TERRALOGIC

STRATEGIC BUSHFIRE ASSESSMENT

Geelong Ballan Road The Cedar Concept Plan

FINAL (V2)
31 January 2024

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Contents

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Version control

Version	Date	Author	Client review
Draft 1	5 July 2023	G McMillan	G Williamson
Draft 2	11 July 2023	A Wilson / G McMillan	G Williamson
Final	13 July 2023	G McMillan	G Williamson
Final V2	31 January 2024	G McMillan	N McGovern

1. Introduction

This report has been prepared to support a planning scheme amendment to rezone and introduce a concept plan (**proposal**) for land bounded by the Werribee River, Western Freeway, Geelong-Ballan Road and Old Melbourne Road, Ballan (**site**).

This report provides a strategic bushfire risk assessment of the proposal, with a focus on:

- the appropriateness of the rezoning proposal; and
- the layout of the concept plan concept (prepared by Patch, V13 dated 27/07/23) (**concept plan**).

This report has been prepared in response to the relevant requirements in the Moorabool Planning Scheme (**Planning Scheme**) including the policy objectives at Clause 13.02-1S and the *Design Guidelines - Settlement Planning at the Bushfire Interface* (DELWP, 2020) (**Bushfire Interface Guidelines**).

Scope and purpose of this report

This report has been prepared to support the proposed rezoning and concept plan. This report addresses the following matters:

- An assessment of bushfire hazard at the landscape scale.
- An assessment of bushfire hazard at the local scale (e.g. within 150 metres of the site).
- Description of likely fire behaviour that could impact on the site.
- An assessment of the site having regard to the requirements at Clause 13.02-1S of the Planning Scheme, relevant practice notes, standards and guidance, including the Bushfire Interface Guidelines.
- Recommendations on bushfire protection measures that should be integrated into the concept plan to meet relevant State policy. This includes recommendations on how to manage the threat at the edge of development, layout of future development, minimum construction standards and vegetation management considerations.

2. Methodology

The following methodology was used to conduct this assessment:

1. Review of the proposal and site context.
   - Review the concept plan and background work completed to date, including the concept plan, agency comments and landscape sections prepared by Spiire (Ref. 310024, dated 23/6/23) (**landscape sections**).

2. Review of policy and regulatory framework:
   - Review of bushfire related requirements in the Planning Scheme, including the State policy objectives at Clause 13.02-1S (Bushfire Planning) and local policy direction, including Clause 21.08 which incorporates the Ballan Framework Plan (**Ballan Framework Plan**) (the site is within precinct 5 in the Ballan Framework Plan).
   - Review of relevant guidance published in relation to strategic bushfire assessments, including the Bushfire Interface Guidelines.

3. Completion of bushfire hazard assessments:
   - A general site inspection was conducted of the site and surrounds.
   - A desktop assessment of the bushfire hazard at the landscape scale was conducted, using aerial photography.
   - A desktop assessment of the bushfire hazard at the site scale was conducted using publicly available aerial photography and contour information, as well as general information gathered on the site inspection.

4. Risk assessment and mitigation measures:
   - Bushfire risks associated with the site were identified and considered, based on policy consideration.
   - Measures were recommended to mitigate the risks from bushfire to an acceptable level, including how to manage the threat at the edge of development, layout of future development, minimum construction standards and vegetation management considerations.

5. Conclusions recommendations:
   - Final conclusions were made having regard to bushfire policy objectives at Clause 13.02-1S of the Planning Scheme and the Bushfire Interface Guidelines.

3. Proposal

It is proposed to amend the Planning Scheme to:

- Rezone the land from Rural Living Zone (**RLZ**) to Neighbourhood Residential Zone (**NRZ**); and
- Apply Development Plan Overlay (**DDO7**) to the whole of the precinct 5. concept plan
- Introduce a Vegetation Protection Overlay (**VPO**).

The following overall controls are proposed to be retained on the site:

- Environmental Significance Overlay (ESO1 & ESO2)
- Design and Development Overlay (DDO3)
- Land Subject to Inundation (LSIO).

