

Attachment 3 – Building Code and Bushfire Hazard Solutions Opportunities and Constraints Comment



Building Code & Bushfire Hazard Solutions

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Sheridan & Sons
82 Midson Road,
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27th October 2017
Our Ref. 170948

Attention: Scott Sheridan

**Re: PLANNING PROPOSAL – REZONING.
27 PARK ROAD, VINEYARD & 41 PARK ROAD, MULGRAVE NSW
BUSHFIRE ASSESSMENT STATEMENT**

Dear Scott,

We thank you for the opportunity of undertaking this assessment for you.

The subject site consists of two (2) existing allotments known as 27 Park Road, Vineyard (being Lot 340 in DP 752061) and 41 Park Road, Mulgrave (being Lot 215 in DP 752061). The subject site is currently zoned RU4 'Primary Production Small Lots' and is located within Hawkesbury Council's Local Government Area. The site has street frontage to Park Road to the northwest, abuts Vineyard Park to the northeast, neighbouring private allotments to the southeast and an unformed road corridor abutting the Blacktown / Richmond Railway line to the southwest. The subject site has an existing dwelling and outbuildings on each allotment.

The planning proposal relates to the rezoning of the RU4 'Primary Production Small Lots' zoning to either IN1 'General Industrial' or B5 'Business Development'. The proposal would ultimately allow planning permission for future industrial development within the subject site.

It is understood that permissible uses within IN1 'General Industrial' and B5 'Business Development' include depots, bulky goods premises, freight transport facilities, funeral homes, general industries, health consulting rooms, child care centres, hospitals, industrial training facilities, light industries, neighbourhood shops, roads and warehouse/distribution centres.

Properties considered to be affected by possible bushfire impact are determined from local Bushfire Prone Land Map's as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document '*Planning for Bush Fire Protection - 2006*' (PBP) and the future '*Planning for Bush Fire Protection - 2018*'.

Hawkesbury Council's Bushfire Prone Land Map identifies the subject property as containing Category 3 Vegetation, therefore the application of Planning for Bush Fire Protection - 2006 (PBP) must be considered in this instance.

All but three of the permissible uses within the IN1 'General Industrial' and B5 'Business Development' zonings relate to commercial buildings. The BCA does not provide for any bush fire specific performance requirements for Class 5-8 structures and as such AS 3959 does not apply as a set of 'deemed to satisfy' provisions. The general fire safety construction provisions of the BCA are taken as acceptable solutions, but the aim and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management.

In circumstances where the aim and objectives of PBP (detailed below) are not met, then the construction requirements for bush fire protection will need to be considered on a case-by-case basis.

The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, on-site amenity and protection of the environment.

More specifically, the objectives of PBP are to:

- (i) afford occupants of any building adequate protection from exposure to a bush fire;
- (ii) provide for a defensible space to be located around buildings;
- (iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
- (iv) ensure that safe operational access and egress for emergency service personnel and residents is available;
- (v) provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ); and
- (vi) ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bush firefighting).

It is noted that included in the permissible uses within the IN1 'General Industrial' and B5 'Business Development' zoning are hospitals, child care centres and respite day care centres, which are considered Special Fire Protection Purpose (SFPP) development under s100B of the Rural Fires Act 1997. The nature of SFPP development means the occupants may be more vulnerable to bush fire attack. The application of section 4.2 of PBP – 2006 and section 6 of PBP - 2018 must therefore be considered for the subject planning proposal.

To determine the suitability of the subject planning proposal and the ability of the site to accommodate the relevant Bushfire Protection Measures for both commercial / industrial and SFPP development at future development application a bushfire threat assessment has been undertaken. The inputs and conclusion of this assessment is detailed below:



Image 01: Extract from Hawkesbury Council's Bushfire Prone Land Map



Image 02: Aerial view of the subject area Courtesy NEARMAP December 2016



Image 03: Extract from Hawkesbury Council's zoning map

Vegetation Identification:

The vegetation posing a potential threat to the subject site is located within Vineyard Park to the northeast, neighbouring private allotments to the southeast and a narrow unformed road corridor abutting the Blacktown / Richmond railway line to the southwest.

