Bushfire Threat Assessment

Proposed Residential Subdivision
36 Sanctuary Drive, Lochinvar NSW

Prepared for: **Urban Land Housing**

AEP Ref: **5547**
Revision: **01**
May 2025

Contents

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1.0 Introduction

A residential subdivision is proposed within land identified as 36 Sanctuary Drive, Lochinvar NSW 2321, containing Lot 1 DP1309170 and part Lot 3 DP1309170. At the request Urban Land Housing (the client), Anderson Environment & Planning (AEP) have undertaken the necessary investigations to inform the production of a Bushfire Threat Assessment (BTA) report addressing the proposed development.

This report is specifically intended to assess the bushfire protection measures required by the NSW Rural Fire Service's "Planning for Bushfire Protection 2019" (PBP) and the construction requirements of the proposed development in accordance with the provisions of the Building Code of Australia – Volume 2, Edition 2022 and Australian Standard 3959-2018 (AS 3959) – "*Construction of buildings in bushfire-prone areas*".

The proposal will involve subdivision for residential purposes as per 100B of the *Rural Fires Act* 1997 (RF Act). As a result, a Bushfire Safety Authority (BSA) is required from the Rural Fire Service (RFS) to enable the development to proceed. This report addresses the required heads of consideration relevant to obtaining a BSA.

For the purposes of referencing, this document should be referred to as:

Anderson Environment & Planning (2025). *Bushfire Threat Assessment for Residential Subdivision at 36 Sanctuary Drive, Lochinvar NSW*. Unpublished report for Urban Land Housing, April 2025.

2.0 Site Particulars

The proposed residential subdivision development is described as follows.

Table 1 – Site Particulars

Item	Comments
Client	Urban Land Housing
Address	36 Sanctuary Drive, Lochinvar NSW 2321
Title(s)	Lot 1 DP1309170 and part Lot 3 DP1309170
Study Area	The Subject Site plus a 140m area around the outside for determination of potential hazard vegetation.
Subject Site	Lot 1 DP1309170 and part Lot 3 DP1309170
LGA	Maitland City Council
Zoning	R1 – General Residential
Current Land Use	An existing residential dwelling and associated shed and pool currently occupies part of the Subject Site with some scattered remnant trees proposed for removal. The site is bounded by Sanctuary Drive to the east, Herdsmen Road to the south and Charbray Street to the west and residential subdivided land directly to the north along Holstein Road.
Surrounding Land Use	The Subject Site is surrounded by residential construction works form other DA approved residential subdivisions. The site is surrounded by the land zoning R1 – General Residential.

Figure 1 depicts the extent of the Subject Site overlain on an aerial photograph of the locality.

3.0 Proposed Development

The proposed development is a 19 lot residential subdivision and associated ancillary and civil works within 36 Sanctuary Drive, Lochinvar.

Figure 2 depicts the plan of proposed development within the Subject Site.

Legend

Study Area

Cadastre

Figure 1 - Site Location

Address: 36 Sanctuary Drive, Lochinvar NSW
Client: Urban Land Housing
AEP Ref: 5547 | Date: April 2025

