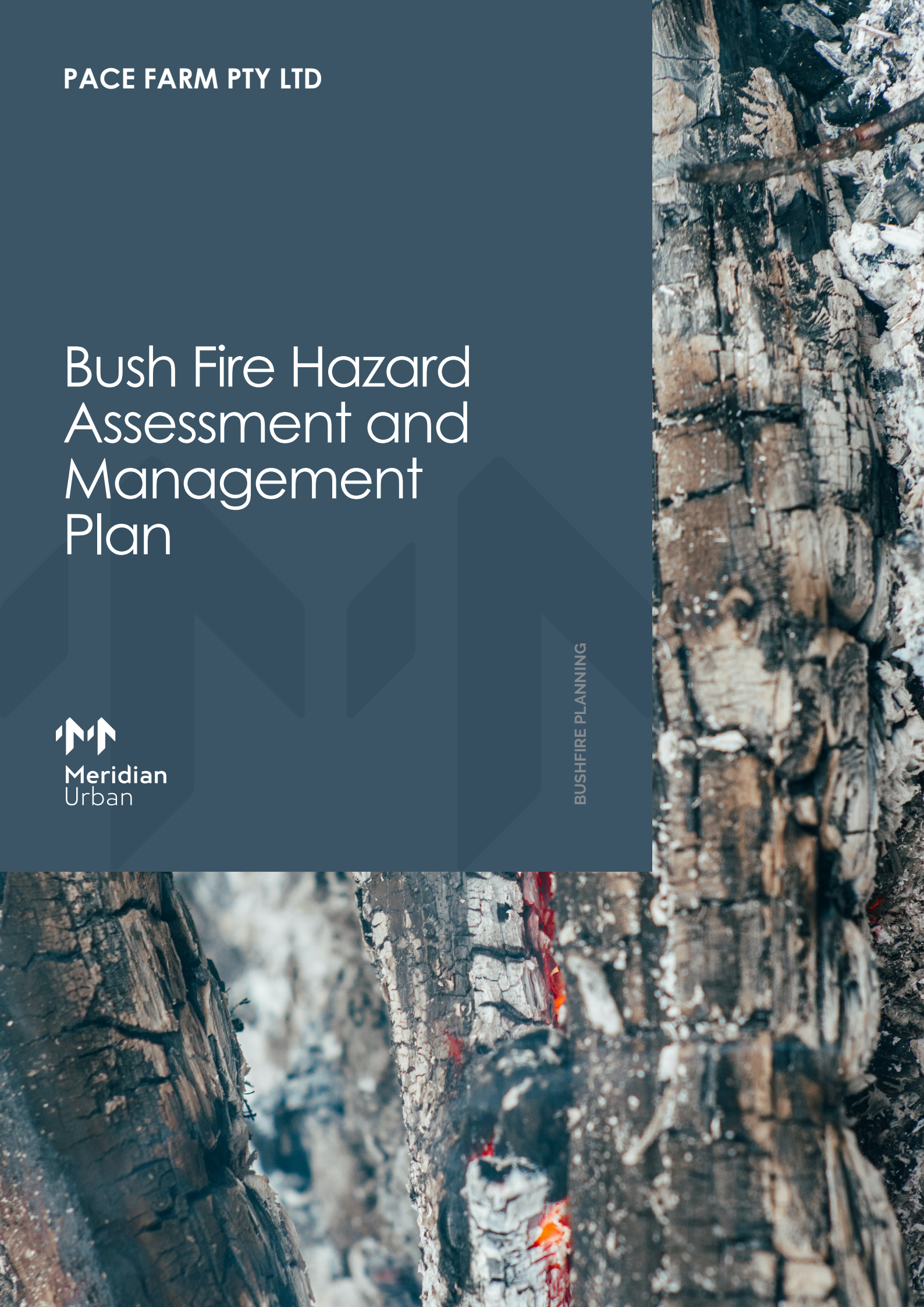
PACE FARM PTY LTD

Bush Fire Hazard Assessment and Management Plan

Meridian Urban

BUSHFIRE PLANNING



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Member Fire Protection Association of Australia
Member International Association of Wildland Fire
Member Natural Hazard Mitigation Association (USA)
Member Association of Fire Ecology

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

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It is acknowledged and agreed that the site may be subject to a degree of bushfire hazard. The client acknowledges and agrees that Meridian Urban has not created or contributed to the creation or existence of this hazard and the Client indemnifies Meridian Urban for claims arising out of or resulting from a bushfire event except to the extent attributable to the negligence of Meridian Urban.

The Client agrees that the Consultant shall have no liability in respect of any damage or loss incurred as a result of bushfire.

Pace Farm Pty Ltd

Bush Fire Hazard Assessment and Management Plan

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1 Introduction

This Bush Fire Hazard Assessment and Management Plan (BFHAMP) report is commissioned by PSA Consulting on behalf of Pace Farm Pty Ltd in support of a Section 79C application under the *Environment Planning and Assessment* (EP&A Act) 1979 for intensive livestock agriculture (poultry farm) in Warrah Ridge. The subject site is formally described as Lot 391 on DP556635 within the shire of Liverpool Plains, approximately 100 kilometres south of Gunnedah and 300 kilometres north west of Sydney. This report responds to a Council request for a bush fire management plan for the proposed operation in accordance with Section 2.4.4 of *Planning for Bush Fire Protection (PBP) 2019* in relation to potential grass fire hazard.

The nature of this assessment focuses on the compliance of the proposed development with regard to relevant bush fire protection provisions, policy and legislation including the Liverpool Plains Local Environmental Plan (LEP) and Development Control Plan (DCP), PBP 2019, the *Rural Fires Act 1997* and the EP&A Act. The report also has regard to other instruments including the National Construction Code and Building Code of Australia, as well as AS3959-2018 – Construction of Buildings in Bushfire Prone Areas which outlines the national building construction specifications for land situated within bush fire prone areas, or alternatively the NASH Standard of Steel Framed Construction in Bushfire Areas.

This BFHAMP is prepared by a qualified and experienced BPAD Level 3 practitioner (No. 33131).

The focus of this assessment report remains two-fold, both with respect to the statutory planning and building requirements as they apply in this case pursuant to all relevant policies, standards and regulation, and also end-user consideration and the protection of the operation. This report identifies the hazard profile relevant to the subject site and provides recommendations for a range of mitigation measures which seek to limit exposure of the development to an appropriate level.

This assessment report aims to mitigate the risk of bush fire threat and the impact of bush fire attack which includes:

- direct flame contact
- ember and firebrand attack
- radiant heat
- fire-driven wind.

Building loss is typically associated with one or more forms of bush fire attack, the most common being the combined effects of radiant heat and ember attack. Danger to human and animal life is also associated with these forms of bush fire attack, in addition to smoke emission.

This assessment does not seek to remove the threat of bush fire risk, but provide detailed siting, layout, building and / or servicing information to assist in guiding combined efforts to manage the potential threat of this risk.

1.1 Summary of site details

Site Address	Inverkip Road, Warrah Ridge
RP Description	Lot 391 on DP556635
Site Area	150ha approx.
Local Government	Liverpool Plains
LEP	Liverpool Plains Local Environment Plan 2011 Liverpool Plains Shire Council Development Control Plan 2012
Zoning	RU1
Tenure	Freehold
Current Land Use	Rural
Proposed Land Use	Intensive livestock agriculture (poultry farm)
Fire Authority	Quirindi; Willow Tree

2 Site and Locality Context

The subject site is located on the eastern side of Inverkip Road in the regional NSW area of Warrah Ridge. Measuring approximately 150 hectares, the land is currently used for livestock grazing and cropping.

