

H&H Consulting Engineers Pty Ltd (trading as Henry & Hymas)
ABN 77 091 243 355 ACN 091 243 355

Address
Suite 2.01, 828 Pacific Highway Gordon New South Wales 2072

Telephone +61 2 9417 8400
Facsimile +61 2 9417 8337

Email email@hhconsult.com.au
Web www.henryandhymas.com.au



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FLOODING AND STORMWATER IMPACT ASSESSMENT REPORT **PROPOSED RESIDENTIAL DEVELOPMENT** **47-55 BUNNERONG ROAD, KINGSFORD, NSW**

Planning Proposal Phase

Revision 05
OCTOBER 2024

Our Job No. 22V77



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1. GLOSSARY

ARI	Average Recurrence Interval
AEP	Annual Exceedance Probability
AHD	Australian Height Datum (National Survey datum)
LGA	Local Government Area
DA	Development Application
DECC	Department of Environment and Climate Change
RAFTS	Computer software package for 1D hydrologic analysis
HEC-RAS	Computer software package for 1D hydraulic modelling
FFL	Finished Floor Level
Flow	Volume of water per time (also known as flow rate) (m ³ /s or L/s)
Freeboard	Height difference between flood water surface level and finished floor level
FWL	Flood Water (Surface) Level
Hydraulic	Science of a moving liquid in a confined space
Hydrograph	Graph showing the rate of flow versus time past a specific point in a river, channel, or conduit carrying flow.
Hydrologic	The study of the water on the earth and in its atmosphere
LPI	Department of Land and Property Information
RL	Reduced Level (surface elevation)
PMF	Probable Maximum Flood level
Sheet Flow	Overland flow with the form of a continuous but not concentrated flow on a surface
Topography	The arrangement of the natural and artificial physical features of an area
Velocity	Measure of the speed and direction of the water flow (m/s)

NSW Floodplain Development Manual

The Floodplain Development Manual is a document published in 2005 by the New South Wales State Government. The document details Flood Prone Land Policy which has the primary objective of reducing the impact of flooding and flood liability on individual owners and occupiers of flood prone property, and to reduce private and public losses resulting from floods. At the same time, the policy recognises the benefits from occupation and development of flood prone land.



2. INTRODUCTION

2.1. General

Henry & Hymas has been engaged by Webb Australia Group to prepare this Flooding and Stormwater Impact Assessment Report (This Report) to support the Planning Proposal for the proposed residential development at 47-55 Bunnerong Road, Kingsford.

The subject site is located within the Randwick City Council LGA. The locality sketch of the site is shown in Figure 1 below.



Figure 1 - Locality Sketch

The aim of This Report is to ensure that the development does not have any impact on the existing flood extent or neighbouring properties and to assess the impact on the existing stormwater drainage system. The report will address the following items:

- Nature of flooding in the locality - to ensure that the proposed development is compatible with the flow regime of the waterway and does not affect the existing flood extent up to and including 100-year ARI Storm events;
- Ensure that the proposed development maintains the Floor Planning Levels provided in Randwick City Council's Flood Advice Letter;
- Ensure that the proposed development complies with the flooding related controls as documented in Randwick City Council's Flooding Advice and Flood Related Development Controls Policy 2012 as well as NSW Department of Planning and Environment's Flood Risk Management Manual 2023.
- Address the provisions in Clause 5.22 of Randwick City Council's Local Environment Plan (LEP)
- Flood risk assessment – to assess the risks associated with the proposed development;
- Recommendations on all precautions to minimise risk to personal safety of occupants and the risk of property damage for the development to address the flood impacts on the site;



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- Provide a Flood evacuation plan;
- Provide a summary of proposed stormwater drainage system for the new development.

3. SITE DESCRIPTION

3.1. Local and Regional Context

The existing site is located in the Sydney metropolitan suburb of Kingsford and is approximately 6052m² in area. It is bounded by Ausgrid land / facilities, Bunnerong Road and Anderson Street along the northern, western and southern boundary, and it is bounded by residential dwellings along the eastern boundary.

The site is currently occupied by eight blocks of residential buildings and associated landscaped areas, pedestrian footpaths and off-street parking spots. No existing water quality or quantity measures can be found on site from the survey plan or during the site inspection conducted by Henry & Hymas.

The surface of the site generally falls from the south-eastern corner to the north-western corner, from RL 25.00 to RL 23.70 at approximately 1.1%. The roads surrounding the site (Anderson Street and Bunnerong Road) also fall in a north-westerly direction.

3.2. The Proposed Development

The proposed site will be used for residential purposes.

The proposed development includes demolition of the existing residential buildings and construction of two blocks of seven-storey residential buildings with associated landscaped areas, pedestrian footpaths, vehicle crossing and basement car parks. Pedestrian access to the proposed buildings can be achieved via the footpaths around the buildings. Vehicular access to the proposed basement can be achieved via the proposed vehicular crossing near the south-eastern corner of the site off Anderson Street.

The overall Architectural site plan for the ground floor is provided in Appendix A and Figure 2 below.



Figure 2 - Architectural Site Plan

4. FLOOD STUDY

4.1. Flood Study Source Information

The Flood Advice Letter from Randwick City Council dated 24 March 2023 indicates that the development site is not affected by the 1% AEP flood but it is affected by the PMF flood. The flood depths and flood levels at the site for 1% AEP and PMF flood events can be seen in Table 1 below. Birds Gully and Bunnerong Road Flood Study (2018) which is adopted by Randwick City Council indicates that the 1% AEP flood extent is present within Jacques Street to the north of the development site, refer to Figure 3 below for more information.

Calculated Flood Depth

Flood Event	Flood Depth (m)	Flood Level (mAHD)
PMF	1.15	24.12
1% AEP Flood	Not Affected	Not Affected
5% AEP Flood	Not Affected	Not Affected

Table 1 - Flood Depths and Flood Levels

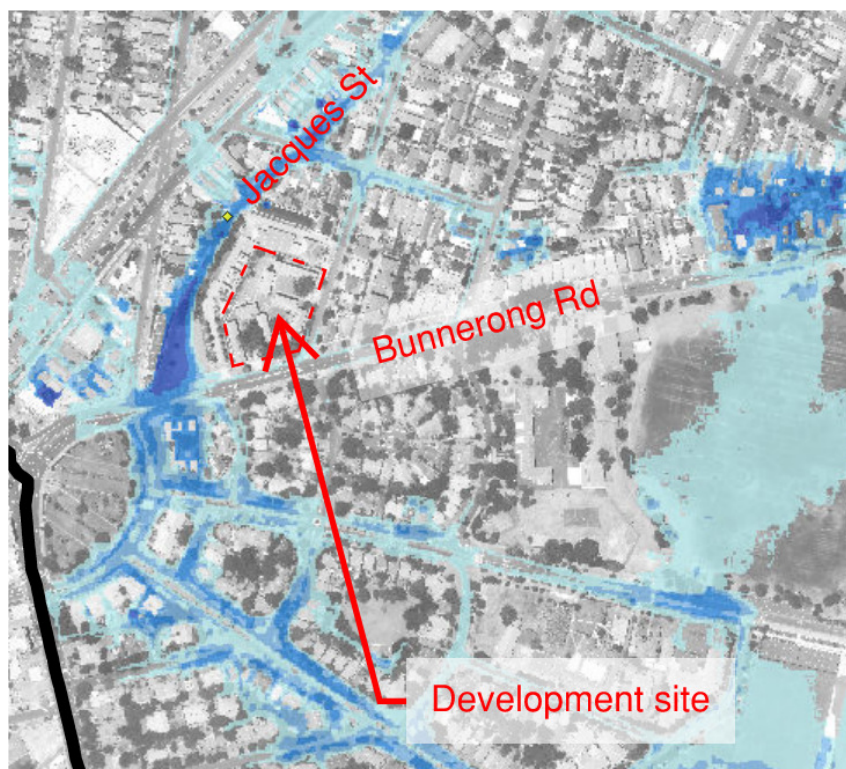


Figure 3 - Birds Gully and Bunnerong Road Flood Study (2018) – 1% AEP Flood Extent – Catchment

5. FLOOD ASSESSMENT

5.1. Flood Levels and Floor Planning Levels

Given that the development site is not affected by 1% AEP flood, Randwick City Council's Flood Advice Letter states that there is no minimum Floor Planning Level for residential development. For critical facilities, the PMF flood level (24.12mAHD) was adopted as the minimum Floor Planning Level.

5.2. Design Building Levels

Randwick City Council's Flooding Advice and Flood Related Development Controls Policy has the following control regarding design building levels:

Commercial floor levels and habitable residential floor levels to be no less than the 1% AEP flood plus half a metre freeboard.

As discussed in Section 5.1 above, although there is no Floor Planning Level for the proposed development that is classified as residential, it should be noted that the architectural plans show that the minimum habitable floor level (ground floor level) is set at 24.85mAHD which has sufficient freeboard over the PMF flood level at 24.12mAHD. Also, the only vehicular access point to the proposed basement is near the south-eastern corner of the site which is away from the 1% AEP flood extent to the north of the site. As such, the design building levels and building layout meet the requirements of Randwick City Council's Flood Advice Letter and the Flooding Advice and Flood Related Development Controls Policy.



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Figure 4 - Architectural Ground Floor Plan

5.3. Flood Impact

Randwick City Council's Flooding Advice and Flood Related Development Controls Policy has the following control regarding flood impact:

No adverse impact on flooding, including conveyance of flood waters and, flood plain storage volume, for floods up to and including the 1% AEP flood.

From Section 4 above, it is evident that the development site is not within the 1% AEP flood extent. As such, the development will not have any impact on flooding for flood events up to and including the 1% AEP.

5.4. Flood Emergency Procedures

Given the nature of the proposed development it is important to consider safe flood evacuation from the site under extreme flood conditions such as the 1% AEP event and PMF.

The Bureau of Meteorology (Met. Bureau) is normally the government agency responsible for issuing flood warnings throughout Australia such as "flood watch" and "flood warning".

"Flood Watch" provides early advice of potential riverine flooding to emergency services and communities at risk of flooding. Flood watches are issued when the combination of forecast rainfall and catchment or other hydrological conditions indicate that there is a significant risk of potential flooding.



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“Flood Warnings” are issued by the Bureau to advise that flooding is occurring or expected to occur in a geographical area based on defined criteria. Flood Warnings may include either qualitative or quantitative predications or may include a statement about future flooding that is more generalised. The type of prediction depends on the quality of real-time rainfall and river level data, the capability of rainfall and hydrological forecast models and the level of service required. However, the Met. Bureau has limited resources and cannot provide a flood warning service for all areas.

Flood warning systems generally monitor rainfall and river gauges in the upper parts of catchments in real time and, through hydrologic/hydraulic models, predict the resulting flow and flood levels at some time in the future in the lower catchment.

Forecasts of continuing rain or anticipated changes in rainfall intensity can also be included in the models to provide additional forecasting ability.

The minimum ‘turn-around time’ between when the rainfall actually occurs and the predicted flood levels occur is about 6 hours. When there is less than 6 hours between the rainfall and the associated flood, the Met. Bureau classifies this as ‘flash flooding’. In these catchments, by the time the Met. Bureau is aware of the excessively high rainfall, the flooding has already occurred.

The only warnings available from the Bureau of Meteorology in catchments that experience flash flooding are “severe weather warning” and “severe thunderstorm warning”. Thunderstorm warnings are made by the Met. Bureau within the Newcastle–Sydney–Wollongong area and are based on information available from synoptic charts and Sydney Radar.

The New South Wales Emergency Service (NSW SES) is the authority that is responsible for “evacuation warnings”, “evacuation order” and “all clear”.

“Evacuation Warnings” are issued by the SES as a ‘heads up’ to prepare for possible future evacuation.

“Evacuation Order” is issued by the SES when evacuation is required and you have to leave immediately.

“All Clear” will be issued when it is safe for residents and businesses to return to a flood affected area, previously subject to an Evacuation Order.

5.5. Flood Evacuation

In the event of a flood occurring the following emergency flood response plan should be followed. The emergency flood response plan was based on the PMF flood map from Birds Gully and Bunnerong Road Flood Study (2018).

- Once a flood event occurs all residents and visitors are to evacuate the site immediately in the southerly direction onto Bunnerong Road and seek a safe place at the higher side on Bunnerong Road. Do not evacuate towards the north onto Bunnerong Road or towards the east onto Jacques Street which have a higher flood risk. Refer to Figure 5 below for the evacuation route.
- Alternatively, given that the proposed ground floor level at 24.85mAHD has sufficient freeboard over the highest PMF flood level at 24.12mAHD, all residents and visitors are safe to ‘shelter in place’ on the ground floor level or above. At the site the duration for flood inundation will be short (hours) and hence the ‘shelter in place’ strategy is practical.



Figure 5 – Flood Evacuation Route (based on PMF flood map)

5.6. Addressing the Flood Related Controls

Based on Randwick City Council's Flooding Advice and Flood Related Development Controls Policy, flooding related development controls shall be in accordance with the requirements under Section 3 – Flooding Related Development Controls. Table 2 below is a summary that demonstrates compliance with the Flooding Related Development Controls.

Table 2 Flooding Related Development Controls

No.	Clause	Response	Compliant (Yes/No)
a	No adverse impact on flooding, including conveyance of flood waters and, floodplain storage volume, for floods up to and including the 1% AEP flood; and	Since the development is not within the 1% AEP flood extent, the development will have no impact on the existing flooding for floods up to and including the 1% AEP flood. Refer to Section 5.3 of this Report.	Yes
b	Ensure the safety of persons and emergency access during flooding for all floods up to and including the Probable Maximum Flood; and	The minimum habitable floor level (24.85mAHd) has sufficient freeboard over the PMF flood level (24.12mAHd), as such, the safety of residents and	Yes



		visitors can be assured. In the event of a flood up to and including the PMF, emergency access to the proposed buildings can be achieved from the southern and eastern sides which are not affected by flood.	
c	<i>Ensure the structural soundness and flood compatibility of building materials for all structures founded below the 1% AEP flood plus half a metre freeboard; and</i>	At Construction Certificate stage, a suitably qualified structural engineer is to design and certify that all structures founded below the 1% AEP flood plus half a metre freeboard meets this requirement.	N/A
d	<i>Commercial floor levels and habitable residential floor levels to be no less than the 1% AEP flood plus half a metre freeboard; and</i>	The development site is not affected by 1% AEP flood. Also, the minimum habitable residential floor level is set at 24.85mAHD which has sufficient freeboard over the PMF flood level at 24.12mAHD.	Yes
e	<i>Open car parking spaces or car ports to be no lower than the 5% AEP flood; and</i>	There is no open car parking or car ports proposed as part of the development. Also the proposed vehicle crossing and driveway to access the basement is located away from the 1% AEP flood extent.	Yes
f	<i>All other floor levels to be determined based on merit.</i>	All proposed floor levels comply with the flood control requirements.	Yes

5.7. Addressing the Provisions in Clause 5.22 of Randwick LEP

Clause 5.22 (3) of Randwick LEP states that development consent must not be granted to development on land to which the clause applies unless the provisions under this clause are met. Table 3 below is a summary that demonstrates how the proposed development addresses the provisions.

Table 3 Clause 5.22 (3) of Randwick City Council's LEP

No.	Clause	Response	Compliant (Yes/No)
a	<i>Will affect the safe occupation and efficient evacuation of people in the event of a flood, and</i>	The site levels and proposed FFLs allow safe occupation and efficient evacuation of people in the event of a flood. Refer to Section 5.5 above of this Report which demonstrates the safe evacuation and 'shelter-in-place' strategies.	Yes
b	<i>Incorporates appropriate measures to manage risk to life in the event of a flood, and</i>	The appropriate measures to manage risk to life in the event of a flood include incorporating the required FPL, FFL and flood evacuation strategy as demonstrated in the above sections of this Report.	Yes



c	<i>Will not adversely affect the environment in the event of a flood.</i>	The proposed development will not adversely affect the environment in the event of a flood because it is not proposed within the flood extent in storm events up to and including the 1% AEP.	Yes
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6. REVIEW OF STORMWATER IMPACT

A review of the architectural plans and relevant Council's policies regarding stormwater management has been undertaken. The subject development is to comply with Randwick City Council's Private Stormwater Code 2013 which outlines the following requirements.

