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## AGL Macarthur

### Electric Line Clearance Plan 2026-2027



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AGL Energy AEL: MWF-HS-PLN-004 (Rev 6.0)

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# Plan Authorisation

Version	6.0
Release State	Approved
Plan Approved by	Pat Harding
Approval Date	30/03/2026

# Plan Revision History

Version	Date	Author	Comment	Sections
1.1	12/09/2019	S. Cariss	New document and format	All
1.2	16/10/2019	S. Philippides	Environmental update relating to local vegetation information	All
2.0	09/07/2020	S. Cariss	Annual review AGL Macarthur Alignment with new Electricity Safety (Electric Line Clearance) Regulations 2020	All
2.1	29/08/2020	S. Cariss	Feedback post annual review	All
3.0	1/03/2021	S. Cariss	Annual AGL Macarthur review Alignment with new Electricity Safety (Electric Line Clearance) Regulations 2020	All
3.1	18/06/2021	S. Cariss	General changes to improve the plan following an ESV ELCP systems audit on the AGL Macarthur ELCP.	All
3.2	27/03/2022	S. Cariss, D Martin and J Drew	Changes resulting from the annual AGL review	All
4.0	20/06/2023	T. Woodland	Changes resulting from the annual AGL review	All
4.1	18/10/2023	T. Woodland	Updated to reflect new operating model for AGL Macarthur Wind Farm	All
4.2	18/03/2024	T. Woodland	Changes resulting from the annual AGL review	All
5.0	24/03/2025	T.Yates	Annual AGL review	
5.1	30/05/2025	J.Groves J.Barry	Changes resulting from 2024-2025 ESV review	
5.2	01/07/2025	J. Groves M. van Doorene	Changes to address ESV review comments	
5.3	30/09/2025	T. Woodland	Changes post ESV inspection	6.3, 7.3, 7.4
5.4	10/11/2025	T. Woodland	Changes post ESV feedback	All
5.5	20/01/2026	T. Woodland T. Qureshi	Inclusion of Sag and Sway details Minor updates post ESV feedback	6.2, 6.3, 7.2, 14.4
5.6	24/02/2026	T. Woodland T. Qureshi	Minor updates post ESV feedback	
6.0	30/03/2026	T. Woodland	Changes resulting from annual audit review	All

# Distribution

<b>Copy</b>	<b>Position</b>
1	AGL Macarthur Wind Farm Reception
Electronic File	Energy Safe Victoria
Electronic File	Head of Wind
Electronic File	High Voltage Operating Authority
Electronic File	Operations Manager - Wind (Vic)
Electronic File	Site Supervisor – Macarthur Wind Farm
Electronic File	Health and Safety Advisor
Electronic File	Environment Advisor
Electronic File	AGL Web Site
Electronic File	AGL Enterprise Library

# 1. Regulation Compliance Summary

## 1.1. Victorian Regulation Compliance

Electricity Safety (Electric Line Clearance) Interim Regulations 2025

Regulation 9: Preparation and submission of management plans

Regulation 10: Obligations relating to management plans

Schedule 1: Codes of Practice for Electric Line Clearance

Specified operator legal entity
AGL HP1 Pty Ltd (ACN 080 429 901); and AGL HP2 Pty Ltd (ACN 080 810 546); and AGL HP3 Pty Ltd (ACN 080 735 815) Trading as <b>AGL Hydro Partnership (ABN 86 076 691)</b>

Reg 9	Description	Reference in this Plan
(1)	This regulation does not apply to a responsible person referred to in section 84A or 84B of the Act.	N/A
(2)	Before 31 March in each year, a responsible person must ensure that a management plan relating to compliance with the Code for the next financial year is prepared.	Plan Objectives (Section 4)
(3)	A responsible person must ensure that a management plan prepared under sub-regulation (2) specifies the following	This document
(4)(a)	the name, position, address and telephone number of the responsible person;	Responsible Persons (Section 2)
(4)(b)	the name, position, address and telephone number of the individual who is responsible for the preparation of the management plan;	Responsible Persons (Section 2)
(4)(c)	the name, position, address and telephone number of the person who is responsible for carrying out the management plan;	Responsible Persons (Section 2)
(4)(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;	Responsible Persons (Section 2)
(4)(e)	the objectives of the management plan;	Plan Objectives (Section 4)
(4)(f)	the land to which the management plan applies (as indicated on a map);	Geographical Coverage (Section 5.1)
(4)(g)	any hazardous bushfire risk areas and low bushfire risk areas in the land referred to in paragraph (f) (as indicated on the map);	Geographical Coverage (Section 5.1)

(4)(h)	each area that the responsible person knows contains a tree that the responsible person may need to cut or remove to ensure compliance with the Code and that is – (i) indigenous to Victoria; or (ii) listed in a planning scheme to be of ecological, historical or aesthetic significance; or (iii) a tree of cultural or environmental significance.	Native Vegetation (Section 1.1)
(4)(i)	the means which the responsible person is required to use to identify a tree specified in paragraph (g)(i), (ii) or (iii);	Native Vegetation (Section 5.2)
(4)(j)	the management procedures that the responsible person will adopt to ensure compliance with the Code, which— (i) must include details of the methods to be adopted for managing trees and maintaining a minimum clearance space as required by the Code; and (ii) for the purposes of determining a minimum clearance space in accordance with Division 1 of Part 3 of the Code— (A) must specify the method for determining an additional distance that allows for conductor sag and sway; and (B) may provide for different additional distances to be determined for different parts of an electric line span; <b>Note</b> Clause 21(2) of the Code requires a distribution company or an owner or operator of a railway or tramway supply network that is consulted by a Council to assist the Council by determining an additional distance.	Management Procedures (Section 60) (i) Section 6 (ii) Section 6
(4)(k)	the procedure 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; <b>Note</b> Clause 10 of the Code requires a responsible person to cut trees, as far as practicable, in accordance with AS 4373.	Management Procedures (Section 06)
(4)(l)	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	Monitoring and Auditing (Section 7)
(4)(m)	the details of each approval for an alternative compliance mechanism that; (i) the responsible person holds; and (ii) is in effect;	Monitoring and Auditing (Section 7)
(4)(n)	a description of measures that must be used to assess the performance of the responsible person under the management plan;	Monitoring and Auditing (Section 7)
(4)(o)	details of the audit processes that must be used to determine the responsible person's compliance with the Code;	Monitoring and Auditing (Section 7)
(4)(p)	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 and the Electricity Safety (General) Regulations 2019 2 ; <b>Note</b> Regulation 616(2) of the Electricity Safety (General) Regulations 2019 sets out specific requirements for qualified persons carrying out vegetation management work.	Qualifications and Experience (Section 8)

(4)(q)	notification and consultation procedures, including the form of the notice to be given in accordance with Division 3 of Part 2 of the Code;	Notification (Section 9)
(4)(r)	a procedure for the independent resolution of disputes relating to electric line clearance;	Dispute Resolution (Section 10)
(4)(s)	if Energy Safe has granted an exemption under regulation 11 relating to a requirement of the Code, details of the exemption or a copy of exemption.	Exemptions (Section 12)

<b>Reg 10</b>	<b>Description</b>	<b>Reference in this Plan</b>
(1)	This regulation applies in relation to the management plan that a responsible person is required, under regulation 9, to prepare for a financial year.	This document
(2)	The responsible person must provide a copy of the management plan to Energy Safe Victoria within 14 days after a written request from Energy Safe Victoria or such longer period as specified by Energy Safe Victoria in the written request.	Plan Objectives (Section 4)
(3)	The responsible person, if requested in writing to do so by Energy Safe Victoria, must provide further information or material in respect of the management plan within 14 days after the written request or such longer period as specified by Energy Safe Victoria in the written request.	Plan Objectives (Section 4)
(4)	The responsible person must amend the management plan if instructed to do so in writing by Energy Safe Victoria within 14 days after the written instruction or such longer period as specified by Energy Safe Victoria in the written instruction.	Plan Objectives (Section 4)
(5)	The responsible person must not contravene a requirement of the management plan if the management plan is approved by Energy Safe Victoria.	Plan Objectives (Section 4)
(6)	The responsible person must ensure that a copy of the current management plan is published on the responsible person's Internet site.	Responsible Persons (Section 2)

<b>Reg 11</b>	<b>Description</b>	<b>Reference in this Plan</b>
(1)	Energy Safe Victoria may exempt a responsible person from any of the requirements of these Regulations subject to any conditions specified by Energy Safe Victoria	Exemptions (Section 12)
(2)	A responsible person who is granted an exemption under this regulation must comply with the conditions (if any) of the exemption.	Exemptions (Section 12)

<b>Schedule 1, Part 2, Division 1</b>	<b>Description</b>	<b>Reference in this Plan</b>
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Clause (8)	Owner or operator of transmission line must manage trees around minimum clearance space	Management Procedures (Section 6.3.3)
Clause (9)	Responsible person may cut or remove hazard tree.	Management Procedures (Section 6.3.7 and Section 6.3.8)

Schedule 1, Part 2, Division 2	Description	Reference in this Plan
(11)	Cutting or removal of indigenous or significant trees must be minimised.	Management Procedures (Section 6.3.6)
(12)	Cutting or removing habitat for threatened fauna.	Management Procedures (Section 6.4.4)
(13)	Restriction on timing of cutting or removal if notification is required.	Notification (Section 9.1)
(14) and (15)	Restriction on urgent cutting of trees, and restriction on urgent removal of trees.	Management Procedures (Section 6.3.5)

Schedule 1, Part 2, Division 3	Description	Reference in this Plan
(16) and (17)	Responsible person must provide notification before cutting or removing certain trees, and Responsible person must publish notification before cutting or removing certain trees.	Notification (Section 9).
(18)	Responsible person must consult with occupier or owner of private property before cutting or removing certain trees.	Notification (Section 9.1)
(19)	Notification and record keeping requirements for urgent cutting or removal.	Notification (Section 9.2)

## 2. Responsible Persons

### 2.1. Responsible Persons

Regulation 9	Specification – Contact Details
(4)(a) the name, address and telephone number of the responsible person:	<p><b>Pat Harding</b>  <b>Head of Wind</b>  AGL Energy  699 Bourke St  Melbourne VIC 300  Phone: 0498 524 832  Email: pharding2@agl.com.au</p>

(4)(b) the name, position, address and telephone number of the individual who was responsible for the preparation of the management plan;	<b>Tess Woodland</b> <b>Operations Manager – Wind (VIC)</b> AGL Energy 699 Bourke St Docklands 3008 Phone: 0498 701 509 Email: twoodland@agl.com.au
(4)(c) the name, position, address and telephone number of the persons who are responsible for carrying out the Plan:	<b>Jake Barry</b> <b>Electrical Balance of Plant Specialist (Victoria)</b> AGL Energy 1850 MacArthur-Hawkesdale Rd, Macarthur VIC 3286 Phone: 0498 796 635 Email: JBarry2@agl.com.au
(4)(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:	<b>AGL Dispatch Centre (24 hour availability)</b> <b>Duty Generation Dispatcher</b> 699 Bourke St Docklands 3008 Phone: (03) 5754 3142 Email: agldc@agl.com.au

Regulation 10	Specification – Contact Details
(10) The responsible person must ensure that a copy of the current management plan is published on the responsible person's Internet site.	Information, including a copy of the Plan is available to be viewed by ESV. A copy of the Plan is also available on the AGL internet site at: <a href="#">Macarthur Wind Farm   About AGL</a>

## 2.2. Management Structure and Responsibilities

The AGL Macarthur management structure with respect to this plan is as follows (refer to appendices):

**Head of Wind** - responsible for:

- Overall management of AGL Macarthur
- Timely completion and actioning of Line Clearance Plan strategies;
- Ensuring the actions of AGL Macarthur meet legislative requirements;

**High Voltage Operating Authority** – responsible for:

- Compliance and Verification of the Line Clearance Plan;
- Ensure proper liaison with network and land management agencies; and
- Ensure the administration of the Line Clearance Plan meets legislative requirements.

**Health and Safety Manager** — responsible for:

- Compliance with work health and safety obligations.

- Providing advice and guidance into the induction processes.
- Participation in the consultation process for inductions.
- Assisting in the development of the inductions.

**Environment Manager** — responsible for:

- Provide review of annual arborist report.
- Complete desktop review of areas highlighted for maintenance activities to ensure no areas of environmental or cultural significance are impacted.
- Liaise with local authorities if further information or permits are required to complete maintenance activities.

**Operations Manager – Wind (VIC)** – responsible for:

- Ensuring all outstanding work is completed in a timely manner and adequate resources are made available for the implementation of the plan
- Ensuring all outstanding compliance issues are addressed and to ensure that matters are communicated to senior management; and
- Ensuring all compliance and Verification outcomes are reported to the Head of Wind and High Voltage Operating Authority in a timely manner.

**Electrical Engineer** — responsible for:

- Provide scope and technical requirements for asset inspection work
- Review asset inspection reports including the assessment and verification of recommendations, and the prioritisation and subsequent creation of works management notifications
- Providing technical advice as required to ensure that the assets are maintained to the required compliance standard; and
- Assist with contractor evaluation and selection to ensure they are technically competent and can provide the required levels of service.

**Electrical Balance of Plant Specialist (Victoria)** — responsible for:

- Day to day operation of electric line asset maintenance in accordance with this plan
- Asset inspection, vegetation control program and liaison with other land management agencies in accordance with this plan;
- Allocation of contracts, with the responsibility of ensuring training and competencies are maintained in accordance with this plan. Refer 4.5; and
- Development of the verification report prior to the declared fire season.

**Senior Electrical Engineer** — responsible for:

- Providing technical advice as required to ensure that the assets are maintained to the required standard; and
- Assist with contractor evaluation and selection to ensure they are technically competent and can provide the required levels of service.

## 3. References

### 3.1 Victorian

- AGL Macarthur Line Clearance Plan 2025-2026
- AGL Wind Electrical Safety Management Plan (ESMP)
- AGL Energy Customer Complaints Policy
- Electricity Safety Act 1998
- Electricity Safety (General) Regulations 2019
- Electricity Safety (Electric Line Clearance) Interim Regulations 2025
- Electricity Safety (Management) Regulations 2019
- Electricity Safety (Bushfire Mitigation) Regulations 2020
- Electrical Safety (Bushfire Mitigation Duties) Regulations 2017
- Electrical Safety Rules for Vegetation Management Work Near Overhead Powerlines 2013
- Australian Standard AS4373 (2007) Pruning of Amenity Trees

## 4. Plan Objectives

Reg 9	Requirement
(2)	Before 31 March in each year, a responsible person must ensure that a management plan relating to compliance with the Code for the next financial year is prepared.
4 (e)	the objectives of the management plan;

Reg 10	Requirement
(2)	The responsible person must provide a copy of the management plan to Energy Safe Victoria within 14 days after a written request from Energy Safe Victoria or such longer period as specified by Energy Safe Victoria in the written request.
(3)	The responsible person, if requested in writing to do so by Energy Safe Victoria, must provide further information or material in respect of the management plan within 14 days after the written request or such longer period as specified by Energy Safe Victoria in the written request.
(4)	The responsible person must amend the management plan if instructed to do so in writing by Energy Safe Victoria within 14 days after the written instruction or such longer period as specified by Energy Safe Victoria in the written instruction.
(5)	The responsible person must not contravene a requirement of the management plan if the management plan is approved by Energy Safe Victoria.

This plan has been prepared to comply with the requirements of the Electricity Safety (Electric Line Clearance) Interim Regulations 2025 and is issued with the authority of the Head of Wind. This revision of the plan is applicable from 1st July 2026 to 30<sup>th</sup> of June 2027.

The following objectives are identified as key objectives of the plan:

- Public Safety
- Ensure full compliance by AGL Macarthur with the Electricity Safety Act 1998 and the Electricity Safety (Electric Line Clearance) Interim Regulations 2025
- Minimise the risk of fire starts due to minimum clearance space issues on AGL Macarthur assets
- Protection of important vegetation of outstanding aesthetic or ecological significance, and/or the habitat of rare or endangered species
- To achieve all minimum clearance space requirements with minimum disturbance to existing vegetation species
- To minimise the risk of vegetation related electricity supply disruptions
- To utilise skilled people and use modern technology to conduct efficient and effective vegetation management and develop an environment that encourages employee participation in improving methods of vegetation management
- Provision of a safe workplace for employees and contractors
- Community satisfaction with the way necessary works are carried out.

Commitment to these objectives is provided through:

- Annual inspection of all vegetation in the vicinity of electric lines that are the responsibility of AGL Macarthur
- Annual review of Macarthur's Safe Access Procedures and the use of Job Safety and Environment Assessments (JSEA) Safe Work Methods Statements (SWMS)

- Contractor Management through AGL contractor management policy and contractor accreditation program and systems (cm3); and
- Pruning is undertaken in accordance with AS4373 (2007)

Compliance with these commitments is determined through regular audits conducted by qualified and experienced arborists. It is further acknowledged that AGL Macarthur must:

- Prepare a management plan each year by the 31<sup>st</sup> of March for the next financial year (1<sup>st</sup> July – 30<sup>th</sup> June)
- Provide a copy of the management plan to ESV on request within 14 days or such longer period as specified by ESV
- Provide further information in respect of the management plan on request within 14 days or such longer period as specified by ESV
- Amend the management plan when instructed to do so by ESV within 14 days or such longer period as specified by ESV
- Verify the currency of the relevant Regulations and Standards as part of the annual review of the management plan
- Not contravene a requirement of a management plan approved by ESV, and
- Ensure that a copy of the management plan is available for inspection by the public on the AGL internet site and at the responsible person’s principal office in the State during normal business hours.

## 5. Scope

Reg 9	Requirement
(4)(f)	the land to which the management plan applies (as indicated on a map);
(4)(g)	any hazardous bushfire risk areas and low bushfire risk areas in the land referred to in paragraph (f) (as indicated on the map);
(4)(h)	each area that the responsible person knows contains a tree that the responsible person may need to cut or remove to ensure compliance with the Code

### 5.1. Geographical Coverage

The Macarthur Wind Farm site covers an area in excess of 5,500 hectares (approximately 55 km<sup>2</sup>), with dimensions in the order of 11 km in the north-south direction and 8 km in the east-west direction. The site is contiguous and involves 3 separate host landholders.

The site and surrounding area comprise relatively flat farmland on the Western Volcanic Plains of Victoria. It is characterised by basaltic plains and stony rises with some vegetation in the form of pastures, wind breaks and plantations of Blue Gums. The site is dissected by roads, fence lines and agricultural buildings.

The site is part of the broad landform referred to as the Western Plains or Western District Volcanic Plains. There are hundreds of inactive eruption points across this volcanic plain and they range in age from five million years old to only a few thousand years old.

Areas surrounding the site are generally used for agricultural (grazing) purposes, with the occasional industrial use such as the Iluka mining operation near Hamilton and quarries such as that at the base of Mt Napier.

Under Section 80 of the Electricity Safety Act 1998, the fire control authority assigns “low” and “high” fire hazard ratings for electric lines to parcels of land in the country area of Victoria. The Country Fire Authority (CFA) is the authority in which AGL Macarthur operates.

In order to ensure the boundaries of the declared area and the boundaries of HBRA and LBRA are accurate, AGL Macarthur will, on a minimum annual basis, contact the CFA to confirm the declared HBRA and LBRA boundaries. This AGL HSE Management System assigns this task each year to the Electrical Balance of Plant Specialist (Victoria).

At the time of publication, all powerlines on Macarthur Wind Farm are located within HBRA.



## 5.2. Overhead Lines

This section provides a description of all overhead line assets within Macarthur wind farm including line pole structures and protection. It outlines operating facilities; the actions associated with the lines and provides detail of recommended maintenance practices. Overhead line circuits within the wind farm comprise:

- 33 kV line CG1L (Collector Group 1 Line) from the transition compound at Pole 26 to the transition compound adjacent to Macarthur Substation
- 33 kV line CG6L (Collector Group 6 Line) from the transition compound at pole 19E to the transition compound adjacent to Macarthur Substation
- 132 kV line MWF1 (Macarthur wind farm 1 Line) from Macarthur Substation to Tarrone Terminal Station 132kV switchyard
- 132 kV line MWF2 (Macarthur wind farm 2 Line) from Macarthur Substation to Tarrone Terminal Station 132kV switchyard
- 132 kV line TRSL (Tarrone Substation Line) from Tarrone Terminal Station 132kV switchyard to the 500 kV/132 kV transformer bay; and
- 500 kV span at Tarrone Terminal Station between SP AusNet 500 kV gantry and AGL 500 kV/132 kV transformer bay gantry

There is a total of 103 Poles that support the overhead lines within Macarthur wind farm. Occasionally the gantry support poles within the substations are included in inspections. However, these are not considered in

scope for this bushfire mitigation plan. In the sections that follow, descriptions and operating features of lines are described individually. Maintenance requirements are common for all lines and are presented in a single section. Refer to Appendices 14.2 and 14.3 for location maps of the transmission lines at Macarthur Wind Farm.

### **5.2.1. 33kV Collector Group Lines**

33kV overhead collector lines consist of 26 poles and run from the 33kV transition compound adjacent to Macarthur Substation to terminating transition compounds at Poles 19E and 26. Between the substation transition compound and location 19, both circuits are carried on a double circuit line approximately 4.5 km in length. From pole 19W to 26, CG6L continues a single circuit line of length 1.9 km. Both collector circuits provide connection for 35 turbines and use duplex Sulfur AAAC conductor (ie. 2 x Sulfur conductors per phase). The overall line route is shown in the appendices.

#### **Line Pole Structures**

Free standing monopoles of 25m height are used for all line structures and generally construction type is suspension with both circuits supported on a single pole. For all strain locations two monopoles are installed and are designated by the structure location and position. Each structure carries circuit nameplate and phase identification markers. Nameplates carry circuit designation CG1L or CG6L and the structure number. Where two circuits are supported by a single pole, nameplates are provided on both sides of the pole for the circuit directly above. Surge arresters are used at each line termination within the transition compound yards and mounted on structures 13E and 13W in the place of bridging insulators.

#### **Line Protection**

Collector protection is provided by Areva P141 relays (X Protection) and SEL 751 relays (Y Protection). These provide IDMT overcurrent and earth fault protection for lines as well as other wind farm protection functions (such as under and over frequency protection). The protection functions don't rely on the Optical Ground Wire (OPGW) communications path. No auto reclosing is provided collector circuits so that collector cables are not unduly stressed.

### **5.2.2. 132kV Lines to Tarrone Substation**

The double circuit 132kV line from Macarthur Substation to Tarrone Terminal Station 132kV switchyard is 13.6 km long, with each circuit, designated MWF1 and MWF2, rated at 210 MVA and consisting of 73 poles (includes East and West poles). The circuits are terminated at gantry structures at both substations and supported by steel or concrete poles at 63 locations. Steel poles are used from Macarthur substation to Pole 52, from Pole 26 to Tarrone Terminal Station and for Pole 46 on the Kangertong Rd road reserve. Concrete poles are used from Poles 27 to 45 and from 45 to 51. Duplex Sulfur AAAC conductor is used for steel pole sections (i.e.. 2 x Sulfur conductors per phase) and simplex Sulfur AAAC conductor (1 per phase) for concrete pole sections. The overall line route is shown in the appendices.

#### **Line Pole Structures**

Free standing monopoles of 25m or 30m height are used for all line structures and generally construction type is suspension with both circuits supported on a single pole. For all steel angle and strain locations, two monopoles are installed in each location and are designated by the structure location and position. Each structure carries circuit nameplate and phase identification markers. Nameplates carry circuit designation MWF1 or MWF2 and the structure number. Where two circuits are supported by a single pole, nameplates are provided on both sides of the pole for the circuit directly above. Surge arresters with counters are used at each line termination within the substation switchyards.

## Line Protection

Line protection is provided by GE L90 current differential relays (X Protection) and SEL 311L current differential relays (Y Protection). These rely on communications between the two substations, provided by the redundant OPGWs, being intact. On failure of communications, L90 relays switch to backup distance protection function at each end. Auto reclosing is provided on each line circuit and this can be enabled or disabled locally at the protection panel. All switching is 3 pole and reclosure is only for single phase faults, any three-phase fault will lockout without reclosure.

### 5.2.3. 132kV and 500kV Tarrone Substation Lines

A 132kV (approximately 300 meters long) single circuit line is run within Tarrone Terminal Station, from the 132kV switchyard to the 500kV/132kV transformer bay. It's terminated on gantries at both ends and supported between by 4 steel poles. Triplex Sulfur AAAC conductor is used (i.e. 3 x Sulfur conductors per phase) and the earth wire is Grape ACSR conductor. The 500kV overhead line consists of a single span (approximately 25 meters long) between AusNet Services and AGL 500kV gantries and its droppers. This span is owned by AGL and the point of common coupling is located at termination structure at AusNet Service Terminal Station. The conductor used is quad Orange ACSR (i.e. 4 x Orange conductors per phase). The earthwire used is Grape ACSR. The overall line route is shown in the appendices.

