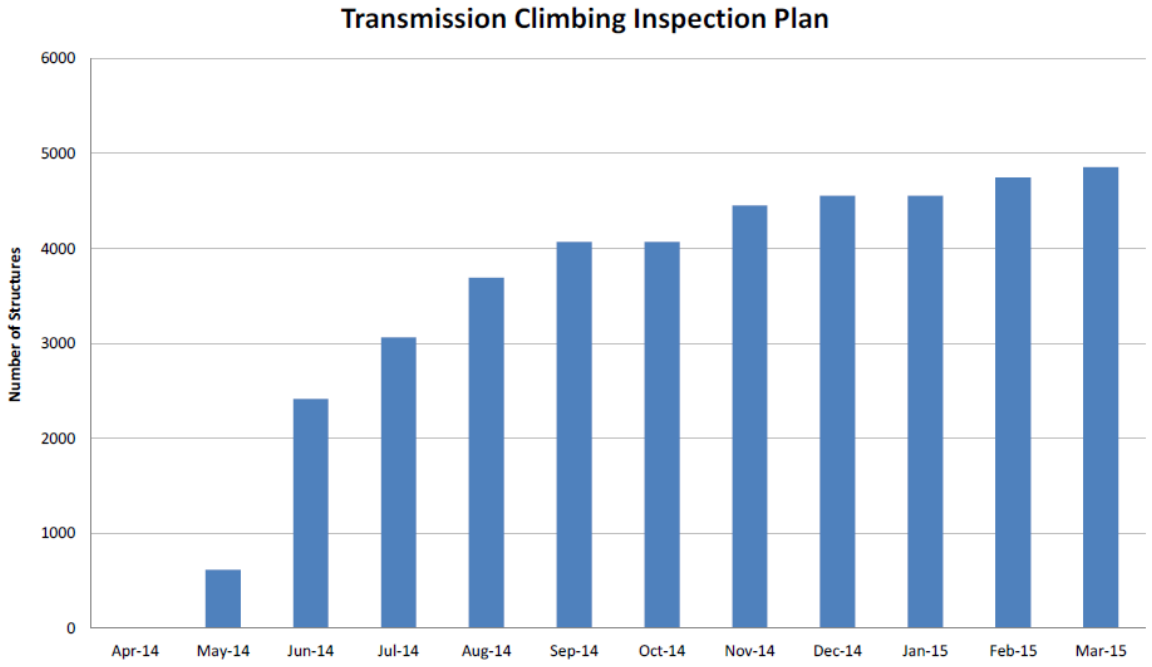


Table 10-1 Typical Annual HBRA/LBRA Inspection Plan

Management reporting from Maximo enables the forecasting of resources through provision of 'look ahead' reports that forecasts the due inspection dates of towers. The identification and separation of asset into HBRA and LBRA is being undertaken in conjunction with the transition to a three year cycle for all towers. Inspection reporting will also move from circuit/line sections to tower numbers.

10.2 INSPECTOR TRAINING

Asset inspection activities are undertaken by qualified transmission linesmen. The training course for asset inspection has been approved by Energy Safe Victoria as shown in Appendix 3. This approval also acknowledged the recognition of prior learning for existing linesmen whose qualifications are recorded in AusNet Services' training register. The Post Description for a Linesman requires the incumbent to maintain competencies through required refresher training.

The asset management system (Maximo) requires the recording of the identification of the asset inspector and audits are undertaken to ensure maintenance of inspection competency as described in Section 13.6.

11 OPERATION & MAINTENANCE PLANS

In addition to Section 6.10 of AusNet Services' Electricity Safety Management Scheme (ESMS 20-03) 'Emergency Preparedness and Response', the following describes the operation and maintenance plans associated with AusNet Services' bushfire mitigation program.

11.1 FIRE EVENTS

11.1.1 INVESTIGATION & ANALYSIS

All network asset related fire events are investigated and reported to Energy Safe Victoria (ESV) in accordance with ESV's *'Transmission Business Electrical Safety Performance Reporting Guide'*. Whilst incidents on the transmission network rarely result in fire bushfire ignition, events are recorded and analysis undertaken in order to identify network asset management strategies that may result in the mitigation of future events that impact general network safety.

Section 6 of the Electricity Safety Management Scheme (EMS 20-03) describes the Asset Management Strategy and its framework of strategies to safely design, construct, operate, maintain and retire transmission network assets.

11.1.2 MANAGEMENT OF FIRE EVENTS

Fire events reported to AusNet Services by customers, personnel or fire control agencies are reported to Energy Safe Victoria (ESV) in accordance with ESV's *'Transmission Business Electrical Safety Performance Reporting Guide'.*

In the event of significant bushfires AusNet Services has processes and procedures in place for assistance and cooperation with interstate Transmission utilities regarding the use of the Emergency Response System (ERS). The ERS involves the sharing of kits of materials used in the temporary construction of line support structures. The ERS operates within AusNet Services' Integrated Response and Contingency System (SPIRACS).

SPIRACS includes a set of standard procedures, the nomination of key personnel, communication arrangements, other support agencies and contractor lists. In the event of a major incident and the implementation of the plan the committee would establish strategies as necessary for the:

- Coordination of the response and electricity supply recovery
- Media releases
- Dealings with government; and
- Any other matters considered appropriate.

The role of AusNet Services will be one of support to the combating agencies such as SES, CFA, MFB and Victorian Police in matters relating to electricity supply and security.
If a disaster is declared by a Fire/Disaster Coordinator, and roadblocks erected, AusNet Services operational personnel must not enter into restricted areas. All operations must be performed external to the restricted areas.

Arrangements may be agreed to between the Fire/Disaster Coordinator and the CEOTM (control room manager) to enable operations within the restricted area. This agreement must hold the safety of personnel paramount and personnel involved must be consulted and their agreement to the arrangements confirmed before entry is undertaken.

11.1.3 NETWORK CONTINGENCY PLANS & STRATEGIES

During previous fire events, AusNet Services' Emergency Management Teams have utilised a number of strategies and contingency plans to either prevent asset damage or provide resources for post fire recovery activities. These include the following;

- Consideration of switching lines out due to electrical flashover caused by smoke,
- Patrol of lines before restoration from tripping,
- Despatching of operational crews to confirm asset security after fire front passes,
- Resource planning and staging which includes;
  - Labour
  - Materials

11.2 TOTAL FIRE BAN DAYS

On Total Fire Ban days the following operation and maintenance plans are applicable.

Prior to the declaration of the fire season AusNet Services will obtain annual fire season permits from the MFB, CFA and DSE enabling the use of fire in the open air on Total Fire Ban days. Copies of the permits will be placed on the AusNet Services Networks Intranet site. Field managers will ensure that relevant personnel within their organisation, including contractors, are advised of the permits.

If restricted activities such as Welding, Gas Cutting, Grinding, using a Blow Lamp or Gas Torch are to be undertaken on days of Total Fire Ban, a current copy of the appropriate permit must be held on site. All conditions on the permits must be adhered to. AusNet Services personnel must ensure that contractors under their control adhere strictly to the conditions of the permits. Field crews shall ascertain total fire ban status prior to commencement of any work in fire hazard areas.

Work on easements on total fire ban days in fire hazard areas must be suspended, unless otherwise specifically approved by the AusNet Services responsible officer. Before work can commence a risk assessment and approval is to be carried out by the responsible officers.

If a Total Fire Ban day occurs prior to the declaration date for a region, priority outstanding maintenance items, including vegetation management items, shall be managed so that they are fire safe. Where a risk has been identified, courses of action may include placing revised load rating or environmental limits on the operation of the line, or switching of the line.

11.3 FIRE DANGER PERIOD

The variation to normal operation and maintenance plans during the declared fire period is the requirement to ensure all inspections, maintenance and asset replacement activities are undertaken within the nominated periods contained in the asset management system (Maximo) in hazardous bushfire risk areas (HBRAs). The monitoring of this activity is done through the Bushfire Mitigation Index which has a target of zero for HBRAs during fire danger periods.

12 FIRE PREVENTION - INVESTIGATIONS, ANALYSIS AND METHODOLOGY

To ensure continuous improvement in network safety, the Network Safety Management Committee (NSMC) monitors a range of network safety performance indicators to identify opportunities to initiate investigations, analysis and implementation of strategies and programs to improve network safety performance. Key fire risk indicators monitored by the NSMC include the BMI, significant incidents (conductor drops) and maintenance trends through asset inspection programs. These indicators are discussed in further detail below.

12.1 INVESTIGATIONS

Network incidents are investigated and reported to Energy Safe Victoria in accordance with the *'Transmission Business Electrical Safety Performance Reporting Guide'*. The incident investigation and reporting procedures and asset management system (Maximo) requires the establishment of a root cause and an asset failure consequence. Analysis of network incident data is provided to the NSMC in the formats presented below to monitor and, where required, initiate investigation and development of recommendations to mitigate bushfire risk.

Network incidents are recorded within Maximo as either a *'System Incident Report'* or *'Defective Apparatus Report'* and provided to relevant stakeholders within and external to AusNet Services.

12.2 ANALYSIS

Analysis of asset condition trends identified through the general maintenance and replacement program, together with the analysis provided in the detailed System Incident Reports and Defective Apparatus Reports combine to inform the on-going development and implementation of asset management strategies discussed in Section 8.

12.3 METHODOLOGY

The methodology applied to ensure mitigation of bushfire risk includes a full life cycle approach for the design, construction, commissioning, operation, maintenance and de-commissioning of network assets. The NSMC monitors network safety and bushfire performance and, where required, initiates investigation and analysis for the development of strategies to cost effectively mitigate safety and bushfire risks. This continuous improvement process is supported by the broader asset and risk management frameworks provided by the Electricity Safety Management Scheme.

13 MONITORING & AUDIT

13.1 MONITORING PLAN IMPLEMENTATION

Monitoring is undertaken through the Network Safety Management Committee (NSMC). The principle objective and role of the NSMC , is to understand and manage the safety and bushfire risks, in planning, designing, constructing, operating, maintaining and decommissioning its supply networks to minimise in so far as is practicable[2]:

a) the hazards and risks to the safety of any person arising from the supply network; and
b) the hazards and risks of damage to the property of any person arising from the supply network; and
c) if that network is an at-risk supply network, the bushfire danger arising from that network.

Accordingly, the Charter for the NSMC is to guide development, implementation and monitoring of network asset management strategies and programs with the objective of minimising risks and hazards to persons and property as low as reasonably practicable (ALARP). The committee, whose membership consists of senior personnel from various business streams, provides the operational leadership and coordination of resources engaged in the development and implementation of bushfire mitigation, vegetation management and asset safety programs designed to achieve this objective.

The NSMC utilise a range of performance indicators to monitor implementation of the Plan which are provided in a monthly Network Safety Report. Among key indicators are;

- ***Bushfire Mitigation Index*** – monitors implementation of inspection, maintenance and replacement activities contained within the General Maintenance program. Maintaining a 'zero index' is a key performance objective during the declared fire season,
- ***Asset Replacement Program reports*** – monitors implementation of individual asset replacement programs.

A hierarchy of management control has been established to monitor performance and control through the structure indicated below.

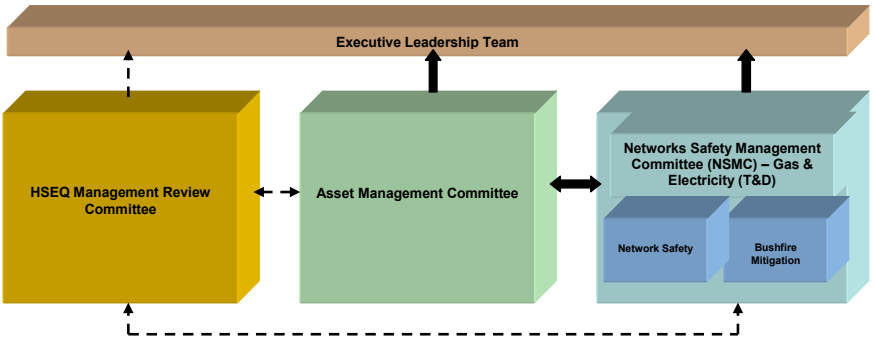


Figure 8 – Hierarchy of Network Safety Management Control

13.1.1 SENIOR MANAGEMENT REVIEW

An annual review of the Bushfire Mitigation program by the senior and executive management group is undertaken. An invitation to attend the review is also extended to members of the Board and CFA. The objective of the review is to allow operational personnel to communicate and demonstrate to key stakeholders the diversity and operational detail of a key risk mitigation

[2] *'Practicable'* means practicable having regard to: - a) the severity of the hazard or risk in question; b) the state of knowledge about the hazard or risk and any ways of removing or mitigating the hazard or risk; c) the availability and suitability of ways to remove or mitigate the hazard or risk; and d) the cost of removing or mitigating the hazard or risk.

program of the business. The review also provides an opportunity to challenge current aspects of the program that may result in the initiation of further mitigation measures.

13.2 AUDITING PLAN IMPLEMENTATION

AusNet Services assets and processes are subject to regular audits to verify compliance with specified technical, operational and safety standards and legislative requirements. Audits are undertaken in accordance with AusNet Services' standard audit procedures to ensure the requisite compliance is achieved in all aspects of the design, construction, installation, operation and maintenance of the AusNet Services network. Health Safety Environment & Quality audits include:

- Technical compliance
  - Work party occupational health & safety
  - Work sites, depots and offices safety & environment,
  - Work quality
  - Asset standards
- Management systems
  - Data and information management
  - Procedure reviews

Teams undertaking these audits are trained and competent to ensure a consistent and effective approach to auditing is maintained. The audits are undertaken using the asset life cycle methodology of design, construction and maintenance and are undertaken in the following categories relating to bushfire mitigation activities:

- Inspection & assessment
  - Asset inspection
  - Vegetation clearances
- Work execution
- Work party occupational health & safety
- Quality of work
  - Compliance with asset standards
  - Compliance with vegetation clearances and practices

Results of the Health, Safety, Environment and Quality (HSE&Q) audits are reported monthly to senior and line management and include audit summaries for the period identifying audits performed against audits scheduled, their percentage score and associated grading; trend analysis and improvement initiatives; and, recommendations on future directions.

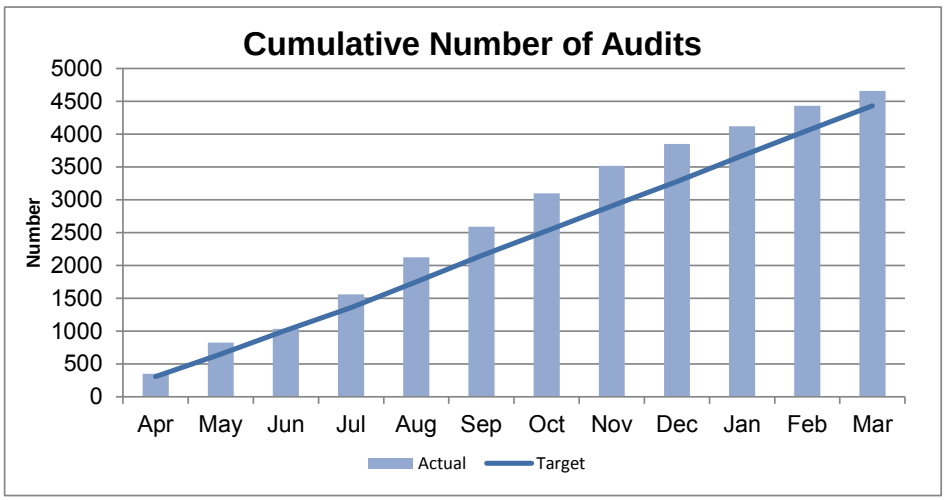


Figure 9 – Example of Audit Reporting

Audit recommendations and observations are recorded in a quality management system (Issues Management System) which provides an automated process for notification and follow-up of persons responsible for implementation.

13.2.1 ENERGY SAFE VICTORIA AUDITS

Energy Safe Victoria (ESV) undertake an annual desk top and field audit of AusNet Services' Bushfire Mitigation Plan and scheduled audit of the Electricity Safety Management System. Agreed recommendations and observations have an implementation plan developed and actions assigned to responsible persons. The implementation plan is recorded in a quality management system (IMS) for implementation.

13.2.2 CERTIFICATION AUDITS

Certification for the following management systems is maintained through a program of regular mandatory compliance audits by independent and accredited service providers;

- ISO 55001 – Asset Management – Management Systems
- AS 4801 – Occupational Health & Safety System
- ISO 9001 – Quality Management System
- ISO 14001 – Environmental Management System

13.3 PLAN EFFECTIVENESS

The Network Safety Management Committee (NSMC) identifies deficiencies in the Plan's implementation through the following key performance indicators;

Bushfire Mitigation Index – The BMI monitors progress in the inspection of assets and assessment of vegetation against program target dates. The BMI then monitors the completion of asset maintenance and replacement activities identified through the inspection and assessment programs.

Asset Replacement Programs - The delivery of individual asset management strategies against program targets is monitored and reported quarterly to Energy Safe Victoria.

The Network Safety Management Committee identifies deficiencies in the Plan's effectiveness through the following key performance indicators;

Fire Incidents – Individual fire incidents are reviewed and reported in the monthly Network Safety Report to the NSMC. Fire incidents associated with transmission network assets are rare.
Reportable Incidents – Incidents reportable to Energy Safe Victoria, in accordance with their *'Transmission Business Electrical Safety Performance Reporting Guide',* are monitored to identify trends that may impact network safety.

