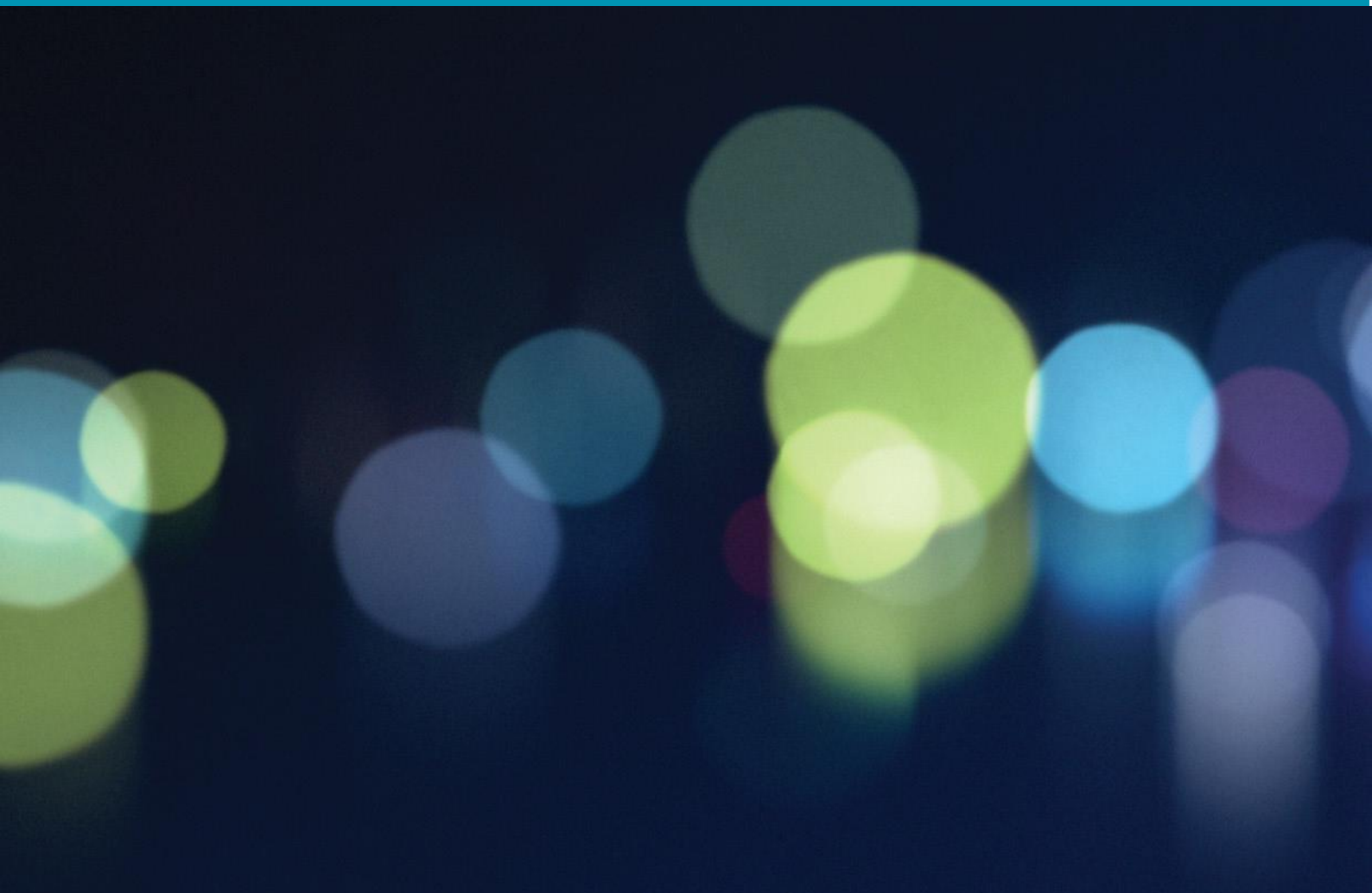


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Attachment 8 – Vegetation Clearance Management standard

Cost pass through application
2019-20 bushfire disaster event



Mains Maintenance Instruction

Vegetation Clearance Management

IMPORTANT DISCLAIMER

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MAINS MAINTENANCE INSTRUCTION

ASSET STANDARDS AND DESIGN	Document no. Amendment no. Approved by Approval date	MMI 0013 12 GMAM 28/6/18
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MMI 0013 **Vegetation clearance management**

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1.0 PURPOSE

To detail the management of vegetation in proximity to Network Assets and prioritise defects which are found within these clearances.

2.0 SCOPE

This instruction covers the vegetation management requirements (including the vegetation clearances and defect priorities) near the company Network Assets, including up to the point of supply for High Voltage Customer Lines.

Where Private Overhead Lines are inspected as part of the OLI/GLI or PSBI processes the same vegetation clearances and priorities must be applied.

This instruction does not cover:

- The vegetation trimming requirement around streetlight lanterns in areas where the electricity is supplied by underground mains, as this responsibility lies with the local council.
- The rights and vegetation management obligations of lines on private property. This is covered in Mains Maintenance Instruction MMI 0021 – Guide to rights and obligations for electricity mains located on private property.

3.0 REFERENCES

Internal

- Company Policy (Network) 9.9.1 – Network Asset Maintenance
- Company Procedure (Network) GAM 0089 – Authorisations Governance and Management
- Company Procedure (Network) GAM 0114 – Granting Dispensation from Engineering Documents.
- Environmental Management Standard EMS 0004 – Managing Near Electrical Infrastructure and Pest, Weed and Disease Mitigation
- Environmental Management Standard EMS 0006 – Maintenance and construction of access tracks
- Mains Maintenance Instruction MMI 0001 – Pole and line inspection and treatment procedures
- Mains Maintenance Instruction MMI 0012 – Overhead transmission line routine inspection
- Mains Maintenance Instruction MMI 0021 – Guide to rights and obligations for electricity mains located on private property
- Endeavour Energy's Electrical Safety Rules
- Annexure 1 – 1/6th Tree trimming concept
- Annexure 2 – Non-PSBI defect rectification periods
- Annexure 3 – Clearances for spans over 600m

External

- *Electricity Supply Act 1995*
- *Environmental Planning and Assessment Act 1979*
- *National Parks and Wildlife Act 1974*
- *Threatened species Conservation Act 1995*
- *Wilderness Act, 1987*
- *Work Health and Safety Act 2011*
- *Work Health and Safety Regulation 2011*
- Electricity Supply (Safety and Network Management) Regulation 2014
- Native Vegetation Regulation 2013
- ENA National Electricity Network Safety Code (Doc 01-2008)
- Industry Safety Steering Committee (ISSC) 3 – Guide for the management of Vegetation in the vicinity of electricity assets (2016)
- State Environmental Planning Policy (Infrastructure) 2007
- State Environmental Planning Policy No 14 – Coastal Wetlands
- State Environmental Planning Policy No 26 – Littoral Rainforests

4.0 DEFINITIONS AND ABBREVIATIONS

4.1 Abbreviations

ABC

Aerial bundled conductor

ACSR

Aluminium conductor steel reinforced

CCT

Covered conductor thick

ESR

Electrical Safety Rules

GIS

The company graphical information system

RFS

Rural Fire Service

VMS

Vegetation Management System

4.2 Definitions

Authorised

A person with technical knowledge or sufficient experience who has been approved and authorised in writing by the company to perform the function requiring authorisation as described in Company Procedure (Network) GAM 0089 – Authorisations Governance and Management.

