



## **Bushfire Assessment**

### **Residential Subdivision**

**589, 591 & 593 Cobbitty Rd,  
Cobbitty (Tranche 4 DA 3C)**

**Mirvac**

**22 August 2023**

**(Ref: 19067)**

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report by  
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# 1 Introduction

|                                  |                              |                       |
|----------------------------------|------------------------------|-----------------------|
| <b>Street or property name:</b>  | 589, 591 & 593 Cobbitty Road |                       |
| <b>Suburb, town or locality:</b> | Cobbitty                     | <b>Postcode:</b> 2570 |
| <b>Lot/DP no:</b>                | Lots 4, 5 & 6 DP 1276275     |                       |
| <b>Local Government Area:</b>    | Camden Council               |                       |
| <b>Type of development:</b>      | Residential subdivision      |                       |

## 1.1 Background

Mirvac commissioned Peterson Bushfire to prepare a Bushfire Assessment Report for a proposed residential subdivision located on land identified as 'bushfire prone'. This report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

## 1.2 Location and description of proposal

The subject land is located within the Oran Park Precinct of Sydney's South West Growth Centre. It is situated north of Cobbitty Road and to the west of the Macarthur Anglican School as shown on Figure 1.

The proposal consists of the subdivision of land (Tranche 4 DA 3C) to create residential allotments, residue lots, riparian corridor, lake/OSD, open space and playing fields. A plan of subdivision is included as Figure 2.

## 1.3 Assessment requirements

The subject land is identified as 'bushfire prone land' on the Camden Bushfire Prone Land Map (refer to Figure 3) as it is within 100 m of bushland that has the potential to carry a bushfire or contribute to bushfire attack.

Section 4.46 *Environmental Planning and Assessment Act 1979* requires a bushfire assessment of residential subdivision proposals on bushfire prone land following the process and methodology set out within Section 100B of the *Rural Fires Act 1997*, Clause 45 of the *Rural Fires Regulation 2022* and the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2019*, referred to as 'PBP' throughout this report.



