



# ENERGY EFFICIENCY REPORT

## BASIX® Thermal Comfort Simulation Assessment

### SITE ADDRESS

**Lot 7 (#53B) Warriewood Road WARRIEWOOD 2102**

### LOCAL GOVERNMENT AUTHORITY

**Northern Beaches Council**

### CLIENT

**Rise Projects**

### COMMISSIONED BY

**Rise Projects**

### ASSESSMENT DATE

**10/06/2022**

### DEPOSITED PLAN

**1115877**

### DWELLING TYPE

**Double Storey**

### REFERENCE NUMBER

**RP 225\_Lot 7 v2.0**

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## PROJECT CERTIFICATION SUMMARY

## DESIGN AND APPROVED SOFTWARE INFORMATION

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 49

NatHERS CLIMATE ZONE: 56

BCA (NCC) CLIMATE ZONE: 5

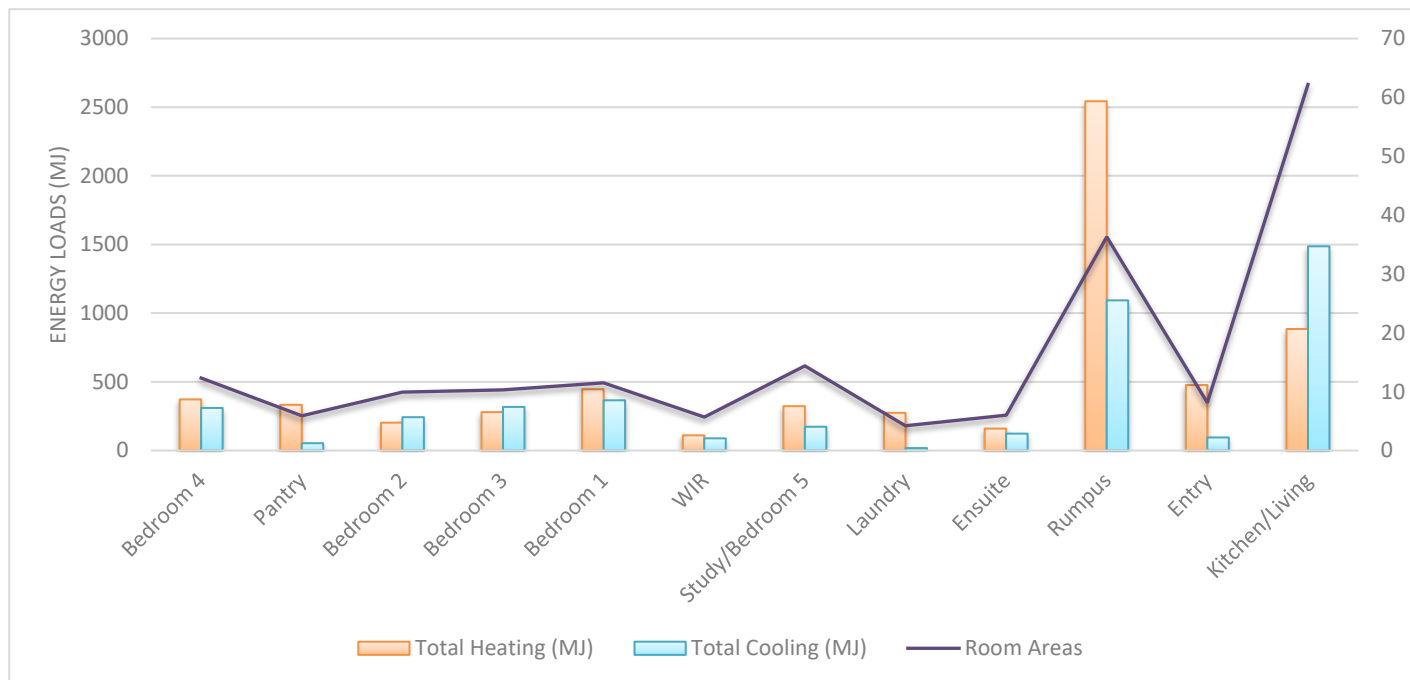
Dwelling Areas (m<sup>2</sup>)INTERNAL AREAS (m<sup>2</sup>) 200.00OUTDOOR AREAS (m<sup>2</sup>) 28.00GARAGE/CARPORT (m<sup>2</sup>) 19.00**TOTAL: 247.00**

## ASSESSMENT CALCULATIONS &amp; SOFTWARE RESULTS

TARGET	(MJ/m <sup>2</sup> .pa)	PROPOSED	(MJ/m <sup>2</sup> .pa)	BUILD EFFICIENCY BENCHMARK
Heating:	40.0	Heating:	34.0	PASS: 16.2%
Cooling:	26.0	Cooling:	24.8	PASS: 4.7%
<b>Total:</b>	<b>66.0</b>	<b>Total:</b>	<b>58.8</b>	

## DWELLING THERMAL PERFORMANCE PER ZONED AREAS

The heating and cooling loads indicated are the simulated annual energy usages (MJ) for this home. The higher the load, the more energy needed to achieve thermal comfort.



## STATEMENT OF COMPLIANCE

I / We certify that we are specialists in the relevant discipline and the following design documents comply with the relevant requirements of the National Construction Code (NCC Volume One/Two as applicable) in relation to thermal performance and the relevant Australian Standards specified in this report.

ASSESSOR NAME:

C. Sookloll

SIGNATURE:

## RELEVANT QUALIFICATION STATEMENT

Certificate IV in NatHERS Assessment (Credential Number: TRF0002560)

Residential Building Thermal Performance Assessment (91318NSW) Course

Assessor Accrediting Organisation (AAO) Accreditation Number: **VIC/BDV/14/1662 | ABSA/61846**

BUILDING SPECIFICATION SUMMARY



EXTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
	Brick Veneer   Framed	None	To the remainder of Garage external walls
	Brick Veneer	R2.0 Batts	Specified external walls (as per drawings)
	Framed	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES      Location of Construction Materials as per drawings

INTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	R2.0 Batts	To the Garage internal walls only
	Framed	None	Throughout the remaining internal walls

ADDITIONAL NOTES      None

ROOF AND CEILING

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Colorbond (un-ventilated)	R1.3 Roof Blanket	Approx. 22°5' Roof Pitch (location as per drawings)
CEILING	Plasterboard	None	Garage Ceiling Area
	Plasterboard	R4.0 Insulation	Main House Area Only

ADDITIONAL NOTES      Location of ceiling insulation as per drawings

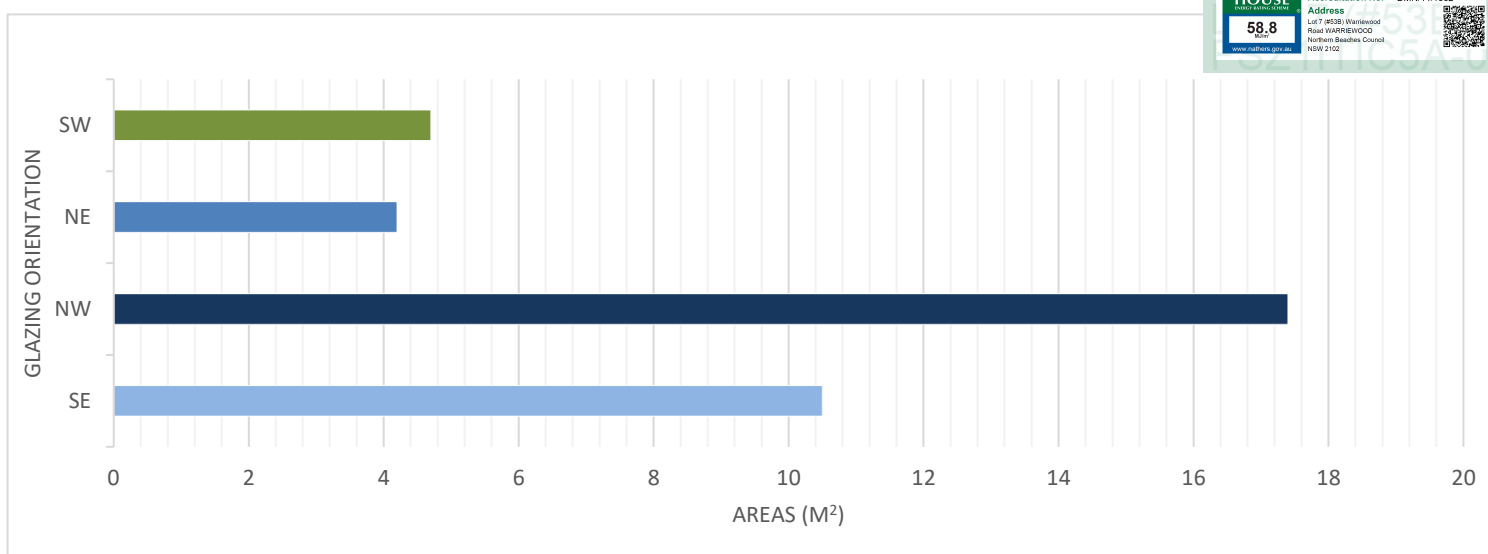
FLOOR

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	225mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	R4.0 Batts	Throughout the Upper Floor

ADDITIONAL NOTES      Floor Coverings modelled as per Drawings & NatHERS Protocols

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.38	0.75	Casement Windows
Standard	Clear	Aluminium	6.38	0.75	Sliding Windows
Standard	Clear	Aluminium	6.36	0.65	Awning Windows
Standard	Clear	Aluminium	6.16	0.71	Sliding Doors

## GLAZING AREA DIRECTIONS



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

1. Maximise unsheltered northern-aspect glazing.
2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
3. Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
4. Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

## LIGHTING/PENETRATION CALCULATIONS

### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

AREA WITHIN THE CLASS 1 BUILDING	200.00 m <sup>2</sup>		
Development Total	1000.0 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 BUILDING	19.00 m <sup>2</sup>		
Development Total	57.0 Watts	Area Wattage Allowance	3.0 W/m <sup>2</sup>
AREA WITHIN THE OUTDOOR AREAS	28.00 m <sup>2</sup>		
Development Total	112.0 Watts	Area Wattage Allowance	4.0 W/m <sup>2</sup>

### CEILING INSULATION PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION ALLOWANCE	CLASS 1 MAXIMUM PENETRATION AREA (m <sup>2</sup> )
0.5% TOTAL INSULATED CEILING AREA	1.00

The clearance required around downlights by "Australian Standard AS/NZS 3000 – 2007 Electrical Installations" (AS/NZS 3000), introduces a significant area of uninsulated ceiling and therefore increases heat loss and gain through the ceiling.