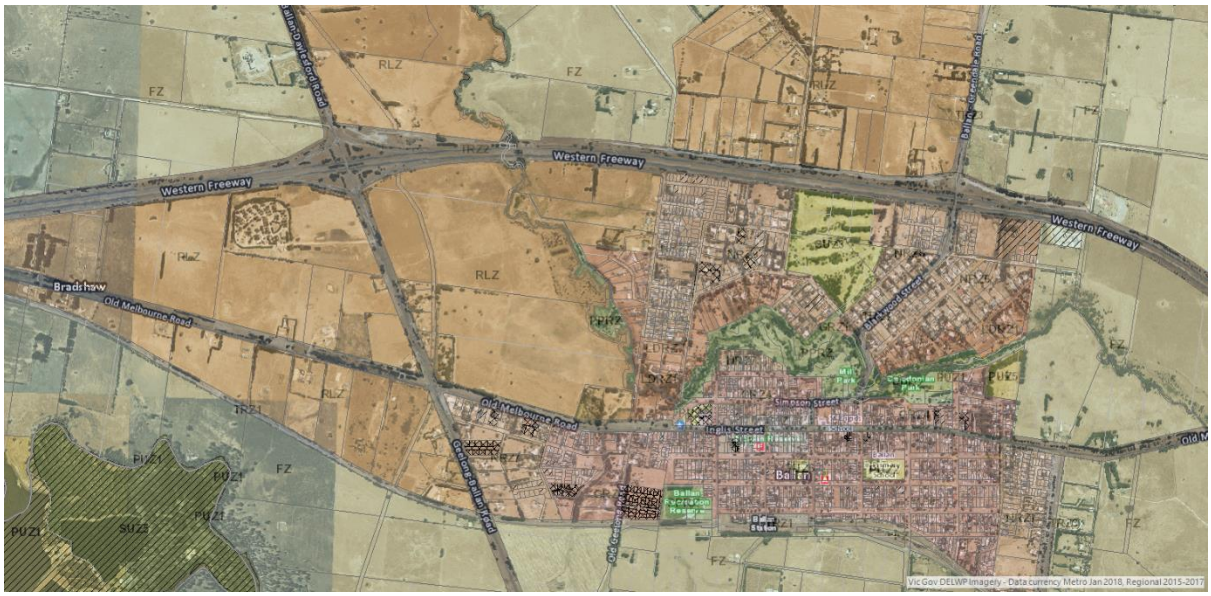
The concept plan (Figure 1) provides for residential development, with an anticipated that approximately 939 new dwellings, 3 local parks, commercial area, active open space and a reserve along the Werribee River corridor.

Figure 1 – Concept plan

4. Policy and regulatory framework

The site is currently zoned RLZ and affected by a number of environmental and design overlay controls. The site is within the designated Bushfire Prone Area (**BPA**).

Figure 2 – Existing zoning controls



Source – VicPlan version 2.4.4 (DELWP)

Figure 3 – Bushfire controls

Source – VicPlan version 2.4.2 (DELWP)

Relevantly, Clause 02.03-1 Strategic Directions (Ballan) of the Planning Scheme states that growth should be provided consistent with the Ballan Framework Plan as shown at Clause 11.01-1L-03. The site is within precinct 5 in the Ballan Framework Plan. Within that precinct the future land uses, main road network and proposed open space areas are identified.

Figure 4 – Ballan framework plan

Source – Clause 11.01-1L-03 Moorabool Planning Scheme

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 designated BPA. The objective of clause 13.02-1S 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 for accommodation.

Planning system

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

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 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

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:

- *Planning Practice Note 64: Local and Regional Strategic Directions for Bushfire* (**PPN 64**)
- *Design Guidelines: Settlement Planning at the Bushfire Interface* (July 2020) (**Bushfire Interface Guidelines**)
- *Technical Guide Planning permit Applications Bushfire Management Overlay,* Victorian Government, September 2017 (**BMO Technical Guide**)
- *Landscaping for Bushfire: Garden Design and Plant Selection* (Version 3) (CFA, undated) (**Landscaping for Bushfire guide**)

Bushfire Interface Guidelines

The guidelines are used once the overall bushfire hazard is understood (as addressed in **section 5** of this report). There are three parts to the guidelines:

- Part 1 – Form and structure of settlements which considers:

  - Bushfire hazard in directing growth
  - Distribution of uses in the settlement
  - Lot sizes in settlement layout
  - Vegetated areas within a settlement.
- Part 2 – The settlement interface with the bushfire hazard
  - Apply the required development setback
  - Design the settlement interface
  - Access and egress
- Part 3 – Bushfire protection measures at the settlement scale which considers:
  - vegetation management
  - bushfire constructions standards
  - fences and other localised fuel sources

5. 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 approximately 150 metres of the site.