### Legend

-  Watercourse
-  Subject Land



Date: 22/08/2023

0 150 300 600  
Metres

**Figure 1: The Location of the Subject Land**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



## Legend

- Subject Land
- Cadastre



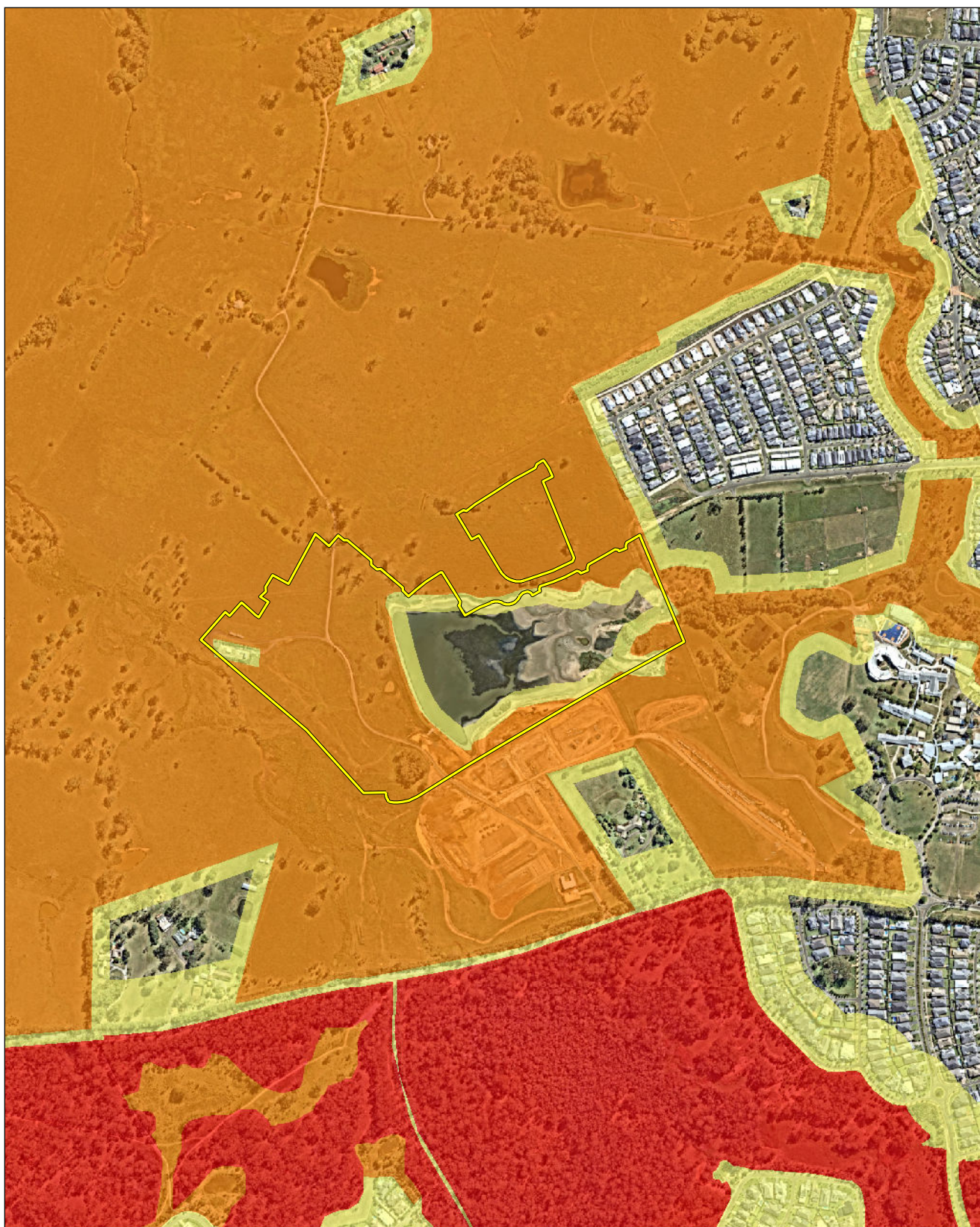
Date: 22/08/2023

0 50 100 200  
Metres

Figure 2: The Proposal

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



### Legend

- |                                                                                                           |                                                                                                           |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
|  Subject Land          |  Vegetation Category 3 |
| <b>Bushfire Prone Land</b>                                                                                |                                                                                                           |
|  Vegetation Buffer     |                                                                                                           |
|  Vegetation Category 1 |                                                                                                           |



Date: 22/08/2023

0 100 200 400  
Metres

**Figure 3: Bushfire Prone Land**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

## 2 Bushfire hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone location and dimension. The following sub-sections provide a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

The subject land and bushfire hazard were inspected on 17<sup>th</sup> February 2020.

### 2.1 Predominant vegetation

The vegetation within 140 m of the proposed lots has been assessed in accordance with the methodology specified by PBP. The hazards are described below and Figure 4 maps the current and future distribution of the hazard.

- ***Riparian corridors - woodland***

A vegetated corridor with a woodland structure will be created within a riparian corridor along the southern edge of the proposed subdivision within land zoned C2 Environmental Conservation. The corridor layout and planting specifications is detailed within the Vegetation Management Plan (VMP) by Eco Logical Australia (2021). Table 5 of the VMP states that the channel revegetation will not include trees or shrubs, and the remainder of the corridor either side of the channel will be revegetated with Cumberland Plain Woodland vegetation communities with species and densities consistent with a woodland formation (i.e. 1 tree per 100 m<sup>2</sup> and 1 shrub per 50 m<sup>2</sup>). The riparian corridor is therefore classified as 'woodland' for the purposes of determining APZ and BAL.

- ***Grassland***

Adjoining future stages to the north may present a grassland hazard until such time that they are developed.

The adjoining property to the east is managed by the Macarthur Anglican College and displays a management regime allowing it to be classified as managed land. The grounds are regularly mowed.

### 2.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most influence fire behaviour where the hazard occurs. The slope underneath the riparian woodland hazard will be within the PBP slope class of 'downslope 0-5 degrees'.



### Legend

|  |                          |  |                             |  |                                       |
|--|--------------------------|--|-----------------------------|--|---------------------------------------|
|  | Subject Land             |  | Woodland                    |  | Temporary Asset Protection Zone - 50m |
|  | Cadastre                 |  | Asset Protection Zone - 16m |  |                                       |
|  | Future Riparian Corridor |  |                             |  |                                       |



Date: 22/08/2023

0 50 100 200  
Metres

**Figure 4: Bushfire Hazard Analysis and Asset Protection Zone**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

### 3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for residential subdivision. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

**Table 1: PBP bushfire protection measures**

| Bushfire protection measures     | Considerations                                                                                                                   |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Asset Protection Zones (APZ)     | Location and dimension of APZ building setbacks from vegetation including prescriptions of vegetation management within the APZ. |
| Access                           | Assessment to include access and egress, perimeter access and design standards of public roads.                                  |
| Water supply and other utilities | List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.          |

#### 3.1 Asset Protection Zones (APZ)

Using the vegetation and slope information presented in Section 2, APZs suitable for residential subdivision have been calculated in accordance with Table A1.12.2 of PBP. The APZ determination is listed in Table 2 below and mapped on Figure 4.

Only one permanent APZ is required being a 16 m APZ to the riparian corridor to the south, provided by the road reserve and building setback with the closest allotment.