- On-site Stormwater Detention (OSD)
- Water Quality (WQ) and Water Conservation (i.e. utilisation of Rainwater Tanks)

Based on the architectural layout, a high-level stormwater design sketch incorporating OSD, WQ and Rainwater Tank (RWT) can be seen in Figure 6 below. It is proposed to construct a below ground tank outside the extent of basement car park with separate chambers to accommodate the OSD, WQ measures and RWT. Also, given that the site falls in a northerly direction towards Jacques Street, it is possible that the development site discharges to Jacques Street via a kerb outlet or via direct connection to an existing kerb inlet pit below Jacques Street. Refer to Figure 6 below for the concept stormwater management plan. It should be noted that all the design elements in the plan are conceptual and indicative at this stage and will be detailed at Development Application (DA) stage.

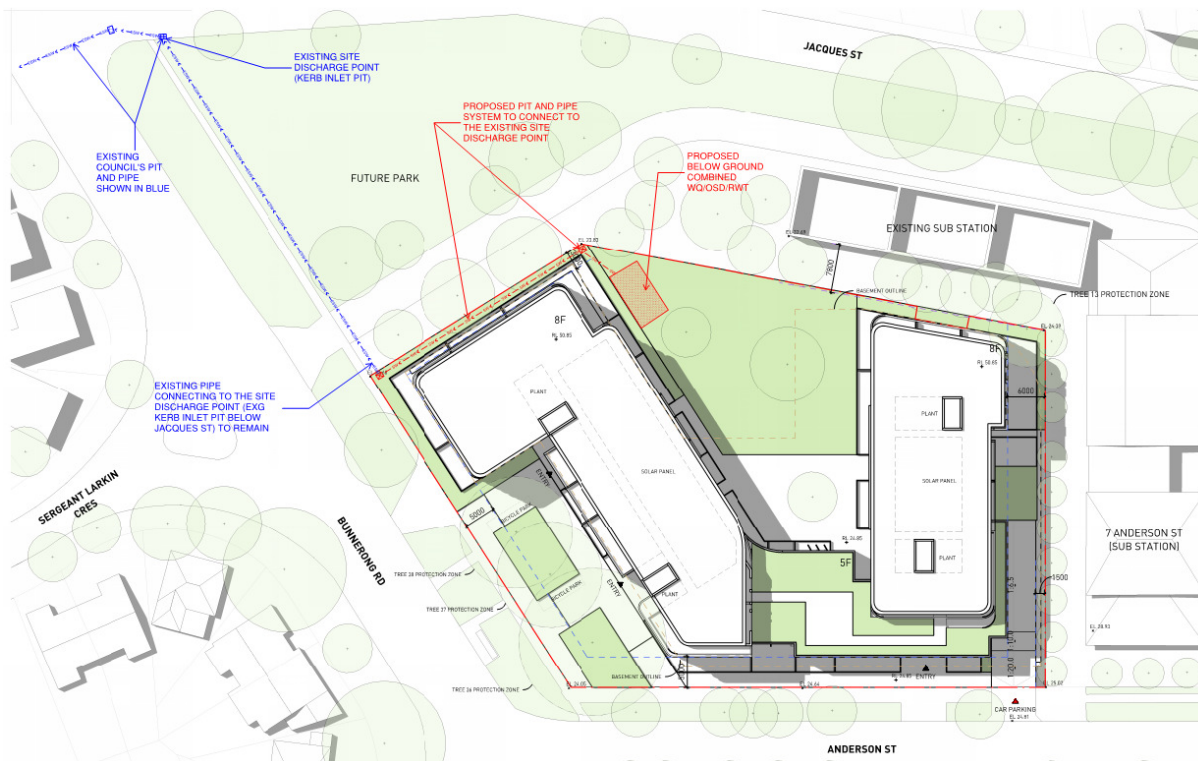


Figure 6 – Concept Stormwater Management Plan



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7. CONCLUSIONS

The flood extent, flood levels and floor planning level for the subject development have been reviewed, and recommendations for flood evacuation in a flood event up to and including the PMF have been given. It has also been demonstrated that the proposed development complies with Randwick City Council's Flooding Advice and Flood Related Development Controls Policy.

Whilst it is inevitable that the development will be impacted by the PMF flood, with adequate warning measures and evacuation procedures in place, the safety of the occupants of the proposed residential buildings can be assured.



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APPENDIX A – ARCHITECTURAL PLAN – PLANNING PROPOSAL STAGE

UNIT MIX		
TYPE	COUNT	YIELD
1B	57	30%
2B	112	60%
3B	18	10%
	187	100%

FSR		
SITE AREA	GFA	FSR
6052 m²	16328.36 m²	2.70

UNIT MIX - BY LEVEL				
LEVEL	1B	2B	3B	COUNT
L07	7	13	1	21
L06	8	13	1	22
L05	9	12	1	22
L04	8	16	2	26
L03	8	16	2	26
L02	8	16	2	26
L01	7	15	3	25
L00	2	11	6	19
	57	112	18	187

ARCHITECTURAL DRAWING LIST				
	SHEET NAME	REV	DESCRIPTION	DATE
A-GENERAL INFORMATION				
A000000	COVER / DRAWING LIST / PROJECT DATA	1	ISSUE FOR COORDINATION	17.11.2023
B0-OVERALL PLAN				
B0STP10	SITE PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1-GENERAL ARRANGEMENT PLANS				
B1B0910	BASEMENT 02 PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1B1010	BASEMENT 01 PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1GRD10	GROUND FLOOR PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1L0110	LEVEL 01 PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1L0211	LEVEL 02 PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1L0510	LEVEL 05 PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1L0610	LEVEL 06 PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1L0710	LEVEL 07 PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1ROF10	ROOF PLAN	1	ISSUE FOR COORDINATION	17.11.2023
B1ROF11	ROOF PLAN DIMENSIONS			
C1-ELEVATIONS				
C1000	SOUTH & WEST ELEVATIONS	1	ISSUE FOR COORDINATION	17.11.2023
C2000	NORTH & EAST ELEVATIONS	1	ISSUE FOR COORDINATION	17.11.2023
D1-SECTIONS				
D210010	SECTION 1-1 2-2	1	ISSUE FOR COORDINATION	17.11.2023
D210030	SECTION 3-3	1	ISSUE FOR COORDINATION	17.11.2023
D210040	SECTION 4-4	1	ISSUE FOR COORDINATION	17.11.2023
Q1-ADG COMPLIANCE				
Q13D110	COS AND DEEP SOIL	1	ISSUE FOR COORDINATION	17.11.2023
Q14A010	SOLAR ACCESS	1	ISSUE FOR COORDINATION	17.11.2023
Q14B010	CROSS VENTILATION COMPLIANCE	1	ISSUE FOR COORDINATION	17.11.2023

Key Plan:

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17.11.2023

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Rev

Amendment

By

Chk*
Reg. Arch

Date

Consultants

Client

Architect

PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877

ptw.com.au

Peddie Thorp & Walker P/L
ABN 23 000 454 624
Trading as PTW Architects

Nominated Architects

Simon Parsons
Diane Jones
Nela Marojevic

NSW ARB 6098
NSW ARB 4778
NSW ARB 11274

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Project PA030547
KINGSFORD PP
47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

Title

A-GENERAL INFORMATION
COVER / DRAWING LIST /
PROJECT DATA

Drawing Number

PTW-A0000000

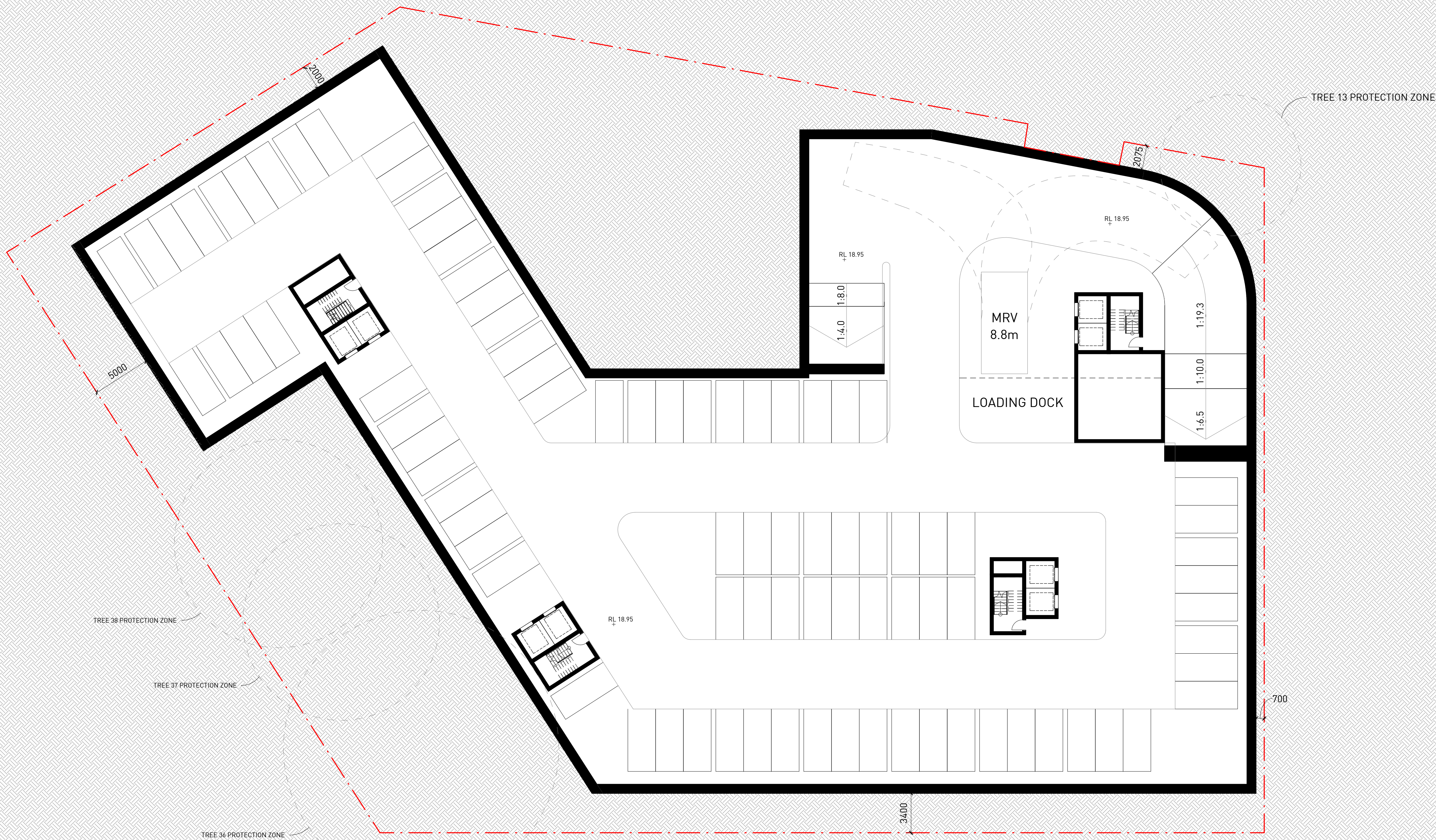
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1 BASEMENT LEVEL 2 FLOOR PLAN
1 : 200

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1	ISSUE FOR COORDINATION	CL	17.11.202
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Rev	Amendment	By	Chk* Reg. Arch
		Date	

Consultants

Client

Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au
Piedie Thorp & Walker P/L
ABN 23 000 454 624
Trading as PTW Architects

Nominated Architects
Simon Parsons NSW ARB 6098
Diane Jones NSW ARB 4778
Nela Marojevic NSW ARB 11274

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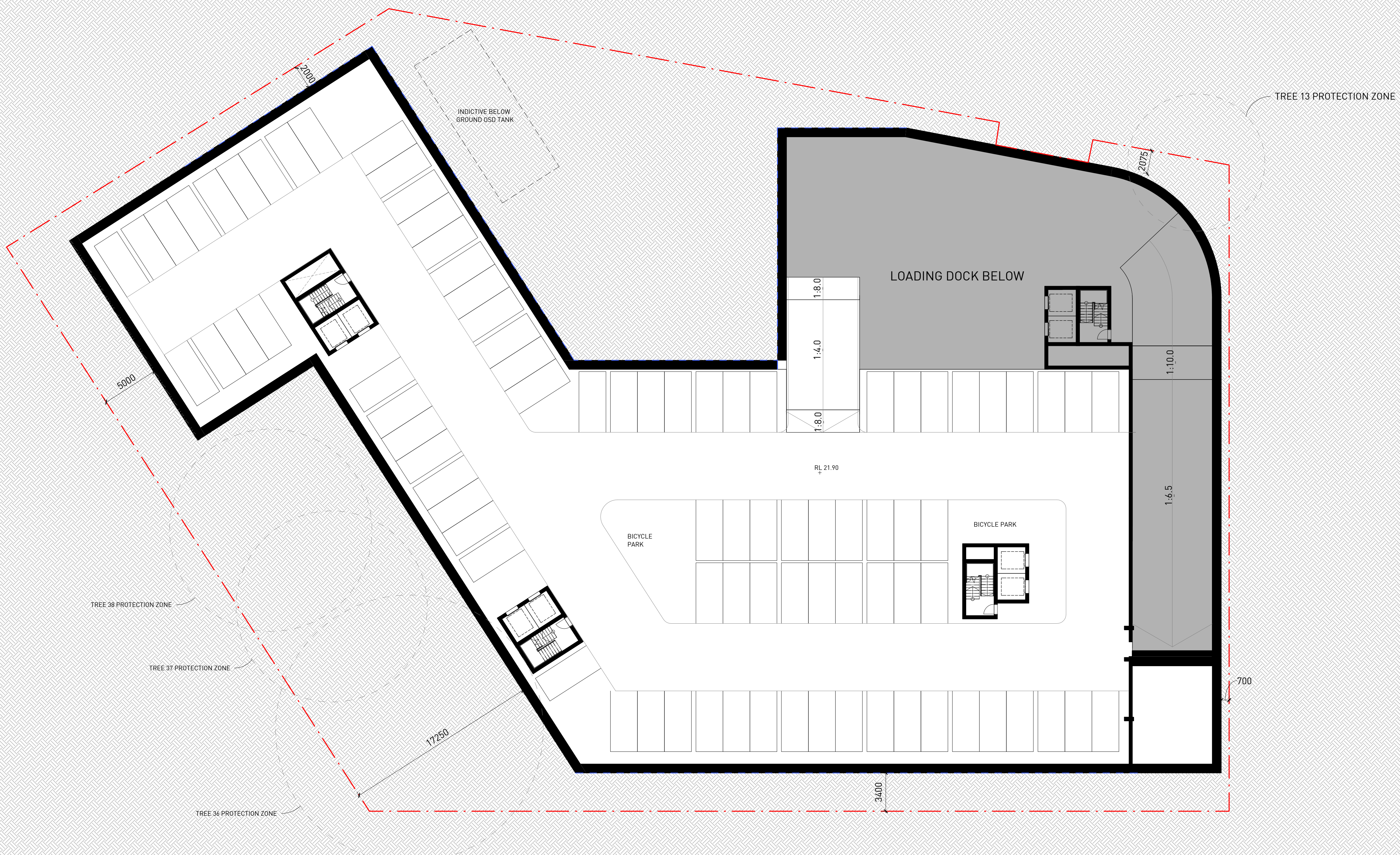
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KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

Title
B1-GENERAL ARRANGEMENT PLANS
BASEMENT 02 PLAN

Drawing Number
PTW-B1B0910

Revision
1



1 BASEMENT LEVEL 1 FLOOR PLAN
1 : 200

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<table><tr><th>Rev</th><th>Amendment</th><th>By</th><th>Chk* Reg. Arch</th><th>Date</th></tr></table>	Rev	Amendment	By	Chk* Reg. Arch	Date				Phase PLANNING PROPOSAL												
Rev	Amendment	By	Chk* Reg. Arch	Date																	



- LEGEND
- 1 BEDROOM
 - 2 BEDROOMS
 - 3 BEDROOMS

1 GROUND FLOOR PLAN
1 : 200 @A1

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Consultants

Client

Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au

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KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

Title
B1-GENERAL ARRANGEMENT PLANS
GROUND FLOOR PLAN

Drawing Number
PTW-B1GRD10

Revision
1



- LEGEND
- 1 BEDROOM
 - 2 BEDROOMS
 - 3 BEDROOMS

1 LEVEL 1 FLOOR PLAN
1 : 200 @A1

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Consultants

Client

Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
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Phase
PLANNING PROPOSAL