The land rises gently from west to east, with the Warrah Range located beyond the subject site to the north east. The land consists largely of grasslands with pockets of trees and bushland across the site, and a vegetated wind break along the northern boundary. The allotment is improved by two dams, contour benches and access tracks and trails.

Surrounding land uses are also rural in nature. To the west and on the opposite side of Inverkip Road are a series of channels which form Big Jacks Creek which flows to the north West into Mooki Creek. Land to the west of Inverkip Road is highly fertile and largely used for cropping, as is the case to the east and south east.

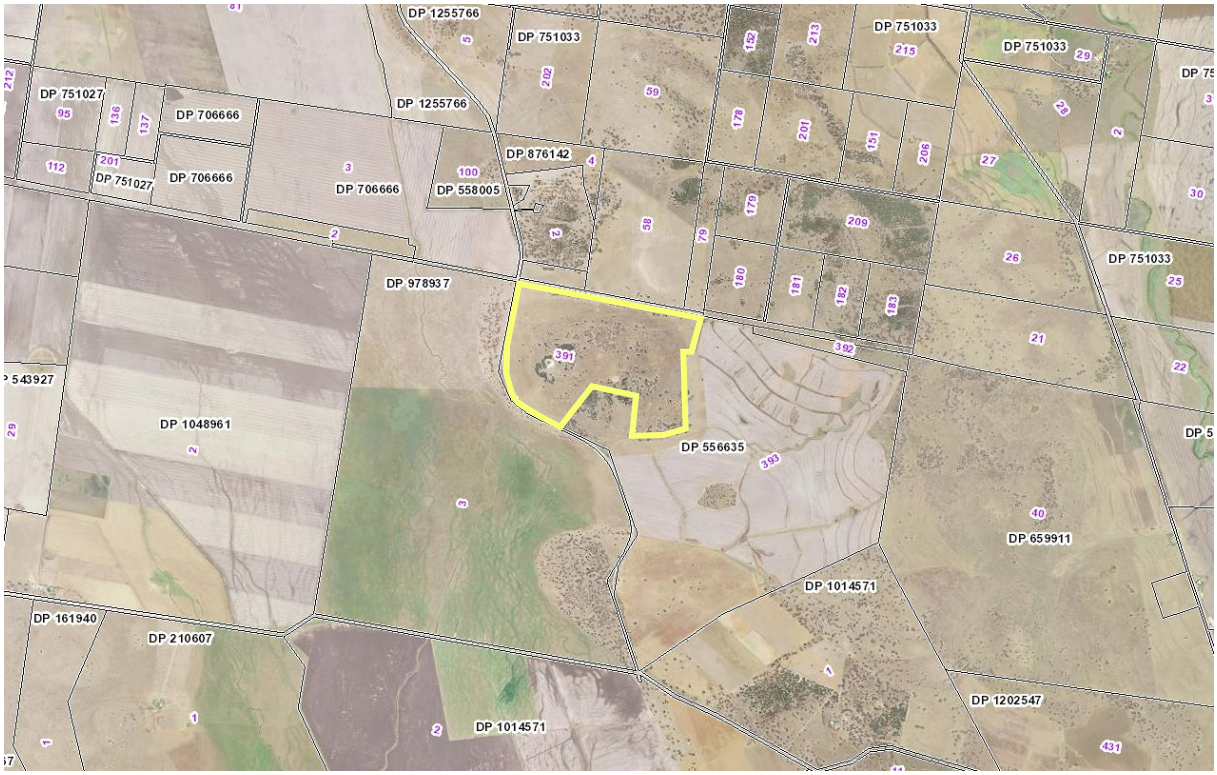

Figure 2-1 - Site locality and context (Source: NSW Government)

3 Proposed Development

The proposed development involves an intensive livestock agriculture use for the purposes of a new poultry farm consisting of four (4) rearing sheds at a capacity of 62,000 birds per shed, for a total operational capacity of 248,000 birds.

The proposed poultry operation is situated at the Inverkip Road frontage of the site, at the far north western corner. Screen planting is proposed in this location. It is proposed to be accessed via a central access road from Inverkip Road with two (2) sheds accessed to the north and a further two (2) to the south. The central access driveway is proposed to measure 6 metres in width which transition into large turnaround areas for articulated vehicles at the frontage of the rearing sheds. 9 metre access roads are provided around each shed.

Along the central access road is carparking, an amenities building, compost and services facilities, two (2) 1 megalitre steel water tanks (total of 2 megalitres) and a LPG gas facility. The amenities building will house a vaccine room, kitchen, office, storage room and several showers and bathrooms. The building services facility will accommodate the main switchboard, fire pumps and water pumps.

All buildings on site are proposed to be constructed of fire resistant materials including Colorbond metal deck roofs, wall cladding constructed of Colorbond (amenities building), PIR panels (rearing sheds and services building) and a combination of concrete and Colorbond (compost building). PIR panels are insulated wall panels which are also fire retardant. Refer to proposal plans below.

Figure 3-1 - Proposed site layout (Source: Pace Farm Pty Ltd)

