



Reference number 3656

Member of the Fire Protection Association of Australia

Lot 1, DP 1220595, 67 Bougainvillea Drive, Federal, NSW 2480.

Monday, 18 October 2021

Prepared and certified by:	Matthew Willis <i>BPAD – Level 3 Certified Practitioner</i> Certification No: BPD-PA 09337		18/10/2021
Can this proposal comply with AS3959-2018 (inc section 7.5, 7.5.1, 7.5.2, 7.5.3, 7.5.4 (where applicable) of the Rural Fire Services document Planning for Bushfire Protection 2019)?	Yes		
What is the recommended AS 3959-2018 level of compliance?	BAL-19		
Is referral to the RFS required?	No		
Can this development comply with the requirements of PBP?	Yes		
Plans by "Action Plans" (Appendix 1) dated.	21 September 2021		

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Bushfire Risk Assessment

Monday, 18 October 2021

Contact

Ryan Alper

Action Plans

4 The Corso

Manly NSW 2095

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Subject Property

Lot 1, DP 1220595

67 Bougainvillea Drive

Federal NSW 2480

BUSHFIRE RISK ASSESSMENT CERTIFICATE

THIS FORM IS TO BE COMPLETED BY A RECOGNISED CONSULTANT IN BUSHFIRE RISK ASSESSMENT IN ACCORDANCE WITH SECTION 79BA 1(b) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 NO 203

Property Address	Lot 1, DP 1220595, number 67 Bougainvillea Drive Federal
Description of the Proposal	Alterations and additions to an existing dwelling
Plan Reference	21 September 2021
BAL Rating	BAL-19
Does the Proposal Rely on Alternate Solutions?	No

I, Matthew Willis of Bushfire Planning Services Pty Ltd have carried out a bushfire risk assessment on the above-mentioned proposal and property. A detailed Bushfire Assessment Report is attached which includes the submission requirements set out in Planning for Bushfire Protection 2019 together with recommendations as to how the relevant Specifications and requirements are to be achieved.

I hereby advise, in accordance with Section 4.14 of the Environmental Planning and Assessment Act 1979 No 203:

1. That I am a person recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment; and

2. That subject to the recommendations contained in the attached Bushfire Risk Assessment Report the proposed development conforms to the relevant specifications and requirements*

*The relevant specifications and requirements being specifications and requirements of the document entitled Planning for Bush Fire Protection prepared by the NSW Rural Fire Service in co-operation with the Department of Planning and any other document as prescribed by Section 4.14 of the Environmental Planning and Assessment Act 1979 No 203.

I am aware that the Bushfire Assessment Report, prepared for the above-mentioned site is to be submitted in support of a development application for this site and will be relied upon by Byron Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with Planning for Bushfire Protection 2019.

REPORT REFERENCE	<i>Monday, 18 October 2021</i>
REPORT DATE	<i>Monday, 18 October 2021</i>
CERTIFICATION NO/ACCREDITED SCHEME	<i>FPAА BPAD A BPD-PA 09337</i>

Attachments:

- Bushfire Risk Assessment Report
- Recommendations

SIGNATURE: ---  ----- **DATE:** -----Monday, 18 October 2021

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1 Executive Summary.

Bushfire Planning Services has been requested by Mr Ryan Alper from Action Plans to supply a bushfire compliance report on lot 1, DP 1220595, 67 Bougainvillea Drive, Federal.

The works proposed for the subject lot are for the alterations and additions to an existing dwelling and the construction of a detached class 10 building (gym, basketball court), see attached plans for details.

The subject lot is on the western end of Bougainvillea Drive and at its closest point to the hazard the proposed new work will have a separation distance to the south-east of approximately 37m.

The vegetation that is considered to be the hazard to this proposal is situated on land that slopes down slope away from the property at an angle of approximately 19.75°.

For the purposes of this assessment this vegetation is considered to be Rainforest.

The remaining vegetation within the study area is contained within the boundaries of established allotments and is managed land and of low threat to this proposal.

The calculations and assumptions outlined in this report show that the development will be required to comply with the construction requirements of AS 3959-2018 BAL-19 and any additional construction requirements contained within section 7.5, 7.5.1, 7.5.2, 7.5.3, 7.5.4 (where applicable) of the Rural Fire Services document Planning for Bushfire Protection 2019.

The following table is a summary of the pertinent findings of this assessment.

Aspect	North	East	South	West
Vegetation type	Managed land	Managed land	Managed land/rainforest	Managed land
Slope	N/A	N/A	15-20 degrees downslope	N/A
Setback within lot 1	N/A	N/A	37m	N/A
Setback outside lot 1	N/A	N/A	N/A	N/A
Total setback	N/A	N/A	37m	N/A
Bal level	N/A	N/A	BAL-19	N/A

Note: The above table is a summary of the significant variables used to determine the highest BAL for this proposal. THIS TABLE IS NOT INTENDED FOR CONSTRUCTION! Only the highest BAL level is shown, aspects marked as N/A will still have a BAL. Refer to section 11 for construction requirements for these other aspects.

2 General.

This proposal relates to the alterations and additions to an existing dwelling on the subject lot and its ability to comply with the rules and regulations for building in a bushfire prone area.

The methodology used on this report is based on Planning for Bushfire Protection 2019 (PBP) as published by the New South Wales Rural Fire Service.

Any wording that appears in *blue italics* is quotes from Planning for Bushfire Protection 2019. Some of the measurements used in this report have been taken from aerial photographs and as such are approximate only.

3 Block Description.

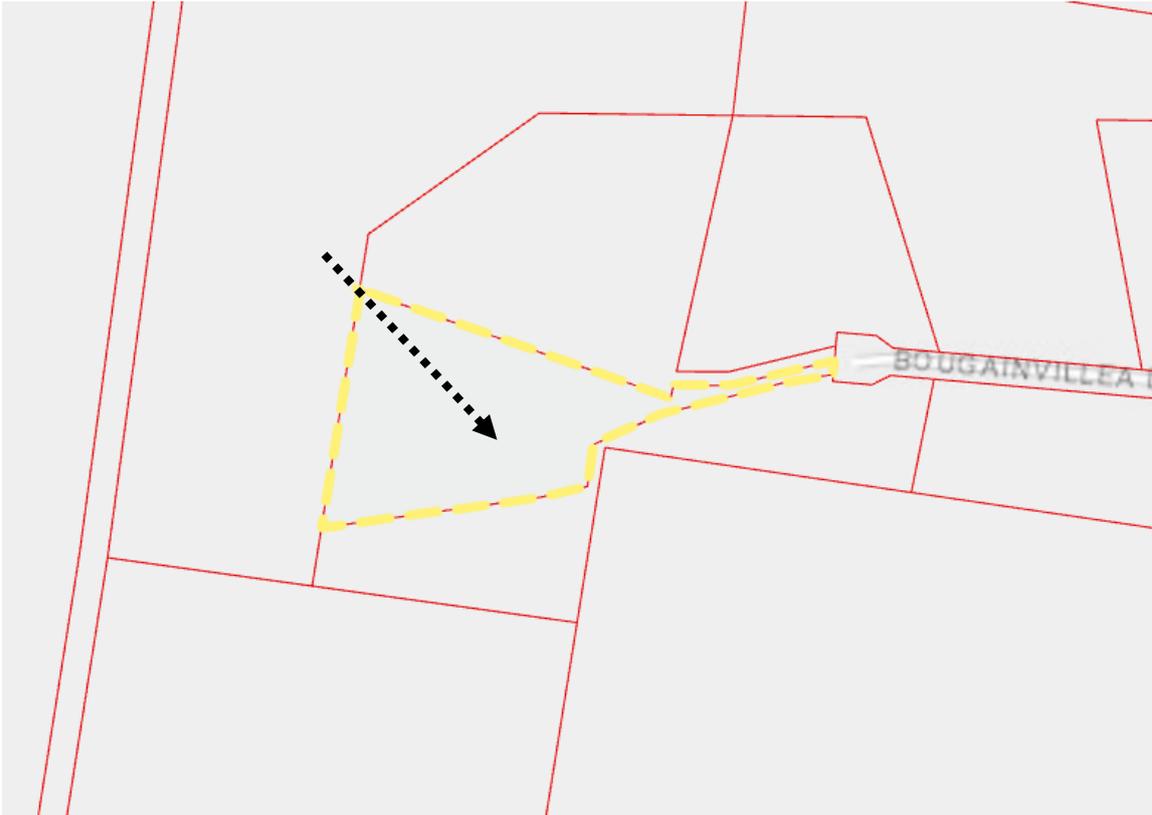
The subject block is situated on the western end of Bougainvillea Drive in an established rural residential area of Federal.

The lot currently contains a single-level class 1 dwelling and class 10 pool.

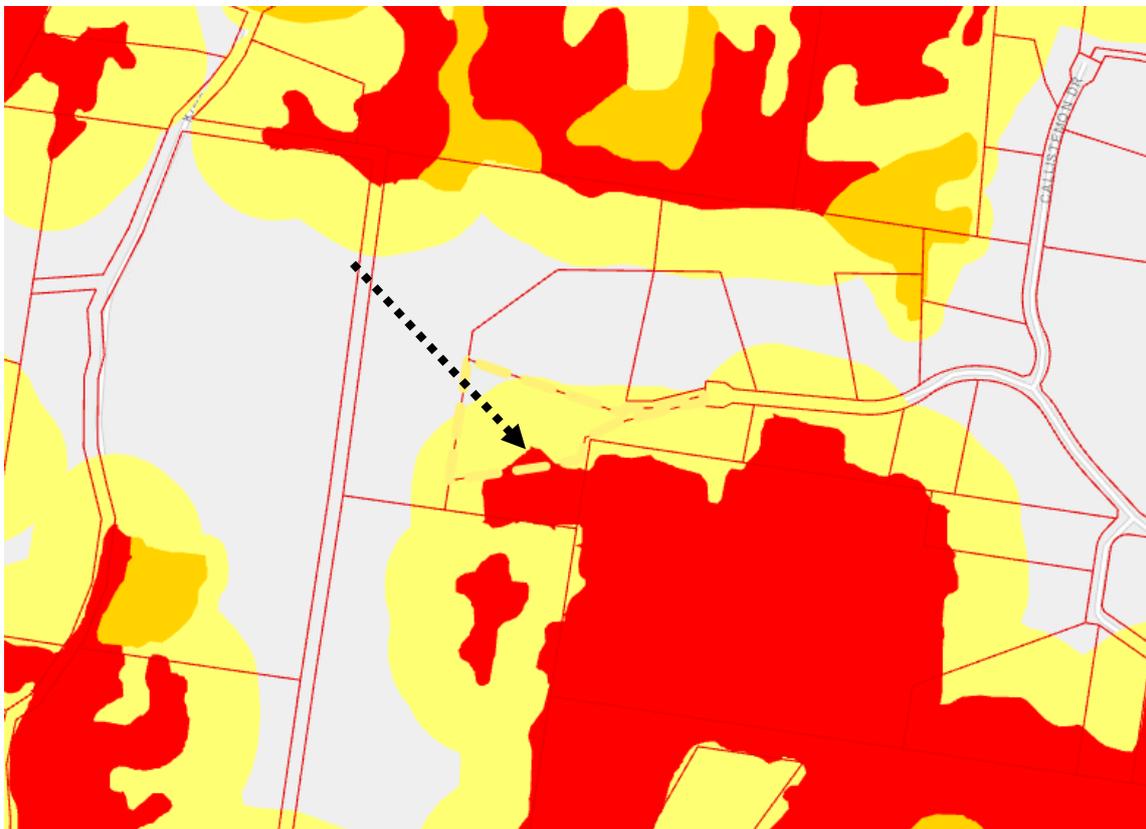
The lands surrounding the proposed site on the subject lot to a distance of at least 37m will contain existing development or land that is otherwise not considered to be a significant bushfire hazard.

- Lot; 1
- DP; 1220595.
- LGA; Byron.
- Area; 2.638ha.
- Address; 67 Bougainvillea Drive, Federal.

This section has been left blank.



Map 1 shows the cadastral layout around the subject lot.



Map 2 is an extract from the council's bushfire prone land map. The map shows lot 1 to both contain and to be within the buffer zone of category 1 bushfire vegetation.

4 Vegetation.

The study area for the vegetation is 140m surrounding the subject block.

The vegetation within the study area for this development is considered to be largely managed land.

The major potential hazard to this development is the vegetation within an area of undeveloped land to the south-east. The vegetation has been identified by the use of Veg Data ByronLGA_2007_E_6 and nth_rivers_CMA_VISmap_524 as available from the NSW Department of Environment and Heritage. The data set identifies the area as “Camphor Laurel” which is recognised “Exotic vegetation” in section A1.9 of Planning for Bushfire Protection.

Table A1.9 of Planning for Bushfire Protection allows for the classification of Camphor Laurel with greater than 70% canopy cover to be classified as Rainforest.

For the purpose of this assessment and compliance with Planning for Bushfire Protection this area of undeveloped land is considered to be Rainforest and is the hazard to this proposal.



Photo 1 - An overview of the vegetation within the general area.



Photo 2 is a closer view of the vegetation in the area.

Table 1 outlines the vegetation orientation and distance from the development area.

Aspect	North	East	South	West
Vegetation type	Managed land	Managed land	Managed land/rainforest	Managed land
Setback within lot 1	N/A	N/A	37m	N/A
Off-site setback	N/A	N/A	N/A	N/A
Total setback	N/A	N/A	37m	N/A

Table 1 - Any aspect marked with "N/A" in the table above indicates that it is considered there is none or only a secondary hazard in that direction.



Map 3. Mapping per Veg Data ByronLGA_2007_E_6 and nth_rivers_CMA_VISmap_524

5 Known constraints on subject block.

I have not been informed or know of any places of cultural or environmental significance within the boundaries of the subject block.

Given the nature of the surrounding land it is considered highly unlikely that anything of significance will be affected by this development.

6 Slope.

The slope of the land beneath the hazard that is most likely to influence bushfire behaviour has been calculated by topographical map analysis to a distance of 100m from the subject lot.

