Ordinary Meeting

Meeting Date: Tuesday, 09 December, 2025
Location: Council Chambers, City Administrative Building, Bridge Road, Nowra

Attachments (Under Separate Cover)

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15. Reports

CL25.413 Development Application DA2024/1589 - 737 Woollamia Road WOOLLAMIA - Lot 12 DP 9289

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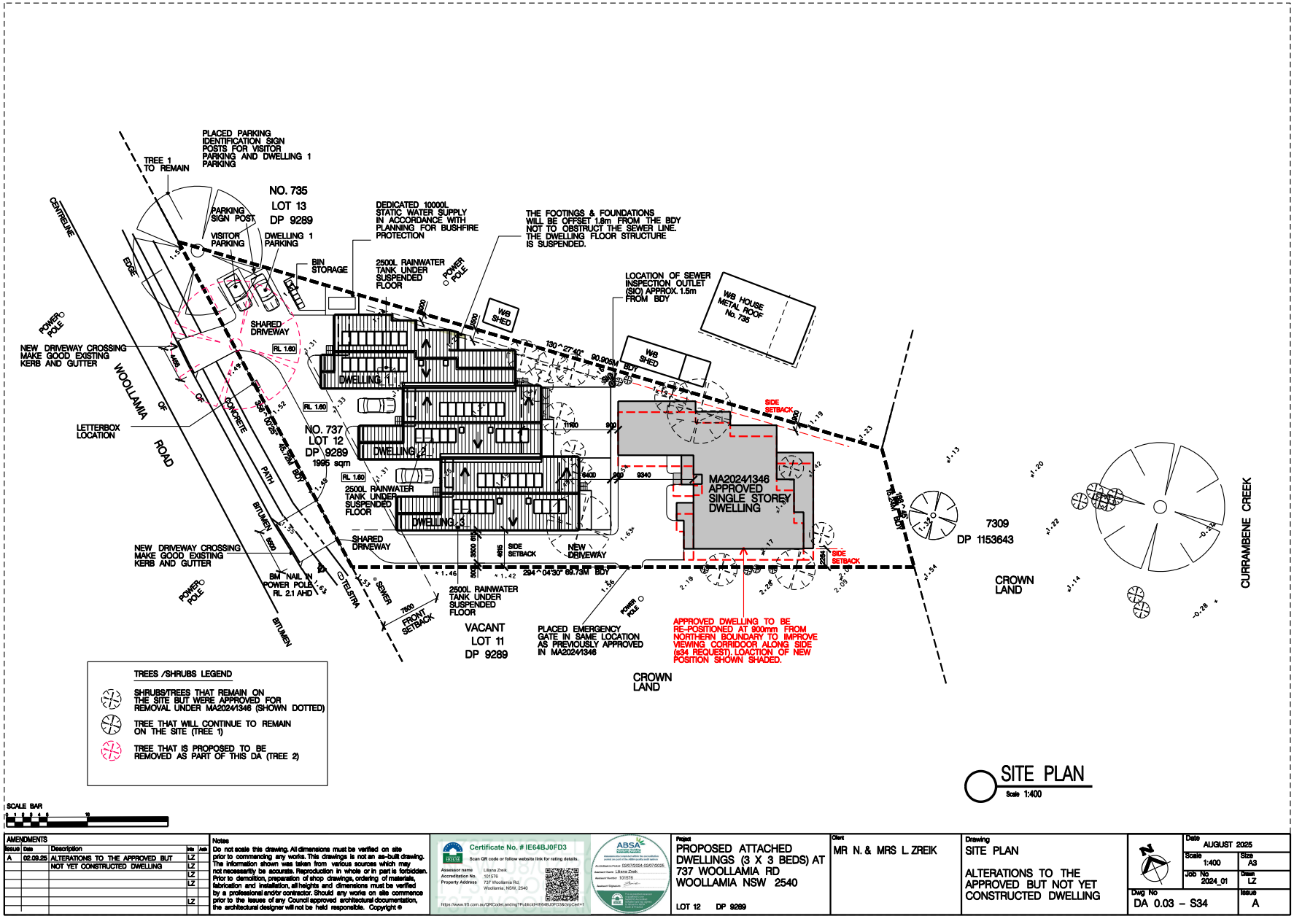
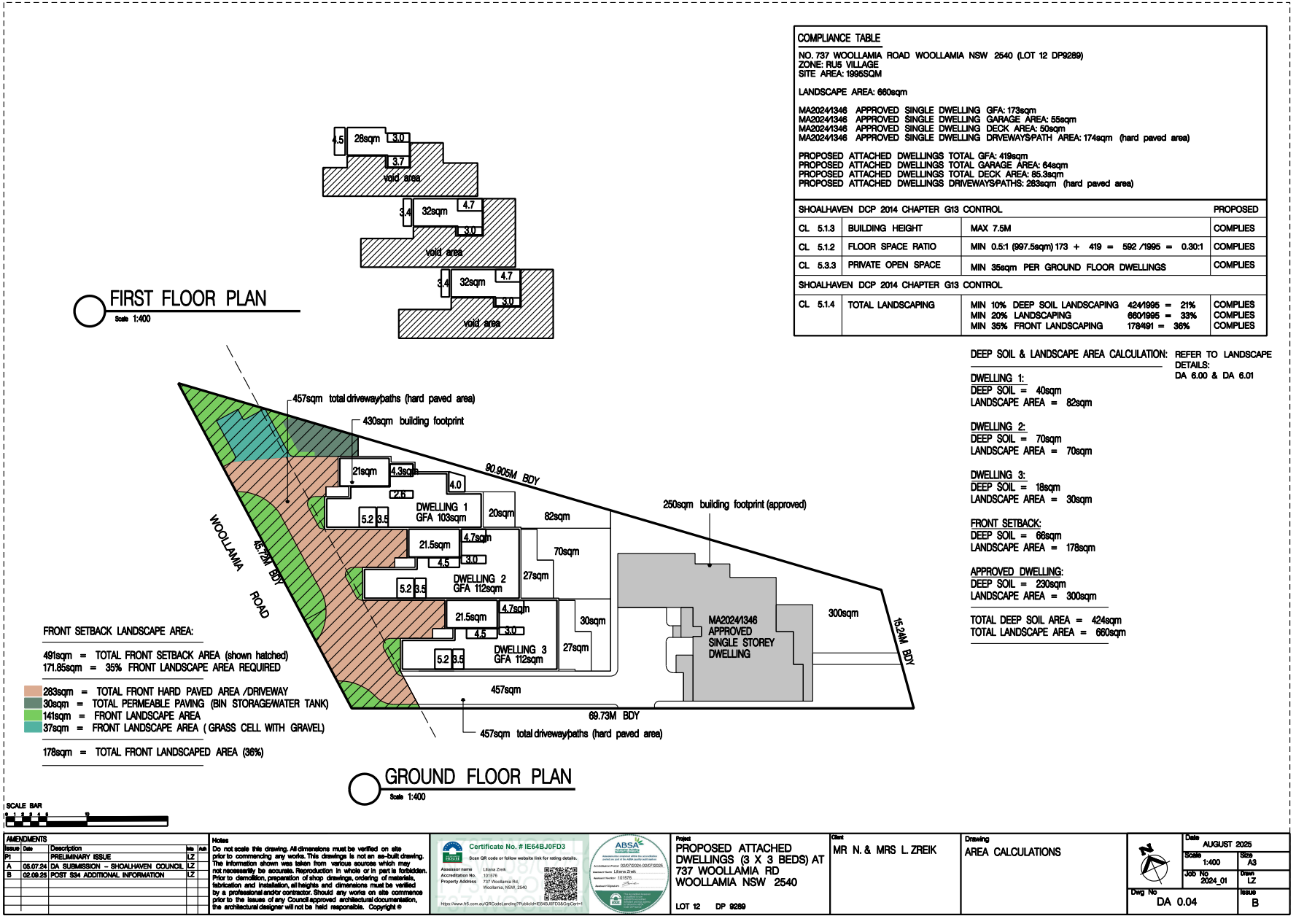


CL25.413 - Attachment 1



COMPLIANCE TABLE

NO. 737 WOOLLAMIA ROAD WOOLLAMIA NSW 2540 (LOT 12 DP9289)
ZONE: RU5 VILLAGE
SITE AREA: 1995SQM

LANDSCAPE AREA: 660sqm

MA20241346 APPROVED SINGLE DWELLING GFA: 173sqm
MA20241346 APPROVED SINGLE DWELLING GARAGE AREA: 55sqm
MA20241346 APPROVED SINGLE DWELLING DECK AREA: 50sqm
MA20241346 APPROVED SINGLE DWELLING DRIVEWAYS/PATH AREA: 174sqm (hard paved area)

PROPOSED ATTACHED DWELLINGS TOTAL GFA: 419sqm
PROPOSED ATTACHED DWELLINGS TOTAL GARAGE AREA: 64sqm
PROPOSED ATTACHED DWELLINGS TOTAL DECK AREA: 85.3sqm
PROPOSED ATTACHED DWELLINGS DRIVEWAYS/PATHS: 283sqm (hard paved area)

SHOALHAVEN DCP 2014 CHAPTER G13 CONTROL			PROPOSED
CL 5.1.3	BUILDING HEIGHT	MAX 7.5M	COMPLIES
CL 5.1.2	FLOOR SPACE RATIO	MIN 0.5:1 (997.5sqm) 173 + 419 = 592 /1995 = 0.30:1	COMPLIES
CL 5.3.3	PRIVATE OPEN SPACE	MIN 35sqm PER GROUND FLOOR DWELLINGS	COMPLIES
SHOALHAVEN DCP 2014 CHAPTER G13 CONTROL			
CL 5.1.4	TOTAL LANDSCAPING	MIN 10% DEEP SOIL LANDSCAPING 424/1995 = 21% MIN 20% LANDSCAPING 660/1995 = 33% MIN 35% FRONT LANDSCAPING 178/491 = 36%	COMPLIES COMPLIES COMPLIES

DEEP SOIL & LANDSCAPE AREA CALCULATION: REFER TO LANDSCAPE DETAILS: DA 6.00 & DA 6.01

DWELLING 1:
DEEP SOIL = 40sqm
LANDSCAPE AREA = 82sqm

DWELLING 2:
DEEP SOIL = 70sqm
LANDSCAPE AREA = 70sqm

DWELLING 3:
DEEP SOIL = 18sqm
LANDSCAPE AREA = 30sqm

FRONT SETBACK:
DEEP SOIL = 66sqm
LANDSCAPE AREA = 178sqm

APPROVED DWELLING:
DEEP SOIL = 230sqm
LANDSCAPE AREA = 300sqm

TOTAL DEEP SOIL AREA = 424sqm
TOTAL LANDSCAPE AREA = 660sqm

AMENDMENTS			
Issue	Date	Description	Init
PI		PRELIMINARY ISSUE	LZ
A	05.07.24	DA SUBMISSION – SHOALHAVEN COUNCIL	LZ
B	02.09.25	POST S34 ADDITIONAL INFORMATION	LZ

Notes
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Certificate No. # IE64BJ0FD3
Scan QR code or follow website link for rating details.
Assessor name Liliana Zreik
Accreditation No. 101576
Property Address 737 Woollamia Rd, Woollamia, NSW, 2540

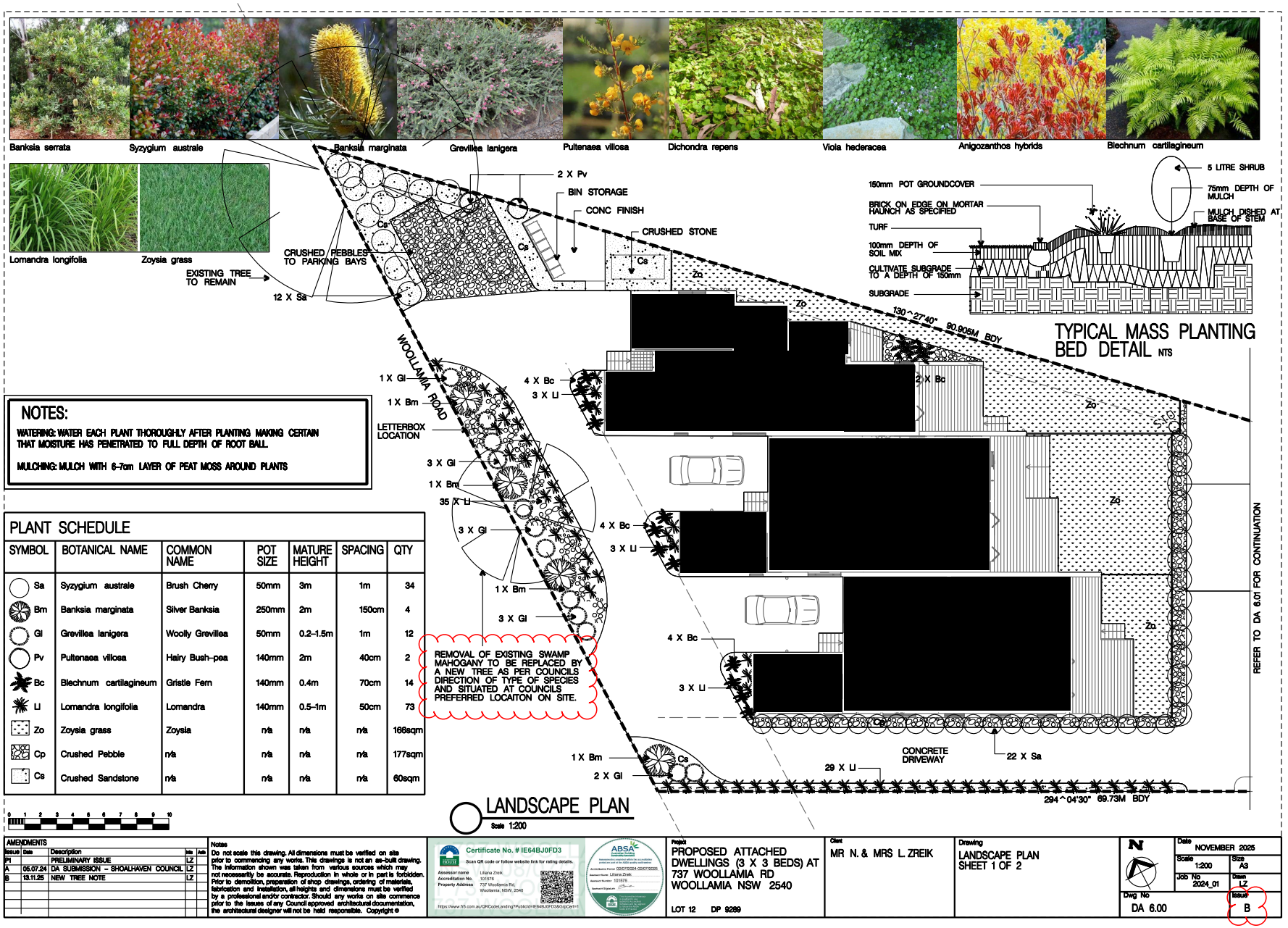
Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540
LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

Drawing
AREA CALCULATIONS

Date AUGUST 2025
Scale 1:400
Size A3
Job No 2024_01
Drawn LZ
Dwg No DA 0.04
Issue B

CL25.413 - Attachment 1



TYPICAL MASS PLANTING BED DETAIL NTS

NOTES:

WATERING: WATER EACH PLANT THOROUGHLY AFTER PLANTING MAKING CERTAIN THAT MOISTURE HAS PENETRATED TO FULL DEPTH OF ROOT BALL.

MULCHING: MULCH WITH 6-7cm LAYER OF PEAT MOSS AROUND PLANTS

PLANT SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	POT SIZE	MATURE HEIGHT	SPACING	QTY
Sa	Syzygium australe	Brush Cherry	50mm	3m	1m	34
Bm	Banksia marginata	Silver Banksia	250mm	2m	150cm	4
Gl	Grevillea lanigera	Woolly Grevillea	50mm	0.2–1.5m	1m	12
Pv	Pultenaea villosa	Hairy Bush-pea	140mm	2m	40cm	2
Bc	Blechnum cartilagineum	Gristle Fern	140mm	0.4m	70cm	14
Ll	Lomandra longifolia	Lomandra	140mm	0.5–1m	50cm	73
Zo	Zoysia grass	Zoysia	n/a	n/a	n/a	166sqm
Cp	Crushed Pebble	n/a	n/a	n/a	n/a	177sqm
Cs	Crushed Sandstone	n/a	n/a	n/a	n/a	60sqm

LANDSCAPE PLAN
Scale 1:200

0 1 2 3 4 5 6 7 8 9 10

AMENDMENTS

Issue	Date	Description	Init.	Auth.
PI		PRELIMINARY ISSUE	LZ	
A	05.07.24	DA SUBMISSION – SHOALHAVEN COUNCIL	LZ	
B	13.11.25	NEW TREE NOTE	LZ	

Notes
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Certificate No. # IE64BJ0FD3
Scan QR code or follow website link for rating details.
Assessor name Liliana Zreik
Accreditation No. 101576
Property Address 737 Woollamia Rd, Woollamia, NSW, 2540
https://www.hl5.com.au/QRCodeLanding?PublicId=IE64BJ0FD3&GrpCert=1

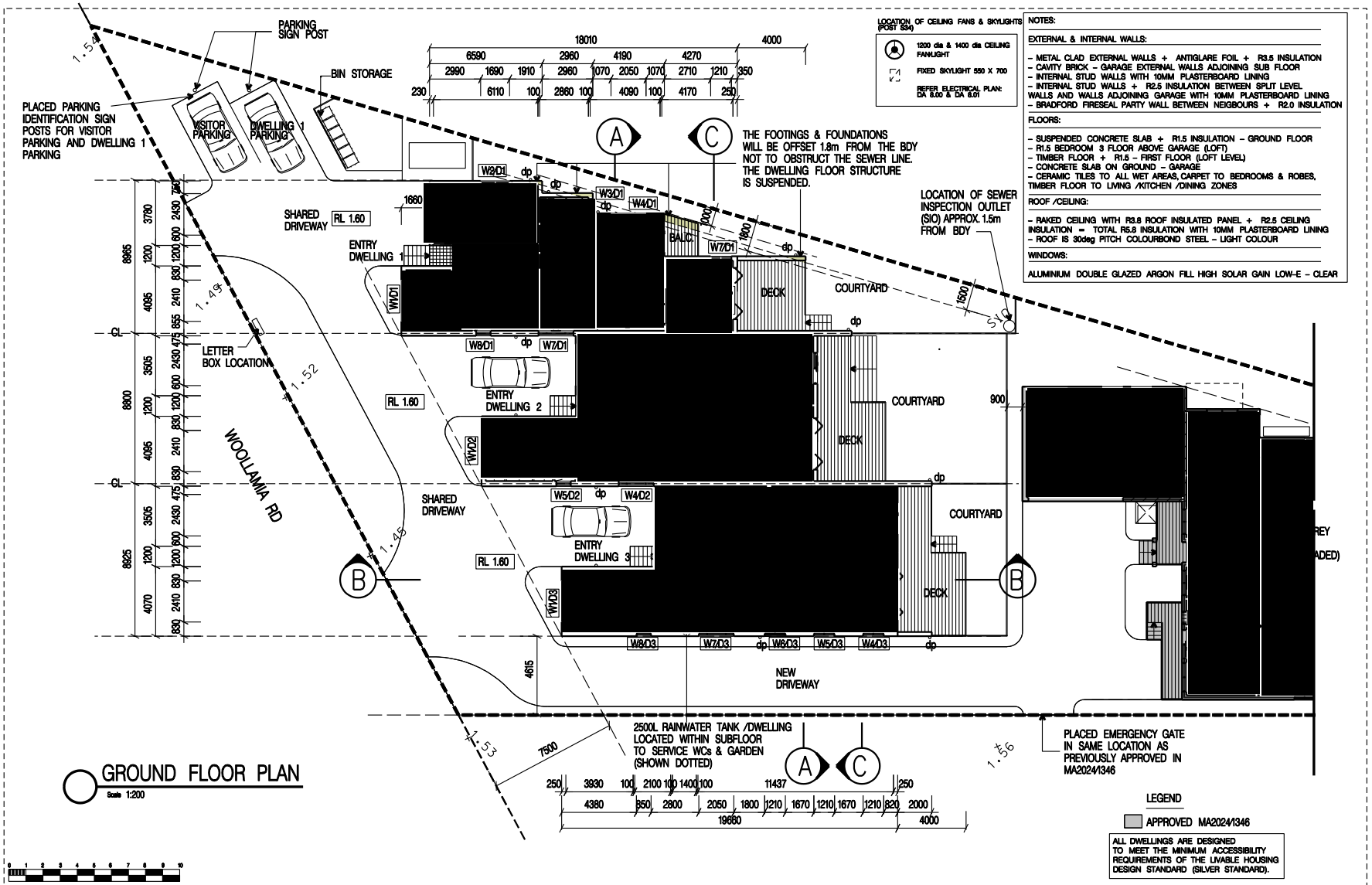
Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540
LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

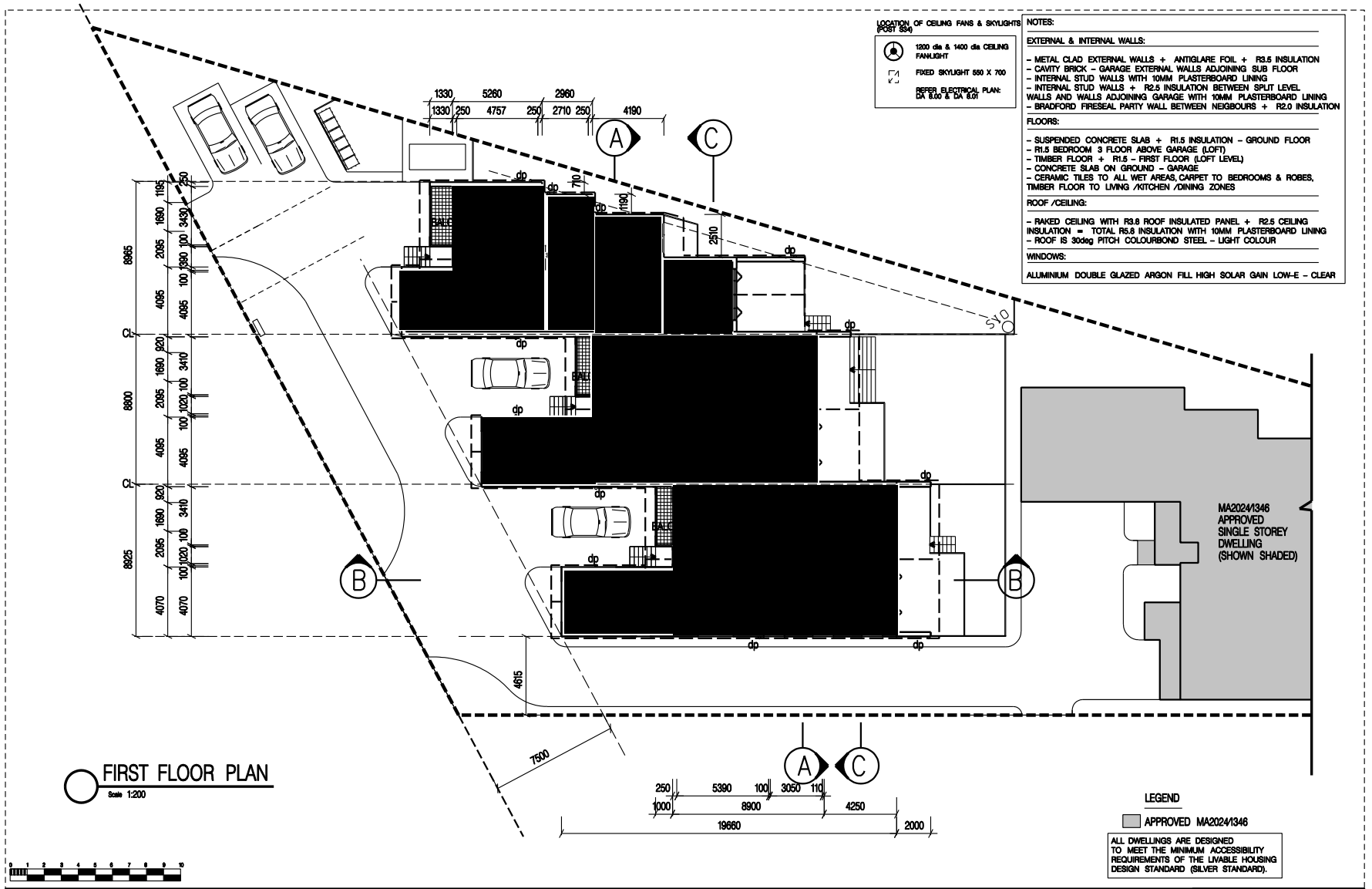
Drawing
LANDSCAPE PLAN SHEET 1 OF 2

Date NOVEMBER 2025
Scale 1:200
Size A3
Job No 2024_01
Drawn LZ
Dwg No DA 6.00
Issue B

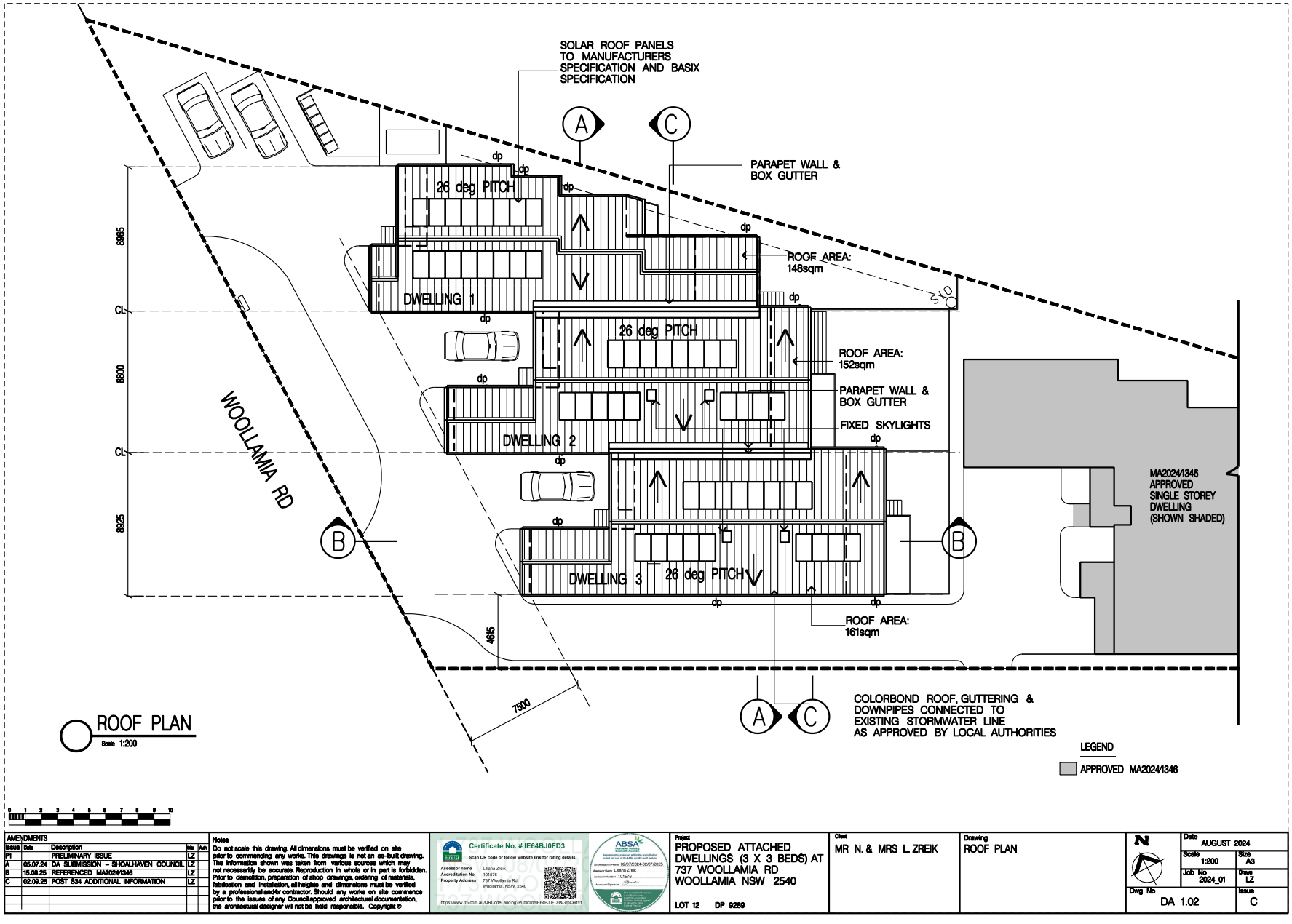
CL25.413 - Attachment 1



CL25.413 - Attachment 1



CL25.413 - Attachment 1



AMENDMENTS				
Issue	Date	Description	Init.	Auth
P1		PRELIMINARY ISSUE	LZ	
A	05.07.24	DA SUBMISSION – SHOALHAVEN COUNCIL	LZ	
B	15.08.25	REFERENCED MA20241346	LZ	
C	02.09.25	POST S34 ADDITIONAL INFORMATION	LZ	

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Scan QR code or follow website link for rating details.
Assessor name Liliana Zreik
Accreditation No. 101576
Property Address 737 Woollamia Rd, Woollamia, NSW, 2540

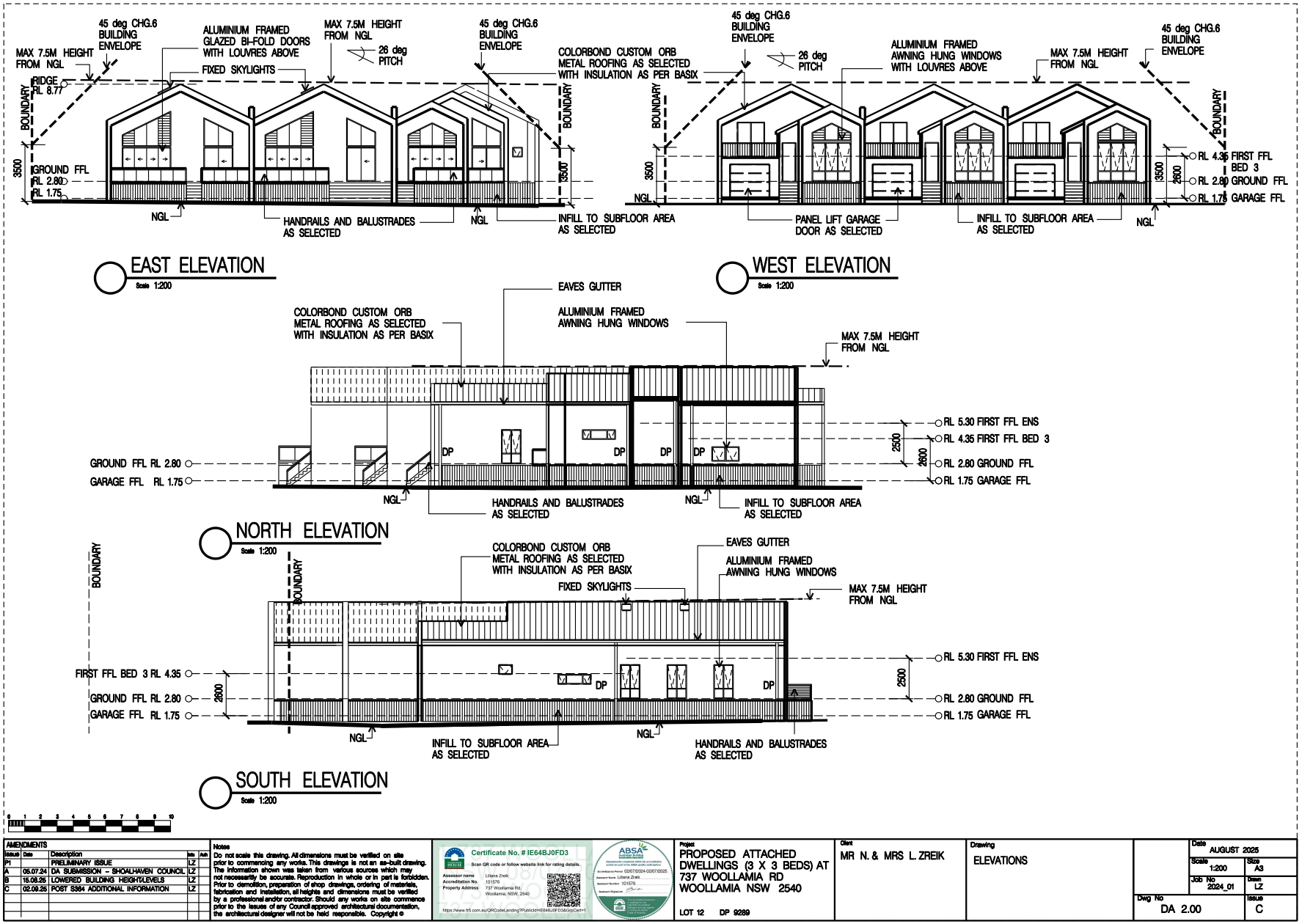
Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540
LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

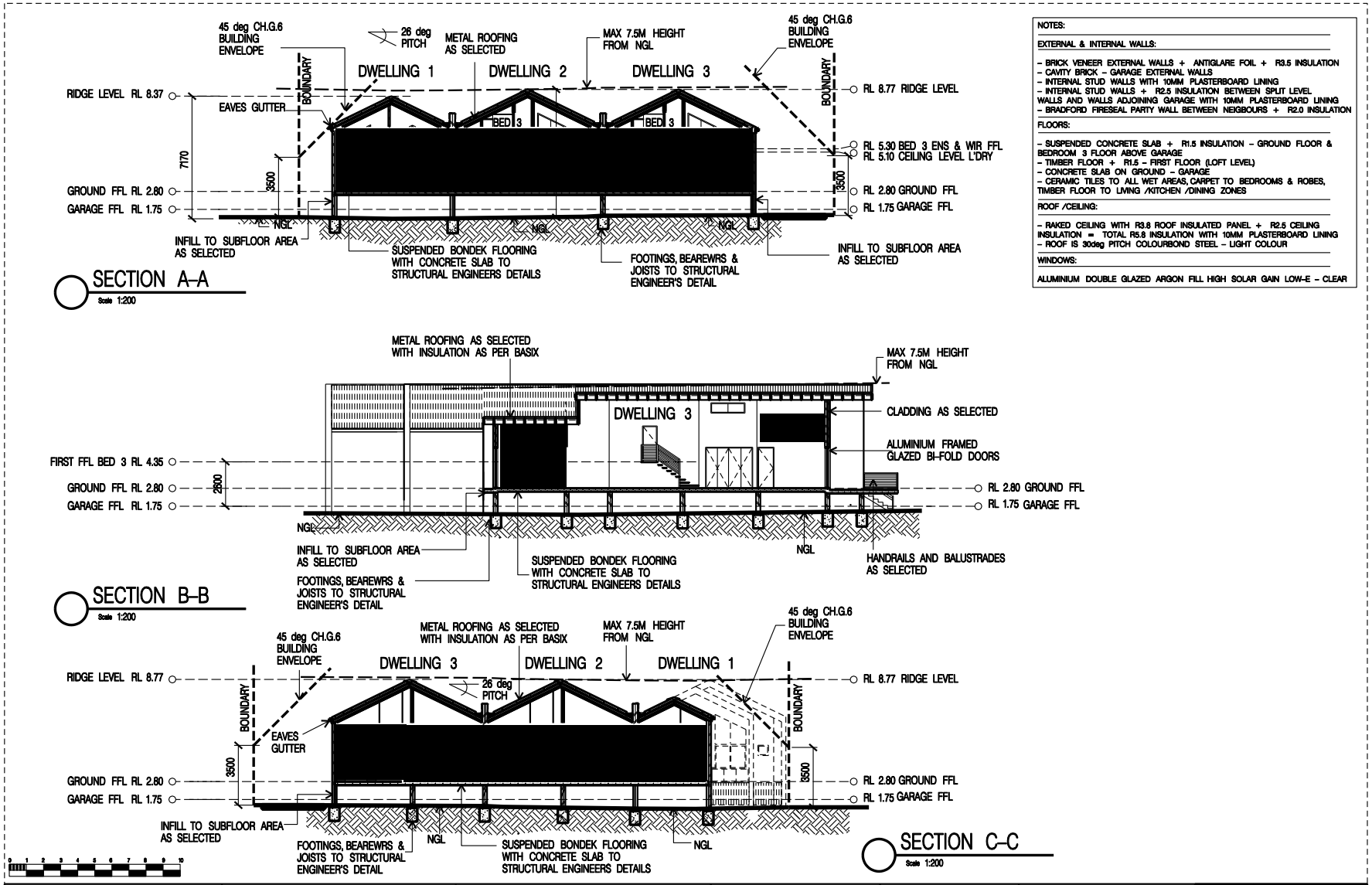
Drawing
ROOF PLAN

Date AUGUST 2024
Scale 1:200 Size A3
Job No 2024_01 Drawn LZ
Dwg No DA 1.02 Issue C

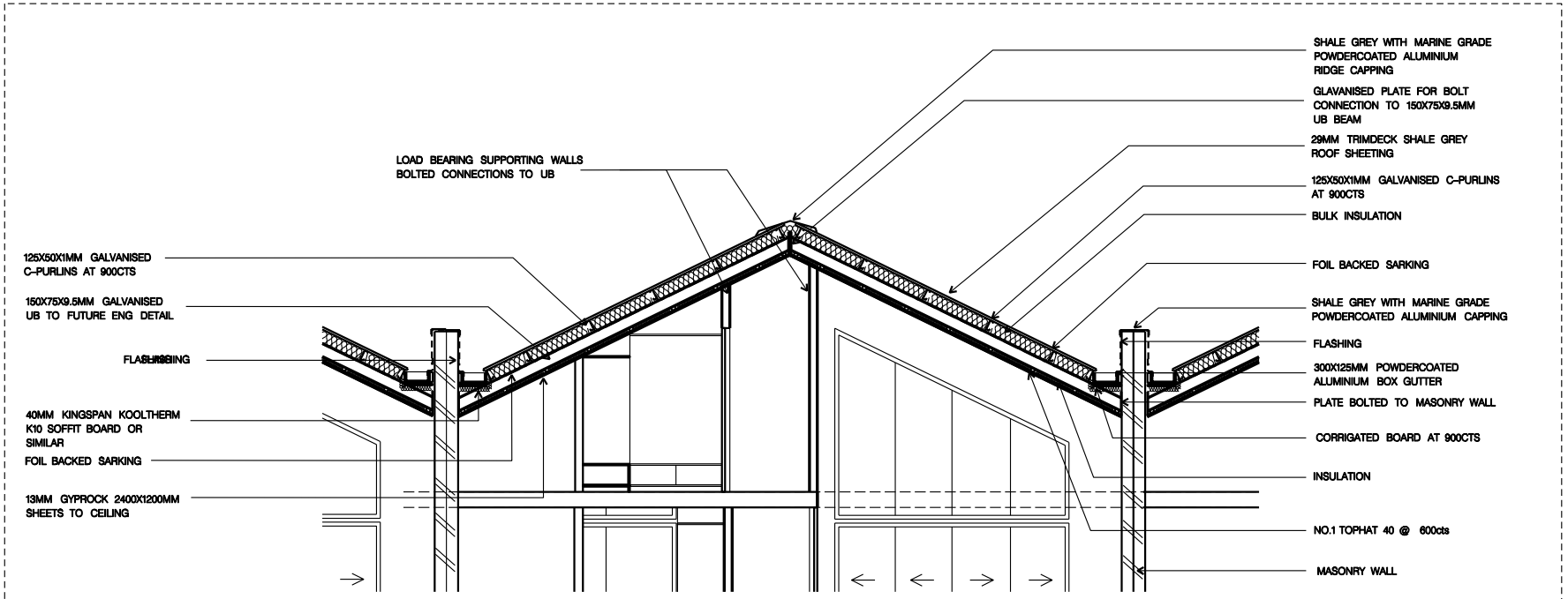
CL25.413 - Attachment 1



CL25.413 - Attachment 1



CL25.413 - Attachment 1



ROOF DETAIL
Scale 1:50

0 1 2 3 4 5 6 7 8 9 10

AMENDMENTS				
Issue	Date	Description	Ms	Ash
A	02.09.25	POST s34 CONTENTIONS MEETING	LZ	
		ADDITIONAL 1:50 ROOF DETAIL		

Notes
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Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540
LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

Drawing
ADDITIONAL 1:50 ROOF DETAIL

N

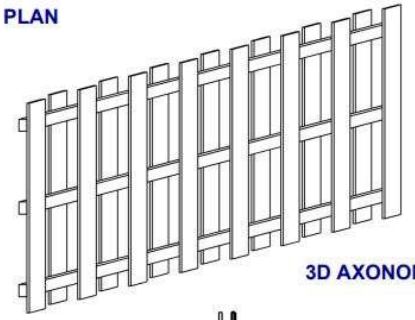
Date AUGUST 2025
Scale 1:50
Size A3
Job No 2024_01
Drawn LZ
Dwg No DA 3.01
Issue A

CL25.413 - Attachment 1

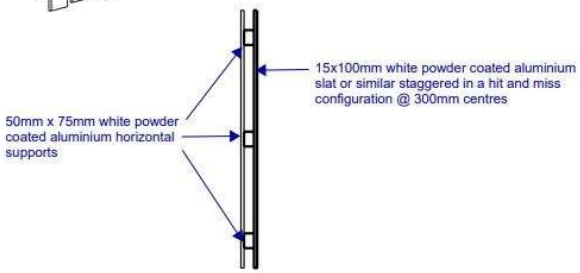
MATERIALS AND FINISHES

Response to List of Contentions - Item 8a
Date: 10.05.25

PLAN



3D AXONOMETRIC

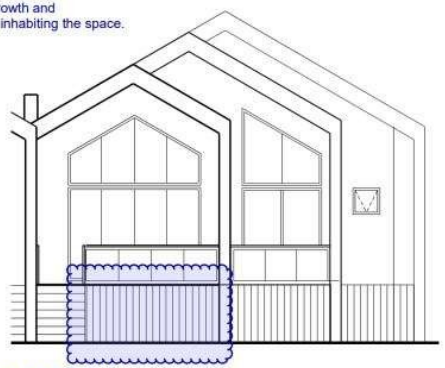


SECTION

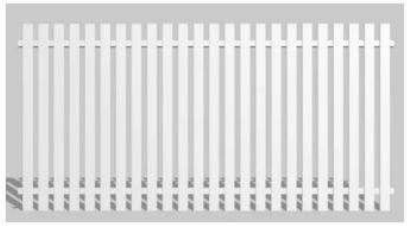
Note

The proposed screening / infill panels to the sub-floor area is a hit-and-miss staggered vertical screen, with alternating open and solid panels. The intended purpose of the design is to allow water to pass through freely significantly reducing hydrodynamic loads. The design has considered
- Prevent water pressure build-up under the sub-floor
- Minimise scouring of the soil or piles supporting the structure by allowing unimpeded water flow.
- Act similarly to breakaway walls, but in a controlled and non-structural manner.

As the proposed dwellings are elevated structures, constructed on piers, The screens also provide adequate ventilation and security to prevent:
- Moisture build-up
- Mold and mildew growth and
- Native wildlife from inhabiting the space.



ELEVATION



REFERENCE IMAGE

9. SUSPENDED INFILL PANEL DETAIL
FINISH AND DETAIL PROVDED ABOVE

SHALE GREY™

10. GREY TRIMS TO MATCH
LYSAGHT 'SHALE GREY'
STEEL GRADE (ULTRA STEEL)

11. WHITE POWDERCOATED
SLIDING DOORS
MARINE GRADE POWDERCOATING

12. CLEAR GLASS BALLUSTRADES
TOUGHENED FOR IMPACT RESISTANCE

0 1 2 3 4 5 6 7 8 9 10

AMENDMENTS				
Issue	Date	Description	Ms	Ash
A	15.08.25	DETAILS FOR ITEMS 9-12 (CONTENTION 8a)		LZ
B	30.08.25	POST S34 CONTENTIONS MEETING		LZ
		ADDITIONAL INFORMATION		

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Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540
LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

Drawing
EXTERNAL FINISHES & MATERIALS SCHEDULE

Date AUGUST 2025
Scale NTS
Size A3
Job No 2024_01
Dawn LZ
Dwg No DA 7.01
Issue B

CL25.413 - Attachment 1

WEST ELEVATION
Scale 1:100

EAST ELEVATION
Scale 1:100

0 1 2 3 4 5 6 7 8 9 10

AMENDMENTS				
Issue	Date	Description	Init.	Auth
P1			LZ	

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Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540

LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

Drawing
EXTERNAL FINISHES & MATERIALS SCHEDULE

N

Date JUNE 2024
Scale 1:100
Size A3
Job No 2024_01
Drawn LZ
Dwg No DA 7.00
Issue P1

CL25.413 - Attachment 1

Address all correspondence to: The Chief Executive Officer,
PO Box 42, Nowra NSW 2541 Australia
shoalhaven.nsw.gov.au/contact | 1300 293 111
shoalhaven.nsw.gov.au

NOTICE OF DETERMINATION OF A DEVELOPMENT APPLICATION

Application number	DA2024/1589
Applicant	L Zreik
Description of development	Three new multi-dwelling housing units in addition to the approved dwelling under DA23/1694.
Property	737 Woollamia Road WOOLLAMIA Lot 12 DP 9289
Determination	Refusal
Date of determination	[#Consent Start Date#]

Under section 4.18(1) of the EP&A Act, notice is given that the above development application has been determined by way of refusal.

Right of appeal / review of determination

If you are dissatisfied with this determination:

Request a review

You may request a review of the consent authority's decision under section 8.3(1) of the EP&A Act. The application must be made to the consent authority within 6 months from the date that you received the original determination notice provided that an appeal under section 8.7 of the EP&A Act has not been disposed of by the Court.

Rights to appeal

You have a right under section 8.7 of the EP&A Act to appeal to the Court within 6 months after the date on which the determination appealed against is notified or registered on the NSW planning portal.

Dictionary

The Dictionary at the end of this consent defines words and expressions for the purposes of this consent.

Person on behalf of the consent authority

[#Contact Name#]

[#Contact Position#]

Reasons for Refusal	
1)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 5.21 of the Shoalhaven LEP 2014 and are inconsistent with the clause objectives.
2)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 5.22 of the Shoalhaven LEP 2014 and inconsistent with the clause objectives.
3)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 7.1 of the Shoalhaven LEP 2014 and inconsistent with the clause objectives.
4)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 7.20 of the Shoalhaven LEP 2014 and inconsistent with the clause objectives.
5)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the development controls set out in Chapter G5: Biodiversity Impact Assessment, Chapter G9: Development on Flood Prone Land and Chapter G26: Acid Sulphate Soils and Geotechnical (Site Stability) Guidelines of Shoalhaven DCP 2014 and is inconsistent with the acceptable solutions.
6)	Pursuant to Section 4.15(1)(c) of the Environmental Planning and Assessment Act 1979, the proposed development may have an adverse likely social and economic impact as a result of flooding impacts.
7)	Pursuant to Section 4.15(1)(c) of the Environmental Planning and Assessment Act 1979, the information submitted with the development application does not satisfactorily demonstrate that the site is suitable for the proposed use.
8)	Pursuant to Section 4.15(1)(e) of the Environmental Planning and Assessment Act 1979, having regard to the above matters to address the relevant provisions of Environmental Planning and Assessment Act, 1979, the granting of development consent is not considered to be in the public interest.

General advisory notes

This consent contains the conditions imposed by the consent authority which are to be complied with when carrying out the approved development. However, this consent is not an exhaustive list of all obligations which may relate to the carrying out of the development under the EP&A Act, EP&A Regulation, and other legislation. Some of these additional obligations are set out in the Conditions of development consent: advisory notes. The consent should be read together with the Conditions of development consent: advisory notes to ensure the development is carried out lawfully.

The approved development must be carried out in accordance with the conditions of this consent. It is an offence under the EP&A Act to carry out development that is not in accordance with this consent.

Building work or subdivision work must not be carried out until a Construction Certificate or Subdivision Works Certificate, respectively, has been issued and a principal certifier has been appointed.

A document referred to in this consent is taken to be a reference to the version of that document which applies at the date the consent is issued, unless otherwise stated in the conditions of this consent.

Dictionary

The following terms have the following meanings for the purpose of this consent (except where the context clearly indicates otherwise):

Approved plans and documents means the plans and documents endorsed by the consent authority, a copy of which is included in this notice of determination.

AS means Australian Standard published by Standards Australia International Limited and means the current standard which applies at the time the consent is issued.

Building work means any physical activity involved in the erection of a building.

Certifier means a council or a person that is registered to carry out certification work under the Building and Development Certifiers Act 2018.

Construction Certificate means a certificate to the effect that building work completed in accordance with specified plans and specifications or standards will comply with the requirements of the EP&A Regulation and Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021.

Council means Shoalhaven City Council.

Court means the NSW Land and Environment Court.

EPA means the NSW Environment Protection Authority.

EP&A Act means the Environmental Planning and Assessment Act 1979.

EP&A Regulation means the Environmental Planning and Assessment Regulation 2021.

Independent Planning Commission means Independent Planning Commission of New South Wales constituted by section 2.7 of the EP&A Act.

Occupation Certificate means a certificate that authorises the occupation and use of a new building or a change of building use for an existing building in accordance with this consent.

Principal certifier means the certifier appointed as the principal certifier for building work or subdivision work under section 6.6(1) or 6.12(1) of the EP&A Act respectively.

Site work means any work that is physically carried out on the land to which the development the subject of this development consent is to be carried out, including but not limited to building work, subdivision work, demolition work, clearing of vegetation or remediation work.

Stormwater drainage system means all works and facilities relating to:

- the collection of stormwater
- the reuse of stormwater
- the detention of stormwater
- the controlled release of stormwater, and
- connections to easements and public stormwater systems.

Strata Certificate means a certificate in the approved form issued under Part 4 of the Strata Schemes Development Act 2015 that authorises the registration of a strata plan, strata plan of subdivision or notice of conversion.

Shoalhaven City Council	**Section 4.15 Assessment Report** *Environmental Planning & Assessment Act 1979*

Conflict of interest declaration

I have considered the potential for a conflict of interest under the Code of Conduct and to the best of my knowledge no pecuniary and/or significant non-pecuniary conflict of interest exists.

Note: If you determine that a non-pecuniary conflict of interest is less than significant and does not require further action, you must provide a written explanation of why you consider that the conflict does not require further action in the circumstances. This statement should then be countersigned by the Manager.

Assessing Officer	[redacted]	**6/11/2025**
Peer Review Officer	[redacted]	**13/11/2025**
Affiliations and Pecuniary Interests	Have any affiliations or pecuniary interests been identified by the Applicant in the Portal lodgement form? *Note: Where a pecuniary interest is identified ensure appropriate actions are taken (e.g. blocking access to TRIM folder for affected staff)* *Note: For applications lodged by Council staff, Councillors and Council refer to POL22/149. A conflict of interest management statement may be required.*	**No**
Councillor Representations	D25/408701 - Report - Notice of Motion - Call in DA2024/1589 - 737 Woollamia Road, Woollamia - Lot 12 DP 9289 - Ordinary Meeting 23 September 2025 D25/10294 - Clr Request - Clr Lou Casmiri - Assistance Request - Flood Planning Requirements - 737 Woollamia Rd Woollamia - DA 24/1589 - Representation for Liliana Zreik - CLR25-00009 D25/429476 - MAYORAL - Clr Jason Cox Response Thread - Information for Consideration - Council Meeting Item Deemed for Refusal - Lot 12 DP 9289 - 737 Woollamia Road Woollamia - Three (3) Additional Dwellings - Nader & Liliana Zreik D25/456632 - MAYORAL - Update for Information - Shoalhaven City Council ats Zreik - Resumption of Joint Expert Reports – Week Commencing 20 October 2025 - Nader Zreik D25/473784 - MAYORAL - Discussion Request - Shoalhaven City Council v Zreik - Resumption of Joint Expert Reports – Week Commencing 20 October 2025 - Lot 12 DP 9289 - 737 Woollamia Road Woollamia - Chance Hanlon	
Delegation Level Required	**Manager**	

Report Recommendation	**Refusal**
Development Description	Construction of Three (3) Multi-Dwelling housing units in addition to the approved dwelling under DA23/1694 as modified by MA2024/1346

Section 4.15 Assessment Report - DA2024/1589

DA Number	DA2024/1589
PAN	PAN-451216
Property Address	737 Woollamia Road WOOLLAMIA NSW 2540 - Lot 12 DP 9289
Applicant(s)	L Zreik
Owner(s)	Liliana Zreik & Nader Zreik
Owner's consent provided?	Yes
Date Lodged	30 July 2024
Date of site inspection	29/08/2025
Related Application in NSW Planning Portal?	☒ Concurrence and/or external agency referral ☐ Section 68 ☐ Section 138 ☐ Construction Certificate *Note: s138 and CC applications will not be incorporated into the Development Consent and will be determined separately.*
Number of submissions	Five (5) *Note: where submissions are received Council must give notice of the determination decision to all submitters.*

1. Detailed Proposal

The proposal includes:

- Construction of 3 multi-dwelling housing units in addition to the approved dwelling under **DA23/1694** as modified by **MA2024/1346**
- Associated driveways and landscaping.
- Tree removal.
- Further modification to **DA23/1694** to increase the side setback of the approved dwelling to the southern boundary to improve the view corridor to the foreshore area.

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Figure 1: Site Plan – note red clouded dwelling approved under DA23/1694 yet to be constructed

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Figure 2: Elevation Plans

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Figure 3 - section plans

Figure 4 - revised landscape plan

2. Subject Site and Surrounds

Site Description

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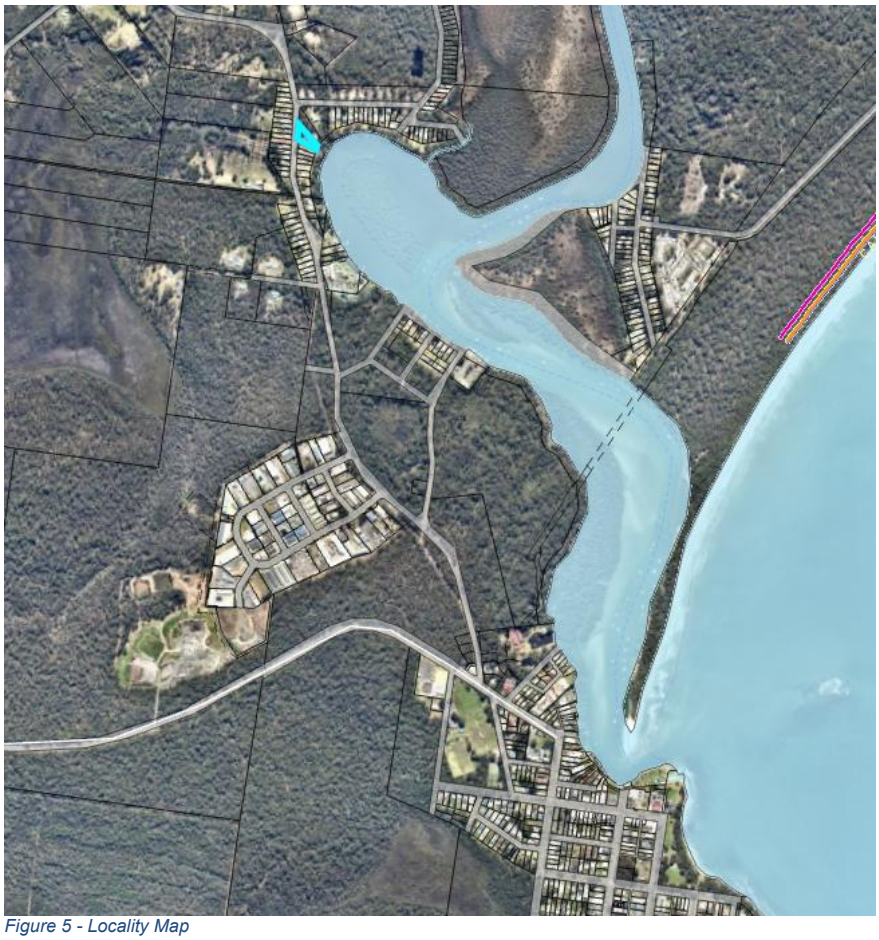

Figure 5 - Locality Map

Figure 6: Aerial imagery of subject site (blue polygon) and adjoining crown land (yellow polygons)

The site is located on the eastern side Woollamia Rd and extends towards the banks of Currambene Creek. The site occupies an area of 1991.81m^2, is relatively flat with a slight fall from south to north. The highest portion of the site at RL 2.17 is located part along the southern boundary. The lowest point of the site at RL 1.16 and located near the northeastern corner. A tributary of Currambene Creek flows through 1 Edendale Street, 2 lots north of the subject site.

A weatherboard cottage and metal garage currently occupy the eastern portion of the site and are approved to be replaced under **DA24/1694** by a new dwelling with a greater building footprint.

The site is flood prone, with the property mapped within a High Hazard Flood Storage hazard/hydraulic category.

The subject site is adjoined by Crown land to the south and east and low density residential development.

Summary of Site and Constraints

GIS Map Layer		
	Lot Area	1991.81m²
	Zone	RU5 Village
	Does the land have a dwelling entitlement? *Note: for rural land refer to clause 4.2D of Shoalhaven LEP 2014.*	Yes

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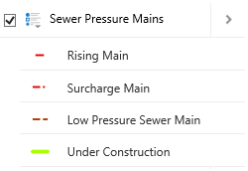
	Does the property adjoin Council, Crown, National Parks or other public reserve? *Note: Consideration should be given to if the development requires or implies access from the adjoining land.*	Yes - Potential impact to Crown land. Referral to Crown Lands required.
	Fall direction of land	Fall of land away from street
	Slope of land >20%?	No
Site Inspection	*Works within proximity to electricity infrastructure?*	No
	Is the development adjacent to a classified road?	No
	Is the development adjacent to a rail corridor?	No
Utility Network	*Access to reticulated sewer?*	Yes
	On-site sewage management (OSSM) - Is the development located suitably away from any effluent management areas (EMA) or effluent disposal areas (EDA)? *Note: Ensure you have adequate information about the location of existing OSSM systems*	N/A
	Does the proposal require a new connection to a pressure sewer main (i.e. a new dwelling connection)? 	Yes - Referral to Shoalhaven Water required.
	Building over sewer policy applicable? *Note: Zones of influence can differ based on soil type (e.g., sandy soils vs clay soils). If unsure discuss with Shoalhaven Water.*	No
	Access to reticulated water?	Yes
	Do effluent management areas (EMA) or effluent disposal areas (EDA) adopt suitable buffers to water mains and other potable drinking water infrastructure. *Note: EMA/EDAs should be located at least 20m away from a downstream water main and at least 10m from an upstream water main.*	No
	Does the proposal impact on any critical water or sewer infrastructure (e.g. REMS, water, sewer layers)?	No
	Does the proposal increase dwelling density and demand on water or sewer services (e.g.	Yes - Referral to Shoalhaven Water required.

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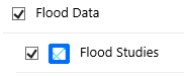
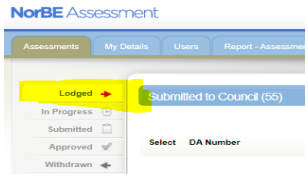
	secondary dwelling, dual occupancy, multi dwelling housing, subdivision)?	
Environmental Layers	*Aboriginal Cultural Heritage*	No
	Bush Fire	Yes
	Coastal Hazard Lines (applies to location of proposed development)	No
	Coastal Hazard Area	No
	Potentially Contaminated Land	No
	Flood *Note: There are several catchments that have not have flood studies conducted. Sites outside of the flood study area may still be subject to flooding. Refer to advisory note on p.3 of Chapter G9 of Shoalhaven DCP 2014.* 	Below Flood Planning Area (2050) - Referral to Natural Rescource & Floodplain Section required
	Development within 40m of a watercourse	No
Planning Layers	*Development Control Plan - Area Specific Chapters*	No
	Draft Exhibited Planning Proposal	No
	Shoalhaven LEP (Jerberra Estate) 2014	No
	Acid Sulfate Soils	Class 3
	Buffers	No
	Terrestrial Biodiversity	No
	Local Clauses	Yes • Clause 7.20 – Development in the Jervis Bay region
	Coastal Risk Planning	Yes
	Heritage	No
	Scenic Protection	No
	Sydney Drinking Water Catchment area (e.g. NorBE) *Note: NorBE Assessments submitted to Council can be viewed from the "Lodged" tab in the NorBE online assessment tool shown below.* 	No

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	SEPP (Resilience and Hazards) 2021 – Chapter 2 Coastal Management	Yes • Proximity Area for Coastal Wetlands • Coastal Environment area • Coastal use area
	Marine Park Estate	Yes - The development site is in the locality (100m buffer) of a markine park or an aquatic reserve • Jervis Bay Marine Park
BV Map	*Biodiversity Values Map*	No

Site Inspection Observations

Figure 7 - Google Maps Street view image of subject property and crown land (right)

Figure 8 - Panorama of front of site facing Woollamia Road

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Figure 9 - view of crown land (south) shot from Woollamia Road

Figure 10 - view of development site shot from edge of Currambene Creek

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Figure 11 - view of Currambene Creek shot from rear of development lot across crown reserve

Figure 12 - part view of south side of site shot from crown reserve

Figure 13 - part view of existing fibro and metal clad dwelling on development lot to be demolished

Figure 14 part view of existing fibro and metal clad dwelling to be demolished shot from crown reserve

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Figure 15 - panorama of rear portion of development lot shot from crown reserve and shows crown foreshore reserve (right)

Deposited Plan and 88B Instrument

There are no identified restrictions on the use of the land that would limit or prohibit the proposed development.

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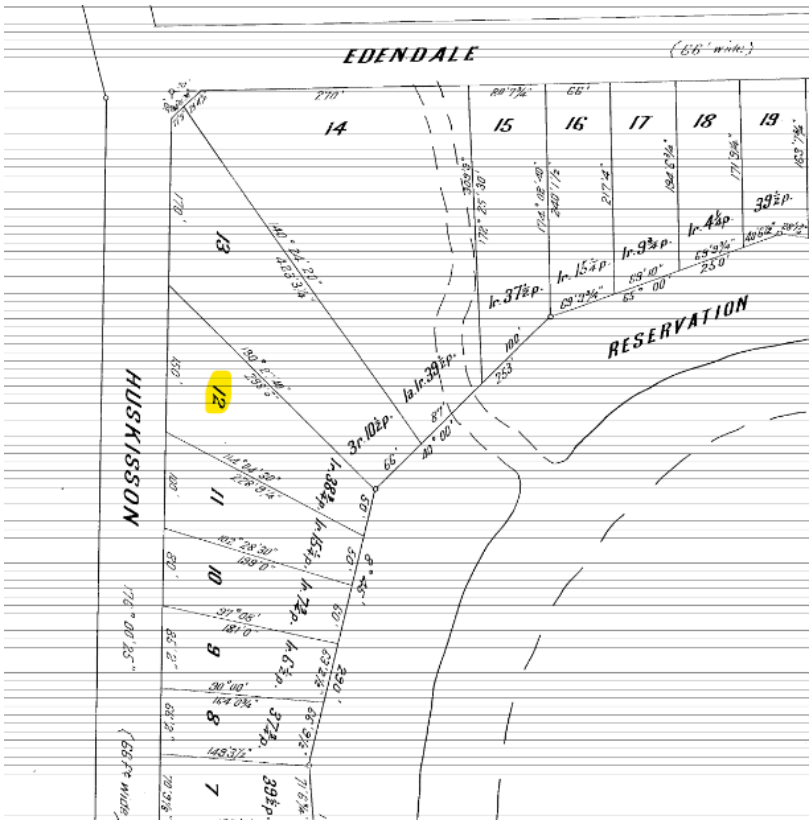

3. Background

Development application - DA2023/1694

On 5 September 2023 **DA2023/1694** was lodged for a replacement single storey dwelling with two lot Torrens title subdivision of the land. As part of the assessment of the development application, Council's Flood Engineer identified that the replacement dwelling house could be supported, but the intensification of the land by way of subdivision did need meet the relevant requirements outlined in Clause 5.2.1 of Shoalhaven LEP 2014 and Chapter G9 of Shoalhaven Development Control Plan 2014.

An extract of the floodplain engineers first referral comments completed on 25 September 2023 is copied below:

> *It is noted that the development of a single residential dwelling on the lot may be supported by Council, granted the proposed development can demonstrate compliance with all relevant objectives, performance criteria and/or acceptable solution of the Shoalhaven DCP Chapter G9 and the flood planning requirements of Clause 5.21 of the LEP.*
>
> *However, the application for a subdivision of land is unlikely to be supported as it currently does not comply with DCP Chapter G9 and Clause 5.21 of the LEP. Furthermore, Council requires that all new roads and lots for a subdivision is established at the 2100 scenario 1% AEP flood level. To achieve this, filling of the land would be required. This in turn would*

need to demonstrate no adverse impacts on neighbouring land and property through flood modelling. Council's Engineering Design Specifications does not allow for any afflux in urban areas as a result of development, generally being +/- 10mm.

In addition, Council requires reliable emergency access during a 2100 scenario 1% AEP flood event for new subdivisions. As such, the applicant needs to demonstrate that reliable emergency vehicle and pedestrian access for ambulance, SES, fire brigade, police and other emergency services can be achieved, and that the development will not increase the risk to life or safety of persons during a flood event on the development site and adjoining land.

Considering the high hazard nature of the flood risk on the site, it is undesirable to intensify the use of the land as this does not comply with the requirements of Clause 5.21 of the LEP and DCP Chapter G9 as discussed above.

Following a detailed assessment of amended plans and documentation provided by the applicant (that deleted the two lot Torrens title subdivision from the proposed development), the development application was approved on 6 December 2023 for demolition of existing dwelling and construction of a single storey replacement dwelling only.

Pre-Lodgement Information – 74386E/39

On 8 May 2024 pre-lodgement advice was provided for concept plans showing the construction of three (3) attached multi-dwellings in addition to the approved detached dwelling (issued under DA23/1694 and MA2024/1346) to form a multi-dwelling housing development.

During the assessment of the pre-lodgement application, a referral was sent to Council's Floodplain Section. The flood engineers advised the intensification of the high hazard flood risk site by incorporating multi dwelling development was not desirable as the development did not comply with the requirements of Clause 5.21 of the LEP and DCP Chapter G9. The floodplain engineer internal referral comments for the pre-lodgement advice are copied below:

The following documents have been reviewed as part of this referral: Plan – Ground Floor (D24/24127) and Report – DCP G13 Compliance Table (D24/24118).

The 737 Woollamia Rd, WOOLLAMIA - Lot 12 DP 9289 property comprise flood prone land, with the property mapped within a High Hazard Flood Storage hazard/hydraulic category. The projected 2050 Flood Planning Level (FPL) for the site is 2.8m AHD as detailed on the Flood Certificate provided for a previous development application for this property under DA23/1694 (D23/360139).

The proposed development is for three (3) new single storey attached dwellings in addition to an already approved single storey residential dwelling (DA23/1694).

Council has previously advised (referral D23/373582) that an intensification of the use of the land, beyond the approved single storey residential dwelling, is unlikely to be supported by Council as this is unlikely to be able to comply with Clause 5.21 of the Shoalhaven Local Environmental Plan (SLEP) 2014 and DCP Chapter G9. The reasoning for this position is provided below.

All new proposed developments in the Shoalhaven needs to demonstrate compliance against Clause 5.21 of Shoalhaven LEP. Clause 5.21 (2)(a) – (d) states that: Development consent

must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—

a) is compatible with the flood function and behaviour on the land, and
b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and
c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and
d) incorporates appropriate measures to manage risk to life in the event of a flood.

Further, the proposed development will specifically be required to demonstrate compliance with a part of Performance Criteria P1 of Section 5.1 of DCP Chapter G9 which states that:

- *The development will not unduly increase dependency on emergency services.*

According to the Currambene and Moona Moona Creeks Floodplain Risk Management Study and Plan (2016), access from the property during a 2050 1% AEP flood event would require traversing floodwater of a depth of 0.6 – 1.0m. This correlates to a Hazard Vulnerability Classification of H3 and is deemed to be unsuitable for vehicles, children and the elderly.

This means that it is not possible for this property to currently provide flood-free (and/or reliable) emergency vehicle and pedestrian access for ambulance, SES, fire brigade, police and other emergency services, as required.

Furthermore, the Bureau of Meteorology does not provide a Flood Warning Service for this catchment, making timely evacuation challenging without relying on assistance from emergency services. Given the short catchment response time (approximately 4-10 hours), it is possible that access to the property could be inundated (cut) prior to the issue of an evacuation order from the SES. Such a scenario would result in residents on the site being trapped on site, which represents a risk to life and is an unacceptable outcome of a new development.

An application for the proposed development would need to demonstrate that reliable emergency vehicle and pedestrian access for ambulance, SES, fire brigade, police and other emergency services can be achieved, and that the development will not increase the risk to life or safety of persons during a flood event on the development site and adjoining land. It is Council's opinion that it will be very challenging for the applicant to demonstrate compliance with these SLEP and DCP requirements for the proposed development.

Considering the high hazard nature of the flood risk on the site, it is, as previously advised, undesirable to intensify the use of the land as this does not comply with the requirements of Clause 5.21 of the LEP and DCP Chapter G9 as discussed above.

Should an application for the proposed development be submitted to Council, it would be required to be accompanied with a merit-based assessment, and other relevant documentation as needed, demonstrating how the proposed development will comply with all relevant objectives, performance criteria and/or acceptable solution of the Shoalhaven DCP Chapter G9 and the flood planning requirements of Clause 5.21 of the Shoalhaven LEP 2014. Council's requirements for a merit-based assessment are described under Section 3.1 Flood Compliance Report in the Supporting Document 1 of DCP Chapter G9. The merit-based assessment should be undertaken by a suitably qualified hydraulic engineer recognised under the National Engineers Register (NER).