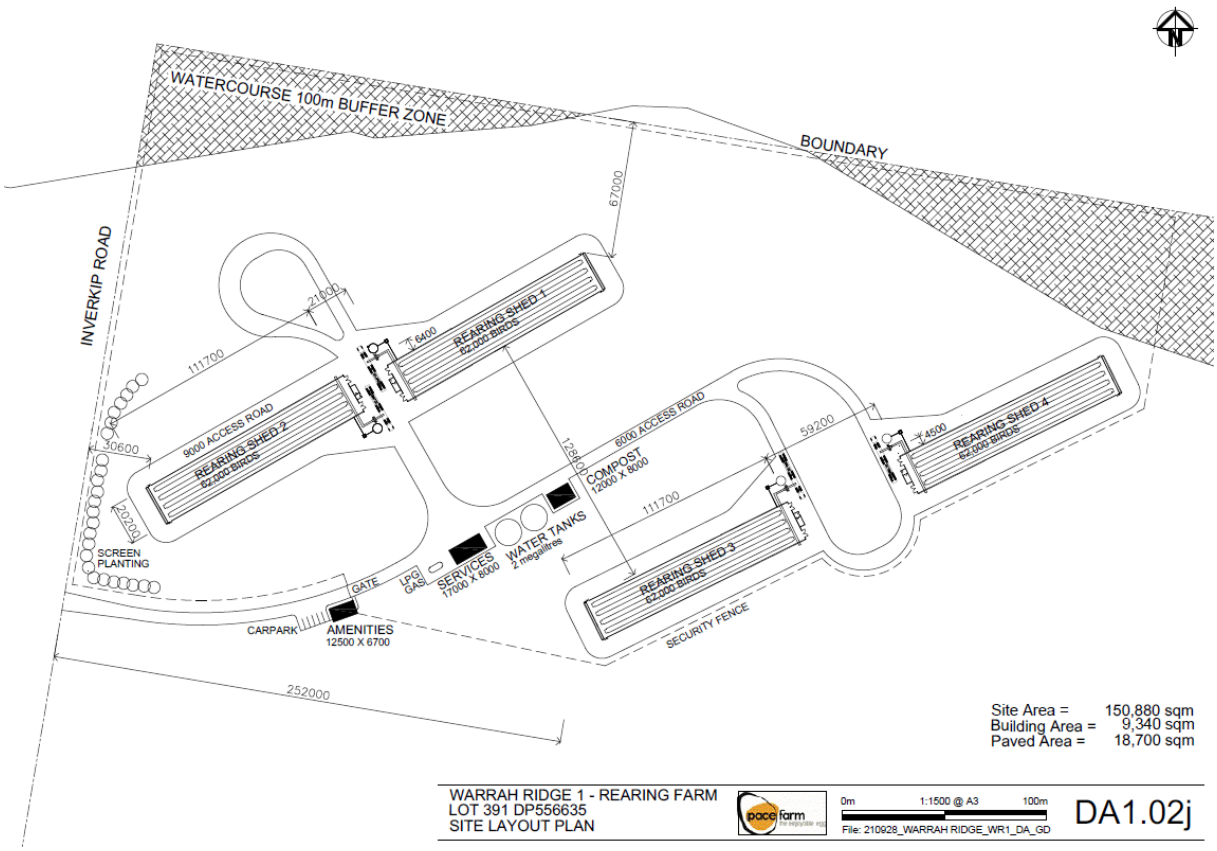

Figure 3-2 - Proposed development plan (Source: Pace Farm Pty Ltd)

4 Bush Fire Prone Land Designation

Properties with are considered to be at risk of potential bush fire attack are identified by the local bush fire prone land map which is generally prepared by local government and endorsed by the Commissioner of the NSW RFS.

The NSW Government ePlanning Spatial Viewer provides the relevant bush fire prone land map for Liverpool Plains, which identifies the subject land as Category 3 Vegetation. This layer constitute 'medium' bush fire risk and consists of grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.

In the case of the subject site, it largely reflects grasslands as well as semi-arid woodlands.

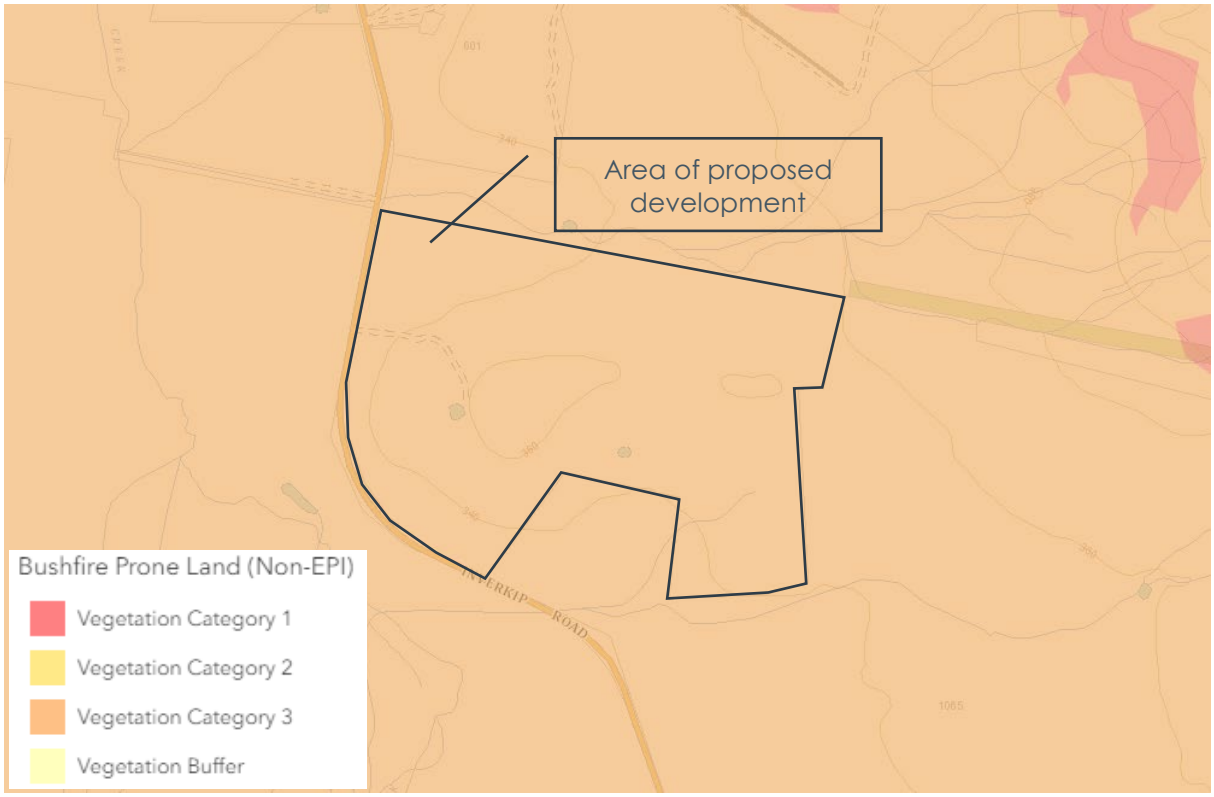

Figure 4-1 - Bush Fire Prone Land Map (Non-EPI) (Source: NSW Government)

4.1 Regulatory and assessment context

The proposed development, being an intensive livestock agriculture use for the purposes of a poultry farm operation, constitutes 'other development' as per Section 8.3 of PBP 2019. Section 8.3 specifies a range of provisions for a breadth of land uses. Development for the purposes of intensive livestock agriculture is identified as 'other non-residential development' and provisions for buildings of class 5 to 8 under the National Construction Code (NCC) are outlined.

The NCC itself does not prescribe any bush fire specific performance requirements for these classes of buildings and as such, neither AS 3959-2019 or the NASH Standard are considered to constitute deemed to satisfy provisions. Notwithstanding, PBP 2019 prescribes that compliance with either AS3959 or the NASH Standard is required in order to meet the aims and objectives of PBP 2019.

The objectives required to be met for the purposes of the proposed poultry farm operation relate to access, water supply and services, and emergency and evacuation planning, and include:

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

Further, PBP 2019 notes the general fire safely construction provisions of the NCC are taken as acceptable solutions however, construction requirements for bush fire protection will need to be considered on a case-by-case basis.

4.2 Liverpool Plains LEP and DCP

The Liverpool Plains LEP 2011 and Liverpool Plains Shire Council DCP 2012 remain the relevant planning instruments for the local government area. The LEP does not provide any additional provisions for consideration in relation to bush fire beyond provisions for bush fire hazard reduction work.

The DCP provides a small number of additional items relating to bush fire protection, beyond that contemplated by PBP 2019. These include:

- for utilities, where no water supply is available, a minimum tank storage of 60,000 litres is required, of which a minimum 10,000 litres is retained for fire fighting purposes (which can increase in bush fire prone areas); and
- the provision of bush fire protection buffers is applicable.

In response to the above items, it is noted the proposed development seeks to provide a total static on-site water supply of two megalitres which will provide for the facility operations as well as its firefighting needs. Further detail is provided at Section 6 of this report.

With regard to bush fire buffers, this matter is addressed by the relevant bush protection measures applying to the proposed development, outlined at Section 6.

5 Bush Fire Hazard Assessment

5.1 Methodology

The following assessment was carried out in accordance with the provisions of Appendix 1 – Site Assessment Methodology of PBP 2019.