The vast majority of the slope within the study area is on land sloping downhill away from the proposal at an angle of between 15-20 degrees. It is acknowledged that there is the potential that some runs that slightly exceed 20 degrees however these runs are within areas of vegetation that, due to the width of the vegetation, it is considered that these areas would not allow for fire growth significant enough to produce a fully developed fire that would travel directly towards the proposal. (FL for 22 degrees in Rainforest, FDI 80 = 30m)

For the purpose of this assessment the effective slope is considered to be 15-20 degrees downslope under the most significant hazard which is to the south-east.

An extract of the topographical map for the area is shown below and the relevant slope analysis is shown in Table 2.



Table 2 shows the slope beneath the hazard.

Aspect	North	East	South	West
Slope	N/A	N/A	15-20 degrees downslope	N/A

Table 2 - Any aspect marked with "N/A" in the table above indicates that it is considered there is no hazard in that direction.

7 Utilities.

7.1 Water.

The subject block will not be serviced by a reliable reticulated water supply.

7.2 Electricity

Main's electricity is available to the block.

7.3 Gas

It is unknown if bottled gas is to be altered or installed in this proposal.

8 Access/Egress.

Access to the development site will be via a short private driveway from Bougainvillea Drive.

All roads in the vicinity are considered to be capable of carrying emergency services vehicles and pedestrian access onto the lot is also considered to be adequate.

Analysis of development and recommendation.

9 Compliance with Planning for Bushfire Protection setbacks.

Based on the development design, vegetation classification, effective slope estimates and setback distance already outlined in this report the subject development will be required to comply with the deemed to satisfy construction requirements of AS 3959-2018 BAL-19 and the RFS requirements on all fire prone aspects.

The following table is an extract from table A1.12.5 of Planning for Bushfire Protection 2019. This table is used to calculate the BAL for a proposal in an area with an FDI of 80.

The variables that have already been outlined in this assessment are highlighted in red with the highest BAL highlighted in yellow.

	Keith Vegetation Formation	BUSHFIRE ATTACK LEVEL (BAL)				
		BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
15-20 DEGREES DOWNSLOPE	Arid-Shrublands (acacia and chenopod)	< 7	7 -< 10	10 -< 16	16 -< 23	23 -< 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 38	38 -< 48	48 -< 63	63 -< 81	81 -< 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 16	16 -< 22	22 -< 32	32 -< 43	43 -< 100
	Freshwater Wetlands	< 6	6 -< 8	8 -< 13	13 -< 18	18 -< 100
	Grassland	< 12	12 -< 16	16 -< 24	24 -< 34	34 -< 50
	Grassy and Semi-Arid Woodland (including Mallee)	< 20	20 -< 27	27 -< 38	38 -< 52	52 -< 100
	Rainforest	< 19	19 -< 25	25 -< 36	36 -< 49	49 -< 100
	Short Heath	< 11	11 -< 15	15 -< 23	23 -< 32	32 -< 100
	Tall Heath	< 19	19 -< 25	25 -< 36	36 -< 49	49 -< 100

For the purpose of this assessment the south-eastern aspect has been chosen as the most potentially hazardous aspect due to the effective slope, potential run of fire and the prevailing fire weather of the area.

10 Siting.

The current site provides adequate separation between the proposed building and surrounding vegetation for a compliant structure to be built.

Recommendation;

Nil.

11 Construction and design.

All new work is to be undertaken in accordance with the relevant requirements of the NCC and AS3959 2018. The following recommendations are a minimum level of construction. Constructing the proposal to a higher level than that recommended is allowable under AS3959.

Recommendation; all new work.

1. New construction shall comply with the requirements of section 3 of Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas" and,
2. New construction shall also comply with the requirements of BAL-19 Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas" or NASH Standard "National Standard Steel Framed Construction in Bushfire Areas" and any additional construction requirements contained within section 7.5, 7.5.1, 7.5.2, 7.5.3, 7.5.4 (where applicable) of the Rural Fire Services document Planning for Bushfire Protection 2019.
3. New roofing valleys and guttering should be fitted with a non-combustible leaf protection to stop the accumulation of debris.

Recommendation;

4. All proposed Class 10 buildings attached to or within 6 metres of the habitable building shall be constructed from non-combustible materials. There are no AS3959 construction requirements for Class 10 structures greater than 6m from a habitable building.

AS-3959 2018 is available as PDF from;

https://infostore.saiglobal.com/en-au/standards/as-3959-2018-122340_saig_as_as_2685241/

12 Utilities.

12.1 Water.

Recommendation;

The subject lot will not be connected to a reliable reticulated water supply. As a result, a Static Water Supply (SWS) is required to be established and maintained on site to the following specifications.

5. A 20,000 L water supply is to be made available for firefighting purposes and be constructed in accordance with the following features.

- A connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65mm Storz outlet with a ball valve is fitted to the outlet;
- Ball valve and pipes are adequate for water flow and are metal;
- Supply pipes from tank to ball valve have the same bore size to ensure flow volume;
- Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank;
- A hardened ground surface for truck access is supplied within 4m;
- Above-ground tanks are manufactured from concrete or metal;
- Raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959);
- Unobstructed access can be provided at all times;
- Underground tanks are clearly marked;
- Tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters;
- All exposed water pipes external to the building are metal, including any fittings;
- A pump is to be provided with a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and
- If fitted, fire hose reels are constructed in accordance with AS/NZS 1221:1997 and installed in accordance with the relevant clauses of AS 2441:2005.
- An 'SWS' marker shall be obtained from the local NSW Rural Fire Service and positioned for ease of identification by brigade personnel and other users of the SWS. In this regard:
 - a) Markers must be fixed in a suitable location so as to be highly visible; and
 - b) Markers should be positioned adjacent to the most appropriate access for the static water supply.

If the pool is to be used as a SWS recommendation 5 may be ignored however the following applies;

- A hardened ground surface for truck access is supplied within 4m of the water pickup point;
- Any piping has a diameter sufficient to allow for adequate water flow;
- Unobstructed access can be provided at all times;
- Unless adequately shielded, all water pipes less than 300mm below the ground are metal, including any fittings;
- A pump is to be provided with a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; any hose and reel for firefighting connected to the pump shall be a minimum of 19mm internal diameter; and
- If fitted, fire hose reels are constructed in accordance with AS/NZS 1221:1997 and installed in accordance with the relevant clauses of AS 2441:2005.

- An 'SWS' marker shall be obtained from the local NSW Rural Fire Service and positioned for ease of identification by brigade personnel and other users of the SWS. In this regard:
 - a) Markers must be fixed in a suitable location so as to be highly visible; and
 - b) Markers should be positioned adjacent to the most appropriate access for the static water supply.

12.2 Electricity and Gas.

Recommendation;

6. Any new electricity or gas connections are to comply with the requirements of table 7.4a of Planning for Bushfire Protection.

13 Asset Protection Zone (APZ).

The Asset Protection Zone is *“An area surrounding a development managed to reduce the bushfire hazard to an acceptable level. The width of an APZ will vary with slope, vegetation and construction level”*.

Recommendation;

7. At the commencement of building works and in perpetuity the property around the building shall be managed as follows and as outlined within Planning for Bushfire Protection 2019 and the New South Wales Rural Fire Service document standards for Asset Protection Zones:
 - North as it was at the time of assessment.
 - East as it was at the time of assessment.
 - South as an Inner Protection Area for at least 37m.
 - West as it was at the time of assessment.

14 Landscaping.

Recommendation;

8. Any new fencing is to be constructed in accordance with section 7.6 of Planning for Bushfire Protection 2019.
9. Any new landscaping to the site is to comply with the principles of Appendix 4 and section 3.7 of Planning for Bush Fire Protection 2019. In this regard the following landscaping principles are, where applicable, to be incorporated into the development¹:
 - Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways;

¹Refer to referenced documents for a complete description.

- Grassed areas/mowed lawns/ or ground cover plantings being provided in close proximity to the building;
- Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come in contact with the building;
- Maximum tree cover should be less than 30%, and maximum shrub cover less than 20%;
- Planting should not provide a continuous canopy to the building (i.e. trees or shrubs should be isolated or located in small clusters);
- When considering landscape species consideration needs to be given to estimated size of the plant at maturity;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
- Avoid climbing species to walls and pergolas;
- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such timber garden furniture way from the building; and
- Use of low flammability vegetation species.

15 Constraints on the subject block.

None known.

Recommendation;

Nil

16 Access/Egress.

All roads in the area are considered to be capable of handling emergency service vehicles. Access from the roadway onto the property is also considered to be adequate for firefighting purposes.

Recommendation;

10. That the driveway shall be constructed to comply with the requirements of Planning for Bush Fire Protection 2019 which include:
 - The surface shall be a material capable of carrying a fully laden fire tanker (23 tonnes) in all weather conditions.

- The width shall be a minimum of not less than 4.0 metres and a vertical clearance of not less than 4.0 metres
- Provide for a turning area in accordance with the Appendix 3 of Planning for Bush Fire Protection 2019
- 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 grade for sealed roads does not exceed 15 degrees or not more than 10 degrees for unsealed roads

17 Compliance or non compliance with the specifications and requirements for bushfire protection measures.

<p>APZ A defensible space is provided onsite. An APZ is provided and maintained for the life of the development.</p>	<p>Achievable with the implementation of the recommendations in section 13</p>
<p>SITING AND DESIGN: Buildings are sited and designed to minimise the risk of bush fire attack.</p>	<p>Achievable with the implementation of the recommendations in section 10</p>
<p>CONSTRUCTION STANDARDS: It is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact.</p>	<p>Achievable with the implementation of the recommendations in section 11</p>
<p>ACCESS Safe, operational access is provided (and maintained) for emergency services personnel in suppressing a bush fire while residents are seeking to relocate, in advance of a bush fire, (satisfying the intent and performance criteria for access roads in sections 4.1.3 and 4.2.7).</p>	<p>Achievable with the implementation of the recommendations in section 16</p>
<p>WATER AND UTILITY SERVICES: <ul style="list-style-type: none"> • adequate water and electricity services are provided for firefighting operations • Gas and electricity services are located so as not to contribute to the risk of fire to a building. </p>	<p>Achievable with the implementation of the recommendations in section 12</p>
<p>LANDSCAPING: <ul style="list-style-type: none"> • it is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause Ignitions. </p>	<p>Achievable with the implementation of the recommendations in section 14</p>

18 Conclusions.

Based on the above report and with the implementation of the recommendation contained within this report the consent authority should determine that this development can comply with the requirements of AS 3959-2018 and 'Planning for Bushfire Protection' guidelines.

The recommendations contained within this report are to be implemented in their entirety. Changing one aspect may have an adverse effect on the rest of the recommendations.

Bushfires are affected by many external influences such as climactic conditions, vegetation type, moisture content of the fuel, slope of the land and human intervention to name a few and are difficult to predict.

This report does not intend to provide a guarantee that the subject property will survive if a bushfire should impact the surrounding area. The purpose of this report is to show the developments level of compliance or in some cases non-compliance with the New South Wales legislation regarding building in bushfire prone areas.

Where non-compliance is found measures will be suggested that should make the building less susceptible to the various attack mechanisms of a bushfire and comply with the performance requirements of the Building Code of Australia.

The opinions expressed in this report are based on the writers' experience and interpretation of the relevant guidelines and standards. Notwithstanding the above, these guidelines and standards are open to interpretation. All care has been taken to ensure that the opinions expressed in this report are consistent with past successful outcomes.

Some of the information used in the compilation of this assessment has been provided by the proponent or the proponent's representatives. While we believe this information to be true and have accepted the information in good faith however this company or its representatives will not accept any responsibility if the provided information is determined to be incorrect.

This document is to assist the consenting authorities with their assessment of this proposal. The recommendations contained in this assessment reflect the normal conditions that are typically applied by the consent authority for a proposal such as this however the conditions of consent for the proposal will be supplied by the certifying authority on approval of the development and may not necessarily be the same as the recommendations of this assessment.

The recommendations in this assessment are for planning guidance only, construction details and compliance with all building requirements are the responsibility of the Architect/Designer, Builder and Certifier.

To avoid confusion, unless specifically referenced by the consenting authority, it is strongly recommended that once this proposal has been approved that this document is no longer referenced and that only the official conditions of consent as reflected in documentation by the certifying body are used for construction guidance.

If any further clarification is required for this report, please do not hesitate to contact me using the details above.

Yours Sincerely



Matthew Willis

Grad Dip Planning for Bushfire Prone Areas

Bushfire Planning Services Pty Limited

19 References.

- *Australian Building Codes Board (2019). National Construction Code Volume One - Building Code of Australia. ABCB*
- *Australian Building Codes Board (2019). National Construction Code Volume two - Building Code of Australia. ABCB.*
- *Keith, D.A. (2004). Ocean Shores to Desert Dunes: The Native Vegetation of New South Wales and the ACT. NSW Department of Environment and Conservation.*
- *National Association of Steel Framed Housing (2014). "Steel Framed Construction in Bush Fire Areas. NASH*
- *Ramsay, C and Rudolph, L (2003) "Landscape and Building Design for Bush fire Areas". CSIRO Publishing, Collingwood.*
- *Resources and Energy NSW (2016). ISSC 3 Guide for the Managing Vegetation in the Vicinity of Electrical Assets. NSW Government*
- *Rural Fire Service NSW (2005) "Standards for Asset Protection Zones"*
- *Standards Australia (2018). "AS 3959, Construction of buildings in bush fire prone areas".*
- *Standards Australia (2018). "AS/NZS 1530.8.1 Methods for fire tests on building materials, components and structures - Tests on elements of construction for buildings exposed to simulated bush fire attack - Radiant heat and small flaming sources".*
- *Standards Australia (2018). "AS/NZS 1530.8.2 Methods for fire tests on building materials, components and structures - Tests on elements of construction for buildings exposed to simulated bush fire attack - Large flaming sources".*
- *Standards Australia (2014). "AS/NZS 1596 The storage and handling of LP Gas".*

IMPORTANT NOTATION FOR BUILDERS

- All dimensions are to be confirmed on-site by the builder/subcontractor, any incongruities must be reported to the Designer in writing before the commencement of any work
- No Survey has been made on the boundaries, all bearings, distances, and areas have been taken from the contour survey plan. A Survey must be carried out to confirm the exact boundaries.
- No construction work shall commence until a site survey confirming the site boundaries has been completed. The contractor is to ensure that the approved boundary setbacks are confirmed and used, the boundary setbacks take precedence over all other dimensions. The Survey work must be performed by a registered Surveyor.
- In the event of encountering any discrepancies on these drawings, specification, or subsequent instructions issued, the Builder/Subcontractor shall contact the designer in writing before proceeding further with any work.
- The builder/subcontractor is responsible to ensure that all materials installed on-site are fit for purpose and comply with the NCC and relevant Australian standards. The builder is to get written confirmation of material selection by the client prior to ordering
- All construction, control joints, and expansion joints in the wall, floors, other locations shall be in strict accordance with the Structural Engineering details. No joints or breaks other than specified are allowed without written permission from the Engineer.
- Measurements for the fabrication of secondary components such as windows, doors, internal frames, structural steel components, and the like, are not to be taken from these documents. Measurements must be taken on-site to suit the work as constructed.
- All structural components shall be in strict accordance with details and specifications as prepared by a structural engineer.
- All existing structures need to be examined for structural adequacy, and it is the Contractor's responsibility to ensure that a certificate of structural adequacy is available prior to the start of any work.