If approved fireproof downlight covers, which can be fully covered by insulation, are specified and noted on the electrical plan by the building designer or architect, then there is no need to allow for the ceiling penetration

## NSW ADDITIONS: BUILDING FABRIC THERMAL INSULATION

### NSW 3.12.1 APPLICATION OF NSW PART 3.12.1

- (a) Compliance with NSW 3.12.1.1 satisfies NSW P2.6.1(a) for thermal insulation and thermal breaks.
- (b) NSW PART 3.12.1 only applies to thermal insulation in a Class 1 or 10 building where a development consent specifies that the insulation is to be provided as part of the development.
- (c) In (b), the term development consent has the meaning given by the Environmental Planning and Assessment Act 1979.
- (d) The Deemed-to-Satisfy Provisions of this Part for thermal breaks apply to all Class 1 buildings and Class 10a buildings with a conditioned space.

### NSW 3.12.1.1 COMPLIANCE WITH BCA PROVISIONS

- (a) Thermal insulation in a building must comply with the national BCA provisions of 3.12.1.1.
- (b) A thermal break must be provided between the external cladding and framing in accordance with national BCA provisions of—
  - (i) 3.12.1.2(c) for a metal framed roof; and
  - (ii) 3.12.1.4(b) for a metal framed wall.
- (c) Compensation for reduction in ceiling insulation must comply with the national BCA provisions of 3.12.1.2(e).
- (d) A floor with an in-slab or in-screed heating or cooling system must comply with the national BCA provisions of—
  - (i) 3.12.1.5(a)(ii), (iii) and (e) for a suspended floor; or
  - (ii) 3.12.1.5(c), (d) and (e) for a concrete slab-on-ground.

## BUILDING SEALING & SERVICES

### NSW 3.12.3 APPLICATION OF NSW PART 3.12.3

- (a) Compliance with NSW 3.12.3.1 satisfies NSW P2.6.1(b) for building sealing.
- (b) NSW Part 3.12.3 is not applicable to—
  - (i) existing buildings being relocated; or
  - (ii) Class 10a buildings—
    - (A) without a conditioned space; or
    - (B) for the accommodation of vehicles; or
  - (iii) parts of buildings that cannot be fully enclosed; or
  - (iv) a permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance; or
  - (v) a building in climate zones 2 and 5 where the only means of air-conditioning is by using an evaporative cooler.

### NSW 3.12.3.1 COMPLIANCE WITH BCA PROVISIONS

The sealing of a building must comply with the national BCA provisions 3.12.3.1 to 3.12.3.6.

### NSW 3.12.5 SERVICES: APPLICATION OF NSW PART 3.12.5

- (a) Compliance with NSW 3.12.5.1 satisfies NSW P2.6.2 for services.
- (b) NSW Part 3.12.5 is not applicable to existing services associated with existing buildings being relocated.

### NSW 3.12.5.1 COMPLIANCE WITH BCA PROVISIONS

Services must comply with the national BCA provisions 3.12.5.0 to 3.12.5.3.





# Nationwide House Energy Rating Scheme

## NatHERS Certificate No. FSZ1ITIC5A-01

Generated on 10 Jun 2022 using FirstRate5: 5.3.2a (3.21)

### Property

**Address** Lot 7 (#53B) Warriewood Road WARRIEWOOD, Northern Beaches Council, NSW, 2102  
**Lot/DP** 7|1115877  
**NCC Class\*** Class 1a  
**Type** New Home

### Plans

**Main plan** RP 225\_Lot 7 v2.0 | 10/06/2022  
**Prepared by** Rise Projects

### Construction and environment

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure type</b>
Conditioned* 176.3	suburban
Unconditioned* 31.9	<b>NatHERS climate zone</b>
Total 208.2	56 Mascot AMO
Garage 19.5	



### Accredited assessor

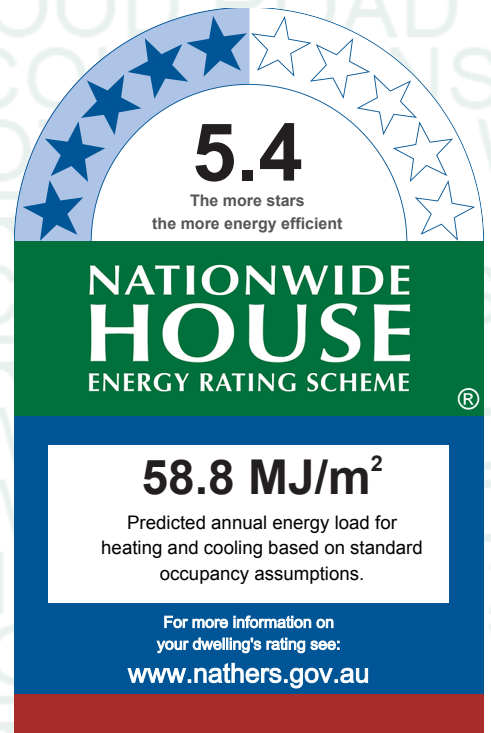
**Name** Claude-Francois Sookloll  
**Business name** Energy Advance  
**Email** energy@energyadvance.com.au  
**Phone** 1300 850 228  
**Accreditation No.** DMN/14/1662  
**Assessor Accrediting Organisation** Design Matters National  
**Declaration of interest** Declaration completed: no conflicts

### National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at [www.abcb.gov.au](http://www.abcb.gov.au).

State and territory variations and additions to the NCC may also apply.



### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>34</b>	<b>24.8</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Verification

To verify this certificate, scan the QR code or visit <https://www.fr5.com.au/QRCodeLanding?PublicId=FSZ1ITIC5A-01> When using either link, ensure you are visiting [www.FR5.com.au](http://www.FR5.com.au).



## Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

### Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page?  
Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

### Ceiling penetrations\*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

### Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

### Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

### Exposure\*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

### Provisional\* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

## Additional Notes

BCA Climate Zone: 5

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the 'Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all 'Horizontal shading features & eaves' to account for the Gutter & Fascia Board

## Window and glazed door *type and performance*

### Default\* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
				No Data Available	

### Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
DOW-006-01 A	Al Sliding Door SG 5Clr	6.16	0.71	0.67	0.75
DOW-002-01 A	Elite Al Awning Window SG 3Clr	6.36	0.65	0.62	0.68
DOW-001-01 A	Al Sliding Window SG 3Clr	6.38	0.75	0.71	0.79

## Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Study/Bedroom 5	DOW-006-01 A	D1	2400	1810	sliding	45.0	SE	No
Kitchen/Living	DOW-006-01 A	D3	2400	2000	other	60.0	NW	No
Kitchen/Living	DOW-006-01 A	D2	2400	2000	other	60.0	N	No
Kitchen/Living	DOW-002-01 A	W2	1400	1810	awning	90.0	NW	No
Bathroom 1	DOW-001-01 A	W1	600	1210	sliding	45.0	NE	No
Bedroom 4	DOW-001-01 A	W4	1457	1810	casement	10.0	SE	No
Bedroom 4	DOW-001-01 A	W15	500	1810	sliding	45.0	NE	No
Bedroom 1	DOW-001-01 A	W14	500	1810	sliding	45.0	SW	No
Bedroom 1	DOW-001-01 A	W3	1457	2410	casement	10.0	SE	No
Rumpus	DOW-001-01 A	W6	600	1810	sliding	45.0	NE	No
Rumpus	DOW-001-01 A	W7	500	1810	sliding	45.0	NE	No
Rumpus	DOW-001-01 A	W8	1250	2410	sliding	10.0	NW	No
Bedroom 2	DOW-001-01 A	W10	1250	1810	sliding	10.0	SW	No
Bedroom 3	DOW-001-01 A	W13	500	1810	sliding	45.0	SW	No
Bedroom 3	DOW-001-01 A	W9	1250	1810	sliding	10.0	NW	No
Ensuite	DOW-001-01 A	W11	500	1210	sliding	45.0	SW	No
Bathroom 2	DOW-001-01 A	W5	500	1210	sliding	45.0	NE	No

## Roof window *type and performance value*

### Default\* roof windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
				No Data Available	

### Custom\* roof windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
				No Data Available	

## Roof window *schedule*

Location	Window ID	Window no.	Opening %	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	



## Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m <sup>2</sup> )	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage	2100	2700	100.0	SE
Entry	2400	920	100.0	SE
Pantry	2100	720	100.0	NW

## External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	STANDARD - Double Brick	0.5	Medium		No
2	STANDARD - Brick Veneer	0.5	Medium		No
3	STANDARD - Framed - Uninsulated (Generic)	0.5	Medium		No
4	STANDARD - Framed Slim (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	STANDARD - Brick Veneer - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

## External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2700	3057	SE	690	Yes
Garage	2	2700	695	NE	0	Yes
Garage	3	2700	453	SE	3254	Yes
Garage	2	2700	5646	SW	0	Yes
Study/Bedroom 5	4	2700	782	SW	0	Yes
Study/Bedroom 5	4	2700	1359	SW	2020	Yes
Study/Bedroom 5	4	2700	3005	SE	1100	Yes
Study/Bedroom 5	4	2700	639	NE	420	Yes
Study/Bedroom 5	4	2700	236	SE	1751	Yes
Study/Bedroom 5	4	2700	3840	NE	0	Yes
Entry	4	2700	1363	SE	3254	Yes
Kitchen/Living	4	2700	508	NE	0	No
Kitchen/Living	4	2700	203	SE	0	Yes
Kitchen/Living	4	2700	2266	NE	0	Yes
Kitchen/Living	4	2700	194	NW	0	Yes
Kitchen/Living	4	2700	5942	NE	0	Yes
Kitchen/Living	4	2700	2666	NW	3505	Yes
Kitchen/Living	4	2700	2150	N	0	Yes
Kitchen/Living	4	2700	3177	NW	2100	Yes

\* Refer to glossary.

