



BUSHFIRE ASSESSMENT REPORT

FOR

**A PROPOSED ZONING CHANGE & PROPOSED
CONSTRUCTION of WATER TREATMENT PLANT
AT**

LOT 882 DP 789858

43 RED GUM ROAD YELLOW PINCH

Prepared by:

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Site Details:	43 Red Gum Road Millingandi NSW
Prepared for:	Carley McGregor – Project Manager Water & Sewerage Services Bega Valley Shire Council
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Disclaimer

AS3959 (2018) states *“It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature of behaviour of fire, and extreme weather conditions.”*

This report reflects my interpretation of bushfire risk, expected radiant heat loads and required asset protection zones relating to the proposed development. My views are based on my interpretation of Planning for Bushfire Protection (2019), AS3959 (2018) and the methodology for site specific bushfire assessment.

The NSW Rural Fire Service have a higher authority and can upon their review, increase a nominated BAL-rating or reject any recommendation contained within this report. Any such recommendations made by the NSW RFS take precedence. I have applied my knowledge of the standards for bushfire protection to provide the best possible outcome both from a bushfire safety and financial perspective.

This document may only be used for the purpose for which it was commissioned. Bega Valley Shire Council accepts no liability or responsibility for any use or reliance upon this report and its supporting material by any unauthorised third party. Outcomes within this report may have arisen due to specific advice from our client and in relation to the specific application that this report was prepared for. The validity of this report is nullified if used for any other purpose than for which it was commissioned.

1. Introduction:

A Bushfire Assessment Report (BAR) has been prepared by Bega Valley Shire Council Certification and Compliance at the request of Carley McGregor Project Manager Water & Sewer Services at Bega Valley Shire Council for 43 Red Gum Road Yellow Pinch, hereafter referred to as the “site” (refer to Figure 1 for site locality).

This BAR is suitable for submission with a Development Application (DA) and provides information on measures that will enable the development to comply with ‘Planning for Bushfire Protection’ 2019.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Environmental Planning and Assessment Amendment (Planning for Bushfire Protection) Regulation 2007 and the Rural Fires Amendment Regulation 2007 (RF Amendment Regulation 2007).

The report demonstrates compliance with Planning for Bushfire Protection 2019 (NSW RFS, 2019), AS3959-2018 Construction of Buildings in Bush Fire Prone Areas

2. The Proposal:

This assessment is provided to support a Zoning change for the site from C3 to SP2 to make way for proposed future Yellow Pinch Dam Water Treatment Plant for supply. The assessment also covers proposed critical infrastructure construction requirements in accordance with AS 3959 2018 and require asset protection measures in accordance with Planning for Bushfire Protection 2019. (PBP 2019). The change of use is for site specific development and is not designed to increase population densities within the site in fact population and threat to life will be reduced with no residential dwelling to remain within the lot, the new infrastructure is operated and staffed during daylight business hours and with modern computer telemetry equipment requires minimal staff at the facility. Construction of the facility to BAL 40 Australian Standard AS3959-2018 *Construction of buildings in bush fire-prone areas* or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas – 2014* as appropriate and Section 7.5 of *Planning for Bush Fire Protection 2019*. Coupled with an increased APZ to infrastructure will enhance the building capabilities to withstand fire in the surrounding landscape and provide for reduced fuel loads and reduced radiant heat exposure to buildings and responding emergency personnel.

3. Methodology

- Determine Vegetation Type
- Determine Slope
- Determine effective slope
- Determine appropriate fire weather areas
- Determine Bushfire Attack level
- Determine Asset Protection Requirements

