



BUSHFIRE ASSESSMENT REPORT

ARCUM EVENTS,
NARRANDERA

Arcum, 886 Old Wagga Road, Narrandera

Proposed Outdoor Event

Prepared for Elissa Routley

23.3.22

First Issue



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HOW TO READ THIS DOCUMENT

Section 1 Introduction – Introduction and overview of the subject site and proposed outdoor event.

Section 2 Assessing the bushfire threat - Identification of critical factors contributing to bushfire threat at the site, planning considerations and assessment of the overall threat.

Section 3 Bushfire Protection Measures – Assessment and discussion of the recommended bushfire protection measures necessary for life safety and compliance purposes.

Section 4 Bushfire Management Plan – A concise list of recommendations for the proposed outdoor event to be considered safe and compliant with the requirements of Planning for Bushfire Protection.

Section 5 Conclusion – Concluding statement.

Attachment A Compliance Assessment – A table detailing how the development satisfies the aims and objectives of Planning for Bushfire Protection 2019.

EXECUTIVE SUMMARY

Arcum Events have engaged EMBER Bushfire Consulting to prepare a bushfire assessment report for a proposed year-round outdoor event venue at the property known as Arcum, 886 Old Wagga Road, Narrandera.

The proposed event is located on bushfire-prone land as designated by Narrandera Shire Council.

This assessment adopts a methodology provided under the NSW RFS document Planning for Bushfire Protection 2019 (PBP 2019) to assess the adequacy of bushfire protection of the event as planned.

The proposal is to establish the site as a year-round premier outdoor venue for weddings and memorable events of up to 200 people.

This report establishes the level of threat to the proposed event and, based on this, makes specific recommendations for bushfire protection measures such as asset protection, access and services and emergency management.

In regard to asset protection, the landowners have undertaken extensive work within the event area to establish cleared areas of land and conduct broadscale vegetation management to remove fuels and provide extensive setbacks from unmanaged vegetation to a standard expected of an APZ.

Regarding asset protection zones, the landowners have undertaken extensive work within the event area to establish a cleared landscape and

conduct broadscale vegetation management to remove fuels and provide extensive setbacks from unmanaged vegetation to a standard expected of an APZ. Some small increases are required to the North to achieve the necessary 100 m setback required for the open-air bush fire emergency assembly area.

Regarding access, property access broadly meets the requirements PBP 2019 with the exception that access to the public road network is greater than 200m without a formal alternative access point, however given a compliant open air bush fire emergency assembly area can be provided and the unlikely chance of the road being blocked this is not considered a safety issue.

Regarding water supplies, the subject site is afforded extensive water supplies, that are accessible and enhanced with several outlets, which will assist in not only addressing external fire threats but also aid in quick fire suppression should a fire break out on site.

Regarding emergency management, an emergency management plan will be required before the 2023/24 season, including recommendations made in this report to improve emergency planning further.

Based on the bushfire assessment and recommendations in this report, the proposed event is deemed to satisfy the broad aims and objectives of Planning for Bushfire Protection (2019) and, therefore, suitable for approval by the Consent Authority.

KEY DETAILS OF THE DEVELOPMENT

Table 1 – Development Summary

Information	Detail
Lot & DP Number	Lot 2 DP 1156038
Street Address	886 Old Wagga Road, Narrandera
Local Government Area	Narrandera Shire Council
Zoning of the subject land	RU4 – Primary Production Small Lots
Zoning of adjoining lands	RU4 – Primary Production Small Lots
Proposed outdoor event:	Ongoing large gatherings for weddings, meetings, etc
Staging issues	Nil
Development classification	Other development – Outdoor Events in Bushfire Prone Areas
Type of assessment	EP&A Act Section 4.14
Fire weather area	Riverina
Fire Danger Index	80 (100 for the purposes of refuge calculation)
Predominant vegetation	Cleared land (Grassland) and Forested Wetlands
Slope	Flat
Environmental constraints	Nil known
Cultural constraints	Nil known
Method of meeting Planning for Bushfire Protection 2019	Assessment against the broad aims and objectives of PBP 2019 and the specific requirements of Section 8.3.8.

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1 INTRODUCTION AND OVERVIEW

1.1 BACKGROUND

Arcum Events has engaged EMBER Bushfire Consulting to prepare a bushfire assessment report for a proposed year round outdoor event venue at the property known as Arcum, 886 Old Wagga Road, Narrandera (the subject site).

The events venue is located on a large rural lot of land that is designated bushfire prone by Council and as a result is subject to Section 4.14 of the Environmental Planning and Assessment Act (1979) (EP&A Act) and the NSW RFS document Planning for Bushfire Protection (2019) (PBP 2019).

Under the EP&A Act the event venue must be shown to conform with the broad aims and objectives of PBP 2019 and is, therefore, the key reference document for this assessment.

This assessment was prepared through a desktop study of the subject site and an in-person survey by BPAD Level 3 practitioner Jeff Dau from EMBER Bushfire Consulting on 3.2.23.

1.2 AIM AND OBJECTIVES

The report aims to:

- Evaluate the potential bushfire threat to the subject site.
- Assess the capacity of the proposed outdoor event to provide the minimum bushfire protection necessary to offer life safety to the occupants and facilitate fire service intervention during a bushfire event.
- Assess the capacity of the proposed outdoor event to satisfy the broad aims and objectives of PBP 2019, including the specific measures outlined in Section 8 – Outdoor events in Bushfire Prone Areas.

To comply with PBP 2019 the following conditions must be met:

- Satisfy the aim and objectives of PBP, including:
 - afford buildings and their occupants protection from exposure to a bush fire;
 - provide for a defensible space to be located around buildings;
 - provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;

- ensure that appropriate operational access and egress for emergency service personnel and occupants is available;
- provide for ongoing management and maintenance of BPMs; and ensure that utility services
- Consider any issues listed for the specific purpose for the development set out in Section 8.3.8 Outdoor events in bush fire prone areas.

Accordingly, the following bushfire protection measures are to be assessed:

- Asset Protection Zones (APZs)
- Access
- Water Supplies (Services), and
- Emergency Management.

1.3 LIMITATIONS AND DISCLAIMER

This report is primarily concerned with assessing the capacity of the proposed outdoor event to manage the threat of bush fire.

Where necessary, Ember will recommend protection measures to provide satisfactory protection to the occupants and facilitate fire service intervention.

The proponent should remember that the prescribed measures cannot guarantee the life safety of patrons or limit the degree of damage to assets on every occasion. This is primarily due to the reliance on vegetation

management, the unpredictable behaviour of fire, and extreme weather conditions.

EMBER Bushfire Consulting has prepared this report with all reasonable diligence. The information in this report has been gathered from field investigations of the site and plans provided by the proponent.

Table 2 - Stakeholders

Stakeholder	Role	Contact	Detail
Arcum Events	Property Owner and Event Organiser	Elissa Routley	0428 271 556
Narrandera Shire Council	Consent Authority	Not Given	6959 5510
NSWRFS	Referral Authority	Not Given	02 4475 1300