Bushfire consequence rating

An algorithm-determined measure of the relative consequence between areas of the network in respect to supporting a bushfire. The consequence rating is classified as High, Medium, Low or Very Low.

Bushfire Prone Area

An area of land, as determined by NSW RFS that can support a bush fire or is likely to be subject to bush fire attack, and is recorded on the company's graphical information system (GIS).

Bushfire Danger Period

The statutory Bushfire Danger Period is defined by the Royal Fire Service which is nominally between 1st of October to 31st March each year, but may vary from year to year and in specific locations due to local conditions.

Clear to the Sky

The practice of removing all vegetation above the network asset, to the width of the minimum vegetation clearance for that asset.

Clearing Requirement

The clearing requirement is the sum of the Minimum Vegetation Clearance and the Regrowth Allowance. It is the expected outcome immediately after the vegetation Hazard Management Cycle/Vegetation Control Maintenance Cycle has been carried out.

Covered Conductor

A conductor that is covered with specified insulation material of adequate thickness for the voltage at which the conductor is operated. This generally refers to HVABC, LVABC and CCT.

Easement

The encumbrance on the title of land (which may be limited in width and height above or below the land) conferring a right to the company to construct, operate, maintain, repair, renew, replace or upgrade electrical infrastructure.

Fall-in Vegetation Hazard/Hazard Tree

Visually defective vegetation (which is vegetation that is dead, dying and appears structurally unsound as identified from the perspective of the Network Asset as far as it is reasonably practicable to do so), that is outside the minimum Clearing Requirement distances from Network Assets and which may require pruning, cutting, or removal to obviate the risk of it falling, dropping, and contacting the assets.

Groundline Vegetation Management

Management of vegetation adjacent to, below, or near, network assets in order to maintain safety clearances and access as well as improve the long term vegetation management in the vicinity of the asset.

Grow-in vegetation hazard/Vegetation Defect

Vegetation within the stated Minimum Vegetation Clearances for all Network Assets.

Hazard Management Cycles/Vegetation Control Maintenance Cycle

After consideration of the Regrowth Allowance due to predicted environmental factors, the time required between return visits to areas to cut vegetation that enables maintenance of the Minimum Vegetation Clearance. The objective of the Hazard Management Cycle must avoid any encroachment into the Minimum Vegetation Clearance between cuttings as far as is reasonably practicable.

Minimum Vegetation Clearance

The minimum clearance area surrounding the asset which, as far as reasonably practicable, is kept free of all vegetation in accordance with this standard.

Network Asset

The company's above ground electrical assets as detailed in this Standard which can be interfered with or affected by vegetation to the extent of creating a hazard.

Private overhead line

All aerial mains and their supports that extend beyond the point of supply, including all aerial consumer mains and all aerial sub-circuits.

Regrowth Allowance

The additional clearance allowance required that is added to the Minimum Vegetation Clearance to reduce the likelihood of vegetation regrowth incursions into the Minimum Vegetation Clearance between Hazard Management Cycles/Vegetation Control Maintenance Cycles.

Significant / Heritage Tree

Any tree classified as:

- Significant by the National Trust of Australia (NSW);
- Recognised by a government authority; or
- listed by a local government authority on a Significant Tree Register (STR).

Significant trees may be individually heritage listed, or form part of a larger place listed as a heritage item, area or heritage conservation area (for instance street trees within a conservation area). Significance is generally in relation to one or more historic, aesthetic, scientific (for example, botanical, ecological or horticultural value) or social value.

Heritage significance in NSW is defined in reference to the NSW State Heritage Register criteria within the Office of Environment and Heritage. Further details; refer to Environmental Management Standard EMS 0004 – **Managing Vegetation Near Electrical Infrastructure and Pest, Weed and Disease Mitigation**.

Trimming map

A mapping system, which divides Endeavour Energy's franchise area into square land areas, used to allow for the efficient trimming of the vegetation adjacent to its network. These maps are defined by Endeavour Energy and can vary in size.

5.0 ACTIONS**5.1 General Requirements**

The company is responsible for maintaining a safe, reliable and secure network and as part of this; vegetation clearing near Network Assets is carried out to reduce the risks of fire, service interruptions, and possible safety and environmental impacts.

The principles and philosophy of vegetation management detailed in this standard are based upon the industry document *ISSC 3 – Guide for the management of Vegetation in the vicinity of electricity assets (2016)*.

Vegetation trimming practices are to be conducted in accordance with the Vegetation Control Manual and Environmental Management Standard EMS 0004 – **Managing Vegetation Near Electrical Infrastructure and Pest, Weed and Disease Mitigation**.

Appropriate environmental considerations must be undertaken where the requirements of this standard require a level of clearing which will significantly increase from past practices. All relevant environmental legislation must be taken into consideration.

5.2 Vegetation encroachment and cutting cycles

Where vegetation has encroached on the clearances detailed in this Standard, these must be considered a defect and recorded and prioritised in accordance with [Clause 5.11.2](#).

The clearances specified in Clause 5.6.3 must be considered the minimum vegetation clearance for the applicable construction type.

5.2.1 Vegetation growth rate

The vegetation contractor must determine the expected growth rates for each area/map in which vegetation management will be conducted. The contractor must consider the historical rate of defects, tree type and local environmental conditions when estimating the rate of growth.

5.2.2 Hazard management cycle/Vegetation Control Maintenance Cycle (Cutting cycle)

After determining the rate of growth for the tree species, the time before the next inspection and thus an additional amount of vegetation to cut (the cutting cycle) must be determined, with the maximum possible cutting cycle to be 24 months. This additional cutting beyond the minimum vegetation clearance (as detailed in Clause 5.6.3) must prevent vegetation growth that would encroach on the minimum clearances before the next vegetation inspection cycle, refer to Figure 1.