13.4 INSPECTIONS EFFECTIVENESS

The effectiveness of inspection programs is critical with ensuring the safe and reliable operation of the network. Investigations and analysis, discussed in Section 12, of network asset failures provides an iterative process for review of inspection programs to ensure their effectiveness. Two key areas of focus that ensure inspection programs remain effective are;

- Inspection criteria & methods, and
- Quality of inspections undertaken.

13.4.1 ASSET CONDITION ASSESSMENT CRITERIA AND METHODS

Continuous monitoring and analysis of asset failures provides opportunities to identify modifications to current asset assessment, maintenance or replacement criteria that will further mitigate the risk of failure. The Risk Model, illustrated in Figure 8-1, and its process includes application of analysis methodologies such as Failure Modes Effects and Cause Analysis (FMECA), supports AusNet Services' Asset Management Strategy (AMS 10-01) and its suite of

individual asset management strategies which includes the Asset Management Strategy, Transmission Lines (AMS 10-75).

Asset performance indicators such as Reportable Incidents, System Incident Reports and Defective Apparatus Reports are tools that are used to identify opportunities to develop practicable and effective inspection criteria or methods that can be cost effectively deployed to prevent un-planned failures. This continuous improvement and development process for asset inspection has resulted in the following methods and techniques, which are consistent with the *ENA Inspection Guideline*[3], being utilised in asset inspection;

- Thermography surveys,
- Radio frequency surveys,
- Corona surveys,
- Calibration of visual asset inspection criteria,
- High resolution digital photography supported by
  - Helicopter mounted cameras,
  - Ground based inspector use of cameras.
- Sampling and forensic analysis of asset components,
- Asset management systems to support recording and monitoring of asset performance,
- Energy Safe Victoria approved inspection training courses

13.4.2 QUALITY OF INSPECTIONS

Within the corporate auditing framework discussed in Section 13.2, is the audit of quality of inspection and vegetation clearance assessments. Audits of individual inspectors and assessors are undertaken against established sampling rates and quality assessment criteria. The assessment template is designed to monitor an inspector or assessor's level of compliance and competence with inspection of assets in accordance with the criteria and standards contained in the Asset Inspection Manual procedures. The templates assign appropriate levels of risk weighting to individual inspection criteria. An inspector or assessor's inspection quality is monitored and discussed with the individual to ensure the maintenance of required standards.

13.5 PLAN IMPROVEMENTS

The Network Safety Management Committee monitors the following indicators to identify, initiate and implement opportunities for improvement of the Plan's overall effectiveness;

- Asset safety performance indicators
  - Reportable Incidents
  - Line drops
  - Explosive failures
- Program implementation indicators
  - Bushfire Mitigation Index,
  - Asset replacement program implementation
- Audits
  - Inspection & assessment audits,
  - Work quality audits,
  - Energy Safe Victoria compliance audits, *and*
  - Certification surveillance & compliance audits

13.6 TRAINING

AusNet Services has established 'Skilling for the Future' strategies that identify long term resource levels and skill mix requirements. Post descriptions for the respective roles within AusNet Services' work environment contain qualification, skills and competency requirements.

[3] Energy Networks Association, Industry Guideline for the Inspection, Assessment and Maintenance of Overhead Powerlines, ENA Doc 017-2008

AusNet Services' personnel are managed through a centralised human resource data base. Contractual arrangements for external resource provision specify minimum qualifications, skills and competency requirements.

The minimum level of skill and competence for each category of worker is established by the Victorian Electricity Supply Industry (VESI) and are based on the standards in the national Electricity Supply Industry (ESI) – Transmission, Distribution and Rail Sector Training Package (UET09) in accordance with National Competency Guidelines. This includes initial and cyclic refresher training requirements. Competencies and training of service providers are managed by the respective service providers and are also required to comply with the Electricity Supply Industry requirements.

National training competencies are delivered by a Registered Training Organisation (RTO) whose scope of registration includes the required competencies. All RTOs are required to meet the standards as outlined in the 2007 training framework[4]. All Passport refresher modules which are not nationally accredited may be delivered by a person who holds as a minimum a Certificate IV in Workplace Training and Assessment (or equivalent) and is able to demonstrate vocational competence and experience in the subject matter of the Passport module they are delivering.

To ensure only competent and qualified personnel are permitted to work on the electrical network, competencies and training are recorded in AusNet Services' learning content management systems and are shown in the individual's VESI Network Passport.
AusNet Services' training and competency requirements are reflected, as required, in respective contracts with third party service providers.

Section 6.12 'Training and Competency' of the Electricity Safety Management System (ESMS 20-03), details the enterprise wide framework.

13.6.1 ASSET INSPECTION TRAINING COURSE

The training courses for transmission linesmen undertaking asset inspection work are approved by Energy Safe Victoria as required by the Electricity Safety (Bushfire Mitigation) Regulations. Refer Appendix 3.

13.7 INSPECTOR COMPETENCY

13.7.1 AUDIT

Competence of linesmen undertaking transmission asset inspection is essential to ensuring the on-going effectiveness of inspection programs and their ability to maintain the safe and reliable operation of the network. Accordingly, work quality audits for individual inspectors engaged in asset inspection and personnel engaged in vegetation assessment are undertaken against established sampling rates and quality assessment criteria. The respective assessment templates are designed to monitor an inspector's level of compliance and competence with inspection of assets or vegetation in accordance with criteria and standards contained in the Asset Inspection Manual and Vegetation Management Plan respectively. The templates assign appropriate levels of risk weighting to individual inspection criteria. An inspector's quality of work is monitored and discussed with the individual to ensure the maintenance of required standards.

13.7.2 MONITORING

The results of audits are monitored to identify deficiencies and trends that require implementation of corrective actions. In accordance with AusNet Services' quality management system and procedures, corrective actions are recorded in a quality management system

[4] Australian Quality Training Framework 2007 - Essential Standards for Registration

(Issues Management System) and implementation of actions monitored through the Network Safety Management Committee.

14 PUBLIC AWARENESS

14.1 GENERAL

AusNet Services has produced the following brochures for public information provided in Table 14-1.
AusNet Services also has developed a "Fire Mitigation Campaign – Media Schedule" which may include a list of newspapers, TV and radio spots, along with the timing, we will be targeting for placement of advertising in relation to bushfire mitigation.

Publication Material	Availability
Your Guide to Planting Near Powerlines	Freshwater Place Southbank (8.30 am to 5.00 pm Monday to Friday). Call Centre **1300 360 795** www.sp-ausnet.com.au/
Brochure *Private Electric Lines Your Responsibilities*	Freshwater Place Southbank (8.30 am to 5.00 pm Monday to Friday). Call Centre **1300 360 795** www.sp-ausnet.com.au/
BFM Advertising Material	Regional TV, Radio, Newspaper & Billboards www.sp-ausnet.com.au/

Table 14-1 Customer Information Publications

Advertising campaigns are undertaken utilising a combination of the following media:-

- Visually descriptive television awareness campaigns
- Newspaper advertisements in various newspapers
- Articles and advertisements in various journals and magazines
- Radio commercials communicating fire awareness messages; and
- Other mediums as the opportunity arise.

The Public Relations & Communications Manager ensures effectiveness of communication programs through;

- Review of the effectiveness of public awareness programs
- Making recommendations to the Network Safety Management Committee on the public awareness program; and
- Coordinate the public awareness program.

15 APPENDICES

15.1 APPENDIX 1 - PRESCRIBED PARTICULARS OF BUSHFIRE MITIGATION PLAN

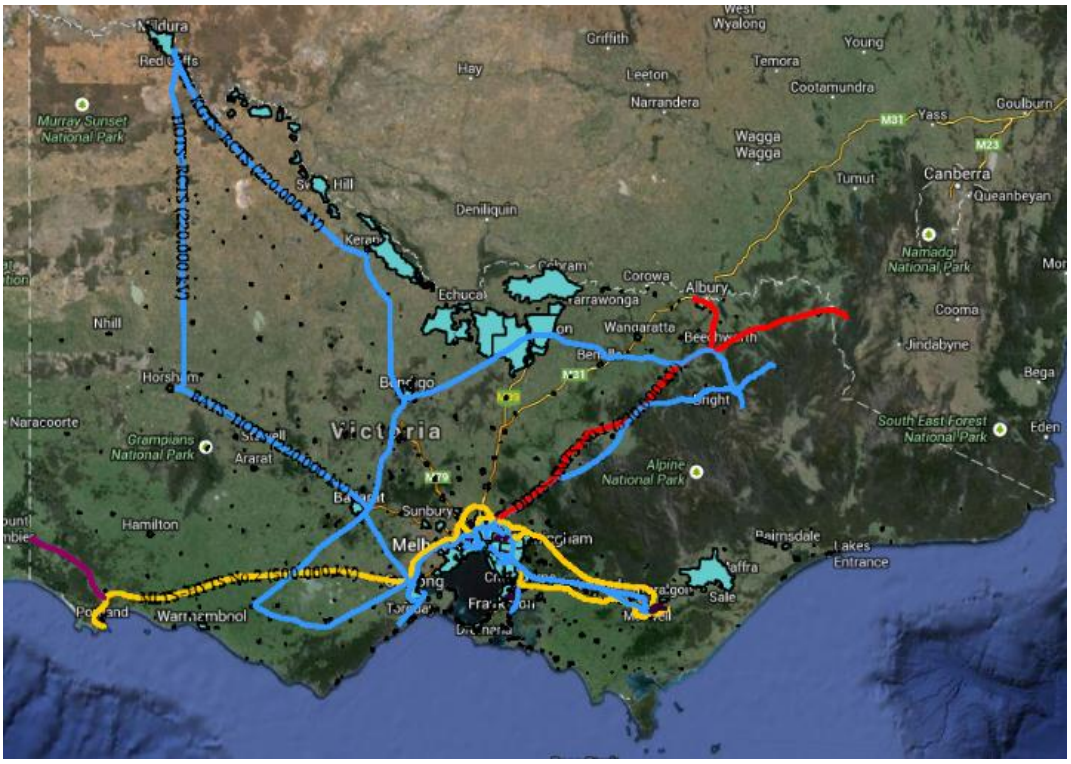
Regulation	Requirements *Electricity Safety (Bushfire Mitigation) Regulations 2013*	AusNet Services Reference Document
7 (1)(a)	the name, address and telephone number of the major electricity company	This Document - Section 7
7 (1)(b)	the position, address and telephone number of the person who was responsible for the preparation of the plan	This Document - Section 7
7 (1)(c)	the position, address and telephone number of the persons who are responsible for carrying out the plan	This Document - Section 7
7 (1)(d)	the telephone number of the major electricity company's control room so that persons in the room can be contacted in an emergency that requires action by the major electricity company to mitigate the danger of bushfire	This Document - Section 7
7 (1)(e)	the bushfire mitigation policy of the major electricity company to minimise the risk of fire ignition from its supply network	This Document - Section 3
7 (1)(f)	the objectives of the plan to achieve the mitigation of fire danger arising from the major electricity company's supply network	This Document - Section 2
7 (1)(g)	a description, map or plan of the land to which the bushfire mitigation plan applies	This Document - Section 6 This Document - Appendix 2
7 (1)(h)	the preventative strategies and programs to be adopted by the major electricity company to minimise the risk of the major electricity company's supply networks starting fires	This Document - Section 8
7 (1)(i)	a plan for inspection that ensures that: (i) the parts of the major electricity company's supply network in hazardous bushfire risk areas are inspected at intervals not exceeding 37 months from the date of the previous inspection; and (ii) the parts of the major electricity company's supply network in other areas are inspected at specified intervals not exceeding 61 months from the date of the previous inspection;	This Document - Section 9
7 (1)(j)	details of the processes and procedures for ensuring that each person who is assigned to carry out inspections referred to in paragraph (i) and of private electric lines has satisfactorily completed a training course approved by Energy Safe Victoria and is competent to carry out such inspections;	This Document - Section 10.2
7 (1)(k)	details of the processes and procedures for ensuring that persons (other than persons referred to in paragraph (j)) who carry out or will carry out functions under the plan are competent to do so	This Document - Section 10.2
7 (1)(l)	the operation and maintenance plans for the major electricity company's supply network (i) in the event of a fire; and (ii) during a total fire ban day; and (iii) during a fire danger period	This Document - Section 11
7 (1)(m)	the investigations, analysis and methodology to be adopted by the major electricity company for the mitigation of the risk of fire ignition from its supply network	This Document - Section 12

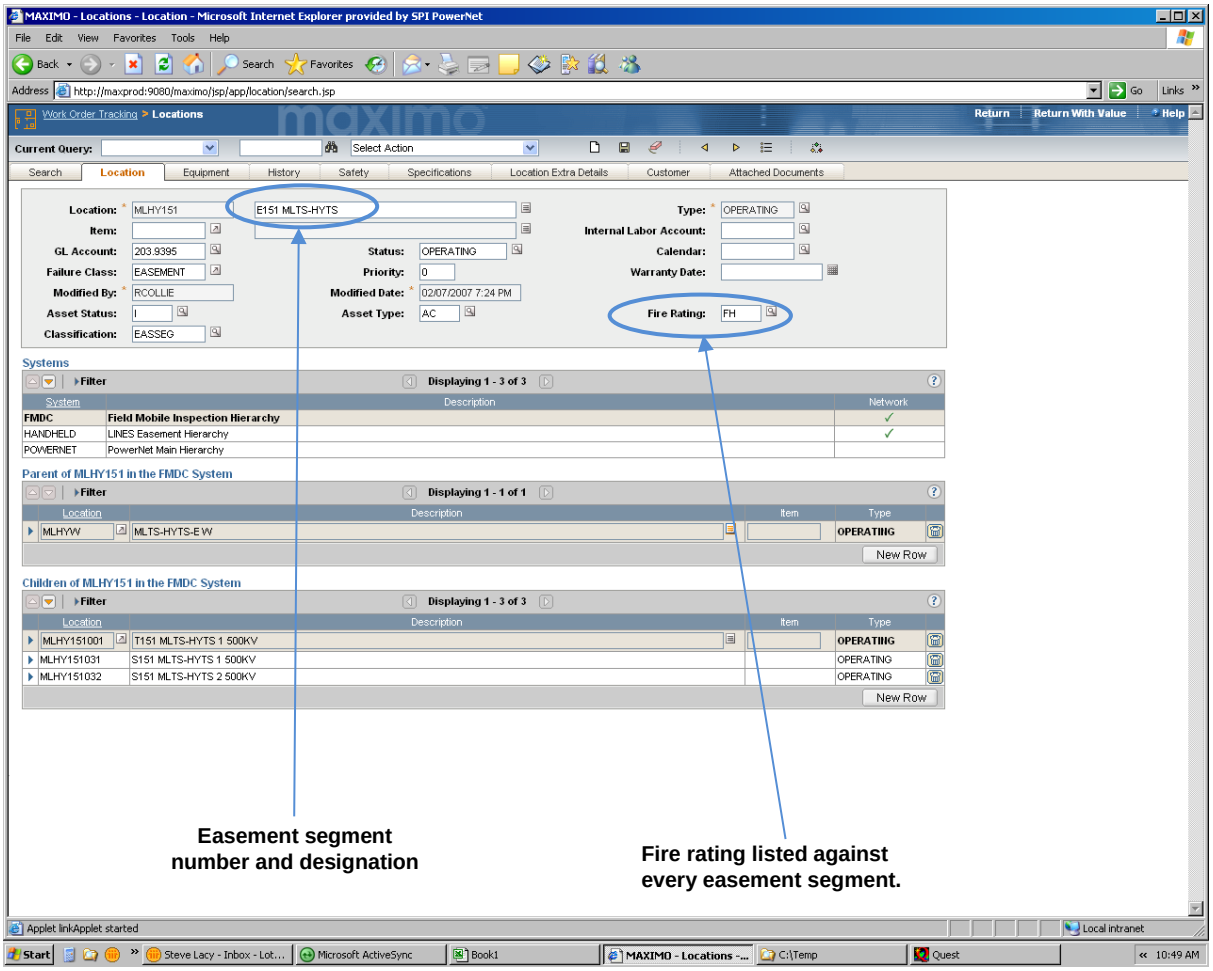
Bushfire Mitigation Plan – Electricity Transmission Network

Regulation	Requirements *Electricity Safety (Bushfire Mitigation) Regulations 2013*	AusNet Services Reference Document
7 (1)(n)	details of the processes and procedures by which the major electricity company will	
	(i) monitor the implementation of the bushfire mitigation plan; and	This Document - Section 13.1 & 13.2
	(ii) audit the implementation of the plan; and	This Document - Section 13.3
	(iii) identify any deficiencies in the plan or the plan's implementation; and	This Document - Section 13.4
	(iv) change the plan and the plan's implementation to rectify any deficiencies identified under subparagraph (iii); and	This Document - Section 13.5
	(v) monitor the effectiveness of inspections carried out under the plan; and	This Document - Section 13.6
	(vi) audit the effectiveness of inspections carried out under the plan	This Document - Section 13.7
7 (1)(o)	the policy of the major electricity company in relation to the assistance to be provided to fire control authorities in the investigation of fires near the major electricity company's supply network	This Document - Section 3
7 (1)(p)	details of processes and procedures for enhancing public awareness of (i) the responsibilities of owners of private electric lines that are above the surface of the land in relation to maintenance and mitigation of bushfire danger; (ii) the obligation of the major electricity company to inspect private electric lines that are above the surface of the land within its distribution area	This Document - Section 14 (POELs not applicable to transmission network)
7 (1)(q)	a description of the measures to be used to assess the performance of the major electricity company under the plan.	This Document - Section 13
Section	**Electricity Safety Act 1998**	
113A (3)	A major electricity company must cause a copy of its accepted bushfire mitigation plan to be made available for inspection- (a) on the company's Internet site; and (b) at the company's principal office in the State during ordinary business hours.	This Document - Section 7

15.2 APPENDIX 2 – DISPLAY & SAMPLE ASSET RECORD

Sample Spatial Analysis Management System (SAMS) display of the HBRA & LBRA fire zones and recording of transmission line segment and fire hazard rating in the asset management system (Maximo).