1.4 SUBJECT SITE LOCATION

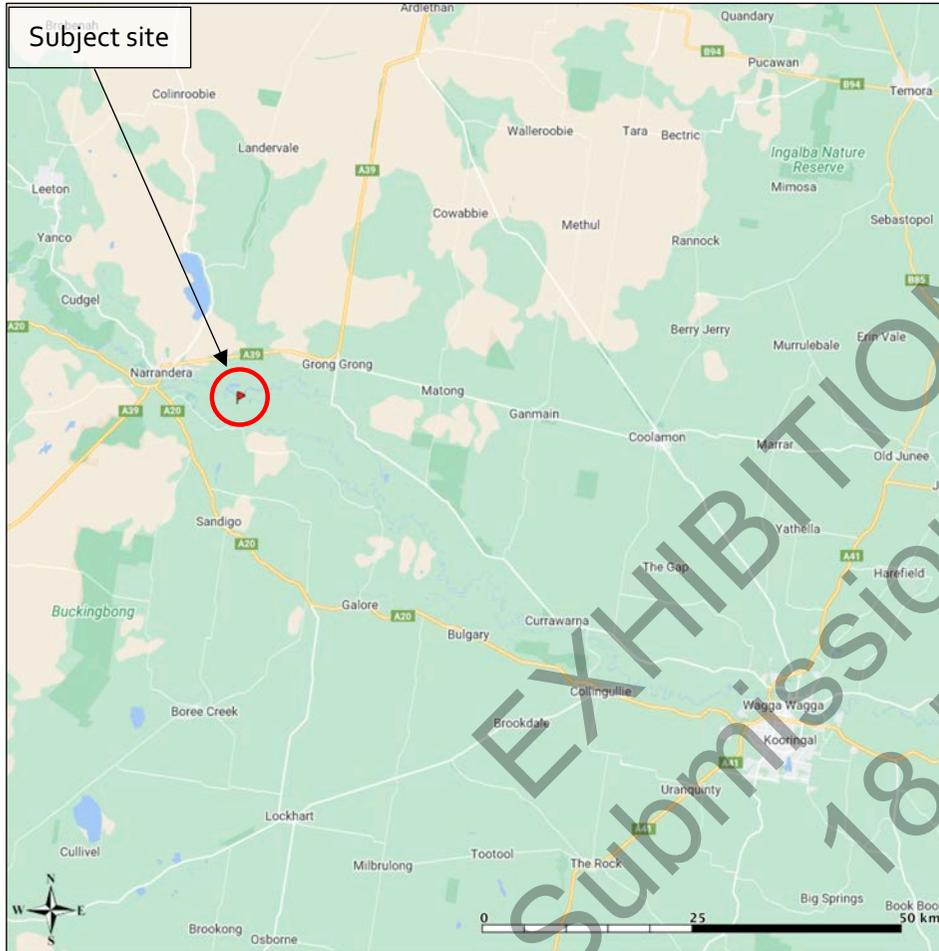


Figure 1 - Subject site regional context (FPA FireMaps, 2023)

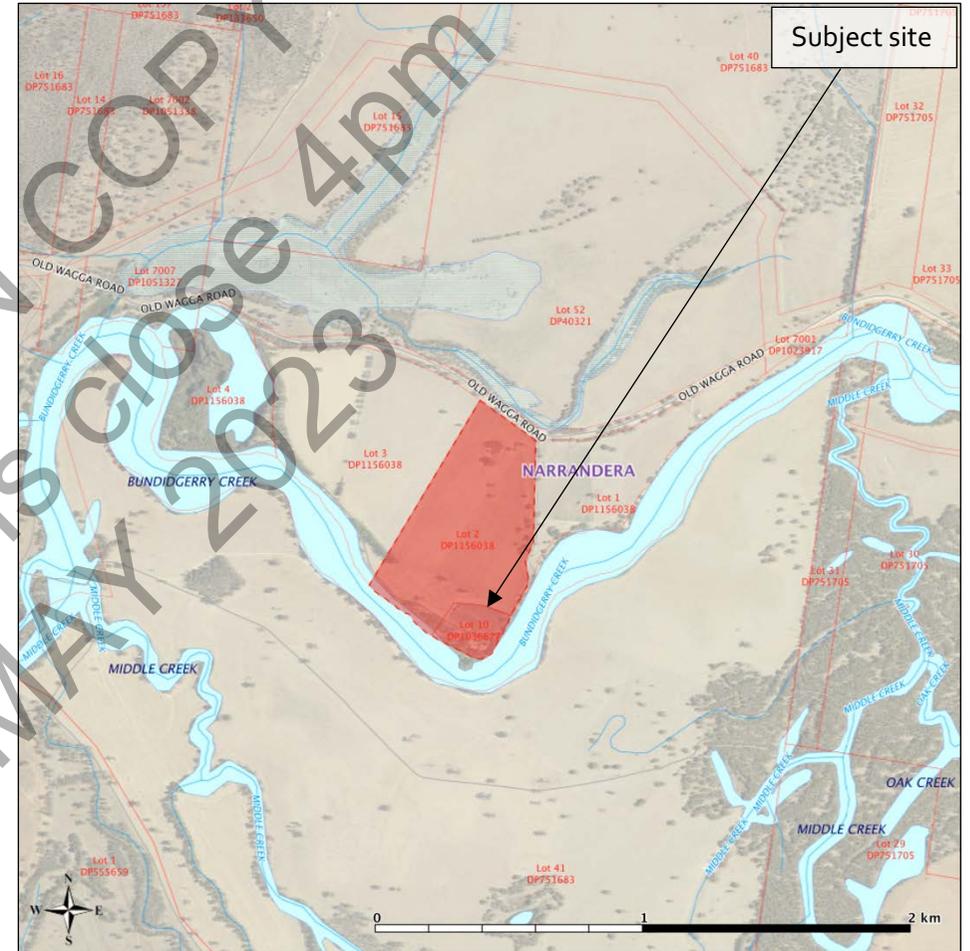


Figure 2 - Subject site local context (FPA FireMaps, 2023)

1.5 SUBJECT SITE DESCRIPTION

Location:

The subject site is on rural land surrounding the township of Narrandera, in the Riverina region of NSW, approximately 11 kilometres southeast of Narrandera CBD and 75 kilometres northwest of Wagga Wagga (Figure 1).

The subject site is idyllically situated along the banks of Bundidgerry Creek, a major waterway that forms part of the Murrumbidgee River system.

Administration:

The ~36 Ha rural lot falls under the administration of the Narrandera Shire Council.

Land use:

The dominant land use of the area is primary production, including a small number of rural lifestyle properties (Figure 2). Accordingly, the subject site is zoned RU₄ – Primary Production Small Lots, as are the neighbouring lots.

Topography:

The subject site is on flat land with no noticeable relief, typical of the flood plains surrounding Bundidgerry Creek and the Murrumbidgee River.

Vegetation:

Two distinct vegetation formations characterise the subject site. Most of the lot, north of the creek and homestead, is utilised for agricultural purposes, including curing crops interspersed with scattered paddock trees. Since mature or finished crops can sustain fire, this vegetation is identified as a hazard, like unmanaged grassland.

To the south, along Bundidgerry Creek, is a long ribbon of native vegetation. This formation has been cross-checked with the State Vegetation Type Map and is dominated by Inland Riverine Forests, otherwise known as Forested Wetlands.

For this assessment, the dominant vegetation formation is cropping land, treated as grassland and Forested Wetland.

Access:

The Subject Site has a single access point to the external road network, Old Wagga Road (a main public through road) 850 m from the homestead.

There are multiple tracks in use throughout the subject site.

- From Old Wagga Road, there are multiple access/egress routes to the various surrounding villages and towns, including:
 - Narrandera – 11 km
 - Grong Grong – 15 km

1.6 THE PROPOSAL

The proposal is to establish the site as a year-round premier outdoor venue for weddings and memorable events of up to 200 people.

1.6.1 THE ORGANISER

Acrum Events is managed by Elissa and Graham Routley, who has owned and run the property since 2015. After holding several, private functions, Elissa and Graham seek to make the idyllic location a commercial events venue.

1.6.2 EVENT DETAILS

Acrum's private estate, with waterfront landscaped gardens, red-gum forested wetland, vast open paddocks, rustic structures, and a working rural atmosphere, seeks to be a premier outdoor venue for weddings and large gatherings and celebrations in the Riverina.

Given the extended distance from the surrounding population centres, most groups will utilise busses for transport to and from the venue.

1.6.3 ATTENDANCE AND PATRON DEMOGRAPHICS

Acrum events will cater to the full spectrum of patrons, from the young to the old, and those requiring accessibility considerations.

The target market is for weddings but essentially any large group (up to 200 persons) drawn to the rural riverside setting.

1.6.4 DATES AND DURATION

Acrum Events will be a year-round operation.

1.6.5 EVENT LAYOUT

The event will utilise spaces surrounding the homestead and landscaped banks of the property (Figure 3).

The site map for Acrum Events shows the location of the following features:

- Homestead and Bar;
- Marquee Space;
- Bridal Party Entry;
- Ceremony Space;
- Lawn and Canape Area; and Car Park

1.6.6 GENERAL FIRE SAFETY STRATEGY

The event layout is located within a landscape that is well managed and largely cleared. Where tree canopy cover does exist, it has been intensively modified and prepared with the removal of surface, near surface and elevated fuel layers, largely consistent with Asset Protection Zone (APZ) standards.

The site has several favourable attributes relating to bushfire risk, including extensive cleared areas (APZs), ample fire suppression capacity with endless and accessible water supplies from Bundidgerry Creeks and an established extensive rural fire fighting system.