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Post-Lodgement Information

Reference number	Milestone	Date
1	Application submitted	10/07/2024
2	Additional Information was requested	23/07/2024
3	Additional Information was provided	28/07/2024
4	Additional Information was requested	29/07/2024
5	Additional Information was provided	29/07/2024
6	Application lodged	30/07/2024
7	Additional Information was requested	21/08/2024
8	Concurrence and Referral requested	22/08/2024
9	Additional Information was provided	26/08/2024
10	Additional Information was requested	10/09/2024
11	Additional Information was provided	13/09/2024
12	Additional Information was requested	29/10/2024
13	Additional Information was provided	11/11/2024
14	Additional Information was requested	11/11/2024
15	Additional Information was provided	21/11/2024

Figure 16: Extract from NSW Planning Portal from the analytics tabs showing the history of the application (taken on 13 March 2025)

In addition to the records contained within the NSW Planning Portal, the following actions are also noted:

Reference Number	Brief description of action	Date

1	MS Teams meeting with the following attendees to discuss issues with the development application: • Emily May (Development Planner), Alexander Aronsson (Floodplain and Stormwater Quality Engineer) • Nader & Lillianna Zrreik (Land owners and Applicants) • Lee Carmichael (Applicant Planner) • Anthony Barthelmess (Applicant Flood Engineer)	29 October 2024
2	The applicant requested an extension of time to respond to the additional information request dated 29 October 2024	8 November 2024
3	The development planner advised the applicant that an extension of an additional 14 days to submit amended material was granted. This meant the response from the Applicant was required by 26 November 2024.	11 November 2024
4	The Applicant requested a meeting following the third internal referral from Council's floodplain section.	6 January 2025
5	Meeting with the following attendees in person in Shoalhaven Council Administration Building, Nowra: • Peter Johnston (Acting Manager – Development Services), Emily May (Development Planner), Alexander Aronsson (Floodplain and Stormwater Quality Engineer) • Nader & Lillianna Zrreik (Landowner and Applicant) The following attendees via MS Teams: • Lee Carmichael (Applicant Planner) & Anthony Barthelmess (Applicant Flood Engineer)	21 January 2025
6	Applicant lodged a Class 1 appeal against Council's deemed refusal.	12 March 2025
7	Section s34 Conciliation Conference was held on site at 737 Woollamia Road Woollamia.	29 August 2025
8	Council resolved to call in development application DA2024/1589 for determination citing public interest and any further additional information the applicant provides to Council staff prior to the mater being reported back to Council be taken into consideration (MIN25.372).	23 September 2023
9	Submission of amended material in NSW Planning Portal.	7 October 2025

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10	Meeting with the following attendees via MS Teams to discuss outstanding issues with application: • Bruce Gibbs (Manager – Development Services), Peter Johnston (Lead – Development Services), Emily May (Development Planner) • Nader & Lillianna Zrreik (Landowner and Applicant) • Lee Carmichael (Applicant Planner)	12 November 2025
11	Revised section and landscape plans received as a response to MS Teams meeting between assessment staff and applicants to review outstanding issues	13 November 2025

Site History and Previous Approvals

One Council Applications

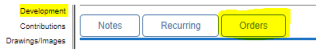
Trim	Application	Date Lodged	Portal No	Application Type	Proposal	Decision	Status	Determined
	MA2024/1346	04/10/2024	PAN-473227	S4.55(1A) - Minimal environmental impact	S4.55(1A) to DA23/1694 - Proposed amendment to approved driveway & garage	Approved	Past	07/11/2024
	DA2024/1589	30/07/2024	PAN-451216	Residential - New multi unit	Construction of three new dwellings in addition to the existing approved dwelling house to create four multi dwelling housing units	AwaitInfo	Current	

Darts - since 1st July 2005

Application	Appl. Date	Application Type	Proposal	Status	Completed	
DA23/1694	05/09/2023	Development Application	Demolition of Existing Dwelling & Construction of Single Storey Dwelling	Approved	06/12/2023	Show Properties

Plain Sailing - since 2nd September 1996

Application	Appl. Date	Proposal	Status	Status Date
DR99-7642	25/06/1999	Septic Tank Application	Approved (P)	19/07/1999

Are there any orders applying to the property? *Note: Orders are viewable under the Development – Orders tab in the property details.* 	No
Does the proposal appear to include/relate to any unauthorised building work? *Note: A DA can only approve prospective works and uses. Any unauthorised or retrospective works must be dealt with under a separate Building Information Certificate process.*	No

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4. Consultation and Referrals

Internal Referrals	
Referral	**Comments**
4.a. Building Surveyor	**Further information required** – see detailed referral comments in section 4.a below.
4.b. Shoalhaven Water	No objection subject to recommended conditions.
4.c. Development Engineer	**Further information required**– see detailed referral comments in section 4.c below.
4.d. Floodplain Management	**Objection** - see detailed referral comments in section 4.d below.
4.e. GIS	No objection subject to recommended conditions.
4.f. Biodiversity	**Further Information required** – see detailed referral comments in section 4.f below.
4.g. Environmental Health	**Objection** – see detailed referral comments in section 4.g below

4.a Internal Referral – Building Surveyor

Overall Comments:

I have considered the proposal to construct three dwellings to create a property with 4 dwellings in total (multi-dwelling housing) and the following comments are offered for consideration.

BCA (National Construction Code (NCC)) - The proposed dwellings will be Class 1a and 10a under the BCA. Detailed plans demonstrating compliance with the BCA will need to be submitted with a CC for assessment. A preliminary review of the plans has identified the following potential issues:

- *Ceiling of Bedroom 2 on the ground floor – Section A-A of the proposal (D25/443435 - snip below) shows the Ground finished floor level (FFL) of Bed 2 for Dwellings 2 and 3 to be RL 2.80 and the ceiling level of the laundry to be RL 5.10. This is a ceiling height of 2.3 metres which is acceptable for a laundry. However, the Section does appear to show that the laundry and Bed 2 will have the same ceiling height. The minimum ceiling height required in Bed 2 for compliance with the BCA is 2.4 metres. This could be addressed at CC stage by increasing the height of the building, but the proposal appears to be at, or close to, the maximum allowable building height under the planning instruments for these dwellings.*

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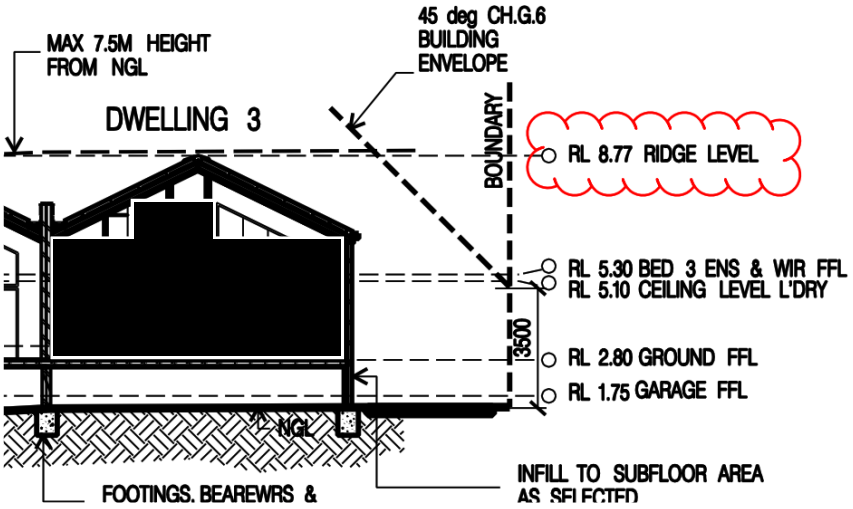
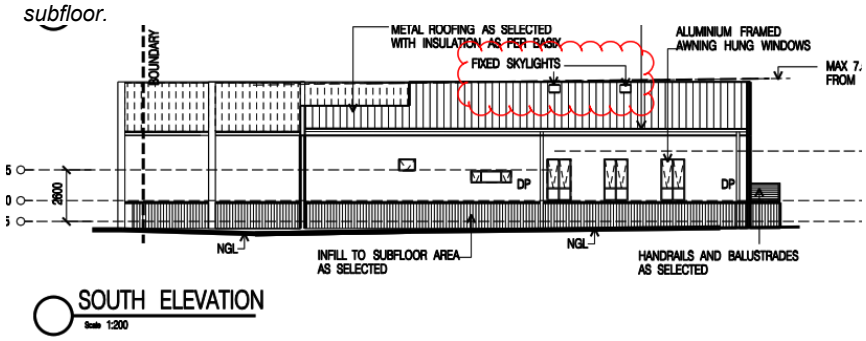


~~*A section through Bed 2 of Dwelling 1 has not been provided*~~. *(Resolved)*

- *Potential subdivision – The Statement of Environmental Effects does not identify a strata or Torrens title subdivision as part of the current proposal. However, it appears from the plans that the applicant is considering a subdivision in the future (e.g. showing a dashed 'boundary' line centrally through the separating walls of the dwellings).*
  From the sections and the southern elevation, it appears that the separating wall between dwellings (i.e., where attached) will be masonry construction, and the extension of the wall towards the front boundary, for example, will be framed construction and clad, with open subfloor.



South elevation – showing external walls of Bed 1 in Dwellings 1 and 2 with open subfloor
Any future subdivision, as suggested on the plans, will create external walls less than 900 mm to a boundary. These walls will need to achieve a minimum Fire Resistance Level (FRL) of 60/60/60 and will need to commence at the footings. For a scenario like the implied subdivision, upgrading work to the walls will be required to comply with the BCA. This would require the elimination of the open subfloor which is likely to impact upon any flood requirements.

The windows in the Kitchen and Bathroom on the ground floor of Dwellings 1 and 2, and on all windows in the south-western elevation of Dwelling 3 would also be impacted. The BCA would require all these windows to be non-openable fire windows or other construction with a FRL of not less than -/60/-. This is likely to require window replacement and may impact upon light/ ventilation and BASIX requirements.

Livable Housing – As multi-dwelling housing, the Statement of Environmental Effects (SEE) indicates that at least 1 dwelling must comply with Silver Level requirements in the Livable Housing Design Guidelines (LHDG). The SEE indicates that all dwellings can comply.

The application has been supported by a Livable Housing Report (D25/443436) that appears to have been prepared by the owners. The Report indicates that all 3 proposed dwellings can comply with the LHDG. It also indicates that the dwelling approved under DA23/1694, which would be subject to a future modification under s4.55, will be livable and adaptable under AS4299. This will need to be considered in detail during that s4.55 application as insufficient detail, such as a post-adaptable floor plan, has accompanied the current DA. My review has focussed on the three proposed dwellings that are before Council. The following concerns are raised:

- *Design Element 1 - Dwelling access – A safe, continuous step-free pathway from the front boundary to an entry door to the dwelling. The proposed pathway has steps to the entry doorway. The Report proposes that the space for a platform lift is available and therefore complies with this requirement. The following concerns are raised with the proposed solution:*
  a) *The LHDG does not consider a platform lift as an option to satisfy this requirement. The report appears to be applying some principles from other documents that may not apply to parts of LHDG. These includes the provision for post-adaptation to provide access, but the LHDG does not, in my opinion, consider that approach with all its requirements, such as this one. The LHDG clearly states that a step-free pathway to an entry door does not apply where the slope of the ground would not accommodate a compliant ramp. (Please see snip below)*

  Silver Level

  a. Provide a safe, continuous step-free pathway from the front boundary of the property to an entry door to the dwelling.
  This provision does not apply where the average slope of the ground where the path would feature is steeper than 1:14.

  Where ground levels would not permit a compliant ramp and possibly require the installation of a lift or similar, the requirement is not applicable. In my opinion, the LHDG requires the inclusion of a step-free pathway, at the time of the dwelling construction, to at least one livable dwelling in the proposal as the ground levels are less than 1:14 (slope).

  b) *Even if a platform lift was considered an appropriate solution to provide access, I cannot see a potential location near the front entry in Dwellings 1- 3 that allow its installation whilst retaining the stairs and vehicular access to the garages.*

  It does not appear that access complying with LHDG could be provided to any of the proposed dwellings because of the need to be constructed above the flood level.

- *Design Element 4 - Toilet – The Report indicates that the bathroom near Bed 1 in Dwellings 1-3 will comply because they have the clearances required by LHDG and are located within*

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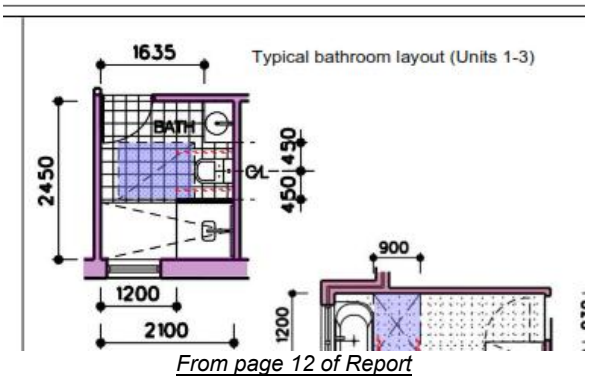
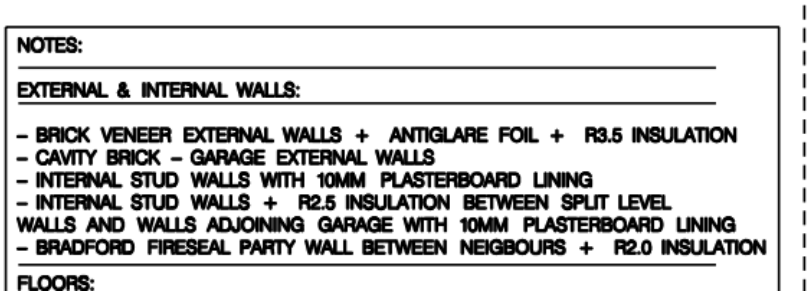
masonry walls. The plans and the detail in the report (reproduced below) appear to show the internal walls as framed construction, not masonry.



From page 12 of Report


NOTES:

EXTERNAL & INTERNAL WALLS:

– BRICK VENEER EXTERNAL WALLS + ANTIGLARE FOIL + R3.5 INSULATION
– CAVITY BRICK – GARAGE EXTERNAL WALLS
– INTERNAL STUD WALLS WITH 10MM PLASTERBOARD LINING
– INTERNAL STUD WALLS + R2.5 INSULATION BETWEEN SPLIT LEVEL WALLS AND WALLS ADJOINING GARAGE WITH 10MM PLASTERBOARD LINING
– BRADFORD FIRESEAL PARTY WALL BETWEEN NEIGBOURS + R2.0 INSULATION

FLOORS:

Typical Notes on Plans – framed internal walls proposed.

The Report has not addressed the requirement in LHDG that "the toilet pan should be located in the corner of the room (if the toilet is located in a combined toilet/ bathroom) to enable installation of grab rails at a future date". The layout of the bathroom in the livable dwelling would need to be amended prior to the construction to ensure grab rail installation was the only post-construction measure required.

The plans accompanying the CC application will need to demonstrate compliance with all the LHDG requirements. ***Overall, the property may be unsuitable for a multi-dwelling development as the flood-prone constraint appears to prevent the construction of a livable dwelling complying with LHDG****.*

Additional Information Required:
It is recommended that the applicant is requested to submit plans and documentation that address the following:

1. Detailed and dimensioned sections through proposed Dwellings 1 – 3 that clearly demonstrate that all habitable rooms will comply with the minimum room height requirements of the Building Code of Australia.

2. Clarify whether a strata or Torrens title subdivision is a future likelihood for the property. You are advised that if a future subdivision is being considered in the implied/ suggested configuration in the submitted plans, there is likely to be

significant upgrading works required to external walls and windows to comply with the BCA which will require reassessment of the flooding impact and the amenity of occupants.

3. A report prepared by a suitably qualified person to address the livable housing requirements in the DCP and Livable Housing Design Guidelines. The submitted plans and the report must be consistent in their description of the proposed construction and must clearly demonstrate that a safe and continuous step-free pathway from the front boundary to the entry door of the liveable dwelling can be provided without the installation of a lift or similar.

4. If the dwelling approved under DA23/1694 is to be considered in the current DA as an adaptable dwelling, a post-adaptation plan must be submitted clearly demonstrating that it will comply with the requirements and performance requirements of AS4299-1995.

4.c Internal Referral – Development Engineer

Overall Comments:

DP/88b Instrument Check**:** No easements burden or benefit the lot. No 88b Instrument exists over the lot.

Earthworks and Retaining Walls:
No earthworks plans have been submitted for assessment however the architectural plans indicate that very minimal filling is proposed, and this is mostly contained within the building footprints. This is considered acceptable.

Stormwater Drainage:
It is proposed to drain the roof water from the front 3 dwellings to Woollamia Road and the remainder to the rear of the site via an infiltration trench. Given the flood risk of the site and the proximity to Currambene Creek, On Site Detention (OSD) is not recommended as it will only increase the flood impact of the site and its surrounds.

The infiltration system requires a surcharge pit for times in which the design capacity is exceeded, and the surcharge pit needs to be designed to prevent scour. This will be conditioned. Council's District Engineer has advised that kerb and gutter along the road frontage would not be favourable due to the flood behaviour and existing stormwater system within the area. There is also nowhere suitable within the road reserve at the front for the development to discharge stormwater into. Accordingly, all stormwater would need to be diverted to the rear of the development, ideally via an absorption trench and level spreader system for surcharge.

Roads/Access:
Council's DCP typically requires access points to/from the public road to be minimised. However, in the circumstances of the proposal, there would be minimal demand for on-street parking and having the separate entry/exit point delivers a better design outcome so therefore is supported. The impact to the public road network is considered negligible. There are no sight distance constraints at the entry or exit to the development. The parking proposal is generally compliant with DCP and relevant Australian Standards. Kerb and gutter will not be required for the development per advice from Council's District Engineer.

Easements:
No easements required for engineering purposes as the site is not proposed to be subdivided.

Additional Information Required:

A revised stormwater plan is to be submitted which demonstrates stormwater from the site being disposed of at the rear via an absorption trench and level spreader system for surcharge.
A subsequent referral was issued to the development engineer on 8 October where it was advised the stormwater issues could be dealt with by way of conditions of consent.

4.d Internal Referral - Floodplain Management

The floodplain management team have provided four (4) referral responses for the proposed development on 6 September 2024, 10 October 2024, 9 December 2024 and 15 October 2025.

Also, a MS teams meeting with the land owners/Applicant (Lilliana and Nader Zreik), Anthony Barthelmess (Flood Engineer - Rienco consulting), Lee Carmichael (Planning Consultant, Jervis Bay Town Planning), Council's Development Assessment Officer (Emily May) and Council's Floodplain engineer (Alexander Aronsson) was held on 29 October 2024 to discuss the application in the context of the flooding constraints that apply to the site.

The third floodplain management referral comments are reproduced below:

The following documents have been reviewed as part of this referral:

- RFI Cover Letter (D24/509783)
- Appendix A – Response to SCC (Rienco Consulting) (D24/509764)
- Appendix B – Flood Risk Management Peer Review (Woolacotts) (D24/509766)
- Appendix C – Suitability of Material or Construction Method Report (D24/509768)
- Appendix D – Flood Affectation Report (D24/509770)
- Appendix E - Emergency and Evacuation Plan (D24/509773)
- Appendix G – Flood Evacuation Map (D24/509779)

In addition to the abovementioned documents, the previous referrals (D24/149808 & D24/365186) and supporting documentation have also been reviewed.

As noted in previous referrals, and further emphasised during an on-line meeting held on 29 October 2024 , the applicant has been requested to demonstrate how the proposed development will not adversely affect the safe occupation and efficient evacuation (quantitatively) of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood. The provided additional information has been reviewed in light of this request.

According to Council's Currambene and Moona Moona Creeks Floodplain Risk Management Study & Plan (2016), the site has the following flood characteristics:

- 1% AEP (1 in 100 year) flood event
  - H3 hazard
  - High Hazard Flood Storage
  - Duration of inundation ~7hr
- PMF (Probable Maximum Flood) event
  - H5 hazard
  - High Hazard Floodway
  - Duration of inundation >30hours

Council has requested the applicant to demonstrate that the proposed development can achieve the efficient evacuation requirements of Clause 5.21 of the LEP. In other words, they have been requested to quantitatively demonstrate that available warning time is greater than both the time required to evacuate to flood free land and the time the low point in the access road is cut by flood water, using current best practice methodologies. It should be noted that Council has not requested

the applicant to demonstrate that residents on site are expected to undertake self-evacuation from the site as NSW SES are responsible to issue evacuation orders. However, the applicant is required to demonstrate that the intensification on site (adding three residential dwellings where there is currently one) can efficiently be evacuated based on available flood warning and flood conditions onsite. This information has not been provided to Council. Furthermore, Council's available information in the Currambene and Moona Moona Creeks Floodplain Risk Management Study & Plan (FRMSP)(2016) identifies that efficient evacuation from the site is not achievable. As such, Council will rely on this information for its assessment.

The Bureau of Meteorology does not provide a Flood Forecast and Warning Service for the Currambene Creek catchment. As such, there is no available warning system that could inform the SES, or local residents, that the site will flood prior to evacuation routes being cut beyond a general (regional) severe weather warning. Furthermore, according to Council's FRMSP, the low point of the evacuation route from the site may be cut within 2 hours from the onset of rain in a PMF event.

When considering the NSW SES Timeline Evacuation Model (considered best practice for evacuation capabilities), time required to evacuate would as a minimum be:

- Warning Acceptance Factor of 1hr + Warning Lag Factor of 1hr + Travel Time required for evacuation of the area (0.3hr based on Council's FRMSP) + Travel Safety Factor of 1hr. As such, the minimum time required to evacuate the area is 3.3hr, which exceeds the 2hr available before the evacuation route may be cut.

It is noted that in the Response to SCC (Rienco Consulting), the applicant has come to the same conclusion, namely "*By the time the earliest available trigger on the site could be triggered, the evacuation route is already cut*" (section 28 of their report). In other words, efficient evacuation from the site is not achievable, hence the requirements of clause 5.21 of the LEP has not been demonstrated.

This is further supported by Woolacotts' peer review (D24/509766), where it is stated "*a self-triggered evacuation of either the site or the Woollamia area is currently neither feasible nor advisable, given the limited flood information available to residents to initiate evacuation effectively*" (page 10 of the report). *It should be noted that the SES does not have access to any additional flood warning products for Currambene Creek than the public has, as currently none exist.*

As such, Reinco's and Woolacotts' conclusions that efficient evacuation from the site is not feasible is also relevant for an evacuation order issued by the SES as there is no intel to reliably inform such a decision and the time to evacuate exceeds the time to evacuation roads being cut, which further emphasise that the requirements of clause 5.21 of the LEP has not been demonstrated.

To demonstrate compliance with the safe occupation requirements of clause 5.21 of the LEP, the applicant proposes to address the risk to life during a flood event via adequate shelter-in-place refuge, stating "*the development has a PMF-free refuge and the risk to safety approximates zero*" (section 42 of the Reinco report) and "*Residents of the proposed development have safe refuge in their homes, which is the highest standard of risk mitigation in the Woollamia flood context, and in most of NSW*" (section 71d of the Reinco report).

This position is inconsistent with contemporary flood planning recommendations. The Support for Emergency Management Planning – Flood Risk Management Guideline EM01 (DPE, 2023) provides guidance on contemporary flood risk management considerations in an emergency management perspective. Principle 4 is particularly relevant to the proposed development and has been included below for information.

Principle 4

Decisions on redevelopment within the floodplain are supported by an EM strategy that does not increase risk to life from flooding

The preferred EM approach is evacuation, where evacuation capacity and capability has been demonstrated as the most effective strategy to manage EM risks (i.e. a strategy that enables the users of development to self-evacuate to an area outside the floodplain that has adequate services to sustain the community in an orderly planned outcome). This includes consideration of flood warning and evacuation demand on existing and future access/egress routes considering potential impacts of localised flooding.

Where this is not possible any decision involving redevelopment, and in particular increasing population at risk, needs to consider the safety of the community. This may include provisions such as effective flood warning, a practical safe refuge for the full range and behaviour of flooding (i.e. above the PMF and designed to withstand the associated forces of flooding), and provisions to be able to safely self-sustain for short duration flooding. Managing these risks requires careful consideration of development type, likely users, and their ability respond to minimise their risks. This includes consideration of:

- **Isolation** – There is no known safe period of isolation in a flood, the longer the period of isolation the greater the risk to occupants who are isolated.
- **Secondary risks** – This includes fire and medical emergencies that can impact on the safety of people isolated by floodwater. The potential risk to occupants needs to be considered and managed in decision-making.
- **Consideration of human behaviour** – The behaviour of individuals such as choosing not to remain isolated from their family or social network in a building on a floor above the PMF for an extended flood duration, or attempting to return to a building during a flood, needs to be considered when adopting any EM strategy.

The guide further states that: "*However, it is recognised that there is no evidence-based method for determining a safe or tolerable duration of isolation that may result from flooding. This is primarily due to the potential for other issues to emerge, including medical emergencies and fire either due to power surges or makeshift lighting or heating. These potential emergencies may result in an avoidable number of rescue attempts that place both the occupants and rescuers in danger. In addition, occupants that may not have evacuated may regret this decision due to concerns about their health, inability to communicate due to power and telecommunication outages, safety or the conditions they are faced with during the flood, and may require rescue or venture out into hazardous conditions*."

As previously mentioned, the subject site is exposed to a H5 hazards and a High Hazard Floodway in a PMF event. In addition, the duration of inundation of the area in a 1% AEP is approx. 7 hours and exceeds 30 hours in a PMF. As such, the site is not subjected to short duration of inundation. In fact, the duration of isolation could be quite significant and hence the risk to occupants is also significant.

A duration of inundation of this length has implications for building and contents submersion, emergency response and recovery in the locality. It is noted that the applicant has not provided documentation outlining how and why the duration of potential isolation should or could be considered acceptable to demonstrate compliance with the safe occupation requirements. It is noted that the applicant has provided documentation stating that the proposed development will be

constructed and detailed in accordance with the requirements of H5 hazard in a PMF (Appendix D, section 11.1), although the same report is also proposing in section 4.9 and 8.2 to design the structures to withstand flood forces up to the 0.2% AEP flood event. Either way, whilst risk to structural soundness can be mitigated against to some degree, it cannot be eliminated. Importantly, it does not address Council's concern regarding the potential duration of isolation.

The applicant has referenced shelter in place practices from the Red Cross "*Preferred Sheltering Practices for Emergency Sheltering in Australia* (May 2015)". Whilst this document can provide some guidance on the overall objectives of shelter in place requirements, it is not designed to provide conditions for individuals seeking flood refuge during an event. Rather, the document sets up guidance for large scale refuge requirements for a range of evacuation events.

It is noted that there are no official or adopted guidelines for Shelter-In-Place in NSW to support how safe occupation could potentially be achieved. Furthermore, Council also does not have an adopted policy of accepting Shelter-In-Place as a suitable flood risk management strategy. Regardless, the proposed development has not incorporated appropriate measures to manage risk to life in the event of a flood considering the potential significant duration of isolation during a flood and the corresponding high hazard flood conditions people and property would be exposed to.

Based on the submitted documentations to date, the proposed development does not comply with the following performance criteria of DCP Chapter G9:

- The development will not increase the risk to life or safety of persons during a flood event on the development site and adjoining land; and
- The development will not unduly increase dependency on emergency services.

It should also be noted that the nearest SES Units to Woollamia are in Nowra and St Georges Basin. In a flood event, both these units would likely be cut off from access to Woollamia due to local flooding of access roads. Even if these units would have been sufficiently resources, there would be no way for them to access Woollamia to undertake doorknocking and to assist in evacuation.

Based on the information provided to date, the applicant has not demonstrated compliance with clause 5.21 of the LEP and DCP Chapter G9. Particularly, the applicant has not demonstrated how the development can comply with the safe occupation and efficient evacuation requirements of the LEP and there are insufficient measures incorporated into the proposed development to manage risk to life during a flood event.

The fourth and final floodplain management referral comments are reproduced below:

The Letter – Hydraulic Model Results (D25/443416) and the relevant updated plans have been reviewed as part of this referral. Council is not satisfied that the proposed development meets the requirements as set out in clause 5.21 of the Local Environmental Plan (LEP). The particulars are summarised below.

> (2)(a) Council is not satisfied, for the purpose of clause 5.21(2)(a) of the Local Environmental Plan (LEP), that the proposed development is compatible with the flood function and behaviour of the land, for the following reasons:
>
> i. The applicant has not provided sufficient information to demonstrate the compatibility of the proposed development with the high flood hazard conditions on site. The applicant states that the proposed development maintains the high hazard conditions of the land, but it does not identify or explain why the

proposed three-unit development, which is an intensification of development, is compatible with the flood function or behaviour of the land.

(2)(c) Council is not satisfied, for the purpose of clause 5.21(2)(c) of the Local Environmental Plan (LEP), that the proposed development will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, for the following reasons:

i. the low point of the evacuation route from the site may be cut within 2 hours of the onset of rain in a PMF event.
ii. the Bureau of Meteorology does not provide a Flood Forecast and Warning Service for the Currambene Creek catchment and there is no other warning system that could inform the SES, or local residents, that the site will flood prior to evacuation routes being cut.
iii. the NSW SES Timeline Evacuation Model (best practice for evacuation capabilities) identifies that the time required to evacuate would as a minimum be 3.3hr (based on Council's adopted FRMS&P). This means that the required time to evacuate exceeds the available time.
iv. the NSW SES does not have access to any additional flood warning products for Currambene Creek than the public has (as none exist). As such, the conclusions that efficient evacuation from the site is not feasible is also relevant for an evacuation order issued by the SES as there is no intel to reliably inform such a decision and the time to evacuate exceeds the time to evacuation roads being cut.
v. the nearest SES units to the site are in Nowra and St Georges Basin. In a flood event, both these units would likely be cut off from access to the site and its locality due to local flooding of access roads. As a consequence, there would be no way for them to access the site or its locality to undertake door knocking and to assist in evacuation. It is noted that door knocking is the only reliable way of communicating an evacuation order.

(2)(d) Council is not satisfied, for the purpose of clause 5.21(2)(d) of the Local Environmental Plan (LEP), that the proposed development incorporates appropriate measures to manage the risk to life in the event of a flood, for the following reasons:

i. the applicant proposes to address the risk to life during a flood event through shelter-in-place. Having regard to the characteristics and context of the site, this approach would not manage the risk to life or the corresponding high hazard flood conditions people and property would be exposed to.
ii. the duration of inundation of the site in a 1% AEP flood event is approximately 7.5hr and exceeds 30hr in a PMF event. Further, in a 1% AEP and PMF event the low point of the site's evacuation route would be cut off for over 30 hrs.
iii. the site is not subject to short duration of inundation and the duration for which the site would be without access to essential services in flood events would not be safe, tolerable or acceptable, would put human life in danger (both occupants and emergency services volunteers if needing to undertake rescue operations) and place unreasonable strain on emergency services (resulting from issues such as medical emergencies and fire).
iv. the PMF level for the site is 4.3m AHD with the (ground floor) habitable floor level of the dwelling at 2.8m AHD (the 2050 Flood Planning Level). As such, the habitable floor level may be subject to flooding up to 1.5m in a PMF event, making shelter in place impractical and resulting in further risks to life in the event of a flood.

v. the NSW Department of Planning, Housing and Infrastructure *Shelter in place guideline for flash flooding (2024)*, sets out a range of considerations to help guide a consent authority when initially assessing if shelter in place is an appropriate emergency management strategy. The site and proposed development are inconsistent with these considerations. Further, Council do not have an adopted shelter in place policy to guide when and where it is a suitable emergency management strategy.
vi. The development application does not provide sufficient information to address the acceptability of long-term site isolation as part of a shelter-in-place approach. This includes, but not limited to, the acceptability and flood compatibility of the structures.

It is noted that the provided Hydraulic Model Results Letter adequately address the requirement of clause 5.21(2)(b) and 5.21(3)(a).

Further, the proposed development does not comply with the following performance criteria of DCP Chapter G9:

i. the development will not increase the risk to life or safety of persons during a flood event on the development site and adjoining land.
ii. the development will not become unsafe during floods or results in moving debris that potentially threatens the safety of people or the integrity of structures.
iii. the development will not unduly increase dependency on emergency services.

Proposed conditions of consent have been provided, should Council choose to approve this application. It is, however, noted that the proposed development does not meet the requirements of clause 5.21 of the LEP by implementing these conditions.

The proposed development is inconsistent with the NSW Flood Risk Management Manual (2023).

Section 733 of the Local Government Act 1993 provides local councils and statutory bodies representing the Crown, including a councillor or an employee, with a limited legal indemnity for certain advice given that relates to the likelihood of flooding or the extent of flooding. The Act also provides that a council that acts in accordance with the Manual relating to the management of flood liable land is taken to have acted in good faith in relation to advice given, or things done or not done, relating to the likelihood of flooding or the extent of flooding.

4.f Internal Referral – Biodiversity Project Officer

The two Swamp Mahogony trees on site provide suitable breeding and foraging habitat for some mobile native species, as such they represent valuable habitat. The current plans include the removal of one of the large Swamp Mahogany trees (tree 2) along the western boundary of the site. The presence and required removal of this large tree was not shown in previous iteration of the site plans.

In accordance with the Biodiversity Conservation Act 2016, *Section 1.3(k),* as amended by the *Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act 2024* No 96, developments must apply the avoid, minimise and offset hierarchy in their plans to ensure a proposed development avoids, minimises and/or offsets any proposed impacts on biodiversity regardless of entry into the Biodiversity Offset Scheme (BOS). Therefore, the applicant must demonstrate how the impacts have been avoided, minimised and offset. Avoidance is best achieved by first my investigating other design concepts that avoid impacts to native vegetation and/or native species. Where complete avoidance cannot be achieved, minimisation of impacts must be demonstrated before offset/compensatory measures are applied.

A suitable landscape plan can provide mitigation/offset of impacts required by providing supplementary and complimentary planting on the site. The landscape plan should be updated/revised to comply with the requirements/controls of Chapter G3: Landscaping Desing Guidelines of the Shoalhaven DCP. A suitable replacement tree for the Swamp Mahogany should be selected in accordance with the Shoalhaven Tree Species list – Woollamia and native flora species consistent with vegetation in the locality. Exotic species must not be used.

Chapter G5: Biodiversity Impact Assessment of the SDCP (2014) is applicable to this application as it requires the removal of native vegetation. Therefore, an appropriate biodiversity impact assessment in accordance with Chapter G5 must be conducted and submitted with the application.

4.g Internal Referral – Environmental Health Officer

Overall Comments:
I have reviewed the Acid Sulphate Soil Management Plan prepared by Rienco Consulting Ref 24135 dated 13 August 2025 (the Report) and can make the following comments:

- The Report provides guidance on the management of acid sulfate soils generally, but is not specific to the risks identified at 737 Woollamia Rd Woollamia.
- The Report has accurately reported the acid sulfate soil classification from Council's LEP mapping but has not provided any verification or assessment of the actual risks to be managed from the proposed development.
- It is not apparent from the Report whether the site is impacted by actual or potential acid sulfate soils as no onsite assessment appears to have been made.
- It is not apparent from the Report whether the proposed development is likely to disturb an acid sulfate soil layer or what volume of soil is likely to be disturbed that will require management on site. Council is unable to assess the feasibility or potential impacts of any proposed mitigation measures without this information.
- The Report does not propose a monitoring program for soils, surface water or ground water to inform the need for the implementation of the controls nominated in the report.
- Clause 7.1 of the SLEP 2014 states that development consent must not be granted for the carrying out of works specified in the clause unless an Acid Sulfate Soils Management Plan has been prepared for the proposed works in accordance with the Acid Sulfate Soils Manual and provided to the consent authority. This clause applies to class 3 land if works are proposed more than 1m below the natural ground surface. The Report provided is not consistent with the requirements of the Acid Sulfate Soils Manual. Please refer to section 6 of the Manual for further details of the matters to be included in the Report.
- The report will need to be prepared by a suitably qualified geotechnical engineer, informed by details of the project, including footing details and proposed services that require excavation. The design should aim to avoid disturbance of the acid sulfate soil wherever possible and minimise disturbance where it can not be avoided.

Environmental Health does not recommend acceptance of this Acid Sulphate Soils Management Plan to support this proposed development. An applicant may choose to skip the preliminary assessment stage and proceed straight to a management plan, however they still need to characterise the soil conditions at the site to develop appropriate control measures for the site.

External Referrals	
Referral	**Comments**
4.h Crown Lands	**Objection** – see referral comments in section 4.h below.

Section 4.15 Assessment Report - DA2024/1589

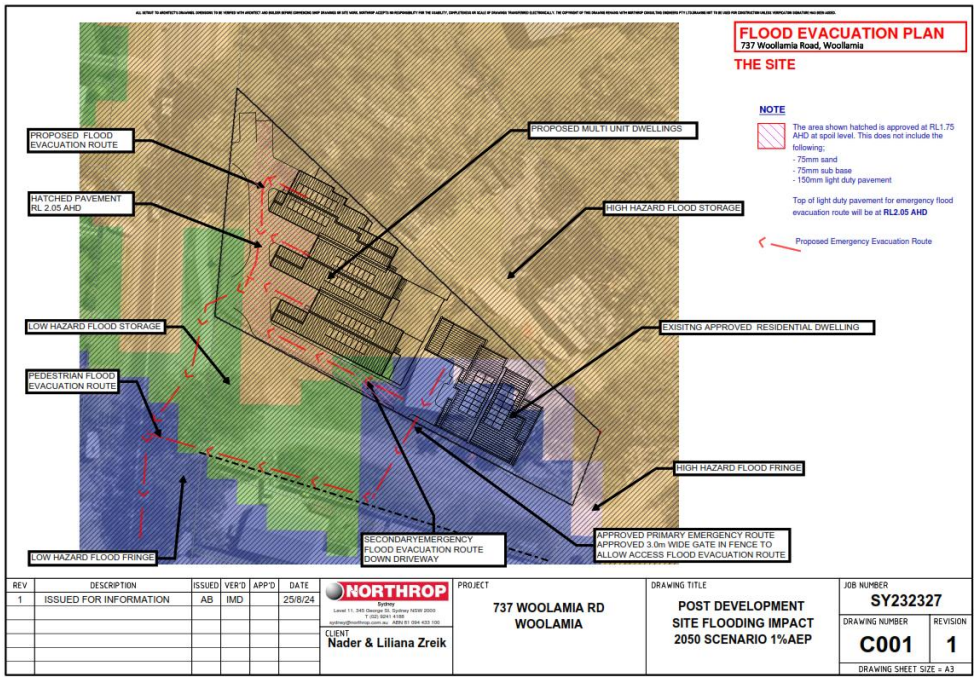


Figure 17 - Flood evacuation plan proposed through Crown land without Crown land consent or agreement

4.h External Referral – Crown Lands

Crown Lands objects to the development application. An extract of the referral response received on 13 September 2024 is copied below:

> *The Department of Planning, Housing and Infrastructure - Crown Lands and Public Spaces (the department) has reviewed the development application in accordance with the principles of Crown land management (s.1.4 Crown Lands Management Act 2016 – the Act), and objects to the proposed development as it impacts Crown land as described below. Crown land must not be occupied or used unless it is authorised by the Act (s. 1.15).*
>
> *Impacted Crown land: Lot 11 DP 9289 – par of Reserve 755928, managed by the department and reserved for future public requirements.*
>
> *Identified Impacts: Appendix 1 image 1A depicts an emergency egress gate 4500m wide on the south side of the private property. This is not supported given it burdens the adjacent Lot (Crown Land), in contravention of Planning for Bushfire Protection 2019. The site is subject to undetermined Aboriginal Land Claims 42479 and 42448 and it is the department's position that bushfire mitigation measures for new development will not be supported on Crown land (refer to attached fact sheet). There is no easement of any kind registered on title of this Land or noted on the Deposited Plan.*

Section 4.15 Assessment Report - DA2024/1589

Therefore, the department objects to the proposed development as submitted for the reasons stated above. The development application should be modified to remove any impact or burden from the adjoining Crown land, whereupon the objection will be formally withdrawn and no further action or consultation is required.

In response to the comments received from Crown Lands, the Applicant advised the following:

The approved Application ***DA23/1694 stamped 06/12/2023 drawing DA0.03 Site Plan Issue C*** clearly shows a 3m emergency egress gate approved along the Southern boundary.
The emergency gate was also clearly articulated within

1. *The SEE which appended the DA application submitted and approved part of DA23/1694*
2. *Bushfire Report – Page 46 Section 10.4 Access Requirements notes*

10.4 Access Requirements

The performance criteria and acceptable solutions for Public Roads or internal roads for Infill' developments in accordance with Appendix 3, PBP 2019 are provided in the below assessment table.

The intent of suitable access roads is to enable safe access and egress for residents to leave a dwelling under bushfire attack and for emergency service personnel to obtain clear and safe access to undertake firefighting operations.

The purpose of the road system for bushfire protection is:

- Provide firefighters with access to structures allowing for efficient use of firefighting resources.
- Provide evacuation routes.
- Provide access to areas of bushfire hazard for firefighting and hazard mitigation purposes.

Site access will be provided to the development via a short driveway for Lot 1 to access the public road network of Woollamai Road.

Lot 2 will be access via a driveway easement of 3.5m in width.

In addition there is access on 3 sides for the house and

There is an "emergency access provision" in the fence to allow the brigade to utilise the crown land in aforward direction which also provides perimeter access to Lot 1.

3. *Bushfire Report on page 65 where the note states;*
   a. *There is an "emergency access provisions" in the fence to allow brigade to utilise the Crown Land in a forward direction with also provides perimeter access to Lot1".*
   b. *We note that the diagram clearly shows an emergency gate in the fence in* ***green*** *and text noting Emergency Egress Sliding Gate (fence) in* ***marone colour.***
   c. *There is also a legend noting "Emergency Access Provisions in* ***green***
4. *DA Drawings submitted and approved part of DA23/1694 which clearly identified and documented the 3m Emergency Egress Gate are*
   a. *DA 0.03 – Site Plan*
   b. *DA100 – Ground Floor Plan*

We have thus modified the current application to reinstate the already approved 3m emergency egress gate.

Subsequently, on 2 October 2024, Crown Lands responded to the Applicant abovementioned comments as follows:

> *I refer to Council's letter dated 26 September 2024 requesting comments for the above development proposal.*
>
> *On the 3 October 2023 the department provided a referral response for DA23/1694 where the department clearly stated that the proponent may not use the adjacent and adjoining Crown Land as access.*
>
> *On the 29 August 2024 the department provided a referral response for DA2024/1589 objecting to the proposal for the reasons outlined within that letter.*
>
> *No landowners consent has been provided to the proponent from the department for the lodgement of the development applications involving the use of Crown Land. The department objects to the proposed development as outlined in previous communications.*
>
> *The development consent (DA23/1694) and application (DA2024/1589) should be modified to remove any impact from Crown land.*

The applicant emailed Crown Lands directly on 27 October 2024, see Trim reference D24/532142.

On 1 November Crown Lands responded as follows:

> *Dear Liliana,*
>
> *I'm responding to your letter dated 28 October 2024 in relation to DA2024/1589.*
>
> *The department understands that Council approved DA23/1694. Unfortunately, an access burden was placed on the adjoining Crown land (Lot 11 DP 9289). This occurred contrary to the department's request, as detailed in the department's correspondence to Council dated 3 October 2023.*
>
> *As a result, the department objected to development application DA2024/1589. The existing access burden is required to be removed from the Crown land in order to rectify this issue.*
>
> *The department's policies and guidelines with respect to new adjoining private developments are clear.*
>
> *New development should be designed and sited with appropriate setbacks and fire breaks so there is no impact on any Crown land. This includes protection measures (e.g. asset protection zones, perimeter trails, emergency access/egress) specified in Planning for Bush Fire Protection 2019 and any other requirements.*
>
> *We have consulted with the RFS about this matter, and they identified that they were not referenced during the assessment of DA23/1694. Based on our discussion with the RFS there appears to be no immediate need for this side gate/emergency access/egress. There are no fire trails located in the area. Emergency access to this development could be afforded from Woollamia Road.*
>
> *The department requests that you modify your application to remove this side gate and replace it with a continuous fence line along the boundary between Lot 11 and Lot 12 DP 9289.*
>
> *The Crown land identified as Lot 11 DP 9289 has no legal status as a road and no right of access for the public exists or is implied by the current reservation.*
>
> *Lot 11 DP 9289 is managed differently to the Crown land that runs along the foreshore of the river (Lot 7309 DP 1153643) which is reserved for the purpose of public recreation and is managed by Council as the Crown Land Manager (CLM). Lawful use of this land is managed by Council as CLM and as the regulatory authority under the Environmental Assessment and*

Protection Act 1994 and the Protection of the Environment Operations Act 1997. Vehicle access is not a lawful use of the public recreation reserve.

There are no easements for access or public infrastructure registered on the certificate of title for Lot 11 DP 9289.

The department is aware of various unlawful land uses that impact Lot 11 DP 9289, which you have detailed in your letter. The matter was investigated and assessed under our Compliance and Enforcement Policy (case ID 16537). The installation of regulatory signage and an education campaign for the neighbourhood is currently being progressed. For more information about compliance, please refer to our website: https://www.crownland.nsw.gov.au/protection-and-management/compliance

Please also be aware that Lot 11 DP 9289 is subject to undetermined land claims under the Aboriginal Land Rights Act 1983 and an undetermined claim under the Native Title Act 1994 (Commonwealth). The land claims will be assessed against statutory criteria under the Act and a determination on the claims will be made in due course. If a land claim is granted, the Crown land is transferred as freehold land to the ownership of the claimant land council. Placing an unnecessary access burden on this land is not supported by the department.

Once we receive the modified site plans that show the side gate has been removed, we will write to Council and withdraw our objection.

5. Other Approvals

Integrated Development – N/A

6. Statutory Considerations

Environmental Planning and Assessment Act 1979

Section 4.14 Consultation and development consent – certain bush fire prone land

Is the development site mapped as bush fire prone land?	Yes - Complete below table and assessment against Planning for Bush Fire Protection
Is there vegetation within 100m of the proposed development that would form a bush fire hazard as identified in Planning for Bush Fire Protection? *Note: The bush fire mapping cannot be relied upon solely for identifying bush fire hazards.*	Yes - Complete below table and assessment against Planning for Bush Fire Protection
Is the development subject to a performance based solution or a BAL-FZ? *Note: As per Appendix 2 of PBP 2019, performance based solutions should be undertaken and fully justified by a qualified consultant BPAD practitioner.* *Note: The NSW variation of H7D4 in NCC 2022 Volume 2 specifies that AS3959 and the NASH Standard can only be used as a deemed-to-satisfy provision where an appropriate condition of consent has been imposed in consultation with NSW RFS.*	No

S4.14 bushfire assessment by accredited consultant

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The application has been supported by a bush fire assessment report that provides the following assessment:

Map Image 5. Radiant Heat Exposure

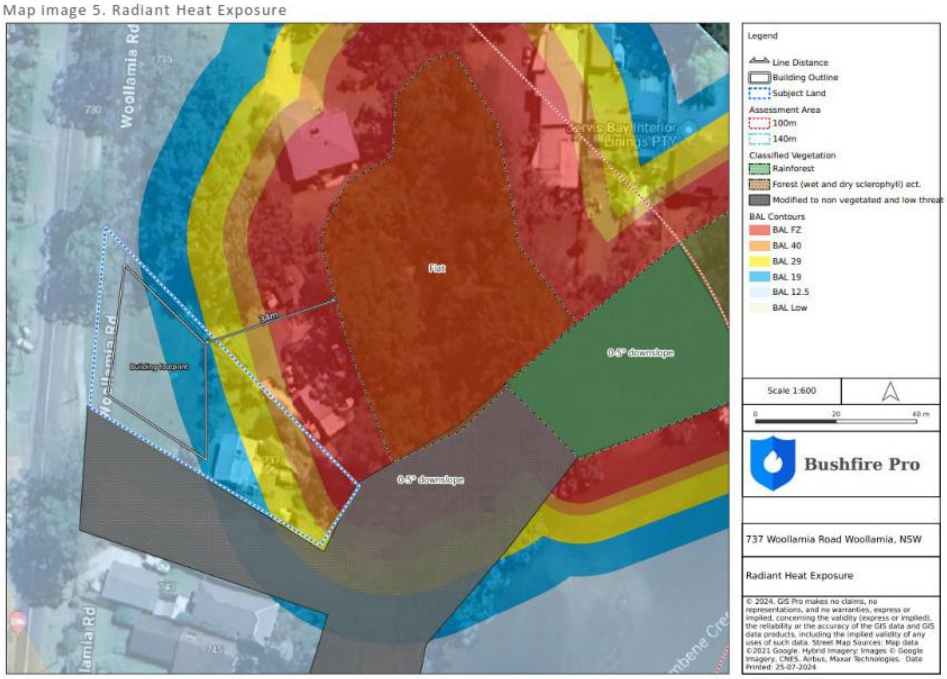

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Table 3. Current Bush Fire Hazards Assessed - Refer Appendix 1 PBP,2019.

BAL – MEASURES						
Aspect	Distance to hazard	Vegetation up to 140m	Effective Slope to 100m	BAL AS3959-2018, Section 2, Table 2.4.2	Vegetation clearing required to provide desired Asset Protection Zones	Construction Requirements As3959-2018 - Sections
NORTH-EAST	Forest	0-34m Residential Land Use 44-94m Forest 94-140m Residential Land Use	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
NORTH	No Hazard	0-120m Residential Land Use 120-140m Forest	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
WEST	No Hazard	0-110m Residential Land Use 110-140m Grassland	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
SOUTH	No Hazard	0-140m Residential Land Use	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
SOUTH-EAST	Managed Land	0-90m Managed Land 90-140m Water	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
EAST		0-90m Managed Land 90-140m Water	0-5 Degrees Downslope	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.

The bush fire assessment report identifies that the proposed development conforms to the relevant specification and requirements of Planning for Bush Fire Protection 2019 and has been prepared by a suitably qualified consultant.

Recommended conditions of consent will require the proposed building/s to be built to BAL-19 and the entire site to be managed as an Inner Protection Area.

Biodiversity Conservation Act 1979

Does the application include works or vegetation removal within the Biodiversity Values mapped area?	No
Does the application involve clearing of native vegetation above the area clearing threshold? **Area clearing threshold** The area threshold varies depending on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan (LEP)), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP). **Minimum lot size associated with the property** / **Threshold for clearing, above which the BAM and offsets scheme apply** Less than 1 ha — 0.25 ha or more 1 ha to less than 40 ha — 0.5 ha or more 40 ha to less than 1000 ha — 1 ha or more 1000 ha or more — 2 ha or more The area threshold applies to all proposed native vegetation clearing associated with a proposal, regardless of whether this clearing is across multiple lots. In the case of a subdivision, the proposed clearing must include all future clearing likely to be required for the intended use of the land after it is subdivided. If the land on which the proposed development is located has different minimum lot sizes the smaller or smallest of those minimum lot sizes is used to determine the area clearing threshold.	No
Will the proposed development have a significant impact on threatened species or ecological communities, or their habitats, according to the test in section 7.3 of the Biodiversity Conservation Act 2016 (i.e. 'test of significance)? *Note: Consideration should be given to the site's proximity to NPWS land (see guidelines) and other natural areas, as well as any area that may contain threatened species, vulnerable or endangered ecological communities or other vulnerable habitats.*	No
*If the application exceeds the Biodiversity Offsets Scheme Threshold (i.e. if yes to **any** of the above), has the application been supported by a Biodiversity Development Assessment Report (BDAR)?*	N/A

Fisheries Management Act 1994

The proposed development would not have a significant impact on the matters for consideration under Part 7A of the *Fisheries Management Act 1994.*

Local Government Act 1993

Do the proposed works require approval under Section 68 of the Local Government Act 1993?	Yes - see s68 type nominated below
☒ Water supply, sewerage and/or stormwater works ☐ Operation of a system of sewage management (i.e. on-site sewage management system)	

☐ Installation of a manufactured home ☐ Installation of a domestic oil or solid fuel heating appliance, other than a portable appliance (i.e. a fire place)?

Marine Estate Management Act 2014

Does the application include any works within the marine park or aquatic reserve?	No
Is the development site within the locality (100m buffer) of a marine park or aquatic reserve?	Yes • Jervis Bay Marine Park
Is the proposed development consistent with the objects of the Marine Estate Management Act 2014 and consistent with the permissible uses of the area as identified in the regulations and management rules for the Marine Estate, as well as any Ministerial advice?	Yes
Is the proposed development likely to have an effect on the plants or animals within the marine park or aquatic reserve?	No

7. Statement of Compliance/Assessment

The following provides an assessment of the submitted application against the matters for consideration under Section 4.15 of the Environmental Planning and Assessment Act 1979.

(a) Any planning instrument, draft instrument, DCP and regulations that apply to the land

(i) Environmental planning instrument

This report assesses the proposed development/use against relevant State, Regional and Local Environmental Planning Instruments and policies in accordance with Section 4.15 (1) of the *Environmental Planning and Assessment Act 1979*. The following planning instruments and controls apply to the proposed development:

Environmental Planning Instrument
Shoalhaven Local Environmental Plan 2014
State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021
State Environmental Planning Policy (Sustainable Buildings) 2022

State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 3 Koala habitat protection 2020

Question	Yes		No	
1. Does the subject site have a site area >1ha or does the site form part of a landholding >1ha in area?	☐	Proceed to Question 2	☒	Assessment under SEPP not required.
2. Is the land 'potential koala habitat'? *Note: 'potential koala habitat' are areas of native vegetation where trees of the types listed in Schedule 2 of the SEPP (feed tree species) constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.*	☐	Proceed to Question 3	☒	Proposal satisfactory under SEPP.
3. Is the land 'core koala habitat'? *Note: 'core koala habitat' is an area of land with a resident population of koalas, evidenced by attributes such as breeding females, being females with young, and recent sightings of and historical records of a population.*	☐	Proceed to Question 4	☒	Proposal satisfactory under SEPP.
~~4. Has the application been supported by a plan of management prepared in accordance with Part 3 of the SEPP?~~	~~☐~~	~~Plan of management must be referred to EAOs and Planning Secretary for approval.~~	~~☐~~	~~Application cannot be supported~~

Chapter 4 Koala habitat protection 2021

Question	Yes		No	
1. Is there an approved koala plan of management for the subject land?	☐	Proceed to Question 2	☒	Proceed to Question 3
~~2. Is the proposed development consistent with the approved koala plan of management that applies to the land?~~	~~☐~~	~~Proposal satisfactory under SEPP.~~	~~☐~~	~~Application cannot be supported.~~
3. Has information been provided to Council by a suitably qualified consultant that demonstrates that the land the subject of the development application: a) Does not include any trees belonging to the koala use tree species listed in Schedule 2 of the SEPP for the relevant koala management area, or b) Is not core koala habitat, or	☐	Proposal satisfactory under SEPP as (a), (b), (c) or (d) is satisfied.	☒	Proceed to Question 4

Question	Yes		No	
c) There are no trees with a diameter at breast height over bark of more than 10cm, or d) The land only includes horticultural or agricultural plantations				
4. Is the proposed development likely to have an impact on koalas or koala habitat?	☐	Proceed to Question 5	☒	Proposal satisfactory under SEPP.
~~5. Has the application been supported by a koala assessment report?~~ ~~*Note: 'koala assessment report' under the SEPP means a report prepared by a suitably qualified and experienced person about the likely and potential impacts of the development on koalas or koala habitat and the proposed management of those impacts.*~~	~~☐~~	~~The koala assessment report has been reviewed and the proposed development is considered suitable.~~ ~~Proposal satisfactory under SEPP.~~	~~☐~~	~~Application cannot be supported~~

State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 2 Coastal management

The subject land is mapped as coastal environment area and coastal use area and land in proximity to coastal wetlands or littoral rainforest under the SEPP.

It is considered that the proposed development does not unduly impact upon the coastal environment. The proposed development is acceptable with regard to SEPP.

Chapter 4 Remediation of land

Question	Yes		No	
1. Does the proposal result in a new land use being a residential, educational, recreational, hospital, childcare or other use that may result in exposure to contaminated land?	☒	Proceed to Question 2	☐	Assessment under SEPP (Resilience and Hazards) 2021 and DCP not required.
2. Are there any previous investigations about contamination on the land?	☐	Detailed investigation required.	☒	Proceed to Question 3
3. Was the site previously used or is the site currently used for an activity listed in Table 1 of the Managing Land Contamination Planning Guidelines?	☐	Detailed investigation required.	☒	Proceed to Question 4

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Question	Yes		No	
4. Are there any land use restrictions on the land relating to possible contamination (e.g. notices issued by EPA or other regulatory authority)?	☐	Detailed investigation required.	☒	Proceed to Question 5
5. Did the site inspection suggest that the site may have been associated with any activities listed in Table 1 of the Managing Land Contamination Planning Guidelines or were any potential sources of contamination observed on site?	☐	Detailed investigation required.	☒	Proceed to Question 6
6. Are there any identified sources of contamination on land immediately adjoining the subject site which could affect the subject land?	☐	Detailed investigation required.	☒	Proceed to Question 7
7. Does Council have sufficient information to be satisfied that the proposed land use will not expose contaminants that might be present in soil or groundwater?	☒	Proposal satisfactory with regard to SEPP (Resilience and Hazards) 2021 and DCP requirements	☐	Detailed investigation required.

State Environmental Planning Policy (Sustainable Buildings) 2022

A valid BASIX certificate has been submitted as part of the application. The certificate demonstrates compliance with the provisions of the SEPP and is consistent with commitments identified in the application documentation.

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BASIX® Certificate
Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 1754960M

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 Definitions" dated 10/09/2020 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Tuesday, 09 July 2024
To be valid, this certificate must be submitted with a development application or lodged with a complying development certificate application within 3 months of the date of issue.

Project summary	
Project name	Woollamia Multi Dwelling Development
Street address	737 WOOLLAMIA ROAD WOOLLAMIA 2540
Local Government Area	SHOALHAVEN
Plan type and plan number	Deposited Plan 9289
Lot No.	12
Section no.	-
No. of residential flat buildings	0
Residential flat buildings: no. of dwellings	0
Multi-dwelling housing: no. of dwellings	3
No. of single dwelling houses	0

Project score		
Water	✔ 43	Target 40
Thermal Performance	✔ Pass	Target Pass
Energy	✔ 100	Target 69
Materials	✔ -23	Target n/a

Certificate Prepared by
Name / Company Name: Mrs Liliana Zreik
ABN (if applicable):

Shoalhaven Local Environmental Plan Local Environmental Plan 2014

Land Zoning

The land is zoned RU5 Village under the *Shoalhaven Local Environmental Plan 2014*.

Characterisation and Permissibility

The proposal is best characterised as multi dwelling housing under *Shoalhaven Local Environmental Plan 2014*. The proposal is permitted within the zone with the consent of Council.

Zone objectives

Objective	Comment
To provide for a range of land uses, services and facilities that are associated with a rural village.	The proposal is consistent with the objectives of the zone.

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Applicable Clauses

Clause	Comments	Complies/ Consistent
Part 1 Preliminary		
Part 2 Permitted or prohibited development		
2.7	Demolition is permitted but only with development consent.	Complies
Part 4 Principal development standards		
4.1A	The proposed development is for construction of multi dwelling housing within the RU5 Village zone. The lot has a site area of greater than 900m² and therefore the proposal meets the requirements of subclause (2). The proposal is considered suitable with regard to clause 4.1A and the construction of the proposed multi dwelling housing is permissible with development consent.	Complies
4.3	The height set by the Height of Buildings Map is 7.5m The proposed development has a peak height of 7.5m and does not exceed the building height limit.	Complies
Part 5 Miscellaneous provisions		
5.21	The subject site is mapped as below the flood planning level and Council has considered the development's impact on flood behaviour and the design and use of the development in its current situation, and also with regard to projected and potential climate change and coastal erosion processes. Council's Floodplain Management Section identified that the applicant has not been able to demonstrate that the intensification on site (adding three residential dwellings to the existing single dwelling) can efficiently be evacuated based on available flood warning and flood conditions onsite. Also, the subject site is exposed to a H5 hazards and a High Hazard Floodway in a PMF event. The duration of inundation of the area in a 1% AEP is approx. 7 hours and exceeds 30 hours in a PMF. As such, the site is not subjected to short duration of inundation. The duration of isolation could be quite significant and hence the risk to occupants is also significant. A duration of inundation of this length has implications for building and contents submersion, emergency response and recovery in the locality. It is noted that the applicant has not provided documentation outlining how and why the duration of potential isolation should or could be considered acceptable to demonstrate compliance with the safe occupation requirements. The applicant has not demonstrated how the development can comply with the safe occupation and efficient evacuation requirements of the LEP and there are insufficient measures incorporated into the proposed development to manage risk to life during a flood event. Consequently, Council assessment staff are not satisfied that the proposed development is compatible with the flood hazard of the land.	**Does not Comply**

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	The proposal will affect the safe occupation or evacuation of the land. The proposal is likely to result in unsustainable social and economic costs to the community as a consequence of flooding. The proposed development is viewed as unsatisfactory with regard to the considerations set out in clause 5.21.	
5.22	Clause 5.22 seeks to ensure that development: *(a) enables safe occupation and evacuation during flood events,* *(b) is compatible with flood behaviour on the land,* *(c) does not adversely or cumulatively impact flood flows,* *(d) protects emergency response capabilities and critical infrastructure, and* *(e) avoids environmental harm during flood events.* The proposal does not demonstrate that the development will not adversely affect the safe occupation and efficient evacuation of people during the event of a flood. In a major flood (PMF), the evacuation route could be cut off within two hours, but the NSW SES Timeline Evacuation Model (best practice for evacuation capabilities) identifies that the time required to evacuate would require a minimum of 3.3 hours. This means that the time needed to evacuate exceeds the available time on site. Also, the site lacks a formal flood warning system, and the SES has no additional forecasting tools for the catchment. This means local SES units are also likely to be cut off during a flood, limiting their ability to assist.	**Does not Comply**
Part 7 Additional local provision		
7.1	The subject land is mapped as acid sulfate soils class 3. The acid sulphate soil management plan prepared by Rienco Consulting (Ref 24135 dated 13 August 2025) provided to support the development application is not specific to the risks identified at 737 Woollamia Rd, Woollamia. Clause 7.1 of the Shoalhaven LEP 2014 stipulates that **development consent must not be granted for works on Class 3 land involving excavation more than 1 metre below natural ground level unless a management plan is prepared in accordance with the Acid Sulfate Soils Manual.** The submitted report does not meet the standards outlined in the Manual, particularly those detailed in Section 6. Additionally, the Report has accurately reported the acid sulfate soil classification from Council's LEP mapping but has not provided any verification or assessment of the actual risks to be managed from the proposed development. It is not apparent from the Report whether the site is impacted by actual or potential acid sulfate soils as no onsite assessment appears to have been made. It is not apparent from the Report whether the proposed development is likely to disturb an acid sulfate soil layer or what volume of soil is likely to be disturbed that will require management on site. Council is unable to assess the feasibility or potential impacts of any proposed mitigation measures without this information.	**Does not Comply**

	Also, the Report does not propose a monitoring program for soils, surface water or ground water to inform the need for the implementation of the controls nominated in the report.	
7.2	Consideration has been given to the matters outlined in clause 7.2 and it is considered that the proposed earthworks are suitable and can be managed appropriately.	Complies
7.11	All relevant services are available to the site.	Complies
7.20	The proposal is generally considered satisfactory with regard to the considerations set out in clause 7.20. More specifically assessment staff are satisfied that there will be no significant adverse impact on the natural or cultural values of the area for the site along the creekline in accord with subclause (3).	Complies

ii) Draft Environmental Planning Instrument

The proposal is not inconsistent with any draft environmental planning instruments.

iii) Any Development Control Plan

Shoalhaven Development Control Plan 2014

Generic DCP Chapter	***Relevant***
G1: Site Analysis, Sustainable Design and Building Materials	
A suitable site analysis plan and schedule of proposed materials has been submitted as part of the application and is deemed acceptable.	
G2: Sustainable Stormwater Management and Erosion/Sediment Control	
Has the application been supported by appropriate erosion and sediment control details?	No - Recommended conditions of consent will require erosion and sediment control measures be provided.
Has the application been supported appropriate stormwater drainage details?	No - Insufficient stormwater details provided. To be conditioned as per Development Engineering consultation.
G3: Landscaping Design Guidelines	
Existing/proposed landscaping is appropriate.	

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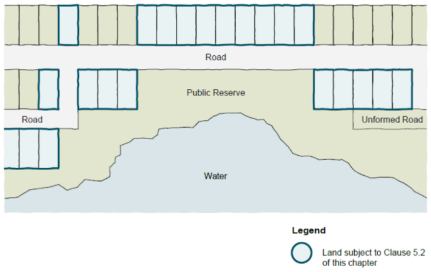
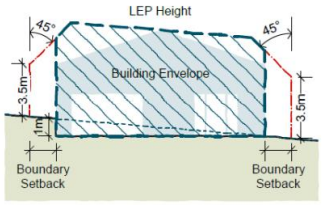
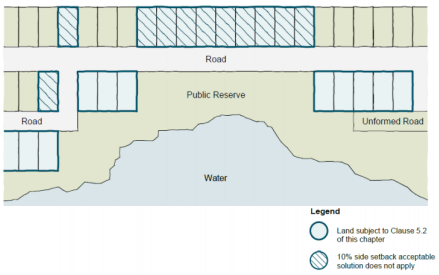
G4: Tree and Vegetation Management	
Have any trees proposed to be removed been clearly shown on the site plan (where required)?	N/A
G5: Biodiversity Impact Assessment	
Is the proposal biodiversity compliant development?	Yes
G6: Coastal Management Areas	
Is the subject site located in a foreshore area? 	Yes
Is the development contained within the coastal area building envelope? 	Yes
Has the development been sited to provide a viewing corridor to the foreshore equivalent to 10% of the lot width (up to a maximum 3.5m) along one side setback (where applicable). 	Acceptable solution - lot width is irregular with an average width of 30.48m, therefore a 3m side setback is required along one side. The applicant has provided a 4.6m side setback to the southern boundary adjoining the 3 new dwellings, and proposes to relocate the approved dwelling to increase the side setback to the southern boundary to 2.2m. Refer to extract

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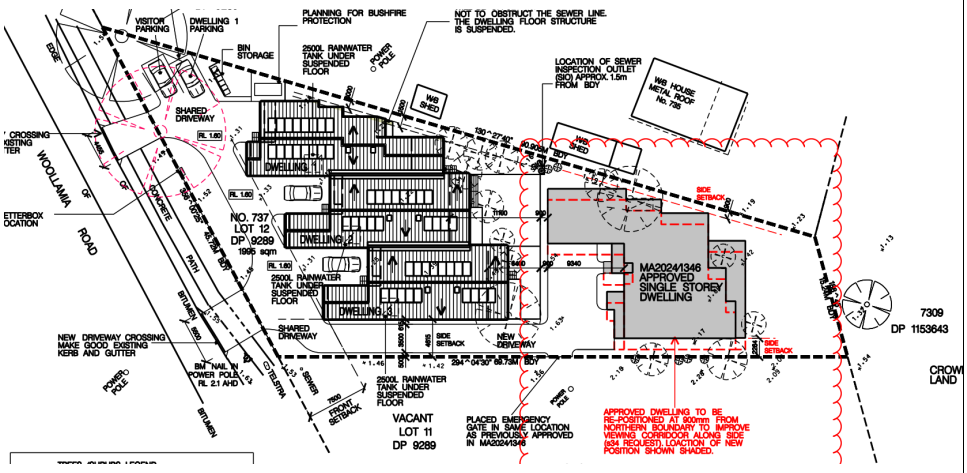
	of Site Plan DA 0.03 – S34 below:
	
Are proposed colours and materials sympathetic to the coastal environment?	Yes
Is any proposed landscaping appropriate for the coastal environment?	Yes
G7: Waste Minimisation and Management Controls	
Has the application been supported by an appropriate waste minimisation and management plan?	Yes
G8: Onsite Sewage Management	
G9: Development on Flood Prone Land	
The proposed development is **inconsistent** with Chapter G9. Please refer to floodplain engineering referrals: D24/365186 - Internal Referral - Floodplain Management - DA2024/1589 - 737 Woollamia Road WOOLLAMIA NSW 2540 D24/419808 - 2nd Internal Referral - Floodplain Management - DA24/1589 - 737 Woollamia Road WOOLLAMIA NSW 2540 - Lot 12 DP 9289 D24/510065 - 3rd Internal Referral - Floodplain Management - DA24/1589 - 737 Woollamia Road WOOLLAMIA NSW 2540 - Lot 12 DP 9289 D25/443935 - 4th Internal Referral (URGENT) - Floodplain Management - DA2024 1589 - 737 Woollamia Road WOOLLAMIA NSW 2540 - Lot 12 DP 9289	

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G11: Subdivision of Land
G12: Dwelling Houses and Other Low Density Residential Development
G13: Medium Density and Other Residential Development
See Appendix A
G21: Car Parking and Traffic

Number of on-site car parking spaces required by Section 5.1 of Chapter G21	***Number of car parking spaces provided***
2 car spaces per dwelling (8 spaces) 0.2 spaces per dwelling for visitor parking (0.8 or 1 space)	Dwelling 1: 2 spaces in a tandem arrangement Dwelling 2: 2 spaces in a tandem arrangement Dwelling 3: 2 spaces in a tandem arrangement Existing approved dwelling is proposed to have 1 additional space 2 visitor car spaces provided

Have car parking spaces been clearly shown on the site plan?	Yes
Does the proposed development require the provision of kerb and gutter? *Note: Table 3 in Chapter G21 requires that kerb and gutter be provided for dual occupancy and medium density development. There is no kerb and gutter requirement for low density residential development (e.g. alterations and additions, single dwellings, secondary dwellings)*	Yes - Referral to development engineers required
G26: Acid Sulphate Soils and Geotechnical (Site Stability) Guidelines	
Is the development suitable with regard to acid sulfate soils?	Yes
Does the application involve the erection of any buildings or structures on land with a slope >20% or on land with stability problems?	No

iiia) Any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4

There are no planning agreements applying to this application.

iv) Environmental Planning and Assessment Regulation 2021

Clause 62	*Does the application result in a change of use of an existing building but does not propose any building works?*	No
Clause 64 Partial Upgrade	*Does the application involve alterations or additions to an existing building?*	No
Clause 64 Total Upgrade	*Does the application involve building works and result in conversion of a building or part of a building from non-habitable to a habitable use?*	No

The proposal ensures compliance with the applicable requirements within the Regulations subject to recommended conditions of consent.

Any coastal zone management plan

The proposed development is consistent with the applicable coastal zone management plans / coastal management programs.