15.3 APPENDIX 3 – APPROVED INSPECTION TRAINING COURSE

ESV ref: G61045

energysafe VICTORIA

Creating a safer state with electricity and gas

10 February 2012

Dhammika Adihetty
Director Network Engineering
SP AusNet
Locked Bag 14501
MELBOURNE VIC 8001

Dear Mr Adihetty

ASSET INSPECTION TRAINING COURSE

As you are aware, section 5A(k) of the Electricity Safety (Bushfire Mitigation) Regulations 2003 requires persons carrying out asset inspections to have satisfactorily completed a training course approved by Energy Safe Victoria (ESV). GippsTAFE provides asset inspection training for Transmission workers as part of the Transmission Apprentice Linesmen course.

The relevant units of the Transmission Apprenticeship provided by GippsTAFE are:

- UETTDREL02B – Operate plant and equipment near live electrical conductors/apparatus
- UETTDREL04B – Working safely near live electrical apparatus as non electrical worker
- UETTDRTP10B – Inspect overhead structures and electrical apparatus (towers)
- UEENEEE001B – Apply OHS practices in the workplace

ESV has reviewed the unit outline associated with transmission asset inspection and accepts that successful completion of the Transmission Apprenticeship, which shall include the units listed above, meets the requirements of the regulations.

An associated issue is the assessment of Recognised Prior Learning (RPL) for existing transmission asset inspectors (linesmen). As all Transmission Linesmen are required to have completed the above units, it is permitted for these linesmen to continue to perform the above ground asset inspection function.

In order to finalise this matter, could you please amend SPI PowerNet's Bushfire Mitigation Plan to show these units of training as the minimum training for asset inspection, and submit the amended plan to ESV for approval.

Should you have any queries in relation to this matter, please contact Noel Murray on 9203 9730.

Yours sincerely

Paul Fearon
DIRECTOR OF ENERGY SAFETY

APPROVED FOR THE MINISTER FOR PLANNING

SHEET 183 OF 365

Energy Safe Victoria
ABN 27 064 241 7

Level 5 Building 2
4 Riverside Quay
Southbank VIC 3006

PO Box 262
Collins St West VIC 8007
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T (03) 9203 9700
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energysafe VICTORIA
Creating a safer state with electricity and gas

ESV Ref: CM-334

12 November 2012

APPROVED FOR THE MINISTER FOR PLANNING

SHEET 184 OF 365

Mr David Matassoni
Manager Network Safety
SP AusNet
Locked Bag 14501
MELBOURNE VIC 8001

Dear Mr Matassoni

APPROVAL OF TRAINING COURSE FOR LINESMEN TO INSPECT OVERHEAD ASSETS

As you are aware, section 5A(k) of the Electricity Safety (Bushfire Mitigation) Regulations 2003 (*the regulations*) requires persons carrying out asset inspections to have satisfactorily completed a training course approved by Energy Safe Victoria (ESV).

GippsTAFE provides asset inspection training for Distribution workers as part of the Distribution Apprentice Linesmen course.

The relevant units of the Distribution Apprentice Linesmen course provided by GippsTAFE currently are:

- UETTDRDP01B (or UETTDRDP11A) - Inspect overhead structures and electrical apparatus (poles /structures)
- UETTDREL02B (or UETTDREL12A) - Operate plant and equipment near live electrical conductors/apparatus
- UETTDREL04B (or UETTDREL16A) - Working safely near live electrical apparatus as non electrical worker
- UEENEEE001B (or UEENEEE101A) - Apply OHS practices in the workplace

(Future units as per changes to the National Qualifications are noted in brackets. Future units are part of UET30612, Certificate III in ESI – Power Systems – Distribution Overhead)

ESV has reviewed the unit outline associated with the Distribution Apprentice Linesmen course, and accepts that upon satisfactory completion of the Distribution Apprentice Linesmen scheme, together with SP AusNet's Asset Inspection Training Requirements (SOP 22-02, Issue Number 2, Date of Approval 6/8/2012), meets the requirements of the regulation for training of distribution linesmen to inspect pole top assets.

Energy Safe Victoria
ABN 27 462 247 657
Level 5 Building 2
4 Riverside Quay
Southbank VIC 3006
PO Box 262
Collins St West VIC 8007
DX 212569 Melbourne VIC
T (03) 9203 9700
F (03) 9686 2197
www.esv.vic.gov.au

Victoria

An associated issue is the assessment of Recognised Prior Learning (RPL) for existing distribution linesmen that are required to inspect pole top assets. As all current distribution linesmen are required to have completed the above units or equivalent, or will be refreshed in these units or equivalent units in the future, and have relevant field experience, it is permitted for these distribution linesmen to perform pole top inspection.

In order to finalise this matter, could you please amend SPI Electricity's Bushfire Mitigation Plan (2012/13) to show these units and any other required training to be the minimum for distribution linesmen to perform pole top asset inspections.

Should you have any queries in relation to this matter, please call Gavin Jackson on (03) 9203 9753.

Yours sincerely

Noel Murray
MANAGER ELECTRICAL INFRASTRUCTURE SAFETY

16 SCHEDULE OF REVISIONS

Revision	Date	Details of Change
1	25/6/2006	Document updated to reflect 2006-07 season requirements.
2	22/8/2006	Forms appended in issue 1, extracted and made into stand-alone documents. Minor edits and formatting amendments.
3	22/6/2007	Text changed to reflect organisational restructure. Minor edits and formatting amendments as result of ESV audits.
4	12/11/2007	Maximo database added to Section 1.5.
5	30/6/2008	
6	13/10/2008	Minor amendments as result of ESV review.
7	7/11/2008	Minor amendments as result of ESV review.
8	30/6/2009	Minor amendments as result of organisational changes
9	30/6/2010	Minor amendments as result of organisational changes
10	27/6/2011	Minor amendments as result of organisational changes
11	30/9/2011	Updated in response to comments from ESV
12	27/10/2011	Updated in response to further comments from ESV
13	16/2/2012	Update section 6.5 'Training' following approval by ESV of asset inspection training
14	29/6/2012	Major revision to BFM Plan – removed details not related to prescribed requirements of regulations.
15	18/10/2012	Revision to accommodate amendments to the regulations introduced 28/6/2012 that removed the term 'at risk'.
16	17/06/2013	Update Section 7 'Contacts'
17	25/06/2014	Plan updated to reflect 2014-15 bushfire season requirements. Major change to Section 15.1.

Figure 16-1 Schedule of Revisions

Appendix B: AusNet Services – Vegetation Management Plan

Vegetation Management Plan

AusNet Services (Transmission)

Document number	BFM 10-06
Issue number	30.1
Status	Approved
Author:	Hawaii Ho
Approver	Phillip Bryant
Date of approval	29/03/2018

Table of Contents

1 INTRODUCTION

The Vegetation Management Plan and Procedures (the Plan) is reviewed annually to provide guidance for transmission line and easement vegetation management practices in compliance with the Electricity Safety (Electric Line Clearance) Regulations 2015 and its Schedule – Code of Practice for Electric Line Clearance (the Code).

AusNet Services (Transmission) has a legal interest on private land associated with the transmission lines under its management by virtue of registered deeds of easement. These deeds of easement are a legally enforceable right over the servient tenement in favour of AusNet Services (Transmission) to facilitate the transmission of electricity. Deed provisions for the general removal of trees support the mitigation of vegetation risks, consistent with conditions necessary for the safe and reliable operation of the transmission network.

AusNet Services (Transmission) requires access to its easements, towers, transmission lines and communication sites for:

- The maintenance of vegetation;
- The planned maintenance of towers, transmission lines and communication sites; *and*
- Emergency or breakdown maintenance.

With regard to the maintenance of vegetation, AusNet Services (Transmission) makes every reasonable endeavour to contact the landowner or occupier as specified in the Code.

1.1 PURPOSE

The purpose of this Plan is to provide management procedures to be adopted and observed in tree cutting or removal in the vicinity of electric lines. The Plan also provides management procedures that ensure maintenance of prescribed clearance spaces and compliance with the Electricity Safety (Electric Line Clearance) Regulations 2015. The Plan is prepared annually and submitted to Energy Safe Victoria (ESV) by 31 March for approval in accordance with the Electricity Safety Act.

1.2 OBJECTIVES

The objectives of the Vegetation Management Plan and Procedures are:

- To minimise the risk of fire starts from vegetation coming into contact with lines that could become a wildfire and threaten public safety and property;
- To demonstrate AusNet Services' (Transmission) compliance with the Electricity Safety (Electric Line Clearance) Regulations 2015 (the Regulations) and the Schedule - Code of Practice for Electric Line Clearance (the Code) for the preparation of a management plan;
- To provide a framework to ensure the prescribed clearances are maintained between vegetation and electric lines;
- Provide for safe and reliable operation of the transmission lines;
- To mitigate the fire risks associated with fuel load below transmission lines;
- To mitigate the risks of trees falling into the clearance space;
- To attain self-managing easements by removing inappropriate species, limiting existing vegetation height to an acceptable level at any position along a span, limiting the quantum and density of retained vegetation, and encouraging low growing appropriate species;
- To develop easements in the long term which are more sustainable, are subject to minimal disturbance to significant vegetation and provide amenity for the community;
- To provide guidance to AusNet Services' personnel and contractors for vegetation management practices associated with the Code; *and*
- To provide procedures and processes for consultation with affected persons concerning proposed vegetation management activities.

Key performance measures to ensure the achievement of above objectives are described in more details per Section 9 "Monitoring and Auditing".

1.3 CONTACTS

Responsible Persons

Electricity Transmission Licensee
AusNet Transmission Group Pty Ltd
Southbank VIC 3006
Tel: 9695 6000

Responsible Person
General Manager Regulation & Network Strategy
Level 32
2 Southbank Boulevard
Southbank 3006
Tel: 9695 6000

Person responsible for preparation of the Plan

Bushfire Mitigation Manager
Level 32
2 Southbank Boulevard
Southbank 3006
Tel: 9695 6350

Person responsible for carrying out the Plan

Manager Vegetation & Easements

Melba Avenue,
Lilydale Vic 3140
Tel: 9237 4408

Emergency Contact

Customer & Energy Operations Team
131 799 (24 hours)

Vegetation Management Plan

The Vegetation Management Plan and relevant procedures may be inspected by the public during normal business hours at:

Level 31
2 Southbank Boulevard
Southbank 3006

The Vegetation Management Plan may be viewed at the home page (publications): *https://www.ausnetservices.com.au*

The AusNet Services' dispute resolution policy can be viewed at "Feedback & Claims" section under "Contact Us" page: *https://www.ausnetservices.com.au/en/Misc-Pages/Links/Contact-Us*

1.4 ORGANISATION STRUCTURE – VEGETATION MANAGEMENT

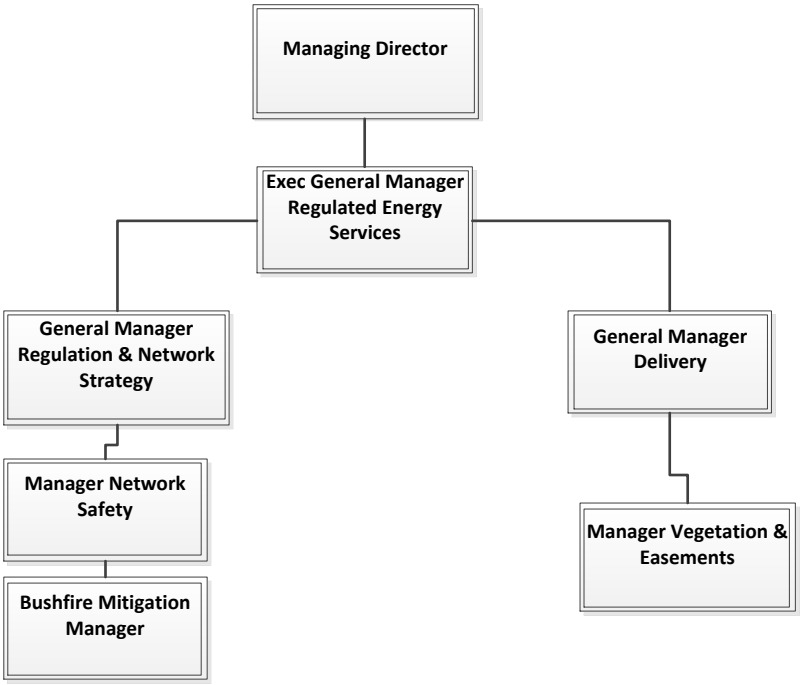

Figure 1-1 Organisational Structure, Vegetation Management

1.5 MAP OF GEOGRAPHICAL COVERAGE

The Plan covers all easements (registered or otherwise) containing overhead transmission lines managed by AusNet Services (Transmission) in Victoria. Figure 1.2 illustrates these transmission lines. AusNet Services seeks confirmation from the CFA and modifies this boundary in accordance with updates, if any, on an annual basis.

Legend	
	220 (kV) tower line
	330 (kV) tower line
	500 (kV) tower line
	66 (kV) tower line
	275 (kV) tower line
	Low Bushfire Risk Area (LBRA) boundary *Area assigned for parcels of land by the Country Fire Authority (CFA).* AusNet Services modifies this boundary in accordance with updates from the CFA.

Figure 1-2 Satellite Image of AusNet Services' Transmission Line Easements

1.6 LOCATION OF TREES

Details of specific easements are contained in AusNet Services' SAP and Extra Services Required (ESR) databases, a sample of which is provided in the form of extracts in Appendix 12.1 & 12.2. These databases identify locations and details of vegetation that may be:

- Listed in a planning scheme for ecological, historical or aesthetic significance; or
- Vegetation that is of cultural or environmental significance; *or*
- Property owner/occupier special requirements.

The ESR database is updated annually in accordance with procedure VEM 21-01 Customer Extra Services Required. Updating the database includes a search on responsible authority websites and the consultation with responsible persons.

The location of native vegetation is provided in Figure 1.3. Note the defined area is considered static as it covers the entire network franchise area with one form or another of native vegetation.

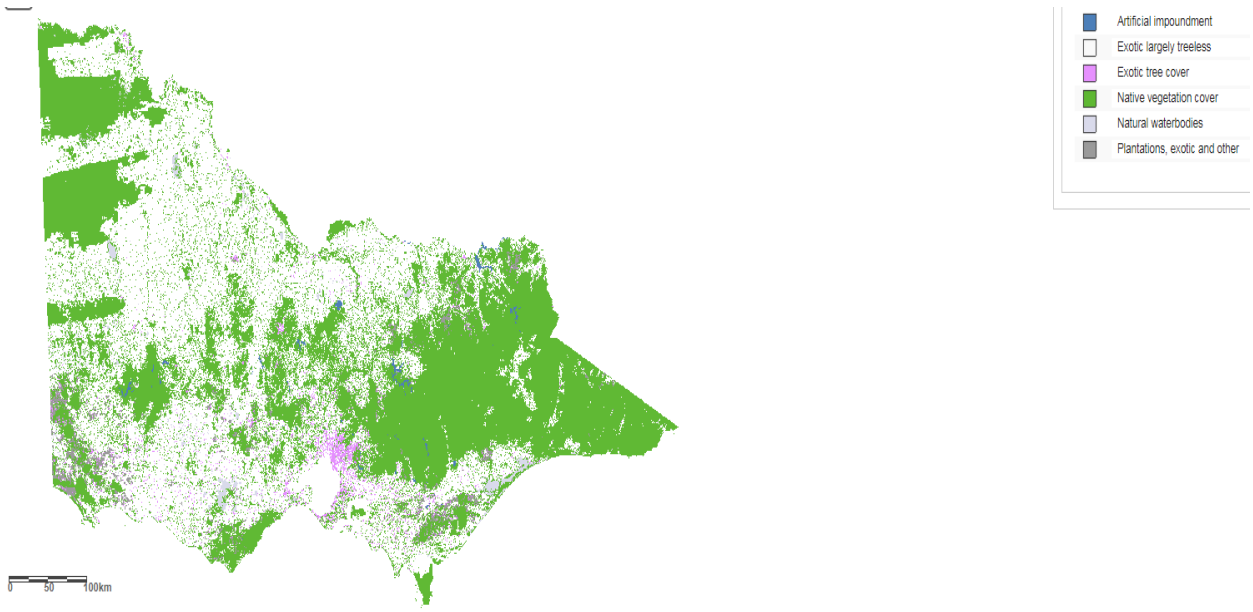

Figure 1-3 Native Vegetation Type and Extent – Victoria
Source: https://nvim.delwp.vic.gov.au/Map

1.7 TRANSMISSION VEGETATION MANAGEMENT PROCESS OVERVIEW

A high-level overview of the Transmission Vegetation Management process is represented below.