### Line Pole Structures

Free standing 25 m monopoles are used for 132kV TRSL. Single suspension poles are used at all locations. Their arrangement is as for poles used for Macarthur wind farm 132kV lines. Each structure carries circuit nameplate and phase identification markers.

### Line Protection

The short 132kV line is within the transformer differential protection zone and so is protected by transformer T60 (X Protection) and SEL 357E (Y Protection). The 500kV span is within AusNet Services connection zone and so is protected by AusNet Services. Protection operations for faults in either line will result in tripping of 132 kV circuit breakers and the AusNet Services 500 kV circuit breakers.

## 5.3. Native Vegetation

### 5.3.1. General Wind Farm Area

This section describes the flora and native vegetation of the study area based on the review of existing information and the field investigations, as per the 'Native Vegetation Management Plan, Macarthur Wind Farm' (BLA 2009).

### Flora Species

Analysis of the likelihood of presence of flora species listed under the FFG Act and EPBC Act indicates that

- no suitable habitat exists in the development footprint for such species; or
- no such species were recorded during targeted surveys of the development footprint.

It is therefore considered that no flora species listed under the EPBC Act and FFG Act will be affected by the transmission line minimum clearance space.

Based on the FIS search results, 13 species of rare or threatened plants listed on the DSE advisory list are found in the search region. However, none has been recorded in the development footprint during the targeted survey, nor are they considered likely to be present based on habitat conditions.

## Ecological Vegetation Classes

Evidence on site, including floristic composition and soil characteristics, suggested that the following EVCs were present in the study area:

- Plains Grassy Wetland (EVC 125),
- Basalt Shrubby Woodland (EVC 642),
- Stony Knoll Shrubland (EVC 649), and
- Plains Sedgy Wetland (EVC 647)

A total of 29 remnant patches (referred to herein as habitat zones) comprising the EVCs described above were identified in the overall development footprint.

No scattered trees were recorded in the development footprint and none will be affected by the wind farm.

### Plains Grassy Wetland (EVC 125)

Plains Grassy Wetland (EVC 125) has an endangered conservation status in the Victorian Volcanic Plain bioregion. The benchmark for this EVC describes it as “usually treeless, but in some instances, it can include sparse River Red-gum (*Eucalyptus camaldulensis*) or Swamp Gum (*Eucalyptus ovata*). A sparse shrub component may also be present. The characteristic ground cover is dominated by grasses and small sedges and herbs. The vegetation is typically species-rich on the outer verges but is usually species-poor in the wetter central areas”.

### Basalt Shrubby Woodland (EVC 642)

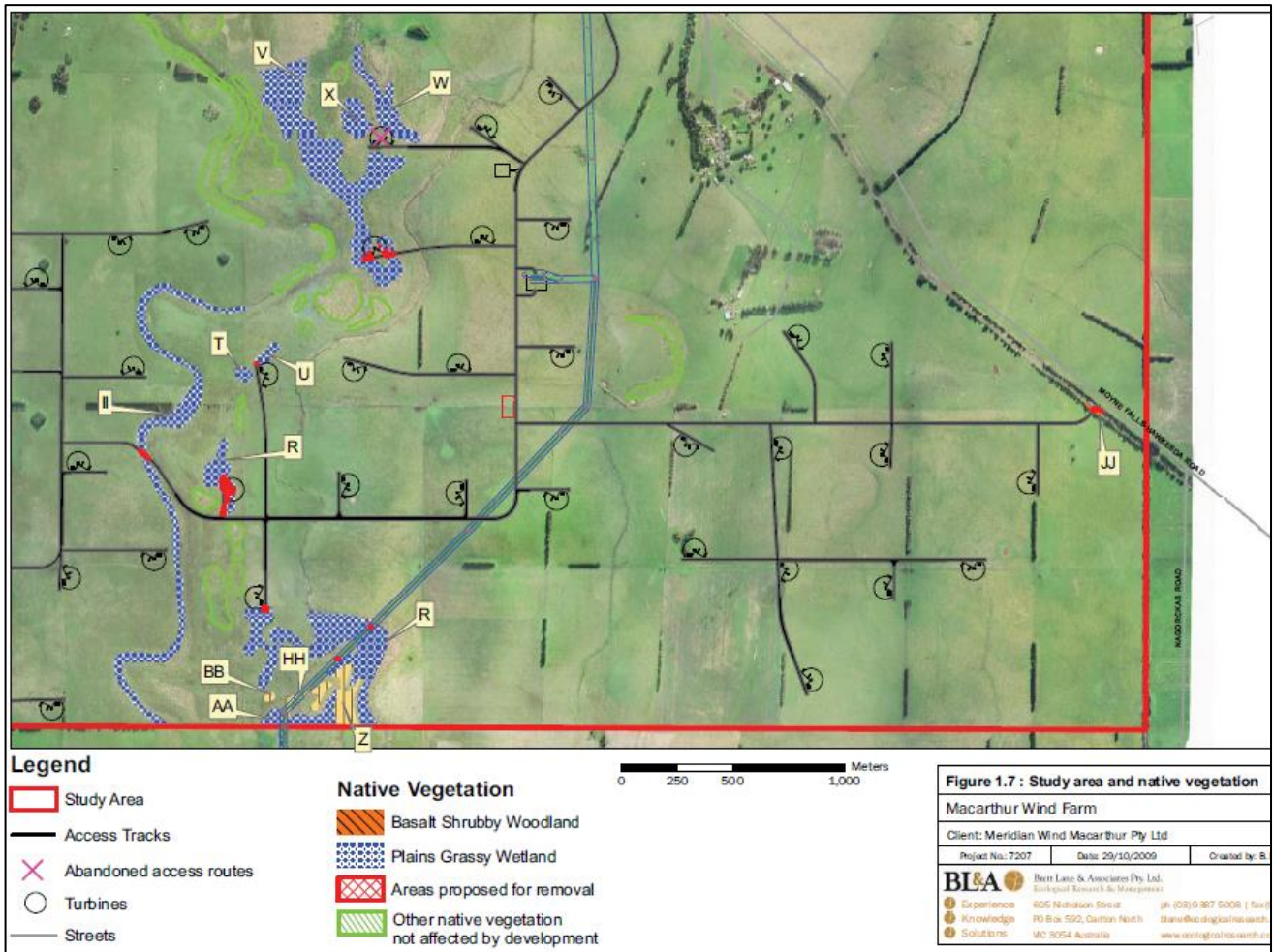
Basalt Shrubby Woodland (EVC 642) has an endangered conservation status in the Victorian Volcanic Plain bioregion. The benchmark for this EVC describes it as “Eucalypt-dominated woodland to fifteen metres tall with an understorey of shrubs and grasses, presumed originally quite species-rich. It occurs on well-drained to seasonally damp fertile soils in higher rainfall areas of volcanic plain”.

### Plains Sedgy Wetland (EVC 647)

Plains Sedgy Wetland (EVC 647) has an endangered conservation status in the Victorian Volcanic Plain bioregion. The benchmark for this EVC describes it as vegetation that “occurs in seasonally wet depressions on volcanic and sedimentary plains, typically associated with fertile, silty, peaty or heavy clay paludal soils. It supports primarily sedgy-herbaceous vegetation, sometimes with scattered or fringing eucalypts or tea-tree/paperbark shrubs in higher rainfall areas. A range of aquatic herbs can be present, and species-richness is mostly relatively low to moderate, but higher towards drier margins”.

### Stony Knoll Shrubland (EVC 649)

Stony Knoll Shrubland (EVC 649) has an endangered conservation status in the Victorian Volcanic Plain bioregion. The benchmark for this EVC describes it as “a shrubland to three metres tall or low non-eucalypt woodland to eight metres tall with a grassy understorey. It occurs on low stony rises on basalt flows. The soils are fertile and well drained but shallow without cropping rock, causing severe summer dryness.



### 5.3.2. Native Vegetation – Southern Area Near the 132kV Transmission Line

Based on the information in the BLA 2009 Letter and Report: The general area in which the transmission line and terminal station are located comprises largely agricultural land with very little remnant native vegetation.

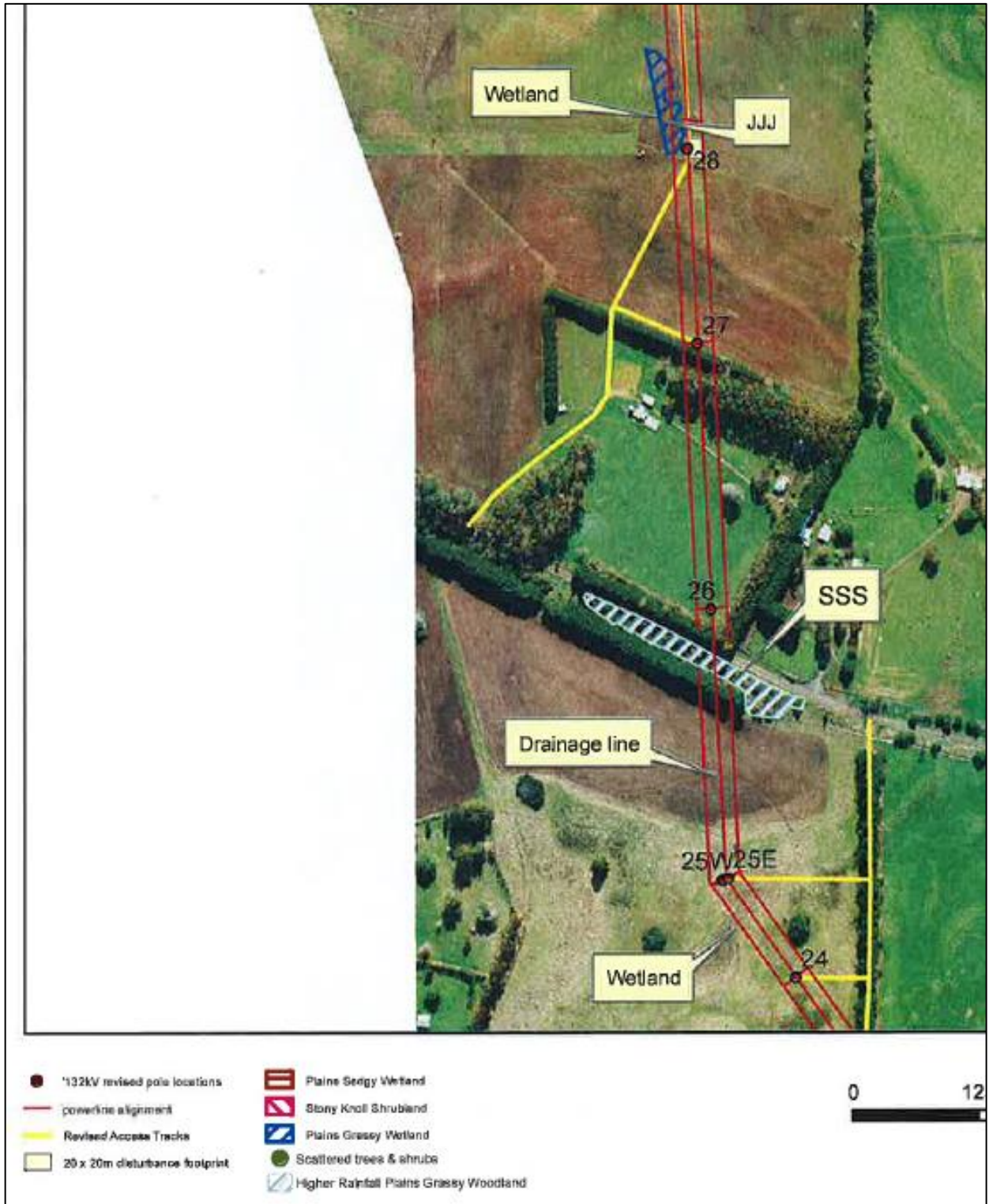
Based on pre-1750 native vegetation modelling by DSE, the Ecological Vegetation Classes that once dominated the region included a mix of Plains Grassland, Plains Grassy Wetlands, Plains Sedgy Wetland, Stony Knoll Shrubland and Basalt Shrubby Woodland. Small remnants of these EVC's were found in places on or near the transmission line route and terminal station site.

The most extensive area of remnant native vegetation was found along Landers Lane at the southern end of the transmission line alignment. Apart from several hundred metres, this road reserve was almost entirely covered in native vegetation, with the exception of the gravel road about three metres wide. This road reserve supported four of the EVC's mentioned above. Of particular note was an extensive area of Plains Sedgy Wetland in the low-lying northern part of the road reserve.

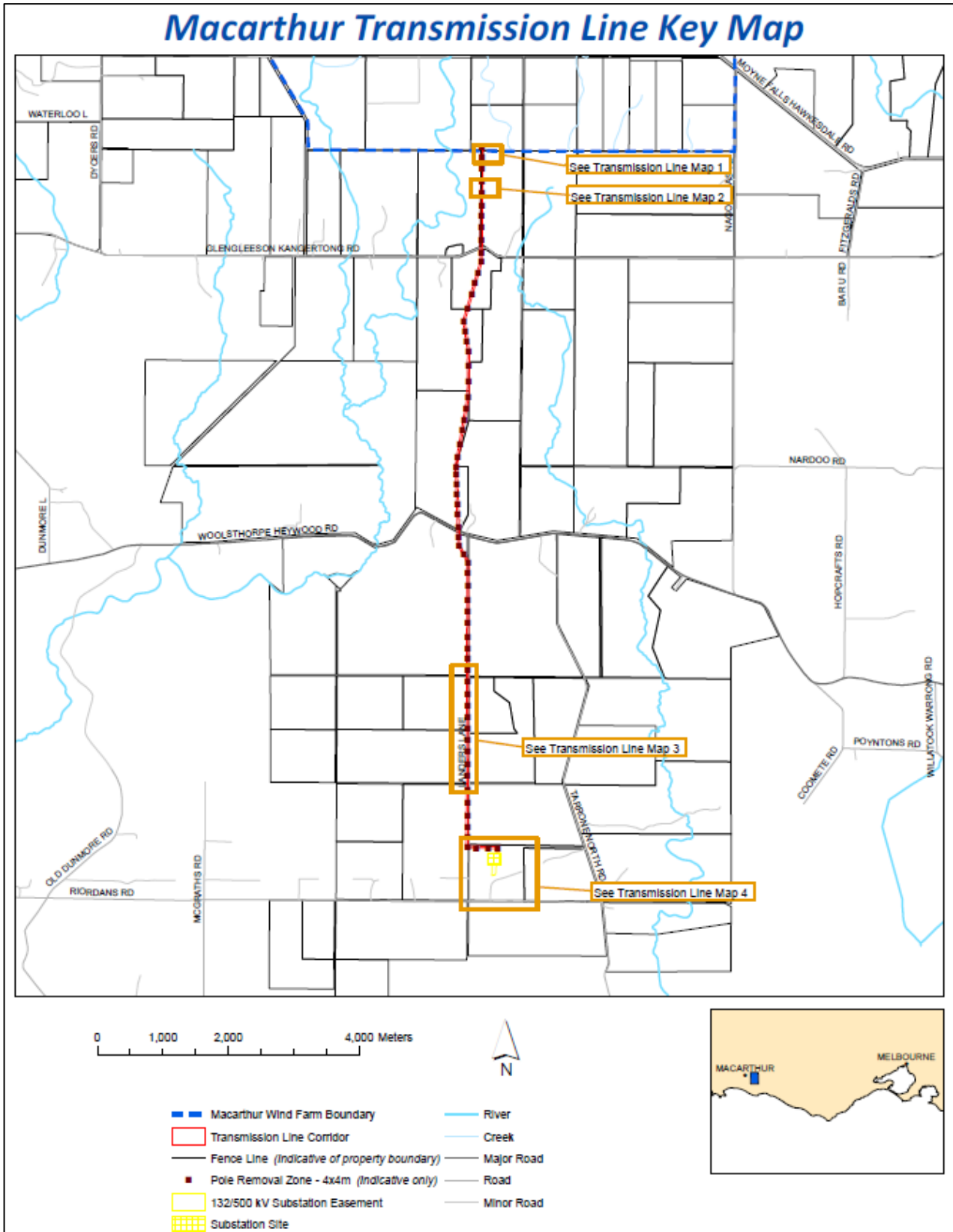
North of Kangertong Road lies an area of undulating basalt flow country with alternating stony rises and damp swales. The damp swales support small patches of Plains Grassy Wetland.

The terminal station is largely flat, with a small wetland on its western edge adjacent to Landers Lane. A number of low stony rises also occur on the site. The site is largely devoid of remnant native vegetation apart from a small patch of Stony Knoll Shrubland, comprising remnant ground cover greater than 25% without shrubs or trees. This remnant totalled 0.2 hectares in extent with a habitat score of 0.32.

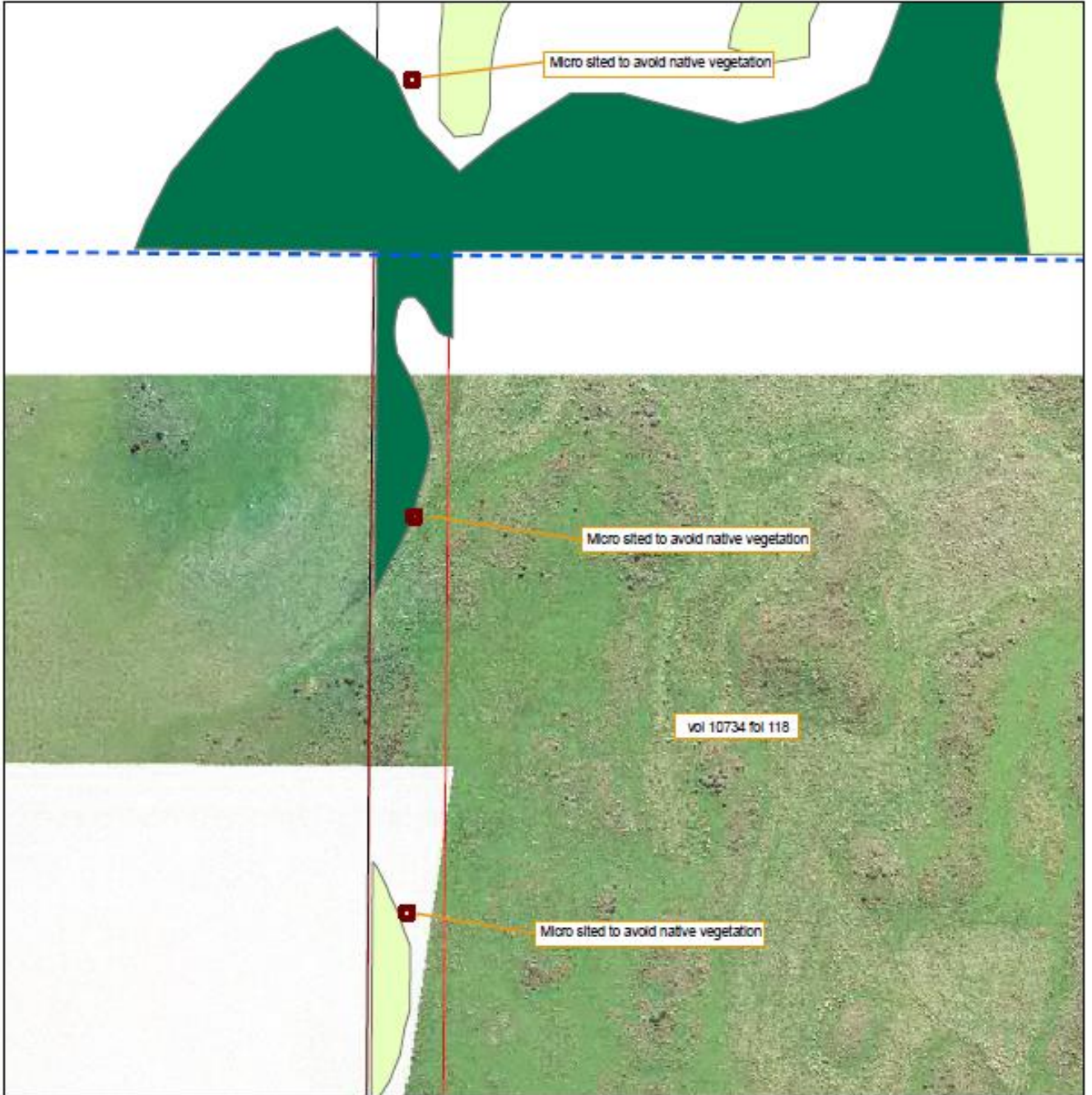
Map of Woolsthorpe Heywood Road Area from Leighton Assessment Letter/Report 2009:



Maps from the BLA 2009 Letter and Report:



# Macarthur Transmission Line Map 1



0 25 50 100 Meters



- |  |            |                         |
|--|------------|-------------------------|
| Macarthur Wind Farm Boundary                 | River      | <b>EVC</b>              |
| Transmission Line Corridor                   | Creek      | Type Unknown            |
| Fence Line (Indicative of property boundary) | Major Road | Basalt Shrubby Woodland |
| Removal Zone 4x4m (Indicative only)          | Road       | Plains Grassy Wetland   |
|  | Minor Road | Plains Sedgy Wetland    |
|  |            | Stony Knoll Shrubland   |



# Macarthur Transmission Line Map 2



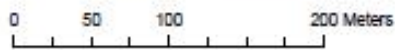
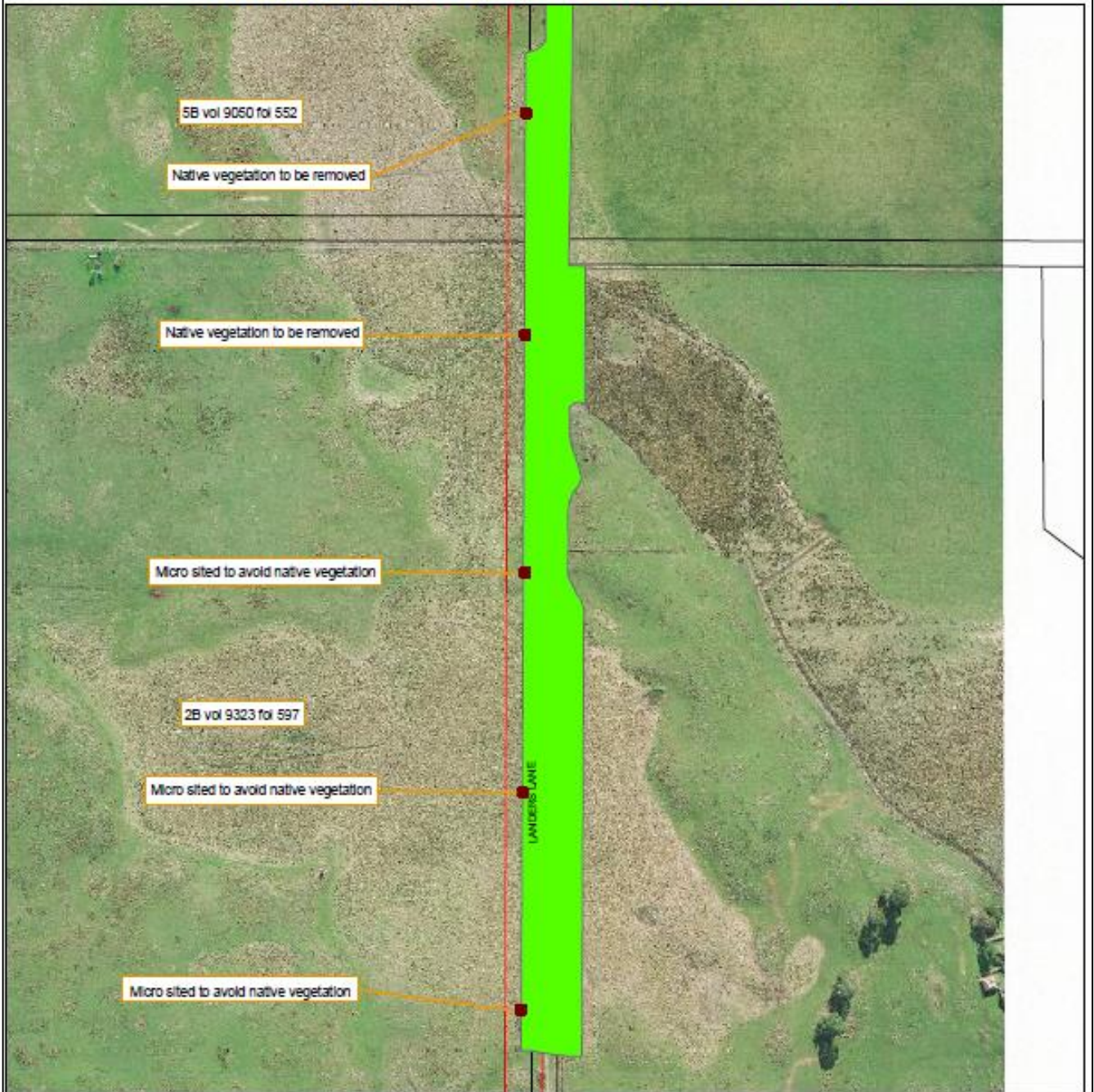
0 25 50 100 Meters