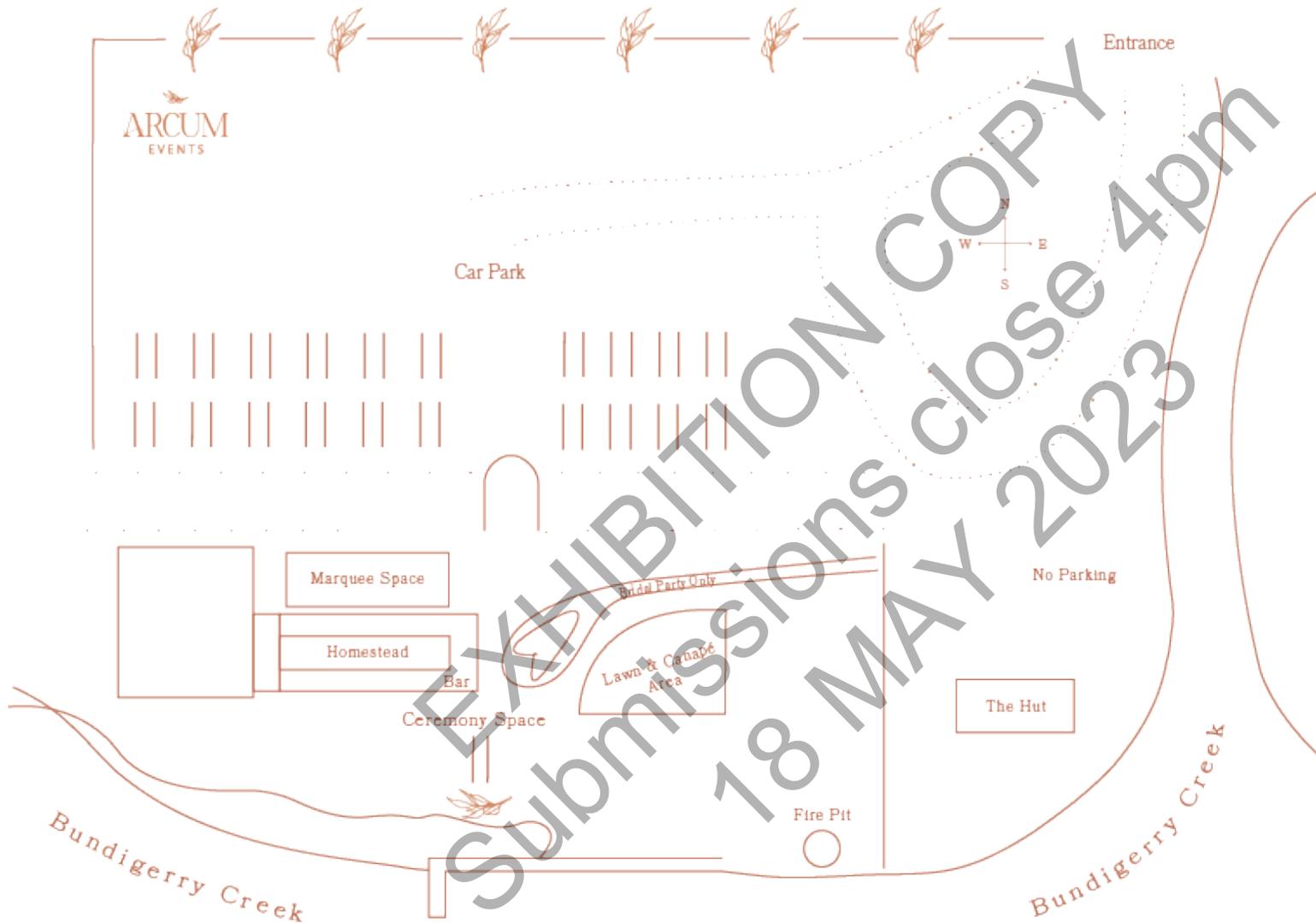


Figure 3 - Proposed Event Layout (Arcum Events, 2023)

2 ASSESSING THE BUSHFIRE THREAT

2.1 METHODOLOGY

The methodology adopted to prepare this report is as follows:

Table 3 - Report Methodology

Method	Task	Considerations
Desktop analysis	Review available mapping resources, policy documents & event plans	Online Maps Development Control Plans Local Environmental Plan
Site inspection	Evaluate the site's context, determine bushfire threat, asset protection zones, access roads, and infrastructure options.	Ground truth online mapping data, validate vegetation class, obtain site measurements, assess existing structures and infrastructure.
Assessment of proposal against the NSW RFS Planning for Bushfire Protection (PBP 2019).	Assess the development proposal against the requirements of PBP 2019.	Does the proposal comply with the performance criteria provided under PBP 2019?
Report	Preparation and publication of bushfire assessment report	Demonstrate the proposal can meet the aims and objectives of PBP 2019.

2.2 GENERAL BUSHFIRE ENVIRONMENT

The following environmental factors are adopted across the site to determine the potential bushfire threat posed to the subject site.

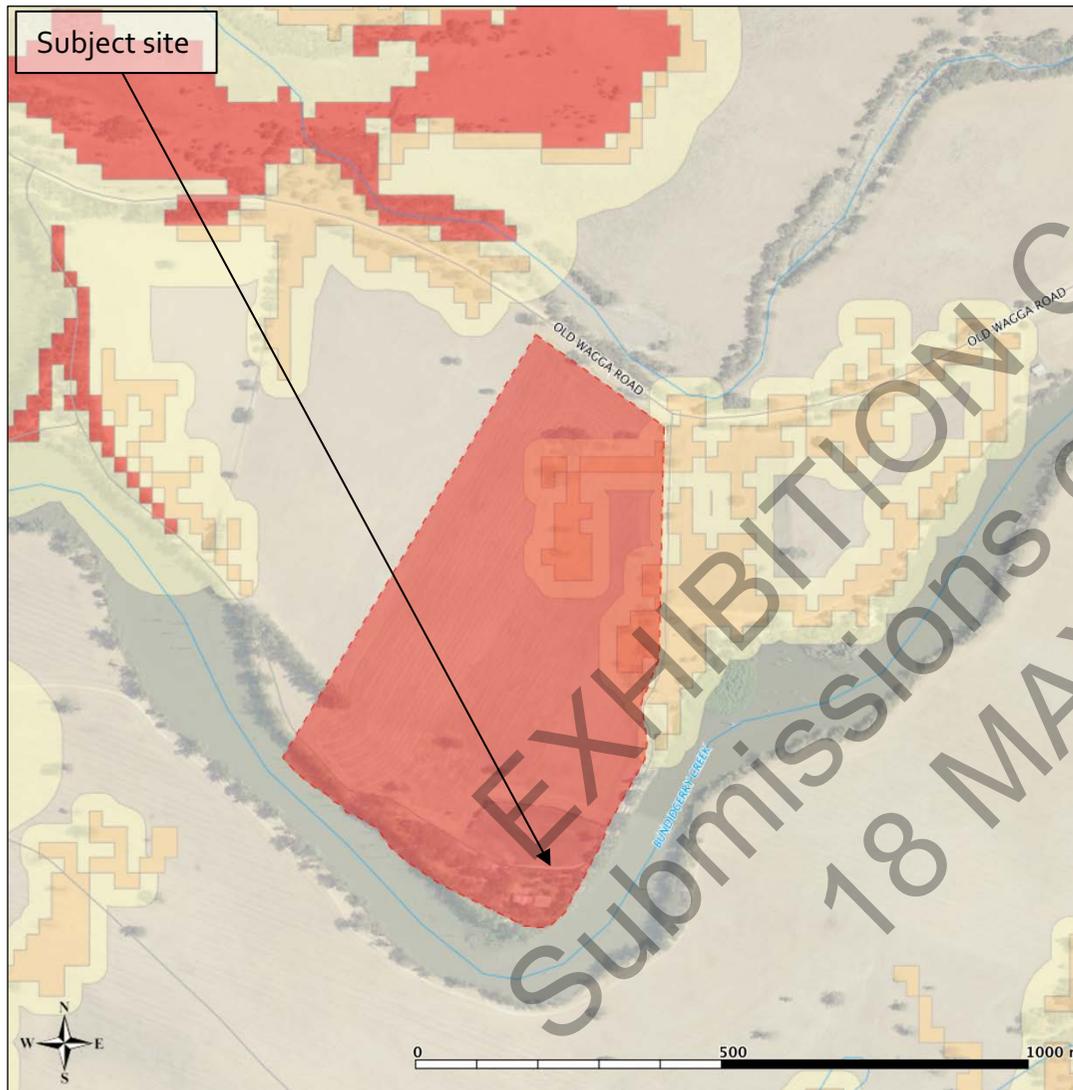
Table 4 - Bushfire behaviour factors

Factor	Value
Fire Weather Area	Northern Riverina
FDI	80 (100 for the purposes of refuge calculation)
Predominant Vegetation Classification	Grassland and Forested Wetlands
Slope	Flat.