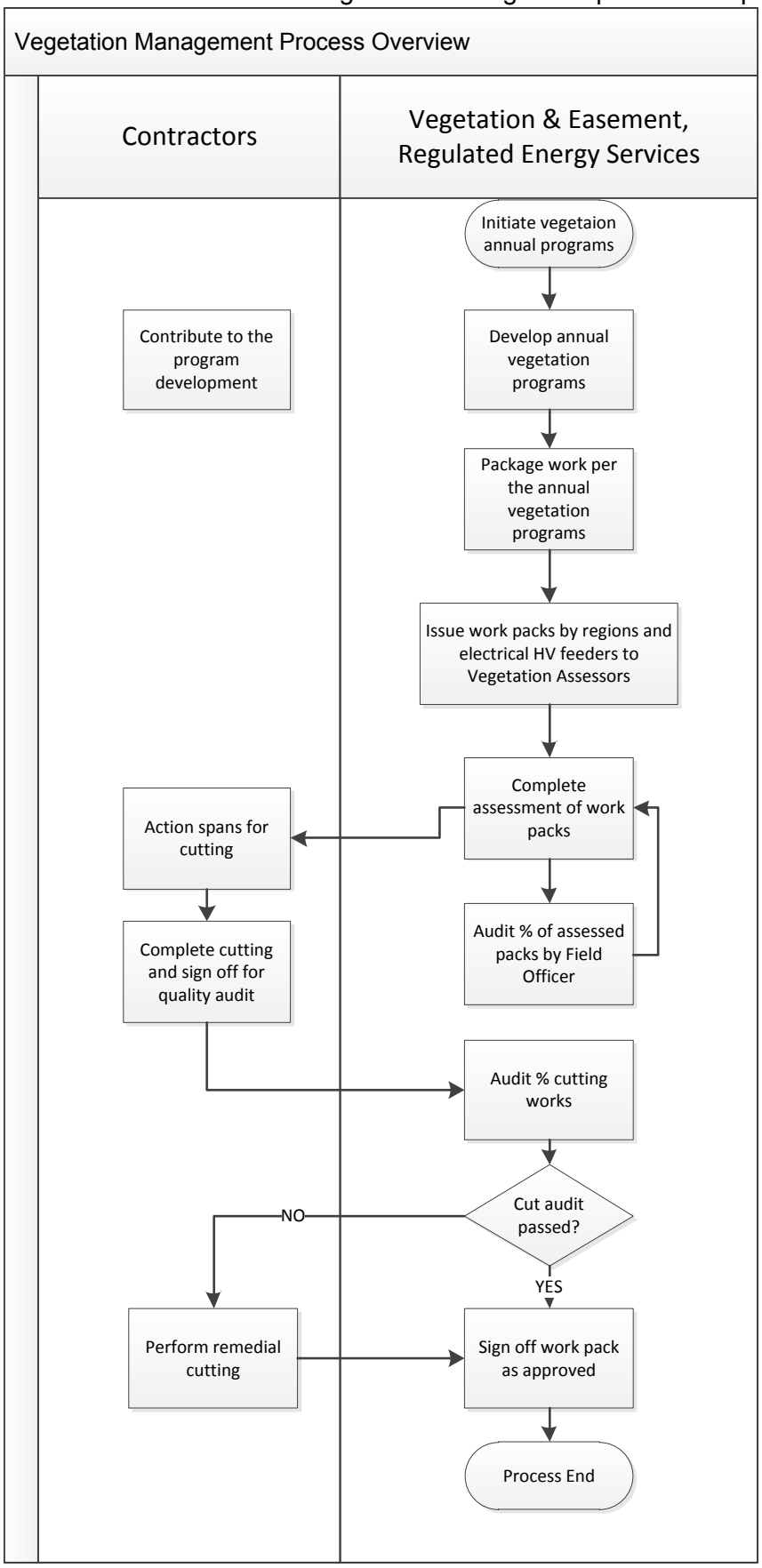

Figure 1-4 Transmission Vegetation Management Process

2 REFERENCES

2.1 LEGISLATION & STANDARDS

- *Electricity Safety (Installations) Regulations 2009*
- *Electricity Safety (Electric Line Clearance) Regulations 2015*
- *Electricity Safety Act 1998*
- Australian Standard AS 4373 – 2007 Pruning of Amenity Trees
- Code of Practice For Timber Production 2014

2.2 AUSNET SERVICES' PROCEDURES & DRAWINGS

- Assessment Procedure (Transmission) (VEM 20-15)
- Transmission Workflow Procedure (VEM 20-14)
- Auditing of Network for Fire Safety (BFM 21-85)
- Bushfire Index Calculation Method (BFM 21-67)
- Customer Extra Service Required (VEM 21-01)
- Compliance Audit Process (Transmission) (VEM 30-05)
- Helicopter Patrols of Transmission Lines – Lines Practices and Procedures (LPP 09-02)
- Management of Vegetation of Significance (VEM 21-03)
- Notice of Vegetation Pruning or Removal Near Transmission Lines (BFM 10-06A)
- Record of Customer Consultation (VEM 21-02A)
- Routine Patrolling of Overhead Lines - Lines Practices & Procedures (LPP 09-01)
- AusNet Services' Environmental Management System (certified ISO 14001)
- Transmission Line Clearing Requirement Charts – 435 Series Drawings
- Vegetation and Easement Urgent Pruning or Removal (VEM 20-07)

3 DEFINITIONS

Definitions of the main terms used in the Plan are as follows.

Action	Recommended corrective measure or re-assessment
Affected Person	An owner or occupier (including a person who is responsible for the management of public land) of adjacent land where the pruning or removal of a tree will affect the use of that adjacent land
Applicable Distance	The Applicable Distance is the minimum distance extending away from the line in all directions perpendicular to its axis which may include sag and sway calculation.
As Far As Practicable	Defined as per the Electricity Safety Act 1998
BFM Index	The Bushfire Mitigation Index is a performance indicator reporting exceptions to the business rules. It reports discrete counts of exceptions for relevant maintenance works outside scheduled timeframes prescribed by the business rules. Calculation of the Index is detailed in Procedure BFM 21-67 – "Bushfire Index Calculation Method".
Clearance Space	The space around an electric line that is clear of vegetation as required by the Code.
Code	*Code of Practice for Electric Line Clearance* contained in Electricity Safety (Electric Line Clearance) Regulations 2015
Consult	Means to provide an adequate opportunity to comment on a proposal, whether or not such a comment is made
Easement	A corridor of land or 'right of way' registered on title for privately owned land. Transmission line easement agreements generally permit removal of all vegetation by AusNet Services (Transmission). Transmission lines across public land are not generally on registered easements. However, AusNet Services (Transmission) will have notified the appropriate authority administering the land and received permission to use the land, including agreement to easement rights.
ECM	The Enterprise Content Management site is a repository for AusNet Services' policies, procedures, standards, specifications, manuals and other process related documents.
ESR	(Extra Services Required) A site/property requiring an increased level of service incorporating but not limited to the following examples; property owner/occupier special requirements, significant vegetation, historically significant site, threatened flora and fauna etc.
Field Officer	The Transmission Vegetation Field Officer (TVFO) is an AusNet Services employee that is suitably trained and holds the qualification of UET20312 Certificate II in ESI - Powerline Vegetation Control; UETTDRVC24B Assess vegetation and recommend control measures in an ESI environment and is experienced in easement management.
Line of Fall (LOF)	Means vegetation outside the clearance space which could fall into the clearance space distances shown in Table 4.2.

LiDAR	Light Detection and Ranging, is a surveying method that uses light in the form of a pulsed laser to measure ranges (variable distances).
Managed Vegetation Zone	Land in the vicinity of transmission lines where vegetation growth must be restricted for safety reasons and normally coincides with easements and the clearance space distances shown in Table 4.1. AusNet Services' (Transmission) vegetation management practices within managed vegetation zones are conducted via AusNet Services' easement rights or public land agreements.
Minimum Clearance Space	The Minimum Clearance Space is inclusive of the Applicable Distance including an allowance for cable sag and sway calculation where applicable.
Qualified Arborist	Person engaged by AusNet Services with a minimum qualification of National Certificate Level IV in Horticulture and Arboriculture, which includes the 'Identify Trees ' and 'Assess Trees' modules, or an equivalent qualification and has at least three years of field experience in assessing trees.
Regrowth Space	Means the space beyond the clearance space that must be cleared to allow for anticipated vegetation regrowth between maintenance cycles.
Regulations	*Electricity Safety (Electric Line Clearance) Regulations 2015*
SAP	The AusNet Services' enterprise resource planning software which contains a work management module.
Responsible Person	Means a person responsible under Section 84 of the *Electricity Safety Act* for the keeping of the whole or any part of a tree clear of a transmission line.
Vegetation of Significance	Vegetation of Significance can be defined as the location of areas containing trees that are native, listed in a planning scheme to be of historical, aesthetic or ecological significance, trees of cultural or environmental significance, or contain threatened fauna that may need to be pruned or removed to ensure compliance with the Code of Practice.
Vegetation Management Group	Specialist group responsible for the management, coordination and supervision of all work associated with the vegetation management program.

4 MAINTAINING CLEARANCE SPACES, LINE OF FALL TREES AND FUEL LEVELS

4.1 PURPOSE

This procedure outlines:

- The process to be employed in maintaining the clearance space, Line of Fall trees and fuel levels; *and*
- The strategy to be employed in selecting the method of maintaining vegetation near transmission lines, so as to achieve the most appropriate outcome.

4.2 PROCEDURE

The clearance spaces, Line of Fall trees and fuel hazards shall be maintained in accordance with the Code.
The processes followed by AusNet Services' employees to maintain these requirements are contained in the following sections of this plan;

- Section 4.2.3 Clearance Space Distances;
- Section 4.2.6 Fuel Density Hazard; *and*
- Section 4.2.8 Line of Fall Trees – Vegetation Adjacent to the Line.

4.2.1 VEGETATION MANAGEMENT GUIDANCE

Vegetation management on transmission line easements (including 66kV lines supported on tower structures) is to be carried out in accordance with the Code of Practice for Electric Line Clearance.

Vegetation management on transmission easements should eliminate both risk of fire initiation, and risk to the safe and reliable operation of the transmission lines.

When pruning or removing vegetation on public land every endeavour must be made to comply with:

- The Code of Fire Management on Public Land; *and*
- The Code of Practice for Timber Production.

AusNet Services (Transmission) has a policy of developing sustainable easements. This requires the removal of unsuitable species and replacement with or encouragement of lower growing species. By encouraging low growing species, disturbance to easement habitat can be minimised over the longer term. The most appropriate method of vegetation management is based upon site specific issues such as:

- The presence of inappropriate species;
- The presence of vegetation of significance; *and*
- The environmental impact of proposed works.

A detailed inspection is undertaken to determine the most effective method of maintaining the statutory clearance space between vegetation and transmission lines.

4.2.2 EASEMENT INSPECTION AND LINE PATROLS

1. Hazardous Bushfire Risk Area (HBRA) / Low Bushfire Risk Area (LBRA) Transmission easement inspection – vegetation clearance on all easement segments are assessed annually in a timely manner to allow for any clearing to be undertaken to maintain compliance. AusNet Services' representatives have been directed to allow for appropriate re-growth per species identified in order to minimise vegetation encroachment into the minimum clearance space between cycles.

2. Transmission line patrols are conducted to:
   - Identify and record vegetation which may infringe or approach the clearance space;

- Determine the most effective method of maintaining the statutory clearance space between vegetation and transmission lines;
- Ensure that the lines and easements are maintained in a serviceable condition; *and*
- Check for unauthorised works on easements.

3. Methods of the easement inspection and line patrols:
   - Are carried out by means of ground patrol, aircraft visual assessment, aerial LiDAR measurement, or a combination of aforementioned, as circumstances dictate;
   - Include the reporting of defects found and recorded in SAP; *and*
   - Are scheduled to be undertaken within nominal dates per assigned priorities.

4. Findings from the easement inspection and line patrols form the basis of vegetation analytics and rectification programs and may also provide for:
   - Identification and quantification of resources required;
   - Funding;
   - Vegetation type and anticipated growth rates; *and*
   - Any consultation issues.

   All easement inspections and line patrols are captured in SAP; this information is processed in accordance with VEM 20-14 Transmission Workflow Procedure.

4.2.3 CLEARANCE SPACE DISTANCES

1. Clearance space distances required to be maintained between vegetation and conductors are given in Tables 4.1 and 4.2.

2. Table 4.1 establishes the working clearances which shall be applied for assessing the required clearance distances of vegetation measured from the normally observed position of the conductor.

3. Table 4.2 reflects Code of Practice clearances which are to be applied in addition to provisions for conductor movement at the design limits of sag and sway. Working Clearances determined as per Table 4.1, or exception cases as per point 9 below, are inclusive of Table 4.2 clearance distances.

4. For vertical clearances and horizontal clearances on spans greater than 500m refer to AusNet Services' Transmission Line Clearing Requirement Charts - 435 Series Drawings for minimum clearing dimensions. These clearances are inclusive of the minimum clearances required under the Code.

5. Other vegetation such as line of fall trees are to be treated in accordance with Section 4.2.7.

6. Techniques for determining clearance distances may include the use of laser rangefinders and aerial inspections.

7. Regrowth is estimated by practical judgement taking account of the species, age, re-growth rate and environmental considerations. Whilst a known species of tree will generally grow at an anticipated rate and pattern, there are many factors that must be considered when carrying out assessments. Therefore an assessment of tree growth rates within a given segment must be made based on the conditions and factors including:

   - Climatic conditions;
   - Soil types;
   - Topography; *and*
   - Competition of other vegetation and animals.

8. Both HBRA and LBRA are generally treated the same with respect of the vegetation management cycles. Annual inspection and patrols are carried out to determine the

method of treatment for existing vegetation. The standard maintenance cycle is 3 years utilising vegetation management techniques such as manual tree removal, the use of mechanical equipment, herbicide application and slashing. This may be more frequent for managed vegetation sites (e.g. significant, botanical, cultural, environmental or aesthetic situations) as determined by the responsible person. P1, P30 and P180[1] items are managed in accordance with this plan outside the normal cutting cycle.

VOLTAGE (kV) / CONSTRUCTION	Vertical clearance from conductor (span up to 500m)	Horizontal clearance from conductor (span up to 400m)	Horizontal clearance from conductor (span 400m to 500m)
66	7m	12m	15 m
220	8m	13m	17m
275	8m	13m	17m
330	9m	14m	18m
500	11m	15m	19m

Table 4-1 Minimum Clearance Spaces inclusive of the Applicable Distance plus an allowance for cable sag and sway where applicable.

9. Exceptions to Table 4.1 may apply in the following circumstances:

a) Vegetation which is maintained or has a mature height of 3m need not normally be considered to be within the clearance space, even where the clearance is less than the working distances given in Table 4.1. Design standards for conductor height at full sag allow for vegetation to reach a height of 3m without infringing clearance distances given in Table 4.2;

b) Where the vegetation is situated within 50m of a tower, clearances specified in Table 4.1 may be reduced by 2 metres;

c) In approved special situations, a revised working clearance may be determined by the AusNet Services Property Group and applied to vegetation assessment and priority assignment. The revised minimum working clearance shall be calculated to include the clearances specified in Table 4.2 plus provision for the conductor movement at the design limits of sag and sway;

Vegetation of Significance at approved special situations may be managed to such a revised working clearance for reasons such as cultural, botanical, aesthetic or environmental significance. Significant vegetation may:

- Have a more frequent review cycle;
- Have a specific management plan;
- Be subject to a landowner agreement;

Approved special situations shall be as designated by the Vegetation Management Area Manager - in respect of specific locations. This information shall be stored in SAP and the ESR database and is made available to the cutting crews via the ESR Monitoring Spreadsheet; refer to Appendix 12.2 Extra Services Required (ESR) Database Sample

10. Table 4.2 establishes the Applicable Distance which shall be maintained from the conductor at any position up to the design limits of sag and sway. These clearances:
    - Are the minimum requirement for all spans at the design limits of sag and sway;
    - Are the basis of the working clearance space distances given in Table 4.1;
    - Are the basis of the determination of working clearance space distances calculated for specific spans longer than nominated in Table 4.1;
    - Are the basis of the determination of working clearance space distances calculated for an approved special situation;

[1] P1, P30, P180 days - refer to Section 4.2.4 for priority definition.

- Are the basis of Transmission Line Clearing Requirement Charts - 435 Series Drawings; *and*
- Are the minimum requirement from the still air position of the conductor to potential line of fall of a tree.

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VOLTAGE (kV) / CONSTRUCTION	Vertical clearance at design sag	Horizontal clearance at design sway
66	3m	3m
220	3.7m	4.6m
275	4.2 m	5.0m
330	4.7m	5.5m
500	6.4m	6.4m

Table 4-2 Applicable Clearances based on the 'Code of Practice for Electric Line Clearance' at the Design Limits of Sag & Sway

4.2.4 VEGETATION ASSESSMENT – PRIORITIES

Easement vegetation is assessed and scheduled using the following prioritisation criteria to plan works. Actioning of scheduled work requires the completion of the assigned work order or re-assessment and prioritisation of the work.

P1 – scheduled to be actioned immediately or within 24 hours

- HBRA vegetation that is > 2.0m within the clearance space outlined in Table 4.1;
- LBRA vegetation that is > 3.0m within the clearance space outlined in Table 4.1; *or*
- Line of Fall tree where failure of the tree is imminent.

P30 – scheduled to be actioned within a 30 day period

- HBRA vegetation that is up to 2.0m within the minimum clearance space outlined in Table 4.1
- LBRA vegetation that is up to 3.0m within the minimum clearance space outlined in Table 4.1.
- Line of Fall tree identified and failure is probable corrective action should be taken as soon as it is practicable *or*
- Infringement of Special Revised Working Clearances

P180 – scheduled to be actioned within a 180 day period

- Vegetation that may grow into the clearance space outlined in Table 4.1 within the next 6 months.
- Flammable material stored on the easement (Assigned an OMU code by the relevant Area Manager).
- Line of fall tree identified and failure is possible, the tree or tree parts exhibit moderate structural damage and/or structural defects and have a moderate risk of failure.
- A review of the Vegetation Management Plan for that segment has determined that the vegetation could threaten the security of the line other than by intruding into the clearance space, e.g. dense scrub, high fuel loadings, high smoke-producing species.