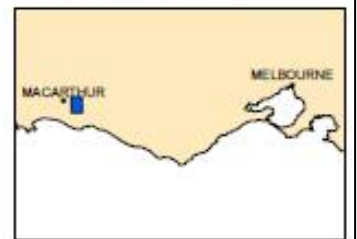
- |  |            |                         |
|--|------------|-------------------------|
| Macarthur Wind Farm Boundary                 | River      | <b>EVC</b>              |
| Transmission Line Corridor                   | Creek      | Type Unknown            |
| Fence Line (Indicative of property boundary) | Major Road | Basalt Shrubby Woodland |
| Removal Zone 4x4m (Indicative only)          | Road       | Plains Grassy Wetland   |
|  | Minor Road | Plains Sedgy Wetland    |
|  |            | Stony Knoll Shrubland   |



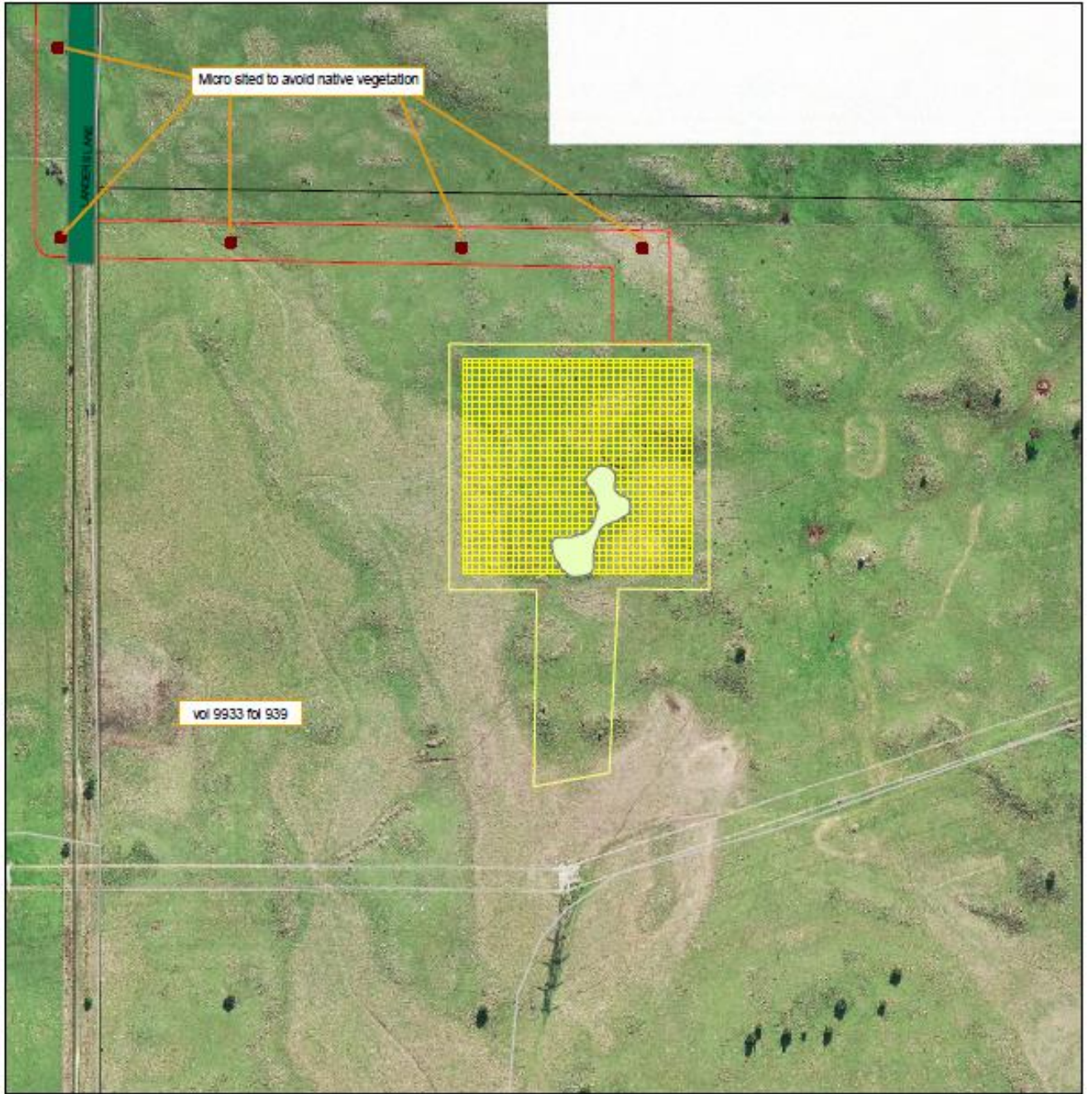
# Macarthur Transmission Line Map 3



- |  |            |                         |
|--|------------|-------------------------|
| Macarthur Wind Farm Boundary                 | River      | <b>EVC</b>              |
| Transmission Line Corridor                   | Creek      | Type Unknown            |
| Fence Line (Indicative of property boundary) | Major Road | Basalt Shrubby Woodland |
| Removal Zone 4x4m (Indicative only.)         | Road       | Plains Grassy Wetland   |
|  | Minor Road | Plains Sedgy Wetland    |
|  |            | Stony Knoll Shrubland   |



# Macarthur Transmission Line Map 4



0 50 100 200 Meters



- |  |            |                         |
|--|------------|-------------------------|
| Macarthur Wind Farm Boundary                 | River      | <b>EVC</b>              |
| Transmission Line Corridor                   | Creek      | Type Unknown            |
| Fence Line (indicative of property boundary) | Major Road | Basalt Shrubby Woodland |
| Removal Zone 4x4m (indicative only)          | Road       | Plains Grassy Wetland   |
| 132/500 kV Substation Easement               | Minor Road | Plains Sedgy Wetland    |
| Substation Site                              |            | Stony Knoll Shrubland   |



### **5.3.3. Native Vegetation – Near the 33kV Line**

There is currently no native vegetation near the 33kV line.

## **5.4. Trees of Ecological, Historical or Aesthetic Significance**

There are currently no trees of ecological, historical, or aesthetic significance within AGL Macarthur Wind Farm. Refer to section 6.4.3 for the Moyne Council register of significant trees.

## **5.5. Trees of Cultural or Environmental Significance**

There are currently no trees of cultural or environmental significance within AGL Macarthur Wind Farm. Refer to section 6.4.3 for the Moyne Council register of significant trees.

## 6. Management Procedures

Reg 9	Requirement
(4)(i)	the means which the responsible person is required to use to identify a tree specified in paragraph (g)(i), (ii) or (iii);
4 (j)	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 proposed to be adopted for managing trees; and maintaining a minimum clearance space as required by the Code; and (ii) Specify the method of determining and 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.
4 (k)	the procedure 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

Schedule 1, Part 2, Division 1	Requirement
(8)	A responsible person who owns or operates a transmission line must— (a) manage trees below the transmission line to mitigate, as far as practicable, the fire risks associated with the fuel load below the transmission line; and (b) manage trees adjacent to the transmission line to avoid, as far as practicable, a tree entering the minimum clearance space around that line if the tree falls.

When pruning vegetation near live overhead lines, arboriculture techniques should be used, where practicable, in accordance with the appropriate Australian Standard.

Vegetation management work shall not be performed near live overhead lines, when another activity that could compromise the safety of the work team is being carried out.

Prior to commencing vegetation management work, a documented Job Safety and Environment Analysis (JSEA) shall be in place to record potential hazards, assess the risk and determine controls associated with work practices, the work environment, the use of materials, plant, tools, and equipment.

Contractors undertaking vegetation work shall develop and document approved work procedures to ensure the safety of vegetation management workers and the public.

The following AGL Macarthur vegetation management procedures include and are further described:

- Controlling of Hazardous Situations
- Safe Approach Distances and Vegetation Clearances
- Methodologies and Practices
- Priority Coding

## 6.1. Controlling Hazardous Situations

Vegetation management work which is required to be performed on vegetation which has any part within or likely to come within, the minimum clearance space of live exposed high voltage overhead lines shall be undertaken by approved work methods or under Electrical Access Permit (Access Authority under PPS).

Measures shall be taken by contract vegetation workers to control the risks from hazardous situations in accordance with approved procedures. Control measures shall be monitored, and their effectiveness reviewed for the duration of the works.

This may be achieved by, but not limited to one or more of the following methods:

- Utilisation of a Safety Observer
- Taking an electrical access permit
- The use of fully insulated mobile plant, tools, and equipment
- Increase the minimum distances required to safely carry out the vegetation management work including allowance for unexpected conductor movement
- The use of suitable personal protective equipment
- A safe means and method of controlling the movement of limbs being cut
- Positioning the 'mobile plant' and persons such that Safe Approach Distances can be maintained in all circumstances; and
- Ensure that all members of the public are kept clear of the work site while vegetation management work is in progress

## 6.2. Safe Approach Distances and Vegetation Clearances

AGL Macarthur will comply with the minimum clearance space of all vegetation in fire prone area as laid down in Electrical Safety (Electric Line Clearance) Interim Regulations 2025.

The minimum clearance space described in this plan means the minimum separation in air that should be maintained between vegetation and live electrical apparatus when performing vegetation management work.

Appropriate allowance for sag and sway changes must be applied when working adjacent to power lines towards the centre of the span to ensure that appropriate Safe Approach Distances are always maintained.

Any safe system of work employed to undertake ensuring minimum clearance space (MCS) near overhead power lines shall result in the achievement of both the Safe Approach Distances and Vegetation Clearance which includes but is not limited to:

- Cut, pruned, or falling vegetation
- Tools and equipment
- Persons; and
- Mobile plant

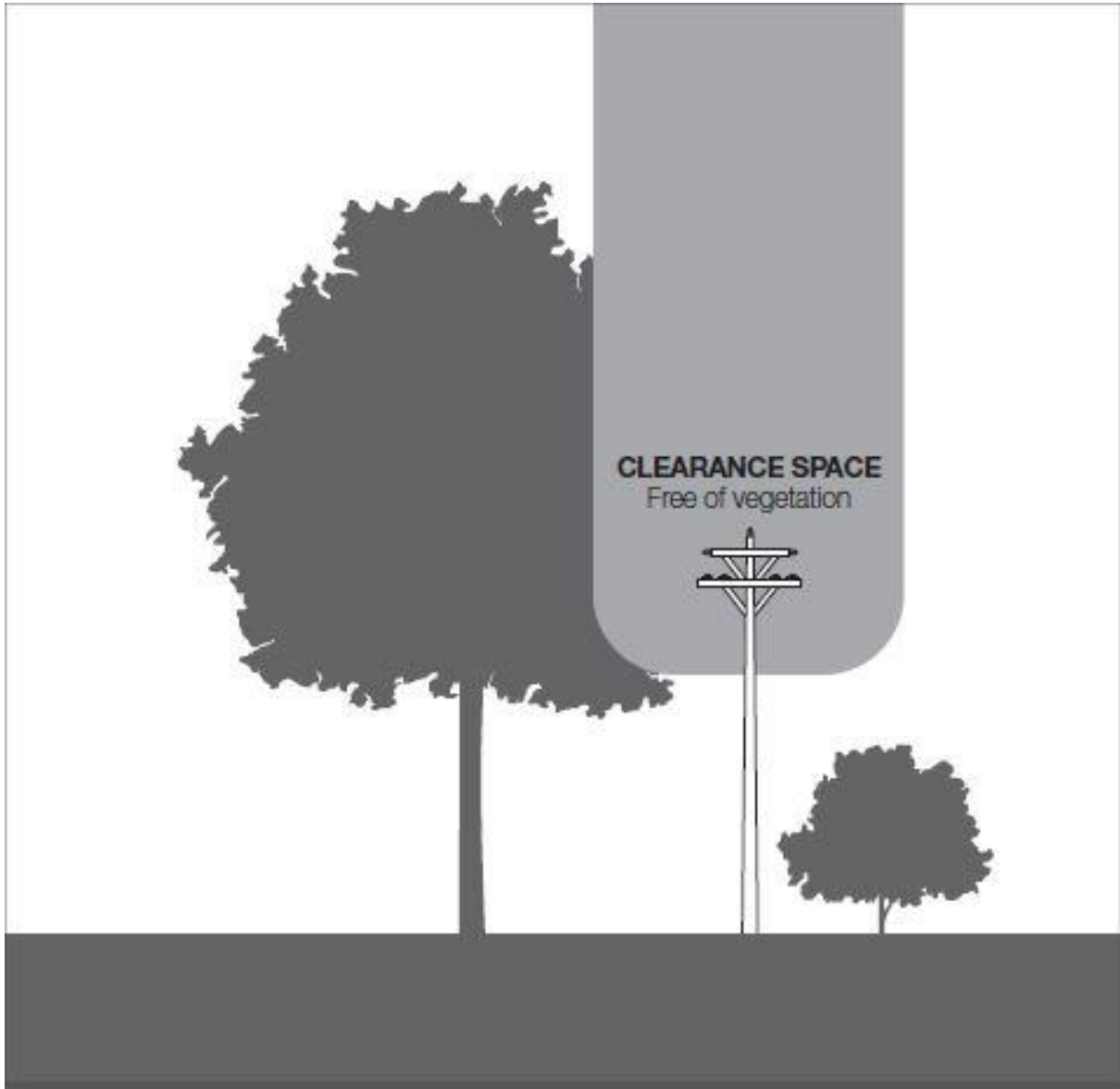
*The minimum clearance space (MCS) for Transmission Line Conductors will be determined by combining the maximum conductor movement (Sag and Sway) with the applicable vertical and horizontal distances specified in the Electric Line Clearance Interim Regulations 2025.*

To ensure compliance and clarity copies of the following relevant tables and clearance diagrams from Electrical Safety (Electric Line Clearance) Interim Regulations 2025 have been included below:

- Uninsulated Line Clearances (the distance between vegetation to conductor) in Hazardous Bushfire Areas
- Uninsulated Line Spans (the distance between poles) in Hazardous Bushfire Areas

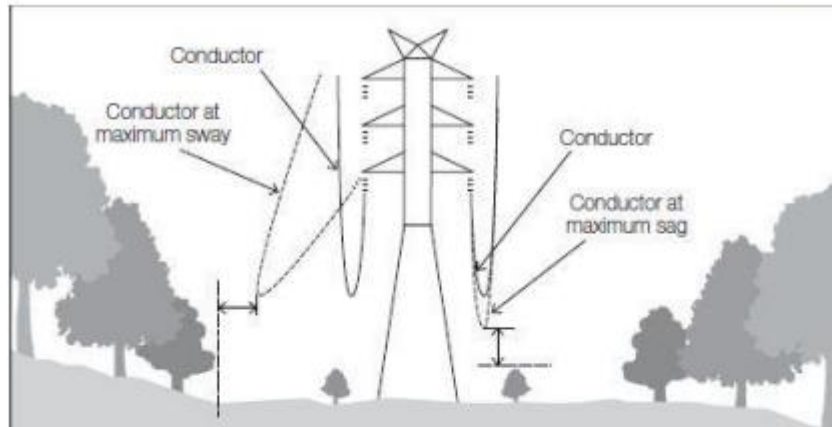
6.2.1. Uninsulated Line clearances in Hazardous Bushfire Areas

Figure 5—Uninsulated Electric Line in a Hazardous Bushfire Risk Area  
Clauses 28 Graph 5



**FIGURE 6—END VIEW OF THE TRANSMISSION LINE**

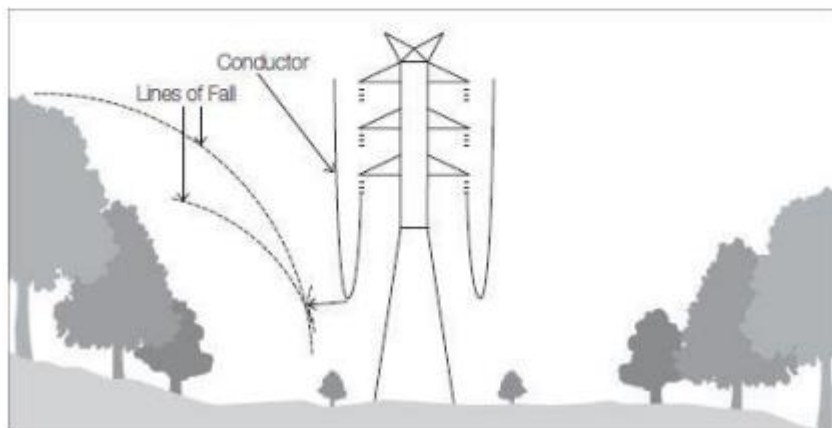
Clause 30



NOT TO SCALE

**FIGURE 7—TREES ADJACENT TO THE TRANSMISSION LINE**

Clauses 8 and 30

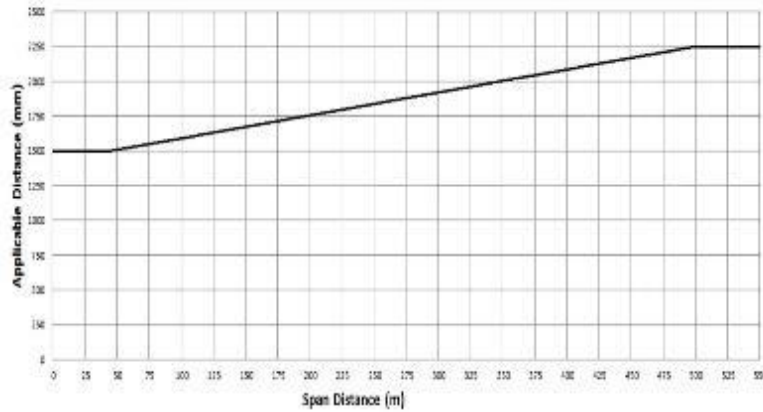


NOT TO SCALE

**6.2.2. Uninsulated Line Spans in Hazardous Bushfire Areas**

**GRAPH 5—UNINSULATED LOW VOLTAGE AND HIGH VOLTAGE ELECTRIC LINE (OTHER THAN A 66 000 VOLT ELECTRIC LINE) IN HAZARDOUS BUSHFIRE RISK AREA**

Clauses 3 and 28



### Graph 5 Formula

The formula by which the applicable distance for the middle two thirds of a span of an electric line to which clause 28 applies is calculated is as follows:

For  $0 < SD \leq 45$ ,  $AD = 1500$  mm

For  $45 < SD \leq 500$ ,  $AD = 1500 + ((SD - 45) \times (500 \div 303))$

For  $500 < SD$ ,  $AD = 2250$  mm

Where:

SD = Span Distance

AD = Applicable Distance

### Notes to Graph 5

- (1) The applicable distance must be extended by an additional distance to allow for sag and sway of the cable. This is done by adding that distance to the applicable distance (see clause 28(2)(a)).
- (2) A distribution company, or an owner or operator of a railway supply network or a tramway supply network, must assist a Council, if requested, by determining the additional distance (see clause 21(2)).
- (3) The minimum clearance space for a span of an electric line to which this Graph and clause 28 apply is partially illustrated in Figures 1 and 5.
- (4) The applicable distance for the first and last sixths of a span of an electric line to which clause 28 applies is 1500 millimetres.

Electricity Safety (Electric Line Clearance) Interim Regulations 2025  
S.R. No. 40/2025

Schedule 1—Code of Practice for Electric Line Clearance

<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>
<i>Nominal voltage</i>	<i>Applicable horizontal distance (without allowance for sag and sway)</i>	<i>Applicable vertical distance (without allowance for sag and sway)</i>
66 kV	3000 mm	3000 mm
More than 66 kV, but less than 220 kV	4600 mm	3700 mm
220 kV	4600 mm	3700 mm
275 kV	5000 mm	4200 mm
330 kV	5500 mm	4700 mm
500 kV	6400 mm	6400 mm

**Note**

This minimum clearance space is partially illustrated in Figures 6 and 7 of Schedule 2.

**6.2.3. Sag and Sway Requirements for 132kV Transmission Line and 33kV OH-CGs**

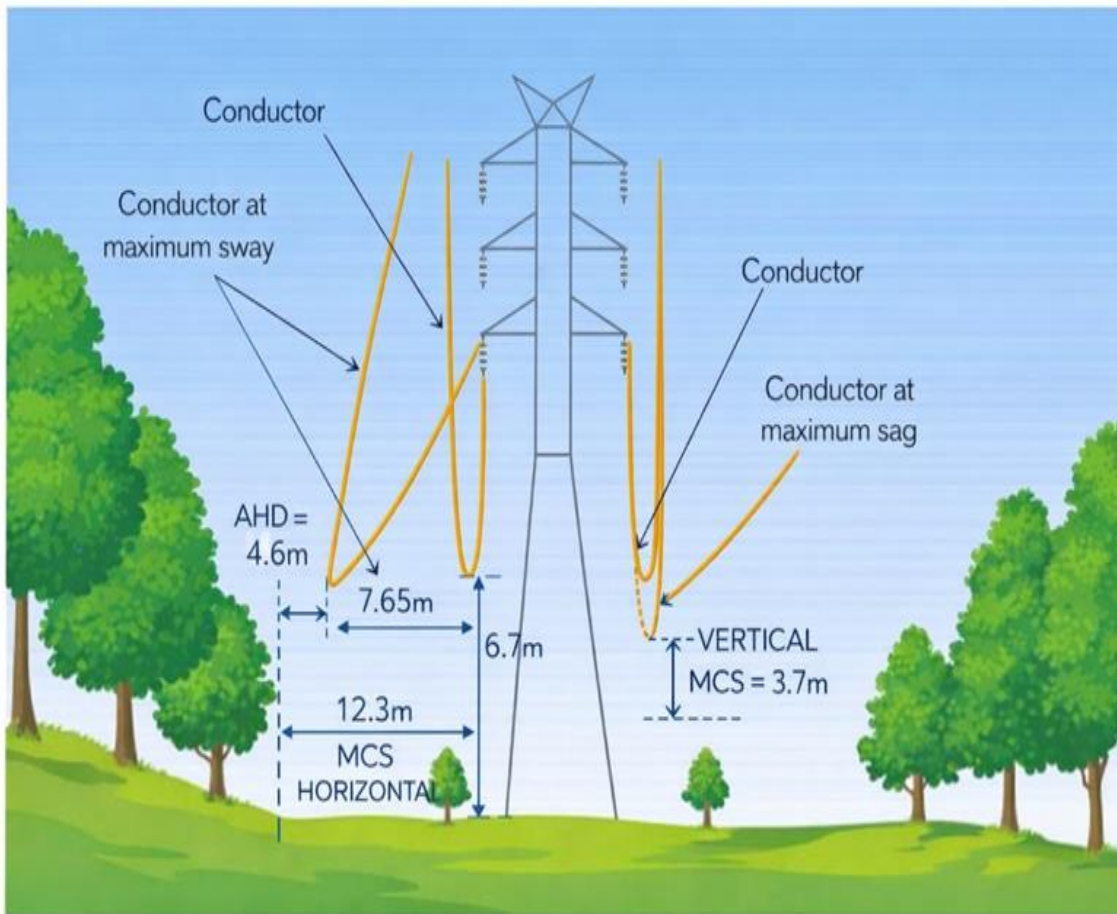
To determine the maximum sag and sway for the 132 kV Transmission Line and 33kV overhead collector groups (OH-CGs), as-built drawings were used as the primary reference. Vertical clearances (sag) were obtained directly from these drawings, while horizontal clearances (sway) were calculated in accordance with the methodologies outlined in AS/NZS 7000:2016. A conservative approach was adopted due to the absence of updated PLS CADD model data. The table below presents the maximum sag and sway values for both 132kV and 33kV Lines.

Line Voltage (kV)	Vertical Ground Clearance from conductor (after sag) in "m"	Maximum Sag	Horizontal Clearance from conductor (Sway) in "m"	
132	6.7	11.25	7.65	The vertical ground clearance has been referenced from the as-built drawing (Ref: D4159-TRB-CPP-S-GA-0025), while the horizontal clearances have also been derived from the corresponding as-built drawings.
33	6.7	9.46	6.43	The vertical clearance has been referenced from the as-built drawing (Ref: D4159-TRA-CPP-T-D-0002 to 0007), while the horizontal clearances have also been derived from the corresponding as-built drawings.

Further details of vertical (sag) and horizontal (sway) movements for each span of the 132 kV and 33 kV lines are provided in Appendix 14.4.

