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C/o Mackenzie Architects International

Preliminary Site Investigation,
3 Gondola Road,
North Narrabeen, NSW.



ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT
MANAGEMENT



P2108694JR01V01
May 2022

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General Abbreviations

AASS	Actual acid sulfate soil
ABC	Ambient background concentrations
ACM	Asbestos containing material
AEC	Area of environmental concern
AF	Asbestos fines
AMP	Asbestos Management Plan
ANZECC	Australia and New Zealand Environment Conservation Council
ANZG	Australian and New Zealand Governments
ASC NEPM	National Environmental Protection (Assessment of Site Contamination) Measure (2013)
ASS	Acid sulfate soil
ASSMAC	Acid Sulfate Soils Management Advisory Committee
AST	Above ground storage tank
BGL	Below ground level
BH	Borehole
BTEXN	Benzene, toluene, ethylbenzene, xylene, naphthalene
CEMP	Construction Environmental Management Plan
COC	Chain of custody
COPC	Contaminants of potential concern
DA	Development application
DBT	Dibutyltin
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DNAPL	Dense non aqueous phase liquid
DP	Deposited Plan
DPI	NSW Department of Primary Industry
DPIW	NSW Department of Primary Industry – Water
DQI	Data quality indicators
DQO	Data quality objectives
DSI	Detailed Site Investigation
EAC	Ecological assessment criteria
EIL	Ecological investigation level
EMP	Environmental Management Plan
EPA	NSW Environmental Protection Authority
EQL	Estimated quantitation limit (interchangeable with PQL and LOR)
ESA	Environmental Site Assessment
ESL	Ecological screening level
FA	Fibrous asbestos
GIL	Groundwater investigation level
HIL	Health investigation level
HM	Heavy metals
HSL	Health screening level
IA	Investigation area
ISQG	Interim Sediment Quality Guideline
ITP	Inspection Testing Plan
LGA	Local government area
LNAPL	Light non aqueous phase liquid
LOR	Limit of reporting (interchangeable with EQL and PQL)
MA	Martens & Associates Pty Ltd
mAHD	Metres, Australian Height Datum
mbgl	Metres below ground level

MBT	Monobutyltin
MNA	Monitored natural attenuation
MPE	Multi phase extraction
NAPL	Non aqueous phase liquid
NATA	National Association of Testing Authorities
ND	No data
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OCP	Organochloride pesticides
OEH	NSW Office of Environment and Heritage
OPP	Organophosphorus pesticides
PACM	Potential asbestos containing material
PAH	Polycyclic aromatic hydrocarbons
PASS	Potential acid sulfate soil
PCB	Polychlorinated biphenyl
PCEMP	Post Construction Environmental Management Plan
PESA	Preliminary Environmental Site Assessment
PFAS	Per and polyfluoroalkyl substances
PID	Photoionisation detector
ppb	Parts per billion
ppm	Parts per million
PQL	Practical quantitative limit (interchangeable with EQL and LOR)
PSI	Preliminary Site Investigation
QA/QC	Quality assurance / quality control
RAC	Remediation acceptance criteria
RAP	Remedial Action Plan
HHRA	Human Health Risk Assessment
RPD	Relative percentage difference
SAC	Site assessment criteria
SAQP	Sampling and Analysis Quality Plan
SEPP	State Environmental Planning Policy
SIL	Soil investigation level
SOP	Standard operating procedure
SWL	Standing water level
SWMS	Safe Work Method Statement
TB	Trip blank
TBT	Tributyl tin
TCLP	Toxicity characteristics leaching procedure
TEQ	Toxic equivalency factor
TP	Test pit
TPH	Total petroleum hydrocarbons
TRH	Total recoverable hydrocarbons
TS	Trip spike
UCL	Upper confidence limit
UPSS	Underground petroleum storage system
UST	Underground storage tank
VHC	Volatile halogenated compounds
VOC	Volatile organic compounds
WHS	Work health and safety
WHSP	Work Health and Safety Plan

1 Introduction

1.1 Overview

This report, prepared by Martens and Associates (MA), documents a Preliminary Site Investigation (PSI) for potentially contaminating activities, to support a development application (DA) to the Northern Beaches Council (Council) for construction of a a mixed use development consisting of ground floor commercial with four storey residential building above and one basement level at 3 Gondola Road, North Narrabeen, NSW (the site).

The investigation area (IA) for this PSI is limited to the entire site, as shown in Attachment A.

1.2 Proposed Development

The proposed mixed use site development consists of ground floor commercial with a four storey residential building above and one basement level requiring an estimated maximum bulk excavation depth of 4.0 m below ground level (mbgl), associated services and stormwater infrastructure.

The proposed development plans are provided in Attachment D.

1.3 Objectives

Investigation objectives include:

- Identification of historical and current potentially contaminating site activities.
- Evaluation of areas of environmental concern (AEC) and associated contaminants of potential concern (COPC) within the IA.
- Assess identified AEC and associated COPC.
- Provide comment on the suitability of the IA for the future use, and where required, provide recommendations for additional investigations.

1.4 Project Scope

The scope of works includes:

- Walkover inspection to review current land use, potential contaminating activities and neighbouring land use.

- Site history review using aerial photographs and available historical records.
- Review of NSW EPA notices under the Contaminated Land Management Act (1997).
- Preparation of a report in general accordance with the relevant sections of ASC NEPM (2013), EPA (2017) and NSW EPA (2020).

1.5 Reference Documents

- NEPC (1999, amended 2013) National Environmental Protection (Assessment of Site Contamination) Measure. Referred to as ASC NEPM (2013).
- NSW EPA (2017) 3rd Ed. Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.
- NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Land.

2 Site Description

2.1 Site Details

Site information is summarised in Table 1, and site location and general surrounds shown in Attachment A.

Table 1: Site background information.

Item	Description / Detail
Site address	3 Gondola Road, North Narrabeen NSW.
Legal Identifier	Lot 188 DP 16719 (Nearmap)
Approximate area	638.7 m ² (TNSG, 2021)
Local Government Area	Northern Beaches Council
Current zoning and land use	Zoned B2 – Local Centre (ePlanning Spatial Viewer). Site is currently used for commercial purposes.
Proposed land use	Construction of a new four storey mixed use building with one basement level requiring an estimated maximum bulk excavation depth of 4.0 m below ground level (mbgl).
Site description	Two storey commercial building with a one storey carpark at the rear of the property. The full description is in the site walkover.
Surrounding land uses	The site is surrounded by a commercial building to the west, commercial and residential buildings to the north, a grass covered field to the east and a commercial operation to the south.
Topography	The site is relatively flat with grades < 5%. Site elevation is relatively flat with an elevation of approximately 2.0 (ELVIS Lidar).
Expected geology	The <i>Sydney 1:100,000 Geological Sheet 9030</i> (Herbert, 1983) describes site geology as silty to peaty quartz sand, silt and clay. Ferruginous and humic cementation in places. Common shell layers. The NSW Environment and Heritage eSPADE website identifies the site as having soils of the Warriewood landscape having soils of deep, well sorted, sandy humus podzols and dark, mottled siliceous sands, overlying buried acid peats in depressions; deep podzols and pale siliceous sands on sandy rises.
Surface hydrology	Drainage of the site is via overland flow to the Council stormwater network Gondola Road.
Acid Sulfate Soil	The acid sulphate soil (ASS) risk for the site was designated as Class 3 (NSW Planning Portal, 2022). Class 3 ASS are likely to be found beyond 1 metre below the natural ground surface (NSW Planning Portal, 2022). Acid sulfate soil testing was completed at the site by MA (2022). Laboratory test results indicate that three of the tested soil samples exceed the action criteria for the acid trail and sulfur trail. MA (2022) recommended that in accordance with ASSMAC (1998), a management plan will be required for the site if soils are to be disturbed during construction works.

2.2 Hydrogeology

Review of WaterNSW Real-time Water Database, indicated eight groundwater bores (eight with available information) within 500 m of the site and west of the South Creek. Seventeen monitoring wells were located east of South Creek and within a 500 m radius. These wells have not been included in this search because they were not representative of the hydrogeological conditions near the site. Groundwater bores are summarised in Table 2.

Table 2: Available hydrogeological information.

Bore Identification	Record Date	Intended Use	Standing Water Level (mbgl)	First Water Bearing Zone (mbgl) and Substrate	Distance and Direction from IA
GW114585	2011	Monitoring	NA	3.0 – 4.0 Sand	70 m north east
GW111041	2010	Monitoring	2.0	4.0 – 5.0 Sand	50 m north east
GW111043	2010	Monitoring	2.0	3.0 – 5.0 Sand	50 m north east
GW114584	2011	Monitoring	NA	3.0 – 4.0 Sand	75 m north east
GW114586	2011	Monitoring	NA	2.8 – 4.0 Sand	80 m north east
GW111042	2010	Monitoring	2.0	4.0 – 5.0 Sand	60 m north east
GW109109	2008	Domestic	1.0	NA	270 m north west
GW109675	2005	Domestic	1.5	NA	270 m south west

Ephemeral perched groundwater may be encountered within the soil profile at times of, and following heavy or extended rainfall.

No springs were listed within 500 m of the site in the NSW Government Hydrography Spatial Data (SEED, 2019).

During the site geotechnical investigation, MA (2022), groundwater inflow was encountered at 1.0 mbgl (1.0 mAHD) during drilling of borehole BH101. MA (2022) adopted a permanent groundwater depth of 0.5 mbgl (approximately 1.5 mAHD), allowing for 0.5 m fluctuation due to seasonal and tidal fluctuations.

Should further information on permanent site groundwater conditions be required, an additional assessment would need to be carried out (i.e., installation of groundwater monitoring bores / ongoing groundwater monitoring).

3 Site Contamination Assessment

3.1 Council Historical Site Records

Eight historical development and / or building records were held by Council for the site. Details are summarised in Table 3.

Table 3: Available Council records.

Lot ID	Year	Record Number	Description
Lot 188 DP 16719	1972	72/62	Factory - Car & Electrical Workshop & Cabinet Making
Lot 188 DP 16719	1973	73/59	Factory - Car & Electrical Workshop & Cabinet Making (Extension & Renewal of)
Lot 188 DP 16719	1974	A336/74	Factory
Lot 188 DP 16719	1983	83/119	Manufacture of Clothing
Lot 188 DP 16719	1983	83/549	Dance and Theatre School
Lot 188 DP 16719	1985	85/39	Unit 1 - Electronics Workshop and Warehouse for Medical Solutions (DA 1984/695)
Lot 188 DP 16719	1985	85/405	Bay 2 - Storage & Distribution
Lot 188 DP 16719	1986	184/86	Factory Fence

3.2 NSW EPA Records

One site within 500 m of the IA was identified on NSW EPA notified contaminated sites. The current status of the site (summarised in Table 4 below) documented on the NSW EPA list states that regulation under the = Contaminated Land Management Act (1997) is currently not required. No further information was currently available at the time of preparing this report in relation to the contaminated status of the adjacent site.

Table 4: Available EPA contaminated lands record information.

Suburb	Address	Site Name	Distance / Direction from Site
North Narrabeen	1503 Pittwater Road, North Narrabeen, NSW.	7 Eleven Service Station	Approximately 40 m {northeast}

3.3 External Potentially Contaminating Activities

Due to its proximity (40 m), the 7 Eleven Service Station site located at 1503 Pittwater Road, North Narrabeen may have impacted groundwater or soils at the site. Contaminates may include hydrocarbons and heavy metals.

3.4 Aerial Photograph Review

Aerial photographs taken of the site during between 1951 and 2022, were reviewed to investigate historical site land uses (Table 5). Copies of aerial photographs are provided in Attachment C.

The aerials indicated that the land was used for residential land use before at least 1951, and a storage yard after 1951 and before 1961. The current site conditions were constructed after 1961 and before 1978.

Table 5: Aerial photograph observations from 1951 to 2022.

Year (Source)	Site Activity	Surrounding Land Use
1951 (HAPE)	The site appeared to consist of a grass covered lot with a possible dwelling near the south east side of the site and trees on the western side of the lot	The site was surrounded by residential properties.
1961 (HAPE)	Potential new building has been constructed in the southern portion of the site. The norther portion appears to have cleared and may contain several sheds.	The site was surrounded by residential properties to the north, east and south, and the property to the west had been used for storage of materials of unknown composition.
1978 (HAPE)	A commercial building with a car park at the rear was present at the site.	Little to no change from previous.
1991 (HAPE)	Little to no change from previous.	The site was surrounded by residential properties to the north, south and east. A commercial building appeared to have been constructed to the west.
1998 (HAPE)	Little to no change from previous.	The Seven Eleven service station had been built to the far northeast of the site.
2005 (HAPE)	Little to no change from previous.	Little to no change from previous.

Year (Source)	Site Activity	Surrounding Land Use
2010 (Nearmap)	Little to no change from previous.	The dwelling located east of the site had been demolished and consisted of a field with multiple trees.
2015 (Nearmap)	Little to no change from previous.	The residential property to the south appeared to have been used for commercial purposes and the property to the east was being used as a car park.
2022 (Nearmap)	Little to no change from previous.	The property to the east consisted of a grass covered field with multiple trees.

3.5 Site Walkover Inspection

Observations during the site walkover inspection on 2 April 2022, are as follows:

- The site consisted of a two storey commercial building with a ground floor carpark and a first floor carpark that is accessible via an elevated ramp.
- The ground surface in front of the building is primarily covered with concrete with a small vegetated area to the west.
- Gondola Road forms the northern boundary of the site.
- Drainage of the site is via overland flow to the Council stormwater network Gondola Road.
- The site is surrounded by a commercial building to the west, commercial and residential buildings to the north, a grass covered field to the east and a commercial operation to the south.

3.6 Subsurface Conditions

The geotechnical investigation, MA (2022), revealed the following generalised subsurface units underlie a concrete pavement of thickness approximately 0.15 m across the site:

Unit A: Fill comprising of sand, encountered up to 1.0 mbgl. Fill is expected to have been placed under uncontrolled conditions for site levelling purposes.

Unit B: Marine deposits comprising:

Unit B1: Very loose and loose sand encountered below fill up to approximately 4.0 mbgl.

Unit B2: Loose to medium dense sand encountered below Unit B1 up to approximately 5.5 mbgl.

Unit B3: Medium dense sand encountered from 5.5 mbgl to investigation termination depth of 9.0 mbgl.

3.7 Conceptual Site Model

3.7.1 Areas of Environmental Concern

Our assessment of potential contamination sources / AECs and associated COPC for the IA was made for the site based on available site history, aerial photograph interpretation and observation made during the site walkover. Table 6 presents potential contamination sources and contaminants of potential concern for the IA.

Table 6: Potential contamination sources and contaminants of potential concern.

AEC	Potential for Contamination	COPC
AEC A Current and former site structures	Pesticides and heavy metals may have been used underneath current and former site structures within the IA for pest control. Building construction may include PACM, zinc treated (galvanised) metals, and lead based paints.	HM, OCP / OPP and asbestos
AEC B Petrol station	The proximity of the adjacent upgradient service station has the potential to impact site groundwater due to long term bulk fuel storage which may have leaked overtime.	HM, TRH, BTEXN, PAH, chlorinated hydrocarbons, phenols, asbestos
AEC C Fill	Fill from unknown sources has the potential to add contamination including hydrocarbons, heavy metals, pesticides and asbestos.	HM, TRH, BTEXN, PAH, OCP / OPP and asbestos
AEC D Former industrial land use (various land uses indicated in Council records)	Potential leakage from historical land use such as car and electrical workshop, cabinet making, clothing manufacturer, electronics workshop and warehouse for medical solutions and storage and distribution had the potential to add contamination including hydrocarbons, heavy metals, pesticides and asbestos, chlorinated solvents and phenols.	HM, TRH, BTEXN, PAH, heavy metals, OCP / OPP, chlorinated hydrocarbons, phenols, asbestos

3.7.2 Potential Exposure Pathways and Receptors

A conceptual site model (CSM), based on the AEC and COPC identified in Table 6, and the associated exposure pathways to potential receptors are summarised in Table 7.

Table 7: Conceptual site model.

<p>Affected Media and Mechanism of Contamination</p>	<p>Site soil and groundwater are considered to be the potential affected media.</p> <p>The potential mechanisms for contamination are most likely to include, top down impacts associated with the sites former industrial land use, the presence of a potentially contaminated fill layer and potential contaminates associated with the current and or former site structures.</p> <p>Deeper subsurface contamination released may also be present which would be associated with the adjacent service station.</p>
<p>Potential Receptors</p>	<p>Potential on site human receptors include current and future site users and visitors, as well as construction and maintenance workers.</p> <p>Potential off site human receptors include current and future users of adjacent land.</p> <p>Potential ecological receptors include ecology within South Creek and potential flora and fauna within the current IA. It however noted that there are currently limited unpaved areas of the IA and therefore likely to be limited onsite ecological receptors.</p>
<p>Potential Exposure Pathways</p>	<p>Potential exposure pathways include:</p> <ul style="list-style-type: none"> ○ Direct dermal exposure. ○ Ingestion or inhalation of dust and / or vapours primarily during construction and excavation works. ○ Vapour intrusion into proposed building.

3.7.3 CSM Discussion

The CSM has identified AECs which have the potential to impact site soil and groundwater.

The proposed development involves construction of a new 4 storey building and 4 m deep basement carpark. Existing structures within the IA are to be demolished and warrant further testing.

4 Discussion and Conclusion

This PSI was completed to support a DA for a proposed four storey mixed use development with a 4 m deep basement carpark, as outlined in Section 1.2.

The review of the site history indicated that the IA consisted of a dwelling before at least 1951, and a storage yard sometime after 1951 and before 1978. The current site conditions were constructed after 1961 and before 1978.

A CSM (Section 3.6) was developed for the IA based on historical aerials and document review, as well as site walkover, which identified five potential contamination risks to future receptors:

- Fill of unknown origin potentially placed during construction of the site.
- Building materials and pest control associated with the current and former site structures.
- Migration of contaminants from the 7 Eleven service station located northeast of the site.
- Site land use including car and electrical workshop, cabinet making, "factory", manufacturing of clothing, storage and distribution warehouse.

Acid sulfate soil testing was completed at the site by MA (2022). Laboratory test results indicate that three of the tested soil samples exceed the action criteria for the acid trail and sulfur trail. MA (2022) recommended that in accordance with ASSMAC (1998), a management plan will be required for the site if soils are to be disturbed during construction works.

Both soil and groundwater within the IA are considered to be a potential contamination risk to future site receptors. We recommend that following demolition, a soil and groundwater sampling program is completed to confirm that no contamination is present.

5 Recommendations

Prior to the proposed development, assessment of the AEC and COPC as noted in this PSI should be undertaken.

