

# BUSHFIRE ASSESSMENT REPORT

Proposed new building  
Woodleigh School Secondary Campus  
485 Golf Links Road  
Langwarrin South

**This copied document to be made available  
for the sole purpose of enabling  
its consideration and review as  
part of a planning process under the  
Planning and Environment Act 1987.  
The document must not be used for any  
purpose which may breach any  
copyright**

**ADVERTISED  
PLAN**

## Contents

1. Introduction .....	4
2. Methodology.....	5
3. Site context .....	6
4. Proposal .....	8
5. Relevant planning controls .....	10
6. Bushfire hazard assessment .....	14
7. Risk assessment .....	22
8. Recommended bushfire mitigation measures .....	24
9. Conclusion.....	26
10. References .....	27

**ADVERTISED  
PLAN**

**Disclaimer and conditions of use**

This report has been made with careful consideration and with the best information available to Terralogic Pty Ltd at the time of writing. Before relying on information in this report, users should evaluate the accuracy, completeness and relevance of the information provided for their purposes. Terralogic Pty Ltd do not guarantee that it is without flaw or omission of any kind and therefore disclaim all liability for any error, loss or other consequence that may arise from you relying on any information in this report.

Requirements detailed in this document do not guarantee survival of the buildings or the occupants. The client is strongly encouraged to develop and practice a bushfire survival plan. Information and assistance including a template for a Bushfire Survival Plan is provided as part of the 'Fire Ready Kit' available through the CFA website at [www.cfa.vic.gov.au](http://www.cfa.vic.gov.au) or through your local CFA Regional office.

No component of this report is to be reproduced for any purpose without the prior written consent of Terralogic Pty Ltd. The copyright and intellectual property rights of Terralogic Pty Ltd extends to the data, ideas, methodologies, calculation procedures and conclusions presented in this report and must not be used without authorisation in writing from Terralogic Pty Ltd.

**Version control**

Version	Date	Author	Client review
Draft	10 July 2023	A Wilson / G McMillan	F Burrige
Final	7 September 2023	G McMillan	F Burrige

**ADVERTISED  
PLAN**

## 1. Introduction

This report has been prepared to support a planning permit application for a new building at Woodleigh School Secondary Campus, 486 Golf Links Road, Langwarrin South (**site**). The building will be used to accommodate existing year 10 students.

The site is zoned Low Density Residential Zone (**LDRZ**) pursuant to the Frankston Planning Scheme (**Planning Scheme**) and is affected by the Significant Landscape Overlay (**SLO1**), Design and Development Overlay (**DDO4**) and Heritage Overlay (**HO407**). The site is within the designated Bushfire Prone Area (**BPA**).

The Planning Scheme requires a bushfire assessment that addresses the policy objectives at Clause 13.02-1S (Bushfire Planning).

### Scope and purpose of this report

The purpose of this report is to assess the bushfire risks associated with the project and respond to the relevant requirements in the Planning Scheme. This report includes:

- An assessment of the bushfire risk at the landscape and site scale
- A response to the policy objectives at Clause 13.02-1S and relevant guidance from the Department of Transport and Planning (DTP)<sup>1</sup>
- Recommended bushfire protection measures that need to be integrated into the application.

**ADVERTISED  
PLAN**

---

<sup>1</sup> Including publications from DELWP prior to the creation of DTP

## 2. Methodology

The following methodology was used to conduct this assessment:

1. Review of the proposal and site context.
2. Review of policy and regulatory framework:
  - Review of bushfire policy objectives at Clause 13.02-1S (Bushfire Planning).
  - Review of relevant guidance published by the Department in relation to strategic bushfire assessments.
3. Completion of bushfire hazard assessments:
  - A site assessment was conducted to assess the bushfire hazard (e.g. vegetation) at the site and determine the setback required to achieve BAL-12.5.
  - An assessment of the bushfire hazard at the landscape scale was conducted, using aerial photography.
4. Risk assessment and mitigation measures:
  - Bushfire risks associated with the project were identified and considered, based on policy consideration.
  - Measures were recommended to mitigate the risks from bushfire to an acceptable level, including measures related to staging, setbacks and access and egress in the early stages of the project design.
5. Conclusions and policy consideration:
  - Final conclusions were made having regard to bushfire policy objectives at Clause 13.02-1S of the Planning Scheme.