Title
B1-GENERAL ARRANGEMENT PLANS
LEVEL 01 PLAN

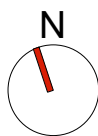
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1 LEVEL 4 FLOOR PLAN
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Key Plan:



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1	ISSUE FOR COORDINATION	CL	17.11.2023
Rev	Amendment	By Chk* Reg. Arch	Date

Consultants

Client

Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au
Piedie Thorp & Walker P/L
ABN 23 000 454 624
Trading as PTW Architects

Nominated Architects
Simon Parsons NSW ARB 6098
Diane Jones NSW ARB 4778
Nela Marojevic NSW ARB 11274

PTW

0 1 2 5 10 15m
As indicated@A1

Project PA030547
KINGSFORD PP
47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

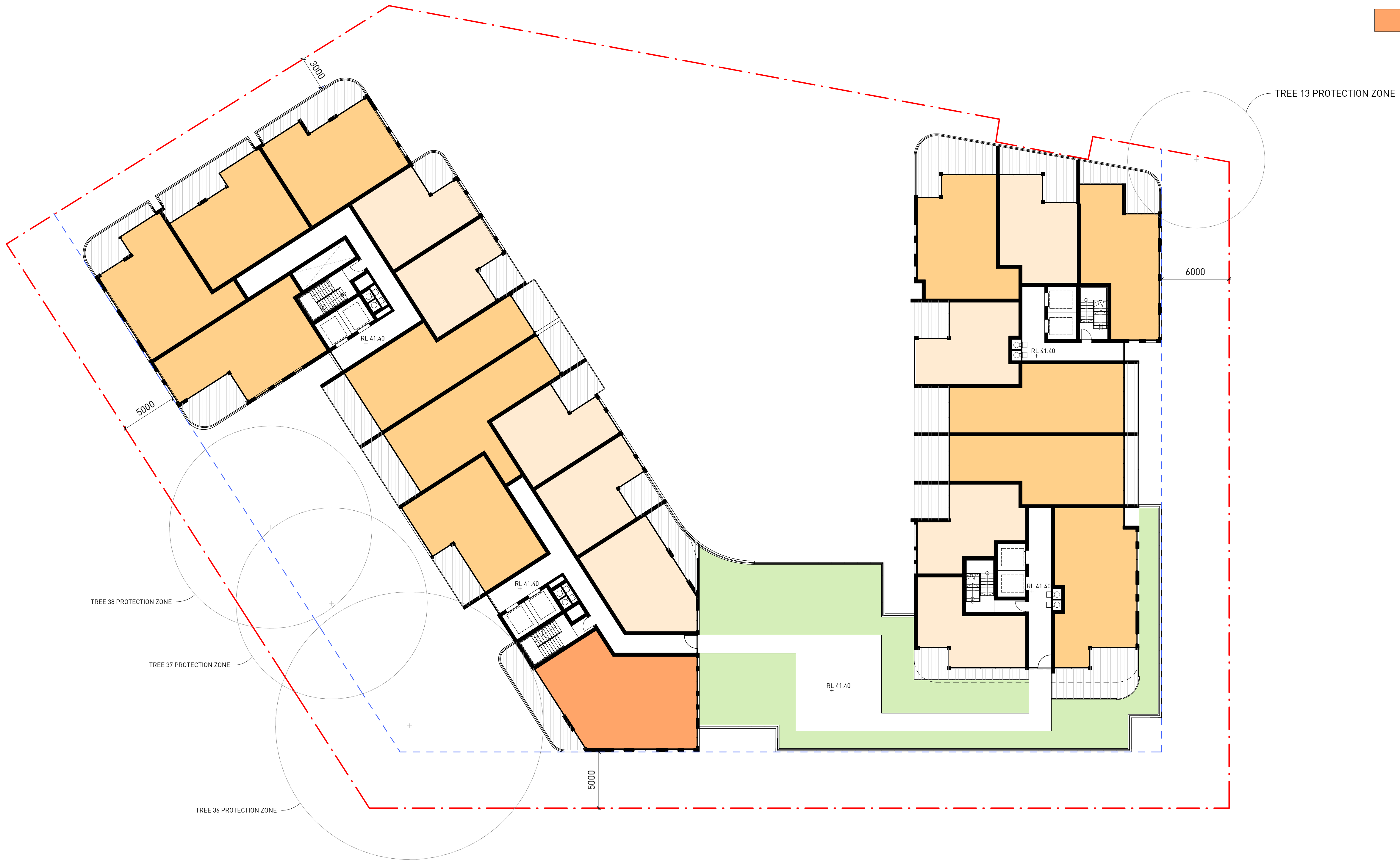
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B1-GENERAL ARRANGEMENT PLANS
LEVEL 04 PLAN

Drawing Number

PTW-B1L0410

Revision

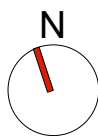
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- LEGEND**
- 1 BEDROOM
 - 2 BEDROOMS
 - 3 BEDROOMS

1 LEVEL 5 FLOOR PLAN
1 : 200 @A1

Key Plan:



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PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
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ptw.com.au
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PTW

0 1 2 5 10 15m
As indicated@A1

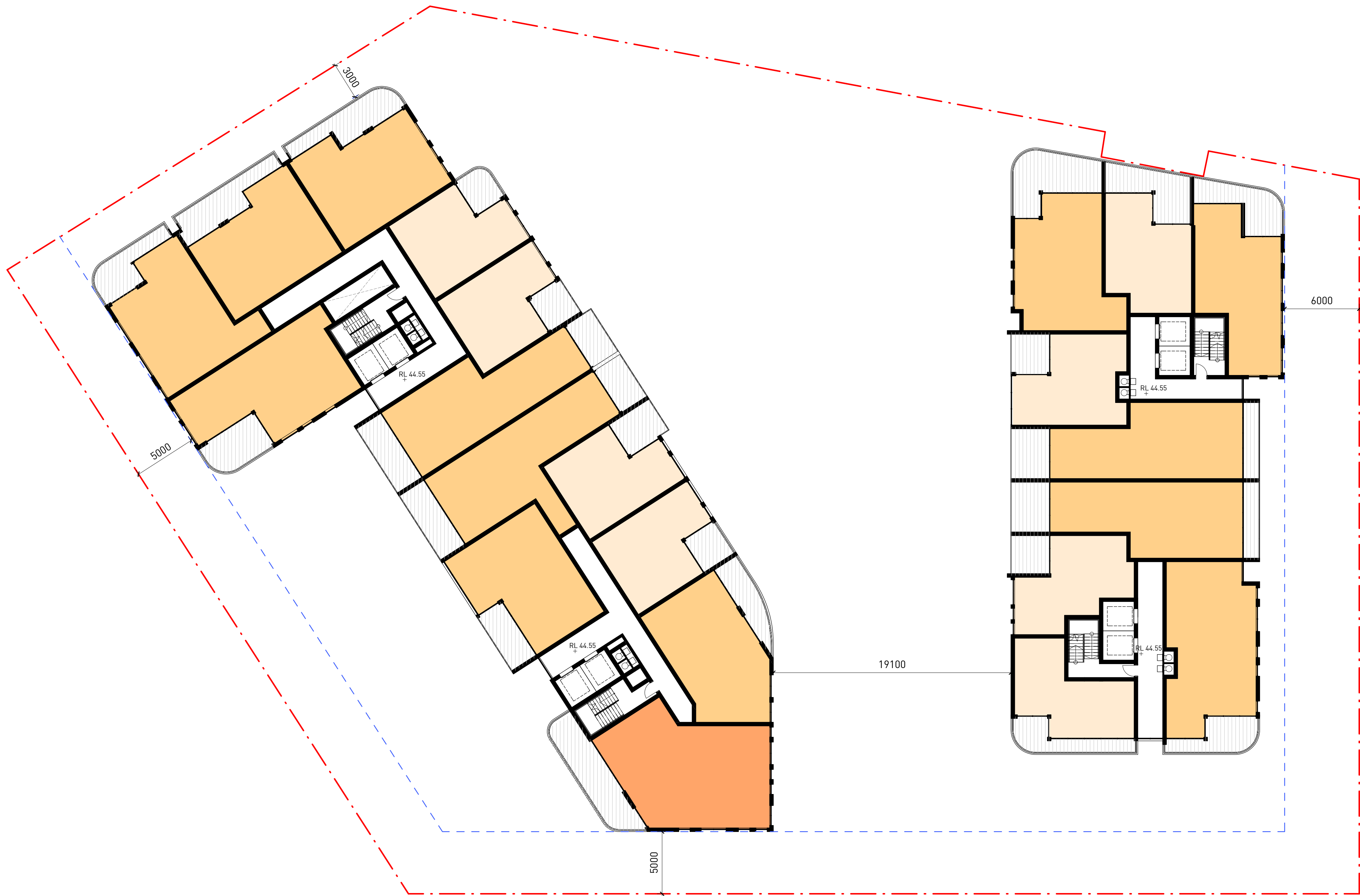
Project PA030547
KINGSFORD PP
47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

Title
B1-GENERAL ARRANGEMENT PLANS
LEVEL 05 PLAN

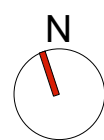
Drawing Number
PTW-B1L0510

Revision
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1 LEVEL 6 FLOOR PLAN
1 : 200

Key Plan:



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Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au
Peddie Thorp & Walker P/L
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Trading as PTW Architects

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Diane Jones NSW ARB 4778
Nela Marojevic NSW ARB 11274

PTW

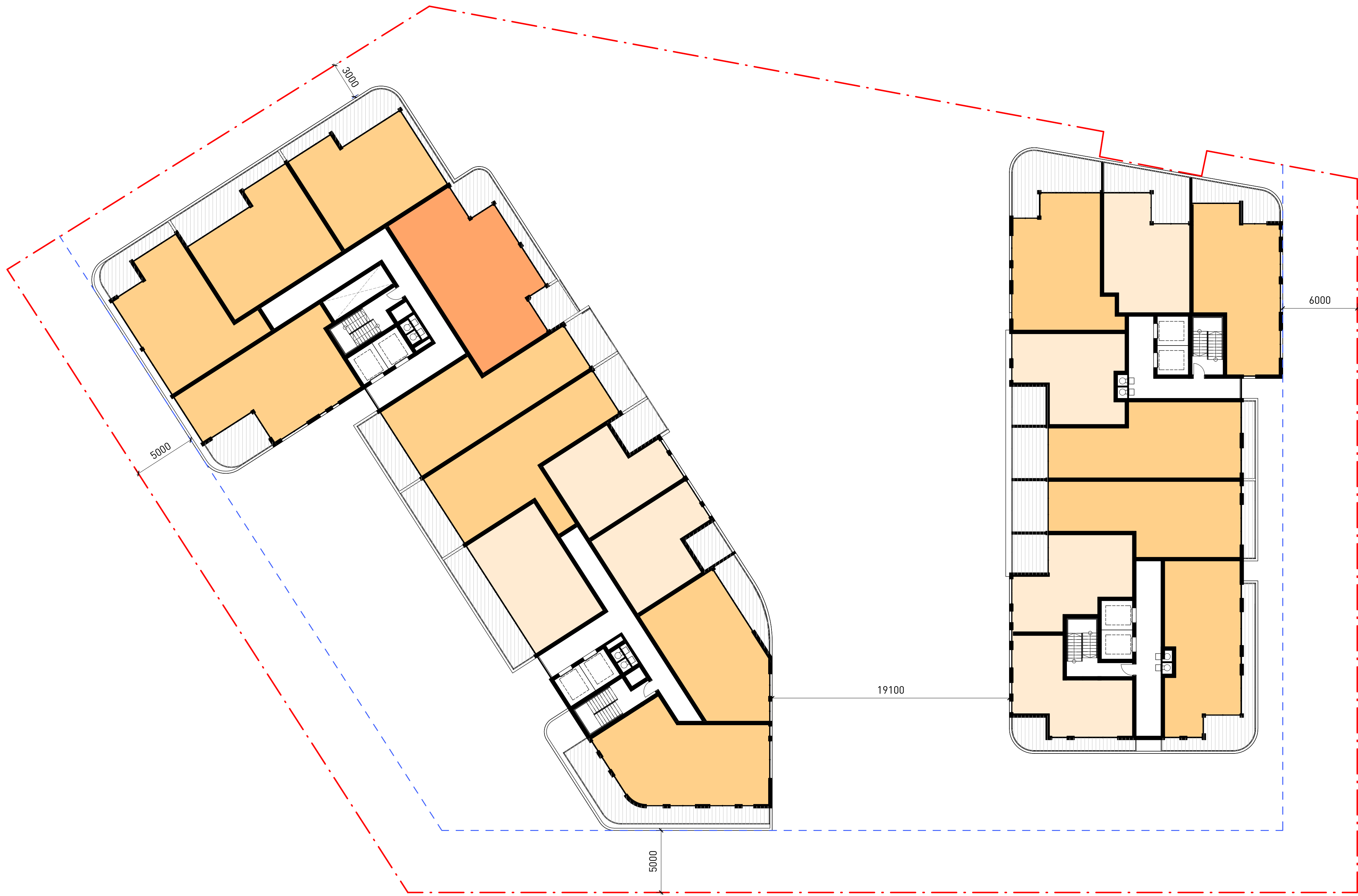
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As indicated@A1

Project PA030547
KINGSFORD PP
47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

Title
B1-GENERAL ARRANGEMENT PLANS
LEVEL 06 PLAN

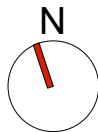
Drawing Number PTW-B1L0610
Revision 1



- LEGEND**
- 1 BEDROOM
 - 2 BEDROOMS
 - 3 BEDROOMS

1 LEVEL 7 FLOOR PLAN
1 : 200

Key Plan:



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Client

Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au
Piedie Thorp & Walker P/L
ABN 23 000 454 624
Trading as PTW Architects

Nominated Architects
Simon Parsons NSW ARB 6098
Diane Jones NSW ARB 4778
Nela Marojevic NSW ARB 11274

PTW

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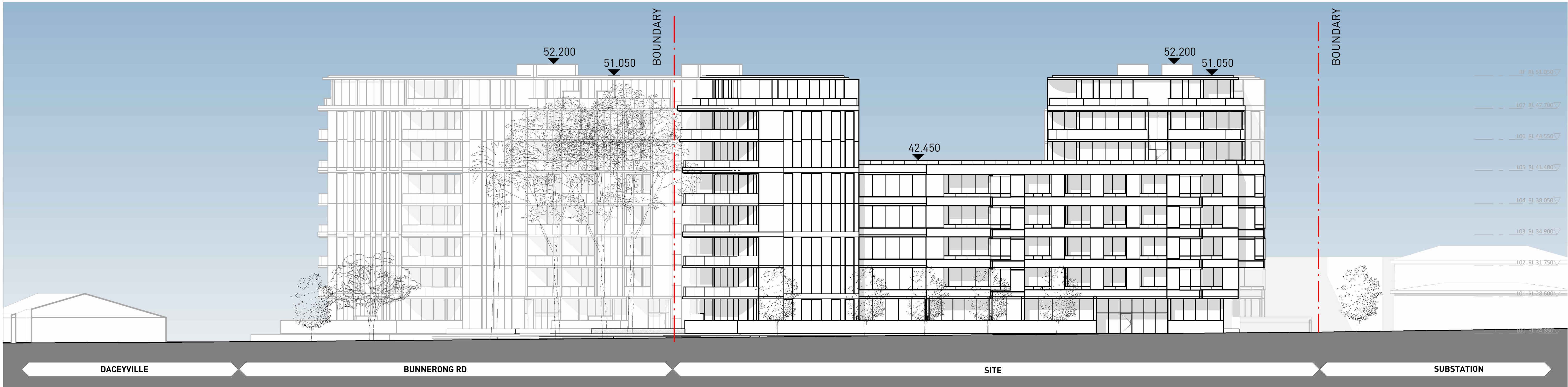
Project PA030547
KINGSFORD PP
47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

