21 March 2019

Pia Dorer & Andrew Clarke
4 Hudson Parade
Avalon Beach NSW 2107

Pia@sayoi.com

Flood risk report in support of the proposed alterations and additions at 4 Hudson Parade

Dear Pia and Andrew

1.0 Introduction

Stellen Consulting was engaged to assess the proposed alterations and additions at 4 Hudson Parade in reference to potential risks and impacts connected with flooding. Architectural plans, survey and council provided flood information (attached) were used to determine flooding extents, impacts and to assess associated risks.

2.0 Description of the Site

Lot 13 DP24003, known as 4 Hudson Parade, is a rectangular shaped allotment with an area of approximately 765.6m^2. The site slopes away from Hudson Parade. Current development of the site consists of a two-storey residential dwelling, timber carport with plastic roof and an access driveway.

Figure 1 shows the subject site (red boundary) and location plan, street names, waterways and approximate locations of council stormwater pipes, pits and easements.

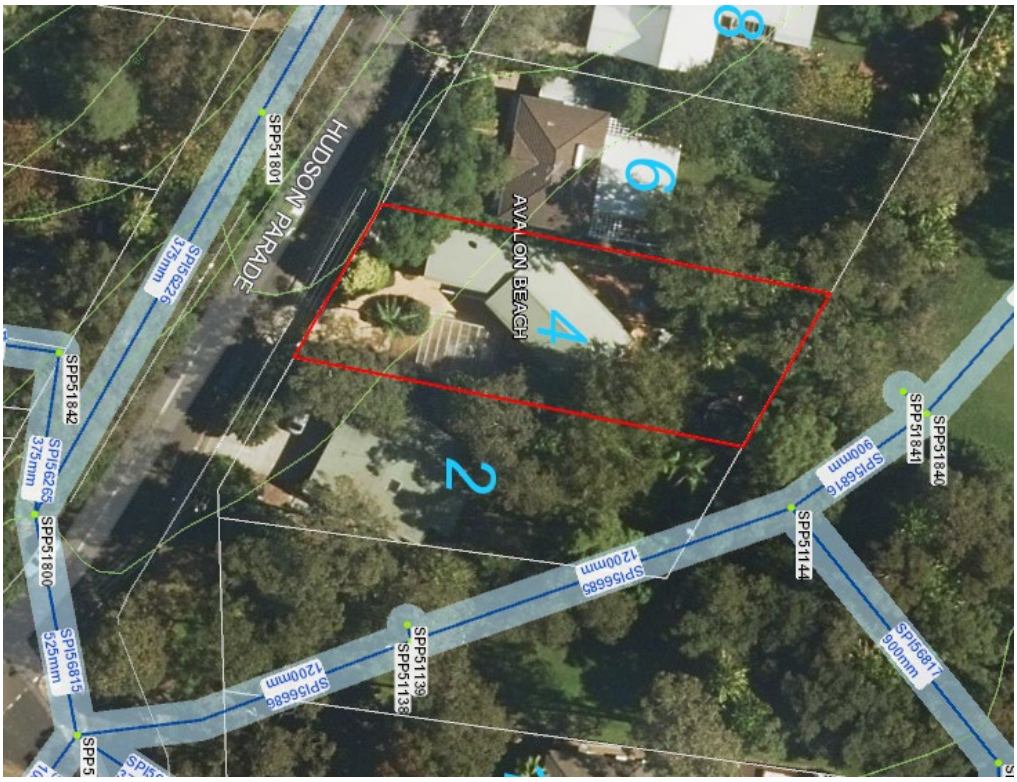

Figure 1: Location of Subject Site

3.0 Description of the Development

The development proposes construction of a new staircase, new deck and pergola, and internal alterations. The proposed architectural plans are attached in Appendix A.

4.0 Flooding

Council's Avalon to Palm Beach Floodplain Risk Management Study and Plan (2017) identifies the property as being affected by flooding. Council supplied flood information (refer Appendix B) was used to determine flooding extents, impacts and to assess associated risks to the development.

4.1 Analysis & Assessment of Impacts

Council's flood data predicts that during the 1% Annual Exceedance Probability (AEP) rain event the property will be inundated with floodwaters up to 21.06mAHD. The site has areas of Low, Medium and High Risk (refer Figure 2) and is subject to a flood planning level (FPL) of 21.72mAHD which includes a 500mm freeboard to the predicted 1% AEP flood level.

4.2 Assessment of Impacts

The proposed development is categorised as a "concessional" development type. The proposed additions and alterations are within areas of the site designated medium to high risk. On this basis, the different sections of the property are classified and assessed under the Pittwater Council DCP sB3.11 as medium and high risk. Tables 1 and 2 provide a summary of the key applicable controls to the development.

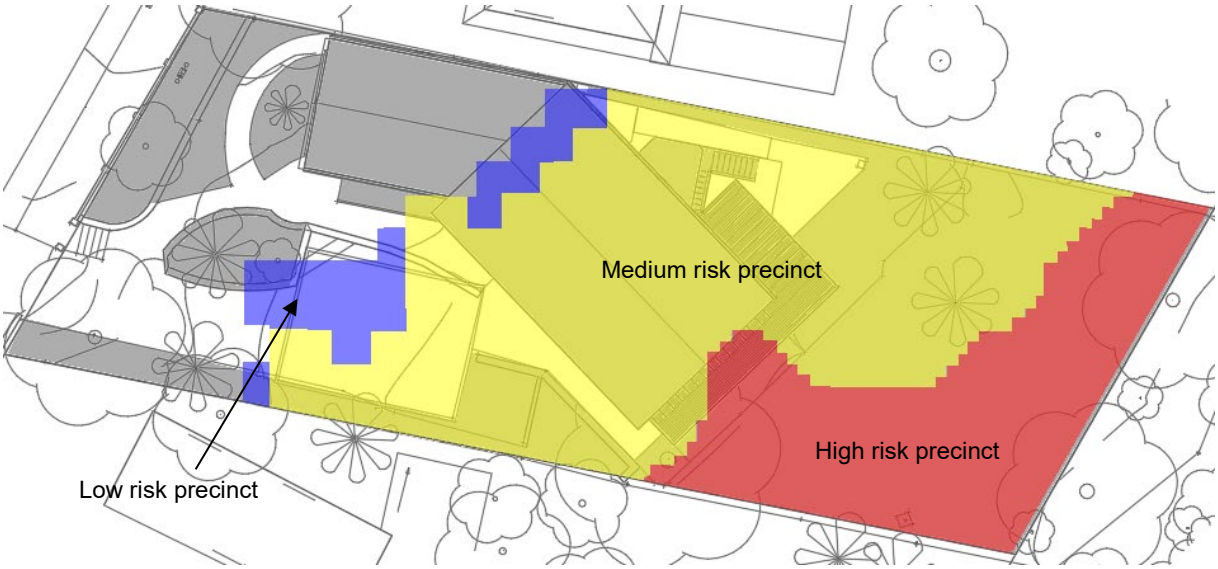

Figure 2: Flood risk precincts and proposed works

Table 1. DCP flood controls, High risk precinct, concessional development

#	Prescriptive controls	Compliance with controls			Relevant Controls
		NA	Yes	No	
A	Flood effects caused by development		✔		A2, A3
B	Drainage infrastructure and creek works	✔			-
C	Building components and structural		✔		C1, C2, C3
D	Storage of goods		✔		D1, D2
E	Flood emergency response		✔		E1
F	Floor levels		✔		F2, F3, F6
G	Car parking	✔			G1, G2, G3, G4, G5, G6, G7
H	Fencing	✔			H1
I	Pools	✔			I1

NA – Not Applicable

Table 2. DCP flood controls, Medium risk precinct, concessional development

#	Prescriptive controls	Compliance with controls			Relevant Controls
		NA	Yes	No	
A	Flood effects caused by development		✔		A2, A3
B	Drainage infrastructure and creek works	✔			-
C	Building components and structural		✔		C1, C2, C3
D	Storage of goods		✔		D1, D2
E	Flood emergency response		✔		E1
F	Floor levels			✔	F1, F2, F3, F4, F6, F11
G	Car parking	✔			G1, G2, G3, G4, G5, G6, G7
H	Fencing	✔			H1
I	Pools	✔			I1

NA – Not Applicable

4.3 Addressing the Controls

Control A - Flood effects caused by development

A2. Refer to Form A/A1 (Appendix C)

High risk areas:

A3. No additions or alterations are proposed below the 1% AEP flood level.

Medium risk areas:

A3. No additional filling is proposed below the 1% AEP flood level. The project proposes an additional staircase with open sides, thus allowing potential floodwater to enter and exit the area unhindered. Therefore, no signifciant loss of flood storage is expected as a result of the proposed alterations and additions.

Control B - Not applicable

Control C - Building components and structural soundness

C1. The proposed structures shall be designed/checked by a structural engineer and constructed of flood compatible materials in accordance with Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).

C2. All structures must be designed and constructed to ensure structural integrity up to the FPL (21.72mAHD), taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion. The structural certification shall be provided confirming the above.

C3. All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the FPL (21.72mAHD).

Control D - Storage of goods

D1. Hazardous or potentially polluting materials shall not be stored below the FPL unless adequately protected from floodwaters in accordance with industry standards.

D2. Goods, materials or other products which may be highly susceptible to water damage are to be located/stored above the FPL (21.72mAHD).

Control E - Flood emergency response

E1. The recommended emergency response is to **shelter in place**. The dwelling first floor level (23.55 mAHD) is above both the FPL (21.72mAHD) and PMF (21.43mAHD). All residents shall be informed of the flood evacuation procedures and a copy of this report shall be kept on the premises at all times. This Flood Emergency Response Plan shall be executed, on individual assessment, during high intensity rainfalls within the first 5–10 minutes of a storm and monitored accordingly.

In the event that floodwaters overtop the boundary at any point on the property, the recommended actions are:

- The occupants of the property shall be directed to the first floor of the dwelling, above the PMF.
- Emergency services shall be contacted stating the property's location; the situation faced, number of people on the property and any evacuation measures to be carried out.