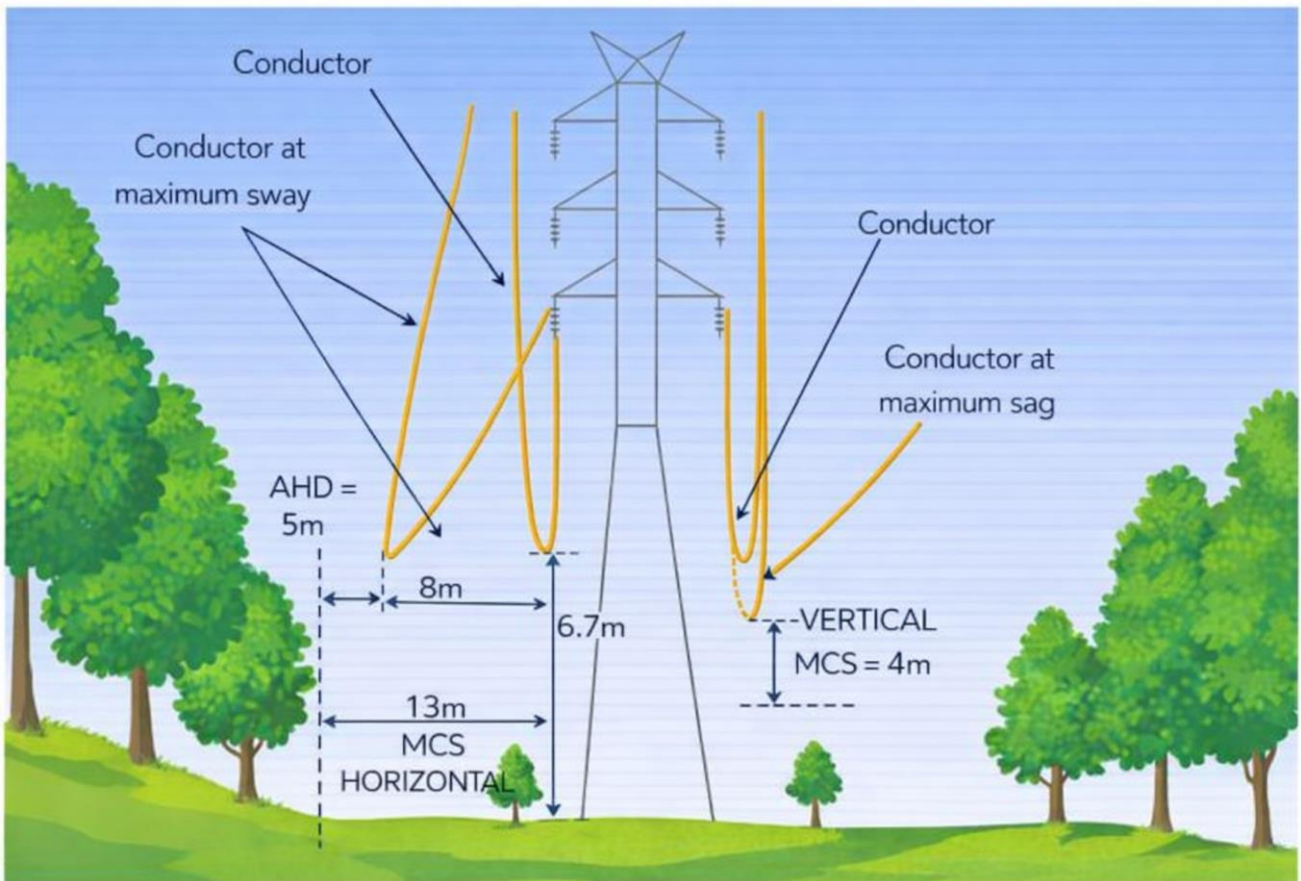
Based on vertical and horizontal movements of conductors, the minimum vertical and horizontal clearance space (MCS) for longest span (47-48) of the 132 kV transmission line has been calculated and shown into the table below.

Line Voltage (kV)	Maximum Sag "m" A	Applicable vertical distance without Sag and Sway as per Electrical Line Clearance Interim regulation 2025 B	Minimum Clearance Space (MCS) - Vertical (after Sag)	Horizontal Clearance from conductor (Sway) in "m" C	Applicable Horizontal distance without Sag and Sway as per Electrical Line Clearance Interim regulation 2025 D	Minimum Clearance Space (MCS) - Horizontal (C+D)
132	11.25	3.7	3.7	7.65	4.6	12.3



The minimum clearance space (MCS) for 132kV transmission line conductors is determined by combining the maximum expected conductor movement (sag and sway) with the Applicable distances specified in the Electrical Line Clearance Interim Regulation 2025.

The graphical illustration below shows the simplified maximum vertical and horizontal Minimum Clearance Spaces (MCS) for the longest span (Span 47–48) of the 132 kV transmission line, which must be maintained at all times along the line.



For detailed Minimum Clearance Space (MCS) values corresponding to each individual span of 132kV Transmission Line, please refer to **Appendix 14.4**.

### Flashover Distance Calculation for 132kV TL:

The flashover distance through air was calculated using the following formula:

$$d_{\text{adjusted}} = \frac{V \times K}{E_{\text{critical}}}$$

Where:

- $V$  = Operating voltage (phase to ground)
- $K$  = Correction factor for polluted or coastal conditions (1.5)
- $E_{\text{critical}}$  = Critical electric field strength of air ( $3 \times 10^6$  V/m)
- $d$  = flashover distance through air

Flashover Distance Calculations						
				$\sqrt{2}$	1.414	
				$\sqrt{3}$	1.732	
312kV Line	V	Peak Operating Voltage	V	$V_{p-p} / \sqrt{3}$	132000	V
					107764.4342	V
	K	Correction factor for polluted or coastal conditions		1.5		
	E	Critical electric field strength of air		$3 \times 10^6$		V/m
	d				0.054	m

## Line of Fall Trees

To minimize the risk of flashover caused by falling trees in proximity to 132kV Transmission Line, a minimum clearance has been calculated in accordance with **AS/NZS 7000** overhead line design standards. This clearance incorporates:

- the nominal flashover distance
- conductor sway under maximum wind conditions, and
- maximum operating temperature

The required clearance **As Far as Practicable (AFAP)** is determined as:

### Minimum flashover distance + radius of fall of tree ( $R_{fall}$ )

where  $R_{fall} = H \times \cos \theta$

and for a **straight tree**,  $\theta = 0$ , therefore  $R_{fall} = H$ .

The required clearance to reduce flashover risk as far as practicable (AFAP) is determined by summing (summing the minimum flashover distance (0.054m) and radius of fall of tree  $R_{fall} = (H \times \cos\theta)$ ). Here H is the height of tree and  $\theta$  is the lean angle of tree.

For a straight tree,  $\theta = 0$  Therefore, radius of fall of tree =  $R_{fall} = (H)$

AFAP Clearance for tree fall scenario	$D_{tree}$	$\geq$	$R_{fall} + d_{mfd}$						6.754
---------------------------------------	------------	--------	----------------------	--	--	--	--	--	-------

The trees located beneath the line fall within spans 25E, 25W, 26E, 26W, 27, and 28. The minimum vertical clearance requirement for a 132 kV transmission line is 6.7 m. Based on our assessment, there are no trees in proximity to the transmission line that would infringe upon this minimum clearance. Consequently, we have considered the vertical clearance as the worst-case scenario and used it to calculate the AFAP.

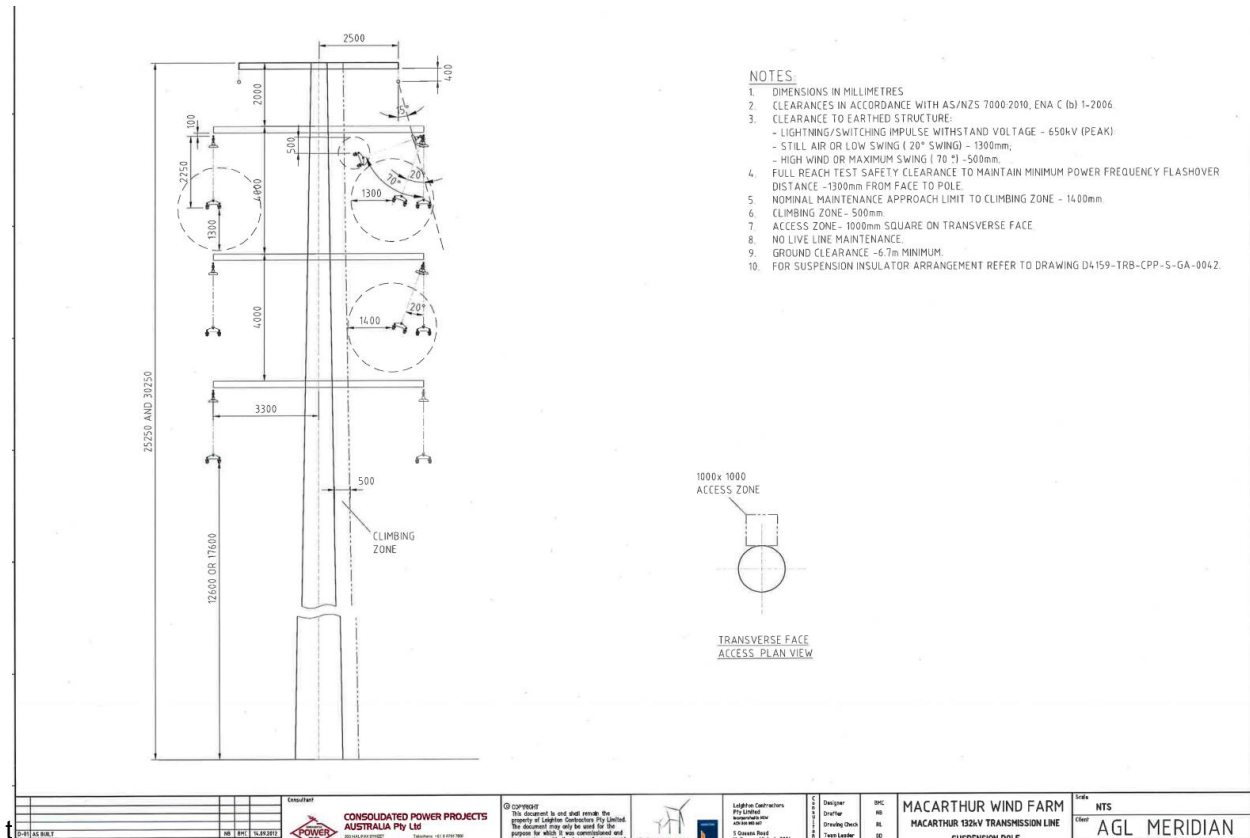
**The calculated clearance required to minimise flashover risk as far as practicable (AFAP)- (6.754m) is significantly less than the minimum horizontal clearance space (MCS)-(12.3m). Therefore, AGL will adopt and maintain the horizontal MCS as the governing horizontal clearance requirement.**

It is important to note that, there are no trees near the transmission line other than those located beneath spans 25E, 25W, 26E, 26W, 27, and 28. The vegetation under these spans will be routinely maintained well below the conductors, ensuring compliance with the minimum vertical clearance space (MCS) defined in schedule-1, code of practice for Electric Line Clearance Interim Regulations 2025.

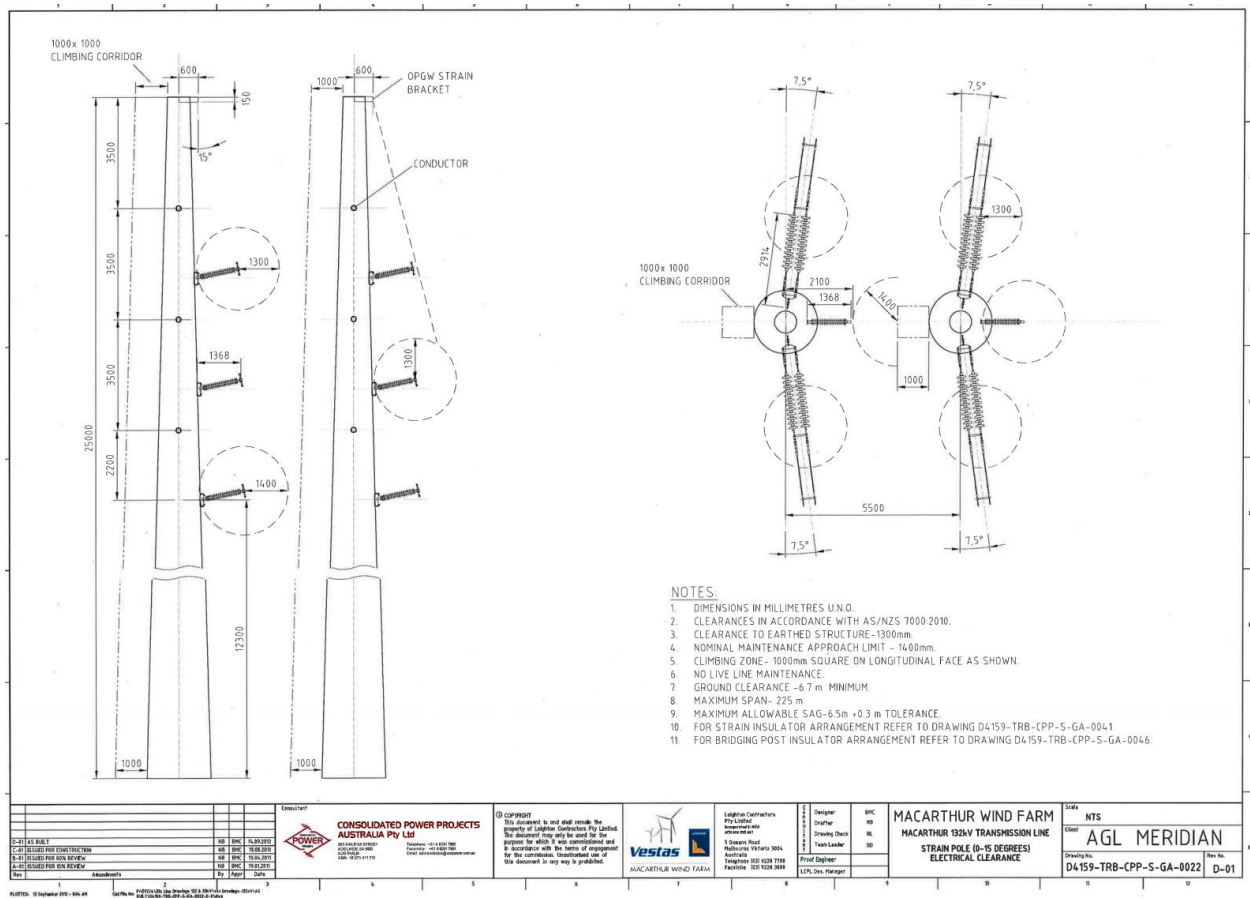
Given the limited vegetation along the 132 kV route, AGL will apply a direct and simplified approach by removing any tree that could fall into the MCS, avoiding unnecessary complexity in risk assessment.

Any tree that could fall into the minimum clearance space (MCS) regardless of risk or tree health will be pruned or removed.

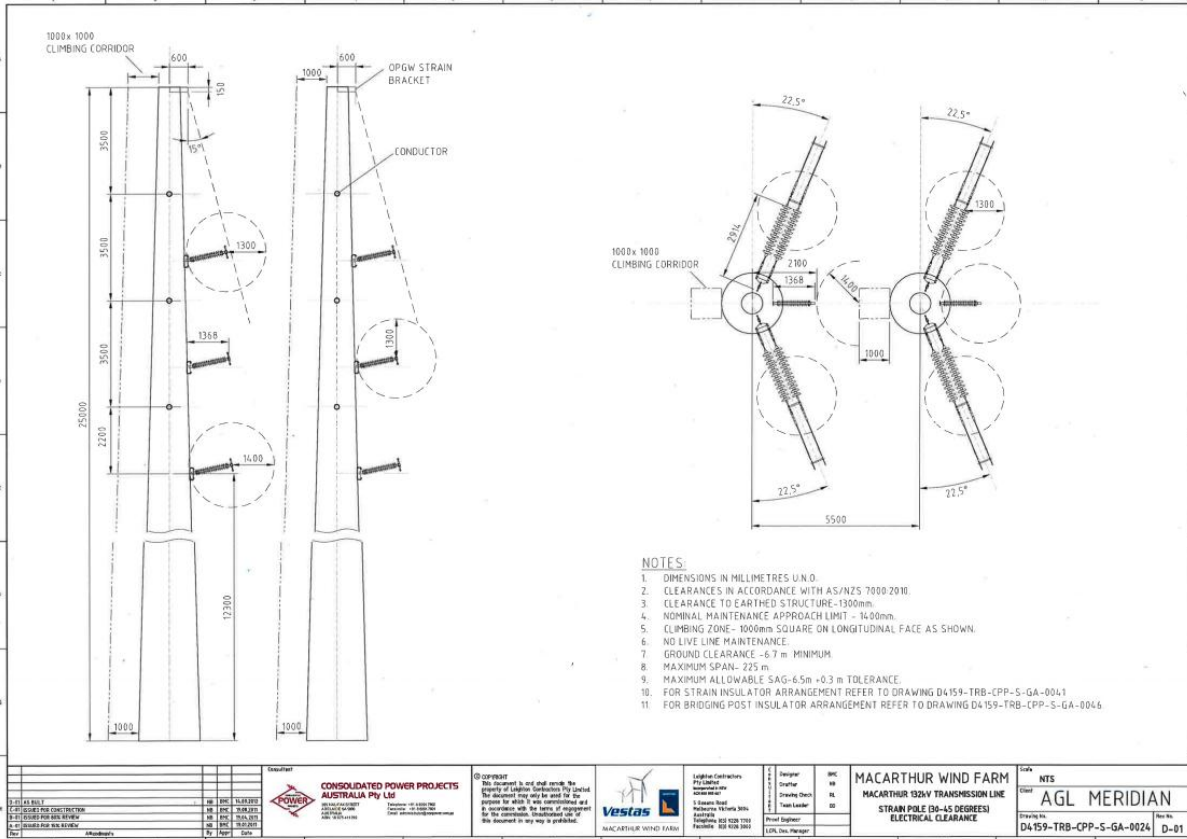
**Figure 1 132kV Suspension Pole**



**Figure 2 132kV Strain Pole (0-15 degrees)**



**Figure 3 132kV Strain Pole (30-45 degrees)**



**Figure 4 132kV Strain Pole (terminal)**

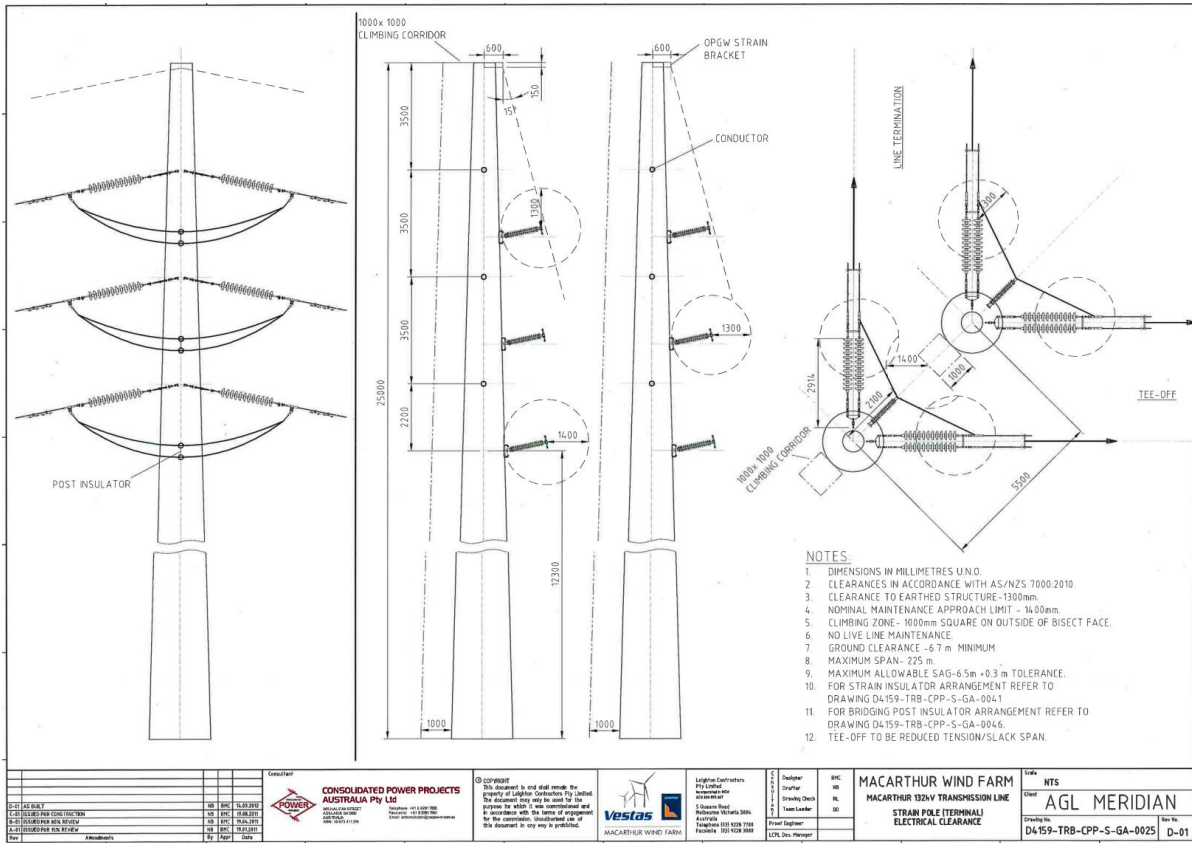


Figure 5 132 kV Strain Pole (Turn-in)