A range of data and instruments have been utilised to perform a desktop analysis to complement available site data. These instruments include:

- local bush fire hazard mapping;
- proposal plans and supporting documentation;
- aerial imagery;
- Liverpool Range Bush Fire Risk Management Plan;
- PBP 2019; and
- AS3959-2009 – Construction of Buildings in Bushfire Prone Areas.

5.2 Fire weather

In terms of assessment methodology, it is noted the Fire Danger Index (FDI) relative to the locality being within the Northern Slopes region, is calculated at 80 based upon an estimated 2 per cent AEP (1:50 year ARI) event with a flame temperature of 1,090k and wind speeds of an assumed 45km/hr.

5.3 Liverpool Range Bush Fire Risk Management Plan

The Liverpool Range Bush Fire Risk Management Plan (BFRMP) was prepared by the Liverpool Range Bush Fire Management Committee in 2010 and includes the local government areas of Upper Hunter, Liverpool Plains and Gunnedah.

The BFRMP notes the typical climate conditions of the region vary with warm to hot conditions prevalent across the central and western areas and temperate to cold in the higher areas in the east.

Prevailing weather conditions associated with the bush fire season in the region include strong south-westerly to north-westerly winds accompanied by high day time temperatures and low relative humidity. Dry lightning storms are also frequent across the region.

In terms of the main sources of ignitions in the region, dry lighting storms, escaped private burns, accidental ignition through agricultural activities and arson are identified.

5.4 Vegetation classification and fuel loads

Vegetation classification is important for a number of reasons, namely it indicates the level of fire intensity and fire behaviour associated with specific species of vegetation and it also indicates the fuel loads which may exist in certain locations. It stands to reason that different vegetation groups yield very different fire behaviour and intensity attributes by virtue of their characteristics and fuel load output (Hines et al., 2010). The vegetation communities within 140m of the site form the basis of this assessment, as per Appendix 1 of PBP 2019.

The Bush Fire Prone Land Map identifies Category 3 vegetation across the entire site and surrounds, including lands within 140m. This reflects the rural landscape of the area and grassland and semi-arid woodland which features across the site and surrounding parcels.

Pursuant to Appendix 1 of PBP 2019, the vegetation within 140m of the area of development on site is largely grasslands interspersed with small areas of trees which are defined as semi-arid woodland.

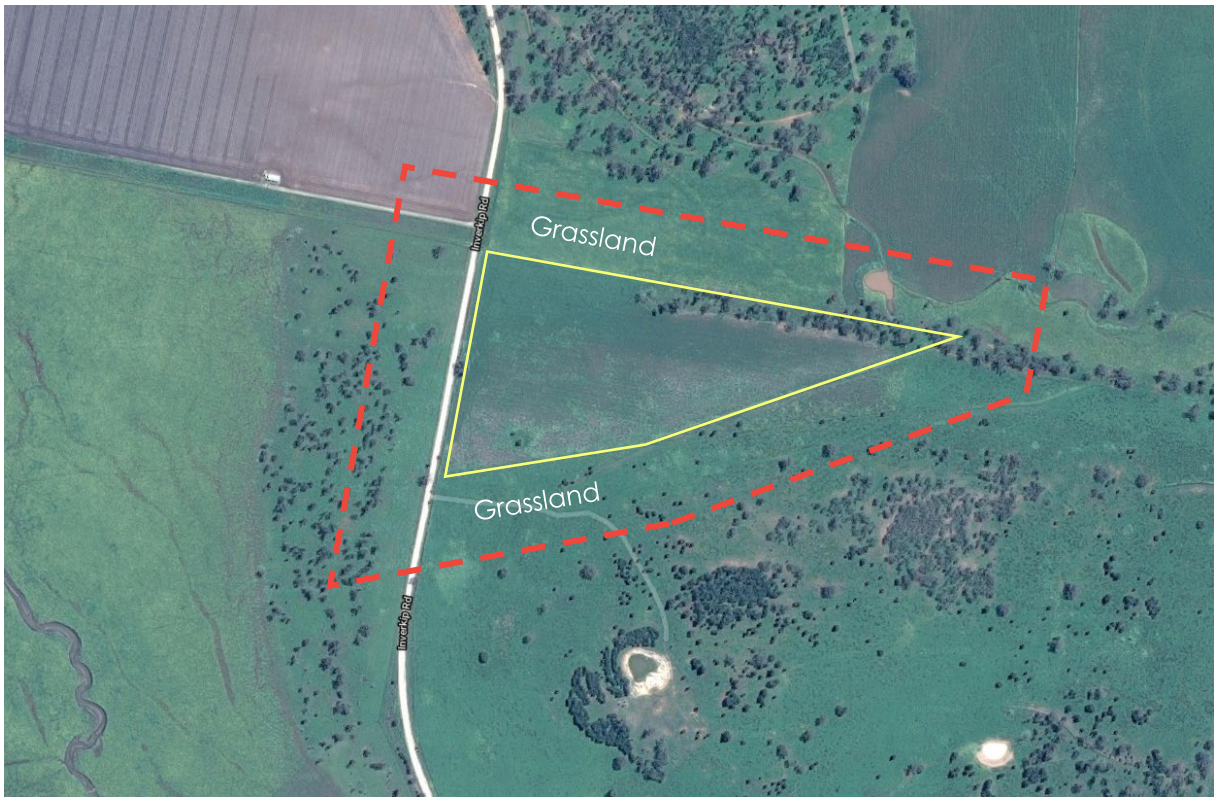

Figure 5-1 – 140m vegetation assessment polygon around area of development (Source: CNES / Airbus Imagery, 2021)

Cropping and grazing land which surrounds and adjoins the area of development on the subject site has the potential to support grass fire under certain conditions subject to the management regime, rainfall and growth rates, drought and curing.

As demonstrated at the figure above, the 140 metre assessment area is largely void of woodland vegetation, though some trees exist. On this basis, the vegetation classification relevant to the development area of the site is identified as '**grassland**' as per PBP 2019. Refer to images below.

Figure 5-2 - View of the development area of the site viewed from Inverkip Road looking north

Figure 5-3 - Wind break along the northern boundary looking west

Figure 5-4 - View of the development area of the site viewed from the east to the west

5.5 Effective slope analysis

Effective slope relates to the topography of vegetation beneath classified vegetation, as this influences fire speed and rate of spread - namely, that the speed of fire doubles for every 10 degrees incline as a general rule.

The subject land is gently undulating, rising from east to west. To the west of the site, the surrounding landscape slopes gently away from the subject site. This area is characterised by the Big Jacks Creek floodplain which comprises many braided channels which flow to the north west.

In the immediate development area of the site the land rises to north east and south east. The slope contour map below demonstrates the topography of the broader area, followed by more specific contour mapping in the area of proposed development adjacent to Inverkip Road.

Having regard to the slope within 140 metres of the development area of the site, land to the south, east and north and south is upslope. Land to the west is generally downslope however the slope is slight, at a maximum of 3 degrees.