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 majority of the Project 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.*

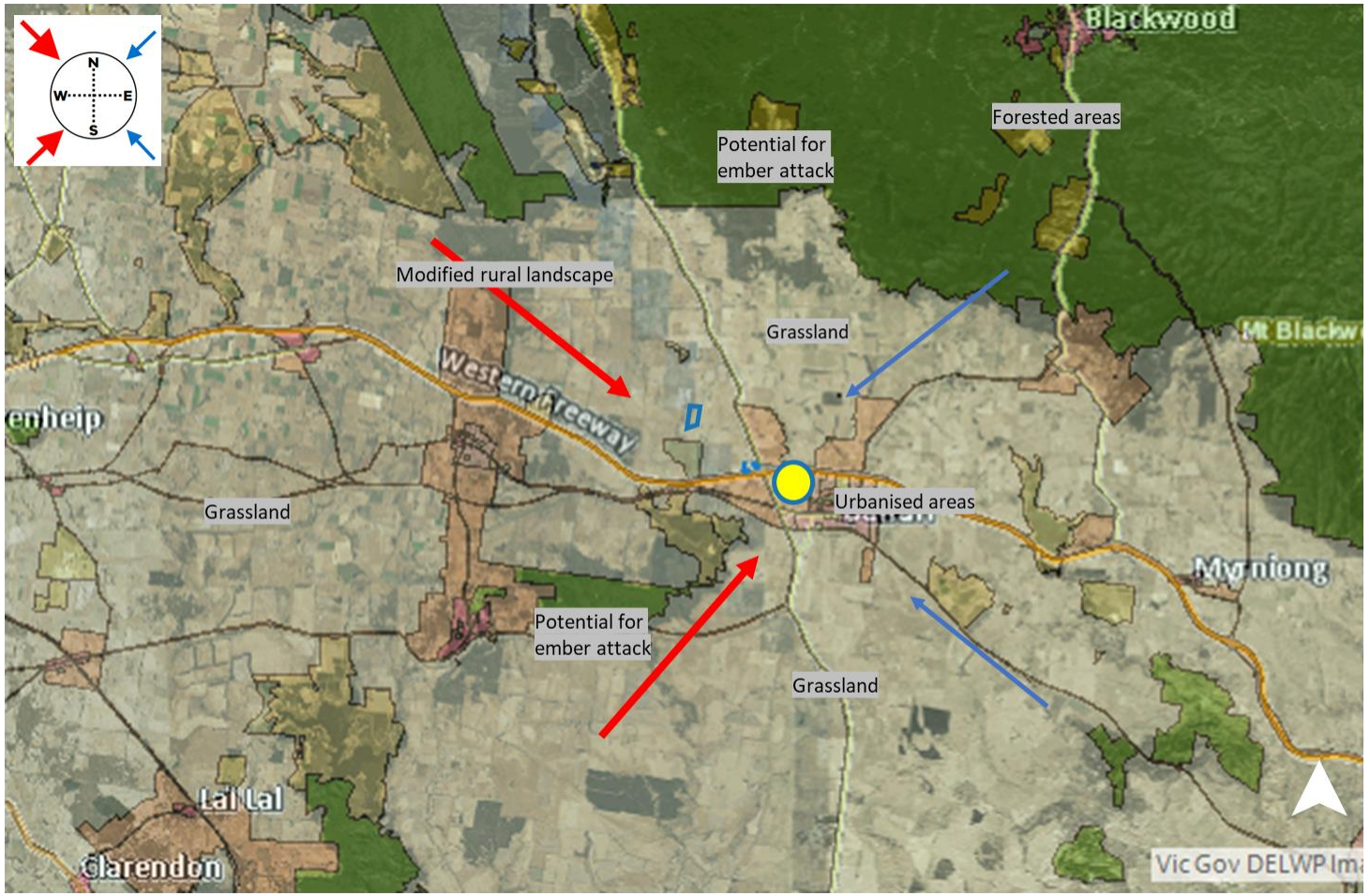
Bushfire attack scenarios – based on proposed conditions

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

- Ember attack (from a landscape scale forest fire developing to the north or south west of the site);
- Fast moving grass fire (including during the construction phase); and

- Localised radiant heat and direct flame contact where there is a direct interface with unmanaged vegetation (e.g. from vegetation along the Werribee River Corridor or vegetation on the existing larger lots in the south western and south east parts of the site).