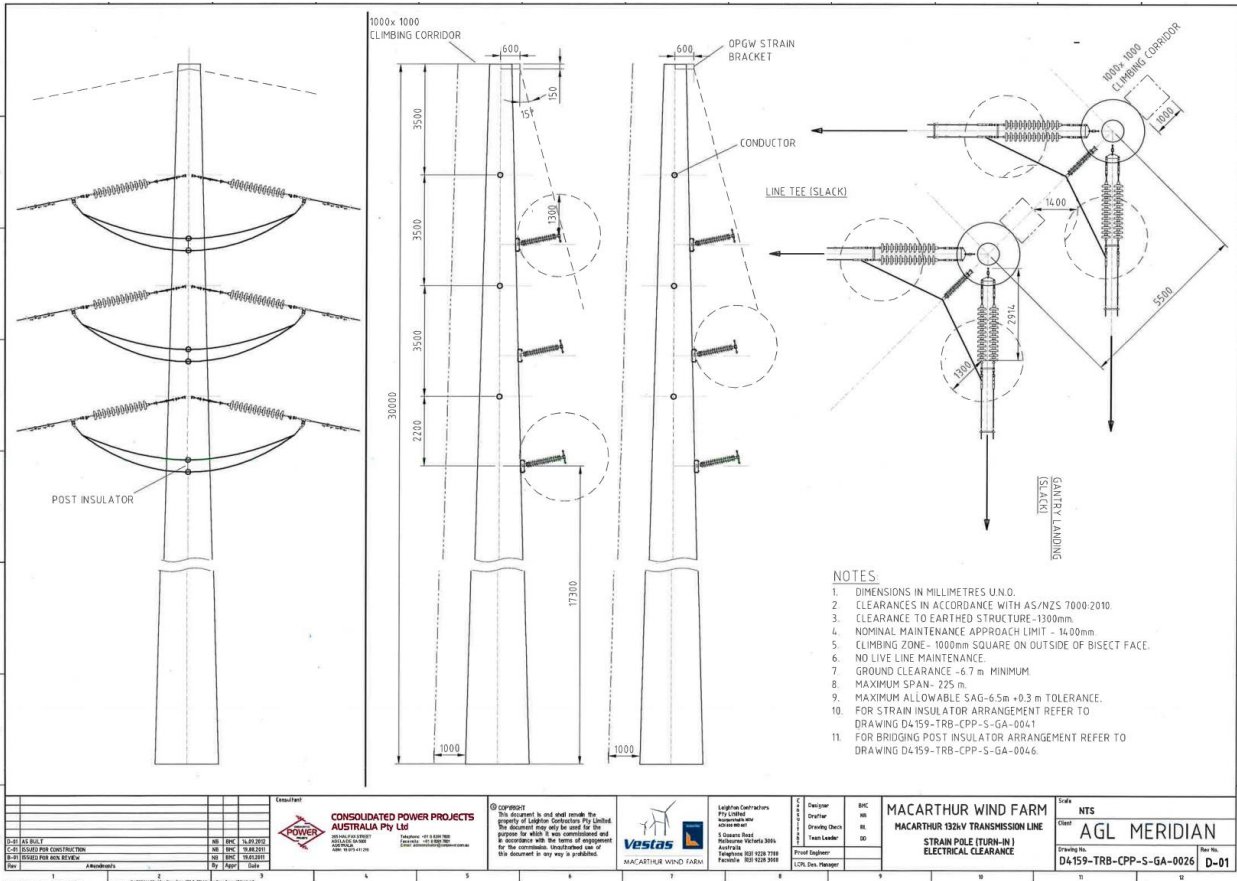
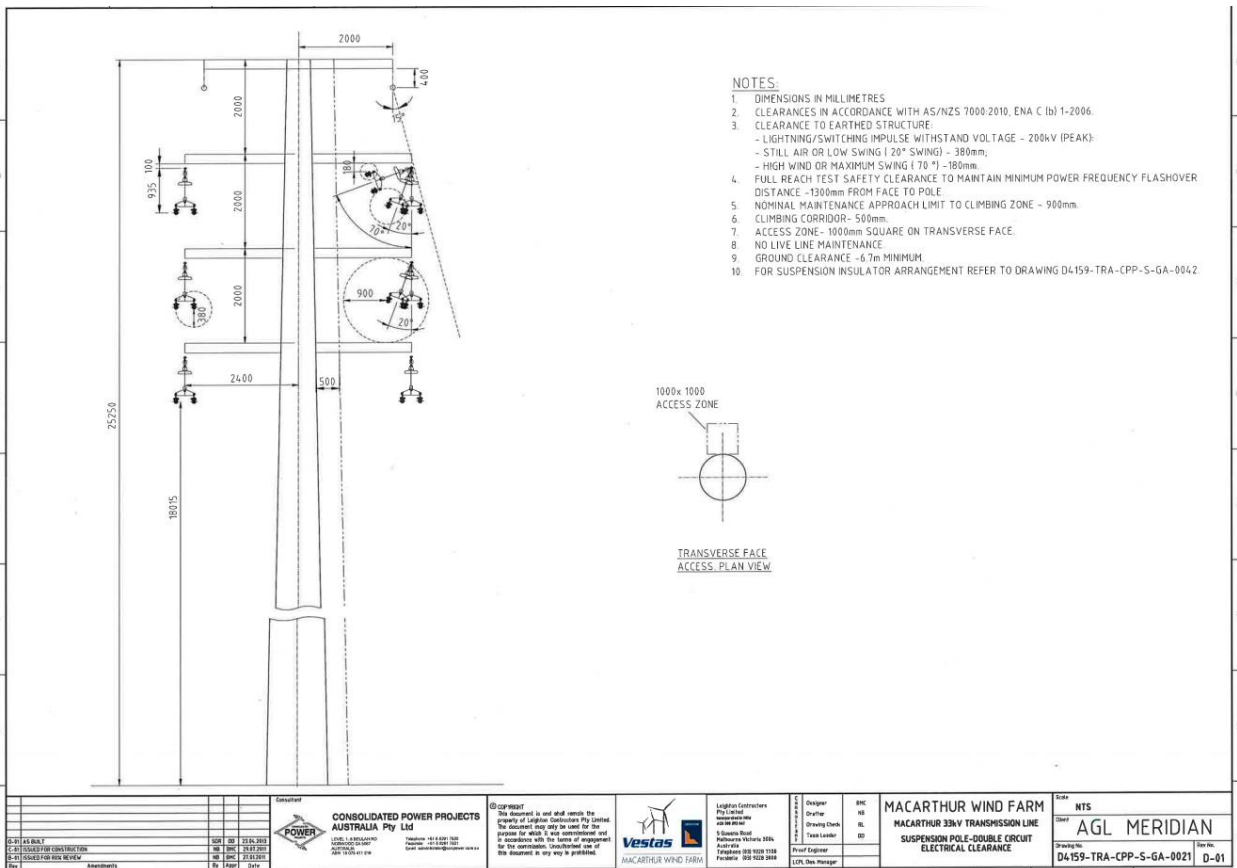


Figure 6 33kV Suspension Pole



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Figure 7 33kV Strain Pole (0-30 degrees)

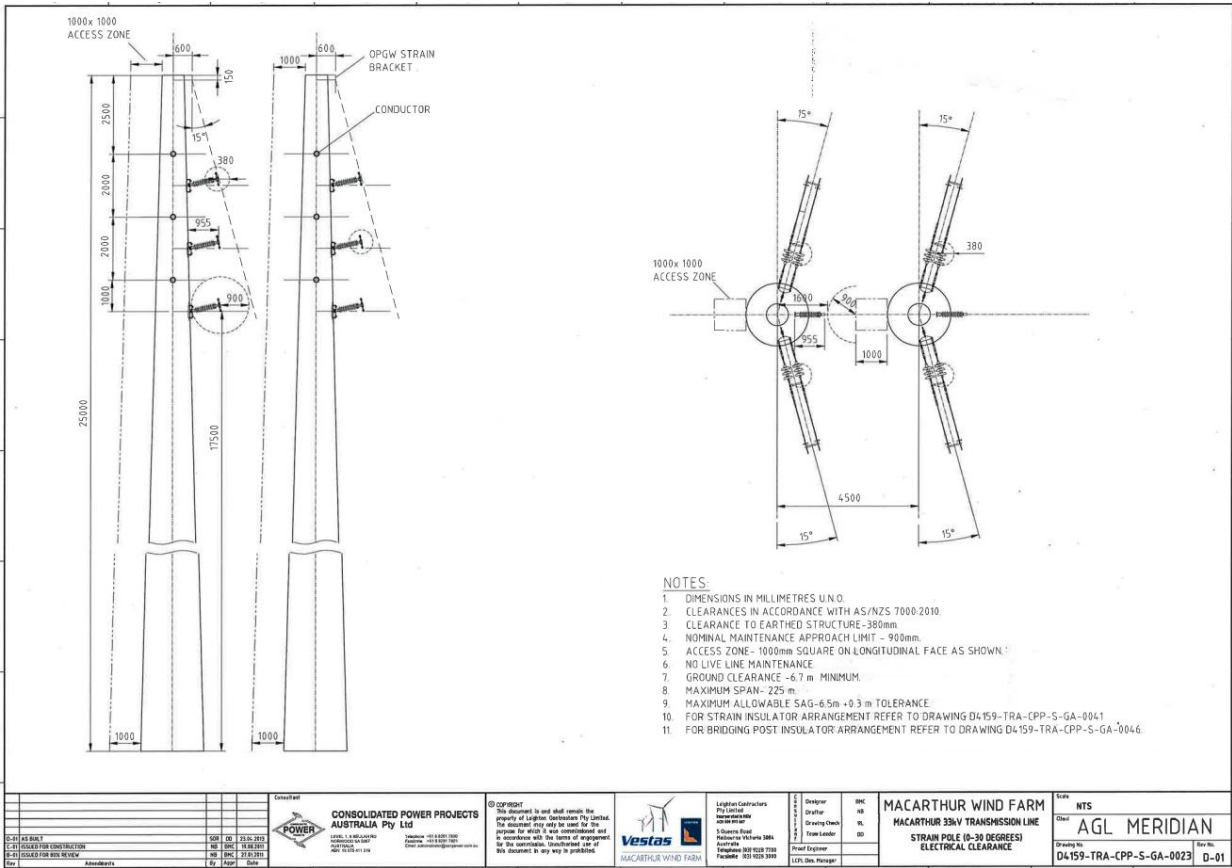
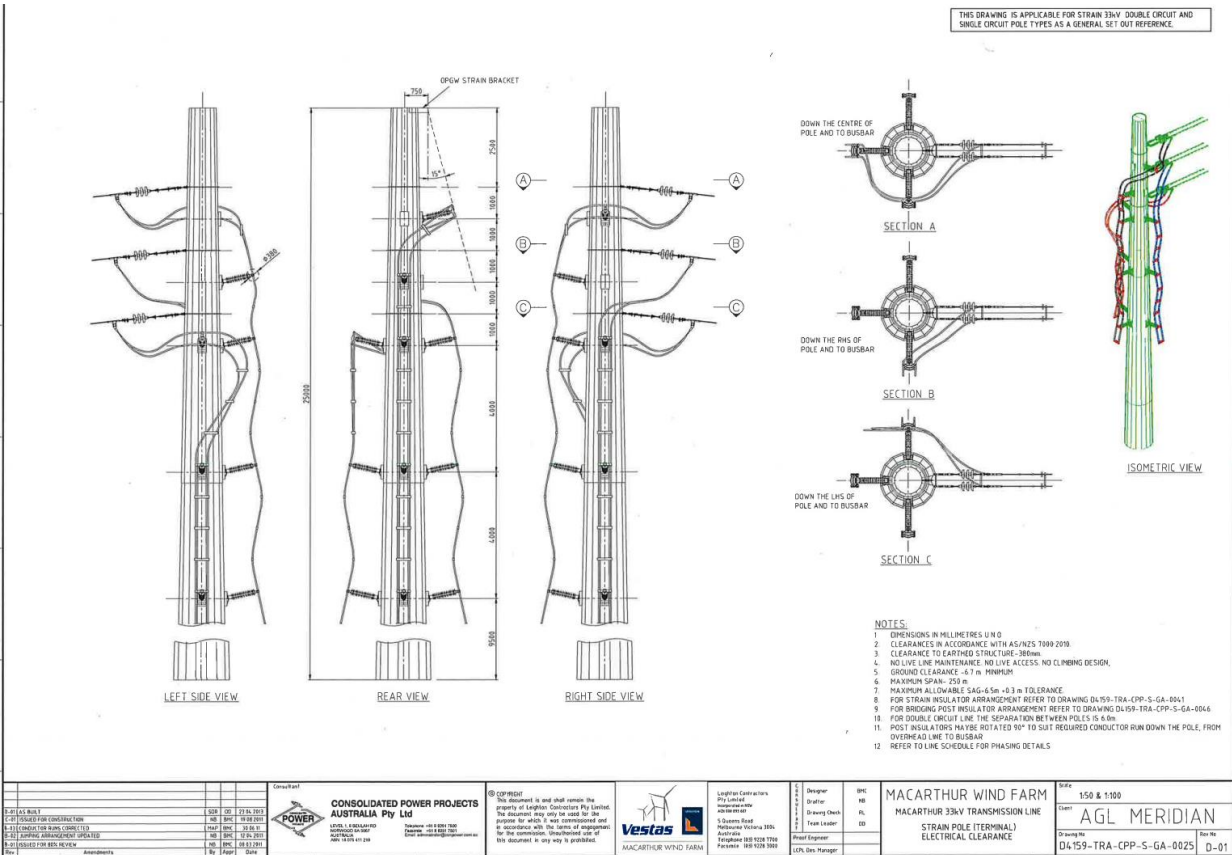


Figure 8 33kV Strain Pole (terminal)



### 6.3. Methodologies and Practices

Vegetation management work which is required to be performed on vegetation which has any part within or likely to come within, the minimum clearance space of live exposed high voltage overhead lines shall be undertaken by approved work methods or under Electrical Access Permit (Access Authority in PPS).

Vegetation management work includes the identification and management of hazard trees, which are those identified as a tree that has failed, or is likely to fail, in such a manner that it will contact, or is reasonably likely to contact an electric line. This includes trees adjacent to the transmission line which could enter the minimum clearance space around the line if the tree falls.

The Pre-work Checklist, given in 14.111, should be utilised on an annual basis prior to bushfire season. The responsible persons for ensuring that the checklist is complete and all tasks have been actioned are the Bushfire Mitigation and Line Clearance Plan Committee, defined in 14.5.

#### 6.3.1. Safety Observer

A safety observer(s) shall be appointed where any, person, mobile plant, EWP, or vegetation is in a position where any part could accidentally come within the Safe Approach Distances or minimum clearance space. Depending on the position and complexity of the work, more than one safety observer may be required however at least one safety observer must be always positioned at ground level.

The safety observer(s) shall:

- Be specifically instructed in the workplace hazards applicable
- Ensure that all persons, tools, plant, and equipment remain outside the specified minimum Safe Approach Distance unless performing a rescue in accordance with approved procedures
- Be positioned at a suitable location to effectively observe the work being performed
- Not observe more than one vegetation management work activity at any time
- Always maintain effective and immediate communication with the work team
- Not perform any other task while acting as a safety observer, which includes the passing of tools directly to the person performing the work
- Suspend all work in the event of having to leave the site or significantly change position until he / she has returned / reached new location or has been replaced
- Be trained and deemed competent of performing a rescue relevant to the work being undertaken; and
- Be trained and deemed competent of performing the work being undertaken.

The safety observer's role may be rotated between members of the work team ie. to reduce fatigue. When this occurs, it shall be formally handled such that all members of the work party are always aware who is performing the role of the safety observer(s).

#### 6.3.2. Method of Maintaining the Minimum Clearance Space

In managing trees AGL Macarthur:

- Performs formal annual inspection by trained competent persons of all AGL Macarthur electric line assets and associated minimum clearance space areas to identify all works, including vegetation management works, such as pruning and clearing of trees, necessary to maintain fire safety
- Provides the sag and sway calculation outputs to the trained and competent inspectors ahead of annual inspections
- The annual inspection includes trees and vegetation below the transmission line to mitigate, as far as practicable, the fire risks associated with the fuel load below the transmission line; and manage trees adjacent to the transmission line to avoid, as far as practicable, a tree entering the minimum clearance space around that line if the tree falls. Any trees or vegetation identified in the annual inspection that presents a fire risk due to fuel load, vegetation that will grow into the minimum clearance space in the

next few years or within the line of fall of the minimum clearance space will be pruned or removed as per the normal pruning and clearing cycle.

- The normal pruning cycle is 12 monthly unless abnormal conditions occurred. All works are carried out by a qualified and responsible person in compliance with General Regulations (r.616) and Schedule 1 – Code of Practice Section 9 and 10.
- AGL Macarthur employs trained and qualified external contractors that must have a minimum of:
  - Certificate II in ESI Powerline Vegetation Control,
  - Cert III Horticulture (Arboriculture) including the “Perform ground-based tree defect evaluation” unit of competency,
  - at least 3 years of field experience in assessing trees, and
  - appropriate certificates for both them and their equipment that legally entitles them to undertake the work.
- Identification of qualifications is undertaken as part of the contractor prequalification accreditation (cm3) and the AGL authority to work (ATW) processes.
- The trained contractors assess and provide advice on predicted growth (including allowances for sag and sway of electrical conductors). The assessment will consider all locally foreseeable conditions that it is reasonable to assess within the scope of the expertise of the inspecting Arborist that indicate the likelihood of contact with an electric line or overhead conductors, i.e., under, over or beside.
- Monitors, reports, and audits the state of preparedness for the declared bushfire season and the effectiveness of line clearing programs
- Maintains an accurate database of line clearance activities required and line clearance activities conducted for each pole and section of electric line owned by AGL Macarthur; and
- Calculate the additional pruning requirements to maintain minimum clearance spaces in anticipation of regrowth in the pruning cycle. AGL Macarthur employs a trained professional to advise of predicted regrowth based upon tree type and species, historical growth patterns for the different areas, and anticipated seasonal rainfall.
- A visual tree assessment will be recorded and used to allocate a clearance works priority rating (P1 through P5). Refer to Section 6.5 for priority coding and Section 6.3 for the method of management of trees.

### **6.3.3. Method of Maintaining Trees Adjacent to and Below Lines**

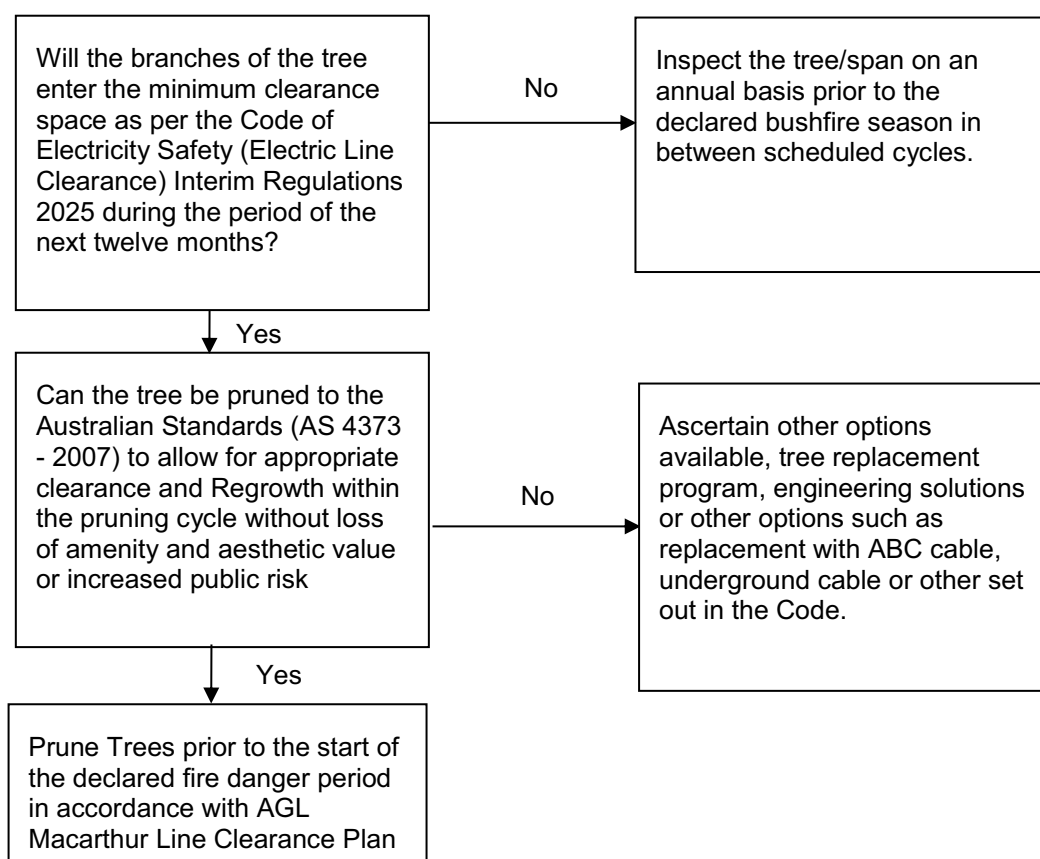
Strategies to manage trees adjacent to and below electric lines, to mitigate, as far as practicable, the fire risks associated with the fuel load and hazard trees adjacent to and below the transmission line include:

- The establishment of management processes which insure the inspection, implementation, surveillance and monitoring of power line clearance and maintenance activities
- Maintain and improve responsive processes for the dealing with notified locations of noncompliance with the Regulations
- Maintain a 12-monthly cycle of planned pruning and minimum clearance space, including management of fuel load below transmission lines and hazard trees to the declaration of the bush fire season in all clearance areas to which this plan applies
- Whilst most of the clearance areas are grazing land for farm animals, in the event the vegetation below the transmission line is identified to pose a fuel load risk, AGL will engage qualified and certified third party contractors to remove the fuel load.
- The fuel load below the transmission line will be inspected monthly during the bushfire season to identify any trees/vegetation that have experienced unseasonal growth or recently planted trees/vegetation, with records maintained as per the planned preventative maintenance schedule outlined in Section 7.2
- From these inspections, subsequent notifications will be raised for any rectification work to mitigate the fire risks

- Building team and management relationships with relevant authorities so that electric line clearance can be achieved using environmentally and economically sustainable solutions
- Institute systems for the notification of those affected by the proposed works and including mechanisms for consultation and dispute resolution
- Implementation of audit procedures to insure the effectiveness of all related practices and processes in line with AGL Macarthur maintenance procedures; and
- Implement alternative engineering solutions such as undergrounding of lines where required.

To manage the risk of trees falling that are adjacent to the transmission line, resulting in a breach of the minimum clearance space, monthly inspections during bushfire season are carried out. For trees that are identified to breach the minimum clearance space if they are to fall, the trees will be removed or pruned to ensure they can not fall into the minimum clearance space, as per the methodology defined in Section 6.3.5.

Detail of the methods to be used for the clearance of vegetation adjacent to and below electric lines is contained in AGL Macarthur Bushfire Mitigation Plan. The following flow chart shows the decision-making process for maintaining minimum clearance space.



An inspection of these areas is conducted annually by a suitably qualified auditor prior to 30 September each year. This inspection will focus on all aspects of tree care, particularly identifying the trees expected to breach the minimum clearance space required over the next twelve months.

Once auditors have completed the annual and scheduled inspections a report clearly outlining the projected needs in relation to statutory tree clearing and asset maintenance conditions are provided to AGL Macarthur responsible officer who will then undertake random checks to ensure data integrity.

The report will include, tree location, species, voltage of powerlines, asset status/condition, removal and pruning requirements and any special comments about the vegetation itself.

For scheduled pruning AGL Macarthur will provide 14 days prior notification to affected landowners. If

immediate/emergency pruning is necessary AGL Macarthur will attempt to contact affected landowners prior to the pruning operations commencing. If this cannot be achieved the landowners are notified as soon as possible after emergency pruning occurs.

AGL Macarthur observes a routine cycle between each pruning and clearing of trees of 12 months.

#### **6.3.4. Process to Maintain the Minimum Clearance Space**

In determining the location where work is required to maintain the minimum clearance space AGL Macarthur will:

- Monitor conditions in the area adjacent to the minimum clearance space or the regrowth space to ensure that no trees or parts of trees in those areas could be a hazard to the safety of the electric lines under the range of weather conditions that can prevail in that area, due to growth of vegetation or tree line-of-fall
- Maintain a regime of regular inspections through a computerised maintenance management system (CMMS), particularly during the growing season, with additional consideration given to weather online encroachment. Refer to the scheduled works listed in the appendices of this plan.
- Calculation of the length of time required between each pruning or clearing of trees is dictated by the following factors:
  - Annual regrowth
  - Type of tree
  - Fire vulnerability of species (type of bark, leaf litter etc)
  - Fire risks associated with fuel load below the transmission line
  - Line voltage and type of protection; and
  - Environmental impact on area/catchment

If an easement undergoes abnormal growth patterns due to climate conditions, then a shorter pruning cycle would be considered.

#### **6.3.5. Process for Pruning or Urgent Cutting or Removal**

The normal pruning cycle is 12 monthly unless abnormal conditions occurred. All works are carried out by the responsible person in compliance with Schedule 1 – Code of Practice Section 10.

AGL Macarthur employs trained and qualified external contractors that must have a minimum of Certificate II in ESI Powerline Vegetation Control, Cert III Horticulture (Arboriculture) and hold appropriate certificates for both themselves and their equipment that legally entitles them to undertake the work. Identification of qualifications is undertaken as part of the contractor prequalification accreditation (cm3) and the AGL authority to mobilise (ATM) processes.

The process of urgent cutting is defined as being:

- an encroachment or growth of trees that was not anticipated; or
- as a result of a tree falling or becoming damaged so that it is required to be cut or removed to maintain the minimum clearance space; or
- because a suitably qualified arborist has assessed as a hazard tree; or
- during the fire danger period declared under the Country Fire Authority Act, 1958.

The trained contractors provide advice on predicted growth. Where urgent cutting is required to maintain the minimum clearance space, identified by inspection, the work must be undertaken within 4 weeks. See Priority coding table.

If performing urgent tree cutting, the responsible person must ensure that no tree is cut beyond 1 metre from the minimum clearance space around an electric line, unless they are the owner of the tree. All urgent pruning or clearing must comply with AS4373 as reasonably practicable. As soon as practicable after completing the cutting or removal, notice of that cutting or removal has occurred is to be provided to:

- All affected persons; and
- The occupier of the land on which the tree was cut or removed; and
- If a tree was removed—the owner of the land on which the tree was removed.

After any urgent cutting or removal records of the following details are to be kept for a minimum of 5 years, these details are to be archived and entered in the computerised maintenance management system:

- Where and when the cutting or removal was undertaken
- Why the cutting or removal was required; and
- The last inspection of the section of the electric line where the cutting or removal was required.

Alternative methods of maintaining clearance compliance by pruning must be considered where pruning to the Standards would result in:

- A safety risk to the workers performing vegetation clearance, ensuring minimum clearance space is achieved.
- Potential safety risk to the public
- Minimal mitigation of fire risk; or
- Unacceptable damage to the amenity and structural integrity of the tree

Alternative methods may include:

- Installation of Aerial bundle cabling
- Alternative cross-arm configuration
- Underground cabling
- Submitting an exemption application for specific locations'
- Increase inspection and pruning cycles
- Tree removal and replacement with a more suitable species
- Tree removal with no replacement

### **6.3.6. Process for Pruning or Cutting Trees of Significance**

Cutting or removal of trees of significance can occur to make an unsafe situation safe. An unsafe situation may include:

- hazard tree
- regrowth into minimum clearance space before next scheduled visit
- vegetation in HBRA found in clearance after declaration.