State and Local Infrastructure Contributions

State Contributions	
Does the proposed development trigger the Housing and Productivity Contribution (HPC)? *Note: if the development triggers an HPC, then a corresponding Contribution (CON) case is created as a related case in the Portal. The calculation needs to be reviewed and confirmed in the Portal.*	Yes - Residential Development

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5 Development for which a contribution is required

(1) A housing and productivity contribution is required for development for which development consent is granted if it involves development of any of the following classes—

(a) residential development,

(b) commercial development,

(c) industrial development.

(2) In this Order, ***residential development*** means any of the following—

(a) subdivision of land (other than strata subdivision) on which development for the purposes of residential accommodation is permitted with development consent by an environmental planning instrument applying to the land (***residential subdivision***),

(b) strata subdivision of residential accommodation (other than strata subdivision of high-density dwellings) (***residential strata subdivision***),

(c) high-density residential development,

(d) development for the purposes of a manufactured home estate.

(3) For the purposes of subclause (2)(a), development for the purposes of residential accommodation is not permitted with development consent by an environmental planning instrument if the only kinds of residential accommodation permitted with development consent are any of the following—

(a) build-to-rent housing,

(b) a manufactured home estate,

(c) seniors living.

(4) Schedule 2 sets out exemptions from the housing and productivity contribution. Development identified in Schedule 2 is not to be included in the determination of a housing and productivity contribution.

(5) For the purposes of this Order, each class of development referred to in subclauses (1) and (2) is a ***HPC class of development*** and any development involving development within a HPC class of development is ***HPC development***.

State Infrastructure Contributions

Calculation summary **Calculation breakdown**

Date of calculation: 10-Nov-2025

Illawarra Shoalhaven - Base HPC

State contributions are applied in accordance with the applicable ruleset/s

Current Indexation period - June 2025

Current Indexation value - 149.100

Base indexation value - 144.700

Applicable proposed development to this plan

Development	Total	Unit of charge	Indexed Rate	Indexed payable amount
Attached dwelling	3	Dwellings	6,487.309	$19,461.93

Total amount for proposed uses $19,461.93

Local Contributions	
Is the development site an "old subdivision property" identified in Shoalhaven Contributions Plan 2019?	No
Is the proposed development considered to increase the demand for community facilities in accordance with the Shoalhaven Contributions Plan 2019?	Yes - s7.11 contributions are applicable.

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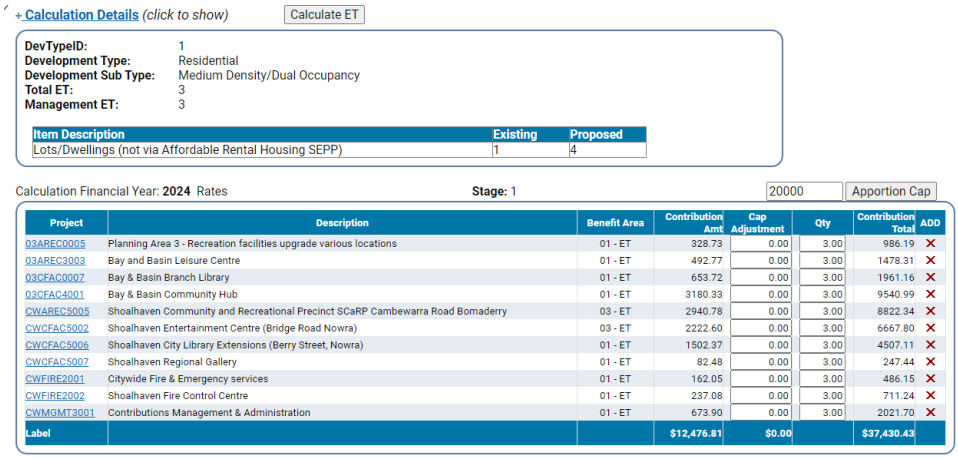
Is the proposed development considered to increase the demand for on water and sewer services (i.e. s64 Contributions)	Yes - See Shoalhaven Water Development Applicaiton Notice.

The development is most aptly characterised as a 'Dwelling' development for the purpose of calculating contributions under the Plan.



+ Calculation Details *(click to show)* Calculate ET

DevTypeID: 1
Development Type: Residential
Development Sub Type: Medium Density/Dual Occupancy
Total ET: 3
Management ET: 3

Item Description	Existing	Proposed
Lots/Dwellings (not via Affordable Rental Housing SEPP)	1	4

Calculation Financial Year: **2024** Rates **Stage:** 1 20000 Apportion Cap

Project	Description	Benefit Area	Contribution Amt	Cap Adjustment	Qty	Contribution Total	ADD
03AREC0005	Planning Area 3 - Recreation facilities upgrade various locations	01 - ET	328.73	0.00	3.00	986.19	✕
03AREC3003	Bay and Basin Leisure Centre	01 - ET	492.77	0.00	3.00	1478.31	✕
03CFAC0007	Bay & Basin Branch Library	01 - ET	653.72	0.00	3.00	1961.16	✕
03CFAC4001	Bay & Basin Community Hub	01 - ET	3180.33	0.00	3.00	9540.99	✕
CWAREC5005	Shoalhaven Community and Recreational Precinct SCaRP Cambewarra Road Bomaderry	03 - ET	2940.78	0.00	3.00	8822.34	✕
CWCFAC5002	Shoalhaven Entertainment Centre (Bridge Road Nowra)	03 - ET	2222.60	0.00	3.00	6667.80	✕
CWCFAC5006	Shoalhaven City Library Extensions (Berry Street, Nowra)	01 - ET	1502.37	0.00	3.00	4507.11	✕
CWCFAC5007	Shoalhaven Regional Gallery	01 - ET	82.48	0.00	3.00	247.44	✕
CWFIRE2001	Citywide Fire & Emergency services	01 - ET	162.05	0.00	3.00	486.15	✕
CWFIRE2002	Shoalhaven Fire Control Centre	01 - ET	237.08	0.00	3.00	711.24	✕
CWMGMT3001	Contributions Management & Administration	01 - ET	673.90	0.00	3.00	2021.70	✕
Label			**$12,476.81**	**$0.00**		**$37,430.43**	

Project	Description	Rate	Qty	Total	GST	GST Incl
03AREC0005	Planning Area 3 - Recreation facilities upgrade various locations	$328.73	3.00	$986.19	$0.00	**$986.19**
03AREC3003	Bay and Basin Leisure Centre	$492.77	3.00	$1,478.31	$0.00	**$1,478.31**
03CFAC0007	Bay & Basin Branch Library	$653.72	3.00	$1,961.16	$0.00	**$1,961.16**
03CFAC4001	Bay & Basin Community Hub	$3,180.33	3.00	$9,540.99	$0.00	**$9,540.99**
CWAREC5005	Shoalhaven Community and Recreational Precinct SCaRP Cambewarra Road Bomaderry	$2,940.78	3.00	$8,822.34	$0.00	**$8,822.34**
CWCFAC5002	Shoalhaven Entertainment Centre (Bridge Road Nowra)	$2,222.60	3.00	$6,667.80	$0.00	**$6,667.80**
CWCFAC5006	Shoalhaven City Library Extensions (Berry Street, Nowra)	$1,502.37	3.00	$4,507.11	$0.00	**$4,507.11**
CWCFAC5007	Shoalhaven Regional Gallery	$82.48	3.00	$247.44	$0.00	**$247.44**
CWFIRE2001	Citywide Fire & Emergency services	$162.05	3.00	$486.15	$0.00	**$486.15**
CWFIRE2002	Shoalhaven Fire Control Centre	$237.08	3.00	$711.24	$0.00	**$711.24**
CWMGMT3001	Contributions Management & Administration	$673.90	3.00	$2,021.70	$0.00	**$2,021.70**
					Sub Total:	**$37,430.43**
					GST Total:	**$0.00**
					Estimate Total:	**$37,430.43**

(b) The Likely impacts of that development, including environmental impacts on the natural and built environments, and social and economic impacts in the locality

Head of Consideration	Comment
Natural Environment	The proposed development will not have a significant adverse impact on the natural environment.

Head of Consideration	Comment
Built Environment	The proposed development will not have a significant adverse impact on the built environment.
Social Impacts	The proposed development will not have a negative social impact in the locality.
Economic Impacts	The proposed development will not have a negative economic impact in the locality.

(c) Suitability of the site for the development

The site is not considered suitable for the proposed development.

- The proposal is **inconsistent** with clause 1.2 [e] Aims of Plan of the Shoalhaven Local Environmental Plan 2014 in relation to flood risk - *to minimise the risk of harm to the community through the appropriate management of development and land use*.
- The proposal as submitted has not satisfied the jurisdictional requirements of the *Shoalhaven Local Environmental Plan 2014* in relation to clauses – 5.21 (Flood planning), .20 (5.22 (Special flood considerations), 7.1 (Acid sulfate soils) and 7.20 (Development in Jervis Bay region).
- The proposal is **inconsistent** with the objectives and requirements of the *Shoalhaven Development Control Plan 2014*.
- The intended use is **not** compatible with surrounding/adjoining land uses

(d) Submissions made in accordance with the Act or the regulations

The DA was notified in accordance with Council's Community Consultation Policy for Development Applications. Five submissions were received by Council objecting to the proposal. The concerns raised are outlined below:

Submission Issue	**Comment**
Flooding and Emergency Risk	
The site is located in a high hazard flood storage zone, with frequent flooding observed over recent years.	Noted and agree. The site is also located within High Hazard Floodway in a PMF event.
Increasing the number of dwellings from one to four could result in up to 24 residents, placing strain on emergency services during flood or fires.	Noted and agree
The flood impact statement is inadequate and outdated, failing to reflect recent flood events and climate change impacts.	Refer to flood comments within the body of the report
Infrastructure Limitations	

The development would intensify pressure on already limited services and increase traffic and parking demands.	Noted – there is adequate parking proposed on site. Main impact would be on the SES having to support three additional households during flood events.
Inappropriate Scale and Density	
Overdevelopment of the site.	The proposed development does not exceed the site coverage, bulk and scale criteria applicable to the site under council's DCP.
The development represents medium/high density housing which is incompatible with Woollamia's character of single, low rise cottages.	While multi-dwelling housing is permitted in the RU5 zone, the existing character of development in Woollamia is generally of a lower density, bulk and scale.
Zoning and Planning Concerns	
Woollamia is zoned RU5 – Village, intended to preserve its rural and low density character.	Refer comment above
The proposal does not align with the intent of the zoning or with the surrounding RU2 – Rural Landscape areas.	Refer comment above. RU2 zone criteria and expectations do not apply to the site.
Approval would set a precedent for future multi-dwelling developments, risking permanent change to the village's identity.	The real concern is the precedent for permitting multi-dwelling housing over flood prone land of unsuitable category and risk.

(e) The Public Interest

The public interest has been taken into consideration, including assessment of the application with consideration of relevant policies and process. Given the flooding constraints that apply to the subject site, the proposal is **not** considered to be in the public interest.

Delegations

The Guidelines for use of Delegated Authority have been reviewed and the assessing officer does not have the Delegated Authority to determine the Development Application.

Given the recommended for refusal the application would normally be determined by the Manager - City Development.

In this case the application has been called in for determination by the elected council due to community interest.

Recommendation

This application has been assessed having regard for Section 4.15 (Matters for consideration) under the *Environmental Planning and Assessment Act 1979*. As such, it is recommended that the application be refused for the following reasons:

Reasons for Refusal

1)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 5.21 of the Shoalhaven LEP 2014 and are inconsistent with the clause objectives.
2)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 5.22 of the Shoalhaven LEP 2014 and inconsistent with the clause objectives.
3)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 7.1 of the Shoalhaven LEP 2014 and inconsistent with the clause objectives.
4)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the jurisdictional requirements set out in clause 7.20 of the Shoalhaven LEP 2014 and inconsistent with the clause objectives.
5)	Pursuant to Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979, the proposal is non-compliant with the development controls set out in Chapter G5: Biodiversity Impact Assessment, Chapter G9: Development on Flood Prone Land and Chapter G26: Acid Sulphate Soils and Geotechnical (Site Stability) Guidelines of Shoalhaven DCP 2014 and is inconsistent with the acceptable solutions.
6)	Pursuant to Section 4.15(1)(c) of the Environmental Planning and Assessment Act 1979, the proposed development may have an adverse likely social and economic impact as a result of flooding impacts.
7)	Pursuant to Section 4.15(1)(c) of the Environmental Planning and Assessment Act 1979, the information submitted with the development application does not satisfactorily demonstrate that the site is suitable for the proposed use.
8)	Pursuant to Section 4.15(1)(e) of the Environmental Planning and Assessment Act 1979, having regard to the above matters to address the relevant provisions of Environmental Planning and Assessment Act, 1979, the granting of development consent is not considered to be in the public interest.

[redacted]

[redacted]

Senior Development Planner
City Development
6/11/2025

Reviewers Comments

The application has been reviewed and the recommendations of the report are concurred with. Section 7.11 contributions (where applicable) have been reviewed and agreed to.

[redacted]
[redacted]
Lead - City Development
City Development
18/11/2025

Reviewers Comments

The application has been reviewed and the recommendations of the report are concurred with.

[redacted]
[redacted]
Manager - City Development
City Development
27/11/2025

Appendix B – Assessment Checklist: Chapter G13: Medium Density and Other Residential Development

Objectives of Chapter G13

The objectives of are to:

i. Ensure a comprehensive design-oriented approach to housing resulting in high quality urban design, development and residential amenity.
ii. Set appropriate environmental criteria for energy efficiency, solar access, light spill, privacy, noise, vehicular access, parking and open space.
iii. Allow for efficient use of existing services and facilities, including utility services, transport systems and community facilities.
iv. Maintain and enhance the amenity of existing and future residential areas.
v. Promote wider and more affordable housing choice in Shoalhaven.
vi. Allow opportunities for home owners to receive rental income or provide relatives with self-contained accommodation.
vii. Implement agreed strategic directions and respond to demographic needs (e.g. the ageing population).

5 Medium Density Development

5.1 Principle Controls

5.1.1 Minimum Lot Size

Zone	RU5 Village
Lot size	1991.81m²
Is the site connected to reticulated sewer?	**Yes**

5.1.2 Density

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Development Type	Mult Dwelling Housing	
Zone	RU5 Village	
	Acceptable Solution	***Proposed***
Floor Space Ratio or Gross Floor Area	***Zone*** / ***FSR or GFA*** RU5 / FSR = 0.5:1 Or 995m^2	Existing approved single dwelling GFA: 173m^2 Proposed multi dwelling housing ground Floor GFA: 321m^2 Proposed multi dwelling housing first floor GFA: 96m2 Total GFA = 590m^2 or 0.30:1

5.1.3 Building Envelope, Heights and Setbacks

	Acceptable Solution	***Proposed***

Section 4.15 Assessment Report – DA24/1589DA22/1148

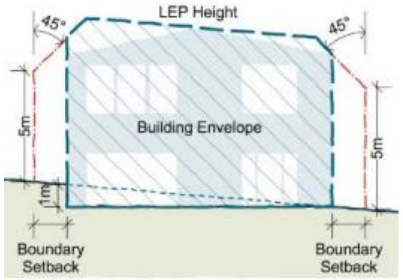
<table>
<tr><td>Building Envelope</td><td> 

Figure 2: Building envelope</td><td>The proposed buildings are wholly contained within the building envelope.</td></tr>
<tr><td>Building height (peak building height)</td><td>7.5m</td><td>7.5m</td></tr>
<tr><td>Front setback</td><td><table>
<tr><th></th><th>Setback</th></tr>
<tr><td>To verandahs, awnings and patio</td><td>4.5m</td></tr>
<tr><td>To dwellings</td><td>5.5m</td></tr>
<tr><td>To first storey</td><td>Further 1m setback from the dwelling setback at ground level</td></tr>
</table></td><td><table>
<tr><th></th><th>Setback</th></tr>
<tr><td>To verandahs, awnings and patio</td><td>7.5m</td></tr>
<tr><td>To dwellings</td><td>7.5m</td></tr>
</table></td></tr>
<tr><td>Predominant building line setback</td><td>7.5m</td><td>Proposed development is consistent with the predominant setback in the area.</td></tr>
</table>

Side setback(s)		***Setback***	***Setback***	
	Dwellings	1.5m	***Dwellings***	1.5m & 4.6m
	Non-habitable outbuildings	0.9m	***Non-habitable outbuildings***	N/A

Section 4.15 Assessment Report – DA24/1589DA22/1148

Rear setback	<table><tr><th></th><th>Setback</th></tr><tr><td>***Building walls <4.5m***</td><td>3m</td></tr><tr><td>***Building walls >4.5m***</td><td>6m</td></tr><tr><td>***Non-habitable outbuildings***</td><td>0.9m</td></tr></table>	<table><tr><th></th><th>Setback</th></tr><tr><td>***Building walls <4.5m***</td><td>>3m</td></tr><tr><td>***Building walls >4.5m***</td><td>>6m</td></tr><tr><td>***Non-habitable outbuildings***</td><td>N/A</td></tr></table>
Rear / side setback to foreshore reserve	7.5m	N/A – single dwelling at rear of property has separate approval.

5.1.4 Landscaping

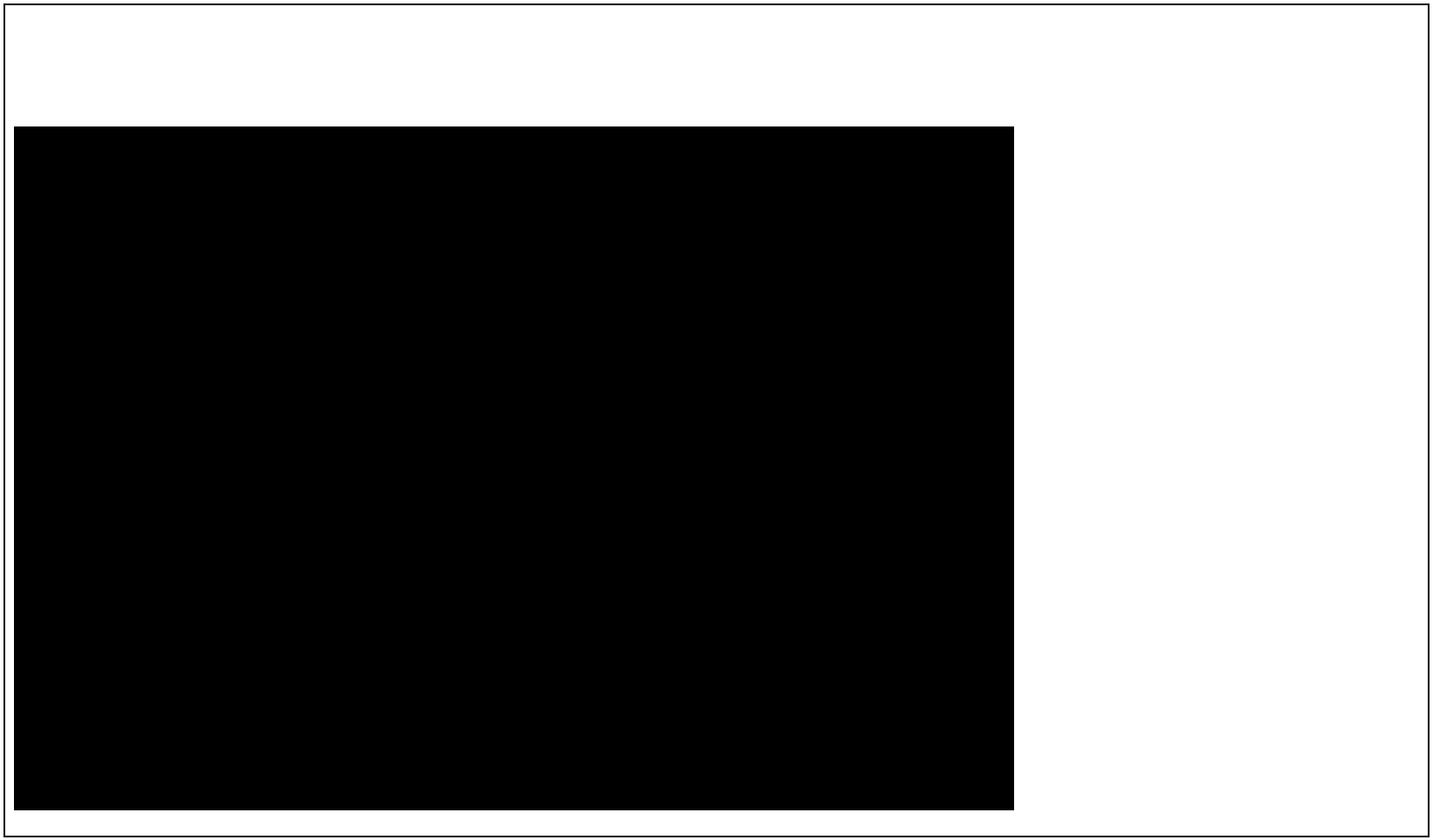
Total landscaped area provided	631m² (31% of site area) Site Area: 1,991.81m^2	
	Acceptable Solution	***Proposed***
Deep soil landscaped area: • *Minimum dimension of 3m in any direction*	10% of site area	At least 10% of the site has been provided as deep soil landscaping.

Section 4.15 Assessment Report – DA24/1589DA22/1148

• *Is not fragmented by sub-surface drainage infrastructure* • *Is provided with an automated watering system*		
Additional landscaped area: • *Minimum dimension of 1.5m in any direction* • *Can include permeable surfaces, such as gravel, mulch, turf or similar.* *Note: This additional landscaped area does not include any "formal landscaping" areas as identified above.* *Note: Carparking, vehicle access, storage, clothes drying and water tank areas are not to be included as landscaped areas.*	20% of site area	A further 20% (at least) of the site in addition to the deep soil landscaped area has been provided as additional landscaped area
Front setback landscaping	At least 35% of the front setback is to be landscaped.	At least 35% of the front setback is landscaped. Front Landscaped Area Provided = 130.6m2 Front setback area = 362m2

Section 4.15 Assessment Report – DA24/1589DA22/1148

		= 36% front setback is landscaped. 
Is proposed landscaping appropriate?	Yes	



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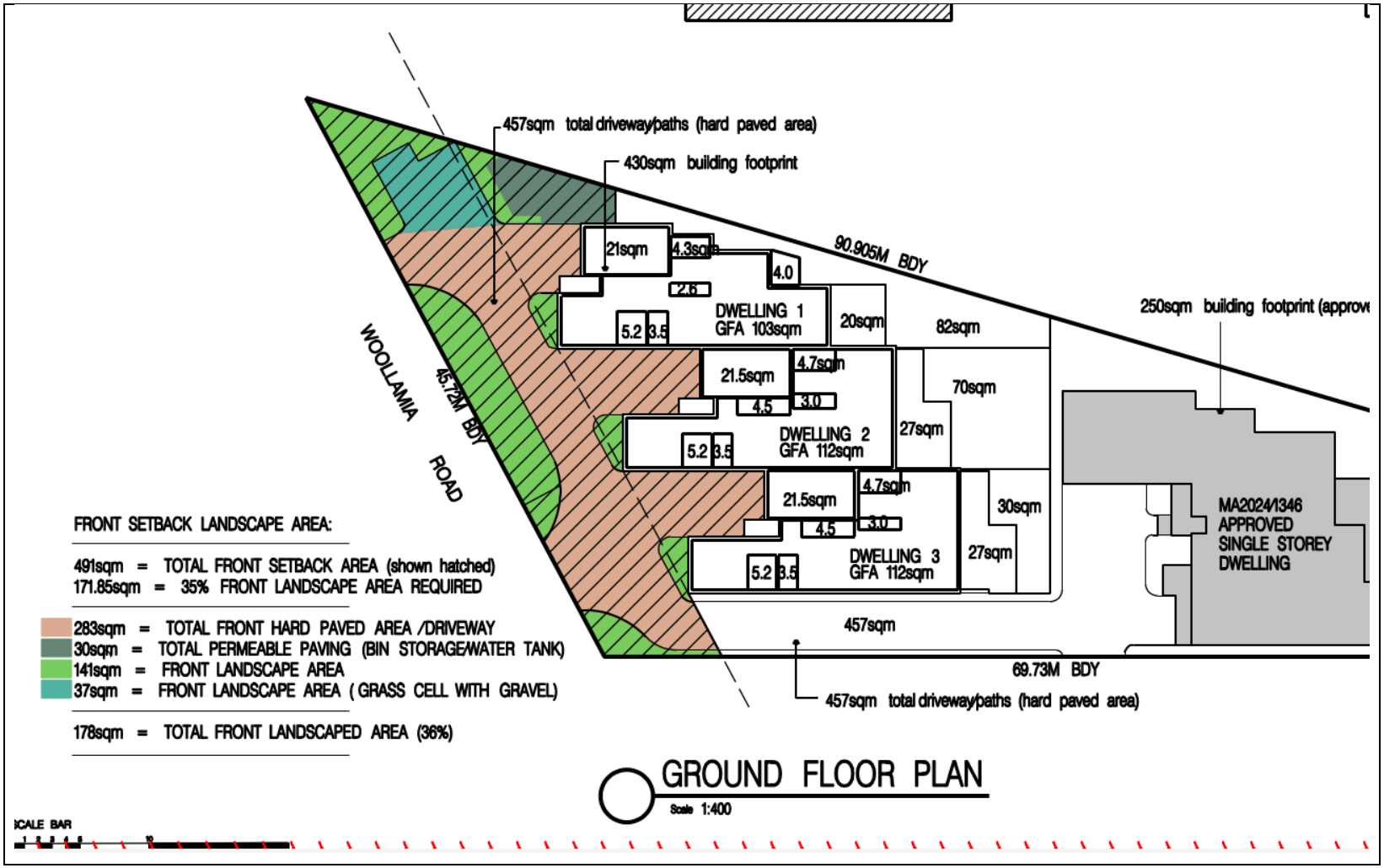

CL25.413 - Attachment 3

5.2 Siting the Development	
5.2.1 Local Character and Context	
Is the development compatible with the neighbourhood character?	**No**
Is the development sympathetic to nearby heritage items and heritage conservation areas?	N/A
Is the development considered appropriate with regard to visual amenity and views from adjoining residences and the public domain?	**No**
Does the development avoid clustering of dual occupancy or multi dwelling housing development?	Yes
5.2.2 Orientation and Siting	
Does the proposal adequately respond to the constraints and opportunities of the site?	**No**
Does the proposal provide opportunities for passive surveillance and appropriately orientate entrances and windows to the street frontage?	Yes
5.2.3 Vehicle and Pedestrian Access	
Is pedestrian access to the dwellings appropriate?	Yes
Are driveways setback at least 0.5m from property boundaries?	Yes

Does the development and driveways avoid a gun-barrel effect?	Yes
Can an appropriate driveway grade and transitions be achieved?	Yes
Are driveways sited to maximise opportunities for on-street parking?	Yes
Are sight lines adequate?	Yes
5.3 Amenity	
5.3.1 Building Separation and Visual/Acoustic Privacy	
Is appropriate privacy is maintained to adjoining properties?	Yes
Is external plant equipment appropriately located to minimise noise and acoustic impacts to neighbouring properties?	To be conditioned, if approved.
5.3.2 Solar and Daylight Access	
Does the development will maintain at least 3 hours of direct sunlight between 9am and 3pm on June 21st to at least 10m² of private open space and 50% of windows and glazed doors of north facing living areas, and also north facing roofs and existing solar collectors of adjoining dwellings?	Yes
Does the development respond to solar opportunities of the site to encourage energy efficiency?	Yes

5.3.3 Private Open Space	
Are private open space areas appropriately sited?	Yes
Does the proposal provide adequate private open space for each dwelling?	At least 50m² of accessible and useable private open space is provided on site for each dwelling.
5.3.4 Storage and Laundry Facilities	
Does the dwelling include appropriate laundry and clothes drying facilities? as well as appropriate storage areas?	Yes
Does the dwelling include adequate storage areas?	Yes
5.3.5 Car and Bicycle Parking	
Is appropriate parking provided for the development?	Appropriate car parking is provided on site.
5.4 Configuration and Design	
5.4.1 Building Form, Design and Materials	
Is the proposed building appropriately designed and articulated, and is it sympathetic the existing character of the area?	**No** - The proposed multi-dwelling development does not adequately respond to the site's physical constraints or the established character of the surrounding area. The design fails to appropriately address the flood-affected nature of the land, which in turn compromises the ability of the development to deliver liveable and resilient housing outcomes. Given the applicable flood planning levels and the maximum building height of 7.5 metres (imposed due to the site's foreshore location), the proposed scale and density are considered excessive and constitute an overdevelopment of the site.

Section 4.15 Assessment Report – DA24/1589DA22/1148

Are proposed colours and materials appropriate?	Yes
Is the cumulative width of garage doors facing a street frontage less than 50% of the total building façade?	Yes
6.3.5 Universal Design	
Has the proposed development considered the principles of universal design?	Council's Building Surveyor has provided the following commentary regarding the design: *As multi-dwelling housing, the Statement of Environmental Effects (SEE) indicates that at least 1 dwelling must comply with Silver Level requirements in the Livable Housing Design Guidelines (LHDG). The SEE indicates that all dwellings can comply.* *The application has been supported by a Livable Housing Report (D25/443436) that appears to have been prepared by the owners. The Report indicates that all 3 proposed dwellings can comply with the LHDG. It also indicates that the dwelling approved under DA23/1694, which would be subject to a future modification under s4.55, will be livable and adaptable under AS4299. This will need to be considered in detail during that s4.55 application as insufficient detail, such as a post-adaptable floor plan, has accompanied the current DA. My review has focussed on the three proposed dwellings that are before Council. The following concerns are raised:* • *Design Element 1 - Dwelling access – A safe, continuous step-free pathway from the front boundary to an entry door to the dwelling. The proposed pathway has steps to the entry doorway. The Report proposes that the space for a platform lift is available and therefore complies with this requirement. The following concerns are raised with the proposed solution:* *c) The LHDG does not consider a platform lift as an option to satisfy this requirement. The report appears to be applying some principles from other documents that may not apply to parts of LHDG. These includes the provision for post-adaptation to provide access, but the LHDG does not, in my opinion, consider that approach with all its requirements, such as this one. The LHDG clearly states that a step-free pathway to an entry door does not apply where the slope of the ground would not accommodate a compliant ramp. (Please see snip below)*

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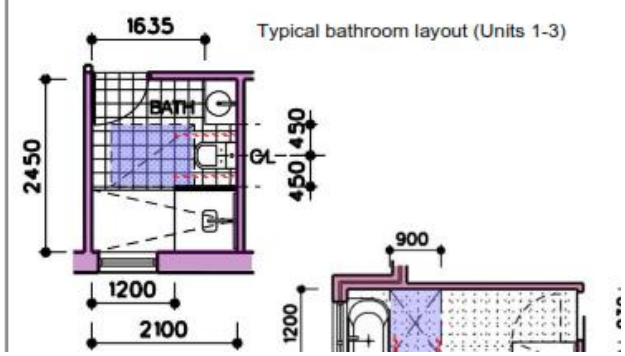
	Silver Level a. Provide a safe, continuous step-free pathway from the front boundary of the property to an entry door to the dwelling. This provision does not apply where the average slope of the ground where the path would feature is steeper than 1:14. b. The path of travel referred to in (a) should have a minimum clear *Where ground levels would not permit a compliant ramp and possibly require the installation of a lift or similar, the requirement is not applicable. In my opinion, the LHDG requires the inclusion of a step-free pathway, at the time of the dwelling construction, to at least one livable dwelling in the proposal as the ground levels are less than 1:14.* *d) Even if a platform lift was considered an appropriate solution to provide access, I cannot see a potential location near the front entry in Dwellings 1- 3 that allow its installation whilst retaining the stairs and vehicular access to the garages.* *It does not appear that access complying with LHDG could be provided to any of the proposed dwellings because of the need to be constructed above the flood level.* • *Design Element 4 - Toilet – The Report indicates that the bathroom near Bed 1 in Dwellings 1-3 will comply because they have the clearances required by LHDG and are located within masonry walls. The plans and the detail in the report (reproduced below) appear to show the internal walls as framed construction, not masonry.*

Section 4.15 Assessment Report – DA24/1589DA22/1148



From page 12 of Report

NOTES:

EXTERNAL & INTERNAL WALLS:

- BRICK VENEER EXTERNAL WALLS + ANTIGLARE FOIL + R3.5 INSULATION
- CAVITY BRICK – GARAGE EXTERNAL WALLS
- INTERNAL STUD WALLS WITH 10MM PLASTERBOARD LINING
- INTERNAL STUD WALLS + R2.5 INSULATION BETWEEN SPLIT LEVEL WALLS AND WALLS ADJOINING GARAGE WITH 10MM PLASTERBOARD LINING
- BRADFORD FIRESEAL PARTY WALL BETWEEN NEIGBOURS + R2.0 INSULATION

FLOORS:

Typical Notes on Plans – framed internal walls proposed.

The Report has not addressed the requirement in LHDG that "the toilet pan should be located in the corner of the room (if the toilet is located in a combined toilet/ bathroom) to enable installation of grab rails at a future date". The layout of the bathroom in the livable dwelling would need to be amended prior to the construction to ensure grab rail installation was the only post-construction measure required.

	The plans accompanying the CC application will need to demonstrate compliance with all the LHDG requirements. ***Overall, the property may be unsuitable for a multi-dwelling development as the flood-prone constraint appears to prevent the construction of a livable dwelling complying with LHDG.***
5.5 Environment	
5.5.1 Water Management and Conservation	
Stormwater from the building roof and hardstand areas, and overflow from rainwater tanks/on-site detention systems will be directed to appropratiely sited on-site absorption trenches Recommended conditions of consent will ensure stormwater is not directed onto adjoining properties.	
5.5.2 Servicing	
Are all relevant services available to the development?	Yes
5.5.3 Waste Management	
Are appropriate bin storage and kerbside collection areas are available for each dwelling?	Yes – an appropriate area is provided for bin storage and kerbside collection for each dwelling.

Shoalhaven City Council

P.O. Box 42 Nowra NSW 2541

Email: NSW Planning planning.apps@planning.nsw.gov.au

22nd November 2024

Planning Department

ATTN: Emily May

Dear Emily,

RE: Development Application – DA2024/1589 - 737 Woollamia Rd Woollamia – Lot 12 DP 9289

I refer to the abovementioned development application. In relation to the letter dated 29th October 2024 wherein you raised matters from Floodplain Management. Please find attached the following additional correspondence in response.

- Appendix A – Additional Information on Evacuation - Rienco Consulting – 11 November 2024.
- Appendix B – Flood Risk Management Peer Review Report - Woolacott Consulting Engineers – 21 November 2024.
- Appendix C - Suitability of Material or Construction Methods Report.
- Appendix D - Flood Affectation Report – Northrop Consulting Engineers.
- Appendix E - Flood Emergency Plan – Northrop Consulting Engineers.
- Appendix F - Flood Evacuation Plan – Northrop Consulting Engineers.
- Appendix G - Flood Evacuation Maps – Northrop Consulting Engineers.

In addition, we note the following for your consideration;

Proposed PMF Refuge

The proposed development includes a PMF refuge, which is a habitable area located above the PMF level for SIP purposes and available during and beyond a flood event. This refuge is designed to cater to the number of people reasonably expected on the development site and is equipped with emergency lighting, water and sewerage supply. It will also allow for storage of food (bar fridge) and medical emergency kit.

The integration of flood management measures including fit for purpose constructability, durability of materiality, suspended floors on piers mitigating impact to flood storage, ensures the development is resilient to flooding.

The presence of a PMF refuge ensures that residents have a safe place to shelter during extreme flood events, reducing the need for emergency services to conduct rescue operations.

Constructability & Structural Adequacy - H5 Hazard Compliance

The proposed development will be constructed from flood compatible materials such as masonry walls and suspended concrete floors in accordance with the flood proofing guidelines.

The materials specified for this residential development have been meticulously selected to comply with H5 hazard requirements, ensuring durability and resilience in challenging environmental conditions. The H5 hazard level demands materials capable of withstanding extreme conditions and will either meet or exceed the required treatment standards, providing long-term structural integrity and safety for the development.

In reference to impact from floating objects, the selected materials have been evaluated for their strength, durability, and ability to withstand mechanical stress by using robust materials designed for high-hazard scenarios, the development safeguards its structural integrity, minimizing the risk of damage and ensuring occupant safety even in adverse conditions.

Recent Approvals

Recently there was an approval (DA16/2148) for a multi dwelling (dual occupancy) at 19 Edendale Street Woollamia located approximately 300m from the subject site. This property has identical hazard and hydraulic category (High Hazard / Flood Storage) as 737 Woollamia Rd Woollamia.

There has also been a subdivision approval at 754 Woollamia Rd located approximately 100m from the subject site. This subdivision comprised of 2 lots: Lot 1 = 505m2 and Lot 2= 810m2. Lot 2 (known as 748 Woollamia Rd) has recently had a single dwelling approved (DA18/1453) and the dwelling has now been built. This property has identical hazard and hydraulic category (High Hazard / Flood Storage) as 737 Woollamia Rd Woollamia. The existing site levels of these 2 lots are much lower at RL1.21 (lowest point) to RL 1.64 (highest point).

Intensification

As discussed within the meeting held on Tuesday 29th October 2024, it is crucial to underscore that Clause 5.21 of the Shoalhaven LEP does not refer to 'intensification' in any way. Council's DCP (Chapter G9) encourages residential development in High Hazard Flood Storage areas (as is the subject site) with the provision of development controls and explicitly encourages the objectives of the zone and are fully supported. The development is a permitted use in the zone, and an intensification of use would require a Planning Proposal to increase height or FSR controls. None of this is proposed with the application.

The site is zoned RU5 Village, and our position is that what is proposed is a low-density multi-dwelling housing development. Reasons for this are as follows:

- The floor space ratio proposed is 0.3:1 which unequivocally qualifies as low density. Even single dwellings within the R2 Low Density Residential zone are allowed a floor space ratio of 0.5:1. Therefore, the proposed development maintains a significantly lower density than what is typically allowed in other residential zones.
- Building setbacks to Woollamia Road are 7.5m. They could have been 5m.
- The height of the buildings remain under the 7.5m height limit.
- The development features more landscaped area than required by Council's DCP. This not only enhances the aesthetic appeal of the site but also reinforces the low-density characteristic by providing ample green space and mitigating any potential environmental impact.

We note the number of dwellings proposed is permissible within the relevant land use zone at 737 Woollamia Rd and is in accordance with SLEP 2014.

Within the meeting held on Tuesday 29th October 2024, It was advised that the Councils FSR's assessment for the site zoned R2 Low Density Residential would remain the same at 0.5:1 no matter how many dwellings were proposed, whether one large dwelling or 4. This is also enshrined, in particular in regard to flooding, in Cohesive Planning v Inner West Council [2023] NSWLEC 1047.

Any assertion that the site is being 'intensified' lacks factual basis and fails to consider the comprehensive planning framework that governs this area.

"Draft" Shelter-in-Place Guideline Response

Currently, the proposed multi-unit development complies with Shoalhaven Councils Develop Control Plan 2014 and Local Environmental Plan 2014 objectives and planning controls. The DCP and LEP have been formulated to address the specific needs and constraints of the local environment, taking into account historical data, community feedback, and comprehensive urban planning principles.

Enforcing a draft guideline that has not yet been finalized or harmonized with these existing statutory plans creates regulatory confusion, undermining the integrity of established planning frameworks.

We have consulted with and obtained counsel from several independent Town Planning firms with the received feedback being consistent. We have also spoken to several Water Engineers and Hydrologists regarding Shoalhaven City Councils stance on this matter.

The advice received is that although the "Draft" Guideline exists, the "Draft" Shelter-in-Place Guideline, as its name implies, remains in its developmental phase. During this phase, the "Draft" Guideline is subject to review, revisions, and potential alterations.

The iterative nature of policy drafting means that the guideline may undergo changes to address identified limitations.

Both the Department of Planning, Industry and Environment (DPIE) and numerous Councils have expressed a reluctance to enforce the "Draft" Shelter-in-Place Guideline. Their hesitation stems from a recognition of the uncertainty, inherent to the Draft Guidelines limitations on significant existing developments and infrastructure. (i.e. Norwest Private in Campbelltown, Westmead Private as well as several key projects)

By withholding enforcement, these bodies are maintaining a prudent and cautious approach, ensuring that their regulations remain robust and defensible under scrutiny. Enforcing a draft could expose Councils to legal challenges and undermine public confidence.

For planning policies to be effective and enforceable, they must be cohesive and internally consistent. Once the "Draft" Shelter-in-Place Guideline is finalized, it will necessitate amendments to existing DCPs and LEPs to eliminate any discrepancies and contradictions.

Independent Third Pary Advice

In addition to Rienco Consulting response letter dated 11 November 2024 (Appendix A) we have also commissioned Woolacotts Consulting Engineers who have provided a Peer Review (Appendix B) of Rienco Consulting's response letter and provided an additional assessment. Based on Woolacott Consulting Engineers review of the flood conditions of The Site and the Additional Information on Evacuation by Rienco Consulting, Woolacott Consulting Engineers both support and affirm Rienco Consulting's position.

We trust the above is satisfactory.

Should you require any further information, please do not hesitate to contact me.

Thank you.

Kind Regards,

[redacted]

Liliana Zreik

[redacted]

RIENCO CONSULTING
WATER ENGINEERING SPECIALISTS

Managing Director

A J Barthelmess
Dip. Eng, MEng. MIEAust CPEng RPEQ NER

The Owner
737 Woollamia Road,
WOOLLAMIA NSW 2540

Your Ref: N/A

Our Ref: 24135 Letter 002 Rev 1

Date: 11h November 2024

Attn: Liliana Zreik (Applicant)

RE: ADDITIONAL INFORMATION ON EVACUATION - PROPOSED DEVELOPMENT AT 737 WOOLLAMIA ROAD, WOOLLAMIA

1. You have received a Request For Information (RFI) from Shoalhaven City Council (SCC) in relation to flooding for the proposed development at 737 Woollamia Road, Woollamia (DA2024/1589).

2. Overall, the RFI is not explicitly a RFI – it is a file note authored by the assessing officer that has been issued as a RFI. As it contains general assessment notes and no explicit request for information, it is left up to the reader of the RFI to conclude what the concerns of SCC are, and what additional information can be provided.

3. Summarily, we have had to interpret the RFI to garner the concerns, and then we have had to determine the best way to respond to what we understand those concerns to be.

4. To this end, we elicit as best we can the following concerns from the RFI, viz:

    a. The development application does not address recent (state-wide) planning documents that Council is obliged to consider.

    b. The DA material states that evacuation from the site is possible, but does not demonstrate how it is possible.

    c. Given the above, it has not been demonstrated that Clause 5.21(2)(c) of the Shoalhaven LEP (2014) has been met.

5. To address these concerns which centre on evacuation (and safe occupation of the site), we provide additional information below in several parts. Firstly, a discussion on the feasibility of an evacuation itself and secondly, we respond to the issue of evacuation in the planning context.

What does an evacuation route look like?

6. There are two ways to evacuate the site – to the north by Woollamia Road, and to the south by Woollamia Road.

7. The route to PMF-free land to the north is approximately 700 metres directly following Woollamia Road. This route goes through several high-points and low-points, and has no destination where shelter may be possible. The low-point of this route is the road level along the route being RL +1.3m AHD.

8. The route to PMF-free land to the south is longer, at 1,500 metres. However, if this journey is made, people would then have access to the commercial area of Huskisson which may provide opportunities for food and shelter. The low-point of this route is the road level at the front of the site, being RL +1.5m AHD.

9. Based on the above, even though the southern route is longer, it is continuously rising and has the opportunity for safety once complete. This is the preferred evacuation route.

How (and when) is the evacuation route affected by flooding?

10. As stated above, the low-point of the preferred route is the road level at the front of the site, being approximately RL +1.5m AHD.

11. As this is higher than any of the site levels in the vicinity of the proposed development, this means that the duration of inundation of the evacuation route is always longer than the duration of any inundation on the site.

12. **Figure 1** describes three critical duration floods of various magnitude, with commentary on the duration of inundation at various locations.

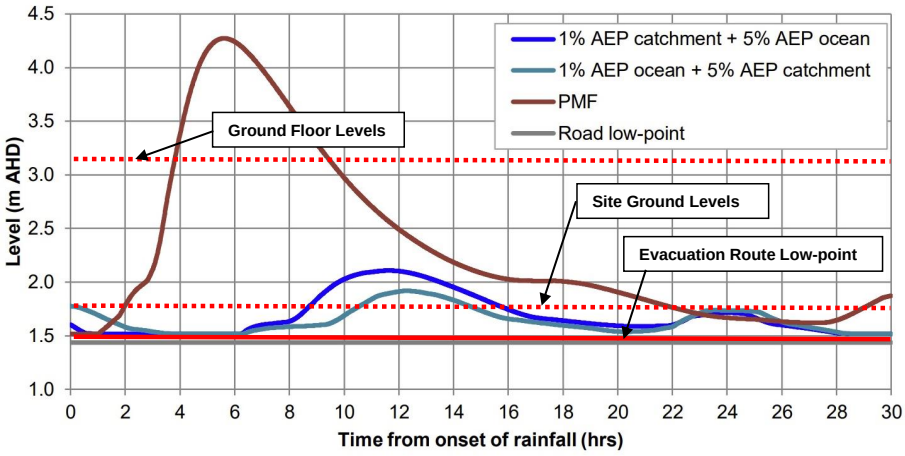


Figure 1 – Critical Duration Hydrographs

13. As can be seen in **Figure 1** – for the entire duration of a 1% AEP or PMF event, the low-point of the evacuation route is cut (i.e. over 30 hours). This would be reduced in terms of duration for shorter rainfall events, but the surrounding tailwater levels mean a similar isolation period.

14. The worst-case 1% AEP event shows that the site is inundated for approximately 7.5 hours.

15. This raises an important point, which is: even if the land was PMF-free and therefore had no flood affectation or applicable development controls – it is still unable to be evacuated

(and people are isolated) because of the level of Woollamia Road. Therefore, it is not the attributes of the development or the site itself that are the reasons why evacuation cannot be achieved. This is discussed in more detail further in this report.

16. The evacuation route is even affected by tides – without any flood occurring at the same time. **Figure 2** shows Council's adopted 1% AEP tide levels and durations.

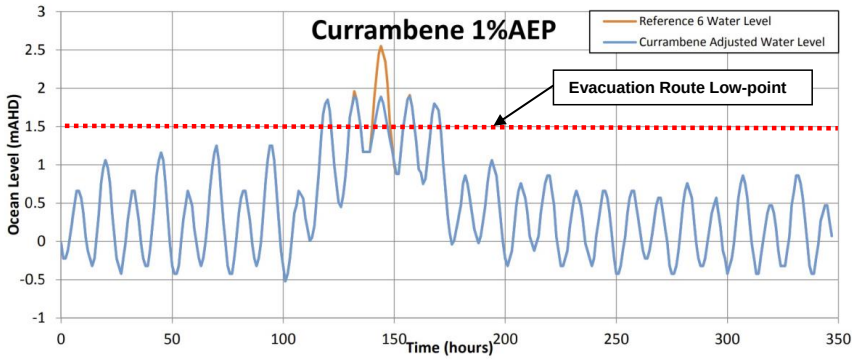


Figure 2 – 1% AEP Tide Levels and Durations

17. It can be seen in **Figure 2** that for a 1% AEP event, there are five times that the evacuation route is cut by tides alone in approximately 2 days – without any consideration of flooding in Currambene Creek. These instances are for greater than 6 hours.

Is self-trigged evacuation before the flood possible?

18. The current DA provides for shelter-in-place and/or evacuation, whichever is the preferred outcome on the given day of a flood, by the SES. This is appropriate and best-practice.

19. The decision to evacuate the site, or anywhere in Woollamia, is a significant decision that would be made by the SES.

20. Council appears to be under the (misguided) understanding that it is the Applicant's responsibility to demonstrate that they can evacuate themselves, and the demonstration of this is a development standard.

21. If the Applicant, or a future resident of the development, was to evacuate themselves, there are a number of challenges to overcome.

22. Firstly, there is minimal lead-time to allow for suitable flood intelligence that informs the occupants decision to evacuate. Lead-time can be described as the time between when we know enough rain has fallen in the upstream catchment to generate a flood that would require evacuation, and the time that the flood physically reaches Woollamia.

23. In other words, if we know 300 mm of rain in 6 hours is enough to generate a flood that would trigger an evacuation, what is the time between when that 300 mm has fallen, to the time that the flood reaches Woollamia?

24. Further, how does a resident of Woollamia access such data, and the sophisticated analysis required to forecast a flood and recommend an evacuation?

25. NSW Water, the Bureau of Meteorology or Manly Hydraulics Laboratory operate no real-time rainfall instruments in the Currambene Creek catchment such that rainfall observations can be made by an individual.

26. The Bureau of Meteorology does operate a real-time water level instrument at Falls Creek, which is approximately 10 kilometres upstream of the subject site. After due consideration, it is not possible for a resident to utilise this instrument, in terms of flood warning, because:

    a. Inundation of an evacuation route from the site could occur without the instrument being triggered (for example, because of a high tide).

    b. The rates of rise. The peak rate of rise (in **Figure 1**) is 1 metre per hour, and the difference between the normal water level and the evacuation route being lost is approximately 1 metre. One hour from the instantaneous movement of a water level gauge is not enough time (or enough information) upon which to trigger an evacuation warning.

27. Whilst we know from SCC's modelling via their adopted *Currambene and Moona Moona Creek Floodplain Risk Management Study and Plan* (2016) that the duration of some floods may exceed 6 hours, we cannot confirm in real-time (or even via a reasonable forecast) when that flood will occur.

28. Even if a flood warning system could be included in the development, the lowest level on the site is approximately the level of the low-point in the evacuation route. By the time the earliest available trigger on the site could be triggered, the evacuation route is already cut.

29. Summarily, there is no way that residents of Woollamia can know how much rainfall has fallen in the catchment, or of an impending flood, based on their own ability to inform themselves. It follows that without such knowledge, no forecast of an impending flood can be made by the resident. Therefore, a decision to self-evacuate with 'lead-time', or ahead of time, is not presently possible.

30. This has nothing to do with the site or development characteristics. There is nothing the Applicant can do about this.

31. Given the discussion above, we are of the view that the concept of a self-triggered evacuation of either the site, or Woollamia, is currently not possible nor desirable.

32. However, that does not mean that occupants cannot be evacuated.

33. Helpfully, there is a plan.

Is SES-trigged evacuation before the flood possible?

34. Yes.

35. With the advanced forecasting available to the SES, the SES could trigger an evacuation with suitable advanced notice if that was available to the SES. This is because the SES is privy to much more detailed weather information than the general public and is the designated lead agency in relation to public safety during flooding.

36. This is clear in the SES's *Shoalhaven City Flood Emergency Sub Plan (2022)* where a specific action for the SES is to notify the community:

a. On receipt of a Bureau Severe Weather Warning or Thunderstorm Warning that includes heavy rain or storm surge;

b. On the receipt of a Bureau Flood Watch or Flood Warning; or

c. On receipt of warnings for flash flood; or

d. On receipt of a dam failure alert; or

e. When other evidence leads to an expectation of flooding.

37. If an evacuation is deemed necessary, the SES trigger this evacuation. However, these are limited and at the discretion of the SES, as elaborated below.

38. This would be broadcast to the community through a range of SES strategies including door-knocking, internet, news broadcasts and alerts directly to mobile phones on the 'Hazards Near Me' app.

If evacuation prior to the flood was possible, would the SES evacuate?

39. Not necessarily.

40. This is evidenced in the *Shoalhaven City Flood Emergency Sub Plan (2022)* which states, with specific regard to evacuations:

> *Evacuations will take place when there is a risk to public safety. Circumstances may include:*
>
> - *Evacuation of people when their homes or businesses are likely to flood.*
> - *Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access.*
> - *Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable.*

41. The SES are clear that evacuations will take place when there is a risk to safety. There may not always be a risk to safety that outweighs the risks associated with evacuations, and therefore evacuations are not mandatory and are not "a given".

42. In particular, the development has as PMF-free refuge and the risk to safety approximates zero. Working on a triage system, the SES is likely to rank risk to life at the proposed development as the lowest in Woollamia.

43. Reflecting this, the SES *Shoalhaven City Flood Emergency Sub Plan (2022)* goes on to state that, before any evacuation can be carried out, the following mandatory factors must be considered on any given day:

a. *Duration of evacuation.*

b. *Characteristics of the community.*

c. *Numbers requiring evacuation.*

d. *Availability of evacuation routes and transport.*

e. *The ability for existing levees or other flood protection works to fulfil their intended function.*

f. *Time available for evacuation.*

g. *Evacuee management requirements.*

h. *Resources and delivery of evacuation information.*

i. *Length of isolation.*

44. The SES evaluates each of these matters of consideration prior to taking the decision to evacuate (or not) before, during and after the event. It is a constantly recurring and iterative evaluation through the flood emergency, by the SES.

45. For example, even if two identical floods occurred, the SES may evacuate for one and not the other, depending on whether it was (for example) Christmas and the areas population was peaking, or based on the time of day and tourists lack of familiarity with other hazards (such as broader flooding in the region).

46. This is affirmed in the *Shoalhaven City Flood Emergency Sub Plan (2022)* where it states that *the population of Huskisson, Woollamia and Myola increases during peak holiday periods and the level of flood awareness of visitors to the area is likely to be significantly lower than within the resident community*.

47. This is further affirmed in the *Shoalhaven City Flood Emergency Sub Plan (2022)*where the SES state:

> *NSW SES Incident Controllers, Planning and Intelligence officers will carefully consider the risks involved in conducting evacuations. All evacuation decisions will be made as per the current NSW SES policies and procedures, and consistent with the NSW Evacuation Management Guidelines*

48. It therefore follows that if the SES do not undertake mandatory evacuations, any only recommend evacuations after careful consideration of the risks, evacuation is not something that a resident of the development should undertake on their own in particular when they have a known place of safety on site. To do so would be dangerous, litigious, and inconsistent with the SES's adopted emergency response strategy for Woollamia.

49. This is supported by Loh (2007) who summarises:

> *…. even if clear powers to evacuate exist, it is important to remember that the decision to use one's power to evacuate is a choice and must be considered carefully as it is often an onerous, costly and dangerous task. Therefore, prior to exercising their evacuation powers, <emergency services> should ensure that they have carefully considered their decision to evacuate (such as whether it is in accordance with the well-accepted 'Prepare, Stay and Defend or Leave Early' policy) and then to exercise their powers to the extent as provided for by legislation.*

50. Even on the basis that a site-specific plan could be put in place for future occupants of the development to evacuate, we consider that this will inevitably become a burden on the SES, and therefore increase the workload on the SES during floods.

51. For example, as a flood unfolds and the SES are working through their assessment of who to evacuate (if at all), they may decide that because the duration of flooding is less than 6 hours (for example) it's better on that day to not evacuate Woollamia.

52. But if a site-specific flood emergency plan for this development triggered an evacuation, the SES will now have multiple people wandering around Woollamia and Huskisson during a flood that the SES and NSW Police will have to manage. The SES may direct the residents to return to their dwelling – given it's a known place of safety and a location where they can assist their neighbours who don't have PMF-free shelter.

53. We submit that mandating self-evacuation, as is seemingly espoused by the Council by way of a development standard, is is an impossible situation.

54. There are other legal hurdles that, we submit, may prevent the imposition of having to produce a plan, specific for this development, which mandates evacuations. Loh (2007) notes that even when a state of emergency is declared and the SES is carrying out forced (or mandatory) evacuations:

> *It is still subject to interpretation as to whether these broad <SES> powers are sufficient to override the common law position that a person can freely enjoy her or his property rights unencumbered by the state and thus should not be forcibly evacuated when he or she has a pecuniary interest in the land, building or goods in question.*

55. Summarily,

    a. The decision to evacuate, or not, requires careful consideration.

    b. The current SES plan for Woollamia is that the SES trigger, and coordinate, evacuations.

    c. There is not enough 'intelligence' available for a future occupant to evaluate the risks of evacuation versus not evacuating, and no flood response plan can fully inform an occupant to the level required to make a decision.

56. This is why the SES is legislated to be in-charge of evacuations.

57. This is why we have a Shoalhaven City Flood Emergency Sub Plan.

58. This is why the SES will *use flood intelligence, official forecasts, warnings, and flood scenario products to undertake an assessment of the predicted impact of a flood and to inform operational decision-making*.

59. This is why Council's adopted Floodplain Risk Management Study (2016) states that risk to life is adequately managed via these items – and not evacuation:

    a. Community Led Planning process to help the community understand the residual risk and to develop their own flood emergency plans (NSW SES).

    b. Council to continue to develop media for disseminating messages about the dangers of driving through floodwater (NSW SES).

    c. Council to install signage advising motorists to avoid driving through floodwater at the Woollamia Road low-point west of Pritchard Avenue.

d. Council to install depth indicators adjacent to low points in Edendale Street and Woollamia Road near the intersection.

e. Develop a FloodSafe guide for Woollamia (NSW SES).

f. Regularly issue flood certificates to residents within the PMF floodplain (Council).

60. This is why Council's adopted Floodplain Risk Management Study (2016) states:

> *…….those areas where access roads rising steadily uphill and away from the rising floodwaters. The community cannot be completely isolated before inundation reaches its maximum extent, even in the PMF. Evacuation can take place by vehicle or on foot along the road as floodwater advances. People should not be trapped unless they delay their evacuation from their homes….*

61. Given the plans that are in place and the comprehensive and cohesive system adopted by SCC and the SES – we consider that the consent authority can be satisfied that Clause 5.21(2)(c) of the Shoalhaven LEP is met.

62. It is not the Applicants responsibility to prove, and demonstrate, that these plans work and are effective. The Applicant can rely on these plans.

What are the new planning documents that are triggering SCC's concerns?

63. Turning to the planning side of the imposition of evacuation as a development standard, it appears that the reason SCC are concerned about evacuation is due to Clause 5.21(2)(c) of the Shoalhaven LEP which states:

> *…..will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood.*

64. It appears to me that SCC's position is that, if the land cannot be self-evacuated, then the site cannot be developed. But that is not the applicable standard.

65. Clause 5.21 is a development control, not a land control.

66. If all land in Woollamia could not be self-evacuated, working through SCC's position:

a. not a single landowner in Woollamia can ever have any DA approved – because the self-evacuation standard espoused by SCC can never be met.

b. no development that is currently permissible in the zone could be carried out.

67. For example, if one of the sites neighbours wants to knock down their existing cottage and build a new single dwelling – they can't because they can't demonstrate self-evacuation and 'compliance' with Clause 5.21(2)(c).

68. If it is SCC's position that if the land cannot be self-evacuated then the site cannot be developed, then this has a much broader application than that facilitated by Clause 5.21.

69. For example, Clause 5.21 only applies to land within 500 mm of the 1% AEP flood (i.e. the Flood Planning Area).

70. But even land that is high on the hillside of Woollamia (i.e. James Farmer Grove) - where Clause 5.21 and an evacuation 'standard' does not apply - cannot be self-evacuated. If a

resident in such a location requires medical assistance during the peak of the flood – they are just as isolated as those within the proposed development. The land itself, and any development on that land, is an irrelevant factor.

71. In summary, we are of the considered professional opinion that:

    a. Self-evacuating any land within Woollamia, prior to the evacuation route being cut, is not possible nor desirable.

    b. SES-triggered evacuations of land within Woollamia, prior to the evacuation route being cut, is possible as it is the current policy position of SCC and the SES.

    c. Requiring self-evacuation as a development standard is a higher standard than that contained in the LEP (2014) or the DCP.

    d. Residents of the proposed development have safe refuge in their homes, which is the highest standard of risk mitigation in the Woollamia flood context, and in most of NSW.

Do the recent NSW Government documents (referenced by SCC) change this?

72. No.

73. SCC's RFI states a concern of SCC, viz:

    It is noted that DCP Chapter G9 has not yet been updated to incorporate the latest change in legislation since its last update in 2018. These changes includes:

    - *Planning Circular – PS21-006 issued (2021)*
    - *Clause 5.21 of LEP commenced & Clause 7.3 of LEP repealed (2021)*
    - *NSW Flood Inquiry (2022)*
    - *Commencement of Ministerial Direction 4.1 (2023)*
    - *Flood risk management toolkit released (2023)*
    - *Flood Risk Management Manual (2023) published (2023)*
    - *Planning Circular – PS24-001 issued (2024)*

    The changes in legalisation emphasise that a risk-based approach should be taken for flood planning with reference to Australian Disaster Resilience Handbook for best practice.

74. There are numerous fatal flaws of the above position taken by SCC. These are discussed below.

75. In the first instance, the RFI lists seven documents that it refers to as legislation. Only one of those documents listed is legislation, being Clause 5.21 of the Shoalhaven LEP. There is no evidence that SCC's current DCP is inconsistent with that clause.

76. The EPA Act (S3.42) makes clear that the purpose of a DCP is:

a. *giving effect to the aims of any environmental planning instrument that applies to the development,*

b. *facilitating development that is permissible under any such instrument,*

c. *achieving the objectives of land zones under any such instrument.*

77. The current DCP achieves this purpose. No amendments to the DCP will preclude the current version being unfit for purpose.

78. Clause 4.15(1)(a)(ii) of the EPA Act states that only a proposed draft planning instrument is relevant to the consent authority's assessment of DA. A draft DCP is not a planning instrument and is not subject to notification by the consent authority. It therefore has no weight in the assessment of the DA by the consent authority.

79. Clause 4.15(3)(A)(a) of the EPA Act provides that *if a development control plan contains provisions that relate to the development that is the subject of a development application, the consent authority…. is not to require more onerous standards with respect to that aspect of the development*.

80. The statement from SCC at [73] offends Clause 4.15(3)(A)(a) of the EPA Act, as it is mandating the Applicant achieve a higher standard than that within the DCP based on documents that have no determinative weight.

81. The purpose of the FRMM (2023) is that it is *a delivery mechanism for the NSW Government's flood-prone land policy* (Duncan McLuckie, pers. comm.). It is an 'execution plan' for state government policy and informs local Council's on how to structure their own floodplain risk management studies. It does not contain guidance for practitioners on assessments of individual DA's. It is not the purpose of the FRMM (2023) and cannot be used in the DA assessment.

82. This is reinforced in *MH Property No 2 Pty Ltd v Wollongong City Council* [2024] NSWLEC 1568 at [157] – where it states that the manual

> *…. is not a set of controls against which individual development applications can be assessed. Instead, the development controls are those contained within the WDCP, against which the impacts have been assessed…*

83. Planning Circulars may express a view on how the Department of Planning and Environment seek to have certain policy interpreted or executed. They are not legislation and are not development standards.

84. Ministerial Direction 4.1 (2023) relates to planning proposals. The subject DA is not a planning proposal. This direction has no relationship to the Application or consideration by the consent authority.

Does the development result in an intensification of use?

85. No.

86. Density, or the amount of people in a given area, is controlled by Floor Space Ratio (FSR).

87. This is enshrined in *Cohesive Planning v Inner West Council* [2023] NSWLEC 1047 in relation to whether or not a dual-occupancy development constituted an increase in intensity with specific regard to Clause 5.21. At [24] O'Neill C makes clear:

> *I do not accept that the population on the site will necessarily be doubled by the proposal when compared to a development for a single-family dwelling. Dual occupancy development is a permissible use on the site and the proposal complies with the development standards and controls that apply to the site and determine the building envelope. The density on the site is determined by the FSR development standard of 0.7:1, and the proposal complies with the standard with a FSR of 0.57:1. The proposal is for two smaller dwellings, instead of one larger dwelling.*

88. The circumstances in relation to this development are identical, as are the assertions from SCC. The Court could not be clearer.

89. SCC's position on *limiting the increase in population who may require evacuation* is further unworkable and is seeking to control the population in a slavish and unacceptable manner, beyond the powers of a Council. For example:

    a. Will SCC request a modification to the 88B instrument, to ensure that a newly-wed couple who may purchase a dwelling doesn't have children? How could SCC approve the DA, knowing that the couple may have three children which is a direct *increase in the population requiring evacuation*?

    b. Will SCC request a modification to the 88B instrument, to ensure that if the owner is selling the dwelling, it cannot be sold to another party who has more family members? For example, a two-person couple selling to a family of five; which is a direct *increase in the population requiring evacuation*?

    c. Will SCC request a modification to the 88B instrument, to ensure that there can be no visitors to the dwelling when rain is forecast? For example, the family that lives in the dwelling cannot have friends over for dinner where significant rain is forecast; as this would constitute an *increase in the population requiring evacuation*?

90. The above scenarios are legitimate, taking SCC's position seriously. They demonstrate just how unworkable the stance is and the inappropriate degree to which SCC are seeking to control people.

Summary

91. Clause 5.21(2)(c) of the Shoalhaven LEP states that consent must not be granted unless the consent authority is satisfied that the development…. *will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood*.

92. Safe occupation of the land has nothing to do with evacuation. Safe occupation means remaining safe when you occupy the land. This is achieved via a PMF-free refuge. A condition of consent can ensure that the detailed structural design ensures the building can withstand the PMF forces.

93. The development does not affect the efficient evacuation of people. The SES has a well-considered and adopted plan for evacuating people from Woollamia. The development contains no attribute that impedes or adversely affects the ability of the SES plan to be implemented.

94. In summary, we reiterate our considered professional opinion that:

a. Self-evacuating any land within Woollamia, prior to the evacuation route being cut, is not possible nor desirable and it is not a development standard.

b. SES-triggered evacuations of land within Woollamia, prior to the evacuation route being cut, is possible as it is the current policy position of SCC and the SES.

c. Requiring self-evacuation as a development standard is a higher standard than that contained in the LEP (2014) or the DCP.

d. Residents of the proposed development have safe refuge in their homes, which is the highest standard of risk mitigation in the Woollamia flood context, and in most of NSW.

95. There remains no plausible, flood-related, meritorious reason why the consent authority cannot be satisfied of the proposal.

Yours faithfully

For and on behalf of
Rienco Pty Ltd

Anthony Barthelmess
Managing Director
0416 274447

References:

Loh, E. 2007. *Evacuation powers of emergency workers and emergency-service organisations in Australia*. The Australian Journal of Emergency Management, Vol. 22 No. 4, November 2007

737 Woollamia Road Woollamia

Appendix C:
Suitability of Materiality or Construction Methods

ORDER OF PREFERENCE – H5 Hazard				
Component	**Most Suitable**	**Second Preference**	**Third Preference**	**To be avoided**
1. Flooring & Sub-Flooring Structure	○ Concrete slab-on-ground monolith construction (clay filling is not permitted beneath slab- on-ground construction, which could be inundated ○ Suspension reinforced concrete slab	○ Engineered moisture resistant core. ○ Timber floor (T&G boarding, marine plywood) full epoxy sealed on joints.	○ Timber floor (T&G boarding, marine plywood) with ends only epoxy sealed on joints and provision of side clearance for board swelling	○ Timber close to ground surrounding base ○ Timber flooring with ceilings or soffit linings ○ Timber flooring with seal on top only
2. Floor Coverings	○ Clay tiles ○ Concrete, precast or in situ ○ Concrete tiles ○ Epoxy, formed-in-place ○ Mastic flooring, formed- in-place ○ Rubber sheets or tiles with chemical-set adhesives ○ Silicone floors formed-in-place ○ Tiles with chemical set adhesives ○ Ceramic tiles, fixed with mortar or chemical set adhesive ○ Asphalt tiles, fixed with water resistant adhesive	○ Cement / bituminous formed-in-place ○ Cement / latex formed-in-place ○ Rubber tiles, with chemical set adhesive ○ Terrazzo ○ Vinyl tile with chemical-set adhesive ○ Vinyl-asbestos tiles asphaltic adhesives ○ Loose rugs ○ Ceramic tiles with acid and alkali-resistant grout	○ Asphalt tiles with asphaltic adhesives ○ Loose fit nylon or acrylic carpet with closed cell rubber underlay bamboo flooring (moisture and termite resistant)	○ Asphalt tiles (A) ○ Carpeting, glue-down type or fixed with smooth edge on jute felts ○ Ceramic Tiles (A) ○ Chipboard (particle board) ○ Cork ○ Linoleum ○ PVA emulsion cements ○ Vinyl sheets or tiles coated on cork or wood backings ○ Fibre matting (sea- grass matting) ○ Vinyl sheets or tiles coated on cork or wood backings fibre matting (sea-grass matting)

737 Woollamia Road Woollamia

Appendix C:
Suitability of Materiality or Construction Methods

ORDER OF PREFERENCE – H5 Hazard				
Component	**Most Suitable**	**Second Preference**	**Third Preference**	**To be avoided**
3. Wall Structure (up to the Design Flood Level)	○ Solid brickwork, block- work, reinforced, concrete or mass concrete ○ Steel framing with fire rated sheathing and cladding.	○ Two skins of brickwork or blockwork with inspection openings	○ Brick or block-work veneer construction with inspection openings	○ Inaccessible cavities
4. Roofing Structures (for situations where the design is above the ceiling)	○ Reinforced concrete construction ○ Galvanised metal construction	○ Timber trusses with galvanised fittings	○ Traditional timber roof construction	○ Inaccessible flat roof construction ○ Ungalvanised steelwork eg. Lintels, arch bars, tie rods, beams, etc. ○ Unsecured roof tiles
5. Doors	○ Solid panel with water proof adhesives ○ Flush door with marine ply filled with closed cell foam ○ Painted metal construction ○ Aluminium or galvanised steel frame	○ Flush panel or single panel with marine plywood and water proof adhesive ○ T&g lines door, framed ledged and braced ○ Painted steel ○ Timber frame fully epoxy sealed before assembly	○ Fly-wire doors ○ Standard timber frame	○ Hollow core ply with pva adhesives and honeycomb paper core
6. Wall & Ceilings, Linings	○ Cement board ○ Brick, face or glazed ○ Clay tile glazed in waterproof mortar ○ Concrete / Concrete block ○ Steel and waterproof	○ Brick, common ○ Plastic wall tiles ○ Metals, non ferrous ○ Rubber mouldings and trim ○ Wood, solid or exterior	○ Chipboard exterior grade ○ Hardboard exterior grade ○ Wood, solid (boards or timber) with allowance for swelling ○ Wood, plywood exterior	○ Chipboard ○ Fibreboard panels ○ Mineral fibreboard ○ Paperboard ○ Plaster-board, gypsum plaster ○ Wall coverings (paper, burlap cloth

737 Woollamia Road Woollamia

Appendix C:
Suitability of Materiality or Construction Methods

ORDER OF PREFERENCE – H5 Hazard				
Component	**Most Suitable**	**Second Preference**	**Third Preference**	**To be avoided**
	applications ○ Stone, natural solid or veneer, waterproof ground ○ Glass blocks / Glass ○ Plastic sheeting or wall with waterproof adhesive	grade plywood fully sealed ○ Hardwood Timber Cladding (H5-Treated) on Steel or Concrete Frame	grade ○ Fibrous plaster board	types) ○ Wood, standard plywood strawboard
7. Insulation	○ Foam or closed cell types	○ Reflective insulation ○ Closed-Cell Spray Foam Insulation	○ Bat or blanket types ○ Polyisocyanurate (PIR) Foam Board	○ Open cell fibre types
8. Windows	○ Aluminium frame with stainless steel or brass rollers or similar corrosion and water resistant material ○ Laminated or Double-Glazed Glass ○ Impact-Resistant Glass with Aluminum or Steel Security Screens	○ Epoxy sealed timber waterproof glues with stainless steel or brass fittings ○ Galvanised or painted steel ○ Tempered (Toughened) Glass	○ uPVC (Unplasticized Polyvinyl Chloride) Frames	○ Timber with pva glues mild steel fittings
9. Nails, Bolts, Hinges & Fittings	○ Brass, nylon or stainless steel ○ Removable pin hinges ○ Hot dipped galvanised steel wire nails or similar		○ Mild steel	

Woolacotts.
CONSULTING ENGINEERS

Proposed Attached Dwellings

737 Woollamia Road, Woollamia

Flood Risk Management Peer Review Report

24-402 I 21 November 2024 I Revision B

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Document control

Rev No	Date	Revision details	Approved	Verified	Prepared
A	20.11.2024	Approved Issue	JC	JH	JH
B	21.11.2024	Approved Issue	JC	JH	JH

1.0 Introduction

Woolacotts Consulting Engineers has been engaged to provide this Food Risk Management Peer Review Report to accompany the development application for the proposed attached dwellings at 737 Woollamia Road, Woollamia (hereon referred to as 'The Site'). Refer to Figure 1 below for the site location.