To address potential identified AEC and COPC, a Detailed Site Investigation (DSI) including intrusive soil and groundwater sampling and analysis of COPC is recommended. Following demolition, testing under dwelling and shed footprints (plus 1 - 2 m curtilage) is recommended to determine any residual impacts from previous use.

The DSI is to be developed in accordance with NSW EPA (1995) *Sampling Design Guidelines* and a risk based assessment. Assessment shall address each of the identified AEC and associated COPC identified in Table 6. Results of the site testing shall be assessed against site acceptance criteria (SAC) developed with reference to ASC NEPM (2013).

If any soil material is removed from site, a formal waste classification assessment shall be required in accordance with the NSW EPA Waste Classification Guidelines (2014).

If any unexpected finds (such as PACM, odours or soil staining) are encountered during site works, the unexpected find will require assessment by MA to determine requirements for additional investigation and / or remedial action.

6 Limitations Statement

The PSI was undertaken in line with current industry standards.

It is important, however, to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land uses. Therefore, this report should not be read as a guarantee that no contamination shall be found on the site. Should material be exposed in future which appears to be contaminated or inconsistent with natural site soils, additional testing may be required to determine the implications for the site.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of the current development proposal. No reliance on this report should be made for any other investigation or proposal. Martens & Associates Pty Ltd accepts no responsibility and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

7

References

ASC NEPM (1999, amended 2013) *National Environmental Protection (Assessment of Site Contamination) Measure, 2013.*

Acid Sulfate Soil Management Advisory Committee (1998) *Acid Sulfate Soil Manual.*

Herbert C. (1983) Sydney 1:100 000 Geological Sheet 9130, 1st edition. Geological Survey of New South Wales, SydneyNearmap – Aerial photographs.

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NSW EPA (2017) 3rd Ed. *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.*

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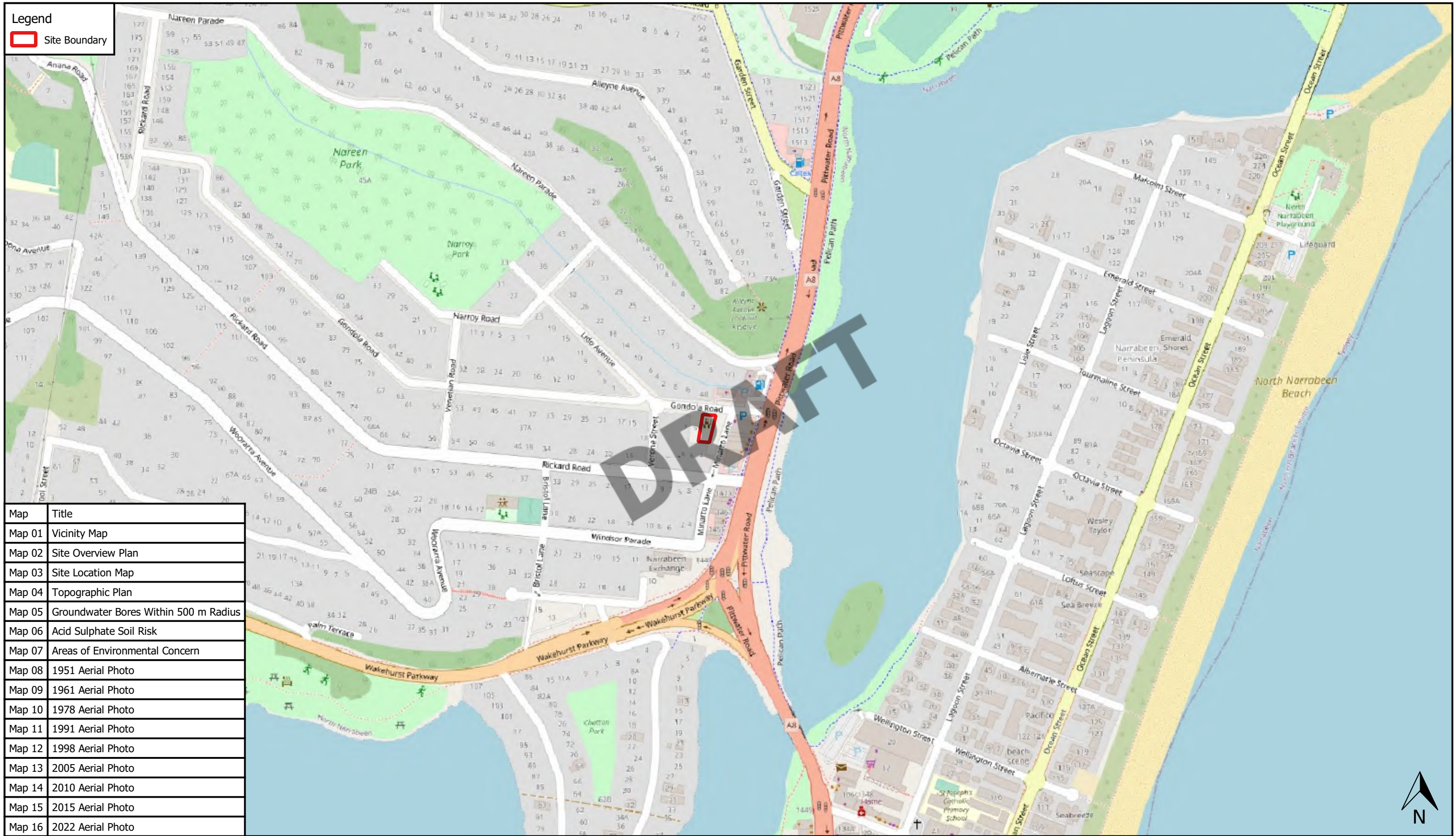
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True North Survey Group (2021) *Plan of Detail Over No. 3 Gondola Rd., North Narrabeen, NSW, 2101.*

WaterNSW Real-Time Water Database,
<https://realtimedata.waternsw.com.au/water.stm>.

Attachment A: Figures



Map	Title
Map 01	Vicinity Map
Map 02	Site Overview Plan
Map 03	Site Location Map
Map 04	Topographic Plan
Map 05	Groundwater Bores Within 500 m Radius
Map 06	Acid Sulphate Soil Risk
Map 07	Areas of Environmental Concern
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Map 09	1961 Aerial Photo
Map 10	1978 Aerial Photo
Map 11	1991 Aerial Photo
Map 12	1998 Aerial Photo
Map 13	2005 Aerial Photo
Map 14	2010 Aerial Photo
Map 15	2015 Aerial Photo
Map 16	2022 Aerial Photo

0 60 120 180 240 300 m

1:5000 @ A3

Aerial Photo Source: Nearmap

Map Title / Figure:

Vicinity Map



Legend
 Site Boundary

0 60 120 180 240 300 m

1:5000 @ A3

Aerial Photo Source: Nearmap



Map Title / Figure:

Site Overview Plan

Legend
Site Boundary



0 3 6 9 12 15 m

1:250 @ A3

Aerial Photo Source: Nearmap

Map Title / Figure:
Site Location Map

Map 03	Map
3 Gondola Road, North Narrabeen, NSW.	Site
Preliminary Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Brett Crowther C/o Mackenzie Architects International	Client
22/04/2022	Date



Legend
 [Red Box] Site Boundary
 [Yellow Line] Contour Interval (0.5 m)

0 3 6 9 12 15 m

1:250 @ A3

Aerial Photo Source: Nearmap; Topographic Data Source: ELVIS.

Project No: P2108694 Map Set: MS01-R01 EPSG: 28356 © Martens & Associates Pty Ltd | E mail: martens.com.au | WEB: www.martens.com.au

Map Title / Figure:
Topographic Plan



Map 04	Map
3 Gondola Road, North Narrabeen, NSW.	Site
Preliminary Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Brett Crowther C/o Mackenzie Architects International	Client
22/04/2022	Date

Legend

- Site Boundary
- EPI_Acid_Sulfate_Soils
- Class 3



0 3 6 9 12 15 m

1:250 @ A3



Aerial Photo Source: HAPE

Map Title / Figure:
Acid Sulphate Soil Risk

<p>Map 06</p> <p>3 Gondola Road, North Narrabeen, NSW.</p> <p>Preliminary Geotechnical Assessment</p> <p>Preliminary Site Investigation</p> <p>Brett Crowther C/o Mackenzie Architects International</p> <p>22/04/2022</p>	<p>Map</p> <p>Site</p> <p>Project</p> <p>Sub-Project</p> <p>Client</p> <p>Date</p>
---	--

Attachment B: Areas of Environmental Concern

Legend

-  AECs A to E
-  Site Boundary



0 3 6 9 12 15 m

1:250 @ A3

Aerial Photo Source: HAPE

Map Title / Figure:

Areas of Environmental Concern

<p>Map 07</p> <p>3 Gondola Road, North Narrabeen, NSW.</p> <p>Preliminary Geotechnical Assessment</p> <p>Preliminary Site Investigation</p> <p>Brett Crowther C/o Mackenzie Architects International</p> <p>22/04/2022</p>	<p>Map</p> <p>Site</p> <p>Project</p> <p>Sub-Project</p> <p>Client</p> <p>Date</p>
---	--

Attachment C: Aerial Photography

Legend
Site Boundary



0 9 18 27 36 45 m

1:750 @ A3

Aerial Photo Source: HAPE

Map Title / Figure:
1951 Aerial Photo

Map 08	Map
3 Gondola Road, North Narrabeen, NSW.	Site
Preliminary Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Brett Crowther C/o Mackenzie Architects International	Client
22/04/2022	Date

Legend
Site Boundary



0 9 18 27 36 45 m

1:750 @ A3

Aerial Photo Source: HAPE



Map Title / Figure:
1961 Aerial Photo

Legend
Site Boundary



0 9 18 27 36 45 m

1:750 @ A3

Aerial Photo Source: HAPE



Map Title / Figure:
1978 Aerial Photo

Legend
 Site Boundary



0 9 18 27 36 45 m

1:750 @ A3

Aerial Photo Source: HAPE



Map Title / Figure:
1991 Aerial Photo

Legend
Site Boundary



0 9 18 27 36 45 m

1:750 @ A3

Aerial Photo Source: HAPE



Map Title / Figure:
1998 Aerial Photo

Legend
Site Boundary



0 9 18 27 36 45 m

1:750 @ A3

Aerial Photo Source: HAPE



Map Title / Figure:
2005 Aerial Photo

Legend
Site Boundary



0 3 6 9 12 15 m

1:250 @ A3

Aerial Photo Source: Nearmap

Map Title / Figure:
2010 Aerial Photo

Map 14	Map
3 Gondola Road, North Narrabeen, NSW.	Site
Preliminary Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Brett Crowther C/o Mackenzie Architects International	Client
22/04/2022	Date

Legend
Site Boundary



0 3 6 9 12 15 m

1:250 @ A3

Aerial Photo Source: Nearmap

Map Title / Figure:
2015 Aerial Photo

Map 15	Map
3 Gondola Road, North Narrabeen, NSW.	Site
Preliminary Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Brett Crowther C/o Mackenzie Architects International	Client
22/04/2022	Date

Legend
Site Boundary



0 3 6 9 12 15 m

1:250 @ A3

Aerial Photo Source: Nearmap

Map Title / Figure:
2022 Aerial Photo

Map 16	Map
3 Gondola Road, North Narrabeen, NSW.	Site
Preliminary Geotechnical Assessment	Project
Preliminary Site Investigation	Sub-Project
Brett Crowther C/o Mackenzie Architects International	Client
22/04/2022	Date

Attachment D: Proposed Development Plans

3 GONDOLA RD, NORTH NARRABEEN DEVELOPMENT APPLICATION



DRAWING NAME		SCALE
A0000 GENERAL INFO		
A0000	COVER PAGE	
A0001	SITE ANALYSIS	
A1000 GA PLANS		
A1000	SITE PLAN	1:500
A1001	BASEMENT 1	1:100
A1002	LOWER GROUND FLOOR	1:100
A1003	UPPER GROUND FLOOR	1:100
A1004	FIRST FLOOR PLAN	1:100
A1005	SECOND FLOOR	1:100
A1006	ROOFTOP/COS	1:100
A2000 ELEVATIONS + SECTIONS		
A2000	NORTH + EAST ELEVATIONS	1:200
A2001	SOUTH +WEST ELEVATION	1:200
A2100	SECTION A	1:200
A2101	SECTION B	1:200
A2102	SECTION C	1:200
A3 ADDITIONAL INFORMATION		
A3000	GFA CALCULATIONS	1:250
A3001	DEEP SOIL & LANDSCAPE	
A3002	COS COMPLIANCE	
A3003	BUILDING HEIGHT PLANE	
A3004	NATURAL VENTILATION	1:200
A3005	FINISHES SCHEDULE	
A3006	PRE-ADAPTABLE (SILVER)	1:50
A3007	POST-ADAPTABLE LAYOUT	1:50
A3008	TRAVEL DISTANCE	1:250
A4000 SOLAR ACCESS		
A4000	JUN 21 SOLAR ACCESS	1:500
A4001	JUN 21 SOLAR ACCESS	1:500
A4002	JUN 21 SOLAR ACCESS	1:500
A4003	JUN 21 SOLAR ACCESS	1:500
A4100 SHADOW DIAGRAMS		
A4100	JUN 21 SHADOW DIAGRAM 9 AM	1:500
A4101	JUN 21 SHADOW DIAGRAM 12 PM	1:500
A4102	JUN 21 SHADOW DIAGRAM 3 PM	1:500

UNIT SCHEDULE						
	UNIT No.	BDRMS	AREA m2	POS (m2)	IN UNIT STORAGE	BASEMENT STORAGE
FIRST FLOOR						
	U101	2 B	85.29	12.32	5.47	14.41
	U102	2 B	87.58	10.69	5.43	24.99
	U103 (s) (a)	2 B	89.41	10.03	5.14	27.97
	U104	2 B	75.02	10.20	4.47	24.53
SECOND FLOOR						
	U201	2 B	85.29	12.32	5.47	23.64
	U202	2 B	87.58	10.69	5.43	13.25
	U203 (s) (a)	2 B	89.41	10.03	5.14	19.24
	U204	2 B	75.02	10.20	4.47	26.83

ADAPTABLE = AS4299 CLASS C REQUIREMENT
LHD SILVER = LIVABLE HOUSING DESIGN GUIDELINES 'SILVER LEVEL'

PITTWATER 21 DCP SECTION B6.3

SHOP TOP HOUSING	Minimum Number of Car Spaces 1 bedroom dwellings 1 space per dwelling 2 or more bedroom dwellings 2 spaces per dwelling Adaptable Housing in accordance with control C1 9 of the Pittwater 21 Development Control Plan. 1 space per dwelling in accordance with AS 4299-1995: Adaptable Housing. The provision of parking for people with disabilities must be provided at a rate of 3% of the required parking spaces, excluding parking required for Adaptable Housing. Separate visitor parking is to be provided at a rate of 1 space per 3 dwellings rounded up. Provision must be made for garbage collection, removalist vans and emergency vehicles.	1 BICYCLE RACK / 3 DWELLING
------------------	--	-----------------------------

COMMERCIAL PREMISES	2.5 car parking spaces per 100m ² Gross Lettable Area (GLA) Provision of accessible parking spaces for people with disabilities must be at the rate of 3% of required car parking spaces and must be appropriately signposted. Where the Gross Floor Area (GFA) exceeds 400m ² , provision is to be made for: Delivery vehicles at 1 space per 4000m ² GFA or 1 space whichever is greater; Courier parking at 1 space per 1000m ² GFA or 1 space, whichever is greater.	>200 m ² PREMISE MIN. 4 BICYCLE RACKS 1 MOTORCYCLE PER 100 MOTOR VEHICLE REQUIRED
---------------------	--	---

RESI CAR SPACE CALCULATION	COMM CAR CALCULATION
6 UNITS @ 2 BEDROOM 12	119 m ² (INCLD. ACCESSIBLE SPACE) 2.9
2 ADAPTABLE UNITS @ 2 CARS 4	1
ACCESSIBLE SPACE 0.4	
VISITOR SPACE 2.6	
TOTAL RESIDENTIAL CAR 19	TOTAL COMM CAR 3.4 ~ 3
TOTAL BICYCLE RACK 2.7 ~ 3	TOTAL BICYCLE RACK 4
	TOTAL MOTORCYCLE 1

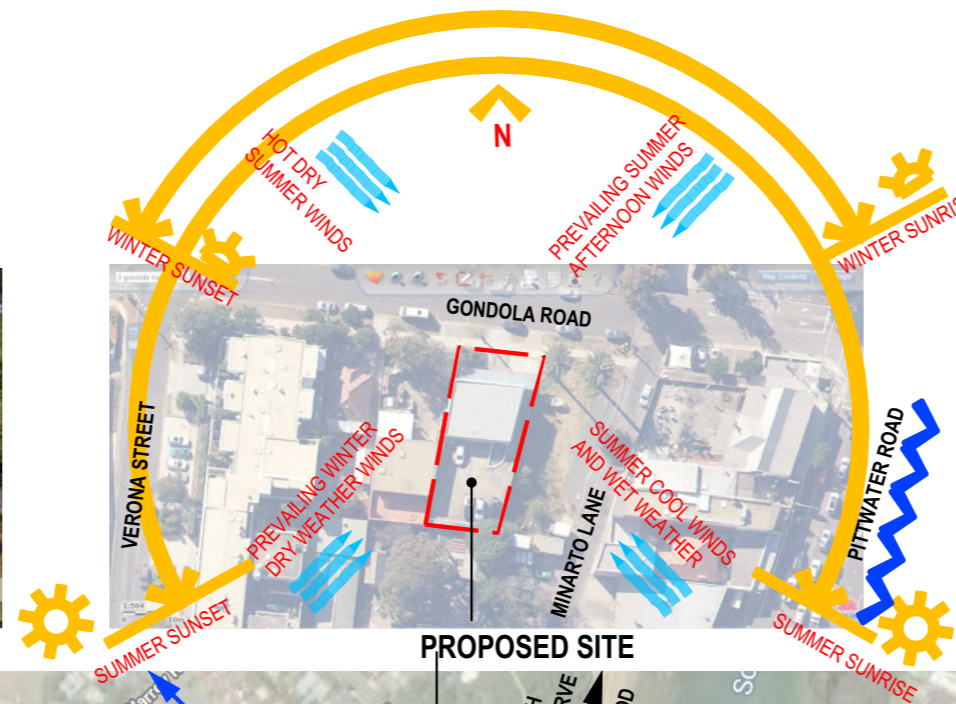
SITE AREA (m2)	638.7
ZONING	B2 (LOCAL CENTRE)
PARKING BAYS PROPOSED	22
TOTAL GFA (m2)	1,019.8
FSR	1.6
TOTAL UNITS	8