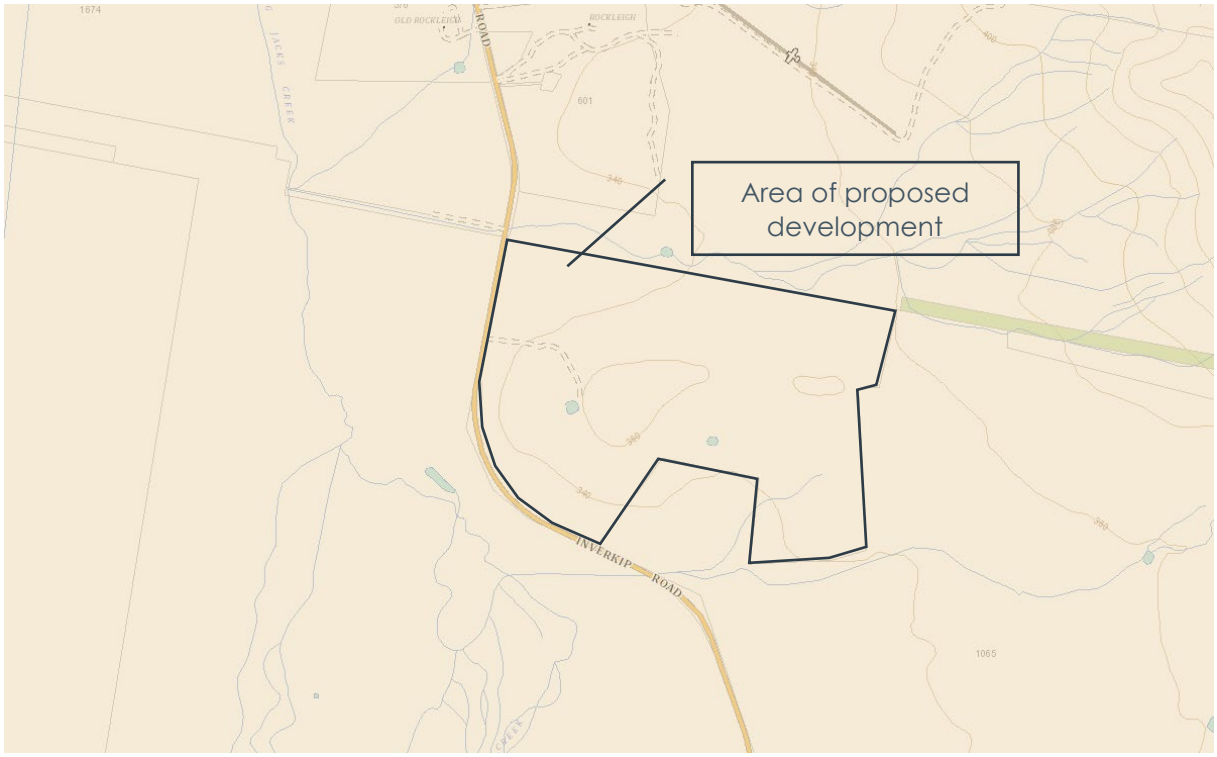

Figure 5-5 - Contour map of broader area (Source: NSW Government)

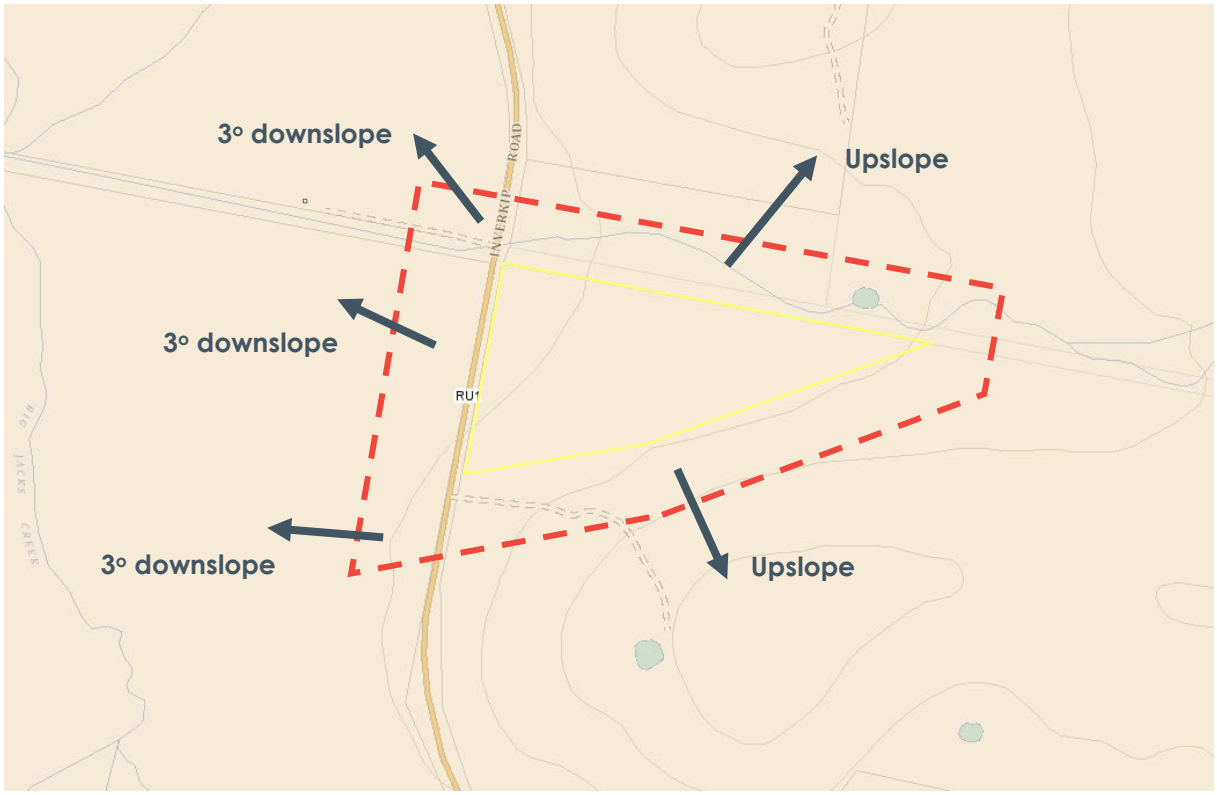

Figure 5-6 - 140m topographical assessment area (Source: NSW Government)

5.6 Bush fire behaviour assessment

The proposed development, being an intensive livestock agriculture use in a rural area is not immune to bush fire risk however, the risk is largely associated with grass fire hazard rather than bush fire. Whilst the intensity of fire may not be commensurate, grass fires are fast moving and can lead to damage and loss of equipment, sheds, buildings and other assets.

In the case of the proposed poultry farm operation, the protection of the birds as a key economic asset, and from a humane perspective, is also a relevant consideration.

It is possible that grass fire could advance toward the operation from almost any direction, but noting the fire winds observations of the Liverpool Range BFRMP, dry south-westerly to north-westerly winds are more likely. From this direction, grass fire will advance toward the site from a downslope direction which will increase its rate of spread where fire crosses the Big Jacks Creek floodplain. Again, because of its fertile alluvial soil, most of this area to the west of the site is used for cropping purposes.

From the north, south or east, grass fire may slow slightly on advancement toward the site due to upslope topography however, wind conditions of the day may still generate fast-moving grass fires.

The pockets of semi-arid trees across the broader subject site and to the immediate west may generate localised pockets of increased fire intensity however, within 140 metres of the development area of the subject site the tree specimens which occur are generally low in number and isolated to a degree to which would not necessarily see these areas transition from a grassland community.

On the basis of the above, the subject site and proposed development is able to employ bush fire protection measures to enhance the resilience of the operation to the potential impact of grass fire and these are identified at Section 6 of the report, and in the bush fire management plan at **Appendix A**.

