

Bush Fire Assessment Report

Proposed:
Residential Apartment Building

At:
310 Terrigal Drive, Terrigal

Reference Number: 240241

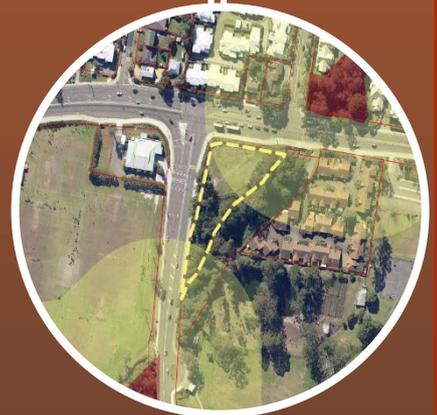
25 September 2023



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Version Control				
Version	Date	Author		Details
1	25/09/2023	Ian Tyerman	Stuart McMonnies	Final Report

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959: 2018 'Construction of buildings in bushfire-prone areas' as amended
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Central Coast Council
DA	Development Application
ELVIS	Elevation and Depth Foundation Spatial Data
EP&A Act	<i>Environmental Planning and Assessment Act - 1979</i>
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection – 2019 as amended</i>
ROW	Right of Way
RF Act	<i>Rural Fires Act - 1997</i>
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

Building Code and Bushfire Hazard Solution P/L has been commissioned by Loftuslane Capital Partners to prepare an independent bushfire assessment for the proposed development of a 4,262m² site at 310 Terrigal Drive, Terrigal (Lot 27 DP1223375).

The application includes a Planning Proposal to facilitate a mixed use, shop top residential development.

The proposed development is limited to land zoned R1 General Residential and provides for a total of nine (9) storeys and three (3) basement levels.

This development application proposed the following works:

- Construction of 50 residential apartments and 1 café and underground parking
- Construction of hard and softscape landscaping.
- Landscaping including retaining walls, irrigation, hard and softscape works, paths and handrails, lighting, furniture, topsoiling, turfing, mulching, planting
- Landscaping of streetscapes.

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service.

Central Coast Council's Bushfire Prone Land Map identifies the subject property as containing the Vegetation Buffer from Category 1 Vegetation, therefore the site is considered 'bushfire prone'.

In relation to this planning proposal Central Coast Council is required to apply section 9.1(2) of the *Environmental Planning and Assessment Act 1979*. Direction 4.4 Planning for Bushfire Protection identifies matters for consideration for proposals that affect or are in proximity to land mapped as bushfire prone. Under these directions the following objectives apply:

- to protect life, property and the environment from bush fire, by discouraging the establishment of incompatible land uses in bush fire prone areas; and*
- to encourage sound management of bush fire prone areas.*

A bushfire assessment is required to be submitted which demonstrates compliance with the s9.1(2) Directions and Planning for Bush Fire Protection 2019 (PBP). As part of the assessment process the relevant authority must consult with the NSW Rural Fire Service (RFS).

The subject development includes the subdivision of bushfire prone land which can be lawfully used for residential purposes and is therefore classified as integrated development under section 4.46 of the *Environmental Planning and Assessment Act 1979*. The development is captured under section 100B of the *Rural Fires Act 1997* and must obtain a Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service.

All property development within bushfire affected areas is subject to the relevant specifications and requirements detailed in Planning for Bush Fire Protection - 2019 (PBP). PBP, formally adopted on the 1st March 2020, provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

This report has assessed the subject site and proposal against the aim and objectives detailed in Chapter 1 'Introduction', Section 4.2 Strategic Planning in Bush Fire Prone Areas and specific

objectives and bushfire protection measures detailed in Chapter 5 ‘Residential and Rural Residential Subdivisions’ of PBP.