Kitchen/Living	4	2700	4279	SW	0	Yes
Laundry	5	2700	2002	SW	0	Yes
Pantry	4	2700	1010	SW	0	Yes
Pantry	4	2700	111	SE	0	Yes
Pantry	5	2700	2106	SW	0	Yes
Pantry	4	2700	971	NW	0	Yes
Bathroom 1	4	2700	2007	NE	0	Yes
Bedroom 4	4	2700	567	SW	550	Yes
Bedroom 4	4	2700	3141	SE	623	No
Bedroom 4	4	2700	3903	NE	550	Yes
Bedroom 1	4	2700	3264	SW	550	Yes
Bedroom 1	4	2700	3528	SE	623	Yes
WIR	4	2700	2315	SW	550	Yes
Rumpus	4	2700	447	SE	7812	Yes
Rumpus	4	2700	2248	NE	0	Yes
Rumpus	4	2700	447	NW	6518	Yes
Rumpus	4	2700	5968	NE	550	Yes
Rumpus	4	2700	3659	NW	550	Yes
Bedroom 2	4	2700	3607	SW	550	Yes
Bedroom 3	4	2700	3136	SW	550	Yes
Bedroom 3	4	2700	3005	NW	550	Yes
Ensuite	4	2700	2007	SW	550	Yes
Bathroom 2	4	2700	3059	NE	550	Yes

## Internal wall type

Wall ID	Wall type	Area (m <sup>2</sup> )	Bulk insulation
1	STANDARD - Internal Stud Walls	152.2	
2	STANDARD - Internal Stud Walls -R2.0 Batts	22.6	Glass fibre batt: R2.0 (R2.0)

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	12.6	Enclosed	R0.0	none
Garage	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	6.9	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	13.9	Enclosed	R0.0	Timber
Study/Bedroom 5	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	0.5	Enclosed	R0.0	Timber
Entry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	8.1	Enclosed	R0.0	Timber
Kitchen/Living	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	0	Enclosed	R0.0	Timber
Kitchen/Living	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	55.6	Enclosed	R0.0	Timber
Kitchen/Living	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	0.7	Enclosed	R0.0	Timber
Kitchen/Living	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	5.8	Enclosed	R0.0	Timber
Laundry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	1.8	Enclosed	R0.0	Tiles

Laundry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	2.4	Enclosed	R0.0	Tiles
Pantry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	2	Enclosed	R0.0	Timber
Pantry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	3.9	Enclosed	R0.0	Timber
Bathroom 1	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	0.3	Enclosed	R0.0	Tiles
Bathroom 1	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	5.2	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	12.3	Enclosed	R4.0	Carpet
Bedroom 1	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	8.2	Enclosed	R4.0	Carpet
Bedroom 1	FLOOR - Framed External Suspended Floor (R4.0 Insulation)	3.3	Elevated	R4.0	Carpet
WIR	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	5.7	Enclosed	R4.0	Carpet
Rumpus	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	36.3	Enclosed	R4.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	9.9	Enclosed	R4.0	Carpet
Bedroom 3	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	10.3	Enclosed	R4.0	Carpet
Ensuite	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	6	Enclosed	R4.0	Tiles
Bathroom 2	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	7	Enclosed	R4.0	Tiles

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	R4.0	No
Garage	Plasterboard	R0.0	Yes
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	R4.0	No
Entry	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	R4.0	No
Kitchen/Living	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	R4.0	No
Kitchen/Living	Plasterboard	R4.0	Yes
Kitchen/Living	Plasterboard	R4.0	Yes
Laundry	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	R4.0	No
Laundry	Plasterboard	R4.0	Yes
Pantry	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	R4.0	No
Pantry	Plasterboard	R4.0	Yes
Bathroom 1	FLOOR - Framed Internal Suspended Floor (R4.0 Insulation)	R4.0	No
Bedroom 4	Plasterboard	R4.0	Yes

Bedroom 1	Plasterboard	R4.0	Yes
Bedroom 1	Plasterboard	R4.0	Yes
WIR	Plasterboard	R4.0	Yes
Rumpus	Plasterboard	R4.0	Yes
Bedroom 2	Plasterboard	R4.0	Yes
Bedroom 3	Plasterboard	R4.0	Yes
Ensuite	Plasterboard	R4.0	Yes
Bathroom 2	Plasterboard	R4.0	Yes

### Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	1	Exhaust Fans	185	Sealed
Bathroom 1	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	Sealed
Bathroom 2	1	Exhaust Fans	250	Sealed

### Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

### Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.75	Dark
Ceil: Ceiling	0.0	0.5	Medium

## Explanatory Notes

### About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

### Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

### Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way. Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
<b>Ceiling penetrations</b>	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
<b>Conditioned</b>	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.



<b>National Construction Code (NCC) Class</b>	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
<b>Roof window</b>	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
<b>Skylight</b> (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

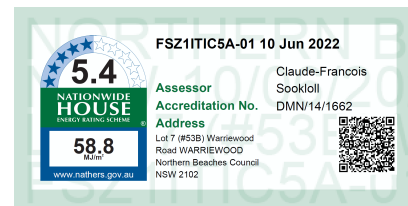
# DEVELOPMENT APPLICATION

## TWO STORY DWELLING

LOT 07 - 53B WARRIEWOOD ROAD, WARRIEWOOD 2102 NSW

Sheet List LOT 07		
Sheet No.	Sheet Name	Rev.
DA07.00	COVER PAGE	A
DA07.01	SITE ANALYSIS	A
DA07.02	SITE PLAN	A
DA07.03.1	FLOOR PLANS	A
DA07.03.2	ELEVATIONS	A
DA07.03.3	SECTIONS	A
DA07.04	MATERIA BOARD	A

Sheet List LOT 07		
Sheet No.	Sheet Name	Rev.
DA07.05.1	SHADOW STUDY GROUND FLOOR	A
DA07.05.2	SHADOW STUDY FIRST FLOOR	A
DA07.06	LANDSCAPE PLAN	A
DA07.07	STORMWATER MANAGEMENT PLANS	A
DA07.08	DRIVEWAY LOTS 4-7	A

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WARRIWOOD**

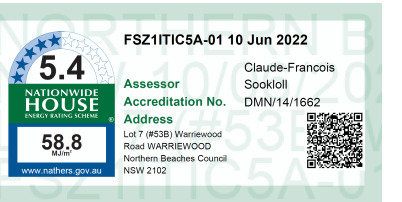
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COVER PAGE

JOB No : <b>RP 225</b>	NORTH:
SCALE : A1/	
DATE:	

DW No. <b>DA07.00</b>	REV: <b>A</b>
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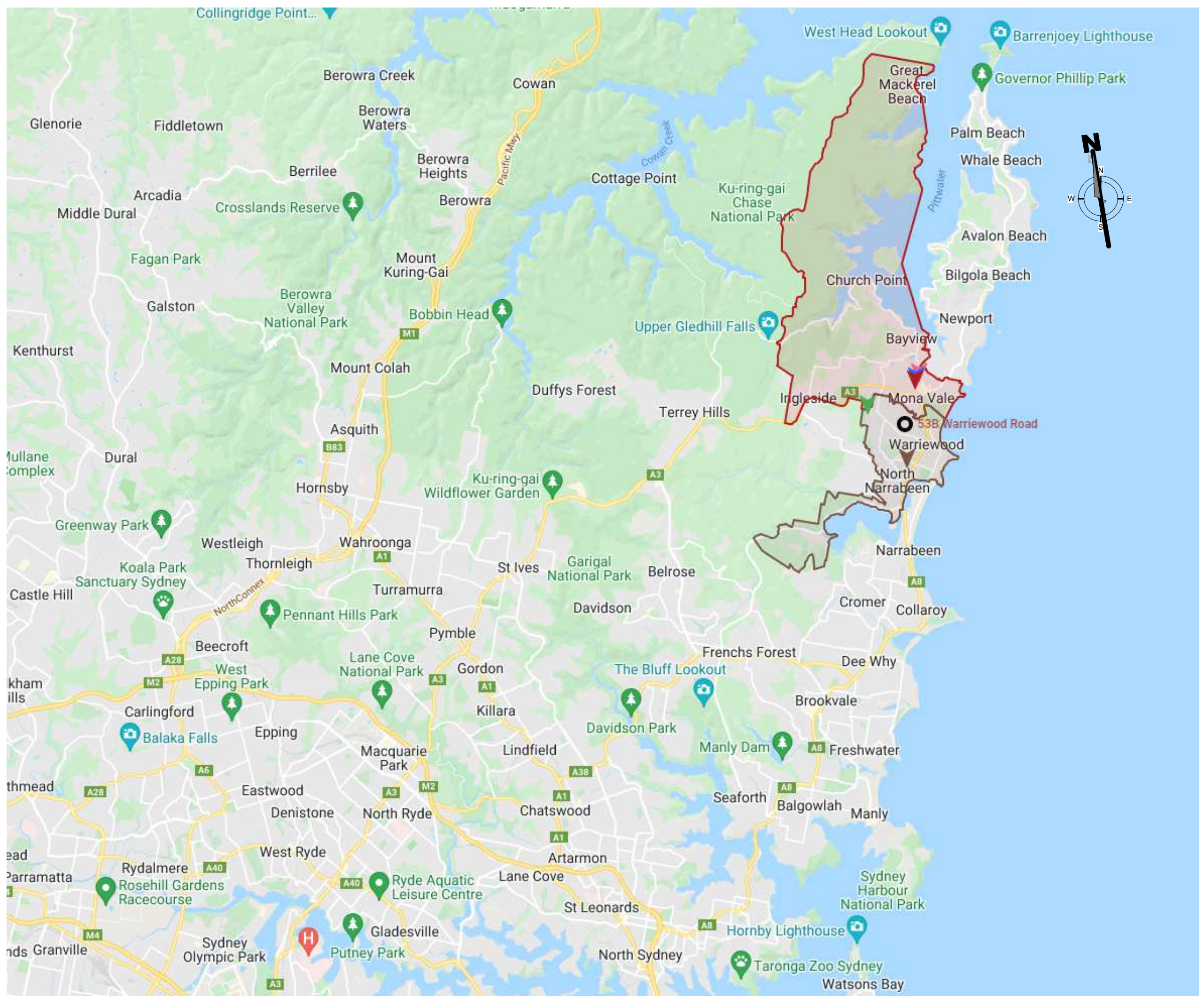
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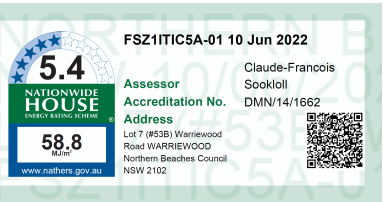
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## SITE ANALYSIS

OBJ No : <b>RP 225</b>	NORTH:
SCALE : A1/As indicated	
DATE: 08/06/22	
W No. <b>DA07.01</b>	REV: <b>A</b>