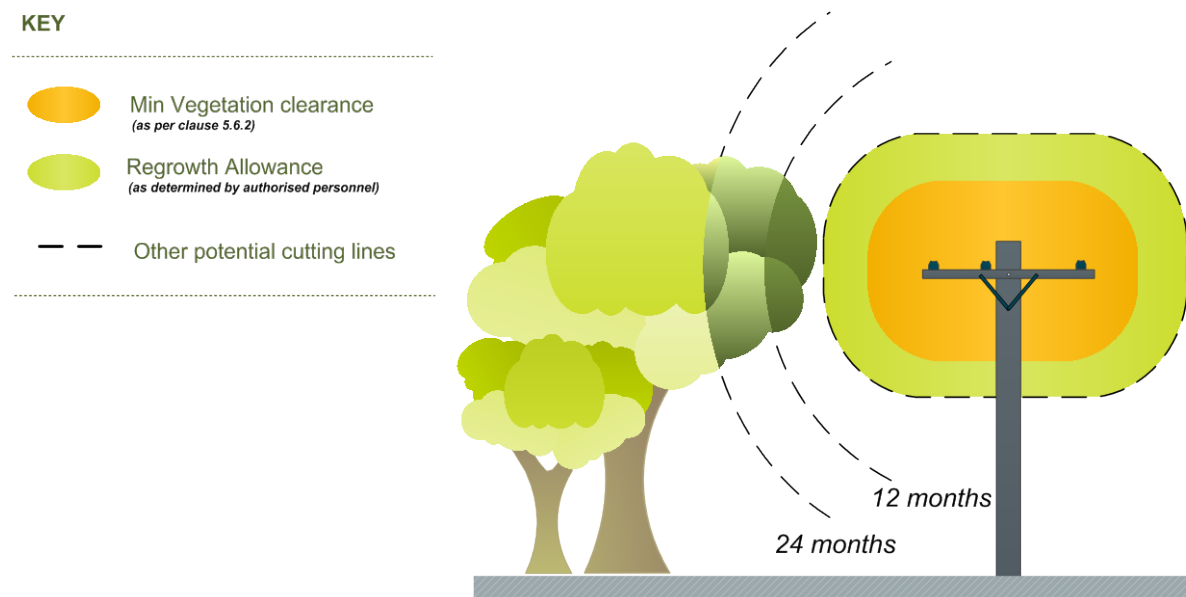


Figure 1: Example of various cutting cycles

5.2.3 Vegetation trimming map schedule

The routine trimming schedule of Endeavour Energy's trimming maps shall be ordered where practicable, in such a way that the higher the bushfire consequence rating, the later and closer to the start of the bushfire danger period the map shall be programmed.

5.3 Authorised workers

The clearing of vegetation near network assets must be carried out only by persons authorised in accordance with Company Procedure (Network) GAM 0089 – Authorisations Governance and Management. All vegetation clearing employee must receive annual training, re-assessment and certification.

5.4 Lands with special requirements

5.4.1 Environmentally sensitive areas

Environmentally sensitive areas are defined and prescribed in Environmental Management Standard EMS 0004 – **Managing Vegetation Near Electrical Infrastructure and Pest, Weed and Disease Mitigation.**

5.4.2 Private lines/land

Within the company's network there exist overhead lines which the company does not own. The obligations of both the company and the owners / customers of these assets are detailed in Mains Maintenance Instruction MMI 0021 – **Guide to rights and obligations for electricity mains located on private property.**

5.5 Precautions before commencing work

Before commencing any vegetation activities where contact with a structure or vegetation that is in contact with the overhead line, a visual overhead inspection of the pole and line must be performed, followed by a voltage leakage check on the pole to identify any hazardous voltages on the pole surface.

A voltage check of the pole is not required when working with insulated tools (as defined in the ESR) and/or working from an insulated EWP, when sufficient controls are in place to avoid inadvertent contact.

The multimeter used to perform the voltage check must have a function to measure both LOW and HIGH impedance (proximity test), for example, *Fluke 117*.

For details on performing the voltage leakage check, refer to Clause 5.4.10 of Mains Maintenance Instruction MMI 0001 – Pole and line inspection and treatment procedures.

5.6 Vegetation clearances from network assets

If vegetation is within minimum safety clearances for an authorised person as defined in the ESR, the entire tree must be considered live. Only approved techniques employing insulated tools approved live line techniques or under Access Authority conditions, must be employed to remove the vegetation.

For guidance on safe approach distances and requirements for vegetation control in close proximity to overhead mains, refer to the ESR.

If a construction, voltage or span length is not covered in Table 1, Table 2 or Table 3 of Clause 5.6.3, details of the span (including voltage, conductor type, sag profile drawing or tension/conductor temperature measurements) must be referred to Mains Assets Manager, Asset Standards and Design, who will determine the minimum vegetation clearances.

For conductors that have a span greater than 600 metres, refer to Annexure 3. If a span is not covered within this Annexure, contact the Mains Assets Manager, providing the details of the span as listed above.

Vegetation must be trimmed to a line's constructed voltage, rather than the voltage in which it may be operated at (including de-energised lines). For example, a line which is constructed to the 33kV standard but is energised at 11kV (or is de-energised), the 33kV minimum vegetation clearances must apply.

For covered mains (LVABC, HVABC, and CCT), large limbs or tree trunks that are not climbable, are permitted within the minimum vegetation clearances, provided there is no evidence of direct physical contact between the mains and the trunk or limb. The trunk or limb must be removed if there is any evidence of sheath damage, cable contact or the opportunity to climb the tree.

The distances listed in Table 1, Table 2 and Table 3 of Clause 5.6.3, are to be measured from the conductor in its static position (no wind situation).

Where vegetation which has been historically cut to distances greater than those specified within Table 1, Table 2 and Table 3 of Clause 5.6.3, and maintaining these distances poses no additional cost to the company, these clearances may be continued to be maintained at this greater distance. This includes situations where maintaining a straight line instead of the 1/6th, 2/3rd profile.

5.6.1 Third party communication cables

The company does not have any vegetation management requirements in proximity to third party communications cables on the company assets and no additional clearing is required for such assets.

5.6.2 Overhead line easements

Where vegetation has previously been maintained for an overhead line easement / corridor (beyond the minimum clearances), this must continue to be maintained. This additional clearing of the easement / corridor is to be done as part of the routine cutting processes and is not considered a defect unless vegetation has come within the minimum clearances.

