

**BUSHFIRE PLANNING REPORT –
PROPOSED AMENITIES BUILDING,
BILL WOODFULL RECREATION RESERVE
FRANCIS STREET, MALDON**

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CENTRAL VICTORIA

Bushfire & native vegetation assessments

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1. INTRODUCTION

This report responds to the requirements of Clause 44.06 Bushfire Management Overlay of Mount Alexander Shire Council Planning Scheme, and associated Clause 53.02 *Bushfire Planning*, for a proposed new Amenities building at the Bill Woodfull Recreation Reserve in Francis Street, Maldon.

The property is zoned Public Use Zone (PUZ6) in the Mount Alexander planning scheme, and the proposed Amenities building is considered to be subject to Clause 44.06 as a building used for *leisure and recreation*. The proposed building will house change rooms, storage, a small kiosk and covered verandah facing adjacent playing courts.

This report includes the following components:

- A *bushfire hazard site assessment*, that describes bushfire hazards within 150 metres of the proposed development in accordance with the planning permit application requirements of Clause 44.06-3. The description of the hazards has been prepared in accordance with the Australian Standard (AS 3959:2018) (Committee FP-020) *Construction of buildings in bushfire prone areas*;
- A *bushfire hazard landscape assessment*, including a plan that describes the bushfire hazard of the general locality more than 150 metres from the site; and
- A *Bushfire Management Statement (BMS)*, which describes how the proposed development responds to the requirements of Clause 53.02-4.

A proposed Locality Plan and Site Plan is provided in Appendix 1. A Bushfire Management Plan (BMP) is also provided as a separate document.

2. DEFINITIONS, POLICY REVIEW AND METHODS

Definitions

The definitions below are used throughout this report.

Site and investigation area

The term 'site' is used herein to refer to the footprint of the proposed new Amenities building. The term 'investigation area' refers to area up to a distance of 150 metres from the site (Figure 2).

Classified vegetation

For the purposes of a BMS, areas of vegetation considered to pose a bushfire threat are classified according to the vegetation classes defined in Table 2.3 of AS 3959:2018. Under Clause 2.2.3 of AS 3959:2018, vegetation in Victoria is classified into the following classes.

- A. Forest
- B. Woodland
- C. Shrubland
- D. Scrub
- E. Mallee/Mulga
- F. Rainforest
- G. Grassland

AS 3959:2018 also describes situations where vegetation is classified as 'low threat'.

Modified vegetation

Clause 53.02 of the Greater Bendigo Planning Scheme defines *Modified vegetation* as: *vegetation that doesn't fit into the vegetation classifications in AS3959:20[18] Construction of buildings in bushfire prone areas because it:*

- has been modified, altered or is managed due to urban development, or gardening,
- has different fuel loads from those assumed in AS3959:2018,
- has limited or no understorey vegetation, or
- is not low-threat or low-risk vegetation as defined in AS3959:2018.

Field methods

The field assessment was conducted on the 14th September 2022. During this assessment, the site and the surrounding investigation area were inspected on foot. Private properties were observed from surrounding roads. All photographs in this report were taken during this field assessment.

Classified vegetation in the investigation area was mapped using a combination of aerial photograph interpretation and ground-truthing using a GPS-enabled tablet. Slopes were determined using a combination of onsite inclinometer readings and contour mapping interpretation.

3. BUSHFIRE HAZARD ASSESSMENTS

Bushfire hazard site assessment

Description of site and surrounds

The proposed location for the new Amenities building (the 'site') is in the western portion of the Bill Woodfull Recreation Reserve (the 'Reserve'), in a small gravel clearing located to the west and south of two playing courts (Figure 1).

Two mature Grey Box trees occur immediately south of the proposed building on the Reserve boundary that will need to be removed for the proposal (Photo 1, Appendix 1).

A number of mature Grey Box trees also occur within the Reserve to the west of the site (Photo 2), the trunks of which are separated from the site by approximately 20 metres. The ground layer beneath these trees comprises managed grasses; it is not proposed to remove any of these trees.

A small eucalypt and three small Paperbark trees on an embankment immediately north of the site will be removed to facilitate earthworks (Photo 3, Appendix 1).