4.2.5 VEGETATION DENSITY

The density and character of vegetation outside the clearance space is managed to ensure the conditions for the safe and reliable operation of the line, to facilitate inspection confidence, and to mitigate, as far as practicable, the fire risks associated with the fuel load below and beside the line.

While easement rights generally provide for clearing of all vegetation, selected vegetation may at times be retained subject to consideration by the Responsible Person. Retention of selected vegetation is necessarily selective to mitigate the introduction of inspection and management risk. Characterisations such as “low open woodland” and “less than 10% canopy cover” may be considered to be consistent with risk mitigation objectives.

For guidelines around retaining vegetation refer Section 6.2.2 Management Plans.

4.2.6 FUEL DENSITY HAZARD

Fires under transmission lines can result in line outages caused by arcing through smoke and flame, with potential disruption to the transmission network and supply reliability. The risk is related to a number of factors, including fire intensity and flame height, which in turn are affected by factors such as fuel levels, site environmental and weather factors.

Fuel density hazard management is typically focussed on easements through bushland, forest and bush park areas, commonly characterised by relatively dense stands of scrub and regrowth. Farm production uses such as cereal and grass crops are excluded.

Practicable fuel density hazard reduction strategies may utilise cyclic slashing or poisoning, the latter particularly in steep areas.

Guide limits for fuel hazards applied are based on DSE classifications of 'Very High Elevated Fuel Hazard' to 'Extreme Elevated Fuel Hazard'[2], corresponding to dense tea-tree or melaleuca 1 to 3m high.

It should be noted however that calibration of fuel level hazards, reliability threat levels and practicable management outcomes is a complex and evolving process.

As part of the annual inspection the Transmission Vegetation Field Officer (TVFO) checks the easement to ascertain the fuel density potential, and determines whether any action is required to reduce the fuel load by taking into consideration the following;

The structural form of vegetation throughout the easement to ensure the security (safe and reliable operation) of the line and to mitigate, as far as practicable, the fire risks associated with an assessed vegetation fuel load below or beside the line. Traditionally easements have been managed to a 'Tall Open Shrubland' structure which is defined as;

- A mature height of the tallest species between 2-8 metres;
- A 'very sparse' foliage cover of the tallest species (comprising <10% of the total vegetation structure of the area); *and*
- > 1 crown (canopy) separation between the tallest species

A 'Tall Open Shrubland' structure is seen as the 'ideal' in terms of providing for line security and sustainability of vegetation management. Depending on the geographical location of the easement an equivalent or similar vegetation structure to that of 'Tall Open Shrubland' shall be sought with consideration to the major vegetation group and ecological vegetation class (EVC) of the area.

Any areas identified will be actioned in accordance with the priority code assigned to the segment by the TVFO.

4.2.7 LINE OF FALL (LOF) TREES – VEGETATION ADJACENT TO THE LINE

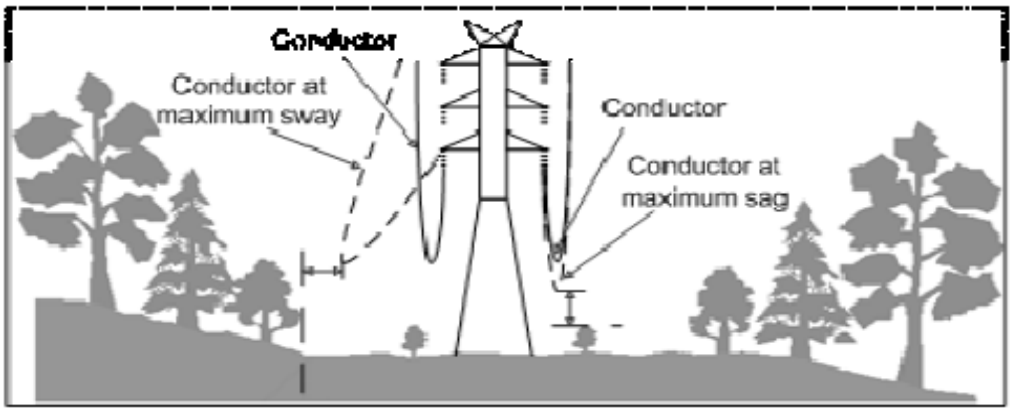
Vegetation adjacent to the line is managed to mitigate the risk of falling trees or parts of trees entering the clearance space as outlined in Table 4.2. The area adjacent to easements is patrolled to identify LOF trees with the potential to fall into the clearance space. Physical condition may also affect the priority rating of trees. For example; trees assessed where failure is possible and have the potential to fall into the clearance space outlined in Table 4.2 would be assigned a P180 rating. Whereas trees identified as LOF trees which have an obvious defect where failure is probable would be assigned a P30 rating.

Figure 4.1 shows the grading of vegetation height adjacent to the line where the trees are tall enough to infringe the clearance space if these were to fall towards the line. Consideration of

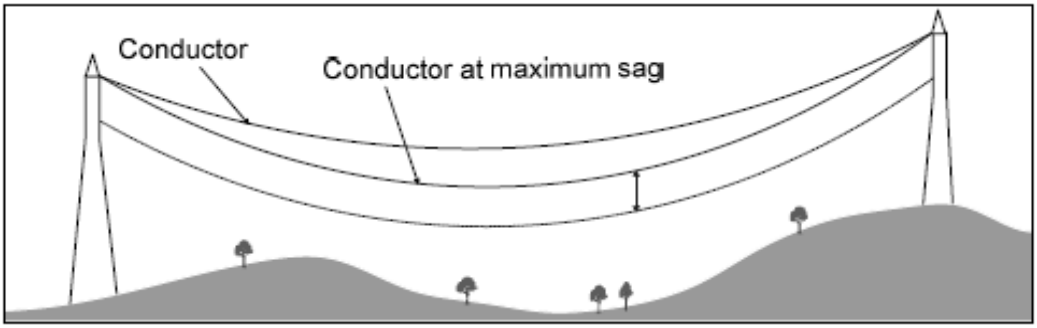
[2] DSE, Overall Fuel Hazard Guide, 3rd ed, 1999

vegetation adjacent to the line is to include the potential height of the tree, its distance from the line, and the height of the transmission line and the slope of the ground. Assessment is made to the still air position of the transmission line.

Below: End view of the transmission line



Below: Side view of the transmission line



Below: Trees adjacent to the transmission line

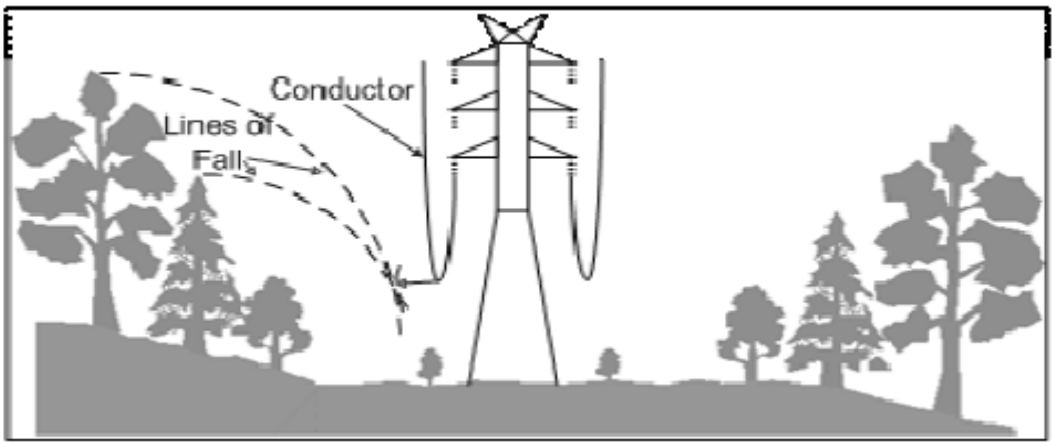


Figure 4-1 Grading for the vegetation adjacent to a transmission line (note: images not to scale)

For all other Transmission assessment information refer to VEM 20-15 Assessment Procedure (Transmission).

4.2.8 VEGETATION AND TRANSMISSION LINE TOWERS

Vegetation near transmission line towers will be managed to provide clear areas for operation and work safety. Figure 4.2 shows the types of tower construction used by AusNet Services (Transmission).

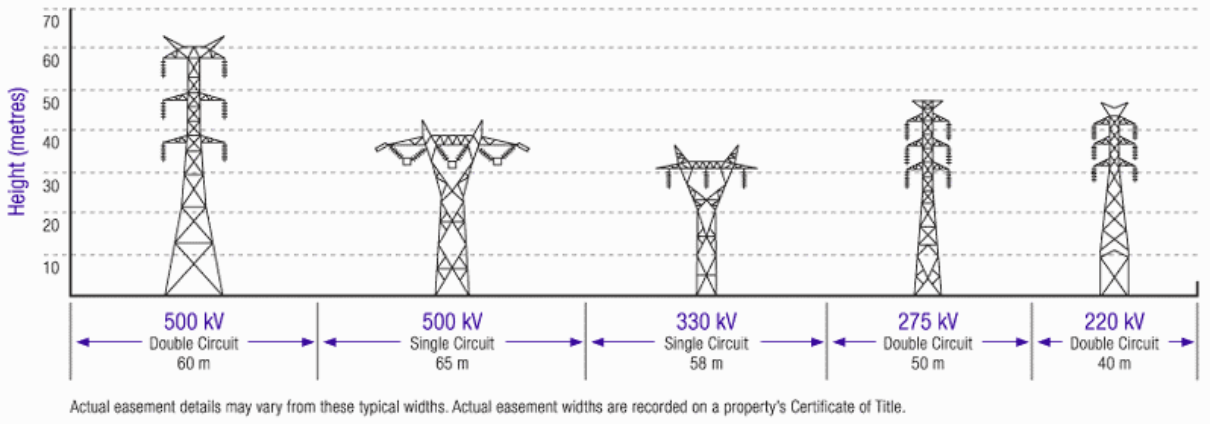


Figure 4-2 Extra High Voltage Transmission Line Tower Construction.

Vegetation clearance distances around towers vary depending on voltage and tower construction type but may be limited to species with a mature height no greater than 3m. For vegetation around towers that is <3m in height clearance is only required by AusNet Services' crews when they require access to perform maintenance.

Exceptions may occur in situations of low bushfire fire risk such as private backyards or parklands in urban areas, e.g. Metropolitan Melbourne. In these situations it could be expected that vegetation could be allowed to come within 5m horizontal distance from the tower steelwork at ground level. Other variations may be allowed depending on the risk assessed by the Vegetation Management Group.

4.2.9 METHOD FOR MAINTAINING CLEARANCE

Figure 4.3 contains a flow chart that illustrates the process for application of the methods for maintaining clearances between vegetation and transmission lines and towers. This flow chart depicts the process covering the priority codes P30 & P180. Note a separate process for maintaining a P1 tree is explained in more details per section 4.2.12 Urgent Pruning or Removal.

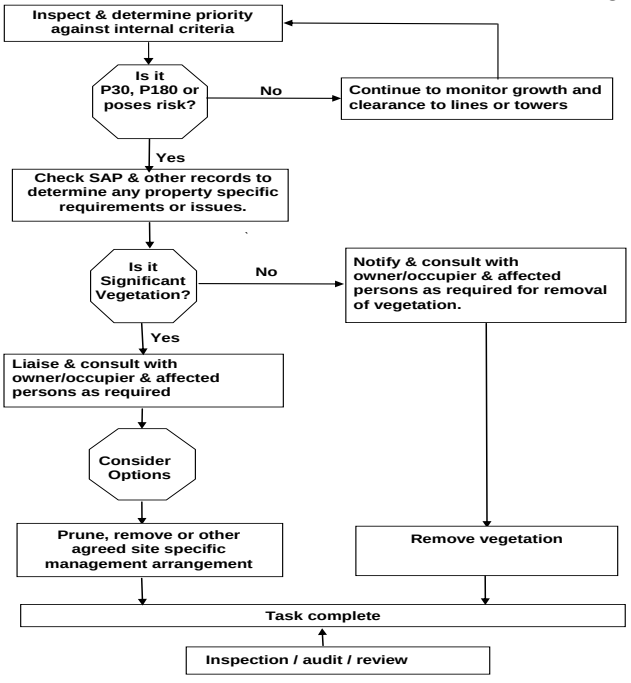


Figure 4-3 Flow Diagram of the Methods to Maintain Clearance Space

4.2.10 LONG TERM STRATEGIES

AusNet Services (Transmission) has a policy of developing sustainable easements consistent with the safe and reliable operation of transmission lines and the network. This requires the removal of unsuitable species and replacement with or encouragement of lower growing species. By encouraging low growing species, disturbance to the easement can be minimised over the longer term.

The approach of developing sustainable easements:

- Minimises the risk of fire starts or interruptions to supply from vegetation coming into contact with lines;
- Minimises the risk of lines causing electrocution; *and*
- Minimises the adverse effects of electric lines on vegetation.

Long term management of easement areas by park authorities or local councils may require specific management arrangements and documentation. Similarly there may be instances where the vegetation retained varies from standard Managed Vegetation Zone practices. Every attempt will be made to document the spans involved, the management practice used and the reason for this practice.

4.2.11 ALTERNATIVE METHODS

Alternative methods for transmission lines such as re-routing or relocating underground are considered and reviewed at the planning phase and are not practically available as part of the maintenance program.

Alternative methods available for maintaining clearance spaces include vegetation removal, replacement and pruning. Vegetation is managed either by clearing or in special cases pruning where a landowner/occupier or affected person objects to the methods proposed by the Vegetation Management Group. The Vegetation Management Group may provide suitable replacement plants to the affected person where clearing has taken place. In consultation with the affected person, the Vegetation Management Group may negotiate phased vegetation replacement with compatible plants where inappropriate vegetation has been identified along an easement.

While removal of all trees may be appropriate in some circumstances, other circumstances may require a management plan to provide for controlled retention of compatible vegetation without unreasonably increasing risk. Vegetation management plans provide for a layered approach, which address a range of situations.

4.2.12 URGENT PRUNING OR REMOVAL

The conditions under which the urgent pruning or removal of vegetation to maintain the clearance space between each maintenance cycle specified in the plan will be undertaken are detailed in procedure VEM 20-07 - Vegetation and Easement Urgent Pruning or Removal. The procedure describes the process by which the need to undertake urgent pruning or removal of vegetation near power lines is minimised and if required how it is performed.

Urgent pruning or removal may occur in situations where:

- The security of the supply is under immediate threat;
- There is a likelihood of danger to the general public, property, AusNet Services' personnel and/or other entities;
- Safety margins are compromised with regard to fire hazard;
- There is a risk of uncontrolled electrical discharge; *or*
- Emergency situations.

In these situations the landowners are notified of clearing works as soon as practicable either before or after the clearing with reasons for the cutting or removal documented and retained for a minimum 5 years.

In every case urgent pruning or removal will be in accordance with the Electricity Safety (Electric Lines Clearance) Regulations for urgent cutting or removal whilst ensuring the provision for safe clearances and, to the extent practicable, be consistent with established practices for the location. Clearing may occur if it is the usual treatment for the site, or where pruning is considered impractical or undesirable.

5 RESPONSIBLE VEGETATION CLEARING PRACTICES

5.1 PURPOSE

This procedure outlines the process to be employed to ensure that clearing of vegetation is undertaken in a responsible manner.

5.2 PROCEDURE

1. The size of the regrowth space and vegetation management cycles will be determined by the responsible person in consultation with affected persons, as optimal to maintain safety clearances. This annual assessment will consider factors including regrowth rate, the size of the safety clearance and regrowth space, risk, access, recurrent costs and environmental considerations.

2. Maintenance cycles are generally three to five years but may be more frequent in situations as determined by the responsible person.

3. Clearing will generally be used for management of vegetation where considered appropriate and practicable as determined by the responsible person.

4. When performing the routine inspection of vegetation easements, the Vegetation and Easement Field Representatives (FR) will determine the method for maintaining the vegetation. Where it is not practicable to follow AS 4373-2007, the FR determines the most appropriate methods and recommends the appropriate equipment taking into consideration customer satisfaction, safety of the Vegetation Management Worker (VMWs), and the environmental/visual impact. The determination is recorded in SAP and provided to the service provider. For example, where vegetation is hedgeable or where an opportunity exists to reduce climbing and repetitive tasks the use of mechanical equipment such as Boom Mounted Mobile Tree Trimmers and Tractor Mounted Hedgers may be recommended.

5. Pruning will generally be used for the management of vegetation of significance and may be considered for the clearance of vegetation in the hazard space.

6. VMWs must have sufficient knowledge and training to ensure that vegetation activities under their control are conducted in a safe and environmentally responsible manner. As a minimum, operators carrying out pruning or removal works are required to be trained and assessed against current industry work practices and/or relevant Australian standards, all VMWs pruning vegetation must have attained or be currently enrolled in UET3012 Certificate II in ESI Powerline Vegetation Control, and working in accordance with the VESI Vegetation Management Guidelines. AusNet Services only engages contractors who have sufficient experience in the electrical industry to perform tree clearing works in a safe manner. All new employees to the electrical industry must be approved by AusNet Services and be initially supervised by an experienced person.