5.6.3 Overhead lines clearances

Table 1: Minimum vegetation clearances above and below the conductor

<i>In designated bushfire prone areas, add 0.5 metres to the clearances for bare conductors.</i>								
Voltage	Conductor Type	Span length - X (m)						
		X ≤ 50	50 < X ≤ 100	100 < X ≤ 200	200 < X ≤ 300	300 < X ≤ 400	400 < X ≤ 500	500 < X ≤ 600
Up to and including 1 kV	Bare conductors	1.0	1.0	2.5	4.0			
	Covered and EE comm cables	0.5		1.0				
Greater than 1kV, up to and including 22kV	Bare conductors (not including steel)	1.5	2.5	3.5	5.0			
	HVABC	0.5		1.0				
	CCT	1.0						
	Steel conductors (including SWER)	1.5	1.5	2.5	4.0			
Greater than 22kV, up to and including 66kV	Steel conductors	1.5	1.5	2.5	4.0			
	Bare conductors (not including steel)	2.0	3.0	4.0	6.0			
132kV	Bare conductors	3.0	4.0	5.0	6.5			

Table 2: Minimum blowout vegetation clearances (spans ≤ 300m)

<i>In designated bushfire prone areas, add 0.5 metres to the clearances for bare conductors.</i>									
Voltage	Conductor Type	Span length - X (m)							
		X ≤ 50		50 < X ≤ 100		100 < X ≤ 200		200 < X ≤ 300	
		First and Last 1/6 th	Middle 2/3rds	First and Last 1/6 th	Middle 2/3rds	First and Last 1/6 th	Middle 2/3rds	First and Last 1/6 th	Middle 2/3rds
Up to and including 1 kV	Bare conductors	1.0		1.0		1.5	2.5	3.5	4.0
	Covered and EE comm. cables	0.5		0.5		0.5	1.0	1.0	
Greater than 1kV, up to and including 22kV	Bare conductors (not including steel)	1.5		1.5	2.5	2.0	3.5	4.0	5.0
	HVABC	0.5		0.5		0.5	1.0	1.0	
	CCT	1.0		1.0		1.0	1.0	1.0	
	Steel conductors (including SWER)	1.5		1.5		1.5	2.5	2.0	4.0
Greater than 22kV, up to and including 66kV	Steel conductors	1.5		1.5		1.5	2.5	2.0	4.0
	Bare conductors (not including steel)	2.0		2.0	3.0	3.0	4.0	4.5	6.0
132kV	Bare conductors	3.0		3.0	4.0	3.5	5.0	5.5	6.5

- 1/6th clearances are measured from the crossarm, up until the 1/6th of the span length. Refer to Annexure 1 for further explanation.

Table 3: Minimum blowout vegetation clearances (spans >300m to 600m)

<i>In designated bushfire prone areas, add 0.5 metres to the clearances for bare conductors.</i>							
Voltage	Conductor Type	Span length - X (m)					
		300 < X ≤ 400		400 < X ≤ 500		500 < X ≤ 600	
		First and Last 1/6 th	Middle 2/3rds	First and Last 1/6 th	Middle 2/3rds	First and Last 1/6 th	Middle 2/3rds
Up to and including 1 kV	Bare conductors						
	Insulated and EE comm. cables						
Greater than 1kV, up to and including 22kV	Bare conductors (not including steel)	4.0	7.0	5.5	9.5	8.0	12.5
	HVABC						
	CCT						
	Steel conductors (including SWER)	3.5	6.0	5.0	8.5	7.0	11.0
Greater than 22kV, up to and including 66kV	Steel conductors	3.5	6.0	5.0	8.5	7.0	11.0
	ACSR	4.5	7.5	6.0	10.0	8.5	13.0
132kV	ACSR	5.0	8.5	7.0	11.0	9.5	14.0

- 1/6th clearances are measured from the crossarm, up until the 1/6th of the span length. Refer to Annexure 1 for further explanation.

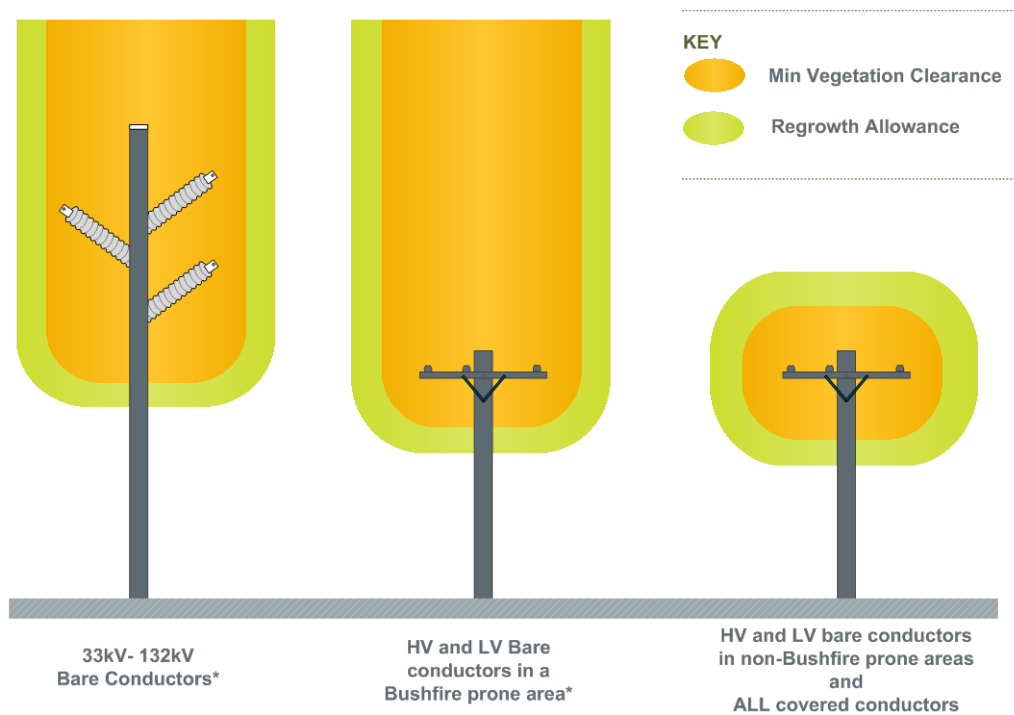
5.6.3.1 Clearance above overhead lines

‘Clear to the sky’ vegetation hazard reduction measures involve the practice of the removal of all vegetation above the Network Assets to the width of the minimum vegetation clearance plus regrowth allowance, as indicated in Figure 2. The undertaking of ‘Clear to the sky’ hazard remediation must always consider the environmental conditions and community amenity of performing the vegetation clearing.

For 33kV through to 132kV lines, the clearance above bare conductors must be clear to the sky for all new feeders and feeders which currently have ‘clear to the sky’ implemented, unless it is prevented by local environmental conditions.

For bare distribution lines in bushfire prone areas, ‘Clear to the sky’ vegetation management must maintain on all new lines and where it currently exists, unless it is impracticable to do so.

For ALL covered conductors and distribution lines in non-bushfire prone areas, an envelope around the conductor, equal to the clearances in Table 1 must be achieved.