Figure 1: Site Location

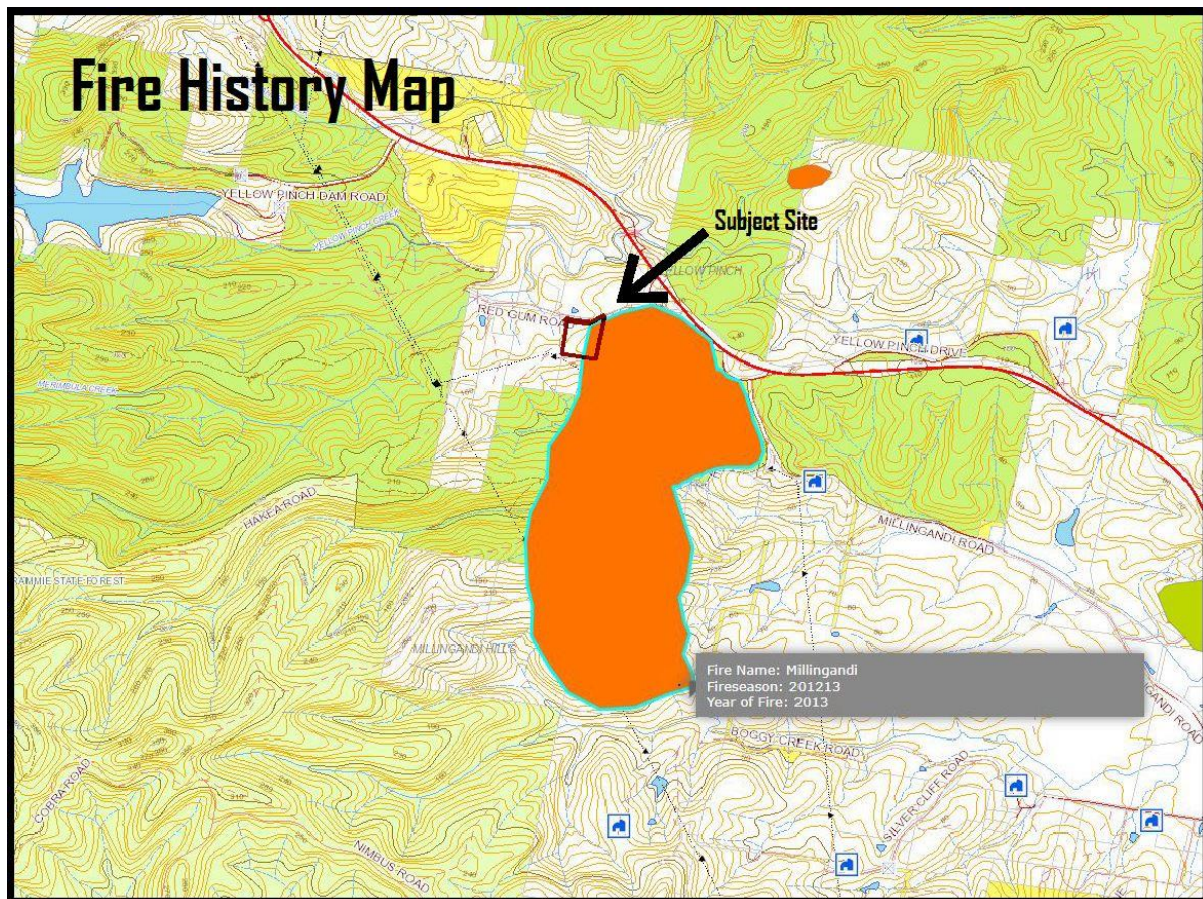


The Site is surrounded with large rural residential allotments and a network of property access roads transmission line easements and property APZ's providing a broken mosaic pattern within the category 1 forest vegetation (see Images 1-5 and figure 4). The site has direct access within 500 metres of the A1 Princes Highway.

4. Fire History

There is evidence of previous fire history on the subject site and records indicate 2013 as the most recent fire event. The fire known as the Millingandi fire started in the Upper Boggy Creek area in the locality of Millingandi on the afternoon of 17 January 2013 and spread to the Southeast towards rural properties under a strong North Westerly wind, a Strong South Westerly change later in the Afternoon of the 17th turned the progression of the fire towards the North and the fire spread through forested vegetation and impacted properties along Forest Lane, Red Gum Road and the Princes Highway. The dwellings and sheds within the subject site were not impacted by this fire event and no buildings were destroyed, it is not known whether the subject site was being defended by attending fire appliances at the time. Records indicating property loss further to the South in the locality of Millingandi.

Figure 2. Fire History Map January 2013



3. Site Assessment

Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent
- Confirmation of the vegetation, Plant Community Types (David Keith “Ocean Shores to Desert Dunes”) (Onsite Assessment)

Slope Assessment

The slope of the land under the classified vegetation has a direct influence on the rate of fire spread, the intensity of the fire and the ultimate level of radiant heat flux.

The effective slope is the slope of the ground under the hazard (vegetation), it is not the slope between the vegetation and the building (slope located between the asset and vegetation is the site slope).