For emergency help in floods and storms call the State Emergency Service (SES) on 132 500.

If your emergency is life threatening call 000 (triple zero) for Police/Fire/Ambulance.

Control F - Floor levels

High risk areas:

F2. The proposed first floor extension is set at 23.54mAHD, the same as the existing first floor level, and is above the FPL. Therefore, there is no predicted loss in flood conveyance or storage as a result of the proposed works.

F3. Not applicable – No floor levels have been elevated to avoid floodwaters.

F6. Not applicable

Medium risk areas:

F1. Not applicable – No new floor levels are proposed.

F2. Non-conforming

The project proposes an additional staircase to the north-western side of the existing dwelling, connecting the ground floor level to the first floor level, and it has sections below the FPL. The proposed staircase will be designed with open sides to allow potential floodwater to enter and exit the area unhindered. As such, the structure is not anticipated to result in any signifcant reduction in the total flood storage or flood conveyance at the site. Moreover, the proposed staircase provides an access facility from the ground floor level to the first floor level in the event of emergency. Given the modest nature of the existing house and the addition, and the postive impact on the emergency response we conclude this is a reasonable departure from the guideline.

F3. Not applicable – No floor levels have been elevated to avoid floodwaters.

F4. Not applicable – No extension to an existing room is proposed below the FPL.

F5. Not applicable

F6. Not applicable – A first floor addition is not proposed, extentions and alterations to the existing first floor only are proposed.

F11. Not applicable

Control G - Not applicable

No changes to the existing carparking arrangement are proposed.

Control H - Not applicable

Control I - Not applicable

5.0 Recommendations for Design

This Flood Risk Assessment Report has been undertaken by Stellen Consulting based on information provided by Northern Beaches Council (Pittwater) and available architectural plans. The site has been identified by Council as being within the 1% AEP flood and PMF extents. The proposed alterations and additions have been assessed in accordance with the flood-related development controls in Section B3.11 of Northern Beaches Council's (Warringah) DCP, and NSW Floodplain Development.

To meet the controls outlined in Part B3.11 of the Pittwater Council DCP, it is recommended that:

- An FPL of 21.72mAHD be adopted for the site.
- All new structures below the FPL, must be constructed of flood compatible materials and designed/verified as capable of withstanding the forces generated due to wave action and tidal inundation during the 1% AEP rain event.
- Non-waterproofed electrical services and stored materials (e.g. fuel, chemicals) must be located above or at the FPL.

Provided that the recommendations within this report are followed, no additional adverse flooding impacts are expected to occur to neighbouring upstream and/or downstream properties as a result of the proposed development.

Please contact me with any questions regarding this report.

Kind regards,

Mohamud Ibrahim
Engineer

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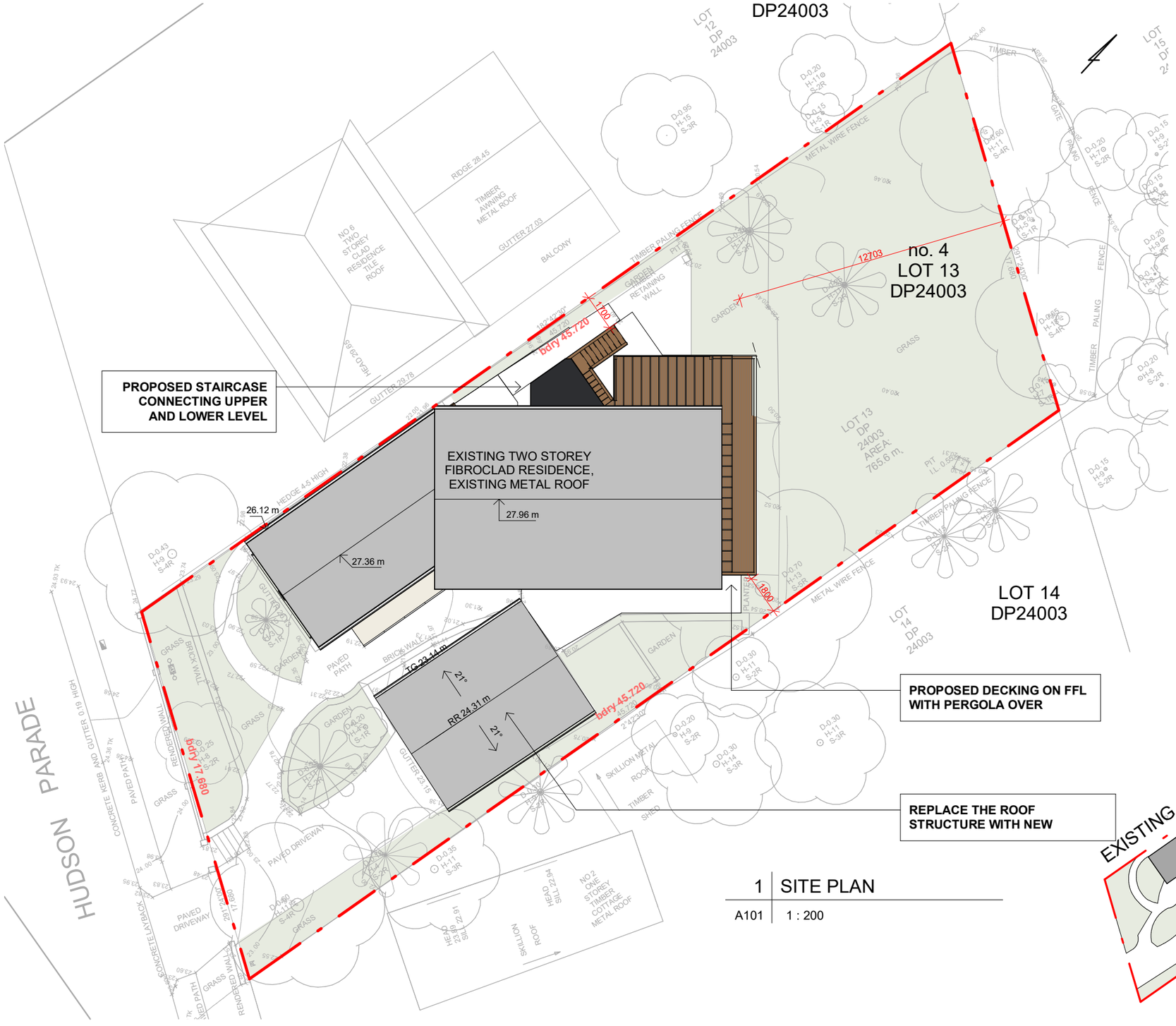
Stellen

Revision: 0
Date: 21 March 2019
Prepared by: MAI
Checked by: IRW

Appendix A – Architectural Plans

Proposed architectural plans by Blue Sky Building all dated 13 March 2019



1 | SITE PLAN

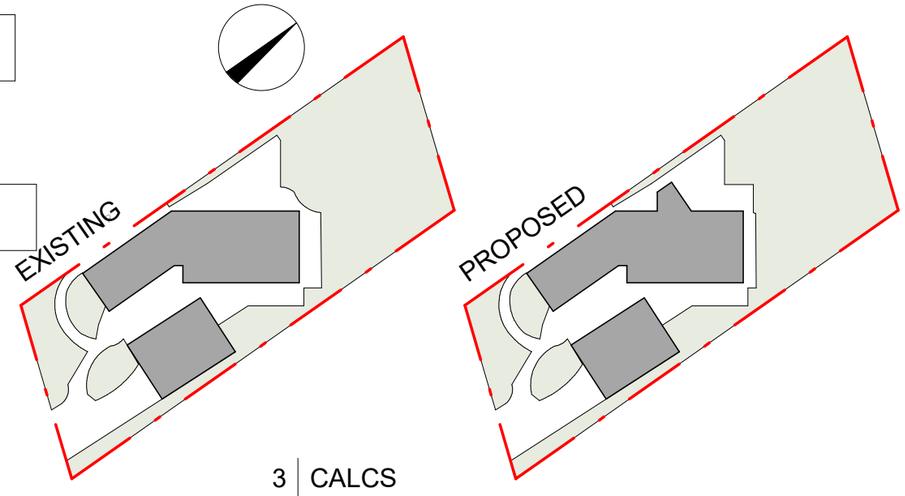
A101 | 1 : 200

CALCULATION TABLE		
ZONE	R2 - LOW DENSITY RESIDENTIAL	
HAZARDS	FLOOD	
SITE AREA	765.6 m²	
BUILDING ENVELOPE	3.5m - SIDE BOUNDARY ENVELOPES	
	EXISTING	PROPOSED
TOTAL FLOOR AREA	158m²	181.3m²
SITE COVERAGE	180.3m² / 23.6%	186.3m² / 24.3%
HARD SURFACE	198.4m²	192.4m²
SOFT LANDSCAPING	386.9m² / 50.5%	386.9m² / 50.5%
FLOOR SPACE RATIO	0.2 : 1	0.24 : 1

2 | CALCULATION TABLE

A101 | 1 : 65

ALL BUILDING WORKS MUST BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF AUSTRALIA (BCA) AND AUSTRALIAN STANDARDS



3 | CALCS

A101 | 1 : 600

Do not scale from plans. All dimensions and levels shown on plan are subject to confirmation on site.