Temporary 50 m APZs are proposed to the north as shown on Figure 4 to ensure that any grassland hazards in the adjoining stages are appropriately maintained to prevent unnecessary BAL requirements for new dwellings during the staging process. The temporary APZs will not be required should the grassland be removed by construction of adjoining stages for the equivalent distance.

**Table 2: APZ determination**

| Location <sup>1</sup> | Vegetation <sup>2</sup> | Slope <sup>3</sup> | APZ <sup>4</sup> | APZ accommodated by:                             |
|-----------------------|-------------------------|--------------------|------------------|--------------------------------------------------|
| South                 | Woodland                | Downslope 0-5°     | 16 m             | Perimeter road and building setbacks within lots |

<sup>1</sup> Direction of assessment from proposed lots. Refer to Figure 4.

<sup>2</sup> Predominant vegetation classification over 140 m from proposed lots.

<sup>3</sup> Effective slope assessed over 100 m from proposed lots where the bushfire hazard occurs.

<sup>4</sup> APZ dimension required by Table A1.12.2 of Planning for Bush Fire Protection 2019.

### 3.2 Vegetation management

All proposed lots, residue lots, roads and open space outside of the riparian corridors are to be maintained to comply with the standard of an Inner Protection Area (IPA) as described by Section A4.1.1 of PBP.

The IPA requirements stated within PBP are repeated below:

#### **A4.1.1 Inner Protection Areas (IPAs)**

*The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defensible space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.*

*In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.*

*When establishing and maintaining an IPA the following requirements apply:*

- **Trees**
  - *tree canopy cover should be less than 15% at maturity;*
  - *trees at maturity should not touch or overhang the building;*
  - *lower limbs should be removed up to a height of 2m above the ground;*
  - *tree canopies should be separated by 2 to 5m; and*
  - *preference should be given to smooth barked and evergreen trees.*
- **Shrubs**
  - *create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;*
  - *shrubs should not be located under trees;*
  - *shrubs should not form more than 10% ground cover; and*
  - *clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.*
- **Grass**
  - *grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and*
  - *leaves and vegetation debris should be removed.*

### 3.3 Access

#### 3.3.1 Alternate access and egress

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. The plan of subdivision provides a logical public road layout that will provide multiple points for access and egress when future stages are developed.

The subdivision will benefit from two access points, being Charles McIntosh Parkway in the south and east directions. The subdivision layout satisfies PBP access objectives in relation to access and egress.

#### 3.3.2 Perimeter access

Lots adjoining a permanent hazard will feature a public perimeter road.

The subdivision layout satisfies PBP access objectives in relation to perimeter access.

#### 3.3.3 Design and construction standards

The subdivision roads have been designed to comply with the PBP Acceptable Solutions (Table 5.3b of PBP) for the design and construction of public roads in bushfire prone areas with the exception of the provision of on-street parking which has been designed to satisfy the relevant Performance Criteria of PBP Table 5.3b. The Acceptable Solution and Performance Criteria for parking are listed below:

- *Acceptable Solution: Parking is provided outside of the carriageway width.*
- *Performance Criteria: Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.*

Charles McIntosh Parkway and Road No. 20 are the collector roads for the subdivision and are also non-perimeter roads. These two roads will comply with the Acceptable Solution whereby the minimum carriageway width will be greatly exceeded and will benefit from designated parking reserves.

These two roads provide the access and egress for the subdivision. As these roads serve the purpose of collector roads, they have both been designed to comply with the Acceptable Solutions by ensuring on-street parking is provided within designated parking reserves outside of the minimum carriageway width.

The remainder of the roads will have minimum carriageway widths that comply with the Acceptable Solution, however do not have designated on-street parking reserves. The Acceptable Solution carriageway width is 5.5 m and the roads will be 7.4 m wide kerb to kerb. An exception is the laneways which will have a minimum 5.5 m kerb to kerb and no-parking.

Allowing on-street parking within the carriageway is considered acceptable for the 7.4 m wide roads in this subdivision as the majority of the roads will be greater than 100 m from a bushfire hazard (i.e. not in bushfire prone land by definition) and the permanent bushfire hazard consists of a low risk riparian corridor only. The collector roads will have an unobstructed minimum

carriageway width with additional on-street parking that complies with the Acceptable Solutions as these are viewed as the primary access pathways for emergency services responding to an incident while residents are evacuating, therefore achieving compliance with the Performance Criteria. Residential lots will also have an allowance for off-street parking within garages and stacked in driveways.

The perimeter road to the woodland riparian corridor to the south (Road No. 27 east-west section) will comply with the Performance Criteria whereby a 9.7 m kerb-to-kerb width will be flanked with a 1 m wide footpath with rolled kerb along the riparian corridor. This will allow parking along the northern side of the road adjacent the lots and an effective carriageway of minimum 8 m which will include the 1 m verge adjacent the riparian corridor (to be used during an emergency only).