In identifying the effective slope, it may be found that there are a variety of slopes covering different distances within the vegetation. The effective slope is considered to be the slope under the vegetation which will most significantly influence the bush fire behaviour for each aspect.

This is usually the steepest slope.

Vegetation located closest to an asset may not necessarily be located on the effective slope.

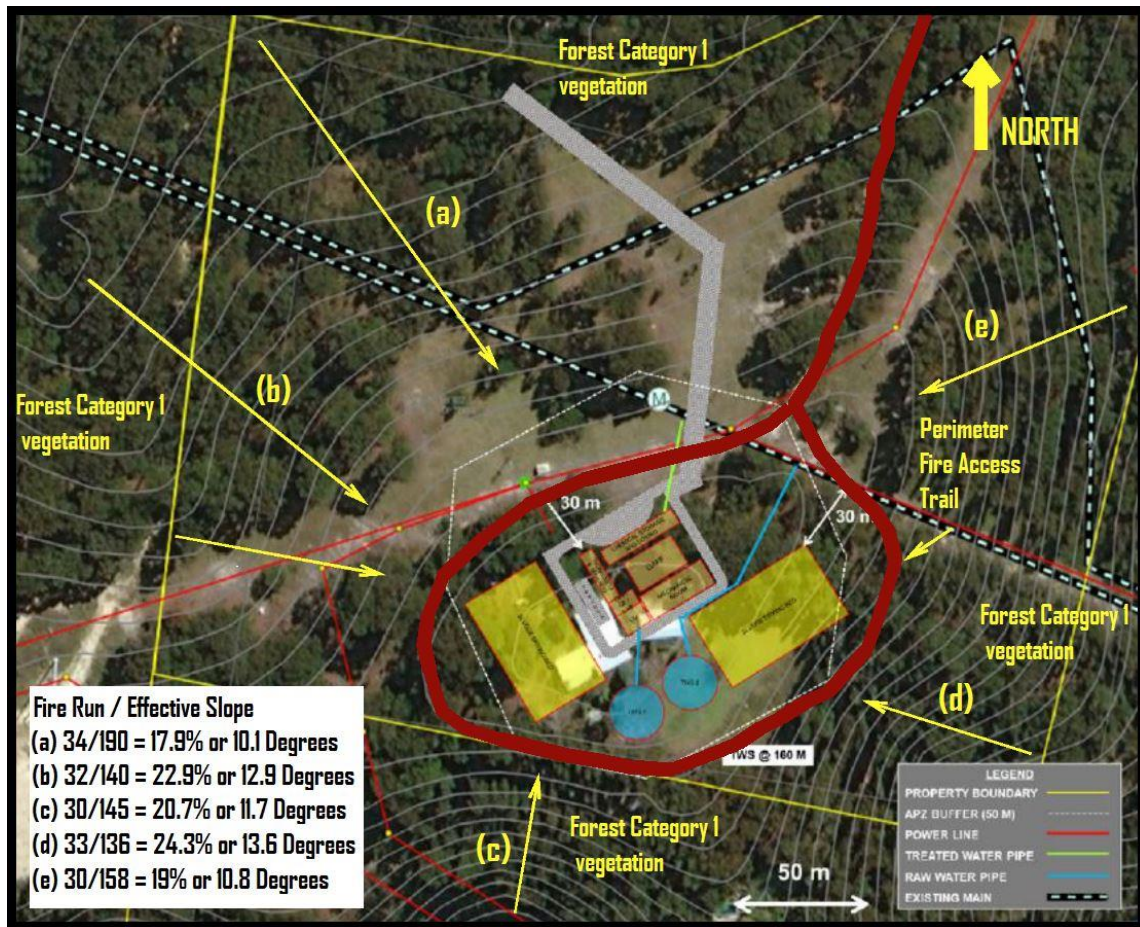
Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation and Drone Data in conjunction with analysis of electronic contour maps ePlanning Spatial Viewer.

- Detailed onsite assessment covering varying aspects most likely to influence fire behaviour and manual clinometer data recordings undertaken to confirm calculation from electronic contour mapping data.

Refer to **Figure 3 & Table 3** Site Slope and Vegetation Assessment for details of effective slope calculations.