ISSUE	DATE	DESCRIPTION	DRWN	CHKD
-	18.06.2018	PRELIMINARY _OPTION 1	MW	
	11.10.2018	PRELIMINARY 2	MW	
2	26.02.2019	DA ISSUE	MW	KM
3	13.03.2019	DA ISSUE	MW	

BLUE SKY BUILDING DESIGNS
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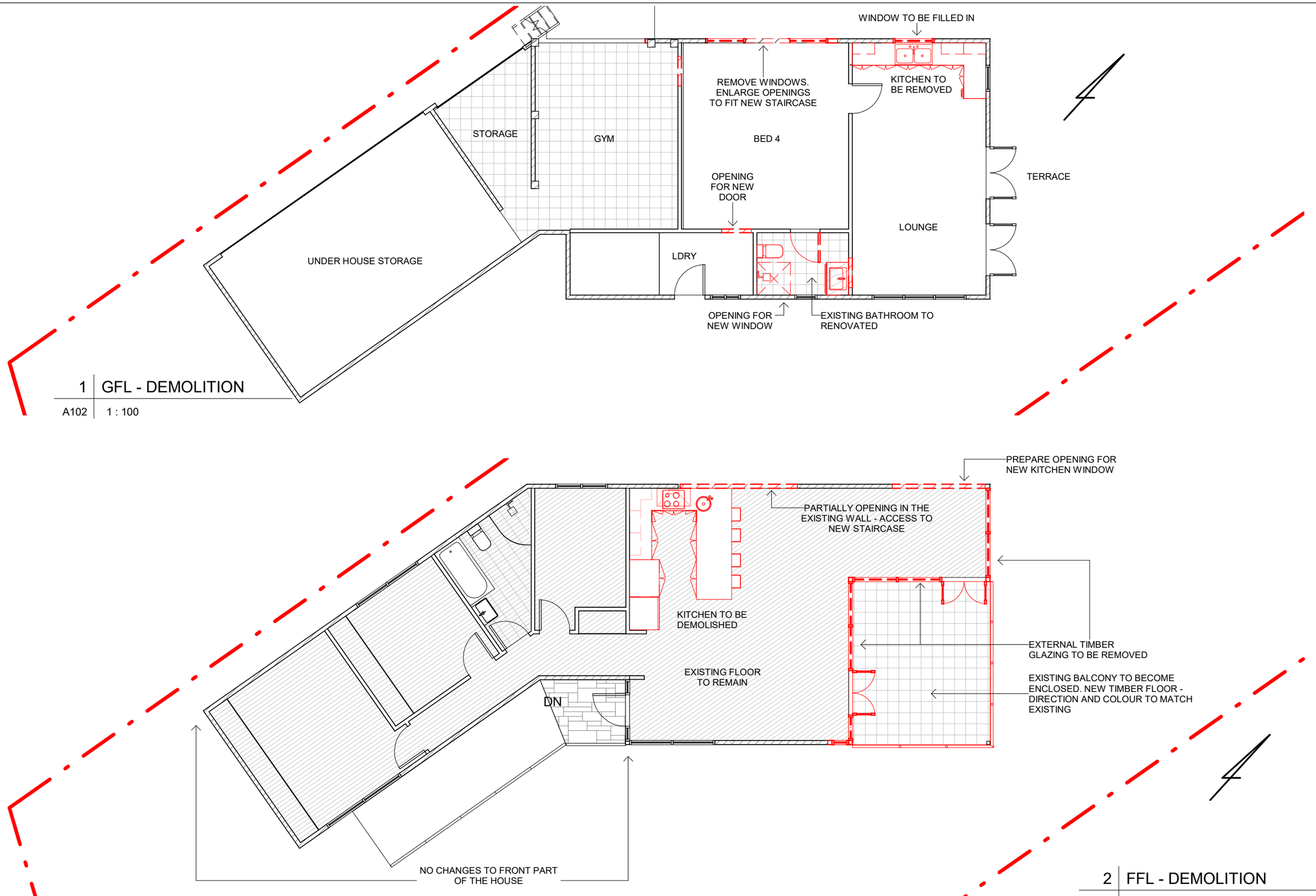
www.blueskybuildingdesigns.com.au

PROJECT TITLE:	ALTERATION & ADDITION
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	SITE PLAN
SHEET NO:	A101
SCALE A3:	As indicated



1 | GFL - DEMOLITION

A102 | 1 : 100

2 | FFL - DEMOLITION

A102 | 1 : 100

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-	18.06.2018	PRELIMINARY _OPTION 1	MW	
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3	13.03.2019	DA ISSUE	MW	

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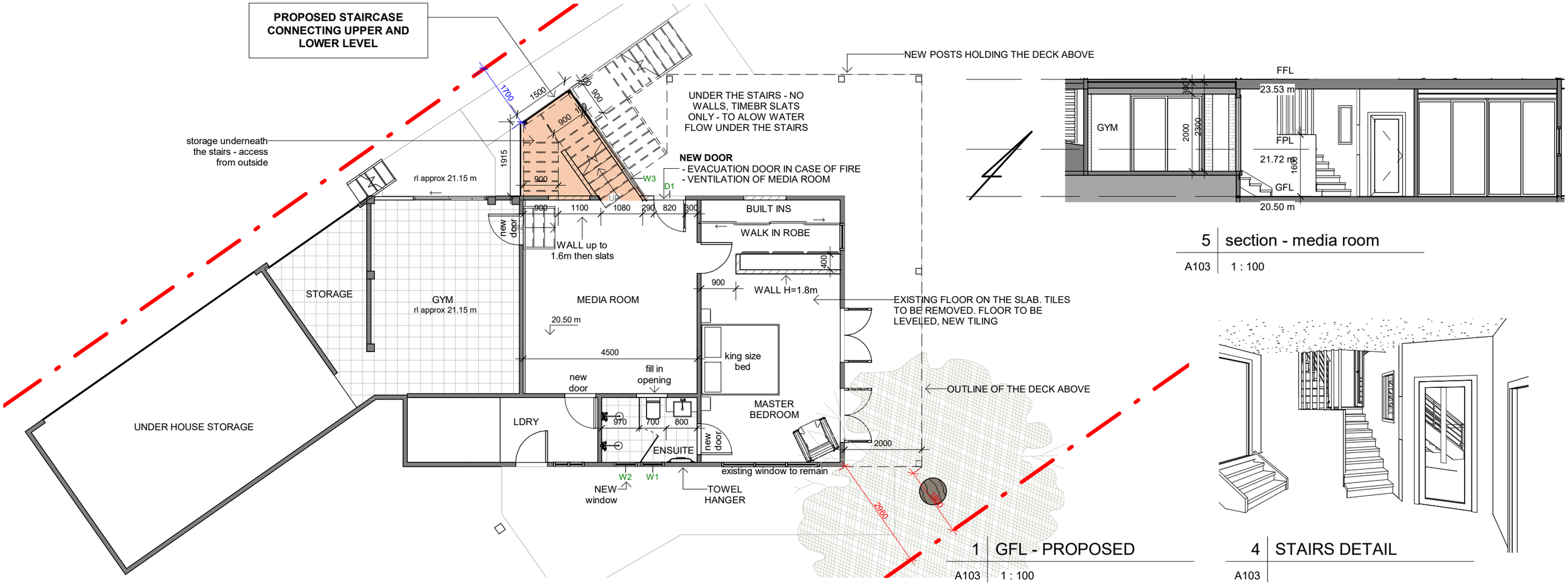
PROJECT TITLE:	ALTERATION & ADDITION
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	DEMOLITION PLANS
SHEET NO:	A102
SCALE A3:	1 : 100