**ADVERTISED  
PLAN**

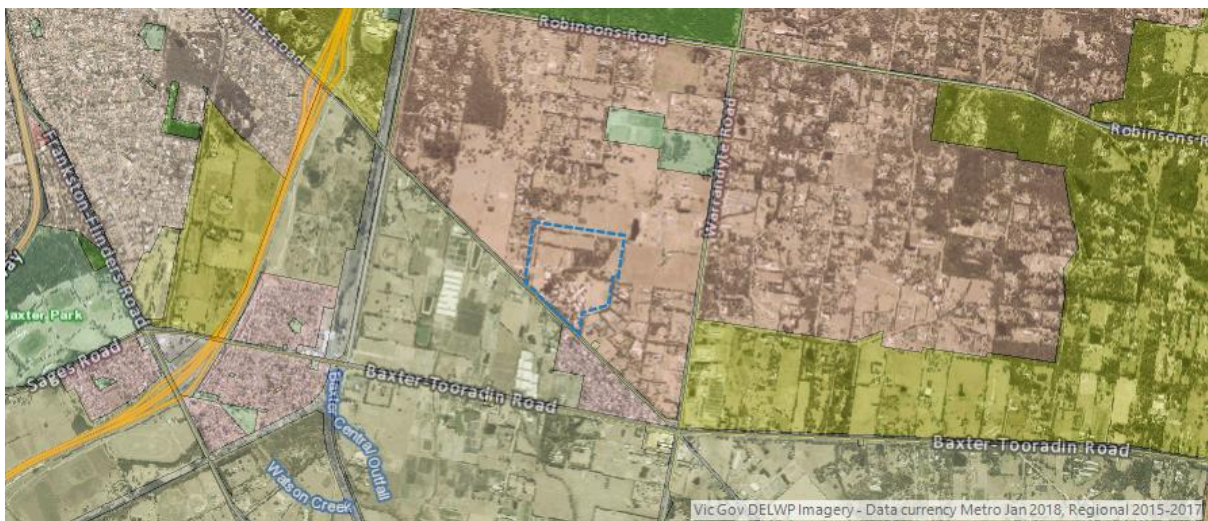
### 3. Site context

The site where the building is proposed is within the existing school campus. The majority of the school’s existing buildings are located in the southern part of the site, set within a well-managed landscaped garden setting.

There are grassed areas surrounding the proposed new building and a conservation area<sup>2</sup> to the east of the site. There are several existing trees (mainly planted by the school), that are proposed to be removed to facilitate the construction of the new building.

The surrounding area is developed with low density properties. The Langwarrin Flora and Fauna Reserve is located to the north of the site and the Baxter Park Reserve is located to the west of the site.