Figure 3. Site Slope and Vegetation Assessment



4. Site Assessment:

Table 3. Vegetation and Slope Classification for proposed Zoning change

Proposed Yellow Pinch Dam Water Treatment Plant Site		
Bearing	Vegetation Category and Type	Slope
North	Category 1 Forest Vegetation	Downslope 10-15°
South	Category 1 Forest Vegetation	Downslope 10-15°
East	Category 1 Forest Vegetation	Downslope 10-15°
West	Category 1 Forest Vegetation	Downslope 10-15°

Image 1: Site Overview Drone Image 27/07/2022



Image 2: View to North Drone image 27/07/2022



Image 3: View to the East Drone image 27/07/2022



Image 4: View to Southwest Drone image 27/07/2022



Image 5: View to West Drone Image 27/07/2022



5. Asset Protection Zones (APZ)

Planning for Bushfire Protection 2019 (PBP 2019) guidelines have been used to determine the widths of the APZs required for critical infrastructure buildings within the site using the vegetation and slope data identified in this report.

For all development requiring an APZ, the relevant Forest Fire Danger Index (FFDI) must be identified. The FFDI measures the degree of danger of fire in Australian vegetation. For the purposes of PBP, the FFDI required to be used for development assessment purposes is based on local government boundaries.

The site located within Bega Valley Government Area and therefore is assessed under a FDI rating of 100. Using the results from the Site Assessment the deemed to satisfy APZ requirements for the proposed buildings within the site was determined using Table A1.12.2 in PBP (RFS, 2019). Refer to **Table 5** for required APZs for the proposed critical infrastructure buildings.

APZ's are to comply with the NSW Rural Fire Service Standards for inner and outer protection areas and are to ensure a radiant heat level not greater than 40KW/m² for all critical infrastructure proposed at the site.

Table 4. Recommended APZs for proposed Critical Infrastructure

Direction from Critical Infrastructure	Vegetation Classification within 140m of the site	Effective Slope	Asset Protection Zone Required	Outer Protection Area	Comment
North	Forest Vegetation	Downslope (10-15°)	>45m	10m	Deemed to satisfy provisions in accordance with (PBP 2019)
South	Forest Vegetation	Downslope (10-15°)	>45m	5m To Property Boundary	Deemed to satisfy provisions in accordance with (PBP 2019)
East	Forest Vegetation	Downslope (10-15°)	>45m	10m	Deemed to satisfy provision in accordance with (PBP 2019)
West	Forest Vegetation	Downslope (10-15°)	>45m	10m	Deemed to satisfy provisions in accordance with (PBP 2019)