Imagery: NearMap, April 2025
Spatial Reference: GDA2020 MGA Zone 56

0 100 200 m

Scale: 1:5,000

N

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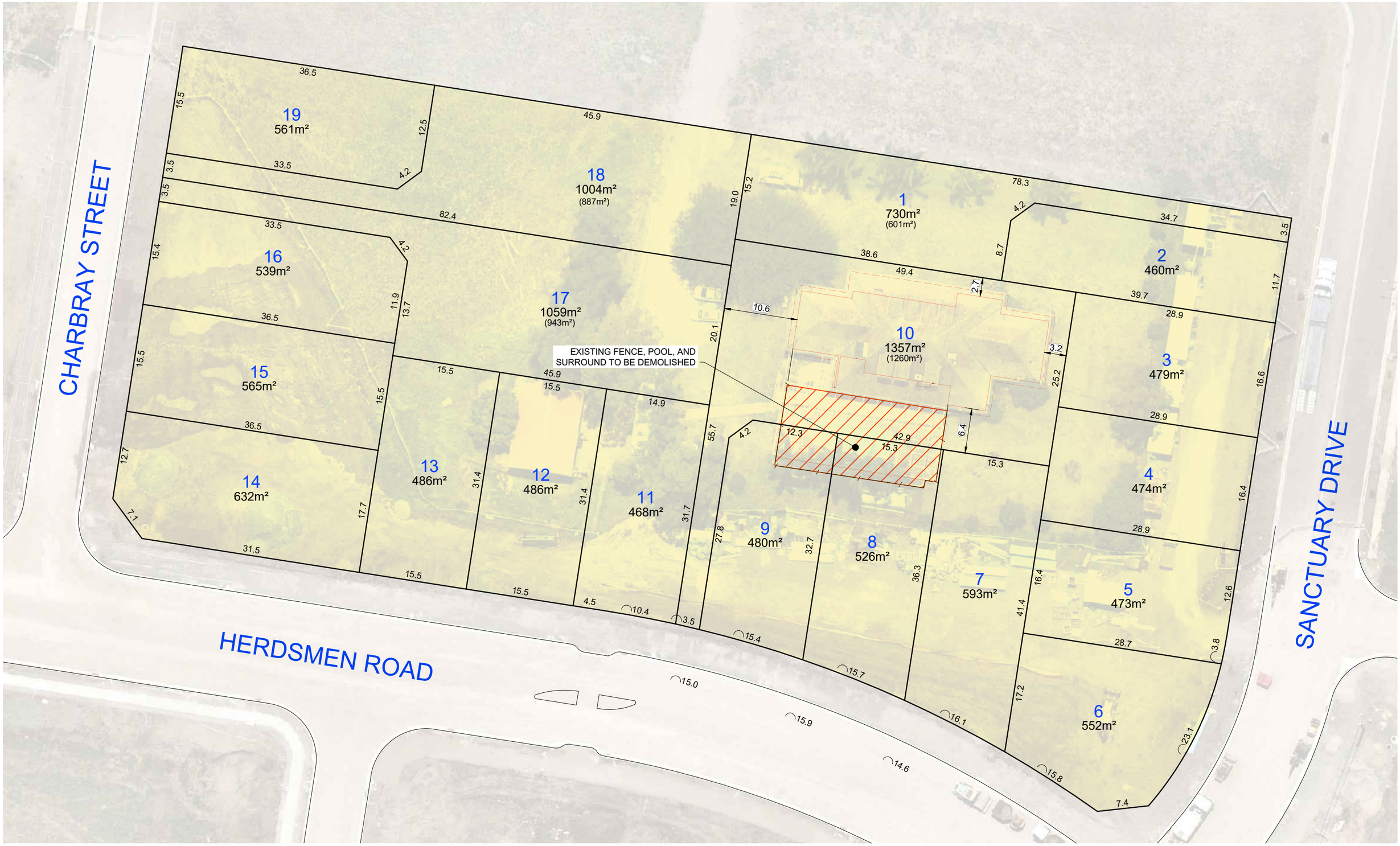

Rev	Description	Drawn	Date
3	ADJUSTED 7 - 9	AS	10.03.25
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GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE (P.O. BOX 3337)
THORNTON NSW 2322
PHONE: 49641811

Client:
LOCHINVAR RIDGE ESTATE PTY LTD

Project Status:
DA

Scale: 1:500
0 10 20 30
1:500 (A3)

Project Title:
LOCHINVAR RIDGE ESTATE

Project Address:
LOT 1 & 3 DP1309170

Drawing Title:
SUBDIVISION PLAN

Project No
24299

Revision
3

Drawing No
LD01

PLOT DATE: 10/03/2025 5:23:49 PM CAD FILE: Q:\24\24299 Lochinvar Ridge, Subdivision of Ex House\02_CAD\AutoCAD\LD\24299LD01 r3.dwg

4.0 Bushfire Hazard Assessment

4.1 Bushfire Prone Land Mapping

Examination of the NSW Planning Portal, Bushfire Prone Land (BPL) mapping (2025) confirms that all of the Subject Site is mapped as “Vegetation Category 3”. This designation has triggered the need for the assessment herewith.