Figure 01: Extract from Central Coast Council’s Bushfire Prone Land Map

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide Loftuslane Capital Partners, the NSW Rural Fire Service and Central Coast Council with an independent bushfire assessment together with appropriate recommended bushfire mitigation measures for the development application.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures that Council and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

4.0 Aerial View & Site Plan



Figure 02: Aerial view of the subject area and subject site (thick red outline)
140m assessment area (dotted blue outline)



Figure 03: Extract of the proposed Site Plan

5.0 Site Assessment

5.01 Location

The subject site is known as 310 Terrigal Drive, Terrigal (Lot 27 DP1223375) and is currently a vacant allotment.

The overall site is located within Central Coast Councils local government area and is zoned R1 General Residential.

The subject site is a corner allotment and has street frontage to Terrigal Drive and existing residential development to the north, Charles Kay Drive, the Duffy's Oval Sporting Precinct and Terrigal Ambulance Station to the west and abuts an unnamed watercourse to the east and south.



Photograph 01: View of the subject site from Charles Kay Drive

5.02 Vegetation

The extent of the Asset Protection Zones within the subject site have been limited to the existing allotment. This means maintenance of Asset Protection Zones does not need to occur within the retained bushland or riparian corridor.

In accordance with Appendix 1 'Site Assessment Methodology' of PBP we have undertaken an assessment of all vegetation formations within 140 metres of the development site for each aspect as per Keith (2004).

The vegetation posing a hazard to the proposed development is associated with a narrow band of vegetation along the unnamed creek to the south and east of the site, to the north of Terrigal Drive and to the south of the Duffy's Oval Sporting Precinct adjacent to Charles Kay Drive (Southwest of the subject site).

The vegetation identified on Council's BFPLM to the north was found to consist of mown grass under scattered trees adjacent to the watercourse within private allotments. The current management of this vegetation is such that it is considered not to be conducive to the lateral spread of fire due to the managed surface fuels and lack of mid-level fuels.

The vegetation to the east along the watercourse was found to be a narrow band of vegetation (22m wide) consisting of trees with a canopy cover of 40 – 70% with an understorey of sparse shrubs and exotic weeds. It is also noted that there was a significant lack of surface fuels present at the time of my physical site assessment.

The vegetation associated with the unnamed watercourse to the east was described in the Ecological Assessment Report by Integrated Site Planning (June 2023 Ref: 318) as:

"The native vegetation present consists of a highly disturbed area of Plant Community Type (PCT 1579) Narrabeen Coastal Blackbutt Forest (Bell 2019). This plant community is mostly located along the eastern and southern areas the site".

The vegetation to the east and south is separated from the vegetation further to the southwest by the dual carriageway Charles Kay Drive which provides a 32metre separation distance. This separation provides appropriate separation for the vegetation to the east to be considered as a 'Remnant Hazard' in providing a total area of <1ha (Approximately 5,960m²).

The vegetation to the southwest was found to have an area of approximately 5ha and consists of trees with a canopy cover of 50-70% with an understorey consisting of shrubs and native grasses with a dominance of exotic weeds (Lantana directly adjacent to Charles Kay Drive). This vegetation within the 140m assessment area is identified on Council Vegetation Mapping as being '*Narrabeen Coastal Blackbutt Forest*'.

For the purpose of assessment in accordance with A1.2 of PBP, the vegetation to the east has been determined to be Remnant (Rainforest fuel loads) and the vegetation to the southwest has been determined to be Forest.



Photograph 02: View north of the managed vegetation to the north of Terrigal Drive.



Photograph 03: view south of the vegetation adjacent to the watercourse south of the subject site.



Photograph 04: View east from within vegetation along the watercourse to the east.



Photograph 05: View south toward the forest to the south of the subject site.

5.03 Slope and Topography

The slope of the land under the classified vegetation has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is considered to be the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the development site must be assessed for at least 100 metres.

In accordance with A1.4 'Determine slope' of PBP the slope assessment is to be derived from the most detailed contour data available.