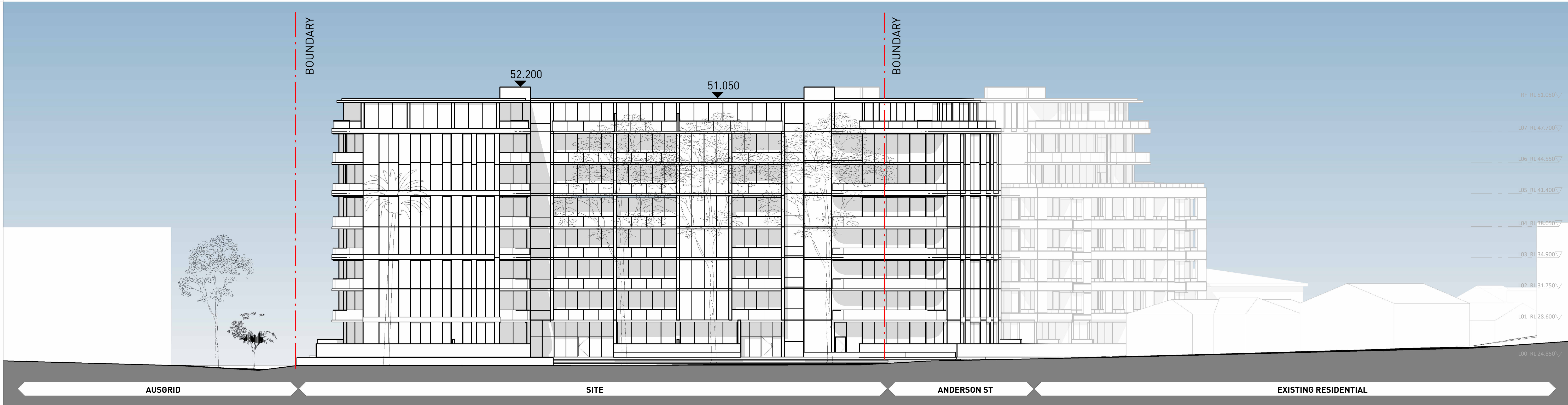
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LEVEL 07 PLAN

Drawing Number
PTW-B1L0710

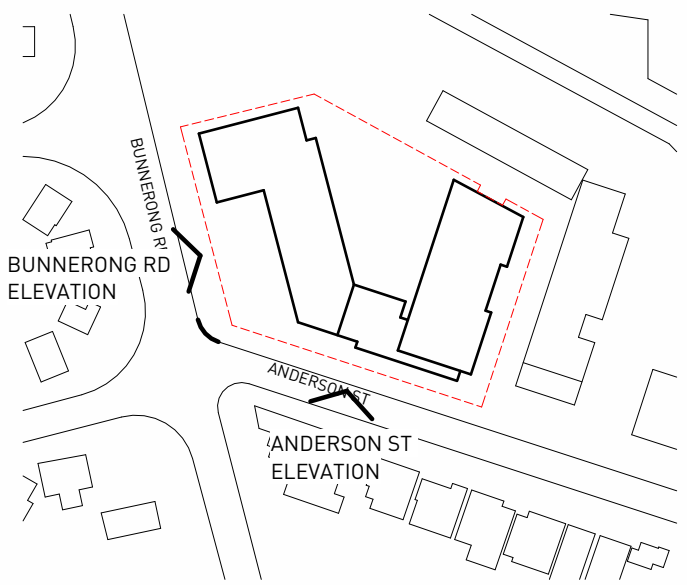
Revision
1



1 SOUTH ELEVATION ALONG ANDERSON ST
1 : 200 @A1



2 WEST ELEVATION ALONG BUNNERONG RD
1 : 200 @A1



Key Plan:

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Reg. Arch

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Client

Architect

PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877

ptw.com.au

Peddie Thorp & Walker P/L
ABN 23 000 454 624
Trading as PTW Architects

Nominated Architects

Simon Parsons
NSW ARB 6098

Diane Jones
NSW ARB 4778

Nela Marojevic
NSW ARB 11274

0

1

2

5

10

15m

As indicated@A1

Project PA030547

KINGSFORD PP

47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase

PLANNING PROPOSAL

Title

C1-ELEVATIONS

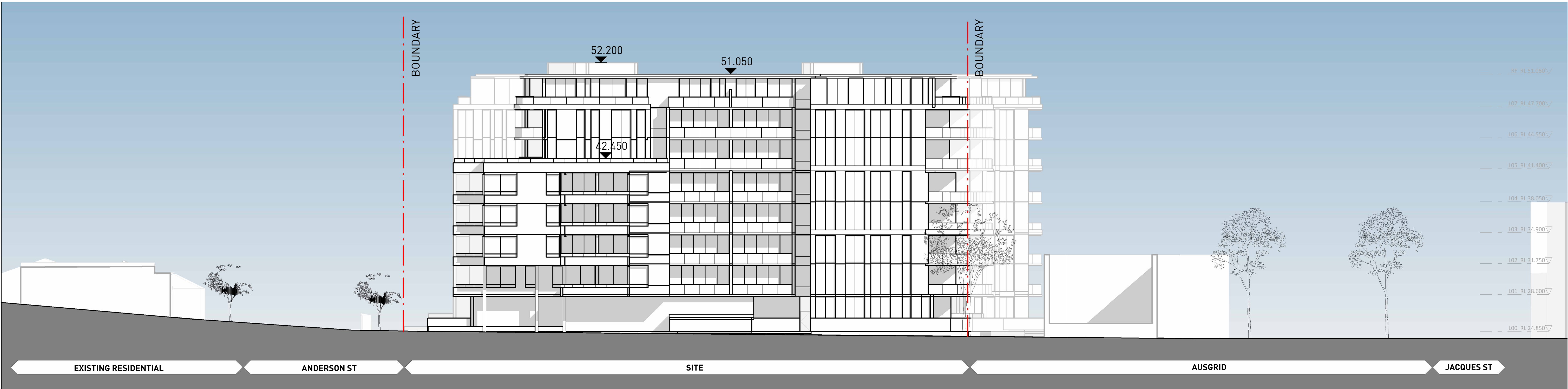
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Drawing Number

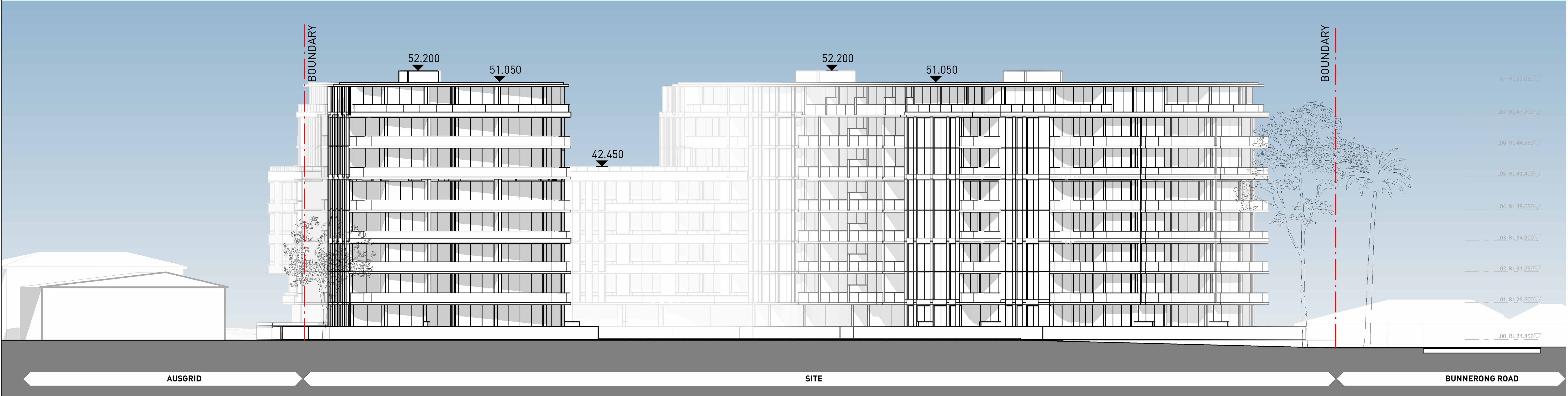
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Revision

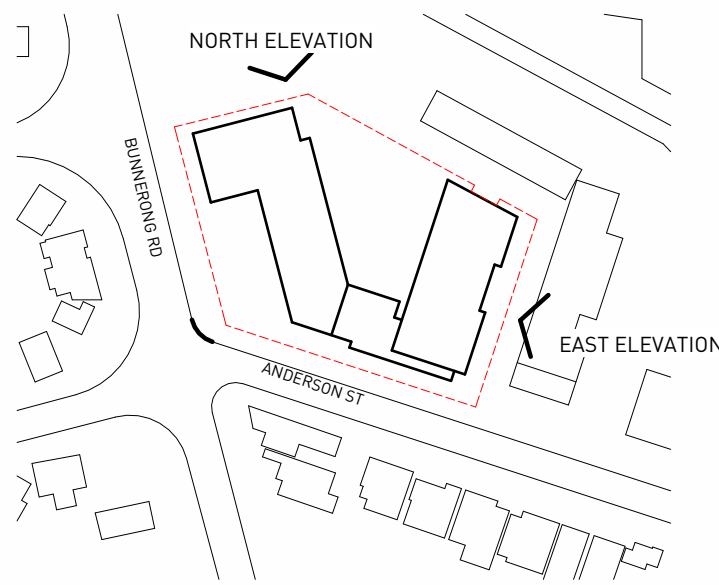
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1 EAST ELEVATION
1 : 200 @A1

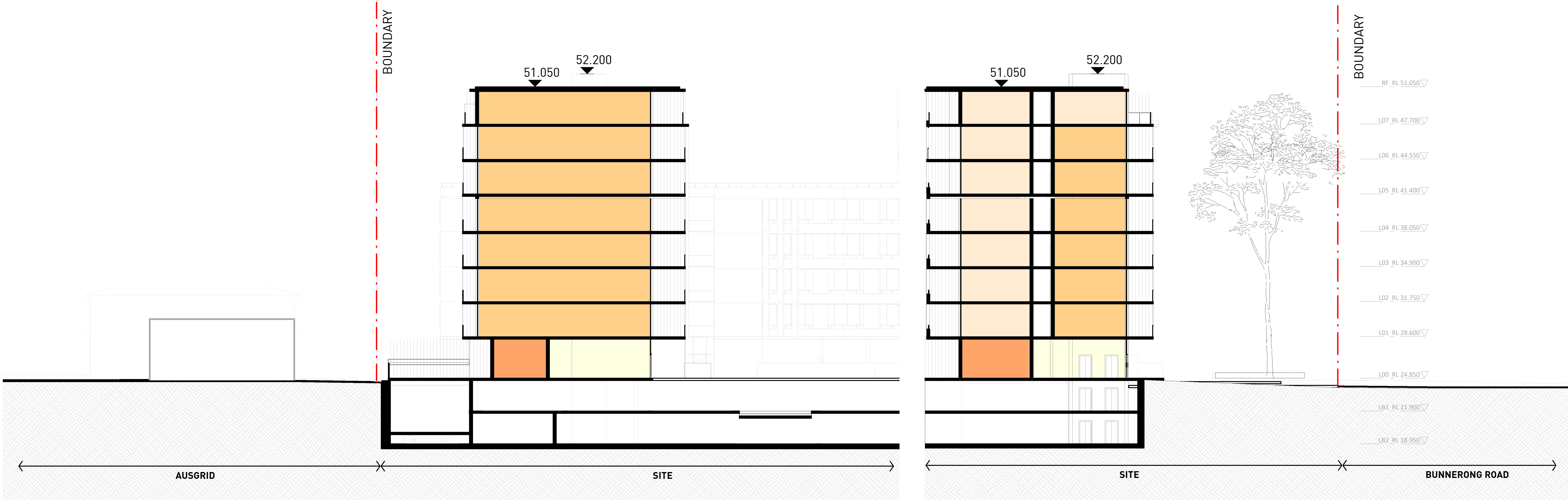


2 NORTH ELEVATION
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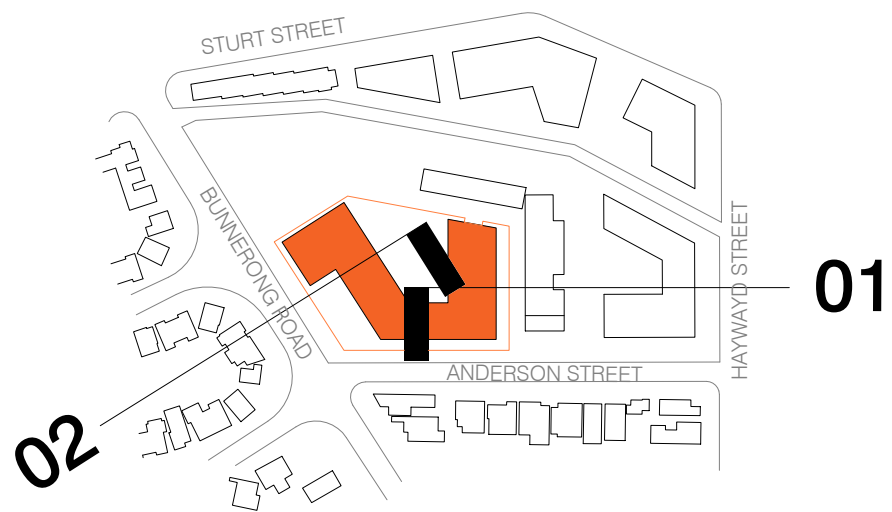
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	Rev	Amendment	By	Chk* Reg. Arch	Date
Consultants		Client		Architect PTW Architects Gadigal Country Level 11, 88 Phillip Street Sydney NSW 2000 Australia T +61 2 9232 5877 ptw.com.au <small>Peddie Thorp & Walker P/L ABN 23 000 454 624 Trading as PTW Architects</small>	
				<small>Nominated Architects Simon Parsons NSW ARB 6098 Diane Jones NSW ARB 4778 Neša Marojević NSW ARB 11274</small>	
				Project PA030547 KINGSFORD PP 47-55 BUNNERONG ROAD KINGSFORD, NSW 2032	
				Phase PLANNING PROPOSAL	
				Title C1-ELEVATIONS NORTH & EAST ELEVATIONS	
				Drawing Number PTW- DA-C2000	
				Revision 1	

- LEGEND
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- 2 BEDROOMS
- 3 BEDROOMS

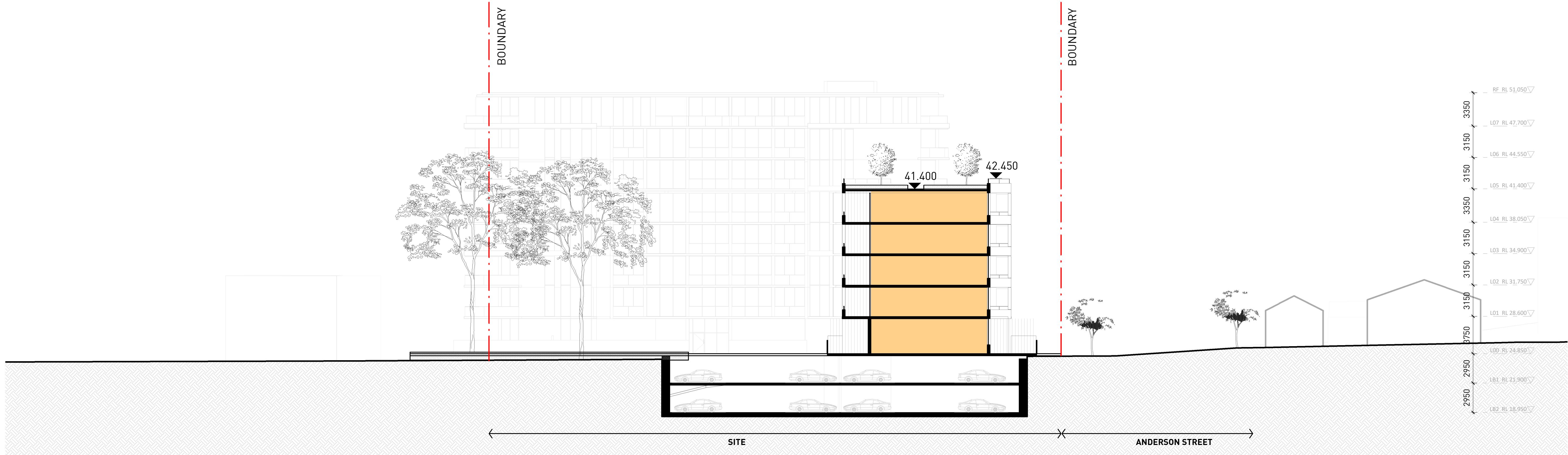


1 SECTION 1-1
1 : 200 @A1

2 SECTION 2-2
1 : 200 @A1



Key Plan:	Drawing Disclaimer: Do not scale from drawings. Verify all dimensions on site before commencing work. Copying or reproduction of this drawing is strictly prohibited without the consent of PTW Architects						Consultants			Client			Architect PTW Architects Gadigal Country Level 11, 88 Phillip Street Sydney NSW 2000 Australia T +61 2 9232 5877 ptw.com.au <div><div>Peddie Thorp & Walker P/L ABN 23 000 454 624 Trading as PTW Architects</div><div>Nominated Architects Simon Parsons NSW ARB 6098 Diane Jones NSW ARB 4778 Nela Marojevic NSW ARB 11274</div></div>			<div><div>01251015m</div><div>As indicated@A1</div></div>			<div><div>Title</div><div>D1-SECTIONS</div><div>SECTION 1-1 2-2</div></div>		
	Note PTW's responsibility for any external building element is strictly limited to that provided for by our relevant scope of Services. Others, including suitably qualified experts as may be required or as is appropriate, carry responsibility for any checking of or other work associated with any design, materials selection, construction or installation of any cladding, facade or external building element.			1 ISSUE FOR COORDINATION			CL			17.11.2023											
	Rev Amendment			By Chk* Reg. Arch Date									<div><div>Project</div><div>PA030547</div><div>KINGSFORD PP</div><div>47-55 BUNNERONG ROAD</div><div>KINGSFORD, NSW 2032</div></div> <div><div>Phase</div><div>PLANNING PROPOSAL</div></div>								