SPECIFICATION

- "Approval" - obtained by either an 'Accredited Certifying Authority' or 'Local Council'.
- The Owner will directly pay all fees associated with the following:
 - Building approval from council or accredited certifier, any footpath and kerb deposits with the local council, insurance fees to Building Services Corporation, Long Service Leave levy fees and approval fees by water and sewerage authority. All other fees are to be paid by the builder. The amount of any local authority deposits which are forfeited due to damage or other causes, will be deducted from payments due to the builder.
 - The Builder is to provide at his/her own expense adequate Public Risk Insurance and arrange indemnification under the Workers Compensation Act. Works insurance to be as stated in the contract conditions.
 - All landers are to visit the site to satisfy themselves as to the nature and extent of the Works, facilities available and difficulties entailed in the works as Variations will not be allowed due to work arising owing to neglect of this clause.
 - These drawings shall be read in conjunction with all structural and other consultants' drawings and specifications and with any such written instructions as may be issued during the course of the contract.
 - Set out dimensions shown on this drawing shall be verified by the builder on site before commencement of any work. Dimensions shall not be obtained by scaling the drawings. Use only figured dimensions. All dimensions are in millimetres.
 - The Builder is to ensure all construction, levels and other items comply with the conditions other Building Approval.
 - Any detailing in addition to what is supplied shall be resolved between the Owner and the Builder to the Owner's approval, except for any structural details or design which is to be supplied by the Engineer.
 - All work to be carried out in a tradesman like manner and in accordance with the standards, codes and regulations of the Standards Association of Australia, National construction Code of Australia and any statutory authority having jurisdiction over the works.
 - All structural work is to be in accordance with the structural details prepared by a suitably qualified structural engineer. Including but not limited to all piers, footings, concrete slabs, retaining walls, steelwork, formwork, underpinning, additional structural loads, timber framing, wind bracing and associated connections. Builder to obtain, prior to finalising the tender unless previously obtained by owner.
 - All brickwork is to be selected by owner and is to comply with AS 1640. All masonry is to comply with AS 3700.
 - Provide all metalwork and flashings necessary to satisfactorily complete the works.
 - All timber construction to be in accordance with AS 1684 - "Timber Framing Code". Level 4 Grade where necessary under timber floors to provide a minimum clearance of 300mm under beams or 400mm under joists. Adequate precautions shall be taken to ensure that the surface &/or seepage water does not collect or remain under floor area.
 - Sustainable timbers and not rainforest or old growth timber will be used. Recycled timber or second hand timbers are to be sourced and used in preference to plantation timbers, if available and suitable.
 - All glazing installed is to comply with AS 1288, 2047 and in accordance with manufacturers recommendations.
 - All wall and ceiling linings to be plasterboard or vitaboard or equal in wet areas. A breathable wall wrap to be provided to all external walls. Timber cladding to be battened out from timber frame to provide an 'air' gap to prevent condensation. Workmanship is to comply with the relevant Australian Standards or installed in accordance with manufacturer's specification. All bathrooms and wet areas to be waterproofed with a flexible membrane to manufacturer's specification and to AS 2740 and Part 3.8.1 of the Building Code of Australia Housing Provisions.
 - All Acclitraves and bairings to the profile as selected by owner, and painted or stain finish as selected.
 - All plumbing and drainage work to be installed and completed by a licensed tradesman and in accordance with the statutory body having authority over the works. Connect all waste to Sydney Water sewer line.
 - Connect all stormwater to existing system or street drainage system in accordance with AS 3500 and part 3.1.2 Drainage of the Building Code of Australia Housing Provisions.
 - Smoke detector alarms to be installed in accordance with AS3786 and the Building Code of Australia/ NCC clause 3.7.2.2.
 - If a member which provides structural support to the work is subject to attack by Termites protection measures are to comply with AS3366 and be installed to manufacturer's specification.

- Stairs and Balustrades to comply with part 3.9.1 & 3.9.2 of the Building Code of Australia Housing Provisions. Provide a handrail along the full length of the flight and a slip resistant finish to the edge of the nosings to comply with 3.9.1 and 3.9.2 of the NCC. No horizontal elements to facilitate climbing between 150mm and 750mm where floor to level below is more than 4m.
- Electrical works to be in accordance with SAA wiring rules and be done by a licensed tradesperson. Obtain electrical layout prior to proceeding. All electrical power (GPO's) and light outlets to be determined by owner.
- Painting: All paints or other coatings shall be of the best quality materials & of approved manufacture. All priming materials shall be of an approved brand acceptable to the manufacturer of the finishing coats to be used. External joinery intended to be painted shall be primed on all faces at the place of assembly. Where new work or alteration work adjoins existing painted surfaces allow for repainting existing surfaces to provide uniform appearance.
- ZERO VOC or LOW VOC paints and primers only are to be used.
- Any work indicated on the plans but not specified and any item not shown on the plans which is obviously necessary as part of proper construction and/or finish, is to be considered as shown and specified and is to be undertaken at the Builder's expense.
- Variations will not be permitted without prior written approval by the owners.
- The Builder shall provide sediment and siltation control measures as required by Council and maintain them throughout the duration of the works.
- Erosion control measures, such as silt fences, sediment traps, must be maintained on the job site at all times. Hours of construction shall be restricted to the times as required by the building approval.
- The Builder is to arrange for all inspections required by the relevant authorities and/or lending institutions, to their requirements.
- The Builder is to obtain approval for interruptions to existing services and minimise the duration and number of interruptions. Any interruptions to existing services and equipment to be undertaken by appropriately qualified tradesperson.
- The Builder shall restore, reinstate or replace any damage to existing structures or landscaping caused by the construction works or workmen.
- Provide protection to existing trees to remain, or as required by the Approval Conditions.

GENERAL NOTATION

- Approved means by the relevant local authority or council
- The owner will directly pay the fees associated with the following:
 - building approval from council, footpath and kerb deposits with the local council, insurance fee to building services corporation, long service leave service levy fees and approval fees by water and sewerage authority, all other fees are to be paid by the builder, the amount of any local authority deposits which are forfeited due to damage or other cause will be deducted from the payments due to the builder.
 - The builder is to provide at his/her own expense adequate public risk insurance and arrange indemnification under the workers compensation act. works insurance to be stated in the contract conditions.
 - All work to be carried out in a tradesman like manner and in accordance with the standards codes and regulations of the standards association of Australia, building code of Australia and any statutory authority having jurisdiction over the work.
 - All landers are to visit the site to satisfy themselves as to the nature and extent of the works, facilities available and difficulties entailed in the works as variations will not be allowed due to work arising owing to neglect of this clause.
 - All work and materials to comply with the current Australian standards at the time of commencement were applicable.
 - These drawings shall be read in conjunction with all structural and other consultants drawings and specifications and with any such written instructions as may be issued during the course of the contract.
 - Set out dimensions shown on this drawing shall be verified by the builder on site before commencement of any work. dimensions should not be obtained by scaling the drawings. use only figured dimensions, all dimensions are in millimetres.
 - The builder is to ensure all construction, levels and other items comply with the conditions of the building approval.
 - The builder is to comply with all ordinances, local authority regulations and the requirements of all services supply authorities having jurisdiction over the works.
 - All plumbing and drainage work to be installed and completed by a licensed tradesman and in accordance with the statutory body having authority over the works, connect all waste to Sydney water sewer line
 - All new downpipes are to be connected to the existing storm water system.
 - All power and stormwater outlet locations shall be determined on-site by the owner.
 - Smoke detector alarm to be installed in accordance with AS3786 and the building code of Australia.
 - Electrical work to be in accordance with SAA wiring rules and be done by a licensed tradesman.
 - Any detailing in addition to what is supplied shall be resolved between the owner and the builder to the owner's approval, except for any structural details or design which is supplied by the engineer.
 - All timber sizes and concrete details to be confirmed by the builder prior to commencement of any work.
 - All structural work is to be in accordance with the structural details prepared by a structural engineer (i.e. piers, footings, concrete slabs, retaining walls, steelwork, formwork, underpinning, additional structural loads, timber framing, wind bracing and associated connections. builder to obtain prior to finalising tender.
 - Any work indicated on the plans but not specified, and any item not shown on the plan which is obviously necessary as a part of construction and/or finish is to be considered as shown and specified, and is to be done as part of the contract - variations will not be permitted without the written consent of the owner.
 - The builder shall provide sediment and siltation control measures as required by council and maintain them through the duration of the works.
 - A legible copy of the plans bearing approval stamps must be maintained on the job at all times. hours of construction will be restricted to the times as required by the building approval.
 - The builder is to arrange for all inspections required by the authorities and lending institutions to their requirements.
 - The builder is to obtain approval for interruptions to existing services and minimise the duration and number of interruptions. any interruptions to existing services and equipment to be attended to by the appropriately skilled tradesman.
 - The builder shall restore, reinstate or replace any damage caused to existing structures or landscaping by construction work or workmen. provide protection to existing trees to remain as required by approval conditions.

- All brickwork is to be selected by owner and is to comply with as1640
- All masonry to comply with as3700
- All metalwork and flashings items necessary to satisfactorily complete work shall be provided.
- All gutters, downpipes to be colourbond.
- All timber construction to be in accordance with the Australian standard 1684 "timber framing code"
- All glazing installed to comply with as1288, 2047 and in accordance with manufacturers recommendation
- All wall and ceiling linings to be plasterboard or cement render as selected and vlla board in wet areas, to comply with the relevant Australian standards or installed in accordance with manufacturers specification.
- All bathrooms and wet areas to be adequately waterproofed to manufacturers specification and as3740 and part 3.8.1 of the building code of Australia housing provisions
- Stairs and balustrades to comply with part 3.9.1 & 3.9.2 of the building code of Australia housing provision.
- Termit protection measures to comply with as 3660 and be installed to manufacturers specification.
- Any detailing additional to that supplied, shall be resolved between the owner and the builder to the owners approval, except for any structural details or design which is to be supplied by the structural engineer.

NCC & AS COMPLIANCE SPECIFICATIONS

- Earthworks - part 3.1.1 of NCC
- Earth retaining structures - part 3.1.2 of NCC
- Drainage - part 3.1.3 of NCC
- Termite management - part 3.1.4 of NCC
- Footings & slab - part 3.2 of NCC including as 2870-2011
- Masonry - part 3.3 of ncc including as 3700-2018
- Framing - part 3.4 of NCC
- Sub floor ventilation - part 3.4.1 of NCC
- Roof cladding and wall-cladding - part 3.5 of NCC
- Glazing - part 3.6 of NCC including as 1288
- Fire safety - part 3.7 of NCC
- Fire separation of external walls - part 3.7.2 of NCC
- Fire protection of separating walls and floors - part 3.7.3 of NCC
- Smoke alarms - part 3.7.5 of NCC
- Wet areas and external waterproofing - part 3.8.1 of NCC
- Room height - part 3.8.2 of NCC
- Facilities - part 3.8.3 of NCC
- Light - part 3.8.4 of NCC
- Ventilation - part 3.8.5 of NCC
- Sound insulation - part 3.8.6 of NCC
- Stairway and ramp construction - part 3.9.1 of NCC
- Barriers and handrails - part 3.9.2 of NCC
- Swimming pools - part 3.10.1 of NCC
- Construction in bushfire prone areas - part 3.10.5 of NCC
- Fencing & other provisions - regs & AS 1928, 1, 2012
- Demolition work - AS 2601-2001 the demolition of structures.
- Waterproofing of wet areas to comply with AS 3740-2010
- All plumbing & drainage work to comply with AS 3500-2018
- All plasterboard work to comply with AS 2580-2018
- All structural steel work to comply with AS 4100-1992 & AS 1554
- All concrete work to comply with AS 3600-2018
- All roof sheeting work to comply with AS 1962, 1-2018
- All skylights to comply with AS 4285-2019
- All ceramic tiling to comply with AS 3958, 1-2007 & 3958.2, 1992
- All glazing assemblies to comply with AS 2947-2014 & 1288
- All timber retaining walls are to comply with AS 1720, 1-2010.
- AS 1720, 2-2006, AS 1720, 4-2006, AS 1170, 1-2002 & AS 1170, 4-2007
- All retaining walls are to comply with 3700-2018 & AS 3600-2018
- All construction to comply with AS 3950-2018

THIS SET OF DRAWING SHOULD BE READ & KEPT IN ITS ENTIRETY. NO INDIVIDUAL PAGE SHOULD BE SEPARATED FROM THE REST OF THE SET. EACH NOTATION LISTED ON THIS PAGE APPLY TO ALL PAGES OF THIS SET.

SAFETY NOTES

THESE NOTES MUST BE READ AND UNDERSTOOD BY ALL INVOLVED IN THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO: OWNER, BUILDER, SUB-CONTRACTORS, CONSULTANTS, RENOVATORS, OPERATORS, MAINTENANCE, DEMOLITIONERS.

1. FALLS, SLIPS, TRIPS

a) WORKING AT HEIGHTS

DURING CONSTRUCTION

Wherever possible, components for this building should be prefabricated off-site or at ground level to minimise the risk of workers falling more than two metres. However, construction of this building will require workers to be working at heights where a fall in excess of two metres is possible and injury is likely to result from such a fall. The builder should provide a suitable barrier wherever a person is required to work at a situation where falling more than two metres is a possibility.

