



CIVIL

## Flood Assessment

for

46 Chester Avenue, Maroubra

for Integrated Design Group

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		Date
Prepared by	GB	12/03/2024
Checked by	GB	12/03/2024
Admin	ZJ	12/03/2024

SY231042 / 12 March 2024 / Revision C

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Assessment\_C.docx

## Acronyms

AEP	Annual Exceedance Probability
AHD	Australian Height Datum
DCP	Development Control Plan
FPL	Flood Planning Level
LGA	Local Government Area
m	Measure of length/ height/ distance (metres)
m AHD	Meters above Australian High Datum
PMF	Probable Maximum Flood

## Introduction

Northrop Consulting Engineers have been engaged by Integrated Design Group to perform a Flood Assessment at 46 Chester Avenue, Maroubra, herein known as 'the subject site' or 'the site'.

The purpose of this correspondence is to assess the flood risk of the proposed development in accordance with the requirements of Randwick City Council's Flooding Advice and Flood Related Development Control Policy and dated February 2012.

Included herein is a:

- Methodology for our assessment.
- Description of the subject site and proposed development.
- Overview of the flood behaviour in the vicinity of the site.
- Review of development compliance with Council's Flooding Advice and Flood Related Development Control Policy (2012).

## Methodology

This study has been prepared generally following the below methodology.

- Review of the existing site conditions and proposed development.
- Review of existing flood conditions in the vicinity of the proposed development based on available flood information.
- Assessment of the proposed development with respect to Council's requirements outlined in the Flooding Advice and Flood Related Development Control Policy (February 2012).

Flood information presented herein has been obtained from the following documents.

- Maroubra Bay Floodplain Management Study and Plan prepared by WMAwater and dated December 2016 and adopted by Council February 2017, herein referred as Maroubra Bay FRMSP (2017).
- Flood Information Certificate provided by Randwick City Council and dated the 12th of October 2022 – included in Appendix A.

The Architectural Plans used in this assessment have been provided by Integrated Design Group and dated January 2024 – included in Appendix B.

The Civil / Stormwater related assumptions are based on the Concept Siteworks, Grading and Stormwater Drainage Plans prepared by Northrop Consulting Engineers and dated February 2024 – included in Appendix C.

## Subject Site and Proposed Development

### Subject Site

The subject site is located within the Randwick City Council LGA on Chester Avenue and is contained within Lot 270 12 DP 36765. The site is bounded by three residential properties to the south, west and north and has frontage to Chester Avenue on the east.

The site is generally sloped to the north-east with elevation ranging from 24.8 – 23.8m AHD.

The characteristic of the subject site is presented in **Photo 1** below. The locality is presented in **Figure 1** overleaf.

The current site is occupied by a single-storey residential development with frontage to Chester Avenue.



Photo 1 - Looking west towards the site on Chester Avenue (© Google Maps)

### Proposed Development

The proposed development consists of a three-storey multi-dwelling residential development with seven residential units are proposed over three levels.

In addition, the development includes a lift and stairway, a carpark and access driveway from Chester Avenue, and a communal space at the back of the development.

The proposed floor levels of the residential units and car park are shown below in **Table 1**.

**Table 1 – Proposed Floor Levels**

Location	Level (m AHD)	Number of Residential Units
Ground Floor	24.00	1
Level 1	27.10	3
Level 2	30.20	3
Roof	33.30	-
On-grade Car Parking (Ground Floor)	24.00 – 24.25	-

Refer to Appendix B and C for more details.



**Legend**

Subject Site

0 40 80 Metres  
1:2,500

**Figure 1**  
Locality

46 Chester Avenue  
Maroubra



## Flood Behaviour

As per Council's Flood Certificate, the subject site is only affected by flooding during the PMF event.

The existing site flood depth and velocity during the PMF event are presented below in **Figure 2** and **Figure 3**.

Flood behaviour at, and in the vicinity of, the site is generated by the upstream catchment which is bound by Beauchamp Road to the south of the site, Anzac Parade to the west and Chicago Avenue to the east of the site. During the PMF, flows derived by the upstream catchment enter the site through the southwestern corner of the site and continue in a north easterly direction through the site before discharging into the low point in the northeastern corner of the site.

The following **Table 2** presents a summary of the expected flood levels within the site. We note these are maximum levels as the terrain varies across the site.

**Table 2 – Maximum flood levels for the site (As per Council's Flood Information Certificate)**

Location	Depth (m)	Elevation (m AHD)
PMF	0.19	24.84
1% AEP	Not Affected	-
5% AEP	Not Affected	-

**Table 3** below presents the expected flood velocity within the site.

**Table 3 - Flood velocity for the site (As per Maroubra Bay FRMSP (2017))**

Flood Event	Velocity (m/s)
PMF	< 0.10

The PMF flood hazard classification for the existing site conditions is presented below in **Figure 4**.

It should be noted that the existing flood behaviour presented in Figure 2 – Figure 4 below has been based on Maroubra Bay FRMSP (2017).

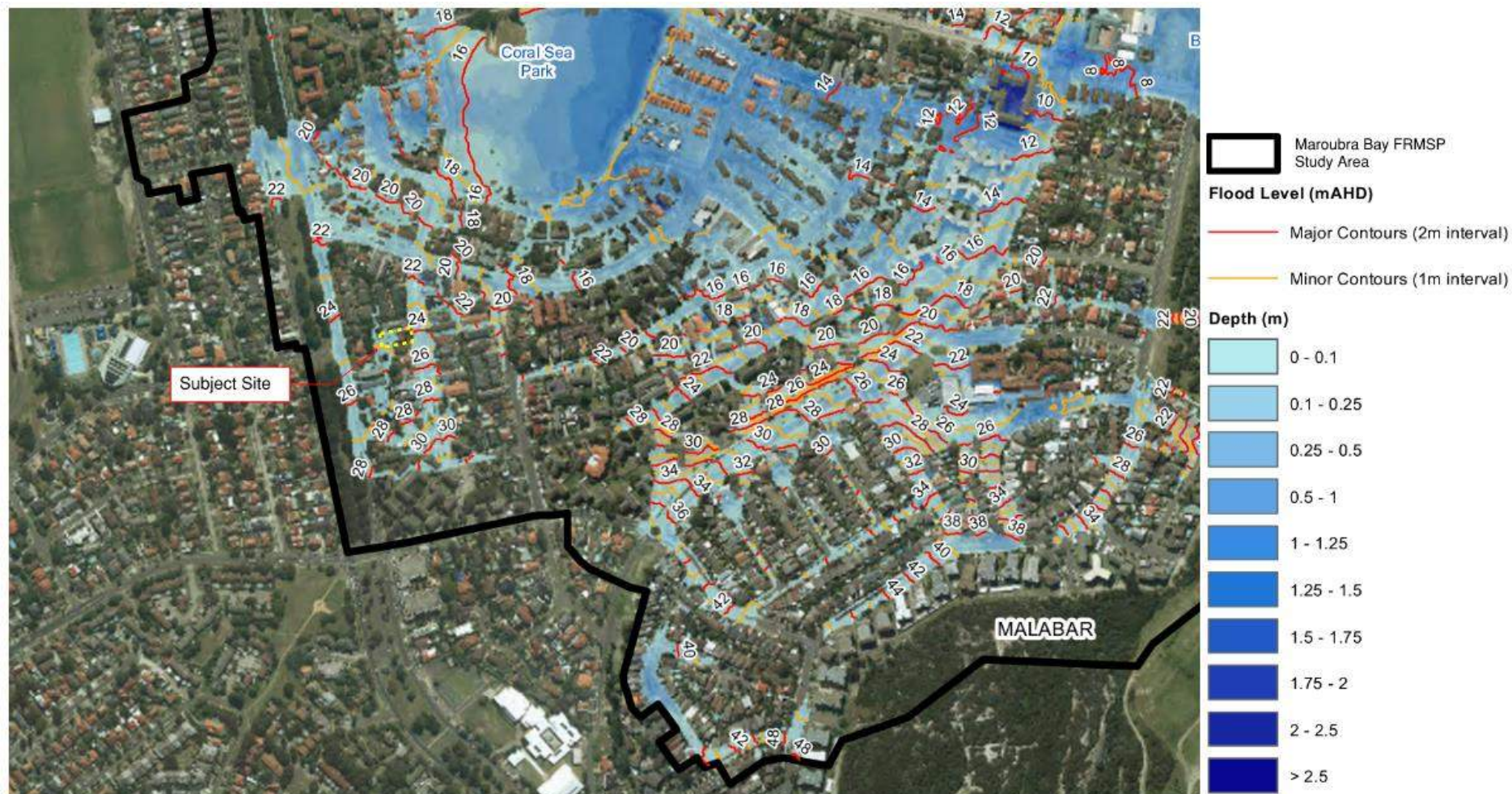


Figure 2 – PMF Flood Depth and Elevation

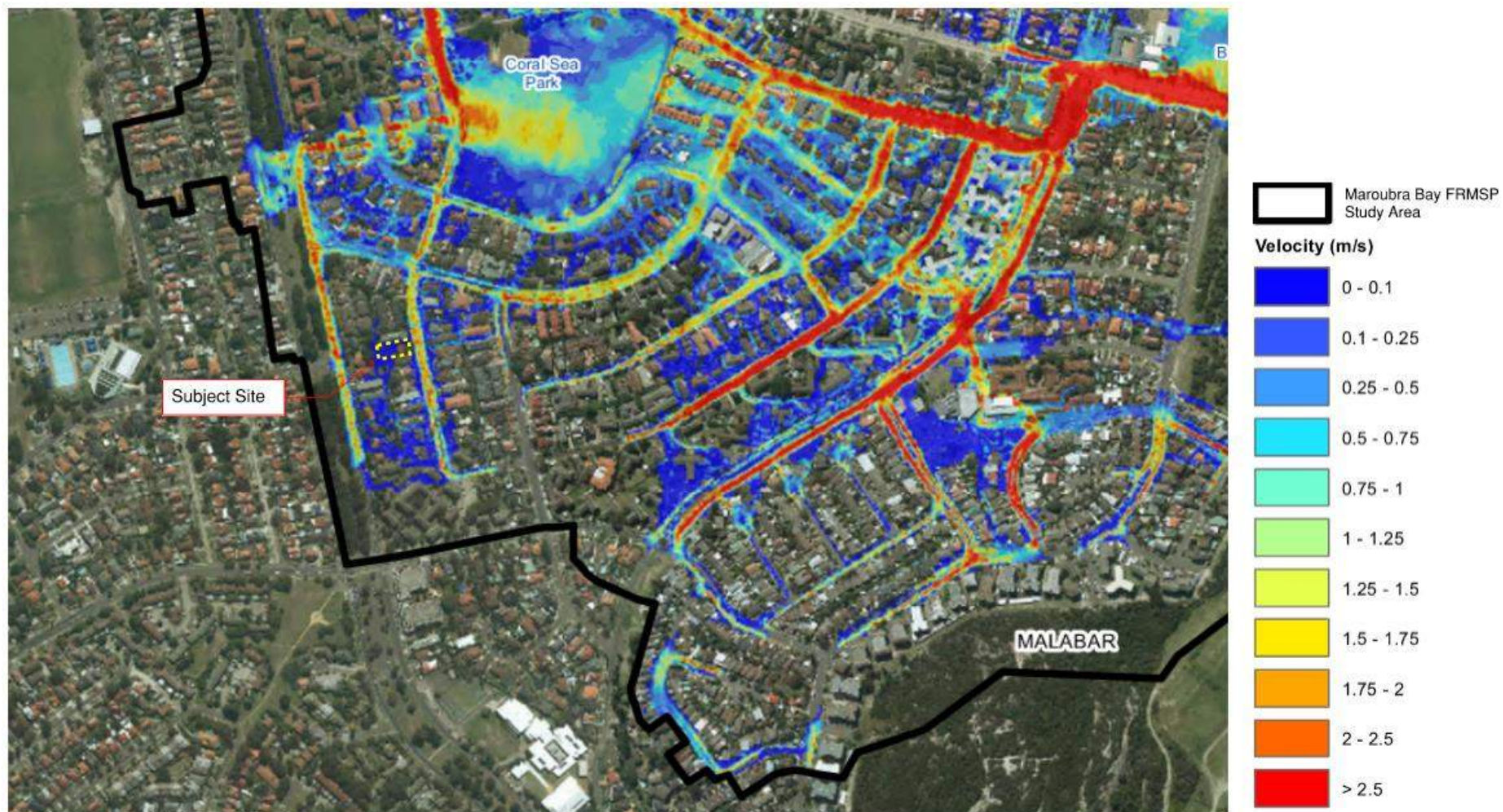


Figure 3 – PMF Flood Velocity

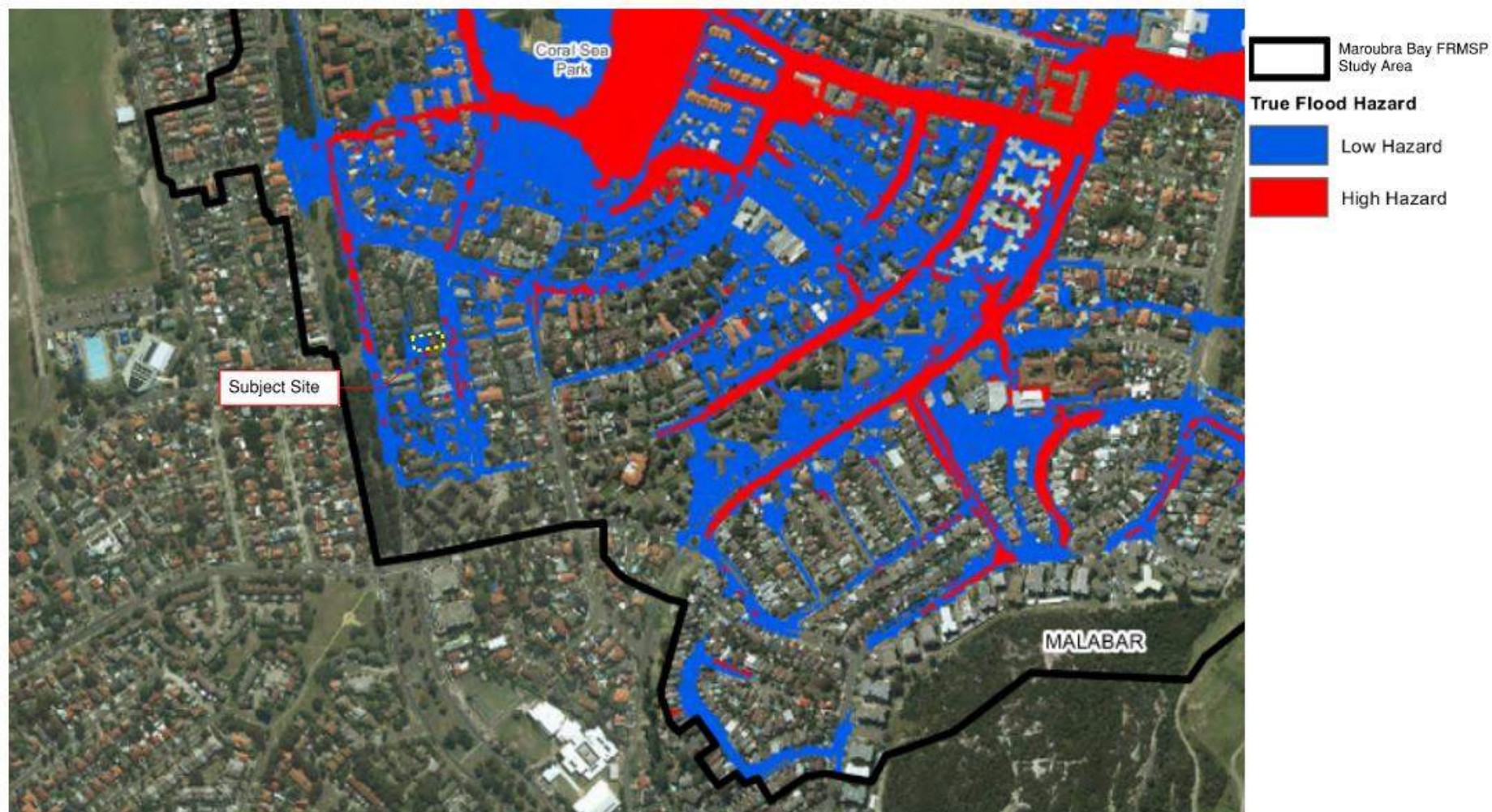


Figure 4 – True Flood Hazard Classification PMF Event – Pre-Developed Condition

## Council Requirements

As per Council's Flood Information Certificate, The Randwick City Council Flooding Advice and Flood Related Development Controls Policy (February 2012) sets out flood planning levels and development principles for this property. The proposed development has been assessed based on **Sections 3 - Flooding Related Development Controls** of the Policy. How the development satisfies (or otherwise) each of the requirements is summarised below in **Table 4**.

**Table 4 – Council Requirements**

Reference Item	Requirement	Assessment	Compliant?
(a)	<ul style="list-style-type: none"> <li>No adverse impact on flooding, including conveyance of flood waters and, floodplain storage volume, for floods up to and including the 1% AEP flood.</li> </ul>	<p>As per Council's Flood Certificate, the subject site is located outside the 1% AEP flood extent of the regional catchment.</p> <p>The flood certificate suggests the site is located adjacent to a floodway (Chester Ave), however, floodwater within the road is not expected to encroach towards the subject site and therefore, we do not believe the proposed development to create any significant adverse impacts on the existing flood conveyance, floodplain storage volume for all floods up to and including the 1% AEP event.</p> <p>It is expected the additional stormwater caused by the development will be adequately managed within the site using an underground on-site detention tank in the post developed condition (refer to the Concept Stormwater Drainage Plan by Northrop) and we believe the post developed flows from the site to the Council's stormwater network are to be within Council's acceptable levels (or same as the predeveloped conditions). On this basis, the proposed development is unlikely to cause any significant adverse impacts on the neighbouring properties.</p>	Yes
(b)	<ul style="list-style-type: none"> <li>Ensure the safety of persons and emergency access during flooding for all floods up to and including the Probable Maximum Flood.</li> </ul>	<p>Figure 4 – PMF Flood Hazard suggests the site has a low flood risk during the PMF. However, the adjacent Chester Avenue becomes a high hazard floodway during PMF and</p>	Yes

Reference Item	Requirement	Assessment	Compliant?
		<p>as a result, there is no rising road egress from the site outside of flood waters.</p> <p>To ensure the safety of persons, we recommend on-site refuge for all flood events from the 1% AEP up to the PMF. The proposed development has two floor levels (Level 1 and Level 2) above the PMF flood level and refuge can be sought in these levels during flooding.</p>	
(c)	<ul style="list-style-type: none"> <li>Ensure the structural soundness and flood compatibility of building materials for all structures founded below the 1% AEP flood plus half a metre freeboard.</li> </ul>	<p>The site is not affected by the 1% AEP flooding.</p> <p>The site is affected by flooding during the PMF, and the upper levels of the proposed building are to be used as on-site refuge during this event. To ensure the structural soundness of the development, it is recommended all components to be constructed with flood compatible material that can withstand the forces of floodwater, debris, and buoyancy up to the PMF level.</p> <p>Due to the robust nature of the development, it is anticipated that flood compatible materials can be introduced.</p>	Yes
(d)	<ul style="list-style-type: none"> <li>Commercial floor levels and habitable residential floor levels to be no less than the 1% AEP flood plus half a metre freeboard.</li> </ul>	<p>The property is not affected by the 1% AEP.</p> <p>There is no minimum floor planning level for residential development in the property.</p>	N/A

Reference Item	Requirement	Assessment	Compliant?
(e)	<ul style="list-style-type: none"> <li>Open car parking spaces or car ports to be no lower than the 5% AEP flood.</li> </ul>	<p>The site is not affected by the 5% AEP flooding and there is no minimum floor planning level for open car parking.</p> <p>The car park is proposed at the rear of the site on the Ground Floor level (24.00 – 24.15m AHD) with car park entry is protected up to 24.5m AHD (i.e., 1% AEP flood level on Chester Avenue = 24.0m AHD + 500mm freeboard). It is unlikely that the floodwater on Chester Avenue to be encroached towards the site and even if that occurs, the proposed levels provide adequate flood immunity from the road and therefore, meet the Council's requirements.</p>	N/A
(f)	<ul style="list-style-type: none"> <li>All other floor levels to be determined based on merit.</li> </ul>	All floor levels have been assessed above. No other floor levels fall into this category are proposed.	N/A

## Conclusions

Northrop Consulting Engineers were engaged by Integrated Design Group to prepare a qualitative flood assessment for the proposed development at 46 Chester Avenue, Maroubra.

It was concluded from the assessment the following items are in accordance with Council's requirements:

- Flood effects.
- Floor levels.
- Flood compatible building materials.
- Flood safety and refuge.
- Flood management and design.

We submit these findings to Randwick Council for their consideration.

### Limitation statement

Northrop Consulting Engineers Pty Ltd (Northrop) has been retained to prepare this report based on specific instructions, scope of work and purpose pursuant to a contract with its client. It has been prepared in accordance with the usual care and thoroughness of the consulting profession for the use by Integrated Design Group. The report is based on generally accepted practices and standards applicable to the scope of work at the time it was prepared. No other warranty, express or implied, is made as to the professional advice included in this report.

Except where expressly permitted in writing or required by law, no third party may use or rely on this report unless otherwise agreed in writing by Northrop.

Where this report indicates that information has been provided to Northrop by third parties, Northrop has made no independent verification of this information except as expressly stated in the report. Northrop is not liable for any inaccuracies in or omissions to that information.

The report was prepared on the dates shown and is based on the conditions and information received at the time of preparation.

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To the extent permitted by law, Northrop expressly excludes any liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this report.

### Document Register

Rev	Status	Prepared	Approved	Date
A	For Approval	N Parana Manage	A Brien	14 November 2023
B	Minor Amendment	A Brien	A Brien	13 February 2024
C	Amended Drawings	A Brien	A Brien	12 March 2024

## Appendix A – Flood Certificate



File No: F2021/00106  
Doc No: D04744043

12 October 2022

NSW Land and Housing Corporation  
Locked Bag 5022  
Parramatta NSW 2142

**RE: 46 Chester Avenue Maroubra NSW 2035**

I refer to your recent application for a flood report. Flooding advice is provided as follows.

#### Property Details

Title Refs:	Lot 270 DP 36765
Address:	46 Chester Avenue Maroubra NSW 2035

#### Calculated Flood Depth

Flood Event	Flood Depth (m)	Flood Level (mAHD)
PMF	0.19	24.84
1% AEP Flood	Not Affected	Not Affected
5% AEP Flood	Not Affected	Not Affected

Council's flood modelling indicates that this property is affected by flooding during the PMF storm. There is no minimum floor planning level for residential development as the property is not affected by the 1% AEP.

The minimum floor planning level for critical facilities is 24.84mAHD.

#### Hazard and Hydraulic Categorisation

The table below contains hazard and hydraulic categorisation of the property in accordance with the NSW Floodplain Development Manual April 2005.

1% AEP flood hazard	<input type="checkbox"/> Property is categorised as high hazard <input type="checkbox"/> Part of Property is categorised as high hazard <input type="checkbox"/> Property is adjacent to a high hazard area <input type="checkbox"/> Part of Property is categorised as Low hazard <input type="checkbox"/> Property is categorised as low hazard <input checked="" type="checkbox"/> Property does not have a hazard categorisation
Hydraulic categorisation	<input type="checkbox"/> Property is located in a floodway <input checked="" type="checkbox"/> Property is located adjacent to a floodway <input type="checkbox"/> Property is located in a flood storage area <input type="checkbox"/> Part of Property is located in a flood storage area <input type="checkbox"/> Property is located in a flood fringe <input checked="" type="checkbox"/> Part of Property is located in a flood fringe



Maroubra Bay Flood Study (2021)

**State Environmental Planning Policy (Exempt and Complying Development Codes) 2008**

A minimum habitable floor level under Clause 3.5(2) (a) of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2017 is:

- The minimum floor planning level for critical facilities is 24.84mAHD.