The most significant bushfire impact from the east is expected to be a bushfire burning up slope along the existing watercourse parallel to the development site.

The slope that would **most significantly** influence bushfire behaviour was determined from topographic imagery (1 metre contours sourced from ELVIS - Geoscience Australia) in conjunction with site observations.



Figure 04: Aerial view of the subject area overlaid with 1 metre contours (yellow lines), subject site boundary (thick red line) 140m assessment area (Blue dotted line),

5.04 Fire Weather

All development which attracts an Asset Protection Zone under PBP requires the identification of the relevant Forest Fire Danger Index (FFDI). The FFDI required to be used for development assessment purposes is based on the local government boundaries, being Central Coast Council in this instance.

In accordance with the NSW Rural Fire Service publication 'NSW Local Government Areas FDI' (2017) Central Coast Council forms part of the Greater Sydney Fire Weather District and attracts an FFDI of 100.

5.05 Fire History

Some specific locations have significant fire history and are recognised as known fire paths. While the fire history is more commonly considered as part of strategic planning (to ensure future development is not exposed to an unacceptable risk), it is useful to consider at a Development Application phase to ensure the land is suitable for development in the context of bushfire risk.

In this instance there has been no recorded wildfires within the immediately area (source NPWS Fire History dataset).

More broadly, wildfires have been recorded >1.5 kilometres to the west (<1ha 1993-94) and 3km to the NE (13ha 1991-92) of the subject site.

The subject site is therefore not considered to be within a known fire path. Furthermore in consideration of the previous bushfire history the likelihood of a bushfire occurring within the immediate area is considered unlikely.



Figure 05: Aerial view overlaid with fire history (source NPWS Fire History dataset)

6.0 Bushfire Assessment

6.01 Planning for Bush Fire Protection - 2019

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service.

Central Coast Council's Bushfire Prone Land Map identifies the subject property as containing the Vegetation Buffer from Category 1 Vegetation, therefore the site is considered 'bushfire prone'.

The subject development includes the development and strata subdivision of bushfire prone land which can be lawfully used for residential purposes and is therefore classified as integrated development under section 4.46 of the *Environmental Planning and Assessment Act 1979*.

The subdivision component of the proposal is captured under section 100B of the *Rural Fires Act 1997* and must obtain a Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service.

The proposed buildings works are classified as infill development and assessed under s4.14 of the *Environmental Planning and Assessment Act 1979*.

In accordance with the submission requirements for a Bush Fire Safety Authority as detailed in section 45 of the *Rural Fires Regulation 2022* an assessment of the extent to which the proposed development conforms with or deviates from *Planning for Bush Fire Protection (PBP)* is required.

This report has assessed the subject site and proposal against the aim and objectives detailed in Chapter 1 'Introduction', s4.2 Strategic Planning in Bush Fire Prone Areas, s8.2.2 Multi-storey residential development and specific objectives and bushfire protection measures detailed in Chapter 5 'Residential and Rural Residential Subdivisions' of PBP.

6.02 Specific Objectives & Compliance Table

S4.2 Strategic planning in bush fire prone areas

S4.2 of PBP states:

Strategic development proposals in bush fire prone areas require the preparation of a Strategic Bush Fire Study. The level of information required for such a study will be dependent upon the nature of any planning instrument changes, scale of the proposal, the bush fire risk and its potential impact upon the wider infrastructure network.

The site is located in an area surrounded by urban development with the identified hazards consisting of small, fragmented areas of vegetation located away from any 'Landscape fire' areas by at least 10km, (traditional fire paths for this area are from the west) with the site being located within 1,200m of Terrigal Beach.

We consider that the requirement for a full strategic study is not warranted in this case in regard to the 'Deemed to Satisfy' separation distances, the location of the site in relation to large separation from landscape fire paths, no fire history in the immediate area, the fragmentation of small areas of vegetation and what would be considered to be a 'spot rezoning' of a small allotment (4,261m²) located within an existing area of residential development.