1 | GFL - PROPOSED

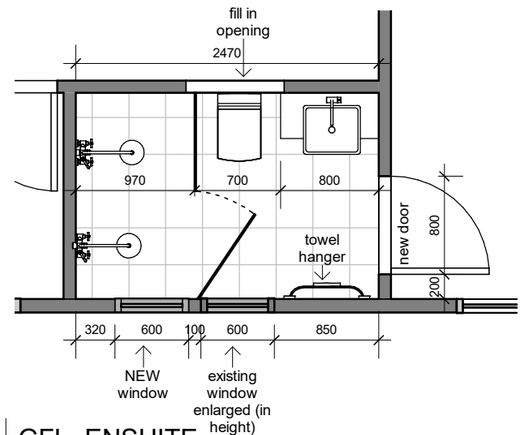
A103 | 1 : 100

5 | section - media room

A103 | 1 : 100

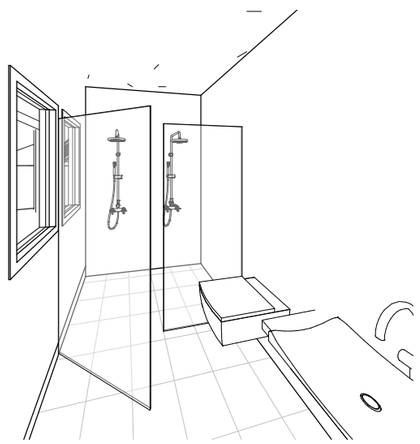
4 | STAIRS DETAIL

A103



2 | GFL -ENSUITE

A103 | 1 : 50



SMALL BATHROOM IDEAS

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PROJECT TITLE:	ALTERATION & ADDITION
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	LOWER FLOOR PLAN
SHEET NO:	A103
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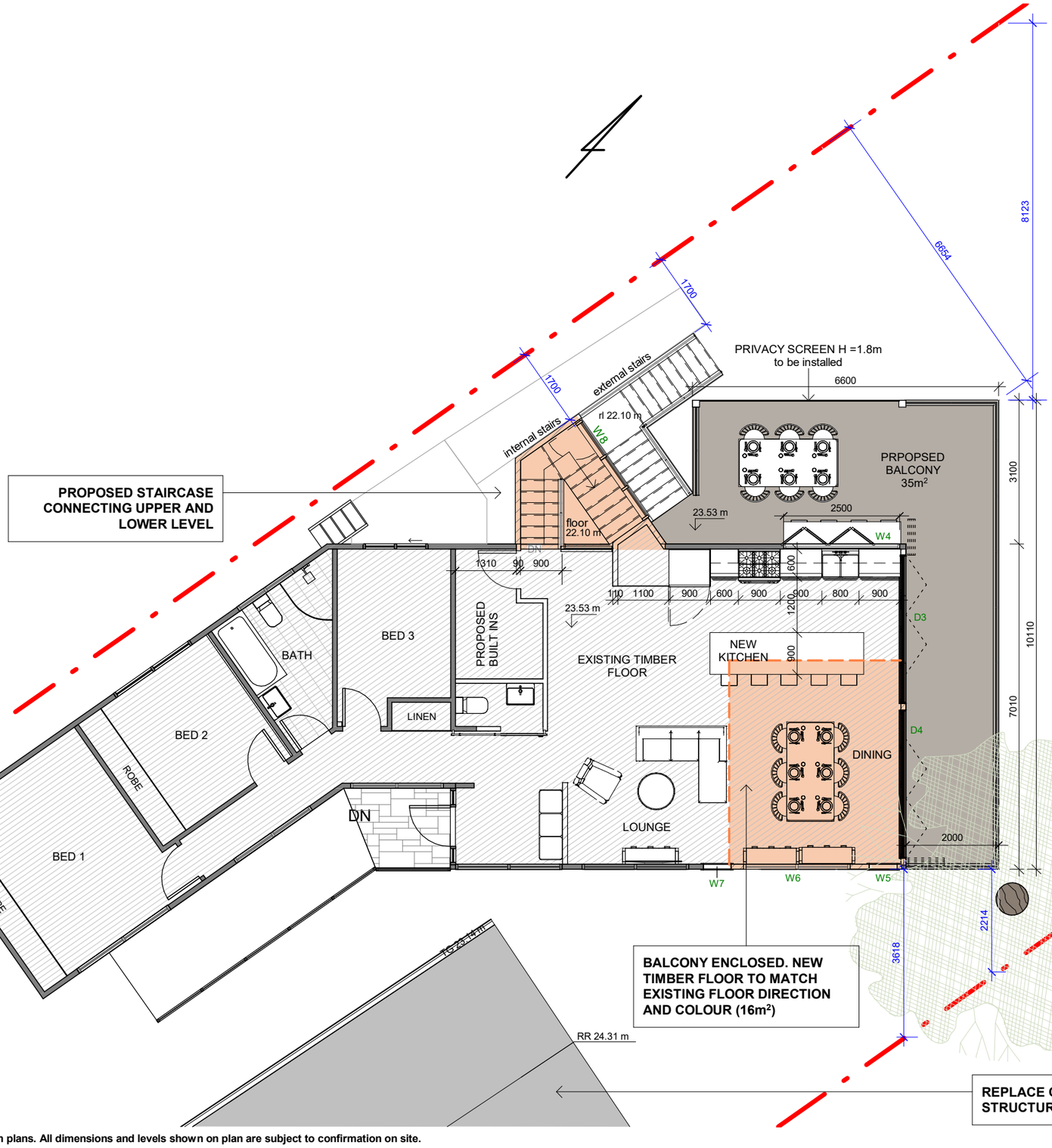

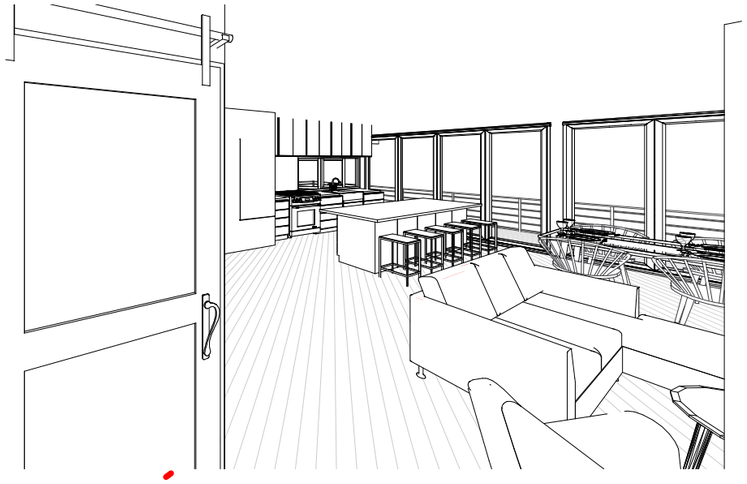

1 | FFL - PROPOSED

A104 | 1 : 100

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2	26.02.2019	DA ISSUE	MW	KM
3	13.03.2019	DA ISSUE	MW	

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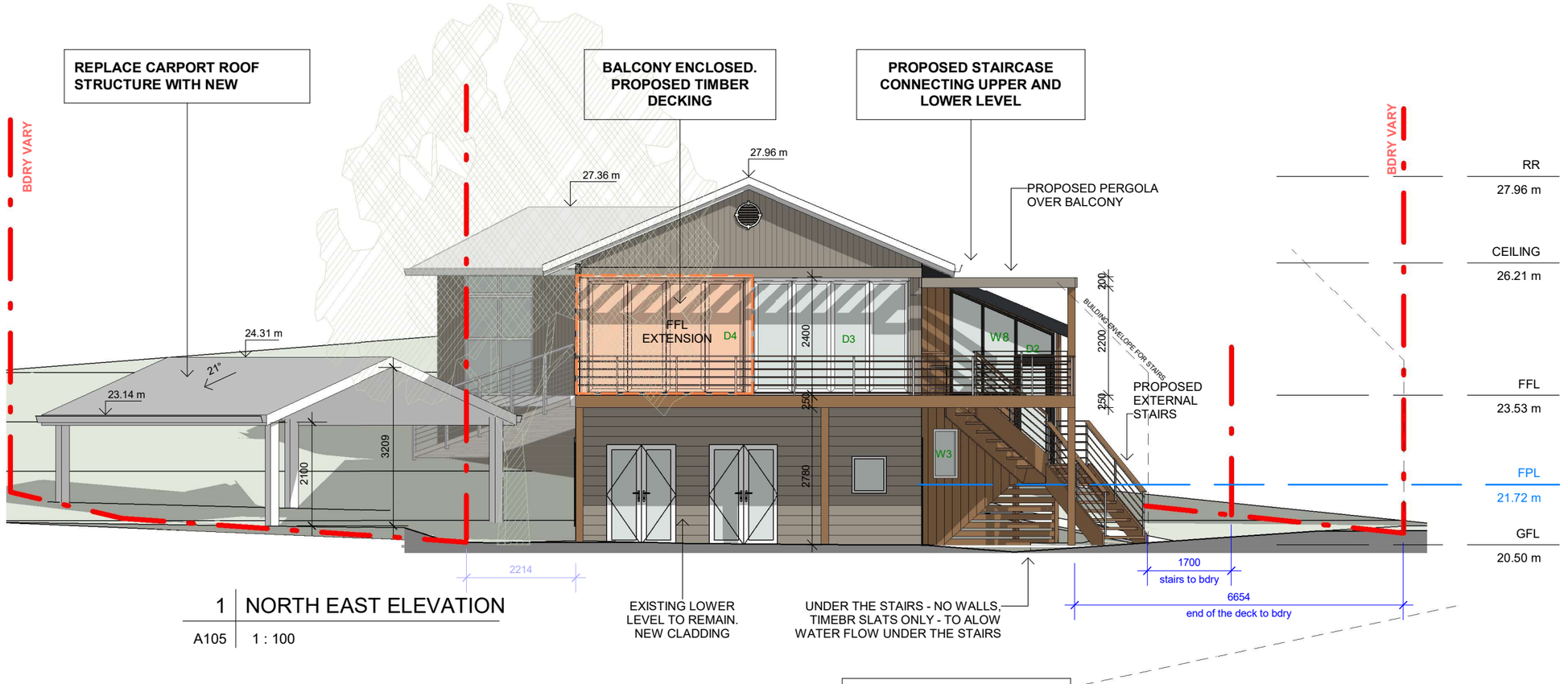
PROJECT TITLE:	ALTERATION & ADDITION
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	UPPER FLOOR LEVEL
SHEET NO:	A104
SCALE A3:	1 : 100



1 | NORTH EAST ELEVATION

A105 | 1 : 100

2 | NORTH WEST ELEVATION

A105 | 1 : 100

WINDOW SCHEDULE

Level	Mark	Width	Height	Sill Height
GFL	W1	600	1000	1200
GFL	W2	600	1000	1200
GFL	W3	600	1000	1350
FFL	W4	2500	900	900
FFL	W5	600	2400	0
FFL	W6	2300	450	2030
FFL	W7	600	2400	0

W8 irregular shape, glazing area 3.58m²

DOOR SCHEDULE

Level	Mark	Width	Height	Sill Height
GFL	D1	820	2100	0
FPL	D2	820	2100	400
FFL	D3	3200	2400	0
FFL	D4	3200	2400	0