Land within the Reserve to the east of the site contains a combination of paved playing courts and a large playing field, with several mature eucalypts in clumps or as isolated trees (Figure 1). Land to the north of the site and the Reserve contains the Maldon Caravan Park, with several mature trees retained within its grounds. The Maldon Police Station is adjacent to the caravan park.

Several private properties occur to the south and southeast of the site across Fountain Street. These properties are largely made up of planted trees and cultivated gardens (Photo 4, Figure 1).

Immediately west of the Reserve boundary, within the Maldon Historic Reserve, is a shallow dam that contained water at the time of the field assessment; it is understood that this is a grassed area when it is not inundated. A moderate cover of remnant and planted trees occur in the land immediately surrounding the dam. Using the precautionary principle, this vegetation is classified as Woodland according to AS 3959:2018 and described below.

To the southwest of the site the land rises upslope towards Mt Tarrengower within the Maldon Historic Reserve. The section of this Historic Reserve within the investigation area was also classified as Woodland vegetation according to AS 3959:2018, and described below.

The site lies in the non-Alpine parts of Victoria, which have a Fire Danger Index (FDI) of 100.



Photo 1: View of site facing south from the edge of the clearing



Photo 2: Mature Grey Box trees to the west of the site – facing southwest



Photo 3: Small trees on embankment to be removed (right) – facing north from the site



Photo 4: Fountain Street and adjacent private properties – facing east near the site

Classified vegetation

One classified vegetation class – Woodland – was identified in the investigation area to the west and southwest/south of the site, as per the classification methods in the Australian Standard AS 3959: 2018. This classified vegetation is represented in Figure 2 and described below.

Woodland

An area of the Maldon Historic Reserve surrounding a shallow dam/grassed area immediately west of the Reserve contains a combination of remnant trees (eucalypts) and planted trees (pine). The understorey in this area is characterised by areas of unmanaged grasses and shrubs (Photo 5), as well as areas of managed grasses (Photo 6).

Land within the Maldon Historic Reserve to the southwest and west of the site comprises a sparse cover of low-stature eucalypts with a low shrub cover and areas of bare ground (Photo 7). Sections of this vegetation were dominated by shrubs and bare ground with no canopy cover (Photo 8).



Photo 5: Unmanaged vegetation surrounding a dam – facing northeast from Fountain Track

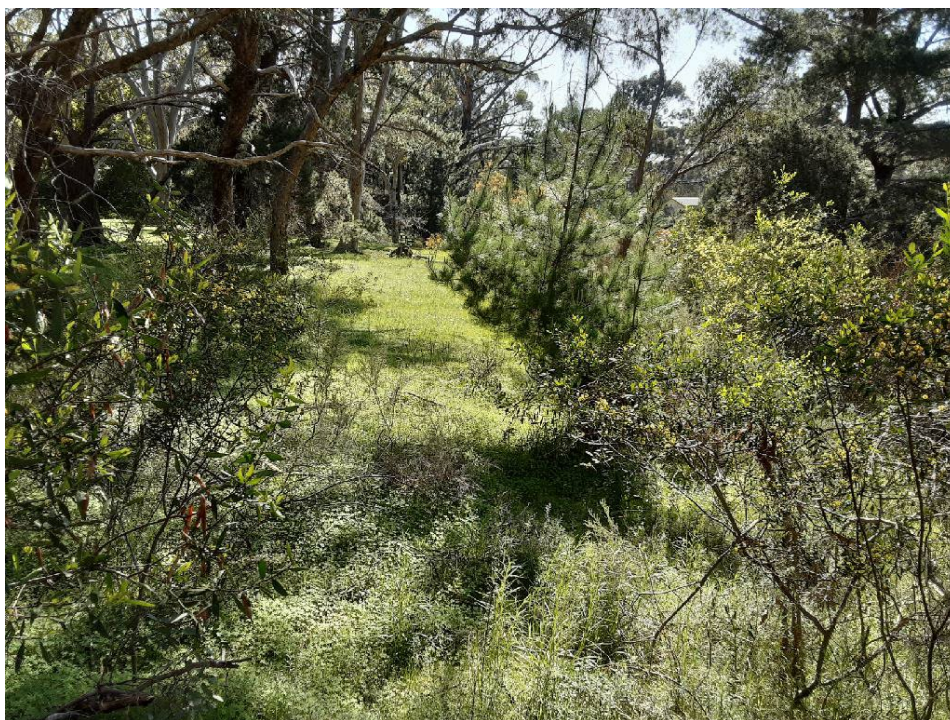


Photo 6: Areas of managed grasses beneath eucalypts and pines – west of the Reserve