Appendix 1 of the PBP provides the steps required to determine the level of bushfire hazard that applies to the site. Factors influencing the hazard level include:

- The formation of vegetation surrounding the site (as defined by Keith 2004);
- The distance between vegetation and the site (or proposed buildings therein);
- The effective slope for each patch of vegetation; and
- The Fire Danger Index (FDI) of the Council area within which the development occurs.

These factors together provide an indication of the level of threat posed to the development from any vegetation retained within the site and surrounding vegetation in the event of a bushfire, and the required mitigation measures to be taken in the form of subdivision layout and access, Asset Protection Zones (APZs) and building construction standards. These measures are detailed further in **Section 5** below.

Legend

- Subject Site
- Cadastre

NSW Bush Fire Prone Lands

- Vegetation Category 3
- Vegetation Buffer

Figure 3 - Bushfire Prone Land Map (Planning NSW, April 2025)

0 100 200 m

Scale: 1:5,000

N

Address: 36 Sanctuary Drive, Lochinvar NSW
Client: Urban Land Housing
AEP Ref: 5547 | Date: April 2025

Imagery: NearMap, April 2025
Spatial Reference: GDA2020 MGA Zone 56

4.2 Vegetation and Slope Analysis

The site and surrounds occur within the Maitland City Council, with existing vegetation subsequently classified with a Fire Danger Index (FDI) of 100 as NSW Rural Fire Service (2017) NSW Local Government Areas FDI. This equates to a Grass Fire Danger Index (GFDI) of 130.

Vegetation communities that will be present post-development within the Subject Site and 140m surrounding the development have been described and mapped, and slope assessment out to 100m under identified hazard vegetation are shown in **Table 2** and **Figure 5.** Due to the open nature of the vegetation and the patchy distribution and future revegetation not currently present, where there are two hazard vegetation types effective slope has been calculated under both to assess the effective slope.

Table 2 – Hazard Vegetation and Slope Assessment

Transect	Hazard Vegetation (140m)	Distance under hazard	Change in Slope	Effective Slope under highest threat vegetation	Asset Protection Zone (m) derived from highest threat vegetation
T1^	Grassland[%]	-	-	Downslope 0-5	12
T2^	Grassland[%]	-	-	Downslope 0-5	12
T3	Grassland[%]	n/a*	n/a*	Upslope / Flat	10

***** Where effective slope is upslope the change in slope and distance under hazard was not measured precisely

^ Only 10m contour data available for this area. Site measurements indicate either a flat or slight downslope as such a downslope of 0-5 has been used for the assessment.

[%] Grassland hazard within this area is a part of an approved residential subdivision DA.

Appendix A contains photos showing the vegetation types within the site to be retained and within the 140m vegetation assessment buffer around the Subject Site.

Legend

- Subject Site
- Cadastre
- 140m Vegetation Assessment
- 100m Slope Assessment
- 10m Contours

Hazard Vegetation

- Grassland
- Non-hazard / Infastructure / Development / Managed Grassland

Figure 4 - Vegetation and Slope Assessment

Address: 36 Sanctuary Drive, Lochinvar NSW
Client: Urban Land Housing
AEP Ref: 5547 | Date: April 2025

Imagery: NearMap, April 2025
Spatial Reference: GDA2020 MGA Zone 56

0 50 100 m

Scale: 1:3,000

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4.3 PBP Performance Criteria Assessment

Table 3 provides the assessment of the PBP Performance Criteria for residential subdivision under PBP 2019.