Strategies to restrict cutting or removal of native trees or trees of cultural or environmental significance to minimum extent necessary to ensure compliance with the Regulations or to make an unsafe situation safe are:

- Together with AGL Macarthur electric line maintenance provider investigate alternative solutions to protect vegetation from adverse impact by electric lines and electric lines maintenance.
- Continue the close working relationship with AGL Macarthur electric line maintenance provider and maintain active supervision, and checking, of work done on AGL Macarthur behalf to ensure the most environmentally sound practices are being employed for vegetation management and electric line
- To prevent excessive pruning or clearing of trees AGL Macarthur will ensure all pruning is undertaken either by thoroughly trained in-house staff or fully trained professional vegetation management contractors and is conducted according to AS 4373-2007 "Pruning of Amenity Trees".

AGL Macarthur staff training records are kept by the responsible officer, or a delegated officer, and are updated as staff attain specific training standards as well as annually as a matter of routine. Pruning works are inspected before during and after the job by qualified supervisory staff to ensure compliance with the standard and a record kept of these inspections.

Trees of significance can only be removed if a suitably qualified arborist advises that pruning the tree to compliance would make the tree unviable.

### **6.3.7. Responsible Person May Cut or Remove Hazard Trees**

Trees are inspected by AGL Macarthur's contracted service provider and include the following process.

- The hazard tree assessment will include considerations for
  - significant vegetation,
  - protected fauna and flora, and
  - habitat.Refer to Section 6.4 for methods of identification of environmental values.
- A visual tree assessment will be recorded and used to allocate a clearance works priority rating (P1 through P5). Refer to Section 6.5 for priority coding and Section 6.3 for the method of management of trees.
- If a member of the public, AGL Macarthur, CFA or Distribution Company identifies and reports a hazard tree outside of the scheduled maintenance inspection program, a qualified arborist will conduct an assessment of the tree, and if that assessment confirms the likelihood of contact with an electric line having regard to foreseeable local conditions, the tree may be cut or removed by the responsible person.
- AGL Macarthur's nominated representative will record the report in AGL Macarthur works management system including details such as: location of tree; name and contact details of reporter; why the tree is a hazard, and if it's deemed urgent. If deemed urgent AGL Macarthur's nominated representative is responsible for arranging for the tree to be pruned by an accredited contractor.
- A hazard tree may be cut if the suitably qualified arborist advises that the tree, or any part of the tree, is likely to fall onto or otherwise come into contact with an electric line
- For hazard trees that are cut or removed within the boundary of a private property, as soon as practicable after completing the cutting or removal, notice of that cutting or removal has occurred is to be provided to:
  - All affected persons; and
  - The occupier of the land on which the tree was cut or removed; and
  - If a tree was removed—the owner of the land on which the tree was removed
- For hazard trees that are cut or removed on public land, property, as soon as practicable after completing the cutting or removal, notice of that cutting or removal has occurred is to be provided to:
  - The Local Council, as per Section 9.2.

### **6.3.8. Additional Duties of a Responsible Person**

AGL Macarthur requires all staff and contractors to hold the qualification of Cert II ESI – Powerline Vegetation Control and comply with the guidelines and limits set within either ESV - Electrical Safety Rules for Vegetation Work near Overhead Powerlines by Non-electrical workers (Electrical Safety Rules) or rules set by the asset owner, whichever is greater.

If AGL Macarthur staff or contractors have concerns about the safety of cutting or removal of a tree for which AGL Macarthur has clearance responsibilities, they will consult with the AGL HV Operating Authority, Electrical Safety Management Plan (ESMP) and the ELCMP Committee.

## **6.4. Identification and Management of Environmental Values**

### **6.4.1. Compliance with the code**

AGL ensures the cultural heritage, environmental and vegetation values are considered when managing the minimum clearance space around powerlines.

In accordance with Regulation 9 (4)(h), areas containing trees that may need to be cut or removed to ensure compliance with the Code are also assessed for their significance, that being vegetation which is:

- i) indigenous to Victoria; or
- ii) listed in a planning scheme to be of ecological, historical, or aesthetic significance; or
- iii) a tree of cultural or environmental significance.

AGL has developed an internal process to ensure that any vegetation disturbance works require a Ground and Vegetation Disturbance Approval (GVDA) prior to work commencing.

### **6.4.2. Vegetation assessment**

To ensure correct identification, a suitably qualified arborist is engaged annually to complete inspections of the relevant areas. In their report, they will identify the species, age, size, health rating and recommendations if removal or trimming is necessary.

AGL will not remove, lop, or trim any vegetation unless it is required to ensure compliance or make an unsafe situation safe. The arborist report will be reviewed in consultation with operations and AGL's internal Environment team.

The Environment team will be responsible for identifying any areas of significance by using a variety of resources as detailed in Section 6.4.3 and engaging with the appropriate authorities where further information, approval or permits are required.

### **6.4.3. Methods Used to Identify Areas or Species of Significance**

Where a tree is identified in the annual arborist report as requiring removal or cutting to maintain the minimum clearance space, the details of the tree and location will be recorded. The Environment team will then complete a desktop review to identify if it triggers any areas of significance. The findings of this review will be formally documented on the GVDA Application form and entered into the GVDA register.

The resources outlined in the table below will be used to identify if there are any species or areas of significance and liaise with the appropriate authorities and/or traditional owners in each locality where further information or approvals may be required. The list of resources will be reviewed annually to ensure currency of information.

Based on the results of the desktop review, for results identified as insignificant, an approved GVDA will be granted. A SAP notification and work instruction will be raised and the tree of interest clearly marked out for maintenance.

If an area of significance is highlighted in the review, further field inspection may be required to verify the data and confirm to what extent the proposed works will impact the environment, which involves confirmation of whether the tree is a 'habitat tree' and verification of the species that utilises it.

AGL will work with the local authorities and arborist to determine if works can commence, and to develop the best process for removal or maintenance ensuring minimal impact to flora, fauna or heritage values. No works will commence until approval has been granted by the Environment team and relevant authority as required.

Aspect	Resources
Threatened fauna, flora and communities	<ul style="list-style-type: none"> <li>• List of threatened flora and fauna species: <a href="http://environment.vic.gov.au">Flora and Fauna Guarantee Act Threatened List (environment.vic.gov.au)</a></li> <li>• List of EPBC threatened flora: <a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora">https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora</a></li> <li>• List of EPBC threatened fauna: <a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=fauna">https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=fauna</a></li> <li>• Map of Victoria's biodiversity values: <a href="http://biodiversity.vic.gov.au">NatureKit Victoria (biodiversity.vic.gov.au)</a></li> <li>• Ecological specialists (where required)</li> </ul>
Council planning scheme overlay for historical, cultural, environmental or aesthetic significance; Register of significant trees;	<ul style="list-style-type: none"> <li>• <a href="https://www.murrindindi.vic.gov.au/HomeMoynesPlanningScheme">https://www.murrindindi.vic.gov.au/HomeMoynesPlanningScheme</a> - <a href="https://www.moyne.vic.gov.au/Your-property/Building-and-planning/Planning">https://www.moyne.vic.gov.au/Your-property/Building-and-planning/Planning</a></li> </ul>
Cultural Heritage	<ul style="list-style-type: none"> <li>• Victorian Heritage Database: <a href="https://vhd.heritagecouncil.vic.gov.au/">https://vhd.heritagecouncil.vic.gov.au/</a></li> <li>• Victorian Aboriginal Heritage Register   First Peoples - State Relations (<a href="http://firstpeoplesrelations.vic.gov.au">firstpeoplesrelations.vic.gov.au</a>)</li> <li>• The Aboriginal Cultural Heritage Register and Information System (ACHRIS) <a href="https://achris.vic.gov.au/#/dashboard">https://achris.vic.gov.au/#/dashboard</a></li> <li>• <a href="#">Traditional Owner engagement</a></li> <li>• <a href="#">Cultural Heritage Management Plans for Macarthur Windfarm and Tarrone Substation</a></li> </ul>

#### 6.4.4. Cutting Or Removal of Habitat for Threatened Fauna

Cutting or removal of habitat for threatened fauna can occur to make an unsafe situation safe. An unsafe situation may include:

- hazard tree
- regrowth into minimum clearance space before next scheduled visit
- vegetation in HBRA found in clearance after declaration

Should fauna protected under the FFG Act be identified as using habitat that is assessed as a risk to the powerline, steps will be taken to ensure minimal impact. These include:

- AGL will engage with the appropriate authorities and line clearance personnel.
- Specialist advice will be sought to confirm the breeding season and options to translocate the species.
- Where practicable, works will be undertaken outside of the breeding season.
- Translocation of the fauna will be undertaken wherever possible by a suitably qualified expert if not practicable to cut or remove outside breeding season.
- All details of the translocation will be kept as records.

## 6.5. Priority Coding

Priority coding is used to identify and prioritise activities resulting from the inspection of all vegetation in the vicinity of electric lines that are the responsibility of AGL Macarthur.

Priority codes are used for both the external audit inspections and for scheduling remediation activities in the AGL Macarthur works management systems, as follows:

Priority/Code	Description	Escalation Trigger
P1 (Immediate)	Requires immediate remedial action	Vegetation in contact or likely to contact
P2 (Break Schedule)	Requires high priority remedial action within the current working week	Vegetation inside minimum clearance space
P3 (Next Sched Week)	Requires high priority remedial action within the next working week	Vegetation likely to grow into the minimum clearance space within the next month
P4 (Start 2-4 weeks)	Requires remedial action within 2-4 weeks during fire & non fire season	Vegetation likely to grow into the minimum clearance space within the next 1-3 months
P5 (Start 4+ weeks)	Requires further assessment or remedial action within a period greater than 4 weeks in normal maintenance timeframes	Vegetation likely to grow into the minimum clearance space prior to the next inspection activity

## 7. Monitoring and Auditing

Reg 9	Requirement
(4)(l)	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
4 (m)	the details of each approval for an alternative compliance mechanism that; <ul style="list-style-type: none"> <li>(i) the responsible person holds; and</li> <li>(ii) is in effect;</li> </ul>
4 (n)	a description of measures that must be used to assess the performance of the responsible person under the management plan;
4 (o)	details of the audit processes that must be used to determine the responsible person's compliance with the Code;

### 7.1. Monitoring

Performance procedures relating to maintaining the minimum clearance space of powerlines at AGL Macarthur Wind Farm are measured by the following:

- Number of trees in breach of the Regulation at date of audit
- Number of pruning cuts found below standard
- Number of external requests for pruning or external complaints
- Progress against cutting schedule; and
- Number of alternative approaches to normal pruning adopted:
  - Removal/replacement
  - Powerlines relocated underground
  - Other engineering solutions adopted

### 7.2. Planned Preventative Schedule

The table below details all AGL Macarthur planned preventative maintenance activities and timing which are managed, scheduled, and tracked in SAP.

<b>Activity</b>	<b>Frequency</b>	<b>Timing</b>
Routine Electric Line Clearance Inspections	Monthly	Oct-Apr
Routine Electric Line Clearance Inspections	Annually	September
Bushfire Mitigation Plan Review	Annually	March
Line Clearance Plan Review	Annually	March

The below table details all AGL Macarthur planned preventative network asset and electric line clearance maintenance commitments for the period of this approved plan and which are managed, scheduled, and tracked in SAP. Notes:

- MP refers to "Maintenance Plan"
- MI refers to "Maintenance Item"
- Where required the MI DESCRIPTION / ACTIVITY column may have been expanded with dot points to give clearer understanding of individual activities listed under the MI.

<b>SAP MP</b>	<b>SAP MI</b>	<b>MI DESCRIPTION / ACTIVITY</b>	<b>Frequency</b>
2027074	8067700	1M OH PWR LINE OCT INSP (33KV and 132KV lines)	Annually
2027075	8067701	1M OH PWR LINE NOV INSP (33KV and 132KV lines)	Annually
2027076	8067702	1M OH PWR LINE DEC INSP (33KV and 132KV lines)	Annually
2027077	8067703	1M OH PWR LINE JAN INSP (33KV and 132KV lines)	Annually
2027078	8067704	1M OH PWR LINE FEB INSP (33KV and 132KV lines)	Annually
2027079	8067705	1M OH PWR LINE MAR INSP (33KV and 132KV lines)	Annually
2027110	8067706	1M OH PWR LINE APR INSP (33KV and 132KV lines)	Annually
2025070	8060751	1Y 33KV LINE CLEARANCE INSP	Annually
2025070	8060752	1Y 132KV LINE CLEARANCE INSP	Annually

### 7.3. Compliance

To gauge the Responsible Person's compliance with the Regulations, AGL Macarthur conduct an annual desktop audit on all aspects of bushfire preparedness including line clearance and bushfire mitigation plans prior to the declaration of the fire danger period each year.

Audit results are forwarded to the Head of Wind for action. The audit team consists of the following officers or appointed delegate:

- Operations Manager – Wind
- High Voltage Operating Authority
- Site Supervisor (Macarthur Wind Farm)
- Electrical Balance of Plant Specialist (VIC)
- Health and Safety Advisor
- Environment Advisor
- Senior Electrical Engineer

The following criteria are audited:

- Line audit reports and Compliance with the Regulations (specifically Code Clauses 8(a), 8(b) 28 & 30)
- Line maintenance records
- Pruning reports
- Bushfire mitigation index reports
- Line outage procedures
- Hardware replacement; and
- Bushfire preparedness

Refer to Section 12.3 for the process to apply for an alternative compliance mechanism. Currently AGL Macarthur does not have an alternative compliance mechanism.

## 7.4. Auditing

Ongoing auditing of systems and field compliance is undertaken by internal AGL Macarthur staff and external contractors to ensure Plan objectives are being met. The sample size and frequency of each activity has been determined by the Bushfire Mitigation and Line Clearance Plan Committee. The table below details all AGL Macarthur audit activities including the frequency and timing of each:

<b>Activity</b>	<b>Frequency</b>	<b>Timing</b>	<b>Scope</b>
Desktop Audit	Annually	March	ELCP
Field Inspection	Annually	September	Full length of overhead lines
Field Audit			
- HSE Critical Control Checks	When applicable	During ELC works	1 Critical Control per audit
- Post-work Field Audit	Annually	After ELC works	100% of work undertaken

### 7.4.1. Desktop Audits

To assess the implementation of this management plan AGL Macarthur management will undertake a desktop audit as a part of the annual internal review of bushfire preparedness. This audit requirement is managed, scheduled, and tracked in SAP via a maintenance plan.

The desktop audit will focus on all administrative aspects of the plan ensuring all information is up to date and all procedures are being followed.

In addition, the following aspects are reviewed:

- The timely repair of asset damage or minimum clearance space issues raised by contractor or employees via maintenance management system reports
- The timely rectification of noncompliance issues raised by outside agencies
- Accurate reporting and record keeping
- The number of line inspections and reports raised; and
- Timely submission of reports to Energy Safe Victoria.

The results of all audits are documented in audit reports in accordance with documented procedures. The results of each audit including the documented Corrective Action Requests and are brought to the attention of the Leadership Team.

Copies of all internal audit reports are retained for a minimum of 5 years, these details are archived and entered in the AGL Macarthur works management system.

The Electrical Balance of Plant Specialist (Victoria) reviews each audit report and co-ordinates follow-up action to verify the implementation of the corrective action, and a works management work order is raised and tracked.

### 7.4.2. Field Inspections

An annual field inspection prior to the declared summer bushfire season will identify trees or vegetation that:

- Are likely to contact 33kV powerlines if they fall (Hazard trees)

- Are encroaching into the minimum clearance space (MCS) of 132kV and 33kV power lines.
- Are a fuel load risk around the 132kV powerline
- Are able to fall into the minimum clearance space (MCS) if they fall (Line of fall trees) at 132kV power line
- Will need re-inspecting within the current year
- May require additional clearances due to changes in bushfire risk classification; and
- May pose other hazards

### 7.4.3. Field Audits

To assess the quality and completeness of work including health, safety, and environmental performance, AGL Macarthur staff and contractors will undertake field audits as a part of our bushfire preparedness of this plan.

Post-work field audits focusing on quality and completeness of work are undertaken by suitably qualified Arborists to determine compliance to AS4373 and the Code.

Field critical control performance and effectiveness verification checks focusing on health, safety, and environmental performance are undertaken by Authorised AGL staff in accordance with HSE Management processes including 'Safety and Environment Walks' and 'Authority to Mobilise' and AGL Safe Systems of Work (SSoW) Critical Control Checks, including but not limited to:

- HSE Critical Control Check (Contractor Management Critical Control Check)
- HSE Critical Control Check (Contact with Electricity Critical Control Check)
- HSE Critical Control Check (Fall from Heights Critical Control Check)
- HSE Critical Control Check (Isolation Critical Control Check)
- HSE Critical Control Check (Vehicles and Pedestrian Interaction Critical Control Check)
- HSE Critical Control Check (Hot Work and Fire Critical Control Check)

Audits and critical control performance and effectiveness verification checks, and contractor authority to mobilise process are conducted by personnel, independent from those undertaking the work activity. Contractor Management Critical Control Checks include verification of personnel qualifications and competency of field crews. Copies of all internal reports are retained for a minimum of 5 years and works management details are archived and entered in either the AGL Wind works management system or the AGL HSE Management System.

## 8. Qualifications and Experience

Reg 9	Requirement
4 (p)	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;

This section outlines the process to be employed to ensure that cutting or removal of trees is undertaken in a responsible manner and applies to all persons associated with the vegetation management plan.

AGL Macarthur employs trained and qualified external contractors that meet the requirements of a “qualified person” under Electricity Safety (General) Regulations 2019 r.616. They must have a minimum of Certificate II in ESI Powerline Vegetation Control, Cert III Horticulture (Arboriculture) and hold appropriate certificates for both themselves and their equipment that legally entitles them to undertake the work.

Workers shall only undertake work for which they have been trained, assessed, and deemed competent to enable them to safely perform work. All relevant contractors must have sufficient knowledge, training, qualifications, and experience to ensure that tree activities under their control are conducted in a safe and environmentally responsible manner.

AGL Macarthur records all contractor training and qualifications in the ‘RAPID Global’ and ‘cm3’ contractor management application systems including ensuring routine refresher training in relevant modules are current and work can be undertaken in a safe competent manner. Identification of qualifications is undertaken as part of the contractor pre-qualified accreditation (cm3) and Authority to Mobilise (ATM) processes. Vegetation workers will be provided with a copy of the AGL Macarthur Electric Line Clearance Plan prior to work commencing.

Any staff or contractors present on site without the necessary training or qualifications will be prevented from accessing Site or if already on Site, they will be promptly removed.

### 8.1. Training and Competency

The following AGL Macarthur vegetation roles are required to hold the qualification of Certificate II in ESI Powerline Vegetation Control (UET20312):

Vegetation roles	Description
Suitably Qualified Arborist / Assessor	Engaged in assessing and scoping vegetation near live electrical apparatus. Determine cutting requirements to confirm compliance for vegetation near live electrical apparatus, and identification and assessment of hazardous trees.
Cutter working from EWP/Safety Observer	Engaged in vegetation control work for the Network Operator from an Elevated Work Platform (EWP).
Specialist Plant Operator	Engaged in vegetation control work for the Network Operator from the ground using specialised plant ie. mechanical boom saw.
Tree Climber/ Safety Observer	Engaged in vegetation control work for the Network Operator from a tree.

Section 8.2 below outlines the units of competency required to be undertaken for the applicable Vegetation role. All mandatory competencies shall be completed to undertake the role at AGL Macarthur. Recognised training shall be delivered by a Registered Training Organisation (RTO) following the Australian Qualifications

Framework, meeting national training standards.

When a vegetation worker undertakes a role that requires a qualification, they shall meet the agreed elective requirements. New workers shall have a documented training plan within 3 months of commencing any work at AGL Macarthur which includes reference to the nominated electives in the table below.

Where a person performs multiple roles (ie. Tree Climber, Cutter working from EWP) they shall undertake the mandatory units of competency and refresher training applicable to the roles as stipulated in this plan.

All ELC workers must complete AGL Macarthur site inductions via the rapid induct platform and will be provided with the AGL Macarthur Electric Line Clearance Plan prior to commencing work.

## 8.2. Units of Competency Requirements

The following table outlines the Units of Competency required to be undertaken for the applicable Vegetation role at AGL Macarthur. All Mandatory (M) units of competency shall be completed to undertake the role.

Qualification and Core Competency Standard	Competency Standard Unit	EWP Operator (Cutting) / Safety Observer	Tree Climber (Cutting) / Safety Observer	Ground Crew	Qualified Arborist/ Assessor
<b>Induction into Macarthur Wind Farm Electric Line Clearance Plan</b>	N/A	M	M	M	M
<b>Qualification</b>					
Certificate II in ESI - Powerline Vegetation Control	UET20321	M	M	M	M
Apply access authority procedures to work on or near electrical apparatus	UETDRMP001	M	M	M	M
ESI safety rules for work on, near or in the vicinity of electrical apparatus	UETDRMP002	M	M	M	M
Certificate III in Arboriculture	AHC30816				M
Certificate IV in Arboriculture	AHC41916				P
<b>Core Competency Standard Units</b>					
Apply Occupational Health Safety regulations, codes and practices in the workplace	UEECD0007	M	M	M	
Comply with sustainability, environmental and incidental response policies and procedures	UETTDREL13 and UETDREL002	M	M	M	
Working safely near live electrical apparatus as a nonelectrical worker	UETDREL006	M	M	M	
Operate and maintain chainsaws	AHCMOM213	M	M	M	
Plan the removal of vegetation up to vegetation exclusion zone near live electrical apparatus	UETTDRVC23	M	M		
Monitor safety compliance of vegetation control work in an ESI environment	UETDRVC009	M	M		
Perform a ground-based tree defect evaluation	AHCARB408				M

Qualification and Core Competency Standard	Competency Standard Unit	EWP Operator (Cutting) / Safety Observer	Tree Climber (Cutting) / Safety Observer	Ground Crew	Qualified Arborist/ Assessor
At least 3 years field experience in assessing trees	N/A				M
<b>Elective Competency Standard Units</b>					
Assess vegetation and recommend control measures in an ESI environment	UETDRVC002	M	M	M	M
Use climbing techniques to cut vegetation above ground near live electrical apparatus	UETDRVC006		M	M	
Use elevated platform to cut vegetation above ground level near live electrical apparatus	UETDRVC004	M			
Operate specialist equipment at ground level near live electrical apparatus	UETTDRVC31			M	
Use specialised plant to cut vegetation above ground level near live electrical apparatus	UETDRVC011	M	M	M	
Apply pruning techniques to vegetation control near live electrical apparatus	UETDRVC007	M	M	M	
Undertake release and rescue from a tree near live electrical apparatus	UETDRVC010		M		
Fell small trees	AHCARB205	M	M	A	
Apply chemicals under supervision	AHCCHM201	M	M	A	
Operate machinery and equipment	AHCMOM304	A	A	A	
High Risk Work License to operate boom-type elevating work platform		M			

M – Mandatory

A – Additional (If worker requires for the works being performed)

P - Preferred

### 8.3. Competency and Refresher Requirements

Frequency	Qualification and Core Competency Standard	Competency Standard Unit	EWP Operator (Cutting) / Safety Observer	Tree Climber (Cutting) / Safety Observer	Ground Crew	Qualified Arborist/ Assessor
3 Yearly	Apply access authority procedures to work on or near electrical apparatus.	UETTDRMP001	M	M	M	M
3 Yearly	Apply ESI safety rules for work on or near electrical apparatus.	UETTDRMP002	M	M	M	M
1 Year	Cardiopulmonary Resuscitation (CPR)	HLTAID009	M	M	M	M

Frequency	Qualification and Core Competency Standard	Competency Standard Unit	EWP Operator (Cutting) / Safety Observer	Tree Climber (Cutting) / Safety Observer	Ground Crew	Qualified Arborist/ Assessor
1 Year	First Aid in an ESI environment	UETDRRF007	M	M	M	M
1 Year	EWP Controlled Descent Escape	UETTDRRF08	M			
1 Year	EWP Rescue	UETDRRF002	M			
1 Year	Undertake release and rescue from a tree near live electrical apparatus	UETDRVC010		M	M	
1 Year	Working safely near live electrical apparatus as a nonelectrical worker	UETDREL006	M	M	M	
3 Year	Control traffic with stop-slow bat	RIIWHS205D	M	M	M	
5 Year	High Risk Work License to operate boom-type elevating work platform		M			

M – Mandatory

A – Additional (If worker requires for the works being performed)

## 9. Notification

Reg 9	Requirement
4 (q)	notification and consultation procedures, including the form of the notice to be given in accordance with Division 3 of Part 2 of the Code;

Schedule 1, Part 2, Division 3	Requirement
(16) and (17)	Responsible person must provide notification before cutting or removing certain trees, and Responsible person must publish notification before cutting or removing certain trees.
(18)	Responsible person must consult with occupier or owner of private property before cutting or removing certain trees.
(19)	Notification and record keeping requirements for urgent cutting or removal.