* - Only applies for new constructions and where Clear to the Sky currently exists

Figure 2: Clearances above conductors

5.6.4 Poles clearances

A minimum clearance of two (2) metres must be achieved from the pole (timber, steel or concrete etc).

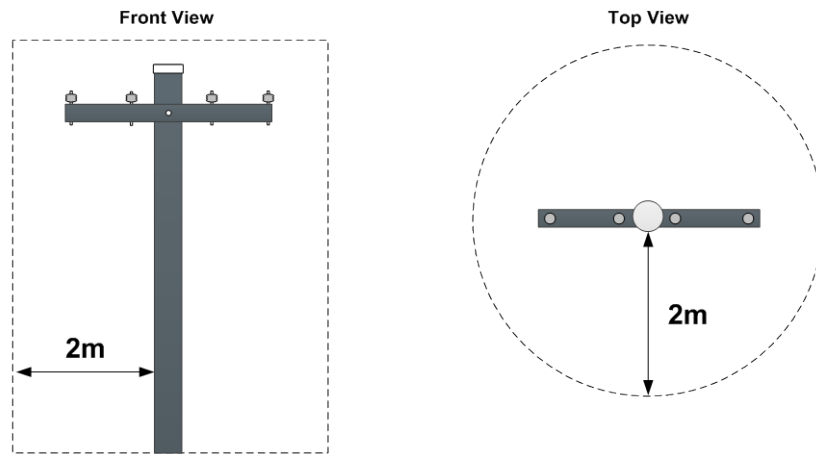


Figure 3: Clearances required around a pole

5.6.5 Towers

A minimum clearance of three (3) metres must be achieved in all directions around the tower structure, or a 12 metre radius from the centre of the tower, whichever is greater. In the proximity of the conductors, the 1/6th clearances, as specified in Table 2 and Table 3, must be achieved.

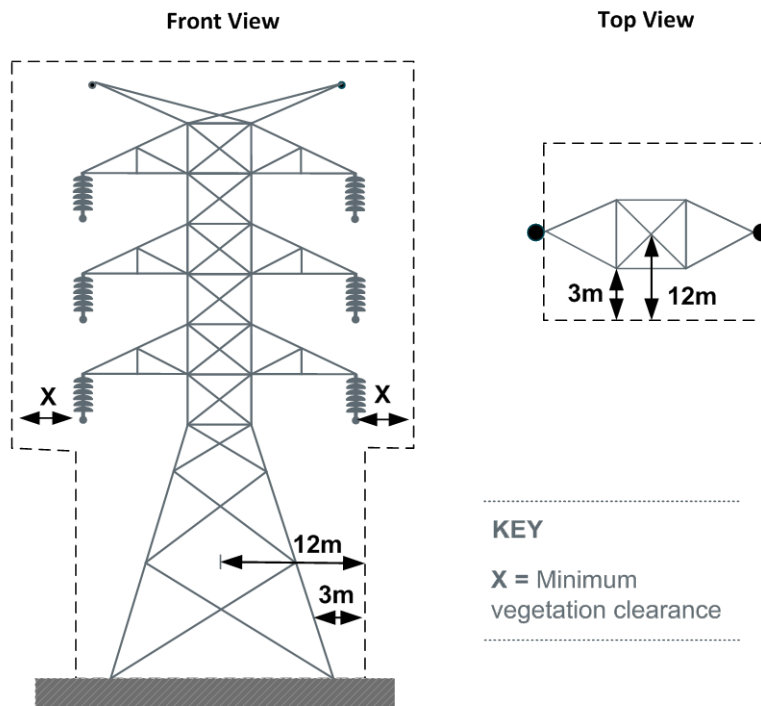


Figure 4: Clearances required around towers

5.6.6 Streetlight clearances

Streetlight lanterns must have a minimum of two (2) metres clearance in all directions, except above the lantern, where a minimum of one (1) metre is required.

Maintaining clearances around streetlight lanterns in areas where electricity is supplied by underground mains is the responsibility of the local council. However, where the supply is by overhead mains, this is the responsibility of the company.

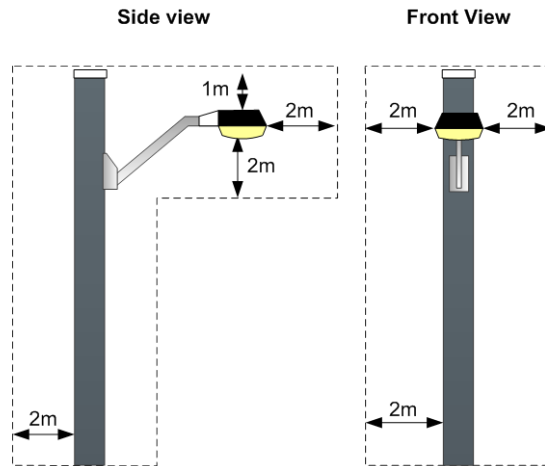


Figure 5: Clearances around street light lanterns

5.6.7 Padmount /ground substations and switching stations

Padmount substations and switching stations must have no vegetation (excluding short grass) within the easement and must have no vegetation within two (2) metres above the cubicle.

For substations without a formal easement, for example those installed in the road verge, the vegetation must be cleared 1 metre from the padmount in all directions and two (2) metres above the cubicle.

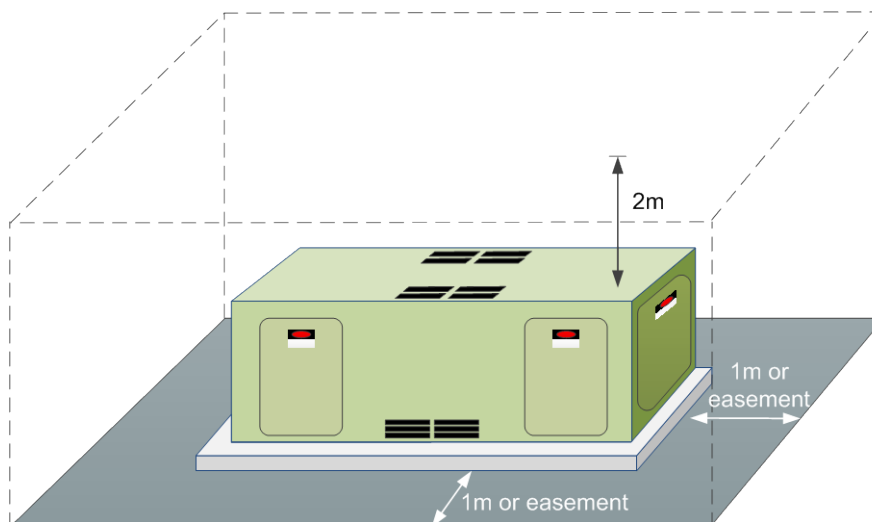


Figure 6: Clearances around ground substations

5.6.8 Zone, transmission substations and switch yards.

The following table summarises the vegetation clearing requirements for Zone, Transmission Substations and switch yards:

Table 4: Vegetation requirements for substations

Requirement	Bushfire Prone Area	Non Bushfire Prone Area
Minimum Vegetation Clearance surrounding external fence	10 metres	3 metres
Substations with live exposed outdoor electrical equipment (e.g. air insulated busbars)	Clear to the sky and cleared of fall in vegetation hazards from the fence boundary to a distance of 10 metres	Clear to the sky and cleared of fall in vegetation hazards from the fence boundary to a distance of 3 metres

Surrounding the boundary fence, up until the Minimum Vegetation Clearance distance, only mown grass is permitted.