**Council policy regarding flooding**

The Randwick City Council Flooding Advice and Flood Related Development Controls Policy sets out flood planning levels and development principles for this property.

**Validity**

This report is valid for a period of six months from the date of issue. It should be noted that flood studies, legislation, manuals and policy documents may change in the future. Changes to these documents or the built form may impact on the information provided.

**Verification**

Prepared by:



Joseph Daly  
Student Engineer

Checked by:



Paramesh Halaradhya  
Drainage Engineer



## Glossary

AHD	Australian Height Datum is a common national surface level datum approximately corresponding to mean sea level.
1% AEP flood	The 1% Annual Exceedance Probability flood has a 1% (1:100) probability of occurring in any given year. This flood is also known as 1 in 100, 100yr ARI or Q100.
5% AEP flood	The 5% Annual Exceedance Probability flood has a 5% (1:20) probability of occurring in any given year. This flood is also known as 1 in 20, 20yr ARI or Q20.
High Hazard Categorisation*	Possible danger to personal safety; evacuation by trucks difficult; able-bodied adults would have difficulty in wading to safety; potential for significant structural damage to buildings.
Low Hazard Categorisation*	Should it be necessary, trucks could evacuate people and their possessions; able-bodied adults would have little difficulty in wading to safety.
Floodways*	Those areas where a significant volume of water flows during floods and are often aligned with obvious natural channels. They are areas that, even if only partially blocked, would cause a significant increase in flood levels and/or a significant redistribution of flood flow, which may in turn adversely affect other areas. They are often, but not necessarily, areas with deeper flow or areas where higher velocities occur.
Flood storage*	Those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of flood. If the capacity of a flood storage area is substantially reduced by, for example, the construction of levees or by landfill, flood levels in nearby areas may rise and the peak discharge downstream may be increased. Substantial reduction of the capacity of a flood storage area can also cause a significant redistribution of flood flows.
Flood fringe*	The remaining area of land affected by flooding, after floodway and flood storage areas have been defined.
PMF	Probable Maximum Flood

\* Source – NSW Floodplain Development Manual April 2005

\* Note: Flooding related development controls are applicable to all land that is below the 1% AEP flood plus half a metre freeboard.

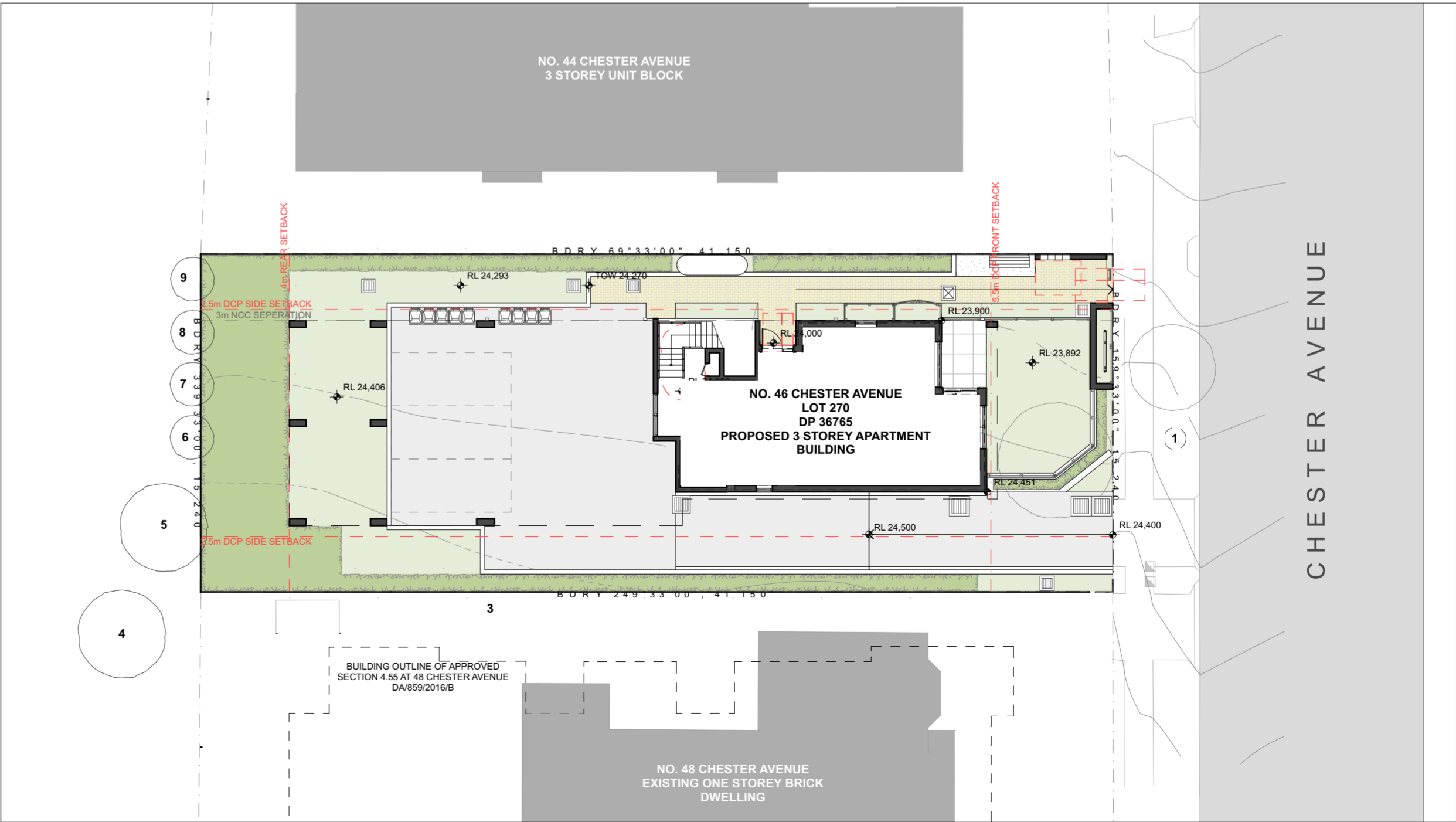
## Appendix B - Architectural

# RESIDENTIAL FLAT BUILDING

46 CHESTER AVENUE, MAROUBRA for HOMES NSW

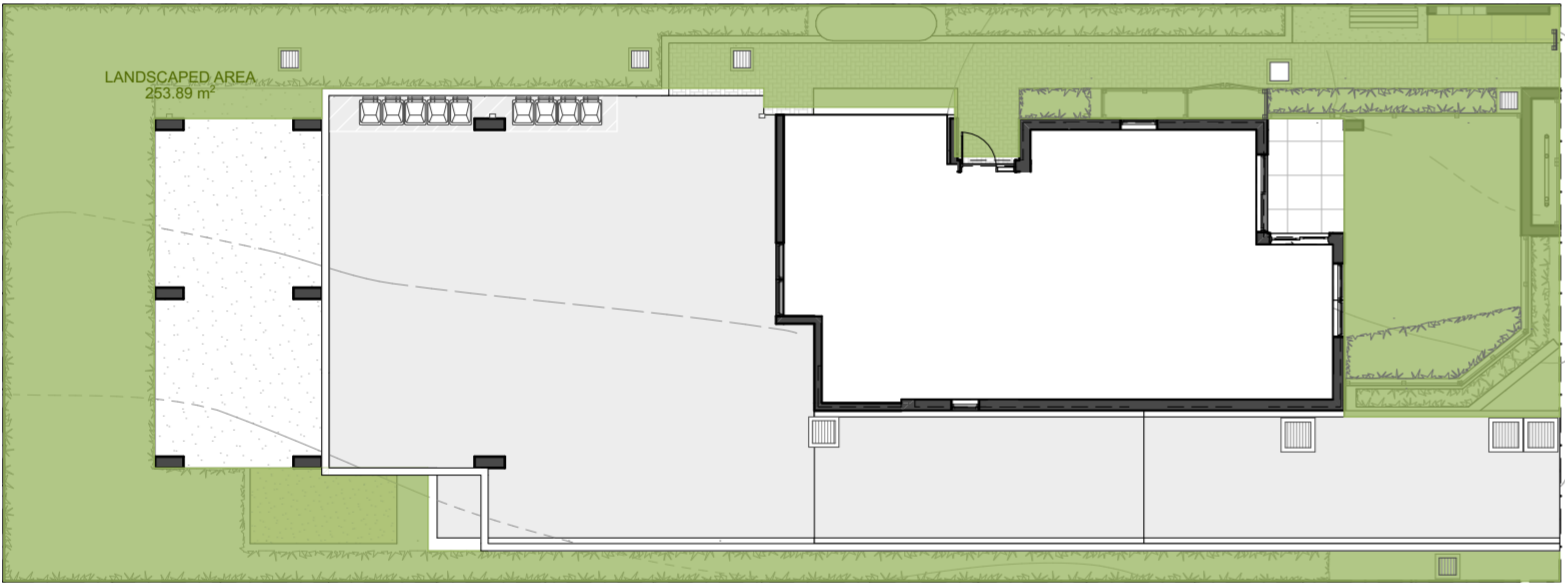
DRAWING TRANSMITTAL				
0001	A	COVER	1/3/24	1
0002	A	BASIX COMMITMENT	1/3/24	1
0003	A	COMPLIANCE CALCULATIONS 1	1/3/24	1
0004	A	COMPLIANCE CALCULATIONS 2	1/3/24	1
0100	A	SITE PLAN	1/3/24	1
0101	A	SITE ANALYSIS	1/3/24	1
0200	A	DEMOLITION PLAN	1/3/24	1
1100	A	GROUND FLOOR PLAN	1/3/24	1
1101	A	LEVEL ONE PLAN	1/3/24	1
1102	A	LEVEL TWO PLAN	1/3/24	1
1103	A	ROOF PLAN	1/3/24	1
2000	A	ELEVATIONS 01	1/3/24	1
2001	A	ELEVATIONS 02	1/3/24	1
3000	A	SECTIONS 01	1/3/24	1
3001	A	SECTIONS 02	1/3/24	1
9300	A	EXTERNAL FINISHES	1/3/24	1
9400	A	SUN SHADOW ANALYSIS	1/3/24	1
9401	A	EYE OF THE SUN DIAGRAMS	1/3/24	1
N01	A	NOTIFICATION - COVER PAGE	1/3/24	1
N02	A	NOTIFICATION - SITE/LANDSCAPE	1/3/24	1
N03	A	NOTIFICATION - DEVELOPMENT DATA	1/3/24	1
N04	A	NOTIFICATION - ELEVATIONS	1/3/24	1
N05	A	NOTIFICATION - SCHEDULE OF FINISHES	1/3/24	1
N06	A	NOTIFICATION - SHADOW DIAGRAMS	1/3/24	1

LOT No. & DP	LOT 270, DP 36765			
SITE AREA	607.1m <sup>2</sup>			
GFA MAXIMUM ALLOWABLE	470.325			
GFA PROVIDED	469.43			
COMPLIANCE TABLE				
	CONTROL	REQUIRED	PROPOSED	COMPLIES
FRONT SETBACK	RANDWICK DCP 2013	Prevailing setback (5m) but no less than 3m	5.5m	COMPLIES
SIDE SETBACK	RANDWICK DCP 2013	Minimum 2.5m based on site frontage width. Greater setbacks to be provided where possible	3.0m	COMPLIES
SIDE SETBACK	ADG	6m (habitable) 3m (non-habitable)	3.0m	NON-COMPLIANCE
REAR SETBACK	RANDWICK DCP 2013	15% of LOT DEPTH (8.2m)	4m	NON-COMPLIANCE
HEIGHT	RANDWICK LEP 2012	9.5m	10.35m	COMPLIES
HEIGHT	HOUSING SEPP (S.42(1)(b))	Not exceeding the greater of 11m or the maximum LEP height limit	10.35m	COMPLIES
FSR	DCP	0.75:1	0.75	COMPLIES
FSR	HOUSING SEPP (S.42(1)(c))	Not exceeding the greater of 0.85:1 or the maximum FSR permitted under the LEP	0.75	COMPLIES
LANDSCAPED AREA	RANDWICK DCP 2013	50% OF THE SITE AREA = 314m <sup>2</sup>	253.89m <sup>2</sup>	NON-COMPLIANCE
DEEP SOIL	ADG	7% OF THE SITE AREA (44m <sup>2</sup> )	114.4m <sup>2</sup> (18% of the site area)	COMPLIES
COMMUNAL OPEN SPACE	ADG	25% OF THE SITE AREA (157m <sup>2</sup> )	NA	NON-COMPLIANCE
SOLAR ACCESS	ADG	2 hours solar access to living rooms and private open space areas in at least 70% of units	5 OF 7	COMPLIES
NATURAL VENTILATION	ADG	60% OF APARTMENTS	7 OF 7	COMPLIES
MINIMUM INTERNAL AREA	ADG	As per the ADG STUDIO 35m <sup>2</sup> 1 BEDROOM 50m <sup>2</sup> 2 BEDROOM 70m <sup>2</sup> 3 BEDROOM 90m <sup>2</sup>	1 BEDROOM 50m <sup>2</sup> 2 BEDROOM 70m <sup>2</sup>	COMPLIES
PARKING	HOUSING SEPP (S.42(1)(e)) - accessible area	1 BED - 0.4 SPACES 2 BED - 0.5 SPACES 3 BED - 1 SPACE VISITOR - 0 SPACES	3 SPACES PROVIDED	COMPLIES
WASTE MANAGEMENT	RANDWICK DCP 2013	WASTE - 1 x 240L/2 DWELLINGS RECYCLING - 1 x 240L/2 DWELLINGS	3 x WASTE BINS, 3 x RECYCLING BINS	COMPLIES

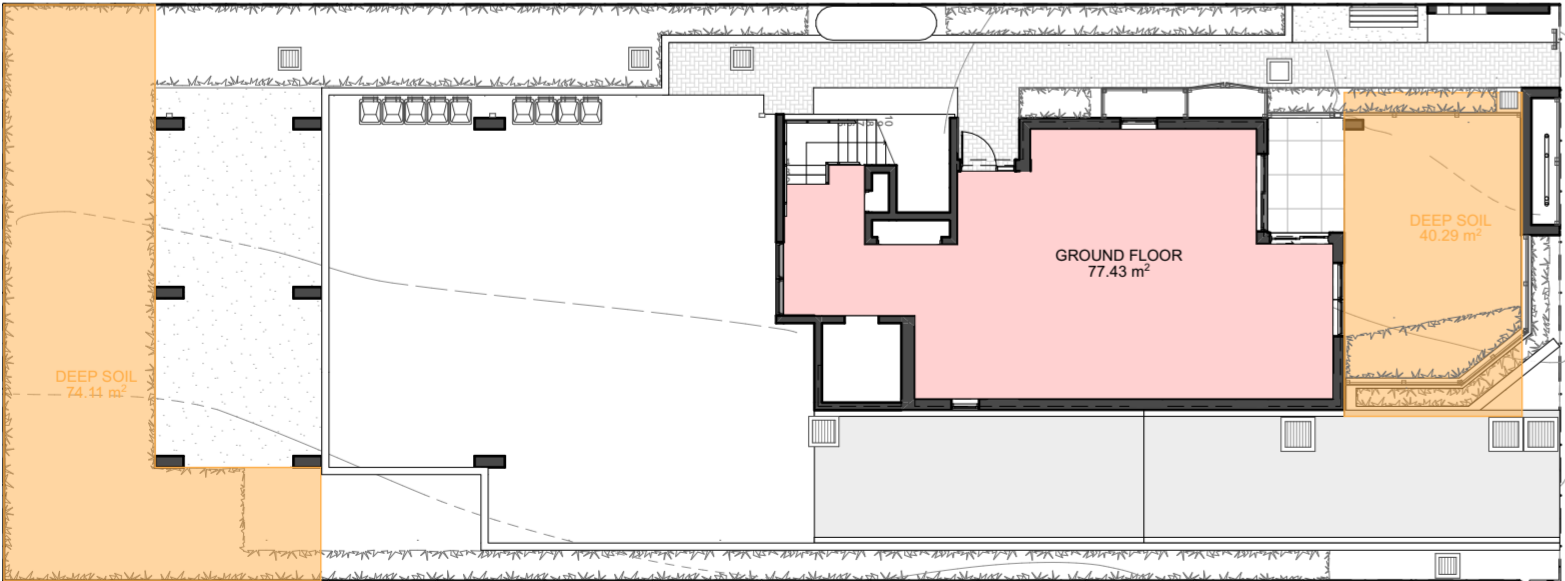




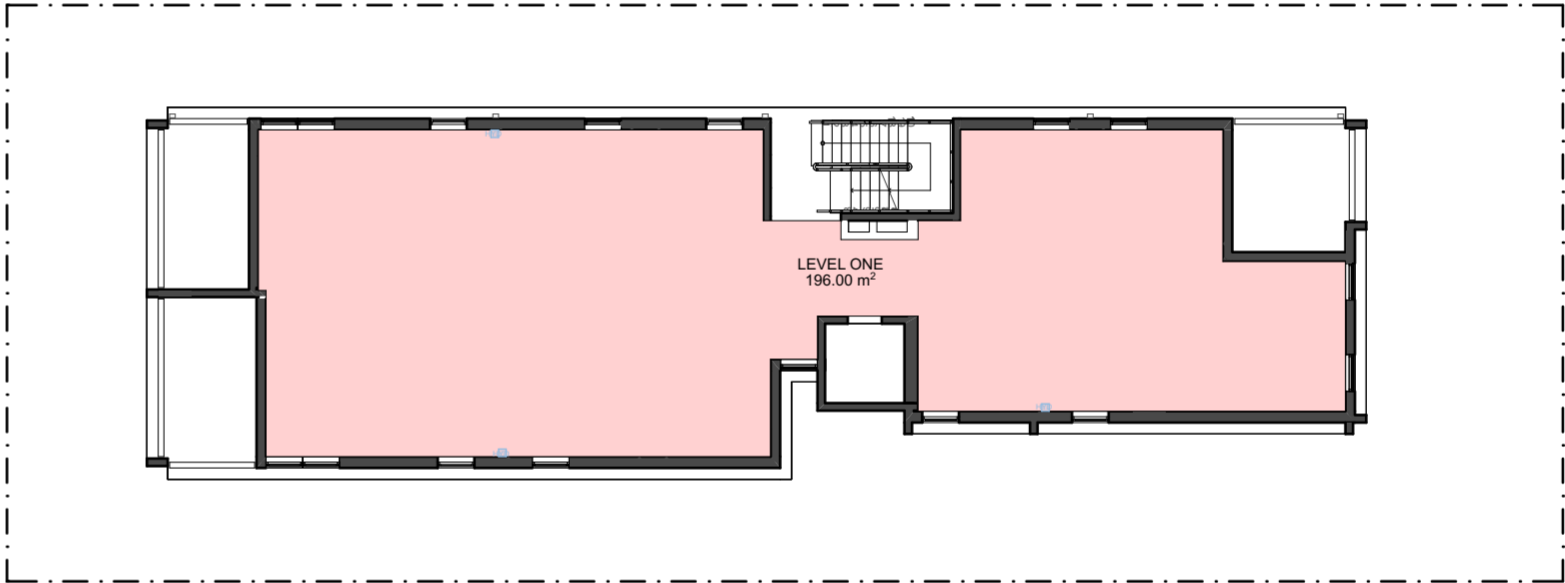
AREA SCHEDULE				
LEVEL	GFA (m <sup>2</sup> )	1B	2B	3B
GROUND FLOOR	77.43	1		
LEVEL 1	196.00	2	1	
LEVEL 2	196.00	2	1	
SUB TOTALS	469.43	5	2	
FSR	0.75			
SITE	627.10			7
LANDSCAPE AREAS				
	REQUIRED	TOTAL	% of site	
TOTAL LANDSCAPE AREA	313.55	253.89	40%	NON-COMPLIANT
DEEP SOIL	43.89	114.40	18%	COMPLIES
CARPARKING	NO.	HOUSING SEPP ACC.		REQUIRED
1B UNITS	5	0.40		2.00
2B UNITS	2	0.50		1.00
3B UNITS		1.00		0.00
TOTAL	7			
VISITORS				
TOTAL CARS REQUIRED				3.00
TOTAL CARS PROVIDED				3
1. SEPP 65 2015 refers to RMS Guide to Traffic Generating Developments				
2. SEPP Housing, Accessible Site				
3. Proposed visitor rated based on Traffic Engineering Report				
SEPP 65				
	NO. OF UNITS		%	
SUNLIGHT	5		71%	
VENTILATION	7		100%	