LEGEND

- SITE BOUNDARY
- ~ NOISE FROM TRAFFIC
- ☀ SOLAR PATH



GONDOLA ROAD TOWARDS PITTWATER ROAD



PROPOSED SITE



PROPOSED SITE FROM GONDOLA ROAD



PROPOSED SITE

PROPOSED SITE

PROPOSED SITE



INTERSECTION OF VERONA ST AND GONDOLA RD



FROM SITE LOOKING TO THE WEST



INTERSECTION OF PITTWATER ROAD AND GONDOLA ROAD



LEGEND

- SITE BOUNDARY
- EXISTING BLDG
- BASEMENT LINE
- BLDG ABOVE



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Nominated Architect No.6033
ABN 78 091 101 201
ACN 091107201

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PROJECT
Development Application
3 GONDOLA RD
NORTH NARRABEEN
NSW 2101, AUSTRALIA

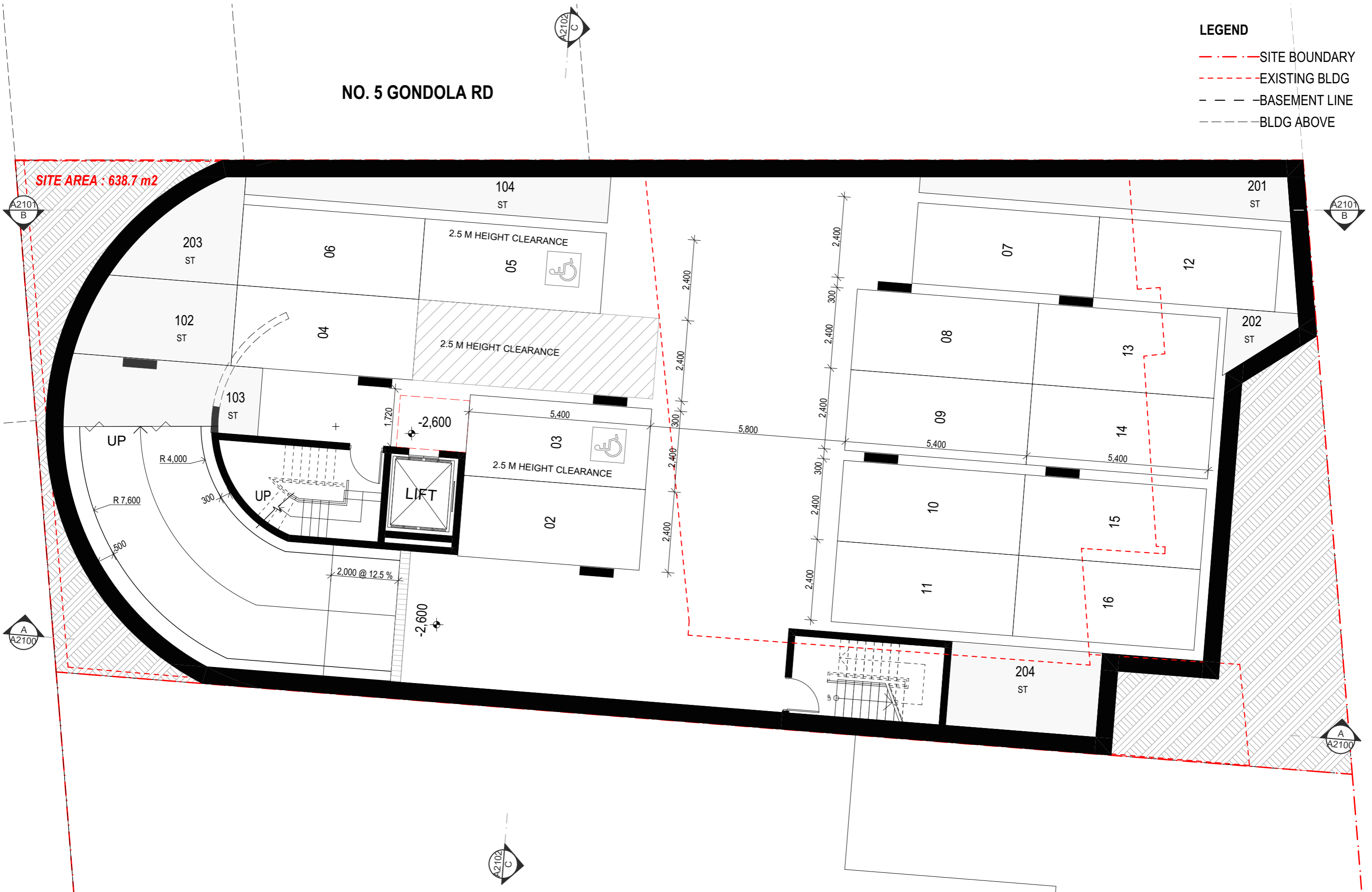
DRAWING:
SITE PLAN

SCALE: 1:500@A3	DRAWING NO.: A1000	ISSUE: DA
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NO. 5 GONDOLA RD

- LEGEND**
- - - - SITE BOUNDARY
 - - - - EXISTING BLDG
 - - - - BASEMENT LINE
 - - - - BLDG ABOVE

SITE AREA : 638.7 m²



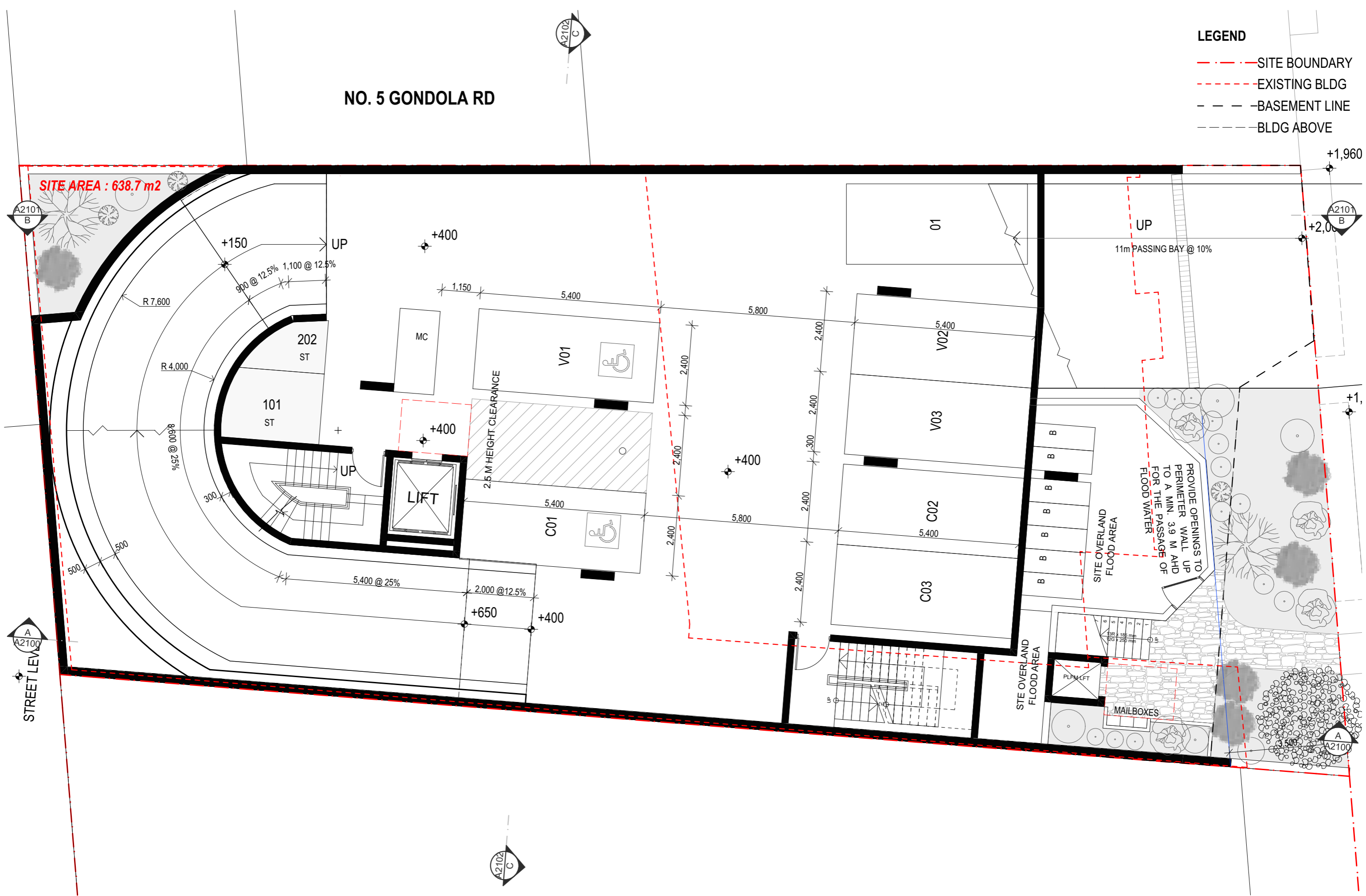
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NO. 5 GONDOLA RD

LEGEND

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- - - - - EXISTING BLDG
- - - - - BASEMENT LINE
- - - - - BLDG ABOVE