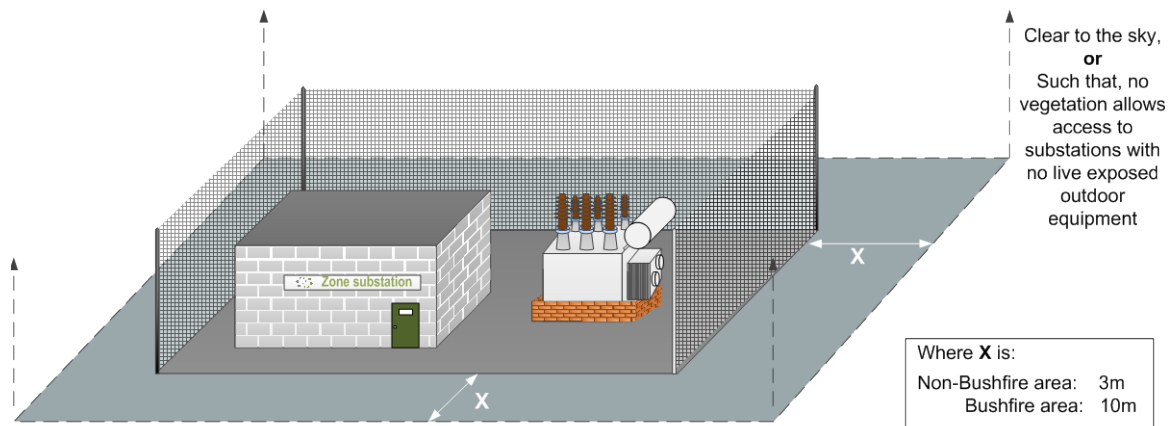


Figure 7: Clearances required around and above a Zone or Transmission Substation.

5.6.9 Access tracks

Vegetation management of access tracks must be:

- The width of the access track (minimum four (4) metres) must be free of vegetation;
- Four (4) metres clearance above the access track;
- No additional vegetation clearing beyond the edges of the existing access track is permitted

5.6.10 Watercrossings

All vegetation clearing works near waterways are environmentally sensitive and must be carried out in accordance with this standard. The affected Catchment Management Authority must be notified of the proposed works as per Environmental Management Standard EMS 0012 – Overhead transmission line routine inspection.

Water crossings are classified as vulnerable land, and under *Native Vegetation Regulation 2013 Clause 59*, the maximum vegetation clearing around a watercrossing sign cannot exceed 15 metres from the asset.

5.6.10.1 Watercrossing signs

All vegetation must be cleared between the two (2) 45° projected lines, from the face of the water to the crossing sign, such that the entire face is visible to watercraft:

- from any point within 45° from each side of the front surface of the sign;
- from a distance of 100m from the crossing;
- from water level to five (5) metres above the surface of the water.

Any vegetation that is encroaching or will encroach / obscure (e.g. regrowth) the view of the sign prior to the next cutting cycle must be cleared. If the vegetation removal will lead to erosion, jeopardising the stability of the sign, the Vegetation Control Manager must be advised for further investigation.

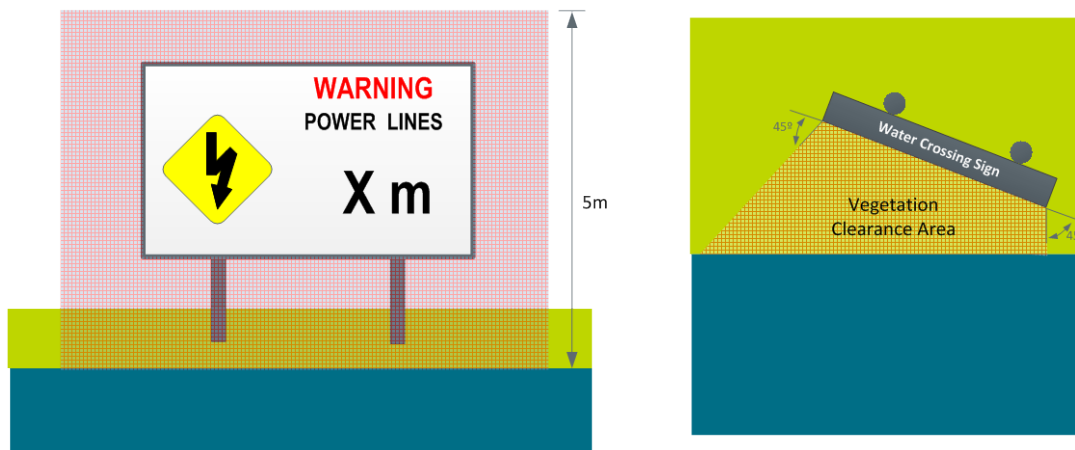


Figure 8: An example of a water crossing sign, and the vegetation clearing requirements

5.6.11 Fall-in vegetation hazard/Hazard Tree defects

Vegetation surrounding network infrastructure must be visually inspected for trees or part thereof, that is visually defective, or appears dead dying or structurally unsound, and that has the potential to interact with the electrical network. The inspection must be conducted during any on-site scoping or cutting procedures. The area to be inspected is not limited to the minimum vegetation clearances and must cover all vegetation readily visible from the perspective of the network assets as far as reasonably practicable to do so.