Photo 7: Woodland vegetation with eucalypt canopy to the southwest of the site



Photo 8: Areas dominated by shrub cover within Woodland – south of the site

Slopes under classified vegetation and defensible space distances required from a building facing the hazard are set out in Table 1, based on two BAL construction rating scenarios – BAL-19 and BAL-29. Defensible space distances have been drawn from AS3959:2018 and Table 2 of Clause 53.02 of the Victorian Planning Provisions.

Table 1: BAL assessment

Direction*	W		SW/S	
Slope under the classified vegetation	Upslope			
	Upslope/0°	✓	Upslope/0°	✓
	Downslope			
	>0° to 5 °		>0 to 5 °	
	>5 ° to 10 °		>5 ° to 10 °	
	>10° to 15 °		>10° to 15 °	
	>15° to 20 °		>15° to 20 °	
Vegetation class	Woodland		Woodland	
Distance from site	34 metres		58 metres	
BAL–29 defensible space	16 metres		16 metres	
BAL–19 defensible space	24 metres		24 metres	

* Land to the north of the site is considered to be Modified vegetation; land to the east contains low threat vegetation

Proposed BAL construction and defensible space

BAL-29 and Bushfire Emergency Management Planning

It is proposed to apply a construction rating of **BAL-29** to the new Amenities building and provide a *greater* distance of **defendable space to 24 metres**, commensurate with the requirements for BAL-19 (Table 1) to respond to the bushfire hazards in the landscape to the west (see *Bushfire hazard landscape assessment*).

The information below serves as justification for this application of BAL-29 building construction (see *Alternative Measure 3.6* in the *Buildings and defensible space* section of the Bushfire Management Statement).

The Bill Woodfull Recreation Reserve contains two designated Neighbourhood Safer Places/Bushfire Places of Last Resort (NSP/BPLR). These are:

- The large playing field – 80 metres east of the site, and
- The Pavilion immediately north of the playing field – 200 metres from the site.

The proposed uses of the Amenities building will be as change rooms, with storage and a small kiosk. A covered verandah and uncovered viewing platforms are proposed for the eastern edge of the building. Access will include an accessible concrete ramp to facilitate the use of the building by both able-bodied patrons and patrons with disabilities.

It is considered that the proposed use of the building and proximity of the site to the NSP/BPLRs within the Reserve, combined with the anticipated provision of a Bushfire Emergency Management Plan as a condition of any permit, justifies the application of this *alternative measure*.

It is expected that an integrated approach to risk management will be adopted in a Bushfire Emergency Management Plan that includes:

- Closing the facility on forecast Catastrophic Fire Danger rated days
- Clear establishment of roles and responsibilities for key staff throughout the declared fire danger period, and
- Details of evacuation procedures to the nearby NSP/BPLRs in the event of a bushfire event – addressing accessibility as a priority.

Note: Discussions with the Fire Safety Referrals team indicate that CFA may support the greater defendable space distance of 24 metres, which extends beneath the canopies of mature trees to the west of the site (Figure 3), without the need to apply canopy separation requirements to these trees – provided the existing grassed ground layer beneath these trees is kept mown (pers. comm. G. Cockram 17/9/22). No new trees are to be planted or self-seeded within the defendable space area other than on a one-for-one replacement basis.

Adjoining land as defensible space

It is proposed to consider a section of road reserve and private land immediately adjoining the Reserve boundary to the south of the site (Photo 4, Figure 3) as defensible space (see *Alternative Measure 3.3* in the *Buildings and defensible space* section of the Bushfire Management Statement).