A bushfire hazard landscape assessment is at **page 16** of this report.



Plan prepared on 26/04/2022

Bushfire Hazard Landscape Assessment

Geelong Ballan Road - Ballan

Subject site

Main fire runs

Secondary fire runs

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

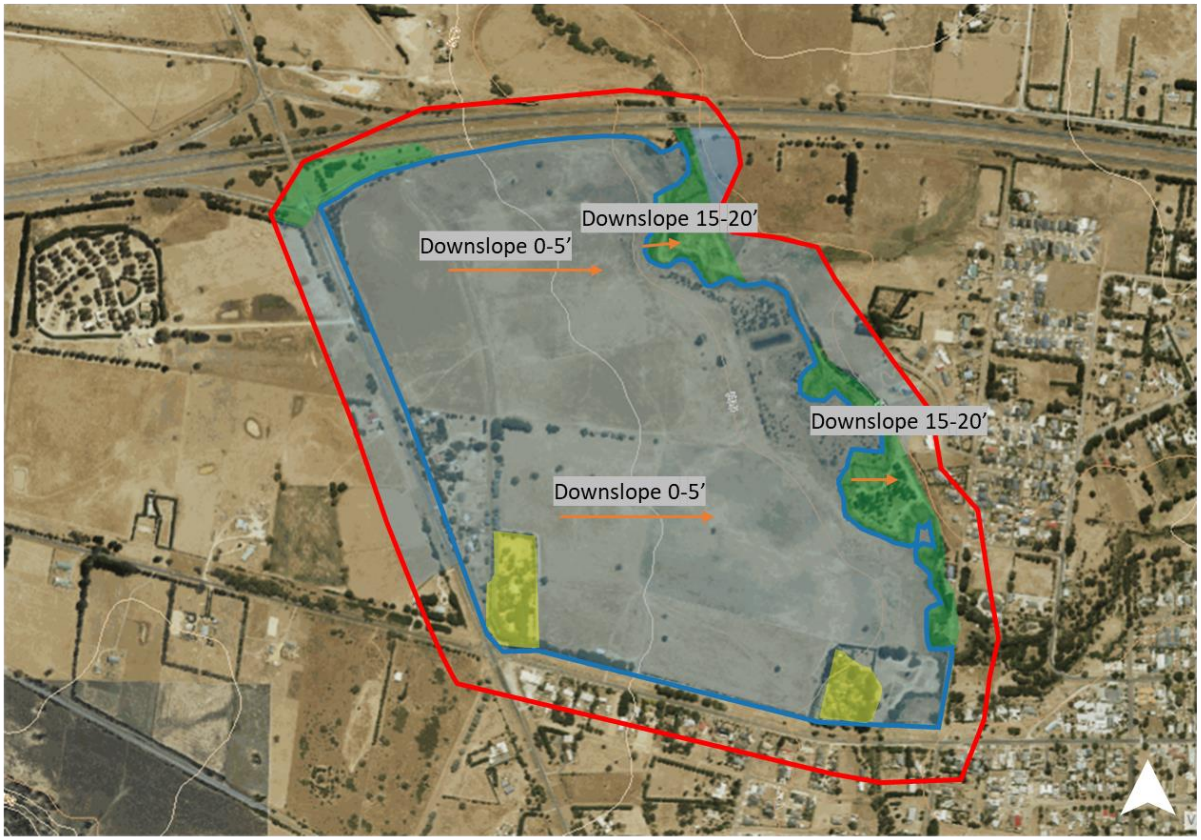
Bushfire hazard within 150m of the site were assessed based on desktop information, generally in accordance with sections 2.2.3 to 2.2.5 (Method 1) of *AS3959:2018 Construction of buildings in bushfire prone areas* (**AS.3959**).