The vegetation within Vineyard Park to the northeast was found to consist of trees 5 – 10 metres in height with a canopy cover of <30% and an understorey of low trees, shrubs and grasses. The vegetation to the southeast of Lot 340 was found to consist predominately of native grasses with an area of regenerating bushland further to the southwest of Lot 215 (>100m from the subject site). The vegetation immediately adjacent to Lot 215 consisting of grassland and some regenerating shrubs. The vegetation along the unformed road corridor to the southwest of Lot 215 was found to be predominately managed with there being no boundary fence between the subject site and the railway corridor. The inclusion of this area as a hazard is a conservative assessment allowing for this area not to be managed in the future.

For the purpose of this assessment, the vegetation posing a hazard to the northeast has been assessed to be Forested Wetlands (Forest in applying Appendix 3 of PBP – 2006 and Forested Wetland in applying Table A1.11.1 of PBP – 2018), the vegetation posing a hazard to the southeast has been assessed to be Grassland (at this time) and the vegetation along the road corridor to the southwest has been determined to be Remnant.



Forested
Wetlands

Photograph 01: View north from the northern boundary of the subject site.



Photograph 02: View east from within the subject site

Slope Analysis:

The slope that would most significantly affect fire behaviour must be assessed for at least 100 metres from any future available building footprint.

The most significant bushfire impact from the north is expected to be a fire travelling up slope toward the subject site. The most significant impact to the southeast of Lot 340 is expected to be a grassfire travelling down slope toward the subject site. The most significant impact from vegetation southeast of Lot 215 is expected to be a grassfire travelling upslope toward the subject site. Possible impact from vegetation southwest of Lot 215 within the unformed road corridor would be expected to be a fire burning across slope and flanking past the subject site. For the purpose of determining the minimum required Asset Protection Zones and Bushfire Attack Level the slope that would **most significantly** influence bushfire & grassfire impact was determined to be:

- 0 - 5 degrees down slope within the hazard to the northeast (Lot 340)
- 0 degrees and up slope within the hazard to the southeast (Lot 340)
- 0 - 5 degrees down slope within the hazard to the southeast (Lot 215)
- 0 degrees and across slope within the hazard to the southwest (Lot 215)



Photograph 03: View east from Park Road toward Vineyard Park



Photograph 04: View south from within the subject property (adjacent to Lot 215)