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
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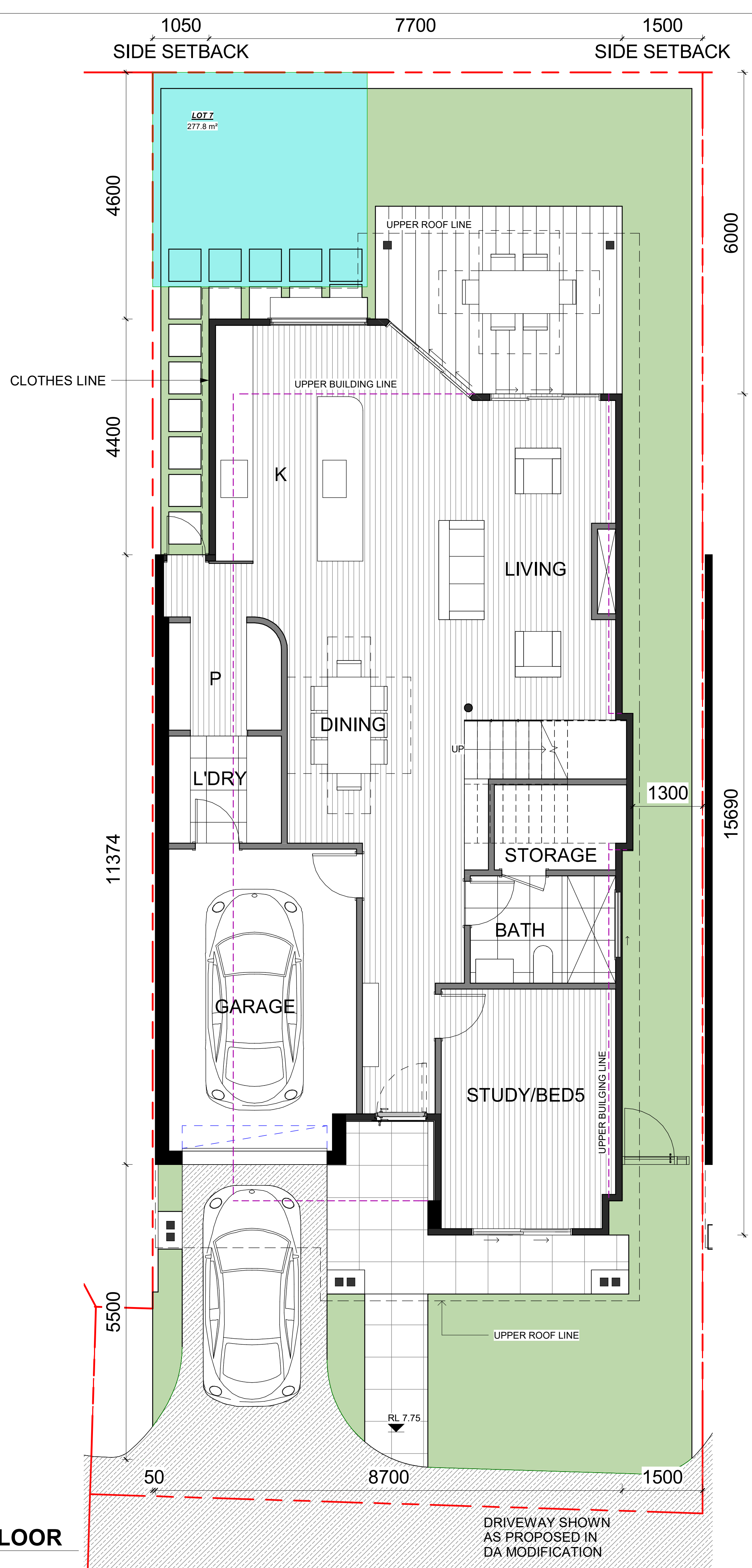
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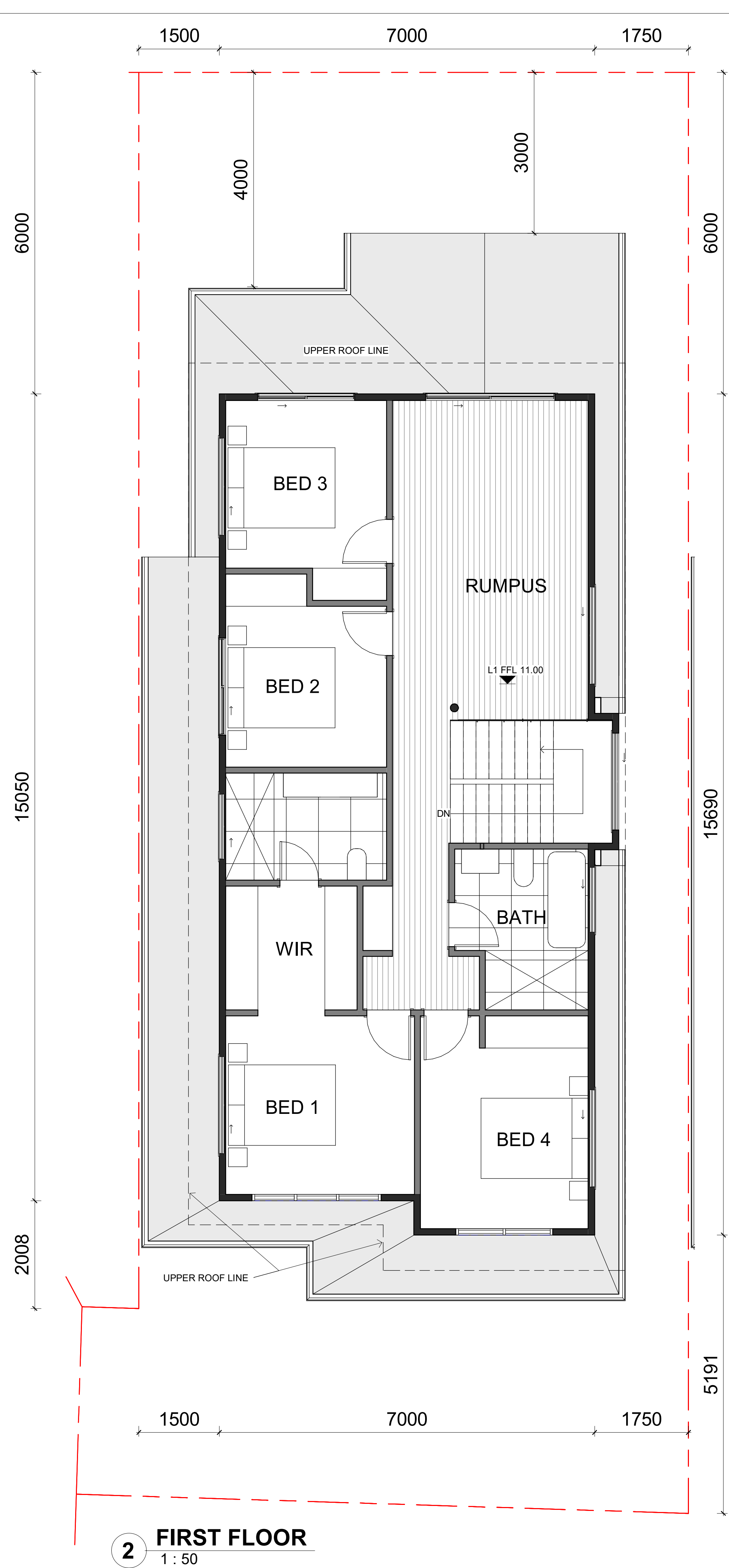
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LOT 07 - 53B  
WARRIEWOOD ROAD,  
WARRIEWOOD

## SITE PLAN

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DWG No. <b>DA07.02</b>	REV: <b>A</b>



1 GROUND FLOOR  
1 : 50



AREA SCHEDULE LOT 07	
Name	Area
GROUND FLOOR	104 m <sup>2</sup>
FIRST FLOOR	96 m <sup>2</sup>
	200 m <sup>2</sup>
GARAGE	19 m <sup>2</sup>
	19 m <sup>2</sup>



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VIEW:

FLOOR PLANS

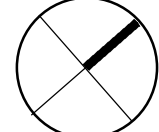
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SCALE : A1/1 : 50