This area of land is made up of hardstand (road surface), managed grasses (road shoulder) and low threat vegetation (cultivated gardens in adjacent private land).



Figure 1: Site in context

Legend

- Reserve boundary
- Proposed building
- Maldon Historic Reserve
- ◆ Neighbourhood Safer Places/
Bushfire Places of Last Resort



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Figure 2: Bushfire hazard site assessment



Legend

- Reserve boundary
- Proposed building
- 150-metre investigation area
- Maldon Historic Reserve
- Modified vegetation (Clause 53.02)
- Woodland (AS 3959:2018)









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26/09/2022

Figure 3: Defendable space & tree removal

Legend

-  Reserve boundary
-  Proposed building
-  Defendable space (24 m)
-  Tree removal
-  Modified vegetation (Clause 53.02)
-  Woodland (AS 3959:2018)



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Bushfire hazard landscape assessment

Landscape type & bushfire history

The site is considered to be within a broader Landscape Type Two as defined in the Bushfire Management Overlay technical guidance (DELWP 2017) based on the following:

- The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazards identified in the investigation area
- Whilst bushfire could approach the site from both the northwest and southwest, the site is located in very close proximity to a suburban area managed in a minimum fuel condition (described in more detail below), and
- Access is readily available to two Neighbourhood Safer Places/Bushfire Places of Last Resort (NSP/BPLR) within 200 metres that provide a greater degree of shelter from bushfire.

The most recent history of a bushfire in the surrounding area burnt an 8,700-hectare area that included the Maldon Historic Reserve immediately west of the site in 1981 (Figure 4) (DATA VIC spatial data, dated August 2022). Fuel-reduction burns are planned in the Maldon Historic Reserve to the south and southwest of the site (DATA VIC spatial data, dated November 2021).

Hazards in the landscape and likely bushfire scenarios

In Victoria the most dominant weather conditions are winds from the northwest or southwest, although wind may travel in all directions.

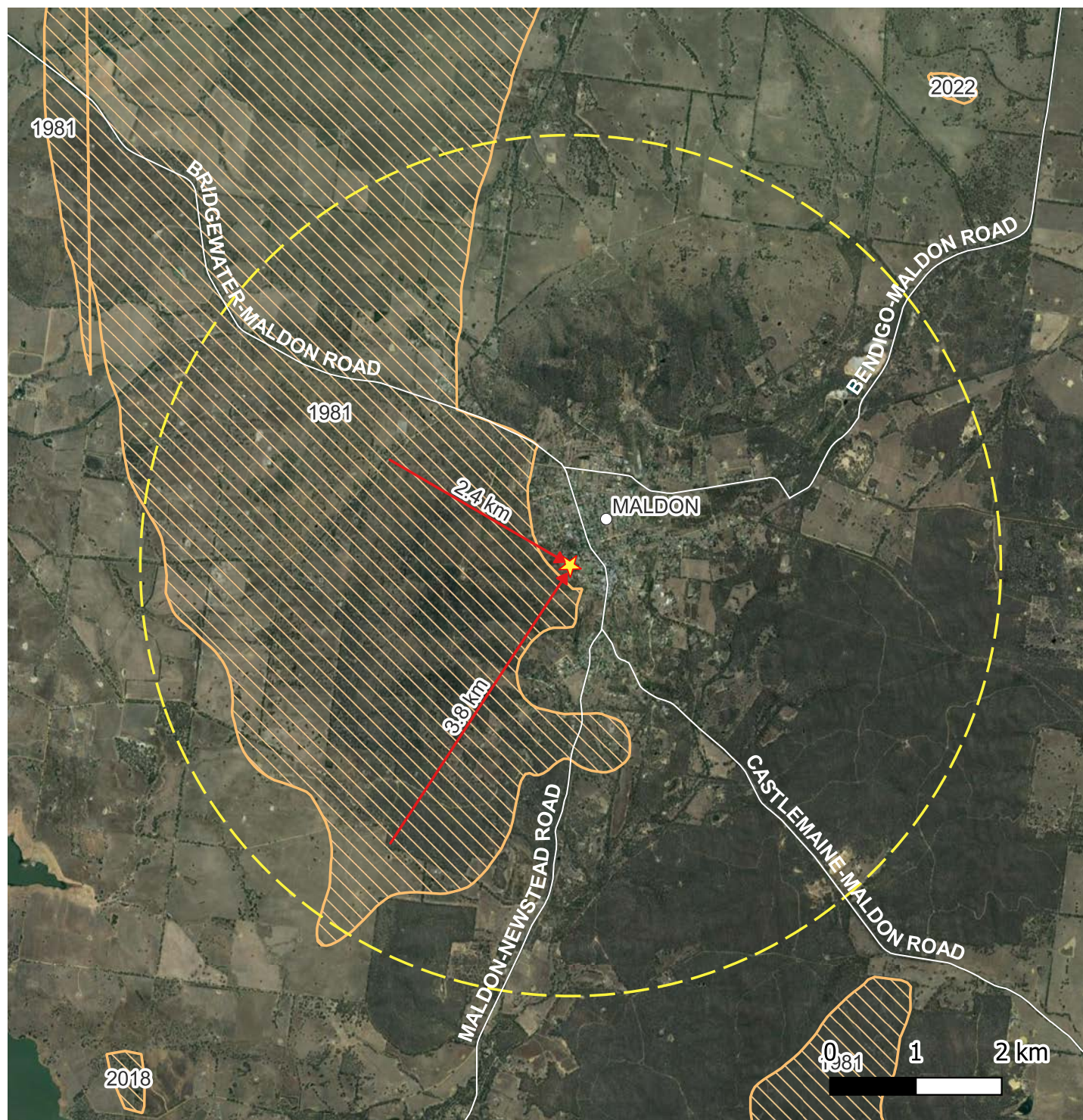
An 800-hectare section of the Maldon Historic Reserve occurs to the northwest and southwest of the site. A fire run through this treed area could travel for up to approximately 4 kilometres before interacting with the hazards in the investigation area (Figure 4).

