

Bushfire Assessment

In relation to

Proposed alterations and additions to existing dwelling

Lot 72 DP 200167

39 Headland Road, Boomerang Beach

Prepared for:
Ms T Gilbert

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Project: 24205

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1. INTRODUCTION

This Bushfire Assessment has been prepared in relation to proposed alterations and additions to the existing dwelling on land at 39 Headland Road, Boomerang Beach.

The land within the site and surrounds is mapped as bushfire prone land for the purposes of Section 10.3 of the *Environmental Planning & Assessment Act 1979* (EP&A Act). The entire area of the site is mapped as being in the 100 metre buffer to Category 1 potential bushfire hazard vegetation on land within Lot 99 DP 1292594, 44 Headland Road, to the north and north-west of the site (Figure 3.1).

As the land within the site is mapped as bushfire prone land, the purpose of this Bushfire Assessment is to assist in the planning process, to identify the proximity of the building and proposed works to any potential bushfire threat and to determine what, if any, level of construction is required in accordance with the New South Wales Rural Fire Service guideline entitled *Planning for Bush Fire Protection 2019* (PBP).

2. PROPOSED DEVELOPMENT

The proposed development is for alterations and additions to the existing dwelling on the land.

The proposed work is shown on drawings by Stephen Jones Design, *Alterations & Additions 39 Headland Rd. Boomerang Beach for M & T Gilbert* (Proposed Site Plan, Dwg No. A101, undated).

The proposal involves reconfiguration of the ground floor level of the dwelling and relocation of kitchen and living areas to a new second storey (first floor) addition.

A deck is also proposed at the new first floor level and will extend about 4.6 metres from the northern elevation of the kitchen/lounge/dining areas at first floor level (over the northern part of the extended Bed 1 retreat and Bed 3 areas at ground floor level).

A study and powder room proposed at first floor level will extend south over an existing entry courtyard area at ground floor level.

An extract of the site plan is at Figure 2.1.

Access will remain unchanged via the existing access driveway from the northern side of Headland Road to an existing parking platform.