SITE AREA : 638.7 m²

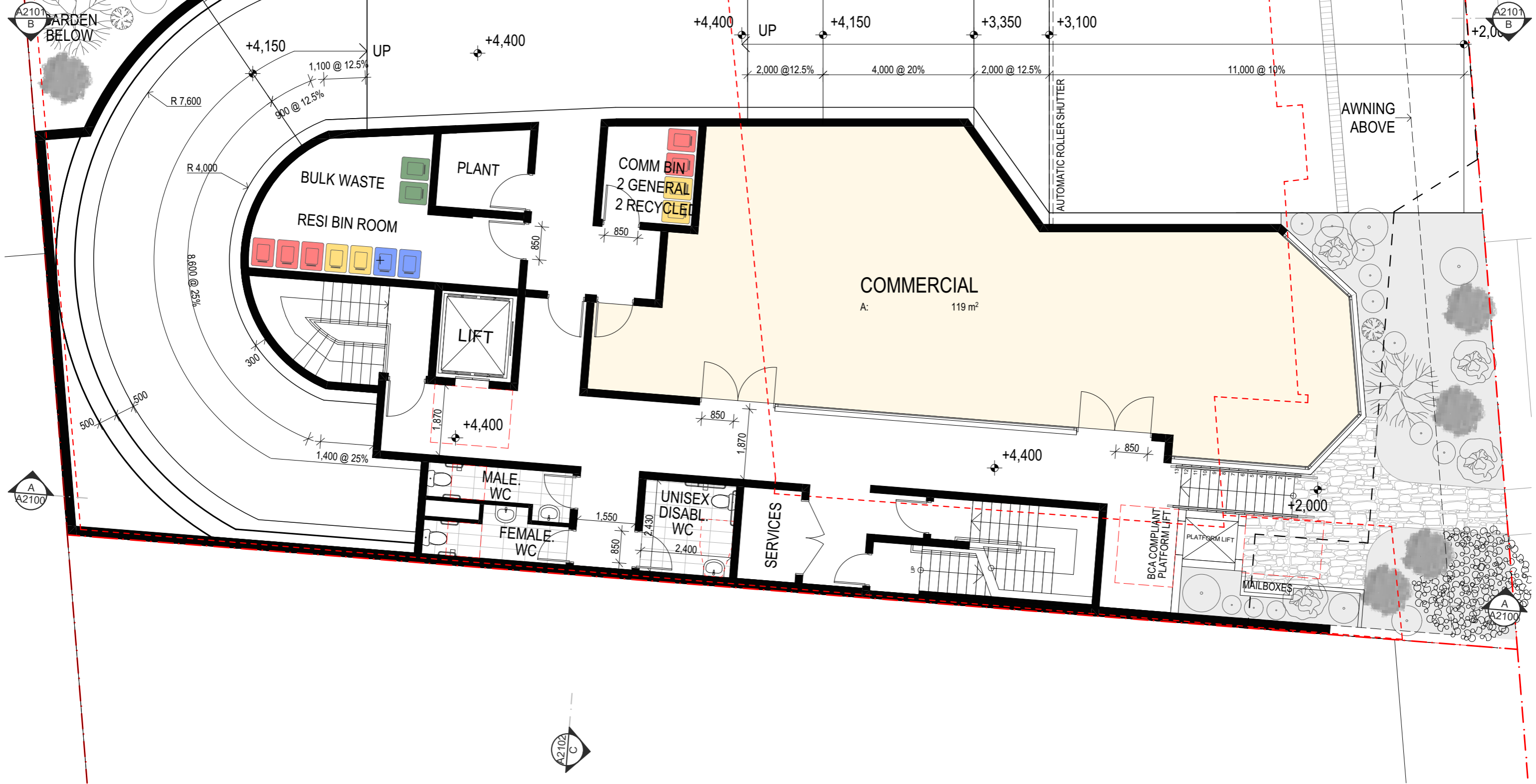


NO. 5 GONDOLA RD

LEGEND

- - - - - SITE BOUNDARY
- - - - - EXISTING BLDG
- - - - - BASEMENT LINE
- - - - - BLDG ABOVE

SITE AREA : 638.7 m²



NO. 5 GONDOLA RD

LEGEND

- - - SITE BOUNDARY
- - - EXISTING BLDG
- - - BASEMENT LINE
- - - BLDG ABOVE

SITE AREA : 638.7 m²

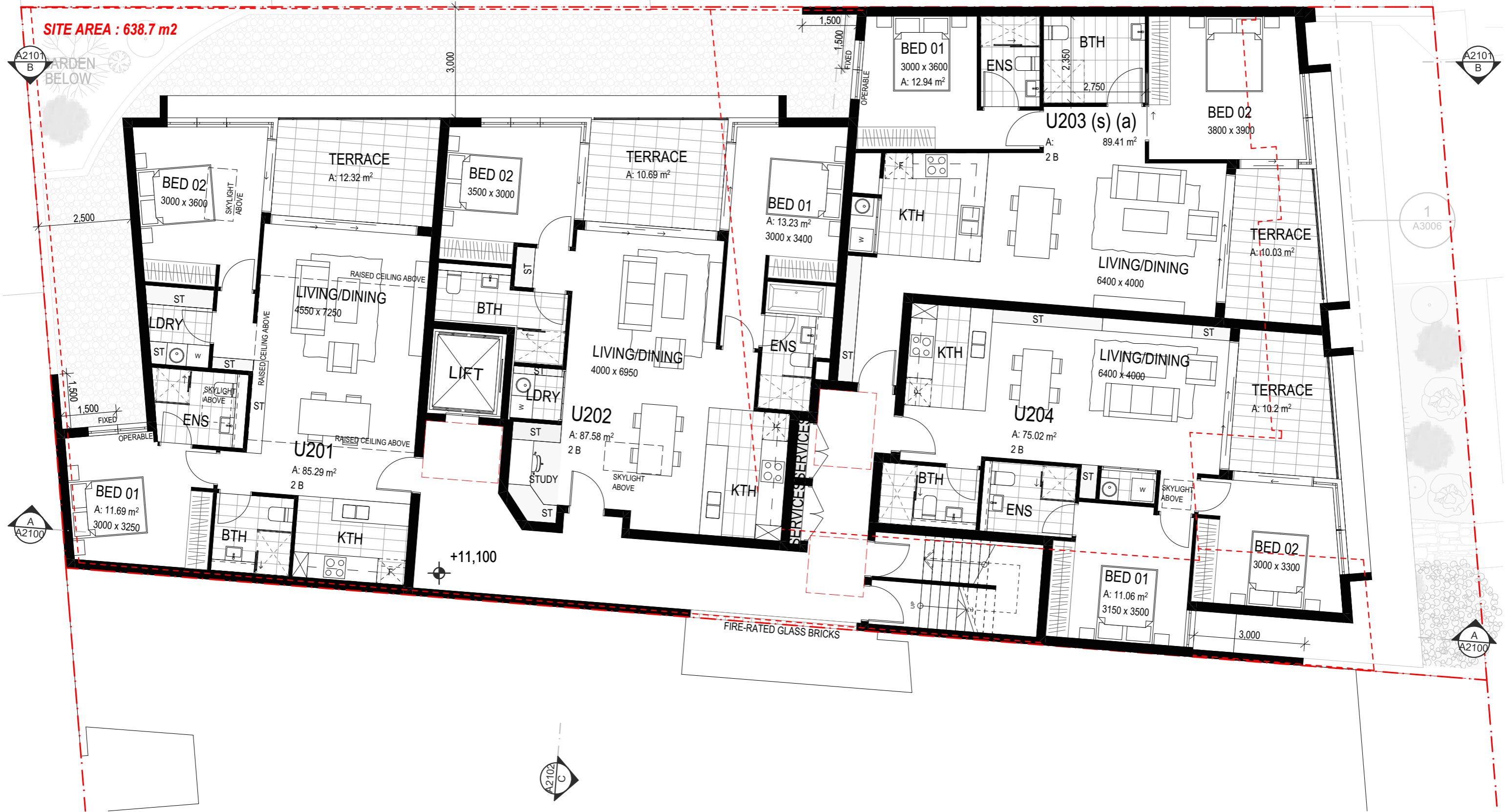


NO. 5 GONDOLA RD

LEGEND

- SITE BOUNDARY
- EXISTING BLDG
- BASEMENT LINE
- BLDG ABOVE

SITE AREA : 638.7 m²



NO. 5 GONDOLA RD

LEGEND

- - - SITE BOUNDARY
- - - EXISTING BLDG
- - - BASEMENT LINE
- - - BLDG ABOVE

SITE AREA : 638.7 m²

A2101
B

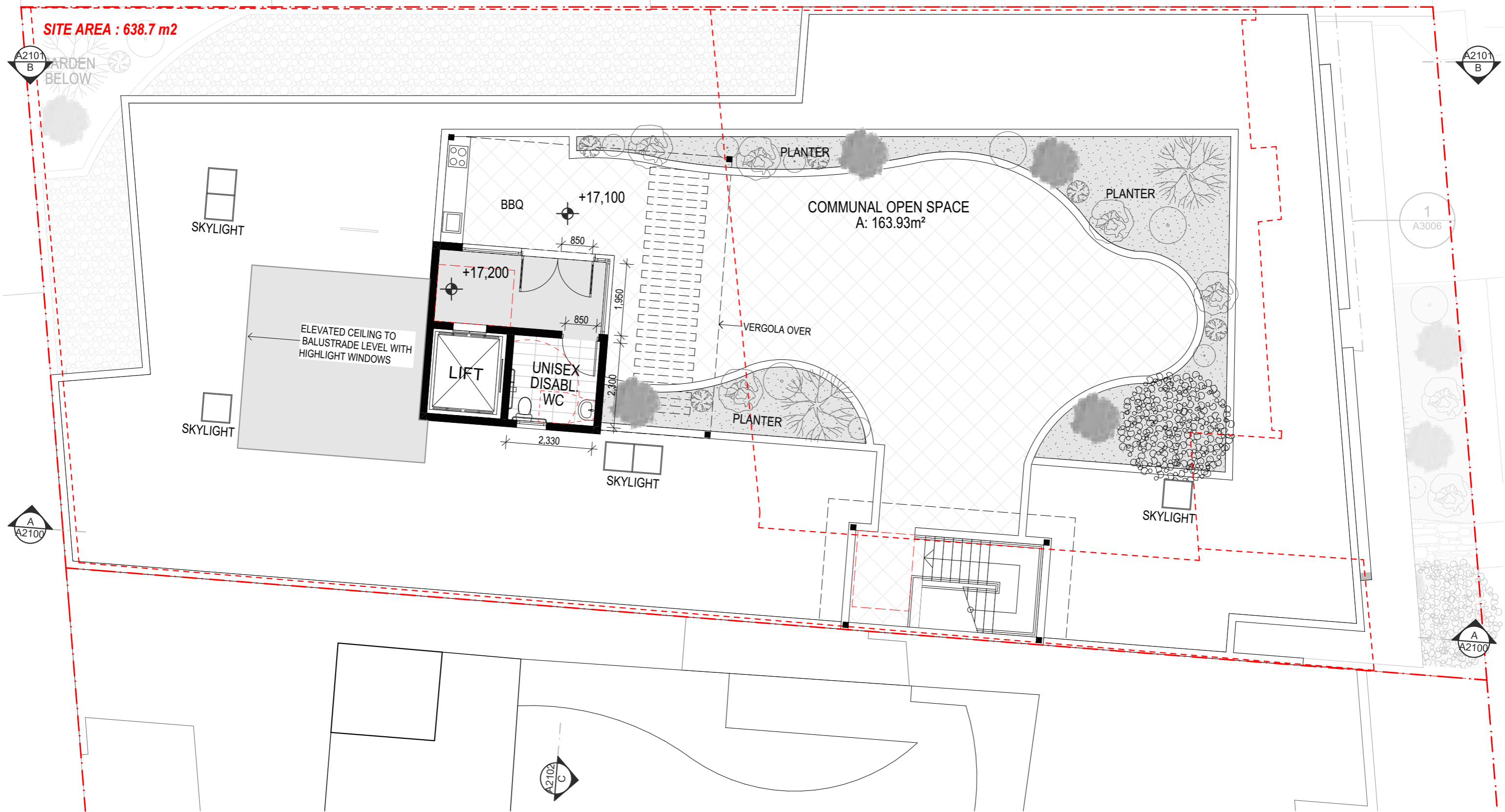
A2101
B

A
A2100

A
A2100

A2102
C

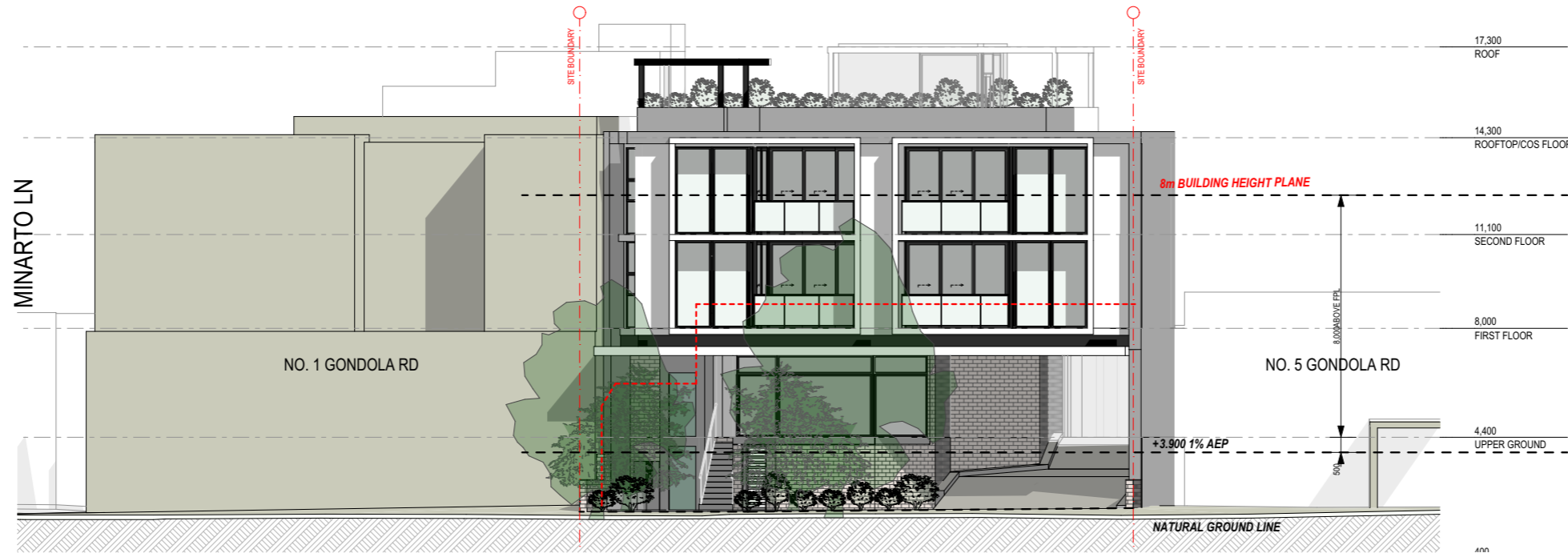
A2102
C



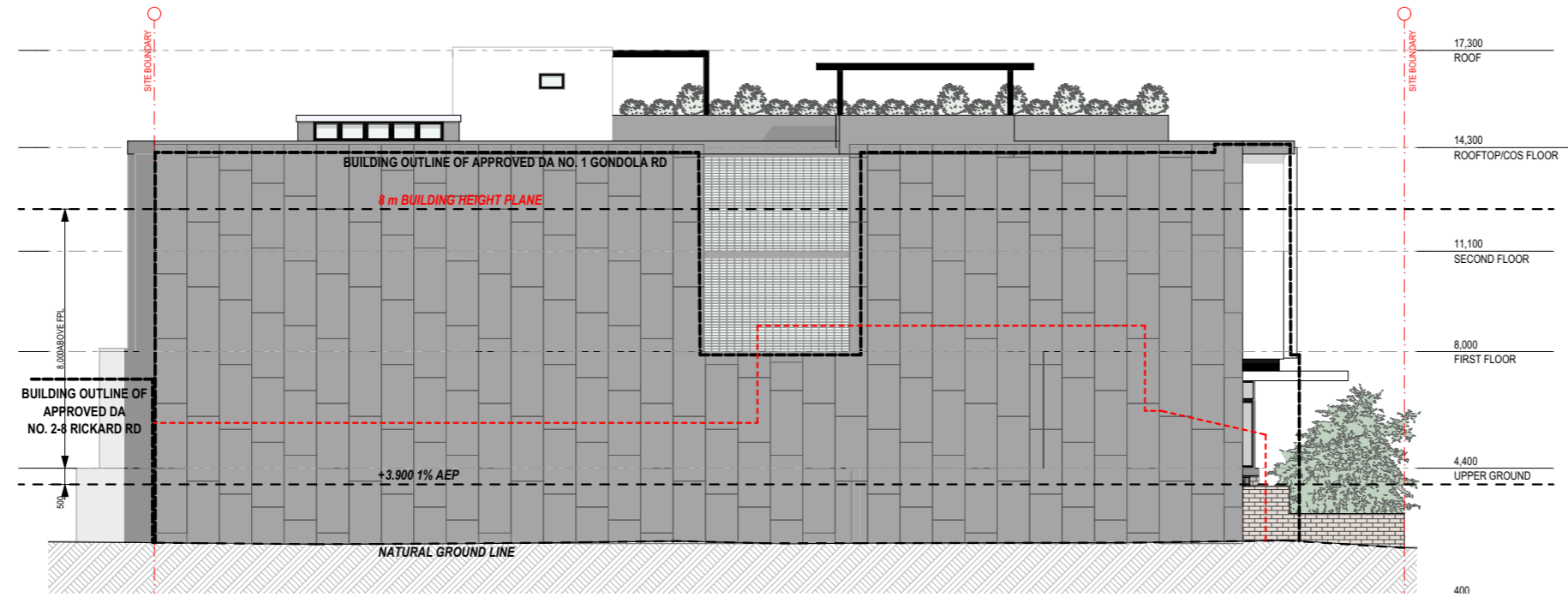
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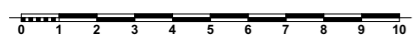
- - - - - SITE BOUNDARY
- - - - - EXISTING BLDG




NORTH ELEVATION



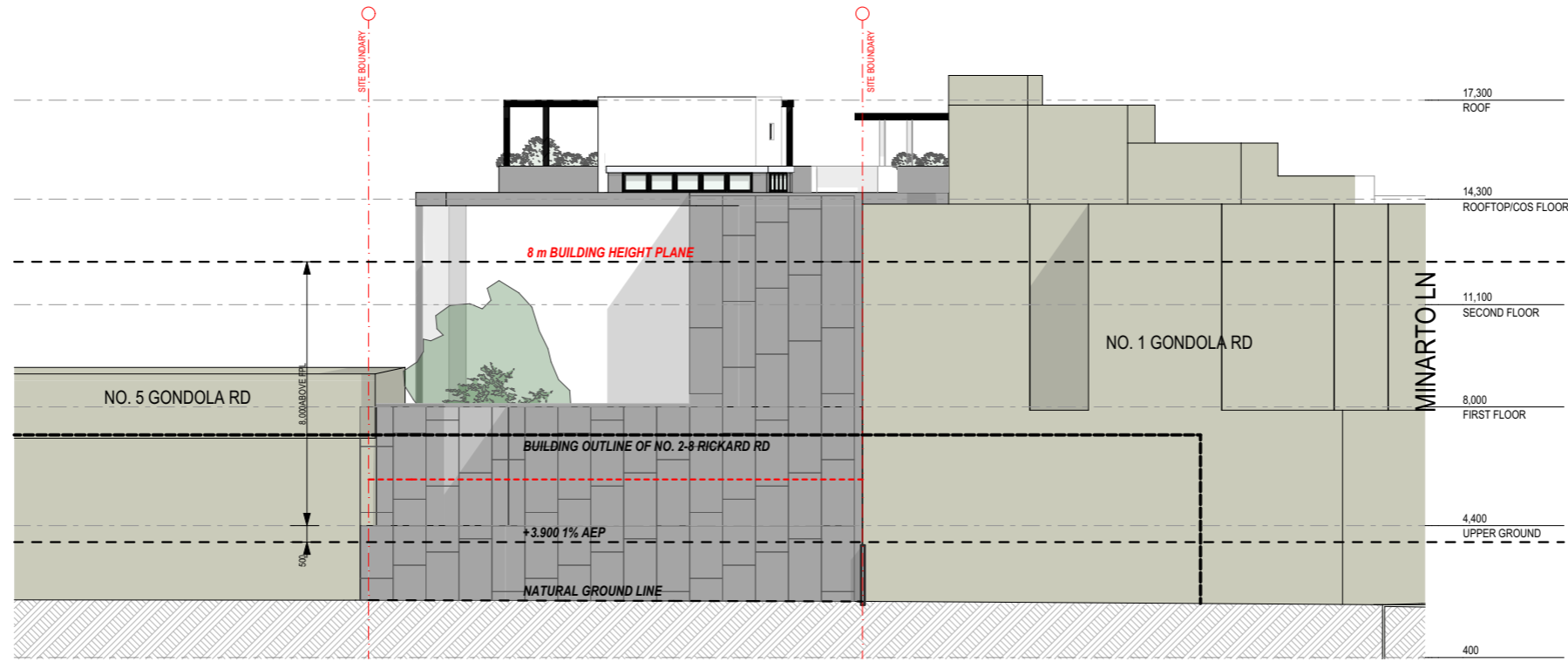
EAST ELEVATION



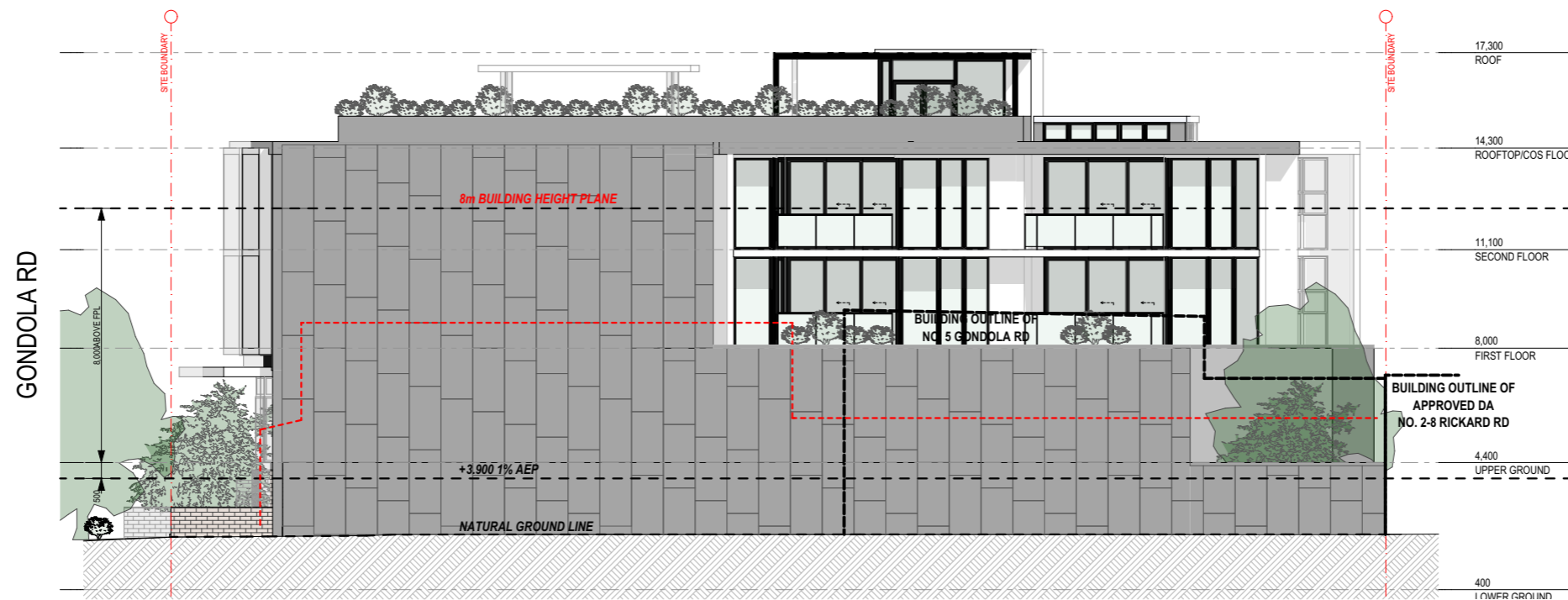
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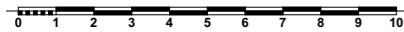
- - - - - SITE BOUNDARY
- - - - - EXISTING BLDG