6 Bush Fire Protection Measures

The bush fire risk and hazard context associated with the subject site requires a number of bush fire protection measures as identified by Section 8.3 of PBP 2019.

The below provisions should be read in conjunction with the bush fire management plan provided at **Appendix A**.

6.1 Access and egress roads

Access and egress (road) networks are significant in terms of a range of aspects of bush fire prevention and ability for firefighting. It must cater for emergency access and egress in times of potential bush fire events.

The proposed poultry farm operation is to be accessed via a central access road from Inverkip Road with two (2) sheds accessed to the north and a further two (2) to the south. The central access driveway is proposed to measure 6 metres in width, widening into 45000 diameter turnaround areas at the frontage of the rearing sheds. 9 metre access roads are provided around each shed location.

The property access requirements for residential and rural residential subdivisions provide a reasonable yardstick for assessment and compliance for a facility such as a poultry farm operation in a rural area. These provisions are assessed via the following table.

Table 1 - Property access compliance assessment

PBP 2019 property access requirements	Compliance statement
Minimum 4m carriageway width	The proposed minimum access road dimension is 6 metres.
In forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay	Not applicable.
A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches	Complies, there are no trees which branches which will overhang the internal access road network.
Provide a suitable turning area in accordance with Appendix 3	The proposal includes turning areas which exceed the 45000 diameter required, to facilitate articulated vehicles.
Curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress	The proposal complies. 9 metre access roads around the rearing sheds are also provided in addition to the turning bays.
The minimum distance between inner and outer curves is 6m	The proposal complies.
The crossfall is not more than 10 degrees	The proposal complies.
Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads	The proposal complies.

PBP 2019 property access requirements	Compliance statement
A development comprising more than three dwellings has access by dedication of a road and not by right of way.	Not applicable.

The provisions of PBP 2019 identify minimum 4 metre internal road widths are required to enable vehicle and fire appliance passing, which the proposed development meets and exceeds. The two large vehicle turnaround areas at the frontage of the rearing sheds exceeds the minimum diameter requirements for vehicle turnarounds for fire appliances. In addition, 9 metre access roads are provided around the rearing sheds, providing an internal road network of through roads which will not require fire appliances to use reverse gear.

External to the subject site, the internal road network connects with Inverkip Road which is a rural road of dirt construction which links with Warrah Ridge Road approximately 7 kilometres to the north and Harrisons Plains Road approximately 4 kilometres to the south.

The broader subject site is also traversed by a series of internal fire access tracks and trails which link across rural allotments.

6.2 Asset protection zones and defensible space

An asset protection zone (APZ) is an area which surrounds a building or asset which is intended to be managed in perpetuity in a no or low fuel condition to aid in the protection of buildings from the effects of flame contact, radiant heat exposure and to assist in the protection of residents. It also offers defensible space for firefighters to work in relative safety from radiant heat exposure.

The APZ dimensions usually also relate to a corresponding bush fire attack level (BAL) pursuant to AS3959.

For 'other development' PBP 2019 does not prescribe a minimum APZ dimension. Rather, it notes the general fire safety requirements of the NCC are accepted as adequate for the purposes of bush fire protection, though measures over and above may be provided.

Notwithstanding the above, PBP 2019 requires the consideration of a managed hazard-separation area for firefighting purposes referred to as 'defendable space', as per the aim and objectives of PBP 2019 set out at Section 1.1. Defensible space is an area between buildings and the hazard source which is capable of providing a relatively safe environment in which firefighters can undertake operations to defend an asset or structure. The defensible space dimension is defined by the ability to gain access around an asset, building or structure and conduct defensive firefighting operations.

The roads around the sheds, measuring 9 metres in width, provide unimpeded and reasonable defensible space for the poultry farm operations.