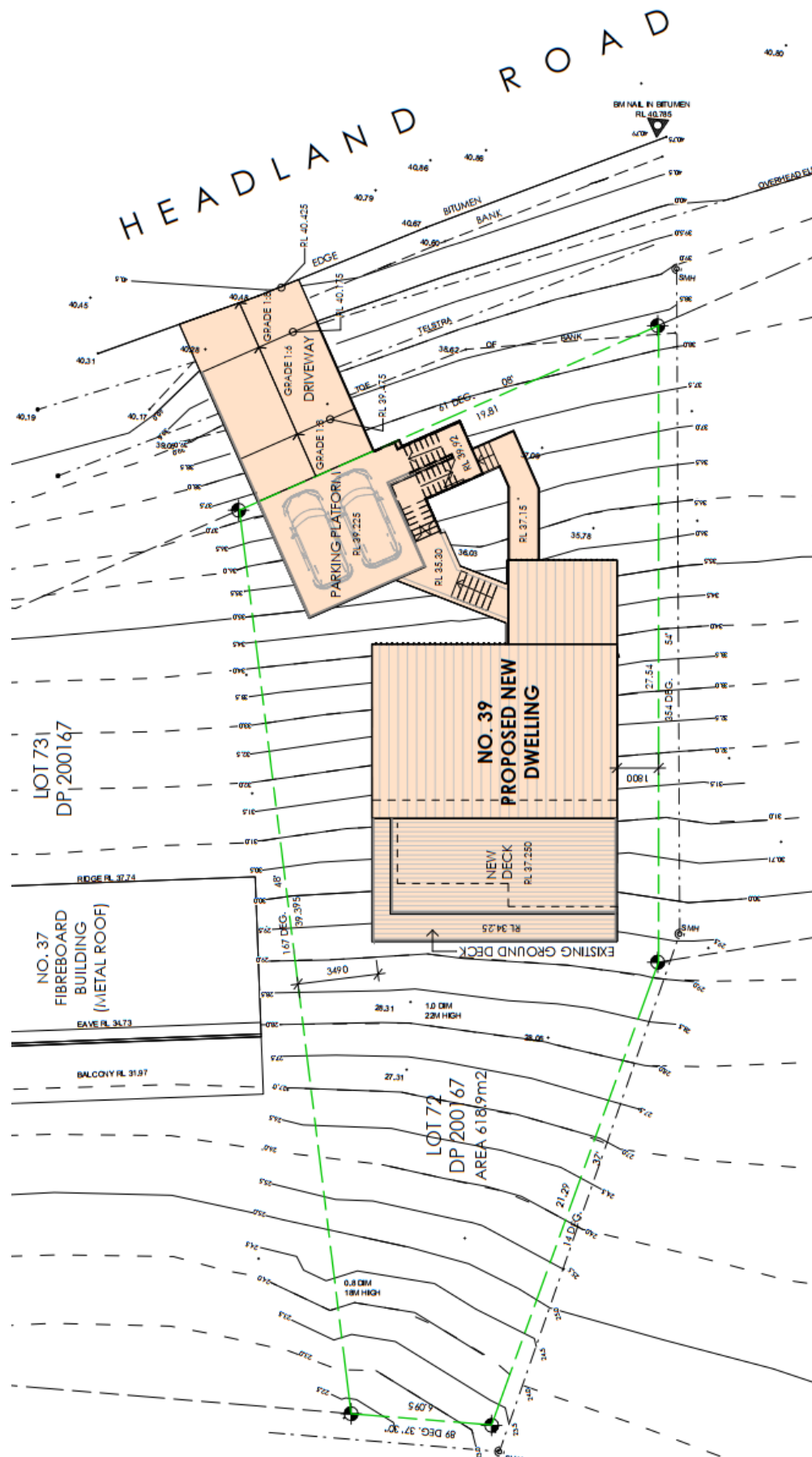


Figure 2.1: Site plan extract

(Source: Stephen Jones Design) Not to scale. North approx. to base of page.

3. SITE DESCRIPTION

The site comprises land described as Lot 72 DP 200167, 39 Headland Road, Boomerang Beach. The site has an area of approximately 618m².

The site is on the northern (lower) side of the western section of Headland Road, approximately 170 metres north-west of the intersection between Boomerang Drive and Headland Road. Headland Road terminates at a dead end at its north-western end, about 40 metres west of the site.

The land within the site has a northerly aspect, with land falling from the southern boundary of the site at the Headland Road frontage towards the northern (rear) boundary. An existing single-storey elevated dwelling occupies the site.

Land to the east and west of the site, and land on the southern (opposite) side of Headland Road, comprises residential allotments. All of those residential allotments are occupied by existing residential buildings except for the allotment immediately to the west of the site (Lot 71 DP 200167, 41 Headland Road) which remains vacant.

Land adjoining the northern/north-western boundary of the site (part of Lot 99 DP 1292594, 44 Headland Road) contains relatively significant tracts of forest vegetation. Forest vegetation is also on land to the west/south-west, within part of Lot 45 DP 200167, at least 85 metres from the site.

The nearest significant area of vegetation that is likely to present a potential bushfire hazard in relation to the proposed development is the forest vegetation in the parts of (Lot 99) 44 Headland Road to the north and north-west of the site. The north-western corner of the existing dwelling is about 3 metres from the nearest part of the north-western boundary with the land at 44 Headland Road.

Vegetation within the vacant allotment to the west of the site, (Lot 71) 41 Headland Road, is generally contiguous with forest vegetation within the land to the north and north-west. This vegetation would be likely to be removed when and if the land at (Lot 71) 41 Headland Road is developed for residential purposes.

The site is serviced by reticulated water. The nearest hydrant is in the road reserve to the southern side of Headland Road, approximately opposite the south-western corner of the site. Overhead electricity supply lines exist in Headland Road.