Table 3 – Performance Criteria Measures for Residential Subdivision

Performance Criteria	Acceptable Solutions	Assessments
Assets Protection Zones		
Potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot.	APZs are provided in accordance with Tables A1.12.2 based on the FFDI of 100 and GFDI of 130.	APZs are provided calculated on the highest threat of grassland hazard adjacent to the development taking into consideration the hazard setbacks from the perimeter road. The position of all Lots is such that all Lots within the development can provide for a building footprint in BAL 29 or less.
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZs are managed in accordance with the requirements of Appendix 4.	APZs will be managed as Inner Protection Areas noting that most of the APZs required will be made up of roads and that this will include verge management.
The APZs are provided in perpetuity.	APZs are wholly within the boundaries of the development site.	Required APZs are located as such to utilise the existing road network between grassland hazard vegetation to the south of the proposed development (see **Figure 5**).
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are located on lands with a slope less than 18 degrees.	APZs are not located on lands that are more than 18 degrees.
Landscape		
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Landscaping is in accordance with Appendix 4.	Landscaping is to be designed to be in accordance with Appendix 4 of PBP 2019.
	Fencing is constructed in accordance with section 7.6.	Fencing located within 6m of a dwelling is to be made of non-combustible materials. Fencing located outside of these areas can be constructed using hardwood or non-combustible materials.
Access (General Requirements)		
Firefighting vehicles are provided with safe, all-weather access to structures.	Property access roads are two-wheel drive, all-weather roads.	All proposed lots within the Subject Site have access to existing and recently constructed road network including Sanctuary Drive to the east, Herdsmen Road to the south and Charbray Street to the west.
	Perimeter roads are provided for residential subdivisions of three or more allotments.	The Subject Site is surrounded by recently constructed residential subdivisions or residential subdivision currently under construction. The proposed development is

Performance Criteria	Acceptable Solutions	Assessments
		likely to be affected by grassland hazard to the south. However, Herdsmen Road which bounds the site to the south provides sufficient distance between any hazard and the development.
	Subdivisions of three or more allotments have more than one access in and out of the development.	All proposed lots within the Subject Site have access to existing and a recently constructed road network which has connectivity to a wide road network including New England Highway.
	Traffic management devices are constructed to not prohibit access by emergency services vehicles.	No traffic management devices are proposed that would prohibit or impede movement of emergency service vehicles.
	Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.	Average grade across the site is to be no more than 10 degrees with a maximum road grade of approximately 15 degrees.
	All roads are through roads.	All proposed lots within the Subject Site have access to an existing road network which are all through roads and have connectivity to a wide road network including New England Highway.
	Dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.	
	Where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.	N/A – Roads are existing.
	Where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.	Access and egress is not achieved through any hazard vegetation.
	One way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.	No one-way public access roads are proposed.
The capacity of access roads is adequate for firefighting vehicles.	The capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to	Perimeter roads are designed and constructed to carry 23 tonnes. No bridges or causeways are proposed.

Performance Criteria	Acceptable Solutions	Assessments
	carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/ causeways are to clearly indicate load rating.	
There is appropriate access to water supply.	Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.	Hydrants are to be located outside of parking reserves and carriageways.
	Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2021 - Fire hydrant installations System design, installation and commissioning.	Hydrants are to be provided in accordance with AS 2419.1:2021.
	There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	No static water supply is proposed.
Perimeter Roads		
Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during Firefighting and emergency management on the interface.	Are two-way sealed roads.	Herdsmen Road which bounds the south of the Subject Site is a two-wayed sealed road.
	Minimum 8m carriageway width kerb to kerb.	Herdsmen Road is approximately 15m is width.
	Parking is provided outside of the carriageway width.	Herdsmen Road is approximately 15m is width and parking is provided outside the minimum carriageway width of 8m.
	Hydrants are located clear of parking areas.	Hydrants are to be installed in areas clear of the sealed pavement, instead being located on the verge of the road.
	Are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	Herdsmen Road which bounds the south of the Subject Site is a through roads with multiple linkages at intervals less than 500m.
	Curves of roads have a minimum inner radius of 6m.	All curves of perimeter roads are to have a minimum inner radius of 6m in width.
	The maximum grade road is 15 degrees and average grade of not more than 10 degrees.	Average grade of roads across the subdivision are no more than 10 degrees with the maximum road grade being 15 degrees.
	The road crossfall does not exceed 3 degrees.	Roads are designed and implemented such that crossfall does not exceed 3 degrees.
	A minimum vertical clearance of 4m to any overhanging	Vertical clearance of 4m is to be provided.