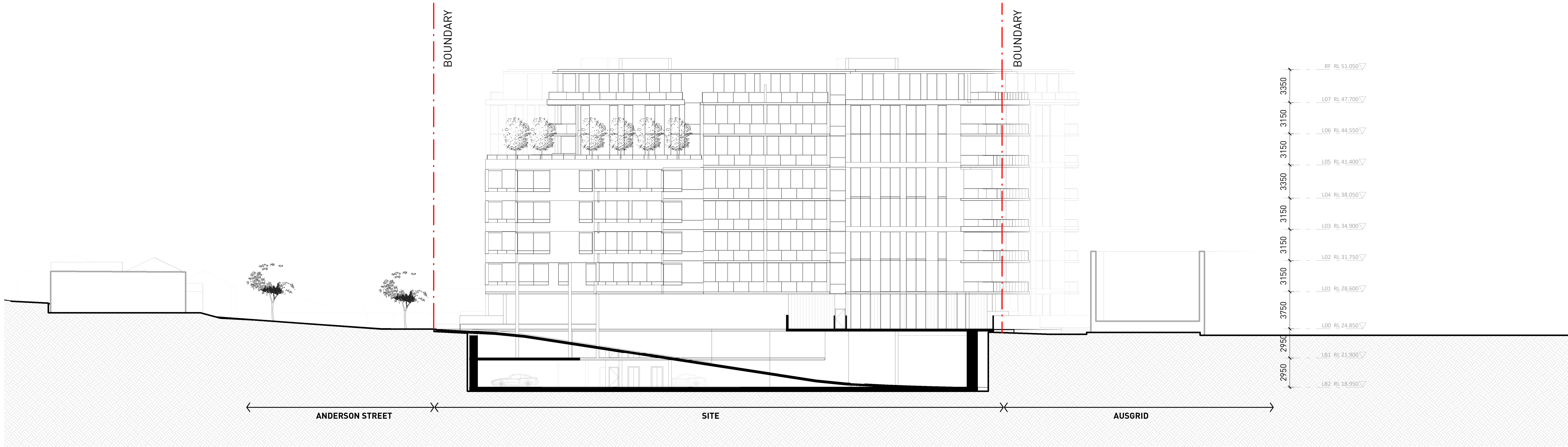


- LEGEND**
- 1 BEDROOM
 - 2 BEDROOMS
 - 3 BEDROOMS

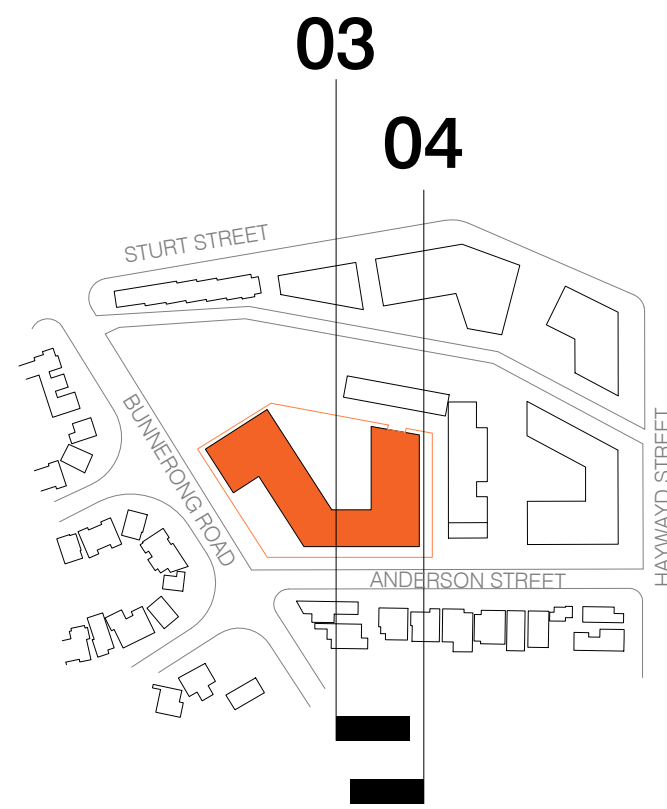
1 SECTION 3-3
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	1 ISSUE FOR COORDINATION			CL			17.11.2023			<div>Project</div> <div>PA030547 KINGSFORD PP 47-55 BUNNERONG ROAD KINGSFORD, NSW 2032</div>			<div>Revision</div> <div>1</div>					
	<div>Rev</div> <div>Amendment</div>			<div>By</div> <div>Chk* Reg. Arch</div> <div>Date</div>						<div>Phase</div> <div>PLANNING PROPOSAL</div>								



1 SECTION 4-4
1 : 200



Key Plan:

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Consultants Client

Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au
Peddie Thorp & Walker P/L
ABN 23 000 454 624
Trading as PTW Architects

Nominated Architects
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Nela Marojevic NSW ARB 11274

PTW

0 1 2 5 10 15m
As indicated@A1

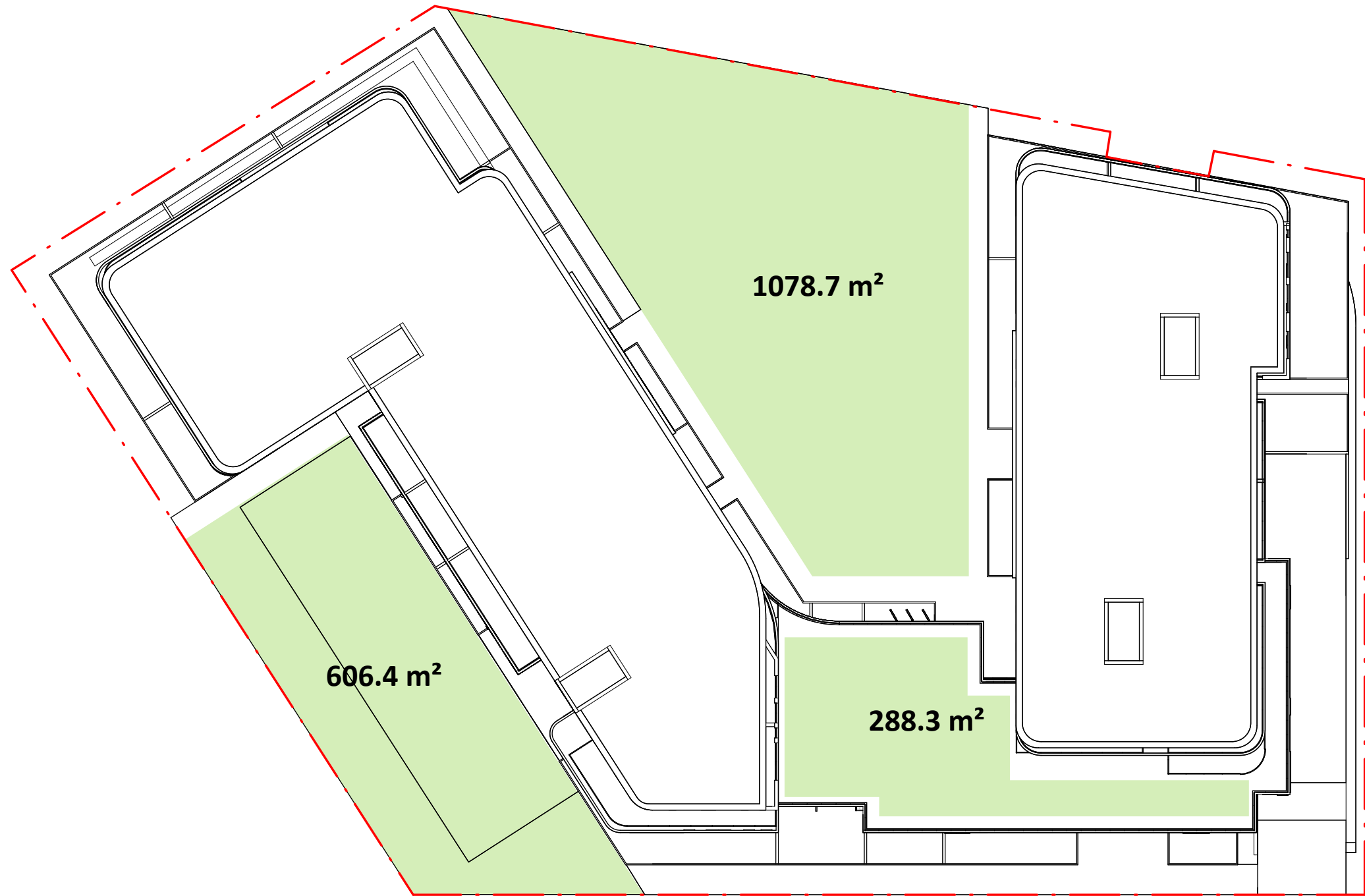
Project PA030547
KINGSFORD PP
47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

Title
D1-SECTIONS
SECTION 4-4

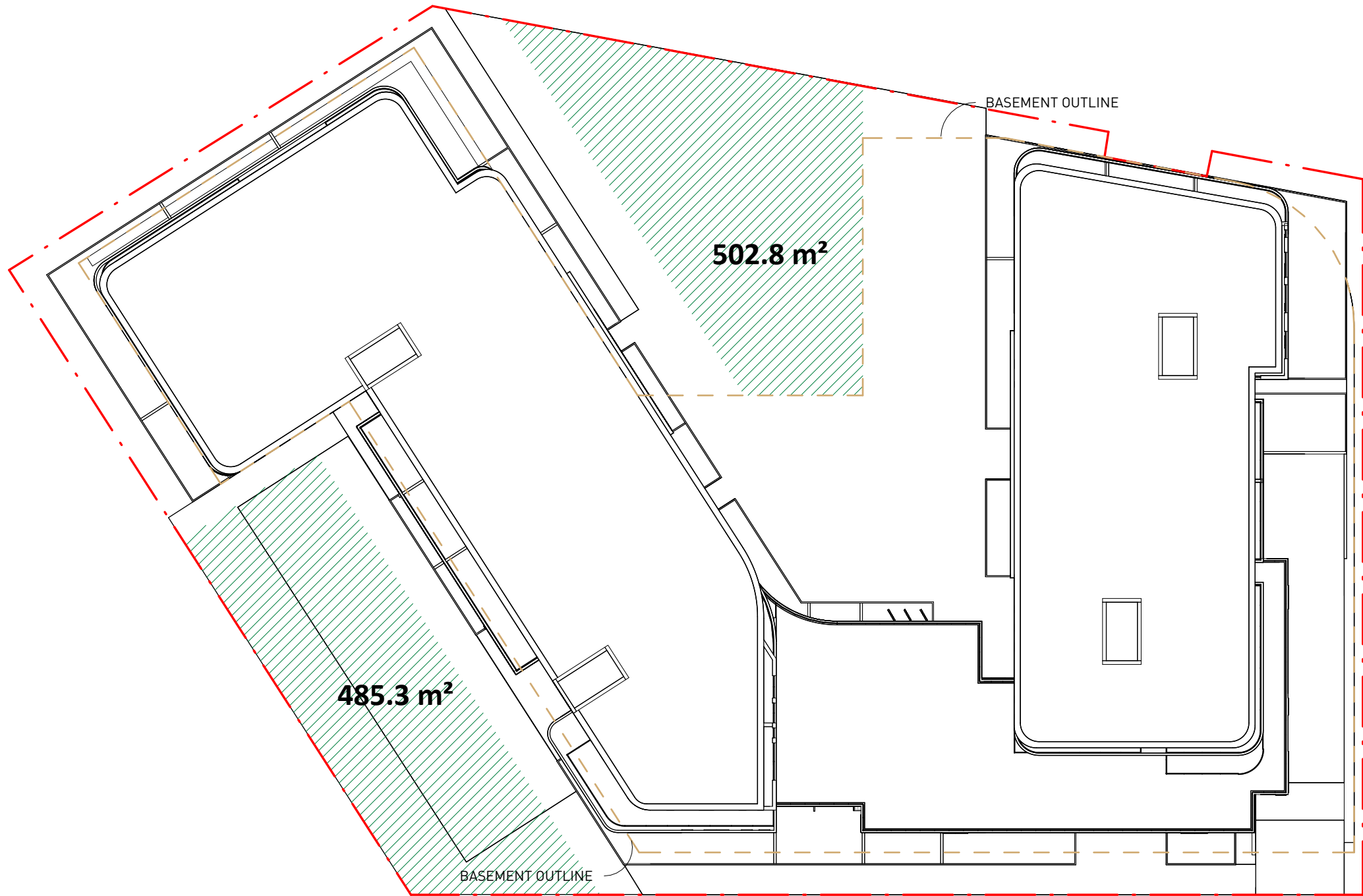
Drawing Number
PTW-D210040

Revision
1



COMMUNAL OPEN SPACE

Area Schedule (ADG3D1-COS)		
Area		Target
1973.35 m²	32.6%	25%



DEEP SOIL

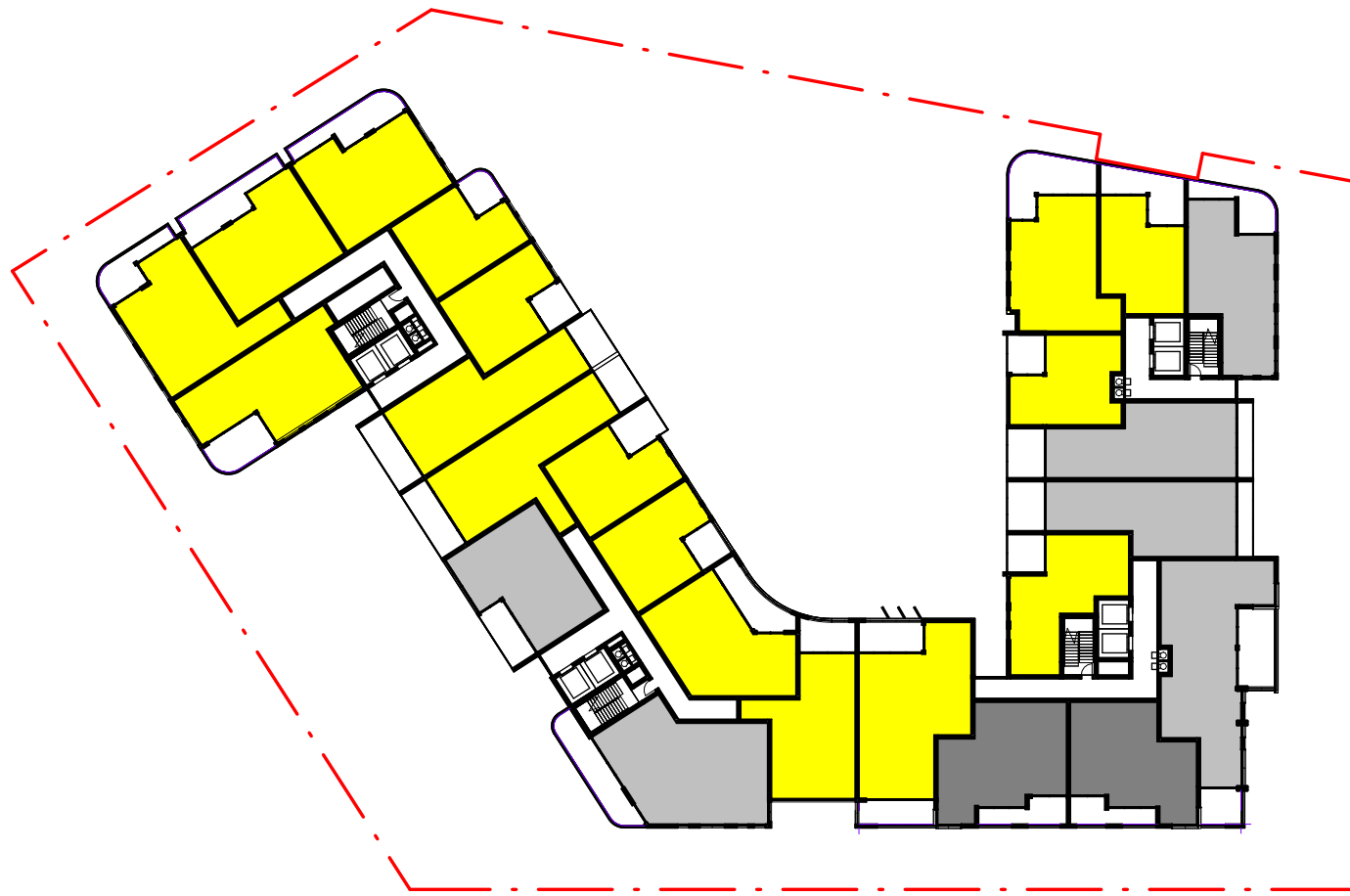
Area Schedule (ADG3E1-DEEP SOIL)		
Area		Target
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A1