A site locality map with bushfire prone land map overlay is at Figure 3.1

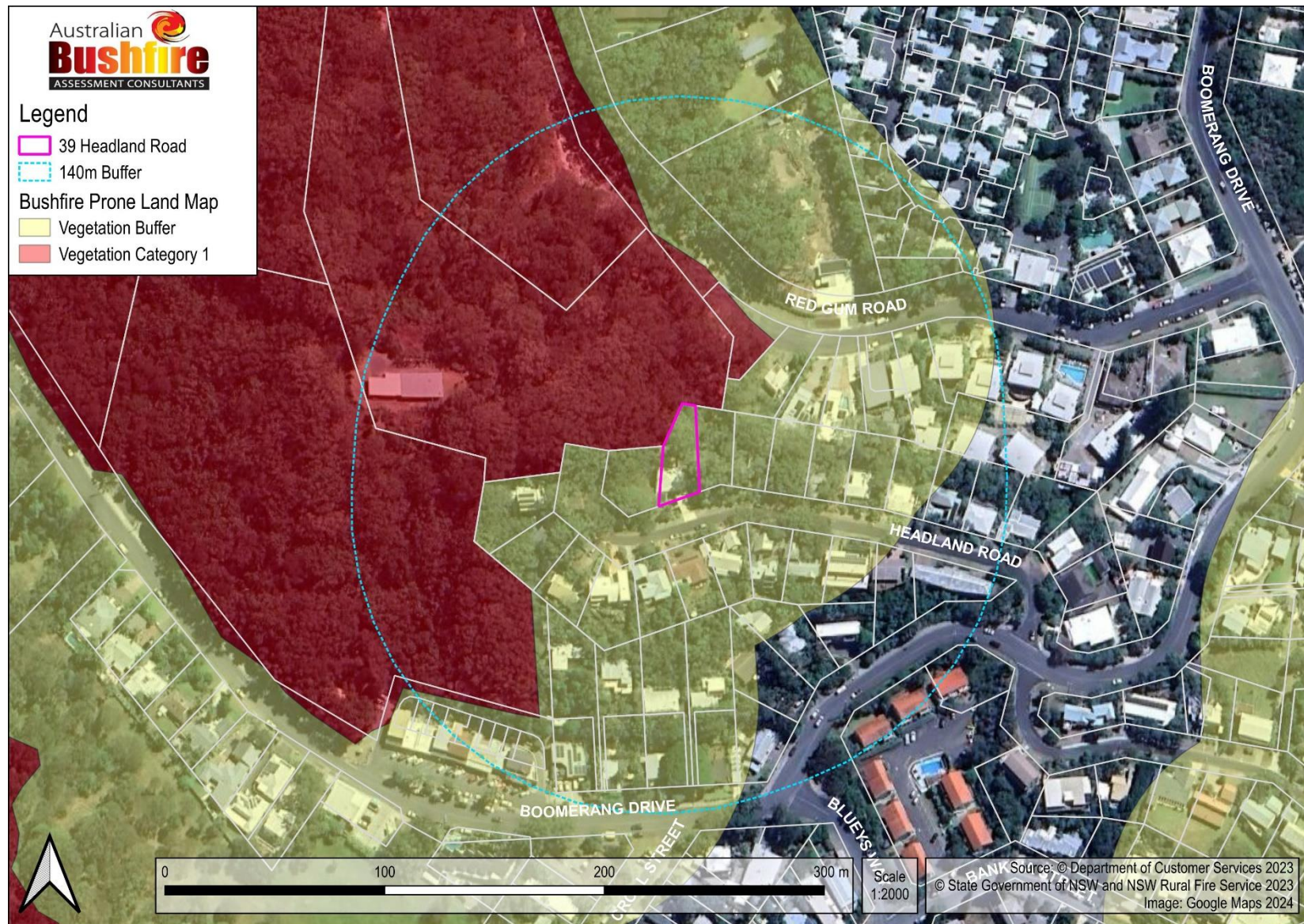


Figure 3.1: Site locality and bushfire prone land map

The following photos show the condition of land on and around the site.



Photo 1: View of the existing dwelling on the site looking generally north-east from the north-western end of Headland Road.



Photo 2: View looking north over the existing dwelling.



Photo 3: View looking north past the western elevation of the existing dwelling.

3.1 Vegetation Classification

The nearest significant area of unmanaged/potential bushfire hazard vegetation to the proposed development has been assessed as forest vegetation on land immediately to the north/north-west of the site, in part of the land at Lot 99 DP 1292594, 44 Headland Road.

The north-western corner of the existing dwelling on the site is about 3-5 metres from the nearest part of the north-western boundary with the land at 44 Headland Road.

Vegetation within 140 metres of the site and existing dwelling has been classified as *forest* for the purposes of Appendix 1, Section A1.2 of PBP.

3.2 Assessment of the slope of the land

The assessment of slope has been undertaken in accordance with the methodology in Section A1.5 of PBP.

The slope of land under the areas of forest vegetation on the land at (Lot 99) 44 Headland Road has been assessed as >15-20° downslope.

4. BUSHFIRE ASSESSMENT

The proposal involves new work to an existing dwelling (a Class 1a building for the purposes of Volume 2 of the National Construction Code: Building Code of Australia (NCC/BCA)).