DURING OPERATION OR MAINTENANCE

For houses or other low-rise buildings where scaffolding is appropriate, cleaning and maintenance of windows, walls, roof or other components of this building will require persons to be situated where a fall from a height in excess of two metres is possible. Where this type of activity is required, scaffolding, ladders or ladders should be used in accordance with relevant codes of practice, regulations or legislation. For buildings where scaffolds, ladders, ladders are not appropriate, cleaning and maintenance of windows, walls, roof or other components of this building will require persons to be situated where a fall from a height in excess of two metres is possible. Where this type of activity is required, scaffolding, fall barriers or Personal Protective Equipment (PPE) should be used in accordance with relevant codes of practice, regulations or legislation.

b) SLIPPERY OR UNEVEN SURFACES

FLOOR FINISHES Specified

If finishes have been specified by designer, these have been selected to minimise the risk of floors and paved areas becoming slippery when wet or when walked on with wet shoes/ feet. Any changes to the specified finish should be made in consultation with the designer or, if this is not practical, surfaces with an equivalent or better slip resistance should be chosen.

FLOOR FINISHES By Owner

If designer has not been involved in the selection of surface finishes, the owner is responsible for the selection of surface finishes in the pedestrian trafficable areas of this building. Surfaces should be selected in accordance with AS HB 197:1999 and AS/ NZ 4586:2004.

STEPS, LOOSE OBJECTS AND UNEVEN SURFACES

Due to design restrictions for this building, steps and/or ramps are included in the building which may be a hazard to workers carrying objects or otherwise occupied. Steps should be clearly marked with both visual and tactile warning during construction, maintenance, demolition and at all times when the building operates as a workplace. Building owners and occupants should monitor the pedestrian access ways and in particular access to areas where maintenance is routinely carried out to ensure that surfaces have not moved or cracked so that they remain uneven and present a trip hazard. Spills, loose material, stray objects or any other matter that may cause a slip or trip hazard should be cleaned or removed from access ways. Contractors should be required to maintain a tidy work site during construction, maintenance or demolition to reduce the risk of trips and falls in the workplace. Materials for construction or maintenance should be stored in designated areas away from access ways and work areas.

2. FALLING OBJECTS

LOOSE MATERIALS OR SMALL OBJECTS

Construction, maintenance or demolition work on or around this building is likely to involve persons working above ground level or above roof levels. Where this occurs one or more of the following measures should be taken to avoid objects falling from the area where the work is being carried out onto persons below.

1. Prevent or restrict access to areas below where the work is being carried out.
2. Provide toeboards to scaffolding or work platforms.
3. Provide protective structure below the work area.
4. Ensure that all persons below the work area have Personal Protective Equipment (PPE).

BUILDING COMPONENTS

During construction, renovation or demolition of this building, parts of the structure including fabricated steelwork, heavy panels and many other components will remain standing prior to or after supporting parts are in place. Contractors should ensure that temporary bracing or other required support is in place at all times when collapse which may injure persons in the area is a possibility. Mechanical lifting of materials and components during construction, maintenance or demolition presents a risk of falling objects. Contractors should ensure that appropriate lifting devices are used, that loads are properly secured and that access to areas below the load is prevented or restricted.

3. TRAFFIC MANAGEMENT

For building on a major road, narrow road or steeply sloping road, parking of vehicles or loading/unloading of vehicles on this roadway may cause a traffic hazard. During construction, maintenance or demolition of the building designated parking for workers and loading areas should be provided. Trained traffic management personnel should be responsible for the supervision of these areas. For building where on-site loading/unloading is restricted, construction of this building will require loading and unloading of materials on the roadway. Deliveries should be well planned to avoid congestion of loading areas and trained traffic management personnel should be used to supervise loading/unloading areas. For all buildings, busy construction and demolition sites present a risk of collision where deliveries and other traffic are moving within the site. A traffic management plan supervised by trained traffic management personnel should be adopted for the site.

4. SERVICES

GENERAL

Rupture of services during excavation or other activity creates a variety of risks including release of hazardous material. Existing services are located on or around this site. Where known, these are identified on the plans but the exact location and extent of services may vary from that indicated. Services should be located using an appropriate service locate or 'Call Before You Dig' service. Appropriate excavation practice should be used and, where necessary, specialist contractors should be used. Locations with underground power/Underground power lines MAY be located in or around this site. All underground power lines must be disconnected or carefully located and adequate warning signs used prior to any construction, maintenance or demolition commencing. Locations with overhead power lines: Overhead power lines MAY be near or on this site. These pose a risk of electrocution if struck or approached by lifting devices or other plant and persons working above ground level. Where there is a danger of this occurring, power lines should be, where practical, disconnected or relocated. Where this is not practical, adequate warning in the form of bright coloured tape or signage should be used or a protective barrier provided.

5. MANUAL TASKS

Components within this design with a mass in excess of 25kg should be lifted by two or more workers or by mechanical lifting device. Where this is not practical, suppliers or fabricators should be required to limit the component mass. All material packaging, building and maintenance components should clearly show the total mass of packages and where practical all items should be stored on site in a way which minimises bending before lift. Advice should be provided on safe lifting methods in all areas where lifting may occur. Construction, maintenance and demolition of this building will require the use of portable tools and equipment. These should be fully maintained in accordance with manufacturer's specifications and not used where faulty or (in the case of electrical equipment) not carrying a current electrical safety tag. All safety guards or devices should be regularly checked and Personal Protective Equipment should be used in accordance with manufacturer's specification.

6. HAZARDOUS SUBSTANCES

ASBESTOS

For alterations to a building constructed prior to 1990:
If this existing building was constructed prior to 1990:
1990 - it therefore may contain asbestos
1990 - it therefore is likely to contain asbestos
either in cladding material or in the relevant insulation material. In either case, the builder should check and, if necessary, take appropriate action before demolishing, cutting, sanding, drilling or otherwise disturbing the existing structure.

POWDERED MATERIALS

Many materials used in the construction of this building can cause harm if inhaled in powdered form. Persons working on or in the building during construction, operational maintenance or demolition should ensure good ventilation and wear Personal Protective Equipment including protection against inhalation while using powdered material when sanding, drilling, cutting or otherwise disturbing or creating powdered material.

TREATED TIMBER

The design of this building may include provision for the inclusion of treated timber within the structure. Dust or fumes from this material can be harmful. Persons working on or in the building during construction, operational maintenance or demolition should ensure good ventilation and wear Personal Protective Equipment including protection against inhalation of harmful material when sanding, drilling, cutting or using treated timber in any way that may cause harmful material to be released. Do not burn treated timber.

VOLATILE ORGANIC COMPOUNDS

Many types of glues, solvents, spray packs, paints, varnishes and some cleaning materials and disinfectants have dangerous emissions. Areas where these are used should be kept well ventilated while the material is being used and for a period after installation. Personal Protective Equipment may also be required. The manufacturer's recommendations for use must be carefully considered at all times.

SYNTHETIC MINERAL FIBRE

Fibreglass, rockwool, ceramic and other material used for thermal or sound insulation may contain synthetic mineral fibre which may be harmful if inhaled or if it comes in contact with the skin, eyes or other sensitive parts of the body. Personal Protective Equipment including protection against inhalation of harmful material should be used when installing, removing or working near bulk insulation material.

TIMBER FLOORS

This building may contain timber floors which have an applied finish. Areas where finishes are applied should be kept well ventilated during sanding and application and for a period after installation. Personal Protective Equipment may also be required. The manufacturer's recommendations for use must be carefully considered at all times.

7. CONFINED SPACES

EXCAVATION

Construction of this building and some maintenance on the building will require excavation and installation of items within excavations. Where practical, installation should be carried out using methods which do not require workers to enter the excavation. Where this is not practical, adequate support for the excavated area should be provided to prevent collapse. Warning signs and barriers to prevent accidental or unauthorised access to all excavations should be provided.

ENCLOSED SPACES

For buildings with enclosed spaces where maintenance or other access may be required, enclosed spaces within this building may present a risk to persons entering for construction, maintenance or any other purpose. The design documentation calls for warning signs and barriers to unauthorised access. These should be maintained throughout the life of the building. Where workers are required to enter enclosed spaces, air testing equipment and Personal Protective Equipment should be provided.

SMALL SPACES

For buildings with small spaces where maintenance or other access may be required, small spaces within this building will require access by construction or maintenance workers. The design documentation calls for warning signs and barriers to unauthorised access. These should be maintained throughout the life of the building. Where workers are required to enter small spaces they should be scheduled so that access is for short periods. Manual lifting and other manual activity should be restricted in small spaces.

8. PUBLIC ACCESS

Public access to construction and demolition sites and to areas under maintenance causes risk to workers and public. Warning signs and secure barriers to unauthorised access should be provided. Where electrical installations, excavations, plant or loose materials are present they should be secured when not fully supervised.

9. OPERATIONAL USE OF BUILDING RESIDENTIAL BUILDINGS

This building has been designed as a residential building. If, at a later date, it is used or intended to be used as a workplace, the provisions of the Work Health and Safety Act 2011 or subsequent replacement Act should be applied to the new use.

NON-RESIDENTIAL BUILDINGS

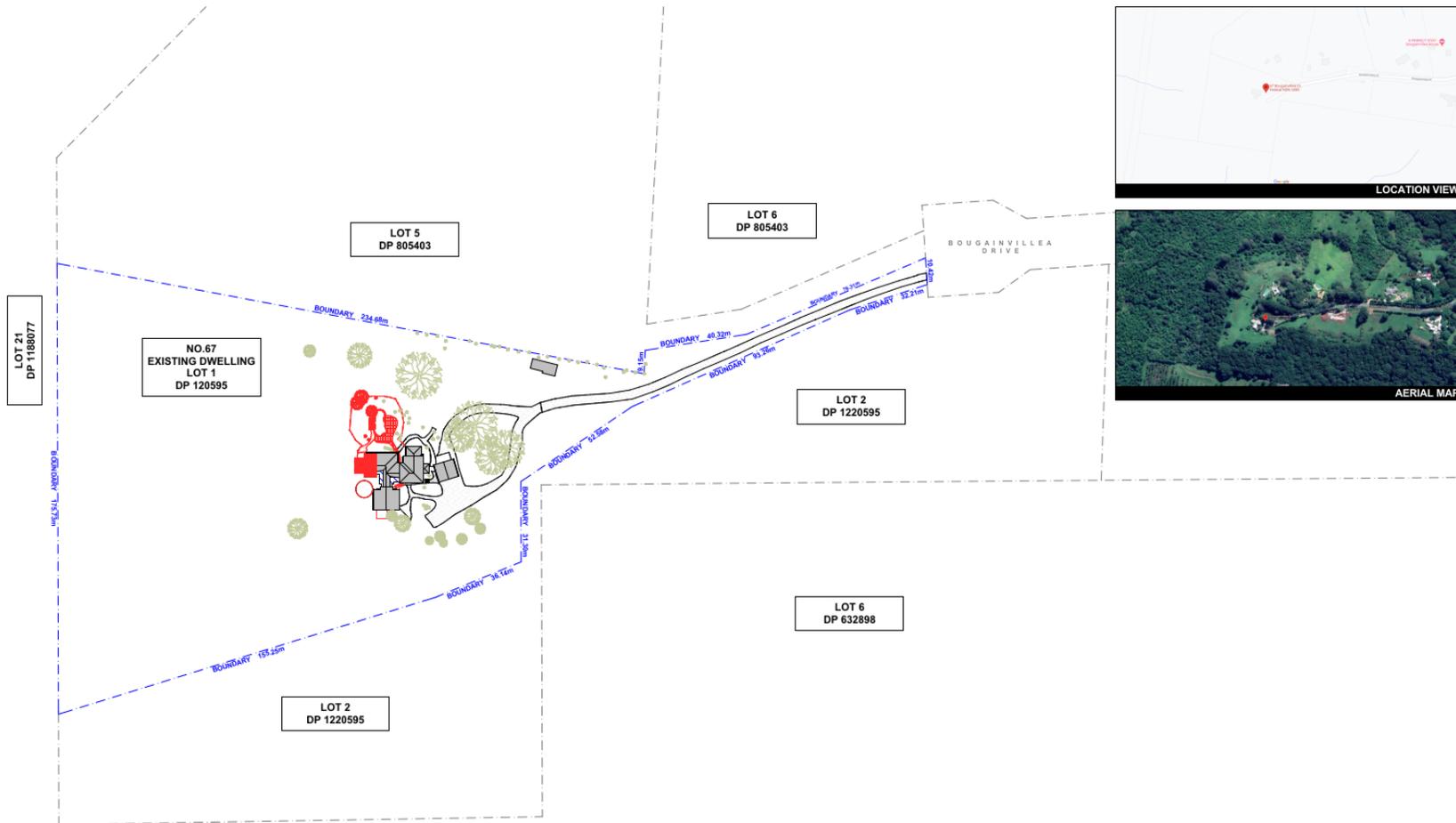
For non-residential buildings where the end-use has not been identified, this building has been designed to meet the requirements of the classification identified on the drawings. The specific use of the building is not known at the time of the design and a further assessment of the workplace health and safety issues should be undertaken at the time of fit-out for the end-user. For non-residential buildings where the end-use is known: This building has been designed for the specific use as identified on the drawings. Where a change of use occurs at a later date a further assessment of the workplace health and safety issues should be undertaken.

10. OTHER HIGH RISK ACTIVITY

All electrical work should be carried out in accordance with Code of Practice: Managing Electrical Risks at the Workplace, AS/ NZ 3012 and all licensing requirements. All work using Plant should be carried out in accordance with Code of Practice: Managing Risks of Plant at the Workplace. All work should be carried out in accordance with Code of Practice: Managing Noise and Preventing Hearing Loss at Work. Due to the history of serious incidents it is recommended that particular care be exercised when undertaking work involving steel construction and concrete placement. All the above apply.