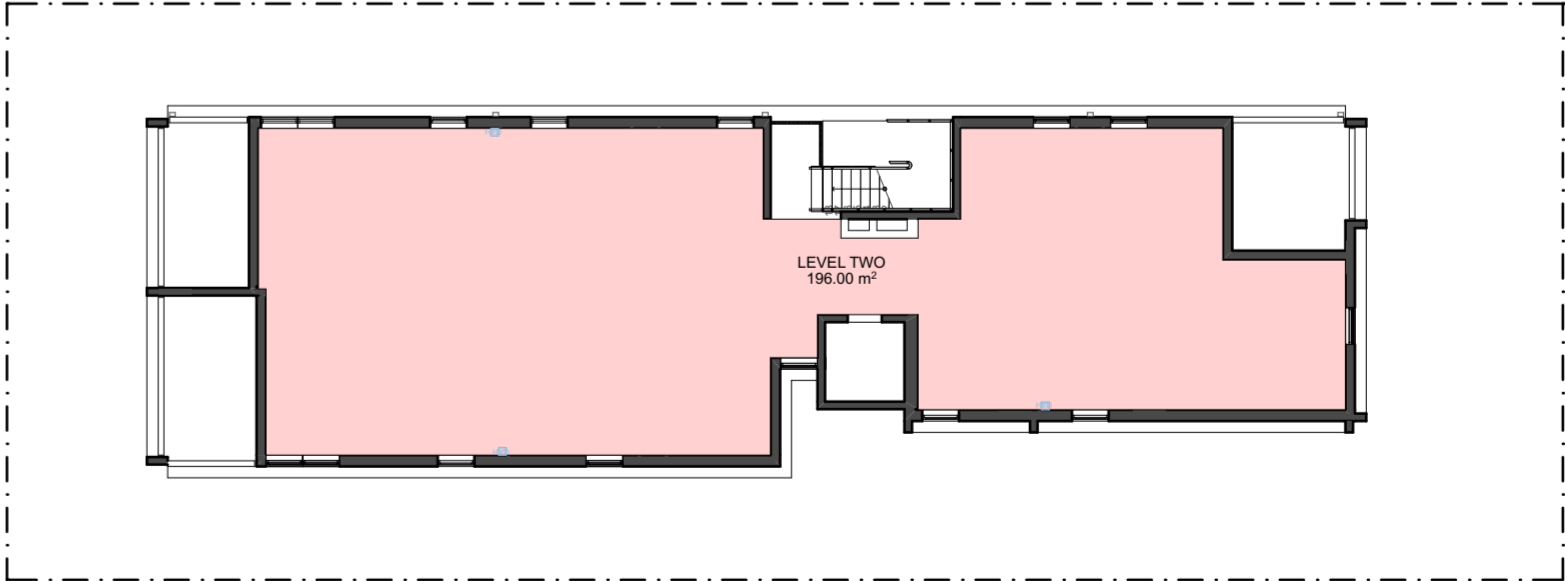
01 LANDSCAPED AREA  
Scale 1:200



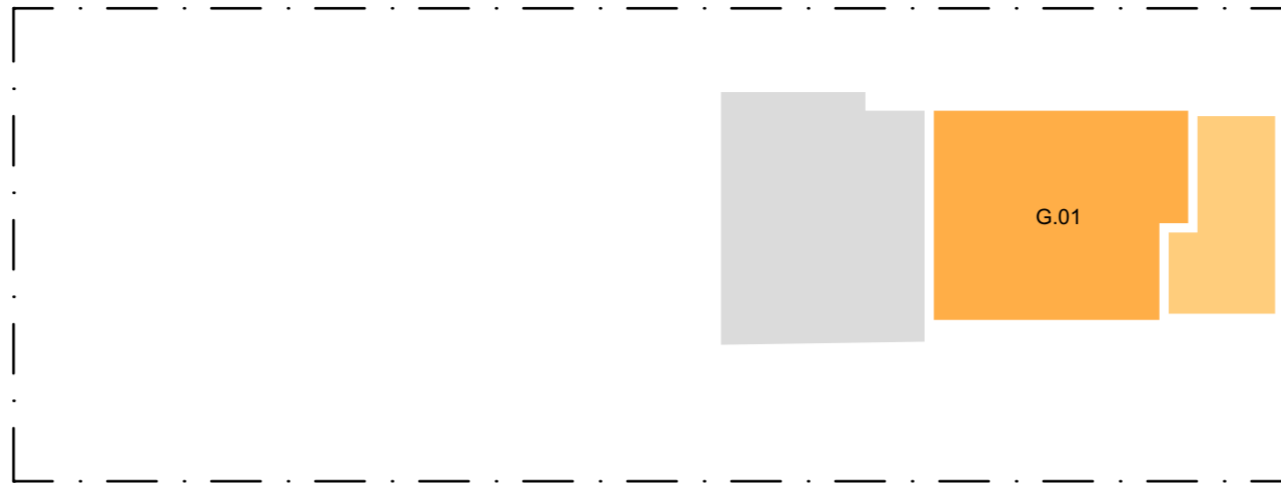
02 FSR & DEEP SOIL  
Scale 1:200



03 L1 FSR  
Scale 1:200



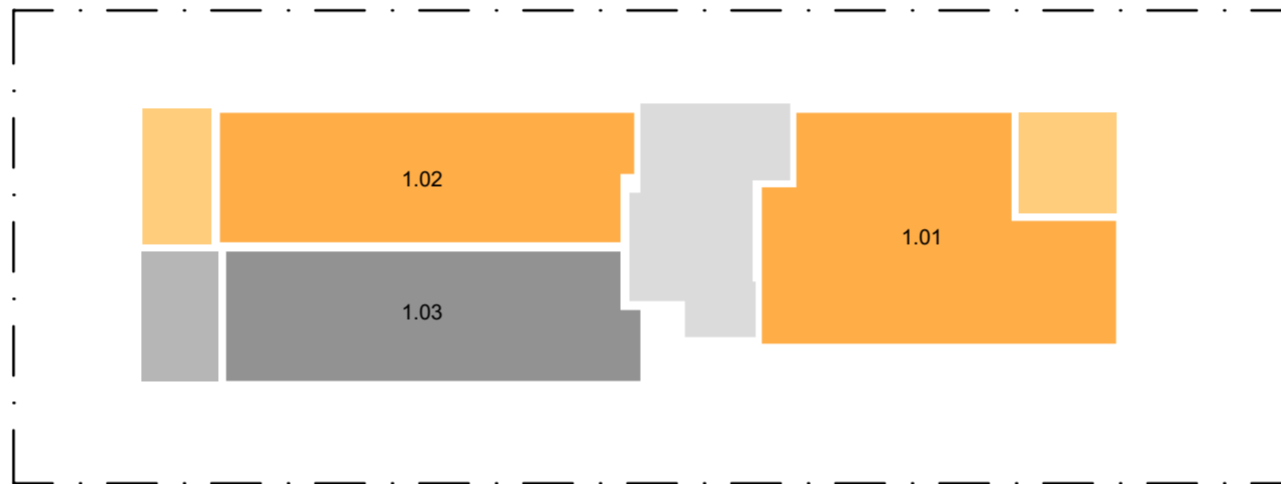
04 L2 FSR  
Scale 1:200

[illegible]

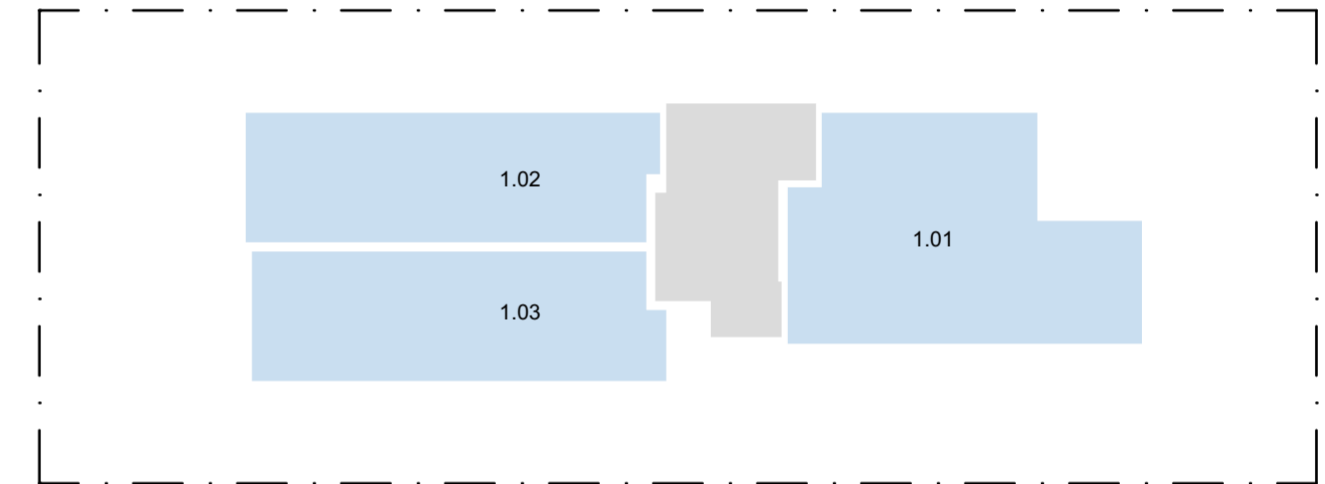
## 01 SOLAR ACCESS GROUND



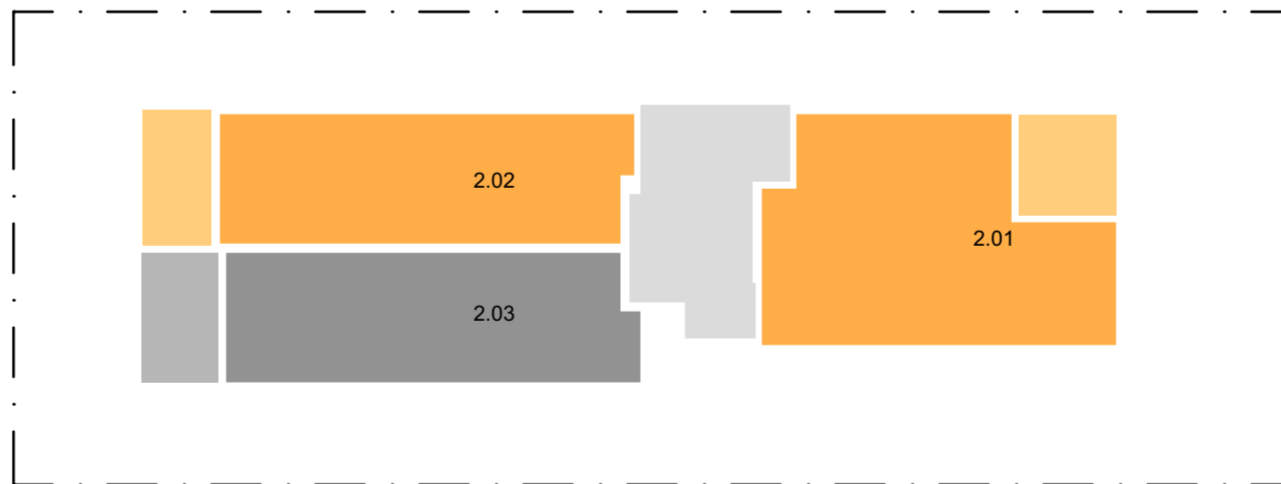
## 01 VENTILATION GROUND



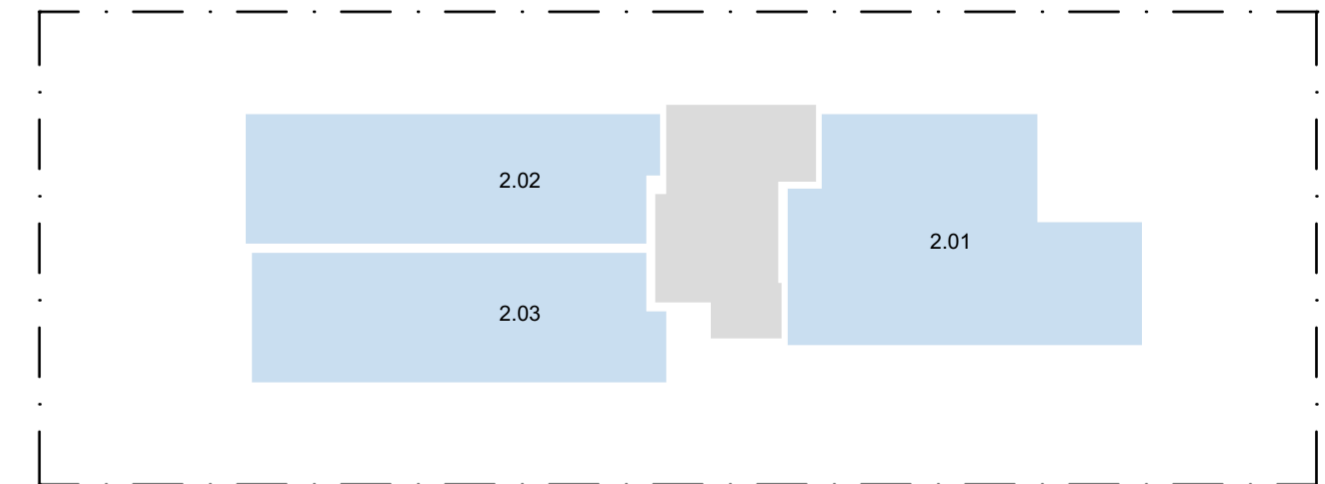
## 02 SOLAR ACCESS LEVEL 1



## 02 VENTILATION LEVEL 1



## 03 SOLAR ACCESS LEVEL 2



## 03 VENTILATION LEVEL 2

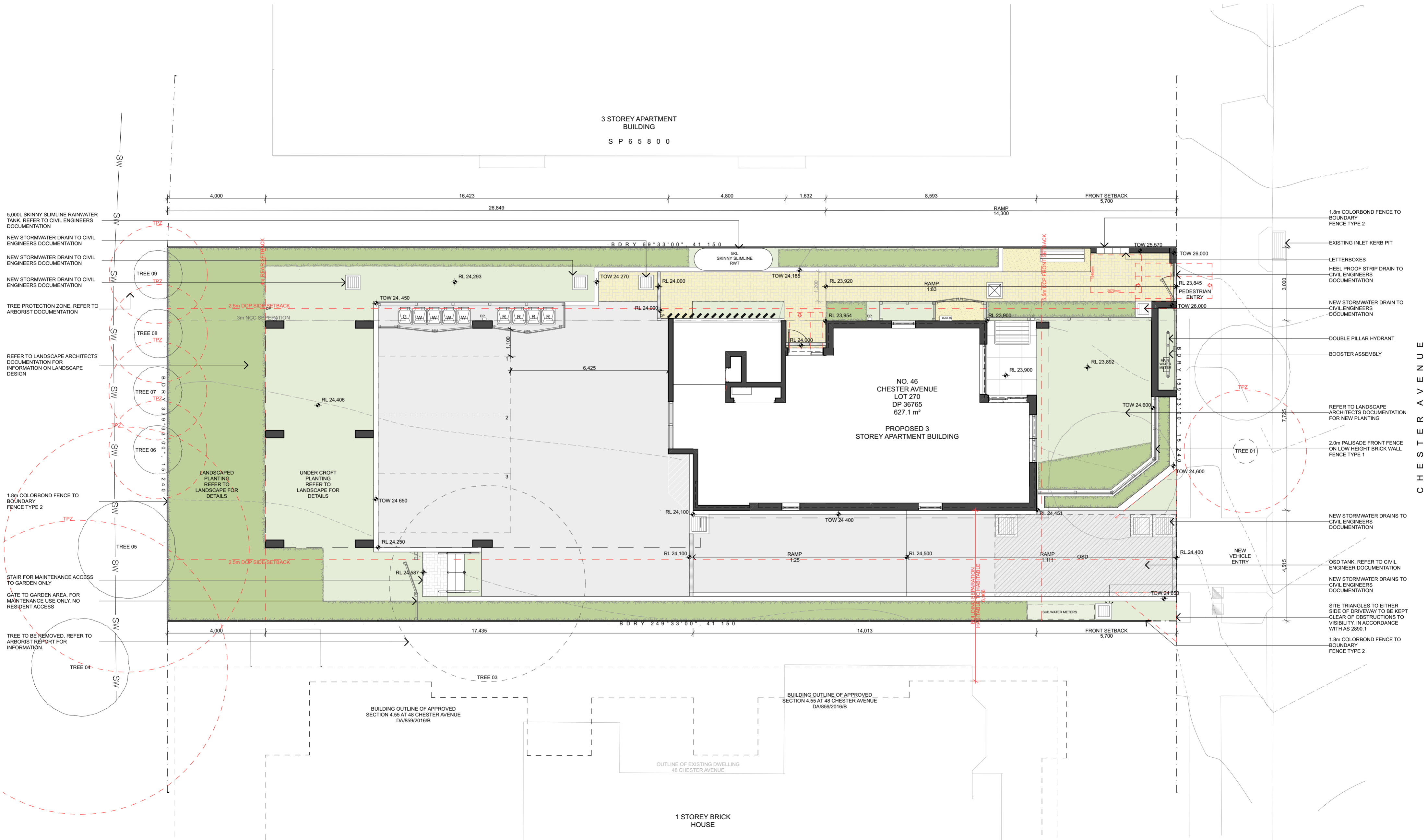
### LEGEND

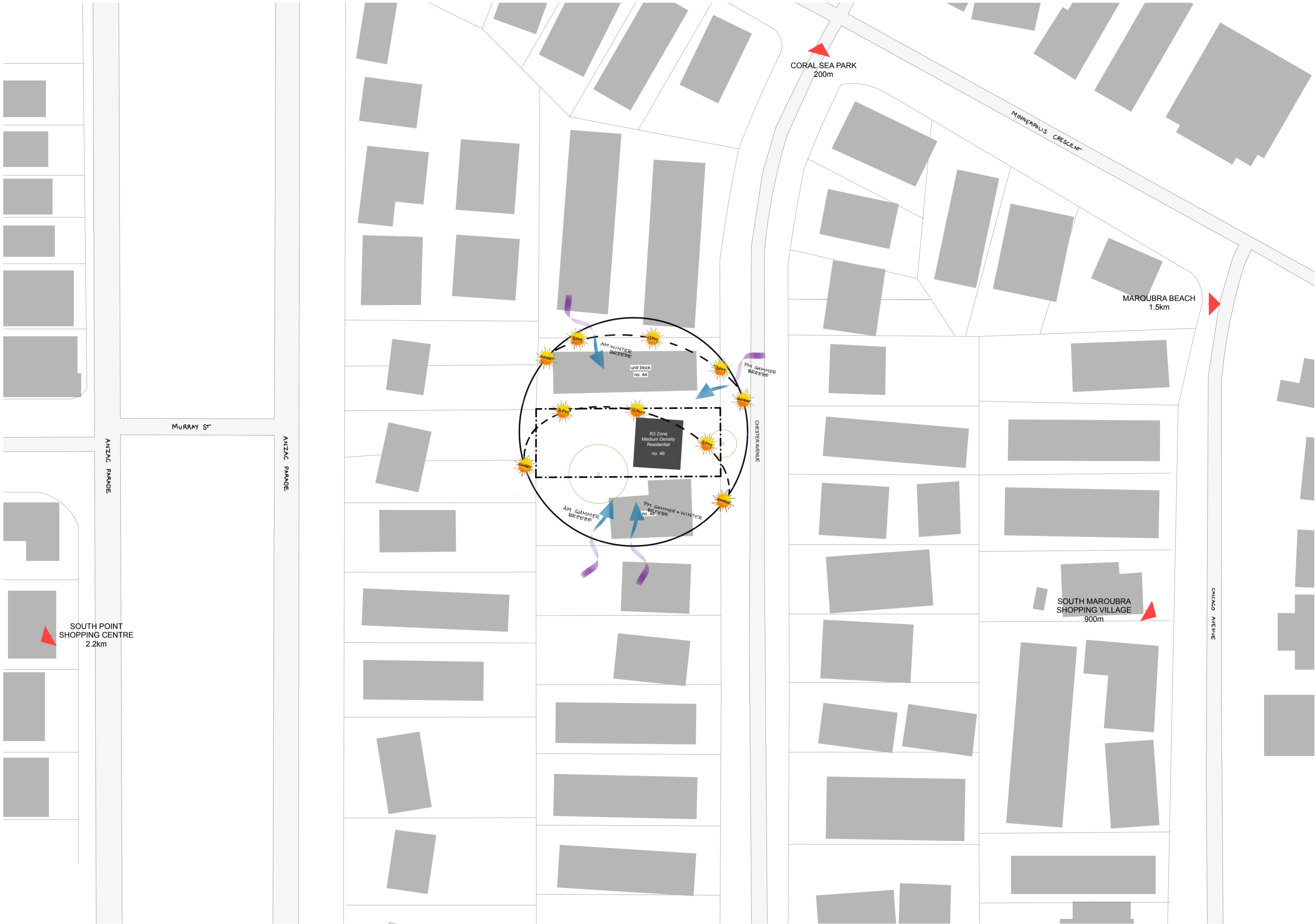
UNITS ACHIEVING 3HRS SOLAR ACCESS

PRIVATE OPEN SPACE ACHIEVING 3HRS SOLAR ACCESS

UNITS ACHIEVING VENTILATION

UNITS NOT ACHIEVING SEPP 65 COMPLIANCE





ARCHITECT

INTEGRATED  
DESIGN  
GROUP

46/1-270-102 MASTERPLANNING INTERESTS

© Integrated Design Group Pty Ltd  
ABN 84 115 006 329  
Nominated Architect  
Simon Thorne reg. no. 7093  
info@idgarchitects.com.au  
www.idgarchitects.com.au

1. Figured dimensions take precedence over scaled drawings
2. Contractors to check and verify all levels datum and dimensions on site
3. All materials and workmanship to be in accordance with current written manufacturers instructions, local regulations and SAA codes
4. Conflicting information to be brought to notice of the architect and clarification sought before proceeding with any works
5. All drawings are not for construction and are subject to further design development, consultant input, council and legislative requirements.
6. Refer to General notes page for legend and abbreviations

Access  
Acoustic  
Arboret  
BCA  
Landscape  
Planner  
Surveyor  
Traffic

Vista Access  
Pulse White Noise Acoustics  
Redgum Horticulture  
MetroBC  
Waiman Partners  
LAHC  
SJ Surveying Services  
Vargo Traffic

Civil  
Electrical  
Mechanical  
Geotech  
Hydraulic  
Marine  
Structure  
BASIX

Northrop Consulting Engineers  
Marine  
STS Geotechnics  
Northrop Consulting Engineers  
Rebel Engineering  
Kihno Building Consultant



RESIDENTIAL FLAT BUILDING

SITE: 46 CHESTER AVENUE, MAROUBRA  
CLIENT: HOMES NSW  
REF: BG233  
LOT: LOT 270 DP 36765

DATE		ISSUE FOR PART 5	
1/3/24	A		

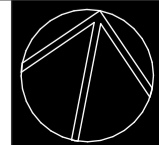
SITE ANALYSIS

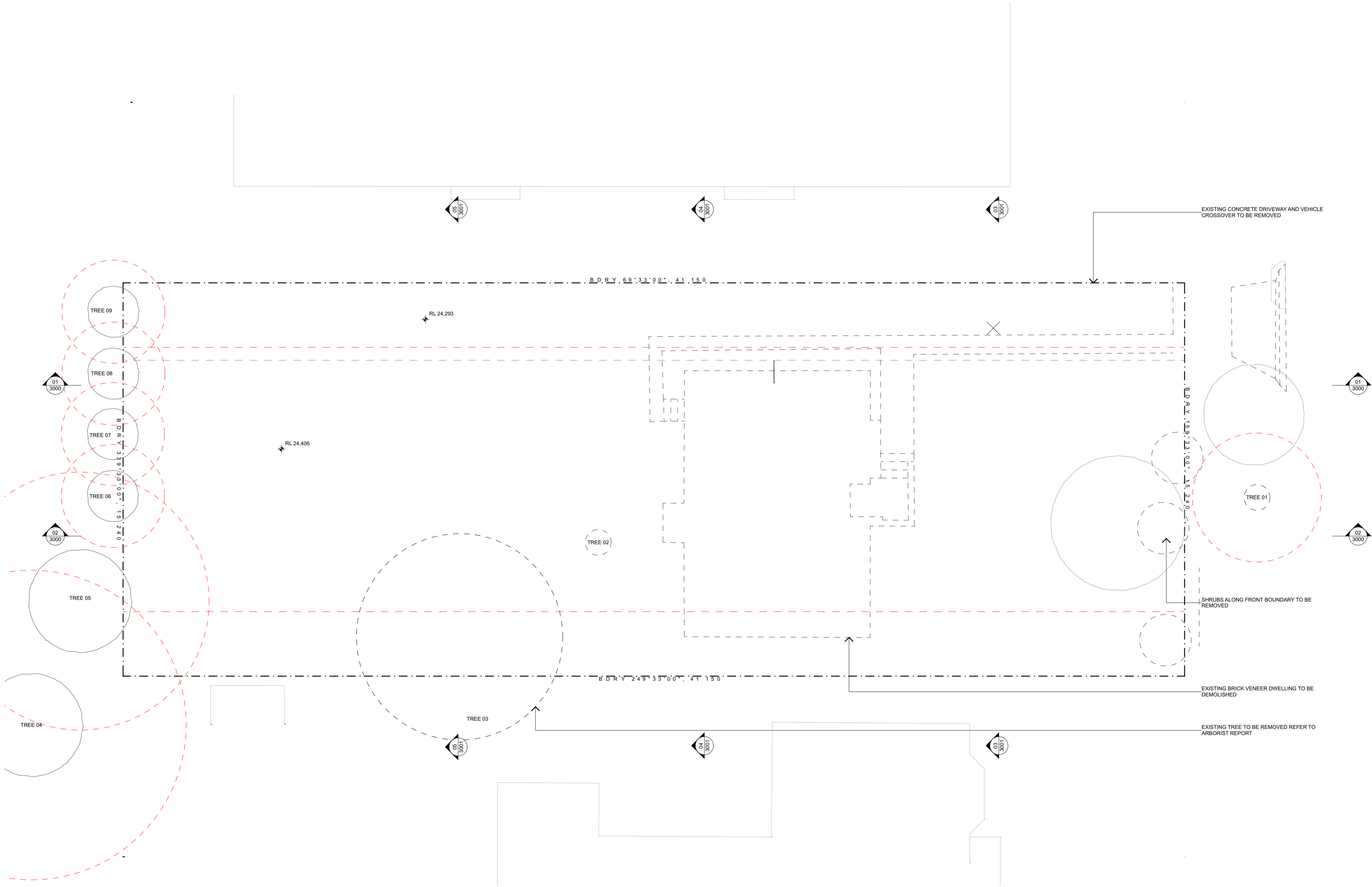
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P5-0101