SOUTH ELEVATION



WEST ELEVATION



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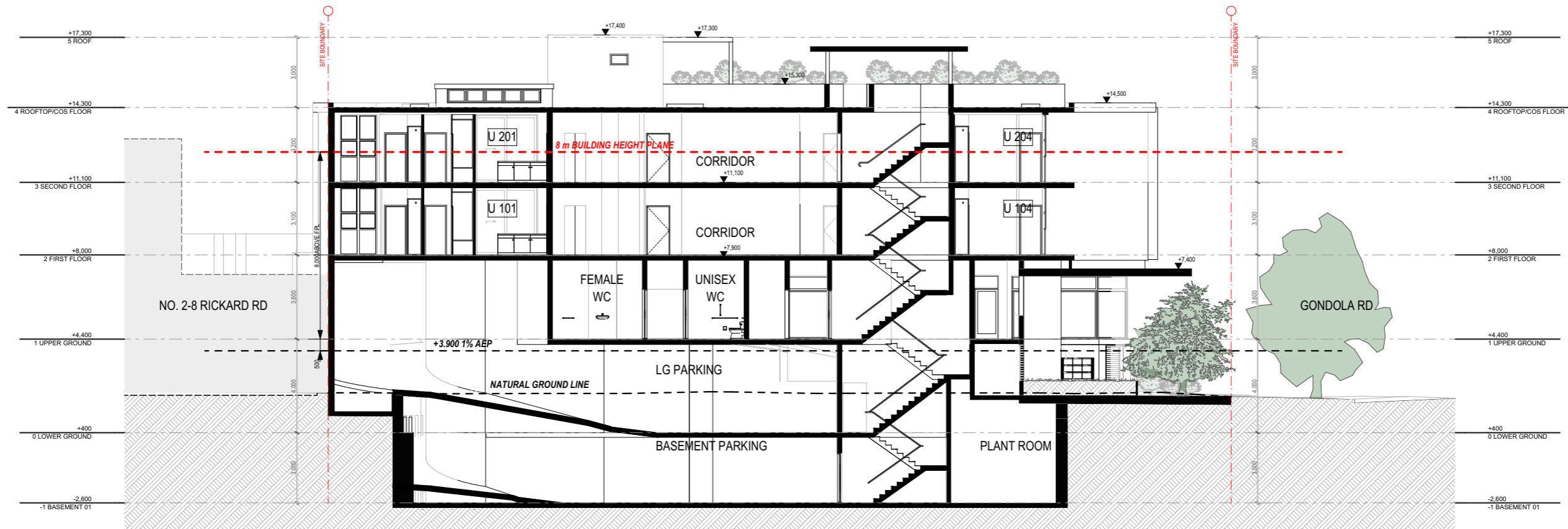
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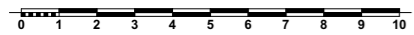
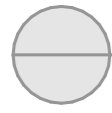
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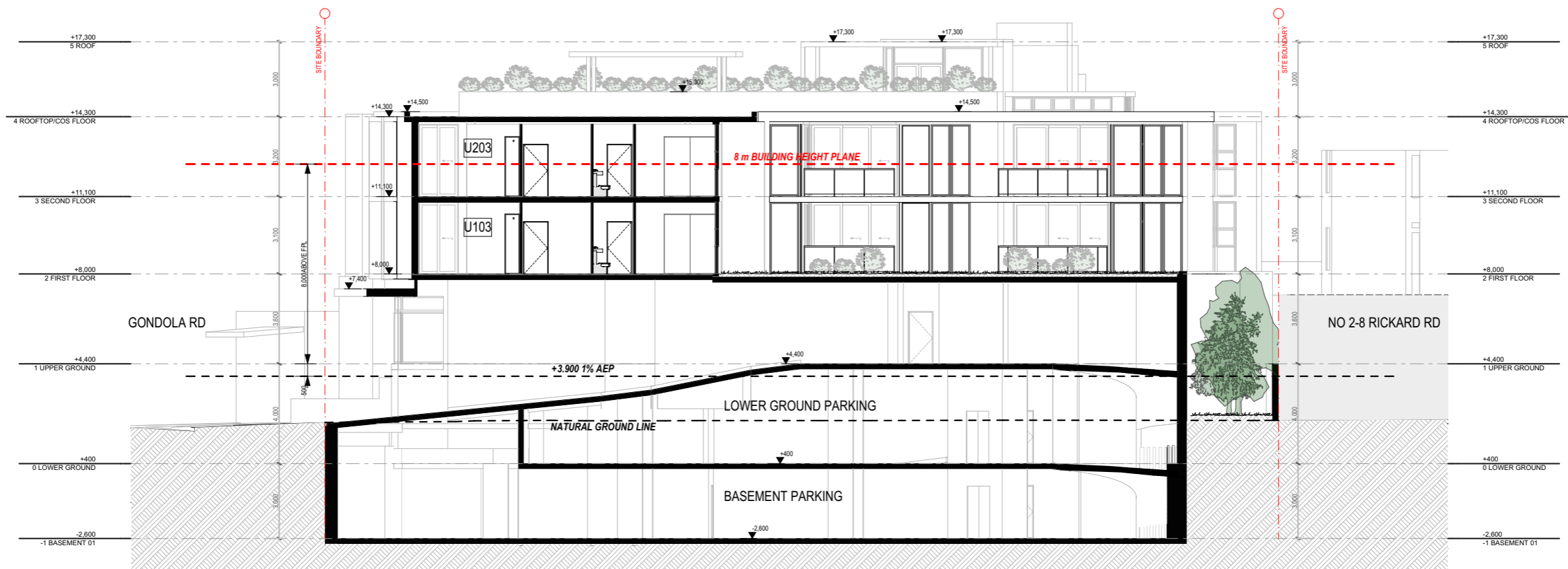
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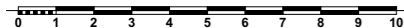
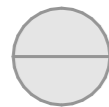
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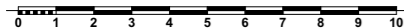
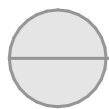
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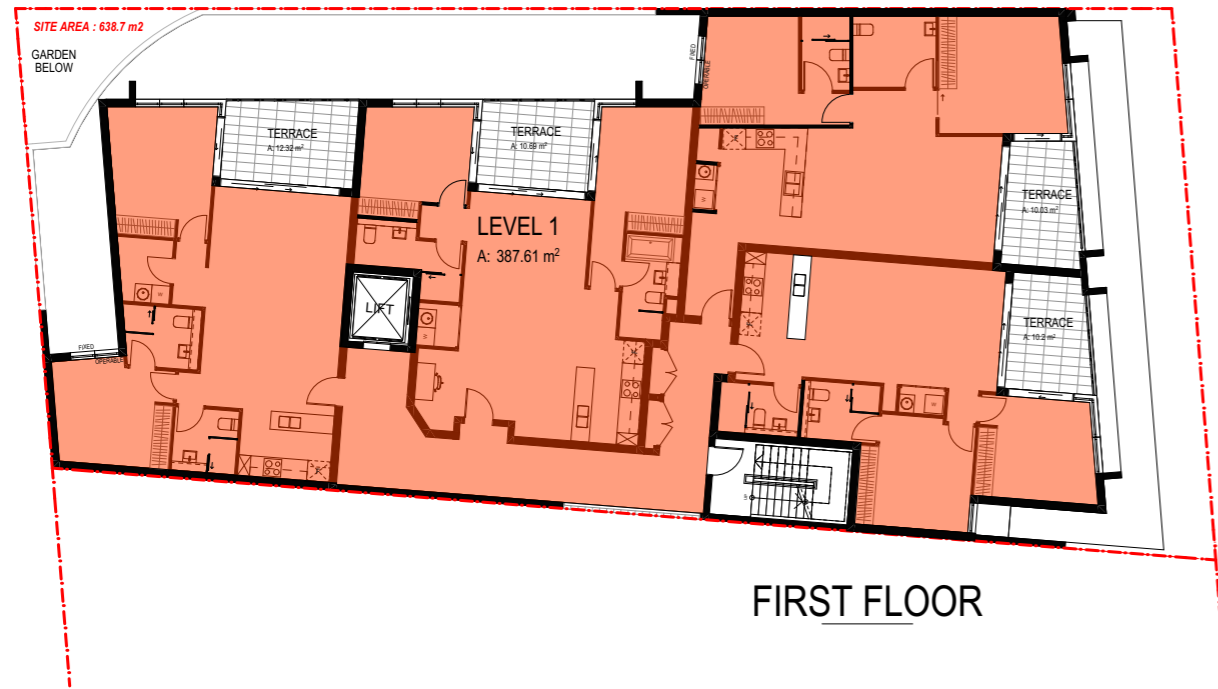
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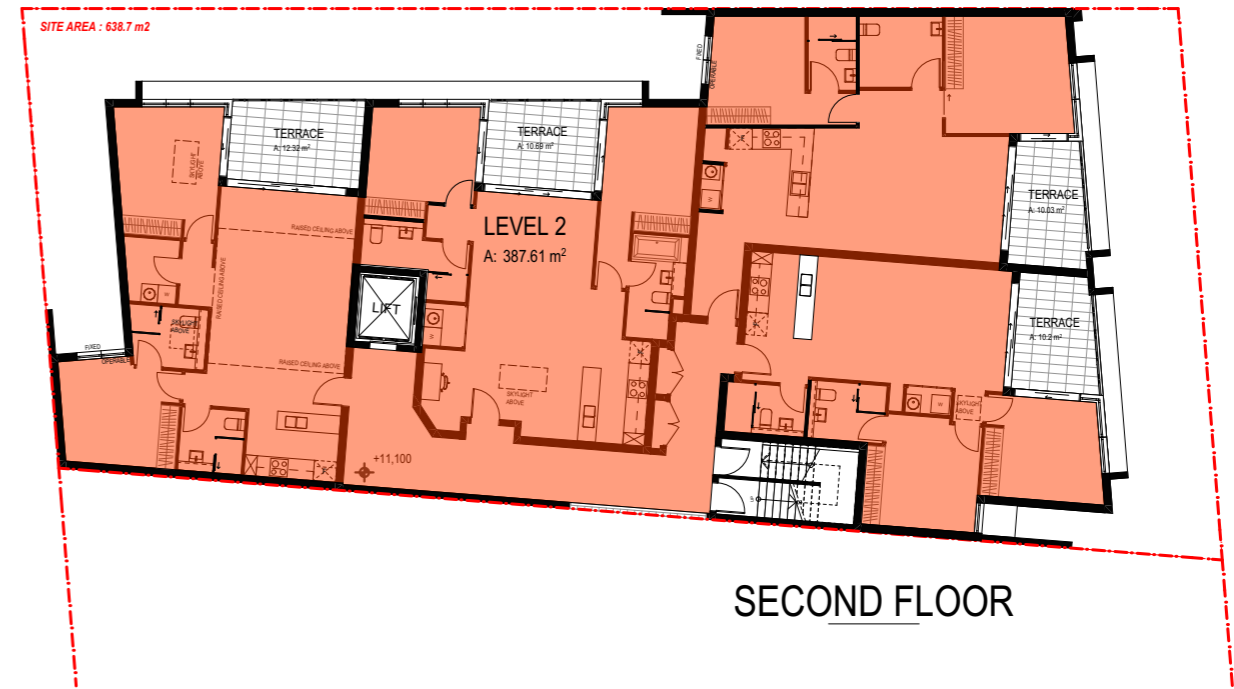


SECTION C

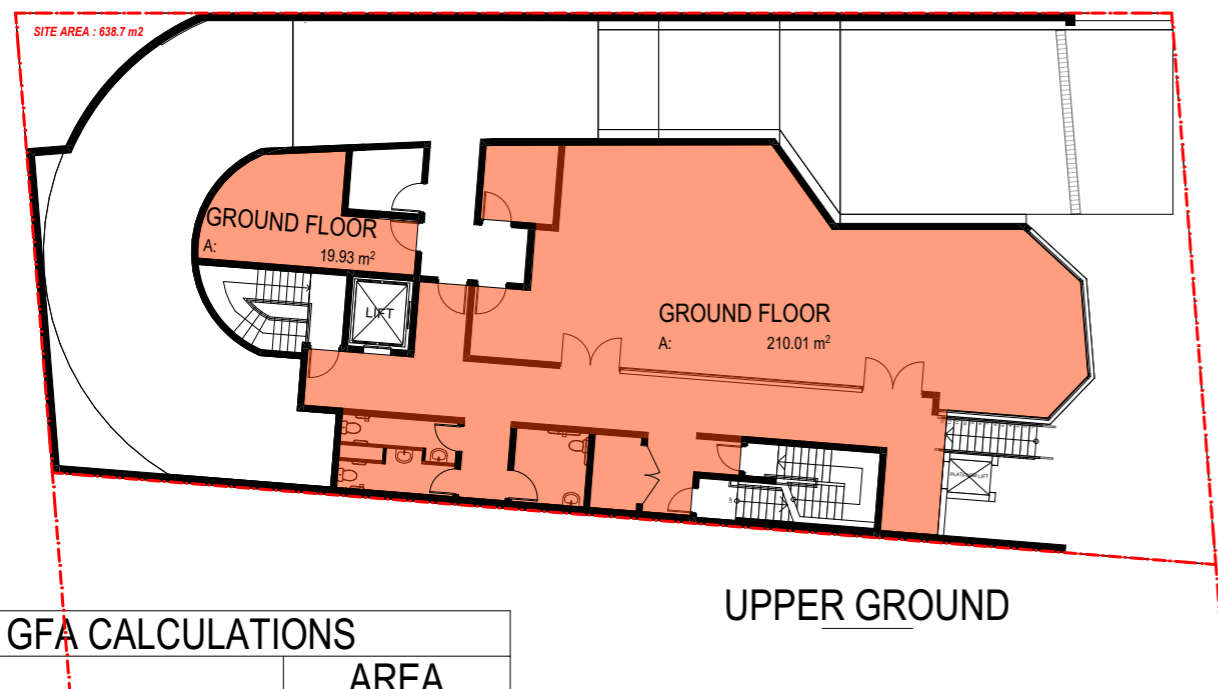




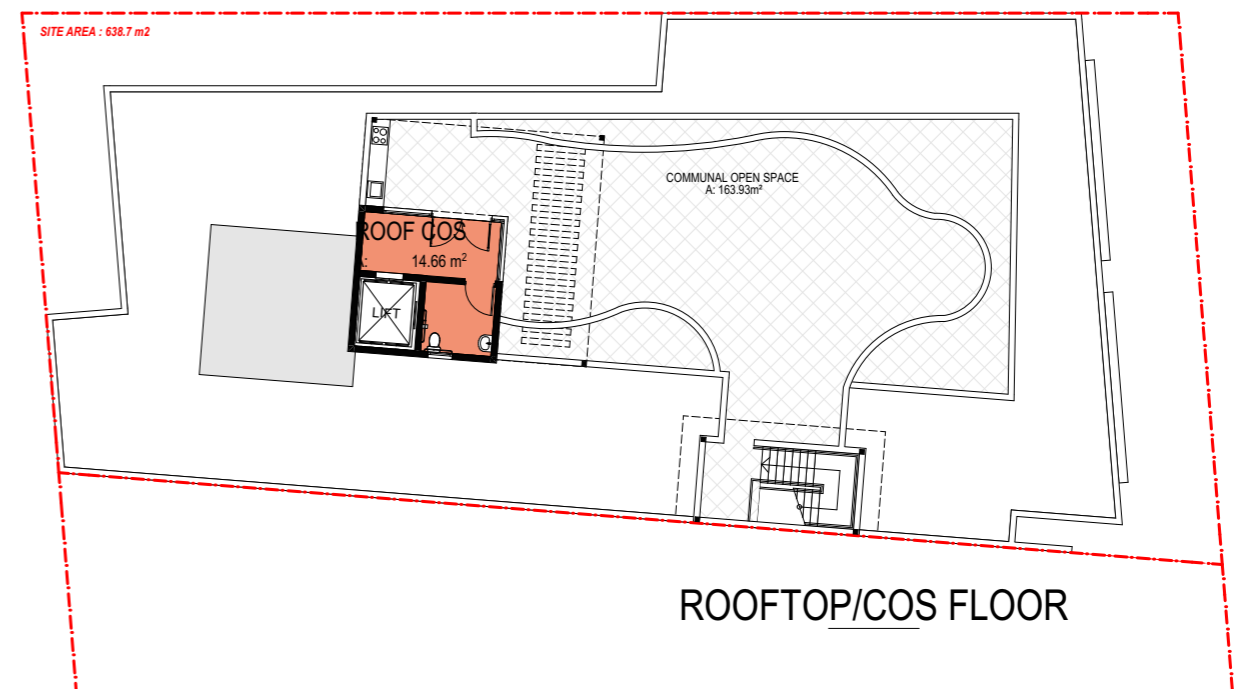
FIRST FLOOR



SECOND FLOOR



UPPER GROUND



ROOFTOP/COS FLOOR

GFA CALCULATIONS

	AREA
GROUND FLOOR	229.94
LEVEL 1	387.61
LEVEL 2	387.61
ROOF COS	14.66
TOTAL	1,019.82 m²

SECTION B2.6 of P21DCP :