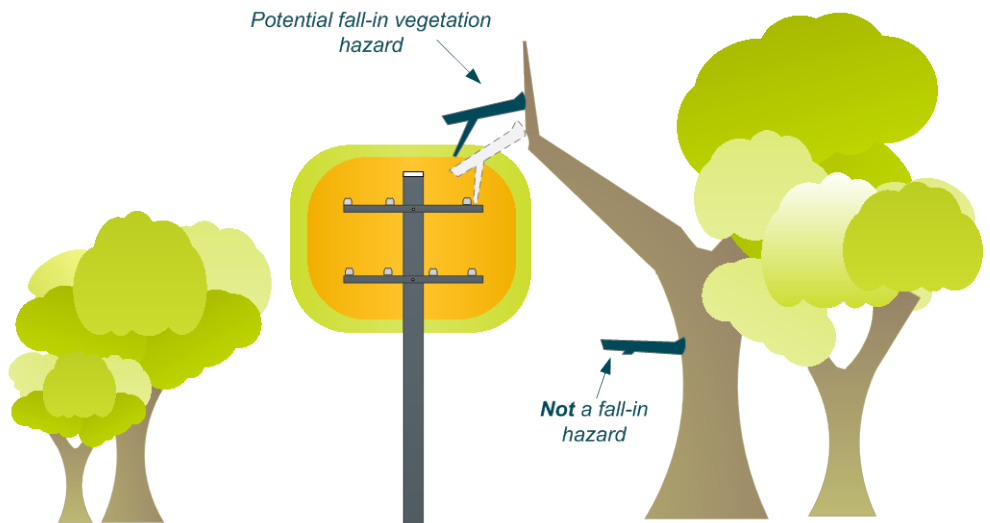


Figure 9: Vegetation which may impact line must be removed.

In assessing the fall-in vegetation hazard/hazard trees, consideration must be given to: the height and distance from the line of the vegetation and the likelihood of impacting the line.

5.7 Significant/heritage trees or sensitive issue trees

Where a significant/heritage/sensitive tree is identified, and reduced clearances needed, a dispensation request, as per Company Procedure (Network) GAM 0014 – Granting Dispensation from Engineering Documents must be submitted. The classification of a significant/heritage tree, refer to clause 3.0.

Records must be kept for all significant and heritage trees and the locations identified on tree trimming maps. The reduced clearances must be re-assessed every five (5) years.

The management of a significant/heritage/sensitive tree is contained within Annexure A of Environmental Management Standard EMS 0004 – Managing Vegetation Near Electrical Infrastructure and Pest, Weed and Disease Mitigation.

5.8 Groundline vegetation management

Management of vegetation under network assets at groundline is carried out in order to establish and maintain both safety clearances and maintenance access.

5.8.1 Slashed areas

Where vegetation has previously been slashed/trittered or mechanically removed to the established (mature) tree line, this must be maintained.

5.8.2 Non slashed areas

Any vegetation that will reach a height greater than three (3) metres and within the minimum vegetation clearance must be removed.

5.8.3 *Gullies / Creek Lines*

Vegetation is to be retained within gullies and/or creek lines to reduce the incidence of erosion whilst maintaining the minimum clearances from the conductor as detailed in Tables 1-3 of this standard. At no time will this material block or interfere with water flow in such areas.

Where trees cannot be climbed or accessed by a vehicle, these trees may be removed. Vegetation material may be retained in consultation with the landowner.

5.9 **Planted vegetation**

In situations where newly planted vegetation around assets will present a future hazard, whereby the vegetation can possibly grow into the Minimum Vegetation Clearance, the person/organisation responsible for the planting must be requested to remove or relocate the vegetation. If the person/organisation does not remove the offending vegetation by the requested time period, the company may remove the vegetation.

For further details regarding planting trees near the electrical network, refer to Section 5 of the Tree Management Plan.

5.10 **Vegetation clearing for new construction/augmentation works**

All vegetation clearing around new / augmented network asset construction must consider fall-in vegetation hazards/hazard trees, and be carried out to the requirements of this standard.

Before commissioning, the Vegetation Control Manager or nominated representative, must be notified and provided with copies of all relevant plans and documentation.

5.11 **Vegetation defect management**

Where vegetation has encroached on the clearances detailed in this Standard, these must be considered a defect, recorded within the company's VMS database.

5.11.1 Vegetation defect classification

Vegetation encroachments are to be categorised as follows:

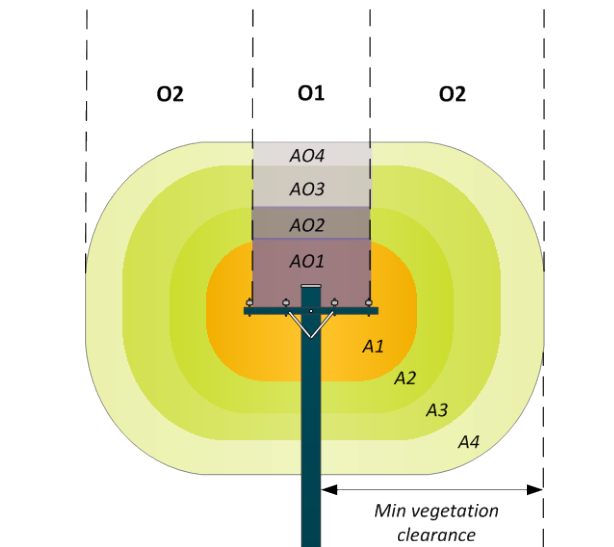


Figure 10 – Vegetation defects

Table 5 : Vegetation Zones

Code	Description
A1	Encroaching within the minimum vegetation clearance by 75% or more
A2	Encroaching within the minimum vegetation clearance between 50% and 75%
A3	Encroaching within the minimum vegetation clearance between 25% and 50%
A4	Encroaching within the minimum vegetation clearance up to 25%
O1	Vegetation outside the minimum vegetation clearances directly above bare conductors
O2	Vegetation outside the minimum vegetation clearances directly above bare minimum vegetation clearances
AOX	Encroaching within the minimum vegetation clearances and directly above bare conductors

These classifications only apply to overhead line defects. For vegetation defects for other Network Assets, these must be categorised as per the priorities in clause 5.11.2 **Error!** **Reference source not found..**

Any vegetation defect identified as touching the high voltage network (11 kV and above) must be reported to the Vegetation Control Manager immediately.

5.11.2 Vegetation defect prioritisation

Vegetation defects must be prioritised in accordance with Table 6.

Table 6: Vegetation defect priority

Assets	Method of identifying vegetation defects	Defect Priority
Overhead lines	PSBI Process	<ol style="list-style-type: none"> A1 and A2 defects to be cut and audited before the start of the bushfire danger period (30th September); A3 and A4 defects for bare conductors will be cut and audited by the 31st December.
	Out of cycle / OLIGLI Process	Defects identified as part of the OLIGLI process or defects found out of the routine vegetation trimming cycle are to be prioritised in accordance with Annexure 2.
	Immediately after cutting	To be considered and addressed under the contractual performance framework in the first instance.
Poles	All defects	6 Months
Towers		
Padmount / Switching station		
Zone/Transmission Substation		
Street light lantern		1 month
Water crossing sign		1 Year

The rectification of defects must be prioritised and factor in the following components:

- voltage level;
- position of encroachment (beside or below the mains);
- strength of vegetation (can it be climbed or cause conductors to clash);
- growth rate;
- time of year found (bushfire period or not) etc.; and
- risk associated with the area (consequence rating).