AGL Macarthur provides a copy of the Electric Line Clearance Management Plan to Energy Safe Victoria for approval as required by the Act.

A copy of the AGL Macarthur Electric Line Clearance Management Plan 2026-2027 is made available for public inspection on the AGL internet site and at AGL Macarthur's Site Administration office, during normal business hours.

The following documentation is also available on request:

- Bushfire Mitigation Plan
- Line easement maps
- Asset register reports; and
- Significant vegetation maps

AGL Macarthur electric lines cross private land, and the vegetation management practices affect three separate landowners. There are two private landowners and the Victorian Department of Energy, Environment and Climate Action (DEECA). AGL Macarthur will make notification to DEECA prior to planned works.

### 9.1. Consultation with Occupiers or Owners of Private Property

Prior to inspection of vegetation minimum clearance space within the boundary of a private property, the Electrical Balance of Plant Specialist (Victoria) will consult with the occupier and/or owner of the property by means of a Letter of Intent (refer to Appendix 0).

The Electrical Balance of Plant Specialist (Victoria) will, as required by the Regulations, prior to vegetation clearance (minimum clearance space) within the boundary of a private property, consult with the occupier and/or the owner of the property, prior to the cutting or removal of vegetation. This will occur at least 14 days and not more than 60 days before the intended cutting or removal is to occur and will be by means of a Notice of Pruning or Clearing (refer to Appendix 14.7), delivered by letter drop. The work will be scheduled in the computerised maintenance management system (SAP) to occur within the specified period. If pruning does not commence within these timeframes, then affected persons will be re-notified.

Records of vegetation clearance within the boundary of private property will be recorded (refer Appendix 14.10) and retained in SAP.

## **9.2. Notification and Record Keeping (Urgent Cutting or Removal)**

AGL Macarthur will as soon as practicable after completing the cutting or removal as required by the notification, consultation, and dispute resolution Regulations (Division 3, Clause 19), provide notice of that cutting or removal has occurred is to be provided to:

- All affected persons; and
- The occupier of the land on which the tree was cut or removed; and
- If a tree was removed—the owner of the land on which the tree was removed.

Notification will be by means of a Notice of Urgent Tree Cutting or Removal (refer to Appendix 14.8), delivered by letter drop.

If during urgent cutting a tree was cut or removed on land that is managed by a Council, then the Council will be notified as soon as practical.

After any urgent cutting or removal, records of the following details are to be kept for a minimum of 5 years:

- Where and when the cutting or removal was undertaken
- Why the cutting or removal was required; and
- The last inspection of the section of the electric line where the cutting or removal was required.

These details are to be recorded (refer Appendix 14.1010) and archived in the computerised maintenance management system (SAP).

## **9.3. Notification of Tree Cutting or Removal on Public Land**

If the AGL Macarthur is required to cut or remove a tree that is on public land that is not privately owned:

- Notification of tree cutting or removal on public land will be provided to the Council.
- A written notice must be published on the AGL internet site or in a newspaper circulating generally in the locality of the land in which the tree is to be cut or removed.
- A written notice published must:
  - describe the cutting or removal that the responsible person intends to undertake, and
  - specify one or more days on which, or a period during which, the responsible person intends that the cutting or removal will commence.
- The responsible person must not specify a day that is, or a period the first day of which is:
  - earlier than 14 days from the date of the notice, and
  - later than 60 days from the date of the notice.

## 10. Dispute Resolution

Reg 9	Requirement
4 (r)	a procedure for the independent resolution of disputes relating to electric line clearance;

AGL has a dispute resolution policy in place. This was developed to settle conflicts and disputes arising from any aspect of AGL Macarthur services or products. The system documents how to deal with disputes that require resolution by an external process.

The dispute resolution policy is also available to be viewed on the AGL Macarthur public website:

[AGL Dispute Resolution & Complaints Handling Policy](#)

## 11. Plan Available for Inspection

Reg 10	Requirement
10(6)	A responsible person must ensure that a copy of the management plan is published on the responsible person's Internet site.

The latest ESV Electric Line Clearance Management Plan is available on the AGL Macarthur internet site at: [Macarthur Wind Farm | About AGL](#)

The latest revision of the ESV Electric Line Clearance Management Plan will be published on the internet site, prior to 1<sup>st</sup> July of every year, by the AGL Macarthur responsible person. This action will be automatically assigned and tracked annually in the AGL HSE system. Any superseded versions of the plan located at the above websites will be overwritten by the AGL Macarthur person responsible for preparing the plan once an updated version of the document has been developed.

A hardcopy of the Electric Line Clearance Plan mentioned above is available for inspection at;

- AGL Macarthur Wind Farm Administration office, during normal business hours, located at 1850 MacArthur-Hawkesdale Rd, Macarthur VIC 3286

Any hardcopy superseded versions of the plan will be destroyed by the person responsible for preparing the plan.

## 12. Exemptions

Reg 9	Requirement
(4)(s)	if Energy Safe has granted an exemption under regulation 11 relating to a requirement of the Code, details of the exemption or a copy of exemption.

Reg 11	Requirement
(1)	Energy Safe Victoria may exempt a responsible person from any of the requirements of these Regulations subject to any conditions specified by Energy Safe Victoria.
(2)	A responsible person who is granted an exemption under this regulation must comply with the conditions (if any) of the exemption.

AGL Macarthur does not currently have an active exemption.

## 12.1. Overview

Pruning of amenity trees is a routine task undertaken by AGL Macarthur to promote the health and longevity of trees, meet clearance requirements within our operational footprint, comply with Electric Safety (Electric Line Clearance) Interim Regulations 2025, and manage public safety.

AGL Macarthur requires all staff and contractors pruning trees within our operational footprint to comply with AS4373-2007 Pruning of Amenity Trees as far as is reasonably practicable. Reasonably and practicably in relation to AS4373-2007 means that which is, or was at a particular time, reasonably able to be done in relation to ensuring continued tree health and future tree safety, considering and weighing up all relevant matters including:

- Will the action create a defect, hazard, loss of tree health or aesthetic value in the present or future,
- What will the impact be on the tree or future safety of the public,
- What the person concerned knows, or ought reasonably to know about:
  - The hazard or the risk – must have adequate knowledge to determine the hazards risks,
  - Ways of eliminating or minimising the risk – must have adequate knowledge in relation to alternative measures,
- Are other resources or techniques available to complete works to the standard, and does the cost required to complete works to the standard grossly outweigh the value of the tree.

Where pruning to AS4373-2007 is not practicable the site or trees are to be referred to the Inspection Arborist or a delegated officer who holds a Certificate Level V or above in Arboriculture to make an assessment on whether it is reasonably practicable to deviate from AS4373-2007.

## 12.2. Procedure

On occasion achieving electric line clearance requirements will not allow compliance with AS4373-2007 and may result in a defective, unsafe or unviable tree, in this case AGL Macarthur may elect to:

- Apply to ESV for approval for an alternative compliance mechanism.
- Increase the pruning frequency to minimise the required pruning.
- Remove scaffold/ parent limbs.
- Investigate the potential for engineering solutions to facilitate compliance.
- List the tree for an exception; or
- Remove trees where the tree is of low retention value, or the resulting pruning would leave the tree/s unsuitable for retention.

## 12.3. Application for approval of alternative compliance mechanism

AGL Macarthur may apply to Energy Safe Victoria for approval to use an alternative compliance mechanism in respect of a span of an electric line or a class of spans. An application would:

- Include details of the alternative compliance mechanism.
- Include the procedures to be adopted for the commissioning, installing, operating, maintaining, and decommissioning the alternative compliance mechanism.
- Include the published technical standards that would be complied with when commissioning, installing, operating, maintaining, and decommissioning the alternative compliance mechanism.
- Describe the location of the affected span or describe class of spans.

- Specify the minimum space that the applicant proposes is to be applied in relation to the span, or class of spans, in respect of which the application is made.
- Include a copy of a formal safety assessment relevant to the alternative compliance mechanism as prepared by the distribution company under clause 32.
- Include written agreement for the use of an alternative compliance mechanism from the owner or operator of the span and is not owned by the applicant.
- Include written agreement in respect of a class of spans that the span belongs to that class and is not owned by the applicant.

AGL Macarthur may undertake a formal safety assessment of alternative compliance mechanisms for approval by Energy Safe Victoria. Any formal safety assessment will include:

- A description of the methodology used and investigations undertaken for the formal safety assessment; and
- An identification of hazards associated with the use of the alternative compliance mechanism having the potential to cause a serious electrical incident; and
- A systematic assessment of the risks (including the likelihood and consequences of a serious electrical incident) associated with—
  - commissioning, installing, operating, maintaining and decommissioning the alternative compliance mechanism; and
  - the safety of the span or class of spans to which the alternative compliance mechanism will apply; and
- A description of technical and other measures undertaken or to be undertaken to reduce those risks as far as practicable.

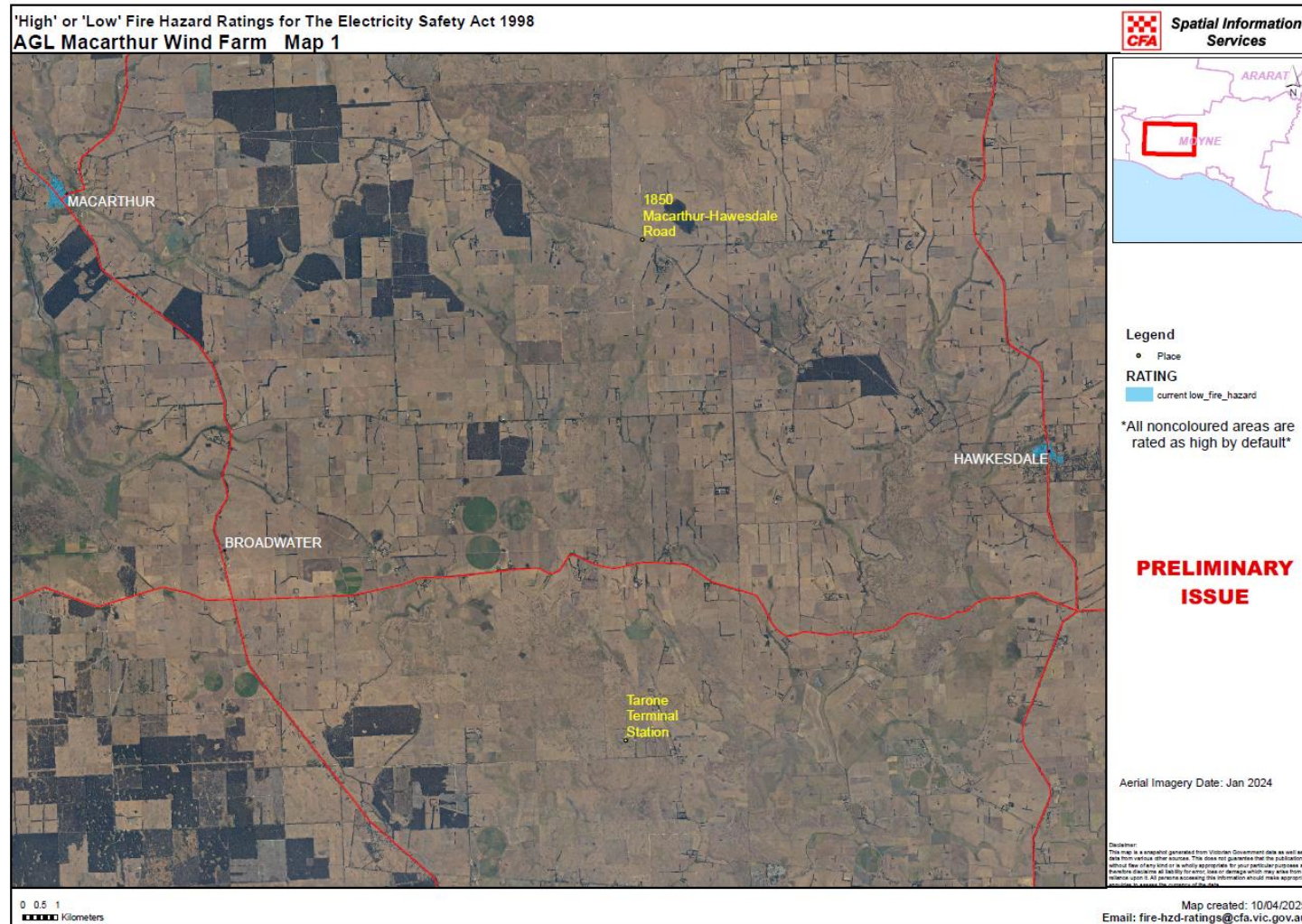
## 13. Referenced Documents / Procedures

Document Number	Document Title
<b>WIND-GN-PRO-001</b>	Wind Controlled Documents Preparation & Authorisation Procedure
<b>MWF-HS-PLN-006</b>	AGL Macarthur Bushfire Mitigation Plan
<b>AGL-HSE-STD-004.1</b>	AGL HSE Risk Management Standard
<b>AGL-HSE-SDM-004.1</b>	AGL HSE Risk Management Standard Methodology
<b>AGL-HSE-TMP-004.1.1</b>	AGL HSE Risk Management Procedure Template
<b>AGL-HSE-GUI-012.1</b>	AGL Obligations to Notify Regulatory Authorities - Guideline
<b>AGL-HSE-PRO-011.1.1</b>	AGL HSE Incident, Near Miss and Hazard Management Procedure
<b>AGL-HSE-PRO-012.3</b>	AGL HSE Corporate Reporting Procedure
<b>AGL-HSE-STD-011.1</b>	AGL HSE Incident, Near Miss and Hazard Management Standard
<b>WIND-HS-PRO-012</b>	Safe Systems of Work (SSoW) Procedures
<b>WIND-HS-MAN-002</b>	Electrical Safety Management Plan (ESMP) Manual
<b>WIND-HS-MAN-001</b>	Authorisations Manual

# 14. Appendices

## 14.1. Location Map – Assets in Hazardous Bushfire Risk Area

AGL Macarthur wind farm is located in a HBRA. Prior to each ELCP update AGL will contact the CFA to ensure all HBRA and LBRA maps are current and updated.

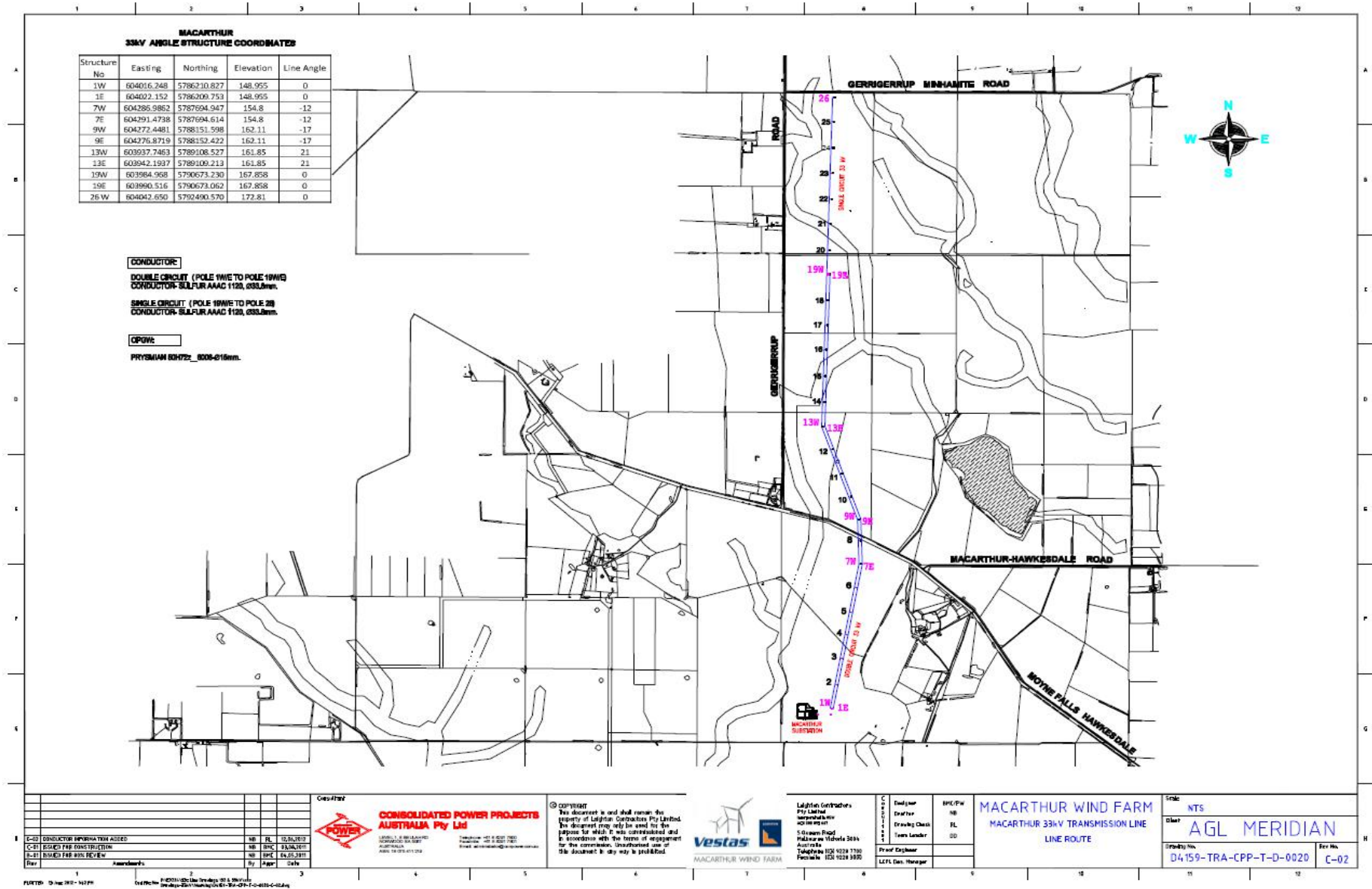


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Approved By: Pat Harding (A30011167)  
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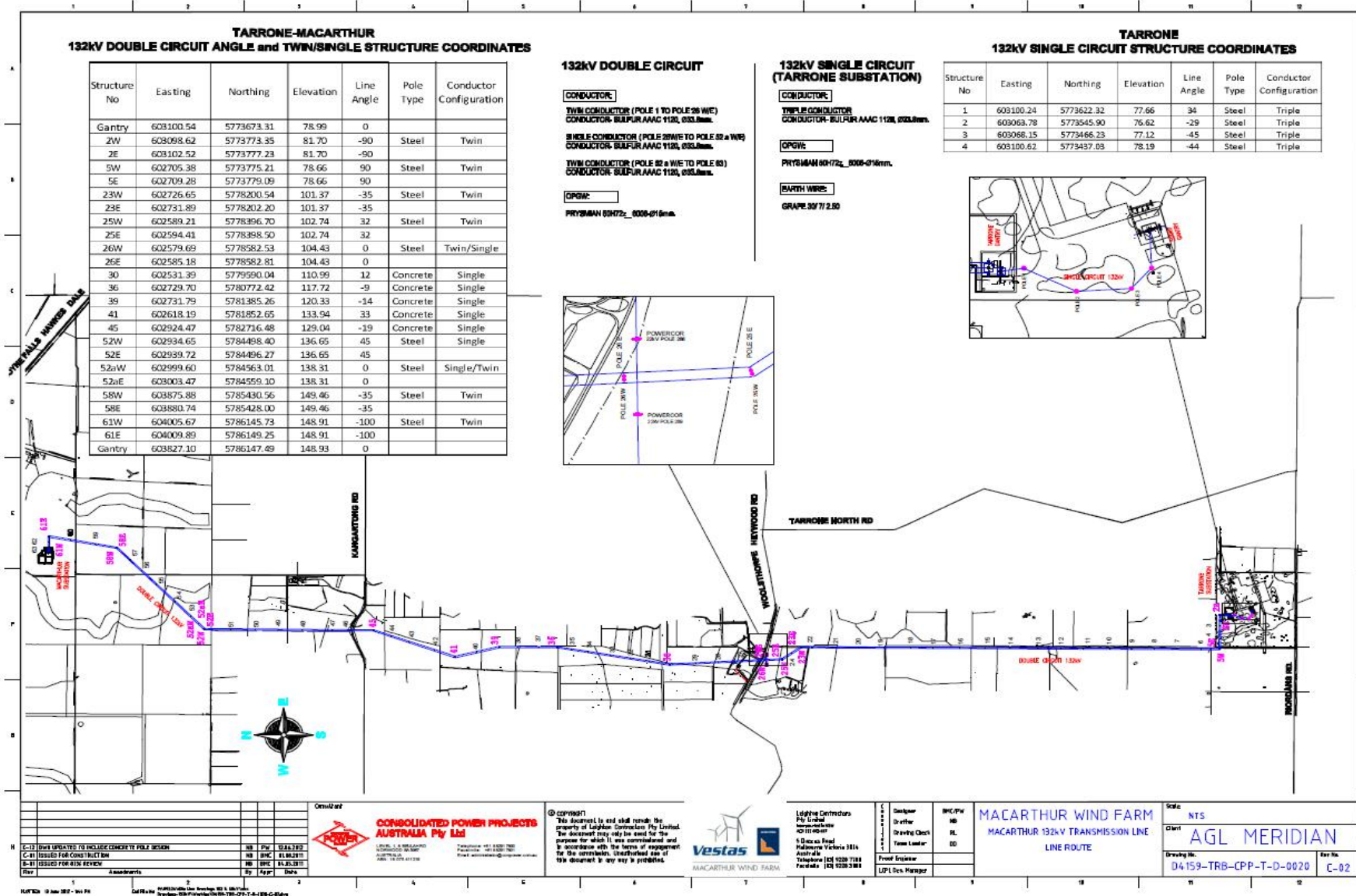
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Next Review Date: 27/03/2028  
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# 14.2. Location Map – 33 kV Line – Line route



# 14.3. Location Map – 132 kV Transmission Line – Line route



## 14.4. 132 kV Transmission Line and 33kV Over head Collector Groups (OH-CGs) – Sag and Sway Table

Ref Page - 38/116	D4159-TRB-CPP-S-GA-0025
Max Span	225 m
Ground Clearance (min)	6.7 m
Max allowable SAG	6.5 +0.3 m
Max Sway	4.6 m

217 AS/NZS 7000:2016

**Q3 CONDUCTOR BLOWOUT**

The swing angle ( $\phi_c$  from vertical) of a phase conductor in a span can be estimated using the following formula.

$$\phi_c = \tan^{-1} \left( \frac{Pd_w}{w} \right) \quad \dots Q2$$

where

- $P$  = reference wind pressure in Pascals (Pa)
- $d$  = conductor diameter in metres (m)
- $w$  = distributed conductor weight in Newtons per metre (N/m)

This formula also applies for bundled phases if the wind area of spacers is ignored and shielding of the leeward sub-conductors is ignored.