**Figure 1 – Site context**

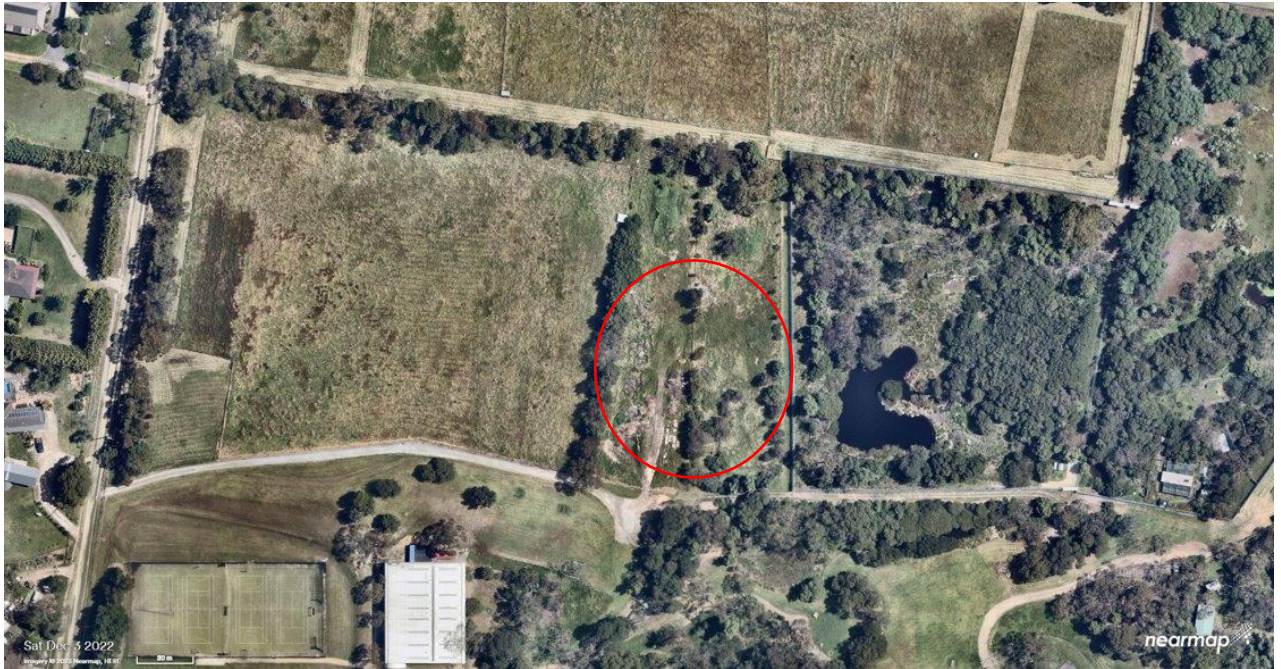


Source – VicPlan version 2.4.4 (DELWP)

**ADVERTISED  
PLAN**

<sup>2</sup> Also referred to on plans as a ‘wildlife reserve’. This is an area created by the school as part of a revegetation program

Figure 2 – Proposed location for the new building



**ADVERTISED  
PLAN**

## 4. Proposal

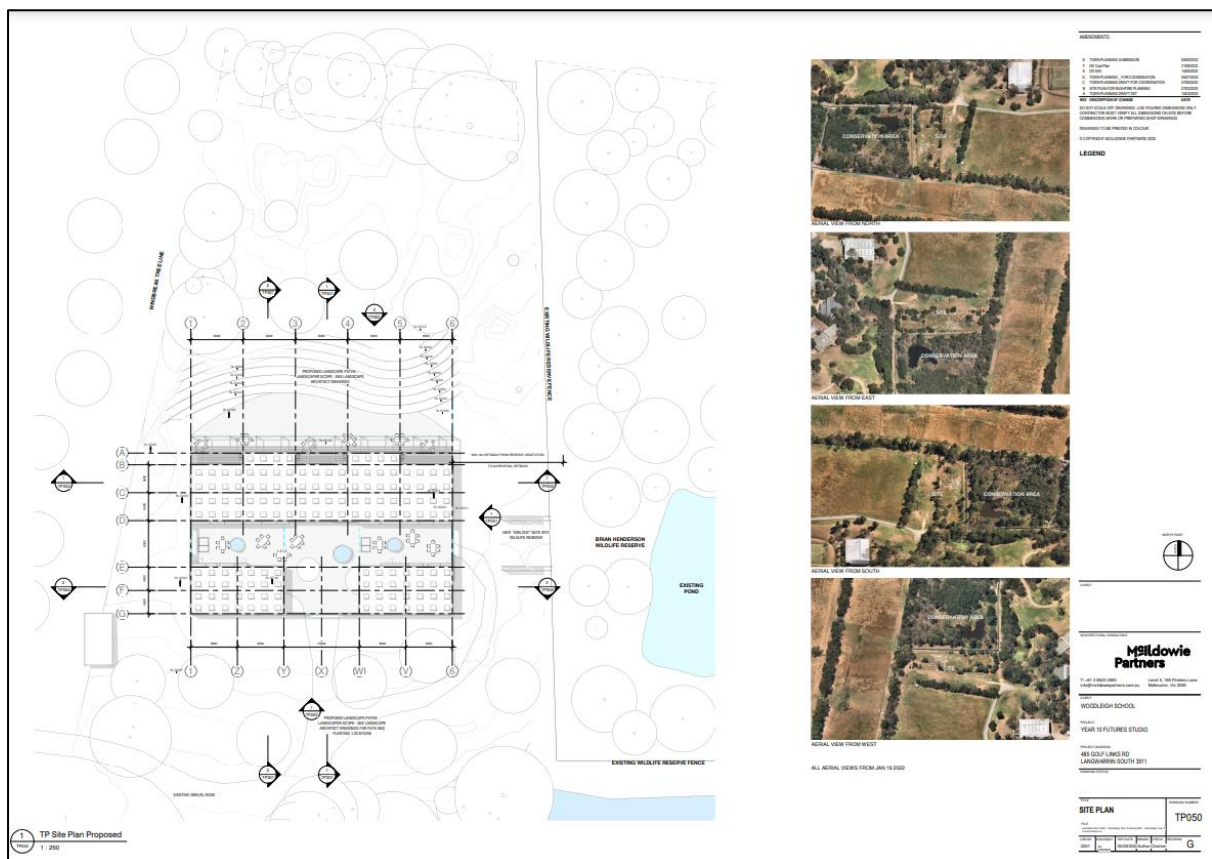
The proposed building, which will be used for educational purposes is proposed to be located adjacent to the school's conservation area.