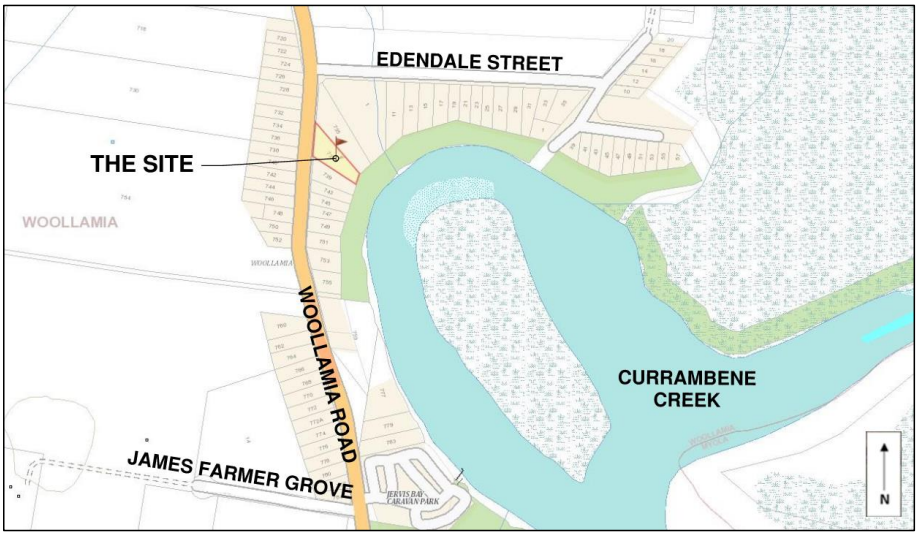


Figure 1 – Site Location
(SOURCE DOCUMENT: *SIX MAPS, date extracted 19.11.2024*).

The purpose of this report is to review the flood impacts and flood risk management documents for the proposed development and provide recommendations to mitigate flood risks where required. We have reviewed the following documents:

- Architectural drawings dated 05 July 2024
- Flood Impact Statement dated 05 June 2024 by Rienco Consulting
- Review of Shoalhaven City Council Request for Additional Information RFI dated 10 September 2024 by Rienco Consulting
- Additional Information on Evacuation dated 8 November 2024 by Rienco Consulting.

This report has been prepared to document and discuss the flood related controls and impacts for the proposed development.

2.0 Flood Behaviour

2.1 Flood Characteristics

The relevant flood study for The Site is Currambene and Moona Moona Creeks Floodplain Risk Management Study and Plan Final Report dated April 2016.

A Flood Certificate has been received from Shoalhaven City Council (dated 30 March 2023) with the following information.

- The existing 1% AEP Flood Level is 2.1m AHD
- The projected 2050 1% AEP flood level is 2.3m AHD
- The existing Probable Maximum Flood (PMF) level is 4.30m AHD
- The projected 2050 Probable Maximum Flood (PMF) level is 4.30m AHD
- The Flood Planning Level (FPL) is 2.80m AHD, which includes an allowance for climate change impacts plus a 500mm freeboard.

Based on a review of the Council Flood Certificate and the Currambene and Moona Moona Creeks Floodplain Risk Management Study and Plan Final Report, The Site is subject to riverine flooding from Currambene Creek. Riverine flooding occurs when heavy rainfall causes water levels in the creek or river to rise and overflow its main channel.

Within The Site, the existing 1% AEP flood depths range from:

- 350mm on the southeastern side to
- 900mm on the northern side.

The 1% AEP flood velocity across The Site is approximately 0.8m/s.

According to the Flood Certificate, the northwest portion of The Site is classified as a High Hazard Flood Storage area, while the southeast portion is designated as Flood Fringe land. Refer to Figure 2 below for the Hazard and Hydraulic Categories under the Projected 2050 Scenario.

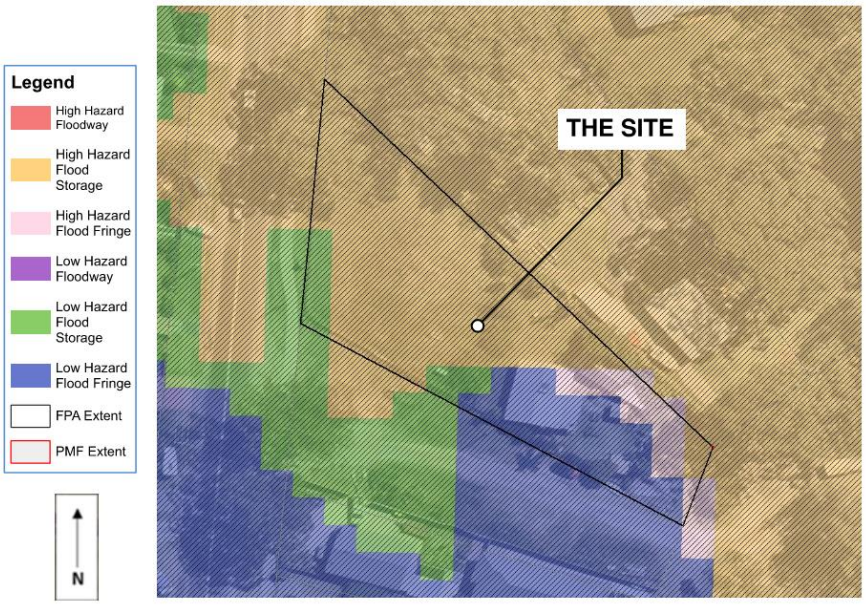


Figure 2 – Hazard and Hydraulic Categories for the Projected 2050 Scenario
(SOURCE DOCUMENT: *Shoalhaven City Council's Flood Certificate dated 30 March 2023)*

2.2 Existing Site

Site Description

The proposed development site is situated near the downstream end of Currambene Creek. The site currently features a residential dwelling, a metal garage, and associated concrete pavements located on its southeastern side. Refer to **Figure 3** below for the existing site plan.

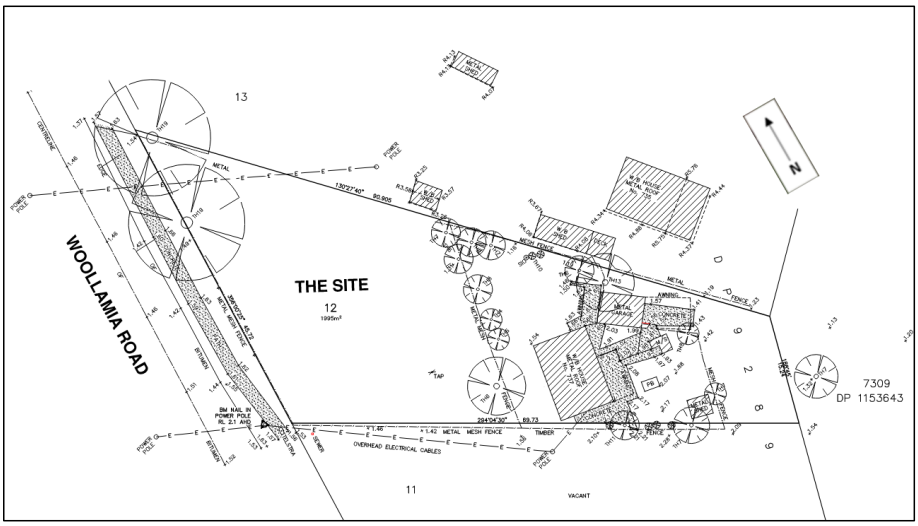


Figure 3 – Existing Site

(SOURCE DOCUMENT: *Survey Plan by Set Consultants, Ref. No. 23064/1, Sheet 1 of 1*).

The survey of the site shows that the existing ground levels of the property fall towards the northern boundary from the south.

3.0 Proposed Development

3.1 Description of Works

The proposed development involves:

- Construction of three two-storey attached dwellings on the western side of The Site.
- Construction of a detached dwelling at the eastern side of The Site (DA23/1694) which has been approved by SCC.
- Construction of new driveways around the new dwellings.

3.2 Proposed Building Levels

The Flood Certificate specifies a minimum floor level, or Flood Planning Level (FPL), of 2.80m AHD for The Site, which accounts for the projected 2050 1% AEP flood level plus a 500mm freeboard.

The architectural drawings (Job No. 2024_01) indicate that the Finished Floor Level (FFL) of the ground floor for the proposed attached dwellings is 3.15m AHD, exceeding the required minimum floor level. Additionally, the FFL of the first floor is 4.70m AHD, which is 400mm above the projected 2050 Probable Maximum Flood (PMF) level. Refer to Figure 4 below for the first-floor plan of the proposed attached dwellings.

Figure 4 – Proposed First Floor Plan
(SOURCE DOCUMENT: Architectural drawing No DA1.01, Revision [A], Job No 2024_01).

3.3 Flood Impacts

The proposed attached dwellings are designed with open floor framing for the subfloor, supported by piers. This construction method ensures that flood storage capacity within The Site is preserved and allows floodwaters to flow unobstructed beneath the structure.

Provided the proposed driveways and landscaping areas around the new dwellings maintain the existing ground levels within The Site, the development will not adversely affect the current flood conditions on-site or on neighbouring properties.

In our professional opinion, a hydraulic impact assessment is not required for this development, as it preserves the existing flood conditions. Additionally, Shoalhaven Development Control Plan 2014, Chapter 9: Development on Flood Prone Land specifies that a hydraulic impact report is not necessary for buildings raised on piers.

3.4 Flood Emergency Management

Based on our review of the flood conditions of The Site and the Additional Information on Evacuation by Rienco Consulting, we recommend that shelter-in-place be adopted as the standard flood emergency management procedure for the development. This approach is appropriate as the proposed dwellings include floors located above the projected 2050 Probable Maximum Flood (PMF) level. Evacuation from The Site should only be considered when sufficient guidance is provided by emergency services, as evacuation routes are likely to be cut off by rising floodwaters during flood events.

According to the Red Cross document “Preferred Sheltering Practices for Emergency Sheltering in Australia” (May 2015), immediate sheltering (up to 18 hours) requires approximately 1.2m² per person. Each of the proposed dwellings features a bedroom and balcony on the first floor, with a combined area of approximately 22m².

Assuming a maximum occupancy of six residents per dwelling, the first-floor spaces provide ample room for sheltering-in-place during flood events, meeting the recommended requirements for emergency sheltering.

3.5 Building Components

As shelter-in-place is the proposed flood emergency management strategy for the development, all structural components of the buildings must be designed in compliance with NCC 2022 Volume 2 requirements to withstand the forces of floodwaters up to the Probable Maximum Flood (PMF) level.

The actions and requirements to satisfy the above include, but are not limited to:

- Flood actions
- Elevations requirements
- Foundation and footing requirements
- Requirements for enclosures below the flood hazard level
- Requirements for structural connections
- Material requirements
- Requirements for utilities
- Requirements for occupant egress

4.0 Impact and Risk Mitigation Review

Based on our review of the Flood Impact Statement prepared by Rienco Consulting and our independent assessment of the proposed development, we concur with Rienco Consulting's conclusion that the development is suitable and complies with the following:

- Clause 5.21 of SCC's LEP (2014)
- Performance criteria outlined in SCC's DCP Chapter G9
- Performance controls outlined in SCC's DCP Chapter G9

We also agree with:

- Rienco Consulting's assessment that the proposed shelter-in-place measures for the dwelling are sufficient to ensure the safety of residents during an extreme flood event.
- Rienco Consulting's position that a self-triggered evacuation of either The Site or the Woollamia area is currently neither feasible nor advisable, given the limited flood information available to residents to initiate evacuation effectively as outlined in the RFI response 'Additional Information on Evacuation, dated 8 November 2024'.

In agreement with Rienco Consulting, we affirm that the proposed shelter-in-place measures are appropriate and represent the highest standard of risk mitigation within the Woollamia flood context, ensuring resident safety during extreme flood events.

5.0 Conclusions and Recommendations

Woolacotts has reviewed the following documents regarding flood impact and emergency management for the proposed development of three attached dwellings at 737 Woollamia Road, Woollamia:

- Architectural drawings dated 05 July 2024
- Flood Impact Statement dated 05 June 2024 by Rienco Consulting
- Review of Shoalhaven City Council Request for Additional Information RFI dated 10 September 2024 by Rienco Consulting
- Additional Information on Evacuation dated 8 November 2024 by Rienco Consulting.
- Shoalhaven City Council Flood Certificate for The Site dated 30 March 2023.

Based on our review, we provide the following conclusions:

1. **Flood Impact**
   The proposed development has been designed to preserve the existing flood function of The Site and will not significantly alter flood behaviour or cause any detrimental increases in flood levels within The Site or neighbouring properties. Additionally, the design considers the impact of climate change on future flood levels.

2. **Environmental Considerations**
   The proposed development will not adversely affect the environment, including erosion, siltation, destruction of riparian vegetation, or the stability of riverbanks and watercourses.

3. **Flood Emergency Management**

   - Due to the potential for evacuation routes to be cut off during flood events, a shelter-in-place strategy is the most practical approach for managing flood risks.
   - Each of the three proposed dwellings includes a first-floor shelter-in-place area, located above the projected 2050 Probable Maximum Flood (PMF) level, with sufficient capacity for residents during a flood event.
   - The shelter-in-place solution is deemed adequate, provided that all structural elements are designed in accordance with NCC 2022 Volume requirements to withstand flood forces up to the PMF level, as detailed in Section 3.4.

4. **Compliance**
   The proposed development complies with the relevant requirements of the Shoalhaven Local Environmental Plan 2014, Section 5.21, and the Shoalhaven Development Control Plan 2014, Chapter 9: Development on Flood Prone Land.

We recommend maintaining the existing ground levels within The Site for the development to maintain the existing flood function.

Prior to the occupation of the proposed dwellings, we recommend the preparation of a Flood Emergency and Risk Management Plan that details measures for minimizing risks to resident safety and property damage during flood events.

We trust the above information is sufficient for your needs, however, should you require further assistance with this matter, please contact the undersigned.

Yours faithfully,
Woolacotts Consulting Engineers

John Htet
BE MIEAust CPEng
NER Civil – Membership No. 5034971

Flood Affectation Report

Lot 12 (737) Woollamia Rd, Woollamia NSW 2540 (the site)

1. INTRODUCTION

This Flood Affectation Report has been prepared to support a development application for a proposed multi-dwelling residential development at 737 Woollamia Rd, Woollamia.

1.1 Undertake a structural engineering assessment of the proposed construction in accordance with the intent of the relevant Australian Standards to determine if the proposed structures can withstand the forces of floodwater, debris and buoyancy.

1.2 Prepare a flood affectation report including comment on structural adequacy.

2. PROPERTY INFORMATION

2.1 Address: Lot 12 (737) Woollamia Rd, Woollamia.

2.2 River/Creek: Currambene Creek.

The property is located in the Currambene Creek Floodplain. The property is bounded by residential structures to the West, North and South, and Currambene Creek to the East. The property is situated on level to gently undulating terrain and the property has a westerly aspect to Woollamia Rd.

3. REFERENCE DOCUMENTS

3.1 SET Survey drawing dated 14 March 2023

3.2 Architectural drawings sheets DA 0.00 to DA 802 inclusive, received 05 July 2024.

3.3 Shoalhaven City Council Flood Report reference 28112E (D23/123276) dated 30 March 2023

3.4 Currambene Creek & Moona Creek Floodplain Risk Management Study and Plan (2016)

4. SITE FLOOD INFORMATION

Reference item 3.3 above

4.1 Flood Planning Level (Projected 2050) RL 2.8 AHD.

4.2 1% AEP Flood Level (Existing) RL 2.1 AHD.

4.3 1% AEP Flood Level (Projected 2050) RL 2.3 AHD.

4.4 Flood Velocity (1% AEP) 0.8 m/s.

4.5 PMF (Existing) RL 4.3 AHD.

4.6 PMF (Projected 2050) RL 4.3 AHD.

4.7 Hazard Category (Projected 2050) HIGH.

4.8 Hydraulic Category (Projected 2050) Flood Storage.

4.9 The structures are required to withstand the forces of floodwaters including debris and

buoyancy forces up to the 0.2% AEP flooding scenario.

4.10 The structures must not become floating debris during a 1% AEP flooding scenario.

4.11 The structures must be constructed from flood compatible materials.

5. EXISTING CONSTRUCTION – FINISHED LEVELS

Reference item 3.1 above

5.1 Existing residence floor level 2.30 AHD Approx.

5.2 Existing ground surface levels Varies: 1.75 AHD (front - west). 2.17 AHD (rear – east).

5.3 Light duty pavement finished level for driveway fronting Woollamia Road 2.10 AHD

6. PROPOSED CONSTRUCTION – FINISHED LEVELS

Reference item 3.2 above

6.1 Proposed Multi Residences 1-3
- Garage RL 2.10 AHD
- Driveway/Pavement Level RL 2.05 AHD
- Entry/Ground Floor Level RL 3.15 AHD
- First Floor (split) RL 4.70 AHD and RL 5.75 AHD

7. BUILDING COMPONENTS – ADDITION

7.1 Proposed Multi Residences 1-3

- Footings - Reinforced suspended concrete slab with engaged piers / steel posts.
- Ground Floor Garage Walls - 230 mm solid brickwork.
- First Floor Framing – Timber / steel joists.
- Ground and First Floor Wall Framing – Internal heavy gauged stud walls with metal cladding.
- Roof – Timber-framed and metal sheet clad.

8. STRUCTURAL SOUNDNESS

8.1 The structural elements of the proposed multi-unit development have been designed in accordance with the intent of the relevant Australian Standards.

8.2 The structural elements are adequate to withstand the forces of flood water, debris and buoyancy up to and including a 0.2% AEP flooding scenario. The structures should not become floating debris during a 1% AEP flooding scenario.

8.3 Minor impact or debris related damage of the non-structural elements such as garage doors may occur as a result of any significant flood inundation. Subsequent to flooding it may be necessary to repair such damage.

9. FLOOD HAZARD TO ADJACENT BUILDINGS

Existing Condition

9.1 The existing residence, including garage and outer buildings on the subject property have a building envelope of slab on ground construction of approximately 135m^2.

Proposed Condition

9.2 The proposed Approved Single Residence (DA23/1694) has a garage with slab on ground envelope of 55m^2 with the remaining floor area suspended on piers that include sub floor walls with openings to allow flood waters to enter and recede from sub floor level.

9.3 The proposed multi-unit development has a combined garage with slab on ground building envelope totaling 64m^2 with most of the floor area suspended on piers including sub floor walls with openings to allow flood waters to enter and recede from sub floor level.

Improved Condition

9.4 As a result, the proposed development will have a reduction of slab on ground construction of 16 m^2 improving flood hazard to adjacent buildings considering existing conditions.

9.5 On this basis the approved single dwelling and proposed multi-unit development will have a negligible post-development impact on flood levels and velocities of flow to adjacent structures. All new dwellings will be suspended to RL3.15 AHD in accordance with the previous DA Approval (DA23/1694.

10. FLOOD AWARENESS AND EVACUATION MEASURES

10.1 The current owner (and all future owners) should acknowledge, understand, accept and implement all procedures and requirements of the prescriptive controls set out by Shoalhaven City Council and the SES. General flood information booklets, such as “What to do before, during and after a flood” prepared by Emergency Management Australia are also available. Free brochures are available at the Shoalhaven City Council Administration Building in Nowra.

11. SUMMARY

11.1 The structural elements of the proposed multi-unit development will be constructed and detailed in accordance with the requirements of H5 hazard in a PMF. The materiality has been described within the “Suitability of Material or Construction Methods Report” provided as part of this submission. (Appendix C).

11.2 The proposed multi-unit development, (if well maintained for the intended design life), should perform satisfactorily under the design load and velocity limitations outlined above.

11.3 The proposed multi-unit development is expected to have negligible impact on flood levels and velocities of flow above those currently experienced at the proposed dwelling location to adjacent structures / properties.

11.4 The proposed multi-unit development does not alter flood conditions as flood storage is maintained / improved and the proposal is not located in a floodway.

11.5 The proposed development is minor and the property status in relation to evacuation is not affected by the development.

FLOOD EMERGENCY PLAN

The following is a flood emergency plan which shall be further developed prior to occupation of the new dwelling. It is strongly recommended that building occupants leave the property well in advance of the predicted peak 1% AEP flood.

During periods of prolonged rainfall events, observe the flood levels within Currambene Creek, flood waters within 735 Woollamia Road and Woollamia Road. If flooding of Woollamia Road and 735 Woolamia Rd is present, then localised flooding of the site may be imminent.

Establish a line of communication with emergency services so updated warning information can be relayed to the evacuees. **The local SES provide emergency information and can be contacted on 132 500.** This phone numbers should form a part of your flood evacuation kit and be kept in a location that is easily accessible.

Resources

Resources that should be available, as appropriate, in the event of an evacuation include:

- Transport.
- Supplies (medication, water, food etc.);
- Warm clothing, wet weather clothing
- Equipment, for vehicle repair, fuel and towing arrangements.
- First aid kit; and,
- Communications devices such as AM/FM portable radio, mobile phone and UHF two-way radio.

Emergency Kit

In order to be prepared for an evacuation, it is recommended an emergency kit be prepared and located so that it is readily available at all times. The emergency kit should be kept in a secure location within the residence.

Suggested items for inclusion in the emergency kit appropriate for the number of expected occupants of the residence are:

- Portable radio and torch with fresh batteries.
- Candles and waterproof matches or a gas lantern.
- Reasonable stocks of fresh water and tinned food (with a can opener) or dried food.
- First aid kit.
- Good supplies of essential medication.
- Strong shoes and rubber gloves.
- Waterproof bag for warm clothing, toiletries, and valuables.
- List of emergency contact numbers.
- Car keys and keys for place where you will be going to.
- Cage or lead for pets.
- Bedding or sleeping bags; and,
- Special items for infants or elderly people.

The availability, capability and durability of resources should be regularly checked. An emergency kit maintenance checklist should be prepared and form a part of regular inspection program.

Evacuation

Before leaving the premises, ensure boats, caravans, trailers and the like are stored and secured in a manner that will restrict their mobility once flood waters are in effect. Furthermore, if time allows, the residents should:

- Listen to the local radio for updates on flood warnings.
- Check on neighbours.
- Disconnect all electrical leads.
- Fill clean water containers.
- Fuel your car.
- Close down all gas bottles.
- Remove all inflammable and toxic substances from the site.
- Secure personal papers, high value items, memorabilia (photos) and office records.
- Protect and relocate pets.
- Raise carpets, furniture, etc.
- Remove equipment and vehicles.
- Collect items likely to be washed away.
- Place sandbags in toilets, sinks and shower outlets to prevent sewage upsurges.
- Grease machinery likely to be covered by water; and,
- Empty fridges and freezers, leave doors and lids open to prevent them from floating away.

Residents leaving the premises should pack their luggage and leave via the designated evacuation route. Conduct a head count to ensure all residents are accounted for before leaving the site.

Once residents have successfully evacuated the area, conduct a second head count to ensure that all residents are still accounted for. All evacuees are to notify local authorities after successfully evacuating the area.

When driving along the evacuation route, the following should be observed:

- Avoid areas subject to inundation.
- Beware of washouts, fallen power lines and floating objects.
- Don't enter flood waters – particularly if the water is moving fast.
- If your vehicle stalls in rapidly rising water and you can safely jump to dry ground, do so immediately. Do not stay with your car.
- If the water is coming up too fast, do not try to wade over to dry ground, climb to the roof of the vehicle and signal to witnesses to immediately call 000.
- If driving through flood waters is necessary (i.e., the only option), check depth of water and if safe, proceed slowly and steadily.
- Dry out brakes by applying light pressure until grip returns.

To evacuate from the development site, head south on Woollamia Road towards Huskisson to reach higher ground.

Once the evacuees are on higher ground, it is suggested that they should contact the local SES personnel for further instructions.

Returning

After the flood event, check with Police and the SES that it is safe to enter the flooded area. Flooded areas pose health risks to residents and the following procedures should be followed after entering the residence:

- Have electrics and gas fixtures checked by qualified personnel prior to use.
- Beware of snakes and spiders.
- Beware of health risks from wading through muddy water.
- Don't use food or drinks which have been in contact with floodwater.
- Boil all water until supplies are declared safe to drink.
- Report damaged utility lines to appropriate authorities.
- Plan which items and areas should be cleaned first; and,
- Use disinfectant for cleaning.
- Wear shoes and gloves in any area which has been flooded.

FLOOD EVACUATION PLAN

737 Woollamia Road, Woollamia

Please be informed that **this property is liable to flooding.** More detail about the extent of this risk is contained in the properties Flood Emergency Plan.

The property occupier shall evacuate the premises when directed to do so by an authorised Council officer, the Police, State Emergency Services personnel, Fire Brigade officers, or any other person on whom the park has delegated authority to give directions in an emergency.

The following should be carried out in the event of an evacuation:

PREPARE

- Elevate furniture and equipment as high as possible when vacating.
- Listen to the local radio and visit www.bom.gov.au and www.ses.nsw.gov.au for the latest updates on the weather and flood warnings;
- **If the Currambene Creek Flood Gauge reaches 6m AHD, you will have approximately 5 hours in a 1% AEP flood to evacuate before the road becomes inundated restricting egress from the property.**

RESPOND

- Check on neighbours;
- Disconnect all electrical leads;
- Fill clean water containers
- Protect and relocate pets;
- Isolate power and other services to the dwelling.
- Secure items that could float away, and elevate furniture as high as possible
- Collect personal papers, photos, medicines, toiletries and clothing
- Remove equipment and vehicles
- Empty fridges and freezers, leave doors and lids open to prevent them from floating away.
- Place sandbags in toilets, sinks and shower outlets to prevent sewage upsurges.
- Check for road closures with park management
- Exit property via evacuation route

**NEVER DRIVE, RIDE OR WALK THROUGH FLOOD WATER –
THESE ARE THE MAIN CAUSES OF DEATH DURING FLOODS**

EMERGENCY CONTACTS

Life-threatening emergency: 000

SES: 132 500

FLOOD EVACUATION PLAN

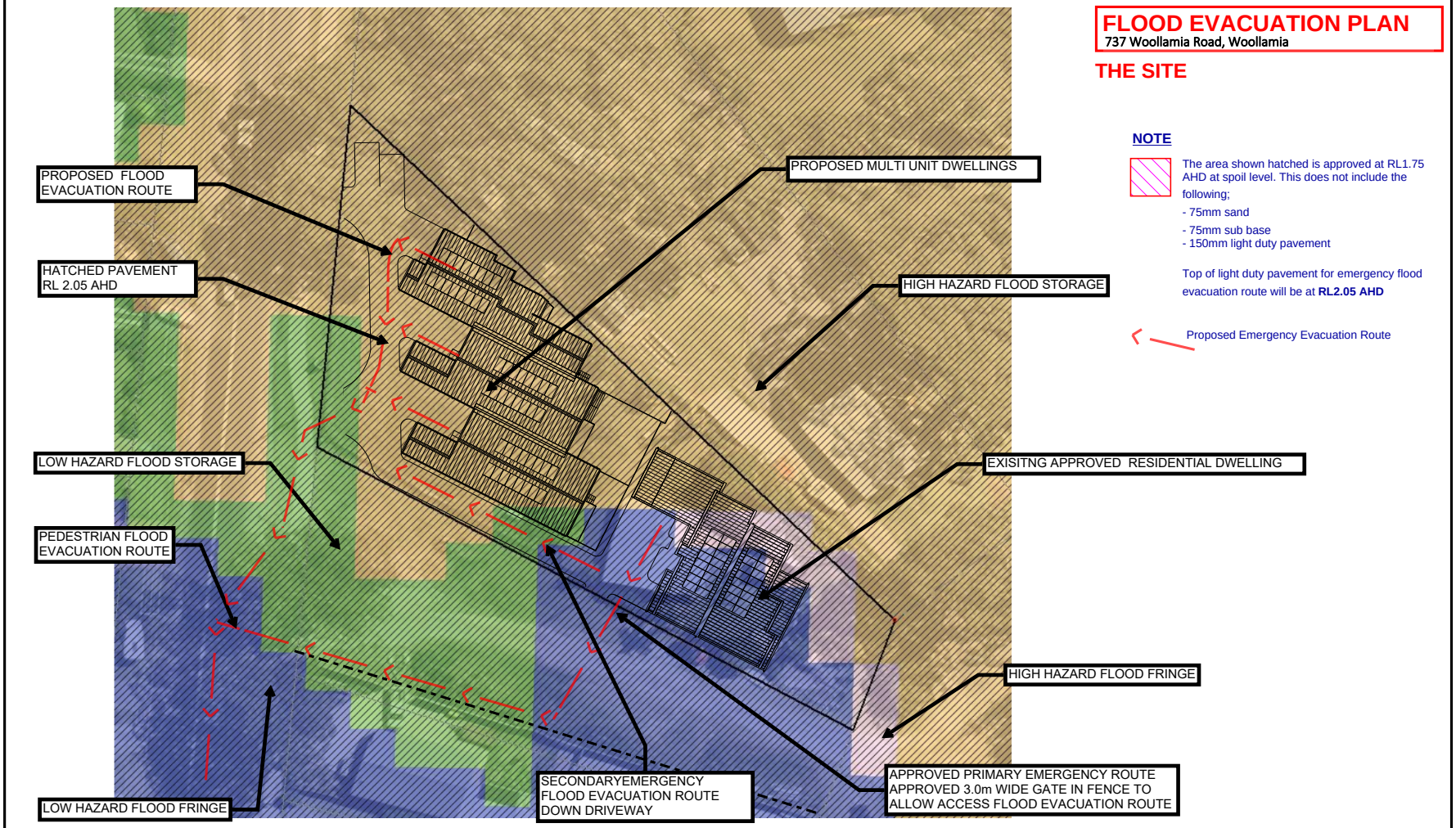
737 Woollamia Road, Woollamia

THE ROUTE

FLOOD EVACUATION PLAN

737 Woollamia Road, Woollamia

THE SITE



NOTE

The area shown hatched is approved at RL1.75 AHD at spoil level. This does not include the following;

- 75mm sand
- 75mm sub base
- 150mm light duty pavement

Top of light duty pavement for emergency flood evacuation route will be at **RL2.05 AHD**

Proposed Emergency Evacuation Route

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	AB	IMD		25/8/24

NORTHROP
Sydney
Level 11, 345 George St, Sydney NSW 2000
T (02) 9241 4188
sydney@northrop.com.au ABN 81 094 433 100

CLIENT
Nader & Liliana Zreik

PROJECT
737 WOOLAMIA RD WOOLAMIA

DRAWING TITLE
POST DEVELOPMENT SITE FLOODING IMPACT 2050 SCENARIO 1%AEP

JOB NUMBER
SY232327

DRAWING NUMBER
C001

REVISION
1

DRAWING SHEET SIZE = A3

RIENCO CONSULTING
WATER ENGINEERING SPECIALISTS

Managing Director

A J Barthelmess
Dip.Eng. MEng. MIEAust CPEng RPEQ NER

Foundation Law Group
Suite 13-14, Level 1, 63 Market Street,
WOLLONGONG NSW 2500

Your Ref: N/A

Our Ref: 24135 Letter 004

Date: 29th July 2025

Attn: Mr Alex Kelly

RE: EXPERT REPORT IN RELATION TO FLOOD AFFECTATION AND DEVELOPMENT IMPACTS AT 737 WOOLLAMIA ROAD, WOOLLAMIA

In the Land and Environment Court of New South Wales
Case No: 2025/00097110

Further to your recent instructions, I am pleased to provide you with the additional requested information by the Respondent for the proposed development at 737 Woollamia Road, Woollamia.

Qualifications and General Experience of the Author

1. I am a Civil Engineer specialising in hydrology and hydraulic engineering.
2. I am the Managing Director of Rienco Consulting, a consulting engineering practice providing services in the specialised field of stormwater and flood-related engineering.
3. I have 25 years' experience designing and managing civil engineering projects around Australia and Europe.
4. I have a Masters of Civil Engineering Degree from the University of Wollongong. I have additional post-graduate engineering qualifications from the University of NSW.
5. I am a corporate Member of the Institution of Engineers Australia (membership no. 1392190). I am a Chartered Professional Engineer (Civil) and appear on the National Engineers Register (NER). I am also a Registered Professional Engineer in Queensland, which allows me to provide advice under the Professional Engineers Act (2002).
6. I am a Registered Professional Engineer and Design Practitioner in NSW, in the specific disciplines of Civil Engineering and Drainage Design.

7. I am a co-author of the WBNM hydrologic model (software) and have won several State and National awards for 'Stormwater Excellence' for my work in NSW.

8. I am currently serving as the Vice-President of the Association of Civil Engineering Consultants (ACEC) Illawarra Branch.

9. I have additional formal qualifications in risk assessment, having achieved national competencies in:

    a. RIIERR203A – Escape from Hazardous Situations Unaided

    b. RIIRIS201A – Conduct Local Risk Control

    c. RIIRIS402A – Carry out the Risk Management Process

10. I acknowledge receipt of a copy of the Code referred to in Schedule 7 of the Uniform Civil Procedure Rules 2005 (NSW). I have read the Code and agree to be bound by it.

11. My full CV is included in this report at **Appendix B**.

Background

12. Shoalhaven City Council (SCC) has filed a Statement of Facts and Contentions (SOFAC) on 5th May 2025 in relation to *Zreik v Shoalhaven City Council* (2025/00097110).

13. A S34 conciliation has been ordered by the Court, however after review of the SOFAC, it has been determined that some of the flood-related contentions could be readily resolved via the provision of additional information.

14. The contentions that appear resolvable in this way relate to the quantification of flood impacts generated by the proposed development. Specifically, the relevant contentions are as follows.

15. Contention 1(a)(ii) states:

> *the Proposed Development is an intensification of development within a high hazard area and will result in changes to flood behaviour on the land and throughout the locality. In this regard, the Flood Impact Statement states that it "does not address flood behaviour for other sites within the overall catchment". The impacts of the Proposed Development in the context of other sites and the overall catchment are important considerations in determining the flood function and behaviour of the Site and the compatibility of the Proposed Development.*

16. Contention 1(b)(i) and Contention 1(b)(ii) states:

> *The consent authority cannot be satisfied, for the purposes of clause 5.21(2)(b) of the LEP, that the Proposed Development will not adversely affect flood behaviour in a way that results in detrimental increase in the potential flood affectation of other development or properties for the following reasons:*

> *(i) floodways are important to convey floodwater through the floodplain and partial blockage of these areas through development can cause a significant redistribution of flood flow, thus adversely impacting flood behaviour in a way that is potentially detrimental to other development or properties.*
>
> *(ii) in order to demonstrate that no adverse impacts on flood behaviour are likely to occur the Applicant would need to demonstrate this through quantitative flood modelling. The documents supporting the Development Application in terms of flooding expressly exclude consideration of "flood behaviour for other sites within the overall catchment".*

17. Contention 1(e) states:

> *Clause 5.21(3)(a) provides that the consent authority must consider the impact of the development on projected changes to flood behaviour as a result of climate change. the Applicant's Flood Impact Statement states that "this study specifically focuses on the quantification of flood behaviour at the subject site, given current conditions" (emphasis added). Accordingly, the documents accompanying the Development Application only consider the current conditions of the Site and do not allow the consent authority to consider the impact of the development on projected changes to flood behaviour as a result of climate change*

18. Contention 1(g)(ii) states:

> *the Proposed Development or work will unduly restrict the flow behaviour of floodwaters.*

19. To resolve these contentions, quantitative flood modelling has been carried out, the details of which are provided in this report.

Quantitative Flood Modelling

20. SCC have produced a number of relevant flood studies and floodplain risk management studies encompassing the subject site and surrounds, the most relevant and recent of which is the *Currambene and Moona Moona Creeks Floodplain Risk Management Study and Plan (2016).*

21. The hydraulic (TUFLOW) model files that produce the flood behaviour in the *Currambene and Moona Moona Creeks Floodplain Risk Management Study and Plan (2016)* were requested from SCC and subsequently provided by SCC.

22. The hydraulic model was run for the pre-development scenario for the 1% AEP and Probable Maximum Flood (PMF) events. As noted on the flood certificate issued by SCC, the site is not affected in the 5% AEP, 10% AEP and 20% AEP events

23. Perhaps self-evidently, there is no utility in modelling the 5% AEP, 10% AEP and 20% AEP events as there cannot be any flood impacts on land that is not flood affected.

24. At this stage, it was not considered a prudent use of resources to explicitly model climate change. This is because the baseline for impacts is the 1% AEP event, and the PMF event reflects an approximate 300% increase in flow over the 1% AEP event.

25. It follows that if the development has acceptable impacts in the 1% AEP event (i.e. the baseline) as well as the PMF (i.e. under a 300% increase in flow) then a ~20% increase in flow from climate change would also produce acceptable impacts.

26. If the above does not eventuate through the modelling process, then a specific analysis of climate change would be warranted.

27. The pre-development model results confirm that when SCC's TUFLOW model is run on Rienco's server, it replicates the flood behaviour in the *Currambene and Moona Moona Creeks Floodplain Risk Management Study and Plan (2016)*. This can be seen in **Table 1** below by a comparison of peak flood surface levels at the subject site.

Table 1 – Peak Flood Surface Level Comparison

Flood Event	SCC Flood Certificate	Model Results when run by Rienco
1% AEP	RL +2.1m AHD	RL +2.1m AHD
PMF	RL +4.3m AHD	RL +4.3m AHD

28. The above confirms that the provided model files are fit for the purpose of evaluating any potential flood-related impacts generated by the proposed development.

29. Due consideration was given to how the proposed development would be characterised within the hydraulic model.

30. The *Currambene and Moona Moona Creeks Floodplain Risk Management Study and Plan (2016)* does not explicitly include any buildings or structures. The technique used to simulate the effects of development is 'implicitly' via a surface roughness value.

31. Any example of this can be seen in **Figure A**. All areas shaded red are area the model simulates as 'urban development' which attracts a Manning's 'n' surface roughness coefficient of 0.05. This value was derived from the model calibration process.

32. To ensure consistency with the existing model approach of simulating the effects of urban development, the technically correct method to simulate the effects of the proposed development would be to extend the red shaded area already on the site, to cover the remainder of the site where development is proposed.

33. This ensures that the calibrated approach to modelling the effects of urban development is maintained in the post-development modelling.

34. However, to resolve the contentions in the most comprehensive manner, a conservative approach was taken to simulate the effects of the proposed development. A full geometry modification was used to simulate the effects of the development, which is known commonly as 'glass walls'. This approach excludes flood water from the cells where the development is proposed.

35. Such an approach over-exacerbates the effects of the development and thus produces changes to flood behaviour that could not plausibly be exceeded.

36. In other words, any impacts quantified by this method would be 'upper bound' impacts particularly when considering the proposal includes specific measures to mitigate any impacts on flood behaviour (such as a suspended undercroft to facilitate any conveyance and flood storage).

Figure A – Areas of Urban Development Already Modelled

37. The post-development model was then run for the 1% AEP and PMF events.

38. In the 1% AEP design flood event, there are no material changes to flood behaviour as a result of the proposed development. This can be observed in **Figure A5.1** in **Appendix A**. Any impacts on flood levels are less than 1 mm.

39. In the PMF design flood event, there are no material changes to flood behaviour as a result of the proposed development. This can be observed in **Figure A5.2** in **Appendix A**. Any impacts on flood levels off the site are reductions.

40. The above analysis also confirms that if there is no increase generated by the development when flow is increased by ~300%, then the increases in peak flood levels under a ~20% increase in flow (from climate change) would approximate zero.

41. We have also reviewed the model results and confirm that there is near zero change in peak velocity at the subject site and surrounds.

42. Summarily, the development does not generate any material, adverse or significant impacts on peak flood levels or velocities at the subject site or surrounds an any flood event up to and including the PMF and with consideration of climate change.

43. The modelling demonstrates that the following contentions are resolved by the provision of this additional information, as confirm in **Table 2**.

Table 2 – Resolution of Contentions

Contention	How the Contention is Resolved
the Proposed Development is an intensification of development within a high hazard area and will result in changes to flood behaviour on the land and throughout the locality. In this regard, the Flood Impact Statement states that it "does not address flood behaviour for other sites within the overall catchment". The impacts of the Proposed Development in the context of other sites and the overall catchment are important considerations in determining the flood function and behaviour of the Site and the compatibility of the Proposed Development.	I agree that *the impacts of the Proposed Development in the context of other sites and the overall catchment are important considerations in determining the flood function and behaviour of the Site and the compatibility of the Proposed Development*. The impacts of the development on the site, and surrounding sites, has been quantified using best-practice methods for a range of flood events. There are no material impacts generated by the proposed development.
The consent authority cannot be satisfied, for the purposes of clause 5.21(2)(b) of the LEP, that the Proposed Development will not adversely affect flood behaviour in a way that results in detrimental increase in the potential flood affectation of other development or properties for the following reasons: (i) floodways are important to convey floodwater through the floodplain and partial blockage of these areas through development can cause a significant redistribution of flood flow, thus adversely impacting flood behaviour in a way that is potentially detrimental to other development or properties.	The proposed development is not located within a floodway area, as per the SCC flood certificate. Nonetheless, the hydraulic modelling carried out in this report quantifies that the development does not cause a significant redistribution of flood flow, thus adversely impacting flood behaviour in a way that is potentially detrimental to other development or properties.
The consent authority cannot be satisfied, for the purposes of clause 5.21(2)(b) of the LEP, that the Proposed Development will not adversely affect flood behaviour in a way that results in detrimental increase in the potential flood affectation of other development or properties for the following reasons: (ii) in order to demonstrate that no adverse impacts on flood behaviour are likely to occur the Applicant would need	The hydraulic modelling carried out in this report quantifies that the development does not adversely affect flood behaviour in a way that results in detrimental increase in the potential flood affectation of other development or properties.

to demonstrate this through quantitative flood modelling. The documents supporting the Development Application in terms of flooding expressly exclude consideration of "flood behaviour for other sites within the overall catchment".	
Clause 5.21(3)(a) provides that the consent authority must consider the impact of the development on projected changes to flood behaviour as a result of climate change. the Applicant's Flood Impact Statement states that "this study specifically focuses on the quantification of flood behaviour at the subject site, given current conditions" (emphasis added). Accordingly, the documents accompanying the Development Application only consider the current conditions of the Site and do not allow the consent authority to consider the impact of the development on projected changes to flood behaviour as a result of climate change	This report addresses the concerns raised by the contentions, by carrying out detailed hydraulic modelling on a catchment-wide basis using SCC's adopted flood model.
the Proposed Development or work will unduly restrict the flow behaviour of floodwaters.	The hydraulic modelling carried out in this report quantifies that the development does not unduly restrict the flow behaviour of floodwaters.

For and on behalf of
Rienco Pty Ltd

[redacted]

Anthony Barthelmess
Managing Director
0416 274447
anthony.barthelmess@rienco.com.au

APPENDIX A – HYDRAULIC MODEL RESULTS

APPENDIX A1 – 1% AEP MODEL RESULTS – PRE-DEVELOPMENT

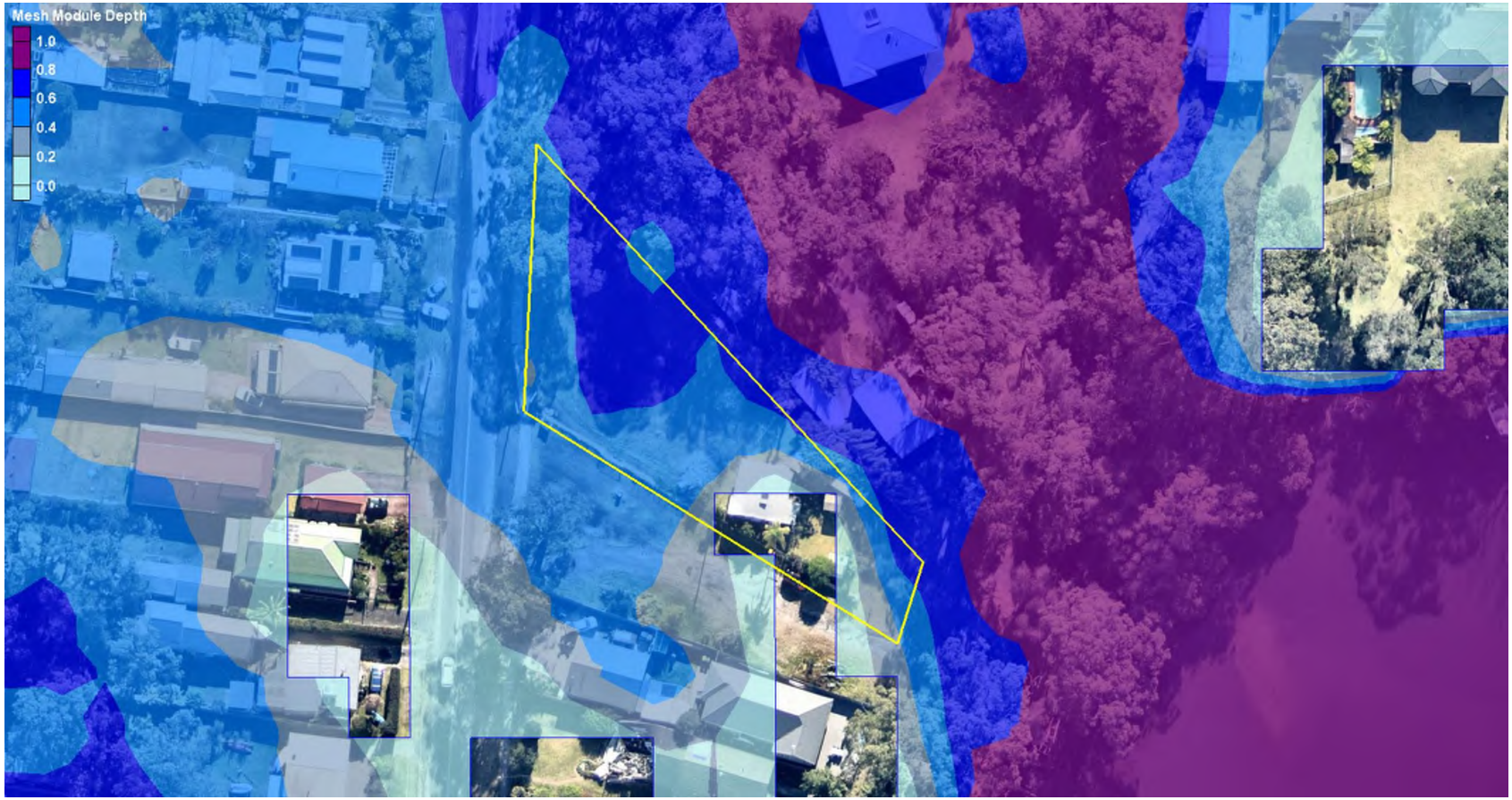


Figure A1.1: 1% AEP Flood Depths

Note: Flood depths shaded from 0m (light blue) to 0.8m (dark purple). All depths over 0.8m shaded dark purple.

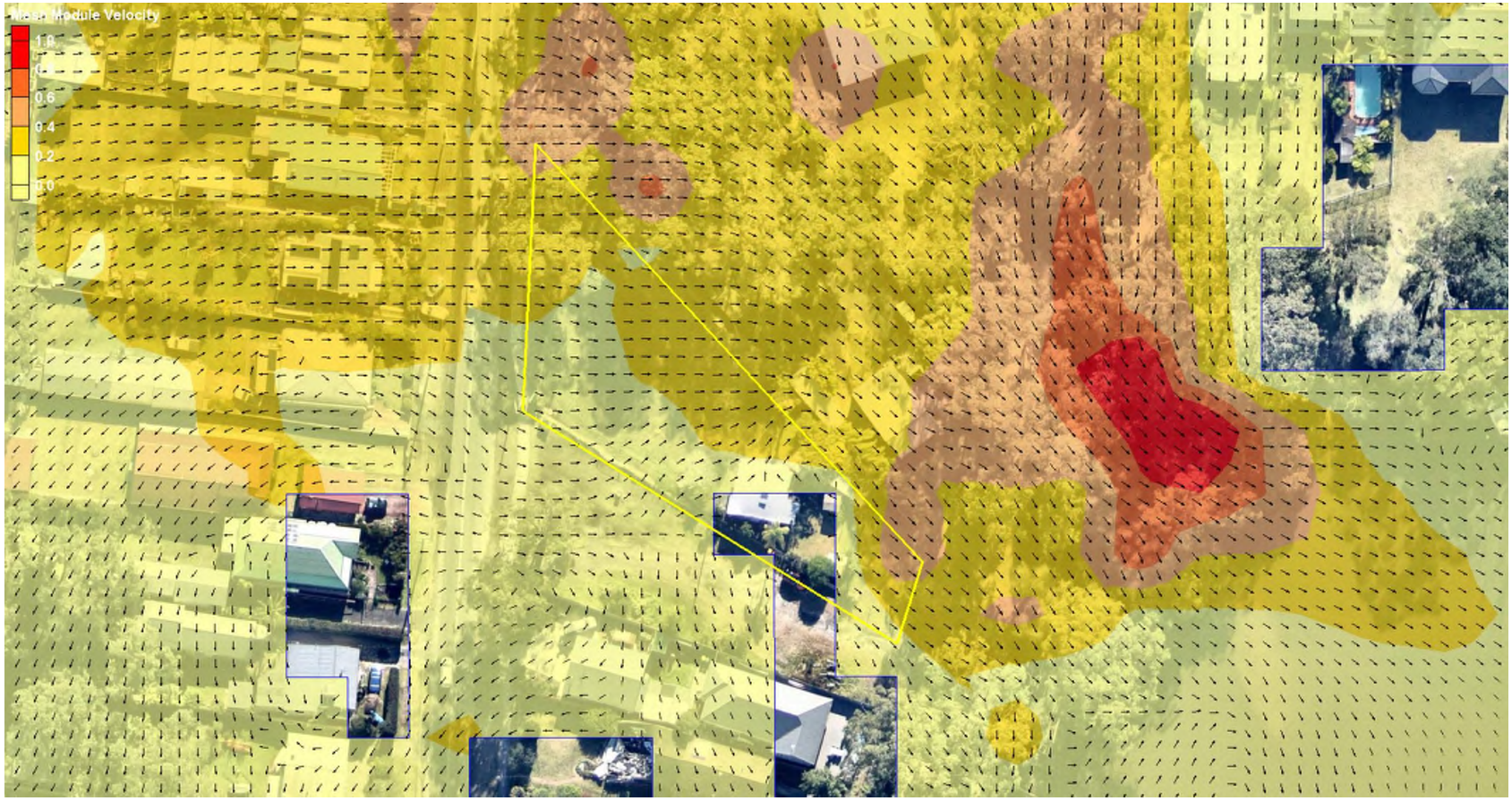


Figure A1.2: 1% AEP Flood Velocity

Note: Flood velocity shaded from 0 m/s (yellow) to 1.0 m/s (red). All velocity over 0.8 m/s shaded red.

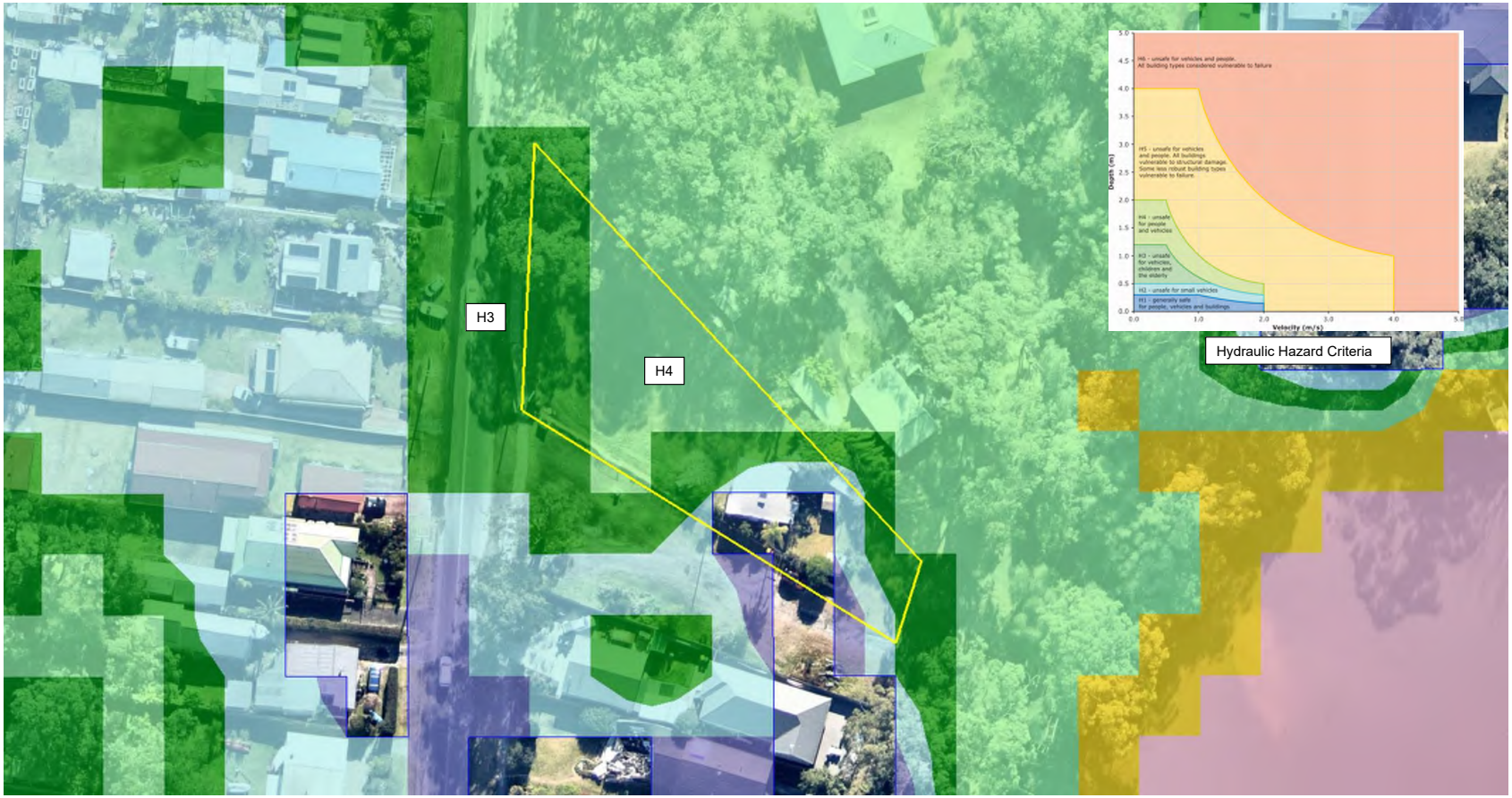


Figure A1.3: 1% AEP Flood Hazard

Note: Calculated from Figure 6.7.9 - Combined Flood Hazard Curves of Australian Rainfall & Runoff (2019).

APPENDIX A2 – 1% AEP MODEL RESULTS – POST-DEVELOPMENT

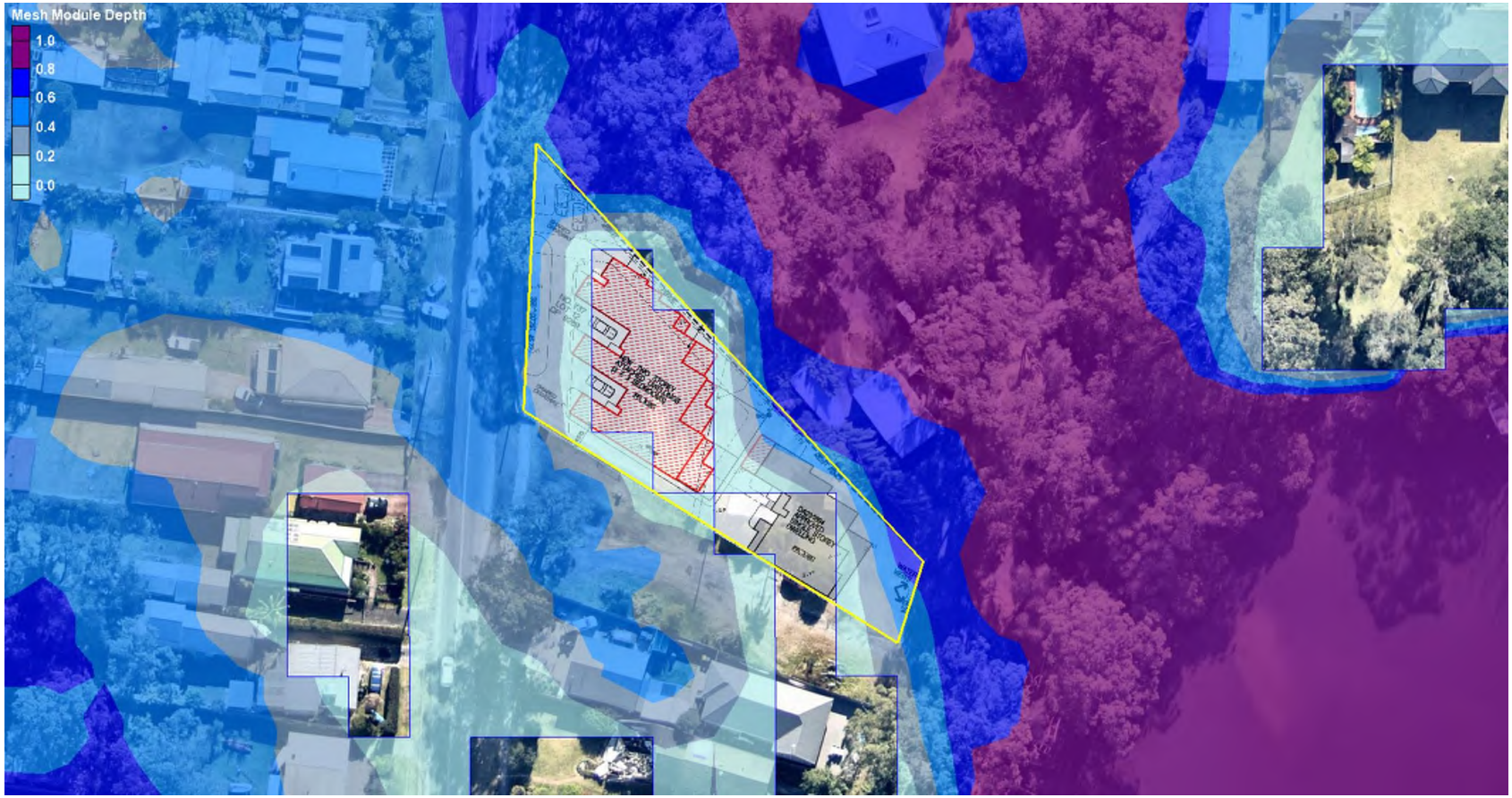


Figure A2.1: 1% AEP Flood Depths

Note: Flood depths shaded from 0m (light blue) to 0.8m (dark purple). All depths over 0.8m shaded dark purple.

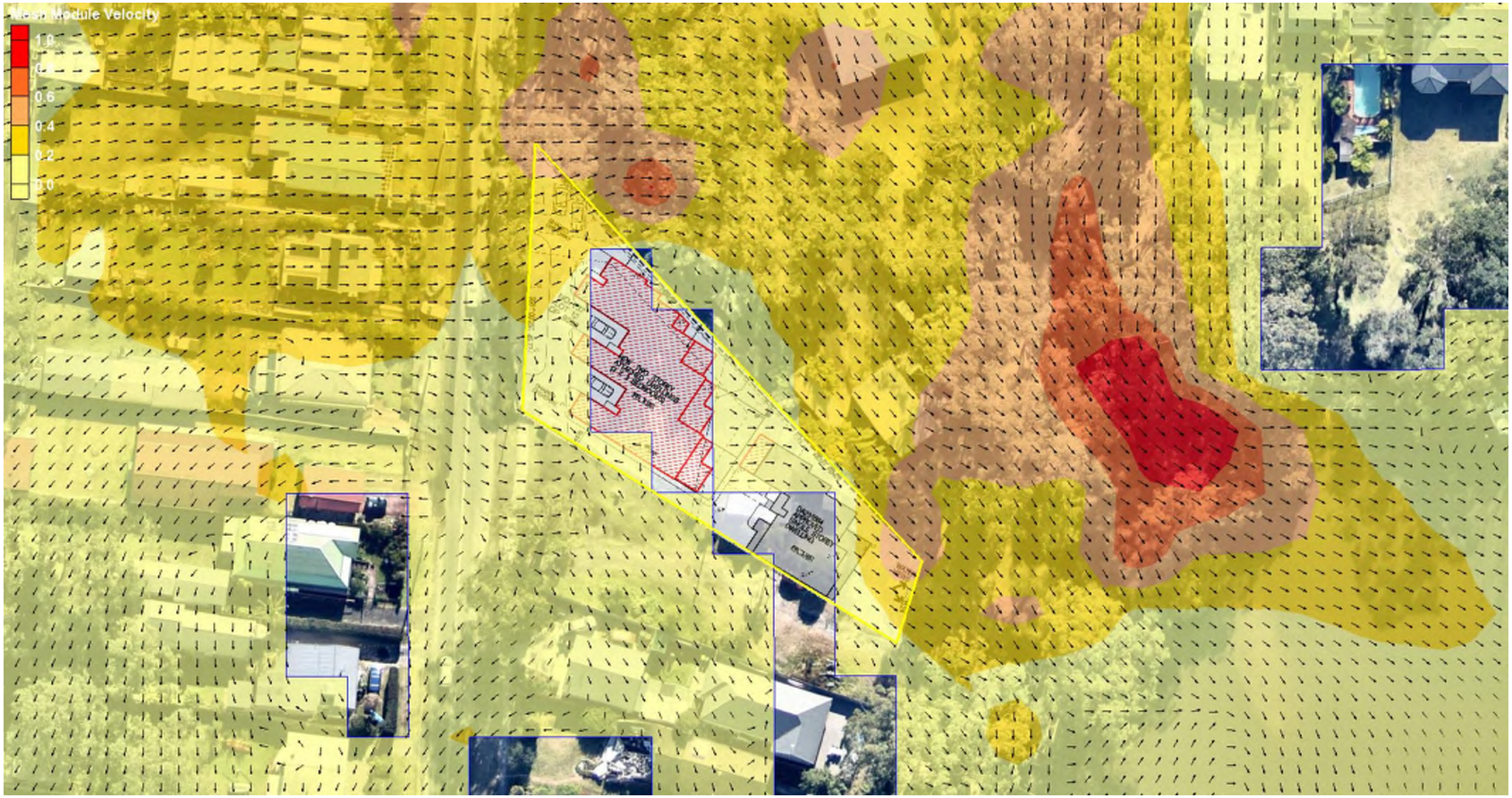


Figure A2.2: 1% AEP Flood Velocity

Note: Flood velocity shaded from 0 m/s (yellow) to 1.0 m/s (red). All velocity over 0.8 m/s shaded red.

APPENDIX A3 – PMF MODEL RESULTS – PRE-DEVELOPMENT

Figure A3.1: PMF Peak Flood Depths

Note: Flood depths shaded from 0m (light blue) to 2.5m (dark purple). All depths over 2.0m shaded dark purple.

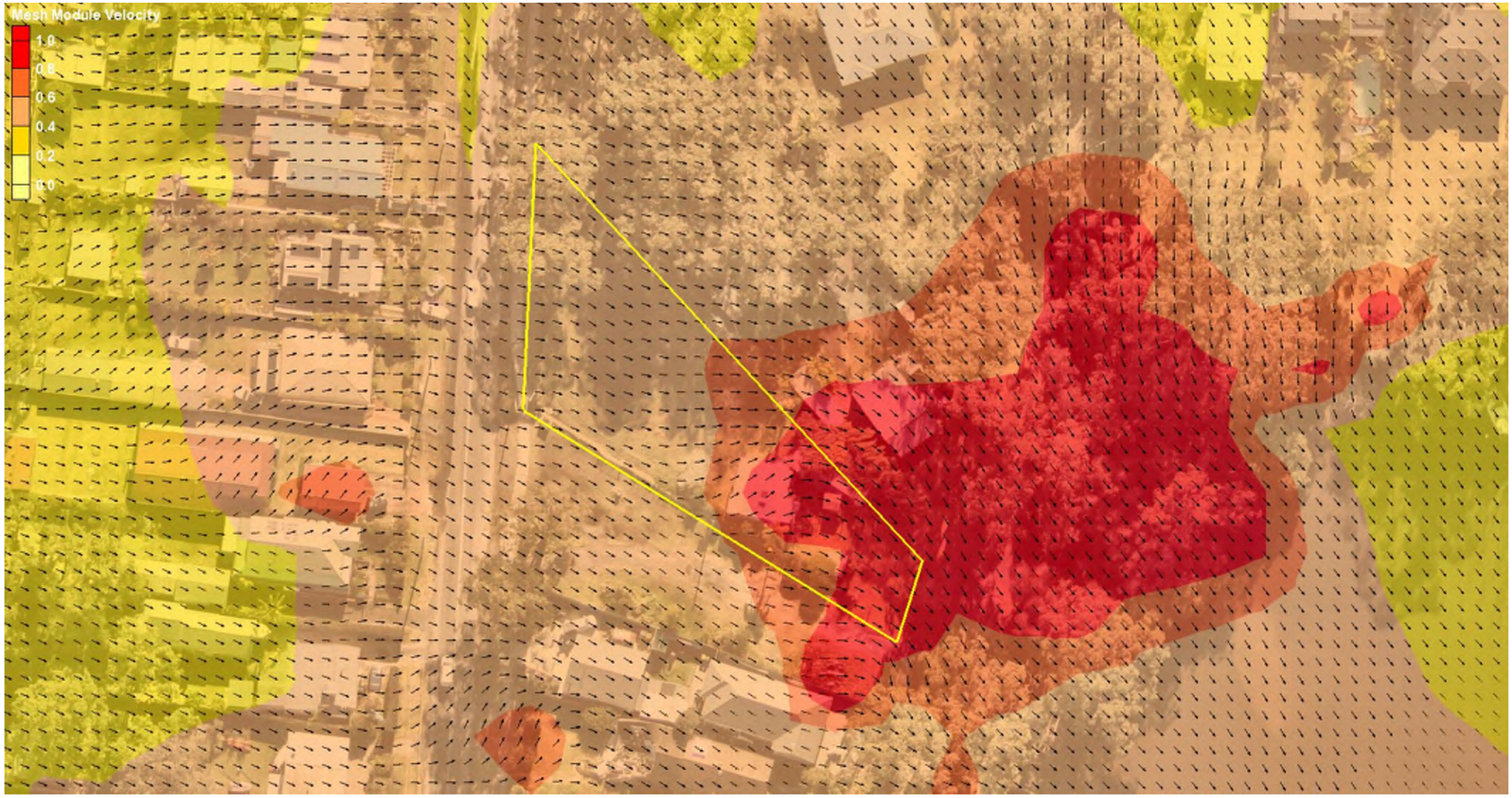


Figure A3.2: PMF Peak Flood Velocity

Note: Flood velocity shaded from 0 m/s (yellow) to 1.0 m/s (red). All velocity over 0.8 m/s shaded red

APPENDIX A4 – PMF MODEL RESULTS – POST-DEVELOPMENT

Figure A4.1: PMF Peak Flood Depths

Note: Flood depths shaded from 0m (light blue) to 2.5m (dark purple). All depths over 2.0m shaded dark purple.