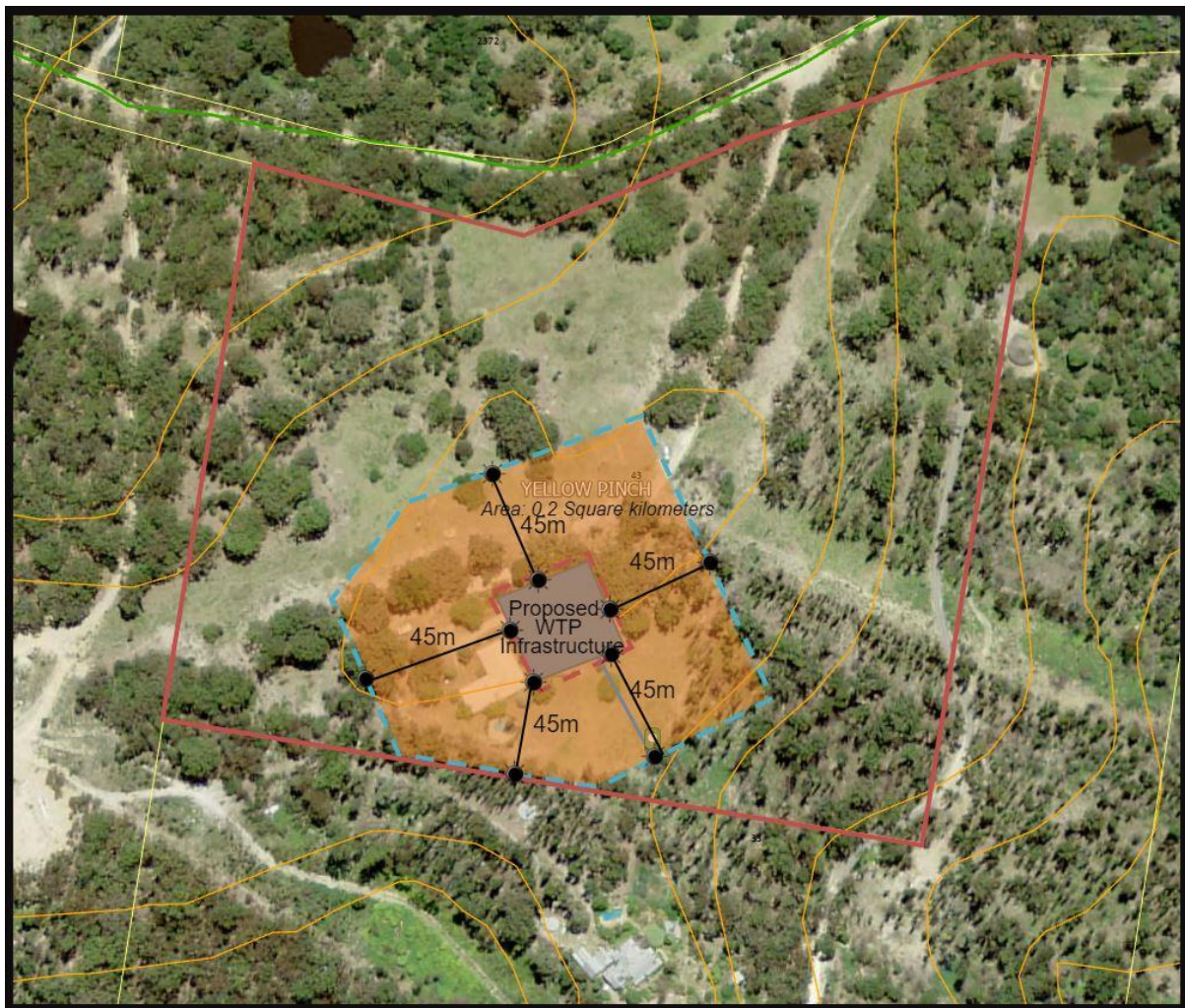
Table A1.12.5

Determination of BAL, FFDI 100 – residential developments

KEITH VEGETATION FORMATION		BUSH FIRE ATTACK LEVEL (BAL)				
		BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
		Distance (m) asset to predominant vegetation class				
ALL UPSLOPE AND FLAT LAND	Rainforest	< 8	8 -< 11	11 -< 16	16 -< 23	23 -< 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 18	18 -< 24	24 -< 33	33 -< 45	45 -< 100
	Grassy and Semi-Arid Woodland (including Mallee)	< 9	9 -< 12	12 -< 18	18 -< 26	26 -< 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 7	7 -< 10	10 -< 14	14 -< 21	21 -< 100
	Tall Heath	< 12	12 -< 16	16 -< 23	23 -< 32	32 -< 100
	Short Heath	< 7	7 -< 9	9 -< 14	14 -< 20	20 -< 100
	Arid-Shrublands (acacia and chenopod)	< 5	5 -< 6	6 -< 9	9 -< 14	14 -< 100
	Freshwater Wetlands	< 4	4 -< 5	5 -< 7	7 -< 11	11 -< 100
	Grassland	< 8	8 -< 10	10 -< 15	15 -< 22	22 -< 50
> 0 > 5 DEGREES - DOWNSLOPE	Rainforest	< 11	11 -< 14	14 -< 21	21 -< 29	29 -< 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 22	22 -< 29	29 -< 40	40 -< 54	54 -< 100
	Grassy and Semi-Arid Woodland (including Mallee)	< 12	12 -< 16	16 -< 23	23 -< 32	32 -< 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 9	9 -< 12	12 -< 18	18 -< 26	26 -< 100
	Tall Heath	< 13	13 -< 18	18 -< 26	26 -< 36	36 -< 100
	Short Heath	< 8	8 -< 10	10 -< 15	15 -< 22	22 -< 100
	Arid-Shrublands (acacia and chenopod)	< 5	5 -< 7	7 -< 11	11 -< 16	16 -< 100
	Freshwater Wetlands	< 4	4 -< 6	6 -< 8	8 -< 12	12 -< 100
	Grassland	< 9	9 -< 12	12 -< 17	17 -< 25	25 -< 50
> 5 > 10 DEGREES - DOWNSLOPE	Rainforest	< 14	14 -< 18	18 -< 26	26 -< 37	37 -< 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 28	28 -< 36	36 -< 49	49 -< 65	65 -< 100
	Grassy and Semi-Arid Woodland (including Mallee)	< 15	15 -< 20	20 -< 28	28 -< 39	39 -< 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 12	12 -< 16	16 -< 23	23 -< 33	33 -< 100
	Tall Heath	< 15	15 -< 20	20 -< 29	29 -< 40	40 -< 100
	Short Heath	< 9	9 -< 12	12 -< 18	18 -< 25	25 -< 100
	Arid-Shrublands (acacia and chenopod)	< 6	6 -< 8	8 -< 12	12 -< 18	18 -< 100
	Freshwater Wetlands	< 5	5 -< 6	6 -< 10	10 -< 14	14 -< 100
	Grassland	< 10	10 -< 13	13 -< 20	20 -< 28	28 -< 50
> 10 > 15 DEGREES - DOWNSLOPE	Rainforest	< 17	17 -< 23	23 -< 34	34 -< 46	46 -< 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 36	36 -< 45	45 -< 60	60 -< 77	77 -< 100
	Grassy and Semi-Arid Woodland (including Mallee)	< 19	19 -< 25	25 -< 36	36 -< 49	49 -< 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 15	15 -< 20	20 -< 29	29 -< 41	41 -< 100
	Tall Heath	< 17	17 -< 22	22 -< 32	32 -< 44	44 -< 100
	Short Heath	< 10	10 -< 13	13 -< 20	20 -< 29	29 -< 100
	Arid-Shrublands (acacia and chenopod)	< 7	7 -< 9	9 -< 14	14 -< 20	20 -< 100
	Freshwater Wetlands	< 5	5 -< 7	7 -< 11	11 -< 16	16 -< 100
	Grassland	< 11	11 -< 15	15 -< 23	23 -< 32	32 -< 50
> 15 > 20 DEGREES - DOWNSLOPE	Rainforest	< 23	23 -< 30	30 -< 42	42 -< 56	56 -< 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 46	46 -< 56	56 -< 73	73 -< 92	92 -< 100