DATE: 08/06/22

DW No. DA07.03.1

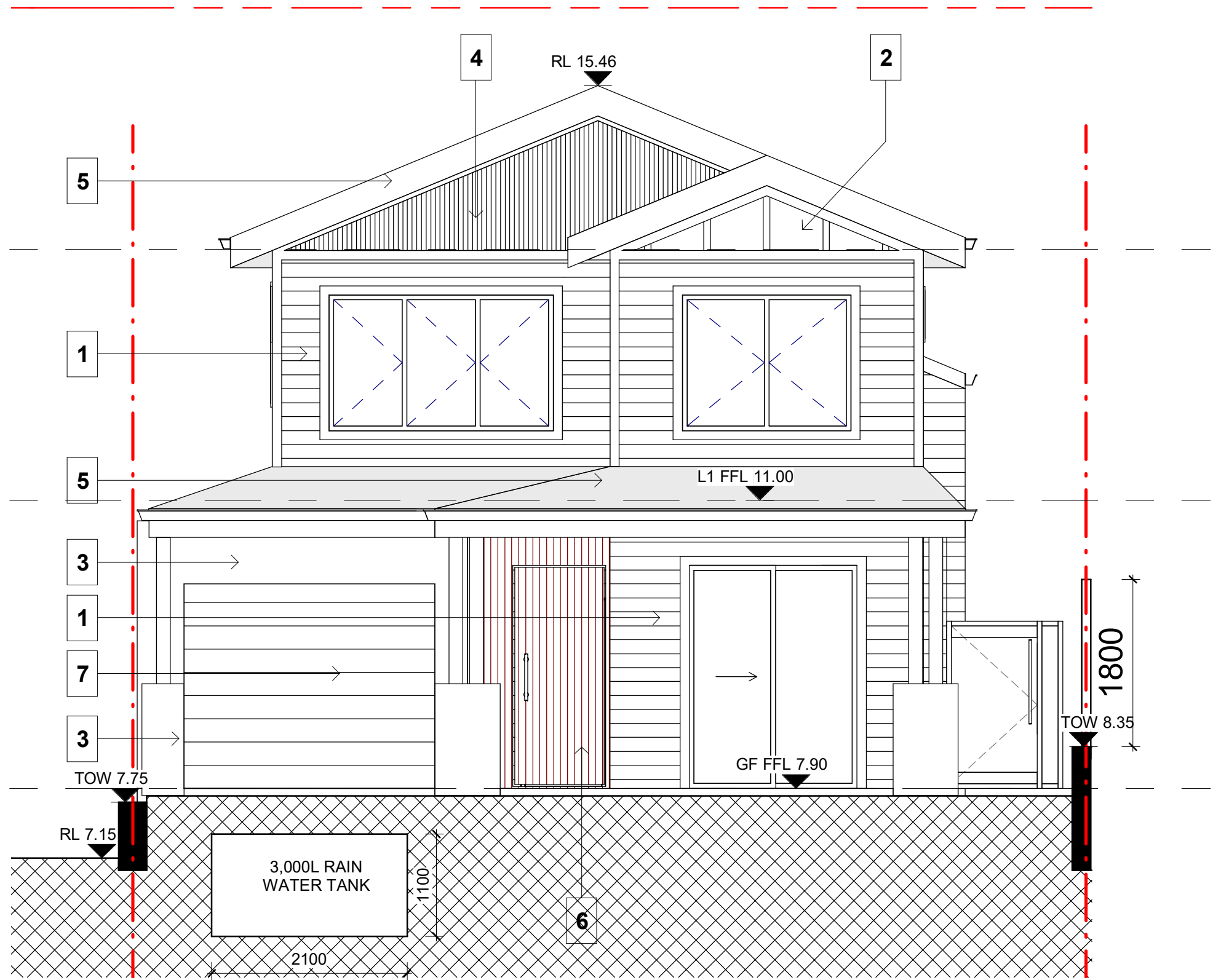
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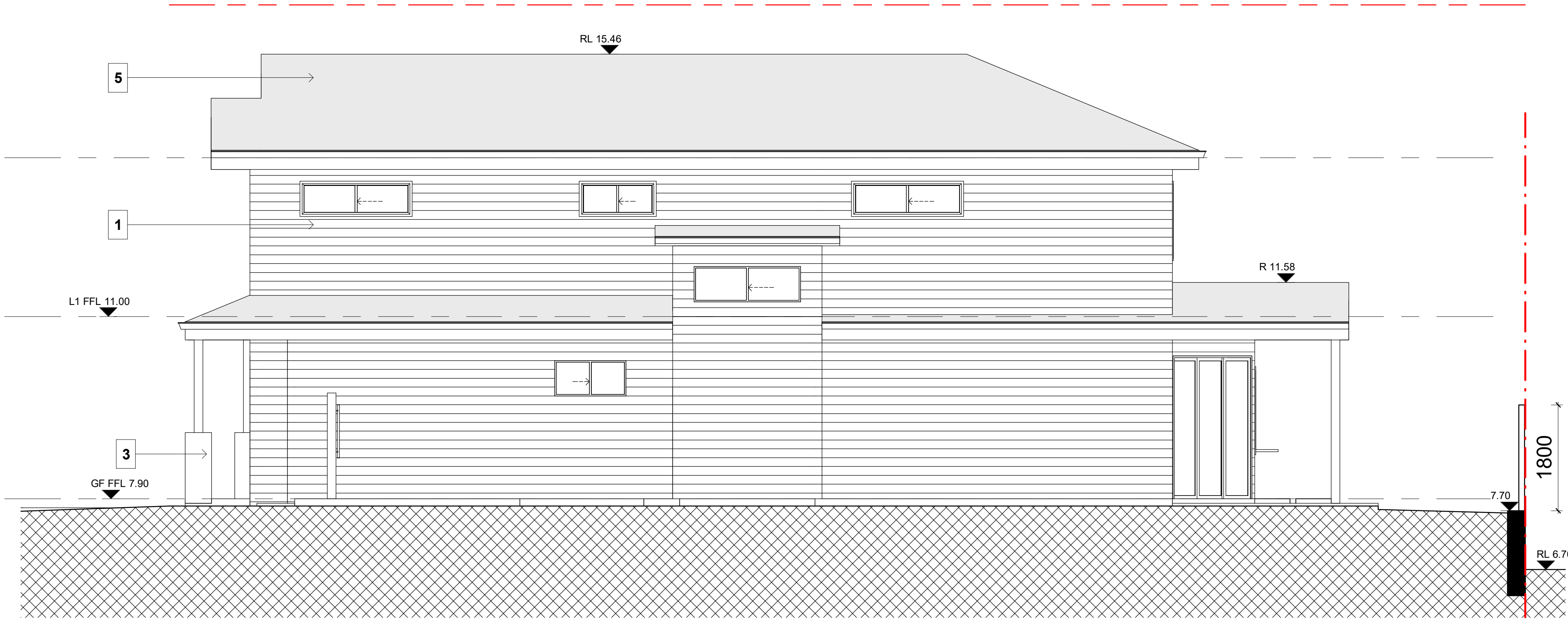
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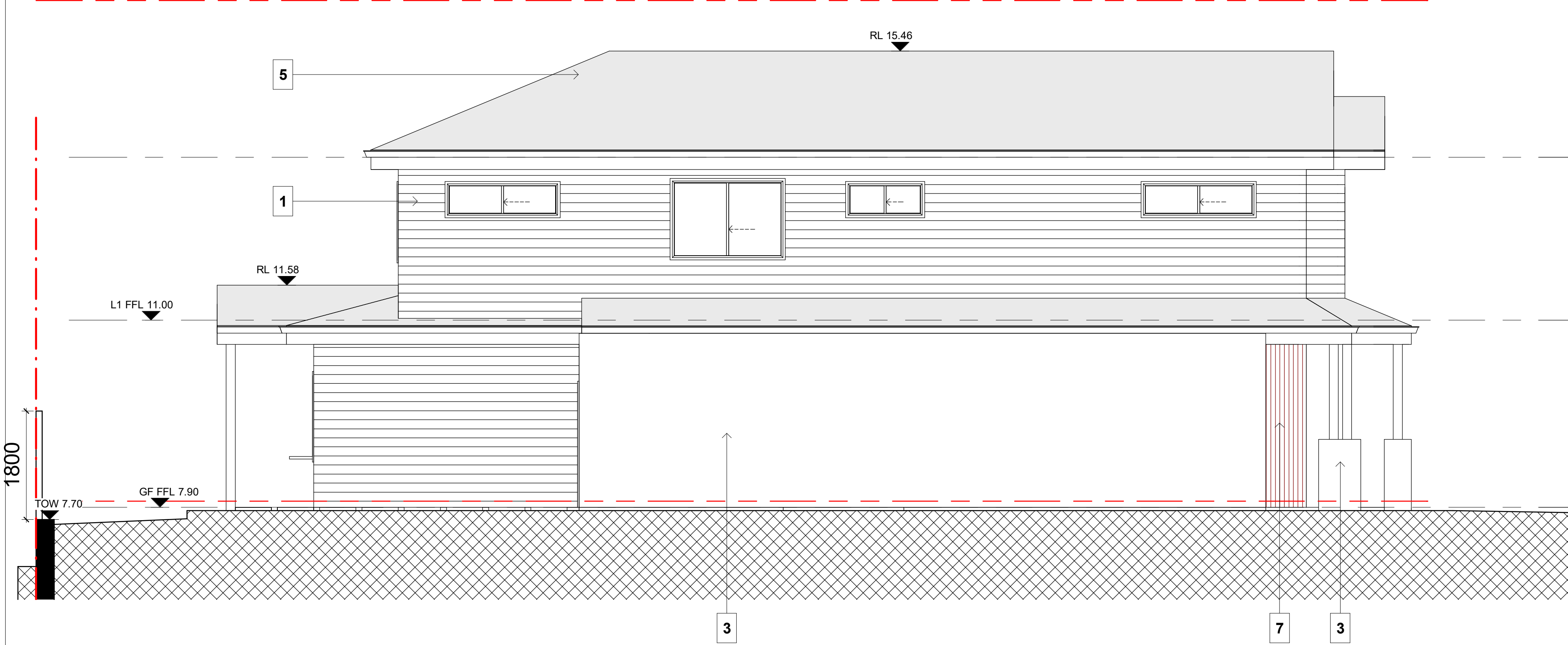




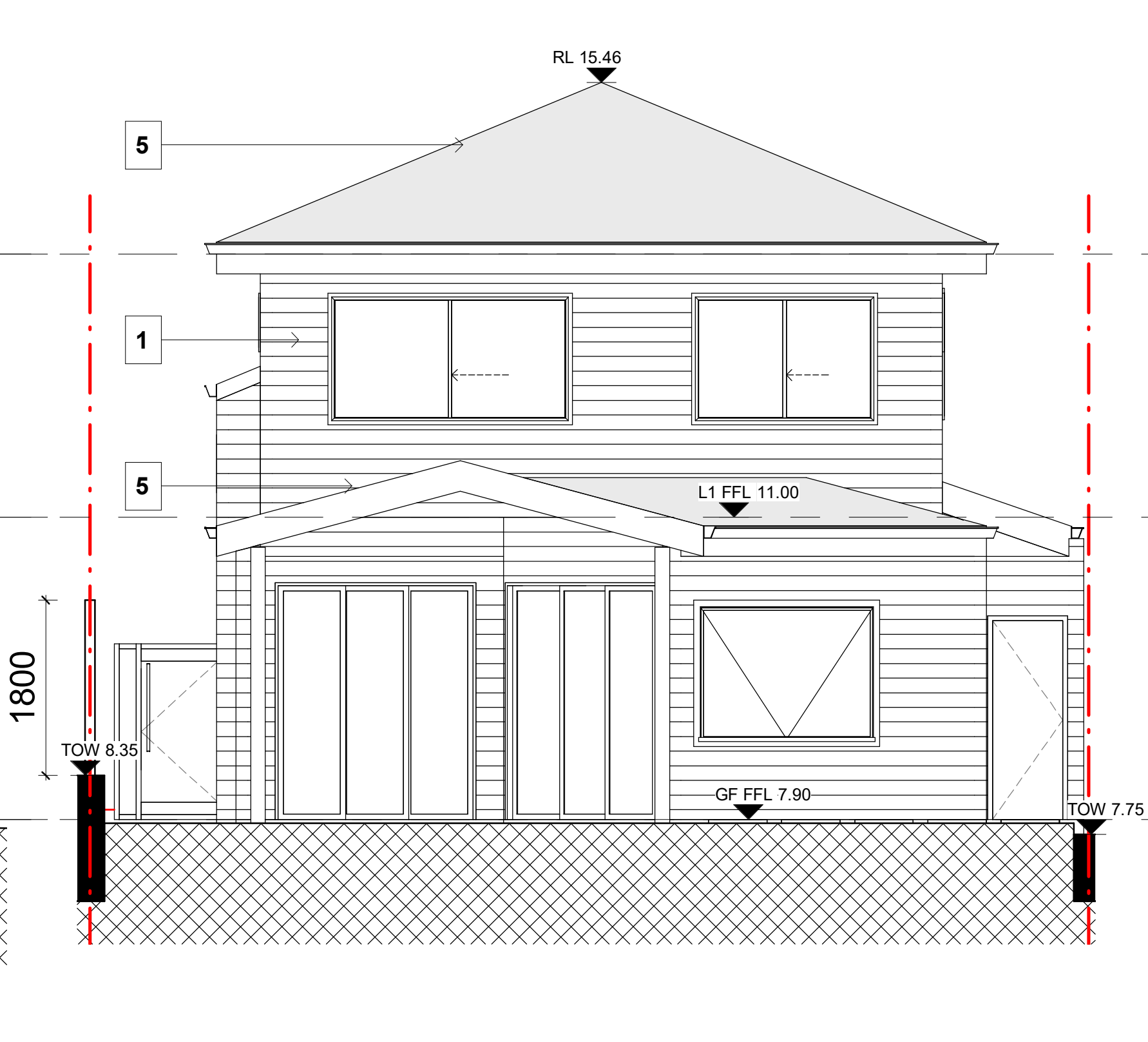
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2 LOT 07 ELEVATION NE  
1 : 50