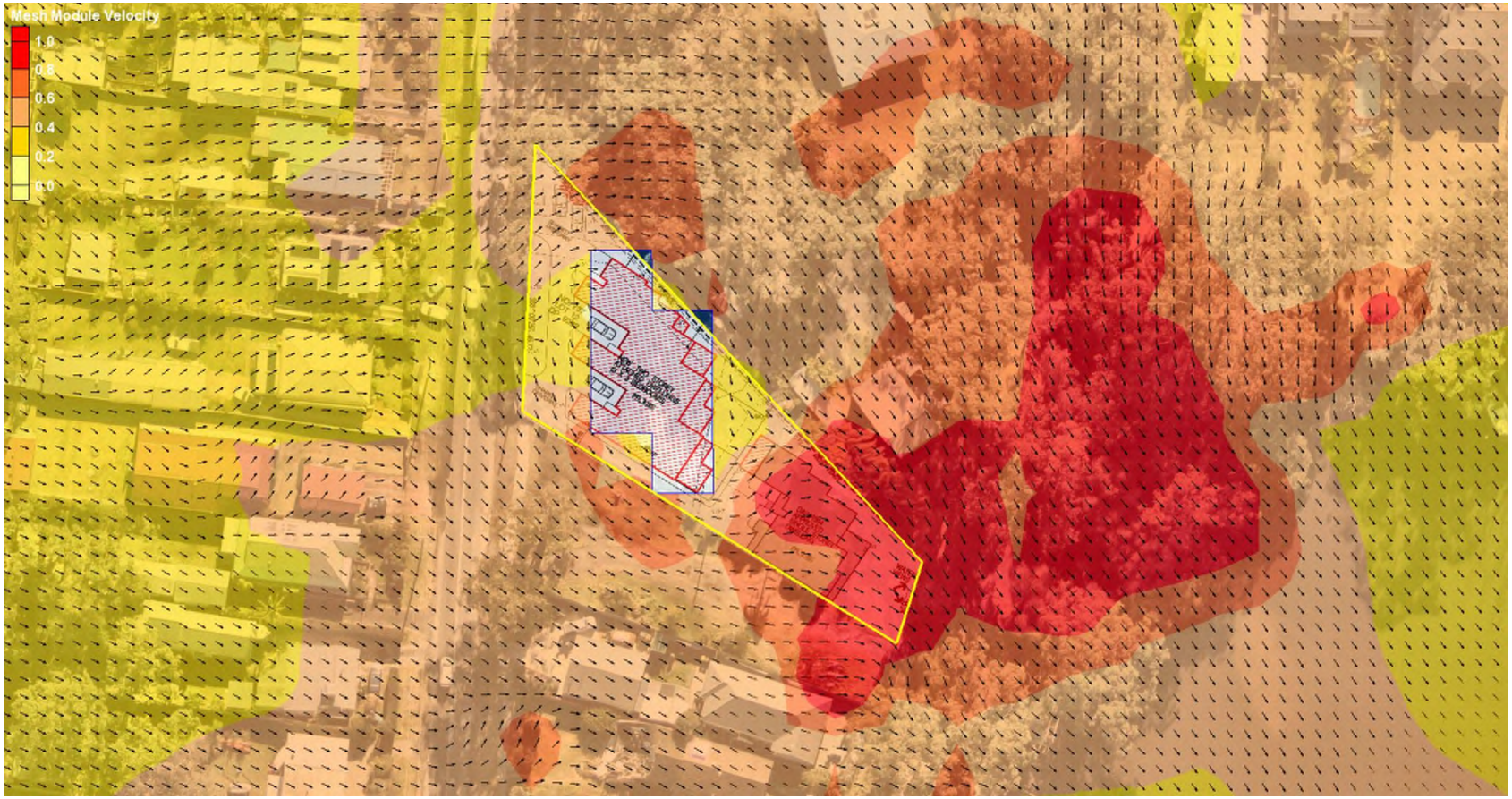


Figure A4.2: PMF Peak Flood Velocity

Note: Flood velocity shaded from 0 m/s (yellow) to 1.0 m/s (red). All velocity over 0.8 m/s shaded red

APPENDIX A5 – ADDITIONAL MODEL RESULTS

Figure A5.1: 1% AEP Flood Level Difference

Figure A5.2: PMF Flood Level Difference

APPENDIX B – CV OF ANTHONY BARTHELMESS

Anthony John Barthelmess
Managing Director – Rienco Consulting. PO Box 3094, Austinmer NSW 2515.
0416 274 447 or anthony.barthelmess@rienco.com.au

Qualifications

- Diploma of Structural Engineering, 2000 (SIT, Ultimo).
- Master of Civil Engineering Degree, 2009 (University of Wollongong).
- Statutory Underground Coal Ventilation Officers Certificate of Competency for NSW and QLD (UNSW).
- Chartered Professional Engineer (Civil), National Engineers Register (NER), Registered Professional Engineer Queensland (RPEQ).
- Registered Design Practitioner (NSW) and Registered Professional Engineer (NSW)
- Co-author and developer of the WBNM hydrologic software model, guest Lecturer at UOW.
- Recipient of several NSW and National industry awards for Excellence in Stormwater Management.

Overview

Anthony is a civil engineer, with specialist skills in the fields of hydrology and hydraulics. Anthony has over 25 years' experience in managing and undertaking a wide range of hydrological assessments, catchment management studies, flood studies, floodplain management studies, flood mitigation and stormwater quality investigations for public and private sector clients.

Anthonys research in the fields of hydrology and hydraulics has been widely published and referenced, including the development of a national culvert blockage procedure which formed the basis of the 2016 revision of the iconic Australian Rainfall & Runoff, on behalf of Engineers Australia. He is a co-author and developer of the widely adopted WBNM hydrologic model – which is relied on by the public and private sector to evaluate the performance of billions of dollars of civil infrastructure in Australia.

Anthony combines high level engineering analysis with an outcome driven focus, and an esteemed ability to negotiate and conciliate on engineering matters. He has provided considerable expert testimony in legal proceedings relating to his fields of expertise in the NSW Supreme Court, District Court and Land and Environment Court. He is frequently trusted by his peers to review complex hydrologic assessments, ranging from detailed modelling to large-scale regional flood evacuation plans.

Experience

2015 – Current	**Managing Director – Rienco Consulting.**
	Managing Director of a regional consulting water and civil engineering firm, specialising in hydrology and hydraulics.
2012 – 2015	**Gas & Ventilation Engineer, BHP Billiton / South32 / Appin Mine**
	Responsible for management of underground ventilation and surface gas drainage activities at Appin Mine and managing the ~$6M annual capital works program. Appointed Statutory Ventilation Officer at Appin Mine.
2009 – 2011	**Project Director – Cardno NSW Pty Ltd**
	Responsible for leading a large team of employees and sub-consultants to deliver major Part 3A projects across NSW.
2006 – 2009	**Project Engineer – Cardno Forbes Rigby Pty Ltd**
	Lead flood and water modeller supporting large scale urban development and civil infrastructure projects.
2002 – 2005	**Civil Designer – Forbes Rigby Pty Ltd**
	Civil designer on a range of civil engineering projects, involving all facets of project delivery from concept design through to site supervision and contract admin.
2000 – 2001	**Project Engineer – GHD Pty Ltd**
	Role involved preparation of civil design plans and specifications for large design and construction contracts and large scale civil infrastructure.
1996 – 2000	**Project / Construction Engineer – MPN Group Pty Ltd**
	Prepared civil designs for multiple Westfield Shopping Centre external works. Role also involved extensive site supervision across Australia.

Summary of Expert Witness and Conciliation Experience

- Class 1 Land & Environment Court Proceedings [2025] NSWLEC 1288 (Adria Care Limited v Wollongong City Council). Acted for the Applicant relating to flood and stormwater issues on a proposed large-scale aged-care development in Figtree, Wollongong. The matter involved complex flood-related negotiations and was conciliated and a S34 agreement reached.
- R v Jawad Al Hussein (NSW District Court). Acted for the Defendant in relation to criminal charges pertaining to loss of life when crossing a flooded causeway.
- Class 1 Land & Environment Court Proceedings [2025] NSWLEC 1007 (Hobson v Mid Coast Council). Acted for the Applicant relating to flood, stormwater, water quality and acid sulphate soil issues on a proposed multi-dwelling residential development in Tuncurry. The matter was conciliated and a S34 agreement reached.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1793 (Volfneuk v Blacktown City Council). Acted for the Applicant relating to flood and stormwater issues on a proposed large-scale residential development in Blacktown. The matter was conciliated and a S34 agreement reached.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1761 (Zitianellis v Mosman Municipal Council). Acted for the Council relating to overland flow issues on a

proposed residential development in Mosman. The matter was conciliated and a S34 agreement reached.

- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1682 (Fountaindale Project Management Pty Ltd v Shellharbour City Council). Acted for the Applicant relating to flood issues on a proposed large-scale residential development in Albion Park. The matter was conciliated and a S34 agreement reached.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1648 (Benson Avenue Pty Ltd v Shellharbour City Council). Acted for the Applicant relating to flood and stormwater issues on a proposed large-scale residential and commercial development in Shellharbour City Centre. The matter was conciliated and a S34 agreement reached.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1539 (Taylor v Wingecarribee Shire Council). Acted for the Council relating to flood and stormwater issues on a proposed residential development in Berrima. The matter was conciliated and a S34 agreement reached.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1474 (N Moit & Sons (NSW) Pty Ltd v Hawkesbury City Council). Acted for the Council relating to flood issues on a proposed development for an industrial facility at Windsor. The flood related matters were resolved via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1377 (RPSM Holdings Pty Ltd ACN 100 875 125 trading as MM Atelier Architects v Hawkesbury City Council). Acted for the applicant relating to flood issues on a proposed development for a pub in Windsor, including the development of a complex Flood Evacuation Plan. The flood related matters were resolved successfully for the applicant via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1366 (Surf All Day Pty Ltd ACN 627 817 181 v Eurobodalla Shire Council). Acted for the applicant relating to flood issues on a proposed residential development in Moruya. The flood related matters were resolved successfully for the applicant via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1229 (Tracy v Shoalhaven City Council). Acted for the applicant relating to stormwater issues on a proposed detached shed in Culburra Beach, NSW. The stormwater related matters were resolved successfully for the applicant via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2024] NSWLEC 1809 (Adam Sturt v Shoalhaven City Council). Acted for the applicant relating to flood planning issues on a proposed development modification for a single dwelling in Huskisson, NSW. The flood related matters were resolved successfully for the applicant at the hearing.
- Class 1 and Class 2 Land & Environment Court Proceedings [2024] NSWLEC 1027 (Lake Illawarra Park Pty Limited v Wollongong City Council). Acted for the applicant relating to flood risk and evacuation issues on a proposed development modification for a caravan park in Windang, NSW. The flood related matters were resolved successfully for the applicant at the hearing.
- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1684 (BG Sales Huskisson Pty Limited v Shoalhaven City Council). Acted for the applicant relating to flood issues on a proposed residential development modification in Huskisson, NSW. The flood related matters were resolved successfully for the applicant at the hearing.
- Class 3 Land & Environment Court Proceedings [2023] NSWLEC 114 (Dibb v Transport for NSW). Acted for the applicant relating to flood and watercourse issues on a compulsory acquisition matter in Coffs Harbour, NSW.
- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1609 (Kinetic Wollongong Pty Ltd v Wollongong City Council). Acted for the applicant relating to flood issues on a proposed commercial and residential development in Wollongong, NSW. The flood related matters were resolved successfully for the applicant via a S34 agreement.

- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1563 (Trio Enterprises Pty Limited v Wingecarribee Shire Council). Acted for the applicant relating to flood issues on a proposed residential development in Mittagong, NSW. The flood related matters were resolved successfully for the applicant via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1181 (High Dune Pty Ltd as Trustee for High Dune Unit Trust v Wollongong City Council). Acted for the applicant relating to flood and stormwater issues on a proposed residential development in Thirroul, NSW. The flood and stormwater related issues were resolved successfully for the applicant via a S34 conciliation.
- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1074 (Powerex Group Pty Ltd v Wingecarribee Shire Council). Acted for the applicant relating to flood and stormwater issues on a proposed 22 lot residential development in Moss Vale, NSW. The flood and stormwater related issues were resolved successfully for the applicant via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1071 (Long v Wingecarribee Shire Council). Acted for the applicant relating to flood issues on a proposed residential development in Wildes Meadow, NSW. The flood related issues were resolved successfully for the applicant via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1046 (Windang Kruger Resorts Pty Ltd ATF Windang Kruger Resorts Unit Trust v Wollongong City Council). Acted for the applicant relating to flood and stormwater matters on a proposed contaminated site remediation in Windang, NSW. The flood and stormwater related issues were resolved successfully for the applicant via evidence provided at the hearing.
- Class 1 Land & Environment Court Proceedings [2023] NSWLEC 1030 (R and G Creations Pty Ltd v Shoalhaven City Council). Acted for the applicant relating to stormwater issues on a proposed residential development in Mollymook, NSW. The stormwater related issues were resolved successfully for the applicant at the S34 conference via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2022] NSWLEC 1569 (Thirroul Plaza Pty Ltd v Wollongong City Council). Acted for the applicant relating to flood and stormwater issues on a proposed mixed use development in Thirroul, NSW. The flood and stormwater related issues were resolved successfully for the applicant at the S34 conference via a S34 agreement.
- Class 1 Land & Environment Court Proceedings [2022] NSWLEC 1483 (Akbari v Wollongong City Council). Acted for the applicant relating to stormwater issues on a residential property in Wombarra, NSW. The stormwater related issues were resolved at the S34 conference.
- NSW Supreme Court Proceedings 2021/00045593 Stephen Crouch ats Wingecarribee Shire Council. Acted for Wingecarribee Shire Council in providing an expert report on flooding and stormwater in proceedings relating to concentration of flow, and an increase in the natural flow of water over land.
- Class 1 Land & Environment Court Proceedings [2021] NSWLEC 1342 (Mata Mati Pty Ltd v Wollongong City Council). Acted for the applicant relating to flood and stormwater issues on a proposed residential development in Thirroul, NSW. The flood and stormwater related issues were resolved successfully for the applicant via evidence provided at the hearing.
- Class 1 Land & Environment Court Proceedings [2021] NSWLEC 1305 (The Artists Outlook Pty Ltd v Wollongong City Council). Acted for the applicant relating to flood issues on a proposed commercial development in Thirroul, NSW. The flood and related issues were resolved successfully for the applicant at the S34 conference/S34 agreement.
- Class 1 Land & Environment Court Proceedings [2021] NSWLEC 1284 (Sorace Constructions Pty Ltd v Wollongong City Council). Acted for the applicant relating to flood

and stormwater related issues on a proposed residential subdivision in Wollongong. The flood and stormwater related issues were resolved successfully for the applicant at the S34 conference/S34 agreement.

- Class 1 Land & Environment Court Proceedings [2021] NSWLEC 1362 (Allen Price & Scarratts Pty Ltd v Shoalhaven City Council). Acted for the applicant relating on flooding and water quality related matters for a large development on residentially zoned land in Worrigee, NSW. All flooding and water quality related matters were resolved in favour of the applicant via evidence provided at the hearing.
- Class 1 Land & Environment Court Proceedings [2021] NSWLEC 1129 (Wombarra Vista Pty Ltd vs Wollongong City Council). Acted for the applicant relating to flood and stormwater related issues on a proposed residential subdivision in Wollongong's northern suburbs. The flood and stormwater related issues were resolved successfully for the applicant at the S34 conference.
- NSW Supreme Court Proceedings 2020/00242173 Terry Hazeltine ats Wingecarribee Shire Council. Acted for Wingecarribee Shire Council in providing an expert report on flooding and stormwater in proceedings relating to a motorcycle accident allegedly located in a drainage channel.
- Class 1 Land & Environment Court Proceedings [2020] NSWLEC 1622 (Lake Illawarra Park Pty Ltd v Wollongong City Council). Acted for the applicant relating to flood and coastal hazard related matters for a caravan park and permanent home development in Windang. Flood and coastal hazard related matters were successfully resolved for the applicant during the S34 conciliation.
- Class 1 Land & Environment Court Proceedings [2020] NSWLEC 1446 (Jetz Luxury Homes Pty Ltd vs Inner West Council). Acted for the applicant relating to flood related issued on a change of use, from a commercial unit to a residential unit.
- Class 1 Land & Environment Court Proceedings [2019] NSWLEC 1312 (RBFI Pty Ltd vs Wollongong City Council). Acted for the applicant relating to flood modelling and the use of Australian Rainfall & Runoff (2019) where the Council was mandating the use of the superseded Australian Rainfall & Runoff (1987). Flood related matters were successfully resolved for the applicant via evidence provided at the hearing.
- Class 1 Land & Environment Court Proceedings 2018/389150 (Goodfellow vs Wollongong City Council). Acted for the applicant relating to flooding matters for portions of fill placed without development consent on the floodplain. The matter was resolved at the S34 conference.
- Class 1 Land & Environment Court Proceedings [2018] NSWLEC 1074 (Blasi vs Wollongong City Council). Acted for the applicant relating on flood related matters for a development on residentially zoned land in Balgownie, NSW. Flood related matters were successfully resolved for the applicant.
- Class 1 Land & Environment Court Proceedings [2016] NSWLEC 1527 (Fetherston vs Wollongong City Council). Acted for the applicant relating on flood and coastal hazard related matters for a development on residentially zoned land in Stanwell Park, NSW. Flood and coastal hazard related matters were successfully resolved for the applicant in a difficult 'joinder' arrangement where an adjoining landowner was also involved alongside WCC.
- Class 1 Land & Environment Court Proceedings [2016] NSWLEC 1042 (Hughes vs Wollongong City Council). Acted for the applicant relating on flood related matters for a 5-unit development on residentially zoned land in Coledale, NSW. Flood related matters were successfully resolved for the applicant at the Section 34 conference.
- Class 1 Land & Environment Court Proceedings [2007] NSWLEC 526 and NSWLEC 234 (Neate vs Shellharbour Council). This project involved the creation of 1D and 2D flood models for confirmation of flood behaviour in support of a development application for a Seniors Living complex in 2006. The client then litigated in the L&E Court (for which Expert Witness services were rendered) to obtain a DA, which was successful in 2007.

- Class 1 Land & Environment Court Proceedings [2006] NSWLEC 164 (Neate vs Wollongong City Council). This project involved creation of 1D and 2D flood models in support of a development application for a Seniors Living complex. The client litigated in the Court (for which Expert Witness services were rendered) to obtain a DA, which was successful, pending the development of a Flood Warning System (FWS). A FWS was developed, but again litigation was considered the only way of furthering the Development Consent. This further phase involved the additional Expert Witness Statements and participation in Joint Expert Witness Conferences with Council and the SES and attendance in Court.
- Class 1 Land & Environment Court Proceedings (Wakim vs RTA). This project involved compensation of supposed flood affected land up for Compulsory Acquisition by the RTA. The work involved determining the 'highest and best use' of the land with regard to its flood affectation. Acting for Mr. Wakim, the matter was resolved successfully.
- JRPP and Planning Panel Appearances. Various appearances at Joint Regional Planning Panel and Planning & Assessment Commission to provide evidence /submissions for Major Part 3A land development projects (relating to flooding).

Summary of Hydrology and Hydraulics Experience

- Hewitts Creek Flood Study and Floodplain Risk Management Study for Wollongong City Council (2002).
- Duck Creek Flood Study for Tallawarra Lands/TRUenergy. Catchment wide hydrology (WBNM) and hydraulic (HEC-RAS and TUFLOW) model of Duck Creek with a complicated arrangement of flood storages and diversions.
- Calderwood Flood Study for Delfin Lend Lease. Catchment wide hydrology (WBNM) and hydraulic (TUFLOW) model of Macquarie Rivulet, calibration and validation, and development of a FPRMS for a 4,500 lot land release area.
- Vincentia Flood Study for Stockland Developments. Catchment wide hydrology (WBNM) and hydraulic (HEC-RAS) model of a sensitive Vincentia catchment discharging into St Georges Basin.
- Forde Estate Flood Study, Canberra for Canberra Investment Corporation. Catchment wide hydrology (WBNM) and hydraulic (HEC-RAS) model of for a catchment with ~650 lots proposed.
- Central Hills Rezone for Camden Council. Catchment wide hydrology (WBNM) and hydraulic (HEC-RAS) modelling of an open pasture catchment at Narellan, for proposed 1,000 lots.
- Bulli Dam Investigation for Multiplex. Hydrologic investigation into various over-topping scenarios up to the PMF.
- Mt Ousley Bulli Pass Upgrade Study, Wollongong for RTA. Project involved GPS survey using differential GPS and handheld unity on existing culverts for Main Road 95 and 513 (Mt Ousley Road and Bulli Pass) using GIS based field method. Undertake hydrologic (WBNM) and hydraulic (HEC-RAS) calculations based on field captured data and hydrologic/hydraulic analysis.
- Drainage Study of Marrickville Industrial Estate for Marrickville Council. Responsible for modelling and documentation of over 1,500 stormwater pits and pipes, detention basins, open channels and weirs. Assistant Modeller using DRAINS for Marrickville City Council simulating complex flow diversions and flow paths.
- Macquarie Rivulet Flood Studies (various). Several hydraulic models (HEC-RAS and FESWMS) of Macquarie Rivulet lower flood plain to determine previously unknown effects of the PMF event on future development. Preparing flood reports and compliance with the

many varying requirements in place in the Illawarra (local DCP's, FDM2005, FMM 2001 etc).

- Review of Lake Illawarra Flood Study and Floodplain Risk Management Study. Review and provide comment to Lake Illawarra Authority on the impacts and technical points of conflict in the Lake Illawarra Flood Study and Risk Management Plan. With respect to appropriate freeboard, the effects of filling around the lakes, entrance conditions etc.

Summary of Water Quality and WSUD Experience

- Water Sensitive Urban Design Study, Worrigee Road Subdivision (2019). Lead author of the Water Sensitive Urban Design Study of the Environmental Assessment for the Worrigee Road subdivision, a 150 lot rural-residential development near Nowra. Involved protracted negotiations with Council and a Class 1 Land & Environment Court hearing.

- Water Sensitive Urban Design Study, Calderwood Urban Development Project (2010). Lead author of the Water Sensitive Urban Design Study of the Environmental Assessment for the Calderwood Urban Development Project. Involved protracted negotiations with DoP, the PAC and peer review processes to ensure the successful Project Application.

- Water Sensitive Urban Design Study, Bayswood Development, Vincentia (2007). Lead author of the Water Sensitive Urban Design component of the Environmental Assessment for the Bayswood Development (State Significant Major Project). The major project application was successful and additional reporting was required to assess the Director General Requirements and prepare the Project Application. Detailed designs were then prepared and the wetland and environmental protection measures began construction late 2007.

- Water Sensitive Urban Design Study, Sandon Point Development (2007). Lead author of the Water Sensitive Urban Design component of the Environmental Assessment for the Sandon Point development (State Significant Major Project). A detailed Climate Change assessment on increased flood risk and coastal erosion was also undertaken. Involved protracted negotiations with DoP and peer review processes to ensure the successful Project Application.

- Forde Estate Wetland Concept Design, ACT (for Canberra Investment Corporation CIC, 2006). Lead designer of over 4 ha of wetlands and ponds for a new residential estate near Gungahlin in ACT. The wetlands are capable of treating over 400 ha of cleared and developed catchment to below existing nutrient levels. Detailed WBNM, HEC-RAS and MUSIC modelling was required to afford the development team a certain level of confidence regarding the approach taken by the design.

- Central Hills Rezone – Water Cycle WSUD Study for Camden Council (2005-06). This study was prepared in support of a rezone of agricultural land to urban release. The study contained a detailed water cycle analysis (including preparation of detailed water balance models) and a full assessment of water quality and WQM objectives. Also of note was the heritage water supply canal structures traversing the site, and the ever present salinity problem in western Sydney.

Urban Development and Civil Engineering Experience

- Lead Designer and Site Superintendent – Stockyard Creek Subdivision, Albion Park. Role involved the design of over 120 lots in three stages, trunk infrastructure, riparian areas and RTA road upgrades.

- Lead Designer and Site Superintendent – Nan Tien Temple. Role involved the design of the remediation of an old landfill to enable the new University to be constructed. This project utilized ~500,000 m^3 of coalwash emplacement.
- Lead Designer and Site Superintendent – Tullimbar Village. Role involved the design of over 1,500 lots, trunk infrastructure, 2km of riparian areas and RTA road upgrades.
- Lead Designer and Site Supervision – Hayward's Bay Subdivision, Albion Park. Role involved the design of over 450 lots in eight stages, trunk infrastructure (including vacuum sewer) and RTA road access including two bridges. This project involved over 800,000 m^3 of coalwash emplacement.
- Energy Australia 132kV Cable Cross-City Tunnel. Responsible for design, documentation and design/construct contract preparation of 1.3km cross city tunnel and portals.

Summary of Mining Experience

- Statutory Appointed Ventilation Officer at Appin Mine. Completion of all statutory responsibilities, monthly ventilation surveys, P/Q surveys with electronic barometers, financial planning and reporting.
- Stage 3 Coalwash Emplacement Project, West Cliff Colliery. This project involved the engineering design and construction supervision of $33M of construction works to support the ongoing stages of Illawarra Coal's Stage 3 emplacement. The project involved construction liaison with the Contractor and in excess of 200,000 m^3 of earthworks, two 45ML dams and 7 km of surface water diversion drains.
- Dendrobium Drift (North-West Mains, B Heading 12-20ct) Pavement Design Inbye of Wongawilli Seam fault (500m length).
- Appin Area 7 Longwall 704 2km sub-surface MRD drill and well-head extraction design and Goaf Gas Extraction Plant Detailed Design.
- Appin Area 9 Vent Shaft 6 Drilling Site Layouts, and Appin Area 9 Tailgate 901 STIS 2.2km drill hole and drill pad designs.

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Providing Specialist Services in the Fields of Hydrology and Hydraulics

Acid Sulphate Soil Management Plan Proposed Development at 737 Woollamia Road, Woollamia

For The Owners

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Report title:

Acid Sulphate Soil Management Plan
Proposed Residential Development
737 Woollamia Road, Woollamia

Prepared for:

The Owners

Prepared by:

RIENCO CONSULTING

Wate Engineering Specialists
PO Box 3094 Thirroul NSW 2515
Suite 203, 62 Moore Street, Austinmer NSW 2515
ACN 000 960 850 ABN 14 000 960 850
Ph 0416 274447
Email anthony.barthelmess@rienco.com.au

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1 INTRODUCTION

This Acid Sulphate Soils Management Plan (ASSMP) focuses on environmental risks associated with acid sulphate soil and appropriate management of these risks.

1.1 DEFINITION OF ACID SULPHATE SOILS

Acid sulphate soils are a type of soil naturally found in both coastal (tidal) and inland or upland (freshwater) environments. Typically, acid sulphate soil areas are less than 5 metres above sea level and includes swamps, marshes, estuarine floodplains and mangroves. These soils contain iron sulphides, which when exposed to oxygen generate sulphuric acid, and can release toxic quantities of iron, aluminium and heavy metals. Left undisturbed, these soils are considered harmless. However, when the surface of these soils is broken and the underlayer is exposed top air, the soils can become toxic resulting in impacts on aquatic wildlife and water quality.

Acid sulphate soils can be classified as actual or potential. Actual acid sulphate soils are those that are exposed to the air and hence produce sulphuric acid. Potential acid sulphate soils are those that are waterlogged but have the potential to produce sulphuric acid if exposed to the air. The physical indicators of potential and actual acid sulphate soils are further discussed in this report.

1.2 IMPORTANCE OF ACID SULPHATE SOIL MANAGEMENT

Acid sulphate soils can have environmental impacts including:

- Increase soil acidity,
- Strip nutrients from the soil,
- Dissolve heavy metals causing the soil to become toxic to plans and animals,
- Potential to contaminate groundwater,
- Potential to corrode infrastructure, and
- Acidic runoff can affect aquatic ecosystems and can kill wildlife, including fish and crustaceans.

Implementation of appropriate management controls during disturbance of acid sulphate soils is required to minimise environmental impacts.

1.3 PURPOSE OF THIS REPORT

The purpose of the ASSMP is to provide guidance on the environmental management of acid sulphate soils for projects determined to have medium environmental risk. The guidance provided in this ASSMP is based on the Acid Sulphate Soil Manual published by the Acid Sulphate management Advisory Committee in 1998.

1.4 LEGISLATIVE REQUIREMENTS

Under the Protection of the Environment Operations Act 1997 (NSW) it is an offence to cause or permit the pollution of waters or to unlawfully dispose of waste.

2 DETERMINING IF ACID SULPHATE SOIL IS PRESENT

The Shoalhaven City Council LEP (2014) identifies the Site as Class 3 which means that acid sulphate soils are likely to be found beyond 1 metre below the natural ground surface. Any works that extend beyond 1 metre below the natural ground surface, or works which are likely to lower the water table below the natural ground surface may encounter acid sulphate soils.

If disturbance of the acid sulphate soils is unavoidable the following should be considered:

- Soil disturbance should be minimised and occur as shallow as possible,
- The use of heavy machinery in acid sulphate soil areas should be minimised,
- Disturbance of the water table should be avoided, and/or
- The addition of clean fil to build up the surface ground level in areas requiring excavation so that works do not intersect the acid sulphate soil layer.

3 ACID SULPHATE SOIL MANAGEMENT

3.1 INFORM WORKERS ON SITE OF POTENTIAL PRESENCE OF ASS

Prior to commencing work the builder shall inform all contractors and workers on the site of the potential environmental risk from presence of acid sulphate soils. Suitable areas should be designated for stockpiling and/or waste bins provided for storing acid sulphate soil.

3.2 STAGE THE WORKS

The project should be scheduled to minimise the time acid sulphate soil material is exposed to air. This may involve scheduling the works so that acid sulphate soil can be reburied as quickly as possible (within the same day) to minimise exposure in an open excavation. This particularly important for sandy sediments as they tend to oxidise and leach rapidly in a few hours compared with clay. Quantities should be kept to manageable proportions in suitably lined covered waste bins or as suitably sized stockpiles.

3.3 DETERMINE ACID SULPHATE SOIL TYPE

The physical indicators of potential acid sulphate soils are as follows:

- Presence of mangroves, reeds, rushes, salt marsh or swamp vegetation etc.
- Sulphurous (rotten egg gas) smell after rain, following a dry spell or when soils are disturbed
- Marine or estuarine sediments
- Soils can be described as unripe muds / sediments (soft, buttery, blue grey or dark greenish grey) which can be sands or gravels
- Milky blue / green water
- Shell fragments in the soil
- Waterlogged, scalded or backswamp areas
- Land below 5m AHD elevation

The physical indicators of actual acid sulphate soils are as follows:

- Any jarosite (a pale-yellow mineral deposit) or iron oxide (rusty) colouring
- Extensive iron stains on any drain surfaces, or iron-stained water and ochre deposits
- Corrosion of existing concrete and/or steel structures
- Surface or ground water on or draining from the site with a pH <5.5 or an unusually clear or milky green
- Sulphurous (rotten egg gas) smell when soils are disturbed

3.4 STORAGE OF ACID SULPHATE SOIL

If acid sulphate soils are required to be stored on site, then different soil layers should be separated and stored separately. Each layer should be managed according to the potential to produce acid. Stockpile the highest risk soil closest to the trench / excavation. When storing acid sulphate soil:

- Store in a covered bin lined with heavy duty plastic in preference to stockpiling,

- If bins are not available, stockpile on an impervious material, away from stormwater and drainage lines, and cover with heavy duty plastic. Secure all edges using sandbags or equivalent.
- Stockpiles should be bunded to prevent runoff.
- Sediment control and diversion bank should be installed around stockpiles.
- Spoil in bins / stockpiles should remain moist and contained at all times.
- Cover stockpiles and bins to minimise the surface area exposed to air, as disturbance and exposure to air may render soils acidic.
- Consider weather conditions particularly if rain is expected.

4 RE-INSTATEMENT OF ACID SULPHATE SOILS

4.1 POTENTIAL ACID SULPHATE SOILS

It is recommended that potential acid sulphate soils be re-instated on site, where practical, provided it is:

- Re-instated with 24 hours of being excavated,
- The soils have been correctly stored (in accordance with **Section 3.4**), and
- Soils are re-instated at the same depth as excavated.

If there is any doubt that acid may have been produced during exposure, the soil should be treated with a neutralising agent as a precaution prior to reinstatement. If re-instatement is not practical the soil needs to be disposed off-site.

4.2 ACTUAL ACID SULPHATE SOILS

Actual acid sulphate soils are acid producing and they should be treated with a neutralising agent before reinstatement or during long periods of storage (refer to **Section 4.5** for disposal requirements if re-instatement or treatment is not practical).

4.3 TREATMENT OF ACID SULPHATE SOILS

Prior to treating acid sulphate soils, the following must be implemented:

- The treatment area must be impervious and bunded with adequate drainage collection in a suitable location, to prevent acidic water leaving the site.
- The treatment of soil should not occur in a sensitive area (e.g. drainage path).

Treatment involves the use of agricultural lime to neutralise the acid by raising the pH to 5.5 or greater. Where no soil analysis has occurred, lime application rates should be in the order of 45 kg per tonne of fine grade (1 or 2) agricultural lime (pH-8.2).

The following treatment process should be followed:

1. Excavated acid sulphate soil is to be spread into thin layers (150 to 300mm thick) in preparation for treatment.
2. Apply a fine grade agricultural lime at a standard rate of 45 kg per tonne of soil or otherwise informed by soil analysis. Application of lime should be conducted during calm conditions to minimise the amount of lime blown away.
3. Mix lime into the acidic soil layer thoroughly, maintaining an even mix of soil and lime for each soil layer to ensure effective treatment.
4. If the soil is to be reinstated, maintain sediment control until the area is stabilised.

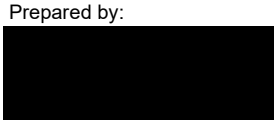
4.4 REMEDIAL ACTION

Following completion of work in acid sulphate soil areas, the site should be monitored to verify that there are no residual impacts on the environment. Health of plants should be observed near the area of disturbance.

4.5 DISPOSAL

Acid sulphate soils should only be disposed of, at a waste facility which is licensed by the EPA to receive that type of waste.

Prepared by:



Anthony Barthelmess
Dip. Eng MEng MIEAust CPEng RPEQ NER
Managing Director

Livable Housing Assessment Report

737 Woollamia Road Woollamia NSW

Project:	737 Woollamia Road Woollamia NSW
Reference No	01-2025
Date:	02.09.2025
Client:	Mr Nader & Mrs Liliana Zreik
Client Contact:	[redacted]
Email:	

Ref: 01-2025

737 Woollamia Road Woollamia

Document Control

Revision	Date	Description	
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		Prepared by	Verified by
		Nader Zreik	Liliana Zreik
		[redacted]	

1. BASIS OF ASSESSMENT

1.1. Location

The building development, the subject of this report, is located at 737 Woollamia Road Woollamia NSW.

1.2. Purpose

The purpose of this report is to assess the proposed building against the documents and the relevant Deemed to Satisfy requirements. The report is intended to clearly outline those areas where compliance is not achieved and provide recommendations to achieve compliance:

1.3. Limitations

This report is limited to an assessment of the silver level livable housing requirement under the Livable Housing Design Guidelines. It is not an assessment of the proposal against provisions of the BCA2022.

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

- The structural adequacy or design of the building;
- The inherent derived fire-resistance ratings of any existing or proposed structural elements of the building (unless specifically referred to); and
- The design basis and/or operating capabilities of any existing or proposed electrical, mechanical or hydraulic fire protection services.

1.4. Federal Disability Discrimination Act (DDA)

Disability is broadly defined and includes disabilities which are physical, intellectual, psychiatric, neurological, cognitive, or sensory (a hearing or vision impairment), learning difficulties, physical disfigurement and the presence in the body of disease-causing organisms.

All organisations have a responsibility, under the DDA, to provide equitable, dignified access to goods and services and to premises used by the public. Premises are broadly defined and would include all areas included within the subject development.

The DDA applies nationally and is complaint based. While the Disability (Access to Premises – Buildings) Standards 2010 and the BC2022 are recognised as a design standard to satisfy certain aspects of the DDA, compliance with the BCA2022 and the referenced standards does not guarantee that a complaint will not be lodged.

1.5. Disability Access to Premises Standards (Premises Standards)

The aim of the Premises Standards is to provide the building and design industry with detailed information regarding the required access provisions associated with the design and construction of new buildings and upgrade to existing buildings.

The Premises Standards intend to provide certainty for the building industry in relation to meeting the requirements for access in new and upgraded buildings. They only apply to elements addressed within the Standards. All other elements related to premises will still be subject to the

existing provisions of the DDA.

The Premises Standards generally align with the BCA2022 and reference a range of Australian Standards relating to access and other associated matters.

They do not apply to existing buildings that are not undergoing upgrade, however they introduce the concept of the "Affected Part". This means that new works need to be connected to the building's Principal Pedestrian Entrance by an accessible path of travel. This can mean that upgrade to the building may be necessary even where none is proposed.

1.6. Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

1.7. Definitions

Accessible

Having features to enable use by people with a disability.

Accessway

A continuous accessible path of travel (as defined in AS 1428.1) to, into or within a building.

Affected Part

The affected part is;

(a) The principal pedestrian of an existing building that contains a new part; and

(b) Any part of an existing, that contains a new part, that is necessary to provide a continuous accessible path of travel from the entrance to the new part.

Continuous Accessible Path of Travel

An uninterrupted path of travel to, into or within a building providing access to all access facilities.

Luminance Contrast

The light reflected from one surface or component, compared to the light reflected from another surface or component.

Ramp

An inclined surface on a continuous accessible path of travel between two landings with a gradient steeper than 1 in 20 but not steeper than 1 in 14.

Tactile Indicators

Tactile Ground Surface Indicators (TGSIs)

Truncated cones and/or bars installed on the ground or floor surface, designed to provide pedestrians who are blind or vision-impaired with warning or directional orientation information

2. KEY COMPLIANCE CONSIDERATION

1.8. General

The following is a summary of all the individual elements that relate directly to the ability of a person with a disability to access all the portions of the building required to be accessible.

Accessibility has been assessed against the documents outlined in Part 1.2 of this Report. The Annexures to this report provides a detailed assessments of the proposal against ALL relevant Deemed-to-Satisfy Provisions and prescriptive requirements

Note: It is important that the Annexures are read in conjunction with the items below, as some matters may not have had sufficient information provided to allow a detailed assessment to be undertaken.

The abbreviations outlined below have been used in the following tables.

N/A	Not Applicable. The Deemed-to-Satisfy clause is not applicable to the proposed design.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
FI	Further Information is necessary to determine the compliance potential of the building design.
PS	Performance Solution with respect to this Deemed-to-Satisfy Provision is necessary to satisfy the relevant Performance Requirements.
DNC	Does Not Comply.
Noted	BCA Clause simply provides a statement not requiring specific design comment or confirmation.

1.9. Dimensions and Tolerances

The Premises Standards and BCA contains the minimum standards for building construction and safety, and therefore generally stipulates minimum dimensions which must be met. This assessment of the plans and specifications has been undertaken to ensure the minimal dimensions have been met.

The designer and builder should ensure that the minimum dimensions are met onsite and consideration needs to be given to construction tolerances for wall set outs, applied finishes and skirtings to corridors and bathrooms for example, tiling bed thicknesses and the like which can adversely impact on critical maters such as access for people with disabilities, stair and corridor widths and balustrade heights.

1.10. Shoalhaven Development Control Plan 2014 - Chapter G13: Medium Density and Other Residential Development

The specific objectives are to:

i. Ensure a suitable proportion and wider variety of dwellings include layouts and design features to accommodate the changing access and mobility requirements of residents and visitors.

ii. ii. Promote ageing in place by extending the usability of dwellings to meet 'whole of life' needs of the community

Acceptable Solutions

A28.1 - All Class 1a and 2 developments, as defined in the Building Code of Australia, should provide accessible or adaptable housing at the following rate:

Developments containing 3-10 dwellings	1 dwelling **(Applicable)**
Developments containing 11 – 40 dwellings	2 dwellings
Development containing 41 – 60 dwellings	3 dwellings
Development containing 61 – 80 dwellings	4 dwellings
Developments containing 81 – 100 dwellings	5 dwellings

Note: These Guidelines do not take precedence over the requirements of the Disability (Access to Premises – Buildings) Standards 2010 or the Building Code of Australia.

We also note that the number of dwellings located on this Lot are **4 in total**

In addition, the previously **"approved"** single storey dwelling on the eastern side (rear) this Lot (refer MA2024_1346) has been designed in accordance with and compliance with with both the accessible Silver Standard, and is also capable of being adapted per the Australian Standards for adaptable housing.

Refer drawing MA 1.00 Rev C dated September 2024 in appendix.

Annexure A – Design Documentation

This report has been based on the following design documentation. Table 2. Architectural Plans

Architectural Plans Prepared by Liliana Zreik			
Drawing Number	**Revision**	**Date Title**	**Title**
DA 0.03	D	02.09.25	Site Plan & Roof Plan
DA 1.00	D	02.09.25	Ground Floor Plan – Units 1-3
MA 1.00	C	25.09.24	Ground Floor Plan – Approved MA2024_1346

Annexure B- LHDG Assessment

Table 3. LDHG Assessment

Item	Design Element	Comment	Compliance
1.	**Dwelling Access**		
	Silver Level (a) Provide a safe, continuous step-free pathway from the front boundary of the property to an entry door to the dwelling. (b) This provision does not apply where the average slope of the ground where the path would feature is steeper than 1:14. (c) The path of travel referred to in (a) should have a minimum clear width of 1000mm and have; (i) No steps; (ii) An even, firm, slip resistant surface; (iii) A crossfall of not more than 1:40; (iv) A maximum pathway slope of 1:14 Where ramps are required they should have landings provided at no greater than 9m for a 1:14 ramp and no greater than 15m for ramps steeper than 1:20. Landings should be no less than 1200mm in length. (d) The path of travel referred to in (a) may be provided via an associated car parking space for the dwelling. Where a car parking space is relied upon as the safe and continuous pathway to the dwelling entrance, the space should incorporate: (i) Minimum dimensions of at least 3200 mm (width) x 5400mm (length); (ii) An even, firm and slip resistant surface; and (iii) A level surface (1:40 maximum gradient, 1:33 maximum gradient for bitumen).	Entry into the building from the pedestrian entrance is provided through the provision for a platform wheelchair lift at the entry of all the dwellings (1-3) including the “approved” single storey residence to the rear. A brochure for the wheelchair lift has been provided for reference in the Appendix. A path of travel has been provided from the designated carparking space to the dwelling front entry. Suitable level of access has been provided from parking spaces A 3200 mm (width) x 5400mm (length) car parking space has been provided to satisfy the requirements of this Clause, which also achieves the required gradients and cross falls. This has been provided for both Dwelling 1 of the 3 units as well as the “approved” single storey dwelling to the rear.	a) Complies b) N/A c) Complies d) Complies

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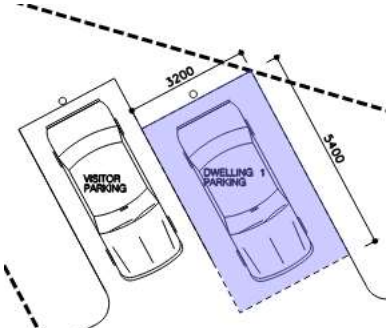
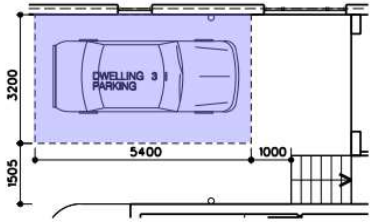
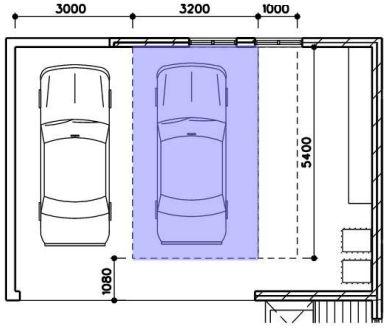
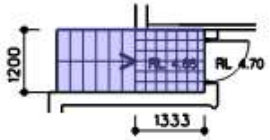
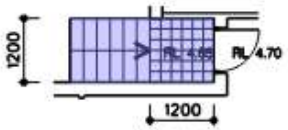
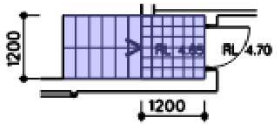
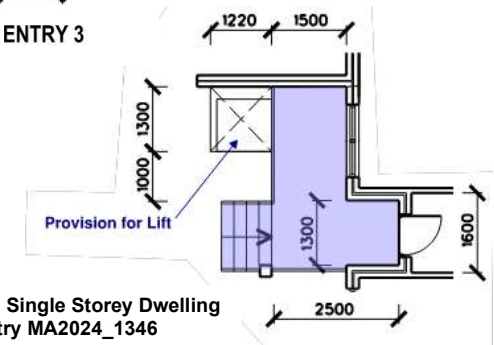
	(e) A step ramp may be incorporated at an entrance doorway where there is a change in height of 190mm or less. The step ramp should provide: (i) A maximum gradient of 1:10 (ii) A minimum clear width of 1000mm (please note: width should reflect the pathway width) (iii) A maximum length of 1900 mm (f) Where a ramp is part of the pathway, level landings no less than 1200mm in length, exclusive of the swing of the door or gate than opens onto them, must be provided at the head and foot of the ramp. **Note:** The width of the landing will be determined by the adjoining pathway. If the landing directly adjoins the doorway please refer to Element 2 for dimensional requirements.	 Unit - Dwelling 1 Parking  Units – Dwellings 2 & 3 Parking  Approved Single Storey Dwellings MA2024_1346	e) Complies f) Complies

Ref: 01-2025 737 Woollamia Road Woollamia

2.	**Dwelling Entrance**		
	Silver Level (a) The dwelling should provide an entrance door with – (i) A minimum clear opening width of 820mm (see Figure 2(a)); (ii) A level (step-free) transition and threshold (maximum vertical tolerance of 5mm between abutting surfaces is allowable provided the lip is rounded or bevelled); and (iii) Reasonable shelter from the weather. (b) A level landing area of at least 1200mm x 1200mm should be provided at the level (step free) entrance door. A level landing area at the entrance door should be provided on the arrival side of the door (i.e. the external side of the door) to allow a person to safely stand and then open the door. (c) Where the threshold at the entrance exceeds 5mm and is less than 56mm, a ramped threshold may be provided (see Figure 1(b)). (d) The level (step-free) entrance should be connected to the safe and continuous pathway as specified in Element 1. **Note:** The entrance must incorporate waterproofing and termite management requirements as specified in the NCC.	The entry doorway complies with the sufficient clear openings ensuring compliance with this Clause. An awning has been provided above the entry door, therefore considered to be suitably protected from the weather, providing the necessary shelter and provided with a level threshold. A level landing area of at least 1200mm x 1200mm has been provided outside of the entry doors of each dwellings (1-3) as well as the "approved" single storey dwelling to the rear to allow for a level of circulation.  DWELLING 1 ENTRY  DWELLING 2 ENTRY  DWELLING ENTRY 3  **Approved Single Storey Dwelling Entry MA2024_1346**	a) Complies b) Complies c) N/A d) Complies

3.	**Internal Doors and Corridors**		
	Silver Level (a) The dwelling should provide internal doors with – (i) A minimum clear opening width of 820mm (see Figure 2.1);	The dwellings doorway complies with the sufficient clear openings ensuring compliance with this Clause.	a) Complies
	(b) The threshold of an internal door must – (a) be level; or (b) have a height not more than 5 mm if the lip is rounded or bevelled; or (c) have a ramped threshold that— (i) does not extend beyond the depth of the door jamb; and (ii) has a gradient not steeper than 1:8; and (iii) is at least as wide as the minimum clear opening width of the doorway it serves	A level landing has been provided at the threshold of internal doors to allow for a level of circulation ensuring compliance with this clause.	b) Complies
	(c) Internal corridors, hallways, passageways or the like, if connected to a door must have a minimum clear width of 1000 mm, measured between the finished surfaces of opposing walls	Internal corridors have a minimum clear width of 1000mm ensuring compliance with this clause.	c) Complies
4.	**Toilet**		
	Silver Level (a) Dwellings should have a toilet on the ground (or entry) level that provides: (i) A minimum clear width of 900mm between the walls of the bathroom if located in a separate room; and (ii) A minimum 1200mm clear circulation space forward of the toilet pan exclusive of the swing of the door in accordance with Figure 3(a).	The proposed WC's within the bathrooms are located within masonry constructed walls with adequate reinforcement for drop down grab rails as required. In front of the pan is noted that 1200mm clearance is provided due to the door and the required 900mm width is provided due to the setback of the shower screen.	a) Complies

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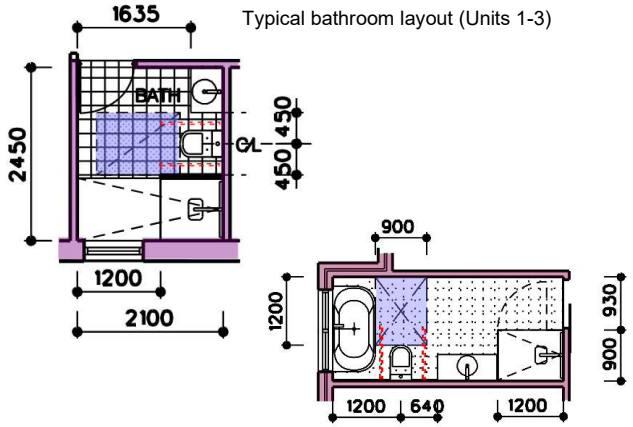
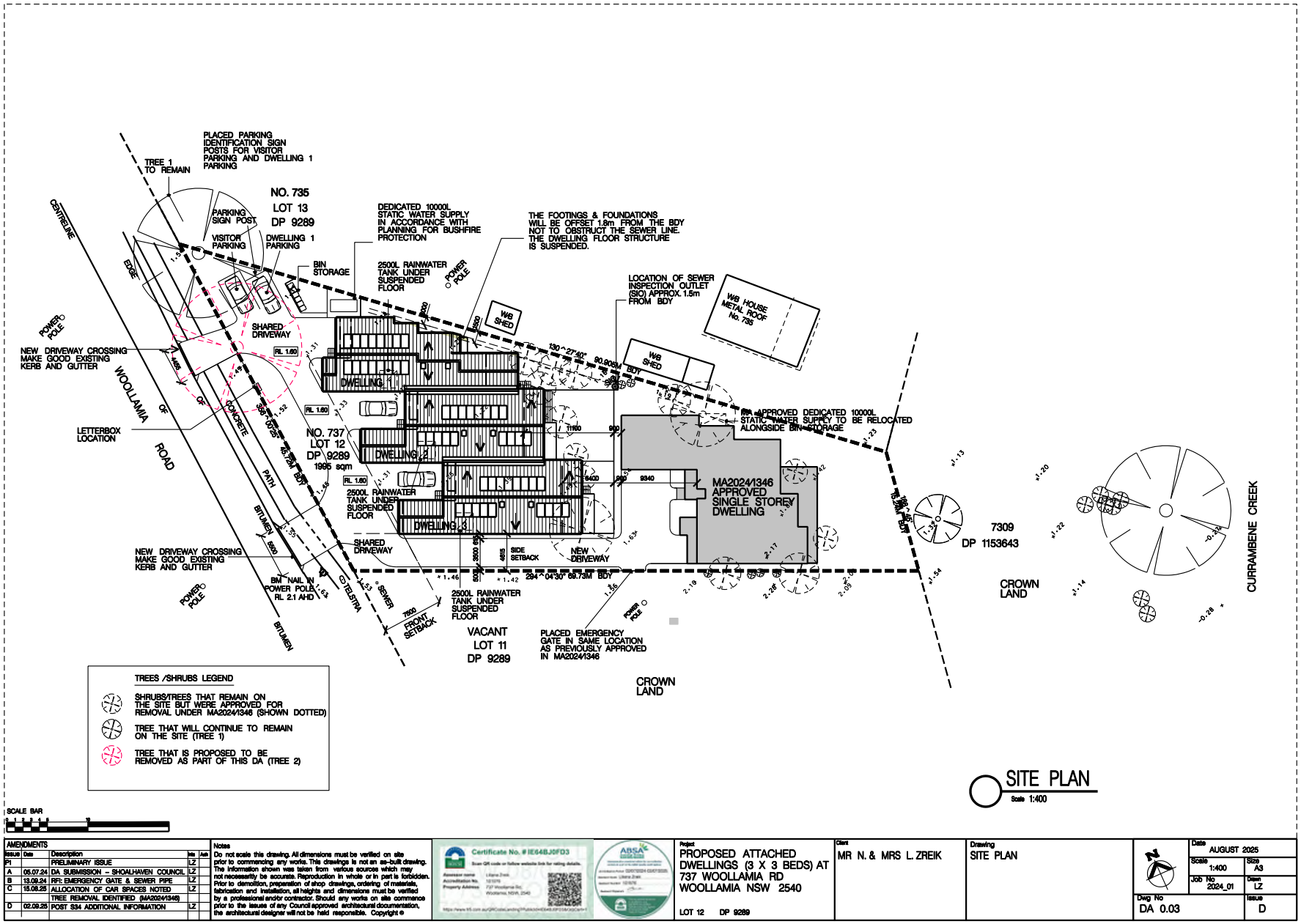
	(iii) The toilet pan should be located in the corner of the room (if the toilet is located in a combined toilet / bathroom) to enable installation of grabrails at a future date. Reinforcement guidelines for walls in bathrooms and toilets are found in element 6.	 Typical bathroom layout (Units 1-3) Approved Single Storey Dwellings MA2024_1346	
5.	**Shower**		
	Silver Level (a) One bathroom should feature a slip resistant, hobless shower recess. Shower screens are permitted provided they can be easily removed at a later date. (b) The shower recess should be located in the corner of the room to enable the installation of grabrails at a future date. For hob less specification please see Australian Standard AS3740-3.6. Reinforcement guidelines for walls in bathrooms and toilets are found in element 6.	The proposed shower is located within the corner of the room and provisioning of a shower screen has been provided and may be removed at a later date. The walls are of masonry construction hence complying with the reinforcement guidelines for walls. The shower is documented as hob less. Details will need to be confirmed at the CC stage ensuring adequate falls. The bathroom walls are of masonry construction.	a) Complies b) Complies
6.	**Reinforcement of bathroom & toilet walls**		
	Silver Level (a) Except for walls constructed of solid masonry or concrete, the walls around the shower, bath (if provided) and toilet should be reinforced to provide a fixing surface for the safe installation of grabrails.	It will be required that reinforcement is provided to the showers and toilet in the surrounding walls in accordance with this Clause. The proposal can incorporate structural steel or timber members to accommodate this requirement. This should be conditioned as part of the Consent.	a) Complies

	(b) The walls around the toilet are to be reinforced by installing: (i) Noggings with a thickness of at least 25mm in accordance with Figure 6(a); or (ii) Sheeting with a thickness of at least 12mm in accordance with Figure 6(b). (c) The walls around the bath are to be reinforced by installing: (i) Noggins with a thickness of at least 25mm in accordance with Figure 7(a); or (ii) Sheeting with a thickness of at least 12mm in accordance with Figure 7(b) (d) The walls around the hob less shower recess are to be reinforced by installing: (i) Noggins with a thickness of at least 25mm in accordance with Figure 8(a); or (ii) Sheeting with a thickness of at least 12mm in accordance with Figure 8(b) .	The shower is hob less therefore complies with this requirement. The bathroom walls are of masonry construction.	b) Complies c) Complies d) Complies
7.	**Internal Stairways**		
	Silver Level (a) Stairways in dwellings must feature: (i) A continuous handrail on one side of the stairway where there is a rise of more than 1m. **Note:** This is a requirement for all new homes under the NCC.	It is noted that the Unit dwellings have an internal stairway and will incorporate a continuous handrail on one side of the stairway to accommodate this requirement. The “approved” single storey dwelling to the rear is one levels with all external stairs have a continuous handrail on one side of the stairway where there is a rise of more than 1m	(a) Complies

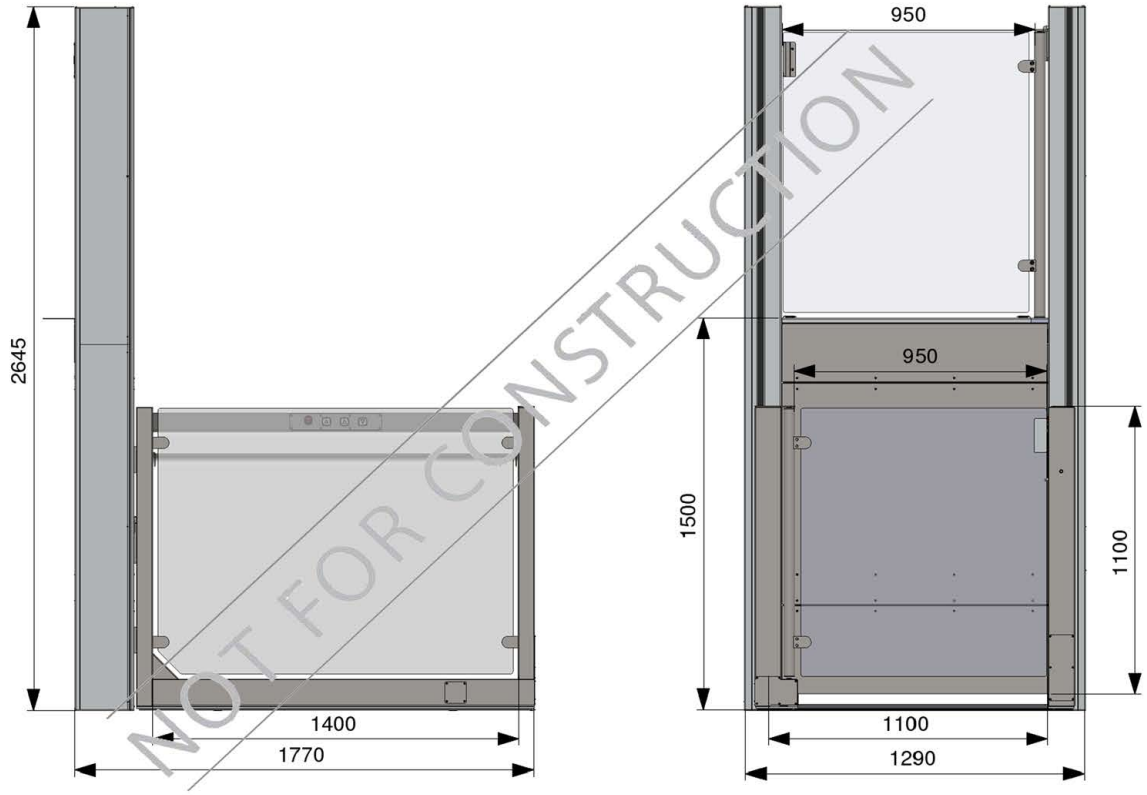


CL25.413 - Attachment 13

EL200 Platform Lift

1100x1400mm (car size)

easy living platform lifts
access for all...



Arboricultural Impact Assessment

Prepared 15th August 2025

Site Location

737 Woollamia Road Woollamia NSW

Client

Nader Zreik

DISCLAIMER

The author and Tree & Landscape Consultants take no responsibility for actions taken and their consequences, contrary to those expert and professional instructions given as recommendations pertaining to safety by way of exercising our responsibility to our client and the public as our duty of care commitment, to mitigate or prevent hazards from arising, from a failure moment in full or part, from a structurally deficient or unsound tree or a tree likely to be rendered thus by its retention and subsequent modification/s to its growing environment either above or below ground contrary to our advice.

Peter Richards
Tree & Landscape Consultants

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5.	**Recommendations**	**9**

Tables

1.	*Tree Assessment*	*7*

Appendices

Appendix A	Sustainable Retention Index Value (S.R.I.V.)© Version 4 (IACA 20010)
Appendix B	Definitions & Terminology
Appendix C	Tree Location
Appendix D	Tree Protection Plan
Appendix E	References

TREE & LANDSCAPE CONSULTANTS

Site Analysis, Arboricultural Assessments

Peter A Richards
Dip. Hort. (Arboriculture)
Assoc. Dip.Hort. (Park Management)
Member IACA *(Member -3),* Member ISA, Member Arboricultural Australia *(Member No. 256003)*
P.O. Box 50
Padstow 2211 N.S.W.
Mobile **0418 277 379**
Email **talc2@optusnet.com.au**

15th August 2025

Nader Zreik
737 Woollamia Road
Woollamia NSW

Our reference: 6778AIA-1

Arboricultural Impact Assessment:
737 Woollamia Road
Woollamia NSW

1. INTRODUCTION

This report has been prepared by Tree & Landscape Consultants for Nadar Zreik. The site was inspected by the author and the subject trees, and their general growing environment evaluated /observed on the 3rd June 2025.

The site is subject to a Development Application and this report and any works recommended herein, that require approval from the consenting authority are provided to form part of that development application and its consent conditions. The Tree Locations (Appendix C) and Tree Protection Plan (Appendix D) are to be included into and used in conjunction with the approval for *the site*.

The aims and objectives of this report are to detail and comply with the tree protection requirements specified in AS4970 (2009) *Protection of trees on development sites* to identify and assesses the condition of the subject tree/s; determine the impact of development on the subject tree/s; provide recommendations for retention or removal of the subject tree/s; provide specifications for protection of tree/s to be retained.

2.0 AIMS & OBJECTIVES

Aims

Detail the condition of the trees on the site or on adjoining sites where such trees may be affected by the proposed works, by assessment of individual specimens or stands, and indicate remedial works or protection measures for their retention in a safe and healthy condition, or a condition not less than that at the time of initial inspection for this report, or in a reduced but sustainable condition due to the impact of the development but ameliorated through tree protection measures able to be applied, and will consider the location and condition of the trees in relation to the proposed building works, or recommend removal and replacement where appropriate.

Provide as an outcome of the assessment, the following: a description of the trees, observations made, discussion of the effects the location of the proposed building works may have on the trees, and make recommendations required for remedial or other works to the trees, if and where appropriate.

Determine from the assessment a description of the works or measures required to ameliorate the impact upon the trees to be retained, by the proposed building works or future impacts the trees may have upon the new building works if and where appropriate, or the benefits of removal and replacement if appropriate for the medium to long term safety and amenity of the site.

Objectives

Assess the condition of the subject trees.

Determine impact of development on the subject trees.

Provide recommendations for removal or management of the subject trees.

2. METHODOLOGY

2.1 The method of assessment of tree/s is applied from the ongoing knowledge and development of the author and considers but is not confined to:

- Tree health and subsequent stability, both long and short term
- Sustainable Retention Index Value (S.R.I.V.)© IACA 2009)
- Amenity values
- Significance

2.2 This assessment is undertaken using a standard tree assessment criteria for each tree based on the values above and is implemented as a result of at least one comprehensive and detailed site inspection.

2.3 In this report the dimensions of the tree recorded by the author for the trunk *diameter at breast height* (DBH) measurement is calculated at 1.4m above ground from the base of the tree. Where a tree is trunkless or branches at or near ground such as a mallee formed tree, an average diameter is determined by recording the radial extent of the stem mass at its narrowest and widest dimensions, adding the two dimensions together and dividing them by 2 to record an average.

2.4 Crown spreads are expressed as length by breadth measurements to accurately record their dimensions. Where appropriate, *crown spread orientation* is described along the length of the crown spread e.g. North/South, or as *radial* if the crown is distributed at an approximately even radius from the trunk e.g. 6x6m.

2.5 The Australian Standard AS 4970-2009 “Protection of trees on development sites, where applicable is applied to trees to be retained in this report as a point of reference and guide for the recommended minimum clearances from the centre of tree trunks to development works and is applied as a generalised benchmark and the distances may be increased or decreased by the author as a result of other factors providing mitigating circumstances or constraints as indicated by but not restricted to the following:

- *Tolerance of individual species to disturbance,*
- *Geology e.g. physical barriers in soil, floaters, bedrock to surface*
- *Topography e.g. slope, drainage,*
- *Soil e.g. depth, drainage, fertility, structure,*
- *Microclimate e.g. due to landform, exposure to dominant wind,*
- *Engineering e.g. techniques to ameliorate impact on trees such as structural soil, lateral boring,*
- *Construction e.g. techniques to ameliorate impact on trees such as pier and beam, bridge footings, suspended slabs*
- *Arboriculture e.g. exploration trenches to map location of roots,*
- *Physical limitations - existing modifications to the environment and any impact to tree/s by development e.g. property boundaries, road reserves, previous impact by excavation in other directions, soil level changes by cutting or filling, existing landscaping works within close proximity, modified drainage patterns.*

2.6 ***Pruning/Removal Guidelines***

- Any pruning recommended in this report is to be to the Australian Standard® AS4373 'Pruning of amenity trees', and conducted in accordance with the NSW Work Cover Authority Code of Practice for the Amenity Tree Industry, 1998
- All pruning or removal works are to be in accordance with the appropriate Tree Management Policy where applicable, or Tree Management Order (TMO), or Tree Preservation Order (TPO), or applicable consent conditions.
- Tree maintenance work is specialised and in order to be undertaken safely and to ensure the works carried out are not detrimental to the survival of the tree or surrounding vegetation, all works should be undertaken by a qualified Arboriculturist with appropriate competencies recognised within the Australian Qualification Framework, with a minimum of 5 years of continual experience within the industry of operational amenity arboriculture, and covered by appropriate and current types of insurance to undertake such works.
- Any pruning near electricity wires should be undertaken in accordance with relative Electrical Safety Rules and be performed by persons individually authorised by Energy Australia

3. TREE ASSESSMENTS

3.1 Table 1

	Genus &Species Common Name	Age Y – Yong M-Mature O- Overmature	Condition G- Good F- Fair P- Poor D- Dead	Branch Bark Included	Canopy Orientation Sy- Symmetrical Asy- Asymmetrical	Trunk Diameter (DBH- 1.4 m above ground level in mm & Trunk Base)	Height (Metres) X Spread (Metres) (N/S x E/W)	Tree Vigour L- Low G- Good D- Dormant	SRIV Sustainable Retention Index Value
1	**Eucalyptus robusta** Swamp Mahogony	M	F	No	Sy	490,550,500@1.4 1150-Base	Ht:18 Spread: 12x12	G	MGVF9
		Multi leader specimen appearing free of insect predation and disease. **TPZ:10.68** metres radius /SRZ: **3.51** metres radius							
2	**Eucalyptus robusta** Swamp Mahogony	M	F	No	Sy	400,350,200@1.4 950-Base	Ht:18 Spread: 12x12	G	MGVF9
		Multi leader specimen appearing free of insect predation and disease. **Tree subject to a previous approval for removal**							

3.3 Setback for Tree Protection Zones

TPZ- Tree Protection Zone and SRZ Structural Root Zone - calculated in accordance with *AS4970/2009- Protection of trees on development sites.*

TPZ- encroachment

General- It may be possible to encroach into or make variations to the standard TPZ. Encroachment includes excavation, compacted fill and machine trenching.

Minor encroachment- Is less than 10% of the area of the TPZ and outside the SRZ.

Major encroachment – Is greater than 10% of the area of the TPZ or inside the SRZ.

Tree No.	Tree Common Name	TPZ (*Tree Protection Zone*) *(metres radius)*	SRZ *(Structural Root Zone)* *(metres radius)*
1	Swamp Mahogany	10.68	3.51
2	Swamp Mahogany	6.84	3.24

4. Discussion

This discussion assesses the subject tree then considers its long-term retention or removal resulting in the following management options for the tree.

Tree 1

- A large specimen of Swamp Mahogany located at the front of the land.
- Tree exhibits good vigour.
- Tree separated from the development buildings.
- Tree seen by broader area due to larger dimensions.
- The tree will be subject to approximately 12% encroachment from the proposed hard stand area which is to be constructed above grade to minimize any root disturbance
- Tree to be retained and Tree Protection implemented in accordance with *AS4970 -2009 Protection of trees on development sites* and Tree Protection Plan **(Appendix D).**

Tree 2

- A medium size specimen of Swamp Mahogany located at the front of the land.
- Tree exhibits good vigour.
- The current driveway location is in the same location as the previous approval.
- The tree is directly affected by the proposed vehicle entry.
- Tree to be removed as part of the proposed development.

All trees potentially affected are located within the land parcel to be developed. No significant or substantial size vegetation is present adjoining boundaries of the land to the north apart from bamboo and other undesirable species such as privet. Due to the matted/entwined root system of Bamboo it will not be affected by the proposed development at 737 Woollamia Road. A large Eucalypt is located at the front of the land close to the boundary which is to be retained and protected. Other vegetation within the site boundaries have been previously approved to be

removed as part of DA2023/1694.The applicant proposes to remove all existing trees and shrubs within the site except for tree 1, some of these trees have prior approval.

The following construction constraints are to be implemented as part of the proposed development for the trees to be retained:

4.1 *Tree Protection Zone Fencing* ***(Tree 1)***

Extract from AS4970-2009 Section 4.3 PROTECTIVE FENCING
Fencing should be erected before any machinery or materials are brought onto the site and before the commencement of works including demolition. Once erected, protective fencing must not be removed or altered without approval by the project arborist. The TPZ should be secured to restrict access.AS 4687 specifies applicable fencing requirements. Shade cloth or similar should be attached to reduce the transport of dust, other particulate matter and liquids into the protected area. Fence posts and supports should have a diameter greater than 20 mm and be located clear of roots. Existing perimeter fencing and other structures may be suitable as part of the protective fencing.

Response: TPZ fencing is to be installed excluding the public walkway roadway & neighbouring land to provide a physical barrier between the trees and the development. TPZ signage to be attached to fencing adjoining the trees- See also Appendix D "Tree Protection Plan".

4.2 Root Protection - ***(Tree 1)***

Extract from AS4970-2009- 4.5.4 Root protection during works within the TPZ.
Some approved works within the TPZ, such as regrading, installation of piers or landscaping may have the potential to damage roots. If the grade is to be raised the material should be coarser or more porous than the underlying material. Depth and compaction should be minimized. Manual excavation should be carried out under the supervision of the project arborist to identify roots critical to tree stability. Where the project arborist identifies roots to be pruned within or at the outer edge of that, they should be pruned with a final cut to undamaged wood. Pruning cuts should be made with sharp tools such as secateurs, pruners, handsaws or chainsaws. Pruning wounds should not be treated with dressings or paints. It is not acceptable for roots within the TPZ he 'pruned' with machinery such as backhoes or excavators. Where roots within the TPZ are exposed by excavation, temporary root protection should be installed to prevent them drying out. This may include jute mesh or hessian sheeting as multiple layers over exposed roots and excavated soil profile, extending to the full depth of the root zone. Root protection sheeting should be pegged in place and kept moist during the period that the root zone is exposed. Other excavation works in proximity to trees, including landscape works such as paving, irrigation and planting can adversely affect root systems. Seek advice from the project arborist.

Response: The hard stand area is to be located at existing ground levels with minimal subgrade excavation to avoid the severance of roots. No roots are to be damaged or cut .

4.3 Inspection Schedule - (***Tree 1***)

An inspection schedule should be adopted as follows:

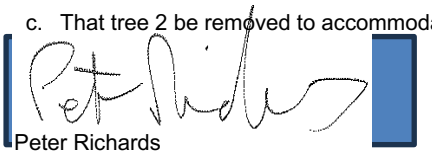
- *Establishment and certification of Tree Protection Zone (TPZ) measures prior to commencement of any site works.*
- *Site inspections during any works within and adjacent to the TPZs.*
- *A final inspection at the completion of works.*

5. RECOMMENDATIONS

a. That tree 1 be retained and protected.

b. That protection for tree 1 be in accordance with sections 4.1, 4.2 & 4.3 and Tree Protection Plan "Appendix D" of this report.

c. That tree 2 be removed to accommodate the proposed driveway.