	Grassy and Semi-Arid Woodland (including Mallee)	< 24	24 -< 32	32 -< 44	44 -< 59	59 -< 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 19	19 -< 26	26 -< 37	37 -< 50	50 -< 100
	Tall Heath	< 19	19 -< 25	25 -< 36	36 -< 49	49 -< 100
	Short Heath	< 11	11 -< 15	15 -< 23	23 -< 32	32 -< 100
	Arid-Shrublands (acacia and chenopod)	< 7	7 -< 10	10 -< 16	16 -< 23	23 -< 100
	Freshwater Wetlands	< 6	6 -< 8	8 -< 13	13 -< 18	18 -< 100
	Grassland	< 13	13 -< 17	17 -< 26	26 -< 36	36 -< 50

Asset Protection Zone – YPD WTP 43 Red Gum Road Yellow Pinch

Figure 4. proposed extent of APZ



	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
	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. 	<ul style="list-style-type: none"> ➤ an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.
	<ul style="list-style-type: none"> ➤ APZs are managed and maintained to prevent the spread of a fire to the building. 	<ul style="list-style-type: none"> ➤ APZs are managed in accordance with the requirements of Appendix 4 of PBP.
	<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. 	<ul style="list-style-type: none"> ➤ APZs are wholly within the boundaries of the development site. ➤ APZ are located on lands with a slope less than 18 degrees.
	Home-based child care: the building must not be exposed to radiant heat levels exceeding 29kW/m ² (1090K).	<ul style="list-style-type: none"> ➤ an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.

6. Access

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
The intent may be achieved where:	
<div data-bbox="199 1093 226 1191" data-label="Page-Header">ACCESS</div> <ul style="list-style-type: none"> firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation. 	<ul style="list-style-type: none"> property access roads are two-wheel drive, all-weather roads.
<ul style="list-style-type: none"> the capacity of access roads is adequate for firefighting vehicles. 	<ul style="list-style-type: none"> the capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.
<ul style="list-style-type: none"> there is appropriate access to water supply. 	<ul style="list-style-type: none"> hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.
<ul style="list-style-type: none"> firefighting vehicles can access the dwelling and exit the property safely. 	<ul style="list-style-type: none"> at least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road; There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles. <p>In circumstances where this cannot occur, the following requirements apply:</p> <ul style="list-style-type: none"> minimum 4m carriageway width; in forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay; a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; property access must provide a suitable turning area in accordance with Appendix 3; curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress; the minimum distance between inner and outer curves is 6m; the crossfall is not more than 10 degrees; maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and a development comprising more than three dwellings has formalised access by dedication of a road and not by right of way. <p>Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.</p>