The site is in the North Coast fire (weather) area and is subject to a Fire Danger Index (FDI) of FDI 80.

Appendix 1 of PBP provides the site assessment methodology for determining the applicable Bushfire Attack Level (BAL). Once the BAL is determined, construction requirements for the corresponding BAL apply subject to *AS3959-2018: Construction of Buildings in Bushfire Prone Areas* (subject to the provisions of Section 7.5.2 of PBP) or the NASH Standard – *Steel Framed Construction in Bushfire Areas* (2021).

The separation distance between the northernmost part of the proposed new work to the existing dwelling and the nearest potential bushfire hazard (forest) vegetation in the adjoining parts of the land at (Lot 99) 44 Headland Road is <30 metres (and is <10 metres to the north-west of the existing dwelling footprint).

According to Table A1.12.6 of *Planning for Bush Fire Protection 2019* (PBP), the highest assessed BAL is BAL-FZ.

In NSW, Clause H7D4 of Volume 2 of the NCC/BCA provides that *Performance Requirement H7P5 is satisfied for a Class 1 building, or a Class 10a building or deck associated with a Class 1 building, if it is constructed in accordance with—*

- (a) *AS 3959 except—*
 - (i) *as amended by Planning for Bush Fire Protection; and*
 - (ii) *for Section 9 Construction requirements for Bushfire Attack Level FZ (BAL-FZ); or*
- (b) *NASH Standard – Steel Framed Construction in Bushfire Areas except—*
 - (i) *as amended by Planning for Bush Fire Protection; and*
 - (ii) *for buildings subject to Bushfire Attack Level FZ (BAL-FZ); or*
- (c) *(a) or (b) as modified by development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required.*

Explanatory information in the NCC is that *buildings subject to BAL-FZ must comply with specific*

conditions of development consent for construction at this level. In other words, the final building solution is dictated by the eventual conditions of any development consent as to what is required for the building to comply with the NCC.

While the NCC technically excludes Section 9 of AS3959-2018 and the NASH Standard as a deemed-to-satisfy solution for buildings subject to BAL-FZ, their content still provides the basis for construction in the 'flame zone' (BAL-FZ). In this regard, the provisions of Clause H7D4(c) of the NCC/BCA provide the basis for the adoption of Section 9 of AS 3959-2018 (and/or provisions of the NASH Standard for BAL-FZ) for construction of buildings subject to BAL-FZ as a performance-based building solution for the proposed new work.

It is also noted that parts of the proposed new work to the existing dwelling may be located less than 10 metres from classified vegetation on the parts of the adjoining land to the north-west. In circumstances where 10 metres separation cannot be achieved, Clause 9.1 of AS3959-2018 provides that those building elements are to comply with AS 1530.8.2.

It is noted that the provision for building elements to comply with AS 1530.8.2 can be difficult to achieve in the context of residential construction (particularly for external wall systems, verandahs/decks and external support posts). As such, it may be appropriate to rely on alternative construction for new work to any parts of external wall systems, verandahs/decks and/or support posts within 10 metres of any forest vegetation on land within the adjoining parts of (Lot 99) 44 Headland Road to adopt fire-resisting construction to achieve a fire resistance level (FRL) of 60/60/60.

Approval of any consent with conditions relating to the matters discussed above will constitute a building solution for the purposes of Clause H7D4(c) of Volume 2 of the NCC/BCA.

The existing dwelling which is the subject of this assessment was constructed post 2018 and incorporates bushfire resisting construction in accordance with the conditions for the development consent for the dwelling (DA-9/2018 issued by Mid-Coast Council on 8 March 2018).

According to Section A1.8 (Shielding) of PBP, *where an elevation is shielded from direct radiant heat arising from bush fire attack, then the construction requirements for that elevation can be reduced to the next lower BAL.* Section A1.8 of PBP also provides that *reduced construction requirements do not apply where any elevation is BAL-FZ unless justified with an appropriate performance-based assessment.*

While it is noted that Conditions 14 and 45 of the 2018 development consent for the existing dwelling applied BAL-40 to the southern and eastern elevations of the (now existing) dwelling, and BAL-FZ to the remainder of the building, the provisions of the current version of PBP are to the effect that shielding is not necessary applicable as the proposed new work is likely to be subject to conditions of consent for construction to BAL-FZ. That said, this may be varied by Council at its discretion as consent authority whereby it could consider formulation of condition(s) of consent for the proposed new work consistent with Conditions 14 and 45 of the development consent for the (now existing) dwelling on the land.