The following table lists the requirements for multi-unit residential development with a dwelling entitlement in accordance with section 8.2.2 of PBP and the proposal’s compliance.

	North	Southwest	South	East
Vegetation Structure	Managed Curtilages	Forest	Remnant	Remnant
Slope	N/A	N/A	0 degrees & up	0 - 5 degrees down
Required Asset Protection Zone	N/A	N/A	11 metres	14 metres
Proposed Asset Protection Zone	>150 metres	>140 metres	>14 metres	>14 metres
Significant Landscape Features	Neighbouring private allotments / Terrigal Drive	Charles Kay Drive	Neighbouring private allotments / Crossing Street	Proposed APZ and existing Watercourse
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	N/A	BAL Low	BAL 29	BAL 29
Required Construction Level	BAL 29	BAL 19	BAL 29	BAL 29

Table 01: Compliance Table

The following table lists the specific objectives for residential and rural residential subdivisions with a dwelling entitlement in accordance with section 5.2 of PBP and our comments of the proposal compliance or otherwise.

Specific Objective	Comment
<i>minimise perimeters of the subdivision exposed to the bush fire hazard (hourglass shapes, which maximise perimeters and create bottlenecks should be avoided);</i>	The proposed design provides a clear interface from the residential development and does not provide hourglass shapes or bottlenecks.
<i>minimise vegetated corridors that permit the passage of bush fire towards buildings;</i>	The conserved vegetation areas adjacent to the site are located to the east and south of the development footprint and the proposed building footprint provides deemed to satisfy setback distances. These areas do not provide vegetated corridors through the residential development footprint.

Specific Objective	Comment
<i>provide for the siting of future dwellings away from ridge-tops and steep slopes, within saddles and narrow ridge crests;</i>	The proposed building is not located on a ridge-top or on steep slopes.
<i>ensure that APZs between a bush fire hazard and future dwellings are effectively designed to address the relevant bush fire attack mechanisms;</i>	The proposed plan has been developed to ensure the building envelope satisfies the minimum required Asset Protection Zones. The separation from the identified hazards includes maintained grounds within the allotment.
<i>ensure the ongoing maintenance of APZs;</i>	The separation from the identified hazards includes maintained grounds within the subject allotment. It is expected that the Asset Protection Zones within the site will be enforced by way of a condition of consent as part of the development approval process.
<i>provide adequate access from all properties to the wider road network for residents and emergency services;</i>	The proposal includes the construction of an access from Charles Kay Drive, suitable for fire services (Medium Rigid Vehicle, noting that NSW Fire + Rescue is the agency responsible for this area) which provides ample opportunity for occupant egress and fire service access.
<i>provide access to hazard vegetation to facilitate bush fire mitigation works and fire suppression;</i>	Attending fire services have comprehensive access to the bushfire hazards via the subject site and the existing road network for hazard reduction and fire suppression activities.

6.03 Bushfire Protection Measures

Section 5.3 ‘Bush fire protection measures’ of PBP outlines the specific Bushfire Protection Measures (BPMs) applicable to residential and rural residential subdivisions, including APZs, Access and Services.

The following section addresses each BPM and the proposals compliance or otherwise.

Asset Protection Zones & Landscaping

An Asset Protection Zone (APZ) is an area between the development (in this instance proposed building envelope) and the identified bushfire hazards where the fuels are maintained to a minimum to prevent the spread of fire between a hazard and an asset.

The width of the APZs is determined by the vegetation structure of the identified bushfire hazard, effective slope, FDI and the type of development (residential development or Special Fire Protection Purpose).

APZs for new residential subdivisions and increased density (Multi-Storey residential development) are determined from Table A1.12.2 of PBP or bushfire design modelling achieving a radiant heat impact of no more than 29kW/m² at the closest point of the building envelope.

In this instance the minimum required APZ was determined from Table A1.12.2 of PBP and are shown in Table 01.