The building will be used to accommodate existing year 10 students and staff. The existing year 10 buildings will be decommissioned, as such there will be no change to the number of students or staff on campus.

The existing emergency management arrangements are proposed to continue.

Details of the proposed works can be seen in plans prepared by McIlldowie Partners (Job no. 3201 dated 5 September 2023).

**Figure 3 – Proposed site plan**



**ADVERTISED  
PLAN**





## 5. Relevant planning controls

### Zoning and Overlays

The land is zoned Low Density Residential Zone (**LDRZ**) pursuant to the Planning Scheme and is within the designated Bushfire Prone Area (**BPA**).

### State bushfire policy

State planning policy at clause 13.02-1S of the Planning Scheme is relevant for the project, as it applies to projects within the BMO. The objective of clause 13.02 is to:

*To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.*

In terms of settlement planning the policy seeks to:

- *Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).*
- *Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.*
- *Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.*
- *Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire risk overall.*

### Clause 71.02-3 (Integrated decision making)

The provisions at clause 71.02-3 explains how bushfire risk is integrated with other policy objectives.

*The Planning Policy Framework operates together with the remainder of the scheme to deliver integrated decision making. Planning and responsible authorities should endeavour to integrate the range of planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However,*

*in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.*

### Integrated bushfire hazard identification and mitigation

In Victoria the planning and building systems are integrated in how they deal with bushfire risk. The planning system is largely responsible for strategic decisions and decisions in areas with more significant bushfire hazard. The building system is largely responsible for decisions on sites with lower levels of bushfire hazard. Mapping tools under the planning and building systems are used to designate the level of bushfire hazard.

### Building system

In the building system, areas that are likely to be subject to bushfire are mapped in the designated Bushfire Prone Area (BPA) pursuant to Section 192A of the *Building Act 1993*. Areas designated as BPA areas that are exposed to lower levels of bushfire hazard – typically grassland environments and other bushfire prone areas where extreme bushfire behaviour is unlikely to be generated.

The BPA designation triggers a bushfire construction requirement under the National Construction Code 2016 (National Construction Code). A minimum construction standard of Bushfire Attack Level (BAL) – 12.5 applies in all parts the BPA.

### Planning system

The planning system requires bushfire risk to be considered when developing land in the BPA and the BMO.

The BMO does not apply to this site, only the BPS. However, the BMO is a planning overlay control applied to areas that have the potential for more significant fire behaviour, such as a crown bushfire and extreme ember attack and radiant heat (DELWP 2017). These are the type of locations where the creation of new or expanded settlements should be avoided where possible and accordingly the mapping of the BMO has also used as an important input for the landscape scale bushfire assessment.

### Australian Standard AS.3959-2018

*Australian Standard AS.3959-2018 – Construction of buildings in bushfire prone areas (2018) (AS.3959)* is used to determine the level of bushfire attack on buildings and to determine the appropriate separation distances from vegetation and construction response in the building system.

The standard underpins both the building system and many aspects of the planning system. For example, State policy at Clause 13.02-1S refers to different radiant heat exposure thresholds as calculated under AS.3959.

As part of any assessment of bushfire behaviour there are assumptions made based on vegetation type, slope and assumptions about the weather conditions under AS.3959.