4.1 Performance Criteria

The proposal is for residential infill development and is subject to assessment in accordance with Section 7 of PBP.

The performance criteria for infill development are in Section 7.4. of PBP, Table 7.4a, and considered in the following tables.

Table 4.1: Asset Protection

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
ASSET PROTECTION ZONES	<ul style="list-style-type: none"> ➤ APZs are provided commensurate with the construction of the building; and ➤ A defensible space is provided. 	<p>The highest assessed BAL for the existing dwelling on the land was BAL-FZ, and the same is the case for the proposed new work to the existing dwelling. Land able to be maintained as an Asset Protection Zone (APZ) – and any land which might be able to be utilised as defensible space – is limited to land within the boundaries of the site.</p> <p>Condition 31 of the development consent to DA-9/2018 for the existing dwelling on the land required that all land within the site boundaries be established and maintained as an APZ, to the standard for an Inner Protection Area (IPA). This assessment includes recommendations consistent with that condition of the original development consent for the dwelling on the land.</p>
	APZs are managed and maintained to prevent the spread of a fire to the building.	As per above row.
	<ul style="list-style-type: none"> ➤ The APZ is provided in perpetuity. ➤ APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised. 	As above.

Table 4.2: Access

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
ACCESS	<i>Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.</i>	Vehicular access is via the existing driveway to the elevated parking platform in the south-eastern part of the property. The slope of the land does not allow any potential for vehicular access to other parts of the property and/or around the existing dwelling. The only opportunity for firefighter property access to the site and existing dwelling is on foot. This will not change, with the proposed development involving a second storey addition over the existing dwelling footprint on the land.
	<i>The capacity of access roads is adequate for firefighting vehicles.</i>	The capacity of the existing public road serving the site appears adequate for firefighting vehicles. The proposal is for alterations and additions to the existing dwelling on the land and there is no increase in residential density.
	<i>There is appropriate access to water supply.</i>	Reticulated water supply is available to the site. The nearest hydrant is in the road reserve to the southern side of Headland Road, approximately opposite the south-western corner of the site.
	<i>Firefighting vehicles can access the dwelling and exit the property safely.</i>	See comment to the first row in this table.

Table 4.3: Services

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
WATER SUPPLIES	<i>An adequate water supply for firefighting purposes.</i>	Reticulated water supply is available to the site. The nearest hydrant is in the road reserve to the southern side of Headland Road, approximately opposite the south-western corner of the site.
	<ul style="list-style-type: none"> ➤ <i>Water supplies are located at regular intervals; and</i> ➤ <i>The water supply is accessible and reliable for firefighting operations.</i> 	As above.
	<i>Flows and pressure are appropriate.</i>	No details as to flows and pressure for reticulated water supply.
	<i>The integrity of the water supply is maintained.</i>	As per the first row in this table.
	<i>A static water supply is provided for firefighting purposes in areas where reticulated water is not available.</i>	N/A
ELECTRICITY SERVICES	<i>Location of electricity services limits the possibility of ignition of surrounding bush land or fabric of buildings.</i>	The existing dwelling on the land has existing connection to electricity supply. There are no details of any changes and/or alterations to electricity connection.
GAS SERVICES	<i>Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.</i>	Recommendations include considerations in relation to any existing or proposed bottled gas installations.

Table 4.4: Construction Standards/Landscaping

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
CONSTRUCTION STANDARDS	<i>The proposed building can withstand bush fire attack in the form of embers, radiant heat, and flame contact.</i>	<p>The highest BAL that the proposed dwelling is likely to be subject to is BAL-FZ when assessed via Table A1.12.6 of PBP.</p> <p>Section 4 of this assessment discusses the application of Section 9 of AS 3959-2018 (and/or provisions of the NASH Standard for BAL-FZ) for construction of the proposed new work.</p>
	<i>Proposed fences and gates are designed to minimise the spread of bush fire.</i>	N/A
	<i>Proposed Class 10a buildings are designed to minimise the spread of bush fire.</i>	N/A
LANDSCAPING	<i>Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.</i>	Condition 31 of the development consent to DA-9/2018 for the existing dwelling on the land required that all land within the site boundaries be established and maintained as an APZ, to the standard for an Inner Protection Area (IPA). This assessment includes recommendations consistent with that condition of the original development consent for the dwelling on the land.