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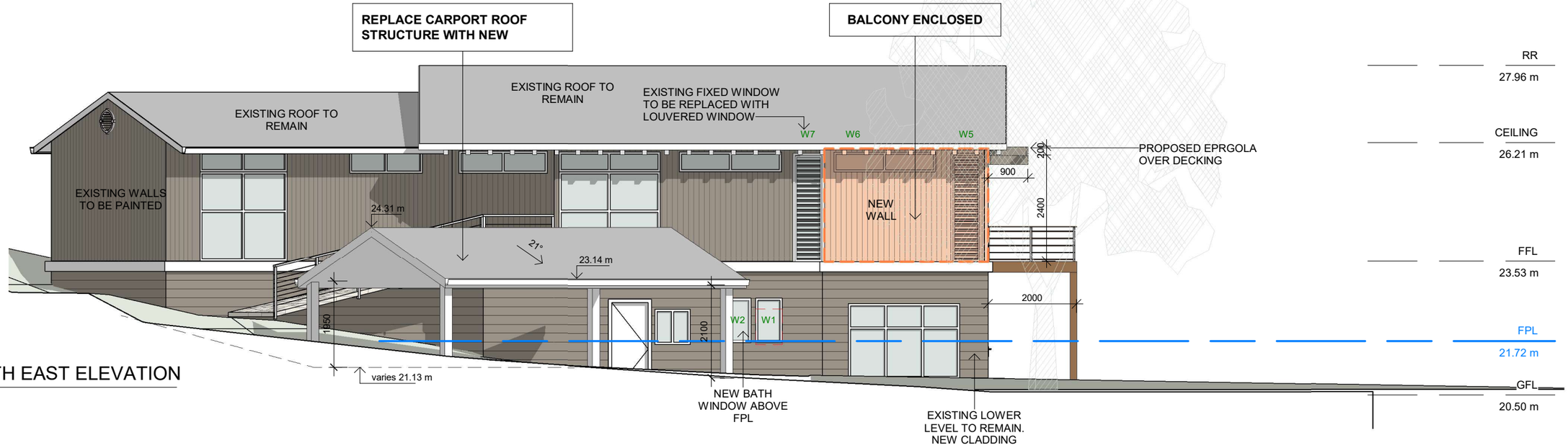
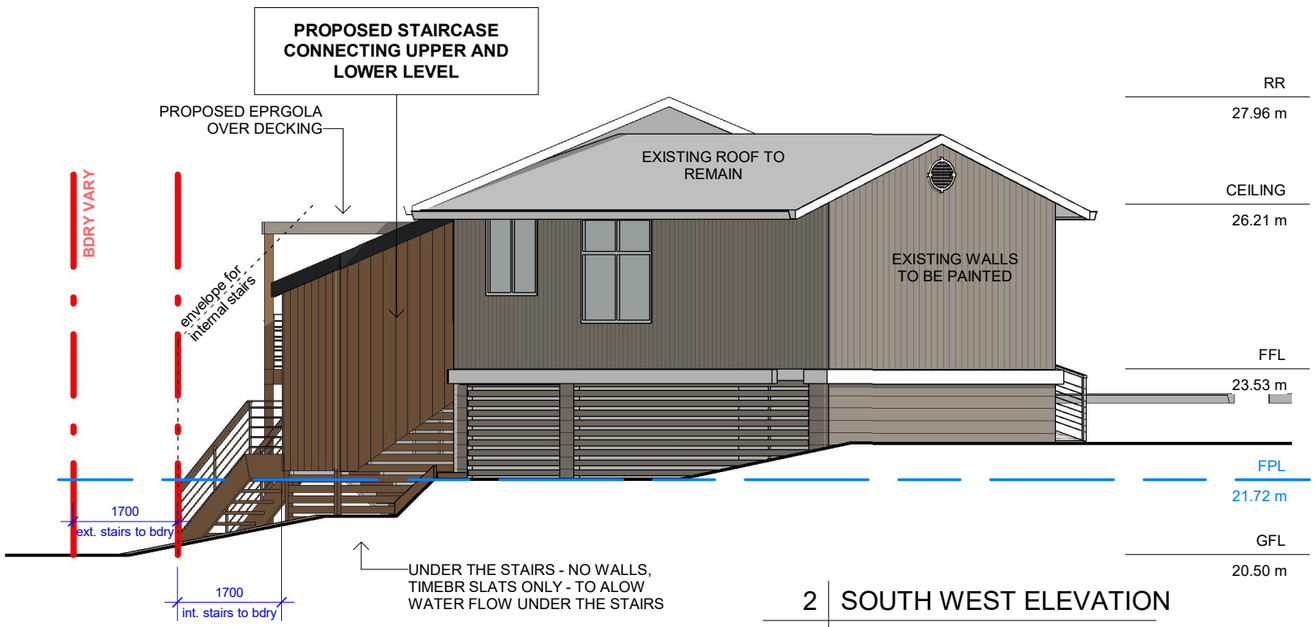
PROJECT TITLE:	ALTERATION & ADDITION
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	ELEVATIONS
SHEET NO:	A105
SCALE A3:	1 : 100



1 | SOUTH EAST ELEVATION

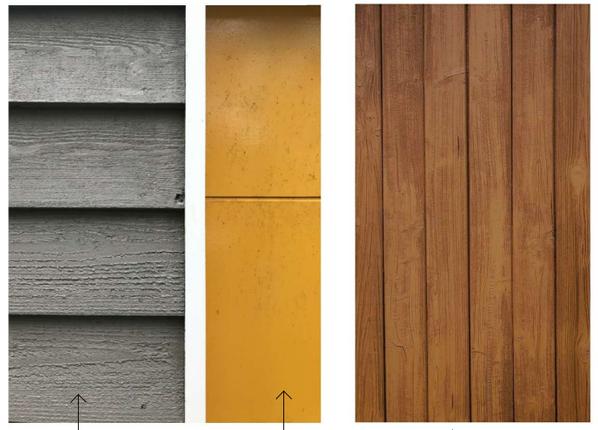
A106 | 1 : 100



2 | SOUTH WEST ELEVATION

A106 | 1 : 100

PROPOSED EXTERNAL FINISHES



EXISTING WALLS TO BE PAINTED MEDIUM GREY

NEW CLADDING ON THE LOWER LEVEL (eg. Weathertex cladding)

WHITE JOINERY
WHITE RAFTERS
WHITE FASCIAS

ENTRY DOOR REPAINTED

NEW STAIRCASE WALLS TO BE FINISHED WITH VERTICAL CLADDING (eg. Weathertex cladding)

WARM TIMBER DECKING AND EXTERNAL STAIRS

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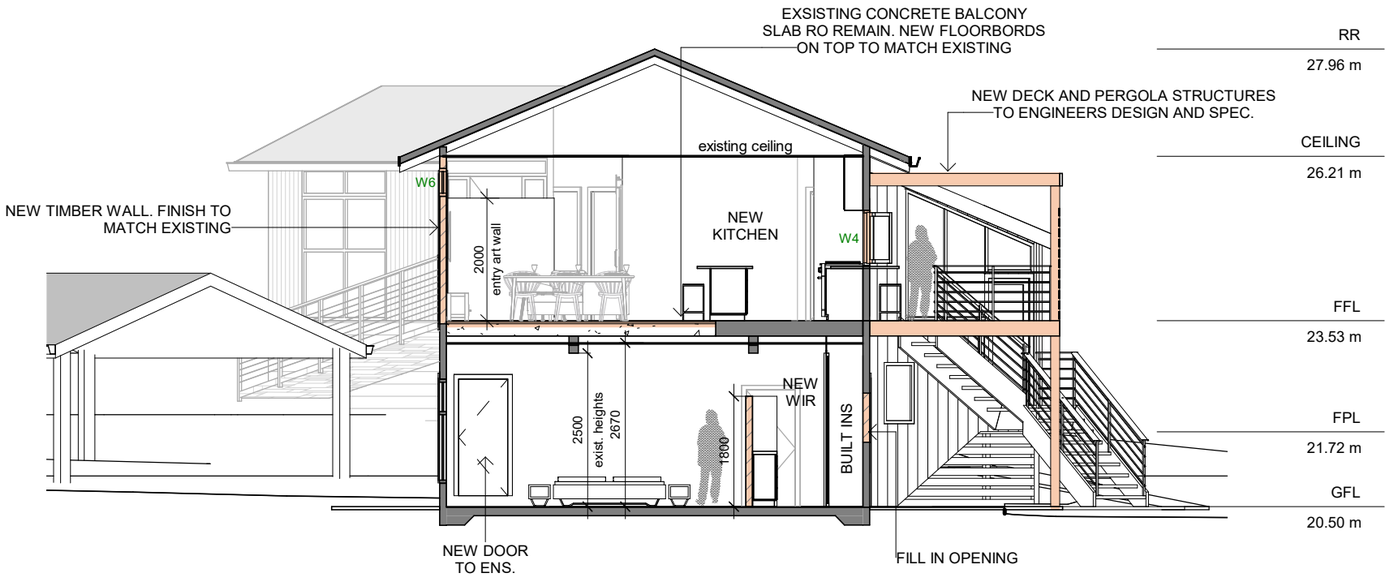
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	ELEVATIONS
SHEET NO:	A106
SCALE A3:	1 : 100



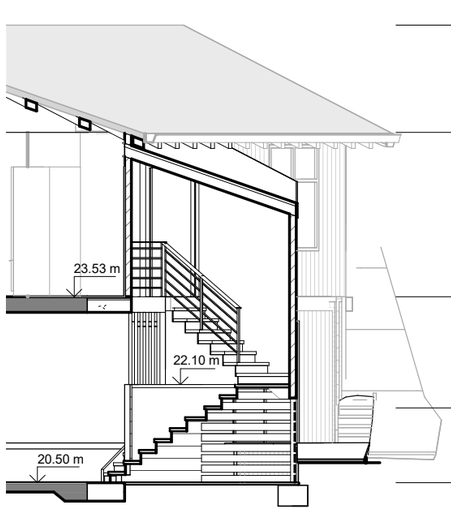
1 | Section 1

A107 | 1 : 100

NOTES:

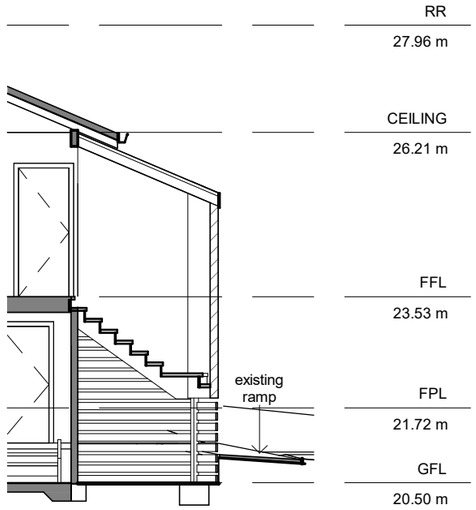
1. Demolition works to be carried out in accordance with the requirements of A2601-2001 The Demolition of Structures. Also in compliance with work cover authority of NSW requirements, including but not limited to:
   - Protection of site workers and the general public
   - Asbestos handling and disposal where applicable
2. Termite protection to be in accordance with AS 3600.1
3. All construction to comply with current BCA codes and Australian Standards.
4. Stormwater system to be connected to existing.
5. All timber framing shall comply with AS1684
6. These documents must be read in conjunction with all the sub-consultants reports and recommendations. The architectural documents form part of the total construction set and are not to be taken as exclusively being the building construction documents
7. Eaves within 900mm of allotment boundries are to be constructed of non-combustible materials. eaves must not be within 450mm of allotment boundaries as required by part 3.7.1 of BCA
8. Sediment & Erosion control are to be installed and maintained during the life of the project