Whilst Woodland vegetation in the Maldon Historic Reserve immediately to the west and south/southwest is located on an upslope from the site, such bushfire activity has the potential to result in neighbourhood-scale destruction, as evidenced by the 1981 bushfire that affected the Historic Reserve and farming land to the northwest (Figure 4).

Egress to safer places

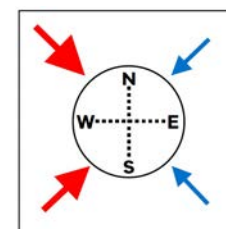
Egress to Neighbourhood Safer Places/Bushfire Places of Last Resort in the Reserve within 200 metres to the east is possible on foot (Figure 1).

Figure 4: Bushfire hazard landscape assessment



Legend

- ★ Site
- 5 km radius
- Bushfire history since 1980
- Potential fire run



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4. BUSHFIRE MANAGEMENT STATEMENT

This section evaluates the extent to which the proposed Amenities building meets the bushfire protection measures of Clause 53.02-4, as follows:

- Landscape, siting and design
- Defendable space and construction, and
- Water supply and access.

Bushfire protection objectives may be met through the implementation of:

- Approved measures (AM) – an approved measure meets the objective.
- Alternative measures (AltM) – an alternative measure may be considered where the responsible authority is satisfied that the objective can be met. The responsible authority may consider other unspecified alternative measures.

Landscape, siting and design

The landscape, siting and design bushfire protection objectives are as follows:

- Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.
- Development is sited to minimise the risk from bushfire.
- Development is sited to provide safe access for vehicles, including emergency vehicles.
- Building design minimises vulnerability to bushfire attack.