The site inspection was conducted on 26 April 2022 and 29 June 2023. However, the purpose of the site assessment was to get a more general understanding of the site, topography, access and interfaces with surrounding land uses.

Desktop site assessment

Photographs of the site and surrounds are at **pages 19-21** of this report.

The outcomes of the site assessments are shown on maps at **pages 18**.



Prepared on 30/06/23 (Site inspection conducted on 29/06/2023)

Bushfire Hazard Site Assessment

Geelong Ballan Road - Ballan

Subject site

100m assessment area

Classified vegetation

Forest

Grassland

Woodland /Modified vegetation

Note – all vegetation that is unshaded in the site assessment area is considered 'low threat'

Photo 1 – View from south west corner of site looking south

Photo 2 – View from south west corner of site looking north west

Photo 3 – View from south west corner of site looking west

Photo 4 – View from south east corner of site looking south

Photo 5 – Crops in southern part of site

Photo 6 – Example of existing roadside vegetation

Photo 7 – Existing drive on western boundary

Photo 8 – Residential development to the south

Photo 9 – View of paddock

Photo 10 – Vegetation on larger lots in south west corner

Photo 11 – View in central part of the site

Photo 12 – View of Werribee river corridor

Photo 13 – View of site (typical grassland)

Photo 14 – View of vegetation to south west corner of site assessment area

6. Risk assessment & Bushfire Interface Guidelines

State and local planning policy

State policy at Clause 13.02-1S and the BMO Technical Guide sets out the factors that influence bushfire risk and strategies for settlement planning. These factors are to prioritise fire risk in planning decisions, avoid increasing bushfire risk and minimise exposure to bushfire risk.

The following section of this report includes a response to the relevant policy objectives.

Clause 13.01-2S

Settlement planning strategies	**Response**
• 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 3959-2009Construction 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 3959-2009Construction 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. • Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction. • Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis. • Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under *AS 3959-2009Construction of Buildings in Bushfire-prone Areas* (Standards Australia, 2009).	**Lower risk locations** This is a relatively low risk location. The main risks are associated with ember attack (from a landscape fire), grassfire and localised fire activity in the Werribee River corridor and any new of existing vegetation at the site. This is a location where residential growth presents a relatively low risk, subject to appropriate structure planning details. **Access** The concept plan shows a comprehensive road network and perimeter roads on interfaces with unmanaged vegetation. **No net increase in risk** Subject to the implementation of appropriate structure planning details, it is feasible to achieve a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959.

Bushfire Interface Guidelines

The Bushfire Interface Guidelines provide a structured process for assessment settlement plans, such as this concept plan.

- Understanding the bushfire hazard
- Part 1 – Form and structure of settlements which considers:
- Part 2 – The settlement interface with the bushfire hazard
- Part 3 – Bushfire protection measures at the settlement scale which considers:
- Implementation

The following section in the report provides a response to Parts 1 -3 of the guidelines.

Understanding the threat - Bushfire hazard and likely fire behaviour

In **section 5** 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 generally impact the site include:

- Ember attack (from a landscape scale forest fire developing to the north or south west of the site);
- Fast moving grass fire (including during the construction phase); and
- Localised radiant heat and direct flame contact where there is a direct interface with unmanaged vegetation (e.g. from vegetation along the Werribee River corridor or vegetation on the existing larger lots in the south western and south east parts of the site).

Part 1 – Form and structure of settlements

Guideline considerations	Response
• Settlement planning should direct growth to locations that are less exposed to a bushfire	Infill areas are generally the lowest risk locations where growth should be directed. However, the site is a relatively low risk location. The main risks are associated with ember attack (from a landscape fire), grassfire and localised fire activity in the Werribee River corridor and vegetation on the larger lots in the south west corner of the site. This is a location where residential growth should be directed, once infill opportunities have been exhausted (subject to a separate process).
• The distribution of land uses in the settlement should consider bushfire risk. Vulnerable uses should be located away from interface areas and	The concept plan shows a layout which distributes settlement appropriately. Perimeter roads and included and higher density development is positioned adjacent to managed local parks and active open space reserves. Any design guidelines should also noted that vulnerable and hazardous uses should not be positioned close to unmanaged vegetation (e.g. avoid such uses close to the Werribee River Corridor or south western corner of the site).