7. Water Supplies

	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
WATER SUPPLIES	The intent may be achieved where:	
	<ul style="list-style-type: none"> an adequate water supply is provided for firefighting purposes. 	<ul style="list-style-type: none"> reticulated water is to be provided to the development, where available; and a static water supply is provided where no reticulated water is available.
	<ul style="list-style-type: none"> water supplies are located at regular intervals; and the water supply is accessible and reliable for firefighting operations. 	<ul style="list-style-type: none"> fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005; hydrants are not located within any road carriageway; and reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.
	<ul style="list-style-type: none"> flows and pressure are appropriate. 	<ul style="list-style-type: none"> fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.
	<ul style="list-style-type: none"> the integrity of the water supply is maintained. 	<ul style="list-style-type: none"> all above-ground water service pipes external to the building are metal, including and up to any taps.
	<ul style="list-style-type: none"> a static water supply is provided for firefighting purposes in areas where reticulated water is not available. 	<ul style="list-style-type: none"> where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d; a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65mm Storz outlet with a ball valve is fitted to the outlet; ball valve and pipes are adequate for water flow and are metal; supply pipes from tank to ball valve have the same bore size to ensure flow volume; underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank; a hardened ground surface for truck access is supplied within 4m; above-ground tanks are manufactured from concrete or metal; raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959); unobstructed access can be provided at all times; underground tanks are clearly marked; tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; all exposed water pipes external to the building are metal, including any fittings; where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and fire hose reels are constructed in accordance with AS/NZS 1221:1997, and installed in accordance with the relevant clauses of AS 2441:2005.

8. Electricity and Gas

PERFORMANCE CRITERIA		ACCEPTABLE SOLUTIONS	
The intent may be achieved where:			
ELECTRICITY SERVICES	<ul style="list-style-type: none">location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	<ul style="list-style-type: none">where practicable, electrical transmission lines are underground; andwhere overhead, electrical transmission lines are proposed as follows:<ul style="list-style-type: none">lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; andno part of a tree is closer to a power line than the distance set out in accordance with the specifications in <i>ISSC3 Guideline for Managing Vegetation Near Power Lines</i>.	
GAS SERVICES	<ul style="list-style-type: none">location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	<ul style="list-style-type: none">reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;connections to and from gas cylinders are metal;polymer-sheathed flexible gas supply lines are not used; andabove-ground gas service pipes are metal, including and up to any outlets.	

Buildings of Class 5 to 8 under the NCC (Section 8.3.1 PBP 2019)

Under the building classification system within the NCC, Class 5 to 8 buildings include offices, shops, factories, warehouses, public car parks and other commercial and industrial facilities.

The NCC does not provide for any bush fire specific performance requirements for these particular classes of buildings. As such AS 3959 and the NASH Standard are not considered as a set of Deemed to Satisfy provisions, however compliance with AS 3959 and the NASH Standard must be considered when meeting the aims and objectives of PBP.

Whilst bush fire is not captured in the NCC for Class 5-8 buildings, the following objectives will be applied in relation to access, water supply and services, and emergency and evacuation planning:

- to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation;*
- to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;*
- to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building; and*
- provide for the storage of hazardous materials away from the hazard wherever possible.*

The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

Table A1.7 (PBP 2019) Radiant heat flux exposure and Bush Fire Attack Level (BAL)

Heat flux exposure	Description	AS 3959 construction level
N/A	Minimal attack from radiant heat and flame due to the distance of the building from the vegetation, although some attack by burning debris is possible. There is insufficient threat to warrant specific construction requirements.	BAL-LOW
≤12.5	Attack by burning debris is significant with radiant heat (not greater than 12.5kW/m ²). Radiant heat is unlikely to threaten building elements (such as unscreened glass). Specific construction requirements for ember protection and accumulation of debris are warranted.	BAL-12.5
>12.5 ≤19	Attack by burning debris is significant with radiant heat flux (not greater than 19kW/m ²) threatening some building elements (such as screened glass). Specific construction requirements for embers and radiant heat are warranted.	BAL-19
>19 ≤29	Attack by burning debris is significant and radiant heat flux (not greater than 29kW/m ²) threatens building integrity. Specific construction requirements for ember and higher levels of radiant heat are warranted. Some flame contact is possible.	BAL-29
>29 ≤40	Radiant heat flux and potential flame contact could threaten building integrity.	BAL-40
>40	Significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten building integrity and result in significant risk to residents.	BAL-FZ