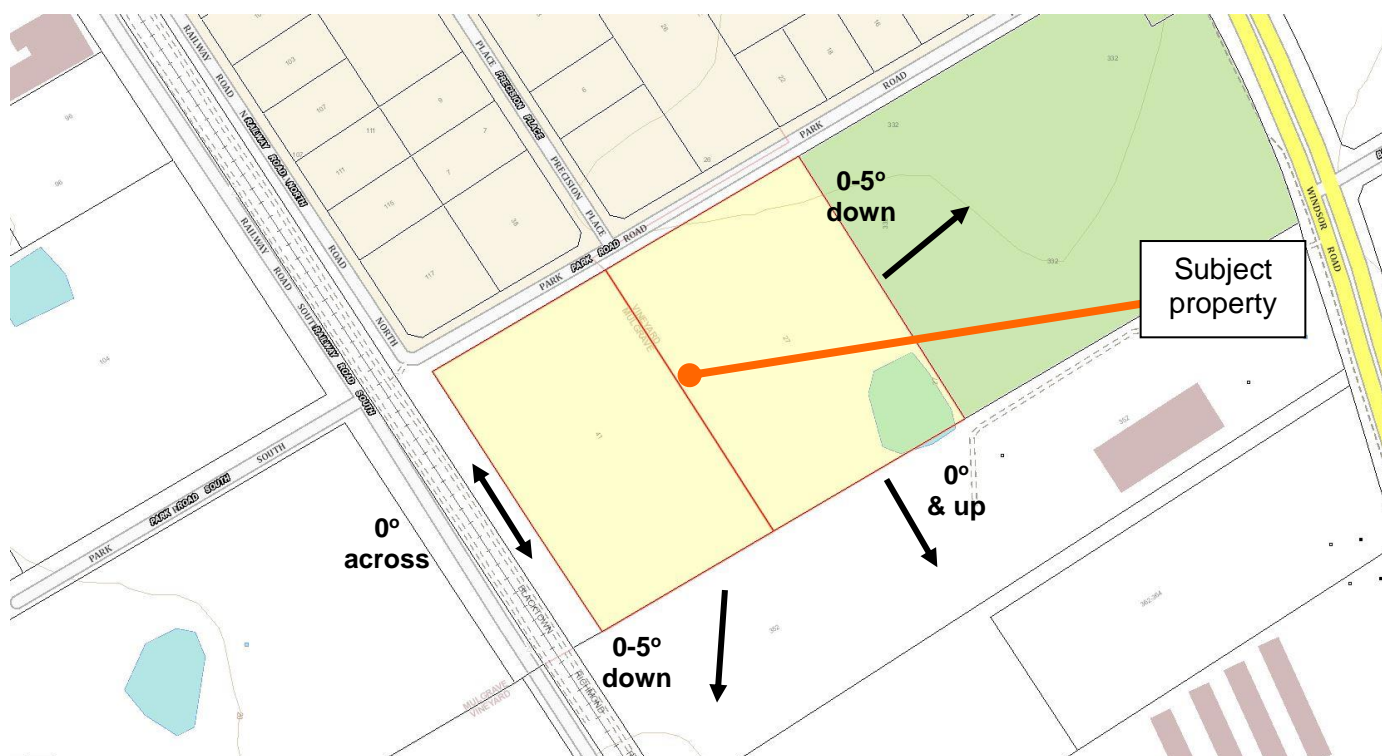


Image 04: Extract from Land and Property Management Authority Spatial Information Exchange

Asset Protection Zones:

As previously established the development proposal relates to the rezoning of the subject site to allow for future commercial / industrial development.

There are no minimum required Asset Protection Zones for commercial and industrial development however the aim and objectives of PBP do apply. In this regard the any new development should provide appropriate separation between the hazard and buildings, in combination with other measures, prevent direct flame contact and material ignition.

As a minimum we would recommend that any future commercial or industrial development is located outside the designated Flame Zone. To satisfy this recommendation the new buildings must be setback a minimum 24 metres from the north-eastern boundary, 7 metres from the south-eastern boundary and 8 metres from the south-western boundary to comply with PBP - 2006.

To satisfy the draft PBP – 2018 which should be legislated April 2018, the new buildings must be setback a minimum 23 metres from the north-eastern boundary, 11 metres from the south-eastern boundary and 8 metres from the south-western boundary.

If the permitted Special Fire Protection Purpose developments (i.e. childcare, hospital or respite day care) is proposed, these setbacks increase under PBP – 2006 to 70 metres from the north-eastern boundary, 10 metres from the south-eastern boundary and 30 metres from the south-western boundary.

The setbacks for Special Fire Protection Purpose increase under PBP – 2018 to 79 metres from the north-eastern boundary, 23 metres from the south-eastern boundary and 38 metres from the south-western boundary.

It should be noted that if the unformed road reserve to the southwest of Lot 215 is developed as a perimeter road or acquired for development, the setbacks from the southwest boundary can be effectively removed.

We are satisfied that there is adequate space for future permissible development within the new IN1 'General Industrial' or B5 'Business Development' to satisfy the aim and objectives of PBP. The subject site is also of sufficient size that it can meet the required setbacks for SFPP development although careful planning and siting needs to be considered at the time of any DA submission for this type of development.

Fire Fighting Water Supply:

Fire hydrant services are available throughout Park Road for the replenishment of attending fire services. It would be recommended that as part of any future development within the subject site that either a hydrant system be installed with the sizing, spacing and pressures complying with AS2419.1 – 2005 or suitable static water supply compliant with Table 4.2 of Planning for Bush Fire Protection 2006 (PBP – 2018 requirements unchanged) be provided.

We are satisfied that future permissible development within the subject site can achieve the minimum Water Supply requirements detailed in Planning for Bush Fire Protection.

Property Access:

Planning for Bush Fire Protection addresses design considerations for Public Roads, Internal Roads and Property Access in bushfire prone areas.