7. AusNet Services shall conduct regular training needs analysis of their employees and contractors to ensure that the level of training is consistent with the requirements of the task to be performed. Results of audit processes shall be reviewed in determining these needs. Required training levels for operators are set out in Section 10, ‘Training’.

8. Audits of both work in progress and/or completed work are conducted by the Vegetation Management Group to ensure that contractors:

- Undertake pruning works in accordance with Australian Standard AS 4373 – 2007 Pruning of Amenity Trees where practical; *and*
- Demonstrate compliance with the prescribed safety and environmentally responsible aspects of industry/company requirements.

Audits will be performed by AusNet Services representatives at both the assessment and cutting stages of the program in accordance with VEM 30-05 Assessing and Cutting Compliance Audit Procedure (Transmission).

All Non-Conforming Audit results are to be recorded in SAP and for vegetation cutting crews payment will not be approved until the works have been rectified.

All Non-Conforming assessment priority code audits will be amended in SAP to ensure that the easement section is cleared as required.

6 VEGETATION OF SIGNIFICANCE

6.1 PURPOSE

This procedure outlines the process to be employed to ensure significant vegetation is identified and given special consideration including seeking advice from qualified arborists when pruning or removal of vegetation is proposed.

6.2 PROCEDURE

In accordance with VEM 21-03 Management of Vegetation of Significance the location of vegetation of significance shall be determined, and monitored annually by;

a) Referencing government records including:

Advisory lists of Rare or Threatened Plants, Threatened Invertebrate Fauna and Threatened Vertebrate Fauna in Victoria published by the Department of Sustainability and Environment.

Trees that are included in the:

- Victorian Heritage Database (http://vhd.heritagecouncil.vic.gov.au);
- The Victorian Aboriginal Heritage Register (accessable by consulting Archaeologists);
- Trees listed in a Planning Scheme to be of ecological, historical or aesthetic significance (specific Council planning websites);
- Flora or a habitat of fauna listed as threatened in accordance with section 10 of the Flora and Fauna Guarantee Act 1988;
- Environment Protection and Biodiversity Conservation Act 1999 Part 13, Division 1;
- Flora listed in the Threatened Flora List with a conservation status in Victoria of 'endangered' or 'vulnerable'; *or*
  - A habitat of fauna which is—
    - (i) Listed in the Threatened Invertebrate Fauna List with a conservation status in Victoria of 'vulnerable', 'endangered' or 'critically endangered'; or
    - (ii) Listed in the Threatened Vertebrate Fauna List with a conservation status in Victoria of 'vulnerable', 'endangered' or 'critically endangered'.

b) Consulting with:
- Local Government;
- Interest Groups; *and*
- Landowners.

The process of determining, monitoring and actioning significant vegetation is contained in procedure VEM 21-01 Customer Extra Service Required.

AusNet Services maintains an electronic database of 'Significant Vegetation' (Distribution and Transmission ESR Database) where all significant sites are stored. AusNet Services provides an

ESR Monitoring Report from this database to the cutting crews which advises them of the requirements when cutting these trees when vegetation management work is planned.

6.2.1 PROCEDURE FOR AVOIDING AND MINIMISING IMPACT

1. The database, illustrated in Appendix 12.3, is maintained identifying areas of culturally or environmentally significant vegetation. The database also identifies Aboriginal and post settlement heritage areas (i.e. other than vegetation).

2. Prior to work commencing on vegetation of significance:

- The landowner/occupier or the responsible authority will be consulted regarding the presence and management of vegetation of significance to determine the most effective way of protecting it while maintaining system security and public safety; *and*

- Where necessary, advice will be obtained from a qualified arborist or horticulturalist in relation to the methods used to prune vegetation of significance appropriately to minimise the impact and determine the amount or regrowth that needs to be allowed for. All pruning of significant vegetation will be carried out in accordance with AS 4373 – 2007 Pruning of Amenity Trees.

3. In accordance with procedure VEM 21-03 Management of Vegetation of Significance, if it is not practicable to undertake cutting or removal of that tree outside the breeding season, AusNet Services will translocate the fauna before undertaking the cutting or removal if it is practicable to do so outside of the breeding season for that species wherever practicable.

6.2.2 MANAGEMENT PLANS

Areas of culturally or environmentally significant vegetation listed in item 1 of Section 6.2.1 may be managed according to site specific management plans where required. The following easement vegetation management plans are in operation and are reviewed as required:

- Bend of Islands Easement Management Plan;
- Falls Creek/McKay Creek Easement Management Plan;
- Churchill Easement Management Plan;
- Warrandyte State Park; *and*
- Bunyip State Park Management Plan

These plans may take into consideration, wherever practicable, the following:

1. The structural form of vegetation throughout the easement to ensure the security (safe and reliable operation) of the line and to mitigate, as far as practicable, the fire risks associated with an assessed vegetation fuel load below or beside the line. Traditionally easements have been managed to a 'Tall Open Shrubland' structure which is defined as;

    - A mature height of the tallest species between 2-8 metres;
    - A 'very sparse' foliage cover of the tallest species (comprising <10% of the total vegetation structure of the area); *and*
    - > 1 crown (canopy) separation between the tallest species

    A 'Tall Open Shrubland' structure is seen as the 'ideal' in terms of providing for line security and sustainability of vegetation management. Depending on the geographical location of the easement an equivalent or similar vegetation structure to that of 'Tall Open Shrubland' shall be sought with consideration to the major vegetation group and ecological vegetation class (EVC) of the area.

2. Vegetation may remain where:

- After receiving expert advice and in the judgment of the Vegetation Area Manager - Transmission, it does not present a risk to the security of the line;
- Its location within the easement i.e. low-lying area, valley or bordering a waterway (in accordance with the Code Of Practice For Timber Production) does not present a risk to the security of the line;
- Its location within the easement in relation to assets (towers & lines) does not present a risk to the security of the line; or
- It is maintained or has a mature height of 3m (species specific) and does not present a risk to the security of the line.

7 CONSULTATION AND NOTIFICATION

7.1 PURPOSE

This procedure outlines the process the Vegetation Management Group adopts when advising, consulting and where applicable negotiating vegetation management works with landowners/occupiers, affected persons, councils and other government authorities.

7.2 PROCEDURE

7.2.1 NOTIFICATION AND CONSULTATION

With the exception of urgent clearing and pruning, notice to landowners/occupiers and other affected persons occurs:

- At a minimum of 14 days and not more than 60 days prior to work commencing; *or*
- Earlier by written agreement as negotiated between the landowners/occupiers and a Vegetation Management Group representative.

If the tree intended to be pruned or cleared is a tree of cultural or environmental significance the notice will include details of the impact and actions to be taken to minimise that impact. These details are contained in the ESR database.

The Vegetation Management Group attempts to make contact directly with the landowner/occupier and other affected persons. However, if there is no apparent occupier or no response is received then contact with the landowner is attempted utilising the AusNet Services (Transmission) property group, council records or consultation with adjacent landowners. If the landowner cannot be contacted in this way the Vegetation Management Group will issue the standard form VEM 10-06A 'Notice of Vegetation Pruning or Removal near Transmission Lines' shown in Appendix 12.4. Work will proceed not less than 14 days after the issuing of this notice.

If the tree intended to be pruned or removed is within the boundary of a private property the responsible person must consult:

- If the tree is to be pruned within the boundary of the property — the occupier of the property; *or*
- If the tree is to be removed — the owner of the property.

In the case of a removal a signed record of the proposed works detailing the outcome of the consultation must be prepared and retained and a copy provided to all parties. Where the affected person agrees with the proposed works but refuses or is unable to sign, a copy signed by the AusNet Services' representative shall be provided to the affected person before undertaking the works.

A record of consultation is recorded using the proforma VEM 21-02A 'Record of Customer Consultation', shown in Appendix 12.5. The record should include the following information:

- The general area affected;
- The type of works involved;
- Other arrangement or agreements; *and*
- A contact person and phone number for further discussion.

Where the landowner/occupier does not respond to the requests to make contact, a notice will be affected by a letter in the form of the 'Notice of Vegetation Pruning or Removal near Transmission Lines' BFM 10-06A, shown in Appendix 12.4.

The Notice of Vegetation Pruning or Removal will include the following information:

- Details of the intended cutting or removal.
- Details of whether vegetation of significance is to be actioned.
- A representative diagram showing:
    - How a tree may be cut.
    - A representation of a tree; and
    - A representation of an electric line.
- Advice on where to locate AusNet Service's Customer Complaint and Dispute Resolution Policy.
- Advice on how to reference AusNet Service's Vegetation Management Plan; *and*
- Contact details for all enquiries regarding intended vegetation pruning or removal.

Where prior agreement has been reached and documented in an ESR file a notification letter may not be left at the customer's property as the customer will be contacted by phone or correspondence prior to entering their property to action vegetation or to assess the vegetation clearances in accordance with their request.

Where agreement has been reached with the customer, notification by the mailing of a formal letter annually instead of delivery of a Notice of Vegetation Pruning or Removal Near Transmission Lines will be an acceptable alternative. A renotification is required where commencement of the vegetation work is to be outside the previously advised notification window.

If vegetation of significance is intended to be pruned or removed, the notice will include details of the impact and actions to be taken to minimise that impact. These details are contained in the ESR database.

If the tree intended to be pruned or cleared is on land that is contiguous to private property AusNet Services will provide a written notice as per above detailing how the use of that land will be affected during the pruning or removal works.

If the tree intended to be pruned or cleared is on public land AusNet Services will publish a written notice in a newspaper circulating generally in the locality of the property describing the cutting or removing of vegetation that is intended to take place at a minimum of 14 days and not more than 60 days prior to work commencing.

7.2.2 RECORD KEEPING

Copies (electronic or hardcopy) of Landowner Agreements identified in Section 7.2.2 are to be retained by the Vegetation Management Group and are managed through the SAP, ESR and Significant Vegetation systems shown in Appendices 12.1, 12.2 and 12.3.

8 DISPUTE & COMPLAINT RESOLUTION

8.1 PURPOSE

This procedure outlines the dispute/complaint procedures adopted by the Vegetation Management Group. AusNet Services' Vegetation Management Group have established mechanisms for resolving disputes/complaints related to vegetation management near AusNet Services' (Transmission) lines.

Disputes/complaints at each level will be dealt with in accordance with procedure VEM 21-01 'Vegetation and Easement Management Customer Extra Service Required'. The complainant will be informed at each referral when a response can be expected.

8.2 PROCEDURE

1. In the first instance disputes should be addressed to the person performing the clearing, either a Vegetation Management Group employee or a service provider. Details of the settlement or otherwise should be documented.

2. Where resolution is not obtained in the first instance, the dispute/complaint may be progressively referred to the:
   - Supervisor of the service provider or employee; *then*
   - The relevant Vegetation Area Manager; *then*
   - The Vegetation Management Group Stakeholder Manager

3. Urgent works (P1, P30) may be excluded from the dispute resolution process at the discretion of the relevant Vegetation Area Manager.

4. AusNet Services (Transmission) may choose to refer a dispute/complaint to Energy Safe Victoria or an independent arbitrator for resolution.

5. If no resolution is obtained within the Vegetation Management Group, then a dispute/complaint can be lodged with the Energy and Water Ombudsman (Victoria) provided the complaint does not involve electrical safety or a breach of the Code of Practice. Complaints in these latter categories should be referred to Energy Safe Victoria.

6. If the dispute/complaint is still not satisfactorily resolved by the Energy and Water Ombudsman (Victoria), the matter may be referred to Energy Safe Victoria.

9 MONITORING AND AUDITING

9.1 PURPOSE

This procedure outlines the processes the Vegetation Management Group adopts to assess the performance of its vegetation management practices. Overall performance of the vegetation management program is monitored through tracking and reporting of financial performance, annual 'find rates' and vegetation faults.

9.2 PROCEDURE

9.2.1 MONITORING - EASEMENT PATROLS

The Vegetation Management Group and Field Services Group patrols easements at least annually to monitor the state of easement compliance to the requirements of the Code. Any deficiencies identified are reported with corrective actions taken to achieve compliance as soon as practical.

9.2.2 MONITORING - KEY PERFORMANCE INDICATORS

As part of its Environmental Management System, AusNet Services has developed a set of Key Performance Indicators (KPIs), to monitor its overall environmental performances. KPI targets are set each year and monitored and reported to Senior Management and the Board on a quarterly basis. The Network Safety Report is provided each month to the Network Safety Management Committee (NSMC) and contains details of vegetation inspection, cutting and compliance programs across the network. Some examples are:

KPI Description
Bushfire Mitigation Index (*maintain zero during declared period)*
Transmission vegetation assessment program on target (as % to total segments)
Transmission vegetation cutting program on target (as % to total program)

9.2.3 AUDITING

The accountability for reviewing of the Vegetation Management Group compliance with this Plan rests primarily with the Network Safety Manager, Regulated Energy Services. The Network Safety Management Committee, with its members comprised of senior management, also oversees the performance and compliance of the Vegetation Management Group. The main mechanism of the review and oversight is the monthly Committee meetings and the Network Safety Reports.
Vegetation management processes and practices are also audited as part of a range of network safety audits outlined per procedure BFM 21-85 Network Fire Safety Review. In general this includes:

- Executives and General Managers undertake the Senior Management Bushfire Mitigation Review of all facets of the Bushfire Mitigation Program including vegetation clearance to validate the efficacy of AusNet Services' management process, program compliance and program relevance. These reviews are generally undertaken annually prior to the Declared Fire Danger Period ("bushfire season", "fire season") of each year; *and*
- Audits are undertaken during the fire season to check that vegetation clearances are being maintained.

Other regular audits the Vegetation Management Group is subject to include:

- AusNet Services' Internal Audit function undertakes audits of the Bushfire Mitigation Management system and practice; *and*
- Energy Safe Victoria conducts audits of Electric Line Clearance and BFM compliance.

The quality audits in the form of the post assessment and post cutting audits performed by the TVFO's follow established methodologies including sampling and grading which detailed in the procedure VEM 30-05 'Compliance Audit Process (Transmission)' in accordance with the Australian Standards AS1199.1(2003).

The Bushfire Mitigation Management System is an integral part of the wider AusNet Services' Environmental Management System that is certified to the AS/NZS ISO 14001 standard. In compliance with the certification, the management system is regularly audited by the certification organisation and re-certified on a 3 year cycle. Results of audits are reported to senior management, corrective actions implemented and monitored for suitability and effectiveness to ensure continuous improvement and compliance with requirements.

In addition, Health Safety & Environment (HS&E) audits are carried out in accordance with VEM 30-01 'HSE Inspection Procedure' to ensure the safety of the workforce and compliance with the relevant regulatory requirements.

9.2.4 NON-CONFORMITIES AND CORRECTIVE ACTIONS

Non-conformities may result from procedures not being followed or from the procedures being deficient in some way. They may be identified by the monitoring and auditing procedures mentioned in Section 5 or from analysis of complaints received.

Non-conformities resulting from procedures not being followed are logged through the internal action request system and generally corrected by the Vegetation Management Group Program Leader Transmission. Non-conformities resulting from procedures being deficient in some way would be corrected by changes in the procedures.

Any procedure changes will be amended in ECM which will send an automatic notification of this change to all affected employees and contractors who will communicate the changes through their regular toolbox meetings.

10 TRAINING

10.1 CLEARING

Tree clearing personnel are required to complete training applicable to the level of activity undertaken by them on site. Twice a year the Vegetation Management Program Leader - Transmission will conduct audits on crews training records at scheduled contract meetings. All training where applicable is undertaken and assessed against the following

- Industry and/or Australian standards;
- Relevant codes of practice; *and*
- Victorian Electricity Supply Industry (VESI) Training Matrix & Guidelines

The breakdown of individual training requirements is summarised below:

Level 1 (a) – Wood Chipper Operator

- First Aid in an ESI Environment & Perform CPR
- Manual Handling
- VESI Environmental Framework
- VESI Safety Framework
- Working Safely in the Construction Industry (Whitecard)
- Apply ESI Safety Rules (Green Book)
- Operate and Maintain Chainsaws
- Traffic Management - Traffic Control
- Traffic Management - Traffic Guidance Schemes
- Safe Approach Distances – Vegetation Work
- Basic Fire Safety
- Operate a mobile chipper/mulcher.

Level 2 (a) – EWP Worker (Inclusive of Level 1 (a) Requirements)

- UET20312 Certificate II in ESI Powerline Vegetation Control
- EWP WorkCover Authorisation (National EWP Licence)
- EWP Controlled Descent Escape & EWP Rescue
- Fell Small Trees
- Apply Pruning Techniques to vegetation control near live electrical apparatus

Level 2 (b) – Tree Climber (Inclusive of Level 1 (a) Requirements)

- UET20312 Certificate II in ESI Powerline Vegetation Control
- Undertake Standard Climbing Techniques
- Undertake Aerial Rescue (For Climbers)
- Fell Small Trees
- Apply Pruning Techniques to vegetation control near live electrical apparatus

10.2 ASSESSING AND INSPECTION

Level 3(a) – AusNet Services' Linesmen Performing Line Clearance Inspection

There are no specific horticultural training requirements for lines personnel that undertake asset inspection. The inspections are carried out by Certificate 2 or 3 Transmission Linesman or equivalent. However in addition to holding a Certificate 3 there is a requirement for asset inspectors undertaking patrols by helicopter to complete the outcomes of a recognised helicopter safety and aerial surveillance and training course, for which refresher training is to be carried out every 2 years.