Note: A detailed bushfire hazard analysis is below.

- *Vegetation formations within 140 m of the subject site are classified following Section 1.2 of PBP 2019.*
- *The fire danger index for the site has been determined per the NSW Rural Fire Service.*
- *A bushfire threat analysis is provided in Section 3 of this report.*

2.3 SUBJECT SITE BUSHFIRE PRONE MAPPING



Bushfire prone mapping relative to the subject site (Figure 4) showing adjacent land and the subject site containing areas of Category 3 Vegetation designated as bush fire prone land by Council and NSW RFS.

During the site survey conducted on 3rd February 2023, these vegetation categories were verified, and the bushfire prone map found to be a reasonable representation of the identified hazard.

Hazard classification key:

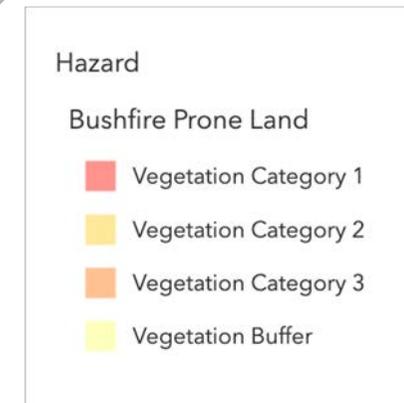
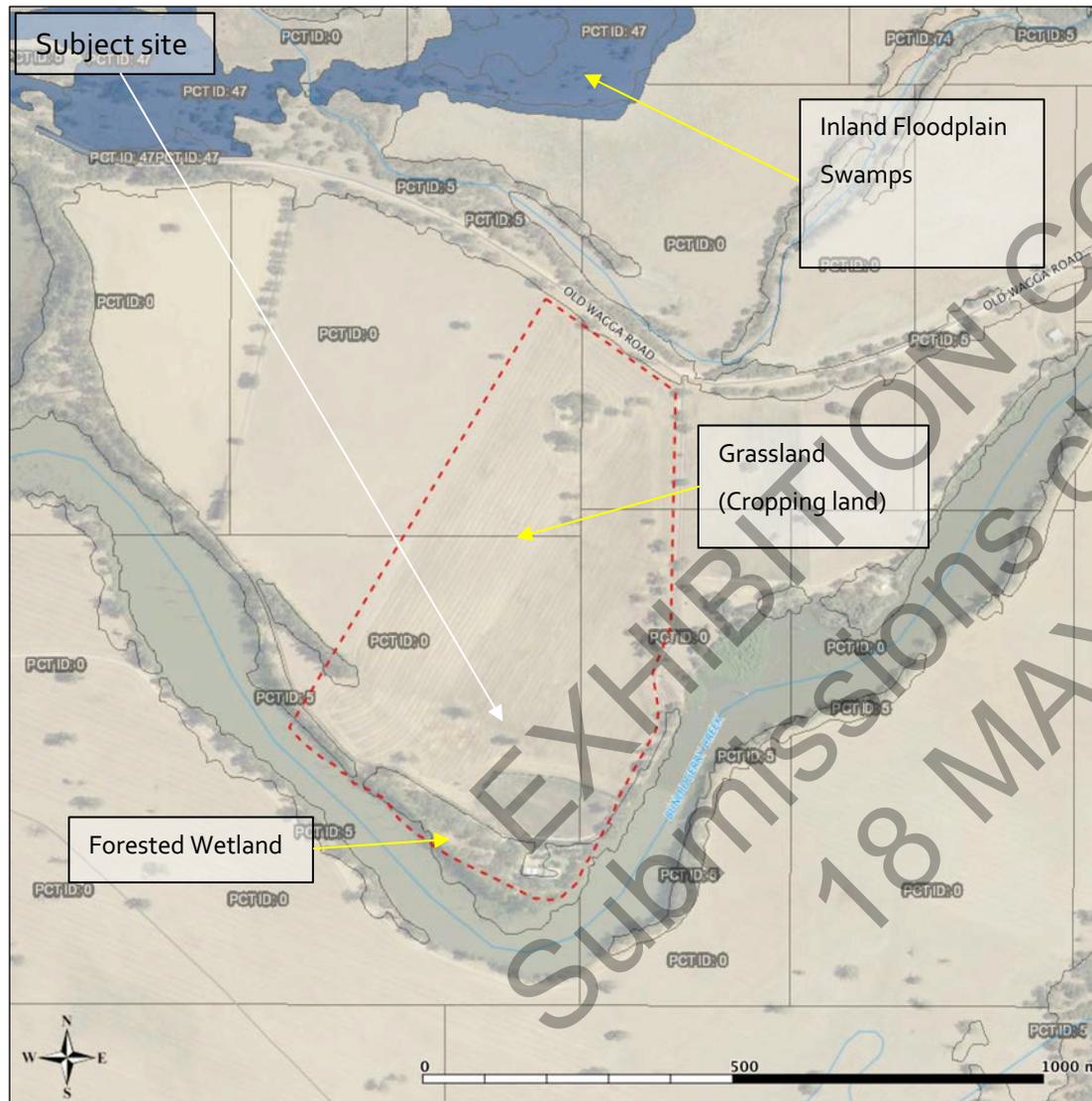


Figure 4 – Subject site Bushfire Prone Land Map. (NSW Planning Portal, 2023)

2.4 VEGETATION FORMATIONS INFLUENCING THE SUBJECT



State based vegetation classification

Subject site vegetation formations (Figure 5) as defined by SEED (NSW Government, 2023) NSW State Vegetation Type Map.

Vegetation mapping indicates that the subject site is dominantly influenced by –

- Grassland (cropping land - low level threat)
- Forested Wetland (low level threat)

Figure 5 – Subject site Vegetation Formation Map. (SEED, 2023)

2.5 ASSET PROTECTION ZONES & EMERGENCY ASSEMBLY AREA



Figure 6 – Showing areas of existing and ongoing vegetation management, emergency evacuation area including setbacks from areas of unmanaged vegetation. (Dau, 2023)

APZ and landscape management:

The venue is located within a landscape that has extensive open areas that are well managed, consistent with that expected of an Asset Protection Zone as is demonstrated in Photo points 1-5 and 9.

Areas mapped in blue (Figure 6) indicate the approximated APZ. Where not currently undertaken, landscape maintenance will need to extend into all areas of the APZ during the bushfire season. There is ample opportunity to extend these areas where required i.e north of the wind row.

In order to provide a safe location for an open air bush fire emergency assembly area a min. 100 m setback is required to achieve the max. radiant heat threshold of $2\text{kW}/\text{m}^2$ as per the “Guidelines for the identification and inspection of neighbourhood safer places in NSW (2017)”.

All landscape within areas identified as APZ areas are to be maintained per Appendix 4 - Asset Protection Zone requirement for Inner Protection Areas (IPA).