ALL BUILDING WORKS MUST BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE OF AUSTRALIA (BCA) AND AUSTRALIAN STANDARDS



4 | Section - stairs

A107 | 1 : 100



2 | section stairs 2

A107 | 1 : 100

WASTE MANAGEMENT PLAN

MATERIAL ON SITE			DESTINATION		
TYPE OF MATERIAL	ESTIMATED VOLUME		REUSE OR RECYCLING		DISPOSAL
	DEMOLITION	CONSTRUCTION	ON-SITE	OFF-SITE	
EXCAVATION MATERIAL	-				
GREEN WASTE	1m³		DISPOSED ON SITE		
PAVERS	0.5m³			KIMBRIKI RECYCLE	
CONCRETE	0.5m³			KIMBRIKI RECYCLE	
TIMBER	5m³	2m³		KIMBRIKI RECYCLE	
PLASTER BOARDS	3m³	0.2m³			KIMBRIKI BY BUILDER
ASBESTOS	TBC PRIOR DEMOLITION				ASBESTOS REMOVALIST
ROOF TILES	-				
METALS	1m³	0.1m³		KIMBRIKI RECYCLE	
GLASS	1m³			KIMBRIKI RECYCLE	
PLASTIC	-				
OTHERS	1m³	1m³			KIMBRIKI BY BUILDER

WASTE MANAGEMENT PLAN

1 : 65

Do not scale from plans. All dimensions and levels shown on plan are subject to confirmation on site.

ISSUE	DATE	DESCRIPTION	DRWN	CHKD
-	18.06.2018	PRELIMINARY _OPTION 1	MW	
	11.10.2018	PRELIMINARY 2	MW	
2	26.02.2019	DA ISSUE	MW	KM
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PROJECT TITLE: ALTERATION & ADDITION

PROJECT NO.: 2018022

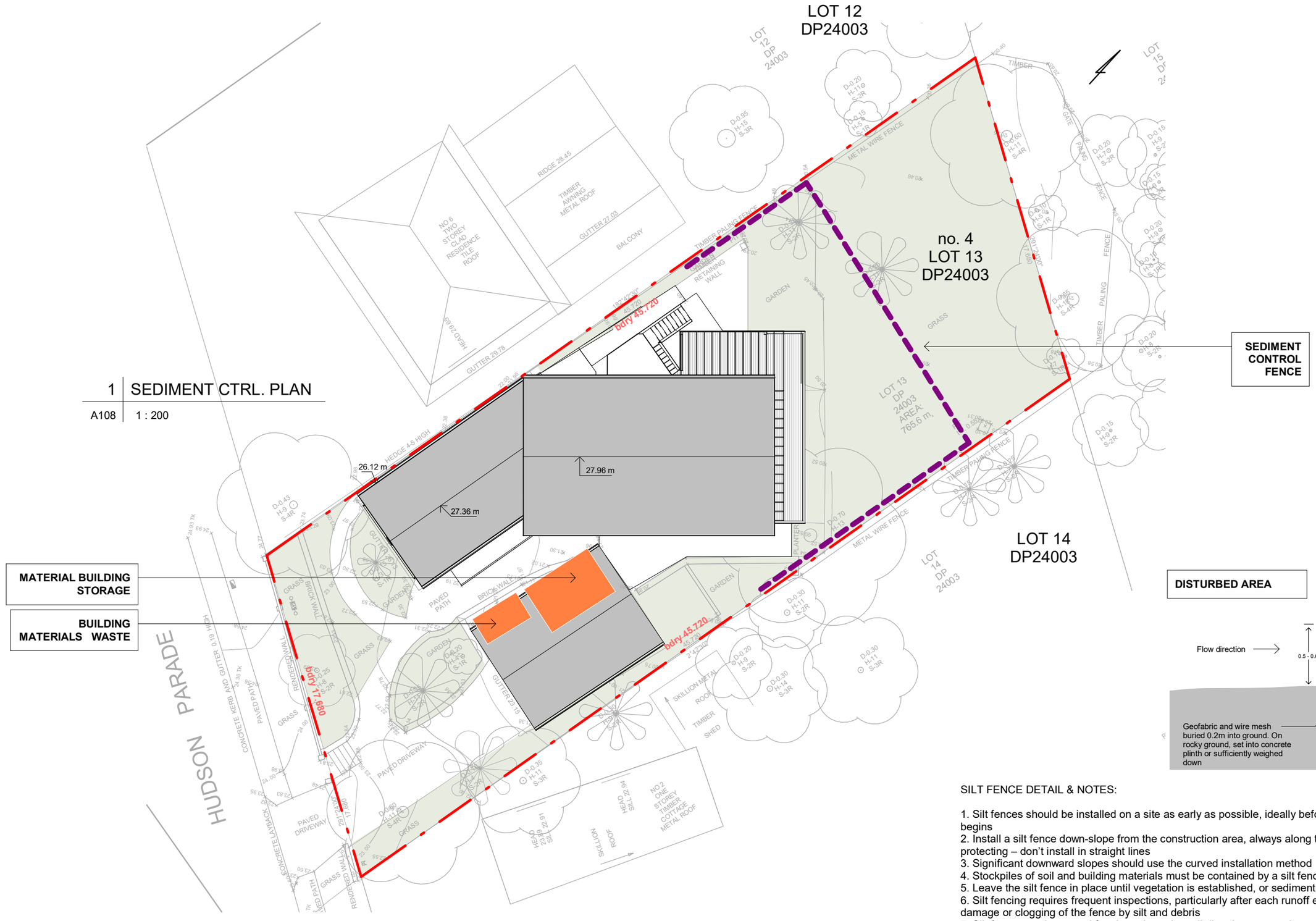
AT: 4 Hudson Parade, Avalon

FOR: Pia & Andrew Dorer

SHEET TITLE: SECTIONS & WASTE MANAGEMENT

SHEET NO: A107

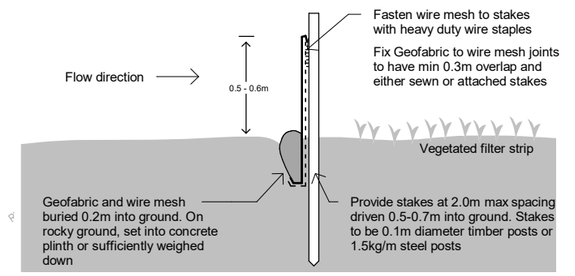
SCALE A3: As indicated



1 | SEDIMENT CTRL. PLAN

A108 | 1 : 200

DISTURBED AREA | **UNDISTURBED AREA**



SILT FENCE DETAIL & NOTES:

1. Silt fences should be installed on a site as early as possible, ideally before excavation or other soil disturbance begins
2. Install a silt fence down-slope from the construction area, always along the contour (curve) of the slope you are protecting – don't install in straight lines
3. Significant downward slopes should use the curved installation method
4. Stockpiles of soil and building materials must be contained by a silt fence
5. Leave the silt fence in place until vegetation is established, or sediment is stabilised
6. Silt fencing requires frequent inspections, particularly after each runoff event (storm, rainfall etc.), to check for damage or clogging of the fence by silt and debris
7. Silt fences are best used for sites where the soil disturbance area is up to 0.5 of a hectare

Do not scale from plans. All dimensions and levels shown on plan are subject to confirmation on site.

ISSUE	DATE	DESCRIPTION	DRWN	CHKD
-	18.06.2018	PRELIMINARY _OPTION 1	MW	
	11.10.2018	PRELIMINARY 2	MW	
2	26.02.2019	DA ISSUE	MW	KM
3	13.03.2019	DA ISSUE	MW	

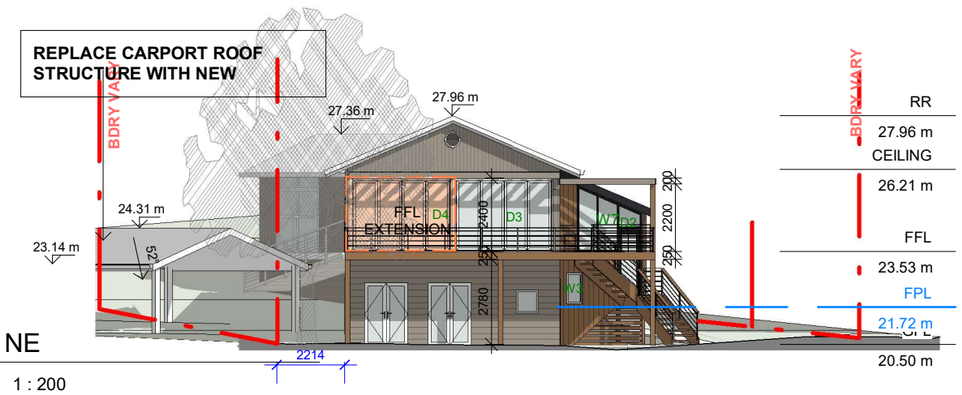
BLUE SKY BUILDING DESIGNS
PO BOX 167
Newport 2106
Mobile: 0 414 310 171
E: info@bsbd.com.au
www.blueskybuildingdesigns.com.au

PROJECT TITLE:	ALTERATION & ADDITION
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	SEDIMENT CONTROL PLAN
SHEET NO:	A108
SCALE A3:	As indicated