Performance Criteria	Acceptable Solutions	Assessments
	obstructions, including tree branches, is provided.	
Non-Perimeter Roads		
Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.	Minimum 5.5m carriageway width kerb to kerb.	Sanctuary Drive and Charbray Street are approximately 10m in carriageway width.
	Parking is provided outside of the carriageway width.	Parking is to be provided outside of the carriageway.
	Hydrants are located clear of parking areas.	Hydrants are to be installed in the verge of roads clear of parking areas.
	Roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	All proposed lots within the Subject Site have access to an existing road network which are all through roads and have connectivity to a wide road network including New England Highway at an interval of no greater than 500m.
	Curves of roads have a minimum inner radius of 6m.	Curves of roads are to have a minimum inner radius of 6m.
	The road crossfall does not exceed 3 degrees.	Roads are to be designed and implemented such that crossfall does not exceed 3 degrees.
	A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	Vertical clearance of 4m is to be provided.
Property Access		
Firefighting vehicles can access the dwelling and exit the property safely.	There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.	All proposed Lots are within an urban area with no potential building envelope located more than 50m from a public access road.
In circumstances where this cannot occur, the following requirements apply:	Minimum 4m carriageway width.	N/A – urban environment
	Iin 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.	
	A minimum vertical clearance of 4m to any overhanging	

Performance Criteria	Acceptable Solutions	Assessments
	obstructions, including tree branches.	
	Provide a suitable turning area in accordance with Appendix 3.	
	Curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress.	
	The minimum distance between inner and outer curves is 6m.	
	The crossfall is not more than 10 degrees.	
	Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.	
	A development comprising more than three dwellings has access by dedication of a road and not by right of way.	
Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.		
Water Services		
Adequate water supplies is provided for firefighting purposes	Reticulated water is to be provided to the development where available.	The development is to be serviced by reticulated water.
	A static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed. Static water supplies shall comply with Table 5.3d.	N/A – development is to be serviced by reticulated water.
Water supplies are located at regular intervals; and the water supply is accessible	Fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2021.	Fire hydrant spacing, design and sizing is to be designed and installed to comply with AS 2419.1:2021.

Performance Criteria	Acceptable Solutions	Assessments
and reliable for firefighting operations.	Hydrants are not located within any road carriageway.	Hydrants are not to be located in road carriageways and are to be located within the verge of the road.
	Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	N/A
Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2021.	Hydrant flow and pressure is to be designed and installed to comply with AS 2419.1:2021
The integrity of the water supply is maintained.	All above-ground water service pipes are metal, including and up to any taps.	All above-ground pipes, taps and connections are to be made of metal.
	Above-ground water storage tanks shall be of concrete or metal.	Above-ground water storage tanks are to be made of concrete or metal.
Electricity Services		
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Where practicable, electrical transmission lines are underground.	Electrical transmission lines are to be underground where practicable.
	Where overhead, electrical transmission lines are proposed as follows: lines are installed with short pole spacing of 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 ISSC3 Guideline for Managing Vegetation Near Power Lines.	Electrical transmission lines that are to be overhead are to be installed with short pole spacing of 30m.
Gas Services		
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used.	Reticulated gas or bottled gas are to be installed and maintained in accordance with AS/NZS 1596:2014. All connections and piping are to be metal.
	All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side.	Design is to ensure that all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m. Shielding is to be present between the fixed gas cylinder and any hazard vegetation.