Peter Richards
Tree & Landscape Consultants

Appendix A
Matrix - Sustainable Retention Index Value (S.R.I.V.)©

Developed by IACA – Institute of Australian Consulting Arboriculturists www.iaca.org.au (2009)

To be used with the values defined in the Glossary.
An Index value as indicated where ten (10) is the highest value.

Age Class	Vigour Class and Condition Class					
	Good Vigour & Good Condition (GVG)	Good Vigour & Fair Condition (GVF)	Good Vigour & Poor Condition (GVP)	Low Vigour & Good Condition (LVG)	Low Vigour & Fair Condition (LVF)	Low Vigour & Poor Condition (LVP)
	Able to be retained if sufficient space available above and below ground for future growth. No remedial work or improvement to growing environment required. May be subject to high vigour. Retention potential - Medium – Long Term.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work may be required or improvement to growing environment may assist. Retention potential - Medium Term. Potential for longer with remediation or favourable environmental conditions.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work unlikely to assist condition, improvement to growing environment may assist. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. No remedial work required, but improvement to growing environment may assist vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment may assist condition and vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	Unlikely to be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment unlikely to assist condition or vigour. Retention potential - Likely to be removed immediately or retained for Short Term. Potential for longer with remediation or favourable environmental conditions.
Young (Y)	**Index Value 9** Retention potential - Long Term. Likely to provide minimal contribution to local amenity if height <5m. High potential for future growth and adaptability. Retain, move or replace.	**Index Value 8** Retention potential - Short – Medium Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Medium-high potential for future growth and adaptability. Retain, move or replace.	**Index Value 5** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Low-medium potential for future growth and adaptability. Retain, move or replace.	**Index Value 4** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Medium potential for future growth and adaptability. Retain, move or replace.	**Index Value 3** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Low-medium potential for future growth and adaptability. Retain, move or replace.	**Index Value 1** Retention potential - Likely to be removed immediately or retained for Short Term. Likely to provide minimal contribution to local amenity if height <5m. Low potential for future growth and adaptability.
Mature (M)	**Index Value 10** Retention potential - Medium - Long Term.	**Index Value 9** Retention potential - Medium Term. Potential for longer with improved growing conditions.	**Index Value 6** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 5** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 4** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 2** Retention potential - Likely to be removed immediately or retained for Short Term.
Over-mature (O)	**Index Value 6** Retention potential - Medium - Long Term.	**Index Value 5** Retention potential - Medium Term.	**Index Value 4** Retention potential - Short Term.	**Index Value 3** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 2** Retention potential - Short Term.	**Index Value 0** Retention potential - Likely to be removed immediately or retained for Short Term.

Appendix B

Definitions & Terminology

From

Dictionary for Managing Trees in Urban Environments

Institute of Australian Consulting Arboriculturists (IACA) 2009.

Condition of trees

Condition A tree's *crown form* and growth habit, as modified by its *environment* (aspect, suppression by other trees, soils), the *stability* and *viability* of the *root plate*, trunk and structural branches (first (1st) and possibly second (2nd) order branches), including structural defects such as wounds, cavities or hollows, *crooked* trunk or weak trunk/branch junctions and the effects of predation by pests and diseases. These may not be directly connected with *vigour* and it is possible for a tree to be of *normal vigour* but in *poor condition*. Condition can be categorized as *Good Condition*, *Fair Condition*, *Poor Condition* and *Dead*.

Good Condition Tree is of good habit, with *crown form* not severely restricted for space and light, physically free from the adverse effects of *predation* by pests and diseases, obvious instability or structural weaknesses, fungal, bacterial or insect infestation and is expected to continue to live in much the same condition as at the time of inspection provided conditions around it for its basic survival do not alter greatly. This may be independent from, or contributed to by vigour.

Fair Condition Tree is of good habit or *misshapen*, a form not severely restricted for space and light, has some physical indication of *decline* due to the early effects of *predation* by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or is faltering due to the modification of the *environment* essential for its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.

Poor Condition Tree is of good habit or *misshapen*, a form that may be severely restricted for space and light, exhibits symptoms of advanced and *irreversible decline* such as fungal, or bacterial infestation, major die-back in the branch and *foliage crown*, *structural deterioration* from insect damage e.g. termite infestation, or storm damage or lightning strike, ring barking from borer activity in the trunk, root damage or instability of the tree, or damage from physical wounding impacts or abrasion, or from altered local environmental conditions and has been unable to adapt to such changes and may decline further to death regardless of remedial works or other modifications to the local *environment* that would normally be sufficient to provide for its basic survival if in *good* to *fair* condition. Deterioration physically, often characterised by a gradual and continuous reduction in vigour but may be independent of a change in vigour, but characterised by a proportionate increase in susceptibility to, and *predation* by pests and diseases against which the tree cannot be sustained. Such conditions may also be evident in trees of advanced senescence due to normal phenological processes, without modifications to the growing environment or physical damage having been inflicted upon the tree. This may be independent from, or contributed to by vigour.

Dead Tree is no longer capable of performing any of the following processes or is exhibiting any of the following symptoms;

Processes

Photosynthesis via its foliage crown (as indicated by the presence of moist, green or other coloured leaves);

Osmosis (the ability of the root system to take up water);

Turgidity (the ability of the plant to sustain moisture pressure in its cells);

Epicormic shoots or *epicormic strands* in Eucalypts (the production of new shoots as a response to stress, generated from latent or adventitious buds or from a *lignotuber*);

Symptoms

Permanent leaf loss;

Permanent wilting (the loss of turgidity which is marked by desiccation of stems leaves and roots);

Abscission of the *epidermis* (bark desiccates and peels off to the beginning of the sapwood).

Removed No longer present, or tree not able to be located or having been cut down and retained on a site, or having been taken away from a site prior to site inspection.

Description of Tree Dimensions

Height The distance measured vertically between the horizontal plane at the lowest point at the base of a tree, which is immediately above ground, and the horizontal plane immediately above the uppermost point of a tree.

Spread The furthest expanse of the crown when measured horizontally from one side of the tree to the other, generally through the centre of the trunk. Where the crown is not circular a measurement should be an average of the narrowest and widest diameters and this is dependent upon crown form and to a lesser extent its symmetry.

Crown Cover Percent of the homogenous distribution of foliage across the entire crown based upon that expected for a specimen of that species in good condition and of normal vigour, depending on form in situ, e.g. this may be influenced by crown die-back, proximity to other trees or structures, moisture stress, or overshadowing.

Vigour

Vigour Ability of a tree to sustain its life processes. This is independent of the *condition* of a tree but may impact upon it. Vigour can appear to alter rapidly with change of seasons (seasonality) e.g. *dormant*, deciduous or semi-deciduous trees. Vigour can be categorized as *Normal Vigour, High Vigour*, *Low Vigour* and *Dormant Tree Vigour*.

Normal Vigour Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

High Vigour *Accelerated growth* of a tree due to incidental or deliberate artificial changes to its growing *environment* that are seemingly beneficial, but may result in *premature aging* or failure if the favourable conditions cease, or promote *prolonged senescence* if the favourable conditions remain, e.g. water from a leaking pipe; water and nutrients from a leaking or disrupted sewer pipe; nutrients from animal waste, a tree growing next to a chicken coop, or a stock feed lot, or a regularly used stockyard; a tree subject to a stringent watering and fertilising program; or some trees may achieve an extended lifespan from continuous *pollarding* practices over the life of the tree.

Low Vigour Reduced ability of a tree to sustain its life processes. This may be evident by the atypical growth of leaves, reduced crown cover and reduced crown density, branches, roots and trunk, and a deterioration of their functions with reduced resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

Dormant Tree Vigour Determined by existing turgidity in lowest order branches in the outer extremity of the crown, with good bud set and formation, and where the last extension growth is distinct from those most recently preceding it, evident by bud scale scars. Normal vigour during dormancy is achieved when such growth is evident on a majority of branches throughout the crown.
Poor Vigour See low vigour
Good Vigour See Normal Vigour

Age of Trees

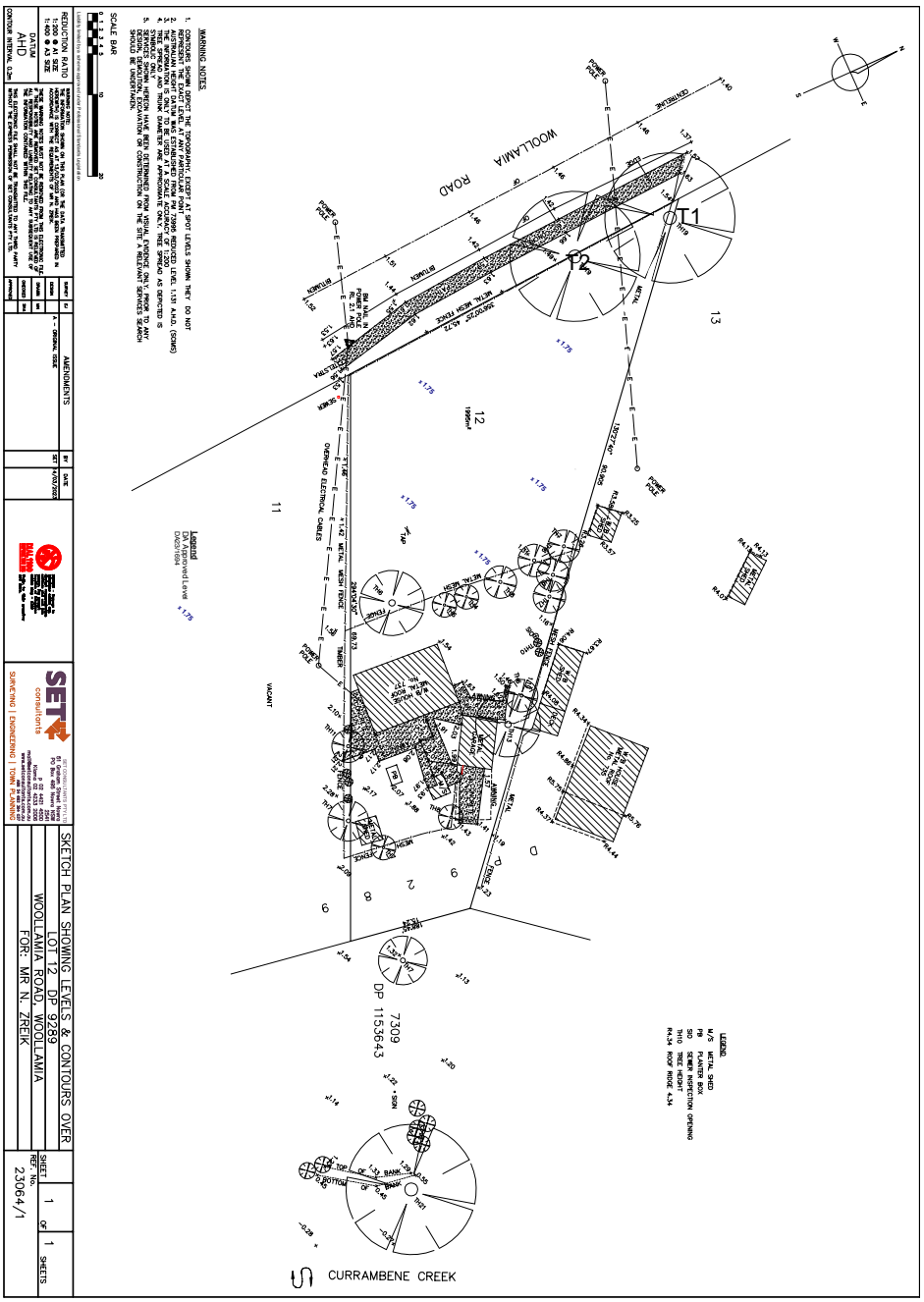
Age of Trees Most trees have a stable biomass for the major proportion of their life. The estimation of the age of a tree is based on the knowledge of the expected lifespan of the taxa in situ divided into three distinct stages of measurable biomass, when the exact age of the tree from its date of cultivation or planting is unknown. These increments are Young, Mature and Overmature.
Young Tree aged less than 20% of life expectancy.
Mature Tree aged 20-80% of life expectancy.
Over-mature Tree aged greater than 80% of life expectancy tending to senescent with or without reduced vigour, and declining gradually or rapidly but irreversibly to death.
Sapling A young tree, early in its development with small dimensions.
Senescent Advanced old age, over-mature.

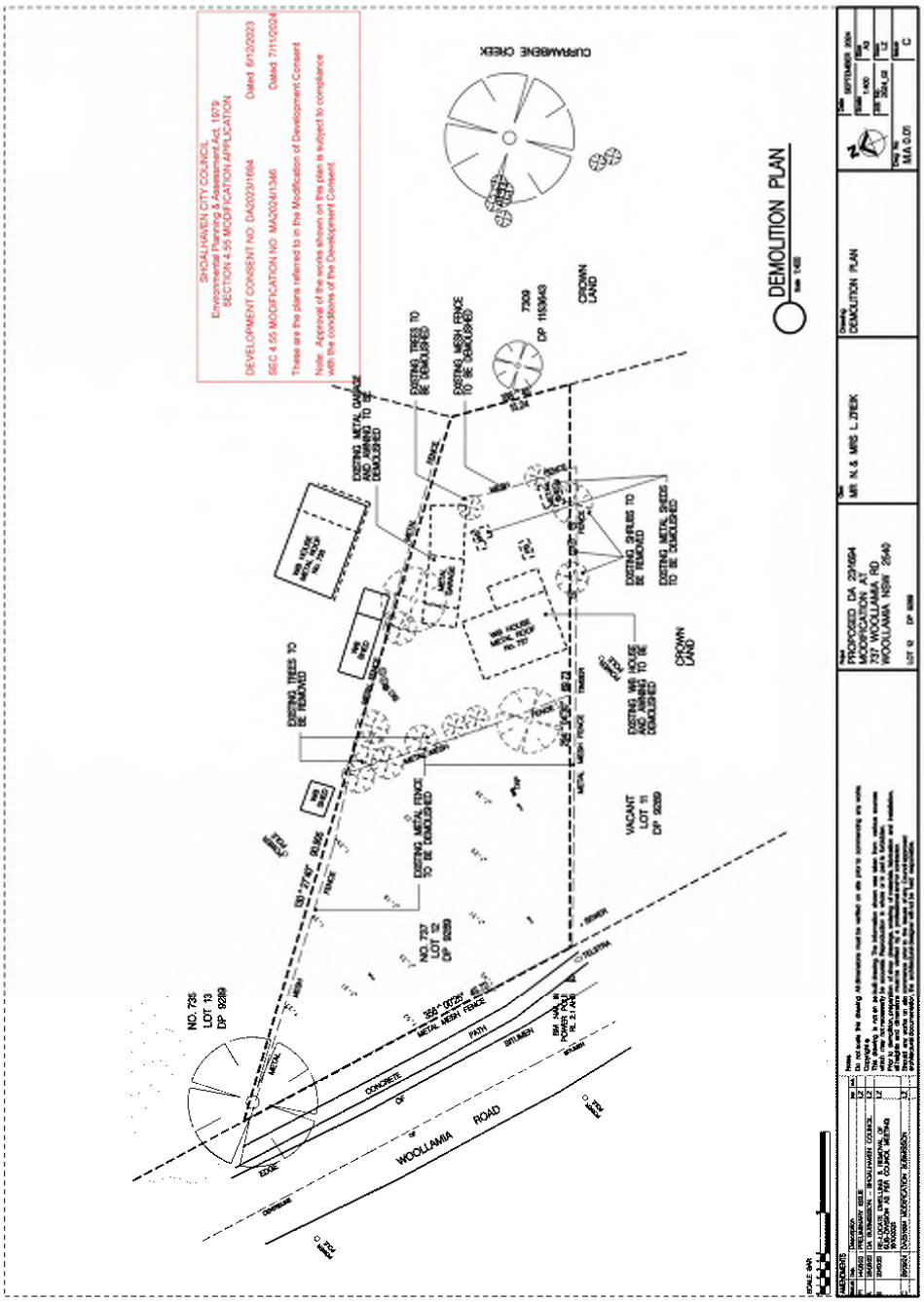
General Terms

Significant Important, weighty or more than ordinary.
Significant Tree A tree considered important, weighty or more than ordinary. Example: due to prominence of location, or in situ, or contribution as a component of the overall landscape for *amenity* or aesthetic qualities, or *curtilage* to structures, or importance due to uniqueness of taxa for species, subspecies, variety, form, or as an historical or cultural planting, or for age, or substantial dimensions, or habit, or as remnant vegetation, or habitat potential, or a rare or threatened species, or uncommon in cultivation, or of aboriginal cultural importance, or is a commemorative planting.
Substantial A tree with large dimensions or proportions in relation to its place in the landscape.
Excurrent Tree where the crown is comprised of one (1) dominant first order structural branch which is usually an extension of the trunk, erect, straight and continuous, tapering gradually, with the main *axis* clear from base to apex, e.g. *Araucaria heterophylla* - Norfolk Island Pine. Note: some tree species of *typical* excurrent habit may be altered to deliquescent by physical damage of the *apical meristem*, or from top lopping, or from the propagation of inferior quality stock. However, *formative pruning* may be able to correct a *crown* to excurrent if undertaken when a tree is *young*.
Sustainable Retention Index Value (SRIV) A visual method of rating the viability of urban trees for development sites and management, based on general tree and landscape assessment criteria. SRIV© is for the professional manager of urban trees to consider the tree in situ with an assumed knowledge of the taxa and its growing environment and is based on the physical attributes of the tree and its response to its environment considering its age class, vigour class, condition class and its sustainable retention with regard to the safety of people or damage to property and the ability to retain the tree with remedial work or beneficial modifications to its growing environment or removal and replacement. (IACA 2005)
Diameter at Breast Height (DBH) Measurement of trunk width calculated at a given distance above ground from the base of the tree often measured at 1.4 m. The trunk of a tree is usually not a circle when viewed in cross section, due to the presence of *reaction wood* or *adaptive wood*, therefore an average diameter is determined with a *diameter tape* or by recording the trunk along its narrowest and widest axes, adding the two dimensions together and dividing them by 2 to record an average and allowing the orientation of the longest axis of the trunk to also be recorded. Where a tree is growing on a lean the distance along the top of the trunk is measured to 1.4m and the diameter then recorded from that point perpendicular to the edge of the trunk. Where a *leaning* trunk is *crooked* a vertical distance of 1.4m is measured from the ground. Where a tree branches from a trunk that is less than 1.4m above ground, the trunk diameter is recorded perpendicular to the length of the *trunk* from the point immediately below the base of the flange of the *branch collar* extending the furthest down the trunk, and the distance of this point above ground recorded as *trunk* length. Where a tree is located on sloping ground the DBH should be measured at half way along the side of the tree to average out the angle of slope. Where a tree is *acaulescent* or *trunkless* branching at or near ground an average diameter is determined by recording the radial extent of the trunk at or near ground and noting where the measurement was recorded e.g. at ground.
Tree Management Planned protection, conservation, maintenance and enhancement of a population of trees. Usually achieved by recognizing trees as a dynamic natural resource and, through professional arboricultural personnel and a multidisciplinary approach, gaining an ongoing understanding of diverse aspects of the population: age class; maintenance, removal/replacement cycles and costs; additional new planting opportunities and costs; sustainability; safety constraints; community concerns; budgetary constraints; ecological, *amenity* and utility values; suitability and appropriateness of tree maintenance, removal and replacement or retention. See also *Tree Preservation*, *Appropriate Tree Management* and *Inappropriate Tree Management*.
Appropriate Tree Management The management of trees as a resource based on sound professional judgement and a competent understanding of what tree to plant where and when, or when to remove or retain a tree. Examples: 1. The planting or retention of a tree in a position that causes minimal or no conflict with people or property or disturbance of the built environment, or services or infrastructure, due to such a decision having been founded upon a competent knowledge of the characteristics of the trees growth pattern and ultimate dimensions above and below ground at maturity, and the suitability of the space available into which it will develop. 2.The removal of a tree that will grow to be in conflict with the constraints of its growing *environment* either above or below ground at its ultimate dimensions at maturity, and especially where replanting could be undertaken with an advanced specimen of a species of more suitable growth characteristics and mature dimensions. 3. The removal of a vigorous tree in a *poor* condition, in a prominent position where its potential failure in full or part poses a risk of hazard to the safety of people, or damage to property. See also *Inappropriate Tree Management* and *Tree Management.*
Inappropriate Tree Management The planting or retention of a tree where it is known that the tree will outgrow the space available for its growth above or below ground before or at maturity and is likely to cause disruption or damage to build structures, or retention of a tree when it is known to be potentially hazardous to people or property. See also *Appropriate Tree Management*, *Tree Preservation* and *Tree Management*.
Trenchless Technology Methods or systems that allow for the installation, replacement, renovation and repair of pipes, ducts, cables and other underground apparatus with minimum excavation from the ground surface. These include Horizontal Directional Drilling (HDD), the most common system used for new pipe installation in domestic situations is Pipe Bursting (Pipe Cracking) and the most common system used for pipe replacement in domestic situations are, Soil Displacement Hammer, Pipe Ramming, Thrust Boring, Micro Tunnelling, and Pipe Lining (Australasian Society for Trenchless Technology 2003).

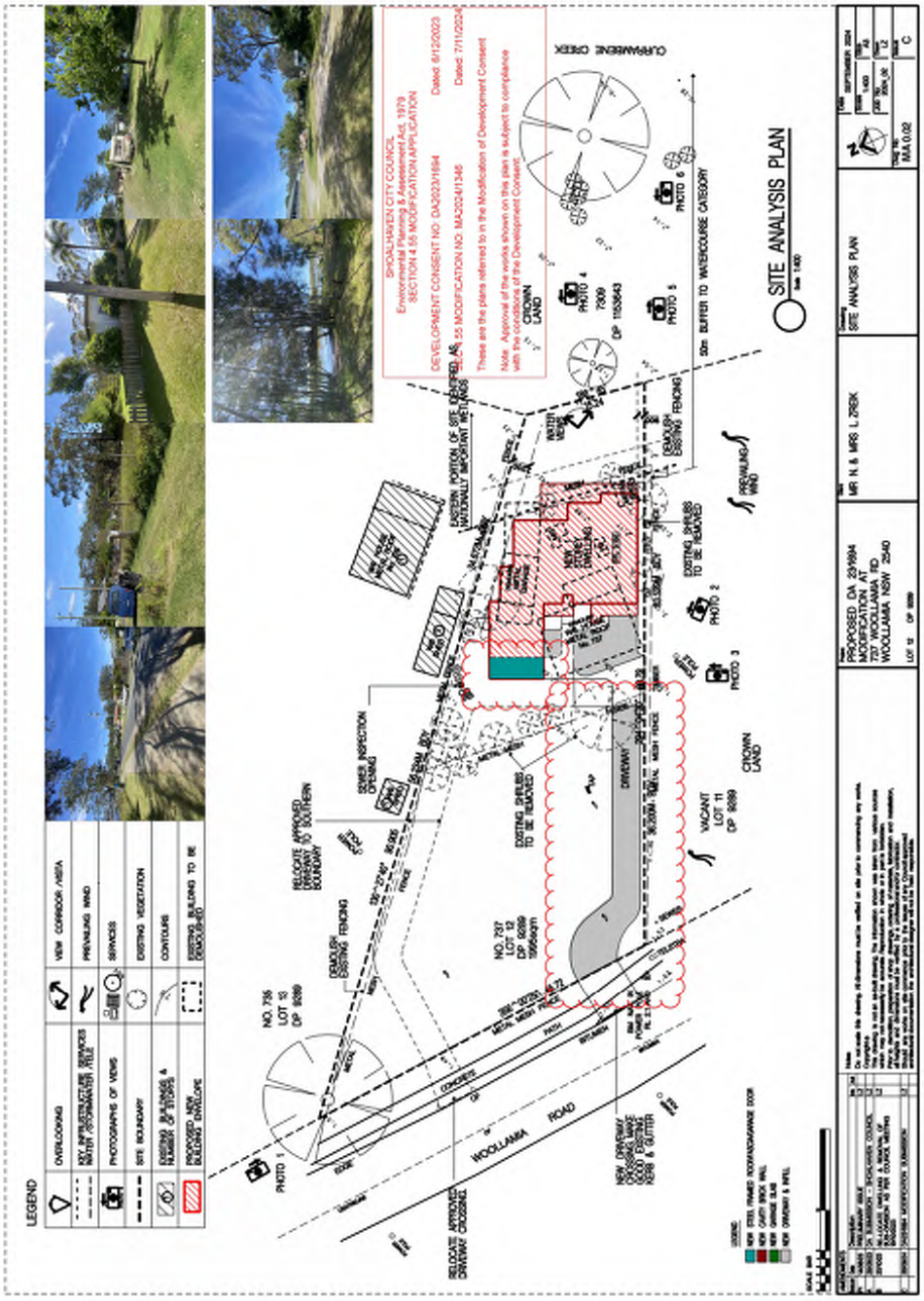
Appendix C

Tree Locations/Previously Approved Site Plan DA2023/1694





CL25.413 - Attachment 14



CL25.413 - Attachment 14

Appendix D
Tree Protection Plan

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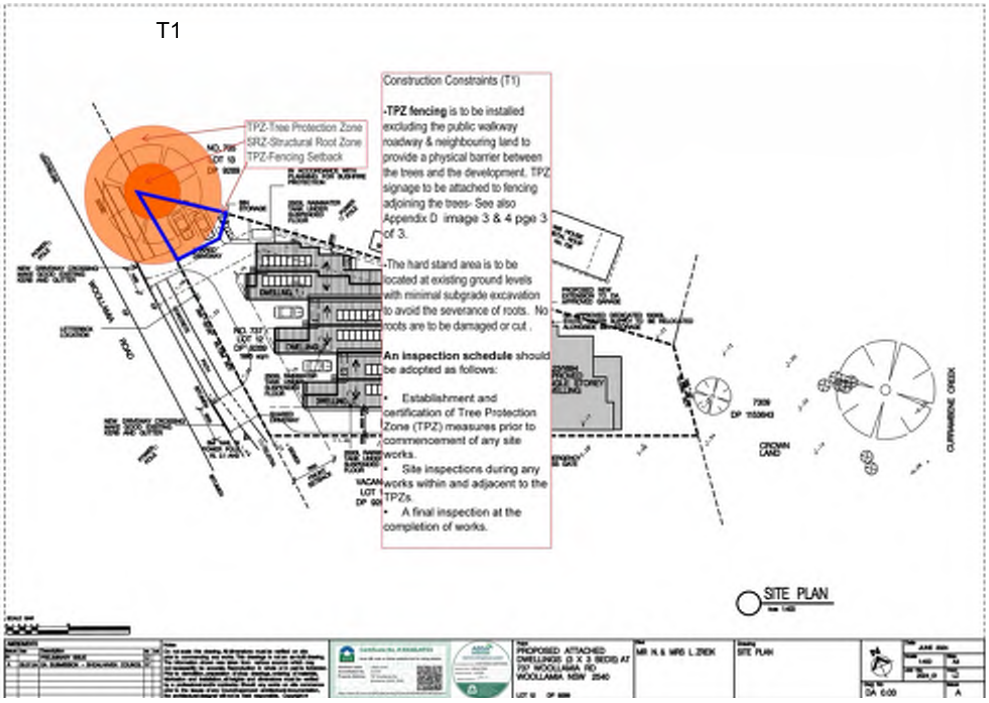
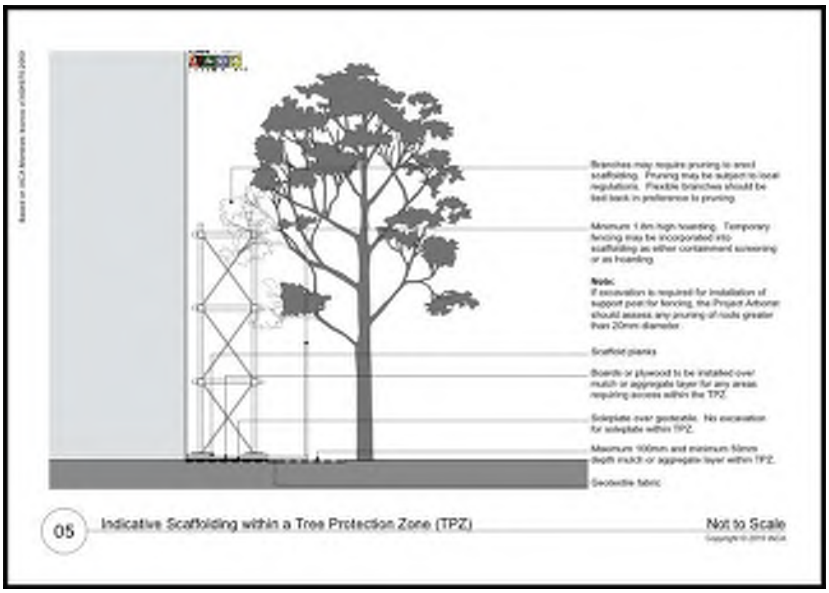
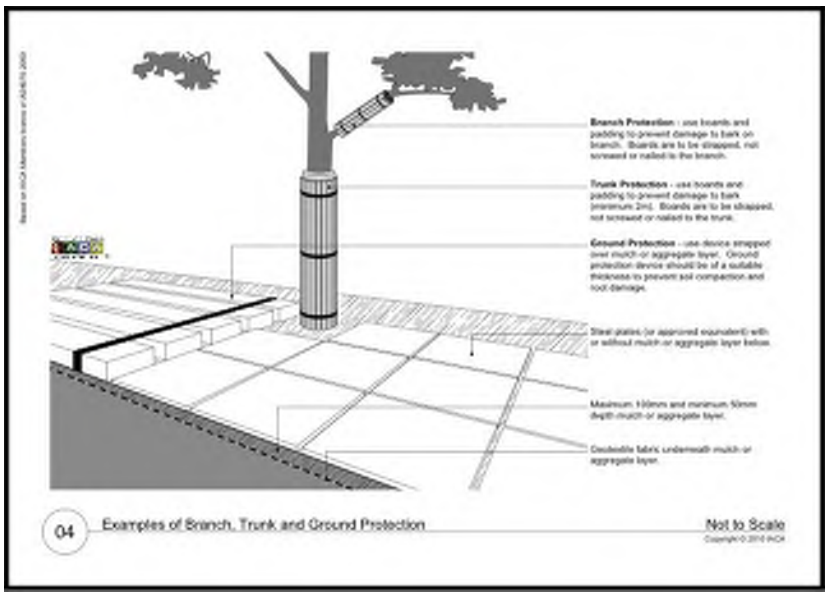


Page 2 of 3-



Drawing #2 - Branch, Trunk and Ground Protection



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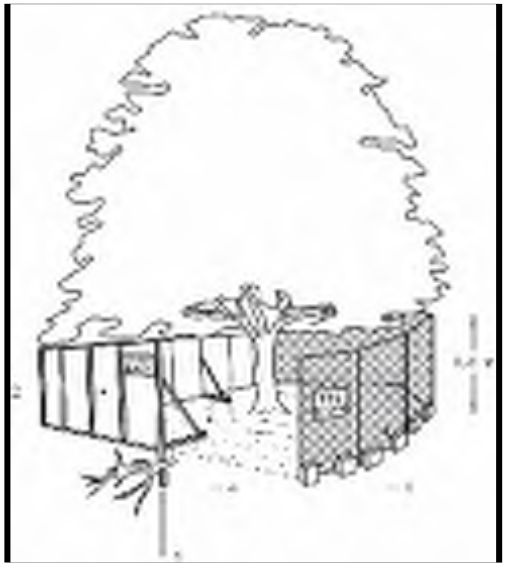
Drawing #3 - Example of TPZ Fencing



Drawing #4 - Example of TPZ Signage

Appendix E
References

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Bushfire Assessment Report

Apical
Bushfire and Planning

Client: Nader Zreik & Liliana Zreik

Address: 737 Woollamia Road

Lot/DP: 12/9289

Proposed Development: Construction of three (3) villas as infill development

Bushfire Assessment Report

Apical Bushfire Planning Pty Ltd
PO Box 149 Kiama NSW 2533
Tel: 04 1561 7771
Email: Daniel@apical-bushfire.com.au

Report:	Bushfire Assessment Report – 737 Woollamia Road Woollamia, NSW
Prepared for:	Nader Zreik & Liliana Zreik
Prepared by:	Romy Brien
Project no:	BA/S/29_24 V1
Date:	24/07/2024

[redacted]

Prepared by:_____

Daniel Anderson (M.Env.Sc, GCert.PBP.)

PBAD LEVEL 2 BUSHFIRE PRACTITIONER

BPAD- 48898

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

This report has been prepared for the owner of the land, in accordance with Planning for Bushfire Protection - A Guide for Councils, Planners, Fire Authorities and Developers, 2019, NSW Rural Fire Service (RFS) and Planning NSW.

Prepared under SECT 4.14 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Conforming to Australian Standard AS3959-2018 Building in Bushfire Prone Areas

Liability limited by a scheme approved under Professional Standards Legislation.

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Associated Document

Apical Bushfire and Planning (2023) '*737 Woollamia Rd Lot 2 - BAL Report*'

1. EXECUTIVE SUMMARY

The level of bush fire risk imposed upon a building is affected by the area you live, the vegetation, the distance from the vegetation to your home, and the ground slope.

Applications for development to occur upon bush fire prone lands should include a bush fire assessment report.

Section 4.14 of the NSW EP&A Act states that development upon bushfire prone lands must comply with Planning for Bushfire Protection 2019 herein (PBP-2019) and building performance under AS3959-2018 unless written consultation and consent has been sought from the NSW Rural Fire Service herein (NSW RFS).

As part of a building process and upon occupation of land use on bushfire prone land, you will need to confirm your BAL (Bushfire Attack Level) in a written report from a certified bushfire consultant.

This bushfire assessment report will assess and determine the Bushfire Attack Level (BAL Rating) presented by the placement of the dwelling based on either Method 1 (Deemed to satisfy tables) or Method 2 (Bushfire performance models) permissible under AS3959-2018 (Construction of buildings in bushfire prone areas), and in accordance with Planning for Bushfire Protection 2019 (NSW RFS).

Once a BAL rating is determined for a building location, this assessment will then review the development proposal entirely to ensure that the proposal can demonstrate that the requirements and associated bushfire protection measures (BPM's) prescribed within PBP-2019 can be satisfied by the planning proposal.

The consideration of PBP-2019 coupled with the application of building performance criteria prescribed within AS3959-2018 (Australian Standards – Building Code of Australia) will work in an integrated fashion by managing both landscape risk and building performance measures to protect buildings and building occupants from inherent risk of bush fire attack.

This development proposal is for the addition of three villas to the front (west) of a site with an existing residence. The subject site has been identified as being bushfire prone land (category 3).

Appendix A2.2 of PBP-2019 documents the assessment and submission requirements for 'infill' development including Bushfire Protection Measures (Sections 5-8 of PBP-19) which will be considered and presented within this assessment.

This Bushfire Assessment Report will address the following matters:

1. Confirmation the site is located upon bushfire prone land.
2. The location, extent, and vegetation formation of any bushland on or within 140 meters of the site.
3. The slope & aspect of the site and any of Bushfire Prone Land within 100m of the site.
4. Any features on or adjoining the site which may mitigate the impact of bushfire on the proposed development.
5. A statement assessing the likely environmental impact of any proposed Bushfire Protection Measures (BPM's).
6. A site plan showing access, water supplies, APZ's, BAL requirements, & building footprint in relation bushfire hazards; and
7. Calculated BAL construction levels for the building.

The property is zoned RU5 Village under the Shoalhaven Local Environment Plan (LEP) 2014.

A concept Site Plan, showing the proposed layout of the buildings onsite as part of the proposal is provided as (Appendix A).

The assessment of the site is based on the results of a field survey and BAL site assessment conducted by Mr Daniel Anderson Bushfire Planning Accredited Assessor: BPAD48898, During July 2023.

The following key bushfire influential characteristics were found during the assessment of the site.

- The effective landform slope for bushfire influence surrounding the building location was considered low risk with ground slope topography not exceeding 0-5 degrees downslope in any direction from the building site. The topography of the site is relatively flat with a slight slope towards the river to the east elevation of site.

- Vegetation to the south and east is maintained as confirmed by Shoalhaven Council and that these sites belong to Crown Land. Shoalhaven Council confirmed that Lot 11 DP 9289 zoned RU5 (land to the south of the proposal) is a drainage easement and is regularly maintained by Shoalhaven Council.
- Lot 7309 DP 1153643 zoned C2 & RE1 (land to the east) is also regularly maintained by Shoalhaven Council from the eastern site boundary of the subject lot up to the water's edge of Currambene creek.
- The major source of bushfire vegetation (fuels) occurs from the northeastern and eastern elevations of the proposed building envelope.
- An area of approximately 1900m² of the site is currently clear of any dominant vegetation. Two mature Eucalyptus are present within the street frontage and can be maintained to create an appropriate APZ. It is recommended that this APZ maintenance regime is retained for the life of the development.
- The adjacent lot to the south lot 12 DP9289 (Crown lands) provides an easement for existing water services which is maintained as a utility of Shoalhaven Water. It is also void of any dominant vegetation class and considered a no hazard area.
- Vegetation posing the bushfire threat was classified as Forested Wetland using Keith, D. 2004 class and is comprised of Plant Community Type (PCT) id 4009: Shoalhaven Lowland Flats Wet Swamp Forest.
- For assessment under PBP-2019, AUSLIG Vegetation Class – Forest (North) and Forested Wetland East.
- Bushfire Attack Levels (BAL) were determined for the proposal using the application of BAL assessment methodology Appendix 1 PBP-2019 and Table A1.12.5 of PBP-2019:

  i) North: BAL 19kW/m²
  ii) South: BAL 19kW/m²
  iii) East: BAL 19kW/m²
  iv) West BAL 19kW/m²

1.1 Bushfire Protection Measures – Summary Recommendations

The following key recommendations to mitigate bushfire risk have been provided to ensure compliance with the current legislation Australian Standard under the National Construction Code (NCC) and PBP 2019.

1. Asset Protection Zone (APZ):

Vegetation management, to improve separation distance, provide for reasonable defendable space and enhance Asset Protection Zones is recommended for the Northern and eastern facades of the building.

The application of vegetation management In the form of an APZ around the building area (as presented in the site plans) to comply with IPA (Inner Protection Area) standards:

i) North: to boundary
ii) South: to boundary
iii) East: to boundary
iv) West: to boundary

2. Siting and Design

The siting of the proposed new building is in line with the Shoalhaven DCP setback requirements.

The proposed development is for new attached dwellings (three villas) with relevant site access and landscaping features (see site plans – appendix A). The site has an existing, single story, residential dwelling to the rear which will be accessed via driveway along the southern boundary.

The villas will be accessed via the internal driveway to the front (west) of the subject site where the dwellings can be defended, safely by emergency respondents from Woollamia Road in the case of a fire.

Siting for the habitable dwellings has been determined to achieve:

- The ability to provide sound vehicle access to the lot.
- The ability to provide distance from land gradients, which stabilize fire rate of spread and allow for safer vehicle movements and parking.
- The ability to provide for minimal vegetation management.

3. Construction Standard

To improve the integrity of the building against bush fire attack, Building Construction Level for this proposal must be designed to achieve a BAL of 19 for all (4) building facades.

Ember attack and volatile winds under bushfire conditions are also factors for the building to with stand and should be appropriately acknowledge as part of the building design.

The proposal must ensure that the building is constructed to contain attributes compliant with AS3959-2018 specifications.

Performance criteria relating the Bushfire Protection Measures (BPM's) of the proposal must also comply with chapter 7 of PBP-2019 & section 3 & 6 of AS3959-2018.

Leaf proof gutter system will be provided and installed to improve defence from ember attack.

4. Access Requirements

Access provisions as acceptable solutions to the building for firefighting are prescribed within PBP-2019 Section 7 & Appendix 3 PBP-2019. This report has reviewed the proposal against such criteria with the key performance statements for site access and egress provided within the Access chapter of the report.

Current road widths presented by Woollamia Road (The public road network) to access the location and the surrounding road networks are sufficient to safely provide for cars and versatile truck vehicles measuring 5-6 meters wide (Fire-fighting tankers) in the event of firefighting at the location.

Access to within the site is provided by the internal driveway, which is sealed and all weather.

5. Water & Utility Services

Reticulated water is provided to the site. A street Hydrant is available within 60m (south) of the site (see map image 10). The location of the hydrant can support coverage by a responding fire truck to cover the development siting and scale.

If Bottle gas services are available, they must be installed and maintained in accordance with AS 1596. Gas cylinder relief valves shall be directed away from the building and away from any hazardous materials such as firewood, etc. Gas bottles will be sited away from exposure to radiant heat sources (northern and western elevation).

Electricity is currently supplied to the site above ground via the street mains. Where possible electrical transmission lines should be supplied underground.

6. Landscaping

Any future landscaping prescribed within the plan shall be designed and maintained in accordance with the principals identified in sections 7.4 Landscaping, 7.6 fencing and gates and be compliant with Appendix 4 Asset Protection Zones of PBP 2019.

The application of bushfire hazard reduction principals in accordance with the landscape design will focus upon:

- Maintaining a clear area of low-cut lawn or pavement adjacent to the house.
- Keeping areas under fences, fence posts and gates and trees raked and cleared of fuel.
- Utilising non-combustible fencing and retaining walls.
- Breaking up the canopy of trees and shrubs with defined garden beds.
- Organic mulch should not be used in bushfire prone areas and non-flammable material should be used as ground cover, e.g., Scoria, pebbles, recycled crushed bricks.
- Planting trees and shrubs such that:
  - the branches will not overhang the roof.
  - the tree canopy is not continuous.

7. Emergency Management

The applicants are advised to obtain the NSW Rural Fire Service – "Guidelines for the Preparation of Bush Fire Evacuation Plans" & 'Bush Fire Survival Plan'. In the event of emergency, the any future owners should ensure they are familiar with the RFS Bush Fire Alert Levels and use their Bush Fire Survival Plan.

8. Findings

The recommendations presented here in the summary, will ensure the development has fully considered the bush fire protection measures and requirements provided in *Planning for Bushfire Protection* (2019) & addendum (2022) *NSW Rural Fire Service* and comply with adequate provision for firefighting strategies to meet the overall presented requirements of Clause 44 of the Rural Fires Regulation NSW 2013.

2. INTRODUCTION

Apical Bushfire & Planning P/L was commissioned by the proponent to undertake the required Bushfire Hazard Assessment for this development proposal after it was established that the property was located on bushfire prone land (Category 3) as such the proposal is subject to the considerations outlined in Planning for Bushfire Protection, NSW Rural Fire Service 2019 (stated as – *PBP 2019-NSW, RFS*).

The development aims to comply with 'Deemed to satisfy' solutions determined for the required bush fire attack level determined for the siting of the building and the presented bushfire protection measures. This assessment will present key management actions and provided interventions for each key criterion.

Building performance will also be delivered by the builders through application of a BAL 19 construction standard pursuant with the NCC & AS3959-2018 requirements.

The key recommendations are provided to sufficiently alleviate and mitigate bushfire risk for the development and support the safety of the future occupants of the site.

Methodology applied by our site assessment for determination of bushfire attack (BAL) is based on the application of the site assessment methodology and bushfire attack level tables included within Appendix 1, NSW Planning for Bushfire Protection Guidelines, 2019 (PBP) NSW, RFS.

Terrain (slope) and landform assessment of the site was determined by investigation of the land using slope digital elevation model (DEM) provided by 'Nearmap' via a review of aerial imagery and elevations measured onsite using a clinograph and verified via a site inspection (July 2023) of the subject property.

Vegetation extent within the subject area and surrounds has been derived from available aerial photo interpretation (API), cross referencing with NSW Vegetation data layers (P5MA, Keith Classifications, AUSLIG) on a GIS platform and a site inspection (July 2023) conducted prior to finalising this report.

The extent and dimensions of the proposed new dwelling are based on the Shoalhaven DCP 2014 and supplied concept site layout plan prepared by Apical Bushfire Planning P/L. & D & Liliana Zreik.

Site mapping imagery was obtained via access to geo-rectified aerial image photos provided via Nearmap and date May 2024.

Photographic images of the subject property and surrounding vegetation and landscapes are also included within this report (as Figures) i.e. (Site Photos) presenting site condition at the time of inspection.

3. PROPERTY DETAILS

Applicants Name: Nader Zreik & Liliana Zreik
Council: Shoalhaven City Council
Council Reference:
Lot: 12 **DP:** 9289
Address/Location: 737 Woollamia Road Woollamia, NSW 2540
Zoning: RU5 Village
Bushfire Prone Land: Category 3
Aspect: West

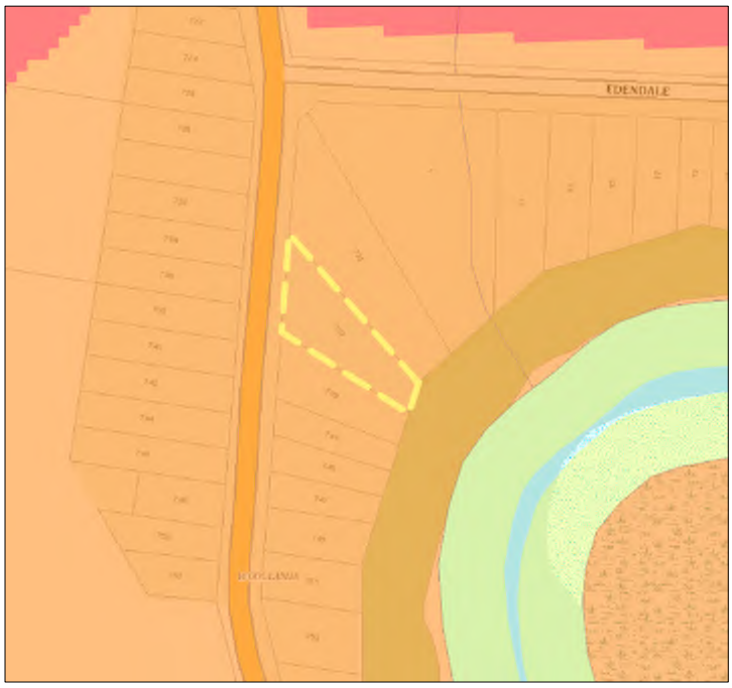
Map image 1. Aerial image subject site (Nearmap image 30/05/2024)

3.1 Constraints:

Table 1. Relevant site constraints

Reference	Planning Layer	Site Relevance
NSW Government	NSW Biodiversity Values Map	Not relevant
Local Government	Terrestrial Biodiversity Map	Not relevant
Local Land services	Natural Resources Sensitivity Map	Not relevant
Local Government	Environmentally Sensitive Land	Not relevant
Local Government	Scenic Land Protection	Not relevant
NSW Government	NSW Bushfire Prone Land Map	Category 3
Local Government	Riparian Land/Watercourses	Yes – Currambene Creek to rear of site
Local Government	Flood Prone Land Map	Not relevant
NSW Government	Rivers & Foreshores / Marine Protection Areas	Yes – Currambene Creek to rear of site
NSW Government	Wetland Areas (SEPP 14)	Not relevant
NSW Government	Aboriginal Heritage Information System	Not relevant
NSW Government	Acid Sulphate Soils	Class 3

Map image 2. NSW RFS Bushfire Prone Land Map



NSW Planning Portal Bushfire Prone Mapping Tool showing the subject development site to be designated bushfire prone land (Category 3).

Map image 3. NSW Planning Portal – Class 3 Acid Sulphate Soils

4. PROPOSAL

This development proposal relates to the proposal of three (3) villas to the front (west) of a site as infill development with an existing, single story residence retained to the rear or east elevation of the site. Access is provided to the villas from Woollamia Road via an internal driveway to the buildings within the lot. (see map image 4 & Appendix for site plans). The rear lot will be accessed via a driveway along the southern boundary of the lot (on the non-hazard side).

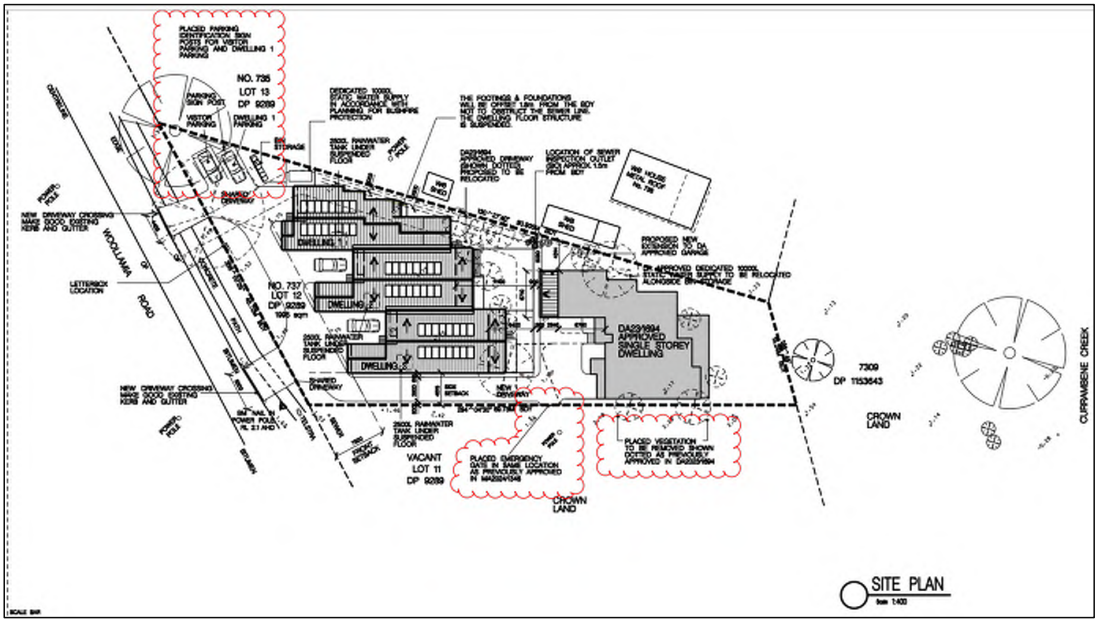
The bushfire protection measures devised and presented within this report have been determined via review and integration with the documented objectives of *PBP 2019-NSW,* RFS.

"The aim of PBP-2019 is to provide for protection of human life and minimise impacts on property from the threat of bushfire".

More specifically, the objectives of this assessment are to present interventions and solutions which:

a) afford buildings and their occupants protection from exposure to a bush fire;
b) provide for a defendable space to be located around buildings;
c) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
d) ensure that safe operational access and egress for emergency service personnel and residents is available;
e) provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zone (APZ); and
f) ensure that utility services (Water provision) are adequate to meet the needs of firefighters (and others assisting in bushfire fighting").

Map image 4. Site Plan (provided by the client)



5. Bushfire Attack

The vegetation within the study area is mapped as 'Bushfire Prone Vegetation – category 3' on Council Bushfire Prone Land Maps (see map image 2).

A desktop review and data assessment were prepared to identify current vegetation cover and vegetation complexes within the surrounding landscapes of the subject site.

Actual vegetation occurring within the associated landscape and in conjunction with the proposal site were assessed at the site in the field during site assessment visits.

Vegetation structure, maintenance and actual hazard fuel ratings were evaluated in the field using field assessment guidelines derived to measure the fuel characteristics including load, structure and height of vegetation and vegetation biomass.

Our assessment of the fuel loads retained within the managed landscape zone were supported by a site visit, site photos and correlation of the ground cover and surface fuel loads with fact sheets and research papers such as Comprehensive Vegetation Fuel Loads – 2019 (NSW RFS) fuel modelling project (University of Wollongong).

Data reviews were undertaken through consultation with NSW Government State Government Databases such as consultation with available data layers including 'State Vegetation Mapping', 'Keith, 2006 Vegetation Mapping' and NSW Office of Environment & Heritage 'Plant Community Type (PCT)' data and metadata to determine vegetation type and class occurring in the broader surrounds to the site.

- The effective landform slope for bushfire influence surrounding the building location was considered low risk with ground slope topography not exceeding 0-5 degrees downslope in any direction from the building site. The topography of the site is relatively flat with a slight slope towards the river to the east elevation of site.
- Vegetation to the south and east is maintained as confirmed by Shoalhaven Council and that these sites belong to Crown Land. Shoalhaven Council confirmed that Lot 11 DP 9289 zoned RU5 (land to the south of the proposal) is a drainage easement and is regularly maintained by Shoalhaven Council.
- Lot 7309 DP 1153643 zoned C2 & RE1 (land to the east) is also regularly maintained by Shoalhaven Council from the eastern site boundary of the subject lot up to the water's edge of Currambene creek.
- The major source of bushfire vegetation (fuels) occurs from the northeastern and eastern elevations of the proposed building envelope.
- An area of approximately 1900m² of the site is currently clear of any dominant vegetation. Two mature Eucalyptus are present within the street frontage and can be maintained to create an appropriate APZ. It is recommended that this APZ maintenance regime is retained for the life of the development.
- The adjacent lot to the south lot 12 DP9289 provides an easement for water services maintained and utilized by Shoalhaven Water is also void of dominant vegetation.
- Vegetation posing the bushfire threat was classified as Forested Wetland using Keith, D. 2004 class and is comprised of Plant Community Type (PCT) id 4009: Shoalhaven Lowland Flats Wet Swamp Forest.
- For assessment under PBP-2019, AUSLIG Vegetation Class – Forest (North) and Forested Wetland East.
- Bushfire Attack Levels (BAL) were determined for the proposal using the application of BAL assessment methodology Appendix 1 PBP-2019 and Table A1.12.5 of PBP-2019.

Site Images – Surrounding Vegetation Hazards

North-east: 0-30m residential. Forest beyond.

North: Residential land use to 120m. Forest beyond.

West: Residential land use to 110m. Grassland beyond.

South: Managed Easement & Residential Landscape

South: Council Easement

South-east: Rear of site (east) looking towards Council easement

East: 0-50m managed land. Currambene Creek beyond.

East: Rear of site looking east

5.1 Bushfire Attack Level – Determination AS3959-2018

Bushfire Attack Level (BAL) Assessment is undertaken with the application of the site assessment methodology and bushfire attack level tables included within Appendix 1, NSW Planning for Bushfire Protection Guidelines, 2019 (PBP) NSW, RFS.

Key factors and values which combine to influence potential bushfire attack risks for a location are provided and measured in the below table.

Table 2. Bushfire Attack Level Determination Factors & Values (AS3959-2018)

SITE DETERMINATION FACTORS	
Factor	**Value**
A) Relevant FDI	100
B) Flame Temperature	1090k
C) Slope – North Slope – South Slope – East Slope - West	Upslope/flat Upslope/flat 0-5 degrees downslope Upslope/flat
D) Vegetation Classification	Forest (northeast) Rainforest (east)
E) Building Location	See Appendix A

Bushfire Attack Level – Determination PBP 2019 (Appendix 1)

The following process as reflected in Appendix 1 PBP -2019 is applied to determine the Bushfire Attack Level (BAL Rating) for the positioning of the dwelling.

Step 1: Determine the vegetation formation in all directions around the building to a distance of 140 meters.

Step 2: Determine the effective slope of the landform from the building to a distance of 100 meters.

Step 3: Determine the distance between the vegetation and the building measured from the edge of the foliage cover (drip line) and the closest external wall of the building location.

Step 4: Match the relevant FDI measure, appropriate vegetation, distance, and effective slope to determine the BAL rating from the relevant tables (A12.5 to A12.6) PBP-2019.

Step 5: Refer to section 3 'Construction General' in AS3959-2018 and NASH Standard to identify the appropriate construction requirements for the calculated BAL of the site.

A Bushfire Attack Level (BAL) 19 exposure was determined for the building.

Table 3. Current Bush Fire Hazards Assessed - Refer Appendix 1 PBP,2019.

BAL – MEASURES						
Aspect	Distance to hazard	Vegetation up to 140m	Effective Slope to 100m	BAL AS3959-2018, Section 2, Table 2.4.2	Vegetation clearing required to provide desired Asset Protection Zones	Construction Requirements As3959-2018 - Sections
NORTH-EAST	Forest	0-34m Residential Land Use 44-94m Forest 94-140m Residential Land Use	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
NORTH	No Hazard	0-120m Residential Land Use 120-140m Forest	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
WEST	No Hazard	0-110m Residential Land Use 110-140m Grassland	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
SOUTH	No Hazard	0-140m Residential Land Use	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
SOUTH-EAST	Managed Land	0-90m Managed Land 90-140m Water	Upslope/flat	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.
EAST		0-90m Managed Land 90-140m Water	0-5 Degrees Downslope	**BAL 19**	Maintain APZ to lot boundary	Sections 3, 6 (AS3959-2018) & Tables 7.4a, 7.4b & section 7.5 of PBP -2019 included below.

Table 4. Bushfire Attack Level determined for each directional façade of the building.

Table A1.12.5

Determination of BAL, FFDI 100 – residential developments

KEITH VEGETATION FORMATION		BUSH FIRE ATTACK LEVEL (BAL)				
		BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
		Distance (m) asset to predominant vegetation class				
ALL UPSLOPE AND FLAT LAND	Rainforest	< 8	8 < 11	11 < 16	16 < 23	23 < 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 16	16 < 24	24 < 33	33 < 48	48 < 100
	Grassy and Semi-Arid Woodland (including Mallee)	< 9	9 < 12	12 < 18	18 < 26	26 < 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 7	7 < 10	10 < 14	14 < 21	21 < 100
	Tall Heath	< 12	12 < 16	16 < 23	23 < 32	32 < 100
	Short Heath	< 7	7 < 9	9 < 14	14 < 20	20 < 100
	Arid-Shrublands (acacia and chenopod)	< 5	5 < 6	6 < 9	9 < 14	14 < 100
	Freshwater Wetlands	< 4	4 < 5	5 < 7	7 < 11	11 < 100
	Grassland	< 6	6 < 10	10 < 14	14 < 22	22 < 50
> 0 < 5 DEGREES – DOWNSLOPE	Rainforest	< 11	11 < 14	14 < 21	21 < 29	29 < 100
	Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	< 22	22 < 29	29 < 40	40 < 54	54 < 100
	Grassy and Semi-Arid Woodland (including Mallee)	< 12	12 < 16	16 < 23	23 < 32	32 < 100
	Forested Wetland (excluding Coastal Swamp Forest)	< 9	9 < 12	12 < 18	18 < 26	26 < 100
	Tall Heath	< 13	13 < 18	18 < 26	26 < 36	36 < 100
	Short Heath	< 8	8 < 10	10 < 15	15 < 22	22 < 100
	Arid-Shrublands (acacia and chenopod)	< 5	5 < 7	7 < 11	11 < 16	16 < 100
	Freshwater Wetlands	< 4	4 < 6	6 < 8	8 < 12	12 < 100
	Grassland	< 9	9 < 12	12 < 17	17 < 25	25 < 50

Table 5. Radiant heat exposure – Effects and Impacts – AS3959 Construction Levels

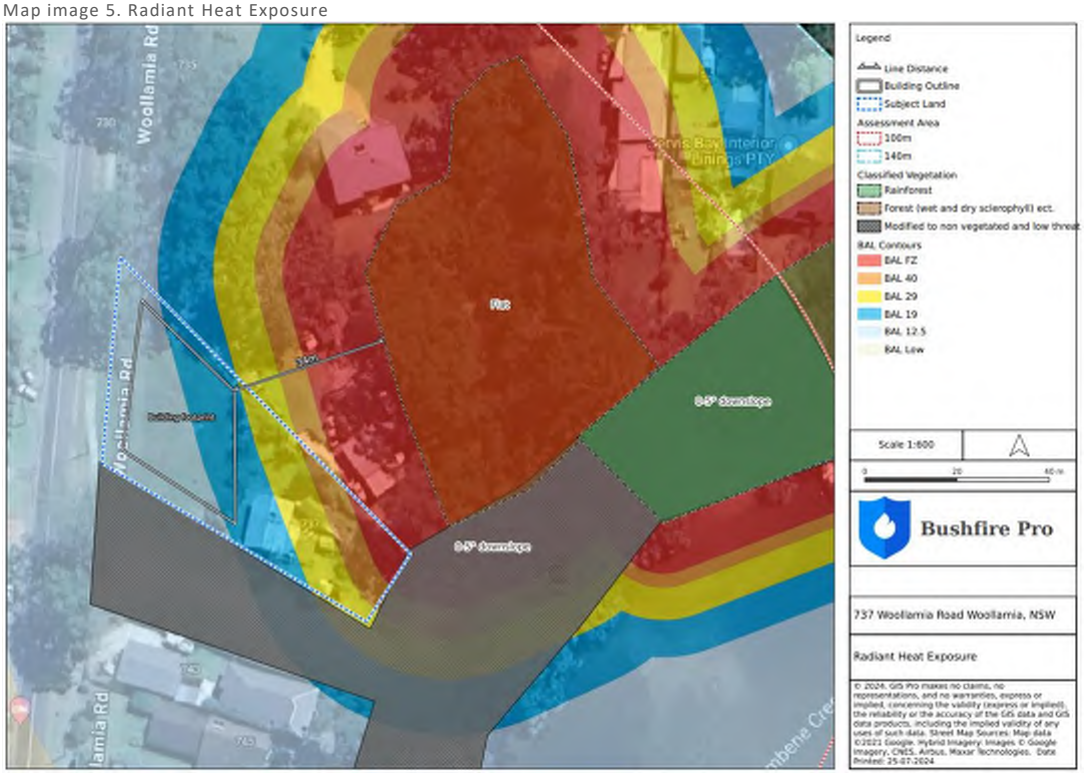
Table A1.7

Radiant heat flux exposure and appropriate bush fire attack level (BAL)

Heat flux exposure	Description	AS 3959 construction level
N/A	Minimal attack from radiant heat and flame due to the distance of the site from the vegetation, although some attack by burning debris is possible. There is insufficient threat to warrant specific construction requirements.	Bush fire attack level: Low (BAL-LOW)
≤12.5	Attack by burning debris is significant with radiant heat (not greater than 12.5kW/m²). Radiant heat is unlikely to threaten building elements (such as unscreened glass). Specific construction requirements for ember protection and accumulation of debris are warranted.	Bush fire attack level: 12.5 (BAL-12.5)
>12.5 ≤19	Attack by burning debris is significant with radiant heat flux (not greater than 19kW/m²) threatening some building elements (such as screened glass). Specific construction requirements for embers and radiant heat are warranted.	Bush fire attack level: 19 (BAL-19)
>19 ≤29	Attack by burning debris is significant and radiant heat flux (not greater than 29kW/m²) threatens building integrity. Specific construction requirements for ember and higher radiant heat are warranted. Some flame contact is possible.	Bush fire attack level: 29 (BAL-29)
>29 ≤40	Radiant heat flux and potential flame contact could threaten building integrity.	Bush fire attack level: 40 (BAL-40)
>40	Significant radiant heat and significant higher likelihood of flame contact from the fire front will threaten building integrity and result in significant risk to residents.	Bush fire attack level – Flame Zone (BAL-FZ)

Note: Attack from burning debris increases with the bush fire attack level.

Map image 5. Radiant Heat Exposure

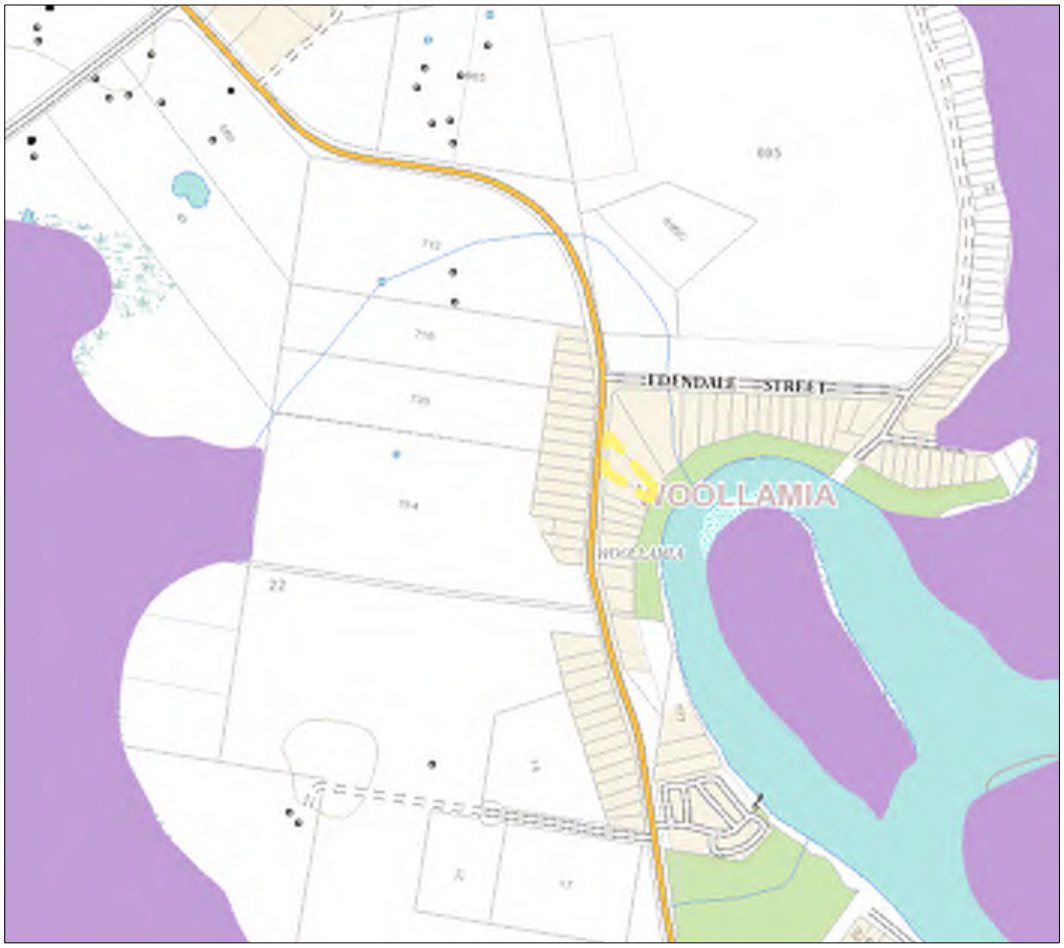


6. SIGNIFICANT ENVIRONMENTAL FEATURES

6.1 BIODIVERSITY VALUES

The Biodiversity Values Map identifies land with high biodiversity value, as defined by clause 7.3(3) of the Biodiversity Conservation Regulation 2017. The Biodiversity Offsets Scheme applies to any clearing of native vegetation on land mapped as sensitive. The subject site is **NOT** located upon the NSW Biodiversity Values Map as presented herein.

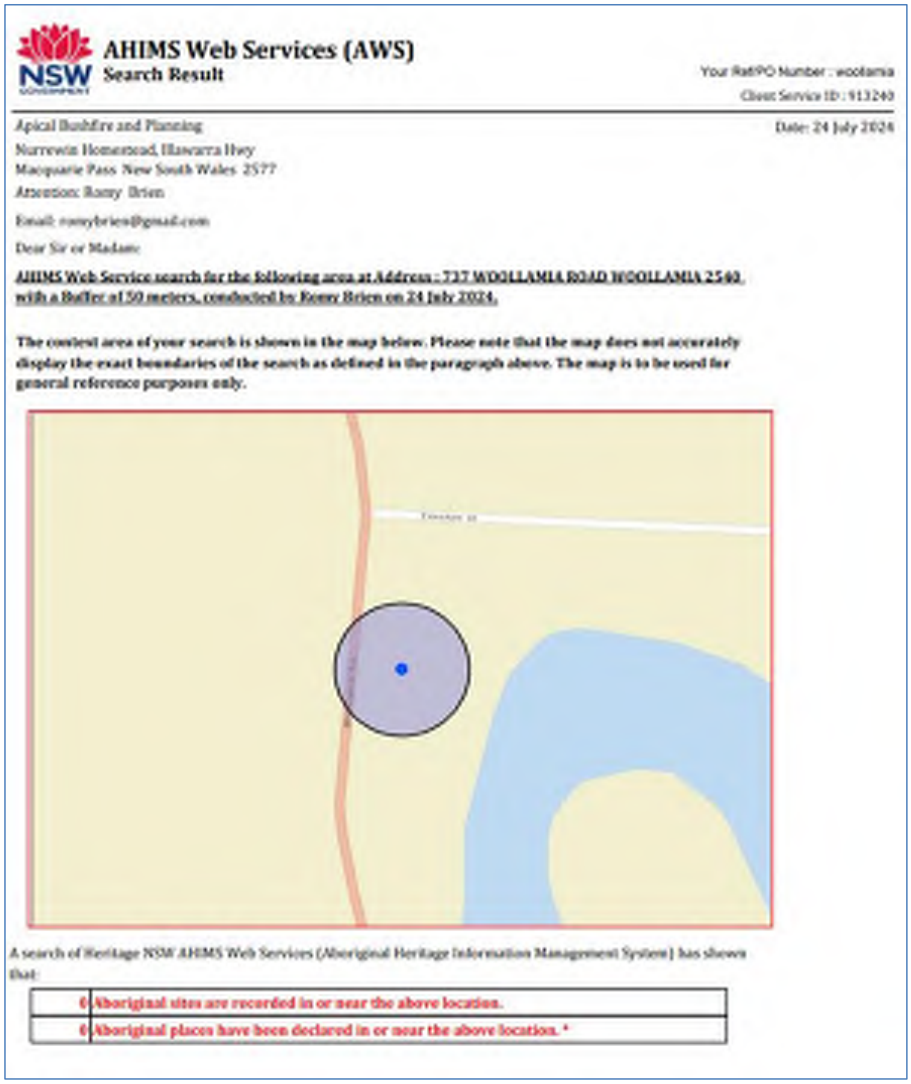
Map image 6. Biodiversity Values Map and threshold tool



6.2 ABORIGINAL RELICS

An AHIMS aboriginal cultural heritage site assessment report has identified no Aboriginal sites or places recorded to site.

Map image 7. Aboriginal Heritage Information Management System



AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : woollamia
Client Service ID : 913240

Apical Bushfire and Planning
Nurrewin Homestead, Illawarra Hwy
Macquarie Pass New South Wales 2577
Attention: Romy Brien
Email: romybrien@gmail.com
Date: 24 July 2024

Dear Sir or Madam:

AHIMS Web Service search for the following area at Address : 737 WOOLLAMIA ROAD WOOLLAMIA 2540, with a Buffer of 50 meters, conducted by Romy Brien on 24 July 2024.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

7. BUSHFIRE PROTECTION MEASURES – (INFILL DEVELOPMENT)

Section 3 of PBP-2019 explains the importance and function of bushfire protection measures BPM's in reducing risk exposure to bushfire attack.