### **Vegetation classifications, slope and weather conditions**

AS.3959 models the likely fire behaviour using the following parameters:

- Vegetation classification
- Slope
- Weather conditions

Vegetation (bushfire hazard) is classified under AS.3959 based on how it is likely to influence fire behaviour, taking into account the type and structure of the vegetation. The different vegetation classifications (listed broadly in order of descending fire severity) include:

- Forest
- Woodland
- Shrubland
- Scrub
- Mallee/Mulga
- Rainforest
- Grassland

**ADVERTISED  
PLAN**

Some vegetation is excluded from any assessment under AS.3959 on the basis that it is assumed to have a minimal influence on fire behaviour (i.e. it is considered 'low threat').

Excluded vegetation includes:

- Single areas of vegetation less than 1 hectare in area and not within 100 metres of other classifiable vegetation.
- Multiple areas of vegetation less than 0.25 hectares in area and not within 20 metres of the site or each other.
- Strips of vegetation less than 20 metres in width and not within 20 metres of the site or each other or other areas of classifiable vegetation.
- Non-vegetated areas including waterways, roads, footpaths, buildings or rock outcrops.

- Low threat vegetation including managed grassland, maintained lawns, golf courses and public reserves.

#### Guidance and practice notes

The following practice notes and guidance have been published in relation to bushfire risk assessment:

- Advisory Note 46, Bushfire Management Overlay Mapping Methodology and Criteria, Victorian Government, August 2013 (Advisory Note 64 BMO mapping methodology)
- Advisory Note 68 – Bushfire State Planning Policy Amendment VC140 (Planning Advisory Note 68)
- Planning Practice Note 64 - Local planning for bushfire protection, Victorian Government, September 2015 (PPN64: Local planning for bushfire protection)
- *Technical Guide Planning permit Applications Bushfire Management Overlay*, Victorian Government, September 2017 (BMO Technical Guide)

**ADVERTISED  
PLAN**

## 6. Bushfire hazard assessment

A bushfire hazard assessment is a factual assessment of the bushfire hazard and the likely forms of bushfire attack.

The bushfire hazard assessment has been prepared in two parts:

- Bushfire Hazard Landscape Assessment of the wider area. This considers the hazard at the broader landscape scale.
- A Bushfire Hazard Site Assessment which assesses the vegetation and slope within 100 metres of the proposed farm enterprise.

### Mechanisms of bushfire attack

As noted in DELWP's BMO Technical Guide there are up to five forms of bushfire attack that need to be taken into account when undertaking bushfire assessments. These are:

- ember attack
- radiant heat
- localised flame contact
- flame contact from the fire front
- extreme fire behaviour.

### Bushfire Hazard Landscape Assessment

This area would be classified as broader landscape type one according to the BMO Technical Guide. These are landscapes where:

- *There is little vegetation beyond 150 metres of the site (except grasslands and low-threat vegetation).*
- *Extreme bushfire behaviour is not possible.*
- *The type and extent of vegetation is unlikely to result in neighbourhood-scale destruction of property.*
- *Immediate access is available to a place that provides shelter from bushfire.*

### Bushfire attack scenarios

The most likely forms of fire behaviour that could currently impact the site include:

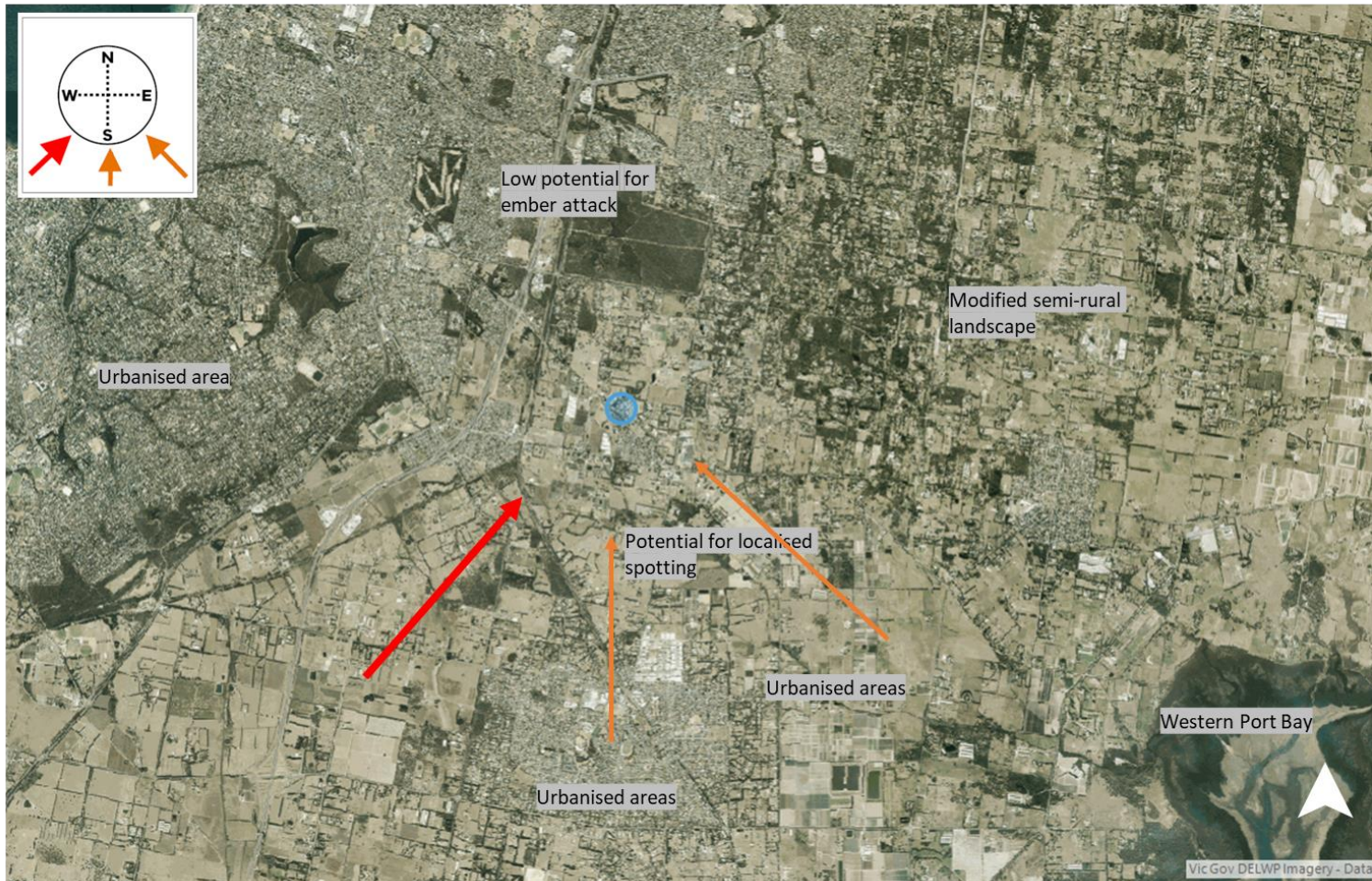
- Ember attack from a landscape scale fire that develops to further to the north of the site in the Langwarrin Reserve.
- Radiant heat (and possible localised flame contact) from a fire that develops in vegetation on the site, particularly within the conservation area.

- Fast moving grassfire on the site.

The risk of ember attack or a grassfire impacting on the site is considered low- medium under current conditions. This is reflected in the fact that the site is within the designated BPA but outside of the BMO.

A bushfire hazard landscape assessment is at **page 18** of this report.




**ADVERTISED  
PLAN**




Plan prepared on 10/07/2023

**Bushfire Hazard Landscape Assessment**  
Woodleigh School

---

-  Subject site
-  Main fire runs
-  Secondary fire runs



TERRALOGIC



### Bushfire Hazard Site Assessment

State policy aims to ensure that new development can achieve a radiant heat exposure of less than 12/KW/sqm. This assessment uses the methodology in AS.3959 to determine what separation distance would be required to achieve this level of radiant heat exposure.

#### Methodology

Bushfire hazard within 100m of the site was assessed in accordance with sections 2.2.3 to 2.2.5 (Method 1) of AS3959:2018 *Construction of buildings in bushfire prone areas (AS.3959)*. The site inspection was conducted on 22 March 2023.

#### Assessment

The outcomes of the assessment are documented in **Table 1**. Table 1 shows different separation distance scenario (BAL-12.5, BAL-29 and BAL-40). A Bushfire Hazard Site Assessment plan is at **page 18** of this report. Photographs of the vegetation are at **page 19 - 21** of this report.