2.6 SUBJECT SITE ACCESS

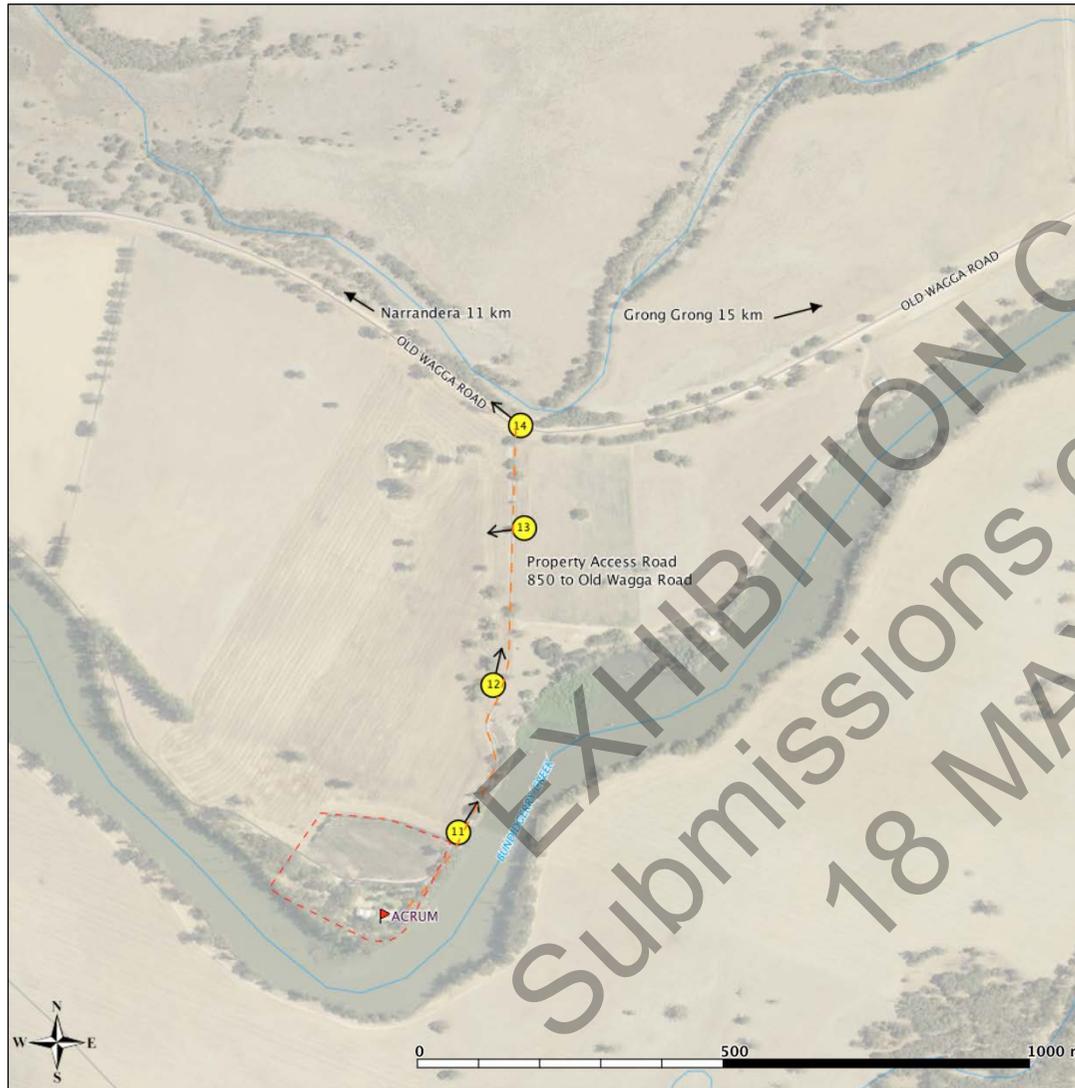


Figure 8 – Showing subject site access points. (Dau, 2023)

Subject site access arrangements:

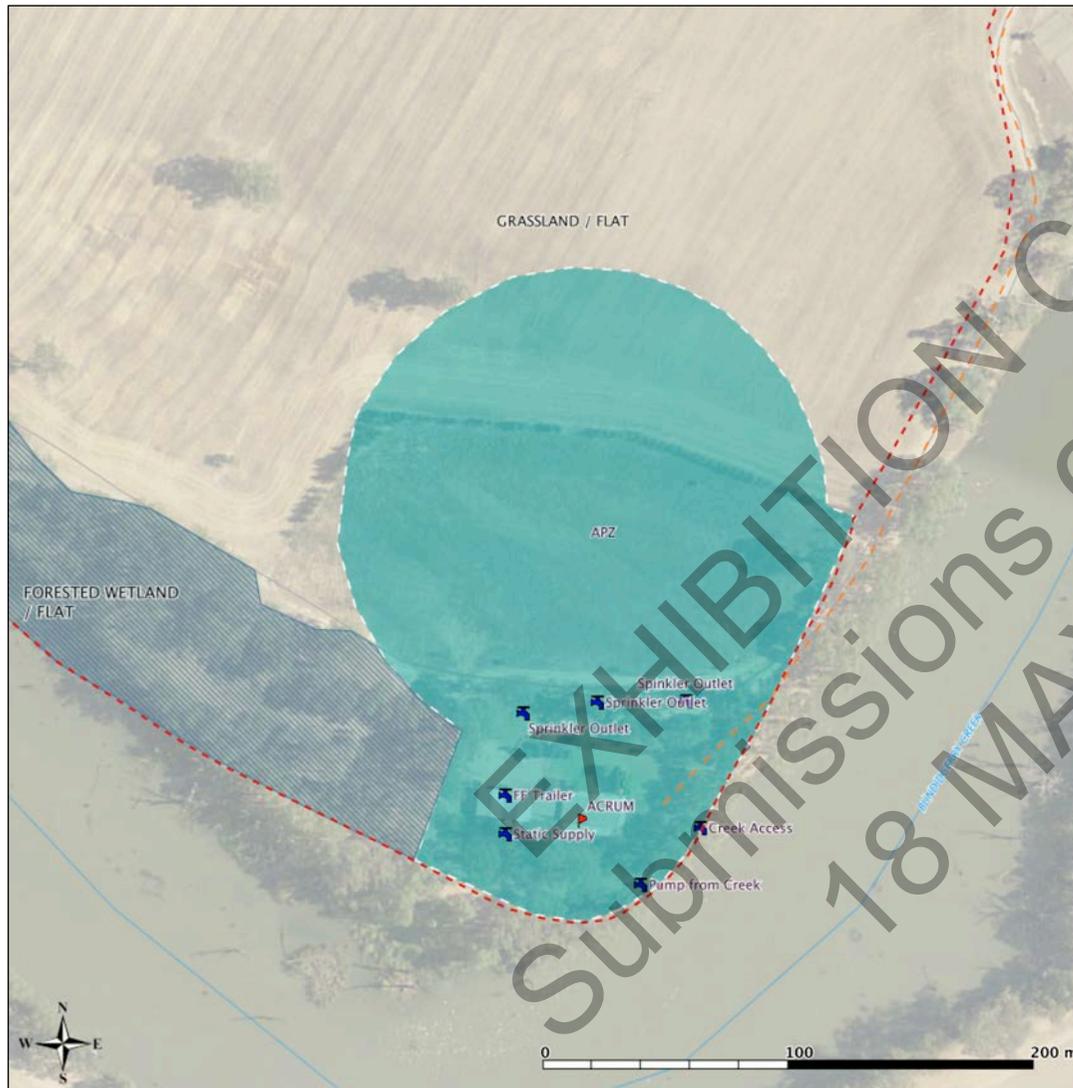
The Subject Site has a single access point to the external road network, Old Wagga Road (a main public through road) 850 m from the homestead.

There are multiple tracks in use throughout the subject site.

- From Old Wagga Road, there are multiple access/egress routes to the various surrounding villages and towns, including:
 - Narrandera – 11 km
 - Grong Grong – 15 km

In broad terms property access meets the requirements of Table 7.4a of PBP 2019 with the exception that access to the public road network is greater than 200m without a formal alternative access route, however given a compliant open air bush fire emergency assembly can be provided and the unlikely chance of the road being blocked this is not considered a safety issue.

2.7 WATER SUPPLIES



Available water supplies and outlets:

Firefighting water can be sourced from several locations including directly from Bundidgerry Creek (endless supply), as well as static supplies (60,000 L) to the southwest of the homestead (Photo point 7).

Water is also directly pumped from Bundidgerry Creek, supplying a series of sprinklers throughout APZ (Photo point 10).

Also located on the property is a firefighting trailer with a 1000 L water supply and petrol firefighting pump (Photo point 8).