This is a summary of the minimum specifications in Planning for Bushfire Protection 2006 as amended in 2010 and AS 3959 2009 - Construction of buildings in bushfire-prone areas which are recommended in this report. It is included as a courtesy, it is a guide only, and is not to be complete. In addition, the contents of the documents from which this information was extracted may have changed between the date of preparation of this report, and its use or application. Specifications in other documents such as the Building Code of Australia (BCA) may apply. It is the user's responsibility to comply with all statutory conditions as well as those specified by the approving authority with particular reference to this report. The appropriate source documents should be consulted to determine the full specifications abbreviated in this table.

		BAL-12.5	BAL-19	BAL-29	BAL-40
Floor	Slab OK				
	Timber <400mm sq		FRT or In or enclosed		Non-combustible or FRT or enclosed
Floor posts	Timber <400mm sq		FRT or enclosed		OK
					Enclosed or non-combustible
External walls		400mm FRT or non-combustible	FRT or non-combustible	FRT or non-combustible	Non-combustible
Windows	Frames		FRT or metal		Metal
	Screens	Al, Fe or Br mesh on all operable	Fe or Br mesh on all operable, 5mm toughened glass, or studless	Fe or Br mesh on all operable, 5mm toughened glass, or studless	Fe or Br mesh on all, 6mm toughened glass, or studless
External doors	Sliding	Safety glass	5mm toughened glass	6mm toughened glass or half mesh	6mm toughened glass plus full mesh or shutter
	Screens		Al, Fe or Br, if fitted		Fe or Br
Garage	Timber frames		FRT		Metal only
	Mesh	Lower 400mm FRT or non-combustible	FRT or non-combustible		Non-combustible
Vanits etc	Mesh	Al, Fe or Br mesh 2mm			Fe or Br mesh 2mm
	Roofs		Full sarked (Flammability Index <5)		FRL >30
Verandahs, decks etc	(Sheathed Non-combustible, fully sarked (Flammability Index <5)				FRL >30
	Rooflights	Non-combustible sleeve/lining, 4mm safety glass			Any supports, unspaced deck, non-combustible
Services	Enclosed	Any supports, <3mm spaced deck, FRT or non-combustible			All non-combustible, unspaced deck
	Unenclosed	FRT or non-combustible, <3mm spaced deck			All non-combustible, unspaced deck
	<300mm to glass	300mm wide FRT or non-combustible	FRT or non-combustible		Non-combustible
Services			Exposed water & gas pipes to metal		
As	Above ground	FRT	Fire Resistant Timber - Al	Aluminium - Fe	Reinforced steel - Br



1 LOCATION PLAN 1:1000

NOTE: ALL DEMOLISHED ELEMENTS TO ENG. SPECIFICATIONS AND AS. 2601 - 2001



REV.	DATE	COMMENTS	DRWN	NOTES
A	06/09/2021	INITIAL DESIGN PLAN	AP	The drawing is the copyright of Action Plans and not to be altered, reproduced or transmitted in any form or by any means, in print or in electronic, without the written permission of Action Plans.
B	20/09/2021	FOR PRELIMINARY ISSUE	SLR	The Builder/Contractor shall check and verify all levels and dimensions on site prior to commencement of any work. All levels and dimensions are to be verified by the Builder/Contractor and referred to the Designer prior to the commencement of work.

LEGEND
EXISTING
PROPOSED
DEMOLISHED

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLEA DRIVE, FEDERAL NSW 2480

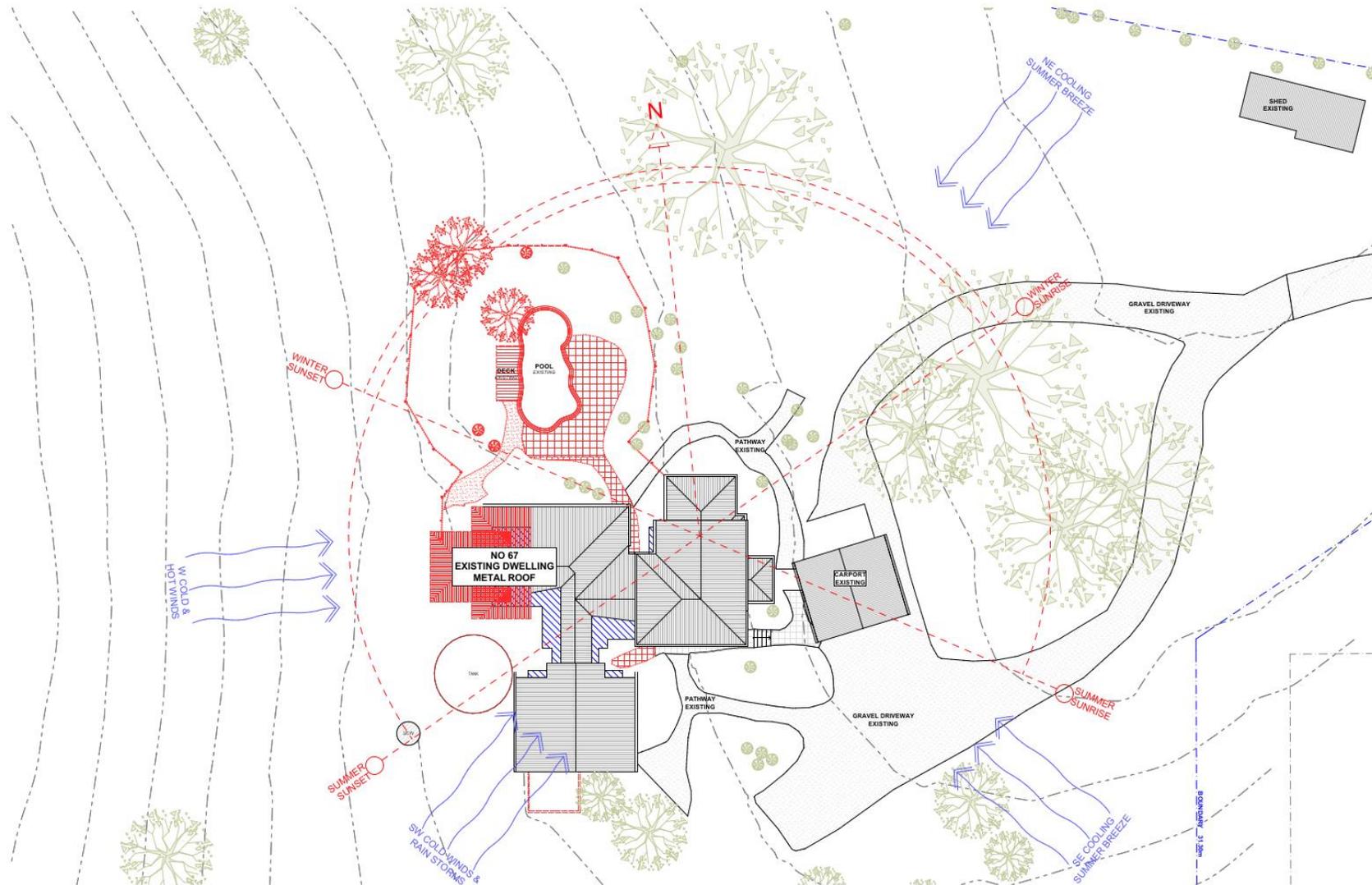
DRAWING NO.
DA03

DATE
Tuesday, 21 September 2021

DRAWING NAME
LOCATION PLAN

SCALE
1:1000 @A2





ACTION PLANS
M: 0428 937 516
a: operations@actionplans.com.au
w: www.actionplans.com.au

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B	20/09/2024	DR. PROBABLY ISSUE	SLB	The Builder/Contractor shall check and verify all levels and dimensions on site prior to commencement of any work. All errors and omissions are to be verified by the Builder/Contractor and referred to the designer prior to the commencement of work.

LEGEND
 EXISTING
 PROPOSED
 DEMOLISHED

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLEA DRIVE, FEDERAL NSW 2480

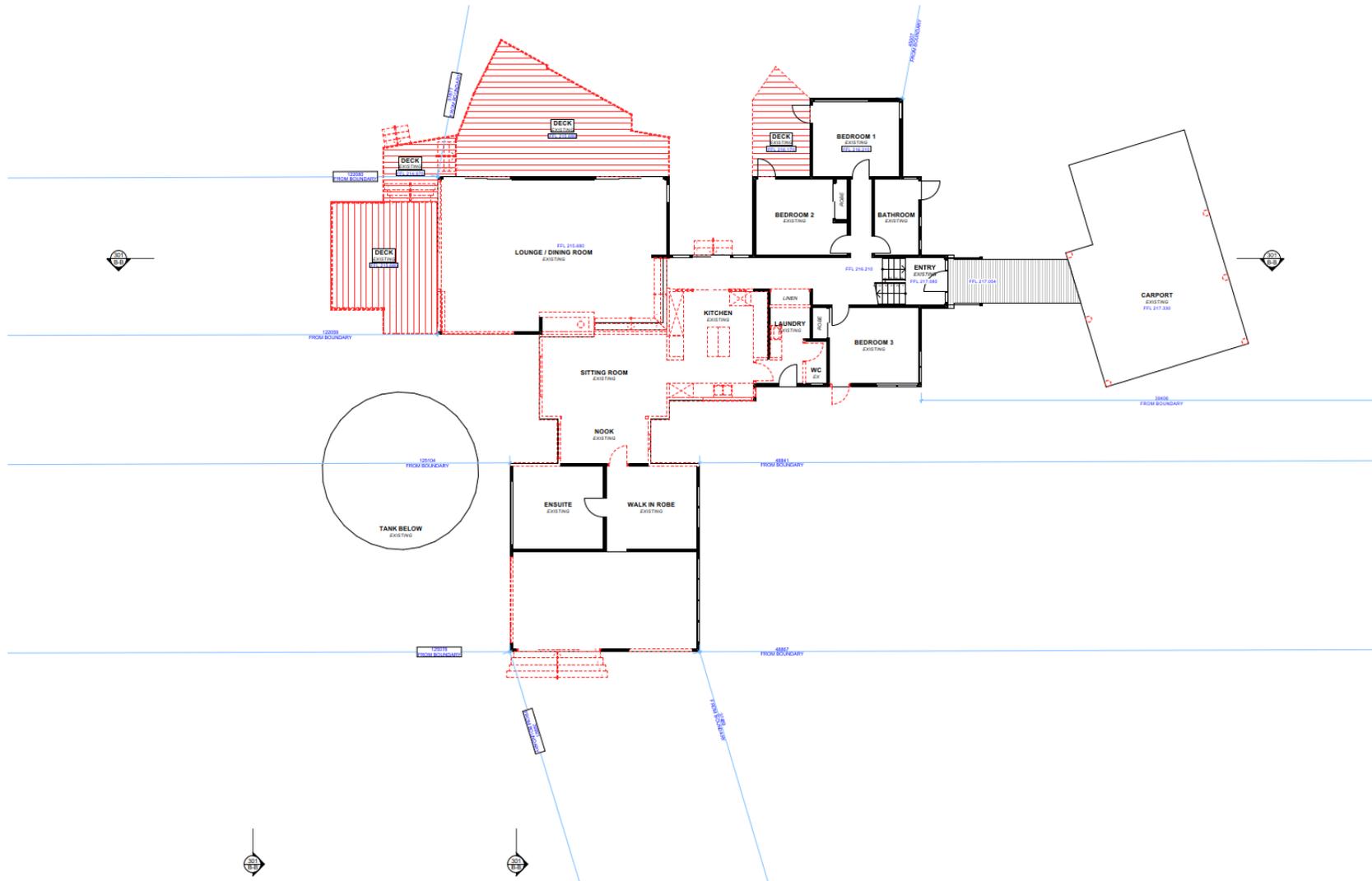
DRAWING NO.
DA04

DATE
Tuesday, 21 September 2021

DRAWING NAME
SITE ANALYSIS

SCALE
1:200 @A2





1 EXISTING GROUND FLOOR PLAN - DEMOLITION 1:100

NOTE: ALL DEMOLISHED ELEMENTS TO ENG. SPECIFICATIONS AND AS. 2601 - 2001



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A	26/09/2021	INITIAL DESIGN PLAN	AP	The drawing is the copyright of Action Plans and not be altered, reproduced or transmitted in any form or by any means, in print or in electronic, without the written permission of Action Plans.
B	26/09/2021	FOR PRELIMINARY ISSUE	SLB	Do not scale measure from drawings. Figure dimensions are to be used only. The Builder/Contractor shall check and verify all levels and dimensions on site prior to commencement of any work. Location of shop drawings, or fabrication of components, all joints and connections, are to be verified by the Builder/Contractor and referred to the Designer prior to the commencement of work.