ISSUE  
A

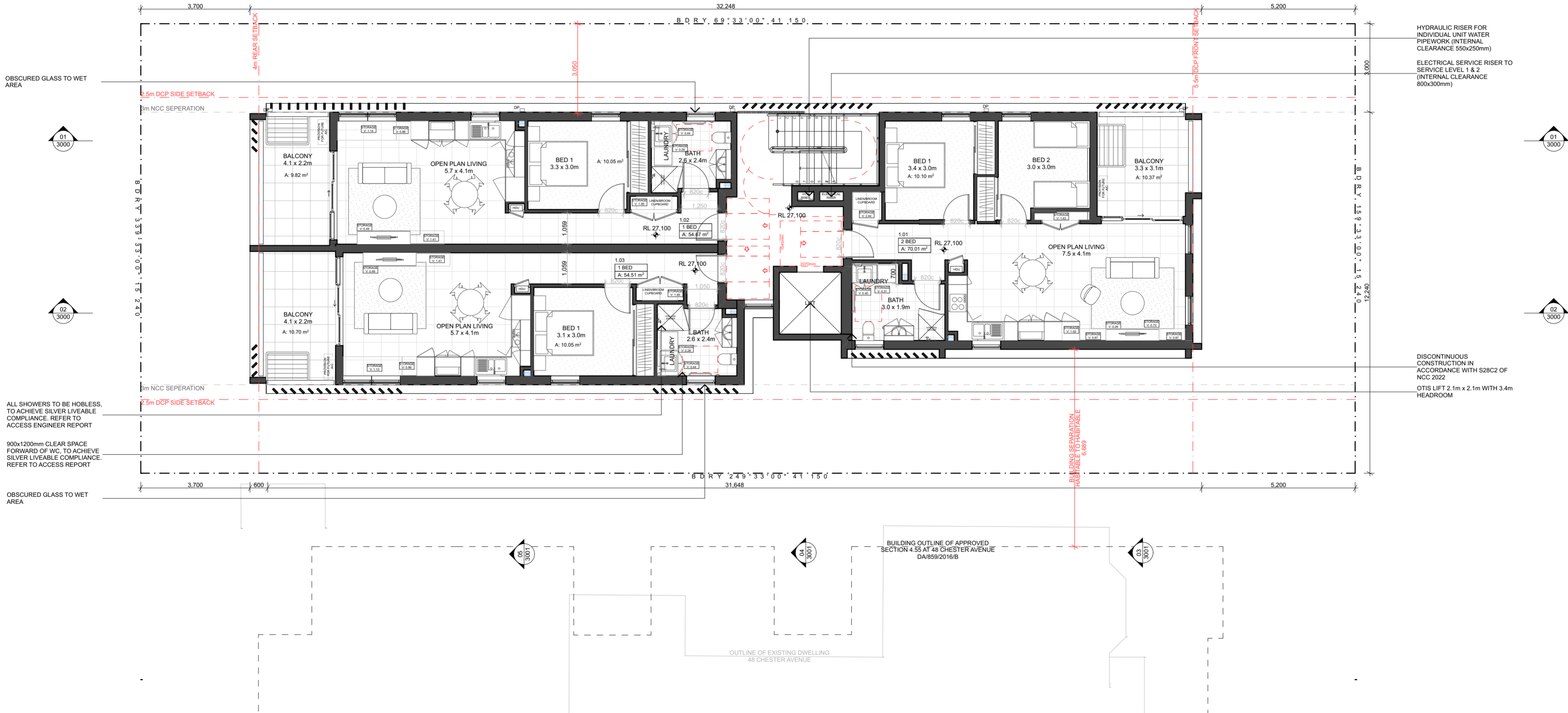
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SCALE

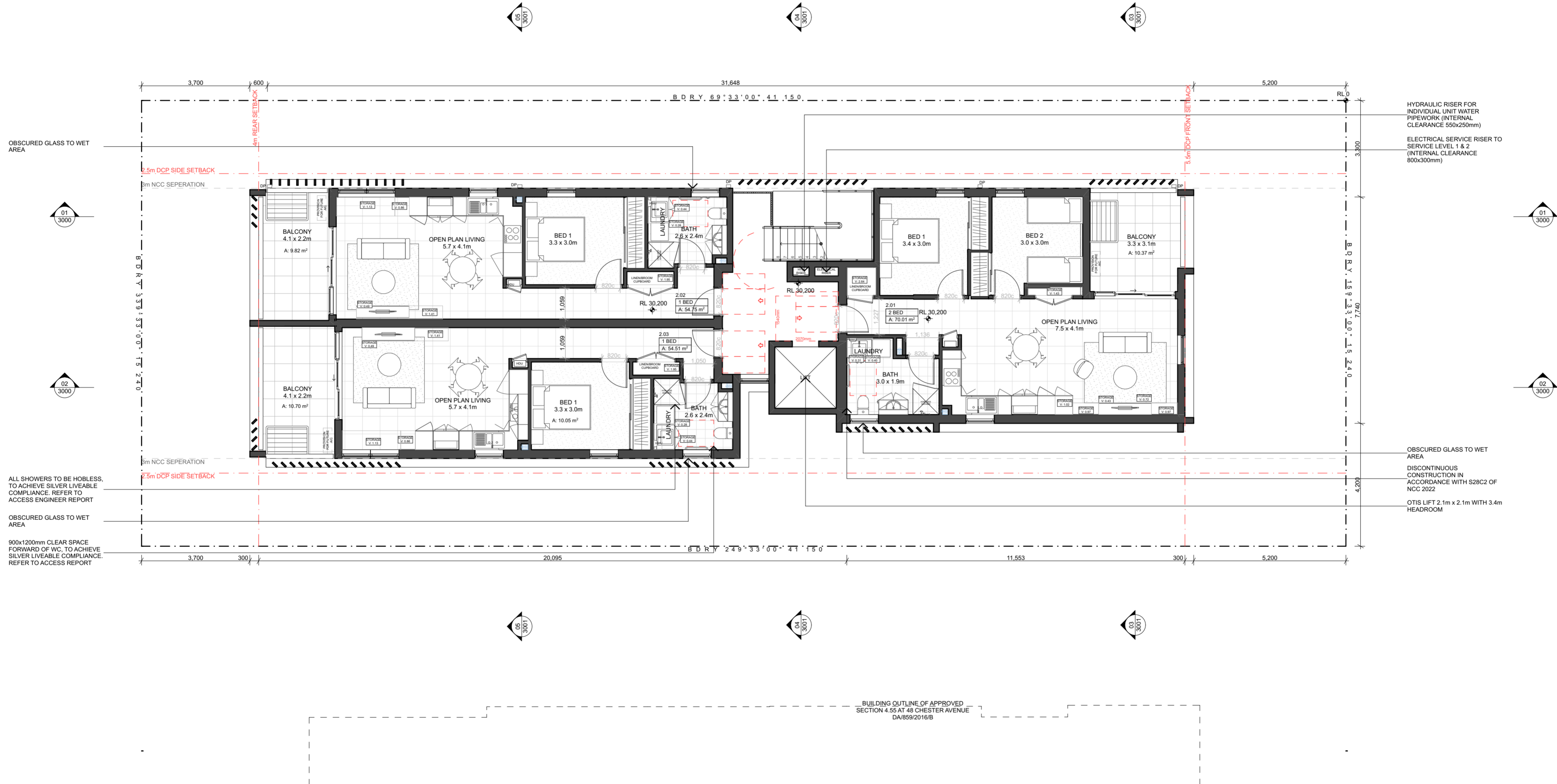
EV  
AE  
1:500, 1:0.55 @  
a3

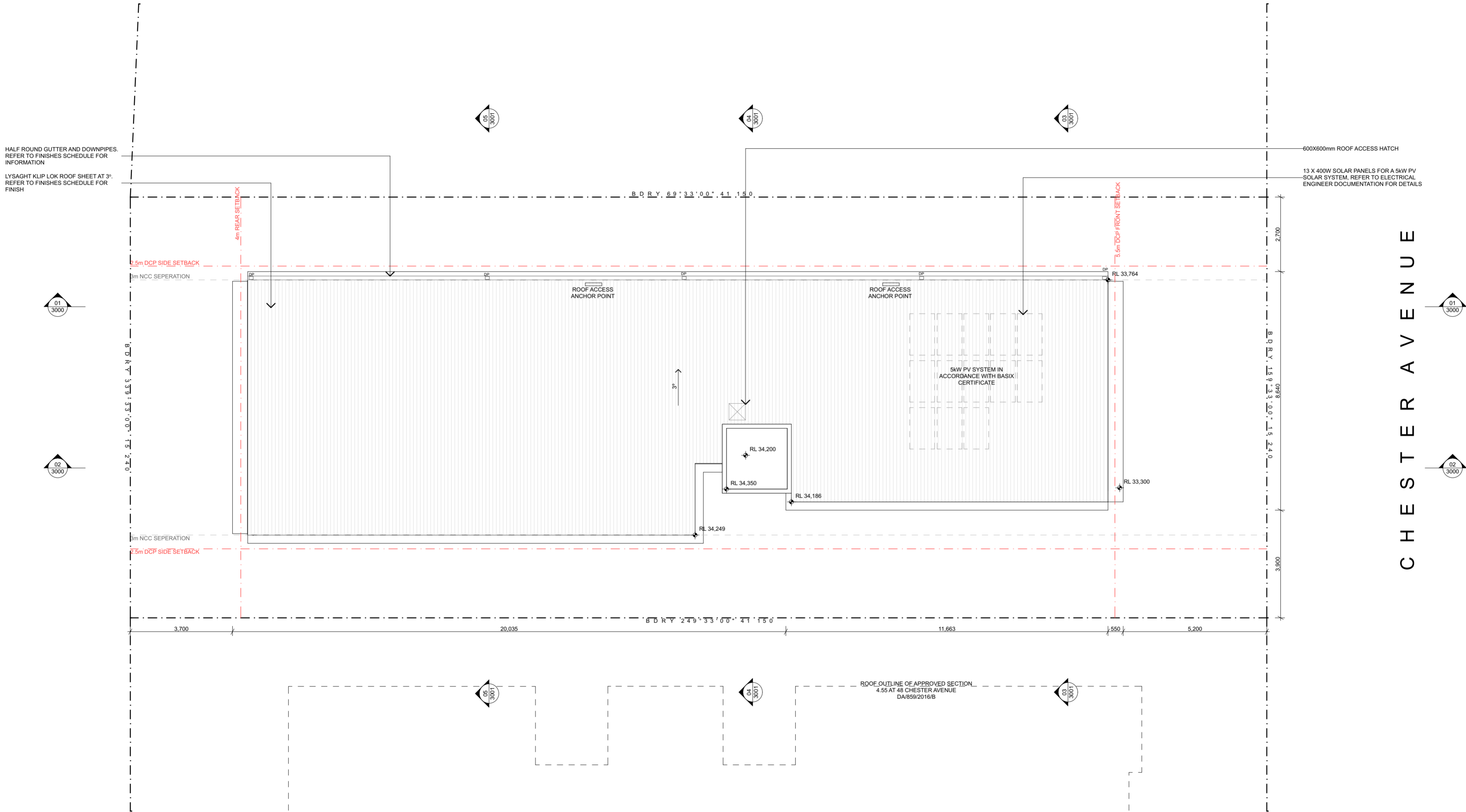






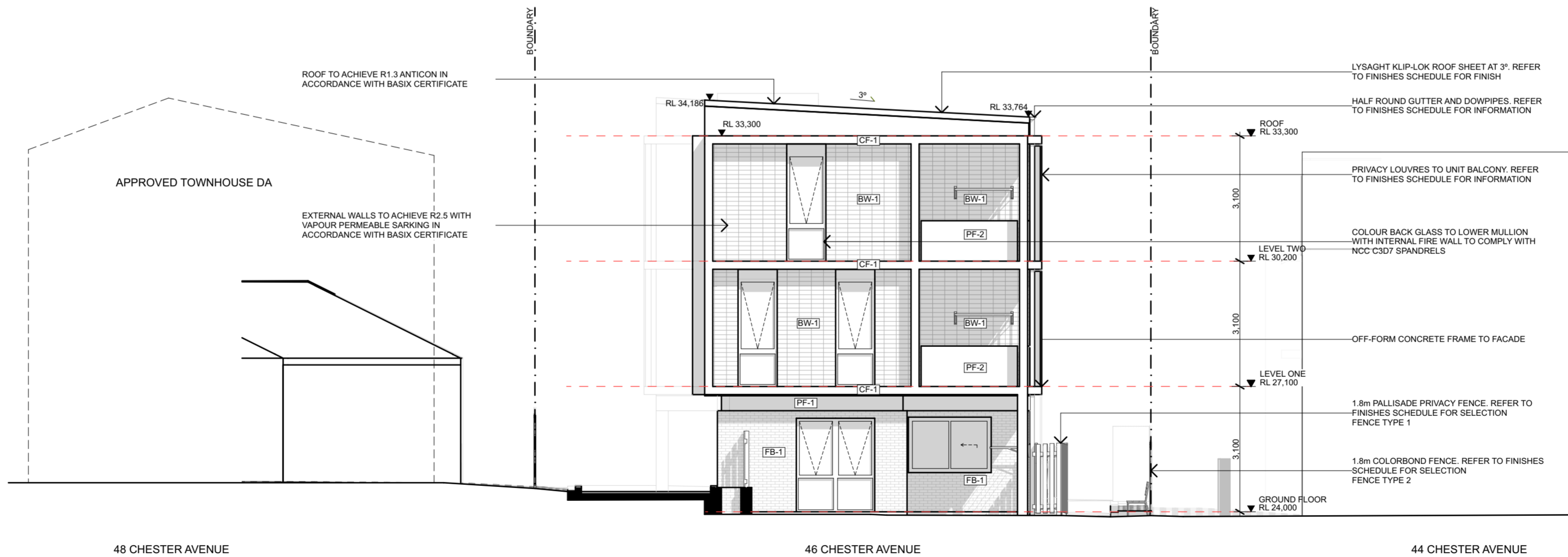




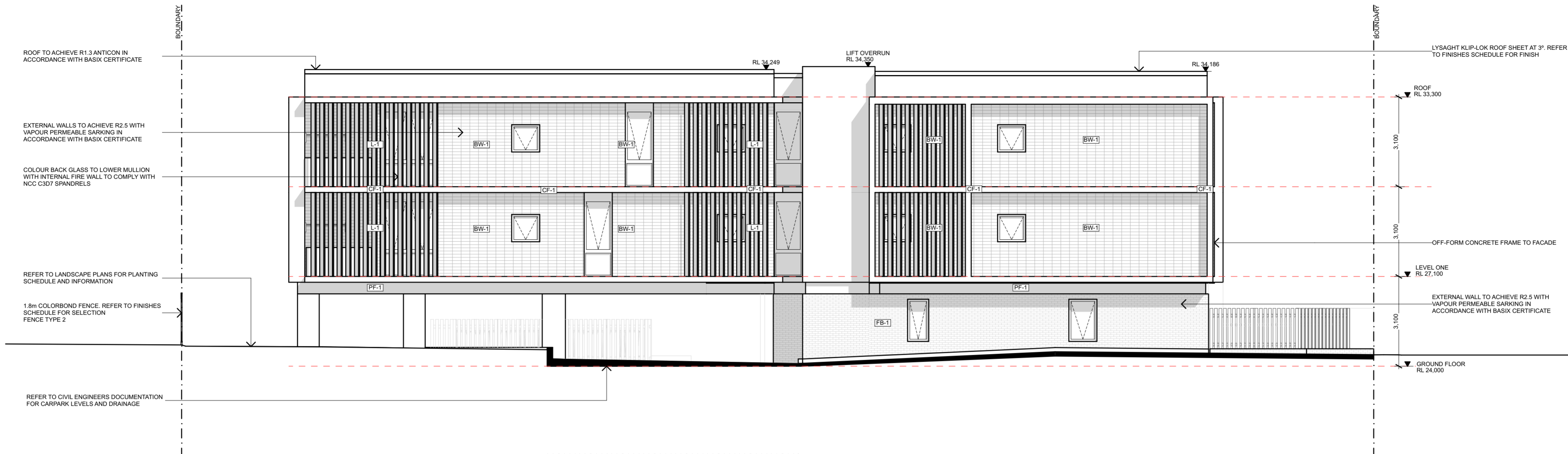




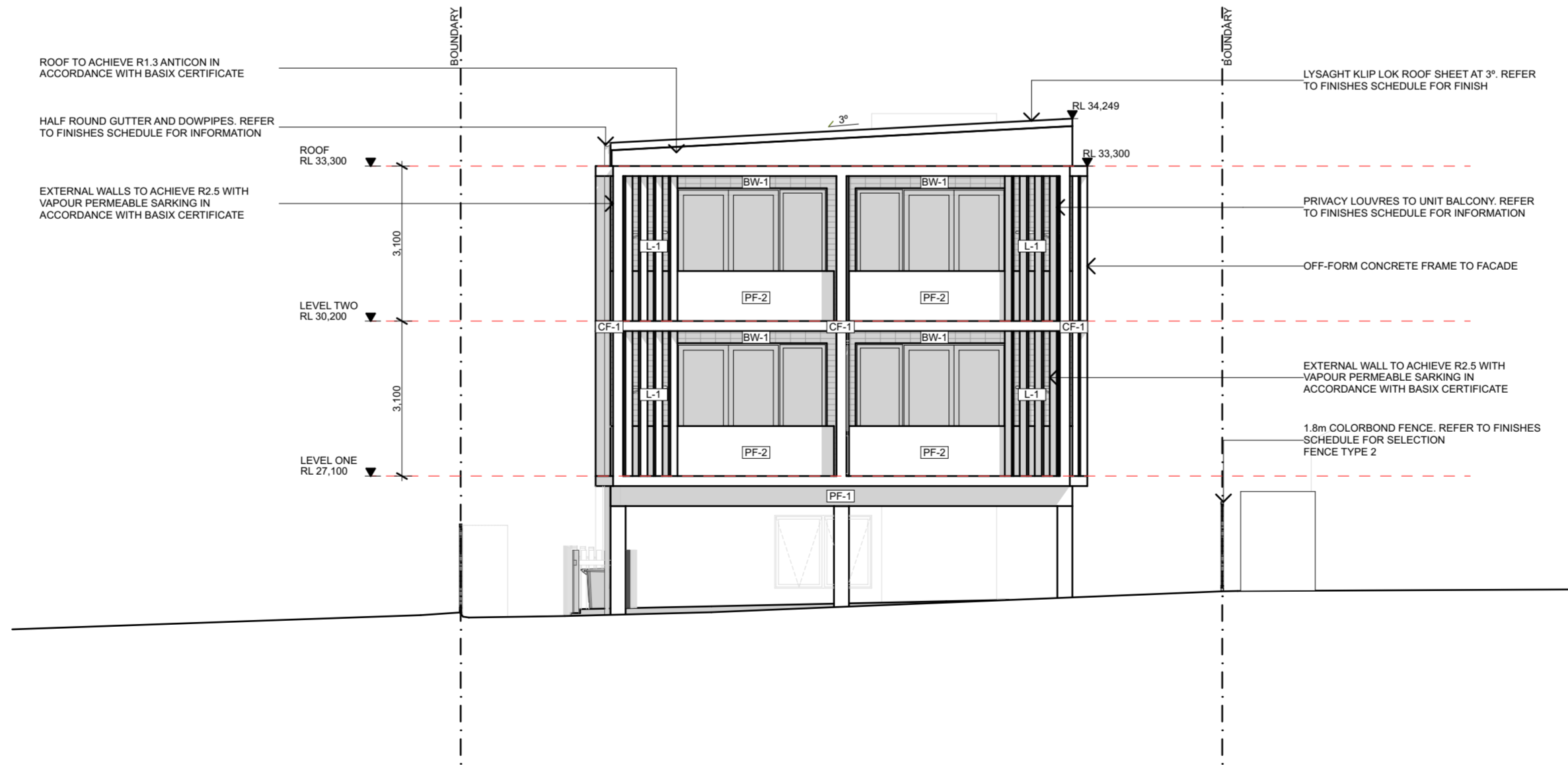
01 NORTH ELEVATION  
Scale 1:100



02 EAST ELEVATION  
Scale 1:100



03 SOUTH ELEVATION  
Scale 1:100



04 WEST ELEVATION  
Scale 1:100

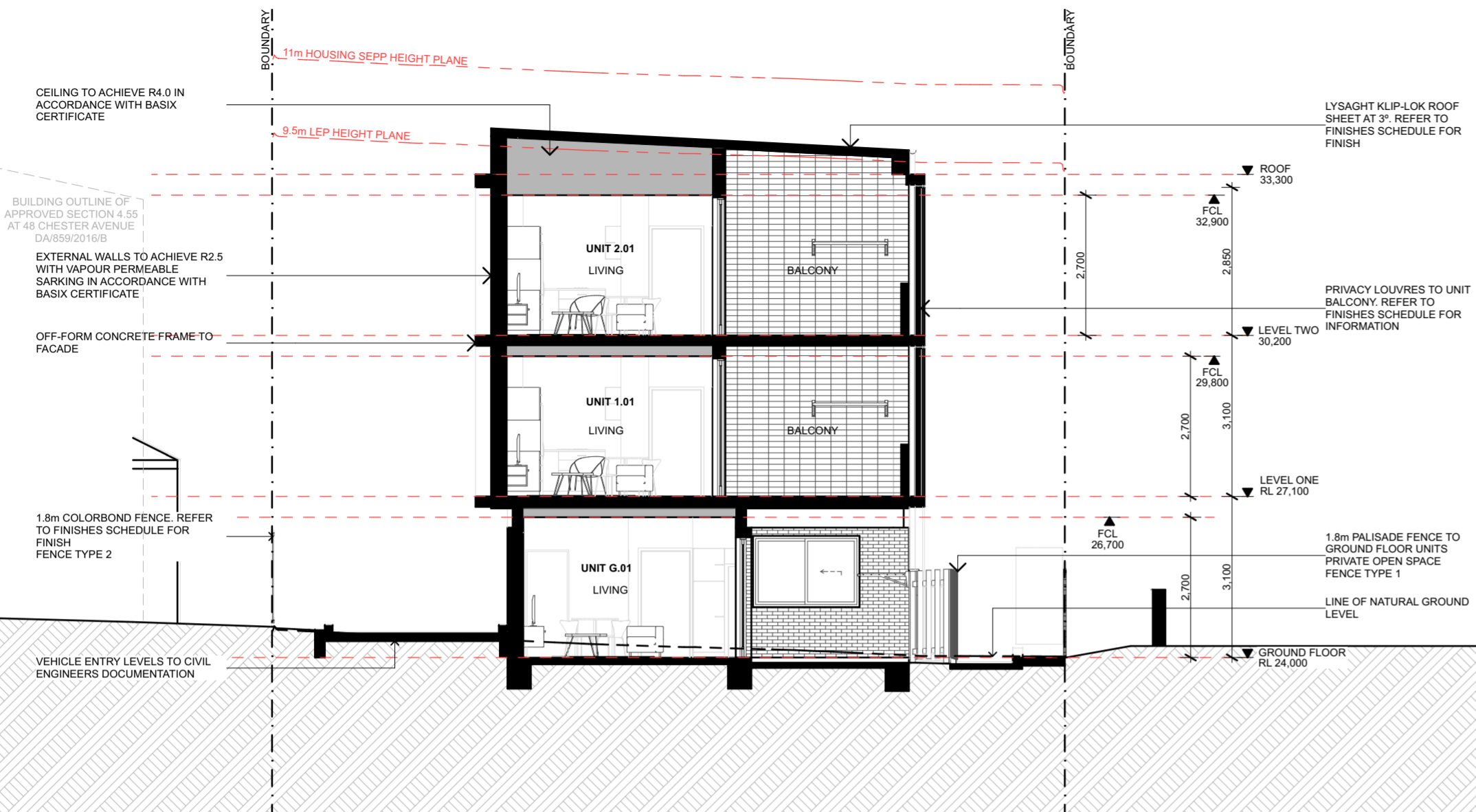
Architectural section drawing of a three-story residential building with four units. The drawing shows internal room layouts, structural elements, and external boundary conditions.