Asset inspection and line clearance inspections are undertaken as per procedures:

- Routine Patrolling of Overhead Lines - Lines Practices & Procedures LPP 09-01; *and*
- Helicopter Patrols of Transmission Lines – Lines Practices and Procedures LPP 09-02

All AusNet Services' Line inspection personnel must also complete a briefing session on the AusNet Services Vegetation Management Plan and Procedures (VMP). This briefing session incorporates the requirements for total easement management.

Level 3(b) – AusNet Services' Vegetation & Easement Field Officers Performing Line Clearance Inspection (Inclusive of Level 1 (a) Requirements except operate a mobile chipper/mulcher)

- UET20312 Certificate II in ESI Powerline Vegetation Control
- Recognise Plants
- Assess Vegetation and Recommend Control Measures in an ESI Environment

All AusNet Services' **Vegetation & Easement Field Officers Performing Line Clearance Inspection** must also complete a briefing session on BFM10-06 Vegetation Management Plan AusNet Services (Transmission). This briefing session incorporates the requirements for total easement management.

Level 4 – AusNet Services' Qualified Arborists Performing Hazard Tree and Significant Vegetation Inspections (Inclusive of Level 1 (a) Requirements except operate a mobile chipper/mulcher)

Minimum qualification of National Certificate Level IV in Horticulture and Arboriculture, which includes the 'Assess Trees' module, or an equivalent qualification and has at least three years of field experience in assessing trees.

- UET20312 Certificate II in ESI Powerline Vegetation Control
- Assess Vegetation and Recommend Control Measures in an ESI Environment

More details of training requirements such as use of RTOs, a training matrix, induction and authorisation processes are contained in VEM 10-02 'Service Provider Training Guidelines'.

11 FURTHER INFORMATION

AusNet Services (Transmission) has produced several brochures for public information including:

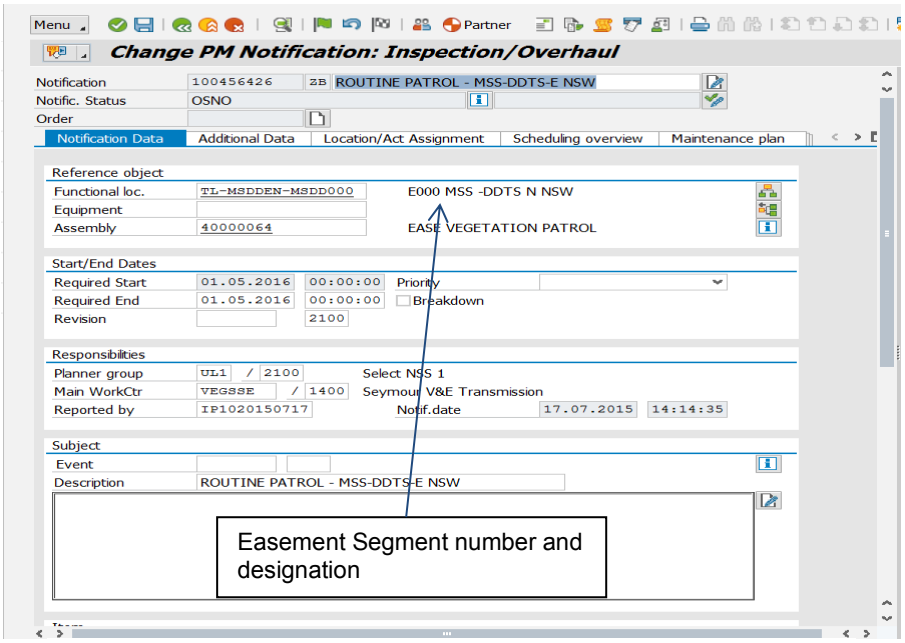
- *A Guide to Living with Electricity Transmission Line Easements; and*
- *Your Guide for Planting Near Electricity Lines.*

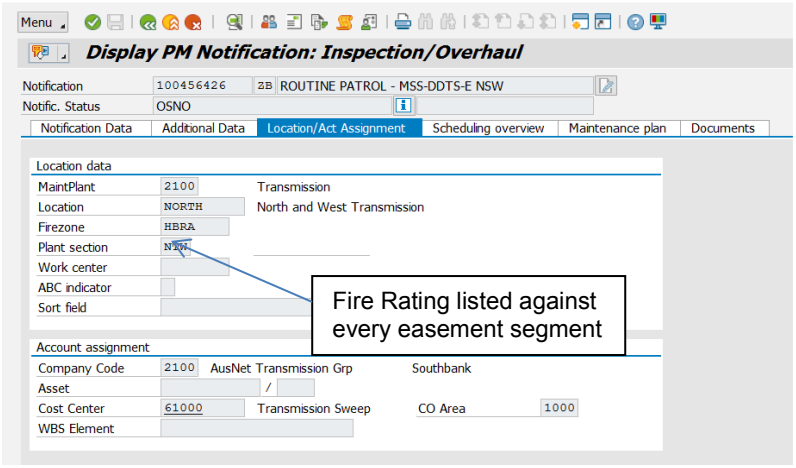
These Guides, together with bushfire mitigation and easement policy information is also available at the AusNet Services web site at *www. ausnetservices.com.au*

Legislative documents are available through the website *www.legislation.vic.gov.au/*

12 APPENDICES

12.1 SAP SAMPLE

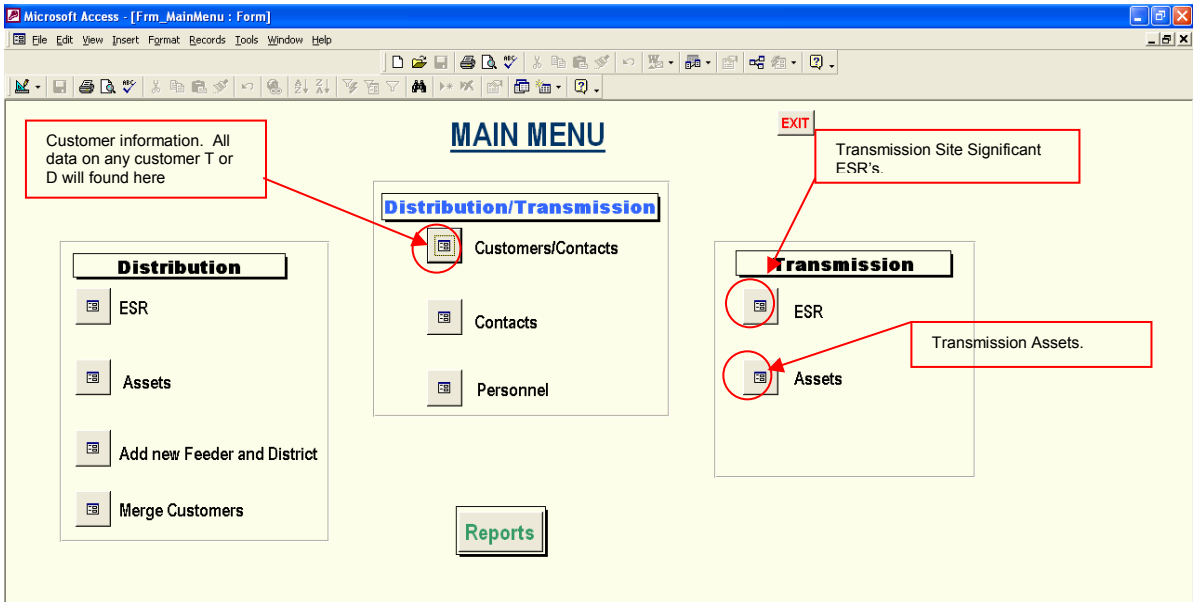


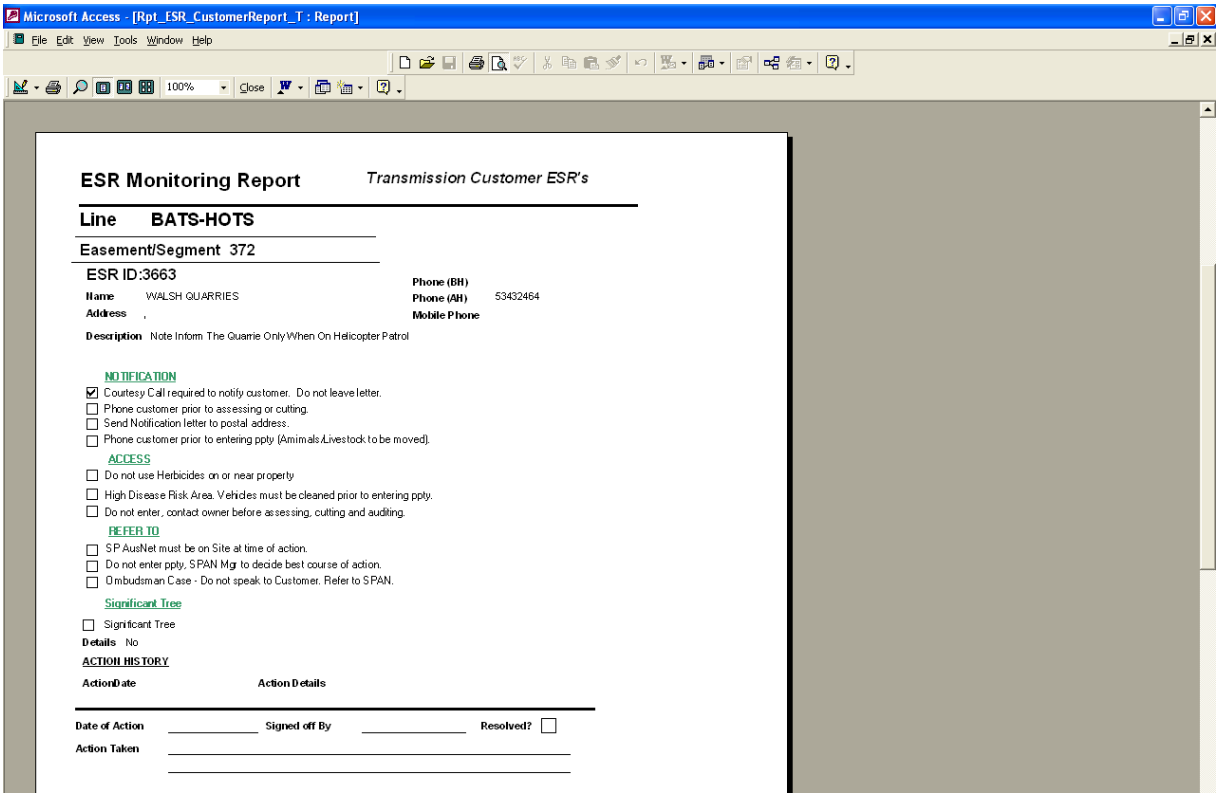


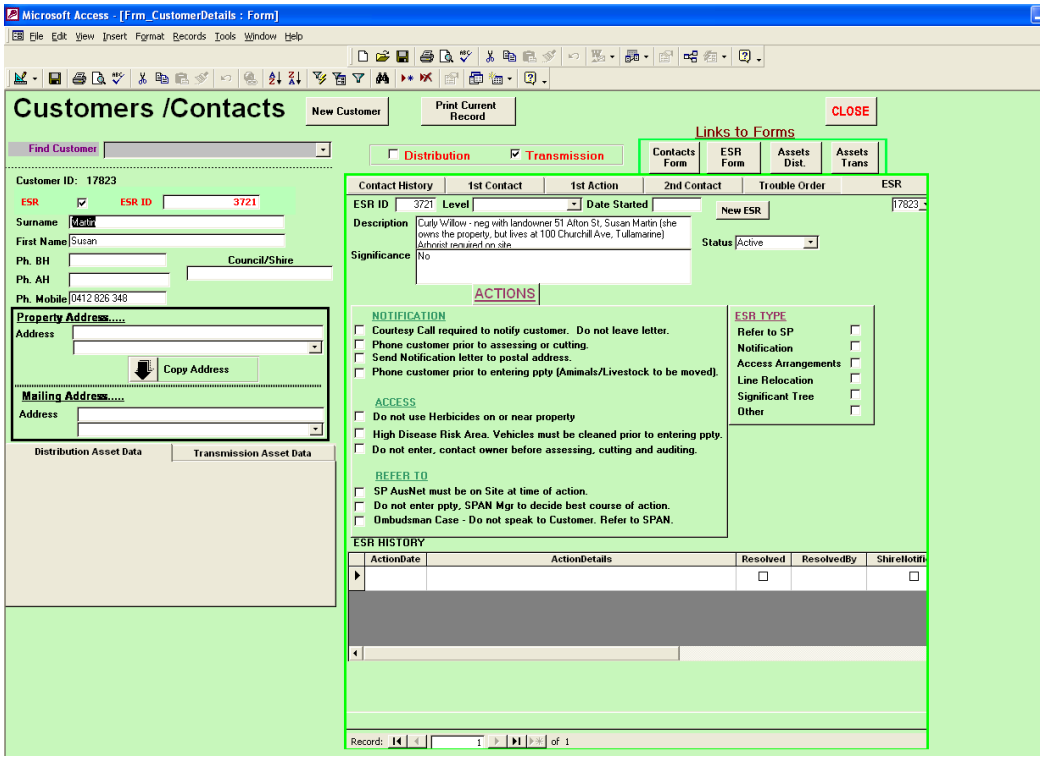
SAP - Details of specific easements are contained in the AusNet Services' SAPapplication. The application records easement segments, easement, and network equipment pertaining to a layered, and linked hierarchy; it also work-flows inspection and maintenance automatically by scheduled dates. Features of the data fields include:

- Location information;
- Designation of area as HBRA (Fire Hazard) or LBRA (non-fire hazard) area;
- Planned maintenance and inspection work order generation by scheduled dates; *and*
- Work order completion fields

12.2 EXTRA SERVICES REQUIRED (ESR) DATABASE SAMPLE

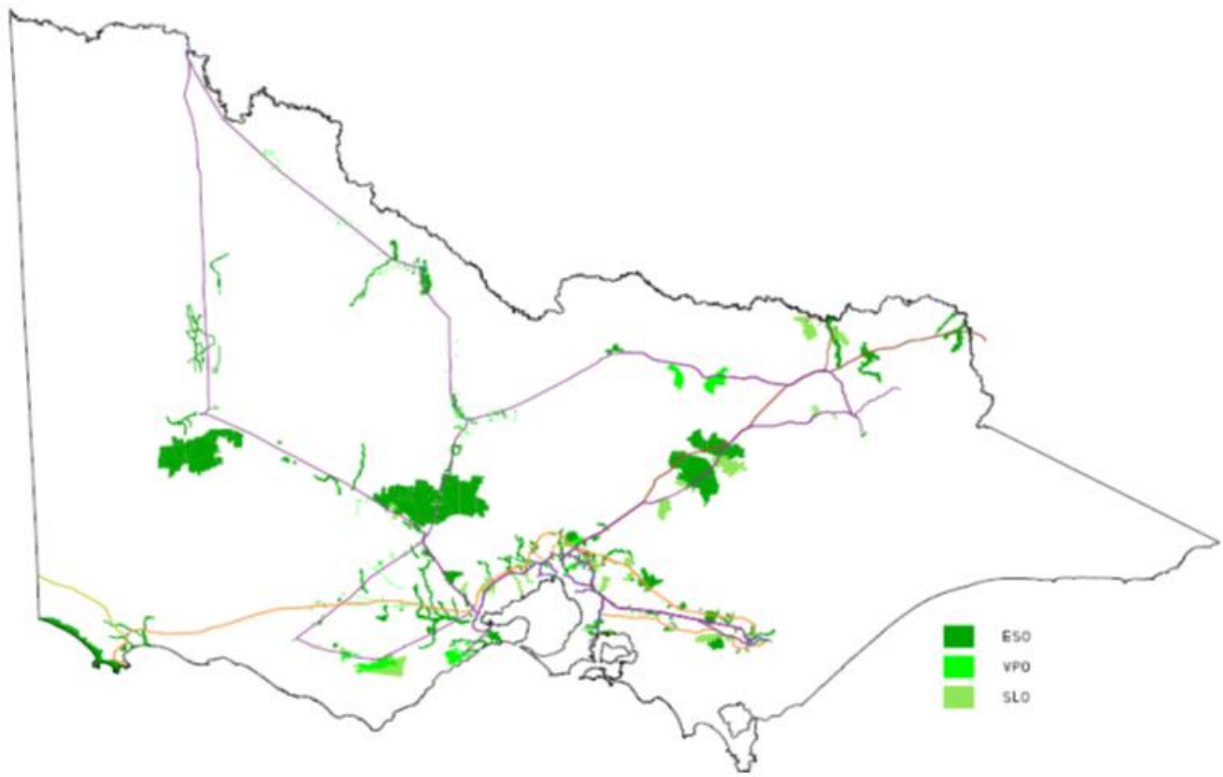






ESR and Call Log Database - The Extra Services Required (ESR) and call log databases record details of specific easement issues, customer details and customer requirements including significant vegetation, culturally significant vegetation and other sites as well as habitat.