Table 5 Determination of BAL for proposed critical infrastructure

Vegetation Type and Bearing	Separation Distance from Vegetation	Effective Slope Under Vegetation	Bushfire Attack Level (BAL)
Forest Vegetation to the North	>45m	Downslope (10-15°)	BAL - 29
Forest Vegetation to the South	>45m	Downslope (10-15°)	BAL - 29
Forest Vegetation to the East	>45m	Downslope (10-15°)	BAL - 29
Forest Vegetation to the West	>45m	Downslope (10-15°)	BAL - 29

6. Conclusion and Recommendations

A Bushfire Assessment Report has been undertaken for the proposed land rezoning and construction of Yellow Pinch Dam Water Treatment Plant at 43 Red Gum Road Yellow Pinch.

The development has been identified as Critical Infrastructure and protection from Bushfire risk measures determined in accordance with NSW RFS Planning for Bushfire Protection 2019 and to satisfy requirements under *Security of Critical Infrastructure Act 2018 (SOCI Act)*. This report forms part of supporting documentation for submission to Bega Valley Shire Council.

The Following recommendations should be adopted:

- All critical infrastructure should be constructed to BAL 40 as per AS 3959-2018 or NASH standards. If construction is not to comply with either of these standards, then it should be constructed of materials test to withstand a radiant heat level of BAL 40 and provide non-combustible ember protection for all openings.
- All ancillary structures on the site should be located a minimum of 6 metres from critical infrastructure and be constructed from non-combustible materials including provisions for suitable glazing or bushfire shutters and ember protection on all openings
- A minimum 10 metre defendable space be provided free from combustible materials around all critical infrastructure and provide unobstructed access for responding emergency services personnel.
- Asset protection zones are to be established to a distance of 45mts surrounding all aspects of critical infrastructure erected upon the site and managed in accordance with NSW Rural Fire Service Standards for Asset Protection Zones
- A minimum 4-metre-wide fire access trail be constructed around the perimeter of the Asset Protection Zone and provide unobstructed access for suppression of an approaching bushfire. Fire trail should be constructed in accordance with requirements of Planning for Bushfire Protection 2019.
- Property Access roads servicing the facility from Red Gum Road should be a minimum 5.5m in width and have a minimum vertical clearance of 4m clear of overhanging obstructions and provide all weather 2wd access. Passing bays are to be provided every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay.
- A static water supply (SWS) in a non-combustible tank constructed from either concrete or steel with a minimum capacity of 50,000 litres be provided with a 50mm gate valve and 65mm Storz fitting in a location with ease of access to arriving emergency appliances
- A 'Fire Management Plan' be prepared for the property and include a site plan indicating SWS location, access, defendable spaces, and location of hazardous materials storage. A copy of the plan should be available on site and a copy provided to Bega Valley Shires Emergency management WH&S committee and a copy provided to the NSW Rural Fire Service District office in Bega.

Abbreviations and Terms of Reference

APZ	Asset Protection Zone
IPA	Inner Protection Area
OPA	Outer Protection Area
BAR	Bushfire Assessment Report
FFDI	Forest Fire Danger Index
SWS	Static Water Supply
BFPL Map	Bushfire Prone Land Map
LGA	Local Government Area
PBP	Planning for Bushfire Protection
AS 3959-2018	Australian Standards – Construction of Building in Bushfire Prone Areas
NCC	National Construction Code
RF Act	Rural Fires Act 1997
RF Regulations	Rural Fires Regulation
BCA	Building Code of Australia
BVSC	Bega Valley Shire Council
YPD	Yellow Pinch Dam
WTP	Water Treatment Plant

Standards Australia (2018). *AS 3959 – 2018: Construction of Buildings in Bushfire-prone Areas*.

NSW Rural Fire Service (2019). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*.

NSW Rural Fire Service. 'Standards for Asset Protection Zones'