Measure	Requirement	Bushfire protection measures adopted
AM 2.1	The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.	It is considered that the adoption of the measures outlined below in this Bushfire Management Statement and a proposed Bushfire Emergency Management Plan will mitigate the bushfire risk to an acceptable level.
AM 2.2	<p>A building is sited to ensure the site best achieves the following:</p> <ul style="list-style-type: none"> • The maximum separation distance between the building and the bushfire hazard. • The building is in close proximity to a public road. • Access can be provided to the building for emergency service vehicles. 	<p>It is understood that community consultation was instrumental in the selection of the proposed site for the Amenities building, given its proximity to playing courts.</p> <p>Two alternative locations were considered but were found to have a greater impact on significant trees identified in a Landscape Heritage Review undertaken for the project, and would have required a greater degree of site cut.</p> <p>Given these constraints, the building has been located as close to playing courts and at the maximum distance from the Woodland hazard to the west.</p> <p>The building and associated vehicle access is within 30 metres of Fountain Street to the south. Access can be provided to the building for emergency service vehicles (see AM 4.1 below).</p>

Measure	Requirement	Bushfire protection measures adopted
AM 2.3	A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building.	Dwellings will avoid building design that allows for embers to lodge in re-entrant corners, complex roof lines, gaps between building materials and unenclosed underfloor spaces.

Buildings and defensible space

The buildings and defensible space bushfire protection objective is to ensure that:

- Defensible space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings.

The justification for the proposed BAL-29 construction rating and greater defensible space distance is described under the heading *Proposed BAL construction and defensible space* (p.9); defensible space requirements are shown in Figure 3.

Measure	Requirement	Bushfire protection measures adopted
Approved measures		
AM 3.2	Not applied – see alternative measures below	
Alternative measures		
AltM 3.3	Adjoining land may be included as defensible space where there is a reasonable assurance that the land will remain or continue to be managed in that condition as part of the defensible space.	It is proposed to consider a section of road reserve and private land immediately adjoining the Reserve boundary to the south of the site (Photo 4, Figure 3) as defensible space. This area of land is made up of hardstand (road surface), managed grasses (road shoulder) and low threat vegetation (cultivated gardens in adjacent private land).
AltM 3.6	A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly may provide defensible space in accordance with Table 2 Columns A, B or C and Table 6 to Clause 53.02-5 where it can be demonstrated that: <ul style="list-style-type: none"> • An integrated approach to risk management has been adopted that considers: <ul style="list-style-type: none"> – The characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency. – The intended frequency and nature of occupation. 	A construction rating of BAL-29 will be applied to the new Amenities building. Defensible space commensurate with the next lowest BAL rating (BAL-19) will be applied – to the <u>greater</u> distance of 24 metres . An integrated approach to risk management will be adopted in a Bushfire Emergency Management Plan (BEMP) that includes: <ul style="list-style-type: none"> • Closing the facility on forecast Catastrophic Fire Danger rated days • Clear establishment of roles and responsibilities for key staff

Measure	Requirement	Bushfire protection measures adopted
	<ul style="list-style-type: none"> – The effectiveness of proposed emergency management arrangements, including a mechanism to secure implementation. • Less defensible space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment. 	<p>throughout the declared fire danger period, and</p> <ul style="list-style-type: none"> • Details of evacuation procedures to the nearby NSP/BPLRs in the event of a bushfire event – addressing accessibility as a priority. <p>The BEMP will be developed to the satisfaction of CFA prior to occupation of the facility.</p>