LEGEND
EXISTING
PROPOSED
DEMOLISHED

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLEA
DRIVE, FEDERAL NSW
2480

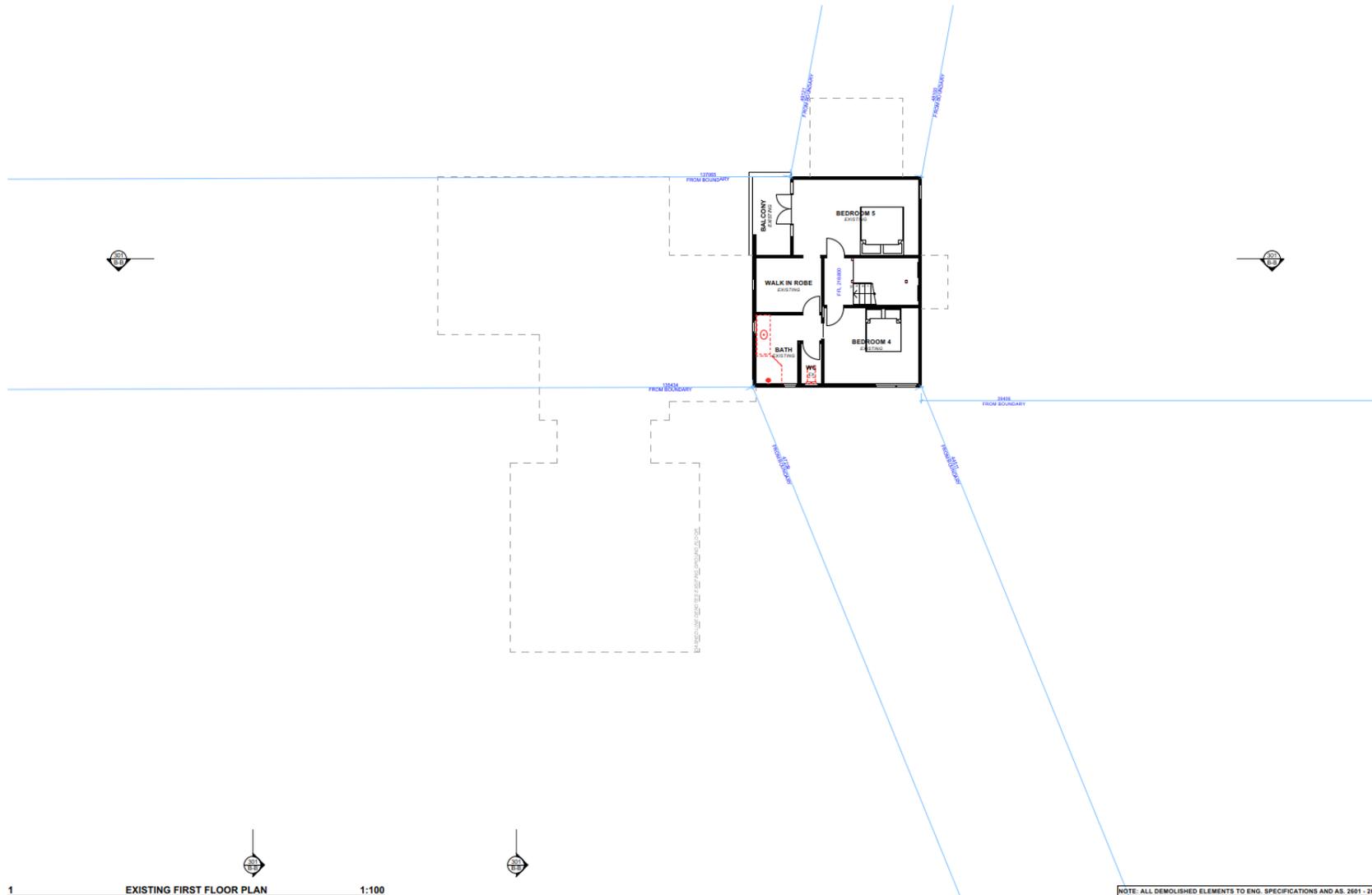
DRAWING NO.
DA06

DATE
Tuesday, 21
September 2021

DRAWING NAME
EXISTING GROUND FLOOR PLAN

SCALE
1:100 @A2





1 EXISTING FIRST FLOOR PLAN 1:100

NOTE: ALL DEMOLISHED ELEMENTS TO ENG. SPECIFICATIONS AND AS. 2601 - 2001



REV.	DATE	COMMENTS	DRWN	NOTES
A	16.09.2021	INITIAL DESIGN PLAN	AP	The drawing is the copyright of Action Plans and not be altered, reproduced or transmitted in any form or by any means, in print or in electronic, without the written permission of Action Plans.
B	20.09.2021	FOR PRELIMINARY ISSUE	SLB	Do not scale, measure from drawings. Figured dimensions are to be used only. The Builder/Contractor shall check and verify all levels and dimensions on site prior to commencement of any work. All errors and omissions are to be verified by the Builder/Contractor and referred to the Designer prior to the commencement of work.

LEGEND
EXISTING
PROPOSED
DEMOLISHED

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLEA
DRIVE, FEDERAL NSW
2480

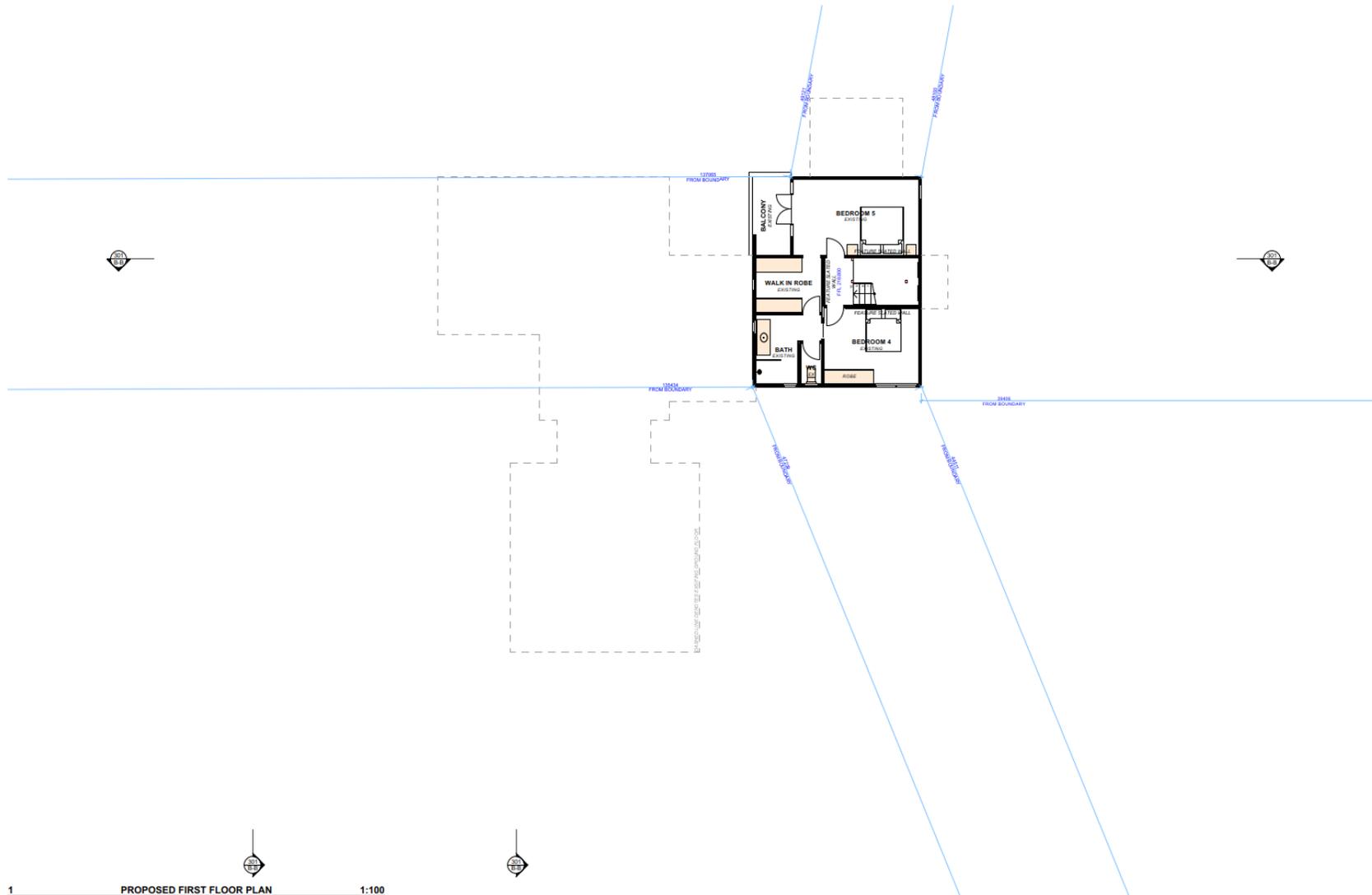
DRAWING NO.
DA07

DATE
Tuesday, 21
September 2021

DRAWING NAME
EXISTING FIRST FLOOR PLAN

SCALE
1:100 @A2





1 PROPOSED FIRST FLOOR PLAN 1:100



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REV.	DATE	COMMENTS	DRWN	NOTES
A	26.09.2021	INITIAL DESIGN PLAN	AP	The drawing is the copyright of Action Plans and not be altered, reproduced or transmitted in any form or by any means, in print or in electronic, without the written permission of Action Plans.
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LEGEND
EXISTING
PROPOSED
DEMOLISHED

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLE
DRIVE, FEDERAL NSW
2480

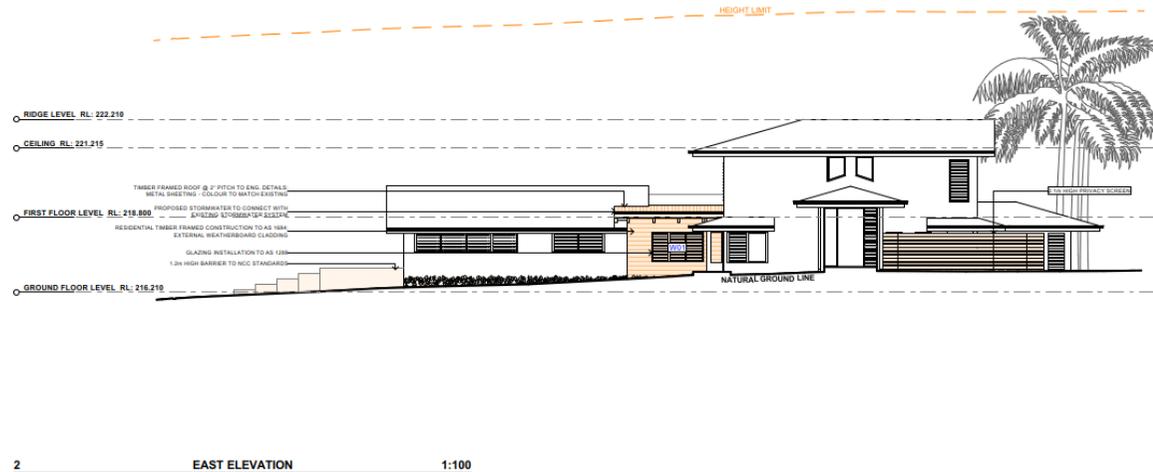
DRAWING NO.
DA09

DATE
Tuesday, 21
September 2021

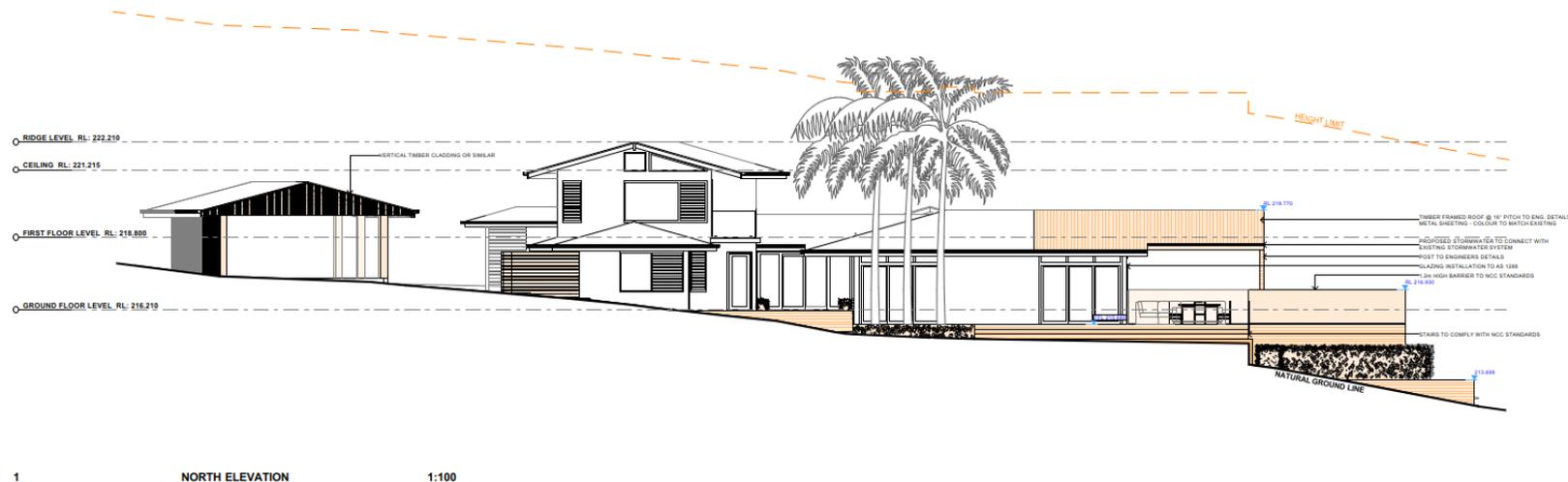
DRAWING NAME
PROPOSED FIRST FLOOR PLAN

SCALE
1:100 @A2





2 EAST ELEVATION 1:100



1 NORTH ELEVATION 1:100



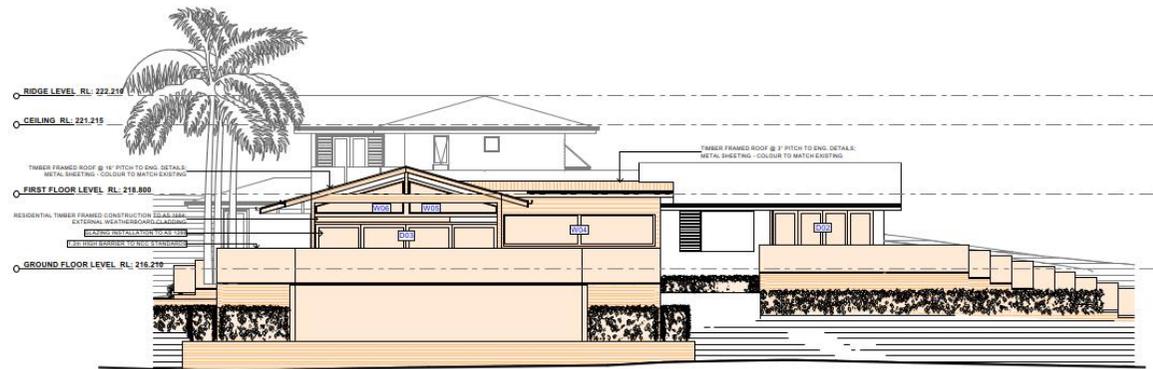
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LEGEND
EXISTING
PROPOSED
DEMOLISHED

This is a summary of the minimum specifications in Planning for Bushfire Protection 2009 as amended in 2010 and AS 3959 2009 - Construction of buildings in bushfire prone areas which are recommended in this report. It is included as a courtesy, as guide only, and not be complete. In addition, the contents of the documents from which this information was extracted may have changed between the date preparation of this report, and its use or application. Specifications in other documents such as the Building Code of Australia (BCA) may apply. It is the user's responsibility to comply with all statutory conditions as well as those specified by the approving authority with particular reference to this report. The appropriate source documents should be consulted to determine the full specifications approved in this book.