12.3 SIGNIFICANT VEGETATION DATABASE EXTRACTS



Map showing “Significant Vegetation Areas” from Planning Scheme Overlay controls

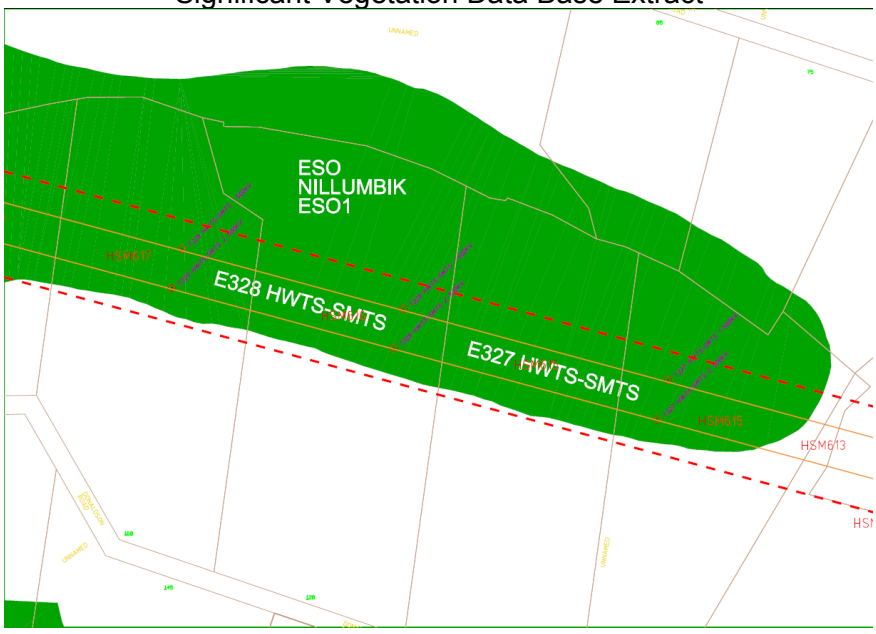
Adobe Reader - [Planning Overlays Councils Segments ESO Desc_Amended.pdf]

Transmission Line Easements
Significant Vegetation Overlay Areas

Printed 18/01/2008

Easement Segment	ESO	ESO Type	ESO Link	VPO	VPO Type	SLO	SLO Type	SLO Link	HO	HO Number and Address	Council
E001 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	1	Link	FALSE		Alpine
E002 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	1	Link	FALSE		Alpine
E003 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	1	Link	FALSE		Alpine
E065 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E066 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E067 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E068 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E069 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E070 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E071 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E072 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E073 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E074 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E075 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E076 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E077 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E078 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E079 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E080 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E081 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E082 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E083 MBTS-EPTS	FALSE	0		FALSE	0	TRUE	4	Link	FALSE		Alpine
E341 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		FALSE		Ballarat
E342 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		FALSE		Ballarat
E343 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		FALSE		Ballarat
E344 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		FALSE		Ballarat
E345 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		FALSE		Ballarat
E358 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		TRUE	HO 163 "Learmonth Inte	Ballarat
E359 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		FALSE		Ballarat
E360 BATS-HOTS	TRUE	3		FALSE	0	FALSE	0		FALSE		Ballarat
E389 BATS-HOTS	TRUE	2		FALSE	0	FALSE	0		FALSE		Ballarat
E394 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E395 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E396 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E397 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E398 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E399 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E400 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E401 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E402 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E403 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E404 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E405 BATS-HOTS	TRUE	1		FALSE	0	FALSE	0		FALSE		Ballarat
E414 BATS-HOTS	FALSE	0		TRUE	1	FALSE	0		FALSE		Ballarat

Significant Vegetation Data Base Extract



Detail of Environmental Significant Overlay control from Shire of Nillumbik

The mapping system has all attribute information for every transmission line, circuit and easement segment. It is simply a matter of displaying the easement segment number when required.

12.4 CUSTOMER NOTIFICATION PROFORMA

NOTICE OF VEGETATION PRUNING OR REMOVAL NEAR TRANSMISSION LINES

AusNet services	Address	
	Line/Location:	
	Issue Date:	

Dear Landowner/Occupier,

AusNet Services is the owner and operator of the electricity transmission lines located on or adjacent to your land. As part of AusNet Services' vegetation management program, vegetation is regularly inspected to ensure network reliability and fire safety.

A recent inspection has identified vegetation on or adjacent to your land requiring action to maintain regulatory clearances of approximately _____ metres vertically and _____ metres horizontally from the conductors. These clearances are inclusive of conductor movement and expected regrowth between pruning cycles as specified in the *Electricity Safety (Electric Line Clearance) Regulations 2015*.

Vegetation works will be undertaken by an authorised AusNet Services' contractor at no charge to the landowner / occupier. All AusNet Services' employees and contractor personnel have been issued with identification cards.

These works are planned to be undertaken between the ___/___/___ and ___/___/___

Proposed Works

❑ Vegetation on your land is proposed to be pruned to maintain the regulatory clearance space.

No action is necessary by you unless you are concerned about vegetation being pruned.

Should you require further consultation prior to work commencing or details about what vegetation is to be pruned, please contact AusNet Services on either number at the bottom of this notice within 14 days of the date of issue.

❑ Vegetation on your land is proposed to be removed to maintain the regulatory clearance space. The removal of vegetation is generally provided for under the terms of the easement registered over the title of land.

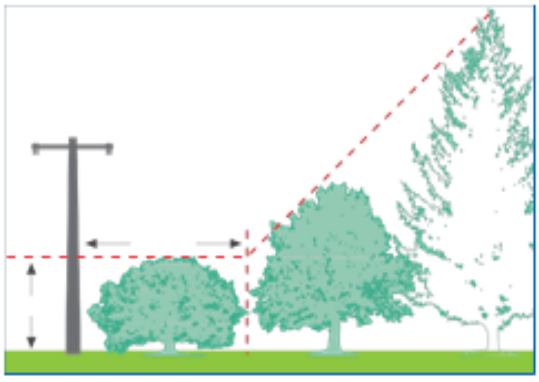
AusNet Services seeks to consult with you regarding the proposed works and requests that you make contact on either number at the bottom of this notice.

Access

❑ AusNet Services requires access to your property to undertake the proposed works as indicated above.

Can you please contact AusNet Services on either number at the bottom of this notice.

The diagrams below illustrate how your trees may be cut:



Programmed Works

It is anticipated that all works will be completed within the timeframe stated above. Circumstances outside our control such as, inclement weather and mechanical breakdown may affect our ability to comply with this timeframe.

Vegetation of Significance

AusNet Services consults with Local, State and Federal Government agencies to identify vegetation of significance located within its network area.

☐ If this check box is ticked vegetation on your property has been identified as having cultural or environmental significance, please contact our office to arrange consultation regarding the proposed works.

Details of the impact of the proposed cutting or removal of vegetation;

_____

☐ If this check box is ticked vegetation adjacent to your property has been identified as requiring action and these works will have the potential to impact the use of your property for their duration.

Details of the impact of the proposed cutting or removal of vegetation;

_____

Rented Properties

If you are an occupier of the above address you should notify the landowner or managing agent of this notice.

Removal of Debris

Vegetation that has been pruned may not be removed from site immediately but will be cleared away as soon as practicable.

Work Practices

All personnel involved in tree cutting have been trained in correct tree pruning techniques. Pruning is carried out in accordance with the Australian Standard AS 4373 - 2007 Pruning of Amenity trees as far as practical. This standard is aimed at reducing the impact of pruning on the health of trees.

Easement Planting Restrictions

AusNet Services encourages the planting of low growing vegetation on easements to reduce the need for ongoing maintenance works. Restrictions may be in place regarding the planting of vegetation within the transmission easement on your land.

For advice regarding the planting of vegetation on or adjacent to transmission line easements, please contact our office on the number at the bottom of this notice or alternatively a brochure titled "Your guide to planting near electricity lines" is available on our website: *www.ausnetservices.com.au*

The AusNet Services' Vegetation Management Plan may be viewed at:
www.ausnetservices.com.au /About Us/ Regulatory Publications/

The AusNet Services' dispute resolution policy can be viewed at:
www.ausnetservices.com.au /Contact Us/ Feedback & Claims

Contact

AusNet Services office: (03) 9237 4408

or our Authorised representative: _____ on _____

12.5 RECORD OF CONSULTATION PROFORMA

AusNet Services VEM 21-02A

Record of Customer Consultation

AusNet services

PROPERTY OWNER				DATE	
PROPERTY ADDRESS					
POSTAL ADDRESS				PH. B/H	
				PH. A/H	
FEEDER NAME		LINE NAME		SPUR NAME	
ASSET №		EASEMENT NAME		POLE / TOWER №	
SITE MAP REF №		HERBICIDE TYPE		№ OF TREES TO BE REMOVED	
PRIOR NOTICE	№ OF DAYS	JOB №		№ OF TREES TO BE PRUNED	
YES NO		VMS №		SCRUB MAINTENANCE METHOD	

SITE DIAGRAM

COMPASS

ADDITIONAL REQUIREMENTS:

THESE WORKS MAY BE CARRIED OUT BY AN AUTHORISED SERVICE PROVIDER ON BEHALF OF AUSNET SERVICES

AUSNET SERVICES REPRESENTATIVE	PRINT	PROPERTY OWNER	PRINT
	SIGN		SIGN

Should you require further consultation or details regarding the pruning or clearing we intend on completing, please contact our Customer Service Centre on 1300 360 795.

Issue 5 21/11/2017 1 of 1
UNCONTROLLED WHEN PRINTED

12.6 PRESCRIBED PARTICULARS OF THE VEGETATION MANAGEMENT PLAN

Regulation	Requirements of *Electricity Safety (Electric Line Clearance) Regulations 2015*	Reference within this document
9 (3) (a)	the name, address and telephone number of the responsible person	Section 1.3
9 (3) (b)	the name, position, address and telephone number of the individual who was responsible for the preparation of the management plan	Section 1.3
9 (3) (c)	the name, position, address and telephone number of the persons who are responsible for carrying out the management plan	Section 1.3
9 (3) (d)	the telephone number of a person who can be contacted in an emergency that requires clearance of a tree from an electric line that the responsible person is required to keep clear of trees	Section 1.3
9 (3) (e)	the objectives of the management plan	Section 1.2
9 (3) (f)	the land to which the management plan applies by the inclusion of a map	Section 1.5
9 (3) (g)	the location of areas containing trees which may need to be cut or removed to ensure compliance with the Code and that are (i) native; or (ii) listed in a planning scheme to be of ecological, historical or aesthetic significance; or (iii) trees of cultural or environmental significance;	Section 1.6
9 (3) (h)	the means which the responsible person is required to use to identify a tree specified in paragraph (g);	Sections 1.6 & 6
9 (3) (i)	the management procedures that the responsible person is required to adopt to ensure compliance with the Code, which must – (i) include details of the methods to be adopted for managing trees and maintaining a minimum clearance space as required by the Code; and (ii) specify the method for determining an additional distance that allows for cable sag and sway for the purposes of determining a minimum clearance space in accordance with Division 1 of Part 3 of the Code;	Section 4.2
9 (3) (j)	(j) the procedures to be adopted if it is not practicable to comply with the requirements of AS 4373 while cutting a tree in accordance with the Code;	Section 5.2sla
9 (3) (k)	a description of each alternative compliance mechanism in respect of which the responsible person has applied, or proposes to apply, for approval under clause 31 of the Code;	Section 4.2.12
9 (3) (l)	the details of each approval for an alternative compliance mechanism that - (i) the responsible person holds; and (ii) is in effect;	Nil
9 (3) (m)	a description of the measures that must be used to assess the performance of the responsible person under the management plan;	Section 9.2
9 (3) (n)	details of the audit processes that must be used to determine the responsible person's compliance with the Code;	Section 9.2

Table 12-1 Prescribed particulars

Regulation	Requirements of *Electricity Safety (Electric Line Clearance) Regulations 2015*	Reference within this document
9 (3) (o)	the qualifications and experience that the responsible person must require of the persons who are to carry out the inspection, cutting or removal of trees in accordance with the Code;	Section 10
9 (3) (p)	notification and consultation procedures, including the form of the notice to be given in accordance with Division 3 of Part 2 of the Code;	Section 7.2
9 (3) (q)	dispute resolution procedures.	Section 8.2
10(7)(a)	a copy of the management plan is published on the responsible person's Internet site;	Section 1.3
10(7)(b)	a copy of the management plan is available for inspection at the responsible person's principal office in the State during normal business hours.	Section 1.3

Table 13-1 (continued) Prescribed particulars

12.7 CODE OF PRACTICE - REFERENCE TABLE

Code of Practice Reference	Title	Reference within this document
3	Responsible person must keep minimum clearance space clear of trees	Section 4.2
4	Exception to minimum clearance space for structural branches around insulated low voltage electric lines	Nil
5	Exception to minimum clearance space for small branches around insulated low voltage electric lines	Nil
6	Exception to minimum clearance space for structural branches around uninsulated low voltage electric lines in low bushfire risk areas	Nil
7	Owner or operator of transmission line must manage trees around minimum clearance space	Section 4.2
8	Responsible person may cut or remove hazard tree	Section 4.2.7
9	Cutting of tree to comply with Standard	Section 5.2
10	Cutting or removal of specified trees must be minimised	Section 6.2.1
11	Cutting or removing habitat for threatened fauna	Section 6.2.1
12	Restriction on timing of cutting or removal if notification is required	Section 7.2
13	Restriction on urgent cutting of trees	Section 4.2.12
14	Restriction on urgent removal of trees	Section 4.2.12
15	Responsible person must provide notification before cutting or removing certain trees	Section 6.2
16	Responsible person must publish notice before cutting or removing certain trees	Section 7.2
17	Responsible person must consult with occupier or owner of private property before cutting or removing certain trees	Section 7.2
18	Notification and record keeping requirements for urgent cutting or removal	Section 4.2.12
19	Dispute resolution	Section 8.2
20	Duty relating to the safety of cutting or removal of trees close to an electric line	Section 5.2
21	Duty relating to assisting to determine the allowance for cable sag and sway	Section 4.2.3
22	Duties relating to management procedures to minimise danger	Section 4.2.3
23	Additional distance that allows for cable sag and sway	Section 4.2.3

24	Insulated electric lines in all areas	Nil
25	Uninsulated low voltage electric line in a low bushfire risk area	Nil
26	Uninsulated high voltage electric line (other than a 66 000 volt electrical line) in a low bushfire risk area	Nil
27	Uninsulated 66 000 volt electrical line in a low bushfire risk area	Nil
28	Uninsulated low voltage and high voltage electric lines (other than a 66 000 volt electrical line) in a hazardous bushfire risk area	Nil
29	Uninsulated 66 000 volt electric lines in a hazardous bushfire risk area	Nil
30	Transmission lines	Section 4.2.3

Table 12-2 Code of Practice Reference Table

Code of Practice Reference	Title	Reference within this document
24	Insulated electric lines in all areas	Nil
25	Uninsulated low voltage electric line in a low bushfire risk area	Nil
26	Uninsulated high voltage electric line (other than a 66 000 volt electrical line) in a low bushfire risk area	Nil
27	Uninsulated 66 000 volt electrical line in a low bushfire risk area	Nil
28	Uninsulated low voltage and high voltage electric lines (other than a 66 000 volt electrical line) in a hazardous bushfire risk area	Nil
29	Uninsulated 66 000 volt electric lines in a hazardous bushfire risk area	Nil
30	Transmission lines	Section 4.2.3
31	Application for approval of alternative compliance mechanism	Nil
32	Formal safety assessment of alternative compliance mechanism	Nil
33	Approval of alternative compliance mechanism	Nil
34	Amendment of approval	Nil
35	Suspension or revocation of approval	Nil

Table 12-2 (continued) Code of Practice Reference Table

13 SCHEDULE OF REVISIONS

Revision	Date	Details of Change
22	30/03/2013	Sec 1 updated easement rights. Sec 1.2 updated to include fuel levels and hazard trees. Sec 1.3 updated responsible person. Sec 1.4 updated management structure. Sec 4 Title & 4.1, revised to cover fuel levels and hazard trees Sec 4.2.1 added reliability objective. Sec 4.2.3 revised to clarify application of clearance tables. 4.2.4 revised priority classifications, 4,2,6 revised Vegetation density, 4.2.7, added section on fuel hazards, 5.2 added vegetation clearing statement. Other minor updates. Removed reference to year from Plan title to reflect scope of Plan as on-going.
23	20/03/2014	Document updated with minor changes for the 2014-15 submission to ESV. Revised by A Walsh
24	30/03/2015	Document updated with minor changes (including rebrand) for the 2015-16 submission to ESV. Organisation chart (Section 1.4) updated to reflect appropriate delegates. Revised by A Walsh
25	14/09/2015	Document updated to reflect ESV's requested changes. Revised by B Nelson & A Walsh.
26	09/10/2015	Added Section 12.6 per Energy Safe Victoria's request.
27	11/11/2015	Added Section 12.7 per Energy Safe Victoria's request.
28	25/03/2016	Annual review, updated to comply with 2015 Regulations. Revised by B Nelson & A Walsh.
28.1	17/11/2016	Minor amendments and web link updates per Energy Safety Victoria's review . No addition or removal of any section.
29	27/03/2017	Updated Sections1.3, 1.4 and 1.7 to reflect changes in organisation structure and web pages. Revised "Hazard Space" definition to "Line of Fall" for clarity (Section 3). Included LiDAR as a patrol method to reflect current practice (Section 4.2.2). No changes to the Plan or related management procedures.
29.1	23/05/2017	Minor amendments and updates per Energy Safety Victoria's review . No addition or removal of any section.
30	29/03/2018	Updated Section 1.6 location of the native vegetation map and the external web link. Corrected terminology throughout the Plan: "segment" in lieu of "span", "Line of Fall (LOF) tree" in lieu of "hazard tree". Updated Section 4.2.2. to clarify assessment practice and methods. Rationalised vegetation assessment priority codes in Section 4.2.4 to remove redundant codes (P90, P365 and P900). Updated designations of roles throughout the Plan to reflect the restructure. Updated templates in the appendices. Minor wording changes for clarity and brevity.

Table 13-1 Schedule of Revisions