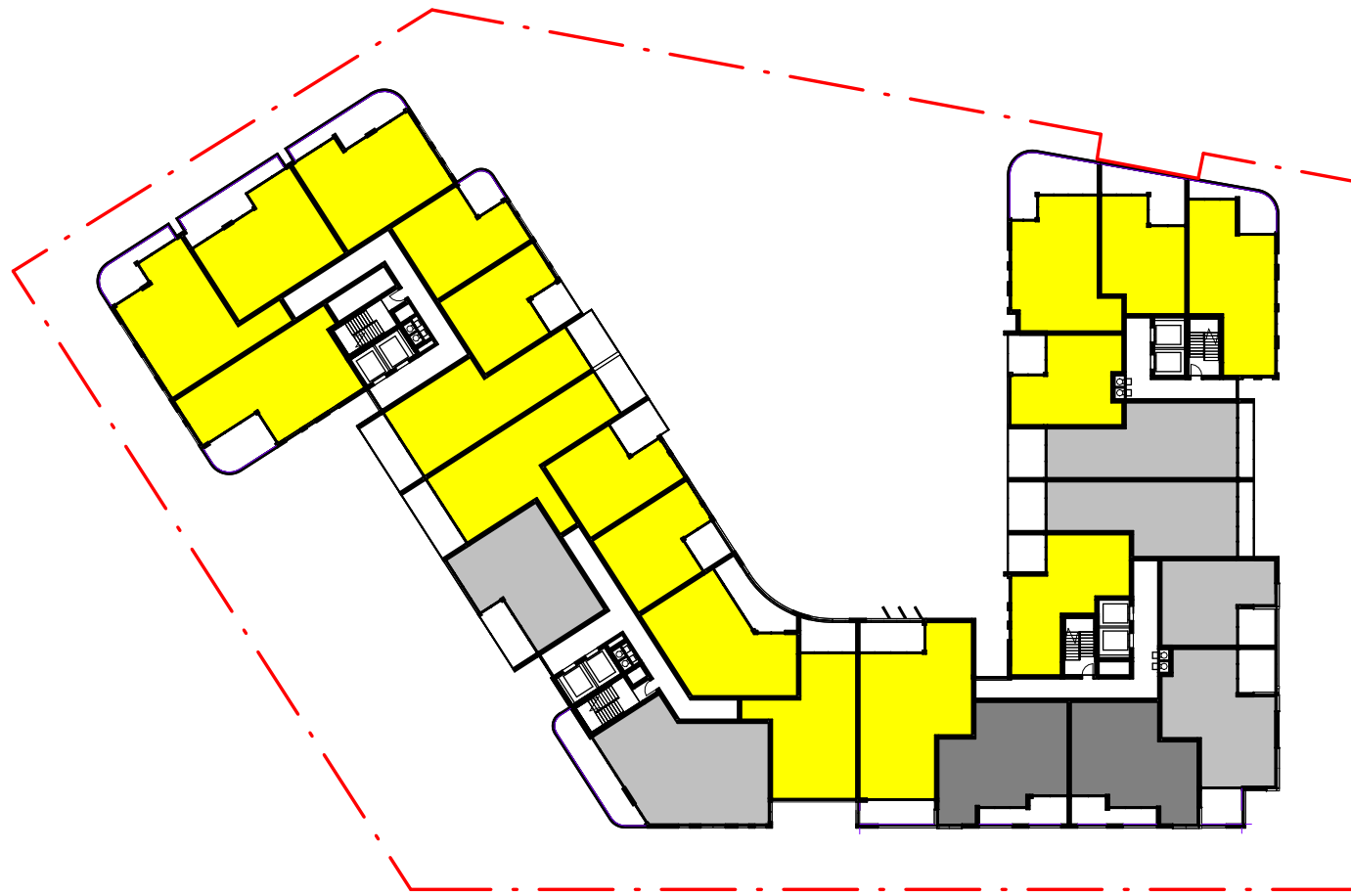
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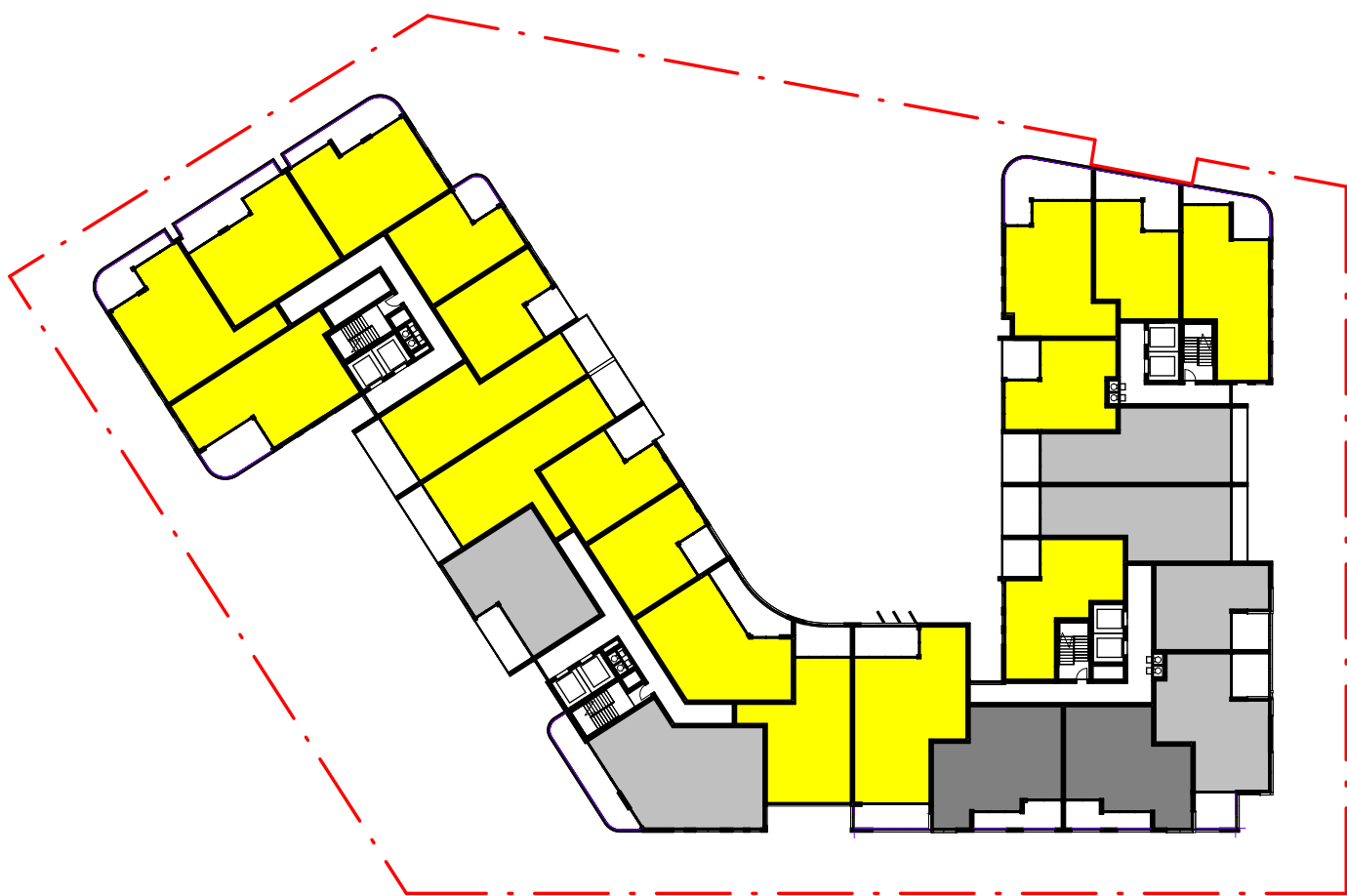
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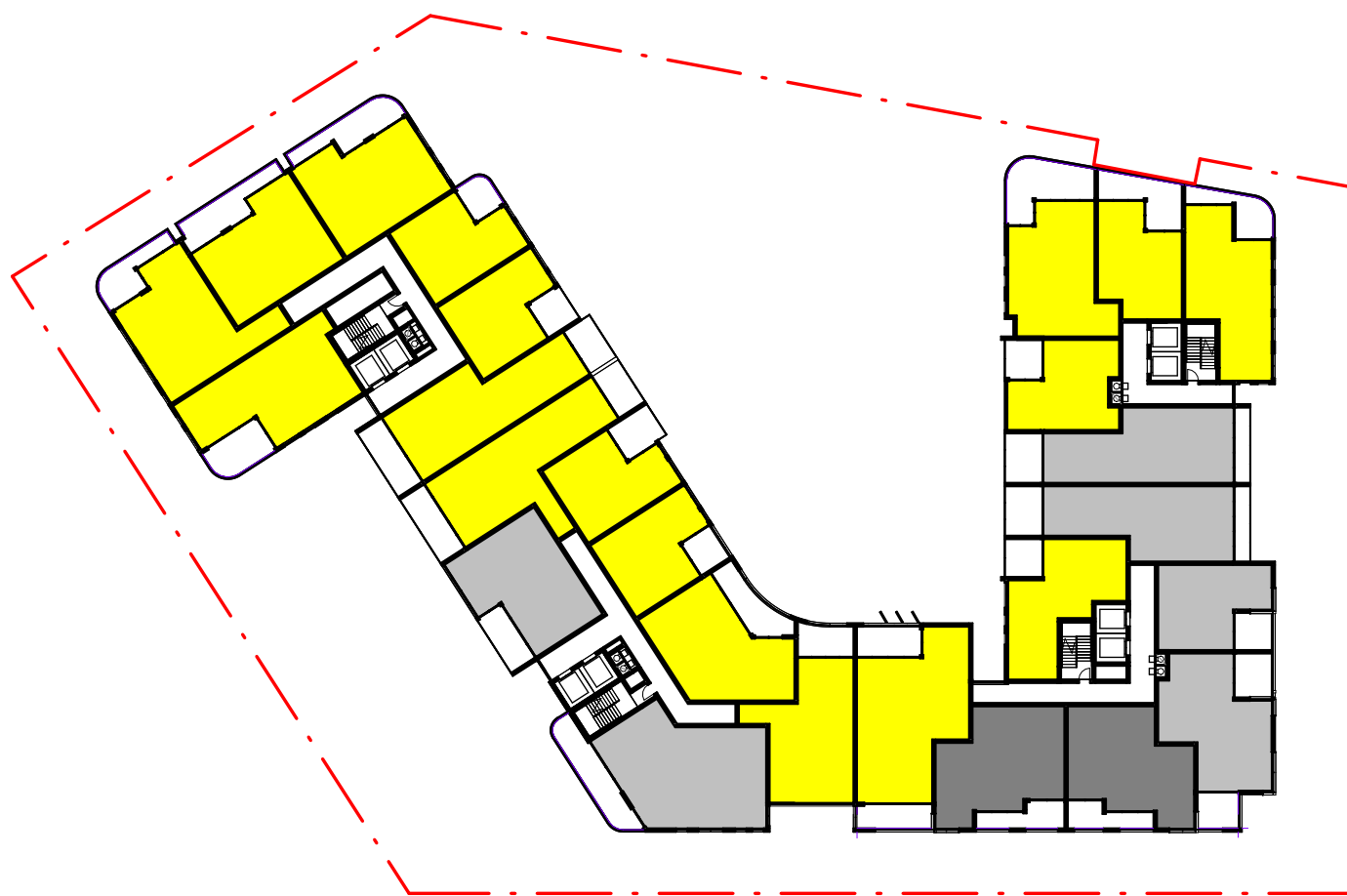
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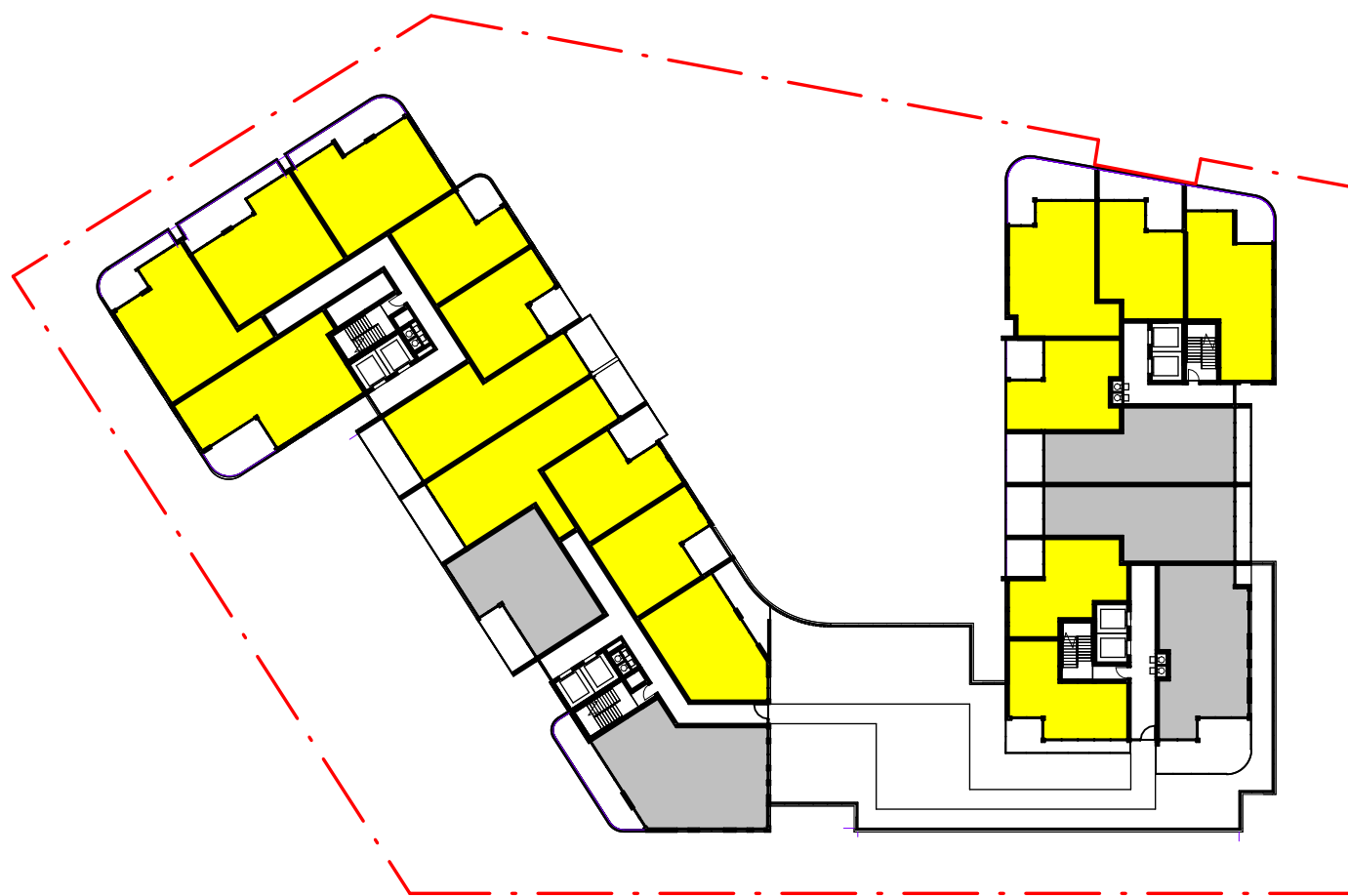
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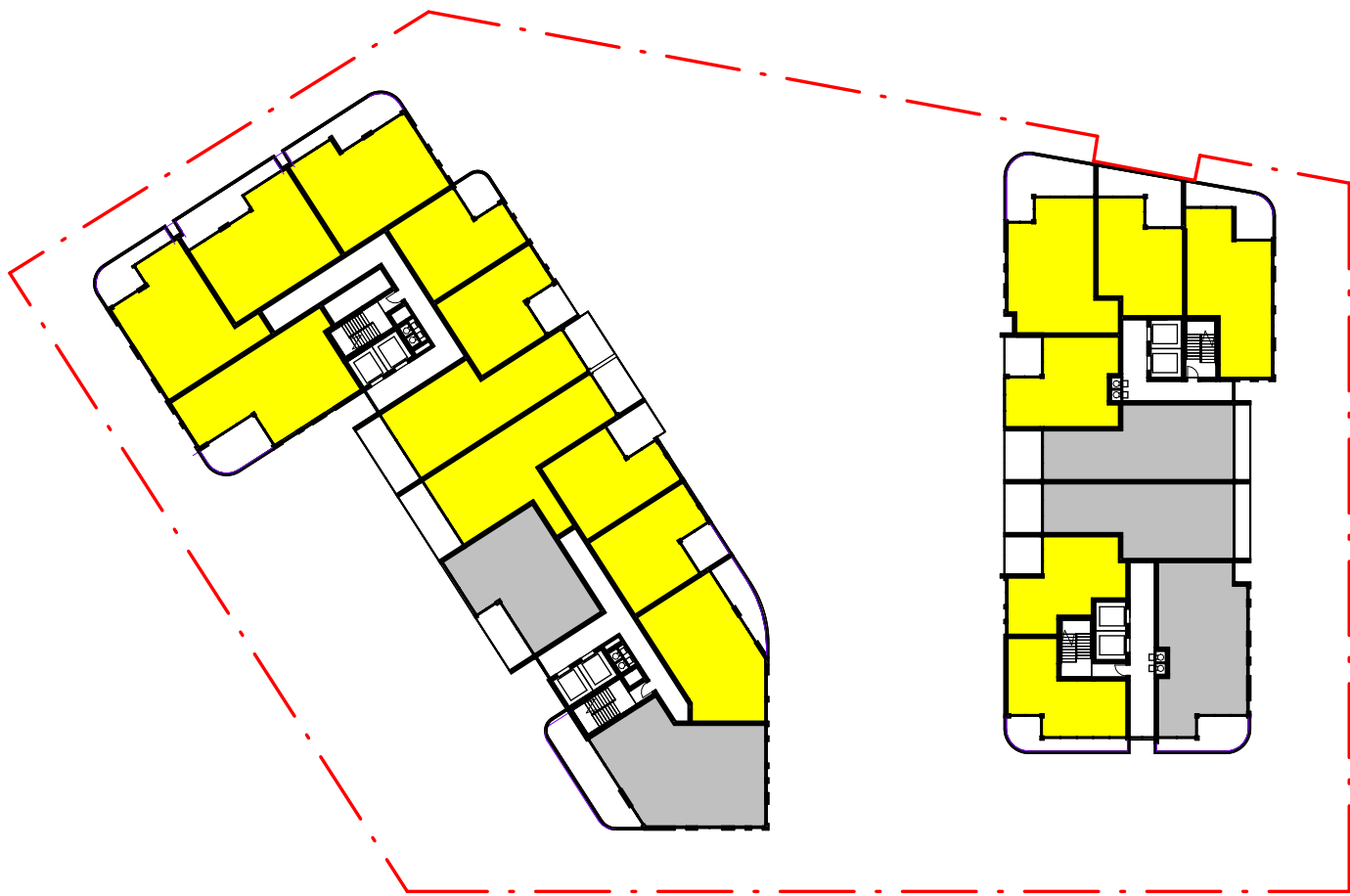
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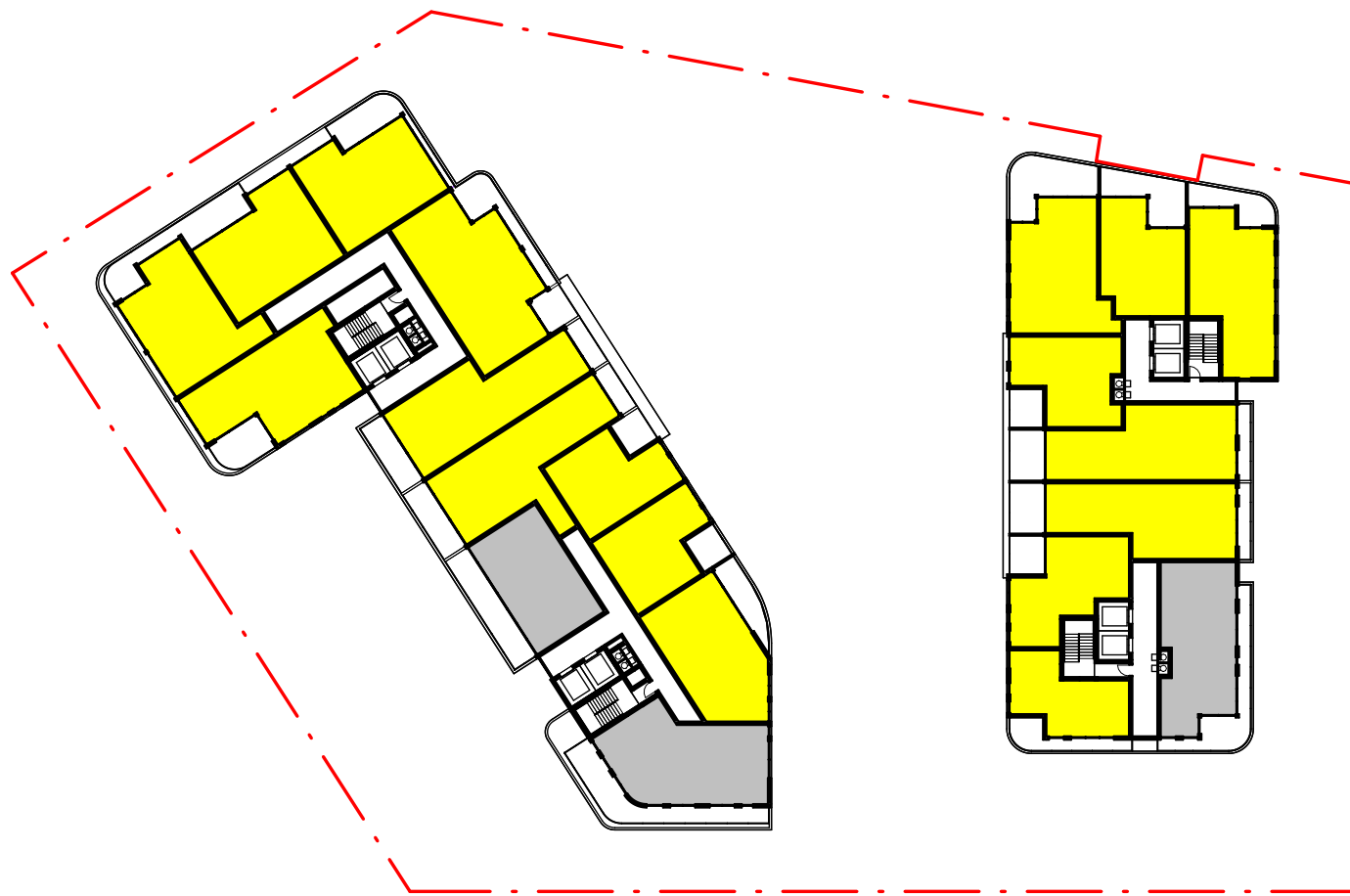
L04