The proposed building envelope achieves and, in most instances, exceeds the minimum required Asset Protection Zones.

It must be noted that the extent of the Asset Protection Zones is within the subject property. This means maintenance of Asset Protection Zones does not need to occur within the retained bushland to the south or riparian corridor.

Access

The site has street frontage to Terrigal Drive to the north and Charles Kay Drive to the west.

The proposal includes the construction of a compliant access for medium rigid vehicles into the site with turning.

The proposed access will have a connection point to Charles Kay Drive and ample opportunity for occupant egress and fire service access. The proposed access has been designed to comply with section 5.3.2 of PBP.

The most distant external point of the building envelope will be located within 70 metres of Terrigal Drive and Charles Kay Drive.

Attending fire services have comprehensive access to the bushfire hazards via the subject site, Terrigal Drive and Charles Kay Drive.

The existing road network provides hydrant points at regular intervals and subsequently would be the logical fire-fighting platform for attending fire services undertaking property protection activities to the proposed building.

It is our opinion that although the evacuation of the site would be highly unlikely for a bushfire event, safe operational access to the proposed building and water supply for emergency services, while residents are seeking to evacuate the site will be achieved.

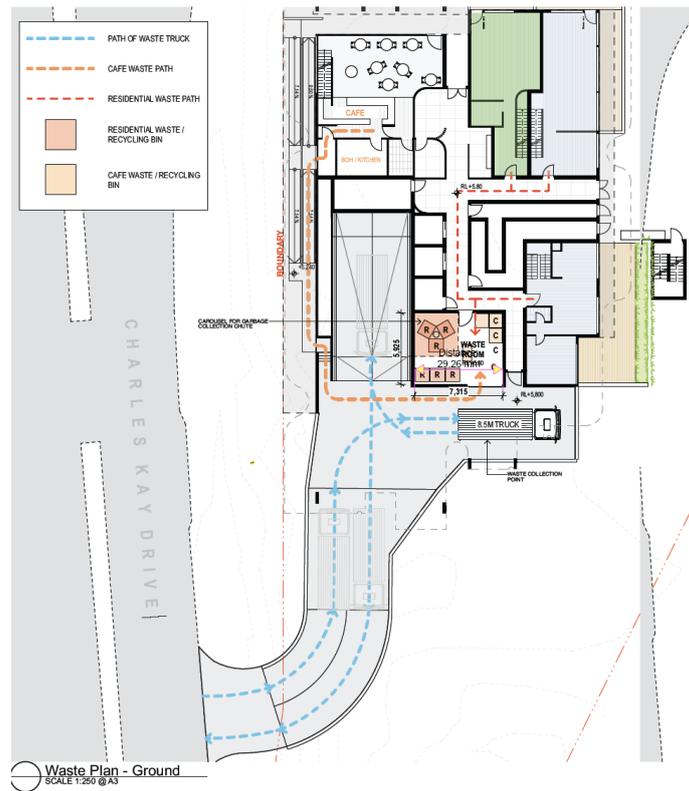


Figure 06: Extract from the Waste Plan showing compliant access & turning.

Services – Water, electricity & gas

Existing hydrants are available along Terrigal Drive, Charles Kay Drive and surrounding public roads for the replenishment of attending fire services.

These hydrants are considered to be the logical water supply for fire services undertaking fire suppression activities.

The proposed works will also provide for fire protection in accordance with the NCC for this type of development.

The existing and required water supply is considered adequate for the replenishment of attending fire services.

Recommendations have been included in this report to ensure compliance with the gas service requirements.

Building Construction

Australian Standard 3959 – 2018 ‘Construction of buildings in bushfire-prone areas’ (AS3959) specifies construction standards for buildings within various Bushfire Attack Levels as determined by Planning for Bush Fire Protection – 2019.

AS3959 provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ.