Figure 9 – Showing overview of water supply infrastructure (Dau, 2023)

2.8 PHOTO POINTS

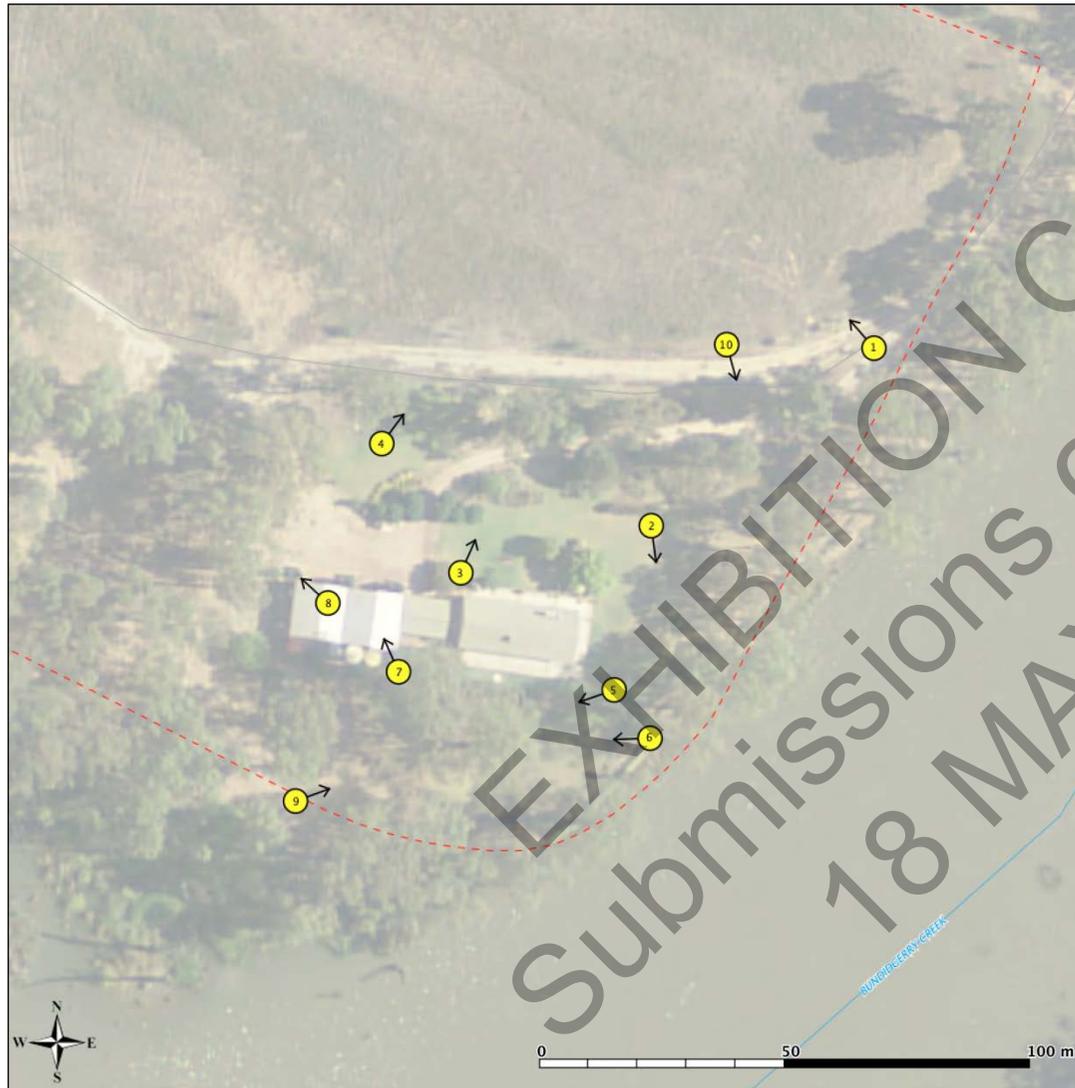


Figure 10 – Showing photo points (Dau, 2022)

2.8.1 OVERVIEW OF SUBJECT SITE VEGETATION AND ACCESS



Figure 11. Photo point 1 Showing the carpark area and typical vegetation inside the APZ.



Figure 13. Photo point 3 Showing the bridal party entry and typical vegetation inside the APZ..



Figure 12. Photo point 2 Showing the bridal party entry and typical vegetation inside the APZ.



Figure 14. Photo point 4 Showing typical vegetation inside the APZ.



Figure 15. Photo point 5 Showing the homestead, bar, ceremony space and typical vegetation inside the APZ.



Figure 17. Photo point 7 Showing static water supplies.



Figure 16. Photo point 6 Showing pump equipment feeding off Bundidgerry Creek.



Figure 18. Photo point 8 Showing fire fighting trailer.



Figure 19. Photo point 9 Showing the Marquee Space and typical vegetation inside the APZ.



Figure 21. Photo point 11 Looking north along the property access road.



Figure 20. Photo point 10 Showing sprinkler outlet.



Figure 22. Photo point 12 Looking north along the property access road.



Figure 20. Photo point 13 Looking south along the property access road.



Figure 21. Photo point 14 Looking west at the property entrance point along Old Wagga Road.

2.8.2 LOT 1 AERIAL OVERVIEW



Figure 22 – Aerial overview looking south showing the open and well managed landscape and indicative condition of areas identified as APZ.

2.9 GENERAL STATEMENT OF BUSHFIRE THREAT TO THE EVENT.

The subject site is designated as bushfire prone by Council and the NSW RFS and in very real terms is surrounded by and contains vegetation formations (Grassland and Forested Wetlands) that can sustain a bushfire under elevated fire conditions and indeed threaten the venue and most importantly patrons and event staff.

In response to and moderating this threat bush fire threat however, the landowners have undertaken extensive work within the event area to establish cleared areas of land and conduct broadscale vegetation management to remove fuels and provide extensive setbacks from unmanaged vegetation to a standard expected of an APZ.

Access/egress routes and good road quality is provided both within the subject site and extending out into the public road network offering event organisers the ability to facilitate coordinated and orderly emergency evacuation should the need arise.

Busses are typically used to transport patrons to and from Arcum. The busses will remain onsite for the duration of the wedding or other event, forming an important part of the emergency procedures as they are on hand to relocate patrons should the need arise.

If for some reason, patrons and staff do become trapped during a bushfire event there is sufficient space and setbacks within the APZ to safely

accommodate an open air bush fire emergency assembly point that is not subject to radiant heat greater than 2 kW/m² (demonstrated in Attachment B) as per the Guidelines for the identification and inspection of neighbourhood safer places in NSW (2017),.

The subject site is afforded with extensive water supplies, that are accessible and enhanced with several outlets which will assist in not only addressing external fire threat but also aid in quick fire suppression should a fire break out on site.

A master emergency plan will be drawn up and includes basic procedures to address a bush fire emergency including the recommendations made in this report.

Given the above factors the bushfire risk is assessed as generally low and what risk does exist can be adequately moderated using a range of protection measures as per the acceptable solutions provided in PBP 2019.

3 BUSHFIRE PROTECTION MEASURES AND CONSIDERATIONS

DISCUSSION AND RECOMMENDATIONS:

In response to the bushfire threat analysis, the proposal will adopt a suite of Bushfire Protection Measures (BPMs) to satisfy the aims and objectives of PBP and the specific considerations outlined in Section 8.3.8 Outdoor events in bush fire prone areas.

3.1 ASSET PROTECTION ZONES:

Discussion:

Considerations per Section 8.3.8

"unobstructed APZs of suitable width surrounding the site along the boundaries adjacent to the bush fire threat. Slashing of grassed areas needs to occur in the lead-up to the event and maintained throughout its duration;"

Response – An extensive APZ is provided that is well managed and consistent with that expected of an Asset Protection Zone.

"areas of accommodation should be strategically located to ensure maximum time to warn and evacuate people who may be sleeping and slow to respond. This also ensures that highly flammable and

combustible materials, such as tent fabric, vehicle fuels and gas cookers are in areas that will not facilitate the spread of fire;"

Response – Accommodation is not proposed.

An APZ is a buffer zone between a bush fire hazard and buildings. In the case of this proposal, it's the buffer zone between event area and adjacent, unmanaged vegetation.

The APZ is managed to minimise fuel loads and reduce potential radiant heat levels, flame, localised smoke and ember attack. The appropriate APZ distance is based on vegetation type, slope and the nature of the development.

Areas mapped in blue (Figure 6) indicate the approximated APZ. Where not currently undertaken, landscape maintenance will need to extend into all areas of the APZ during the bushfire season. There is ample opportunity to extend these areas where required i.e north of the wind row.

In order to provide a safe location for an open air bush fire emergency assembly a min. 100 m setback is required to achieve the max. radiant heat threshold of 2kW/m² as per the "Guidelines for the identification and inspection of neighbourhood safer places in NSW (2017)".

As is demonstrated in Photo points 1-5 & 9 the landscape is currently in and is required to be maintained to the highest level to reduce the intensity of any fire impacting the site and the risk of fires breaking out from the site.

Recommendations:

- All landscape within areas identified as APZ (Figure 6) are to be maintained per Appendix 4 - Asset Protection Zone requirement for Inner Protection Areas (IPA).
- The APZ must be extended further north of the windrow (per Figure 6) to ensure 100m setback for the open-air bush fire emergency assembly.