Key types of BPM's include; Asset Protection Zone (APZ), building construction siting and design, access, landscaping, water supply and utilities, and emergency management arrangements.

Additionally, section 7 of PBP-2019, NSW RFS identifies the performance criteria and acceptable solutions for bush fire protection measures regarding 'Infill' development types.

The intent of such measures is to minimize the risk of bushfire attack & provide protection for emergency services personnel, residents and others assisting in firefighting activities.

The inclusion of the supporting performance tables for each protection measure outline the deemed to satisfy solutions specified in PBP-2019, with assessment responses provided in this report to show how each of the acceptable solutions has been addressed & implemented via this proposal.

7.1 Asset Protection Zones

The aim of APZs is to ensure there is a progressive reduction in flammable material towards any building. The intent of the APZ measures is to provide sufficient space and maintain reduced fuel loads, to ensure radiant heat levels at buildings are below critical limits measured at >19kW/m² and to prevent direct flame contact with the building.

The appropriate APZ distance is based on vegetation type, ground slope and nature of the development. Suitable APZ areas can include roads and areas within a property which are managed consistently with APZ standards set out in Appendix 4 PBP-2019 and within the NSW RFS document 'Standards for Asset Protection Zones'.

This proposal allows the following implementation of asset protection zones:

i) North: to boundary of the subject site
ii) South: to boundary of the subject site
iii) East: to boundary of the subject site
iv) West: to boundary of the subject site

Vegetation within the APZ should be managed in accordance with APZ specifications for the purposes of limiting the travel of a fire, reducing the likelihood of direct flame contact, and removing additional hazards or ignition sources. The following outlines some general vegetation management principles for APZs:

1. Discontinuous shrub layer (clumps or islands of shrubs not rows);
2. Vertical separation between vegetation stratums;
3. Tree canopies not overhanging structures;
4. Management and trimming of trees and other vegetation in the vicinity of power lines and tower lines in accordance with the specifications in "Vegetation Safety Clearances" issued by Energy Australia (NS179, April 2002);
5. Maintain low ground covers by mowing / whipper snipper / slashing; and
6. Non-combustible mulch e.g., stones and removing stores of combustible materials.
7. Vegetation to be planted should consist of fire retardant/less flammable species strategically located to reduce attack from embers (i.e., as ember traps when in small clumps and short wind breaks).

Figure 2. Proposed APZ Implementation

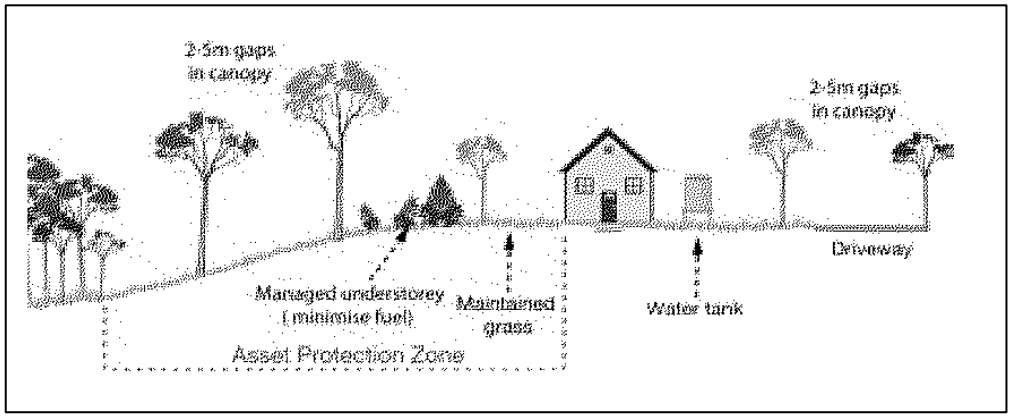


Figure: Diagrammatic representation of an Asset Protection Zone implementation.

Table 6. Asset Protection Zone – Performance criteria PBP2019

	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
	The intent may be achieved where:	
ASSET PROTECTION ZONES	APZs are provided commensurate with the construction of the building; and A defendable space is provided.	an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.
	APZs are managed and maintained to prevent the spread of a fire to the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.
	the APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are wholly within the boundaries of the development site. APZ are located on lands with a slope less than 18 degrees.
	Home-based child care: the building must not be exposed to radiant heat levels exceeding 29kW/m² (1090K).	an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.

The performance criteria and acceptable solutions for the Asset Protection Zone Areas prepared for this development are presented here.

The below table identifies the ability of the proposal to comply with the specified Asset Protection Zone separation distances (performance criteria).

Table 7. Performance Criteria APZ

Performance requirement PBP 2019	Acceptable Solution	Compliance
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZs are managed in accordance with the requirements of Appendix 4.	Yes, sufficient APZ has been established, to support the building footprint and allow for suitable separation distances between the building and hazard.
the APZs is provided in perpetuity.	APZs are wholly within the boundaries of the development site	Separation to the hazard is provided to the northeast by the neighbouring lot (735 Woollamia Road). The designated outer APZ is where the existing dwelling is placed.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimized.	APZs are located on lands with a slope less than 18 degrees	Maximum slopes to site 0-5 degrees
landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	landscaping is in accordance with Appendix 4; and	Yes, sufficient APZ has been established and surrounding garden areas as presented upon the site reflect the objectives of NSW RFS APZ inner protection zones.
	fencing is constructed in accordance with section 7.6.	

7.2 Building Construction & Design

Design considerations for the building need to be addressed to ensure adequate protection from bushfire attack. Construction standards for buildings exposed to bushfire attack are provided for various levels of radiant heat exposure, flame contact, ember attack and increased winds within AS3959-2018 and the NASH standard.

The proposed building plans are in line with the Shoalhaven DCP 2014 setback requirements.

Implementation of construction standards under Sections 3 & 6 (BAL 19) of the standard AS3959-2018 are required for the construction under this proposal.

7.3 Construction Standards

The construction standards and associated performance criteria for infill development require that new buildings can withstand bushfire attack in the form of wind, smoke, embers, radiant heat, and flame contact. PBP 2019 requires that the construction standards be determined in accordance with AS3959 – 2018 and the NASH (National Association of Steel-framed Housing) standards.

A building with any facade identified as requiring a construction level must build all facades to at least BAL-12.5kW/m². Where more than one facade is exposed to a hazard, then the facade with the highest construction requirement is used to determine the appropriate level of construction. All other facades may be reduced by one level of construction unless that facade is also subject to the same bush fire attack level.

Building Construction Level for this proposal has been determined as BAL 19kW/m^2

The Australian Standard AS3959 – 2018 and NASH Standard Steel Framed Construction in Bushfire Areas (2014) are the enabling standards that address the performance requirements of both parts 2.3.4 and Part GF5.1 of the Building Code of Australia for the Construction of Class 1, 2 and Class 3 buildings within a designated Bushfire Prone Area.

Table 8. Performance criteria for PBP – Building Construction Standards

Performance requirement PBP 2019	Acceptable Solution	Compliance
in relation to construction standards:	Construction Standard meets required BAL.	Construction of the project must meet BAL 19kW/m² refer sections 3 and 6 of AS3959-2018 and section 7.5 of PBP-2018
the proposed building can withstand bush fire attack in the form of embers, radiant heat, and flame contact.	BAL is determined in accordance with Table 21; and	Yes – BAL determined through table 21 'deemed to satisfy'
	construction provided in accordance with the NCC for buildings in bushfire prone areas	Required
proposed fences and gates are designed to minimise the spread of bush fire.	fencing and gates are constructed in accordance with Section 7.6	Yes, construction must meet the NCC for buildings in bushfire prone areas.
proposed Class 10a buildings are designed to minimise the spread of bush fire.	Class 10a buildings are constructed in accordance with Section 8.3.2.	N/A

7.4 Access Requirements

The performance criteria and acceptable solutions for public roads or internal roads for 'Infill' developments in accordance with Appendix 3, PBP 2019 are provided in the below assessment table.

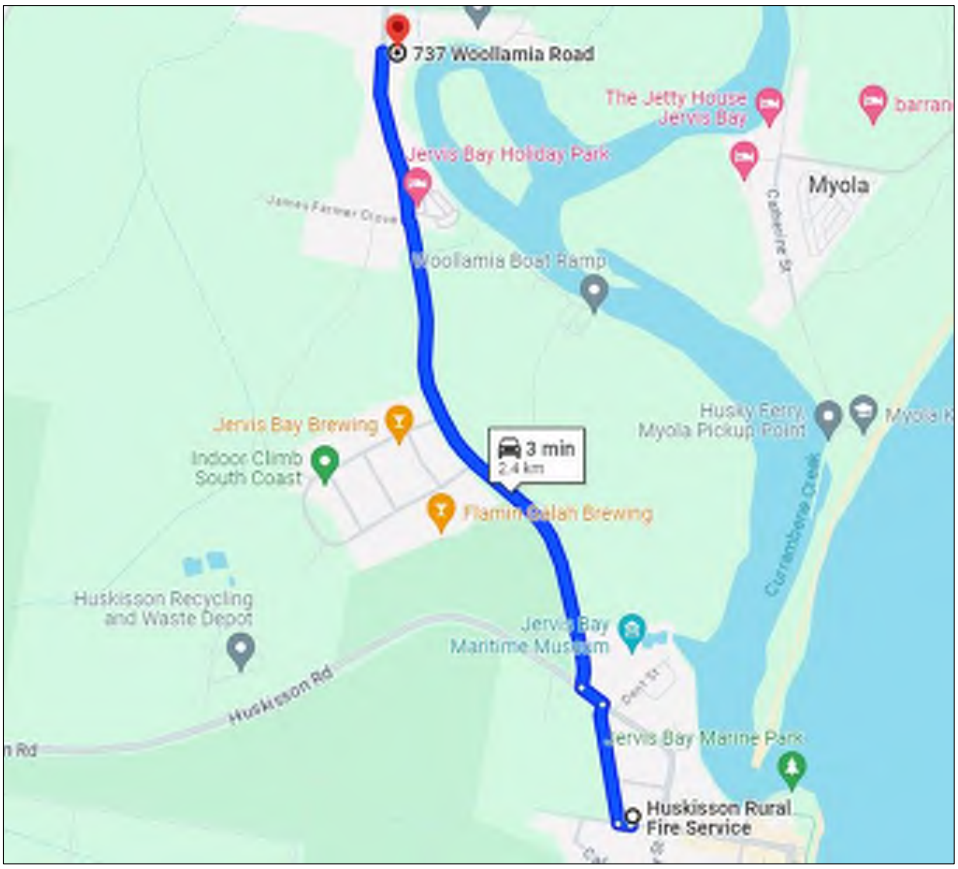
The intent of suitable access roads is to enable safe access and egress for residents to leave a dwelling under bushfire attack and for emergency service personnel to obtain clear and safe access to undertake firefighting operations.

The purpose of the road system for bushfire protection is:

- Provide firefighters with access to structures allowing for efficient use of firefighting resources.
- Provide evacuation routes.
- Provide access to areas of bushfire hazard for firefighting and hazard mitigation purposes.

See below the travel routes and distances for firefighting ordinates to get to the subject site from nearest RFS and NSW Fire & Rescue.

Map image 8. Google Road directions and travel distance to nearest NSW RFS Fire Brigade



Google Road directions and travel distance to nearest NSW RFS Fire Brigade (Huskisson Rural Fire Service) estimated at 2.4km and 3 minutes.

Table 9. Performance criteria for PBP – Site Access Requirements

Performance requirement PBP 2019	Acceptable Solution	Compliance
firefighting vehicles are provided with safe, all-weather access to structures.	property access roads are two-wheel drive, all-weather roads;	Yes, roads meet standard currently
	traffic management devices are constructed to not prohibit access by emergency services vehicles;	Yes, traffic management devices will not prohibit access by ESV.
	maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient;	Yes, roads meet this standard
	all roads are through roads;	N/A The Villa Development will be access via an internal driveway which affronts Woolamai Road to the west elevation of the site. Parking from the buildings is provided with direct egress from the site via the driveway design.
	dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end;	The new driveway provided internally along the south elevation of the site to provide access to the front single dwelling is less than 200m and 4.5m wide. Firefighting vehicles will not be required to access this part of the site to undertake firefighting activities as parking at the water hydrant supply is within 70m and the building can be reached with fire hoses from this source.
	where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road	N/A
	where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system; and	N/A access egress is supplied to public road system without travelling through significant forest, woodland or heath.

	one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.	N/A public access roads allow two-way travel. The road network is sufficiently wide and well formed to support reasonable traffic egress from the location under emergency situations.
the capacity of access roads is adequate for firefighting vehicles.	the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/ causeways are to clearly indicate load rating.	N/A The site does not require a perimeter road (no subdivision provision)
there is appropriate access to water supply.	hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;	Hydrant is located to the road reserve Woolamai Road and is within 70m from all building elevations upon the subject lot.
	hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations *System design, installation and commissioning*; and	Yes
	there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	Yes
firefighting vehicles can access the dwelling and exit the property safely.	There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.	Yes
	In circumstances where this cannot occur, the following requirements apply:	
	minimum 4m carriageway width;	Yes – • Min 4m carriageway width • N/A passing bay not required • Not obstruction by tree branches • Crossfall not greater than 10 degrees • Maximum grades do not exceed 10 degrees.
	in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay;	
	a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;	
	provide a suitable turning area in accordance with Appendix 3;	
	curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;	

	the minimum distance between inner and outer curves is 6m	
	the crossfall is not more than 10 degrees;	
	maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and	
	a development comprising more than three dwellings has access by dedication of a road and not by right of way.	

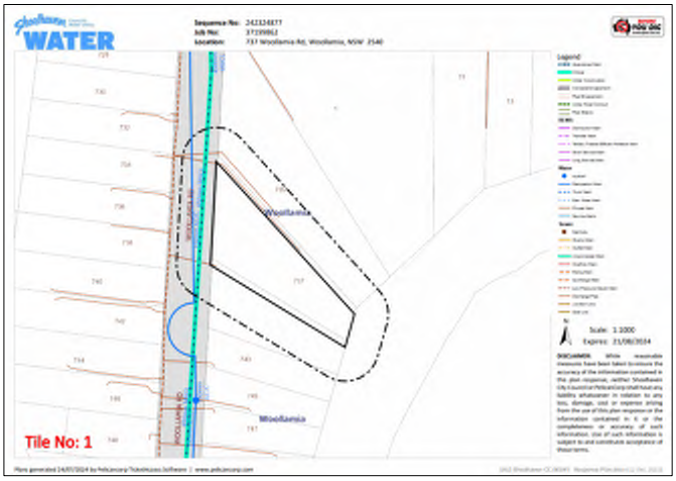
7.5 Water & Utility Services

The performance criteria and acceptable solutions for water, electricity, and gas for residential development in accordance with Section 7 PBP 2019 are provided below. The intent of the measures is to provide adequate water services for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

Water supply:

Reticulated water is provided to site (Shoalhaven Water).

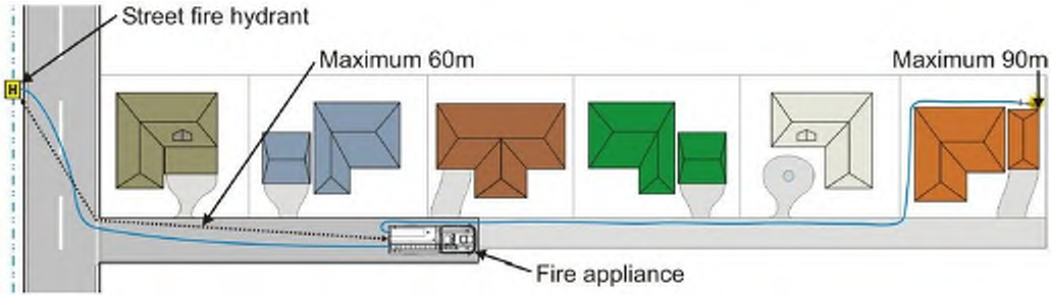
Map image 9. Location of services.



Source Dial Before You Dig – Shoalhaven Water

Site image. Street hydrant observed to front of 743 Woollamia Road

Figure 2. Street hydrant spacing



Source: Fire & Rescue NSW 'Fire Safety Guideline – Fire hydrants for minor residential development' V2 2016.

Map image 10. Hydrant location from front of site

Tank fittings, supply pipes and outlets will be provided to comply with section 7.4 of PBP-2019.

Table 10. Performance criteria for Service requirements – Water

SECTION 5. SERVICES REQUIREMENTS - WATER		
Proposal can comply with PBP-19 Services – Water		
Performance requirement PBP 2019	**Acceptable Solution**	**Compliance**
adequate water supplies is provided for firefighting purposes.	Reticulated water is to be provided to the development where available.	Y
	A static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed	N/A
	static water supplies shall comply with Table 5.3d.	N/A
water supplies are located at. regular intervals: and the water supply is accessible and reliable for firefighting operations.	fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2005;	Street Hydrant sufficient to cover site <60m
	hydrants are not located within any road carriageway; and	Y
	reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	N/A
flows and pressure are appropriate	fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	Required
the integrity of the water supply is maintained	all above-ground water service pipes are metal, including and up to any taps; and	Required
	above-ground water storage tanks shall be of concrete or metal.	Required

Gas Supply:

Gas cylinder relief valves shall be directed away from the building and away from any hazardous materials such as firewood, etc. Gas bottles will be sited away from exposure to radiant heat sources. There must not be any polymer sheathed flexible gas supply lines to gas meters adjacent to a dwelling.

Table 11. Performance criteria for Service requirements – Gas

SECTION 5. SERVICES REQUIREMENTS - Gas		
Proposal can comply with PBP-19 – Gas		
Performance requirement PBP 2019	**Acceptable Solution**	**Compliance**
location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used;	Required
	all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;	Required
	connections to and from gas cylinders are metal;	Required
	polymer-sheathed flexible gas supply lines are not used; and	Required
	above-ground gas service pipes are metal, including and up to any outlets.	Required

Electricity:

Table 12. Performance criteria for Service requirements – Electricity

SECTION 5. SERVICES REQUIREMENTS - Electricity		
Proposal can comply with PBP-19 – Electricity		
Performance requirement PBP 2019	**Acceptable Solution**	**Compliance**
location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	where practicable, electrical transmission lines are underground	Existing power to site aboveground
	where overhead, electrical transmission lines are proposed as follows: lines are installed with short pole spacing of 30m, unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in ISSC3 Guideline for Managing Vegetation Near Power Lines.	Required

7.6 Landscaping

The performance criteria for landscaping to be designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions. Landscaping must conform to PBP 2019 Appendix 4 with regards to asset protection zones.

An APZ is an area surrounding a building or structure where the fuel of a potential bushfire has been reduced and is located between the building/structure and the hazard. An APZ is stated as providing:

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

Correctly designed landscaping in an APZ will reduce the risk of:

- direct flame contact on the building.
- damage to the building asset from intense radiant heat; and
- ember attack.

When establishing an inner asset protection zone PBP has the following requirements:

Trees

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

Shrubs

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

Grass

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

APZs should be perpetually maintained to ensure ongoing protection from the impact of bushfires.

Table 13. Performance criteria for PBP 2019 – Landscaping

Performance requirement PBP 2019	Acceptable Solution	Compliance
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.	landscaping is in accordance with PBP 2019 Appendix 4	Y

8. Compliance with Performance Criteria

All development on Bushfire Prone Land must satisfy the aims and objectives of PBP 2019.

The table below presents commentary on the key interventions and compliance measures presented in this report with reference to the specific objectives of PBP 2019 NSW-RFS.

It is pertinent that the key bushfire protection measures described herein, be implemented by the proponent and the referred standards and measures for the construction of the buildings be consulted and met to ensure that this development can provide adequate bushfire protection.

Table 14. Compliance with the specific objectives of PBP 2019.

PBP 2019 Specific Objective	Assessment / Comment
Afford occupants of any building adequate protection from exposure to a bushfire.	Yes The proposed new building sits to the front (west) of the lot with expedient access to Woollamia Road. Access/egress from the site is free from hazards. The site is separated from bushfire fuels from the neighbouring property's dwelling and the rear dwelling within the same lot. Dwelling must be constructed to a minimum BAL 19 Construction Standard.
Provide for a defendable space to be located around buildings.	Adequate APZ provided surrounding proposed building. Proposal to street front of lot allows for the building to be defended from the road (non-hazard side).
Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition.	Appropriate vegetation separation to BAL 19
Ensure that safe operational access and egress for emergency service personnel and residents is available.	Driveway to front (west) of site free from hazards. Driveway to rear dwelling provided on the non-hazard side of the lot. – along the south elevation of the site.
Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zone (APZ), through Landscaping and Maintenance provisions.	Complies to acceptable solutions as prescribed under NSW RFS PBP-2019. A suitable APZ and firefighting separations are in place to support the site and can be maintained for the life of the development under existing circumstance.
Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting).	A street hydrant is located within 60m of the site (to the front of 743 Woollamia Road. Reticulated water is provided. Proposal can be defended to the street front at Woollamia Road on the non-hazard side of the building.

9. ADDITIONAL REQUIREMENTS

Ember Protection

PBP aims to maintain the safety level previously provided by construction standards at lower bush fire attack levels. In particular ember attack and building defences relating to:

- Sarking
- Sub-floor screening
- Floors
- Verandas, decks, steps, ramps, and landings
- Timber support posts and beams
- Fascia and bargeboards

Certain provisions prescribed within AS3959 are varied in NSW within the NCC.

Clause 3.10 of AS3959 is deleted and any sarking used for BAL 12.5 – BAL 40 shall:

- Be non-combustible.
- Comply with AS/4200.1, be installed on the outside of the frame and have a flammability index of not more than 5 as determined by AS1530.2
- Clauses 5.2 & 6.2 of AS3959 are replaced by clause 7.2 of AS3959, except that any wall enclosing the sub-floor space need only comply with the wall requirements for the respective BAL rating.
- Clauses 5.7 & 6.7 of AS3959 are replaced by clause 7.7 of AS3959, except that any wall enclosing the sub-floor space need only comply with the wall requirements for the respective BAL rating.

Flaming

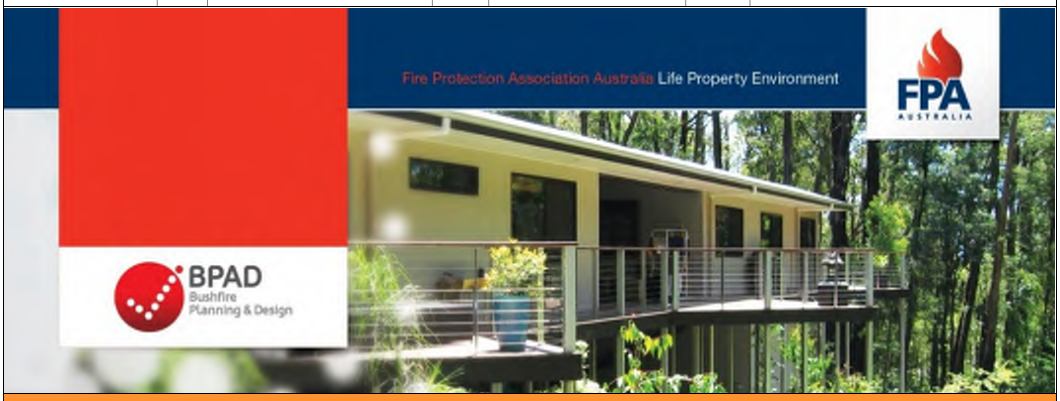
Building materials that allow flaming can be problematic and are not supported by the NSW RFS. Where there is potential for materials of construction to ignite as a result of bushfire attack to the location, the proposed building solution as presented will fail the construction performance criteria for residential infill development.

Fence & Gates

Fences & gates in bush fire prone areas may play a significant role in the vulnerability of structures during bushfires. All fences in bushfire prone areas should be made of either hardwood or non-combustible material only.

In circumstances where the fence is within 6m of a building in areas of BAL-29 or greater they should only be made from non-combustible materials.

CONSULTANT DECLARATION						
I/We declare that all the information in the application and checklist is, to the best of my/our knowledge, true and correct. This Certificate has been prepared for the owner of the land by Apical Bushfire & Planning Pty Ltd, in accordance with; Planning for Bushfire Protection - A Guide for Councils, Planners, Fire Authorities and Developers, 2019 & 2018 NSW Rural Fire Service (RFS), Planning NSW and Australian Standard AS3959-2018 Building in Bushfire Prone Areas.						
Certifier(s) Name – Daniel Anderson						Date: 18/08/2205
B-PAD 48898 – Level II						
Signature(s)	[redacted]					
Please indicate by 'X'	X	PBP Practitioner		Landholder		Other - Associate



CONDITIONS

This certificate should only be used for the purpose for which it was expressly prepared and shall not be reproduced by any third party in part or full without the permission of Apical Bushfire & Planning Pty Ltd.

The information and data collected to support the BAL determination was collected to the best of our knowledge, verified through supported on-ground site assessment methodologies and reflect the proposal (provided by the proponents) and site conditions (presented by the site) at the time of the assessment.

Liability limited by a scheme approved under Professional Standards Legislation.

10. BIBLIOGRAPHY

NSW Government 'NSW Spatial Data Catalogue' GIS Data Layer Vegetation Classes of NSW (version 3.03 - 200m Raster) - David A. Keith & Christopher C. Simpson. VIS_ID 3848 (2012).

Shoalhaven Local Environment Plan (LEP) 2014

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David Keith (2004) 'Ocean shores to desert dunes: the native vegetation of New South Wales and the ACT'

Guidelines for single dwelling development applications (NSW Rural Fire Service) http://www.rfs.nsw.gov.au/

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NSW Rural Fire Service (2018) 'Planning for Bushfire Protection'
NSW Rural Fire Service (2006) 'Planning for Bushfire Protection'
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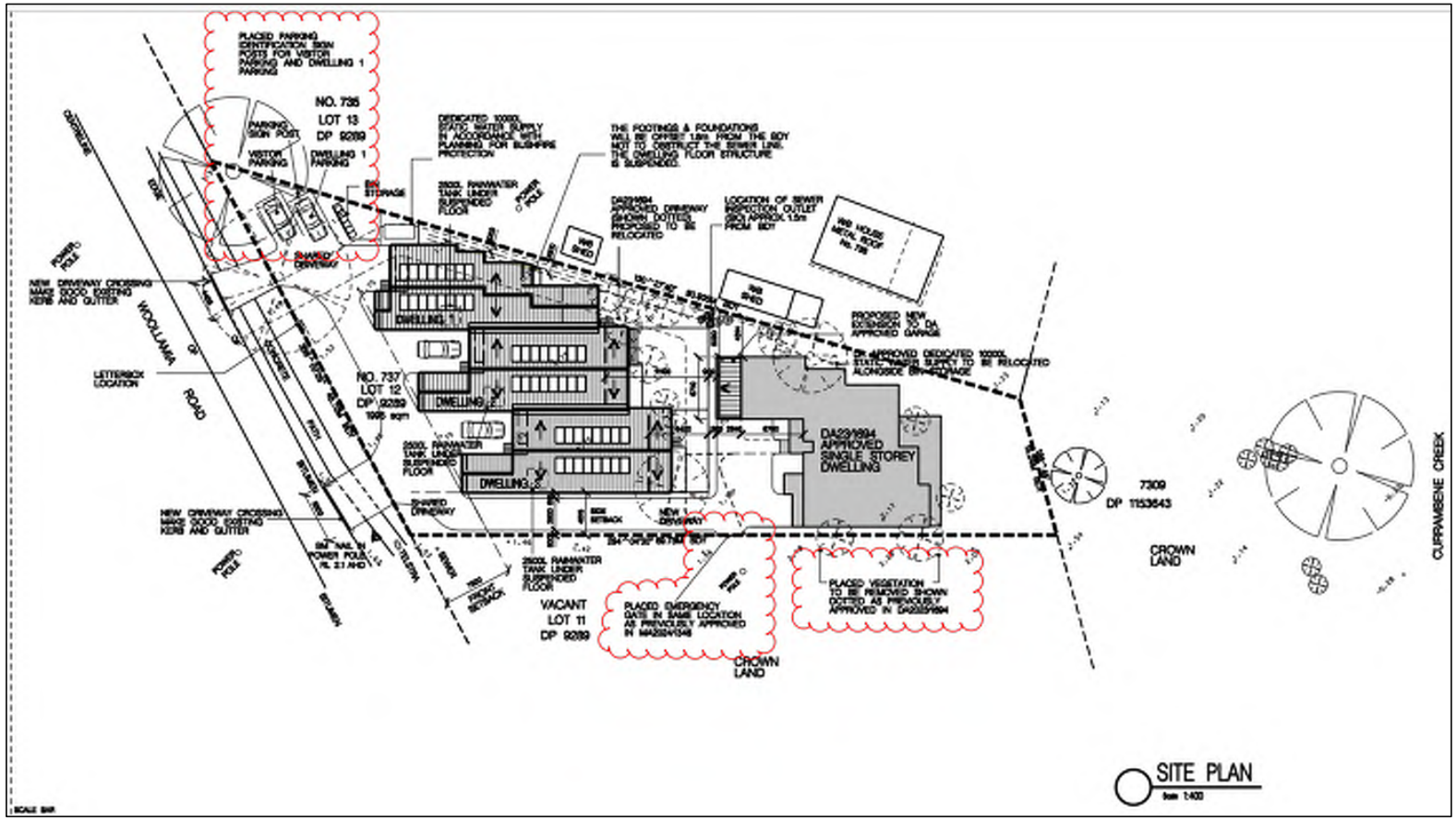
Australian Standard Limited (2018) 'AS 3959 Construction of Buildings in Bushfire Prone Areas', SAI Global Limited.

APPENIX

APPENDIX 1 Siting and Layout Plan

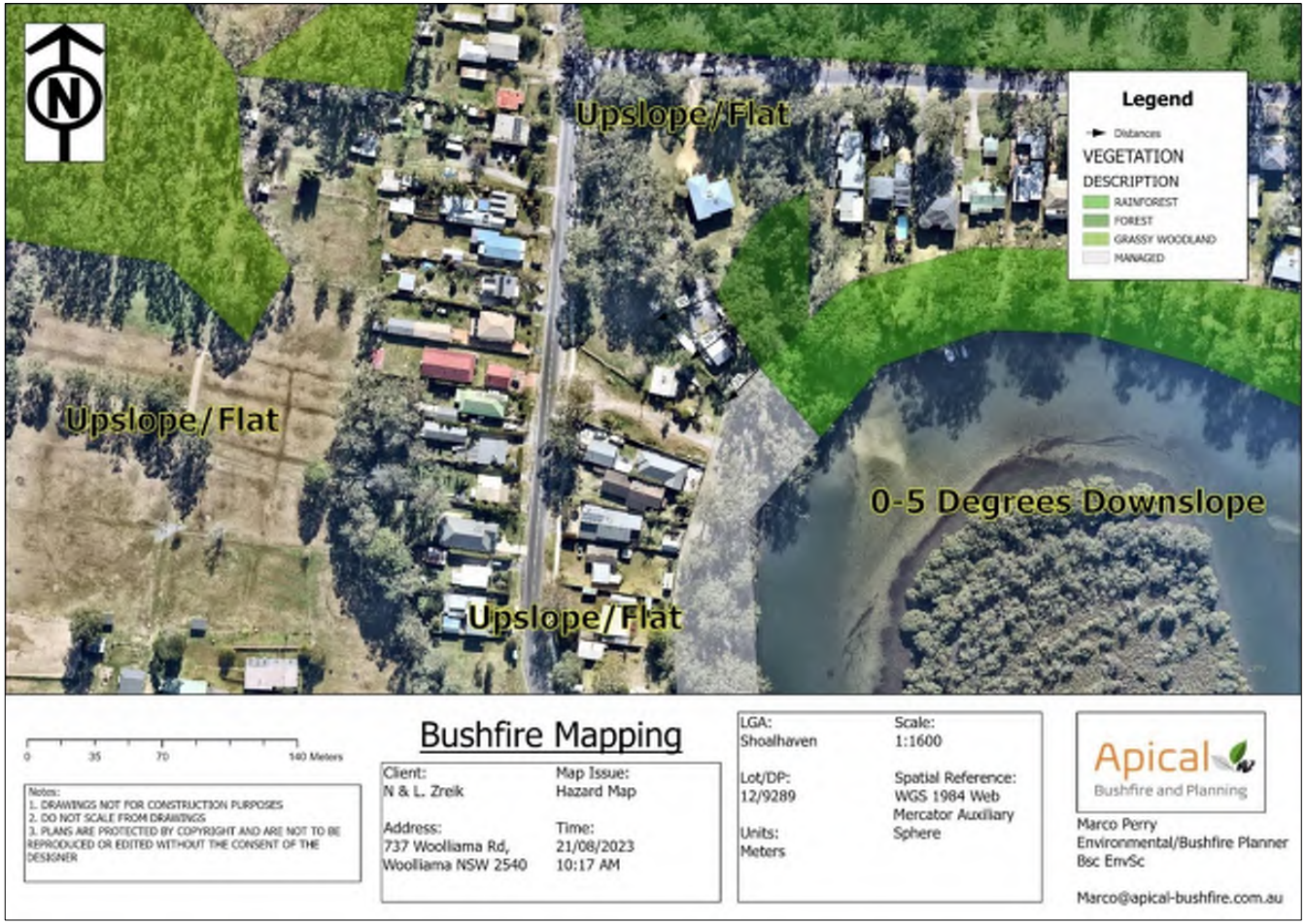
Map Image A.1. Site Plan (Provided by Liliana Zreik)



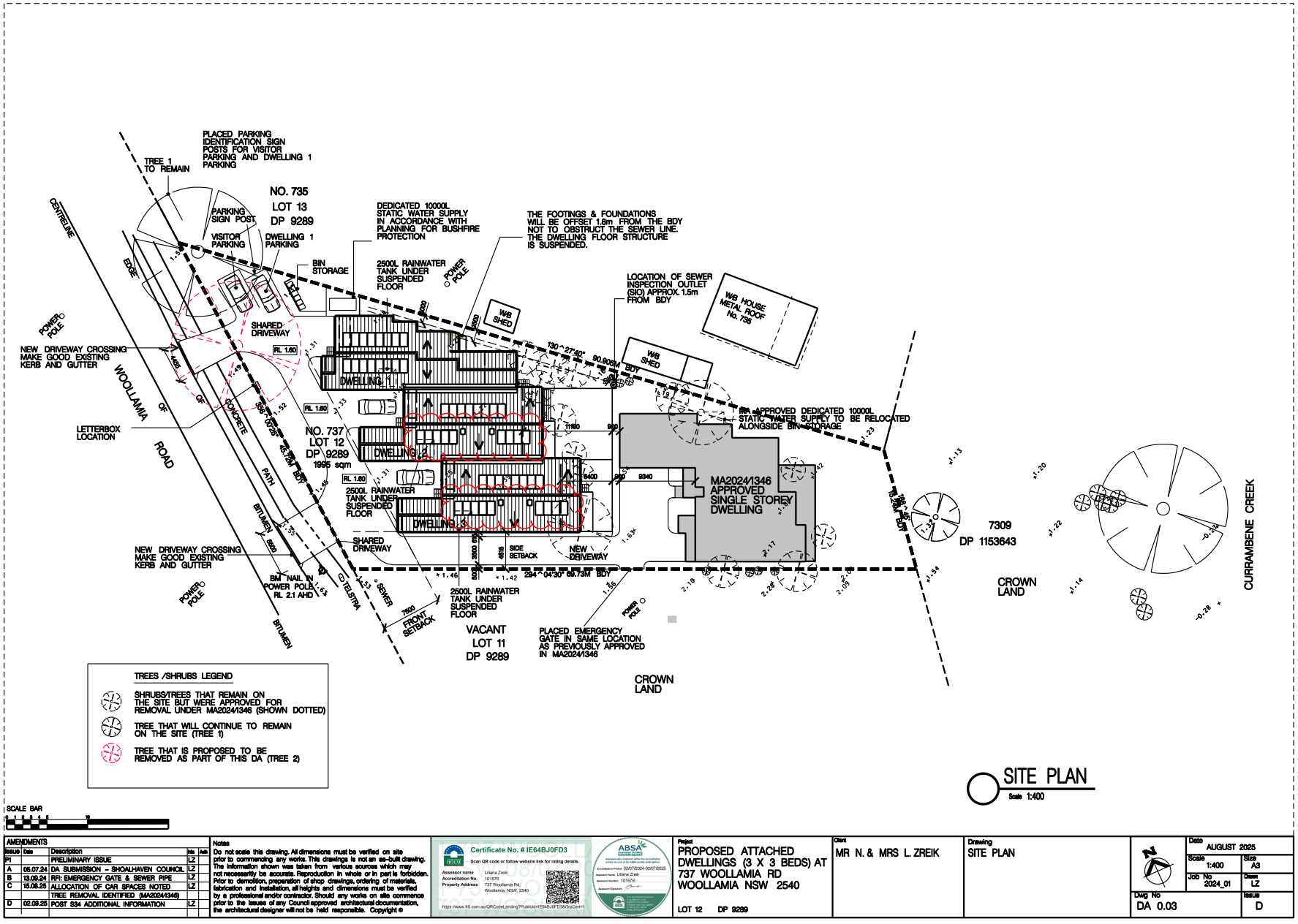
CL25.413 - Attachment 15

APPENDIX 2 Site Hazard Mapping

Map image A.2. Vegetation Hazards to Subject Site



Map image A.3. Bushfire Attack Level Rating



AMENDMENTS				
Issue	Date	Description	Init	Auth
P1		PRELIMINARY ISSUE	LZ	
A	05.07.24	DA SUBMISSION – SHOALHAVEN COUNCIL	LZ	
B	13.09.24	RFI: EMERGENCY GATE & SEWER PIPE	LZ	
C	15.08.25	ALLOCATION OF CAR SPACES NOTED	LZ	
		TREE REMOVAL IDENTIFIED (MA2024/1346)		
D	02.09.25	POST S34 ADDITIONAL INFORMATION	LZ	

Notes
Do not scale this drawing. All dimensions must be verified on site prior to commencing any works. This drawings is not an as-built drawing. The information shown was taken from various sources which may not necessarily be accurate. Reproduction in whole or in part is forbidden. Prior to demolition, preparation of shop drawings, ordering of materials, fabrication and installation, all heights and dimensions must be verified by a professional and/or contractor. Should any works on site commence prior to the issues of any Council approved architectural documentation, the architectural designer will not be held responsible. Copyright ©

Certificate No. # IE64BJ0FD3
Scan QR code or follow website link for rating details.
Assessor name Liliana Zreik
Accreditation No. 101576
Property Address 737 Woollamia Rd, Woollamia, NSW, 2540
https://www.fr5.com.au/QRCodeLanding?PublicId=IE64BJ0FD3&GrpCert=1

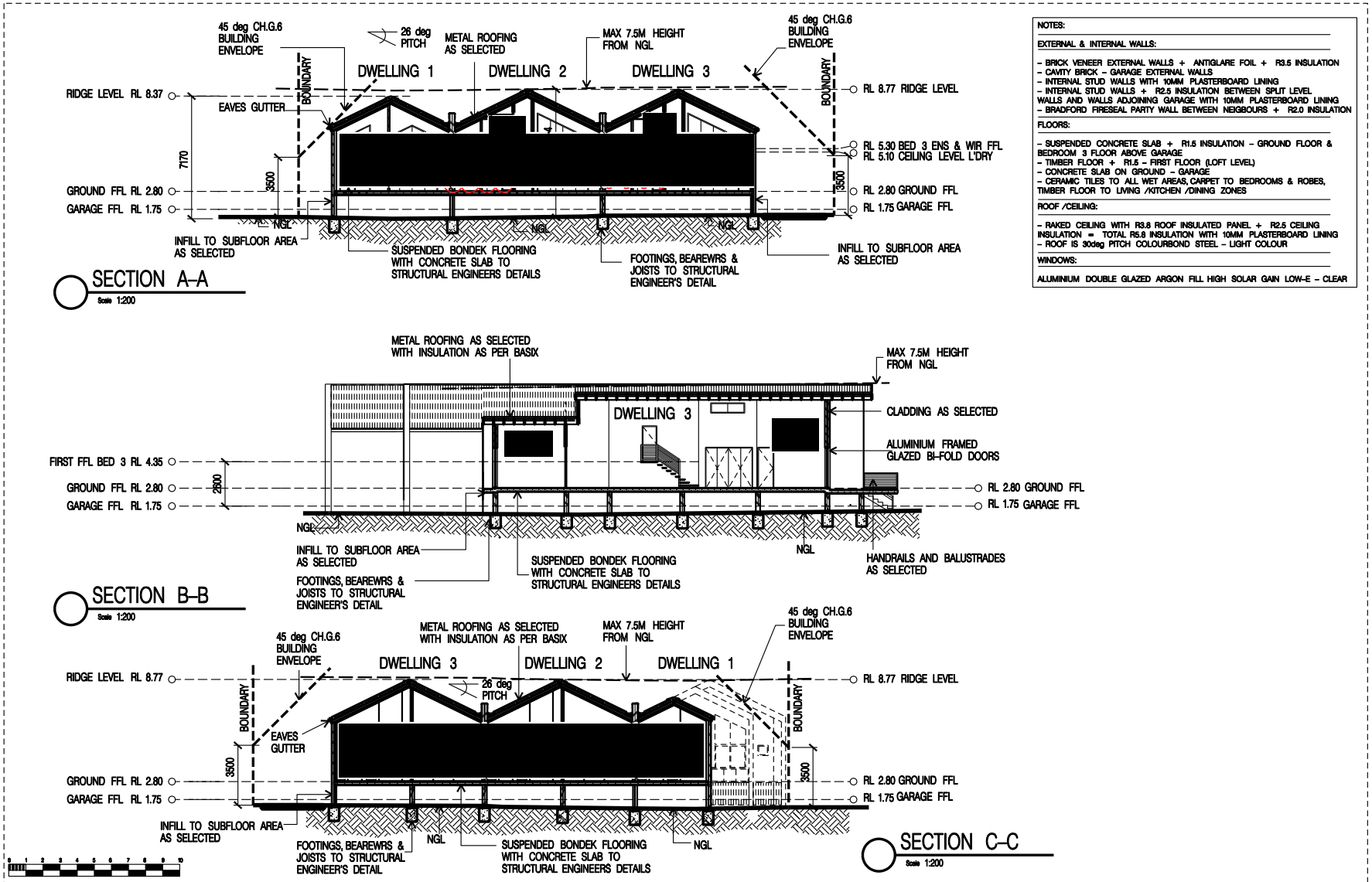
Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540
LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

Drawing
SITE PLAN

Date AUGUST 2025
Scale 1:400
Size A3
Job No 2024_01
Dwn LZ
Dwg No DA 0.03
Issue D

CL25.413 - Attachment 16



NOTES:

EXTERNAL & INTERNAL WALLS:

- BRICK VENEER EXTERNAL WALLS + ANTIGLARE FOIL + R3.5 INSULATION
- CAVITY BRICK – GARAGE EXTERNAL WALLS
- INTERNAL STUD WALLS WITH 10MM PLASTERBOARD LINING
- INTERNAL STUD WALLS + R2.5 INSULATION BETWEEN SPLIT LEVEL WALLS AND WALLS ADJOINING GARAGE WITH 10MM PLASTERBOARD LINING
- BRADFORD FIRESEAL PARTY WALL BETWEEN NEIGBOURS + R2.0 INSULATION

FLOORS:

- SUSPENDED CONCRETE SLAB + R1.5 INSULATION – GROUND FLOOR & BEDROOM 3 FLOOR ABOVE GARAGE
- TIMBER FLOOR + R1.5 – FIRST FLOOR (LOFT LEVEL)
- CONCRETE SLAB ON GROUND – GARAGE
- CERAMIC TILES TO ALL WET AREAS, CARPET TO BEDROOMS & ROBES, TIMBER FLOOR TO LIVING /KITCHEN /DINING ZONES

ROOF /CEILING:

- RAKED CEILING WITH R3.8 ROOF INSULATED PANEL + R2.5 CEILING INSULATION = TOTAL R5.8 INSULATION WITH 10MM PLASTERBOARD LINING
- ROOF IS 30deg PITCH COLOURBOND STEEL – LIGHT COLOUR

WINDOWS:

ALUMINIUM DOUBLE GLAZED ARGON FILL HIGH SOLAR GAIN LOW-E – CLEAR

AMENDMENTS				
Issue	Date	Description	Ini	Aut
P1		PRELIMINARY ISSUE	LZ	
A	05.07.24	DA SUBMISSION – SHOALHAVEN COUNCIL	LZ	
B	15.08.25	LOWERED BUILDING HEIGHT/LEVELS	LZ	
C	02.09.25	POST S34 ADDITIONAL INFORMAITON	LZ	
D	12.11.25	POST S34 ADDITIONAL INFORMAITON	LZ	

Notes
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WOOLLAMIA NSW 2540
LOT 12 DP 9289

Client
MR N. & MRS L. ZREIK

Drawing
SECTIONS A-A & B-B

Date NOVEMBER 2025
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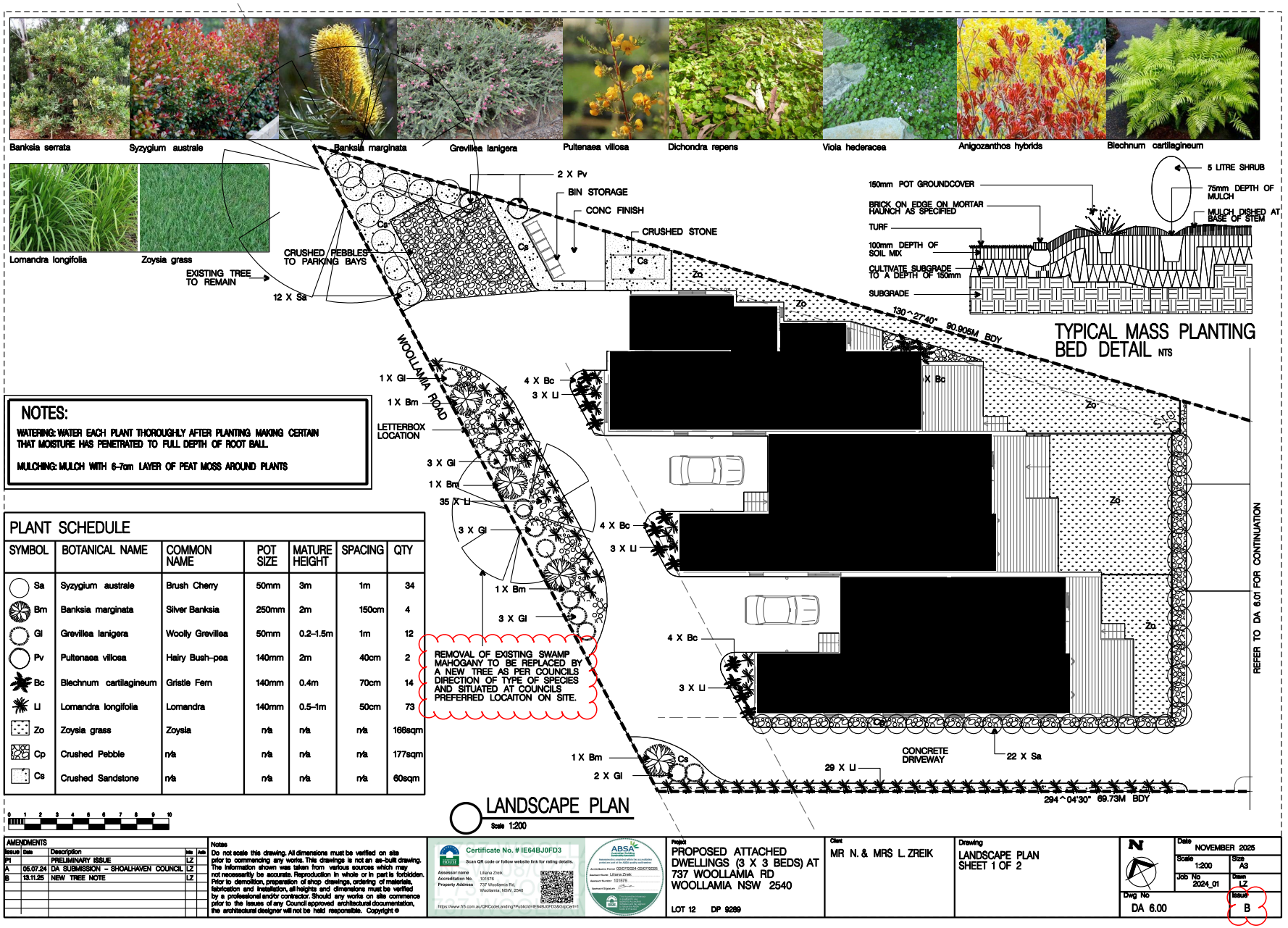
Size A3
Job No 2024_01
Dawn LZ
Dwg No DA 3.00
Issue D

CL25.413 - Attachment 17


Banksia serrata
Syzygium australe
Banksia marginata
Grevillea lanigera
Pultenaea villosa
Dichondra repens
Viola hederacea
Anigozanthos hybrids
Blechnum cartilagineum
Lomandra longifolia
Zoysia grass
EXISTING TREE TO REMAIN
12 X Sa
CRUSHED PEBBLES TO PARKING BAYS
2 X Pv
BIN STORAGE
CONC FINISH
CRUSHED STONE
WOOLLAMIA ROAD
1 X Gl
1 X Bm
LETTERBOX LOCATION
3 X Gl
1 X Bm
35 X Li
3 X Gl
1 X Bm
3 X Gl
REMOVAL OF EXISTING SWAMP MAHOGANY TO BE REPLACED BY A NEW TREE AS PER COUNCILS DIRECTION OF TYPE OF SPECIES AND SITUATED AT COUNCILS PREFERRED LOCAITON ON SITE.
1 X Bm
2 X Gl
4 X Bc
3 X Li
4 X Bc
3 X Li
4 X Bc
3 X Li
CONCRETE DRIVEWAY
22 X Sa
29 X Li
294^04'30" 69.73M BDY
130^27'40" 90.905M BDY
REFER TO DA 6.01 FOR CONTINUATION
150mm POT GROUNDCOVER
BRICK ON EDGE ON MORTAR HAUNCH AS SPECIFIED
TURF
100mm DEPTH OF SOIL MIX
CULTIVATE SUBGRADE TO A DEPTH OF 150mm
SUBGRADE
5 LITRE SHRUB
75mm DEPTH OF MULCH
MULCH DISHED AT BASE OF STEM
TYPICAL MASS PLANTING BED DETAIL NTS
NOTES:
WATERING: WATER EACH PLANT THOROUGHLY AFTER PLANTING MAKING CERTAIN THAT MOISTURE HAS PENETRATED TO FULL DEPTH OF ROOT BALL.
MULCHING: MULCH WITH 6-7cm LAYER OF PEAT MOSS AROUND PLANTS
PLANT SCHEDULE
SYMBOL | BOTANICAL NAME | COMMON NAME | POT SIZE | MATURE HEIGHT | SPACING | QTY
Sa | Syzygium australe | Brush Cherry | 50mm | 3m | 1m | 34
Bm | Banksia marginata | Silver Banksia | 250mm | 2m | 150cm | 4
Gl | Grevillea lanigera | Woolly Grevillea | 50mm | 0.2–1.5m | 1m | 12
Pv | Pultenaea villosa | Hairy Bush-pea | 140mm | 2m | 40cm | 2
Bc | Blechnum cartilagineum | Gristle Fern | 140mm | 0.4m | 70cm | 14
Li | Lomandra longifolia | Lomandra | 140mm | 0.5–1m | 50cm | 73
Zo | Zoysia grass | Zoysia | n/a | n/a | n/a | 166sqm
Cp | Crushed Pebble | n/a | n/a | n/a | n/a | 177sqm
Cs | Crushed Sandstone | n/a | n/a | n/a | n/a | 60sqm
0 1 2 3 4 5 6 7 8 9 10
LANDSCAPE PLAN
Scale 1:200
AMENDMENTS
Issue | Date | Description | Ini | Adj
PI | | PRELIMINARY ISSUE | LZ |
A | 05.07.24 | DA SUBMISSION – SHOALHAVEN COUNCIL | LZ |
B | 13.11.25 | NEW TREE NOTE | LZ |
Notes
Do not scale this drawing. All dimensions must be verified on site prior to commencing any works. This drawings is not an as-built drawing. The information shown was taken from various sources which may not necessarily be accurate. Reproduction in whole or in part is forbidden. Prior to demolition, preparation of shop drawings, ordering of materials, fabrication and installation, all heights and dimensions must be verified by a professional and/or contractor. Should any works on site commence prior to the issues of any Council approved architectural documentation, the architectural designer will not be held responsible. Copyright ©
Certificate No. # IE64BJ0FD3
Project
PROPOSED ATTACHED DWELLINGS (3 X 3 BEDS) AT 737 WOOLLAMIA RD WOOLLAMIA NSW 2540
LOT 12 DP 9289
Client
MR N. & MRS L. ZREIK
Drawing
LANDSCAPE PLAN SHEET 1 OF 2
Date NOVEMBER 2025
Scale 1:200
Size A3
Job No 2024_01
Drawn LZ
Dwg No DA 6.00
Issue B

Department of Planning, Housing and Infrastructure

CM10 Ref: DOC24/207379

Chief Executive Officer
Shoalhaven City Council
Po Box 42 NOWRA, NSW 2541
Email: council@shoalhaven.nsw.gov.au

Dear Sir/Madam

Proposed Development:	DA2024/1589 – Construction of three new dwellings in addition to the existing approved dwelling house to create four multi dwelling housing units
Applicant:	L Zreik
Location:	Lot 12 DP 9289

I refer to Council's letter dated 22 August 2024 requesting comments for the above development proposal.

The Department of Planning, Housing and Infrastructure - Crown Lands and Public Spaces (the department) has reviewed the development application in accordance with the principles of Crown land management (s.1.4 *Crown Lands Management Act 2016* – the Act), and objects to the proposed development as it impacts Crown land as described below. Crown land must not be occupied or used unless it is authorised by the Act (s. 1.15).

Impacted Crown land: Lot 11 DP 9289 – par of Reserve 755928, managed by the department and reserved for future public requirements.

Identified Impacts: Appendix 1 image 1A depicts an emergency egress gate 4500m wide on the south side of the private property. This is not supported given it burdens the adjacent Lot (Crown Land), in contravention of Planning for Bushfire Protection 2019. The site is subject to undetermined Aboriginal Land Claims 42479 and 42448 and it is the department's position that bushfire mitigation measures for new development will not be supported on Crown land (refer to attached fact sheet). There is no easement of any kind registered on title of this Land or noted on the Deposited Plan.

Therefore, the department objects to the proposed development as submitted for the reasons stated above. The development application should be modified to remove any impact or burden from the adjoining Crown land, whereupon the objection will be formally withdrawn and no further action or consultation is required.

Should you require any further information, please do not hesitate to contact Tina Adair at the Nowra Crown Lands Office by phone on 4428 9102 or email nowra.crownlands@crownland.nsw.gov.au

Yours sincerely

[redacted]

Heike Peterlin
Group Leader – South East Region
Department of Planning, Housing and Infrastructure - Crown Lands
Date: 29 August 2024

437 Hunter St, Newcastle, NSW 2300
PO Box 2185, Dangar, NSW 2309
Tel: 1300 886 235 Visit: www.crownland.nsw.gov.au

CM9 Ref:DOC24/262252

The Chief Executive Officer
Shoalhaven City Council
PO Box 42 NOWRA,NSW 2541
Email: council@shoalhaven.nsw.gov.au

Dear Sir/Madam

Proposed Development:	DA2024/1589 – Additional information submitted construction of three new dwellings in addition to the existing approved dwelling house to create four multi dwelling housing units
Applicant:	L Zreik
Location:	Lot 12 DP 9289 – 737 Woollamia Road WOOLLAMIA

I refer to Council's letter dated 26 September 2024 requesting comments for the above development proposal.

On the 3 October 2023 the department provided a referral response for DA23/1694 where the department clearly stated that the proponent may not use the adjacent and adjoining Crown Land as access.

On the 29 August 2024 the department provided a referral response for DA2024/1589 objecting to the proposal for the reasons outlined within that letter.

No landowners consent has been provided to the proponent from the department for the lodgement of the development applications involving the use of Crown Land.

The department objects to the proposed development as outlined in previous communications.

The development consent (DA23/1694) and application (DA2024/1589) should be modified to remove any impact from Crown land.

Should you require any further information, please do not hesitate to contact Tina Adair at the Nowra Crown Lands Office by phone on 4428 9102 or email tina.adair@crownland.nsw.gov.au

Yours sincerely

[redacted]

Lisa Collins
A/Group Leader
Department of Planning Industry & Environment - Crown Lands
Date: 2 October 2024

437 Hunter St, Newcastle, NSW 2300
PO Box 2185, Dangar, NSW 2309
Tel: 1300 886 235 Visit: www.industry.nsw.gov.au/lands

Address all correspondence to: The Chief Executive Officer,
PO Box 42, Nowra NSW 2541 Australia
shoalhaven.nsw.gov.au/contact | 1300 293 111
shoalhaven.nsw.gov.au

NOTICE OF DETERMINATION OF A DEVELOPMENT APPLICATION

Application number	DA2024/1589
Applicant	L Zreik
Description of development	Three new multi-dwelling housing units in addition to the approved dwelling under DA23/1694.
Property	737 Woollamia Road WOOLLAMIA Lot 12 DP 9289
Determination	Approval
Date of determination	[#Consent Start Date#]
Date from which the consent operates	[#Consent Start Date#]
Date on which the consent lapses	[#Consent End Date#]

Under section 4.18(1) of the EP&A Act, notice is given that the above development application has been determined by the granting of consent using the power in section 4.16(1)(a) of the EP&A Act, subject to the conditions specified in this notice.

Reasons for Grant of Consent

a) The development proposal, subject to the recommended conditions is consistent with:
   i. the objects of the Environmental Planning and Assessment Act, 1979.
   ii. the aims, objectives and provisions of the applicable environmental planning instruments,
   iii. the aims, objectives and provisions of applicable development control plans
   iv. the aims, objectives and provisions of relevant Council policies.

b) The likely impacts of the proposed development are considered acceptable.

c) The site is suitable for the proposed development.

d) Any submissions received during the public notification period have been considered and issues and concerns raised by the community in submissions have been addressed in the assessment.

e) The proposed development does not conflict with the public interest.

Right of appeal / review of determination

If you are dissatisfied with this determination:

Request a review

You may request a review of the consent authority's decision under section 8.3(1) of the EP&A Act. The application must be made to the consent authority within 6 months from the date that you received the original determination notice provided that an appeal under section 8.7 of the EP&A Act has not been disposed of by the Court.

Rights to appeal

You have a right under section 8.7 of the EP&A Act to appeal to the Court within 6 months after the date on which the determination appealed against is notified or registered on the NSW planning portal.

Dictionary

The Dictionary at the end of this consent defines words and expressions for the purposes of this consent.

Person on behalf of the consent authority

AppUserAsg
AppAsgPos
City Development

Terms and Reasons for Conditions

Under section 88(1)(c) of the EP&A Regulation, the consent authority must provide the terms of all conditions and reasons for imposing the conditions other than the conditions prescribed under section 4.17(11) of the EP&A Act. The terms of the conditions and reasons are set out below.

GENERAL CONDITIONS

CONDITIONS		REASON
1.	**Approved plans and supporting documentation** Development must be carried out in accordance with the following approved plans and documents, except where the conditions of this consent expressly require otherwise.	To ensure compliance with the approved plans and documents.

Approved Plans

Plan Number	Revision Number	Plan Title	Drawn by	Date of Plan
DA 0.03 – S34	A	Site Plan	LZ	02/09/2025
DA 0.04	B	Area Calculations	LZ	02/09/2025
DA 6.00	B	Landscape Plan	LZ	13/11/2025
DA 1.00	D	Ground Floor Plan	LZ	02/09/2025
DA 1.01	C	First Floor Plan	LZ	02/09/2025
DA 1.02	C	Roof Plan	LZ	02/09/2025
DA 2.00	C	Elevations	LZ	02/09/2025
DA 3.00	C	Sections A-A & B-B	LZ	02/09/2025
DA 3.01	A	Addition 1:50 Roof Detail	LZ	02/09/2025
DA 7.01	B	External Finishes & Materials Schedule	LZ	30/08/2025
DA 7.00	A	External Finishes & Materials Schedule	LZ	June 2024

	Approved Documents **Document title** / **Version number** / **Prepared by** / **Date of document** BASIX Certificate / 1754960M / Liliana Zreik / 9 July 2024 NatHERS Certificate / IE64BJ0FD3 / Liliana Zreik / 8 July 2024 Bushfire Assessment Report / BA/S/29_24 V1 Rev B / Apical Bushfire and Planning / 24/07/2024 Aboricultural Impact Assessment / - / Tree and Landscape Consultants / 15/08/2025 In the event of any inconsistency with the approved plans and a condition of this consent, the condition prevails.	
2.	**Bushfire - Building works residential** New construction must comply with: a) The report submitted by Apical Bushfire and Planning (BA/S/29_24 V1 Rev B) dated 24/07/2024 b) Planning for Bush Fire Protection 2019 c) AS3959 Construction of Buildings in Bushfire Prone Areas d) BAL-19, except where modified by Planning for Bush Fire Protection 2019 including all NSW variations	To ensure compliance with applicable bushfire controls.
3.	**Existing Infrastructure** Any required alterations or damage to infrastructure will be at the developer's expense. *Note: It is recommended prior to the issue of a Construction Certificate, all infrastructure, existing and proposed, is to be shown accurately on construction plans with clearances clearly labelled confirming that the proposed works do not affect any existing infrastructure. This will reduce the potential for unexpected costs and expenses.*	To ensure existing infrastructure is accounted for and any damage to infrastructure is suitably repaired.
4.	**Prescribed Conditions** The development must comply with Part 4, Division 2, Subdivision 1, of the *Environmental Planning and Assessment Regulation 2021*, as applicable.	To ensure compliance with prescribed conditions.

5.	**Shoalhaven Water – Compliance with Conditions** All conditions listed on the Shoalhaven Water Development Notice at each stage of work must be complied with as relevant to that stage. Written notification must be issued by Shoalhaven Water and evidence provided to the Certifier for each applicable stage.	To ensure compliance with Shoalhaven Water requirements.
6.	**Acid Sulfate Soils** Before any works commence, an Acid Sulfate Soils report and Management Plan prepared by a suitably qualified person in accordance with the Acid Sulfate Soils Manual must be submitted to the Director – City Development (or delegate) and approved by Council.	To protect the environment.
BUILDING WORK **Before Issue of a Construction Certificate**		
CONDITIONS		REASON
7.	**Council Approvals - Evidence** A Construction Certificate must not be issued until the Certifier has received notification from, or evidence of, any Council approval that is required before the commencement of building works.	To ensure all required approvals are obtained.
8.	**Concurrence and Referral – Department of Planning, Housing and Infrastructure – Crown Lands** Before the issue of a Construction Certificate, amended plans and documentation must be submitted that removes any burden on the adjoining Crown Land (Lot 11 DP 9289). This includes but is not limited to any reference on the approved plans and supporting documentation submitted by the applicants for any gate or evacuation path accessing the adjoining crown land. Approval must be obtained in writing from the Director – City Development (or delegate) of Shoalhaven City Council that this condition has been satisfied.	To ensure compliance with external concurrence and referral advice (Crown Land).
9.	**Modification to Dwelling Approval – DA23/1694** Before the issue of a Construction Certificate, a modification application (Section 4.55 (1(a)) to DA23/1694 must be approved to relocate the position of the approved dwelling in	To provide foreshore area view corridor in accordance with the DCP.

	accordance with Site Plan DA 0.03 – s34, Issue A, dated August 2025.	
10.	**Flooding – Building Design** Before the issue of a Construction Certificate, a professional engineer, (as defined in the National Construction Code) must submit to the satisfaction of the Certifier, certification that the following items have been detailed on the construction drawings: a) All habitable floor levels must be constructed at or above the 2050 Flood Planning Level, as documented on a Flood Certificate obtained from Council that is based on the latest flooding information held. b) A minimum floor space of $2m^2$ per person is provided above the 2050 Probable Maximum Flood level as documented on a Flood Certificate obtained from Council that is based on the latest flooding information held. c) All fences must be designed with openings below the 2050 Flood Planning Level to allow free flow of floodwater. d) Any proportion of the structure below the 2050 Flood Planning Level must be built from flood compatible materials. e) All electrical installations must be constructed above the 2050 Flood Planning Level or be able to be isolated before a flood event. f) The location of all hazardous substances is located at or above the 2050 1% Annual Exceedance Probability Flood Level. g) A Flood Emergency Response Plan (FERP) must be prepared to ensure the safety of occupants for the life of the development during a flood event. This plan is to include required actions before, during and after sheltering in place. It should also include a communications plan to ensure occupants and visitors of the building are familiar with the shelter in place requirements for the development. The plan is to detail how it is to be maintained for the life of the development. h) A copy of the FERP must be located and maintained for the life of the development in a fixed location of each *flood-free area* for each dwelling.	To ensure the development is appropriately designed responding to flood constraints.

11.	**Flooding – Structural Soundness** Before the issue of a Construction Certificate, a professional engineer, (as defined in the National Construction Code) must submit to the satisfaction of the Certifier, certification that the development can withstand forces of floodwaters including debris and buoyancy forces up to a Probable Maximum Flood event.	To ensure the development is appropriately designed responding to flood constraints.
12.	**Erosion and Sediment Controls - Erosion and Sediment Control Plan** Before issue of a Construction Certificate, an Erosion and Sediment Control Plan (ESCP) and specifications must be prepared in accordance with Landcom's publication Managing Urban Stormwater - Soils and Construction (2004) by a suitably qualified person, (as defined in the National Construction Code) to the satisfaction of the Certifier. All plans must include: a) Site access location and stabilisation details and restrictions; b) Erosion control locations and types; c) Sediment control locations and types; d) Soil, water and drainage management plans; e) Site rehabilitation details; f) Inspection and maintenance details; g) Identification of existing vegetation and site revegetation to have 70% cover established before plan is decommissioned; h) Existing and final contours (clearly distinguished and adequately annotated); i) Standard construction drawings for proposed soil, water and drainage management measures. j) All implemented measures must ensure that a pollution incident must not occur as defined by the Protection of the Environment Operations Act (POEO). k) All implemented measures must: l) not cause water pollution as defined by the Protection of the Environment Operations Act (POEO). m) be maintained at all times. n) not be decommissioned until at least 70% revegetation cover has been established.	To ensure an appropriate Erosion and Sediment Control Plan has been prepared.

13.	**Car Parking Design Standards** Prior to the issue of a Construction Certificate, certified engineering design plans and specifications must be prepared by a professional engineer, (as defined in the National Construction Code) or surveyor and approved by the Certifier. The car parking and access design must comply with the following: a) AS2890.1 and AS2890.6 where relevant. b) Generally, in accordance with the approved concept plans c) Constructed in accordance with the following: i. for light vehicular loading ii. with a concrete pavement designed and constructed for a minimum traffic loading of 1 x 106 ESA. d) Bordered in accordance with Council's Standard Drawings by: i. concrete kerbing, except where surface runoff is concentrated, in which case concrete integral kerb and gutter must be constructed. f) a concrete edge strip (min 150mm wide and 300mm deep).	To ensure carparking has been appropriately designed.
14.	**Driveway – Design Standards (Urban)** Prior to the commencement of works within the road reserve, engineering design plans for works within the road reserve must be prepared by a suitably qualified person and approved by Council. The layback/footpath crossing design must comply with the following: a) Council's Engineering Design Standard Drawings. b) Constructed using 20 MPa reinforced concrete, reinforced with SL72 mesh, on a 75mm compacted fine crushed rock base with centrally placed slab of minimum 3 metres width and minimum 100mm depth. c) Removal of sufficient width of existing road seal and pavement to allow placing of formwork and laying/compaction of suitable pavement material for the driveway layback with a minimum 300mm offset to the kerb lip line.	To ensure road and pavement infrastructure is appropriately designed.