Each of these variables will have influence over the risk posed by the vegetation encroachment.

5.11.3 Defect reporting requirements

Where a vegetation defect is found (including during scoping of the routine vegetation program), a defect must be recorded indicating:

- the date the span was inspected;
- the bay in which the defect exists (asset number of poles either side);
- the worst encroachment within the span (e.g. A1, A2, A3 or A4);
- the number of trees (per span) with a defect;
 - this is expected to be a subjective reporting measure to provide an indication of volume.
- the source of the defect (e.g. PSBI, scoping);

6.0 AUTHORITIES AND RESPONSIBILITIES

General Manager, Asset Management has the authority and responsibility for approving this instruction;

Manager, Asset Standards and Design has the authority and responsibility for:

- making recommendations to the General Manager, Asset Management in respect to this standard; and,
- approving or rejecting dispensation requests that do not adhere to this standard;

Mains Assets Manager has the authority and responsibility for:

- keeping the content of this instruction up to date;
- reviewing and either endorsing or rejecting dispensation requests that do not adhere to this standard; and,
- analysing spans/constructions submitted, which are not covered in this standard.

Vegetation Control Manager has the authority and responsibility for:

- checking the Vegetation Management Contractor has performed tree trimming to this standard;
- validating fall-in vegetation hazard defects;
- evaluating new/augmented lines for correct vegetation management;
- managing the submission of dispensation enquiries; and,
- maintaining the vegetation management system.
- Monitoring reporting performance and quality of vegetation contractors.

Vegetation Management Contractor has the authority and responsibility for:

- maintaining clearances between vegetation and the company's Network Assets, in accordance with this standard;
- establishing vegetation management contracts with the company;
- checking contract employee are provided with the relevant training;
- checking tree trimming maps for significant trees; and,
- confirming that all work is carried out according to the Endeavour Energy Safety Rules.
- Accurately reporting of vegetation defects as required by clause 5.11.3

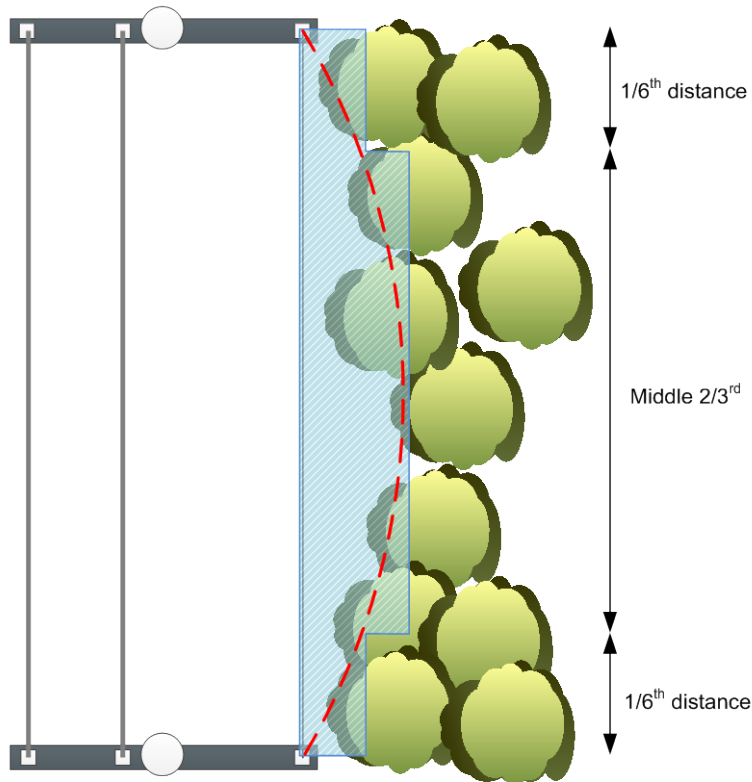
7.0 DOCUMENT CONTROL

Documentation content coordinator: Mains Assets Manager

Documentation process coordinator: Standards Process Coordinator

Annexure 1 – 1/6th Tree trimming concept

To reduce the impact of the company’s vegetation management process, the company has taken the approach of implementing a “1/6th trimming concept”. This introduces two (2) required clearances for the span of the overhead line. This is based on the span length being sectioned into three parts: the first 1/6th of the span, the next 2/3rds of the span, and the final 1/6th of the span, to better represent the parabolic nature of the blowout. This is indicated by the diagram below.



Annexure 2 – Non-PSBI defect rectification periods

Where vegetation defects are identified as part of routine work (not including the routine vegetation management / PSBI program) or during the OLIGLI process, the defects must be prioritised and rectified within the periods defined in Table 7.

Table 7 : Maximum rectification time (months) for overhead grow-in vegetation hazard/vegetation defects for Non-PSBI defects

Conductor type	Voltage level	Encroachment Classification	Trimming Map Consequence Category (for Bushfire Prone Area)				Non Bushfire prone
			High	Medium	Low	Very Low	
Covered	LV/HV /Comms	A4 or AO4	6	6	6	6	6
		A3 or AO3	6	6	6	6	6
		A2 or AO2	3	6	6	6	6
		A1 or AO1	3	6	6	6	6
Bare ¹	LV	A4 or AO4	3	6	6	6	6
		A3 or AO3	1	3	6	6	6
		A2 or AO2	1	1	3	3	3
		A1 or AO1	1	1	1	3	3
	HV / Transmission	A4 or AO4	3	6	6	6	6
		A3 or AO3	1	3	6	6	6
		A2 or AO2	1	1	3	3	3
		A1 or AO1 (not touching)	1 / Emergency (refer to Note 1)			3	3
		A1 or AO1 (touching)	Emergency				

Notes:

- A1 defects associated with bare HV within a High, Medium or Low consequence map, are considered emergency work if identified during the Bushfire Danger Period.
- Defects of a climbing nature for all bare mains are to be rectified on a priority basis and as soon as reasonably practical unless a risk assessment determines the climbing likelihood to be unlikely or rare.
- Private customer defects must be rectified in accordance with Division 2A Special powers for bushfire prevention, Electricity Supply Act 1995. If customers fail to respond to direction under this Division, Endeavour Energy will undertake this work in accordance with this annexure.

Annexure 3 – Clearances for spans over 600m

The vegetation clearances for the spans within the company's network, which are over 600m in length, are covered individually within the document "Clearances for spans over 600m".

Where the clearances indicated for a given span are either not cost effective and/or impractical to achieve (due to access and/or environmental constraints) details of the span and constraint(s) are to be forward to Mains Assets Manager for further review.