Performance Criteria	Acceptable Solutions	Assessments
	Connections to and from gas cylinders are metal. Polymer-sheathed flexible gas supply lines are not used. Above-ground gas service pipes are metal, including and up to any outlets.	All gas connections and pipes are to be made of metal and polymer-sheathed gas supply lines are not to be used.
Water Tanks		
Residential lots (<1,000m2)	5,000L/lot	N/A – development is serviced by reticulated water
Rural-residential lots (1,000-10,000m2)	10,000L/lot	
Large rural/lifestyle lots (>10,000m2)	20,000L/lot	
Multi-dwelling housing (including dual occupancies)	5,000L/dwelling	

5.0 Bushfire Hazard Determination

5.1 Construction Standards – AS 3959-2018

The Australian Standard 3959-2018 *Construction of buildings in bushfire prone areas*, details six (6) levels of construction standards that are required for buildings, depending upon the expected impact of a bushfire from adjacent areas. These Bushfire Attack Levels (BALs) are measured from the edge of the hazard and incorporate vegetation type and slopes (**Table 2**) to determine the relevant distance for each BAL rating (and associated construction standard).

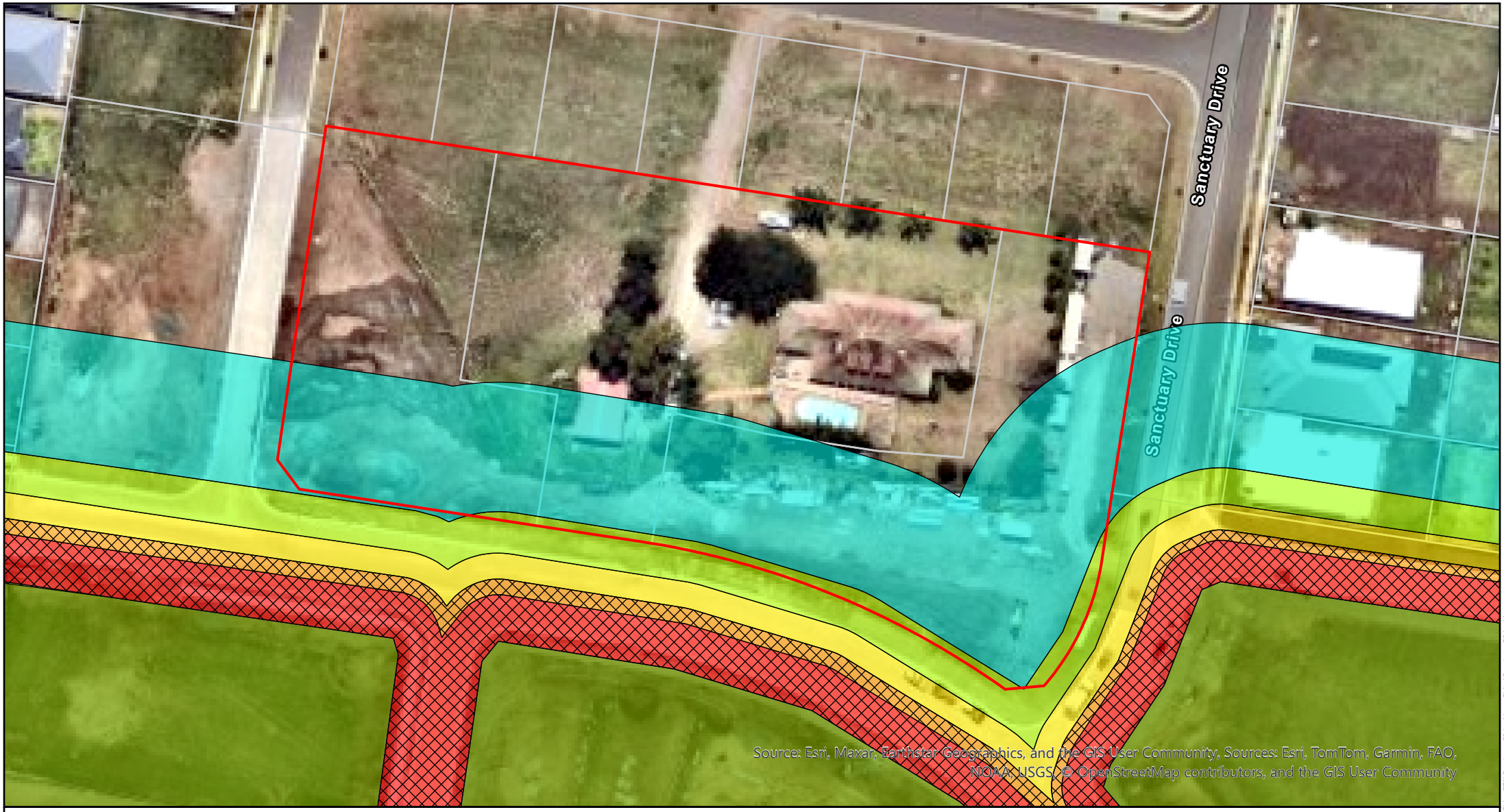
The relationship between the expected impact of a bushfire, radiant heat characteristics and the BAL rating is provided in **Table 4.** below.