MIN. 25% of the Gross Floor Area (GFA) for commercial/retail purposes

TOTAL GFA

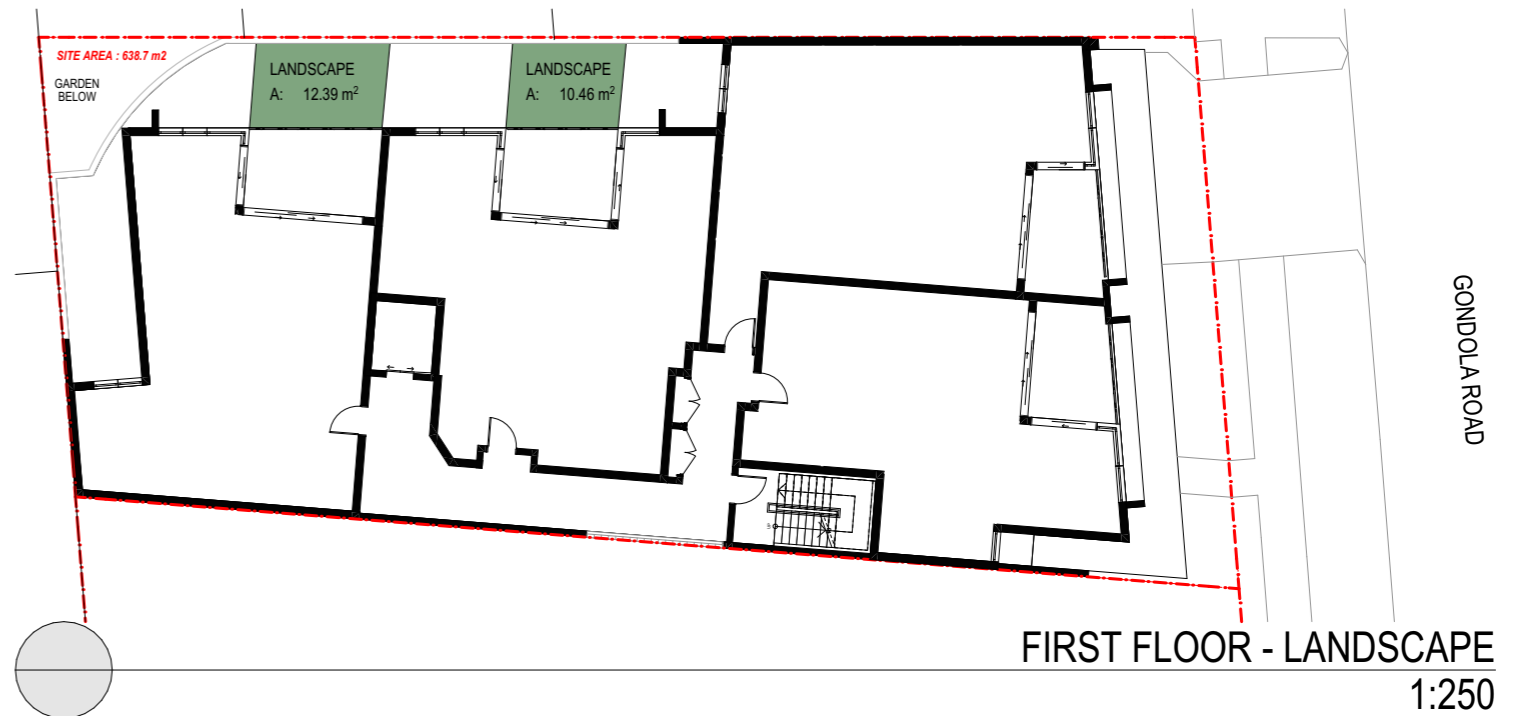
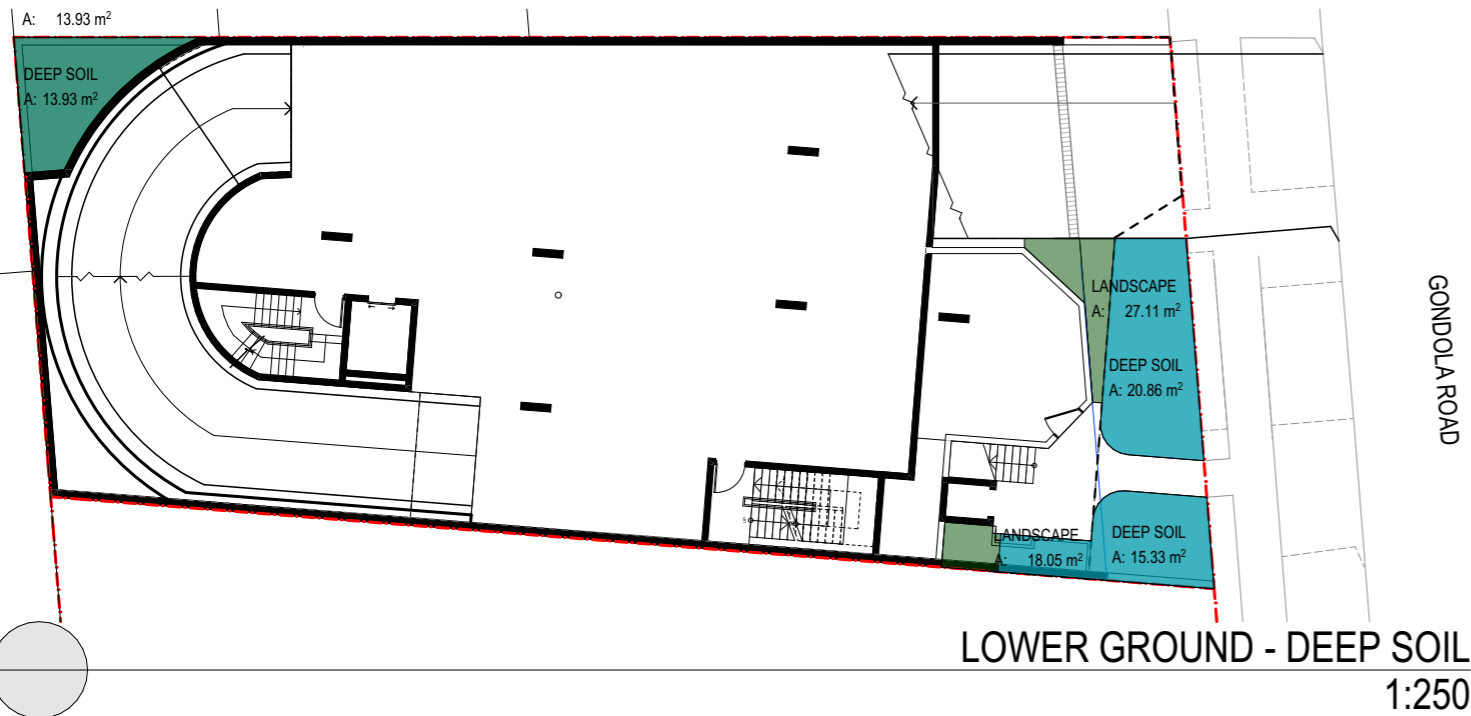
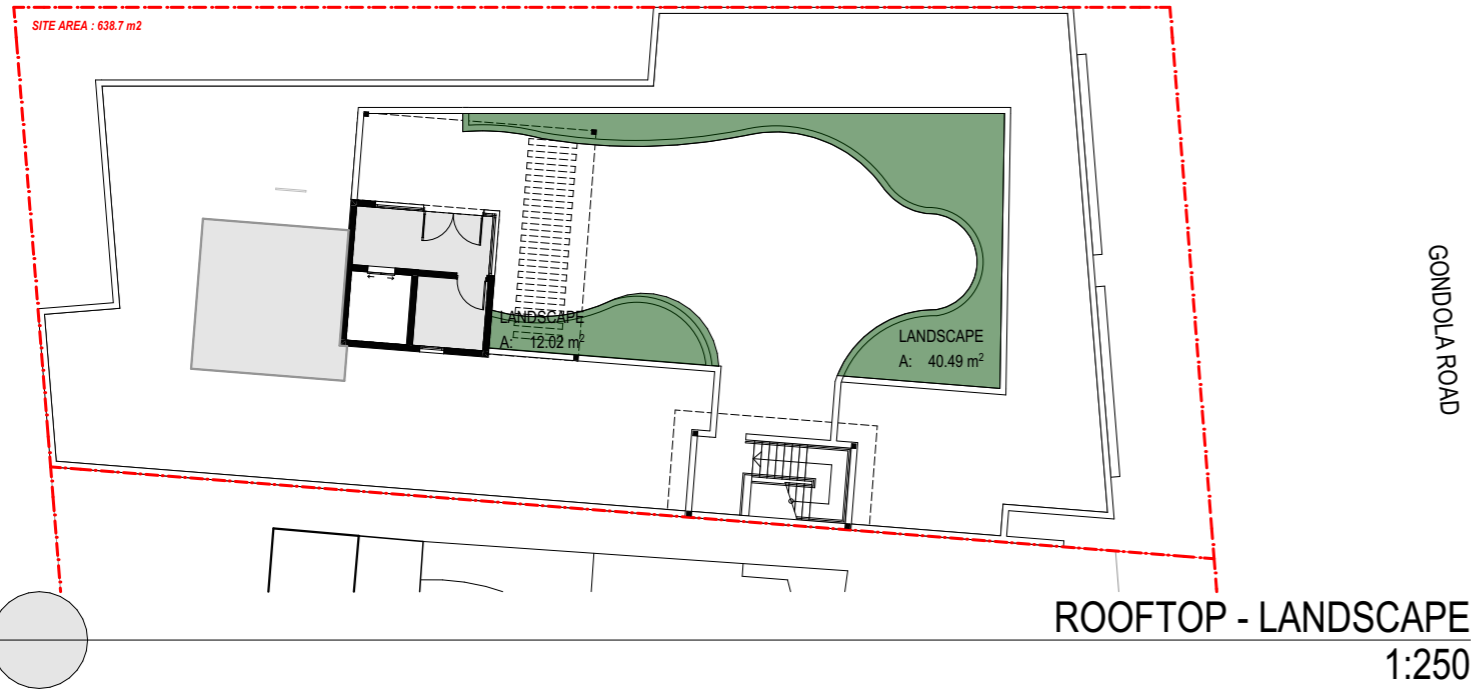
1,019.8 m²

PROPOSED COMM/RETAIL AREA

119 m²

PROPOSED COMM/RETAIL AREA %

11.7%

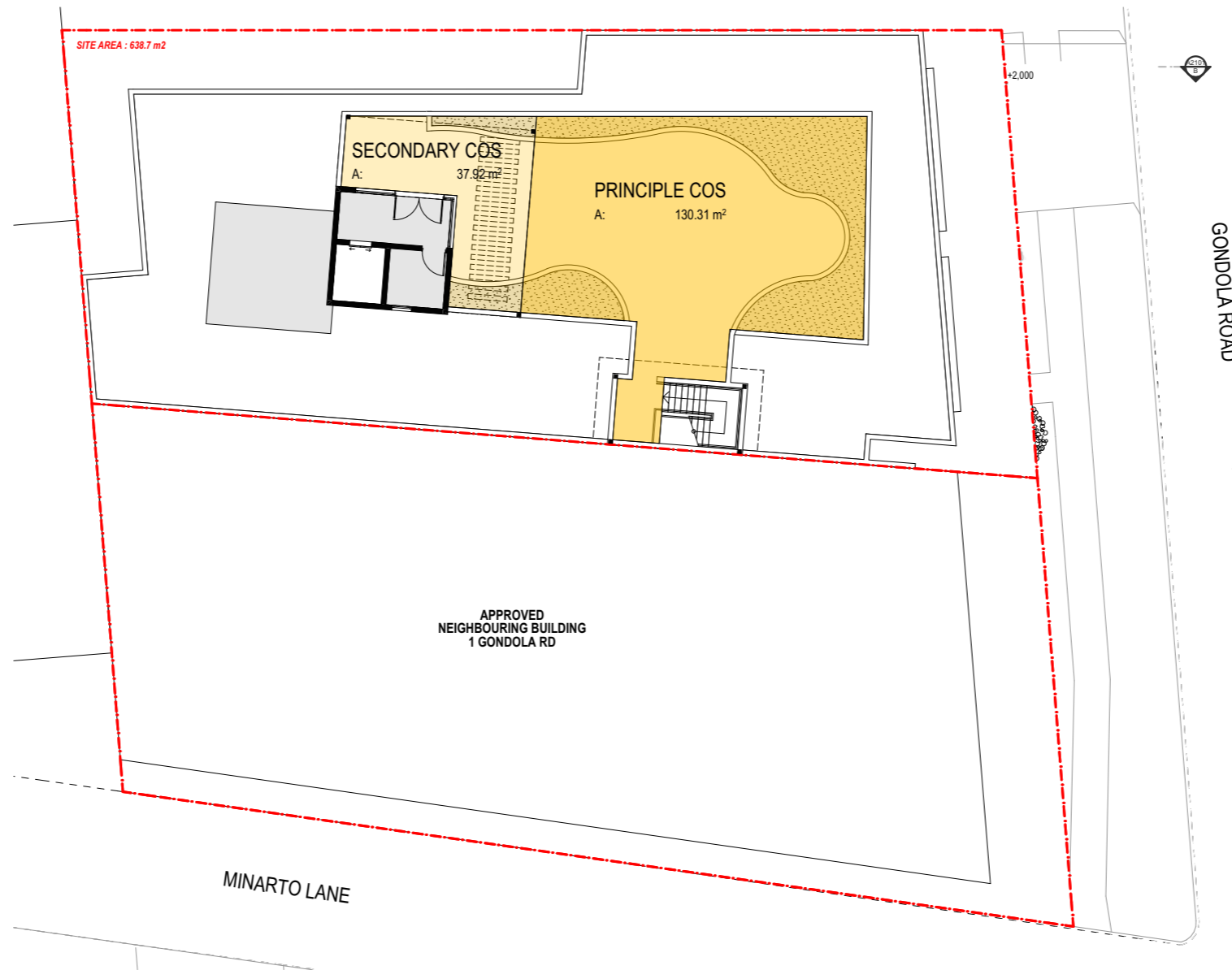


SITE COVERAGE COMPLIANCE

SITE AREA	638.7m ²
ADG MINIMUM DEEP SOIL AREA	44.7m ²
ADG MINIMUM DEEP SOIL %	7%
PROPOSED DEEP SOIL AREA	50.12m ²
PROPOSED DEEP SOIL %	7.8%

*DA - LANDSCAPE		
	Area	Home Story Name
LANDSCAPE	52.51	ROOFTOP/COS FLOOR
LANDSCAPE	22.85	FIRST FLOOR
LANDSCAPE	59.09	LOWER GROUND
	134.45 m ²	

*DA - DEEP SOIL	
	Area
DEEP SOIL	50.12
	50.12 m ²

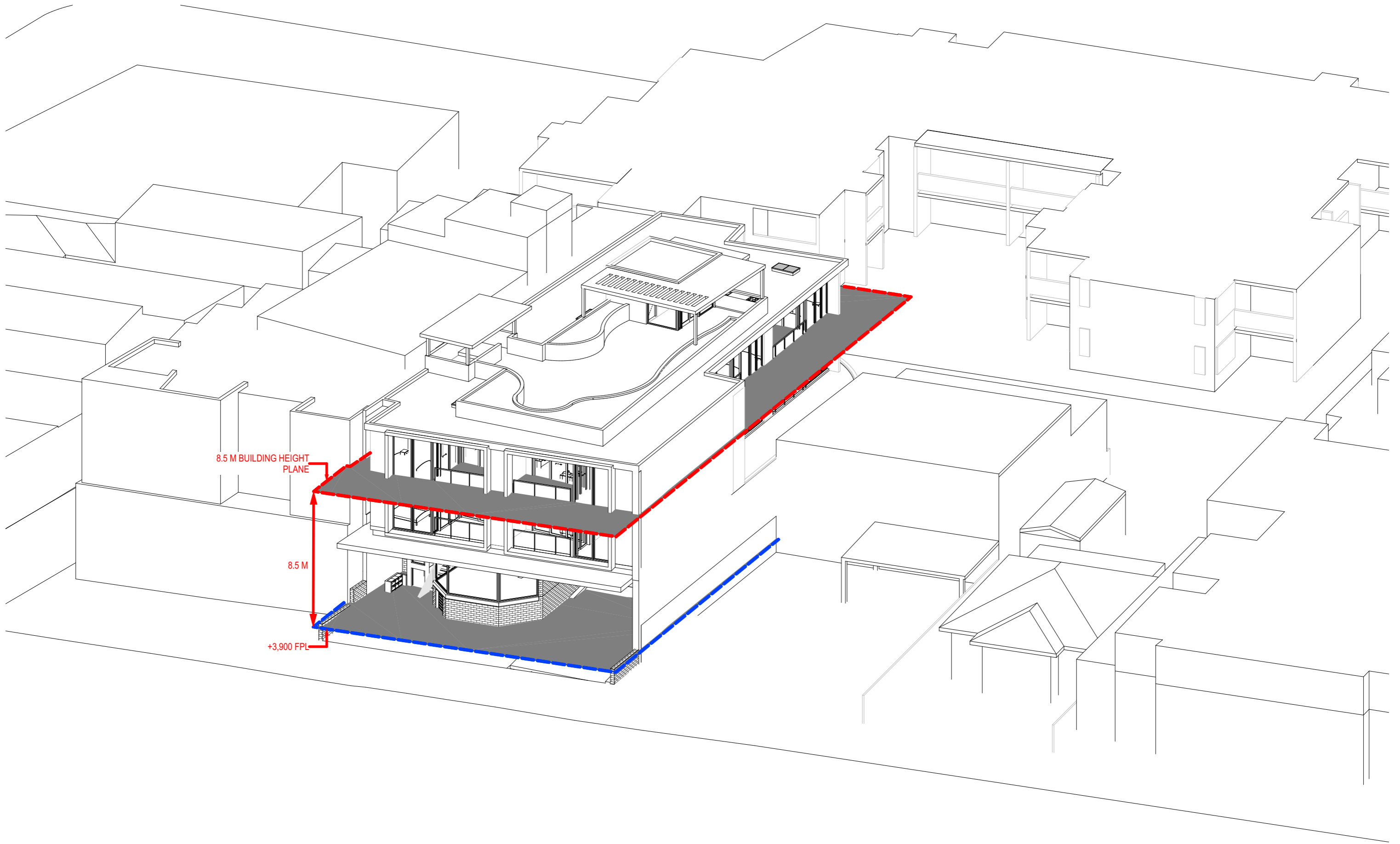


1

ROOFTOP/COS FLOOR - COS
1:250

COMMUNAL OPEN SPACE COMPLIANCE	
SITE AREA	638.7m ²
ADG COMMUNAL OPEN SPACE AREA	159.7m ²
ADG COMMUNAL OPEN SPACE %	25%
PROPOSED ROOF COS (secondary)	37.92m ²
PROPOSED ROOF COS (primary)	130.31m ²
PROPOSED COMMUNAL OPEN SPACE AREA	168.23m ²
PROPOSED COMMUNAL OPEN SPACE%	26.3%

*DA - COS	
	Area
ROOFTOP/COS FLOOR	168.23
	168.23 m ²



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ACN 091107201

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BY	DATE

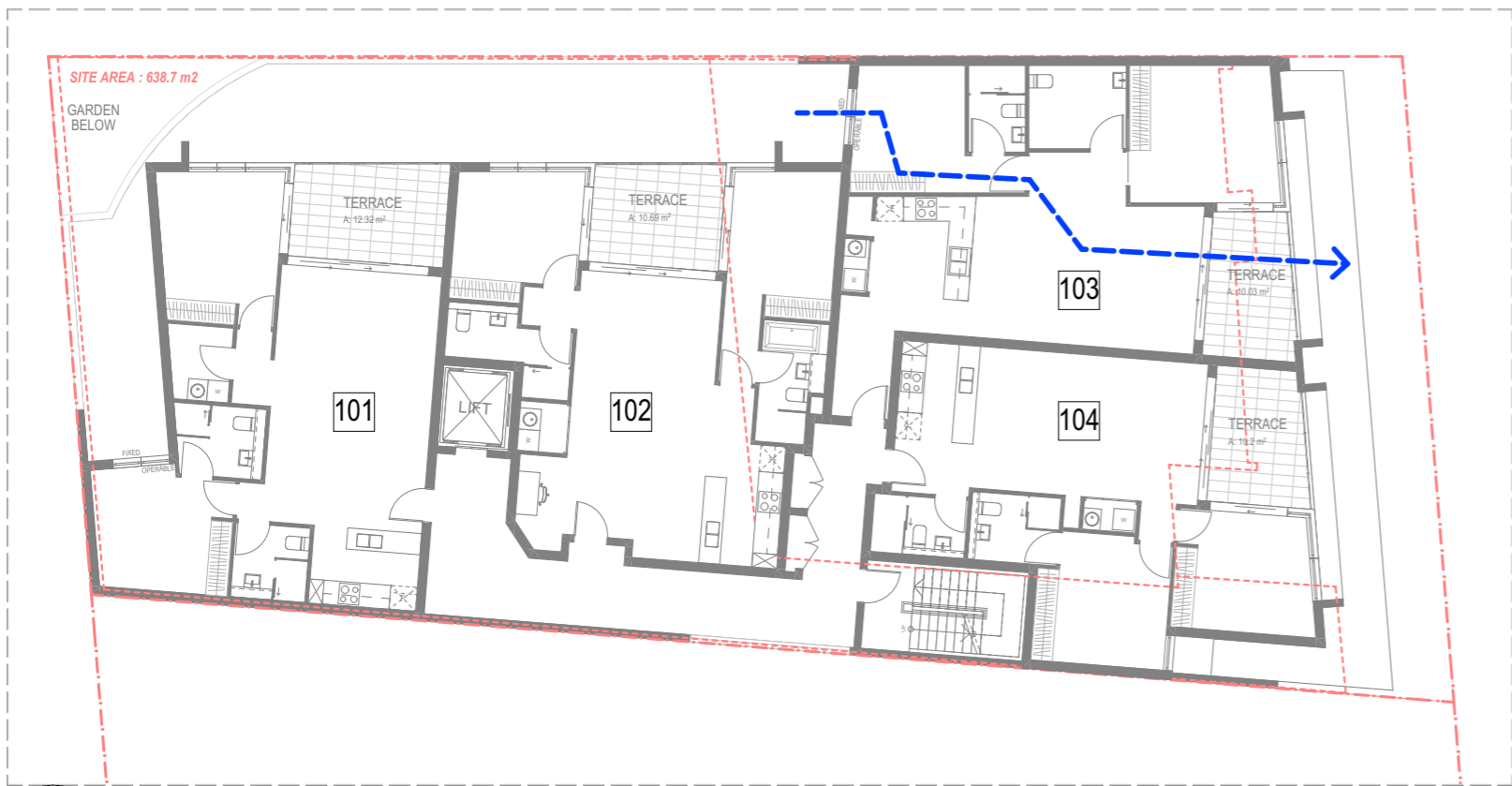
PROJECT
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NSW 2101, AUSTRALIA

DRAWING:
BUILDING HEIGHT PLANE
SCALE: @A3
DRAWING NO.: **A3003**
ISSUE: **DA**
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SECOND FLOOR