hazardous uses (that present an ignition risk) should be located away from interfaces and or where they are exposed to a north west of south west bushfire.	
• Lot sizes should be considered in the context of their capacity to enable fuel sources (vegetation) in the landscape.	The size of future lots will influence the extent of fuel (e.g. vegetation) in the landscape and the ability to provide structural separation between buildings. It is not appropriate to specify exact lot sizes at the rezoning stage, however it is expected that some higher density lots would result. The concept plan indicate that lots will range between 150sqm and 1,000sqm is a good balance. This majority of lots will be between 300sqm and 700sqm. The smaller lots are located close to local parks and activity centre (this is appropriate subject to appropriate landscaping in the parks). Larger lots (e.g. 1000sqm) are located around the perimeter and this is an appropriate transition.
• Vegetated areas within a settlement should be designed to minimise bushfire risk.	There are several vegetated areas across the site. Where these areas are proposed to be managed for conservation purposes (e.g. unmanaged fuels along Werribee River Corridor) the concept plan incorporates perimeter roads. The more traditional parks or open space areas should be designed to meet the definition of low threat under AS3949 or adopt the principles in CFA's Landscaping for Bushfire guide. Principles should be incorporated into the Design Guidelines that direct future decisions about landscape design (both in parks and conservation areas).

Part 2 – The settlement interface

<table>
<tr><th>Guidelines considerations</th><th>Response</th></tr>
<tr><td>• Apply the required setback</td><td>It is premature to determine the exact setback requirement for development on the site, however based on the desktop assessments completed to date it looks like there will be a range of setbacks required. The table below outlines several setback scenarios to achieve a radiant heat radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959.

<table>
<tr><td>Vegetation type</td><td>Slope</td><td>Setback</td></tr>
<tr><td>Grassland</td><td>Flat or upslope</td><td>19m</td></tr>
<tr><td>Grassland</td><td>0-5 degrees downslope</td><td>22m</td></tr>
<tr><td>Woodland</td><td>Flat or upslope</td><td>33m</td></tr>
<tr><td>Woodland</td><td>0-5 degrees downslope</td><td>41m</td></tr>
<tr><td>Forest</td><td>Flat or upslope</td><td>48m</td></tr>
<tr><td>Forest</td><td>0-5 degrees downslope</td><td>57m</td></tr>
</table>

A more detailed assessment would be required at the time the subdivision plan is finalized.</td></tr>
<tr><td>• Design the settlement interface to include low threat vegetation or a perimeter road</td><td>The concept plan incorporates a perimeter road in all locations where there is an interface with unmanaged vegetation. This should be carried through to the Design Guidelines to cover circumstances where the layout is revised at the subdivision application stage.</td></tr>
<tr><td>• Design of access and egress should allow people living close to the interface to move away easily</td><td>The layout of the road layout provides good connectivity through the new growth areas to allow multiple access points away from the hazards. Principles could be incorporated into the Design Guidelines. In addition, appropriate access for emergency service vehicles should also be made available during the construction phases.</td></tr>
</table>

Part 3 – Bushfire protection measures across a whole site

Guidelines considerations	Response
• Vegetation should be managed to a standard commensurate with the risk	The site is located outside of the BMO, as such mandatory defendable space requirements will not apply (and are not considered necessary in this context or at this stage of the project). There are vegetated areas proposed within the concept plan. Where local parks are proposed, these areas should be designed to meet the definition of low threat under AS3949 or adopt the principles in CFA's Landscaping for Bushfire guide. Vegetation in conservation areas (e.g. the VPO) should include a perimeter road to ensure appropriate setbacks are provided. Principles should be incorporated into the Design Guidelines that direct future decisions about landscape design (both in parks and conservation areas).

• Construction standards should be considered	The entire site is within the designated BPA and as such a BAL assessment will be required for all new residential development. A minimum construction standard of BAL-12.5 applies which will protect from embers.
• Fences and other localised fuels sources should be considered	It is premature to provide specific detail on fencing, but the Design Guidelines should consider the impact of fencing and other landscape features on bushfire risk. Ideally brush fences should be avoided and colourbond or post and wire fences are preferred.