The PBP Table 5.3b Acceptable Solutions are listed below:

PBP design standards for roads servicing residential subdivision:

- *Property access roads are two-wheel drive, all weather roads.*
- *Perimeter roads are provided for residential subdivisions of three or more allotments.*
- *Subdivisions of three or more allotments have more than one access in an out of the development.*
- *Traffic management devices are constructed to not prohibit access by emergency service vehicles.*
- *Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.*
- *All roads are through roads.*
- *Dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.*
- *Where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.*
- *Where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.*
- *One way public access roads are no less than 3.5 m wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.*

- *The capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); Bridges/causeways to clearly indicate load rating.*
- *Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.*
- *Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 – Fire hydrant installations: System design, installation and commissioning.*
- *There is suitable access for a Category 1 fire appliance to within 4 m of the static water supply where no reticulated supply is available.*
- *Perimeter roads are:*
  - *two-way sealed roads;*
  - *minimum 8 m carriageway width kerb to kerb;*
  - *parking is provided outside of the carriageway width;*
  - *hydrants are located clear of parking reserves;*
  - *through roads, and these are linked to the internal road system at an interval of no greater than 500 m;*
  - *curves of roads have a minimum inner radius of 6 m;*
  - *the maximum road grade is 15° and average grade of not more than 10°;*
  - *the road crossfall does not exceed 3°;*
  - *a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.*
- *Non-perimeter roads are:*
  - *minimum 5.5 m carriageway width kerb to kerb;*
  - *parking is provided outside of the carriageway width;*
  - *hydrants are located clear of parking reserves;*
  - *through roads, and these are linked to the internal road system at an interval of no greater than 500 m;*
  - *curves of roads have a minimum inner radius of 6 m;*
  - *the road crossfall does not exceed 3°;*
  - *a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.*

### **3.4 Water supply and utilities**

#### **3.4.1 Water supply**

The development will require fire hydrants to be installed along the nature strip of road reserves to comply with *AS 2419.1 – 2021 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all sides of a building envelope are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

#### **3.4.2 Electricity supply**

Electricity supply will be provided underground and will therefore comply with PBP.

#### **3.4.3 Gas supply**

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas*.

## 4 Conclusion and recommendations

### 4.1 Summary

The proposal consists of a residential subdivision within the Oran Park Precinct. The bushfire hazard consists of a riparian corridor and grassland that may temporarily be within adjoining stages. A compliant APZ will be provided in the form of a perimeter road.

An alternate solution is proposed to allow on-street parking within the minimum carriageway width for non-perimeter roads that don't act as the collector roads. This is supported by the low bushfire risk and urban nature of the site once adjoining stages are constructed.

### 4.2 Conclusion

This report presents an assessment of a residential subdivision at 589, 591 and 593 Cobbitty Road, Cobbitty. The assessment demonstrates that the proposal, together with the recommendations (see below), complies with *Planning for Bush Fire Protection 2019*.

### 4.3 Recommendations

The recommendations made within this assessment are repeated below:

1. Temporary APZs are to be provided to the north of proposed residential lots into adjoining stages for a distance of 50 m as shown on Figure 4. The temporary APZ is not required if construction of adjoining stages has removed the grassland hazard for the equivalent distance.
2. A 16 m APZ is required between the riparian corridor within the C2 zone to the south and proposed building envelope.
3. All proposed lots, residue lots, roads and open space outside of the riparian corridors are to be maintained to comply with the standard of an Inner Protection Area (IPA) as described by Section A4.1.1 of PBP.
4. The proposed roads are to comply with Table 5.3b of PBP for the design and construction of public roads in bushfire prone areas with the following amendments:
  - a. Road No.27 east-west section adjacent the riparian corridor is a 'perimeter road' and may utilise the adjoining 1 m verge footpath along the southern edge as part of the minimum carriageway during an emergency. A rolled-edge kerb is to be provided along the southern edge and the 1 m verge is to be free of obstructions such as signs, trees, bollards and the like.
  - b. With the exception of collector roads Charles McIntosh Parkway and Road No. 20, the remaining roads are to comply with the standard of a 'non-perimeter road' with the exception that on-street parking is permitted within the minimum carriageway width.

5. The subdivision will require fire hydrants to be installed to comply with AS 2419.1 – 2021 *Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).
6. Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2014 *The storage and handling of LP gas*.



David Peterson



# References

Industry Safety Steering Committee. 2005. *ISSC 3 Guideline for Managing Vegetation Near Power Lines*. (updated from Energy Australia. 2002. *Network Standard NS 179 (Vegetation Safety Clearances)*).

NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, and Developers*. November 2019.

Standards Australia. 2014. *The storage and handling of LP Gas*, AS/NZS 1596:2014, Eighth edition 2014, Standards Australia International Ltd, Sydney.

Standards Australia. 2021. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