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

Table 02: Correlation between bushfire impact and AS3959

The highest Bushfire Attack Level to proposed building was determined from table A1.12.5 of PBP to be BAL 29.

In accordance with A1.8 of PBP any elevations not exposed to the source of bushfire can be reduced by one level, except where the highest Bushfire Attack Level was determined to be BAL 12.5 which applies to the entire building. In this case, the western elevation has been downgraded to BAL 19 in accordance with the above.

The balconies of the proposed apartments will protrude into the Asset Protection Zone by <1m. These balconies will be constructed entirely from non-combustible materials, fixed to the external masonry wall of these dwellings and be free standing.

Landscaping

Any new landscaping within the site inside the Asset Protection Zones must comply with Section 3.7 'Landscaping' of *Planning for Bush Fire Protection 2019*.

Emergency Management Plan

Evacuation is possible by utilising existing road infrastructure.

It is encouraged that the occupants of the future dwellings complete a Bush Fire Survival Plan. The template for this plan is available at <https://www.rfs.nsw.gov.au/resources/bush-fire-survival-plan>.

6.04 Aim & Objectives

The following table details the aim and objectives of *Planning for Bush Fire Protection 2019* and the proposals ability to comply.

Aim	Comment
<i>The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.</i>	With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.

Objective	Comment
<i>(i) afford buildings and their occupants protection from exposure to a bush fire;</i>	<p>The closest point of the building envelope achieves and in most instances exceeds the minimum required Asset Protection Zones.</p> <p>In conjunction with the application of the corresponding Bushfire Attack Level the proposed building and their occupant's will be afforded protection from a bushfire.</p>
<i>(ii) provide for a defensible space to be located around buildings;</i>	<p>The proposal has been developed to ensure the proposed building envelope satisfies the minimum required Asset Protection Zones.</p> <p>The available APZs include land within the subject site, external formed roads and existing managed residential allotments.</p> <p>A suitable compliant defensible space is provided.</p>
<i>(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;</i>	<p>The available Asset Protection Zones in conjunction with the application of corresponding Bushfire Attack Level the likely spread of fire to the building is prevented.</p>
<i>(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;</i>	<p>The proposal includes the construction of a compliant access for medium rigid vehicles.</p> <p>The subject site provides access to Charles Kay Drive and provides ample opportunity for occupant egress and fire service access.</p>
<i>(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and</i>	<p>The Asset Protection Zones are to be maintained in accordance with the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of <i>Planning for Bush Fire Protection</i> 2019.</p> <p>It is expected that the Asset Protection Zones within the site will be enforced by way of a condition of consent as part of the development approval process.</p>

Objective	Comment
<p>(vi) ensure that utility services are adequate to meet the needs of firefighters.</p>	<p>Existing in-ground hydrants are available along Terrigal Drive and Charles Kay Drive and surrounding roads for the replenishment of attending fire services.</p> <p>Fire services will be provided in accordance with the NCC for this type of development.</p> <p>The existing hydrant system fire fighting requirements are considered to be the logical water supply for fire services undertaking fire suppression or hazard reduction activities.</p>

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of *Planning for Bush Fire Protection 2019*.

6.05 Submission Detail

Section 45 of the *Rural Fires Regulation 2022* identifies various items which must be addressed and included within an application for a Bush Fire Safety Authority. The following table outlines these items and includes a corresponding response.