7. Recommended bushfire mitigation measures

The concept plan as drafted is sound, however it is understood that DPO7 will be the mechanism to inform the final subdivision proposal for the site. As such we have framed the recommendations to integrate them into schedule 7 to the DPO.

DPO7 requirements

The DPO7 should include a requirement for a Bushfire Management Plan that explains how the masterplan (including the sub-masterplans, such as biodiversity, wetland and landscaping) addresses the following matters:

- Appropriate land use distribution should be provided within any new precinct, including:
  - avoid positioning any vulnerable uses (e.g. hospitals, aged care facilities) or hazardous uses (e.g. petrol stations) where there is a direct interface with unmanaged vegetation
- Lot sizes should be considered in the context of their capacity to enable fuel sources (vegetation) in the landscape.
  - Smaller lots (e.g. less than 800 sqm) should be positioned in the lowest risk parts of new precinct (e.g. the central parts of the site or adjacent to well managed open space areas with perimeter roads)
  - If larger lots (e.g. between 0.2 - 4ha) are proposed, ideally these areas should not be located at the interface with major roads.
- Appropriate setbacks should be provided to achieve a radiant heat radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959 for new dwellings, and possibly lower exposure for vulnerable uses.
- Vegetated areas in the new settlement areas should be designed to minimise bushfire risk where practicable (e.g. new open space areas and street planting designed to achieve a low threat standard under AS3959 or adopt the principles in CFA's Landscaping for Bushfire Guide). It is acknowledged that in some areas designated for conservation purposes this standard may not be possible.
- The design of the settlement interface should include a perimeter road and low threat vegetation, such as:
  - Perimeter roads where there is a direct interface with existing forest or woodland, or where new conservation areas are proposed.
  - Parks should be designed using the principles in CFA's Landscaping for Bushfire guide.
- The design of access and egress should allow people living close to the interface to move away easily, including:

        - Connectivity between established areas (and key access routes) and new precinct, ensuring people can access lower threat areas (e.g. established suburbs).
        - Roads that are designed to accommodate emergency service vehicles.
    - Any new vegetation, fencing structures or landscape should be managed to a standard commensurate with the bushfire risk. For example, brush fences should be avoided and colourbond or post and wire fences are preferred.
    - Appropriate construction standards will need to be assessed at an appropriate time, however given appropriate setbacks and perimeter roads will be integrated into the layout of new precincts it is expected that this would only need to be addressed at the building stage.

Staging and construction

- The following matters should be considered as they relate to the staging and construction phases of any new settlement:

    - The staging of any new development should consider the risk at the interface. The staging should minimise direct exposure to an interface with unmanaged vegetation. Where there is a direct interface on the development front, 100m buffer should be managed in a low threat state during the construction phase. For example, 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.
    - Throughout the construction phase, access roads should be constructed in association with the relevant stage to allow safe access for early residents, construction workers and emergency service personnel.

8. Conclusion

Strategically, the site is located within a relatively low bushfire risk location that has already been earmarked for development. Clause 02.03-1 Strategic Directions (Ballan) of the Planning Scheme states that growth should be provided consistent with the Ballan Framework Plan. The framework plan is included at 11.01-1L-03. The site is within precinct 5 in the Ballan Framework Plan where residential development is anticipated.

The layout of the concept plan is responsive to the bushfire risks at the site, including the use of perimeter roads and an appropriate lot and road distribution. The DPO7 will be the mechanism to guide future subdivision proposals; as recommendations have been made in relation to schedule 7 to the DPO to ensure the bushfire mitigation measures carry forward.

Subject to the recommendations in **section 7** of this report, it is considered that the rezoning proposal and DPO7 can meet the relevant requirements in the Planning Scheme including the policy objectives at Clause 13.02-1S and the Bushfire Interface Guidance published by DELWP.

9. References

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

Design Guidelines: Settlement Planning at the Bushfire Interface, DELWP, July 2020

Landscaping for Bushfire: Garden Design and Plant Selection (Version 3), CFA, undated.

Planning Practice Note 64: Local and Regional Strategic Directions for Bushfire

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

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