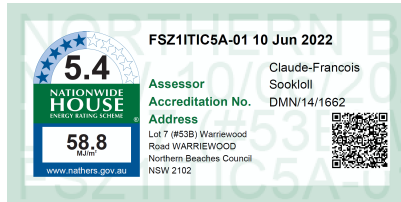


3 LOT 07 ELEVATION SW  
1 : 50



4 LOT 07 ELEVATION NW  
1 : 50

- 1 - LIGHT GREY WEATHERBOARD CLADDING  
2 - WHITE PAINTED GABLE  
3 - GREY PAINTED RENDER WALL  
4 - WHITE BATTEN GABLE CLADDING  
5 - GREY METAL ROOF  
6 - TIMBER BATTEN WALL FINISH  
7 - GREY PANEL LIFT GARAGE DOOR



Date	RV	Description
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ELEVATIONS

JOB No :	RP 225	NORTH:
SCALE :	A1/1 : 50	
DATE:	08/06/22	
DW No.	DA07.03.2	REV: A

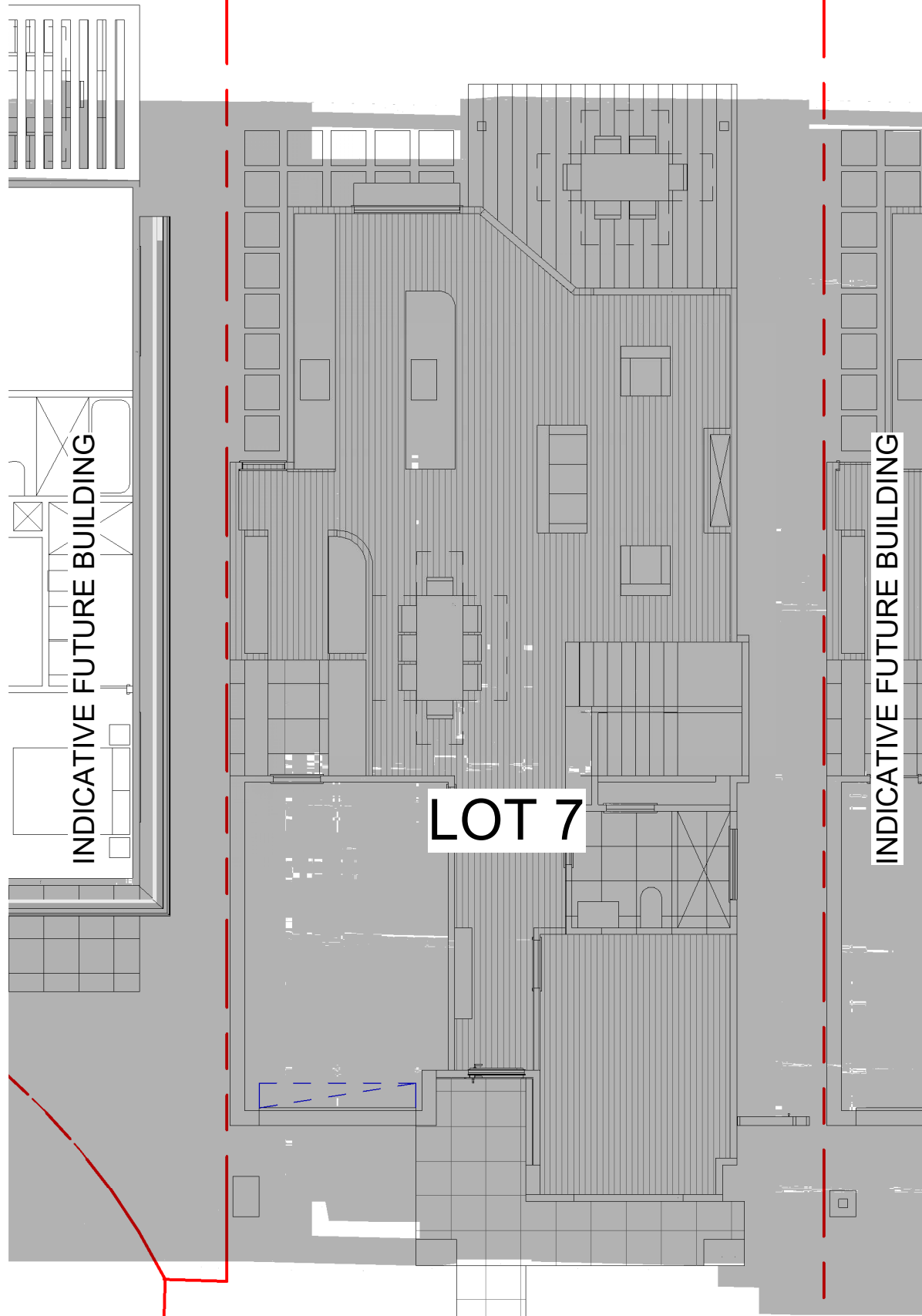
BW 360/Warriewood - 53B Warriewood ROAD - CENTRAL.vrt