Submission Detail	Response
(a) a description (including the address) of the property on which the development the subject of the application is proposed to be carried out,	See section 5.01
(b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in Planning for Bush Fire Protection,	See section 5.02
(c) an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property),	See section 5.03
(d) identification of any significant environmental features on the property,	None identified, Refer to the Ecological Assessment Report by Integrated Site Planning. (June 2023 Ref: 318)
(e) the details of any threatened species or threatened ecological community under the Biodiversity Conservation Act 2016 that is known to the applicant to exist on the property,	None identified, Refer to the Ecological Assessment Report by Integrated Site Planning. (June 2023 Ref: 318)
(f) the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property,	None Known – By others.
(g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters—	See section 6.0
(i) the extent to which the development is to provide for setbacks, including asset protection zones,	See section 6.03
(ii) the siting and adequacy of water supplies for fire fighting,	See section 6.03

Submission Detail	Response
<i>(iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,</i>	<p>Terrigal Drive and Charles Kay Drive were found to be 2-way, dual carriageway and have a carriageway of 13 metres exceeding the perimeter road requirements detailed in PBP.</p> <p>The bushfire hazard in this instance is isolated from larger bushfire hazards in the broader landscape and consequently large-scale evacuations where significant stress is experienced on the local road infrastructure is considered extremely unlikely.</p>
<i>(iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access,</i>	<p>Terrigal Drive and Charles Kay Drive do not link with a registered fire trail network.</p>
<i>(v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,</i>	<p>See section 6.03</p>
<i>(vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,</i>	<p>The location of the site in a low risk area, provision of compliant deemed to satisfy APZs, and access provides suitable bushfire mitigation for the site.</p>
<i>(vii) the construction standards to be used for building elements in the development,</i>	<p>The proposed building will be constructed to the relevant Bushfire Attack Level under Australian Standard 3959 'Construction of buildings in bushfire-prone areas'.</p>
<i>(viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development,</i>	<p>The fire protection system in accordance with the NCC for this type of development will provide adequate fire protection for the building.</p> <p>See section 6.03 for all bushfire protection measures</p>
<i>(ix) any registered fire trails on the property,</i>	<p>There are no registered fire trails within the subject site.</p>

7.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with *Planning for Bush Fire Protection – 2019*. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

General

1. That the proposed development is to generally comply with the Plans by CKDS – See attached drawing register.

Asset Protection Zones

2. That all grounds from the proposed building for a distance of 14 metres or to the property boundary (whichever occurs first) are to be maintained in accordance with an Inner Protection Area as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of *Planning for Bush Fire Protection 2019*.
3. That any new landscaping in the minimum required Asset Protection Zones is to comply with the provisions of Table 7.4a and Appendix 4 of *Planning for Bush Fire Protection 2019*.

Services

Gas:

4. That any new gas services are to comply with Table 7.4a of *Planning for Bush Fire Protection 2019* as follows:
 - reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
 - all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
 - connections to and from gas cylinders are metal;
 - polymer-sheathed flexible gas supply lines are not used; and
 - above-ground gas service pipes are metal, including and up to any outlets.

Emergency management

5. That the occupants of the subject units complete a Bush Fire Survival Plan.

Construction

6. That the roof and works to the northern, eastern and southern elevations of the building be constructed to Section 7 (BAL 29) under Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2018.
7. That works to the western elevation of the building be constructed to Section 6 (BAL 19) under Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2018
8. The building must also be constructed to the 'Additional Construction Requirements' detailed in section 7.5 of Planning for Bush Fire Protection 2019.
9. That the balconies of the proposed building which protrude into the Asset Protection Zone are to be constructed entirely from non-combustible materials, fixed to the external masonry wall of these dwellings and be free standing.

8.0 Conclusion

The proposed development provides for a total of 50 apartments, a café, underground parking, associated civil construction works and landscaping.

Central Coast Council's Bushfire Prone Land Map identifies the subject property as containing Vegetation Buffer from Category 1 Vegetation, therefore the site is considered 'bushfire prone'.

The subject development includes the strata subdivision of bushfire prone land which can be lawfully used for residential purposes and is therefore classified as integrated development under section 4.46 of the *Environmental Planning and Assessment Act* 1979. The development is captured under section 100B of the *Rural Fires Act* 1997 and must obtain a Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service.

All property development within bushfire affected areas is subject to the relevant specifications and requirements detailed in the document *Planning for Bush Fire Protection - 2019* (PBP).