	BCA 19.5	BCA 19	BCA 39	BCA 47
Floor	Slab -OK	FRT or lined or enclosed	OK	Non-combustible or FRT or enclosed
Floor joists	Timber <400mm sq	FRT or enclosed	OK	Enclosed or non-combustible
External walls	400mm FRT or non-combustible	FRT or non-combustible	OK	Non-combustible
Windows	Frame	FRT or metal	OK	Metal
	Screens	Al, Fe or Br mesh on all operable	Fe or Br mesh on all operable. Some toughened glass, or shutters, or storm-toughened glass or Al mesh	Fe or Br mesh on all storm-toughened glass, or shutters, or storm-toughened glass plus Al mesh or shutters
External doors	Sliding	Toughened glass	Some toughened glass	Some toughened glass plus Al mesh or shutters
	Screens	Al, Fe or Br, if fixed	Al, Fe or Br	Fe or Br
Veranda etc:	Timber frames	Lower 400mm FRT or non-combustible	FRT or non-combustible	Metal only
	Roofs	Al, Fe or Br mesh 20mm	Fully rated (Flammability Index <5)	Fe or Br mesh 20mm
	Rooflights	Non-combustible downlights, FRT or non-combustible	FRT, <200	Non-combustible
Verandahs, decks etc:	Unobscured	FRT or non-combustible, <3mm spaced deck	Any approved, unobscured deck, non-combustible	All non-combustible
	Unobscured	<300mm to glass	300mm wide FRT or non-combustible	Unobscured deck
Services	Approved	Exposed water & gas pipes to metal	Approved	Non-combustible



2 WEST ELEVATION 1:100



1 SOUTH ELEVATION 1:100

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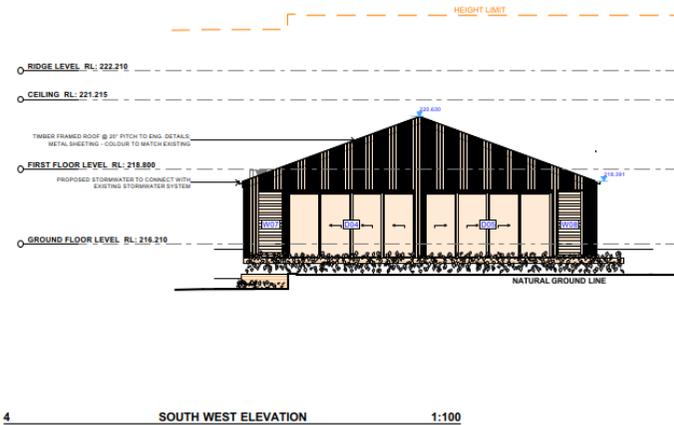
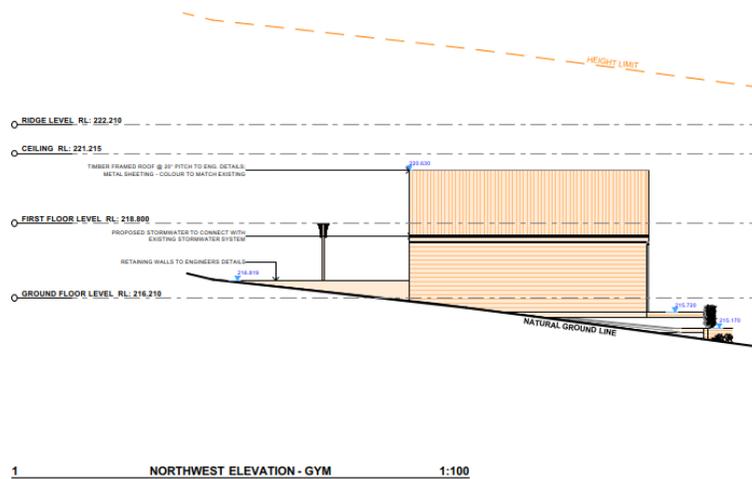
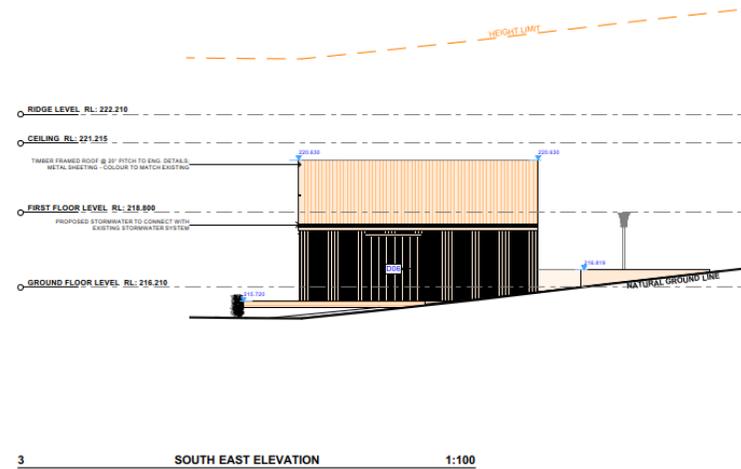
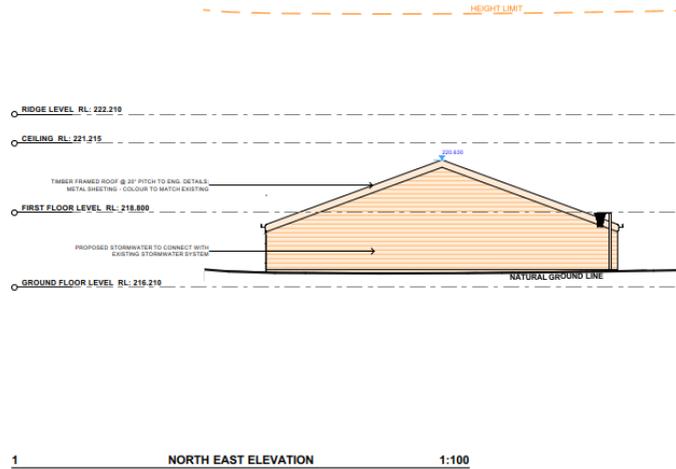
REV.	DATE	COMMENTS	DRWN	NOTES
A	16.09.2024	INITIAL DESIGN PLAN	AP	The drawing is the copyright of Action Plans and not to be altered, reproduced or transmitted in any form or by any means, in print or in electronic, without the written permission of Action Plans.
B	20.09.2024	DA PRELIMINARY ISSUE	SLB	The Builder/Contractor shall check and verify all materials and dimensions on the site prior to commencement of any work. All sizes and dimensions are to be verified by the Builder/Contractor and referred to the Designer prior to the commencement of work.

LEGEND

 EXISTING
 PROPOSED
 DEMOLISHED

This is a summary of the minimum specifications in Planning for Bushfire Protection 2009 as amended in 2012 and AS 3959 2009. Construction of buildings in bushfire prone areas which are recommended in this report. It is included as a courtesy, as public only and not to be complete. In addition, the contents of the documents mentioned may have changed between the date of preparation of this report, and its use or application. Specifications in other documents such as the Building Code of Australia (BCA) may apply. It is the user's responsibility to comply with all statutory conditions as well as those specified by the approving authority with particular reference to this report. The appropriate source documents should be consulted to determine the full specifications approved in this book.

	BCA 19.5	BCA 19	BCA 20	BCA 47
Floor	Slab OK Timber <400mm sq	FRP or treated or untreated OK	FRP or treated or untreated OK	Non-combustible or FRP or treated or untreated
Floor joists		FRP or treated or untreated		FRP or treated or untreated
External walls	400mm FRP or non-combustible	FRP or non-combustible	FRP or non-combustible	FRP or non-combustible
Windows	Frame Screens	FRP or metal Al, Fe or Br mesh on all operable	FRP or metal FRP or metal on all operable. Some suggested glass, or shutters, or shutters	FRP or metal on all operable. Some suggested glass, or shutters, or shutters
External doors	Sliding Screens	Sliding glass FRP or metal	Sliding glass FRP or metal	FRP or metal on all operable. Some suggested glass, or shutters, or shutters
Veranda etc. (deck etc.)	Timber frames Carpet	FRP or non-combustible FRP or non-combustible	FRP or non-combustible FRP or non-combustible	FRP or metal on all operable. Some suggested glass, or shutters, or shutters
Roofs	Man Timber	Al, Fe or Br mesh 20mm Fully sealed (Permeability Index <5)	FRP or metal 20mm Fully sealed (Permeability Index <5)	FRP or metal 20mm Fully sealed (Permeability Index <5)
Rooflights	Shaded Non Rooflights	Non-combustible, fully sealed (Permeability Index <5)	FRP, 20mm Fully sealed (Permeability Index <5)	FRP, 20mm Fully sealed (Permeability Index <5)
Eaves etc. (deck etc.)	Unobstructed	FRP or non-combustible, 20mm sealed deck	FRP or non-combustible, 20mm sealed deck	FRP or non-combustible, 20mm sealed deck
Services	<300mm to glass 300mm side FRP or non-combustible	FRP or non-combustible Exposed water & gas pipes to metal	FRP or non-combustible Exposed water & gas pipes to metal	FRP or non-combustible Exposed water & gas pipes to metal



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LEGEND

 EXISTING
 PROPOSED
 DEMOLISHED

CLIENT
ELLA MILES (BYRON)

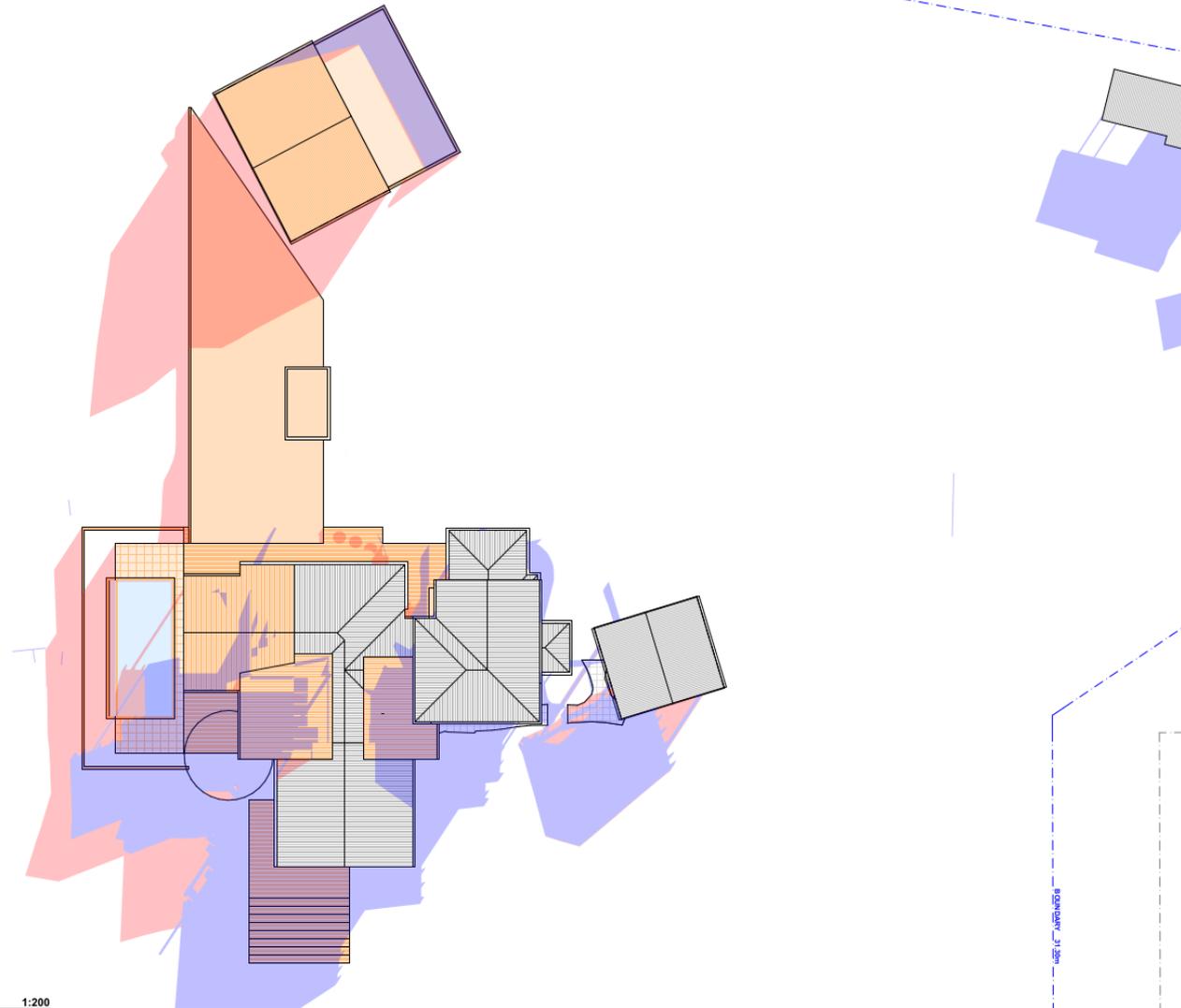
PROJECT ADDRESS
6 BOUGAINVILLEA DRIVE, FEDERAL NSW 2480