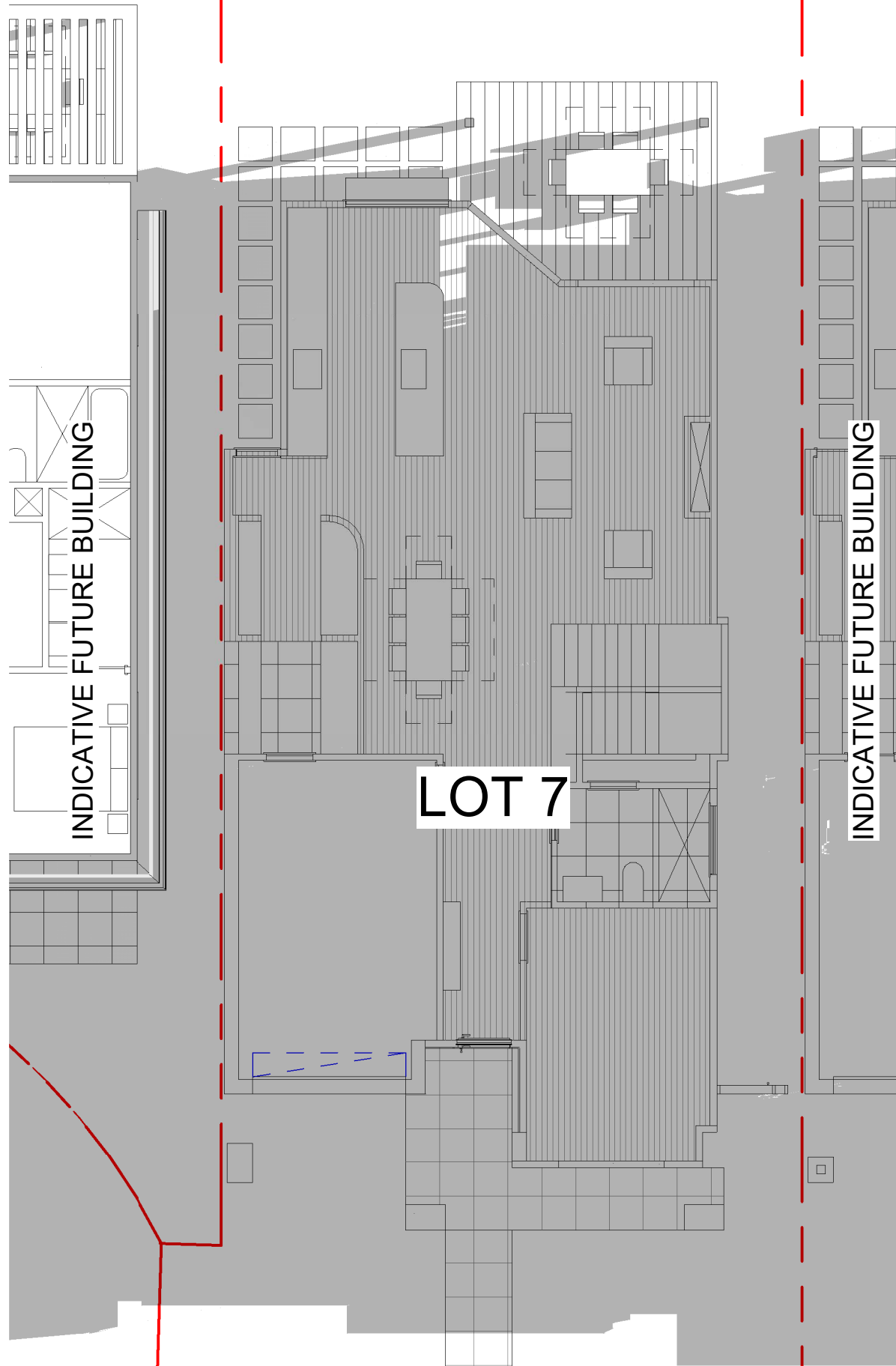




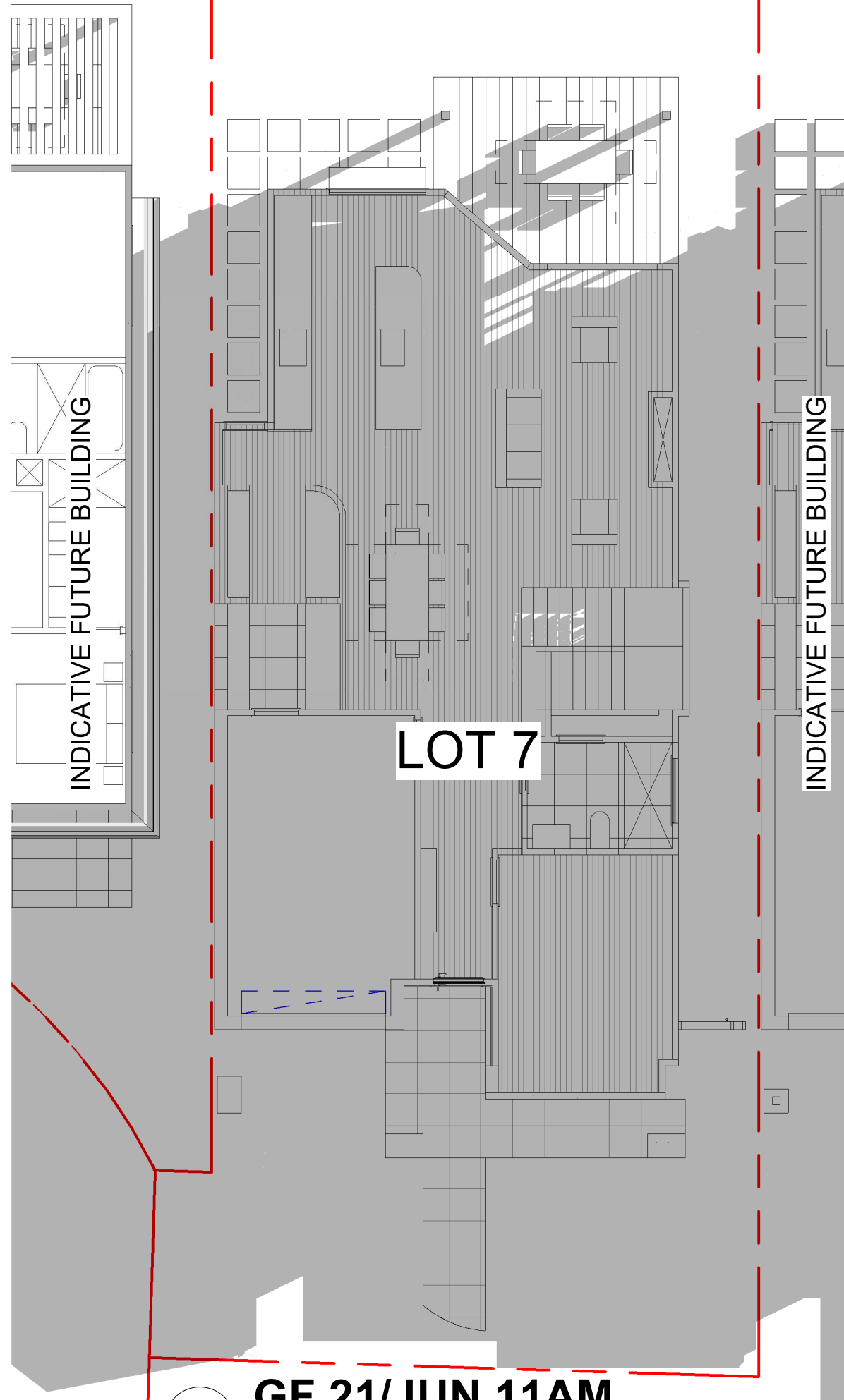




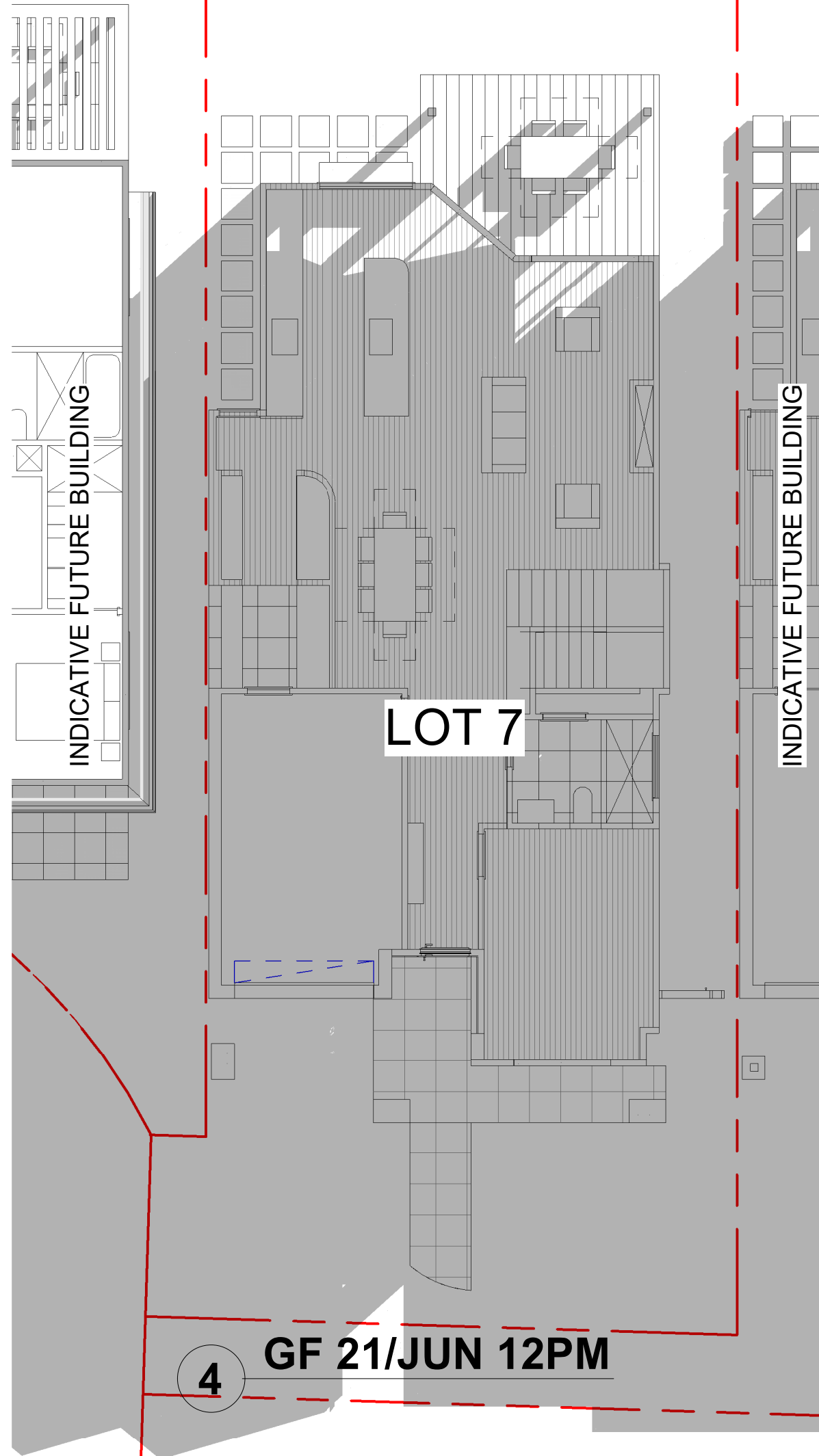
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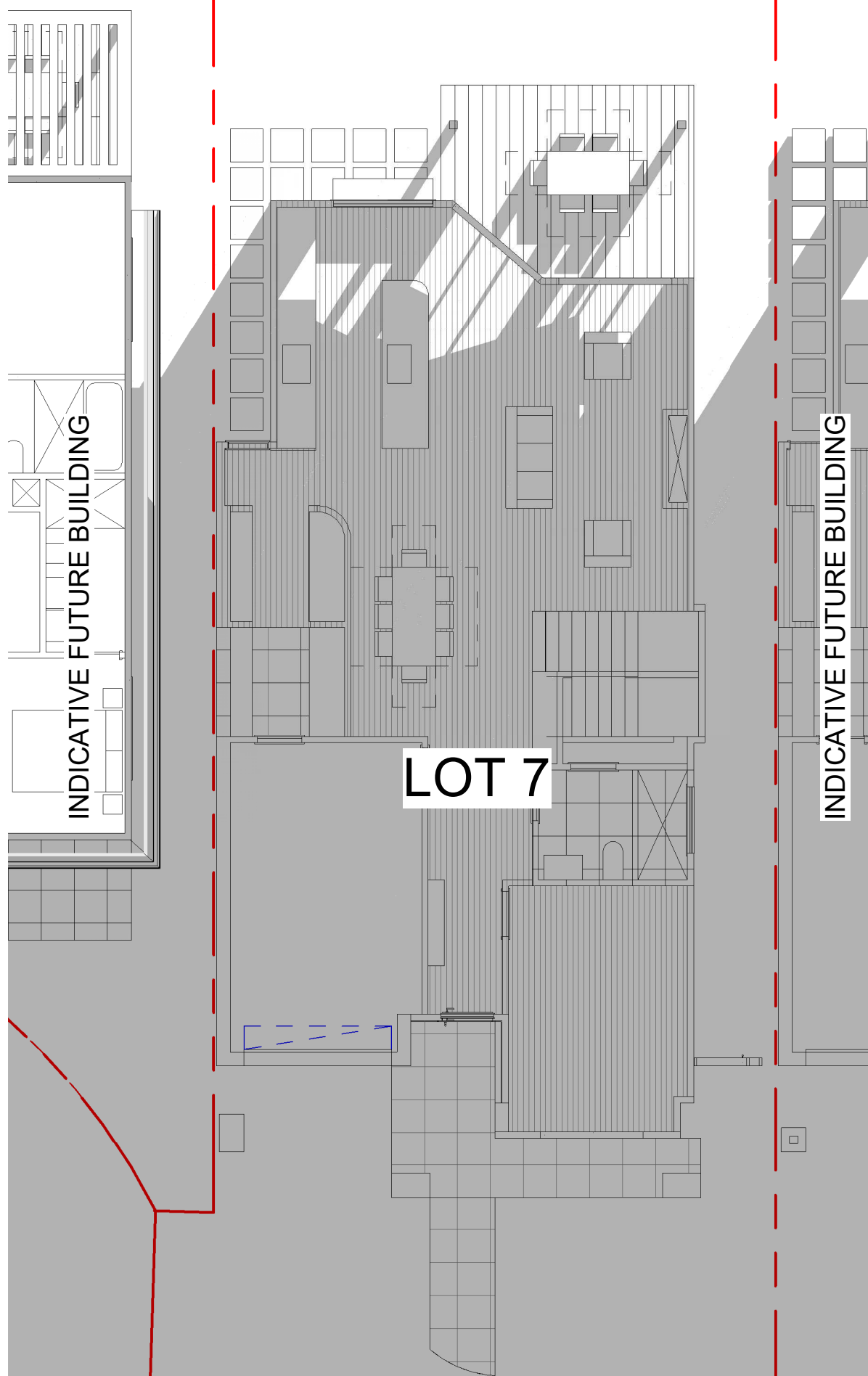
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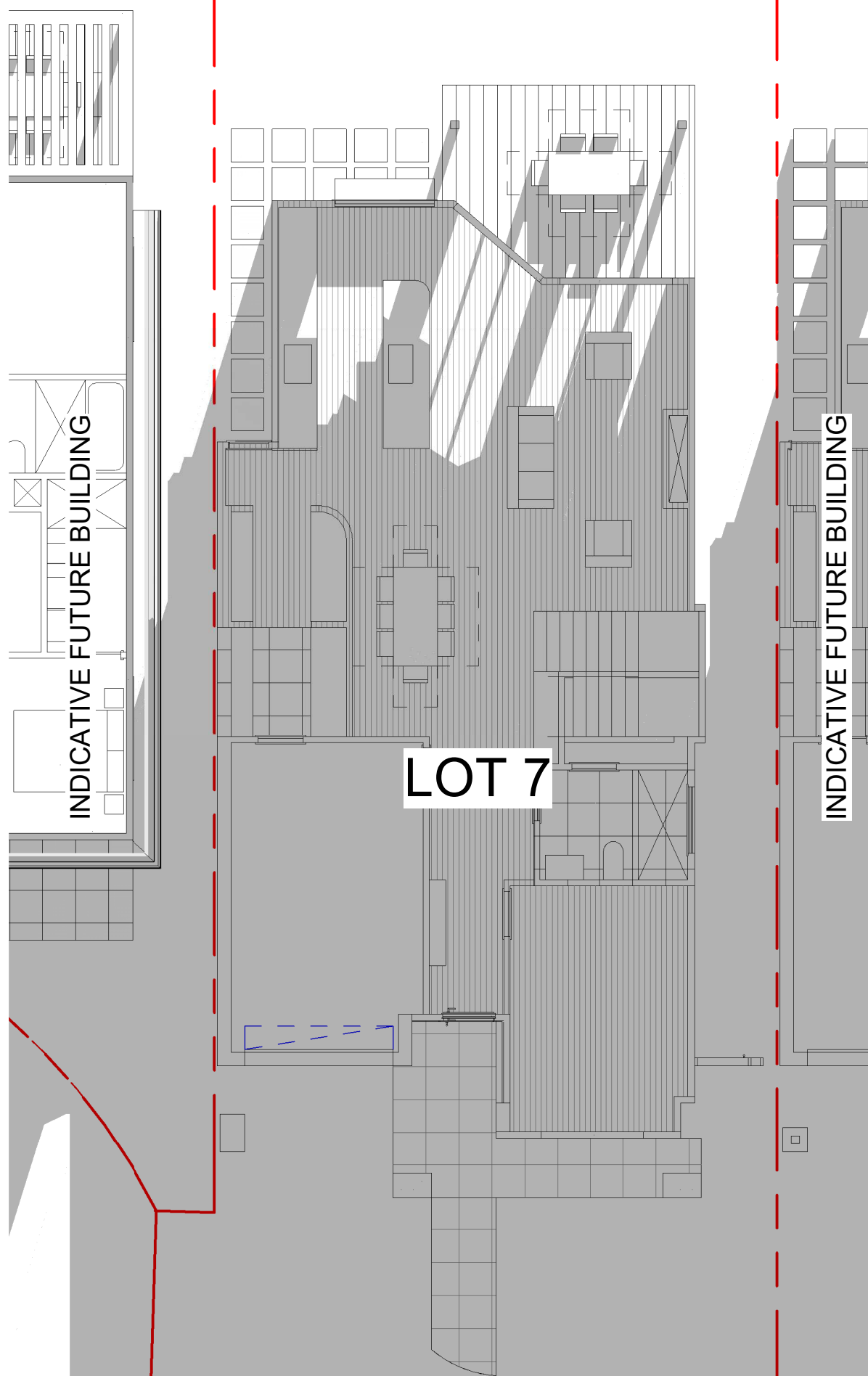
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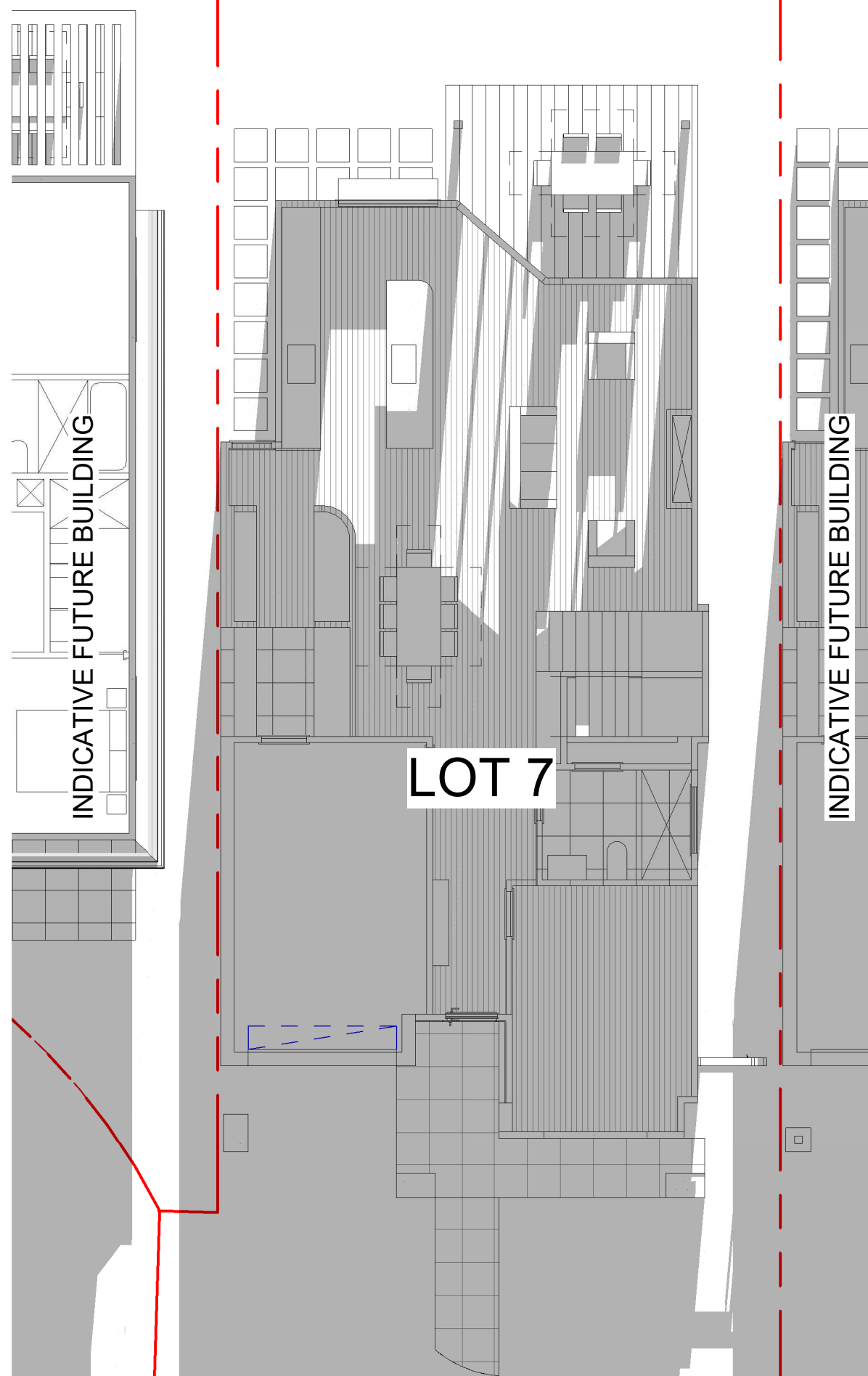
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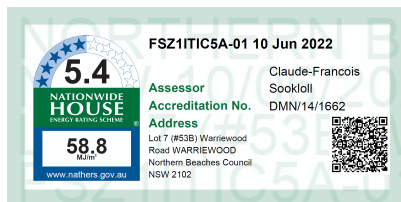
5 GF 21/JUN 1PM