Furthermore, we are satisfied that the proposed LEP Amendment and CSSP, in combination with the BPMs discussed herein will not result in areas that are difficult to evacuate, create control difficulties during a bushfire or adversely affect other bush fire protection strategies or place existing development at increased risk.

In accordance with the bushfire safety measures contained in this report, and consideration of the site-specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development.

We are therefore in support of the application.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by
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9.0 Annexure 01

List of Referenced Documents

Australian Building Codes Board (2022). *National Construction Code Volume Two - Building Code of Australia*. ABCB

ELVIS -Elevation -Foundation Spatial Data. Elevation.fsdf.org.au. Available at: <http://elevation.fsdf.org.au/>

Environmental Planning and Assessment Act 1979

Integrated Site Planning – Ecological Assessment Report

Keith, D. (2004). "Ocean Shores to Desert Dunes" Department of Environment and Conservation, Sydney

NSW Department of Planning and Environment (2019). *Planning Portal*. Accessed at: <https://www.planningportal.nsw.gov.au/>

NSW Rural Fire Service (2019). *Planning for Bushfire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*.

NSW Rural Fire Service (2022). Addendum to *Planning for Bushfire Protection*

Rural Fires Act 1997

Rural Fires Regulations 2022

Rural Fire Service NSW (2005). *Standards for Asset Protection Zones*

Rural Fire Service NSW (2017). *NSW Local Government Areas FDI*

Standards Australia (2018). *AS3959 Construction of buildings in bushfire-prone areas*.

Standards Australia (2014). *AS/NZS 1596 The storage and handling of LP Gas*

Acknowledgements to:

Geoscience Australia
Nearmap
Central Coast Council Online Mapping

Attachments

Attachment 01: Drawing Register

DRAWING LIST

DRAWING NO.	DRAWING NAME	REVISION
DA-0 General		
DA-000-001	Title Sheet	02
DA-000-002	Site Location	01
DA-000-005	Site Analysis	01
DA-000-006	Concept	01
DA-000-007	BASIX Commitments	01
DA-000-008	Waste Management Plan	01
DA-100 Site Plans		
DA-100-001	Site / Roof Plan	02
DA-110 General Arrangement Plans		
DA-110-001	Basement 3	03
DA-110-002	Basement 2	03
DA-110-003	Basement 1	03
DA-110-004	Ground Level	03
DA-110-005	Mezzanine Level	02
DA-110-006	Level 1	02
DA-110-007	Level 2	02
DA-110-008	Level 3	02
DA-110-009	Level 4	02
DA-110-010	Level 5	02
DA-110-011	Level 6	02
DA-110-012	Level 7	02
DA-110-013	Adaptable Apartment Plan	03
DA-210 General Arrangement Elevation		
DA-210-001	North Elevation	02
DA-210-002	East Elevation	02
DA-210-003	South Elevation	02
DA-210-004	West Elevation	02
DA-310 General Arrangement Sections		
DA-310-001	Section AA	01
DA-310-002	Section BB	01
DA-661 Window Schedules		
DA-661-001	Glazing Sheet 1	02
DA-661-002	Glazing Sheet 2	02
DA-661-003	Glazing Sheet 3	02
DA-661-004	Glazing Sheet 4	02
DA-661-005	Glazing Sheet 5	02
DA-661-006	Glazing Sheet 6 (Section J)	02
DA-662 Finishes Schedules		
DA-662-001	External Finishes	01
DA-720 SEPP 65 Compliance		
DA-720-001	SEPP 65 Compliance	01
DA-720-002	Ground Level	01
DA-720-003	Typical Level A	01
DA-720-004	Typical Level B	01
DA-720-005	Penthouse	01
DA-790 Shadow Diagrams		
DA-790-001	March Shadow Diagrams	01
DA-790-002	June Shadow Diagrams	01
DA-790-003	September Shadow Diagrams	01