Table 4 – BAL Construction Standard

Bushfire Attack Level	Maximum radiant heat impact (kW/m^2)	Level of construction standard under AS 3959-2018
Low		No special construction requirements
12.5	≤12.5	BAL – 12.5
19	12.6 to 19.0	BAL – 19
29	**19.1 to 29**	**BAL - 29**
40	29 to 40	BAL – 40
Flame Zone	≥40	BAL – FZ (Not deemed to satisfy provisions)

Required APZs and BALs are shown on a development overlay in **Figure 6** and **Figure 7**.

The subdivision has been designed such that all Lots are able to provide for a building envelope that is exposed to a radiant heat threshold of 29kW/m^2 or less in line with subdivision requirements.



Legend

- Subject Site
- Cadastre
- Hazard Vegetation

Bushfire Attack Level (BALs)

- BAL FZ
- BAL 40
- BAL 29
- BAL 19
- BAL 12.5
- Asset Protection Zone (APZs)

Figure 5 - APZs and BALs

Address: 36 Sanctuary Drive, Lochinvar NSW
Client: Urban Land Housing
AEP Ref: 5547 | Date: April 2025

Imagery: NearMap, April 2025
Spatial Reference: GDA2020 MGA Zone 56

0 10 20 m

Scale: 1:1,000

N

AEP

6.0 Other Considerations

The following analysis was applied to the Subject Site in reference to environmental features present and considered as part of the assessment.

Table 5 – Other Site Constraints

Item	Comments
Riparian Corridors	No hydrolines are mapped within the Subject Site.
State Environmental Planning Policy (Resilience and Hazards) 2021	There are no known elements of the SEPP that apply to the Subject Site.
State Environmental Planning Policy (Biodiversity Conservation) 2021	There are no known elements of the SEPP that apply to the Subject Site.
Areas of geological interest	There are no areas of geological interest present within the Subject Site.
Environmental protection zones or steep lands (>18º)	There are no environmental protection zones or steep lands within the Subject Site.
Land slip or flood prone areas	There are no land slip or flood prone areas within the Subject Site.
National Parks estate or various other reserves	No National Parks estate or reserve present within the Subject Site.
Threatened species matters	No threatened species are known to be within the Subject Site.
Aboriginal Heritage	No Aboriginal Heritage Matters are known to be within the Subject Site.

7.0 Recommendations

1. Before subdivision certification is released, all APZs should be implemented and maintained in perpetuity to Inner Protection Area (IPA) standards in accordance with Appendix 4 of PBP 2019.