**Table 1** –Site assessment

	North	East	South	West
<b>Fire Danger Index</b>	100	100	100	100
<b>Vegetation classification</b>	Grassland	Forest	Woodland	Grassland
<b>Effective slope under classified vegetation</b>	Upslope	Flat	Downslope (0-5 degrees)	Flat
<b>Separation distances** to achieve radiant heat exposure of less than 12/KW/sqm (BAL-12.5 is minimum in BPA)</b>	<b>19m</b>	<b>48m</b>	<b>41m</b>	<b>19m</b>
<b>Separation distances** to achieve radiant heat exposure of less than 29/KW/sqm</b>	<b>9m</b>	<b>25m</b>	<b>21m</b>	<b>9m</b>
<b>Separation distances** to achieve radiant heat exposure of less than 40/KW/sqm</b>	<b>6m</b>	<b>19m</b>	<b>15m</b>	<b>6m</b>



Prepared on 22/03/23 (Site inspection conducted on 22/03/23)


**Bushfire Hazard Site Assessment**  
Woodleigh School

- Subject site
- 150m assessment area

**Classified vegetation**

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959



TERRA LOGIC

**ADVERTISED  
PLAN**

**Photo 1** – View of proposed building site (from south west corner)



**Photo 2** – View of grassed area to west of building site (from south)



**Photo 3** – View of hedgerow to west of the building site



**Photo 4** – View of grassed area and hedgerow to west of the building site



**Photo 5** – Access track to south of site (looking west)



**Photo 6** – View of access track to south (looking east)



**Photo 7** – Grassed paddock to west of windbreak (looking north)



**Photo 8** – Existing school grounds to south west of site



**Photo 9** – Existing vegetation and ground to south of site



**Photo 10** – Conservation area to east of site (viewed from south east)



**Photo 11** – Southern side of conservation area



**Photo 12** – Vegetation in conservation area (to east of site)



**Photo 12a** – Vegetation in conservation area



**Photo 13** – Interface with conservation area to east of site



**Photo 14** – Building site viewed from the north east



**Photo 15** – Paddocks to north of building site



**Photo 16** – Fire break and paddocks directly north of building site



**Photo 17** – Golf Links Road – view north from exit road



## 7. Risk assessment

Relevantly for this proposal, these factors include:

- Bushfire hazard and likely fire behaviour.
- Characteristics of the use and visitors to the site.
- Management arrangements.
- Access to the site and availability of safer places.

**ADVERTISED  
PLAN**

A response to each factor and proposed mitigation measures (if required) are described below:

### Bushfire hazard and likely fire behaviour

In **section 6** of this report the bushfire hazard and likely fire behaviour was assessed. It is anticipated that the most likely forms of fire behaviour that could impact the site include:

- Ember attack from a landscape scale fire that develops to further to the north of the site in the Langwarrin Reserve.
- Radiant heat (and possible localised flame contact) from a fire that develops in vegetation on the site, particularly within the conservation area.
- Fast moving grassfire on the site.

It is considered that the risk to occupants and visitors to the site is relatively low. There is a high degree of modification in the surrounding rural landscape and the most likely fire scenario is a fast moving, but lower intensity fire. Given students and staff will be centrally managed, it is expected that students would be evacuated if required.

It is expected that the risks from the lower level fire risk can be mitigated by appropriate bushfire protection measures. This includes a recommendation to **manage at least 19m of vegetation around the building in a low threat state**, in addition to structural fire safety requirements. The school is also proposing to install a 10,000 litre water tank, which would be reserved for fire fighting purposes.

These risks can be mitigated by managing vegetation around the new building in a low threat state in conjunction with the static water supply and continuation of the emergency management arrangements.

### Management arrangements

The site is already managed by Woodleigh school and as such students, staff and guests are under the management and control on the school. This enables the implementation of an Emergency Management Plan (**EMP**) which applies to all people on the site.

It is recommended that the EMP is updated to reflect the new building and any particular management arrangements, such as maintenance of the low threat buffer around the building.