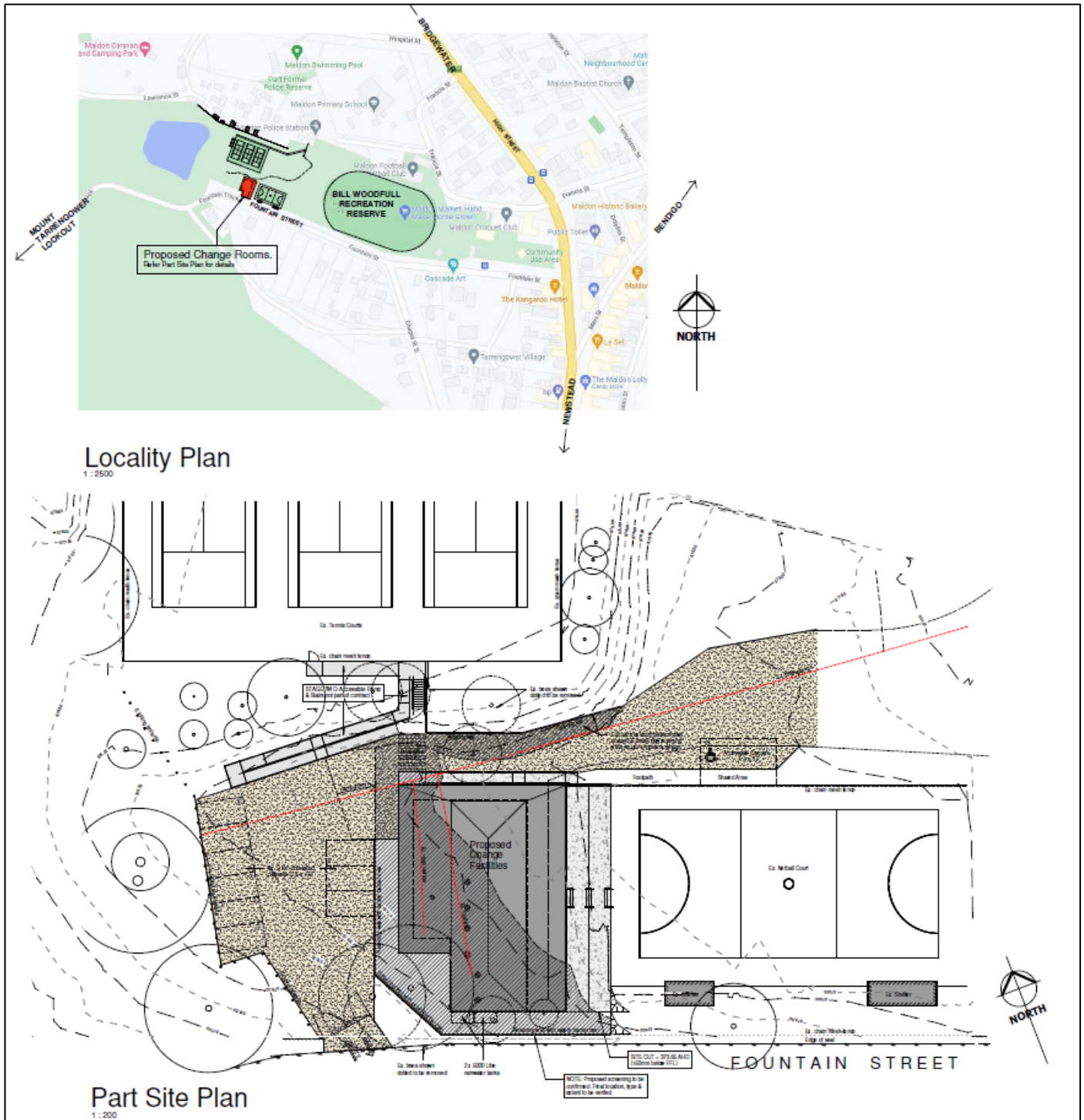
Water supply and access

The water supply and access bushfire protection objectives are to ensure that:

- A static water supply is provided to assist in protecting property.
- Vehicle access is designed and constructed to enhance safety in the event of a bushfire.

Measure	Requirement	Bushfire protection measures adopted
AM 4.1	<p>A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises is provided with:</p> <ul style="list-style-type: none"> • A static water supply for fire-fighting and property protection purposes specified in Table 4 to Clause 53.02-5. • Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5. <p>The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire-fighting water supplies.</p>	<p>A 10,000-litre static water supply for fire-fighting will be provided for the proposed Amenities building.</p> <p>Building plans show this water supply being located in 2 x 5,000-litre tanks along the southern wall of the building behind a proposed screening fence on the Reserve boundary.</p> <p>Where two 5,000-litre water tanks are to be used, these must be installed on the same level and the interconnection between the tanks must be 150 mm in diameter.</p> <p>A remote outlet will be provided within 4 metres of the access driveway (see separate Bushfire Management Plan) in accordance with Table 4 of Clause 53.02-5 (see Appendix 3).</p> <p>An access driveway will be constructed immediately to the west of the new building, providing emergency services vehicle access for firefighting according to the requirements set out in Table 5 to Clause 52.47-3 (see Appendix 4 and separate Bushfire Management Plan).</p> <p>This access driveway will also form part of a loop within the Reserve, linking the site with Francis Street to the east (see separate Bushfire Management Plan).</p>
AM 4.2	Not applicable	Not applicable

Appendix 1: Proposed Locality & Site Plan



Appendix 2: Vegetation management requirements

(Taken from Table 6 of Clause 53.02)

The defendable space management requirements below must be implemented.