   When establishing and maintaining an IPA the following requirements apply:

   - tree 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 the ground;
   - tree canopies should be separated by 2 to 5m;
   - preference should be given to smooth barked and evergreen trees;
   - large discontinuities or gaps in vegetation should be provided 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; and
   - clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

2. The Subject Site is to be managed as an Inner Protection Area (IPA) and the Landscape plans for the Subdivision should ensure that landscaping meets the requirements of Appendix 4 of PBP 2019 (as detailed above in point 1).
3. All new lots are to be connected to a reliable water supply with suitable fire hydrants installed according to AS 2419.1:2021. Hydrant spacing, sizing and pressure shall comply with AS 2419.1:2021 and section 5.3.3 of PBP 2019.
4. Electricity and Gas utilities are to be designed to comply and should be installed in line with Australian Standards and in accordance with Table 5.3c of PBP 2019.
5. It is recommended that future residents create a personalised Bushfire Emergency Evacuation Plan to provide direction in the case of Bushfire event.

8.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment have revealed that the proposed development will be affected by grassland hazard to the south of the proposed subdivision footprint. Other areas of grassland surrounding the proposed subdivision are currently under construction for residential dwelling or are apart of approved residential subdivision development.

AEP understands that the development will be serviced by reticulated water supply and street hydrant access in accordance with AS 2419.1–2021. Gas and electricity are to be provided in accordance with the appropriate Australian Standards.

The proposed residential development is bounded by Sanctuary Drive to the east, Charbray Street to the west and Herdsmen Road to the south providing access and egress to all proposed lots. These access and egress roads empty onto a wider public road system within the locality connecting to the New England Highway to the north. It is considered that the proposed access and egress arrangements are appropriate and no issues have been identified with evacuation, safe haven zones, or firefighting logistics.

The existing road network surrounding the proposed residential development including Herdsmen Road, Sanctuary Drive and Charbray Street provide a minimum carriageway width of 8m and provide separation between the proposed lots and adjacent grassland hazard vegetation to the south, noting that this area is a part of an approved DA residential subdivision development. This will allow for access and firefighting activities in the event of a bushfire emergency.

All required Asset Protection Zones (APZs) utilise the road network that bounds the Subject Site to the west, south and east. The provision of appropriate Asset Protection Zones allows for each Lot to provide a building footprint in BAL 29 or lower.

It is considered that the proposed protection measures, principally APZs and determination of relevant construction standards, comply with the relevant requirements of Planning for Bushfire Protection and AS-3959 and allow for compliant subdivision to occur as per the proposed subdivision plan. When applied, these measures should provide adequate protection to life and property within the proposed development in the event of a bushfire occurring in the immediate locality. However, it can never be guaranteed that the site, residents and property therein will not at some stage be affected by a bushfire event and it is recommended that residents prepare a personal bushfire emergency evacuation plan for such an event.

9.0 References

Australian Building Codes Board. *International Fire Engineering Guidelines*. Edition 2005.

Environmental Planning & Assessment Act 1979. NSW Government.

Keith D (2004). *Ocean Shores to Desert Dunes*. DEC, Sydney.

NSW Rural Fire Service (2019). *Planning for Bushfire Protection: A guide for councils, planners, fire authorities and developers*. November 2019.

NSW Government, *ePlanning Spatial Viewer – Bushfire Prone Land Map*, accessed April 2025.

Rural Fires Act 1997. NSW Government.

Rural Fires Act Regulation 2013. NSW Government.

Standards Australia (2018) AS-3959 Construction of Buildings in Bushfire-Prone Areas.

Standards Australia (2010) AS-3745 Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces' for Residential Accommodation

Appendix A – Site photographs

Above: Looking North towards residential subdivision land containing grassland hazard and Holstein Road.

Below: Looking north-west across Charbray Street and current residential construction works.

Above: Looking west across Charbray Street towards residential subdivision land containing unmanaged grassland.

Below: Looking south-west across Charbray Street and Herdsmen Road (perimeter road) between development and grassland hazard further south.

Above: Looking south across Herdsmen Road towards grassland hazard vegetation to be developed as apart of an approved DA residential subdivision.

Below: Looking south-east across Sanctuary Drive and Herdsmen Road towards grassland hazard vegetation.

Above: Looking east across Sanctuary Drive towards residential subdivision construction works.

Below: Looking north-east across Sanctuary Drive towards residential subdivision construction works.