DRAWING NO.
DA14

DATE
Tuesday, 21 September 2021

DRAWING NAME
PROPOSED GYM ELEVATIONS

SCALE
1:100 @A3



1 WINTER SOLSTICE 9AM 1:200



ACTION PLANS

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LEGEND
 EXISTING SHADOWS
 PROPOSED SHADOWS

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLEA
DRIVE, FEDERAL NSW
2480

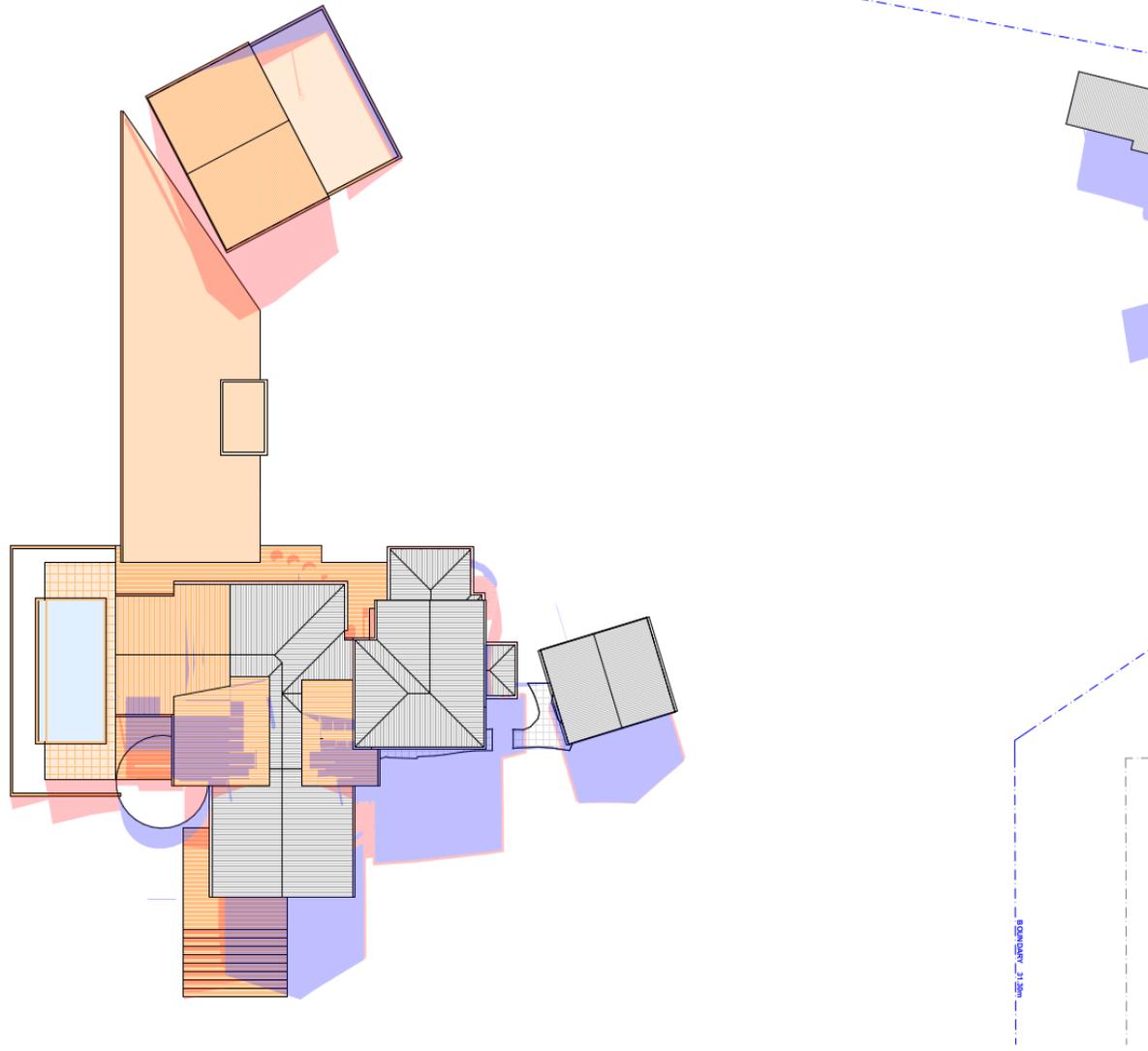
DRAWING NO.
DA16

DATE
Tuesday, 21
September 2021

DRAWING NAME
WINTER SOLSTICE 9 AM

SCALE
1:200 @A3





1 WINTER SOLSTICE 12PM 1:200



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B	20/09/2021	FOR PRELIMINARY ISSUE	SLR	The Builder/Contractor shall check and verify all levels and dimensions on site prior to commencement of any work. All errors and omissions are to be verified by the Builder/Contractor and referred to the Designer prior to the commencement of work.

LEGEND
 EXISTING SHADOWS
 PROPOSED SHADOWS

CLIENT
 ELLA MILES (BYRON)

PROJECT ADDRESS
 6 BOUGAINVILLEA
 DRIVE, FEDERAL NSW
 2480

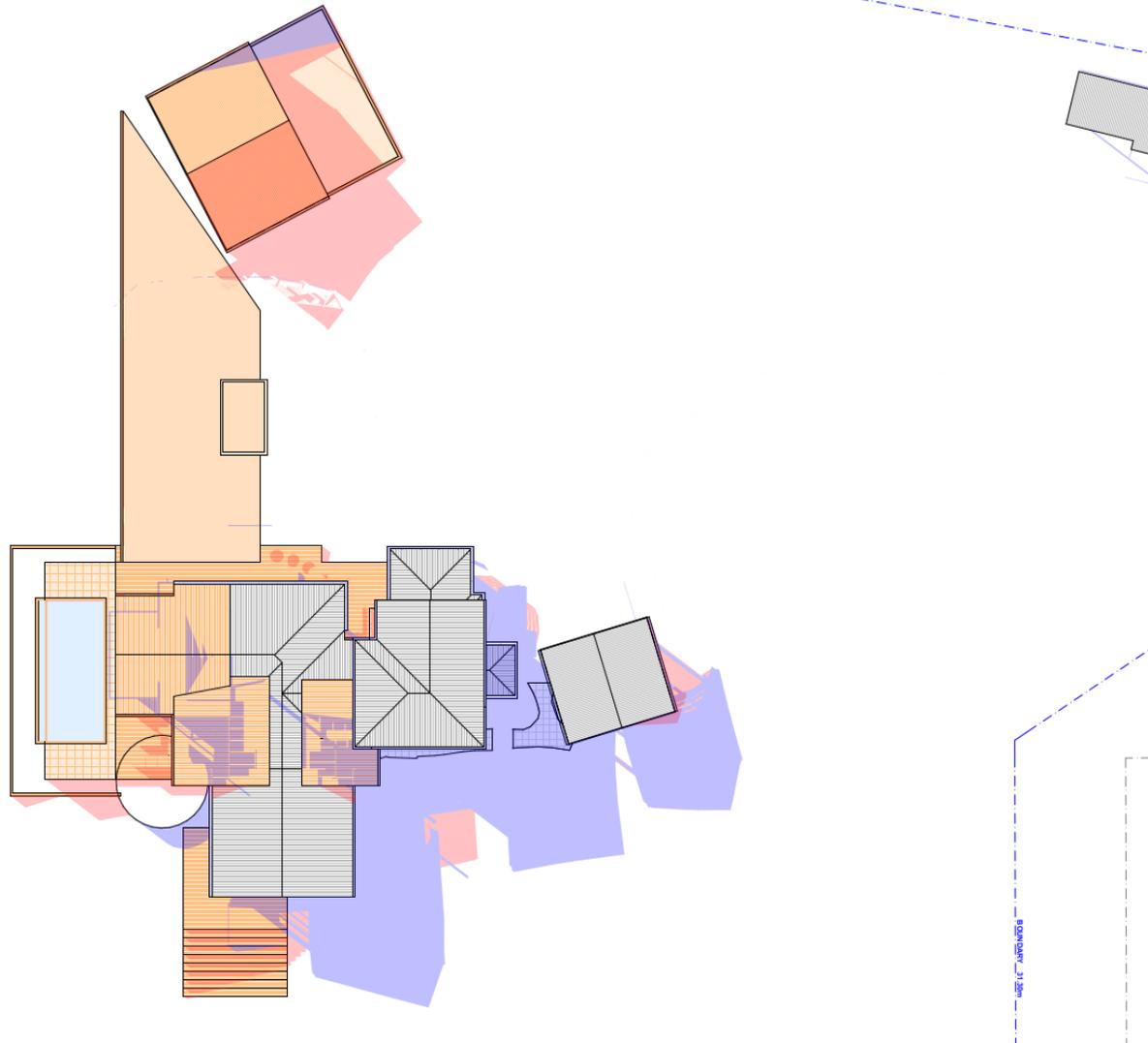
DRAWING NO.
DA17

DATE
 Tuesday, 21
 September 2021

DRAWING NAME
 WINTER SOLSTICE 12 PM

SCALE
 1:200 @A3





1 WINTER SOLSTICE 3PM 1:200



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LEGEND
 EXISTING SHADOWS
 PROPOSED SHADOWS

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLEA
DRIVE, FEDERAL NSW
2480

DRAWING NO.
DA18

DATE
Tuesday, 21
September 2021

DRAWING NAME
WINTER SOLSTICE 3 PM

SCALE
1:200 @A3



BASIX Certificate

Building Sustainability Index www.basix.nsw.gov.au

Alterations and Additions

Certificate number: A432370

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Alterations and Additions Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Monday, 20, September 2021
To be valid, this certificate must be lodged within 3 months of the date of issue.



Project address	
Project name	0862_07 BOUGAINVILLEA DR, FEDERAL 2480
Street address	67 BOUGAINVILLEA Drive FEDERAL 2480
Local Government Area	Byron Shire Council
Plan type and number	Deposited Plan 120595
Lot number	1
Section number	
Project type	
Dwelling type	Separate dwelling house
Type of alteration and addition	My renovation work is valued at \$50,000 or more, and includes a pool (and/or spa).

Certificate Prepared by (please complete before submitting to Council or PCA)	
Name / Company Name: Action Plans	
ABN (if applicable): 17118297587	

Pool and Spa	Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
The applicant must install a rainwater tank of at least 1018 litres on the site. This rainwater tank must meet, and be installed in accordance with, the requirements of all applicable regulatory authorities.	✓	✓	✓
The applicant must configure the rainwater tank to collect rainwater runoff from at least 100 square metres of roof area.	✓	✓	✓
The applicant must connect the rainwater tank to a tap located within 10 metres of the edge of the pool.	✓	✓	✓
Outdoor swimming pool			
The swimming pool must be outdoors.	✓	✓	✓
The swimming pool must not have a capacity greater than 68.28 kilolitres.	✓	✓	✓
The swimming pool must have a pool cover.	✓	✓	✓
The applicant must install a pool pump timer for the swimming pool.	✓	✓	✓
The applicant must install the following heating system for the swimming pool that is part of this development: electric heat pump.	✓	✓	✓
Fixtures and systems			
Lighting			
The applicant must ensure a minimum of 40% of new or altered light fixtures are fitted with fluorescent, compact fluorescent, or light-emitting-diode (LED) lamps.		✓	✓
Fixtures			
The applicant must ensure new or altered showerheads have a flow rate no greater than 9 litres per minute or a 3 star water rating.		✓	✓
The applicant must ensure new or altered toilets have a flow rate no greater than 4 litres per average flush or a minimum 3 star water rating.		✓	✓
The applicant must ensure new or altered taps have a flow rate no greater than 9 litres per minute or minimum 3 star water rating.		✓	✓
Construction			
Insulation requirements			
The applicant must construct the new or altered construction (floor/s), walls, and ceilings/roofs) in accordance with the specifications listed in the table below, except that a) additional insulation is not required where the area of new construction is less than 2m2, b) insulation specified is not required for parts of altered construction where insulation already exists.	✓	✓	✓
Construction	Additional insulation required (R-value)	Other specifications	
suspended floor with enclosed subfloor: framed (R0.7)	nil		
external wall: framed (weatherboard, fibro, metal clad)	R1.00 (or R1.40 including construction)		
flat ceiling, pitched roof	ceiling: R1.31 (down), roof: foil backed blanket (75 mm)	medium (solar absorptance 0.475 - 0.70)	
raked ceiling, pitched/skillion roof: framed	ceiling: R1.28 (down), roof: foil backed blanket (75 mm)	medium (solar absorptance 0.475 - 0.70)	

Glazing requirements							Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Windows and glazed doors							✓	✓	✓
The applicant must install the windows, glazed doors and shading devices, in accordance with the specifications listed in the table below. Relevant overshadowing specifications must be satisfied for each window and glazed door.									
The following requirements must also be satisfied in relation to each window and glazed door:									
Each window or glazed door with standard aluminium or timber frames and single clear or toned glass may either match the description, or, have a U-value and a Solar Heat Gain Coefficient (SHGC) no greater than that listed in the table below. Total system U-values and SHGCs must be calculated in accordance with National Penetration Rating Council (NPRC) conditions.									
For projections described in millimetres, the leading edge of each eave, pergola, verandah, balcony or awning must be no more than 500 mm above the head of the window or glazed door and no more than 2400 mm above the sill.							✓	✓	✓
Pergolas with polycarbonate roof or similar translucent material must have a shading coefficient of less than 0.35.									
Pergolas with fixed battens must have battens parallel to the window or glazed door above which they are situated, unless the pergola also shades a perpendicular window. The spacing between battens must not be more than 50 mm.									
Windows and glazed doors glazing requirements									
Window / door no.	Orientation	Area of glass inc. frame (m ²)	Overshadowing Height (m)	Overshadowing Distance (m)	Shading device	Frame and glass type			
W01	E	1.85	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W02	S	1.62	0	0	eave/verandah/pergola/balcony >=600 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W03	S	1.58	0	0	eave/verandah/pergola/balcony >=450 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W04	W	5.83	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W05	W	3.65	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W06	W	3.65	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W07	SW	2.07	0	0	eave/verandah/pergola/balcony >=450 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W08	SW	2.07	0	0	eave/verandah/pergola/balcony >=450 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
D01	S	7.77	0	0	eave/verandah/pergola/balcony >=600 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
D02	W	7.77	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
D03	W	13.44	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
D04	SW	10.35	0	0	eave/verandah/pergola/balcony >=450 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
D05	SW	10.35	0	0	eave/verandah/pergola/balcony >=450 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
D06	S	4.6	0	0	eave/verandah/pergola/balcony >=450 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
Legend									
In these commitments, "applicant" means the person carrying out the development.									
Commitments identified with a "✓" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).									
Commitments identified with a "✓" in the "Show on CC/CDC plans & specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.									
Commitments identified with a "✓" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled, before a final occupation certificate for the development may be issued.									



REV.	DATE	COMMENTS	DRWN	NOTES
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B	20/09/2021	DA PRELIMINARY ISSUE	SLR	

CLIENT
ELLA MILES (BYRON)

PROJECT ADDRESS
6 BOUGAINVILLEA DRIVE, FEDERAL NSW 2480

DRAWING NO.
DA19

DATE
Tuesday, 21 September 2021

DRAWING NAME
BASIX COMMITMENTS