**Units:**

- UNIT 2.03:** BALCONY, LIVING, DINING, BED 1, BATHROOM/LAUNDRY
- UNIT 1.03:** BALCONY, LIVING, DINING, BED 1, BATHROOM/LAUNDRY
- UNIT 2.01:** BATHROOM/LAUNDRY, KITCHEN, DINING, LIVING
- UNIT 1.01:** BATHROOM/LAUNDRY, KITCHEN, DINING, LIVING
- UNIT G.01:** BATHROOM, LAUNDRY, KITCHEN/LIVING

**External Notes and Boundary Conditions:**

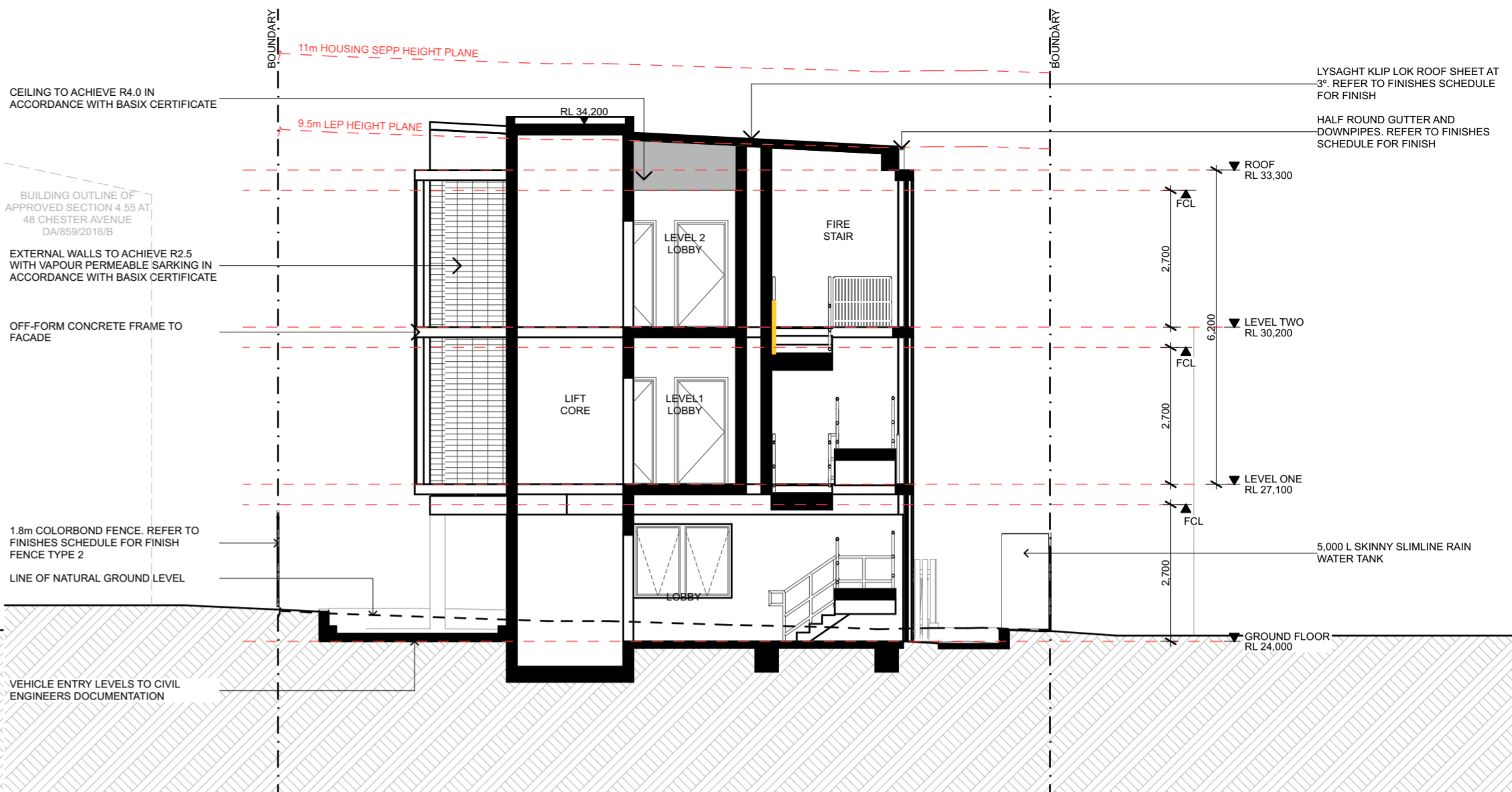
- BOUNDARY:** Indicated by dashed lines on the left and right.
- 11m HOUSING SEPP HEIGHT PLANE:** Indicated by a red dashed line at the top.
- 9.5m LEP HEIGHT PLANE:** Indicated by a red dashed line below the SEPP plane.
- CEILING TO ACHIEVE R4.0 IN ACCORDANCE WITH BASIX CERTIFICATE:** Note on the left.
- EXTERNAL WALLS TO ACHIEVE R2.5 WITH VAPOUR PERMEABLE SARKING IN ACCORDANCE WITH BASIX CERTIFICATE:** Note on the left.
- 1.8m COLORBOND FENCE. REFER TO FINISHES SCHEDULE FOR FINISH FENCE TYPE 1:** Note on the left.
- SOFFIT TO ACHIEVE R2.3 KINGSPAN K10 SOFFIT INSULATION IN ACCORDANCE WITH BASIX CERTIFICATE:** Note on the left.
- LINE OF NATURAL GROUND LEVEL:** Indicated by a dashed line at the bottom.
- LYSAGHT KLIP LOK ROOF SHEET AT 3°. REFER TO FINISHES SCHEDULE FOR FINISH:** Note on the right.
- ROOF 33,300:** Elevation marker on the right.
- OFF-FORM CONCRETE FRAME TO FACADE:** Note on the right.
- LEVEL TWO 30,200:** Elevation marker on the right.
- LEVEL ONE RL 27,100:** Elevation marker on the right.
- GROUND FLOOR RL 24,000:** Elevation marker on the right.
- 1.8m PALISADE FENCE TO GROUND FLOOR UNITS PRIVATE OPEN SPACE FENCE TYPE 1:** Note on the right.
- PLANTING TO FRONT LANDSCAPE WALL TO LANDSCAPE ARCHITECTS DOCUMENTATION:** Note on the right.
- LOW HEIGHT BRICK WALL TO FRONT BOUNDARY:** Note on the right.



03

## SECTION C

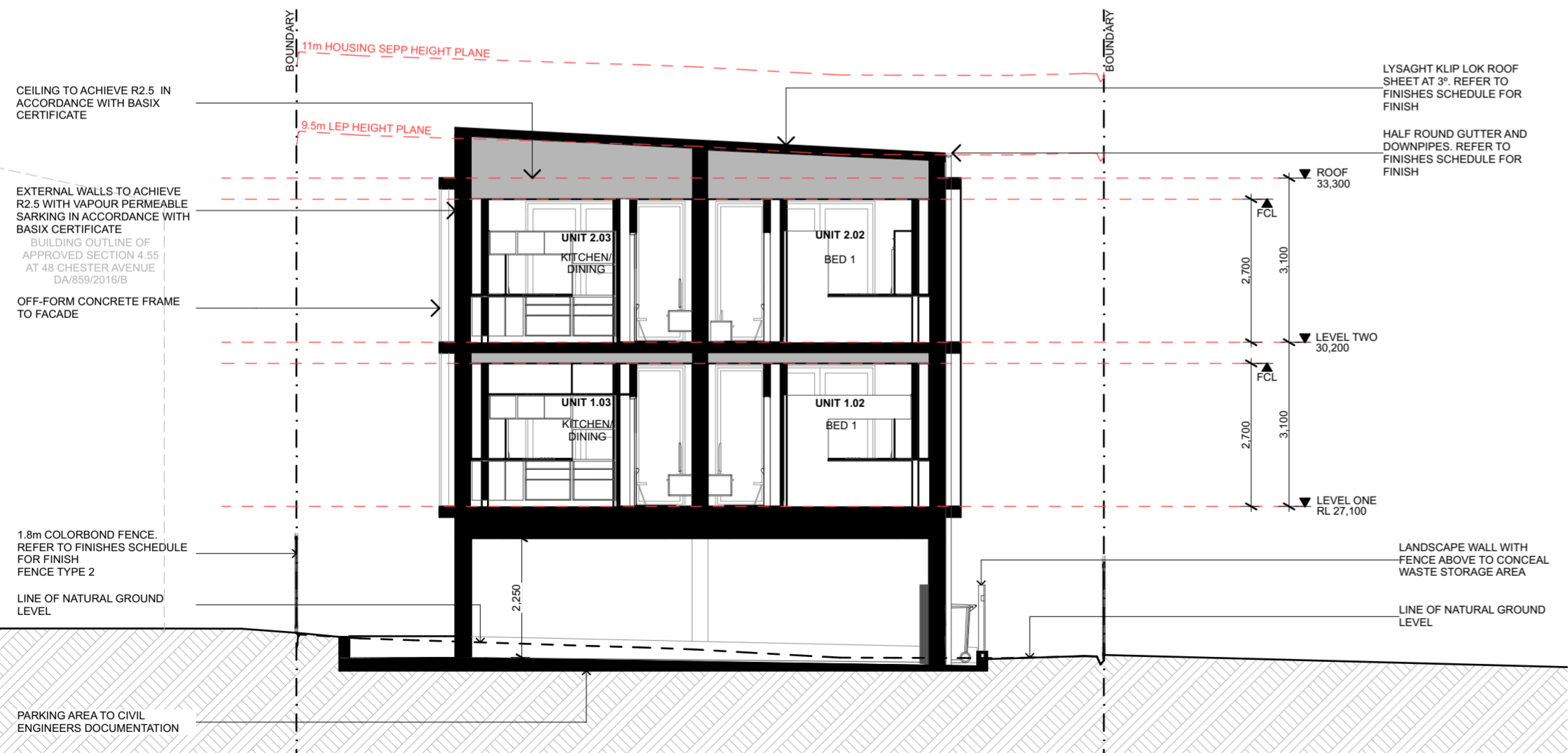
Scale 1:100



04

## SECTION D

Scale 1:100



05

## SECTION E

Scale 1:100

ARCHITECT

INTEGRATED  
DESIGN  
GROUP

48/1-12/20-102 KASTELPLANING INTERIORS

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ABN 84 115 006 329  
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NOTES

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6. Refer to General notes page for legend and abbreviations

DISCIPLINES

Access	Vista Access	Civil	Northrop Consulting Engineers
Acoustic	Pulse White Noise Acoustics	Electrical	Marine
Artist	Riedrum Horticulture	Mechanical	STS Geotechnics
BCA	MetroBC	Hydraulic	Marine
Landscape	Waiman Partners	Flood	Northrop Consulting Engineers
Planner	LAHC	Structure	Rebel Engineering
Surveyor	SJ Surveying Services	Structure	Kiho Building Consultant
Traffic	Varga Traffic	Structure	

PROJECT

RESIDENTIAL FLAT BUILDING

SITE: 46 CHESTER AVENUE, MAROUBRA  
CLIENT: HOMES NSW  
REF: BQ233  
LOT: LOT 270 DP 36765

REVISION

1/3/24 A ISSUE FOR PART 5

DRAWING

SECTIONS 02

DRAWING

P5-3001

ISSUE

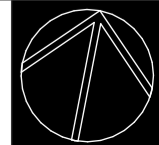
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DRAWN

EV

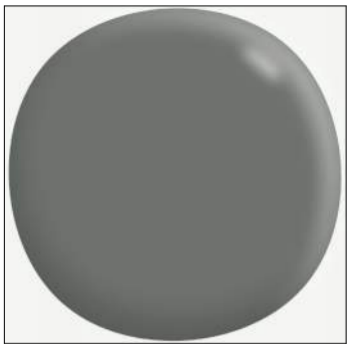
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1:100 @ s3

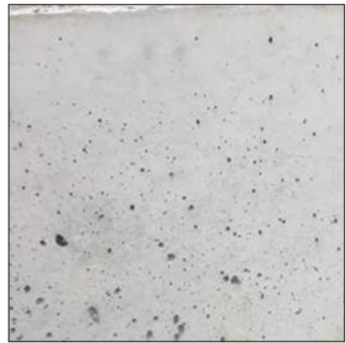




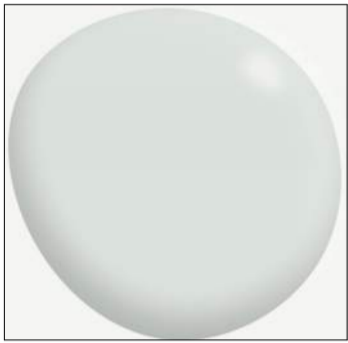
BW-1 AUSTRAL MASONRY BLOCK IN ALABASTER OR SIMILAR