1
-



FIRST FLOOR

1
-

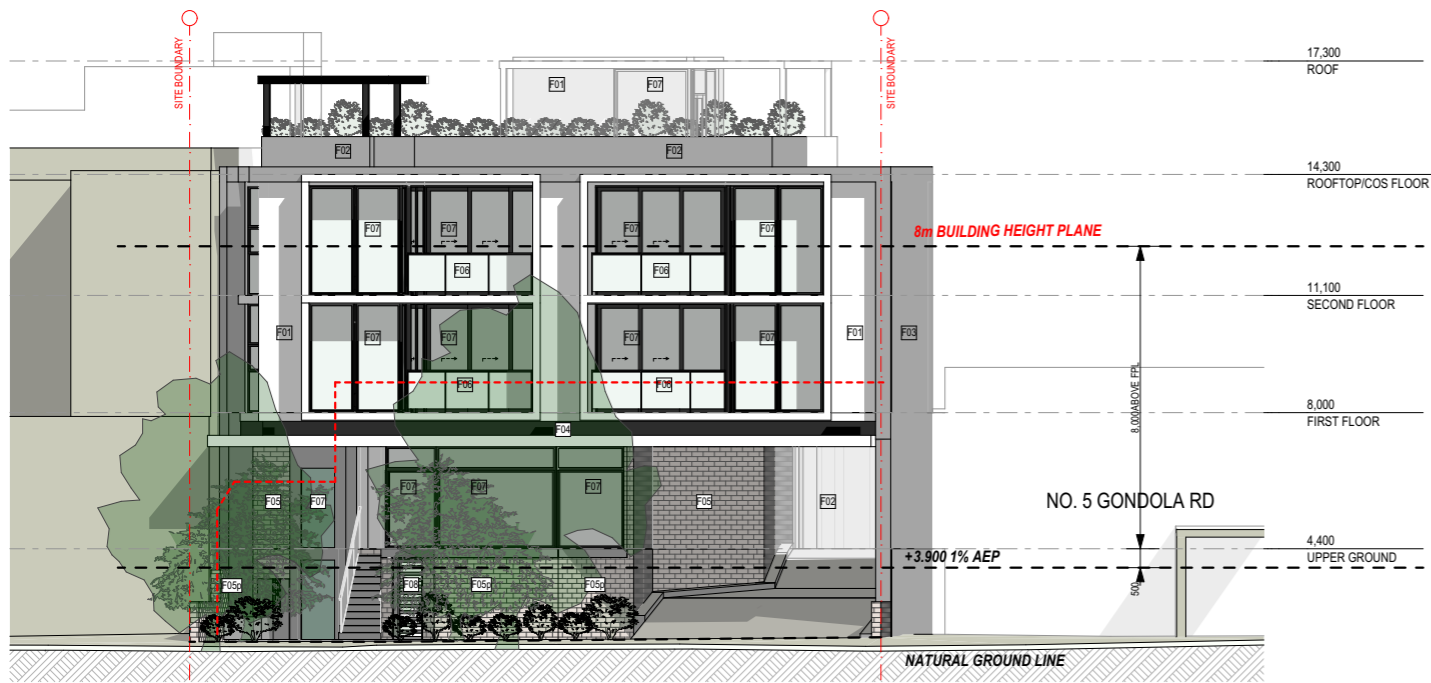
	UNIT No.	NATURAL VENTILATION COMPLIANT
FIRST FLOOR		
	U101	
	U102	
	U103 (s) (a)	
	U104	
SECOND FLOOR		
	U201	
	U202	
	U203 (s) (a)	
	U204	

LEGEND

ACHIEVABLE NATURAL VENTILATION
 NOT ACHIEVABLE NATURAL VENTILATION

NATURAL VENTILATION COMPLIANCE

TOTAL NUMBER OF UNITS	8
ADG REQUIRED NATURAL VENTILATED UNITS	4.8
ADG REQUIRED NATURAL VENTILATED %	60%
PROPOSED NATURAL VENTILATED UNITS	5
PROPOSED NATURAL VENTILATED %	62.5%



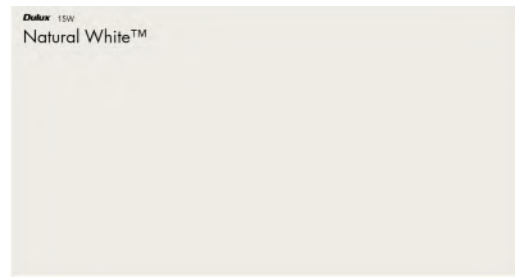
NORTH ELEVATION



WEST ELEVATION

LEGEND

- F01 : RENDERED PAINTED WALL WITH WHITE SHADE PAINT FINISH EQ. DULUX ACRATEX NATURAL WHITE
- F02 : OFF FORM CONCRETE WITH WHITE SKIM COAT FINISH
- F03 : EXPOSED PRECAST CONCRETE PANEL
- F04 : FC SHEET WITH DARK CHARCOAL PAINT FINISH EQ DULUX COLORBOND MONUMENT
- F05 : PERFORATED / NON PERFORATED BRICK WALL EQ. BOWRAL 50 SIMMENTAL SILVER
- F06 : CLEAR GLAZED POWDERCOATED METAL BALUSTRADE EQ. DULUX COLORBOND MONUMENT
- F07 : CLEAR GLASS WITH POWDERCOATED ALUM. FRAME EQ. DULUX COLORBOND MONUMENT
- F08 : METAL FENCE / PERGOLA POWDERCOATED EQ. DULUX COLORBOND MONUMENT
- F09 : FIRE-RATED GLASS BRICKS EQ. VENETIAN GLASS ARCTIC CRYSTAL AUSTRAL BRICKS



F01



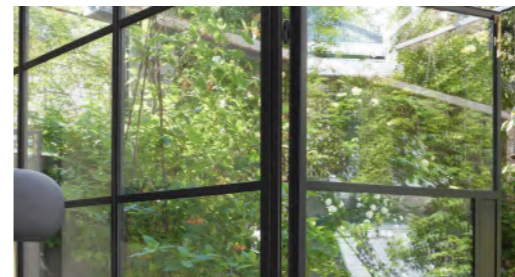
F03



F05p



F05



F07



F09



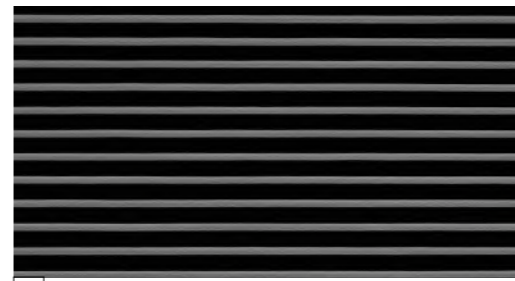
F02



F04

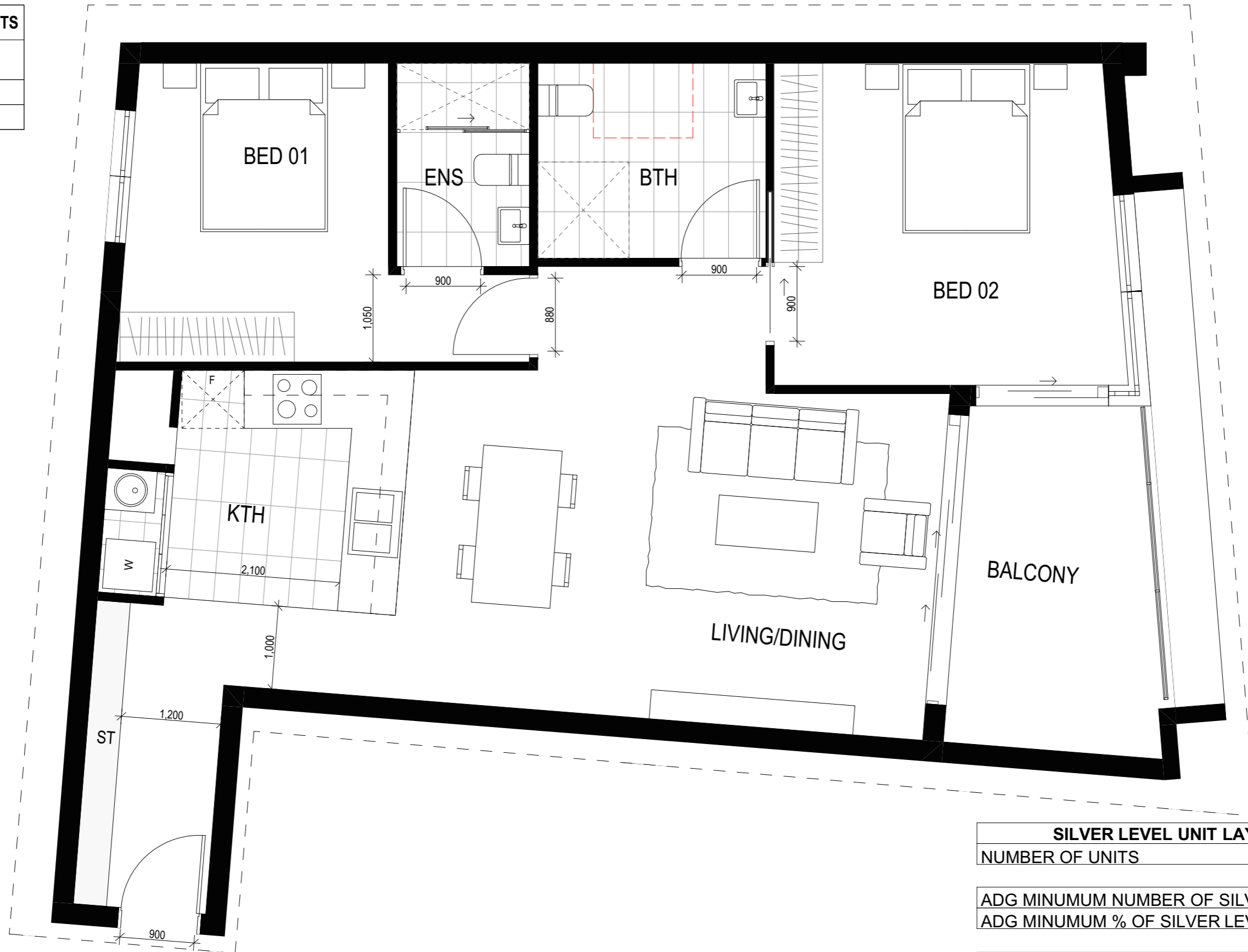


F06

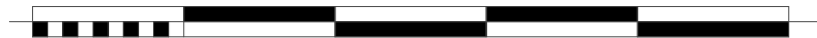


F08

LHD SILVER LEVEL UNITS	
UNIT No.	
U103 (s) (a)	
U203 (s) (a)	



SILVER LEVEL UNIT LAYOUTS	
NUMBER OF UNITS	8
ADG MINIMUM NUMBER OF SILVER LEVEL UNITS	1.6
ADG MINIMUM % OF SILVER LEVEL UNITS	20%
PROPOSED NUMBER OF SILVER LEVEL UNITS	2
PROPOSED % OF SILVER LEVEL UNITS	25%



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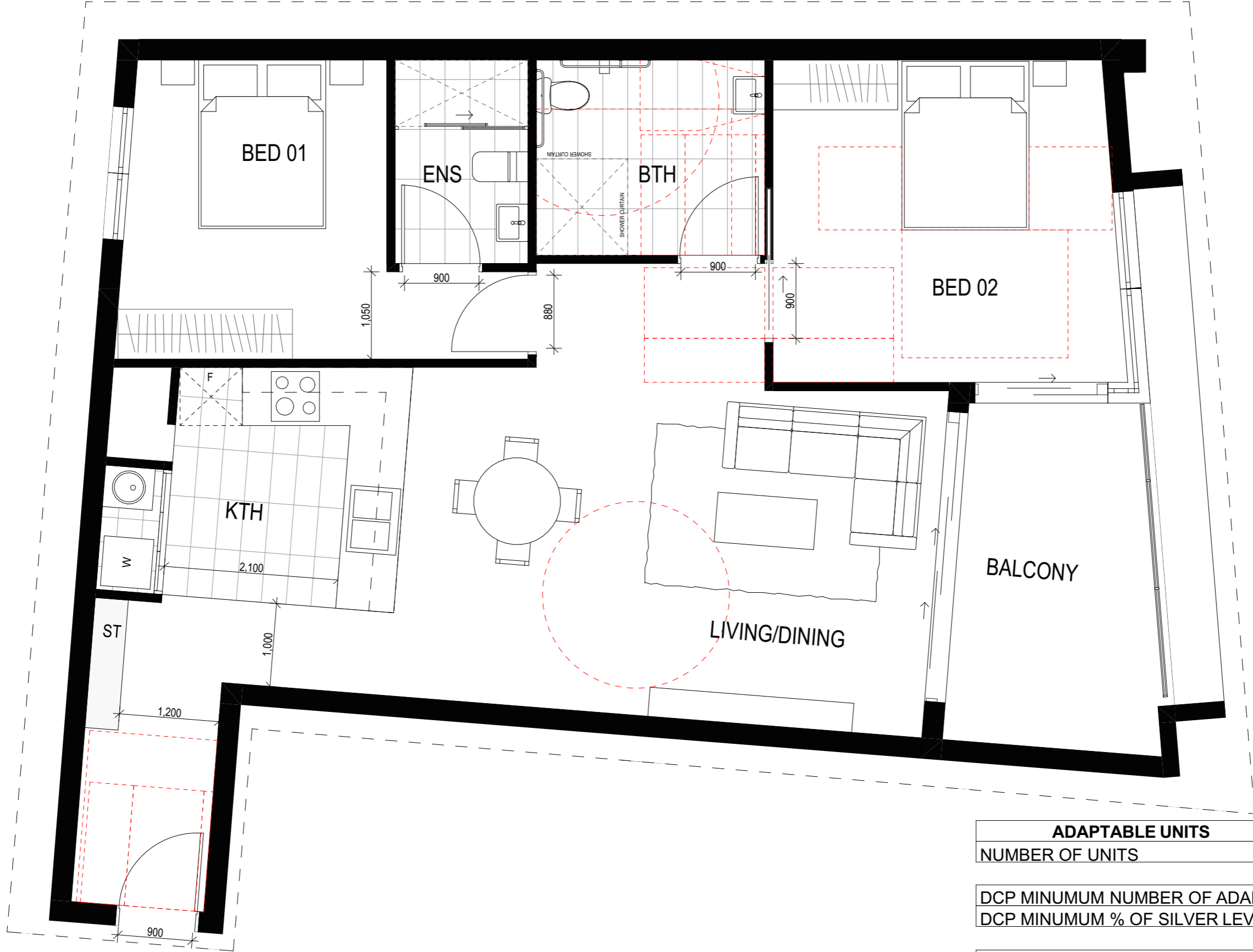
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01	DA		Development Application
REV.	STATUS	AM	3 GONDOLA RD
		BY	NORTH NARRABEEN
		DATE	NSW 2101, AUSTRALIA

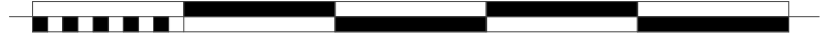
PROJECT NORTH
PROJECT
Development Application
3 GONDOLA RD
NORTH NARRABEEN
NSW 2101, AUSTRALIA

DRAWING:
PRE-ADAPTABLE (SILVER)
SCALE:
1:50@A3
DRAWING NO.:
A3006
ISSUE:
DA
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ADAPTABLE UNITS	
UNIT No.	
U103 (s) (a)	
U203 (s) (a)	



ADAPTABLE UNITS	
NUMBER OF UNITS	8
DCP MINIMUM NUMBER OF ADAPTABLE UNITS	1.6
DCP MINIMUM % OF SILVER LEVEL UNITS	20%
PROPOSED NUMBER OF ADAPTABLE UNITS	2
PROPOSED % OF ADAPTABLE UNITS	25%



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			10/05/2022

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Development Application
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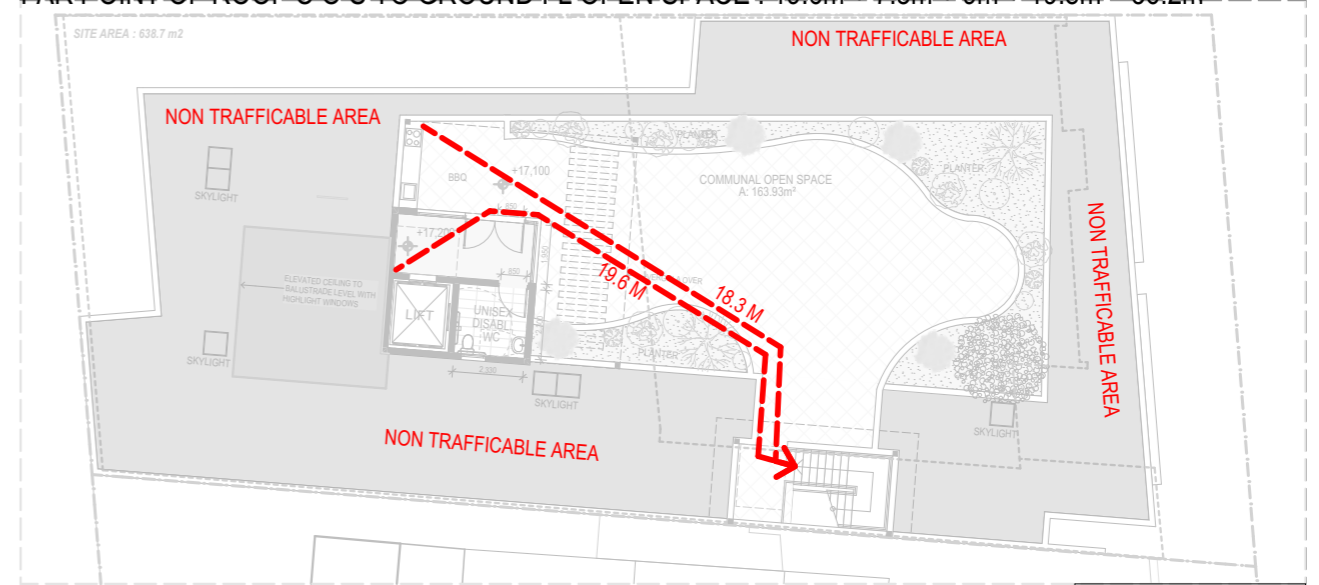
DRAWING:
POST-ADAPTABLE LAYOUT
SCALE:
1:50@A3
DRAWING NO.:
A3007
ISSUE:
DA
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U 201 TRAVEL DISTANCE TO GROUND FL OPEN SPACE : 14.5m + 9m + 19.8m = 43.3m