Any future access road that services industrial / commercial development only (not a SFPP development) should comply with the requirements for Public Roads as detailed in section 4.1.3(1) of PBP (PBP – 2018 requirements are ostensibly unchanged). Considerations pertinent to this site will include;

- Public roads are two-wheel drive, all weather roads.
- Non perimeter roads comply with Table 4.1 – Road widths for Category 1 Tanker (medium Rigid Vehicle) – see below.
- Traffic management devices are constructed to facilitate access by emergency services vehicles.
- Public roads have a cross fall not exceeding 3 degrees.
- All roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metre outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard.
- Curves of roads (other than perimeter roads) are a minimum inner radius of six metres and minimal in number, to allow for rapid access and egress.
- The minimum distance between inner and outer curves is six metres.
- There is a minimum vertical clearance to a height of four metres above the road at all times.
- The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.
- Public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression.
- Public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression.
- Public roads up to 6.5 metres wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.
- One way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.
- Parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement. No services or hydrants are located within the parking bays.

Curve radius (inside edge) (metres)	Swept Path (metres width)	Single lane (metres width)	Two way (metres width)
<40	3.5	4.5	8.0
40-69	3.0	3.9	7.5
70-100	2.7	3.6	6.9
>100	2.5	3.5	6.5

Any future access road that services a SFPP development should comply with the requirements for Internal Roads as detailed in section 4.2.7 of PBP. Considerations pertinent to this site will include;

- Internal roads are two-wheel drive, sealed, all-weather roads;
- Roads are **through** roads. Dead end roads are not more than 100 metres in length from a through road, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end;
- Traffic management devices are constructed to facilitate access by emergency services vehicles.
- A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches, is provided.
- Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.
- The minimum distance between inner and outer curves is six metres.
- Crossfall of the pavement is not more than 10 degrees.
- Roads do not traverse through a wetland or other land potentially subject to periodic inundation (other than flood or storm surge).
- Roads are clearly sign-posted and bridges clearly indicate load ratings.
- The internal road surfaces and bridges have a capacity to carry fully-loaded firefighting vehicles (15 tonnes).

Curve radius (inside edge) (metres)	Swept Path (metres width)	Single lane (metres width)	Two way (metres width)
<40	3.5	4.5	8.0
40-69	3.0	3.9	7.5
70-100	2.7	3.6	6.9
>100	2.5	3.5	6.5

It should be noted that both considerations for Public Roads and Internal Roads detailed above are directly derived from the Acceptable Solutions of the relevant road under Planning for Bush Fire Protection 2006. There may be opportunity to deviate from that detailed above under an Alternate Solution proposal which seeks to satisfy the Performance Criteria for the relevant requirements.

We are satisfied that future permissible development within the subject site can achieve the minimum Access requirements detailed in Planning for Bush Fire Protection 2006.

Conclusion:

Given that the property is deemed bushfire prone under Hawkesbury Council's Bush Fire Prone Land Map any planning proposal should consider *Planning for Bush Fire Protection 2006*. The determination of any bushfire / grassfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject property.

The subject site consists of two (2) existing allotments being Lot 215 & Lot 340 in DP 752061 that are currently zoned RU4 'Primary Production Small Lots' within an area of industrial and rural / production allotments. The vegetation posing a potential threat to the subject site is located to the northeast within Vineyard Park, southeast within neighbouring private allotments and southwest within the unfenced (unfenced) road corridor. The vegetation posing a hazard was determined to be Forested Wetlands to the northeast, Grassland to the southeast and Remnant to the southwest.

We are satisfied that future permissible development within the new IN1 'General Industrial' or B5 'Business Development' zone can achieve the Asset Protection Zones, Water Supply, Access and other relevant specifications and requirements detailed in Planning for Bush Fire Protection 2006.

In accordance with the bushfire safety measures contained in this statement, and consideration of the site specific bushfire risk assessment it is our opinion that the proposed planning proposal can provide a reasonable level of bushfire protection and can also satisfy the relevant specifications and requirements of Planning for Bush Fire Protection 2006.

We are therefore in support of the subject planning proposal.

Prepared by
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