PF-1 DULUX WINDSPRAY



CF-1 OFF FORM CONCRETE FRAME



PF-2 DULUX DOVER WHITE



FB-1 FACE BRICK - AUSTRAL MINERAL SAND BRICK OR SIMILAR



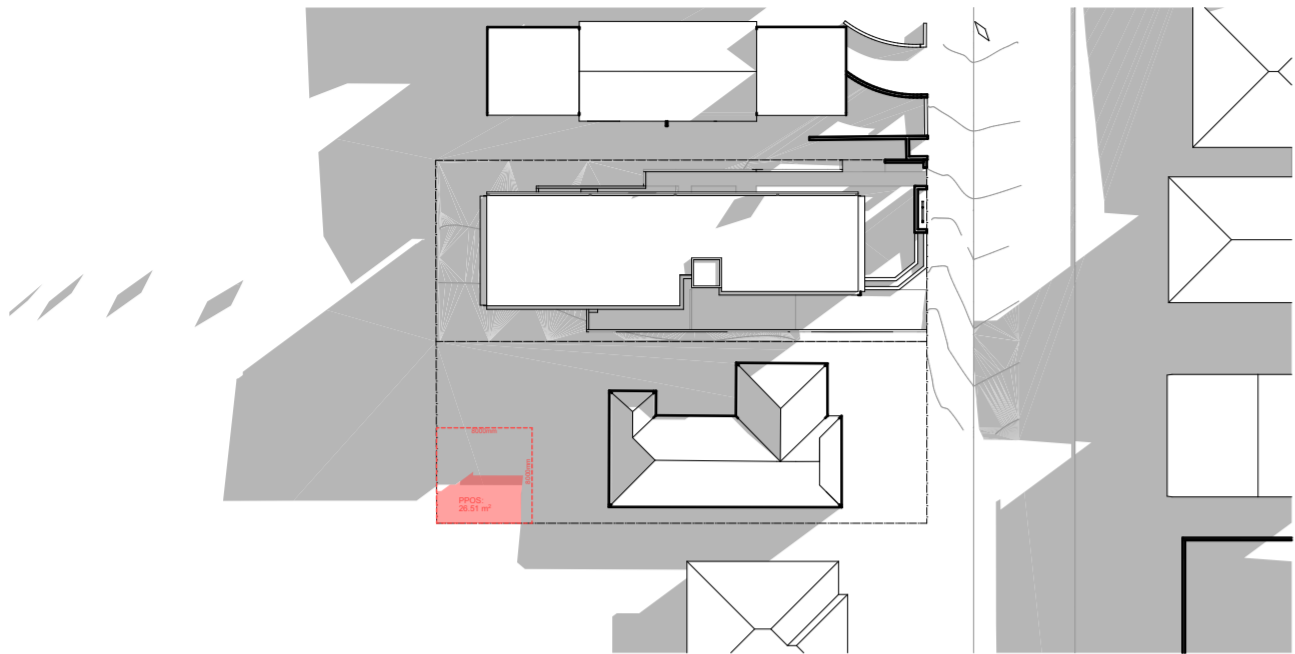
F-2 WINDSPRAY COLORBOND FENCE



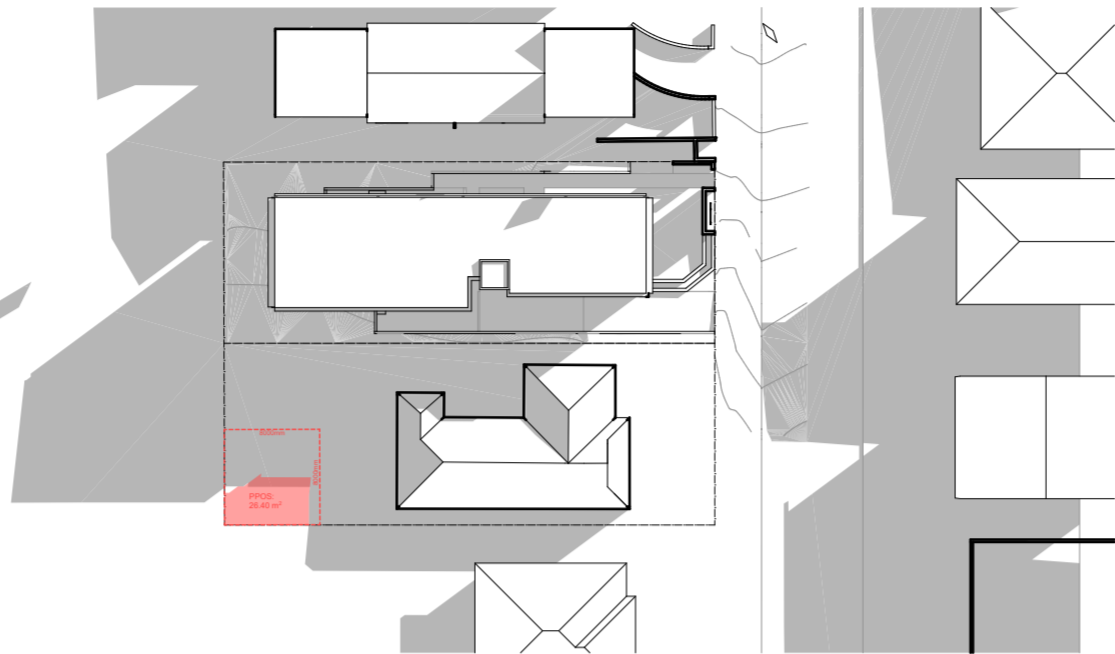
F-1 WINDSPRAY PALISADE FENCE



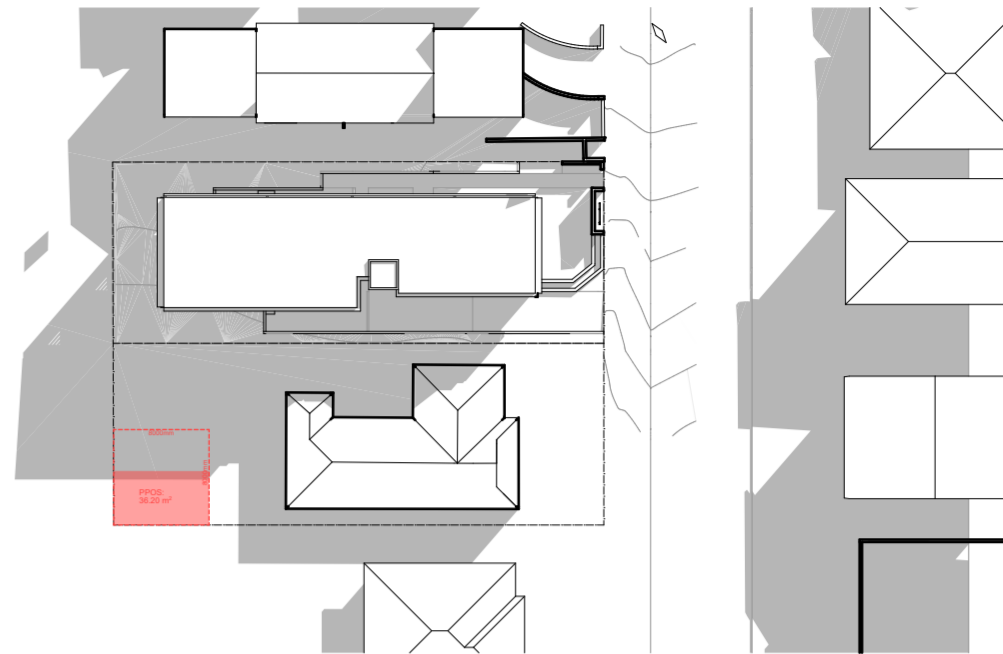
L-1 WHITE VERTICAL LOUVRES



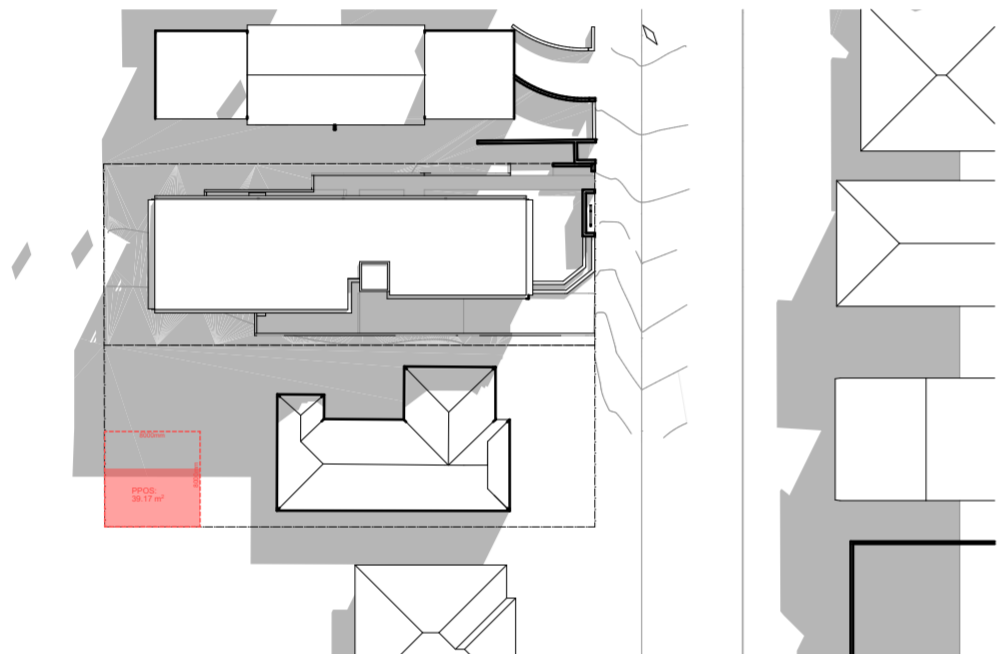
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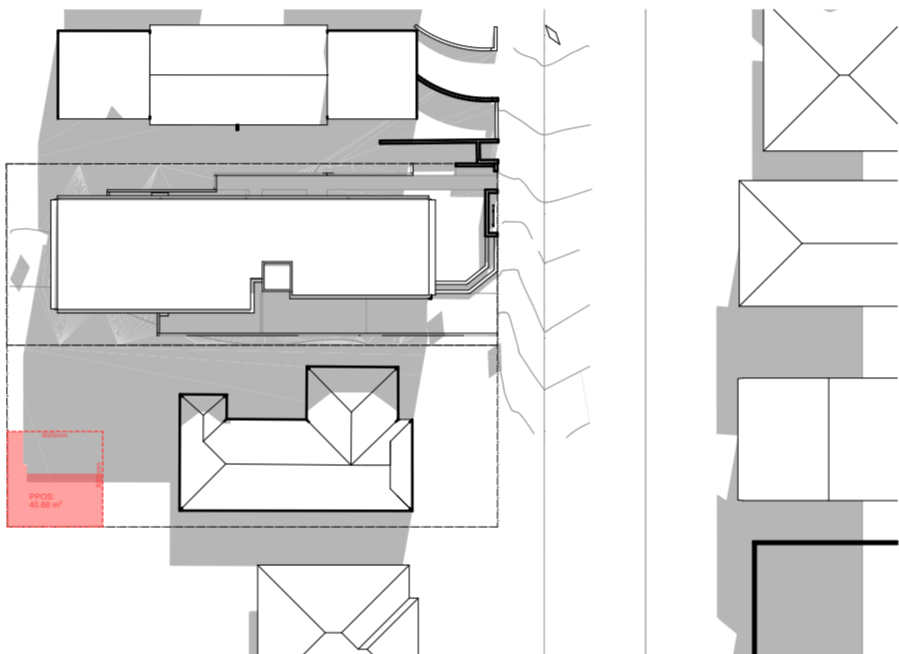
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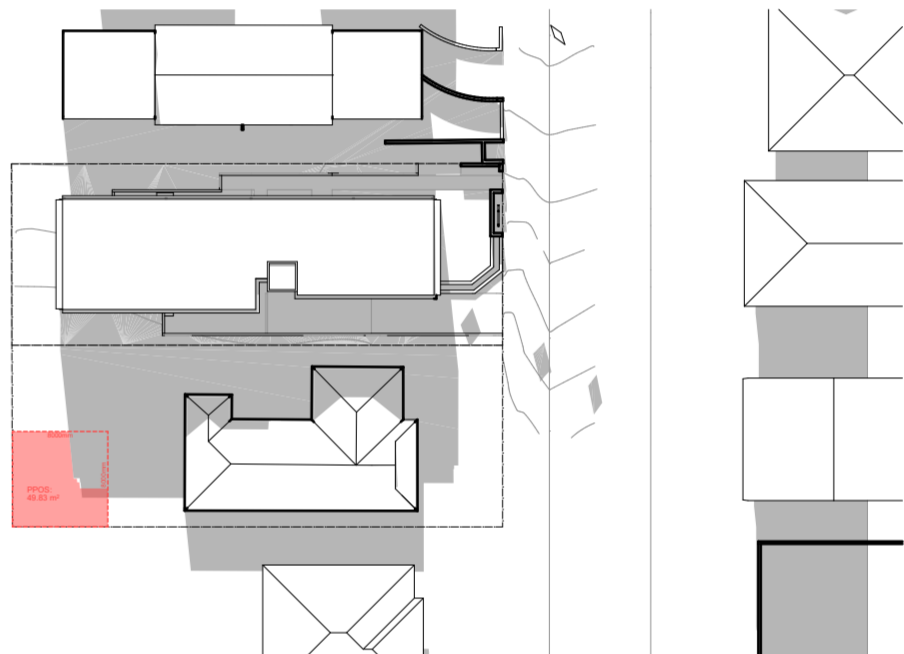
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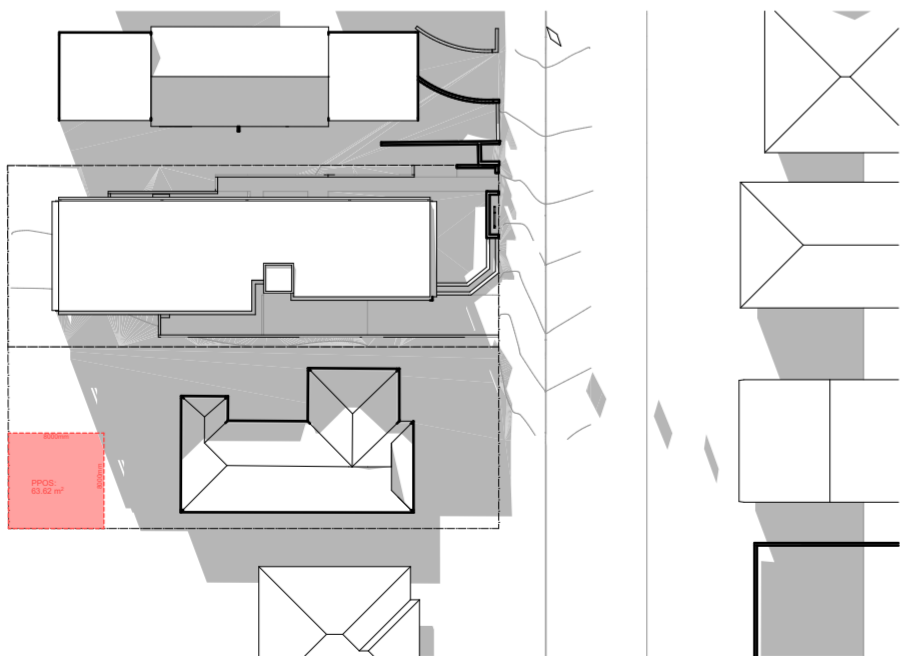
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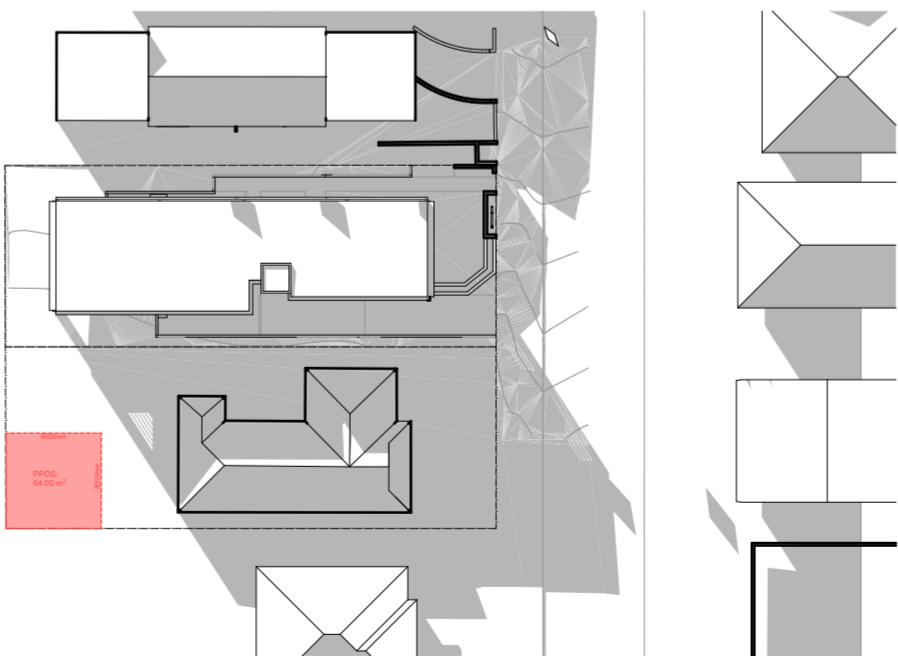
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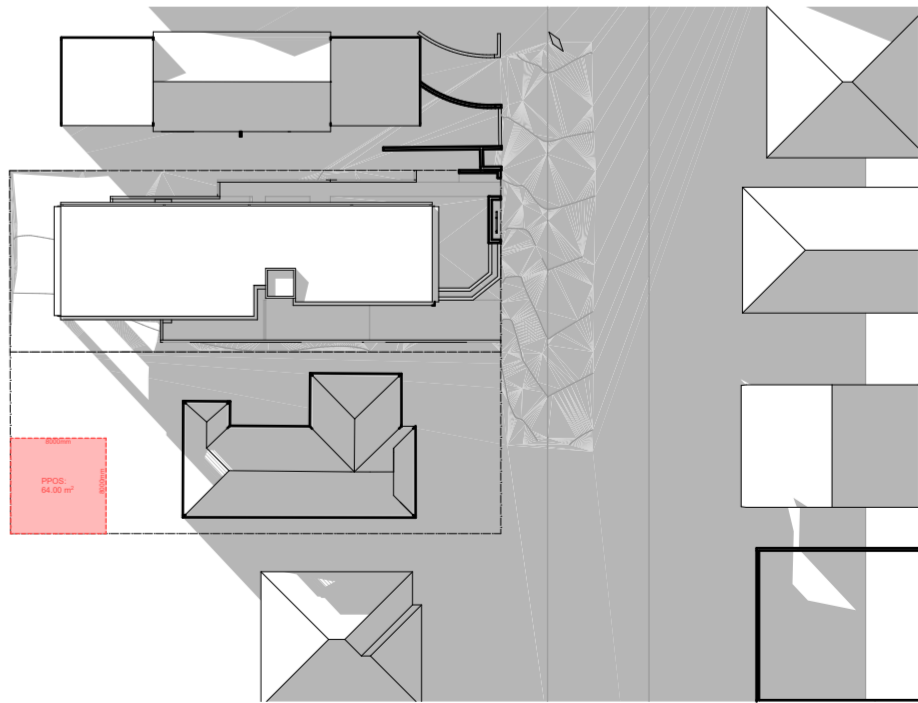
06 1pm 21 JUNE



07 2pm 21 JUNE



08 3pm 21 JUNE



09 4pm 21 JUNE

ARCHITECT

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DESIGN  
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Simon Thorne reg. no. 7093  
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Authorist	Riedrum Horticulture	Mechanical	STS Geotechnics
BCA	MetroBC	Geotech	Marine
Landscape	Waiman Partners	Hydraulic	Marine
Planner	LAHC	Flood	Northrop Consulting Engineers
Surveyor	SJ Surveying Services	Structure	Rebel Engineering
Traffic	Varga Traffic	BASIX	Kiho Building Consultant



PROJECT

RESIDENTIAL FLAT BUILDING

SITE: 46 CHESTER AVENUE, MAROUBRA  
CLIENT: HOMES NSW  
REF: BG233  
LOT: LOT 270 DP 36765

REVISION

1/3/24 A ISSUE FOR PART 5

DRAWING

SUN SHADOW ANALYSIS

DRAWING

P5-9400

ISSUE

A

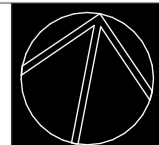
DRAWN

EV

AE

SCALE

@ s3





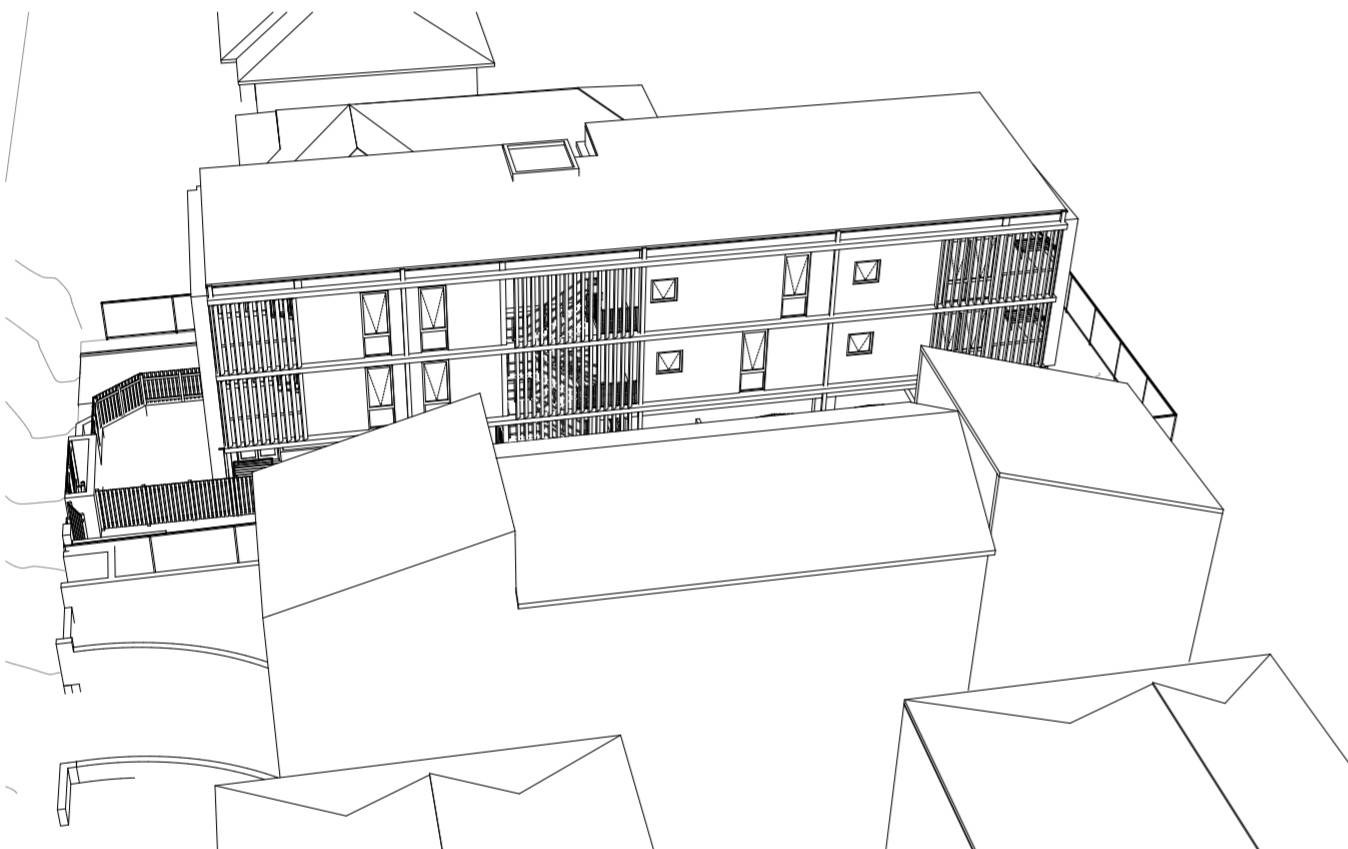
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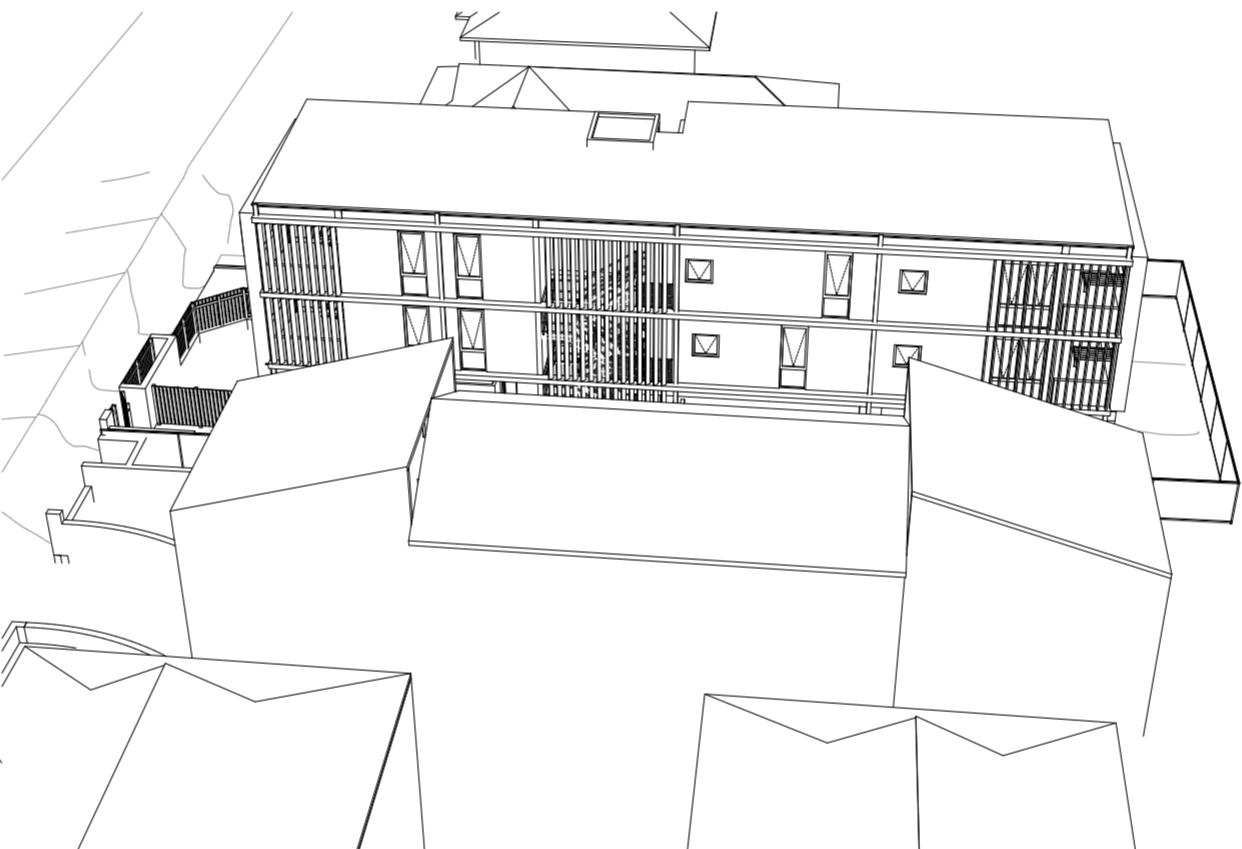
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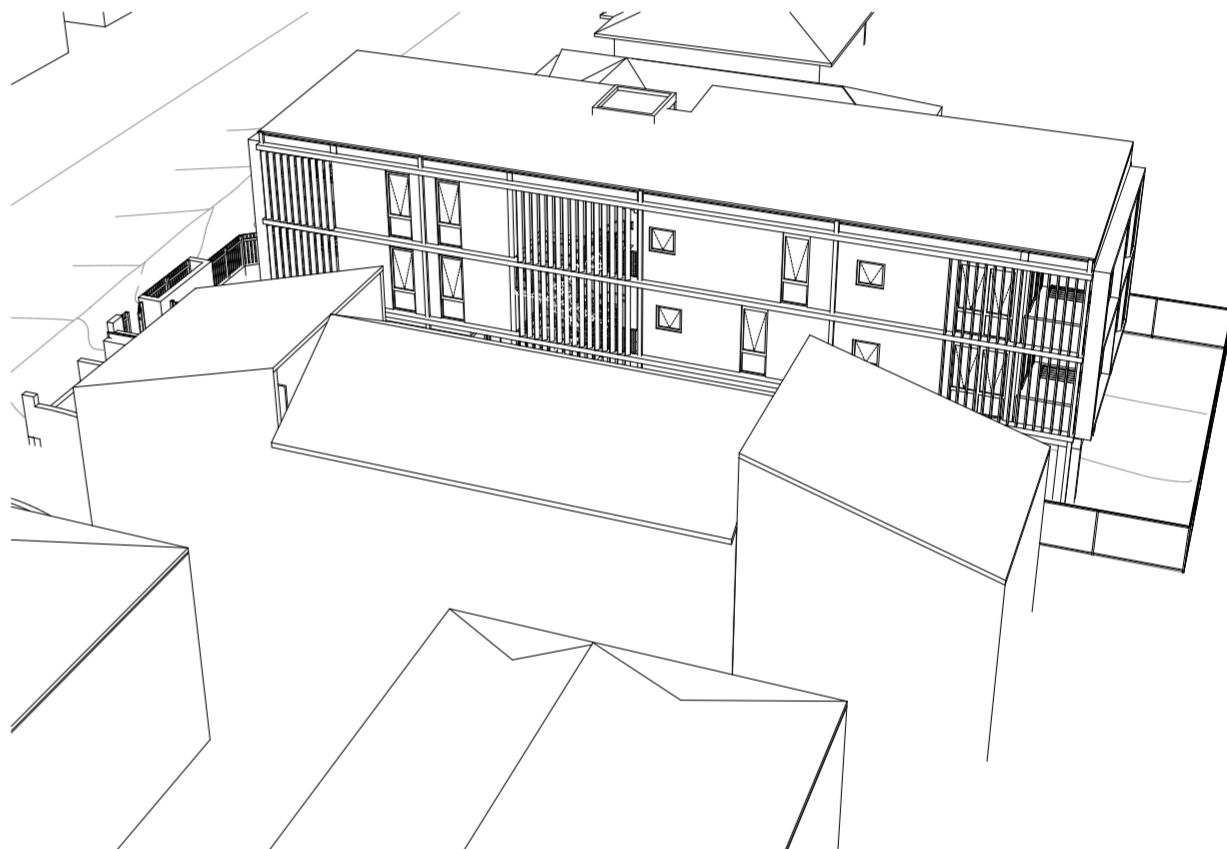
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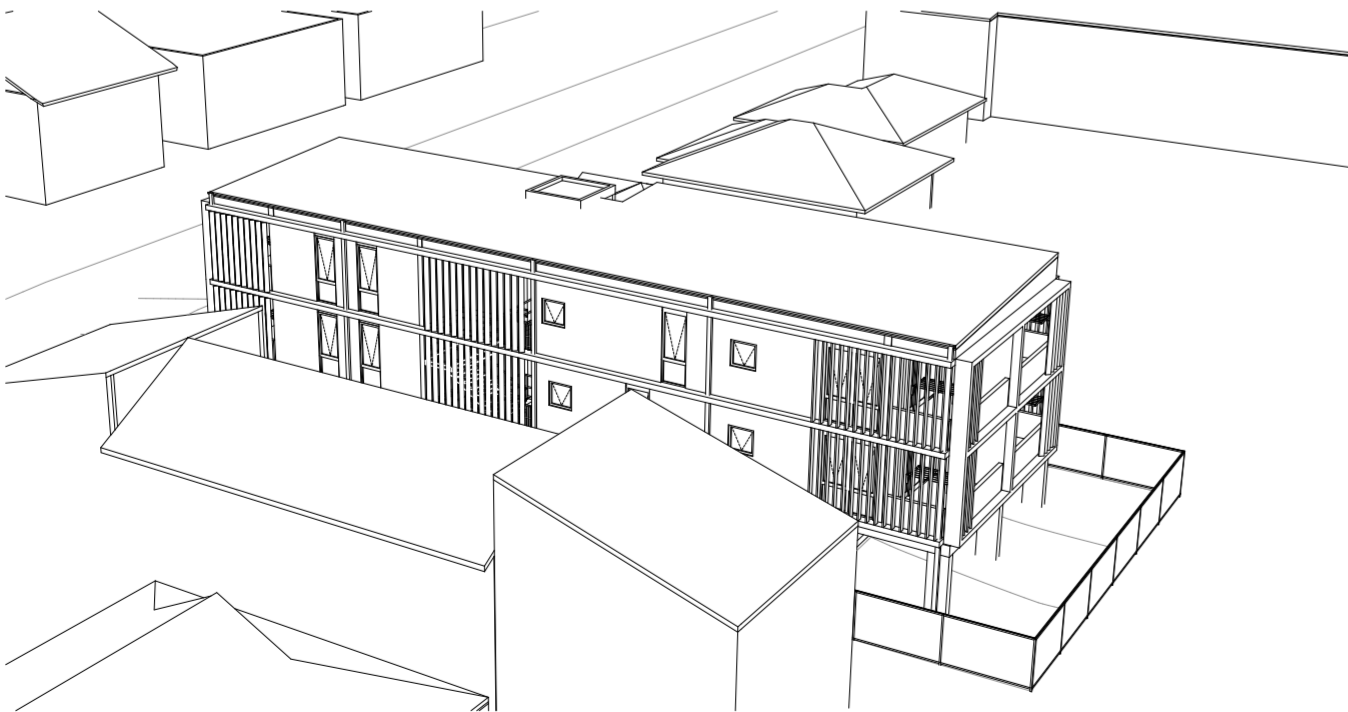
04 12PM 21 JUNE



05 1PM 21 JUNE



06 2PM 21 JUNE



07 3PM 21 JUNE

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BCA	MetroBC	Geotech	Hydraulic
Landscape	Wallman Partners	Marine	Northrop Consulting Engineers
Planner	LAHC	Flood	Rebel Engineering
Surveyor	SJ Surveying Services	Structure	Kiho Building Consultant
Traffic	Verge Traffic	BASIX	



PROJECT

RESIDENTIAL FLAT BUILDING

SITE: 46 CHESTER AVENUE, MAROUBRA  
CLIENT: HOMES NSW  
REF: BG233  
LOT: LOT 270 DP 36765

REVISION

1/3/24 A ISSUE FOR PART 5

DRAWING

EYE OF THE SUN DIAGRAMS

DRAWING

P5-9401

ISSUE

A

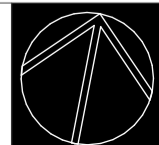
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SCALE