#### Students and visitors to the site

The building will be used by year 10 students and staff who are already on campus and familiar with the site and emergency management arrangements. The school is centrally managed and the existing arrangements will continue to operate.

Any visitors to the site need to check in at reception, so the school can manage all students, staff and visitors if required.

On extremely risky days (e.g. Catastrophic) there is also the possibility of closing the campus to students, staff and guests to reduce the chances of people being in the area. This should be reflected in the EMP.

#### Access and availability of safer places

The main access to the site is from Golf Links Road. This is a major thoroughfare and provides access to safer places.

Students and staff would be directed by the school in accordance with the EMP procedures. Notably, there is an opportunity at the site to designate a building as a safer place, where students and staff could congregate in the event of an emergency.

Vehicle access on site must be maintained to a suitable standard for emergency services to enter the site.

**ADVERTISED  
PLAN**

## 8. Recommended bushfire mitigation measures

Based on the outcomes of the policy assessment, hazard assessment and risk assessment the following recommendations are made:

- The **BAL** for the building needs to be confirmed at the building stage (noting it is likely a BAL-29 construction standard would apply). After the BAL is confirmed the building must be constructed to the relevant standard as approved by the relevant building surveyor.
- **Low threat buffer** - All vegetation within 19 metres of the proposed buildings should be managed and maintained in a low threat state as defined in *AS3959:2018 Construction of buildings in bushfire prone areas*, unless otherwise agreed by the relevant fire authority.

For example, within that 19 metre 'low threat' buffer area, grass should be short cropped and maintained during the declared fire danger period, shrubs should not be located under the canopy of trees, trees should not overhang or touch any elements of the building and the canopy of any trees should be separated by at least 5 metres.

- The existing **Emergency Management Plan** should be reviewed to ensure the new building is incorporated. Adequate consideration needs to be given to amongst other measures:
  - The conditions under which the site should not be occupied by students or staff.
  - Activities to be undertaken prior to each fire season such as vegetation management and other mitigation measure.
  - Management actions in the event of a fire and clearly identify who is responsible for implementing those actions.
  - Management action to implement site closure and clearly identify who is responsible for implementing those actions.
- **10,000 litres of static water supply must be provided.** All static water supply must meet the following requirements:
  - 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.



- Be readily identifiable from the building or appropriate identification signs to the satisfaction of the relevant fire authority.
- Should be located within 60 metres of the outer edge of the relevant building.
- The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed and can be provided via remote access in accordance with *Guidelines for remote outlets on water tanks in the Bushfire Management Overlay* (CFA, 2017).
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 millimetres(excluding the CFA coupling).

Unless otherwise agreed by the relevant fire authority.

- **Vehicle access must be maintained** to meet the following standards:
  - 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.
  - 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.

Unless otherwise agreed by the relevant fire authority.

**ADVERTISED  
PLAN**

## 9. Conclusion

The project does not result in an increase in students or staff on site. The campus is already managed centrally in accordance with an emergency management plan.

There is a low risk of ember attack and some risk of lower intensity radiant heat impacting on the site. The risk to students and staff can be suitably mitigated by the bushfire protection measures recommended at **section 8** of this report.

It is considered that the proposal is consistent with the State policy objectives at clause 13.02-1S.

**ADVERTISED  
PLAN**

## 10. References

Advisory Note 46, Bushfire Management Overlay Mapping Methodology and Criteria, Victorian Government, August 2013

Advisory Note 68 – Bushfire State Planning Policy Amendment VC140

Planning Practice Note 64 - Local planning for bushfire protection, Victorian Government, September 2015

Technical Guide Planning permit Applications Bushfire Management Overlay, Victorian Government, September 2017

DELWP 2017. Guidelines for the removal, destruction or lopping of native vegetation, [https://www.environment.vic.gov.au/\\_\\_data/assets/pdf\\_file/0021/91146/Guidelines-for-the-removal,-destruction-or-logging-of-native-vegetation,-2017.pdf](https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/91146/Guidelines-for-the-removal,-destruction-or-logging-of-native-vegetation,-2017.pdf).

Standards Australia 2018. Australian Standard AS.3959-2018 – Construction of buildings in bushfire prone areas (AS.3959-2018), Council of Australian Standards.

**ADVERTISED  
PLAN**



TERRALOGIC

---

## ADVERTISED PLAN