6 GF 21/JUN 2PM



7 GF 21/JUN 3PM



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VIEW:  
**SHADOW STUDY  
GROUND FLOOR**

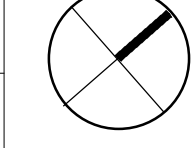
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SCALE : **A1/**

DATE: **08/06/22**

DW No. **DA07.05.1**

NORTH:

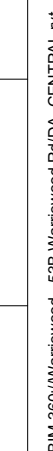


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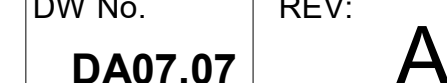




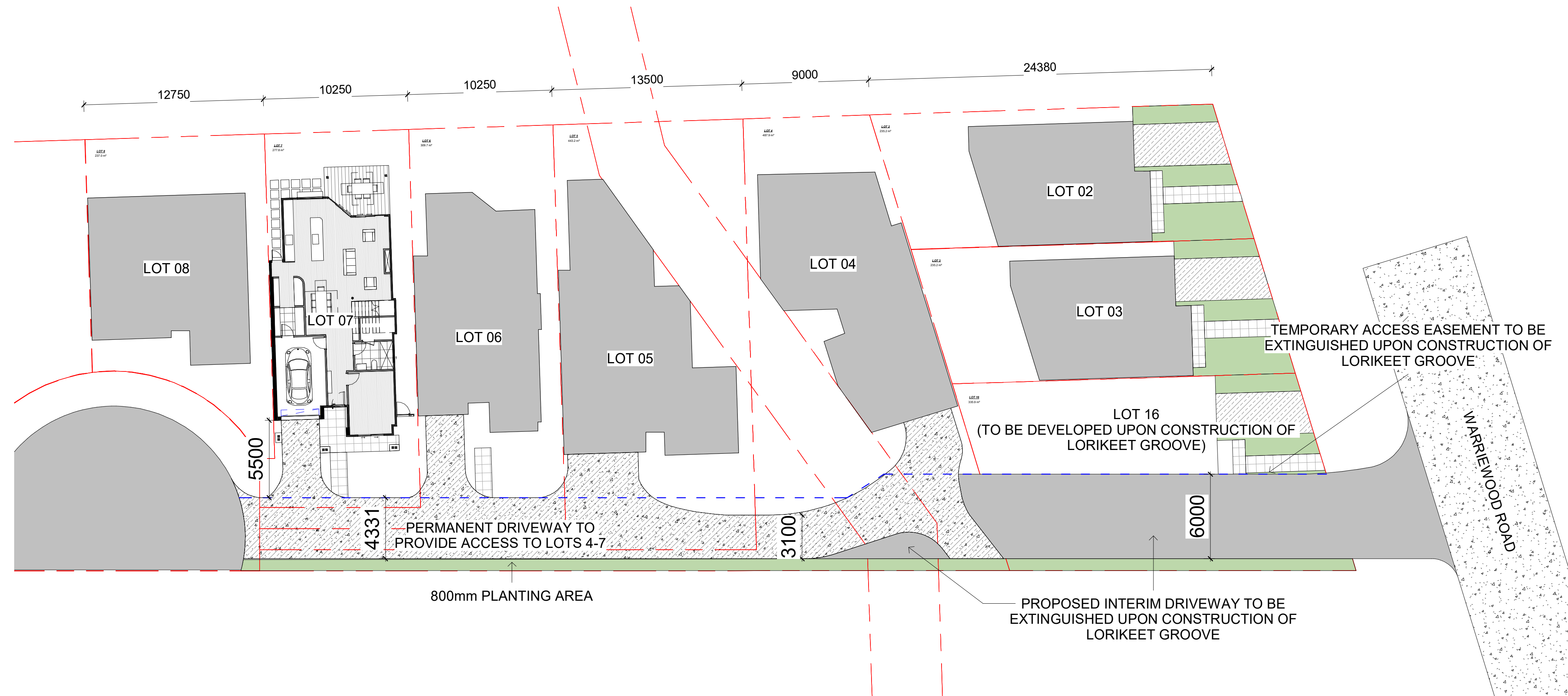




**TOTAL ROOF AREA FOR RAINWATER COLLECTION: 172m2**



EXTRACTED FROM DA MODIFICATION

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**DRIVEWAY LOTS**  
**4-7**

OB No : <b>RP 225</b>	NORTH:
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SCALE :  
A1/ 1 : 200

DATE: 08/06/22

W No.	REV:
<b>DA07.08</b>	<b>A</b>