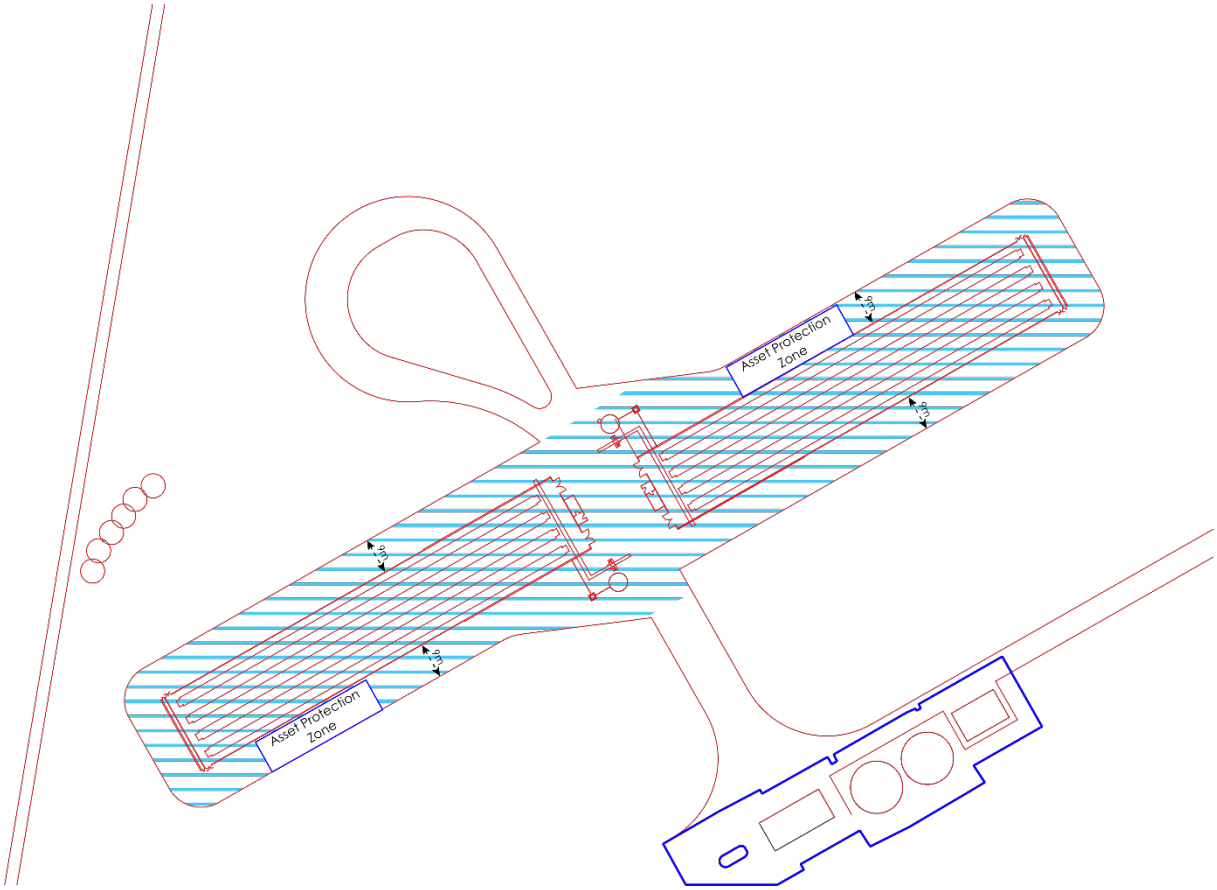

Figure 6-1 Shed 1 APZ

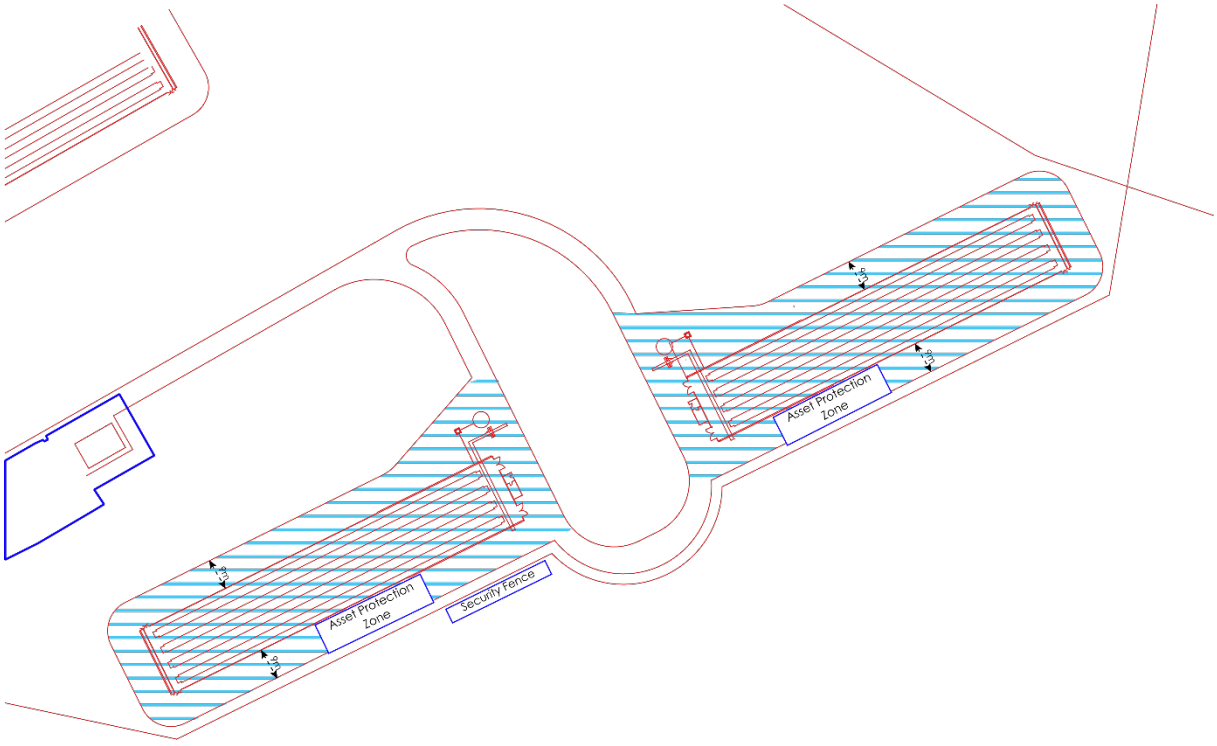

Figure 6-2 Shed 2 APZ

Additional defensible space areas are required around the amenities, services, compost, water tanks and LPG gas facilities which are located along the central access road. These areas must measure a minimum dimension of 6 metres around these assets, with the exception of the LPG tank which requires a 10 metre APZ.

Figure 6-3 Asset APZ

Combined, these defensible space areas provide adequate space to conduct firefighting operations around the structures of the proposed development.

6.3 Emergency and evacuation

PBP 2019 identifies at Section 8.3 the requirement for suitable emergency and evacuation arrangements.

The proposed poultry farm operation will employ a workforce of approximately four (4) persons, being a relatively small number of people intended to be on site and responsible for the management of up to 248,000 birds.

The first element of consideration in relation to emergency and evacuation arrangements is the road network which is considered above, and exceeds the minimum design requirements set out by PBP 2019. The internal road network not only doubles as defensible space for firefighting operations and limits the distance to which grass fire might occur adjacent to the buildings, it also provides a direct linkage to Inverkip Road which enables access and egress to/from both the north and south. This provides multiple opportunities for access and egress, depending on the location of the grass fire threat and wind conditions of the day.

In the event of emergency, evacuation of employees from the site may be required in which case, the internal and external road network are capable of facilitating such activities provided departure is decided in sufficient time to enable safe evacuation.

It is not envisaged that the birds occupying the site are reasonably able to evacuate. However, from a humane perspective the combined bush fire protection measures of defensible space and building construction are intended to offer protection in the event of grass fire. In the event of fire, it is also likely to water supply available on site would be deployed for firefighting

purposes and to protect the structural assets which inherently seeks to protect the occupant birds also.

The NSW RFS provides a document 'A guide to developing a bush fire emergency management and evacuation plan' which the facility operators may choose to prepare. Whilst this is not mandated by this assessment, it is recommended.

6.4 Water supply, utilities and services

The proposed poultry farm operation will be supplied by two (2) 1 megalitre steel water tanks (total of 2 megalitres capacity. This is intended to service both day to day farm operations as well as the facility's firefighting water supply.

In terms of the recommendations of this assessment:

1. a 6 metre defensible space area is provided around each tank.
2. each tank is to facilitate fire appliance access by providing an outlet within 4 metres of the standing position of a Category 1 tanking, which is likely to pull up on the central access road. The outlet is to be fitted with a 65mm metal Storz outlet with gate or ball valve.
3. the tanks are to be topped up to full capacity at the start of each regulated fire season and water levels observed throughout each fire season to ensure sufficient firefighting capacity is maintained for the duration of the season.
4. Ensure the fire safety provisions of the NCC are implemented and consider the ability for fire fighting equipment provided on site to protect the entirety of each building (i.e. hoses are located and can stretch the perimeter around buildings, etc.).

For electricity supply, PBP 2019 notes the following provisions:

- where practicable, electrical transmission lines are underground; and
- where overhead, electrical transmission lines are proposed as follows:
    - lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and
    - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.

The proposed development is recommended to comply with the above provisions, noting these provisions relate to residential and special fire protection purposes rather than 'other development' However, in a rural context, liability for ignition from electricity supply on freehold land is the responsibility of the landholder and as such, appropriate steps should be taken in perpetuity (i.e. annual checks and maintenance) to limit the hazard posed by electricity supply.

6.5 Hazardous materials

In relation to the LPG tank, a 10 metre defensible space area is to be provided. The LPG tank is also required to be shielded by a non-flammable radiant heat screen in a manner outlined by the bush fire management plan at **Appendix A**. Plastic gas fittings are not acceptable in a grass fire hazard area and are not to be used.

Other hazardous materials storage (i.e. fuel, chemicals, etc.) should be located on-site in a building at a minimum 20 metre distance from any surrounding grass fire hazard source with a maximum radiant heat flex exposure of 12.5 kW/m2.

6.6 Other recommended bush fire protection measures

Other bush fire protection elements which relates specifically to this proposal are outlined below.

6.6.1 Building construction

All buildings on site are proposed to be constructed of fire resistant materials including:

- Colorbond metal deck roofs;
- wall cladding constructed of Colorbond (amenities building), PIR panels (poultry sheds and services building) and a combination of concrete and Colorbond (compost building). PIR panels are insulated wall panels which are also fire retardant.

Thus, the majority of built form structures will be constructed using fire-resistant materials and thermal / insulated projects which not only serve to protect the buildings themselves but the birds which will occupy the facility.

6.6.2 Landscaping

It is noted that screen landscaping is to be provided along the Inverkip Road frontage of the site. This landscaping must be provided in a manner which does not inadvertently increase the fuel load or fire hazard relative to the proposed development.