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

Note: Discussions with the Fire Safety Referrals team indicate that CFA may support defendable space extending beneath the canopies of several existing large trees to the west of the site *without the need to apply canopy separation requirements to these trees* – provided the existing grassed ground layer beneath these trees is kept mown during the fire danger period (pers. comm. G. Cockram 17/9/22). No new trees are to be planted or self-seeded within the defendable space area other than on a one-for-one replacement basis.

Appendix 3: Fire Authority water supply requirements

(Taken from Table 4 of Clause 53.02)

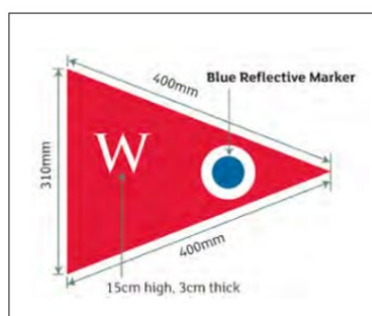
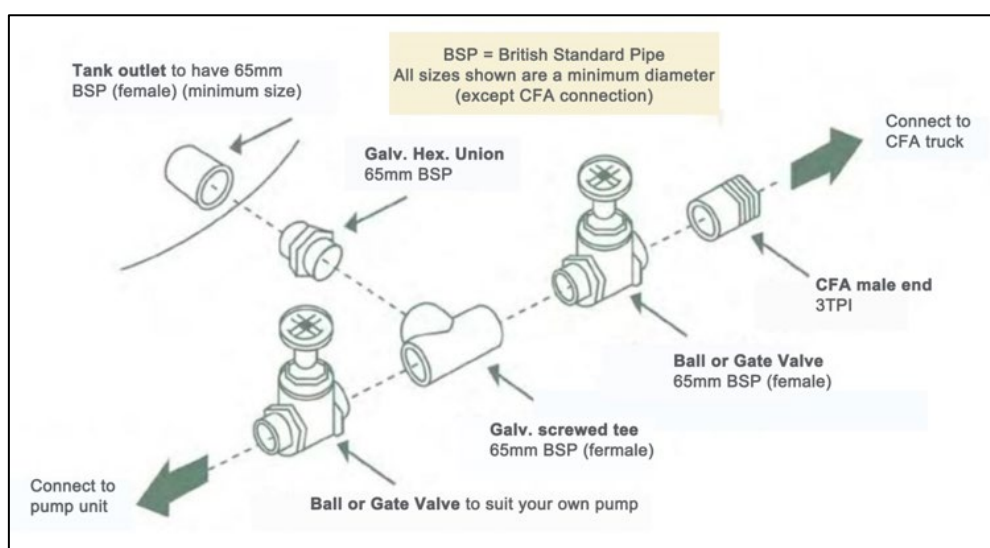
Unless otherwise agreed in writing by the relevant fire authority, the water supply must:

- Be stored in an above ground water tank constructed of concrete or metal.
- Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal.
- Include a separate outlet for occupant use.

Where a 10,000 litre water supply is required, fire authority fittings and access must be provided as follows:

- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority (see below).
- Be located within 60 metres of the outer edge of the approved building.
- The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed.
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting) – see below.
- Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling).
- Where two 5,000-litre water tanks are to be used, these must be installed on the same level and the interconnection between the tanks must be 150 mm in diameter.

Note: Refer to Bushfire Management Plan for remote outlet specifications



Appendix 4: Vehicle access design and construction

(Taken from Table 5 of Clause 53.02)

Where the length of access is greater than 30 metres (but no greater than 100 metres), the following design and construction requirements apply:

- All-weather construction.
- A load limit of at least 15 tonnes.
- Provide a minimum trafficable width of 3.5 metres.
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically (shown below).
- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