3.2 LANDSCAPING:

Recommendations:

- All landscape within the areas identified as APZ (Figures 6) are managed leading up to and during the period of the declared bushfire season following the requirements of Asset Protection Zone Standards - Appendix 4 of PBP (2019) (Attachment A).

3.3 ACCESS:

Discussion:

Considerations per Section 8.3.8

"access and egress routes for emergency services and patrons are provided in the event that evacuation is required;"

Response - In broad terms property access meets the requirements of Table 7.4a of PBP 2019 with the exception that access to the public road network is

greater than 200m without a formal alternative, however given a compliant open air bush fire emergency assembly can be provided and the unlikely chance of the road being blocked this is not considered a safety issue.

Recommendations for Access: -

- Leading up to and during the period of the declared bushfire season during t all existing roads are to be maintained to minimum width of 4 m and have a vertical clearance of 4 m.

3.4 WATER SUPPLIES

Discussion:

Considerations per Section 8.3.8

"bulk water supplies on site that are specifically allocated to firefighting purposes;"

Response - Firefighting water can be sourced from several locations including directly from Bundidgerry Creek (endless supply), as well as static supplies (60,000 L) to the southwest of the homestead (Photo point 7).

Water is also directly pumped from Bundidgerry Creek, supplying a series of sprinklers throughout APZ (Photo point 10).

Also located on the property is a firefighting trailer with a 1000 L water supply and petrol firefighting pump (Photo point 8).

The water supplies and fire fighting systems across the site will satisfy the minimum requirements of PBP 2019.

Recommendations:

- Maintain and test existing water supplies and infrastructure leading up to and during the declared bushfire season.

3.5 EMERGENCY MANAGEMENT

Discussion:

Considerations per Section 8.3.8

1. *holding events outside the gazetted bush fire danger period for the area;*
2. *a Bush Fire Emergency Management and Evacuation Plan must be prepared that is acceptable to relevant stakeholders, including crowd management and security. It should be consistent with the NSW RFS document: A guide to developing a bush fire emergency management and evacuation plan;*
3. *a refuge building of suitable capacity to contain all participants and staff that complies with the NSW RFS Neighborhood Safer Place Guidelines;*
4. *an open air bush fire emergency assembly area capable of accommodating all participants and staff that complies with the NSW RFS Neighborhood Safer Place Guidelines;*

5. *a suitable method of staging evacuation, ensuring that evacuation flow is directed through different stages/areas of the site, moving from areas of higher risk to lower risk;*
6. *expected evacuation timeframes;*
7. *on severe or higher fire danger rating days the event will not proceed;*
8. *advance warning to patrons identifying that the event is located on BFPL and giving advice on any fire restrictions;*
9. *fires for cooking and heating in approved fire places only and addressed by a Fire Management Plan.*
10. *ability to cease and override P.A. and audio systems throughout the site to announce emergency warnings, alerts or safety information, which can be clearly heard from all areas of the site; and*
11. *a prescribed ratio of trained fire wardens to participants.*

Response to the above considerations for emergency management -

1. Given the nature of the events (weddings and large celebrations), closing the venue during the gazetted bush fire danger period is not commercially viable. Also given the extensive APZs, well managed landscape, extensive water supplies, provision of a safe assembly area and organised transport, the venue is deemed sufficiently safe to operate year-round.
2. An Emergency Management Plan will be prepared prior to the 2023/24 bush fire season.

3. A refuge building that complies with the NSW RFS Neighborhood Safer Place Guidelines is not proposed.
4. An open air bush fire emergency assembly area that complies with the NSW RFS Neighborhood Safer Place Guidelines is proposed (Figure 6 and Attachment B).
5. Busses are typically used to transport patrons to and from Arcum. The busses will remain onsite for the duration of the wedding or other event, forming an important part of the emergency procedures as they are on hand to relocate patrons should the need arise. Evacuation methods will be covered in the Emergency Management Plan.
6. Expected evacuation time frames have not been determined. This will be a recommendation of this report.
7. The venue will be closed on days of a predicted or actual Fire Behaviour Index (FBI) of 80 or Fire Danger Rating of Catastrophic.
8. As per the Emergency Management Plan all patrons will be advised that the event is on designated Bush Fire Prone Land and an overview of the Bush Fire Emergency Procedures.
9. Open Fires will not be allowed during the gazetted bush fire danger period.
10. The ability to cease and override P.A. and audio systems throughout the site to announce emergency warnings, alerts or safety

information, which can be clearly heard from all areas of the site will be provided;

11. a prescribed ratio of trained fire wardens to participants will be provided.

Recommendations:

- a Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan, and AS 3745:2010;
- The venue will be closed on days of a predicted or actual Fire Behaviour Index (FBI) of 80 or Fire Danger Rating of Catastrophic.
- Open Fires will not be allowed during the gazetted bush fire danger period. .
- Expected evacuation time frames are to be determined and where necessary the methods for evacuation as per the Emergency Plan be updated.
- All patrons and staff will be advised that the event is on designated Bush Fire Prone Land and an overview of the Bush Fire Emergency Procedures.
- The ability to cease and override P.A. and audio systems throughout the site to announce emergency warnings, alerts or safety

information, which can be clearly heard from all areas of the site will be provided;

- A prescribed ratio of trained fire wardens to participants to be determined and recorded in the emergency management plan.

3.6 BUSHFIRE PROTECTION MEASURES CONCLUSION

The event and site has been assessed and found capable of the following:

- afford event patrons and staff protection from exposure to a bush fire;
- provide for a defensible space to be located around the event;
- provide appropriate separation between a hazard and the event, in combination with other measures, prevent the likely spread of fire;
- ensure that appropriate operational access and egress for emergency service personnel and occupants is available;
- provide for ongoing management and maintenance of BPMs; and ensure that utility services

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4 BUSHFIRE MANAGEMENT PLAN - SUMMARY OF RECOMMENDATIONS.

4.1 ASSET PROTECTION ZONES

- All landscape within areas identified as APZ (Figure 6) are to be maintained per Appendix 4 - Asset Protection Zone requirement for Inner Protection Areas (IPA).
- The APZ must be extended further north of the windrow (per Figure 6) to ensure 100m setback for the open-air bush fire emergency assembly.

4.2 LANDSCAPING

- All landscape within the areas identified as APZ (Figures 6) are managed leading up to and during the period of the declared bushfire season following the requirements of Asset Protection Zone Standards - Appendix 4 of PBP (2019) (Attachment A).

4.3 ACCESS

- Leading up to and during the period of the declared bushfire season during t all existing roads are to be maintained to minimum width of 4 m and have a vertical clearance of 4 m.

4.4 WATER SUPPLIES

- Maintain and test existing water supplies and infrastructure leading up to and during the declared bushfire season.

4.5 EMERGENCY MANAGEMENT

- a Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan, and AS 3745:2010;
 - The venue will be closed on days of a predicted or actual Fire Behaviour Index (FBI) of 80 or Fire Danger Rating of Catastrophic.
 - Open Fires will not be allowed during the gazetted bush fire danger period. .
 - Expected evacuation time frames are to be determined and where necessary the methods for evacuation as per the Emergency Plan be updated.

- All patrons and staff will be advised that the event is on designated Bush Fire Prone Land and an overview of the Bush Fire Emergency Procedures.
- The ability to cease and override P.A. and audio systems throughout the site to announce emergency warnings, alerts or safety information, which can be clearly heard from all areas of the site will be provided;
- A prescribed ratio of trained fire wardens to participants to be determined and recorded in the emergency management plan.

5 CONCLUSION

This report documents the findings from a bush fire assessment conducted on a proposed year round outdoor event venue at the property known as Arcum, 886 Old Wagga Road, Narrandera.

This report establishes the level of threat to the proposed event and, based on this, makes specific recommendations for bushfire protection measures such as asset protection, access and services and emergency management.

Regarding asset protection zones, the landowners have undertaken extensive work within the event area to establish a cleared landscape and conduct broadscale vegetation management to remove fuels and provide extensive setbacks from unmanaged vegetation to a standard expected of an

APZ. Some small increases are required to the North to achieve the necessary 100 m setback required for the open-air bush fire emergency assembly area.