1 | NP

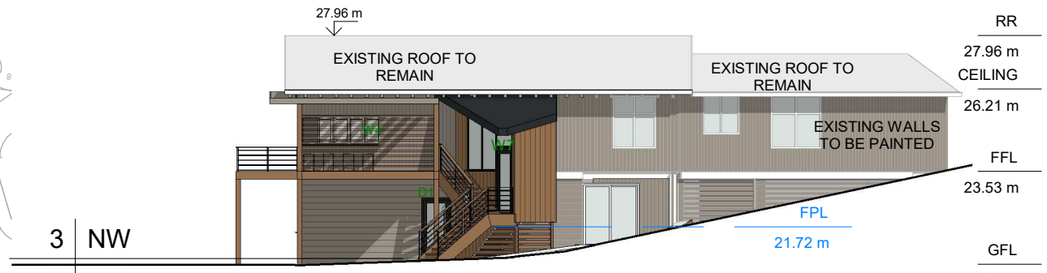
NP | 1 : 200

REPLACE CARPORT ROOF STRUCTURE WITH NEW



2 | NE

NP | 1 : 200



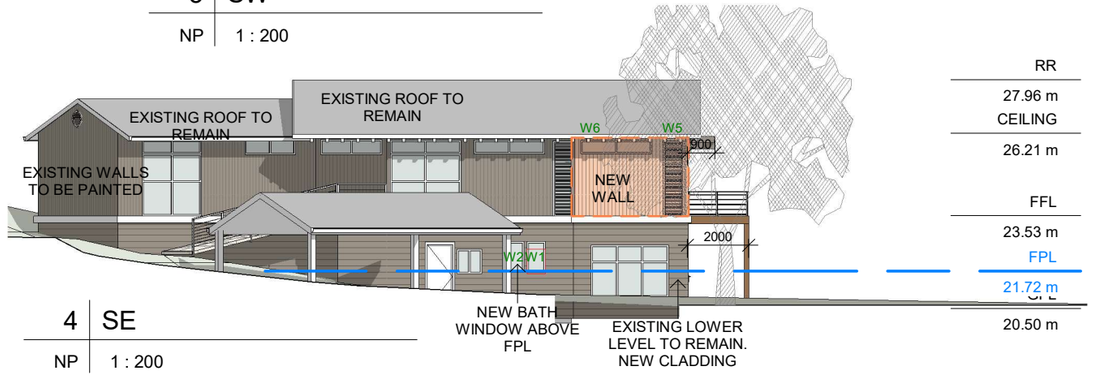
3 | NW

NP | 1 : 200

PROPOSED STAIRCASE CONNECTING UPPER AND LOWER LEVEL

5 | SW

NP | 1 : 200



4 | SE

NP | 1 : 200

Do not scale from plans. All dimensions and levels shown on plan are subject to confirmation on site.

ISSUE	DATE	DESCRIPTION	DRWN	CHKD
-	18.06.2018	PRELIMINARY _OPTION 1	MW	
	11.10.2018	PRELIMINARY 2	MW	
2	26.02.2019	DA ISSUE	MW	KM
3	13.03.2019	DA ISSUE	MW	

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PROJECT TITLE:	ALTERATION & ADDITION
PROJECT NO.:	2018022
AT:	4 Hudson Parade, Avalon
FOR:	Pia & Andrew Dorer
SHEET TITLE:	NOTIFICATION PLAN
SHEET NO:	NP
SCALE A3:	1 : 200

Appendix B – Council Supplied Flood Information

NORTHERN BEACHES
COUNCIL

FLOOD INFORMATION REQUEST - COMMON

Property: 4 Hudson Parade, Avalon Beach
Lot DP: 13//24003
Issue Date: 23/08/2018
Flood Study Reference: Avalon to Palm Beach Floodplain Risk Management Study and Plan, 2017

Flood Information for lot:

Flood Life Hazard Category – See Map A

1% AEP – See Flood Map B

1% AEP Maximum Water Level[3]: 21.06 mAHD

1% AEP Maximum Peak Depth from natural ground level[3]: 0.57 m

1% AEP Maximum Velocity: 0.54 m/s

1% AEP Provisional Flood Hazard: High See Flood Map E

1% AEP Hydraulic Categorisation: Floodway See Flood Map F

Flood Planning Area – See Flood Map C

Flood Planning Level (FPL)[1,2, 3 &4]: 21.72 m AHD

Probable Maximum Flood (PMF) – See Flood Map D

PMF Maximum Water Level[2]: 21.43 m AHD

PMF Maximum Depth from natural ground level: 0.92 m

PMF Maximum Velocity: 1.03 m/s

Flood Risk Precinct – See Map G

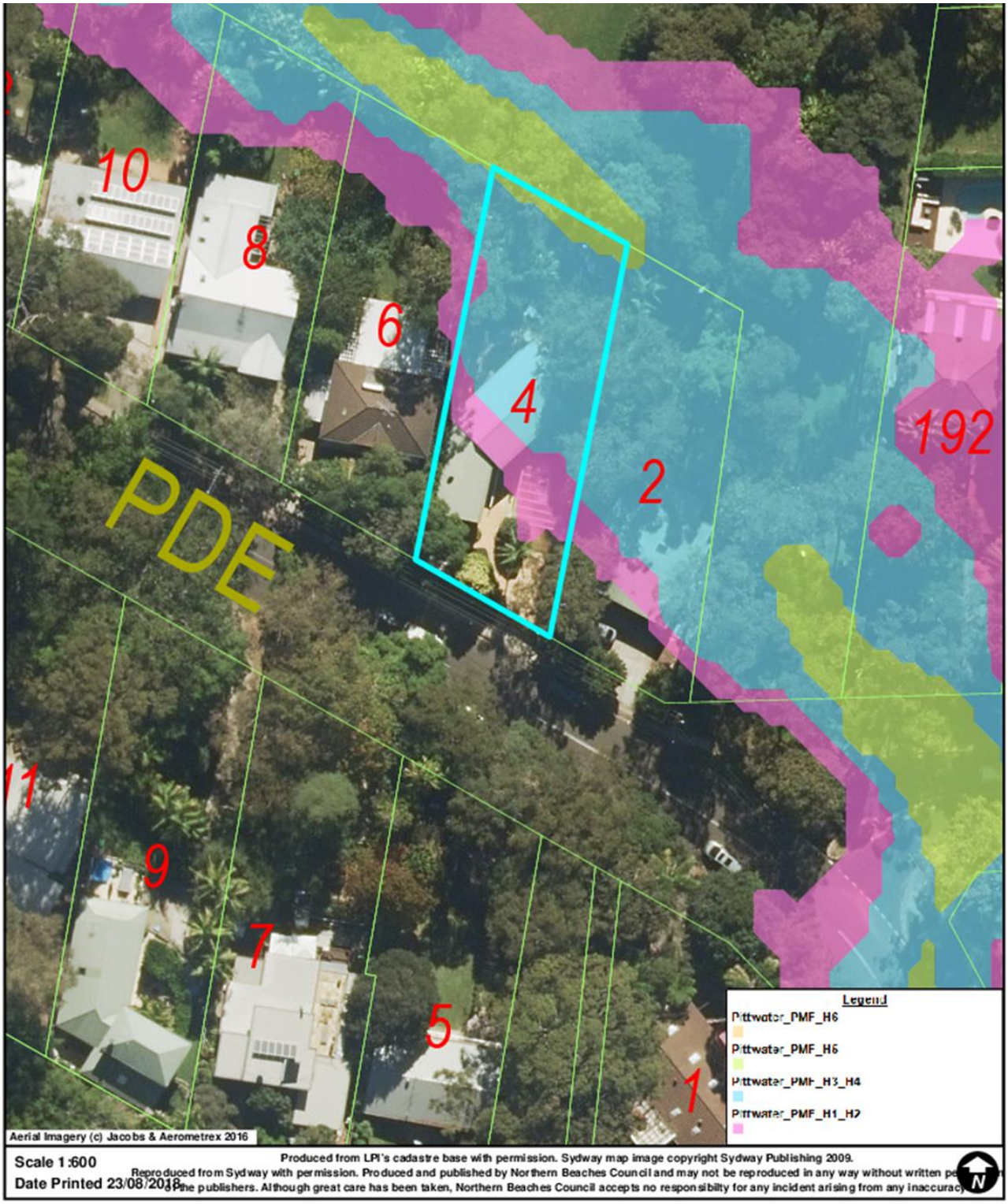
[1]The flood information does not take into account any local overland flow issues nor private stormwater drainage systems.
[2]Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/ flood planning levels across the site.

[3]Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels than those indicated on this flood advice.
[4]Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or Flood Planning Level

General Notes:

- All levels are based on Australian Height Datum (AHD) unless otherwise noted.
- This is currently the best available information on flooding; it may be subject to change in the future.
- Council recommends that you obtain a detailed survey of the above property and surrounds to AHD by a registered surveyor to determine any features that may influence the predicted extent or frequency of flooding. It is recommended you compare the flood level to the ground and floor levels to determine the level of risk the property may experience should flooding occur.
- Development approval is dependent on a range of issues, including compliance with all relevant provisions of Northern Beaches Council's Local Environmental Plans and Development Control Plans.
- Please note that the information contained within this letter is general advice only as a detail survey of the property as well as other information is not available. Council recommends that you engage a suitably experienced consultant to provide site specific flooding advice prior to making any decisions relating to the purchase or development of this property.
- The Flood Studies on which Council's flood information is based are available on Council's website.