5. RECOMMENDATIONS

The following recommendations are made in relation to the bushfire protection measures for the proposed alterations and additions to the existing dwelling on land at Lot 72 DP 200167, 39 Headland Road, Boomerang Beach:

- A.** All land within the site boundaries is to be managed in perpetuity as an Asset Protection Zone (APZ). This is to include any areas within the site which are not presently established and maintained as an APZ.

Note: this is consistent with Condition 31 of the development consent to DA-9/2018 for the existing dwelling on the land.

- B.** APZs are to be maintained in accordance with the requirements of an Inner Protection Area (IPA) as described in Appendix 4, Section A4.1.1 of *Planning for Bush Fire Protection 2019* (PBP) and any grassy vegetation within the IPA is to be maintained to a height <100mm. A clear area of low-cut lawn or pavement is to be maintained adjacent to the dwelling and proposed additions.

Note: this is consistent with Condition 31 of the development consent to DA-9/2018 for the existing dwelling on the land.

- C.** Building elements for the proposed new work within 10 metres of any unmanaged vegetation on land adjoining the site are to comply with AS1530.8.2 as per Section 9.1 of AS3959-2018, except that parts of the following building elements within 10 metres of any unmanaged vegetation on land adjoining the site may be constructed of materials capable of achieving a fire resistance level (FRL) of 60/60/60 (with the ability of any materials/system to meet the FRL having been verified by testing):

- (i) External walls and/or systems (not including any openings);
- (ii) Any parts of verandahs/decks and balustrades (not including roofs/eaves, etc., over);
and
- (iii) Any external support posts.

- D.** In addition to (C), construction of the proposed new work to the existing dwelling is to comply with the construction requirements for BAL-FZ as per Section 9 of AS 3959-2018 (*Construction of buildings in bushfire-prone areas*) and any additional construction requirements/variations as

outlined in Section 7.5 of *Planning for Bush Fire Protection 2019* or corresponding provisions of the NASH Standard for construction of buildings subject to BAL-FZ.

Note: Also relevant to the above recommendation is Section A1.8 of the current PBP guideline with respect to consideration of shielding for buildings subject to BAL-FZ. Notwithstanding the above recommendation, it is at the discretion of Mid-Coast Council (as consent authority) as to whether to apply a 'multiple BAL' condition (along the lines of Conditions 14 and 45 of the development consent to DA-9/2018 for the existing dwelling on the land) which did enable consideration to be given to application of construction requirements for BAL-40 to the southern and eastern elevations of the existing dwelling subject to there being no direct line of sight to the nearest areas of potential bushfire hazard vegetation.

- E. Non-combustible leafless guttering and/or metal leaf guard is to be installed in the gutters and/or roof valleys of the dwelling to reduce the potential build-up of flammable material.
- F. Where bottled gas is existing or proposed:
 - i. It is to be installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.
 - ii. All fixed gas cylinders are to be kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.
 - iii. If gas cylinders need to be kept close to the buildings, the release valves are to be directed away from the buildings and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion.
 - iv. Connections to and from gas cylinders are to be metal.

Note: this is consistent with Condition 32 of the development consent to DA-9/2018 for the existing dwelling on the land.

- G. Any new above-ground water service pipes external to the dwelling are to be metal, including and up to any taps.
- H. (if not already prepared) Occupants are advised to prepare a Bush Fire Survival Plan which is revised annually prior to the bushfire season. A *Guide to Making a Bush Fire Survival Plan* has been developed by the NSW RFS to assist residents in the preparation of their plan and can be found at the NSW RFS website - www.rfs.nsw.gov.au. On days of catastrophic fire weather, the NSW RFS recommends leaving early as the only safe option.

NOTES & DISCLAIMER:

1. *This assessment relates to proposed alterations and additions to the existing dwelling on the subject land only.*
2. *This assessment has been based on bushfire protection guidelines as outlined in the document entitled Planning for Bush Fire Protection 2019 (PBP).*
3. *Notwithstanding the precautions recommended, it should always be remembered that bushfires burn under a range of conditions and an element of risk, no matter how small, always remains.*
4. *This assessment does not imply or infer any approval for the removal and/or thinning of vegetation for Asset Protection or other purposes. It is the responsibility of the client/landowner to obtain all necessary approvals in this regard.*

6. REFERENCES

NSW Rural Fire Service (2019)

Planning for Bush Fire Protection 2019

Standards Australia (2018)

AS 3959-2018 Construction of buildings in bushfire-prone areas