Regarding access, property access broadly meets the requirements PBP 2019 with the exception that access to the public road network is greater than 200m without a formal alternative access point, however given a compliant open air bush fire emergency assembly area can be provided and the unlikely chance of the road being blocked this is not considered a safety issue.

Regarding water supplies, the subject site is afforded extensive water supplies, that are accessible and enhanced with several outlets, which will assist in not only addressing external fire threats but also aid in quick fire suppression should a fire break out on site.

Regarding emergency management, an emergency management plan will be provided prior to the 2023/24 which will the recommendations made here to further improve emergency planning.

Based on the bushfire assessment and the recommendations contained in this report, the proposed event is deemed to satisfy the broad aims and objectives of Planning for Bushfire Protection (2019) and, therefore, suitable for approval by the Consent Authority

6 REFERENCE

- ePlanning Spatial Viewer, Department of Planning Industry and Environment, accessed 13 March 2023, <https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>
- FireMaps (FPA Australia, 2021), <https://maps.fpaafiremaps.com.au>, accessed 16 March 2023,
- Keith D. (2004) "Ocean Shores to Desert Dunes", Department of Environment and Conservation, Sydney.
- NSW Rural Fire Service. (2019) "Planning for Bushfire Protection". Sydney (PBP (2019))
- SEED (NSW Government, 2022) Vegetation Formations and Classes of NSW (Version 3.03 – 200m Raster) – David A. Keith and Christopher C. Simpson. VIS_ID 3848, accessed 18 March 2023, https://geo.seed.nsw.gov.au/Public_Viewer/Index.html?viewer=Public_Viewer&locale=enAU&runWorkflow=AppendLayerCatalog&CatalogLayer=SEED_Catalog.85.Areas
- Six Maps, NSW Department of Finance and Services, accessed 13 March 2023, <https://maps.six.nsw.gov.au/#>
- Standards Australia, (2018) "AS/NZS 3959-2018 Construction of buildings in bushfire-prone areas."

ATTACHMENT A – APZs, LANDSCAPING, FENCES AND GATES

Inner protection areas (IPAs)

The IPA is the area closest to the asset and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and be a defensible space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the dwelling, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees:

- › canopy cover should be less than 15% (at maturity)
- › trees (at maturity) should not touch or overhang the building
- › lower limbs should be removed up to a height of 2m above ground
- › canopies should be separated by 2 to 5m
- › preference should be given to smooth barked and evergreen trees.

Shrubs:

- › create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings
- › shrubs should not be located under trees
- › shrubs should not form more than 10% ground cover
- › clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass:

- › should be kept mown (as a guide grass should be kept to no more than 100mm in height)
- › leaves and vegetation debris should be removed.

Outer protection areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. Vegetation within the OPA can be managed to a more moderate level. The reduction of fuel in this area substantially decreases the intensity of an approaching fire and restricts the pathways to crown fuels; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

In practical terms the OPA is an area where there is maintenance of the understorey and some separation in the canopy.

When establishing and maintaining an OPA the following requirements apply:

Trees:

- › tree canopy cover should be less than 30%
- › trees should have canopy separation
- › canopies should be separated by 2 to 5m

Shrubs:

- › shrubs should not form a continuous canopy
- › shrubs should form no more than 20% of ground cover

Grass:

- › should be kept mown (as a guide grass should be kept to no more than 100mm in height)
- › leaf and other debris should be mown, slashed or mulched.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA to the standards given above should be undertaken on an annual basis, in advance of the fire season, as a minimum.

In Australia, bush fires are a natural and essential aspect of the landscape as many plants and animals have adapted to fire as part of their life cycle. However, development adjacent to bush land areas has increased the risk of fire impacting on people and their assets. The impact on property and life can be reduced with responsible preparation and management of bush fire hazards.

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps in reducing vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset protection zones

An APZ is a fuel-reduced area surrounding a built asset or structure.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at: www.rfs.nsw.gov.au/resources/publications.

An APZ provides:

- › a buffer zone between a bush fire hazard and an asset
- › an area of reduced bush fire fuel that allows suppression of fire
- › an area from which backburning or hazard reduction can be conducted,
- › an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Potential bush fire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- › direct flame contact on the asset
- › damage to the built asset from intense radiant heat
- › ember attack.

The APZ should be located between an asset and the bush fire hazard.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an inner protection area (IPA) and an outer protection area (OPA).

ATTACHMENT B – OPEN-AIR BUSH FIRE EMERGENCY ASSEMBLY AREA CALCULATION

NBC Bushfire Attack Assessment Report V4.1	
AS3959 (2018) Appendix B - Detailed Method 2	
Print Date:	23/03/2023
Assessment Date:	22/03/2023
Site Street Address:	Arcum Events Grassland, Narrandera
Assessor:	Jeff Dau; EMBER Bushfire Consulting
Local Government Area:	Narrandera
Alpine Area:	No
Equations Used	
Transmissivity: Fuss and Hammins, 2002	
Flame Length: RFS PBP, 2001/Vesta/Catchpole	
Rate of Fire Spread: Noble et al., 1980	
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005	
Peak Elevation of Receiver: Tan et al., 2005	
Peak Flame Angle: Tan et al., 2005	
Run Description: Arcum Events	
Vegetation Information	
Vegetation Type:	Grassland
Vegetation Group:	Grassland
Vegetation Slope:	0 Degrees
Vegetation Slope Type:	Downslope
Surface Fuel Load(t/ha):	6
Overall Fuel Load(t/ha):	6
Vegetation Height(m):	0
Only Applicable to Shrub/Scrub and Vesta	
Site Information	
Site Slope:	0 Degrees
Site Slope Type:	Downslope
Elevation of Receiver(m):	Default
APZ/Separation(m):	100
Fire Inputs	
Veg./Flame Width(m):	100
Flame Temp(K):	1200
Calculation Parameters	
Flame Emissivity:	95
Relative Humidity(%):	25
Heat of Combustion(kJ/kg):	18600
Ambient Temp(K):	308
Moisture Factor:	5
FDI:	130
Program Outputs	
Level of Construction:	BAL 12.5
Peak Elevation of Receiver(m):	4.3
Radiant Heat(kW/m2):	1.95
Flame Angle (degrees):	86
Flame Length(m):	8.63
Maximum View Factor:	0.024
Rate Of Spread (km/h):	16.9
Inner Protection Area(m):	100
Transmissivity:	0.734
Outer Protection Area(m):	0
Fire Intensity(kW/m):	52390

NBC Bushfire Attack Assessment Report V4.1	
AS3959 (2018) Appendix B - Detailed Method 2	
Print Date:	23/03/2023
Assessment Date:	22/03/2023
Site Street Address:	Arcum Events Woodland, Narrandera
Assessor:	Jeff Dau; EMBER Bushfire Consulting
Local Government Area:	Narrandera
Alpine Area:	No
Equations Used	
Transmissivity: Fuss and Hammins, 2002	
Flame Length: RFS PBP, 2001/Vesta/Catchpole	
Rate of Fire Spread: Noble et al., 1980	
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005	
Peak Elevation of Receiver: Tan et al., 2005	
Peak Flame Angle: Tan et al., 2005	
Run Description: Arcum Events Woodland	
Vegetation Information	
Vegetation Type:	Forested Wetland (excluding Coastal Swamp Forest)
Vegetation Group:	Forest and Woodland
Vegetation Slope:	0 Degrees
Vegetation Slope Type:	Downslope
Surface Fuel Load(t/ha):	8.2
Overall Fuel Load(t/ha):	15.1
Vegetation Height(m):	2
Only Applicable to Shrub/Scrub and Vesta	
Site Information	
Site Slope:	0 Degrees
Site Slope Type:	Downslope
Elevation of Receiver(m):	Default
APZ/Separation(m):	100
Fire Inputs	
Veg./Flame Width(m):	100
Flame Temp(K):	1200
Calculation Parameters	
Flame Emissivity:	95
Relative Humidity(%):	25
Heat of Combustion(kJ/kg):	18600
Ambient Temp(K):	308
Moisture Factor:	5
FDI:	100
Program Outputs	
Level of Construction:	BAL 12.5
Peak Elevation of Receiver(m):	4.09
Radiant Heat(kW/m2):	1.85
Flame Angle (degrees):	86
Flame Length(m):	8.21
Maximum View Factor:	0.023
Rate Of Spread (km/h):	0.98
Inner Protection Area(m):	100
Transmissivity:	0.734
Outer Protection Area(m):	0
Fire Intensity(kW/m):	7677