FLOOD MAP A: FLOOD LIFE HAZARD CATEGORY



Notes:

- Refer to 'Flood Emergency Response Planning for Development in Pittwater Policy' for additional information on the Flood Life Hazard Categories and Pittwater 21 DCP Control B3.25.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Avalon to Palm Beach Floodplain Risk Management Study and Plan) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP B: FLOODING - 1% AEP EXTENT

Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Flood events exceeding the 1% AEP can occur on this site.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Avalon to Palm Beach Floodplain Risk Management Study and Plan) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP C: FLOOD PLANNING AREA EXTENT

Notes:

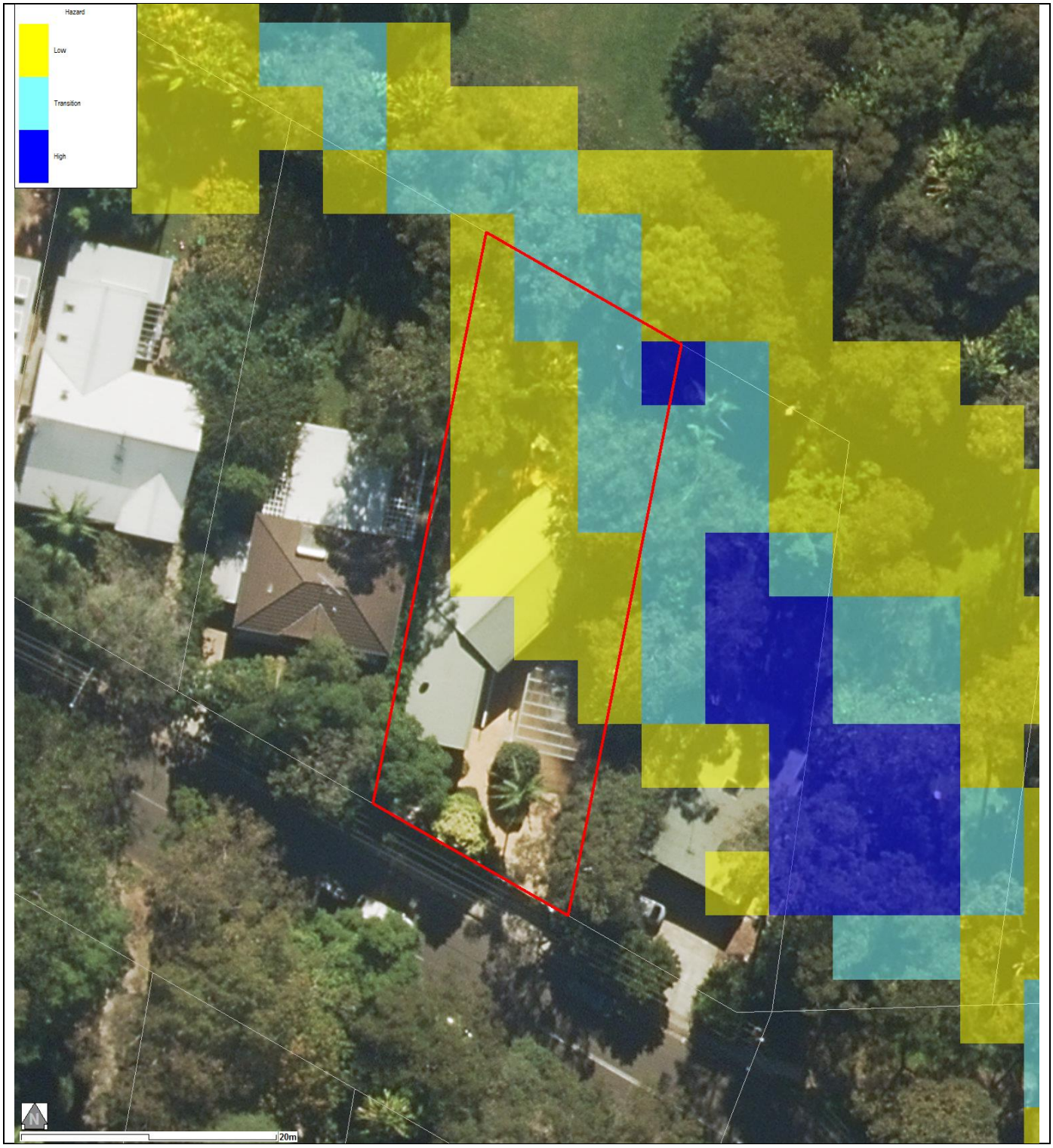
- Extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Avalon to Palm Beach Floodplain Risk Management Study and Plan) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP D: PROBABLE MAXIMUM FLOOD EXTENT

Notes:

- Extent represents the Probable Maximum Flood (PMF) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Avalon to Palm Beach Floodplain Risk Management Study and Plan) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP E – 1% AEP FLOOD HAZARD EXTENT MAP



Notes:

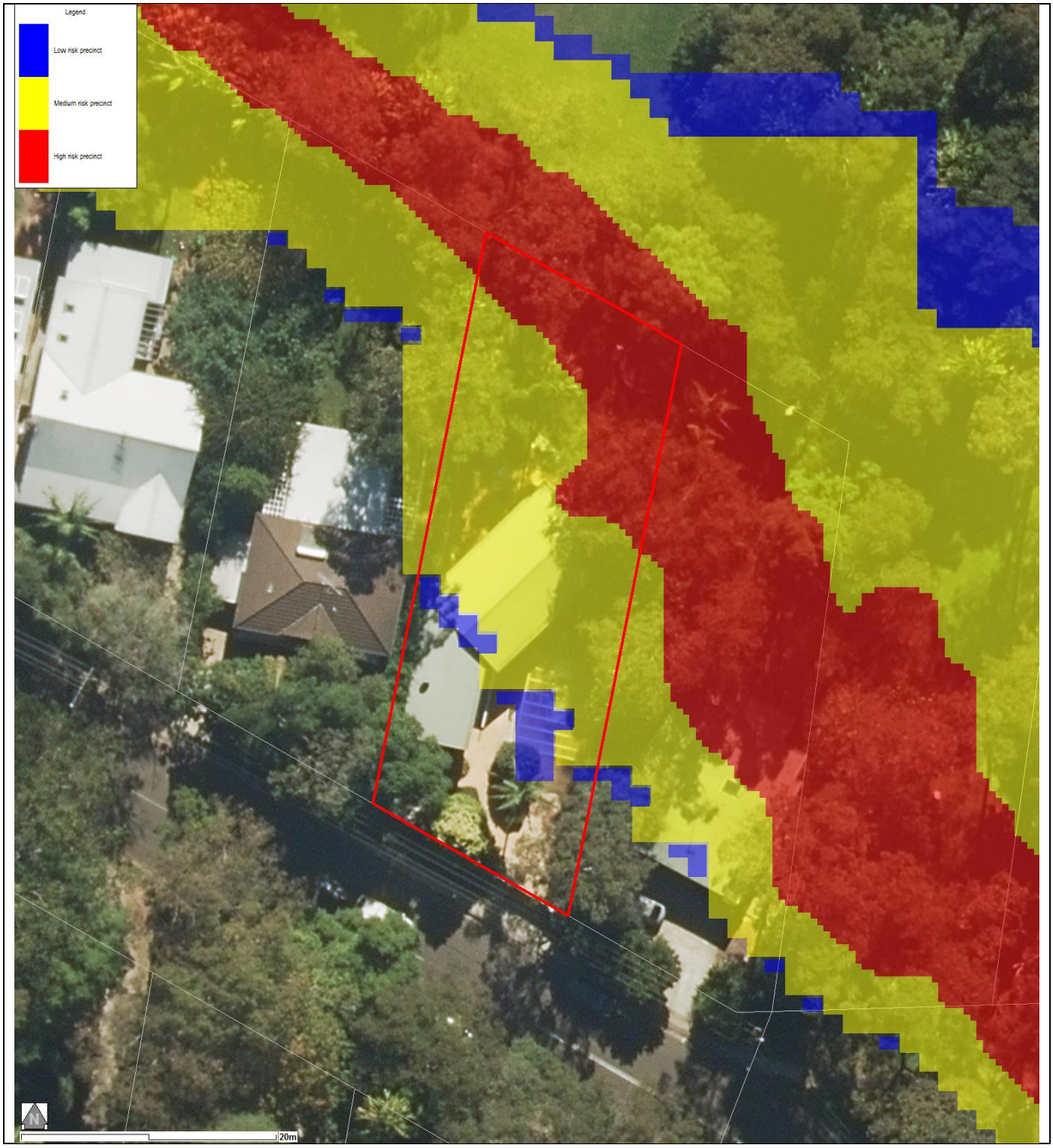
- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Avalon to Palm Beach Floodplain Risk Management Study and Plan) and aerial photography (Source: NearMap 2014) are indicative only.

FLOOD MAP F – 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP

Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Avalon to Palm Beach Floodplain Risk Management Study and Plan) and aerial photography (Source: NearMap 2014) are indicative only.

FLOOD MAP G – FLOOD RISK PRECINCT MAP



Notes:

- **Low Flood Risk precinct** means all flood prone land not identified within the High or Medium flood risk precincts.
- **Medium Flood Risk precinct** means all flood prone land that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct.
- **High Flood Risk precinct** means all flood prone land (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 and or H6 Life Hazard Classification).

Appendix C – Form 1 Statement

Attachment A

NORTHERN BEACHES COUNCIL
STANDARD HYDRAULIC CERTIFICATION FORM
FORM A/A1 – To be submitted with Development Application

Development Application for

Address of site: 4 Hudson Parade, Avalon

Declaration made by hydraulic engineer or professional consultant specialising in flooding/flood risk management as part of undertaking the Flood Management Report:

I, Mohamud Ibrahim (Insert Name) on behalf of Stellen Consulting (Trading or Business/ Company Name)

on this the 21.03.2019 (Date) certify that I am engineer or a professional consultant specialising in flooding and I am authorised by the above organisation/ company to issue this document and to certify that the organisation/ company has a current professional indemnity policy of at least $2 million.

***Flood Management Report* Details:**

Report Title:

Flood risk management report for proposed alterations and additions at 4 Hudson Parade

Report Date: 21.03.2019

Author: Mohamud Ibrahim

Author's Company/Organisation: Stellen Consulting

I: Mohamud Ibrahim (Insert Name)

Please tick all that are applicable (more than one box can be ticked)

☑ have obtained and included flood information from Council (must be less than 12 months old) (**This is mandatory**)

☑ have followed Council's Guidelines for Preparing a Flood Management Report

☐ have requested a variation to one or more of the flood related development controls. Details are provided in the *Flood Management Report*.

Signature Mohd

Name Mohamud Ibrahim