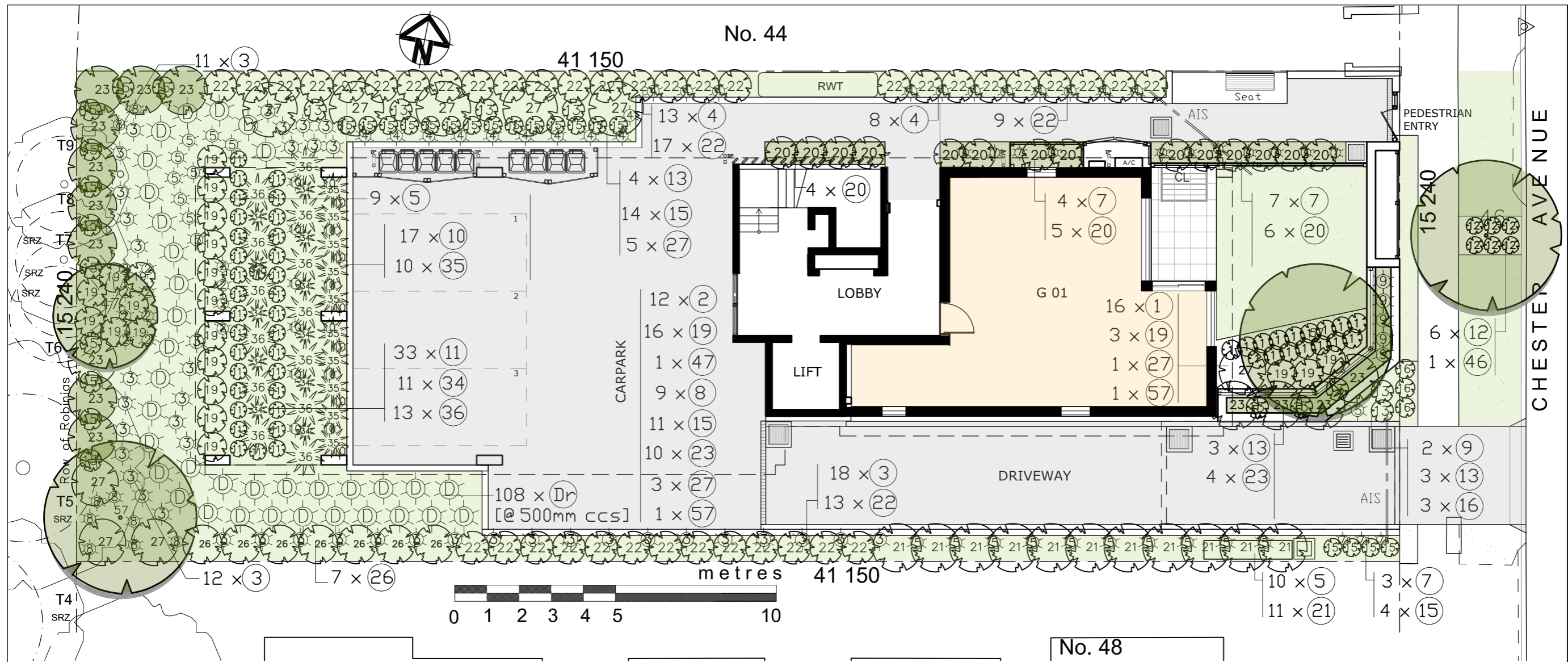
@ 83



NOTIFICATION PLANS  
RESIDENTIAL FLAT BUILDING

46 CHESTER AVENUE, MAROUBRA





## PROPOSED PLANT SCHEDULE

Code	Botanical Name	Common Name	Approx mature height, spread	Pot size	Quantity
GROUND COVERS, NATIVE GRASSES, CLIMBERS					
1	Actinotus helianthii	* Flannel Flower	.9 x .9	150mm	13
2	Viola hederacea	Native Violet	.2 x .8	150mm	12
3	Baeckia imbricata	* Heath Myrtle	.6 x .6	150mm	32
4	Dichondra 'Silverfalls'	Silverfalls	.6 x .5	150mm	18
5	Billardiera scandens	* Appleberry	.3 x 1	150mm	19
7	Helichrysum apiculatum	Yellow Buttons	.7 x .5	150mm	14
8	Dianella revoluta	* Blueberry Lily	.5 x 1	150mm	9
9	Hibbertia fasciculata	* Guinea Flower	.3 x 1m	150mm	2
10	Clivia miniata	Natal Plum	.6 x .6	150mm	17
11	Aspidistra elatior	Cast-iron Plant	.6 x .8	150mm	33
12	Westringia 'mundi'	Dwarf Westringia	.5 x .9	150mm	6
13	Bauera rubioides	* River Dog Rose	.8 x .8	150mm	10
15	Lomandra longifolia	* Mat Rush	.8 x .9	150mm	29
16	Lomandra tanika	Dwarf Lomandra	.7 x .5	150mm	8
* Endemic species					

## SHRUBS

Code	Botanical Name	Common Name	Approx mature height, spread	Pot size	Quantity
19	Philotheca australicum	* Pink Wax Flower	.9 x .7	200mm	16
20	Callistemon 'Great Balls of Fire'	Bottlebrush [hedge]	1.3x.7	300mm	13
21	Leptospermum laevigatum	Tea Tree [hedge]	2.2x 1m	300mm	11
22	Syzygium 'Resilience'	Lilly Pilly [hedge]	1.8x.6m	300mm	40
23	Persoonia lanceolata	* Geebung	3 x 2m	200mm	14
26	Leptospermum trinervium	* Flakey Barked Tea Tree [hedge]	2.2x 1m	200mm	7
27	Acacia suaveolens	* Sweet Wattle	2.5x1.5m	200mm	8
34	Strelitzia reginae	Bird of Paradise	1.2 x1m	200mm	11
35	Cordyline stricta	* Erect Palm Lily	1.2x1.2m	200mm	10
36	Rhapis excelsa	Lady Palm	3 x2.2m	300mm	13

## TREES

Code	Botanical Name	Common Name	Approx mature height, spread	Pot size	Quantity
46	Cupaniopsis anacardioides	Tuckeroo	8 x 5m	75 litre	1
47	Lagerstroemia 'Sioux'	* Crepe Myrtle	4 x 3m	75 litre	1
57	Banksia integrifolia	* Coast Banksia	10 x 6m	75 litre	2

\* Endemic species

## NOTIFICATION - SITE/LANDSCAPE

46 CHESTER AVENUE, MAROUBRA for HOMES NSW

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REV:

A

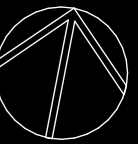
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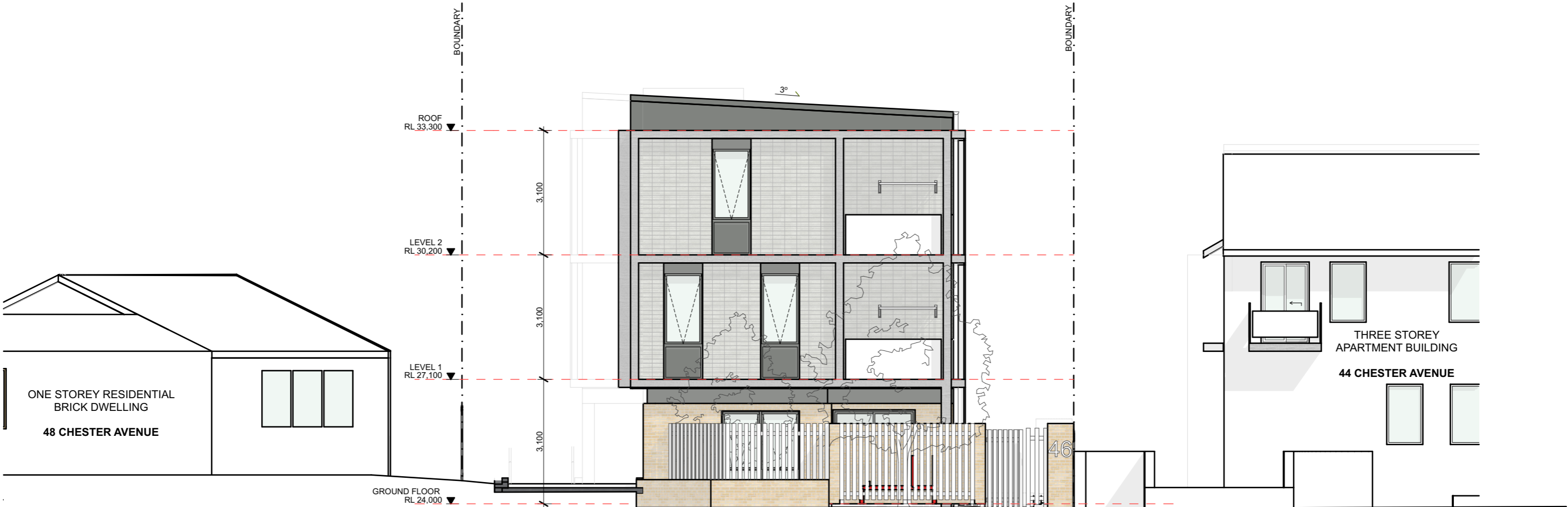
1/3/2024

PROJECT NO:

BGZ93

SHEET:

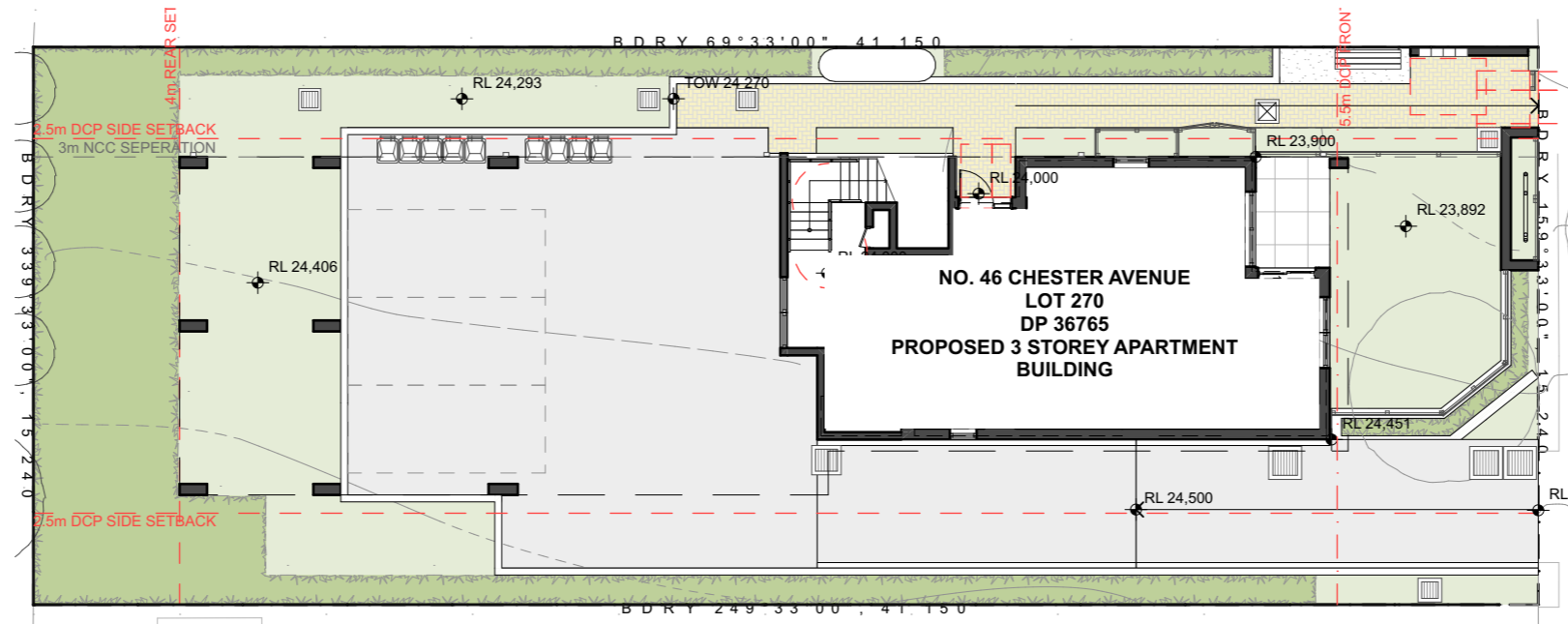
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@ a3



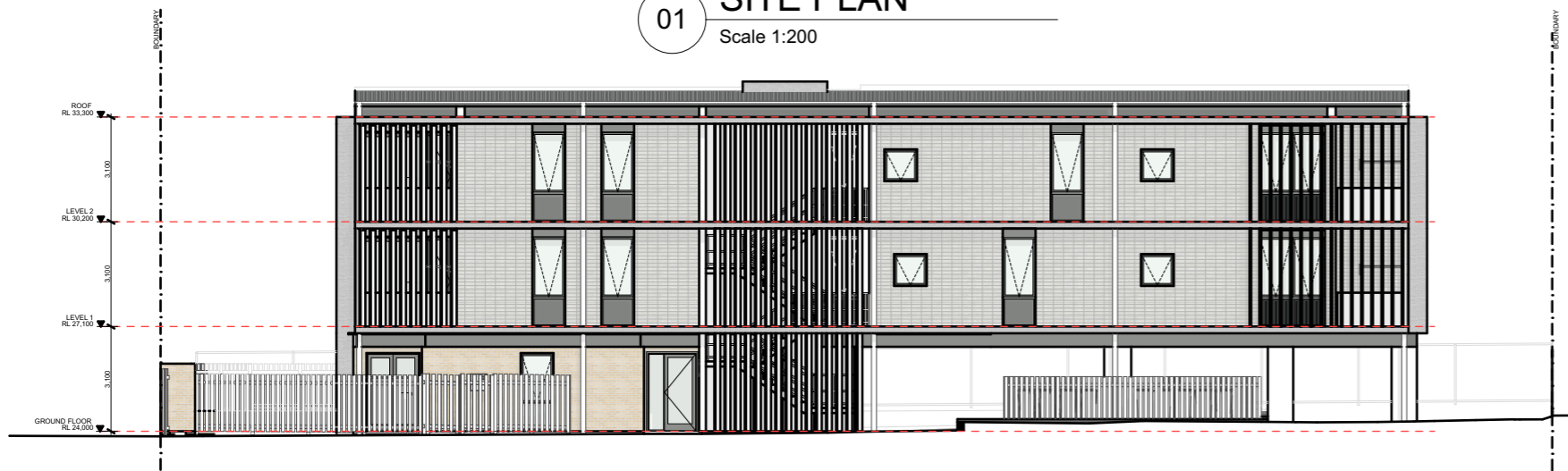
EAST STREET ELEVATION  
Scale 1:100

SITE AREA	627.1m²			
GFA MAXIMUM ALLOWABLE	470.325			
GFA PROVIDED	469.43			
COMPLIANCE TABLE				
	CONTROL	REQUIRED	PROPOSED	COMPLIES
FRONT SETBACK	RANDWICK DCP 2013	Prevailing setback (5m) but no less than 3m	5.5m	COMPLIES
SIDE SETBACK	RANDWICK DCP 2013	Minimum 2.5m based on site frontage width. Greater setbacks to be provided where possible.	3.0m	COMPLIES
SIDE SETBACK	ADG	6m (habitable) 3m (non-habitable)	3.0m	NON-COMPLIANCE

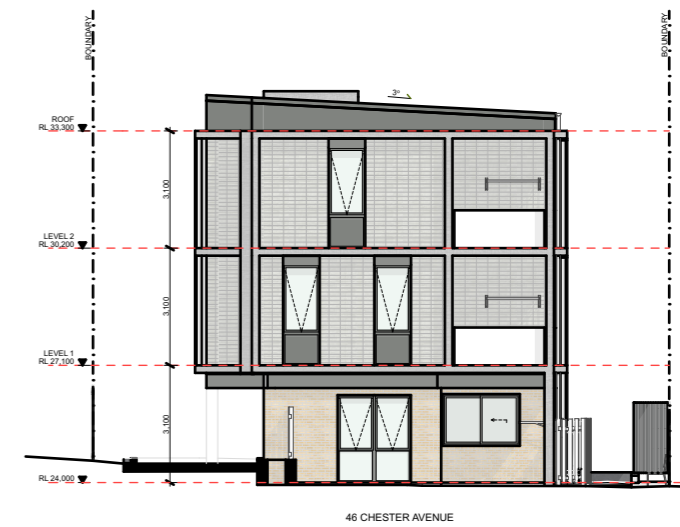
LOT No. & DP	LOT 270, DP 36765
SITE AREA	627.1m²
GFA MAXIMUM ALLOWABLE	470.325
GFA PROVIDED	469.43



01 SITE PLAN  
Scale 1:200



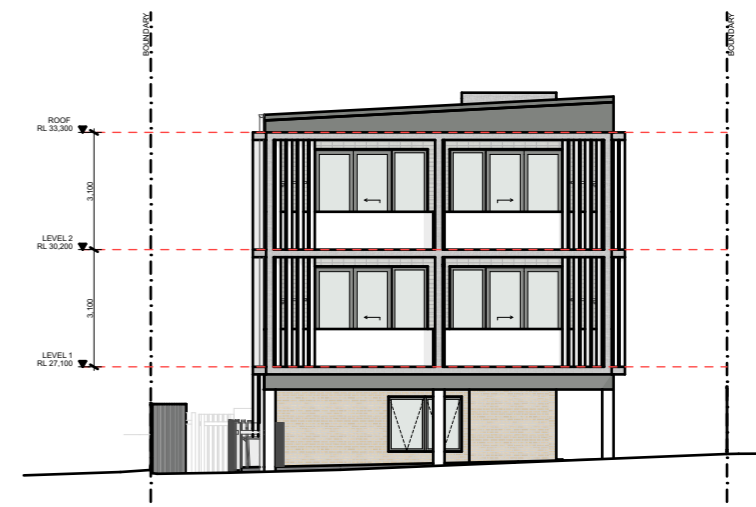
02 NORTH ELEVATION  
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03 EAST ELEVATION  
Scale 1:200



04 SOUTH ELEVATION  
Scale 1:200



05 WEST ELEVATION  
Scale 1:200



Homes NSW  
Locked Bag 5022  
Parramatta NSW 2124  
Ph: 1800 738 718 (voice mail)  
www.nsw.gov.au/homes-nsw

INTEGRATED  
DESIGN  
GROUP  
ARCHITECTURAL MASTERPLANNING INTERIORS

## NOTIFICATION - ELEVATIONS

46 CHESTER AVENUE, MAROUBRA for HOMES NSW

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REV:

A

DATE:

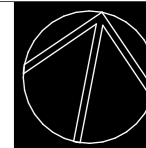
1/3/2024

PROJECT NO:

BGZ93

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P5-N04  
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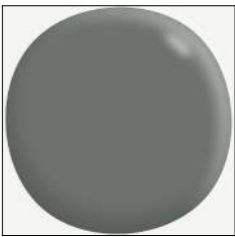