15.	**Landscape Design Plan** Before the issue of a Construction Certificate, landscaping design plans and specifications must be prepared by a suitably qualified person and approved by Council. a) The landscape design plan must: i. Be developed in accordance with Chapter G3: Landscape Design Guidelines. ii. Plant species must follow the Shoalhaven species list for Wollamia or be representative of native flora species naturally occurring within the locality. b) Provide replacement trees to compensate for the removal of trees on site street trees as follows: i. Plant two replacement trees for every tree removed (2:1 ratio) ii. Replacement trees should be of a minimum 100 litre pot size. Where possible the replacement trees should be of the same species as those removed, unless the removed tree is not indigenous to the area. Replacement trees must not be exotic species. iii. planted at least 2m from the driveway and street light poles and 2m from services, stormwater outlets and signage. iv. set back a minimum 900mm from the back of the kerb or midway between the footpath and kerb. Where the tree is less than 900mm from the footpath, root barriers must be installed. v. 1m x 1.5m timber edging installed at the base of the tree constructed from the back of the kerb (edit, if required). vi. two hardwood stakes with 50mm hessian ties, fixed in a figure 8, to support each tree. vii. minimum 75mm depth of organic mulch applied a minimum 600mm diameter surrounding the base of the trunk. viii. root barriers are to be placed between the trees and above or below ground civil infrastructure to a minimum depth of 1.0 metre, at least twice the pot size away from the tree and extend along the service for a minimum length of half the mature drip line.	To ensure an appropriate landscaping design has been provided.

	c) Include the following details: i. All existing and proposed infrastructure including underground services. ii. Existing site conditions (contours, vegetation, drainage, etc). iii. Approximate location and description of structures and vegetation on adjacent property. iv. Vegetation to be retained including isolated trees or habitat of ecological significance. v. All trees and other vegetation in road reserves are to be removed unless specifically identified to be retained. vi. Trees in unformed road reserves, existing or proposed public/drainage reserve areas or pathways and within lots are to be assessed by an arborist and those identified as being dangerous are to be removed. Assessment for removal is to be made on the grounds of being of risk to public or private property or persons. vii. Replacement trees for any trees removed. viii. Protective fencing. ix. Type of grass seed or turf to be used (Council prefers Australian native grasses in rural developments and adjacent to natural areas in urban developments. x. Botanic and common names of plantings (and cultivar name if applicable). xi. Size in litres when planted and mature height and spread. xii. Years to maturity (to determine possible restriction to sight distance at intersections and other locations as necessary). xiii. Hard landscaping details.	
16.	**Biodiversity – Construction Environmental Management Plan** Before the issue of a Construction Certificate, a Construction Environment Management Plan (CEMP) is to be prepared with input by a qualified ecologist outlining all measures to protect the biodiversity values at the site during construction including but not limited to preclearance surveys, tree and vegetation protection fencing, unexpected finds protocol,	To ensure a Construction Environmental Management Plan is prepared and approved.

	erosion and sediment control measures, drainage, access, supervision and monitoring. The CEMP to be provided to Shoalhaven City Council for review and approval. The CEMP is to include all relevant environmental measures prescribed by these conditions and recommended in the approved Arboricultural Impact Assessment, including, but not limited to: a) A map showing where protective vegetation fencing is required and location of temporary signage delineating the impact areas from the retained vegetation. b) Timing of construction works in relation to pre-clearance survey and monitoring requirements, and in relation to rainfall and site stabilisation. c) Location and specifications or erosion and sediment control measures. d) Induction handout and toolbox talk requirements for construction personnel, including: i. site hygiene protocol. ii. fence inspection requirements. e) Signage specifications, including: i. Signage along the temporary exclusion fence during the construction phase. f) A map showing the location of signage and location of temporary signage delineating the impact areas from the retained vegetation/habitat. g) Reference to the approved Landscape Plan, ensuring all plans align. Before the issue of the Construction Works Certificate, approval must be obtained in writing from the Director – City Development (or delegate) of Shoalhaven City Council that this condition has been satisfied**.**	
17.	**Housing and Productivity Contribution** Before the issue of a Construction Certificate, the housing and productivity contribution (HPC) set out in the table below is required to be made. **Housing and productivity contribution** | **Amount**	To require contributions towards the provision of regional infrastructure

Housing and productivity contribution (base component)	$19,461.93
Transport project component	Nil
Total housing and productivity contribution	**$19,461.93**

The HPC must be paid using the NSW planning portal.

At the time of payment, the amount of the HPC is to be adjusted in accordance with the Environmental Planning and Assessment (Housing and Productivity Contributions) Order 2024 (HPC Order).

The HPC may be made wholly or partly as a non-monetary contribution (apart from any transport project component) if the Minister administering the Environmental Planning and Assessment Act 1979 agrees.

The HPC is not required to be made to the extent that a planning agreement excludes the application of Subdivision 4 of Division 7.1 of the Environmental Planning and Assessment Act 1979 to the development, or the HPC Order exempts the development from the contribution.

18. **Local Infrastructure Contribution**

This development will generate a need for the additional services and/or facilities described in Shoalhaven Contributions Plan 2019 and itemised in the following table(s):

Project	Description	Rate	Qty	Total	GST Incl
03AREC0005	Planning Area 3 - Recreation facilities upgrade various locations	$328.73	3.00	$986.19	**$986.19**
03AREC3003	Bay and Basin Leisure Centre	$492.77	3.00	$1,478.31	**$1,478.31**
03CFAC0007	Bay & Basin Branch Library	$653.72	3.00	$1,961.16	**$1,961.16**
03CFAC4001	Bay & Basin Community Hub	$3,180.33	3.00	$9,540.99	**$9,540.99**
CWAREC5005	Shoalhaven Community and Recreational Precinct SCaRP Cambewarra Road Bomaderry	$2,940.78	3.00	$8,822.34	**$8,822.34**

To ensure applicable local infrastructure contributions are collected.

CWCFAC5002	Shoalhaven Entertainment Centre (Bridge Road Nowra)	$2,222.60	3.00	$6,667.80	**$6,667.80**
CWCFAC5006	Shoalhaven City Library Extensions (Berry Street, Nowra)	$1,502.37	3.00	$4,507.11	**$4,507.11**
CWCFAC5007	Shoalhaven Regional Gallery	$82.48	3.00	$247.44	**$247.44**
CWFIRE2001	Citywide Fire & Emergency services	$162.05	3.00	$486.15	**$486.15**
CWFIRE2002	Shoalhaven Fire Control Centre	$237.08	3.00	$711.24	**$711.24**
CWMGMT3001	Contributions Management & Administration	$673.90	3.00	$2,021.70	**$2,021.70**

$37,430.43

$0.00

$37,430.43

The total contribution, identified in the above table(s) or as indexed in future years, must be paid to Council prior to the issue of a Construction Certificate. Evidence of payment must be provided to the Certifying Authority.

The Contributions Plan 2019 can be accessed on Councils website www.shoalhaven.nsw.gov.au or may be inspected on the public access computers at the libraries and the Council Administrative Offices, Bridge Road, Nowra and Deering Street, Ulladulla.

Note: There are also provisions that may apply with respect to the timing of payments. See: Environmental Planning and Assessment (Local Infrastructure Contributions - Timing of Payments) Direction 2020 (nsw.gov.au)

Email Council requesting an invoice be prepared and issued for payment via: council@shoalhaven.nsw.gov.au

19. **Long Service Levy**

Before the issue of the relevant Construction Certificate, the long service levy must be paid to the Long Service Corporation of Council under the Building and Construction industry *Long Service Payments Act 1986*, section 34, and evidence of the payment is to be provided to the Certifier.

To ensure compliance with long service levy requirements.

20.	**Section 68 Application – Water Supply, Sewerage and Stormwater Drainage / Sewage Management Facility** Before the issue of a Construction Certificate, an application for water supply, sewerage and stormwater drainage and/or sewage management facility must be approved under section 68 of the *Local Government Act 1993*.	To ensure relevant approvals are obtained.
21.	**Livable Unit/s** Before the issue of a Construction Certificate, detailed plans and a report prepared by a suitably qualified consultant must be obtained that demonstrates, to the certifier's satisfaction, that at least one of the approved dwellings complies with the Silver Level requirements of the Livable Housing Design Guidelines. This includes, but is not limited to, the provision of a safe and continuous step-free pathway from the front boundary to the entry door of the designated dwelling.	To ensure dwellings are capable of being adapted.
22.	**Street Numbering** Street numbering must comply with the State Governments Comprehensive Property Addressing System (CPAS), and Council's Property Address Numbering Policy. Street numbering for the development must be as follows: • Dwelling 1 – 1/737 Woollamia Rd Woollamia • Dwelling 2 - 2/737 Woollamia Rd Woollamia • Dwelling 3 - 3/737 Woollamia Rd Woollamia • Dwelling 4 - 4/737 Woollamia Rd Woollamia The allocated numbers must be shown on the engineering/construction plans with the Construction Certificate Certificate. Where plans and details are provided to service suppliers, numbers must be in accordance with the above.	To ensure consistent and appropriate street numbering.
23.	**Stormwater - Level Spreader Design Standards** Before the issue of a Construction Certificate on site stormwater disposal design plans incorporating a level spreader design for the building must be prepared by a Professional Engineer (as defined in the National Construction Code) and approved by the Certifier.	To ensure stormwater infrastructure is designed appropriately.
24.	**Stormwater - New Urban Buildings Design Standards** Before the issue of a Construction Certificate stormwater plans must be prepared by a Licensed Plumber or	To ensure stormwater infrastructure is

	professional engineer (as defined in the National Construction Code) and submitted to the Certifier. a) Drainage must be designed and constructed in accordance with: b) Generally, in accordance with the approved plans, subject to the following: i. All drainage must be directed to the rear of the property and disposed via an absorption trench and level spreader system for surcharge. c) the National Construction Code d) Council's Engineering Design Specifications e) Development Control Plan G2	designed appropriately.
25.	**Stormwater - On-Site Stormwater Disposal Design Standards** Before the issue of a Construction Certificate on site stormwater disposal design plans must be prepared by a Professional Engineer (as defined in the National Construction Code) and approved by the Certifier. a) The stormwater design must be in accordance with: i. the National Construction Code ii. Relevant Australian Standard/s iii. Shoalhaven DCP 2014 Chapter G2 – Supporting Document 1, including the provision of a geotechnical report b) Design plans and associated documentation must demonstrate that: i. Runoff from all buildings and structures will be directed to an on-site absorption/infiltration disposal system. Any absorption system must be a minimum distance of 3 metres to any building on the lot or adjacent lots. ii. Collection, diversion and disposal of stormwater will not result in surface water being concentrated onto adjoining property either above or below ground. iii. Stormwater will be captured in rainwater tank(s), pipes and/or pits and the like and overland flows will be equivalent to predevelopment overland flows.	To ensure stormwater infrastructure is designed appropriately.

	iv. Trench(s) will have sufficient capacity to store the inflow of a one in three months average recurrence interval design storm, with an emptying time of less than 24 hours. v. The trench is not to require excavation beneath the dripline of any trees to be retained unless approved by a qualified arborist certifying that such excavation will not affect the longevity of the subject tree(s). c) The trench design must include a surcharge pit for events where the design capacity is exceeded, and the surcharge pit needs to be designed to prevent scour. d) Trench design must include a documented maintenance program, copies of which are to be submitted to Council in PDF format with the design plans for the on-site stormwater disposal system.	
26.	**Stormwater - Rainwater Facility** Before the issue of a Construction Certificate, details of rainwater tanks must be provided to the Certifier. Water stored in the tank must be plumbed into the dwelling such that it is supplied to each of the fixtures listed in the BASIX Certificate for the property. Plumbing must be in accordance with the current edition of AS 3500.1 Water Services – Section 16. It will be necessary to install, maintain and repair the facility so that it functions in a safe and efficient manner in accordance with the current editions of AS 3500.1 Water Services, the New South Wales Code of Practice Plumbing and Drainage and in accordance with the following: a) The tank inlet must be located a minimum of 500mm below the outlet of the eave gutter. b) The tank is to be installed on a firm flat and stable platform in accordance with manufacturer's recommendations. Tanks located over fill material should be placed on a concrete slab. c) Pumps must be located and installed to minimize any potential noise nuisance to surrounding residents, and in the case of a permanent electric pump, must be installed by a licensed electrician. Pump performance must achieve a minimum 300 Kpa output.	To ensure rainwater tanks are appropriately installed where required.

	d) Overflow from the tank must be directed into the approved storm water system. e) Any town water top-up of the tank must be by indirect connection by means of a visible "air gap", external to the rainwater tank, in accordance with the provisions of the National Plumbing and Drainage Code, AS3500.1 – Minimum air gap requirements. f) Marking and labelling of rainwater services must be in accordance with AS 3500.1 Section 16. g) The charged line to the rainwater tank is to have a flush point installed at the lowest reduced level (RL) into a 450mm x 450mm pit to enable the line to be flushed. This is to prevent the line becoming blocked. h) For partially buried or fully buried rainwater tanks the property owner is required to have a dual check valve with atmospheric port valve installed at the boundary water meter. Zone protection will be required at the tank or cross connection point to be installed in accordance with AS3500.1 – Section 4.	

BUILDING WORK

Before Building Work Commences

CONDITIONS		REASON
27.	**Appointment of Principal Certifier** Before building work commences a Principal Certifier must be appointed.	To ensure a Principal Certifier is appointed where required.
28.	**Construction Certificate** A Construction Certificate must be obtained from either Council or a certifier before any building work can commence.	To ensure a appropriate building Certificates are obtained.
29.	**Biodiversity – Tree and Vegetation Protection** Before the commencement of any clearing works the following requirements must be met to the satisfaction of the Council: a) The developer must identify and physically mark environmental features to be retained as shown on the approved plans.	To minimise biodiversity impacts.

	b) The developer must identify the extent of clearing work as shown on the approved plans. c) A temporary protective barrier or similar visible material must be installed in accordance with the approved tree and vegetation plan and retained until all work are complete. d) The dripline of trees to be retained must be clearly identified and protected with temporary barrier fencing in accordance with AS 4970: Protection of trees on development sites. e) Where trees have been identified for retention within an Asset Protection Zone, these trees must be physically marked to be retained in accordance with the development consent. Evidence of compliance with the above requirements must be provided to Council prior to the commencement of any clearing works. Site works must not commence until the Director – City Development (or delegate) of Shoalhaven City Council has confirmed in writing that the above have been satisfied. Where a Council inspection is considered necessary by Shoalhaven City Council to verify the installation of tree/environmental protection measures, an inspection fee may apply.	
30.	**Biodiversity – Tree/Environmental Protection Measures (Evidence of Installation)** Before the commencement of any site work, evidence must be submitted to the Director – City Development (or delegate) of Shoalhaven City Council that all required tree/environmental protection measures detailed in this consent and approved plans and documents are in place. Site works must not commence until the Director – City Development (or delegate) of Shoalhaven City Council has confirmed in writing that the installed protection measures are satisfactory. Where a Council inspection is considered necessary by Shoalhaven City Council to verify the installation of tree/environmental protection measures, an inspection fee may apply.	To ensure tree/environmental protection measures are adequately installed.
31.	**Biodiversity – Pre-clearance Survey**	To minimise biodiversity impacts.

	Before the commencement of any on site work, a suitably qualified ecologist must complete pre-clearing surveys and inspections: a) On the day/s before clearing commences the project ecologist thorough pre-clearance survey of vegetation to be removed to determine the presence of fauna within habitat features to be impacted, including, but not limited to, terrestrial habitat features such as fallen logs, large rocks, hollows and nests or dreys. Vegetation removal must not commence if any fauna is/are confirmed to be nesting (such as hollow inspection, collection of nesting material) or showing signs of breeding activity. Subsequent pre-clearance surveys are to be undertaken following the completion of the nesting/breeding event, until it is confirmed that the site is clear of nesting/breeding activity.	
32.	**Biodiversity – Construction Environment Management Plan** Before the commencement of works, the pre-commencement measures specified in the approved Construction Environment Management Plan must be implemented. Evidence of implementation of all pre-commencement measures have been installed must be submitted to the Director – City Development (or delegate) of Shoalhaven City Council for review and approval.	
33.	**Dilapidation Report** Before the commencement of work, the developer must engage a competent person to prepare a dilapidation report in respect of the neighbouring premises and adjacent public infrastructure, including adjacent kerbs, gutters, footpaths (formed or unformed), driveways (formed or unformed), carriageway, reserves and the like to document evidence of any existing damage. The dilapidation report must consider the impact of any excavation work that extends below the level of the base of the footings of any structure within 900mm of the shared boundary. Before works commence, a copy of the dilapidation report must be provided to the Certifier and Council. The dilapidation report will be the benchmark for necessary repairs to damage caused during the development works. All	To ensure a suitable dilapidation report is prepared and the status of existing infrastructure and adjoining structures is recorded prior to the commencement of work.

	repairs must be completed by the developer at the developer's cost. Not less than seven (7) days before works commence, the developer must notify the owner of any affected property of the intention to carry out approved works. The developer must also furnish the owner with details of the approved work. However, if the occupier or owner of any neighbouring dwelling does not permit reasonable access for the purposes for the preparation of the dilapidation report, written evidence of the efforts taken to secure access may be submitted to the Principal Certifier and the Principal Certifier may waive the requirement in relation to the relevant property. *Note: A dilapidation report can comprise of video footage and photos of adjacent public infrastructure and relevant structures on adjoining properties.*	
34.	**Erosion and Sediment Controls – Implementation** Before any site work commences, the Certifier must be satisfied the erosion and sediment controls in the erosion and sediment control plan are in place. These controls must remain in place until any disturbed areas have been restabilised in accordance with Landcom's publication Managing Urban Stormwater - Soils and Construction (2004) and approved plans (as amended from time to time).	To ensure appropriate erosion and sediment control measures are in place.
35.	**Notice of Commencement** Notice must be given to Council at least two (2) days before the commencement of building work by completing and returning the form 'Commencement Notice for Building or Subdivision Work and Appointment of Principal Certifying Authority'.	To ensure appropriate notice is given to Council.
36.	**Shoalhaven Water – Application for Certificate of Compliance** Before commencement of works, an application for a Certificate of Compliance must be made with Shoalhaven Water and where required a Water Development Notice is to be obtained. Shoalhaven Water will determine if sewerage and/or water infrastructure and/or easements will be affected by any part of your development including what charges/fees apply. Please visit https://shoalwater.nsw.gov.au/planning-building/developers-consultants/water-development-notice	To ensure a Water Development Notice and Certificate of Compliance are obtained.

	to make application for a Certificate of Compliance or call (02) 4429 3214 to learn more about applying. Upon the receipt of the application, Shoalhaven Water will assess the development and if required will issue a "Water Development Notice" document detailing all requirements which must be met. *Note: As water and/or sewerage infrastructure may impact on part/s or all of the development such as building, provision of services, protection of water and/or sewer assets, etc., it is recommended that this application is made as early as possible during the development process.*	
37.	**Toilet Facilities – Temporary** Toilet facilities must be available or provided at the work site before works begin and must be maintained until the works are completed at a ratio of one toilet plus one additional toilet for every 20 persons employed at the site. Each toilet must: a) be a standard flushing toilet connected to a public sewer, or b) have an on-site effluent disposal system approved under the *Local Government Act 1993*, or c) be a temporary chemical closet approved under the *Local Government Act 1993*.	To ensure suitable toilet facilities are provided.
38.	**Waste Management Plan – an approved document of this consent** Before the commencement of site works a waste management plan for the development must be provided to the Certifier for review and approval.	To ensure an appropriate waste management plan is provided.
39.	**Works within the Road Reserve – Submissions to Council** Before undertaking any works within an existing road reserve, the developer must obtain the consent of Council under section 138 of the *Roads Act 1993*. The following details must be submitted to Council as part of the application: a) Any civil works design required by this consent. b) Evidence of the contractor's Public Liability Insurance to an amount of $20 million. c) Name and contact information of the person responsible for all relevant works.	To ensure relevant approvals are obtained.

	d) A Traffic Control Plan prepared, signed, and certified by a person holding the appropriate Transport for NSW (TfNSW) accreditation. e) Where the Traffic Control Plan requires a reduction of the speed limit, a 'Application for Speed Zone Authorisation' must be obtained from the relevant road authority.	
40.	**Construction Traffic Management Plan** Before the commencement of works, a Construction Traffic Management Plan detailing the proposed method of dealing with construction traffic and parking must be approved by Council. Details must include, but are not limited to: a) Stabilised site construction access location b) Proposed haulage routes for delivery of materials to the site c) Proposed haulage routes for spoil disposal from the site d) Traffic control planning for each of the various phases of construction and/or vehicle movements associated with construction e) Parking arrangements for construction employees and contractors f) Proposed maintenance of the haulage routes and access locations g) Name of the person responsible for such maintenance h) Loading / unloading areas i) Requirements for construction or work zones j) Pedestrian and cyclist safety k) Speed zone restrictions.	To ensure ongoing compliance.

BUILDING WORK

During Building Work

CONDITIONS		REASON
41.	**Acid Sulfate Soils – Management Plan** Excavation of acid sulfate soils, or potential acid sulfate soils must be carried out in accordance with the approved Acid Sulfate Soils Management Plan (ASSMP) to the satisfaction	To ensure acid sulfate soils are appropriately managed.

	of the Certifier. Excavated material must be treated on site in accordance with the ASSMP or taken to an approved waste disposal facility.	
42.	**Biodiversity – Habitat Modification and Vegetation Removal** The removal and/or disturbance of native vegetation and habitat on the property, including canopy trees, understorey, and groundcover vegetation must be undertaken strictly in accordance with the approved plans. Vegetation removal must be undertaken in accordance with the following: a) Trees approved for removal must be felled into the development area carefully so as not to damage trees to be retained in or beyond the development footprint. b) Pruning or trimming of any trees to be retained must be undertaken in accordance with *AS 4373 Pruning of amenity trees.* c) Trees and vegetation must be retained within the APZ where it complies with the prescriptions for Planning for Bushfire Protection APZ requirements. d) The removal and/or disturbance of indigenous vegetation on the property, including canopy trees, understorey, and groundcover vegetation, is restricted to that required to construct and maintain the approved development and the associated NSW Rural Fire Services specified Asset Protection Zone.	To protect biodiversity values.
43.	**Biodiversity – Fauna Rescue Protocol** A suitably qualified ecologist must be on site during the removal of any trees or areas of potential habitat on the property, in order to rescue any impacted fauna.	To minimise biodiversity impacts.
44.	**Biodiversity – Fauna Rescue and Vegetation Removal Protocol** During works, in order to protect wildlife the following vegetation removal protocol is to be adhered to: *a)* Before starting each morning, all vehicles and mechanical plant must be inspected for wildlife prior to operation. *b)* All vegetation to be removed must be inspected for wildlife prior to removal. *c)* Vegetation is to be removed using a staged approach to allow wildlife to naturally flee the area:	To minimise biodiversity impacts.

	d) **Stage 1** - All ground and shrub layer vegetation is to be removed in accordance with the approved plans. *e)* **Stage 2** - On a subsequent day, canopy trees can then be removed. *f)* If any native wildlife is identified as breeding on site, clearing works must stop immediately and must not recommence until the Director – City Development (or delegate) of Shoalhaven City Council has confirmed in writing that clearing works may recommence. *g)* If any wildlife is disoriented or injured during clearing works, works must stop immediately, and any injured wildlife must be referred to a local Veterinary Clinic or into the care of Wildlife Rescue South Coast (0418 427 214). Within 10 days of completing clearing work, the engaged ecologist must provide to Council written evidence of any fauna detected during clearing.	
45.	**Biodiversity – Construction Environment Management Plan** During Works, the appropriate measures specified in the approved Construction Environmental Management Plan must be implemented.	To protect biodiversity values.
46.	**Discovery of relics and Aboriginal objects** While site work is being carried out, if a person reasonably suspects a relic or Aboriginal object is discovered: a) the work in the area of the discovery must cease immediately. b) the following must be notified for a relic – the Heritage Council; or c) for an Aboriginal object – the person who is the authority for the protection of Aboriginal objects and Aboriginal places in New South Wales under the National Parks and Wildlife Act 1974, section 85. Site work may recommence at a time confirmed in writing by: d) for a relic – the Heritage Council; or for an Aboriginal object – the person who is the authority for the protection of Aboriginal objects and Aboriginal places in New South Wales under the National Parks and Wildlife Act 1974, section 85.	To ensure the protection of objects of potential significance during works.

47.	**Potentially Contaminated Land - Unexpected Finds** If unexpected, contaminated soil and/or groundwater is encountered during any works: a) all work must cease, and the situation must be promptly evaluated by an appropriately qualified environmental consultant. b) the contaminated soil and/or groundwater must be managed under the supervision of the environmental consultant, in accordance with relevant NSW Environment Protection Authority (EPA) Guidelines. If unexpected, contaminated soil, or groundwater is treated and/or managed on-site an appropriately qualified environmental consultant must verify that the situation was appropriately managed in accordance with relevant NSW EPA guidelines before recommencement of works. The verification documentation must be provided to the satisfaction of the Certifier and Shoalhaven City Council before the recommencement of any works. If contaminated soil or groundwater is to be removed from the site, it must be transported to an appropriately licensed waste facility by an NSW EPA licensed waste contractor in accordance with relevant NSW EPA guidelines including the Waste Classification Guidelines (2014). *Note: An appropriately qualified environmental consultant will have qualifications equivalent to CEnvP "Site Contamination" (SC) Specialist - by Certified Environmental Practitioner or 'Certified Professional Soil Scientist' (CPSS CSAM) by Soil Science Australia (SSA).*	To ensure any detected contaminants are appropriately managed.
48.	**Site Management - Hours for Construction** Construction may only be carried out between 7.00am and 5.00pm on Monday to Saturday and no construction is to be carried out at any time on a Sunday or a public holiday. Proposed changes to hours of construction must be approved by Council in writing.	To ensure site work occurs within appropriate construction hours.
49.	**Site Management - Maintenance of Site and Surrounds** During works, the following maintenance requirements must be complied with: a) All materials and equipment must be stored and delivered wholly within the work site unless an approval to store them elsewhere is held. b) Waste materials (including excavation, demolition and construction waste materials) must be managed on	To ensure the site is maintained in a safe and secure manner.

	the site and then disposed of at a waste management facility. c) Where tree or vegetation protection measures are in place, the protected area must be kept clear of materials and / or machinery. d) The developer must maintain the approved soil water management / erosion and sediment control measures to the satisfaction of the Certifier for the life of the construction period and until runoff catchments are stabilised. e) During construction: i. all vehicles entering or leaving the site must have their loads covered, and ii. all vehicles, before leaving the site, must be cleaned of dirt, sand and other materials, to avoid tracking these materials onto public roads. f) At the completion of the works, the work site must be left clear of waste and debris.	
50.	**Site Management - Noise** The noise from all site work, demolition and construction activities associated with the approved development must comply with the work practices as outlined in the NSW Department of Environment & Climate Change Interim Construction Noise Guideline. The LAeq noise level measured over a period of not less than 15 minutes During works must not exceed the background (LA90) noise level by more than 10dB(A) when assessed at any sensitive noise receiver.	To protect the amenity of neighbouring properties.
51.	**Stormwater - Overland Flow, Redirecting and/or Concentrating Stormwater** All excavation, backfilling and landscaping works must not result in: a) any change to the overland stormwater flow path on your property and or a neighbouring property. If any change to the overland flow path occurs on a property, the stormwater runoff must be collected and directed to a legal point of discharge. b) the redirection and/or concentration of stormwater flows onto neighbouring properties.	To ensure stormwater is appropriately managed.

52.	**Stormwater - Connections in Road Reserve** Before the completion of works, the site supervisor must ensure that stormwater connections between the property boundary and the new kerb and gutter are inspected and approved by Council and backfilled as soon as possible. Kerb connections are only to be made using adaptors/convertors approved by Council. *Note: A section 138 approval under the Roads Act 1993 will be required for any works within the road reserve.*	To ensure stormwater connections are appropriately installed.
53.	**Earthworks – Cut, Fill and Grading** The maximum grading of cut or fill must be 2H:1V where there is no retaining wall or no other method of stabilising cut or fill during construction. Earthworks and retaining walls must be constructed as per the approved plans.	To ensure earthworks are appropriately retained.
54.	**Soil Management** While site work is being carried out, the Certifier must be satisfied all soil removed from or imported to the site is managed in accordance with the following requirements: a) All excavated material removed from the site must be classified in accordance with the EPA's Waste Classification Guidelines before it is disposed of at an approved waste management facility and the classification and the volume of material removed must be reported to the Certifier b) All fill material imported to the site must be: i. Virgin Excavated Natural Material as defined in Schedule 1 of the Protection of the Environment Operations Act 1997, or ii. a material identified as being subject to a resource recovery exemption by the NSW EPA, or iii. a combination of Virgin Excavated Natural Material as defined in Schedule 1 of the Protection of the Environment Operations Act 1997 and a material identified as being subject to a resource recovery exemption by the NSW EPA.	To ensure excavated material is appropriately disposed of and all fill material is appropriate for usage on site.
55.	**Surveys by a Registered Surveyor** Prior to building work commencing the positions and levels of the following must be measured and marked by a registered surveyor and provided to the principal certifier:	To ensure buildings are sited and positioned in the approved location.

	a) All footings / foundations in relation to the site boundaries and any registered and proposed easements. b) At other stages of construction – any marks that are required by the principal certifier.	
56.	**Surveys by a Registered Surveyor – Height** In order to ensure compliance with approved plans, a Survey Certificate to Australian Height Datum (AHD) must be prepared by a Registered Surveyor as follows: a) At the completion of ground floor slab formwork prior to pouring concrete. b) At the completion of each structural floor level above ground floor indicating the level of that floor and the relationship of the building to the boundaries. c) At the completed height of the building, prior to the laying of roofing materials. d) At completion of the building. Progress certificates in response to points (a) through to (d) must be provided to the Certifier at the time of carrying out relevant progress inspections. Under no circumstances will work be allowed to proceed should such survey information be unavailable or reveal discrepancies between the approved plans and the proposed works.	To ensure adherence to the approve plans for height and flood clearance.
BUILDING WORK **Before Issue of an Occupation Certificate**		
CONDITIONS		REASON
57.	**BASIX Certificate – Evidence of Completion** Before the issue of an Occupation Certificate, documentary evidence prepared by a suitably qualified person must be submitted to the Certifier confirming that all commitments listed in the BASIX Certificate(s) are fulfilled in accordance with Clause 97A of the *Environmental Planning and Assessment Regulation 2021*.	To ensure compliance with the approved BASIX Certificate.
58.	**Completion of Landscape and Tree Works**	To ensure the approved landscaping works

	Before the issue of an Occupation Certificate, the principal certifier must be satisfied all landscape and tree-works have been completed in accordance with approved plans and documents and any relevant conditions of this consent.	have been completed.
59.	**Completion of Public Utility Services** Before the issue of the relevant Occupation Certificate, confirmation must be obtained from the relevant authority that any adjustment or augmentation of any public utility services including gas, water, sewer, electricity, street lighting and telecommunications, required as a result of the development, have been completed and this confirmation must be provided to the principal certifier.	To ensure required changes to public utility services are completed, in accordance with the relevant agency requirements, before occupation.
60.	**Colours and Materials** The development must be constructed in accordance with the approved schedule of colours and building materials and finishes.	To ensure colours and materials are appropriate.
61.	**Dilapidation Report – Evidence of Completion** Before the issue of an Occupation Certificate, the developer must provide the Certifier and Council with evidence that any damage to neighbouring premises or adjacent public infrastructure, not previously identified as existing damage in the Dilapidation Report, has been repaired by the developer to the satisfaction of Council.	To ensure any damage not previously identified in the Dilapidation Report is suitably repaired.
62.	**Driveway – Evidence of completion** Before the issue of a full Occupation Certificate, all driveway works internal to the site as shown on the approved plans must be completed. Where a driveway is shared between two dwellings a dowelled expansion joint must be provided for the full length of the internal driveway (not within the road reserve) to demarcate between each side of the driveway.	To ensure the completion of the driveway in a timely manner.
63.	**Letter Boxes** A letterbox structure(s) must be provided and be designed to comply with the requirements of Australia Post, located close to the major pedestrian entry to the site, and built from materials that are non-reflective and blend in with the approved development.	To ensure compliance with the requirements of Australia Post.

	Note: Where no roadside delivery service is provided by Australia Post these requirements may be varied subject to the approval of Council.	
64.	**Biodiversity – Fencing in Environmental and Rural Zones** All boundary and internal fences to be erected on the property, must comply with the following: a) To protect native gliding and flying mammals the use of barbed-wire for fences is prohibited. b) Except for fencing to contain domestic pets within the approved Asset Protection Zones for dwellings, boundary and internal fences must not impede the movement of native fauna. c) The removal of vegetation for fence construction must be undertaken with hand tools only (e.g. brushcutters, lawn mowers), and must be limited to a maximum width of 1 metre. d) Canopy trees must not be removed for fence construction.	To protect biodiversity values.
65.	**Plumbing - Yard Gully** Must be installed as per AS3500.2 – Section 4. A minimum height of 150mm must be maintained between the top of the overflow yard gully riser and the lowest fixture connected to the drain. The height must be measured vertically from the overflow level of the gully riser, or from the invert level of the overflow pipe, to the appropriate point given in National Construction Code. The minimum height between the top of the overflow yard gully riser, or the invert of the overflow pipe, and the surrounding ground surface level must be 75mm, except where the gully riser is located in a path or a paved area where it must be finished at a level so as to prevent the ponding and ingress of water into the drainage system.	To ensure compliance with relevant plumbing controls.
66.	**Section 68 Approvals – Evidence of Completion** All the conditions under the approval of section 68 of the *Local Government Act 1993* are to be complied with before the issue of an Occupation Certificate.	To ensure compliance with section 68 approval.
67.	**Shoalhaven Water – Certificate of Compliance** Before the issue of any Occupation Certificate, a Certificate of Compliance under section 307 of the *Water Management Act 2000* must be obtained from Shoalhaven Water to verify	To ensure compliance with Shoalhaven Water requirements.

	satisfactory compliance with all conditions for the supply of water and sewerage, as listed on the Water Development Notice. If the development is to be completed in approved stages, or application is subsequently made for staging of the development, separate Compliance Certificates must be obtained for each stage of the development.	
68.	**Stormwater – On-Site Disposal – Evidence of Completion** Before the issue of an Occupation Certificate, the Certifier must be satisfied that all on-site stormwater disposal systems have been installed in accordance with any relevant condition of consent and the requirements of the National Construction Code.	To ensure stormwater infrastructure has been installed correctly.
69.	**Works in the Road Reserve - Evidence of Completion** Before the issue of a full Occupation Certificate, the developer must provide the Certifier with a construction inspection ticket / completion of works in road reserve letter provided by Council, confirming compliance with the requirements of section 138 of the *Roads Act 1993*.	To ensure works in the road reserve are completed appropriately.
70.	**Works in the Road Reserve – Works as Executed** Before the issue of an Occupation Certificate, Works as Executed Plans for works within the road reserve must be prepared by a registered surveyor / professional engineer, (as defined in the National Construction Code) and approved by Council demonstrating compliance with the approved design plans. The Works as Executed dimensions and levels must be shown in red on a copy of the approved plans and comply with the following requirements: a) Council's Development Engineering Construction Specification. b) Show compliance with the approved design plans of all road and drainage works. c) Show any retaining walls including footings and agricultural drainage lines. d) Show the location of all underground service conduits. e) Include all deviations from the approved Civil Engineering Plans.	To ensure ongoing compliance

71.	**Stormwater – Works as Executed** Before the issue of an Occupation Certificate, a Works as Executed Plans and certification must be submitted to the Council by a professional engineer (as defined in the National Construction Code) certifying compliance of all drainage works with the approved design plans and the National Construction Code. The Works as Executed be shown in red on a copy of the approved plans. This plan must verify locations & sizes of all pipelines. Where the system includes an underground tank, a certificate of structural adequacy must be prepared and provided by a professional engineer (as defined in the National Construction Code).	To ensure ongoing compliance
72.	**Driveway – Evidence of Completion** Before the issue of an Occupation Certificate, all driveway and carpark works internal to the site as shown on the approved plans must be completed.	To ensure the completion of the driveway in a timely manner
73.	**Flooding – Ongoing use** Before the issue of an Occupation Certificate for each dwelling, the certifier must ensure that each dwelling is provided with the following: • Clearly marked, self-directing, internal access to the flood-free area, that does not rely on electricity. • Essential items for self-sufficiency stored, in the flood-free area, including a copy of the Flood Emergency Response Plan (FERP), sufficient drinking water and food for all occupants, fire extinguisher, radios and torches with spare batteries and a first aid kit with an automated external defibrillator. • Appropriate heating and cooling for all occupants for the duration of isolation. • Access to onsite systems that generate power for the flood-free area during and after flood events up to the PMF.	To ensure the flood free area is appropriately stocked to support residents ability to shelter in place.
BUILDING WORK **Occupation and Ongoing use**		
CONDITIONS		REASON

74.	**Bushfire - Asset Protection Zone (Whole Site)** The whole site must be managed as an inner protection area (IPA) in accordance with Appendix 4 – Asset Protection Zone Standards of Planning for Bushfire Protection 2019 and the NSW Rural Fire Service Standards for Asset Protection Zones for the life of the development.	To ensure asset protection zones are maintained.
75.	**Landscaping – Priority and Environmental Weeds** The planting of plant species listed in the South East Regional Strategic Weed Management Plan is prohibited for the life of the development. No exotic perennial grasses listed on the 'Final Determination of the NSW Scientific Committee for the key threatening process Invasion of native plant communities by exotic perennial grasses' must be sown within the outer protection area or the asset protection zone for the life of the development. Native grasses must be sown in these areas, as this is the interface between disturbed areas and the remaining native vegetation for the life of the development.	To protect biodiversity values.
76.	**Flooding – Ongoing use** Each dwelling must be managed in accordance with the following for the life of the development: • Provide clearly marked, self-directing, internal access to the flood-free area, that does not rely on electricity. • Keep items for self-sufficiency stored, maintained and regularly updated in the flood-free area, including Flood Emergency Response Plan (FERP), sufficient drinking water and food for all occupants, fire extinguisher, radios and torches with spare batteries and a first aid kit with an automated external defibrillator. • Be able to provide appropriate heating and cooling for residents for the duration of isolation. • Provide access to an onsite system that generate power for the flood-free area during and after flood events up to the Probable Maximum Flood (PMF).	To ensure the development is appropriately maintained responding to flood constraints.
77.	**Noise - Air-Conditioning Units** Any air-conditioning unit must be installed in accordance with manufacturer's instructions and operated at all times so as not to cause "Offensive Noise" as defined by the *Protection of the Environment Operations Act (POEO Act).*	To protect the amenity of neighbouring properties.

	Air-conditioning units not shown on the approved plan must comply with the relevant criteria listed in *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.	
78.	**Occupation – Satisfaction of Conditions of Consent** The development must not be occupied or used before an Occupation Certificate has been issued by the Principal Certifier. If an Occupation Certificate is not required, the use must not commence until all conditions of development consent have been met or other satisfactory agreements have been made with Council (i.e., a security).	To ensure conditions of consent are complied with or other satisfactory arrangement made.
79.	**Stormwater- Maintenance of Stormwater Infrastructure** The approved stormwater design and any associated on-site detention must be maintained for the life of the development in accordance with the approved documents and maintenance programs.	To ensure stormwater infrastructure is maintained for the life of the development.

General advisory notes

This consent contains the conditions imposed by the consent authority which are to be complied with when carrying out the approved development. However, this consent is not an exhaustive list of all obligations which may relate to the carrying out of the development under the EP&A Act, EP&A Regulation, and other legislation. Some of these additional obligations are set out in the Conditions of development consent: advisory notes. The consent should be read together with the Conditions of development consent: advisory notes to ensure the development is carried out lawfully.

The approved development must be carried out in accordance with the conditions of this consent. It is an offence under the EP&A Act to carry out development that is not in accordance with this consent.

Building work or subdivision work must not be carried out until a Construction Certificate or Subdivision Works Certificate, respectively, has been issued and a principal certifier has been appointed.

A document referred to in this consent is taken to be a reference to the version of that document which applies at the date the consent is issued, unless otherwise stated in the conditions of this consent.

Dictionary

The following terms have the following meanings for the purpose of this consent (except where the context clearly indicates otherwise):

Approved plans and documents means the plans and documents endorsed by the consent authority, a copy of which is included in this notice of determination.

AS means Australian Standard published by Standards Australia International Limited and means the current standard which applies at the time the consent is issued.

Building work means any physical activity involved in the erection of a building.

Certifier means a council or a person that is registered to carry out certification work under the Building and Development Certifiers Act 2018.

Construction Certificate means a certificate to the effect that building work completed in accordance with specified plans and specifications or standards will comply with the requirements of the EP&A Regulation and Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021.

Council means Shoalhaven City Council.

Court means the NSW Land and Environment Court.

EPA means the NSW Environment Protection Authority.

EP&A Act means the Environmental Planning and Assessment Act 1979.

EP&A Regulation means the Environmental Planning and Assessment Regulation 2021.

Independent Planning Commission means Independent Planning Commission of New South Wales constituted by section 2.7 of the EP&A Act.

Occupation Certificate means a certificate that authorises the occupation and use of a new building or a change of building use for an existing building in accordance with this consent.

Principal certifier means the certifier appointed as the principal certifier for building work or subdivision work under section 6.6(1) or 6.12(1) of the EP&A Act respectively.

Site work means any work that is physically carried out on the land to which the development the subject of this development consent is to be carried out, including but not limited to building work, subdivision work, demolition work, clearing of vegetation or remediation work.

Stormwater drainage system means all works and facilities relating to:

- the collection of stormwater
- the reuse of stormwater
- the detention of stormwater
- the controlled release of stormwater, and
- connections to easements and public stormwater systems.

Strata Certificate means a certificate in the approved form issued under Part 4 of the Strata Schemes Development Act 2015 that authorises the registration of a strata plan, strata plan of subdivision or notice of conversion.

Biodiversity – Protection of Native Fauna

To protect native fauna in the locality:

a) cats must be kept completely within the dwelling or in a cattery within the dwelling curtilage at all times (day and night) for the life of the development.
b) the keeping of dogs on the property for the life of the development is subject to the following conditions:
    i. A maximum of 2 dogs are permitted on the property at any time and confined within the lot.
    ii. Dog proof fencing must be provided around the perimeter of the lot.
c) To protect native gliding and flying mammals the use of barbed-wire for fences is prohibited.

Shoalhaven City Council
1300 293 111 | shoalhaven.nsw.gov.au

Contaminated Land Management Policy

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Related Legislation:	
Associated Policies/Documents:	
Directorate:	City Development
Responsible Owner:	
Record Number:	POL22/45

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1. Policy Purpose

The purpose of this policy is to provide guidelines and a framework to appropriately manage contaminated lands or potentially contaminated lands from historical and current land uses within the Shoalhaven Local Government Area (LGA) to:

- make sure land use changes or development will not elevate risk to human health or the environment or any environmental receptors through adequate land use planning processes,
- prioritise collaboration with NSW Environment Protection Authority (EPA) to manage and report contaminated land information,
- ensure investigations and remediation are undertaken to an appropriate standard for any contaminants for adherence to relevant land use contamination criteria,
- document the transparency of contaminated land information that is available to enable decision making and to communicate requirements to the community,
- prevent and minimise the potential for contamination,
- consider the potential for land to be contaminated when assessing and determining development applications,
- consider the potential for land to be contaminated when preparing planning proposals for rezoning.

2. Objectives

2.1. Policy Statement

2.1.1. Scope

Contaminated land is land on which a substance occurs at concentrations above background levels which cause, or is likely to cause, a risk of harm to human health or the environment.

Historically land uses and other activities have been carried out without adequate controls or understanding of the potential impacts of substances used in relation to those land uses. Accordingly, there exists a legacy of contamination that is just not limited to the land which activities were undertaken. Soil, ground water and air quality can also be impacted on by chemicals and substances from past land uses and these substances can move from a contaminated site to adjoining land. In recent years this legacy of contamination has been recognised through legislative controls for Government and industry. These controls serve to understand potential risks to human health and the environment and how these risks will be managed for future uses of the land.

Activities and industries considered likely to cause contamination, together with their likely contaminants of potential concern, are listed in Appendix 1. Examples include, but are not limited to:

- Agricultural/horticultural – fertilisers (calcium phosphate, calcium sulfate, nitrates, ammonium sulfate, carbonates, potassium, copper, magnesium, molybdenum, boron, cadmium, arsenic).
- Defence works - Hydrocarbons, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS), asbestos.
- Industrial (e.g., engine works) – Hydrocarbons, metals, solvents, acids/alkalis refrigerants.
- Service stations and fuel storage facilities – Aromatic hydrocarbons, BTEX (i.e., benzene, toluene, ethylbenzene, xylenes, naphthalene).

This policy forms the basis for the management of contaminated and potentially contaminated land within Shoalhaven City Council. The policy is formulated in accordance with the NSW Contaminated Land Planning Guidelines (Planning Guidelines) and *State Environmental Planning Policy (Resilience and Hazards) 2021* (RHSEPP) in order to implement a contaminated land management framework. It applies to both public and private land in the Shoalhaven Local Government Area (LGA).

Shoalhaven City Council must consider the potential for land to be contaminated when proposing land use changes (including changes to permitted land uses or planning proposals through rezoning) and when assessing development applications. Furthermore, contaminated land management also need to be considered for Council activities as a key component of environmental due diligence processes. Council's contaminated land management functions are summarised in Table 1.

Table 1- Council planning functions and decisions to be made in relation to contaminated land management

Planning function	Decisions to be made
Preparing a planning proposal for zoning/rezoning, or preparing a state environmental planning policy that will affect a rezoning or otherwise permit a change in land use	Is the land suitable or can it be made suitable for the uses permitted in the new zone?
Preparing a development control plan (DCP)	Are provisions required to identify the need to consider contamination (current and historical)?
Assessing and determining a development application under Part 4, or application under Part 5.1, of the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act).	Is the land suitable, or can and will it be made suitable, for the proposed development (through the incorporation of appropriate mitigation measures and conditions of consent)?
Modifying a development consent or other approval	Will the proposed modification affect the suitability of the land for existing and future proposed use/s?

In accordance with the requirements of the Planning Guidelines and RHSEPP, this policy provides the framework for the integration of contaminated land management into the planning and development process, and aims to achieve this by:

- Maintaining a database of contaminated and potentially contaminated land and recording any relevant information on site investigations, remediation or site audits undertaken in the Shoalhaven LGA; and
- Ensuring information provided by the EPA for Notified Sites, the Contaminated Land Record and the record of notices information are held in Shoalhaven City Council's Potentially Contaminated Land database (PCL Database) and are noted on any relevant section 10.7 (2) and 10.7(5) Planning Certificate (under the EP&A Act) including advice that further information is available from Council; and
- Ensuring appropriate consideration of contamination issues is made during rezoning and development assessment processes, including:
    i. identification of the presence of, or potential for, contamination on the land.
    ii. consideration of the outcomes of any site investigation or contamination study.
    iii. consideration of any remediation or abatement that has occurred on the land; and

iv. provide information to support decision making and inform the community though appropriate education material and a formal communications strategy (if required) to translate the policy.

2.1.2. Legislative Framework

The NSW Government has established a detailed framework for contaminated land management (Table 2).

Table 2- Legislation and policy relevant to contaminated land management

Legislation and Policy	Purpose
Contaminated Land Management Act 1997 (CLM Act)	Establishes a process for the investigation and remediation of sites that pose a significant risk to human health or the environment. It also assesses the operation of the NSW Site Auditor Scheme and aligns penalty amounts for offences under the CLM Act. The NSW Environment Protection Authority (EPA) is responsible for the regulation of sites declared under the CLM Act.
EP&A Act	10.7 Planning Certificate - is a certificate under Section 10.7 of the EP&A Act. Planning Certificates give information on the development potential of a parcel of land including contaminated land status and associated restrictions.
State Environmental Planning Policy (Resilience and Hazards) 2021 (RHSEPP) - consolidates and repeals the provisions of *SEPP 55 – Remediation of Land (SEPP 55)*	The RHSEPP is an Environmental Planning Instrument (EPI) that sets out matters that must be considered by Councils and other planning agencies when considering development applications and rezoning decisions. This may include, but not be limited to, Chapter 4 - Remediation of land.
NSW EPA Consultants reporting on contaminated land – Contaminated Land Guidelines	Where circumstances indicate contamination may be present which may require remediation to make the land suitable for a particular use, the following may be required: • Preliminary Site Investigation (PSI) – including a conceptual site model • Detailed Site Investigation (DSI) • Remedial Action Plan (RAP) • Site Validation Report (SVR) • Site Audit Statement (SAS) • Environmental Management Plan (EMP)

Legislation and Policy	Purpose
National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 *(ASC NEPM).*	National framework endorsed by NSW EPA for assessing site contamination. Schedule B7 – Guidelines on derivation of health-based investigation levels - sets the relevant Health Investigation Levels (HILs) for potential contaminants of concern specific for the land use (Refer Appendix 1 – Activities/industries and contaminants of potential concern). Provides remediation hierarchy adopted by NSW EPA: • On-site and off-site treatment If treatment is not practicable, then: • On-site containment, and • Off-site disposal Management strategy must be devised where remediation would result in no net environmental benefit. Land use scenarios: A. Residential with garden/accessible soil, includes childcare, preschools, primary school B. Residential with minimal soil access C. Public open space (parks, playgrounds, playing fields, includes secondary schools and footpaths D. Commercial/industrial, includes shops, offices, factories, industrial sites

2.1.3. EPA responsibilities

The EPA regulates sites that are significantly contaminated under the CLM Act and maintains a record of sites, notified to the EPA as potentially contaminated and a record of notices issued for contaminated land.

Notified Sites

The list of notified sites contain land that has been notified to the EPA as being potentially contaminated. The list states whether the land is regulated under the CLM Act.
If land is declared as 'significantly contaminated', it is regulated under the CLM Act and will receive notices relating to the management of this contamination. These notices are published on the record of notices for public view.

Record of Notices

The EPA triggers assessment and remediation of significantly contaminated land by sending written notices to those responsible for cleaning up the contamination. The EPA makes these notices, which includes preliminary investigation orders, available to the public through the record of notices. If land is declared as 'significantly contaminated', it is regulated under the CLM Act and will receive notices relating to the management of this contamination.

2.1.4. Council - Potentially Contaminated Land register (PCL)

Sites that are contaminated or potentially contaminated but not declared as significantly contaminated are managed by Council under the provisions of the EP&A Act, in accordance with the RHSEPP and the Planning Guidelines.

The landowner is responsible for ensuring that their land is managed in accordance with the *Protection of the Environment Operations Act 1997* (POEO Act), CLM Act and relevant workplace health and safety legislation. If contamination is encountered at a site, section 60 of the CLM Act outlines the requirements for reporting contamination – duty to report.

3. Definitions

Term	Meaning
abatement	means a barrier over affected areas to reduce exposure pathways and may include a barrier over lead affected areas which contains the contamination on the land.
approved voluntary management proposal	means a voluntary management proposal that has been approved by the EPA under section 17 of the Contaminated Land Management Act as modified by any conditions imposed by the EPA under that section.
assessment of site contamination	means a set of formal methods for determining the nature, extent and levels of existing contamination and the actual or potential risk to human health or the environment on or off-site resulting from that contamination.
audit report	a report containing the key information and the basis of consideration which leads to the issue of a site audit statement.
category 1 remediation work	remediation work that needs development consent under SEPP (Resilience and Hazards) consent.
category 2 remediation work	remediation work that does not need development consent under SEPP (Resilience and Hazards).
competent and qualified contamination consultant	two contaminated land consultation certified schemes have recently merged: The Environment Institute of Australia and New Zealand (EIANZ) Certified Environmental Practitioners Scheme (CEnvP) Contaminated Land specialisation and the Site Contamination Practitioners Australia (SCPA) scheme have merged to form a new 'Site Contamination' specialist certification operating under CEnvP. Council recognises this merged scheme, and continues to recognise the Soil Science Australia (SSA) Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) certification scheme.

contaminated land	land in, on or under which any substance is present at a concentration above that naturally present in, on or under the land and that poses, or is likely to pose, an immediate or long-term risk to human health or the environment.
contamination	concentration of substances above that naturally present that poses, or is likely to pose, an immediate or long-term risk to human health or the environment.
development control plan	provides guidance to the development of land under the applicable Shoalhaven DCP.
Environmental Protection Authority (EPA)	means the Environment Protection Authority constituted by the Protection of the Environment Administration Act.
guideline	means a guideline made or approved by the EPA under section 105 and for the time being having effect under that section.
harm	means in relation to the contamination of land, harm to human health or some other aspect of the environment (including any direct or indirect alteration of the environment that has the effect of degrading the environment), whether in, on or under the land or elsewhere.
HIL	means Health-based investigation level as provided by the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013 ASC NEPM) which recommends a HIL of 300 mg/kg (300ppm) of lead in soil for residential land with a garden or accessible soil.
independent review	- an evaluation by an independent expert required by a planning authority of any information submitted by a proponent, conducted at the proponent's expense.
investigation area	means land declared to be an investigation area by a declaration in force under Division 2 of Part 3 of the Contaminated Land Management Act.
local environmental plan (LEP)	a council planning instrument which provides zoning and land use requirements throughout the LGA.
management	of land or of contamination of land means management in relation to the actual or possible contamination of the land, including investigation into the existence, nature and extent of contamination of the land and remediation of contaminated land.
management order	means an order under section 14 (1) under the Contaminated Land Management Act.
National Environment Protection (Assessment of	a Measure made under section 14(1) of the Commonwealth Act and the equivalent provisions of the corresponding Acts of

Site Contamination) Measure 1999 (April 2013 ASC NEPM)	participating States and Territories. notification of remediation - prior notice of a category 2 remediation work given to the council in accordance with SEPP (Resilience and Hazards).
ongoing maintenance order	means an order under section 28 (2) of the Contaminated Land Management Act.
planning authority	a public authority or other person responsible for exercising a planning function.
potentially contaminated land	land that may be contaminated with a concentration of substances above that naturally present that may pose or is likely to pose a potential or actual risk to human health or the environment such as uncontrolled and unidentified fill on land
remediation of contaminated land includes:	(a) preparing a long-term management plan (if any) for the land, and (b) removing, dispersing, destroying, reducing, mitigating or containing the contamination of the land, and (c) eliminating or reducing any hazard arising from the contamination of the land (including by preventing the entry of persons or animals on the land).
significantly contaminated land	means land described in a notice having effect under section 11 of the Contaminated Land Management Act.
Section 10.7 Planning Certificate	a planning certificate issued under the Environmental Planning & Assessment Act that provides information to owners and prospective purchases as to any restrictions on the land.
site audit	an independent review by a site auditor of any or all stages of the site investigation process conducted in accordance with the Contaminated Land Management Act.
site auditor	a person accredited by the EPA under the Contaminated Land Management Act to conduct site audits.
site history	a land use history of a site which identifies activities or land uses which may have contaminated the site, establishes the geographical location of particular processes within the site, and determines the approximate time periods over which these activities took place.
site investigation process	the process of investigating land which may be, or is, contaminated, for the purpose of providing information to a planning authority.
Stage 1 Preliminary Investigation	an investigation to identify any past or present potentially contaminating activities and to provide a preliminary assessment of any site contamination.

Stage 2 Detailed Investigation	an investigation to define the extent and degree of contamination, to assess potential risk posed by contaminants to health and the environment, and to obtain sufficient information for the development of a remedial action plan if required.
Stage 3 Remedial Action Plan	a plan which sets remediation goals and documents the process to remediate a site.
Stage 4 Validation and Monitoring	An investigation to determine whether the objectives for remediation and management of contamination have been achieved. voluntary management proposal—see section 17 (1) of the Contaminated Land Management Act.

4. Roles and Responsibilities

4.1. Provisions

4.1.1. Council's decision-making processes

In determining all rezoning, subdivision and development applications, Council must consider the possibility of land contamination and the implications it has for any proposed or permissible future uses of the land. A precautionary approach will be adopted to ensure that any land contamination issues are identified and dealt with early in the planning process.

Initial Evaluation

Council will conduct an initial evaluation as part of the development assessment process to determine whether contamination is or has been an issue, and whether sufficient information is available for Council to carry out its planning functions with due diligence. The initial evaluation will be based on information available to Council such as Council's PCL database, previous investigations about contamination on the land, previous zoning and uses of the subject land, and restrictions relating to possible contamination such as notices listed in the Contaminated Land Record of Notices. Council may also conduct a site inspection of the subject land.

Zoning, Rezoning and Development Applications

In assessing zoning, rezoning and development applications, Council is required under the RHSEPP to consider contamination issues (including when Council is the proponent of the rezoning). Section 4.15 of the EP&A Act requires Council to consider "the suitability of the site for the development" when assessing development applications. The risk from contamination to health and the environment is included in this assessment.

Section 4.6 of the RHSEPP outlines that Council will not consent to the carrying out of any development on land unless certain factors are taken into consideration and outlines when Council will require a preliminary investigation to be submitted with subdivision or development applications in accordance with the Planning Guidelines. Council will also require a detailed investigation if Council has reasonable grounds to believe the land or land

adjacent to the proposed site may be contaminated because of the land's history, condition, or other information known to Council and prior to determining zoning, rezoning or development applications.

Reporting requirements for contaminated land

Investigations should be prepared in accordance with the RHSEPP the associated Planning Guidelines, this Policy, any other relevant Council Policies, and any relevant guidelines made under or endorsed by the EPA under the CLM Act. The NSW EPA has prepared a specific guideline, NSW EPA Consultants reporting on contaminated land – Contaminated Land Guidelines to assist consultants in preparing reports to investigate whether land is contaminated and the clearly defined stages of reporting on land that may be contaminated. This provides a robust basis for decisions or actions relating to the land concerned.

For land that has been the subject of an EPA management order, or an approved voluntary management proposal, and in accordance with Section 29 of the CLM Act 1997, the EPA may, under section 88E of the *Conveyancing Act 1919* impose restrictions on the use of, or impose public positive covenants on, any land to which this section applies for the purpose of the ongoing management of the land and may release or vary any such restriction or Covenant.

4.1.2. Council's Requirements for Remediation

The RHSEPP specifies when consent is required, and when it is not required, for remediation work.

Category 1 & Category 2 Remediation Work

Category 1 and Category 2 remediation work is defined in Chapter 4 - Remediation of land of the RHSEPP. Category 1 is remediation work needing consent and Category 2 is remediation not needing consent.

The RHSEPP outlines the requirements for notification and submission of reports required to Council. The Planning Guidelines outline in detail the decision-making process for determining Category 1 or Category 2 remediation works and provides guidance for reporting and investigations.

4.1.3. NSW Site Auditors

NSW Site Auditor Scheme

Site Auditors are experts who can provide an independent review of the work of a primary consultant for all types of contaminated sites. Part 4 of the CLM Act allows the EPA to accredit suitably qualified and experienced individuals as site auditors.

All Council requests for an independent review or site audit must be performed by an EPA accredited auditor for contaminated land. An up-to-date list of EPA accredited auditors can be obtained on the EPA's web page Site Auditors or by phoning the EPA's "Pollution Line" on 131 555. The EPA have also prepared Guidelines for the NSW Site Auditor Scheme.

When Council Requires a Site Audit

Council may request a site audit to be undertaken at any or all stages in the site investigation process. In accordance with the Planning Guidelines, Council will require a site audit

prepared by an NSW EPA accredited site auditor for contaminated or potentially contaminated land if Council:

- believes on reasonable grounds that the information provided by the proponent is incorrect or incomplete
- wishes to verify that the information provided by the proponent adheres to appropriate standards, procedures and guidelines
- does not have the internal resources to conduct its own technical review.

The role of an EPA accredited site auditor is very important in decision making by Council. For example, if land with a known or suspected history of potentially contaminating activities is planned to be redeveloped for a more 'sensitive' use, such as residential. Site auditors can provide increased certainty to Council of the nature and extent of contamination and the suitability of a site for a specific use.

The proponent will be informed by Council if a site audit is required after Council has conducted a review of the contamination reports and associated documents (e.g., development application) submitted to Council. The proponent is responsible for engaging an EPA accredited site auditor for contaminated land to perform a site audit. In addition, the proponent is responsible for all costs borne in engaging an EPA accredited site auditor for contaminated land.

4.1.4. Council Records and Community Information

Council has a statutory responsibility under section 59 of the CLM Act to include information provided to Council by either the EPA or accredited auditors on planning certificates issued for the purposes of section 10.7 of the EP& A Act. Council's PCL Database is updated when information concerning land use history, land contamination and remediation via development and subdivision applications or when information is provided to Council via other sources.

Management of Council's information

The PCL Database will record details of any site remediation or abatement that has been undertaken, validation records, and audits of remediation work as required by the Planning Guidelines. Information regarding individual properties will be recorded in the PCL Database. Any enquiries associated with a property should be checked against information contained within the PCL Database.

Council will only delete a file or remove a reference to a potentially contaminating land use from its property information system in the following circumstances:

- New and independent information is provided that confirms the potentially contaminating activity did not occur on the property; and/or
- New information is provided that confirms that the activity carried out on the property was not a potentially contaminating activity; and/or
- Where the site has been potentially contaminated by an activity on a neighbouring property, new investigations confirm that the land was not impacted by the neighbouring land use.

If a property has been remediated, it will remain on the PCL Database to provide adequate information of the site history, and also due to the fact that only partial remediation may have occurred, or an encapsulation methodology may have been adopted under the guidance of an EPA accredited site auditor.

Section 10.7 Planning Certificates

Under section 10.7 of the EP&A Act, a person may request from Council a planning certificate containing advice on matters about land which are prescribed in the *Environmental Planning and Assessment Regulation 2021*. One such prescribed matter is the existence of a Council policy to restrict the use of land. Section 10.7 planning certificates issued by Council will not contain specific details of site contamination or potential site contamination for individual parcels of land unless the land, or part of the land is significantly contaminated.

Section 59(2) of the CLM Act provides that specific notation relating to contaminated land issues must be included on section 10.7 certificates. As well as containing information on prescribed matters, all section 10.7 certificates issued by Council will contain a notation informing of the existence of this policy to restrict the use of land.

Access to Council Information

Council's policy on contaminated land allows enquirers to access information on individual parcels of land in relation to the following – refer to Table 3:

Table 3 – Dissemination methods of contaminated land information

Type of Information	How to Obtain Information
Current and past development, building, subdivision and rezoning requests.	Written request to the Council in accordance with the access provisions of the *Government Information (Public Access) Act 2009*. Fees and charges apply
Information on reports held by Council in relation to site contamination issues.	Written request to the Council in accordance with the access provisions of the *Government Information (Public Access) Act 2009*. Fees and charges apply in accordance with Councils Schedule of Fees & Charges.
Information on any restrictions placed on the land	Section 10.7 Planning certificates
Information on whether any declarations or orders made, or voluntary proposals agreed to under CLM Act have been provided to Council by the EPA or whether Council has received any Site Audit Statements	Section 10.7 Planning certificate
Copies of any Site Audit Statements	Written request to the Council in accordance with the access provisions of the *Government Information (Public Access) Act 2009*. Fees and charges apply
Any other information held by Council (other than stated above) in relation to site contamination issues	Written request to the Council in accordance with the access provisions of the *Government Information (Public Access) Act 2009*. Fees and charges apply

In some circumstances, Council may not be able to provide full access to its records held on land contamination issues. These circumstances may include when the information held by Council is subject to legal privilege, copyright restrictions or where there is an overriding public interest against disclosure of information. Further enquiries regarding access to records held by Council should be directed to Councils Information Officer.

4.2. Implementation

The City Development Directorate (Environmental Services) will administer this policy.

5. Related Legislation, Policies or Procedures

6. Risk Assessment

Contaminated land is land on which a substance occurs at concentrations above background levels which cause, or is likely to cause, a risk of harm to human health or the environment. This policy is to make sure land use changes or development will not elevate risk to human health or the environment or any environmental receptors through adequate land use planning processes. Controls serve to understand potential risks to human health and the environment and how these risks will be managed for future uses of the land.

7. Data and Reporting

8. Monitoring and Review

This policy will be reviewed at the anniversary date or when legislative changes occur that impact the policy objectives.

9. Ownership and Approval

9.1. Public Policy

Responsibility	Responsible Owner
Directorate	City Development – Environmental Services
Endorsement	"Enter Director &/or ELT - include Advisory Committee name (if relevant)"
Approval/Adoption	Council

APPENDIX 1: ACTIVITIES/INDUSTRIES AND CONTAMINANTS OF POTENTIAL CONCERN

Adapted from NSW Contaminated Land Planning Guidelines

Activities/industries	Contaminants of potential concern
Agricultural/horticultural	Refer Fertiliser, Insecticides, Fungicides and Herbicides under 'Chemicals manufacture and use'
Airports	Hydrocarbons (aviation fuels, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Metals (aluminium, magnesium, chromium)
Asbestos production and disposal	Asbestos containing materials (ACM)
Battery manufacture and disposal	Metals (lead, manganese, zinc, cadmium, nickel, cobalt, mercury, silver) Acids (sulfuric acid)
Breweries/distilleries	Alcohol (ethanol, methanol, esters)
Chemicals	Acid/alkali manufacture and use (Mercury, chlorine (chloralkali process), sulfuric, hydrochloric and nitric acids, sodium and calcium hydroxides)
	Adhesives/resins (Polyvinyl acetate, phenols, formaldehyde, acrylates, phthalates)
	Dyes (Chromium, titanium, cobalt, sulfur and nitrogen organic compounds, sulfates, solvents)
	Explosives (Acetone, nitric acid, ammonium nitrate, pentachlorophenol, ammonia, sulfuric acid, nitroglycerine, calcium cyanamide, lead, ethylene glycol, methanol, copper, aluminium, bis(2-ethylhexyl) adipate, dibutyl phthalate, sodium hydroxide, mercury, silver)
	Fertiliser (Calcium phosphate, calcium sulfate, nitrates, ammonium sulfate, carbonates, potassium, copper, magnesium, molybdenum, boron, cadmium, arsenic)
	Flocculants (Aluminium)
	Foam production (Urethane, formaldehyde, styrene)
	Paints Heavy metals (Arsenic, barium, cadmium, chromium, cobalt, lead, manganese, mercury, selenium, zinc, titanium)

Activities/industries	Contaminants of potential concern
Chemicals (continued)	Solvents (Toluene oils either natural (e.g., pine oil) or synthetic, hydrocarbons)
	Pesticides Active ingredients (Arsenic, lead, organochlorines, organophosphates, sodium tetraborate, carbamates, sulfur, synthetic pyrethroids) Solvents (Xylenes, kerosene, methyl isobutyl ketone, amyl acetate, wide range of chlorinated solvents)
	Pharmaceutical Solvents (Acetone, cyclohexane, methylene chloride, ethyl acetate, butyl acetate, methanol, ethanol, sopropanol, butanol, pyridine methyl ethyl ketone, methyl isobutyl ketone, tetrahydrofuran)
	Photography (Hydroquinone, sodium carbonate, sodium sulfite, potassium bromide, monomethyl para-aminophenol sulfate, ferricyanide, chromium, silver, thiocyanate, ammonium compounds, sulfur compounds, phosphate, phenylene diamine, ethyl alcohol, thiosulfates, formaldehyde)
	Plastics (Sulfates, carbonates, cadmium, solvents, acrylates, phthalates, styrene)
	Rubber (Carbon black)
	Soap/detergent General (Potassium compounds, phosphates, ammonia, alcohols, esters, sodium hydroxide, surfactants (sodium lauryl sulfate), silicate compounds) Acids (Sulfuric acid and stearic acid) Oils (Palm, coconut, pine, tea tree)
	Solvents General (Ammonia) Hydrocarbons (e.g., BTEX (benzene, toluene, ethylbenzene, xylenes)) chlorinated organics (e.g., tetrachloroethene (perchloroethylene) trichloroethene, trichloroethane, dichloroethane, carbon tetrachloride, methylene chloride)
Infrastructure Depots (e.g., Council, Railways, Electricity)	Hydrocarbons, Polycyclic aromatic hydrocarbons (PAH), ACM, heavy metals, pesticides, herbicides, PFAS

Activities/industries	Contaminants of potential concern
Defence works	Hydrocarbons, PFAS, asbestos, see Explosives under 'Chemicals manufacture and use'; also 'Foundries', 'Engine works' and 'Service stations
Drum reconditioning	Refer 'Chemicals manufacture and use'
Dry cleaning	Tetrachloroethene (perchloroethylene), Trichloroethylene, 1,1,1–trichloroethane, carbon tetrachloride, white spirit (mixed hydrocarbons)
Electrical (substations, overhead conductors and underground cables)	Polychlorinated Biphenyls (PCBs) (transformers and capacitors), chromium, arsenic, solvents, tin, lead, mercury, PFAS, termiticides (e.g., pigment emulsified creosote).
Engine works	Hydrocarbons Metals, Solvents, Acids/Alkalis Refrigerants (Chlorofluorocarbons, hydro chlorofluorocarbons, hydrofluorocarbons) Antifreeze (Particularly aluminium, manganese, iron, copper, nickel, chromium zinc, cadmium and lead and oxides, chlorides, fluorides and sulfates of these metals)
Foundries	Metals (Particularly aluminium, manganese, iron, copper, nickel, chromium zinc, cadmium and lead and oxides, chlorides, fluorides and sulfates of these metals)
Gas works	Inorganics (ACM, ammonia, cyanide, nitrate, sulfide, thiocyanate, aluminium, antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, vanadium, zinc) Organics (BTEX, phenolics, PAHs and coke)
Hospitals	Waste (Asbestos, Various) Radioactive Materials (Diagnostic and therapeutic isotopes)
Iron and steel works	BTEX, phenolics, PAHs, metals and oxides of iron, nickel, copper, chromium, magnesium, manganese and graphite
Landfill sites	Methane, carbon dioxide, ammonia, sulfides, heavy metals, organic acids, hydrocarbons, asbestos, Organophosphorus and Organochlorine Pesticides
Marinas	See 'Engine works 'and Electroplating metals under 'Metal treatments' Antifouling paints (Copper, tributyltin (TBT))

Activities/industries	Contaminants of potential concern
Metal treatments	Electroplating Metals (Nickel, chromium, zinc, aluminium, copper, lead, cadmium, tin) Acids (Sulfuric, hydrochloric, nitric, phosphoric) General (Sodium hydroxide, 1,1,1–trichloroethane, tetrachloroethylene, toluene, ethylene glycol, cyanide compounds)
	Liquid carburizing baths (Sodium, cyanide, barium, chloride, potassium chloride, sodium chloride, sodium carbonate, sodium cyanate)
Mining and extractive industries	Arsenic, mercury and cyanides and also explosives under 'Chemicals manufacture and use' Aluminium, arsenic, copper, chromium, cobalt, lead, manganese, nickel, selenium, zinc and radioradionuclides The list of heavy metals should be decided according to the composition of the deposit and known impurities
Power stations	Asbestos, PCBs, fly ash metals, water treatment chemicals
Printing shops	Acids, alkalis, solvents, chromium, trichloroethene, methyl ethyl ketone Refer also Photography under 'Chemicals manufacture and use'
Research Institutions	Various depending on nature of work being carried out. A case specific evaluation is required.
Railway yards	Hydrocarbons, asbestos, arsenic, phenolics (creosote), heavy metals, nitrates, ammonia
Scrap yards	Hydrocarbons, metals, solvents, asbestos
Service stations and fuel storage facilities	Aromatic hydrocarbons BTEX (i.e., benzene, toluene, ethylbenzene, xylenes, naphthalene) PAHs Phenols Lead
Sheep and cattle dips	Arsenic, organochlorines, organophosphates, carbamates, synthetic pyrethroids
Smelting and refining	Metals, fluorides, chlorides and oxides of copper, tin, silver, selenium, lead and aluminium
Tanning and associated trades	Metals (Chromium, manganese, aluminium) General (Ammonium sulfate, ammonia, ammonium nitrate, arsenic phenolics, formaldehyde, sulfide, tannic acid)

Activities/industries	Contaminants of potential concern
Water and sewage treatment plants	Aluminium, arsenic, cadmium, chromium, cobalt, lead, nickel, fluoride, lime, zinc
Wood preservation	Chromium, copper, arsenic, naphthalene, ammonia, pentachlorophenol, dibenzofuran, anthracene, biphenyl, ammonium sulfate, quinoline, boron, creosote, organochlorine pesticides