L05



L06



L07

SOLAR ACCESS COMPLIANCE		
SOLAR ACCESS	COUNT	%
>2HRS	135	72%
<2HRS	43	23%
0HRS	9	5%
Grand total: 187	187	100%

Key Plan:

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ptw.com.au
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Nominated Architects
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Diane Jones NSW ARB 4778
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Project PA030547
KINGSFORD PP
47-55 BUNNERONG ROAD
KINGSFORD, NSW 2032

Phase
PLANNING PROPOSAL

Title
Q1-ADG COMPLIANCE
SOLAR ACCESS

Drawing Number
PTW- DA-Q14A010

Revision
1



GROUND LEVEL



L01



L02



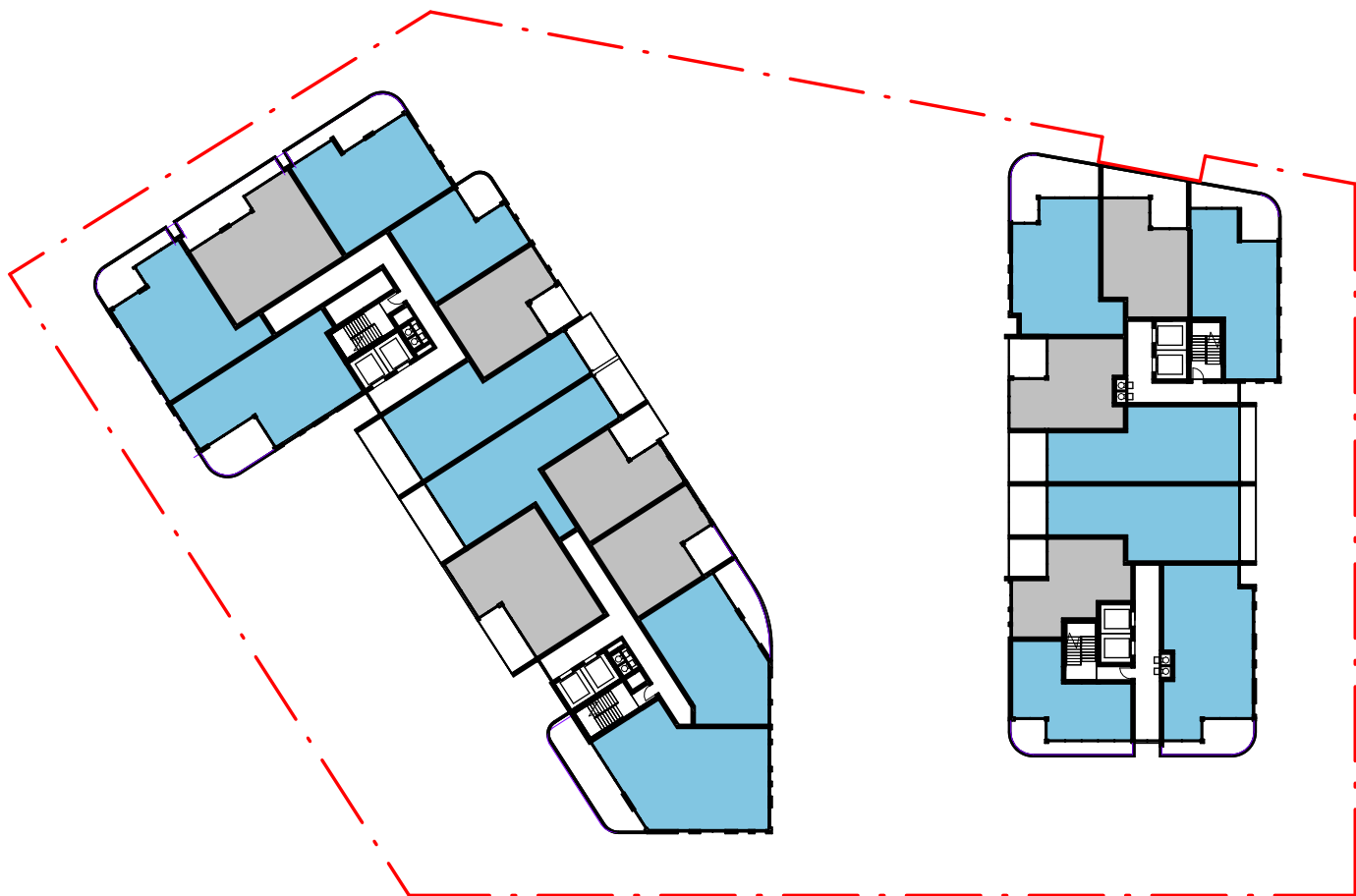
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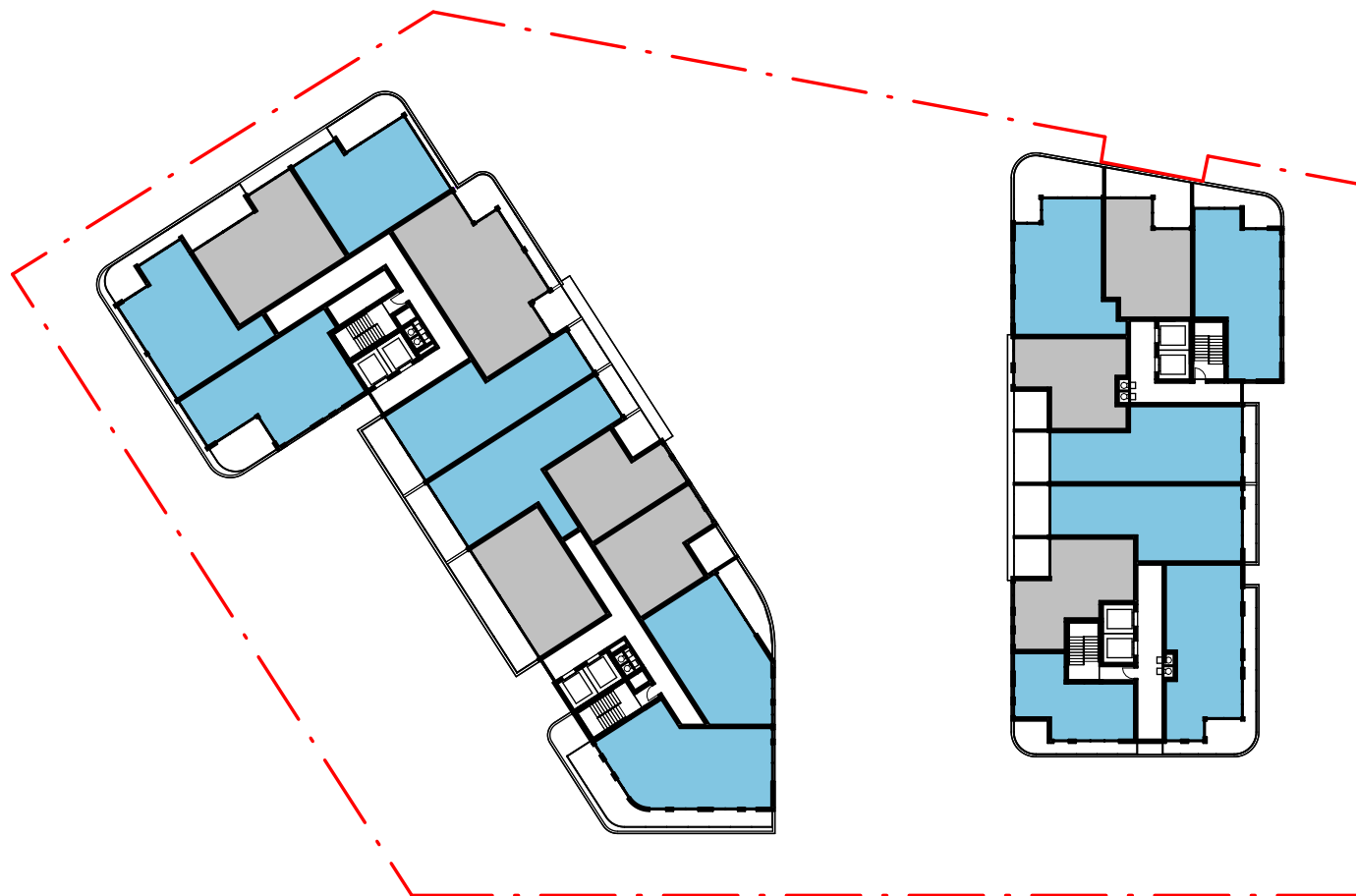
L04