<b>Sulfur</b>	
$\phi_c$	0.74720 radians
	42.81 degrees

Applicable Horizontal distance without Sag and Sway as per Electrical Line Clearance regulation 2020 AHD	4.6	Flashover Clearance	0	Minimum Clearance Space (MCS) - Vertical (after Sag)	3.7
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132kV Transmission Line - (Tarrone Gantry to Mc Arthur Substation Gantry)

No. of Spans	Poles	Span Length (m)	Sag (Calculated from profile drawing)	Sway	Minimum Clearance Space (MCS) - Horizontal = (AHD + Sway)	No. of Spans	Poles	Span Length(m)	Sag (Calculated from profile drawing)	Sway	Minimum Clearance Space (MCS) - Horizontal = (AHD + Sway)
1	1 2E-2W	41.98	8.02	5.45	10.05	17	17 18	236.72	6.75	4.59	9.19
2	2E-2W 3	126.06	11.25	7.65	12.25	18	18 19	280.87	9.93	6.75	11.35
3	3 4	147.81	9.47	6.44	11.04	19	19 20	272.86	9.28	6.31	10.91
4	4 5E-5W	119.37	7.2	4.89	9.49	20	20 21	273.87	9.0	6.12	10.72
5	5E-5W 6	200	5.9	4.01	8.61	21	21 22	211.93	5.62	3.82	8.42
6	6 7	255	7.3	4.96	9.56	22	22 23E-23W	120.05	2.02	1.37	5.97
7	7 8	235.85	7.2	4.89	9.49	23	23E-23W 24	119.77	3.47	2.36	6.96
8	8 9	241.47	7.7	5.23	9.83	24	24 25E-25W	119.82	3.0	2.04	6.64
9	9 10	224.21	6.05	4.11	8.71	25	25E-25W 26E-25W	185.31	5.72	3.89	8.49
10	10 11	285.35	10.17	6.91	11.51	26	26E-26W 27	233.08	5.81	3.95	8.55
11	11 12	235.72	7.36	5.00	9.60	27	27 28	258.72	6.98	4.74	9.34
12	12 13	241.67	6.98	4.74	9.34	28	28 29	240.3	6.75	4.59	9.19
13	13 14	295.52	10.87	7.39	11.99	29	29 30	276.56	8.39	5.70	10.30
14	14 15	265.2	9.09	6.18	10.78	30	30 31	216.56	5.76	3.91	8.51
15	15 16	270.89	9.47	6.44	11.04	31	31 32	204.03	5.2	3.53	8.13
16	16 17	277.1	10.4	7.07	11.67	32	32 33	209.32	5.53	3.76	8.36

Conductor Min Sag	2.02	m
Conductor Max Sag	11.25	m

Conductor's Min Sway	1.37	m
Conductor's Max Sway	7.65	m

Spans with Vegetation underneath

Applicable Horizontal distance without Sag and Sway as per Electrical Line Clearance regulation 2020 AHD	4.6	Flashover Clearance	0	Minimum Clearance Space (MCS) - Vertical (after Sag)	3.7
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**132kV Transmission Line - (Tarrone Gantry to Mc Arthur Substation Gantry)**

No. of Spans	Poles	Span Length (m)	Sag (Calculated from profile drawing)	Sway	Minimum Clearance Space (MCS) - Horizontal = (AHD + Sway)	No. of Spans	Poles	Span Length(m)	Sag (Calculated from profile drawing)	Sway	Minimum Clearance Space (MCS) - Horizontal = (AHD+Sway)
33	33 34	239.26	7.54	5.12	9.72	49	49 50	238.74	6.15	4.18	8.78
34	34 35	176.97	4.41	3.00	7.60	50	50 51	258.99	6.94	4.72	9.32
35	35 36	152.74	3.33	2.26	6.86	51	51 52E-52W	276.25	8.61	5.85	10.45
36	36 37	198.62	4.5	3.06	7.66	52	52E-52W 52aE-52aW	90.56	2.5	1.72	6.32
37	37 38	224.58	6.19	4.21	8.81	53	52aE-52aW 53	122.37	2.5	1.70	6.30
38	38 39	189.64	4.22	2.87	7.47	54	53 54	236.41	7.57	5.14	9.74
39	39 40	245.57	6.84	4.65	9.25	55	54 55	275.76	10.42	7.08	11.68
40	40 41	235.43	5.9	4.01	8.61	56	55 56	220.45	6.56	4.46	9.06
41	41 42	231.04	6.89	4.68	9.28	57	56 57	180.17	4.58	3.11	7.71
42	42 43	286.05	9.19	6.25	10.85	58	57 58	198.77	4.53	3.08	7.68
43	43 44	204.4	4.55	3.09	7.69	59	58E-58W 59	226.31	6.27	4.26	8.86
44	44 45	195.03	4.45	3.02	7.62	60	59 60	267.46	8.87	6.03	10.63
45	45 46	245.45	6.42	4.36	8.96	61	60 61-TPs	236.02	7.28	4.95	9.55
46	46 47	187.38	4.12	2.80	7.40	62	61-TPs 62	62.68	2.65	1.80	6.40
47	47 48	316.83	11.25	7.65	12.25	63	62 63	58	2.75	1.87	6.47
48	48 49	257.29	7.64	5.19	9.79	64	63 64	60	2.27	1.54	6.14

Conductor Min Sag	2.02	m	Conductor's Min Sway	1.37	m
Conductor Max Sag	11.25	m	Conductor's Max Sway	7.65	m

Spans with Vegetation underneath

**33kV Line - Over head Collector Group(OH-CG) 1 & 6 - McWF**

No. of Spans	Poles	Span Length (m)	Sag (Calculated from profile drawing)	Sway	No. of Spans	Poles	Span Length(m)	Sag (Calculated from profile drawing)	Sway																																																																																																																																																
1	1	250	7.67	5.21	13	13E & 13W	247.13	7.67	5.21																																																																																																																																																
	1E-1W					14				2	2	270.1	9.3	6.32	14	14	269.61	8.94	6.08	3	15	3	3	252.14	7.88	5.36	15	15	271.73	9.2	6.25	4	16	4	4	232.35	6.47	4.40	16	16	254.55	7.88	5.36	5	17	5	5	259.02	8.57	5.82	17	17	250.35	7.41	5.04	6	18	6	6	245.25	7.41	5.04	18	18	271.63	8.83	6.00	7E & 7W	19E & 19W	7	7E & 7W	241.08	7.46	5.07	19	19E & 19W	244.33	7.31	4.97	8	20	8	8	216.38	6.15	4.18	20	20	276.72	9.5	6.43	9E & 9W	21	9	9E & 9W	245.43	7.83	5.32	21	21	250.42	7.88	5.36	10	22	10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11		
2	2	270.1	9.3	6.32	14	14	269.61	8.94	6.08																																																																																																																																																
	3					15				3	3	252.14	7.88	5.36	15	15	271.73	9.2	6.25	4	16	4	4	232.35	6.47	4.40	16	16	254.55	7.88	5.36	5	17	5	5	259.02	8.57	5.82	17	17	250.35	7.41	5.04	6	18	6	6	245.25	7.41	5.04	18	18	271.63	8.83	6.00	7E & 7W	19E & 19W	7	7E & 7W	241.08	7.46	5.07	19	19E & 19W	244.33	7.31	4.97	8	20	8	8	216.38	6.15	4.18	20	20	276.72	9.5	6.43	9E & 9W	21	9	9E & 9W	245.43	7.83	5.32	21	21	250.42	7.88	5.36	10	22	10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11							26							
3	3	252.14	7.88	5.36	15	15	271.73	9.2	6.25																																																																																																																																																
	4					16				4	4	232.35	6.47	4.40	16	16	254.55	7.88	5.36	5	17	5	5	259.02	8.57	5.82	17	17	250.35	7.41	5.04	6	18	6	6	245.25	7.41	5.04	18	18	271.63	8.83	6.00	7E & 7W	19E & 19W	7	7E & 7W	241.08	7.46	5.07	19	19E & 19W	244.33	7.31	4.97	8	20	8	8	216.38	6.15	4.18	20	20	276.72	9.5	6.43	9E & 9W	21	9	9E & 9W	245.43	7.83	5.32	21	21	250.42	7.88	5.36	10	22	10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11							26																			
4	4	232.35	6.47	4.40	16	16	254.55	7.88	5.36																																																																																																																																																
	5					17				5	5	259.02	8.57	5.82	17	17	250.35	7.41	5.04	6	18	6	6	245.25	7.41	5.04	18	18	271.63	8.83	6.00	7E & 7W	19E & 19W	7	7E & 7W	241.08	7.46	5.07	19	19E & 19W	244.33	7.31	4.97	8	20	8	8	216.38	6.15	4.18	20	20	276.72	9.5	6.43	9E & 9W	21	9	9E & 9W	245.43	7.83	5.32	21	21	250.42	7.88	5.36	10	22	10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11							26																															
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	7E & 7W					19E & 19W				7	7E & 7W	241.08	7.46	5.07	19	19E & 19W	244.33	7.31	4.97	8	20	8	8	216.38	6.15	4.18	20	20	276.72	9.5	6.43	9E & 9W	21	9	9E & 9W	245.43	7.83	5.32	21	21	250.42	7.88	5.36	10	22	10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11							26																																																							
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	8					20				8	8	216.38	6.15	4.18	20	20	276.72	9.5	6.43	9E & 9W	21	9	9E & 9W	245.43	7.83	5.32	21	21	250.42	7.88	5.36	10	22	10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11							26																																																																			
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	9E & 9W					21				9	9E & 9W	245.43	7.83	5.32	21	21	250.42	7.88	5.36	10	22	10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11							26																																																																															
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	10					22				10	10	254.44	8.25	5.61	22	22	268.21	8.88	6.03	11	23	11	11	263.07	8.73	5.93	23	23	260.61	8.46	5.75	12	24	12	12	250.77	8.2	5.57	24	24	267.95	8.8	6.00	13E & 13W	25						25	25	250	7.52	5.11							26																																																																																											
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**Q3 CONDUCTOR BLOWOUT**

The swing angle ( $\phi_c$ , from vertical) of a phase conductor in a span can be estimated using the following formula.

$$\phi_c = \tan^{-1} \left( \frac{Pd_c}{w} \right) \dots Q2$$

where

- $P$  = reference wind pressure in Pascals (Pa)
- $d$  = conductor diameter in metres (m)
- $w$  = distributed conductor weight in Newtons per metre (N/m)

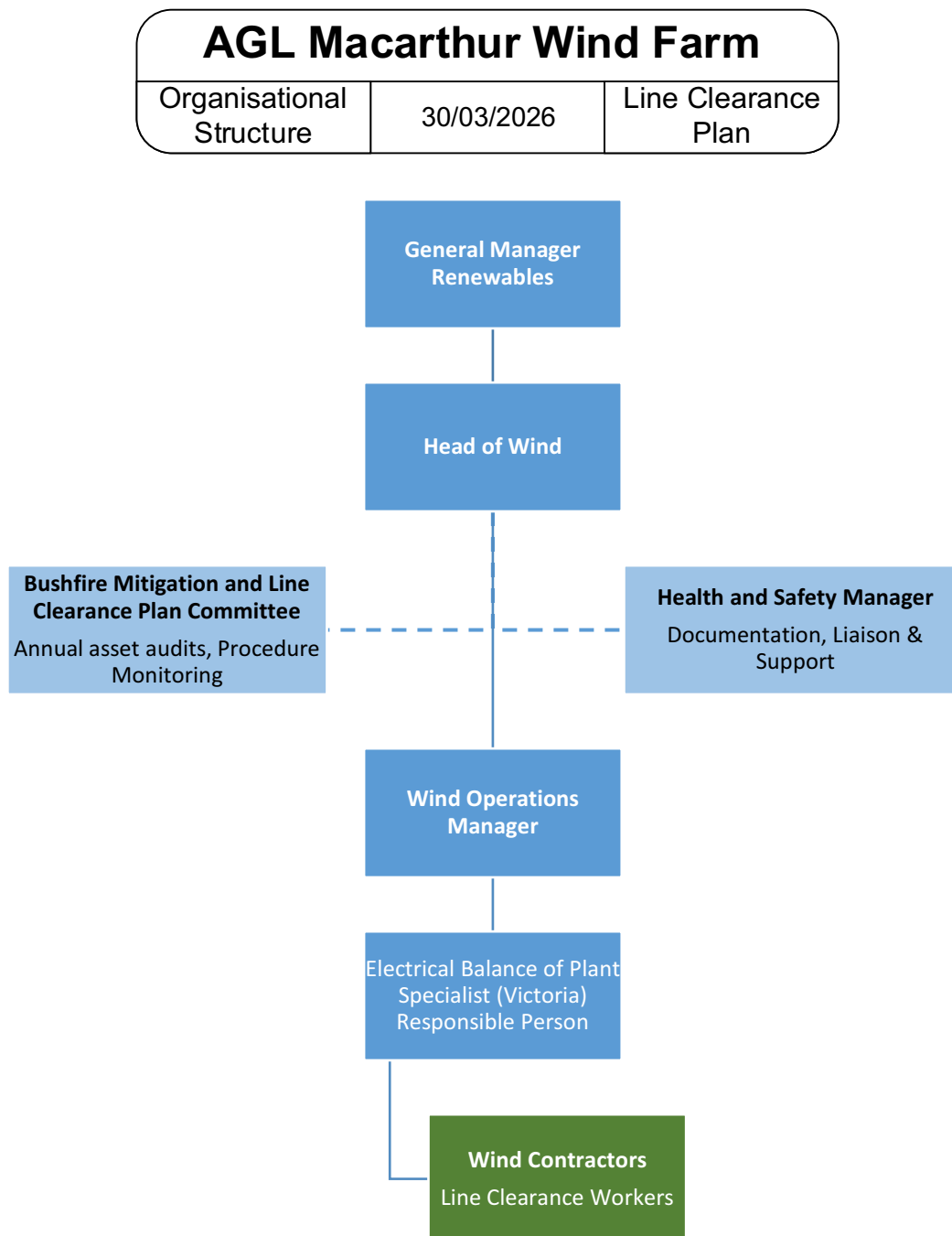
This formula also applies for bundled phases if the wind area of spacers is ignored and shielding of the leeward sub-conductors is ignored.

Sutur	
$\phi_c$	0.74720 radians 42.81 degrees

<b>Conductor Min Sag</b>	6.15	m
<b>Conductor Max Sag</b>	9.46	m

<b>Conductor's Min Sway</b>	4.18	m
<b>Conductor's Max Sway</b>	6.43	m

## 14.5. Line Clearance structure



The Bushfire Mitigation and Line Clearance Plan Committee consists of the following roles within AGL Wind:

- Electrical Balance of Plant Specialist
- Health and Safety Advisor
- Environmental Advisor
- Electrical Engineer
- Wind HV Operating Authority
- State O&M Manager

## 14.6. Dispute Resolution Policy



# Dispute Resolution Policy

Not satisfied? We want to hear from you so we can make things right.

Effective 29 September 2021

## How our Complaint Handling and Dispute Resolution Procedure works

If you have a complaint about any aspect of our products or services, please call us or write to us so that we can resolve your concerns. A complaint is an expression of dissatisfaction made to us whereby a resolution or response is expected (either explicitly or implicitly). Our aim is to resolve your complaint as quickly as we can. On some occasions we will be able to do this at the time you call. However, more complex problems may need to be looked into further before we can get back to you. If we need more information from you, we will contact you. You can always call us for an update on how we're going with the resolution of your complaint.

For more information about your rights in relation to estimated bills (including Self Service Meter Reads), privacy and hardship, visit [agl.com.au/yourrights](https://agl.com.au/yourrights)

## Our Complaint Resolution Procedure

We offer a simple approach to addressing complaints about our products and services. Our customer service representatives will work with you to resolve any issues quickly, fairly and collaboratively. Your privacy is important to us, and all complaints are treated confidentially.

Many complaints are resolved within a few days. More complex matters may take a little longer, but we will keep you updated.

We expect our employees to treat you with respect throughout the process. We kindly request the same in return to reach a fair and reasonable outcome for both parties.

### Step 1. Customer Solutions

If you experience a problem or wish to provide feedback, our Customer Solutions Team is your first point of reference. This team will investigate your concern and work with you to resolve it. This team can be contacted on **131 245** or online at [agl.com.au](https://agl.com.au). Feedback received about our products and services will be shared with relevant areas.

### Step 2. Complaints

If you remain dissatisfied with the resolution you have received, your matter can be reviewed by our Complaints Specialists Team. This team can be contacted on **1800 775 329** (8am to 6pm AET, Monday to Friday) or by email at [complaints@agl.com.au](mailto:complaints@agl.com.au). For more information about our complaint management process, please refer to the AGL Standard Complaints and Dispute Resolution Policy.

### Further help

Most matters can be resolved through our internal complaint process. We ask that you first provide us with the opportunity to explore all avenues in resolving your complaint. However, if you are not satisfied with the handling of your complaint, you may wish to seek further assistance from the Ombudsman. You can contact the Ombudsman at any time for free independent advice and information.

## Getting in touch with your Ombudsman

### **Australian Capital Territory**

ACT Civil and Administrative Tribunal

**Phone:** 02 6207 1740

**Web:** [acat.act.gov.au](http://acat.act.gov.au)

### **New South Wales**

Energy and Water Ombudsman NSW

**Phone:** 1800 246 545

**Web:** [ewon.com.au](http://ewon.com.au)

### **Queensland**

Energy and Water Ombudsman Queensland

**Phone:** 1800 662 837

**Web:** [ewoq.com.au](http://ewoq.com.au)

### **South Australia**

Energy and Water Ombudsman SA

**Phone:** 1800 665 565

**Web:** [ewosa.com.au](http://ewosa.com.au)

### **Victoria**

Energy and Water Ombudsman Victoria

**Phone:** 1800 500 509

**Web:** [ewov.com.au](http://ewov.com.au)

### **Western Australia**

Energy and Water Ombudsman Western Australia

**Phone:** 1800 754 004

**Web:** [ombudsman.wa.gov.au/energyandwater](http://ombudsman.wa.gov.au/energyandwater)

## 14.7. Notice of Pruning or Clearing



### NOTICE OF PRUNING OR CLEARING

Electricity Safety (Electric Line Clearance) Interim Regulations 2025

Dear Sir/Madam

AGL Energy is aware of the importance of a fire safe Victoria to the public, farmers, and industry.

To meet these needs and ensure a fire safe environment, AGL Energy conducts a Bushfire Mitigation Program. Part of this program is to complete an inspection of our powerlines on public and private lands to identify unsuitable vegetation.

Vegetation has been identified on or near your property/public land\* that is unsuitable to remain in the vicinity of electric lines

We give you notice that a tree/s\* on/near\* your property/public land\* require pruning/clearing\* to meet the necessary minimum clearance space for the electric line.

\*Strike-out as required

Pruning will result in cutting back parts of the tree/s from the minimum clearance space to allow for minimum clearance distance of..... metres plus an allowance for regrowth over the next ..... years.

If you do not contact us within FOURTEEN DAYS from the date of this notice, we will proceed with the necessary pruning works to ensure clearances are maintained during this regrowth period

These pruning works are programmed to be carried out by our contractors or by us on .../.../... or within 5 days before or after this date.

If the clearing or pruning of any tree is to be undertaken using a methodology which differs from established practices, then we will consult and negotiate with you before works start.

Except for extreme cases, it is the policy of AGL Energy to consult with customers where vegetation maintenance is to be conducted on private property.

Please contact our Responsible Representative..... on .....to make an appointment or to enquire about the vegetation and the intended cutting or removal.

Should you wish to raise a dispute, the Responsible Representative will follow the AGL Standard Complaints and Dispute Resolution Policy. The dispute resolution policy is available to be viewed on the AGL Macarthur public website. You can also call the Complaints and Enquiries hotline on 1800 039 600 or email [AGLCommunity@agl.com.au](mailto:AGLCommunity@agl.com.au).

When making an appointment, please quote the following details:

Feeder Name ..... Spur Name.....

Pole Number ..... Negotiation Number.....

14.8. Notice of Urgent Tree Cutting or Removal



NOTICE OF URGENT PRUNING OR CLEARING

Electricity Safety (Electric Line Clearance) Interim Regulations 2025

Dear Sir/Madam

AGL Energy is aware of the importance of a fire safe Victoria to the public, farmers, and industry.

To meet these needs and ensure a fire safe environment, AGL Energy conducts a Bushfire Mitigation Program. Part of this program is to complete an inspection of our powerlines on public and private lands to identify unsuitable vegetation.

Vegetation has been identified on or near your property/public land\* in a hazardous state. It poses a threat to electrical assets and is unsuitable to remain in the vicinity of electric lines.

AGL may have to undertake urgent preventative work on tree/s\* on/near\* your property/public land\* without prior notice to meet the necessary minimum clearance space for the electric line.

\*Strike-out as required

The last inspection of the span prior to the urgent works being identified was.....

Pruning will result in cutting back parts of the tree/s from the minimum clearance space to allow for minimum clearance distance of..... metres plus an allowance for regrowth over the next ..... years.

This urgent cutting or removal is required to .....

These pruning works are programmed to be carried out by our contractors or by us on .../.../.....

Except for extreme cases, it is the policy of AGL Energy to consult with customers where vegetation maintenance is to be conducted on private property.

Please contact our Responsible Representative..... on ..... to make an appointment or to enquire about the vegetation and the intended cutting or removal.

Should you wish to raise a dispute, the Responsible Representative will follow the AGL Standard Complaints and Dispute Resolution Policy. The dispute resolution policy is available to be viewed on the AGL Macarthur public website. You can also call the Complaints and Enquiries hotline on 1800 039 600 or email AGLCommunity@agl.com.au.

When making an appointment, please quote the following details:

Feeder Name ..... Spur Name.....

Pole Number ..... Negotiation Number.....

14.9. Electric Line Hardware – Letter of Intent



Electric Line Hardware – Letter of Intent

Dear Sir/Madam

AGL Energy is aware of the importance of a fire safe Victoria to the public, farmers, and industry.

To meet these needs and ensure a fire safe environment, AGL Hydro conducts a Bushfire Mitigation Program. Part of this program is to complete an inspection of our powerlines on public and private lands to inspect the electric line and associated hardware.

ELECTRIC LINES AND ASSOCIATED HARDWARE HAS BEEN IDENTIFIED ON OR NEAR YOUR PROPERTY/PUBLIC LAND\* AND IS REQUIRED TO BE INSPECTED AND MAINTAINED

\*Strike-out as required

This work is programmed to be conducted by our contractor, ..., on behalf of AGL Energy. The contractor is certified in accordance with the Electrical Safety Act to conduct this work.

These works are programmed to be carried out between \_\_\_/\_\_\_/\_\_\_ and \_\_\_/\_\_\_/\_\_\_

If you would like further information regarding the above work, please contact our Responsible Officer on ... to make an appointment with your area representative, ...

Should you wish to raise a dispute, the Responsible Representative will follow the AGL Standard Complaints and Dispute Resolution Policy. The dispute resolution policy is available to be viewed on the AGL Macarthur public website. You can also call the Complaints and Enquiries hotline on 1800 039 600 or email AGLCommunity@agl.com.au.

When making an appointment, please quote the following details.

Electric Line Name: .....

Spur Name: .....

Pole Number: .....

# 14.10. Record of Customer Negotiation



Record of Customer Negotiation

PROPERTY OWNER'S NAME \_\_\_\_\_ DATE \_\_\_\_\_

PROPERTY ADDRESS \_\_\_\_\_

PHONE \_\_\_\_\_

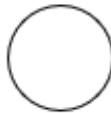
FEEDER NAME \_\_\_\_\_ SPUR NAME \_\_\_\_\_

AREA \_\_\_\_\_ MAP No. \_\_\_\_\_ CFA MAP No. \_\_\_\_\_

POLE No. \_\_\_\_\_ ASSET No. \_\_\_\_\_ CUSTOMER PRIOR NOTICE YES  NO

NUMBER OF TREES TO BE REMOVED \_\_\_\_\_ HERBICIDE TYPE \_\_\_\_\_

NUMBER OF TREES TO BE PRUNED \_\_\_\_\_

  
 COMPASS

DRAWING      ORANGE = RELOCATE      RED = REMOVAL      GREEN = PRUNE  
 BLUE = POWERLINE

CUSTOMER REQUIREMENTS \_\_\_\_\_

TEAM LEADER \_\_\_\_\_ PROPERTY OWNER \_\_\_\_\_

## 14.11. Pre-work Checklist

### Electric Line Clearance Pre-Work Checklist

RP = Responsible Person

LCW = Line Clearance Worker

ELCP = Electric Line Clearance Plan

#	Task	Who	<input checked="" type="checkbox"/>	Comments
1	Ensure familiarity with the Electric Line Clearance Plan (ELCP) for Macarthur Wind Farm	RP/ LCW	<input type="checkbox"/>	
2	Deliver Letter of Intent to affected landowners or occupiers. Refer to ELCP Appendix 14.9	RP	<input type="checkbox"/>	
2	Review flowchart to determine required action Refer to section 6.3.3 of the ELCP.	LCW	<input type="checkbox"/>	
3	If applicable, complete Ground and Vegetation Disturbance Approval (GVDA)	LCW	<input type="checkbox"/>	
4	Review registers of trees of significance to identify any trees that may be impacted by electric line clearance work. Refer to section 6.4.3 of the ELCP.	LCW	<input type="checkbox"/>	
5	Calculate sag and sway allowance for spans where vegetation is to be pruned or removed. Refer to section 6.2 of the ELCP.	LCW	<input type="checkbox"/>	
6	Allow for appropriate clearance and Regrowth within the 2-year pruning cycle without loss of amenity and aesthetic value or increased public risk	LCW	<input type="checkbox"/>	
7	Notify the Responsible Person to deliver Notice of Pruning or Clearing to landowner or occupier. Refer to ELCP Appendix 14.7	RP	<input type="checkbox"/>	

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## 14.12. Post-work Checklist

### Electric Line Clearance Post-Work Checklist

RP = Responsible Person

LCW = Line Clearance Worker

ELCP = Electric Line Clearance Plan

#	Task	Who	<input checked="" type="checkbox"/>	Comments
1	Complete Record and hand over to Responsible Person for archiving (attach to SAP notification)	LCW	<input type="checkbox"/>	
2	If urgent clearing was required, complete a Notice of Urgent Tree Cutting or Removal. Refer to ELCP Appendix 14.8	RP	<input type="checkbox"/>	
3	Complete post-work field audit of all vegetation work. Refer to section 7.4.3 of the ELCP.	LCW	<input type="checkbox"/>	

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Uncontrolled When Printed

Document ID: 23099730

Next Review Date: 27/03/2028

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