Appendix 4 of PBP 2019 outlines the provisions for 'outer protection zones' which provide suitable guidance in relation to an appropriate approach to landscaping in this location. To this end, the following is recommended:

Trees

- tree canopy cover should be less than 30 per cent; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20 per cent of ground cover.

Grass

- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

6.6.3 Fire trails and firebreaks

The site layout does not warrant the provision for any additional fire trails or firebreaks however, maintenance and ongoing management of the existing trail and track network across the property is recommended.

7 Summary Conclusions and Recommendations

This report considers the bush fire exposure and protection measures required for the proposed intensity agriculture activity involving a poultry framing operation at Inverkip Road, Warrah Ridge. Based upon a range of analysis methodologies, protection measures are identified for incorporation as part of the proposed development to aid in the defence against grass fire with respect to classifiable vegetation surrounding the development site.

Based on this assessment, a range of protection measures have been derived, illustrated by the bush fire management plan at **Appendix A**. These are summarised as follows:

1. Internal road network design and dimensions comply with those set out by the bush fire management plan at **Appendix A**.
2. Defensible space areas are provided which comply with those illustrated by the bush fire management plan at **Appendix A**.
3. Consider the preparation of a bush fire emergency management and evacuation plan to support the safe operation of the facility.
4. The static water supply for the facility meets the following recommendations of this assessment:
    a. a 6 metre defensible space area is provided around each tank.
    b. each steel tank is to facilitate fire appliance access by providing an outlet within 4 metres of the standing position of a Category 1 tanking, which is likely to pull up on the central access road. The outlet is to be fitted with a 65mm metal Storz outlet with gate or ball valve.
    c. the tanks are to be topped up to full capacity at the start of each regulated fire season and water levels observed throughout each fire season to ensure sufficient firefighting capacity is maintained for the duration of the season.
    d. ensure the fire safety provisions of the NCC are implemented and consider the ability for fire fighting equipment provided on site to protect the entirety of each building (i.e. hoses are located and can stretch the perimeter around buildings, etc.).
5. In relation to the LPG tank, a 10 metre defensible space area is to be provided. The LPG tank is also required to be shielded by a non-flammable radiant heat screen in a manner outlined by the bush fire management plan at **Appendix A**. Plastic gas fittings are not acceptable in a grass fire hazard area and are not to be used.
6. Provide electricity supply in a manner which complies with the requirements of PBP 2019 and undertake annual checks and maintenance to limit the ignition hazard posed by electricity supply.
7. Consider the implementation of the Inverkip Road frontage screen landscaping in a manner which complies with the 'outer protection zone' provisions of PBP 2019.
8. Continue to maintain the existing trail and track network across the broader subject site.

It is significant to note that bush and grass fire remains a natural process which is endemic to the Australian landscape and is subject to a range of contributing factors which are variable on a daily basis. As such, it is extremely difficult to predict the behaviour and intensity of a fire event at any given time. On this basis, it remains incumbent upon the facility operators to implement the recommendations of this assessment, utilise local knowledge of grass fire behaviour and implement practices and procedures that ensure operators and site-based staff remain aware of fire danger ratings, ignitions in the area and their options in the event of a grass fire to ensure the preservation of both life and property.

APPENDICES

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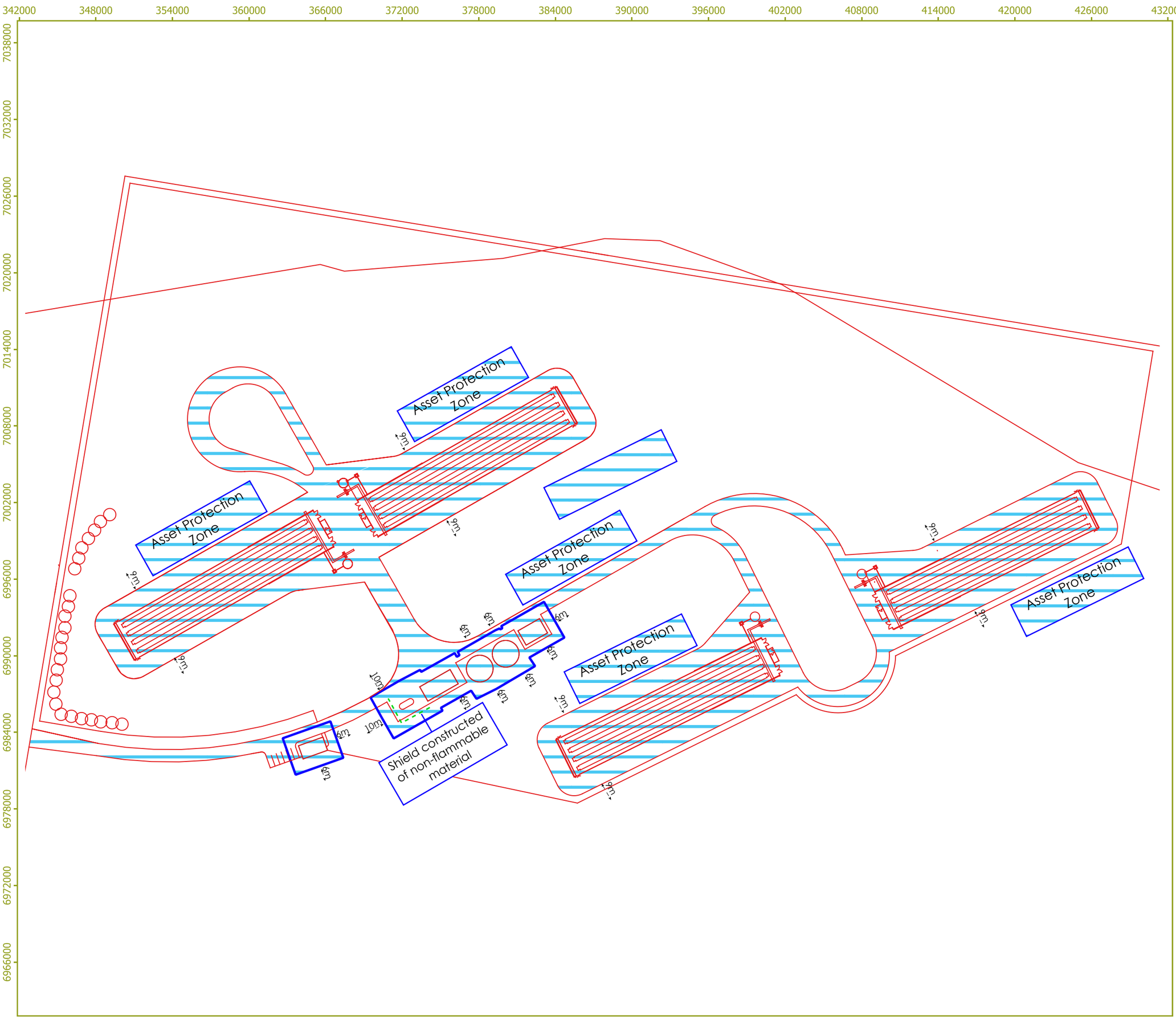
Appendix A - Bush Fire Management Plan

WARRAH RIDGE - BMP

WARRAH RIDGE BUSH FIRE

LEGEND

- Proposed development
- Asset APZ buffer
- Applied APZ
- Besa block radiant heat screen



0 30 60 90 km

Project No: 21-017 Map No: 1 of 1

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