L05



L06



L07

CROSS VENTILATION COMPLIANCE		
TYPE	COUNT	%
YES	116	62%
NO	71	38%
	187	100%

Key Plan:

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Architect

PTW Architects

Gadigal Country

Level 11, 88 Phillip Street

Sydney NSW 2000 Australia

T +61 2 9232 5877

ptw.com.au

Peddie Thorp & Walker P/L

ABN 23 000 454 624

Trading as PTW Architects

Nominated Architects

Simon Parsons

Diane Jones

Nesla Marojevic

NSW ARB 6098

NSW ARB 4778

NSW ARB 11274

Project

PA030547

KINGSFORD PP

47-55 BUNNERONG ROAD

KINGSFORD, NSW 2032

Phase

PLANNING PROPOSAL

Title

Q1-ADG COMPLIANCE

CROSS VENTILATION COMPLIANCE

Drawing Number

PTW- DA-Q14B010

Revision

1



21 JUNE 0900 HRS

21 JUNE 1000 HRS

21 JUNE 1100 HRS

21 JUNE 1200 HRS



21 JUNE 1300 HRS

21 JUNE 1400 HRS

21 JUNE 1500 HRS

Key Plan:

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Rev

Amendment

By

Chk*

Date

Reg. Arch

Consultants

Client

Architect

Gadigal Country

PTW Architects

Level 11, 88 Phillip Street

Sydney NSW 2000 Australia

T +61 2 9232 5877

ptw.com.au

Peddie Thorp & Walker P/L

ABN 23 000 454 624

trading as PTW Architects

Nominated Architects

Simon Parsons

Diane Jones

Nesla Marojevic

NSW ARB 6098

NSW ARB 4778

NSW ARB 112748

Project

PA030547

KINGSFORD PLANNING

PROPOSAL

67-55 BUNMERONG ROAD

KINGSFORD, NSW 2032

Phase

0

10

20

50

80m

Title

Q3-ADG OBJECTIVE 4A-1 - SOLAR ACCESS

SHADOW DIAGRAMS

Drawing Number

PTW-Q320011

Revision

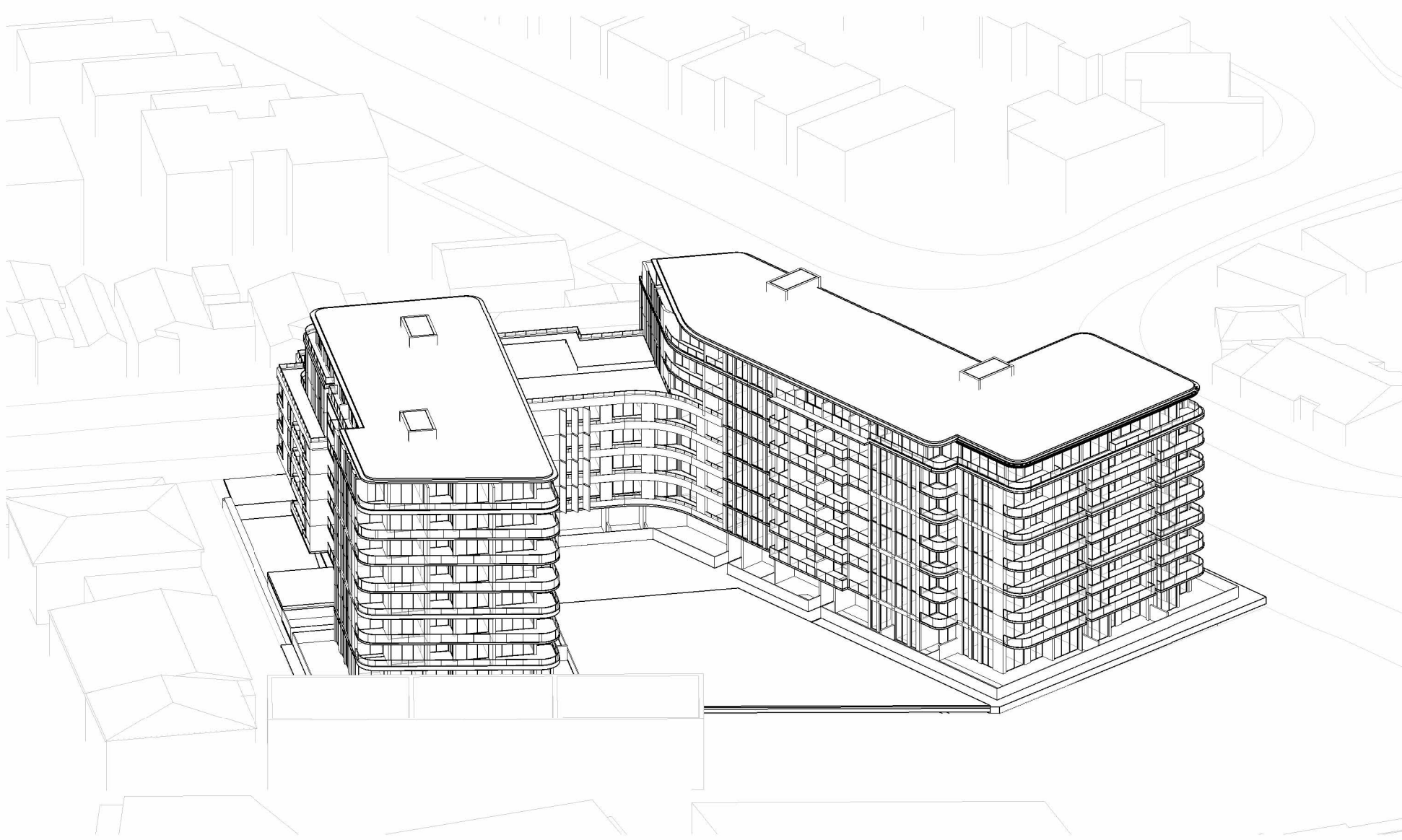
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A1



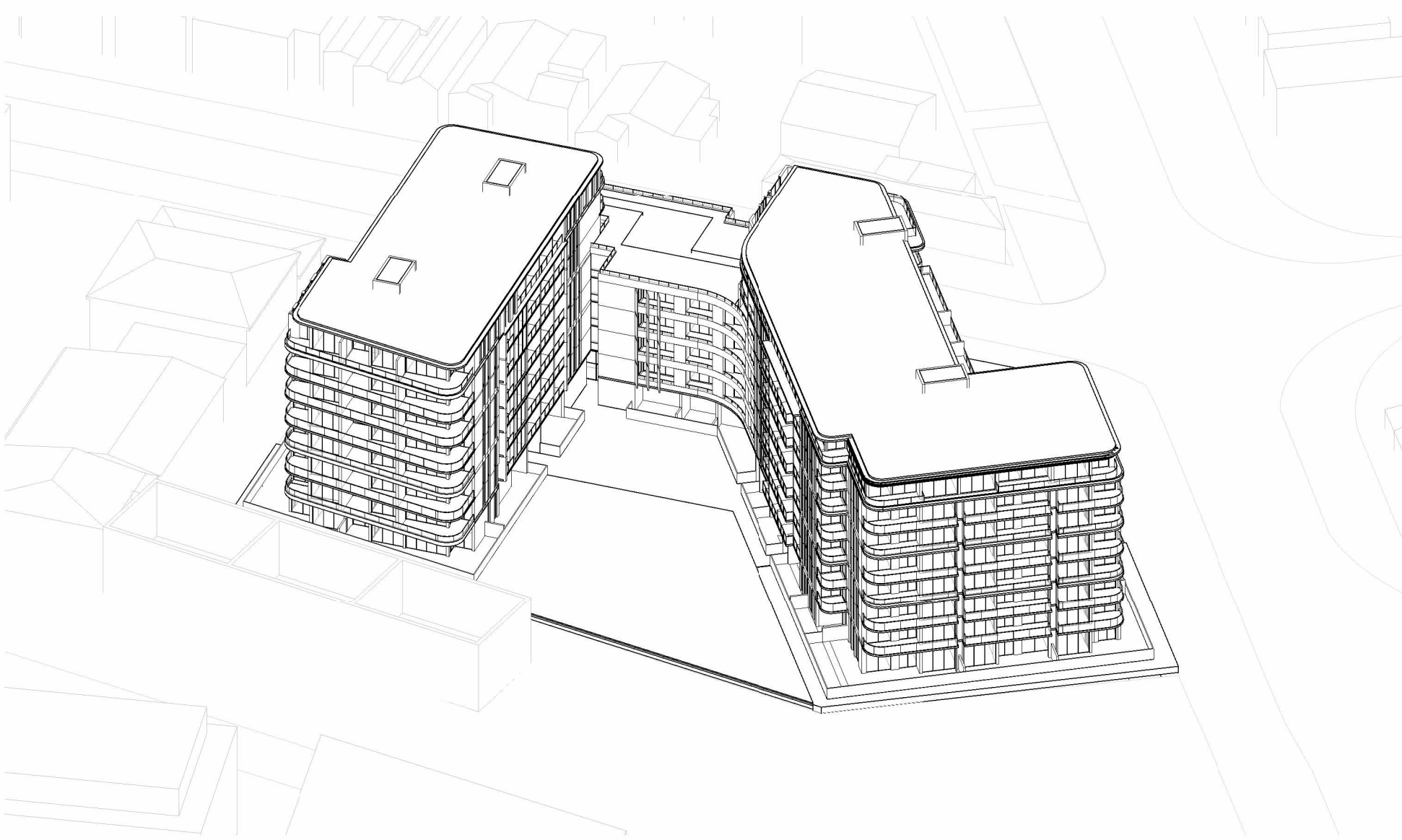
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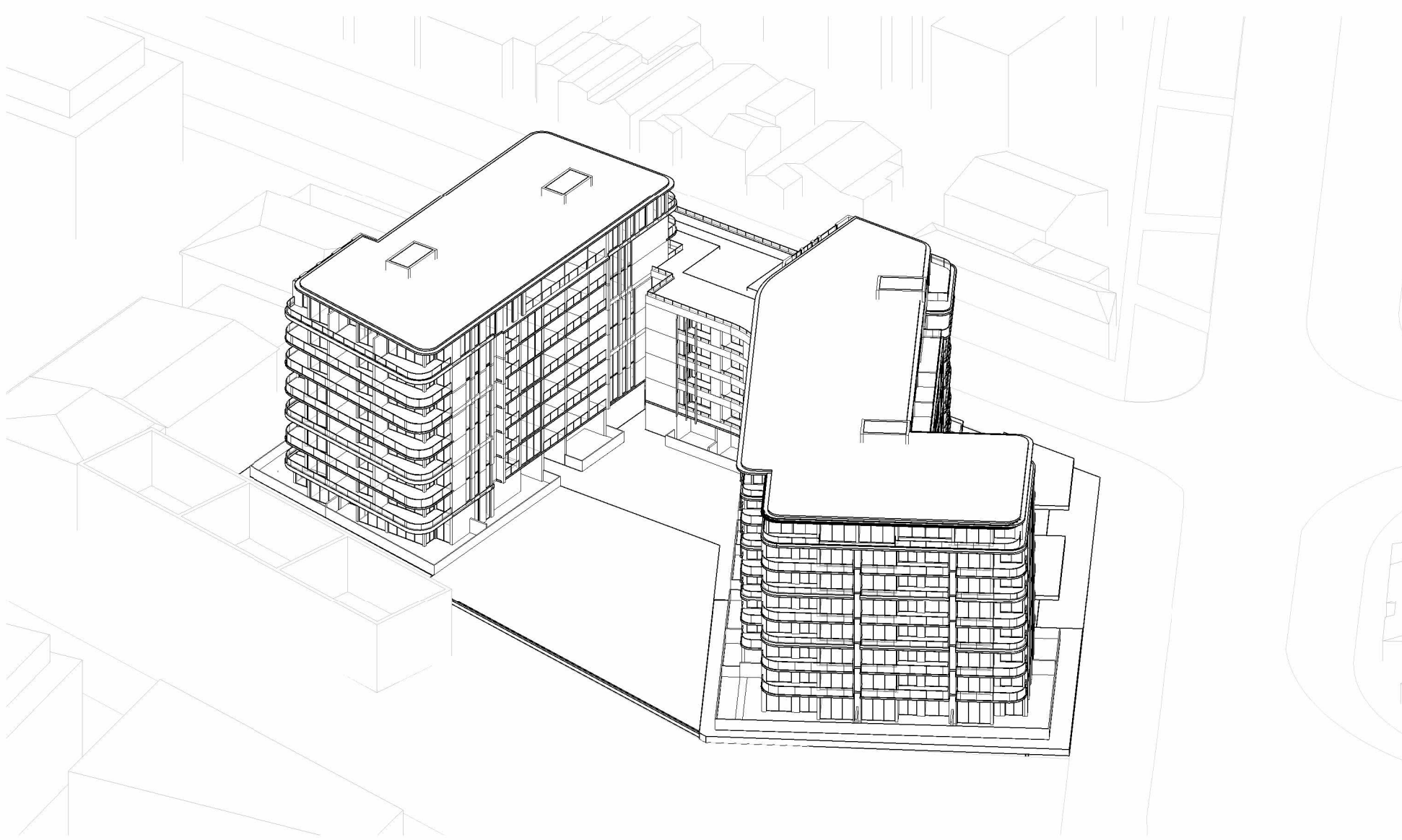
21 JUNE 1000 HRS



21 JUNE 1100 HRS



21 JUNE 1200 HRS



21 JUNE 1300 HRS



21 JUNE 1400 HRS



21 JUNE 1500 HRS

Key Plan: Drawing Disclaimer: Do not scale from drawings. Verify all dimensions on site before commencing work. Copying or reproduction of this drawing is strictly prohibited without the consent of PTW Architects Note PTW's responsibility for any external building element is strictly limited to that provided for by our relevant scope of Services. Others, including suitably qualified experts as may be required or as is appropriate, carry responsibility for any checking of or other work associated with any design, materials selection, construction or installation of any cladding, facade or external building element.		Consultants		Client		Architect Gadigal Country PTW Architects Level 11, 88 Phillip Street Sydney NSW 2000 Australia T +61 2 9232 5877 ptw.com.au <small>Peddie Thorp & Walker P/L ABN 23 000 454 624 trading as PTW Architects</small>		Nominated Architects <small>Simon Parsons NSW ARB 6098 Diane Jones NSW ARB 4778 Neela Marojevic NSW ARB 112748</small>		Project PA030547 KINGSFORD PLANNING PROPOSAL 67-55 BUMMERONG ROAD KINGSFORD, NSW 2032		Phase PLANNING PROPOSAL		Title Q3-ADG OBJECTIVE 4A-1 - SOLAR ACCESS SUN EYE VIEW DIAGRAMS		Drawing Number PTW-Q310011		Revision	
Rev		Amendment		By		Chk* Reg. Arch		Date											



henry&hymas

APPENDIX B – FLOOD ADVICE LETTER FROM RANDWICK COUNCIL



File No: F2021/00106
Doc No: D04896034

24 March 2023

H&H Consulting Engineers
Suite 2.01 828 Pacific Highway,
Gordon NSW 2072

RE: 47-55 Bunnerong Rd, Kingsford NSW 2032

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

Property Details

Title Refs:	Lot 1 DP 433534
Address:	47-55 Bunnerong Road, Kingsford NSW 2032

Calculated Flood Depth

Flood Event	Flood Depth (m)	Flood Level (mAHD)
PMF	1.15	24.12
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 1% AEP 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 24.12 mAHD.

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 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



Source of Flooding Information

Birds Gully and Bunnerong Road Flood Study (2018)

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:

- a minimum floor planning level for critical facilities is 24.12 mAHD

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.