BW-1 AUSTRAL MASONRY BLOCK IN ALABASTER OR SIMILAR



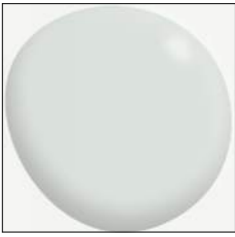
CF-1 OFF FORM CONCRETE FRAME



PF-1 DULUX WINDSPRAY



FB-1 AUSTRAL MINERAL SAND BRICK OR SIMILAR



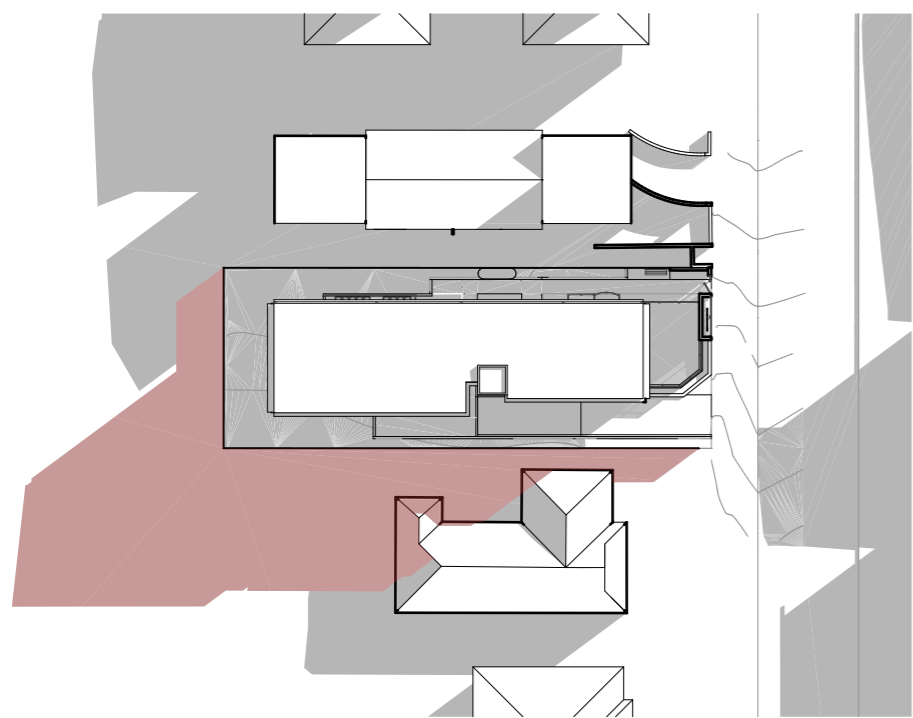
PF-2 DULUX DOVER WHITE



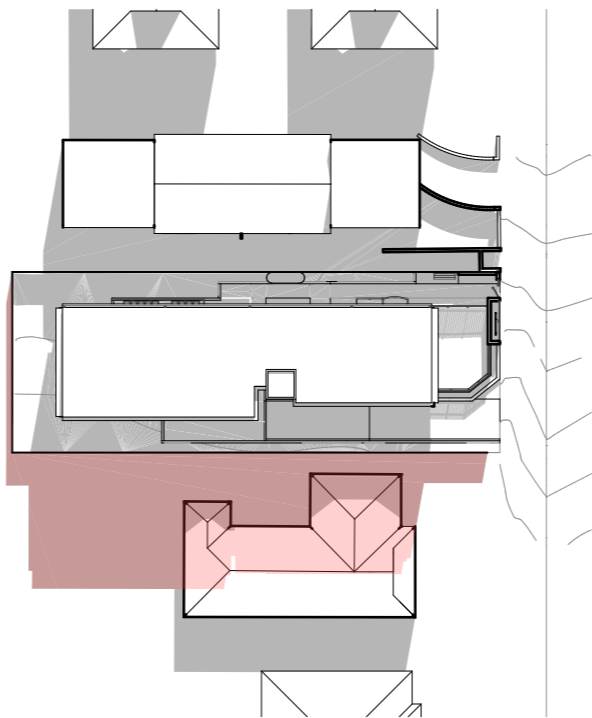
F-1 WINDSPRAY PALISADE FENCE



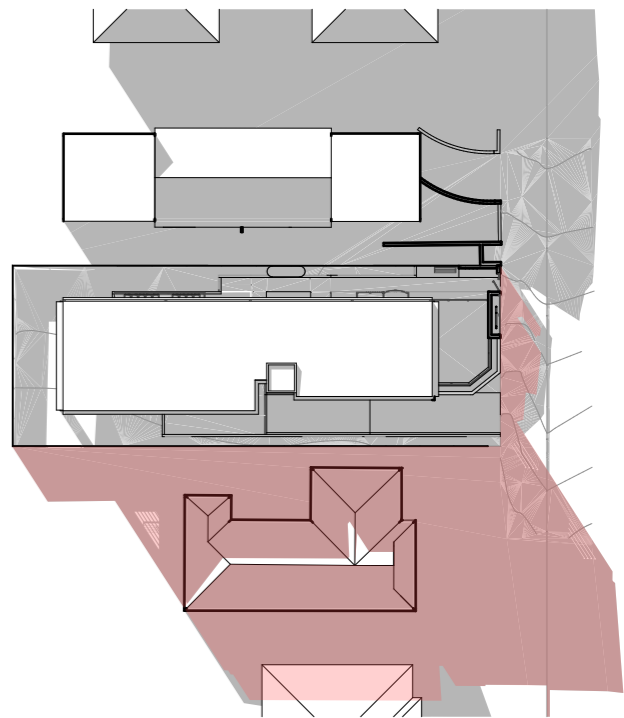
L-1 WHITE VERTICAL LOUVRES



01 9am 21 JUNE SHADOW DIAGRAM



02 12pm 21 JUNE SHADOW DIAGRAM



03 3pm 21 JUNE SHADOW DIAGRAM

**LEGEND**

- INDICATES SHADOW CAST BY PROPOSED DEVELOPMENT
- INDICATES EXISTING SHADOWS CAST BY NEIGHBOURING PROPERTIES

## Appendix C – Civil Plans

# LAHC 46 CHESTER AVENUE, MAROUBRA

## AFFORDABLE HOUSING DEVELOPMENT CIVIL ENGINEERING PLANS - D.A. STAGE

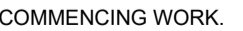





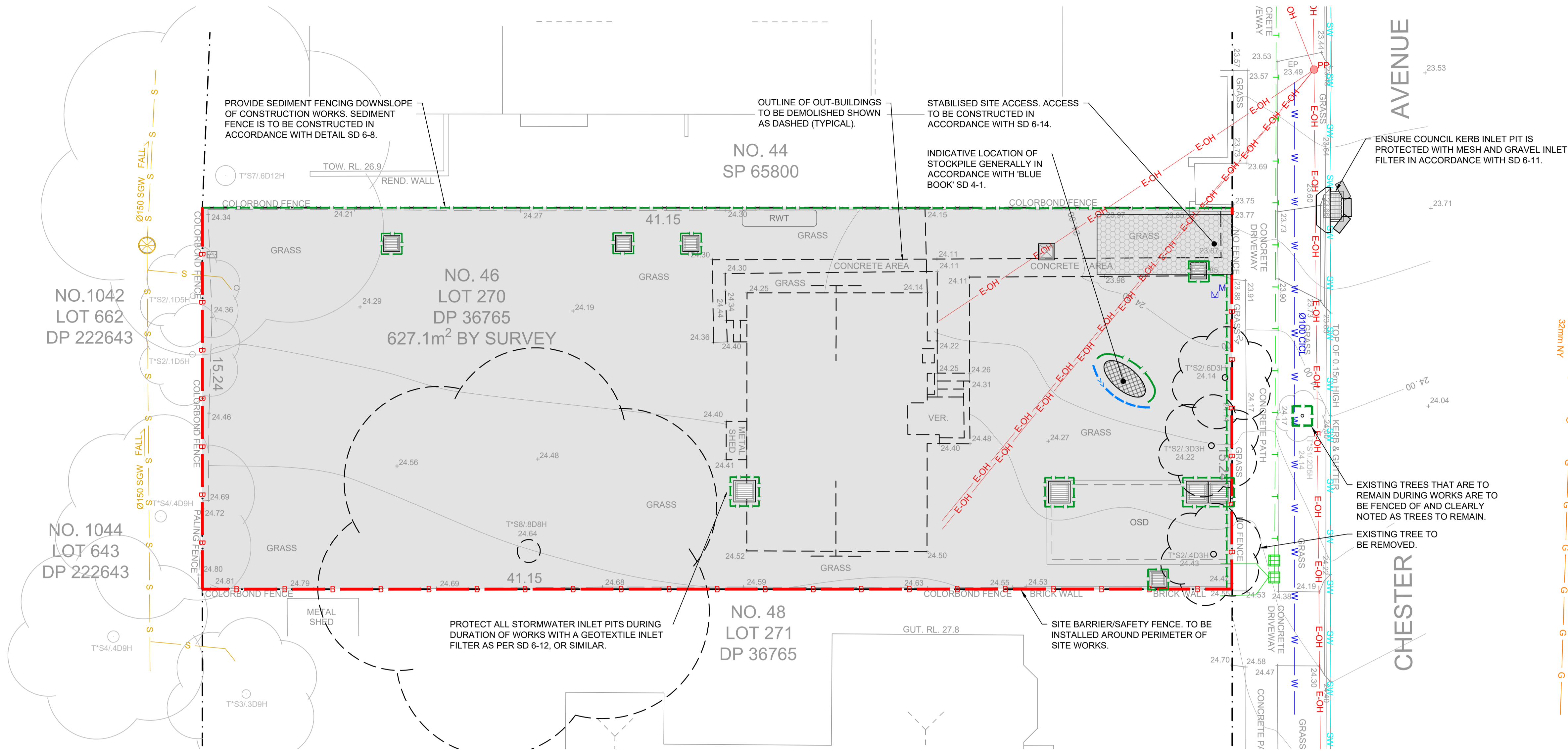
SITE LOCALITY PLAN

SOURCE : MAPS.SIX.NSW.GOV.AU (@2023)

DRAWING SCHEDULE	
DRG No.	DRAWING TITLE
DA01	COVER SHEET, DRAWING SCHEDULE AND SITE LOCALITY PLAN
DA02	CONCEPT EROSION AND SEDIMENT CONTROL PLAN
DA03	SITE CATCHMENT AREA PLAN
DA04	CONCEPT SITEWORKS, GRADING AND STORMWATER DRAINAGE PLAN

NOT FOR CONSTRUCTION

REV.	DESCRIPTION	DESIGN	DRAWN	CHECKED	VERIFIED	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER							
01	ISSUED FOR CO-ORDINATION	B.M.S.	L.M.	C.N.		10/11/23	 Homes NSW	 © Integrated Design Group Pty Ltd ABN 64 115 006 329 Nominated Architect Simon Thorne reg. no. 7093 info@idgarchitects.com.au www.idgarchitects.com.au	 <b>NORTHROP</b> Wollongong Level 1, 57 Kembla Street, Wollongong NSW 2500 Ph (02) 4226 3333 Fax (02) 4226 3666 P.O. Box 863, Wollongong, NSW 2500 Email southcoast@northrop.com.au ABN 81 094 433 100	RESIDENTIAL FLAT BUILDING 46 CHESTER AVENUE MAROUBRA	COVER SHEET, DRAWING SCHEDULE AND SITE LOCALITY PLAN	231042							
02	ISSUED FOR CO-ORDINATION	B.M.S.	L.M.	R.S.		12/02/24													
03	ISSUED FOR DEVELOPMENT APPLICATION APPROVAL	B.S.	L.M.	R.S.	D.H.	07/03/24													
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DRAWING SHEET SIZE = A1																			



**LEGEND**

- E-OH ELECTRICAL - OVERHEAD
- PP ELECTRICAL POLE
- G EXISTING GAS MAIN
- S EXISTING SEWER MAIN
- SW EXISTING STORMWATER PIPE
- T EXISTING TELECOMMUNICATION CONDUIT
- W EXISTING WATER MAIN
- SEDIMENT FENCE (SD 6-8)
- B SITE BOUNDARY OR BARRIER FENCE
- STABILISED SITE ACCESS (SD 6-14)
- DISTURBED AREA
- STOCKPILE (SD 4-1)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- PIT PROTECTION (SD 6-12)
- RWT PROPOSED RAINWATER TANK
- OSD PROPOSED OSD TANK
- 674.5 EXISTING CONTOUR
- EXISTING TREE TO BE PROTECTED
- EXISTING TREE TO BE REMOVED
- PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY

**NOTE:**  
1. STANDARD DRAWINGS (SD) ARE TO BE PROVIDED AS PER THE "BLUE BOOK" MANAGING URBAN STORMWATER (LANDCOM, 2004). FURTHER DETAIL IS TO BE PROVIDED AT CONSTRUCTION STAGE.

EROSION AND SEDIMENT CONTROL NOTES

- TOTAL AREA OF DISTURBANCE TO BE KEPT TO A MINIMUM. 'NO-GO' AREAS FOR WORKERS ARE TO BE SET OUT TO ENSURE DISTURBED AREAS ARE KEPT AT A MINIMUM.
- SITE WORKS WILL NOT START UNTIL THE EROSION AND SEDIMENT CONTROL WORKS OUTLINED IN CLAUSES 2 TO 4 BELOW, ARE INSTALLED AND FUNCTIONAL.
- THE INGRESS TO AND EGRESS FROM THE SITE WILL BE CONFINED TO ONE STABILISED POINT. SEDIMENT OR BARRIER FENCING WILL BE USED TO RESTRICT ALL VEHICULAR MOVEMENTS TO THAT POINT. STABILISATION WILL BE ACHIEVED BY EITHER:
  - CONSTRUCTING A SEALED (e.g. CONCRETE OR ASPHALT) DRIVEWAY TO THE STREET, OR
  - CONSTRUCTING A STABILISED SITE ACCESS, ACCORDING TO STANDARD DRAWING SD 6-14 OR OTHER SUITABLE TECHNIQUE APPROVED BY THE COUNCIL.
- SEDIMENT (SD 6-8) AND BARRIER FENCES TO BE INSTALLED.
- MESH AND GRAVEL "SAUSAGE" PROTECTION (SD 6-11) TO BE PROVIDED TO PROTECT GUTTER INLETS NEAR THE ALLOTMENT.
- TOPSOIL TO BE STRIPPED AND STOCKPILED (SD 4-1) FOR LATER USE IN LANDSCAPING THE SITE.
- ALL STOCKPILES TO BE PLACED IN THE LOCATION SHOWN ON THE ESCP AND AT LEAST 2 METRES CLEAR OF ALL AREAS OF POSSIBLE AREAS OF CONCENTRATED WATER FLOW, INCLUDING DRIVEWAYS.
- LANDS TO THE REAR AND SIDES OF THE ALLOTMENT AND ON THE FOOTPATH WILL NOT BE DISTURBED DURING WORKS EXCEPT WHERE ESSENTIALS, e.g. DRAINAGE WORKS ACROSS THE FOOTPATH. WHERE WORKS ARE NECESSARY, THEY WILL BE UNDERTAKEN IN SUCH A WAY TO LEAVE THE LANDS IN A CONDITION OF HIGH EROSION HAZARDS FOR AS SHORT A PERIOD AS PRACTICABLE. THEY WILL BE REHABILITATED AS SOON AS POSSIBLE. STOCKPILES WILL NOT BE PLACED ON THESE LANDS AND THEY WILL NOT BE USED AS VEHICLE PARKING AREAS.
- ALL PIPE TRENCHES TO BE BACKFILLED AS QUICKLY AS POSSIBLE. IF TRENCH IS TO REMAIN OPEN WHILE SITE IS UNATTENDED/AFTER THE END OF A SHIFT, CONTRACTOR IS TO ENSURE THAT THE TRENCH IS APPROPRIATELY COVERED TO NOT ALLOW THE INGRESS OF WATER.
- APPROVED BINS FOR BUILDING WASTE, CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS AND LITTER WILL BE PROVIDED AND ARRANGEMENTS MADE FOR REGULAR COLLECTION AND DISPOSAL.
- TOPSOIL WILL BE RE-SPREAD AND ALL DISTURBED AREAS TO BE REHABILITATED WITHIN 20 WORKING DAYS OF THE COMPLETION OF WORKS.
- COUNCIL'S PERMISSION WILL BE SOUGHT IF ANY MATERIALS NEED TO BE PLACED ON FOOTPATHS OR NATURE STRIPS. SUCH MATERIALS WILL BE PLACED ON PLASTIC AND COVERED.



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01	ISSUED FOR CO-ORDINATION	B.M.S.	L.M.	C.N.		10/11/23
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03	ISSUED FOR DEVELOPMENT APPLICATION APPROVAL	B.S.	L.M.	R.S.	D.H.	07/03/24

CLIENT

Homes NSW

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ARCHITECT

INTEGRATED DESIGN GROUP

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PROJECT

RESIDENTIAL FLAT BUILDING  
46 CHESTER AVENUE  
MAROUBRA

DRAWING TITLE

CONCEPT EROSION AND SEDIMENT CONTROL PLAN

JOB NUMBER

231042

DRAWING NUMBER

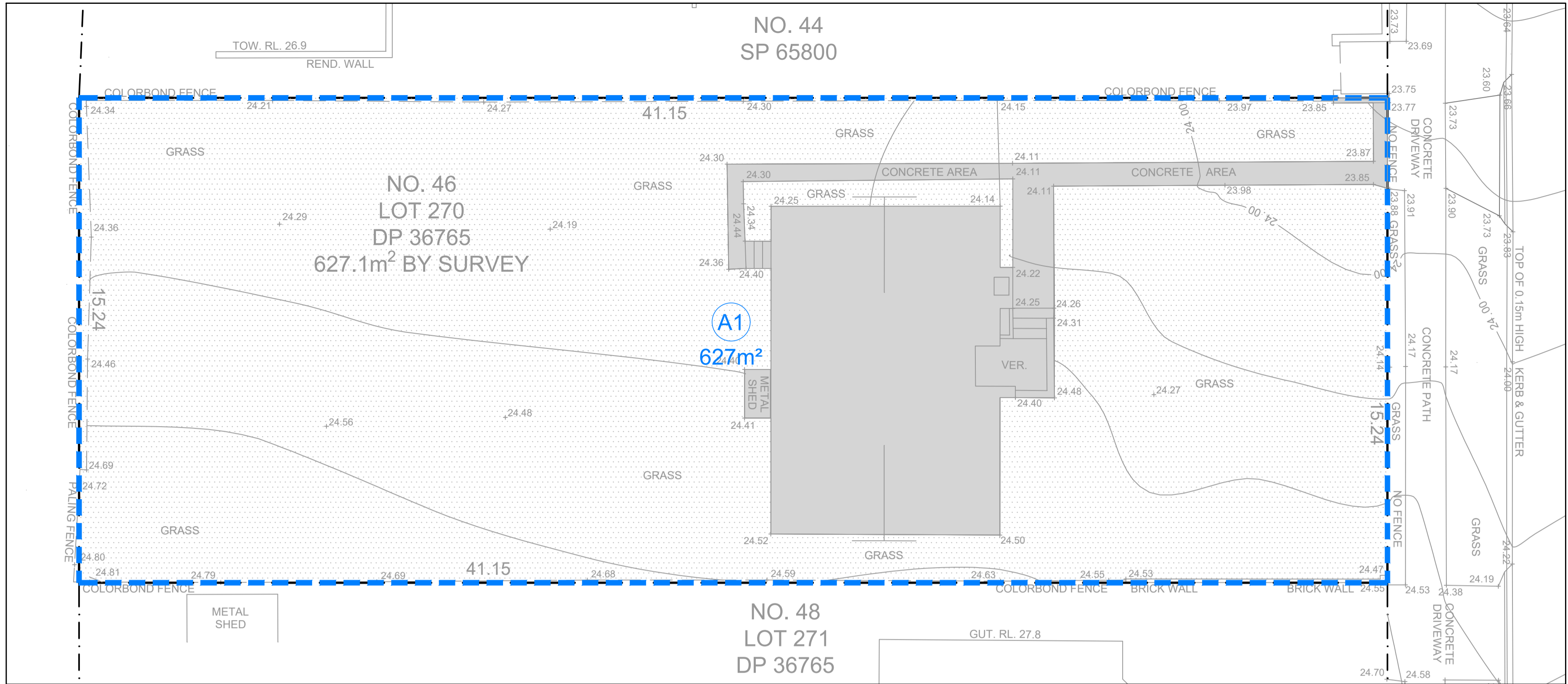
DA02

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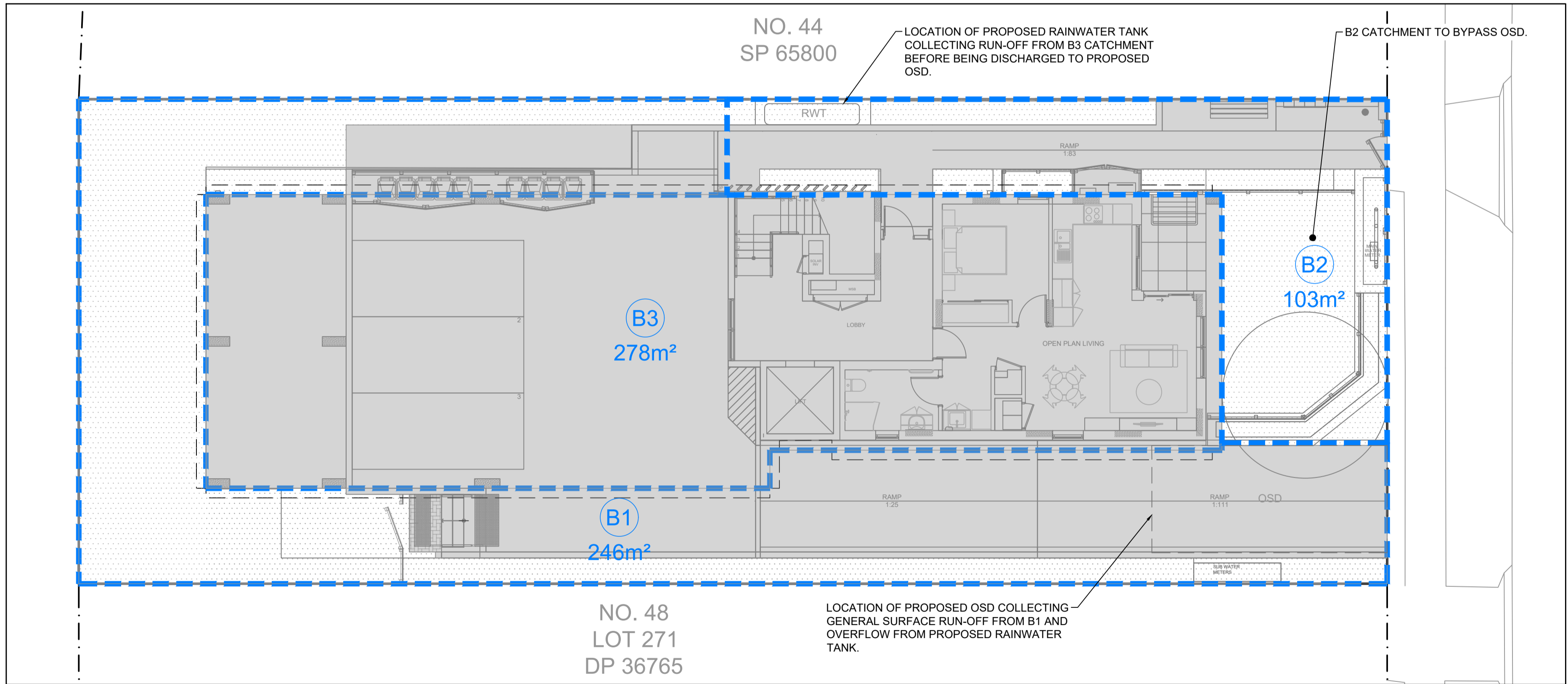
03

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PRE-DEVELOPMENT CATCHMENT PLAN



POST-DEVELOPMENT CATCHMENT PLAN

LEGEND

- IMPERVIOUS AREA
- PERVIOUS AREA
- CATCHMENT BOUNDARY
- CATCHMENT I.D.
- ROOF OUTLINE
- DIRECTION OF OVERLAND FLOW
- PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY

Land use/surface type	Total area (m <sup>2</sup> )	Impervious Area (m <sup>2</sup> )		Pervious Area (m <sup>2</sup> )	
		(m <sup>2</sup> )	(%)	(m <sup>2</sup> )	(%)
Pre-development Scenario					
Residential Area	549	25	5%	525	95%
- Landscaped	525	0	0%	525	100%
- Impervious	25	25	100%	0	0%
Roof area	78	78	100%	0	0%
TOTAL	627	102	16%	525	84%
Post-development Scenario					
B1 To OSD	246	116	47%	130	53%
- Landscaped	130	0	0%	130	100%
- Impervious	116	116	100%	0	0%
B2 By-pass Area	103	40	39%	63	61%
B3 Roof Area to OSD/RWT	278	278	100%	0	0%
TOTAL	627	434	69%	193	31%

TABLE '1' - SUMMARY OF SITE CATCHMENT AREAS

Mass Curve Calculation for on-Site Detention (as per Randwick Council Requirements)					
Input required for bold type values					
Site area	627 m²				
Pre-development impervious area	102 m²				
Post-development impervious area	434 m²				
Pre-development impervious %	16.3 %				
Post-development impervious %	69.2 %				
PSD Recurrence Interval (5/10)	5 yr				
Predevelopment runoff coefficient	0.621				
Predevelopment rainfall intensity	55.4 mm/h				
Permissible Site Discharge	9.65 L/s				
Volume Recurrence Interval (20/100)	20 yr				
Postdevelopment runoff coefficient	1.000				
Duration min	Intensity mm/h	Discharge L/s	PSD L/s	Storage Volume m³	
5	213	37.09	9.65	8.23	
10	167	29.03	9.65	11.63	
20	127	22.15	9.65	15.00	
30	106	18.41	9.65	15.77	
40	91.4	15.92	9.65	15.05	
50	81.0	14.10	9.65	13.36	
60	72.9	12.70	9.65	11.00	
70	66.5	11.59	9.65	8.15	
120	47.2	8.22	9.65	-10.29	
Note: Roundoff error may vary from other similar spreadsheet calculations					
Take required storage as				16 m³	

TABLE '2' - SUMMARY OF OSD AND PSD CALCULATION RESULTS USING MASS CURVE CALCULATION

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CLIENT

Homes NSW

NSW GOVERNMENT

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INTEGRATED DESIGN GROUP

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0 1 2 3 4 5m

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MAROUBRA

DRAWING TITLE

SITE CATCHMENT AREA PLAN

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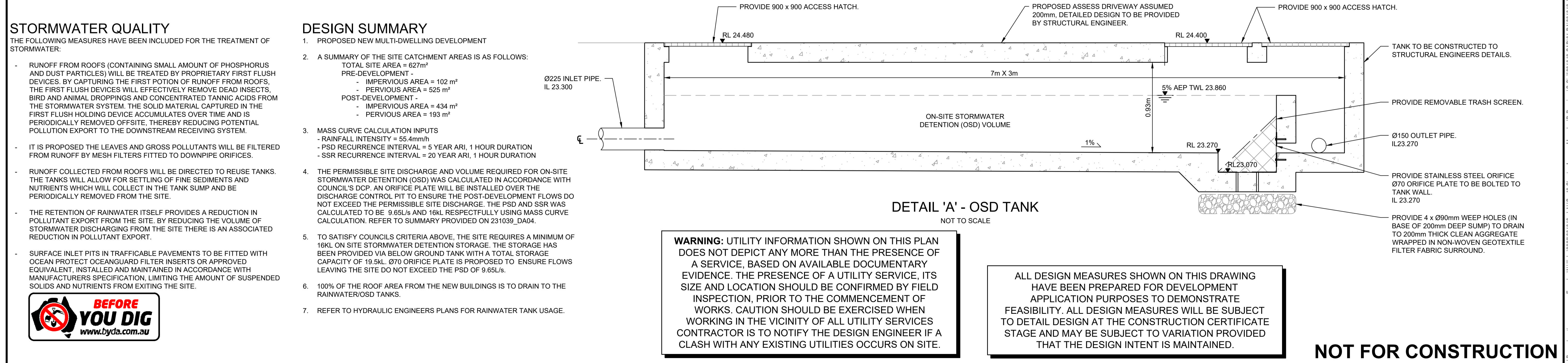
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DA03

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03

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01	ISSUED FOR CO-ORDINATION	B.M.S.	L.M.	C.N.		10/11/23	 Homes NSW	 INTEGRATED DESIGN GROUP <small>© Integrated Design Group Pty Ltd ABN 84 115 006 259 Notified Architect Simon Thorne reg. no. 70793 info@idgarhitects.com.au www.idgarhitects.com.au 1300 666 666 (toll free)</small>	 NORTHROP <small>Wollongong Level 1, 57 Kermela Street, Wollongong NSW 2500 Ph (02) 4226 3333 Fax (02) 4226 3066 P.O. Box 863, Wollongong NSW 2500 Email southcoast@northrop.com.au ABN 81 094 433 100</small>	RESIDENTIAL FLAT BUILDING 46 CHESTER AVENUE MAROUBRA	CONCEPT SITEWORKS, GRADING AND STORMWATER DRAINAGE PLAN	231042		
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