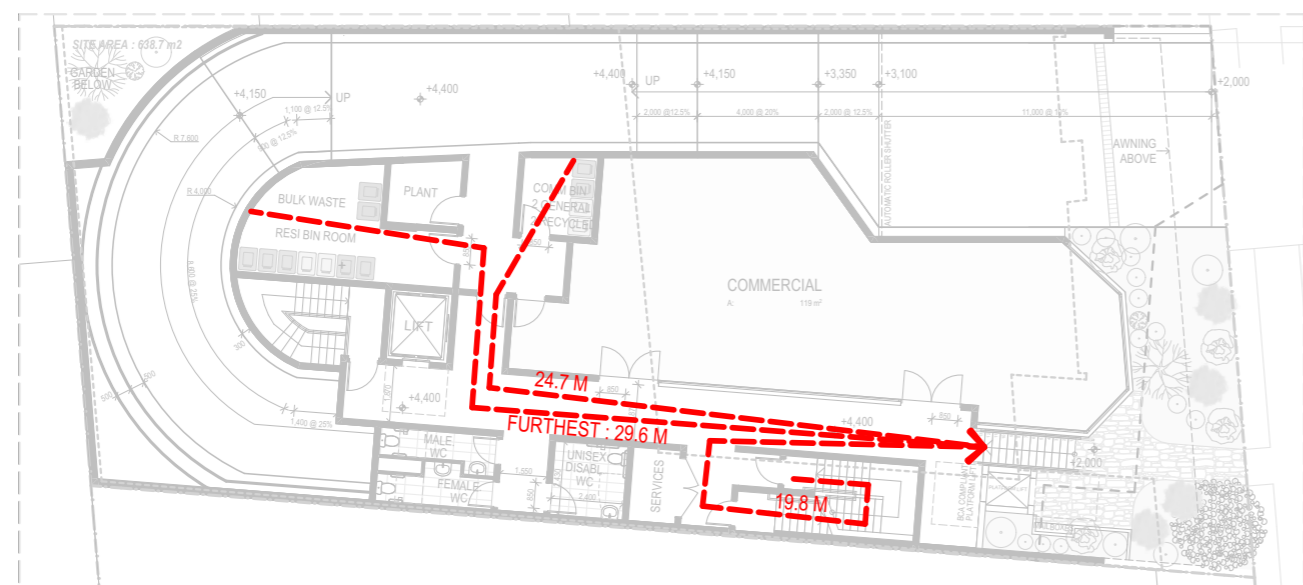
FAR POINT OF ROOF C O S TO GROUND FL OPEN SPACE : 19.6m + 7.8m + 9m + 19.8m = 56.2m



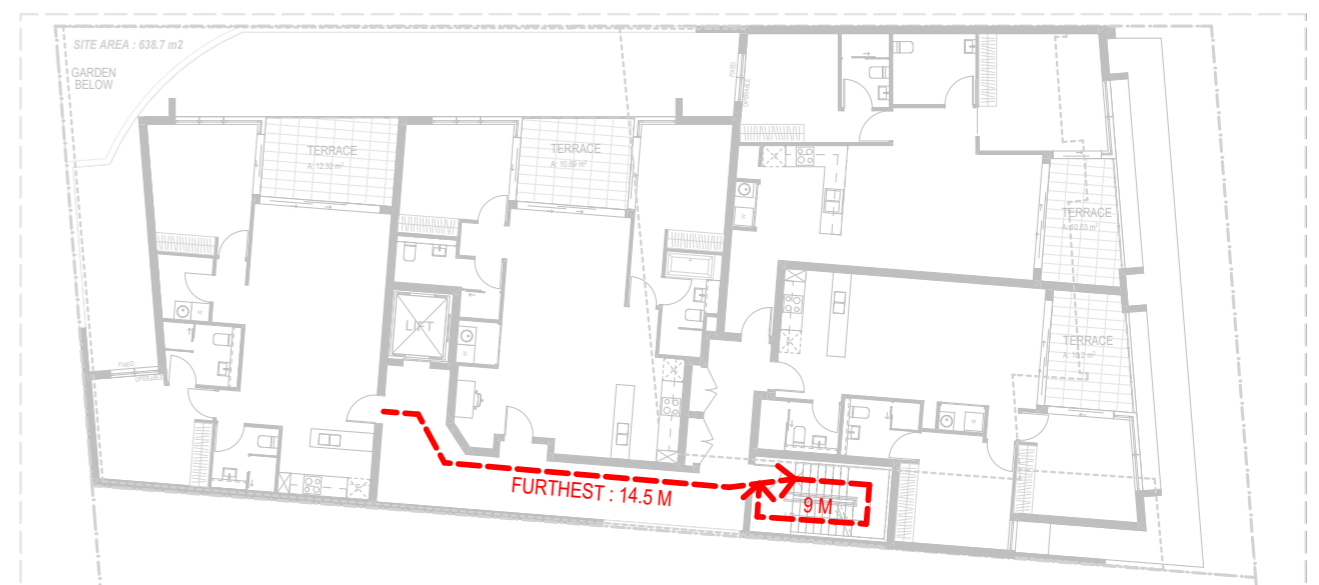
SECOND FLOOR



ROOF TOP / C O S



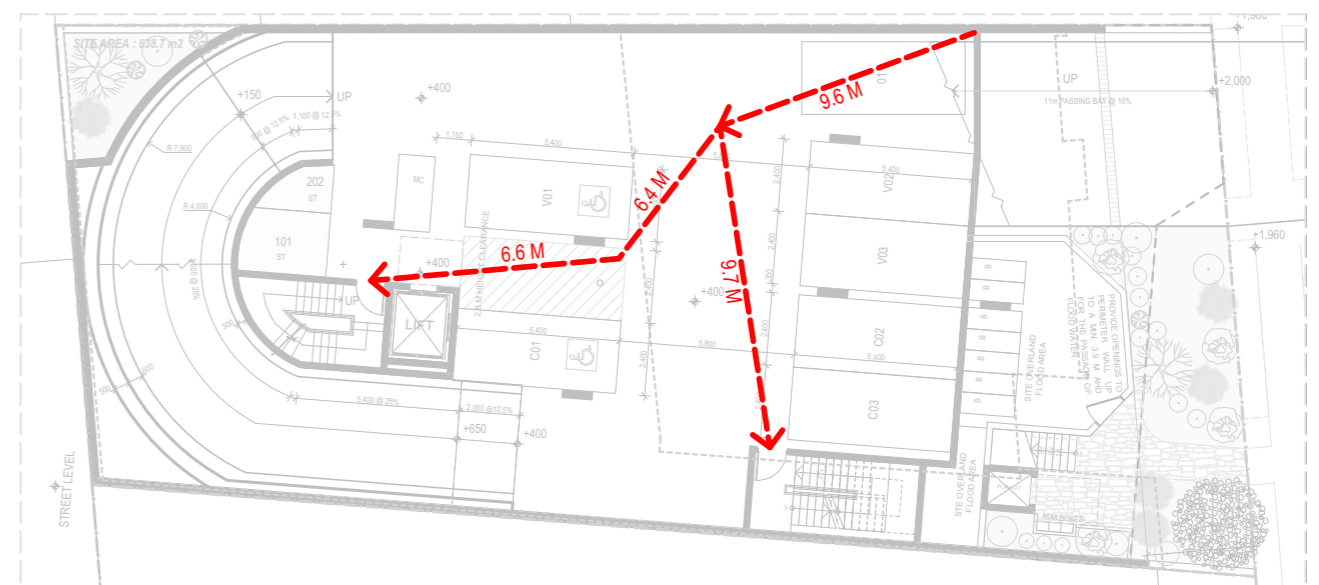
UPPER GROUND FLOOR



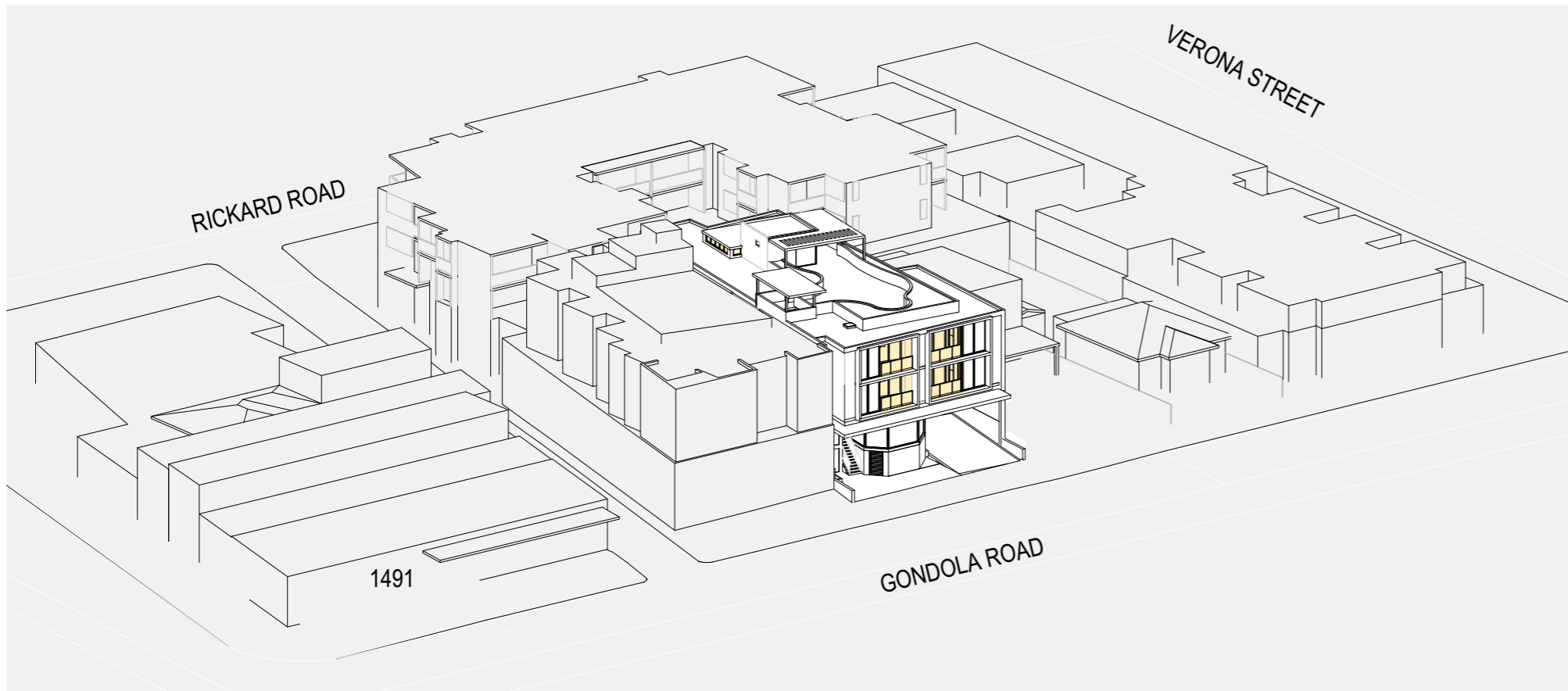
FIRST FLOOR



BASEMENT

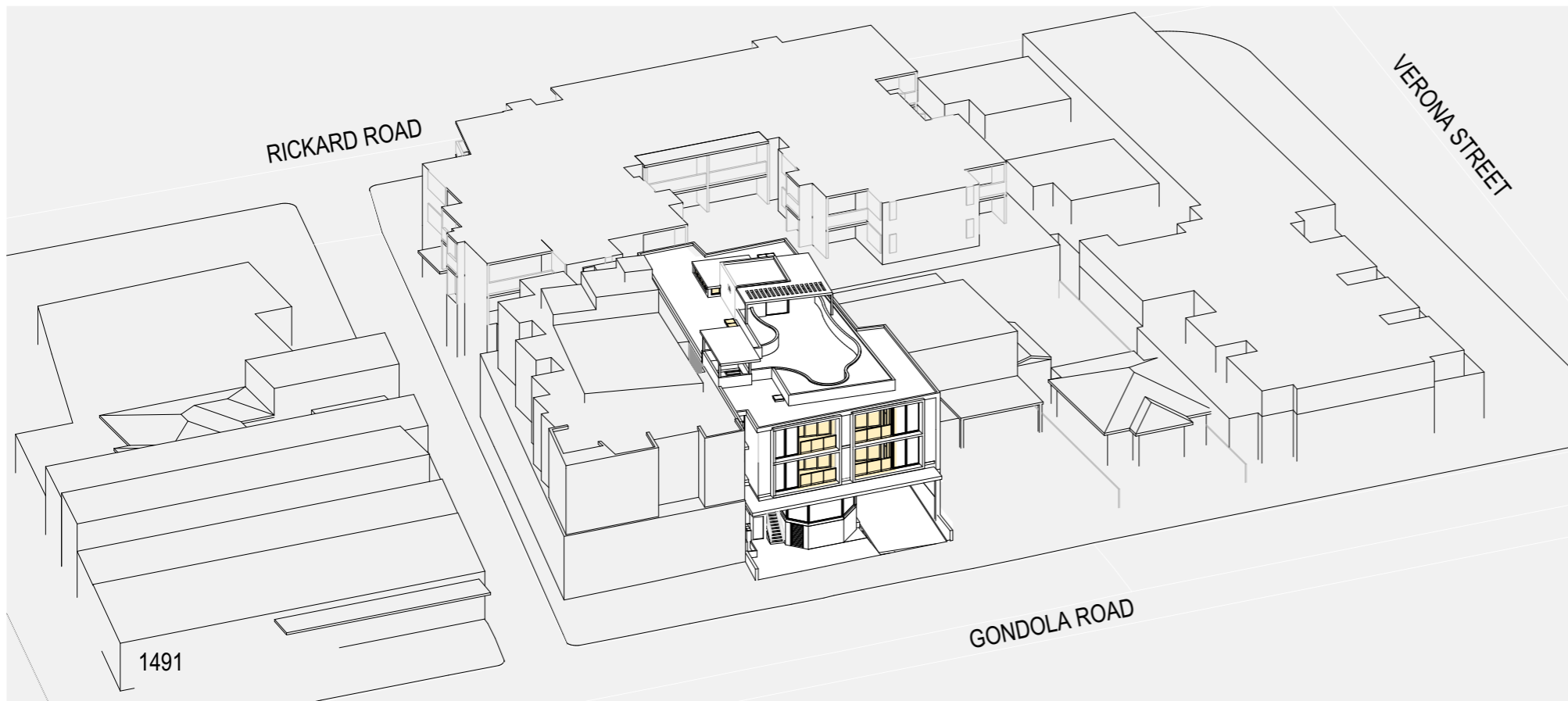


LOWER GROUND FLOOR



1
-

SOLAR ACCESS 21 JUN 9 AM



2
-

SOLAR ACCESS 21 JUN 10 AM

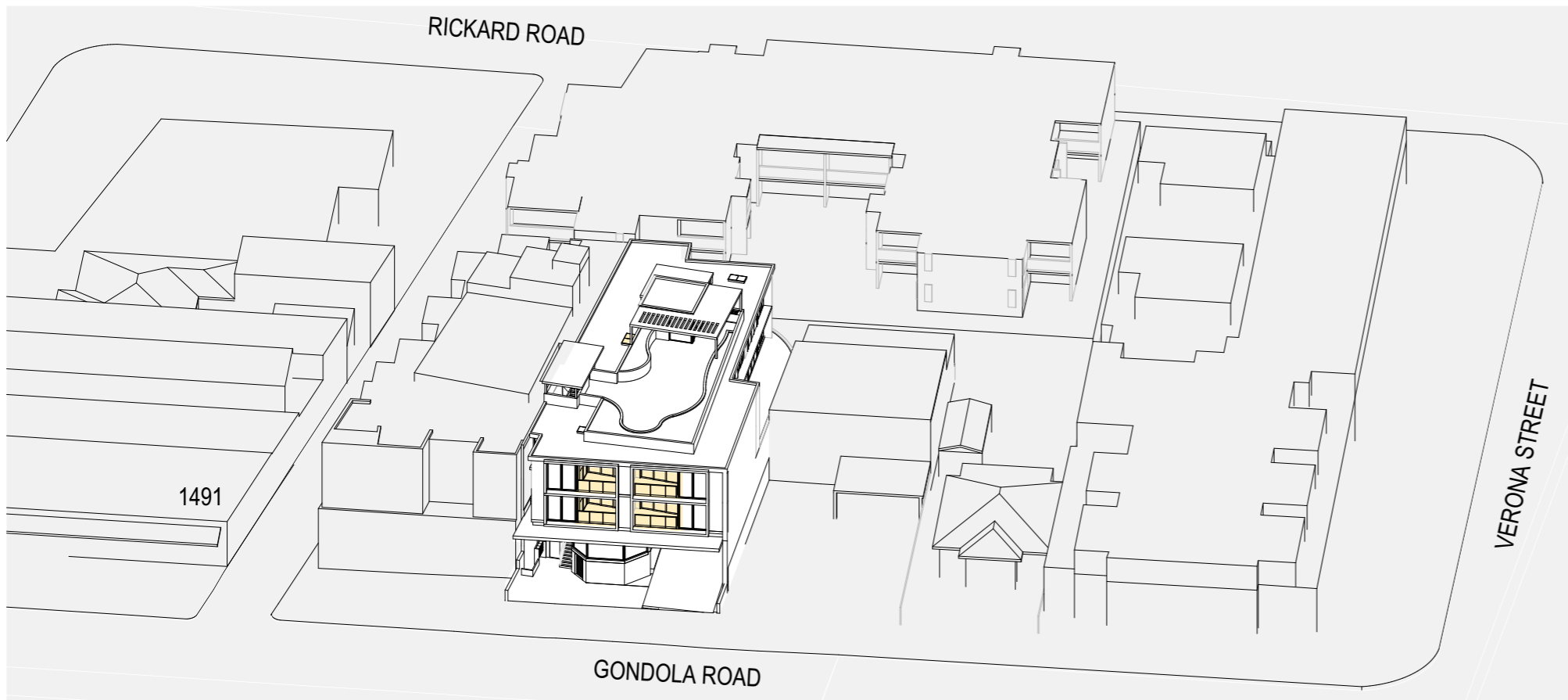
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				LEGEND DO NOT SCALE DRAWINGS VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK	<table border="1"> <tr> <td>01</td> <td>DA</td> <td>AM</td> <td>10/05/2022</td> </tr> <tr> <td>REV.</td> <td>STATUS</td> <td>BY</td> <td>DATE</td> </tr> </table>			01	DA	AM	10/05/2022	REV.	STATUS	BY	DATE	<table border="1"> <tr> <td>SCALE:</td> <td>DRAWING NO.:</td> <td>ISSUE:</td> </tr> <tr> <td>1:500@A3</td> <td>A4000</td> <td>DA</td> </tr> </table>
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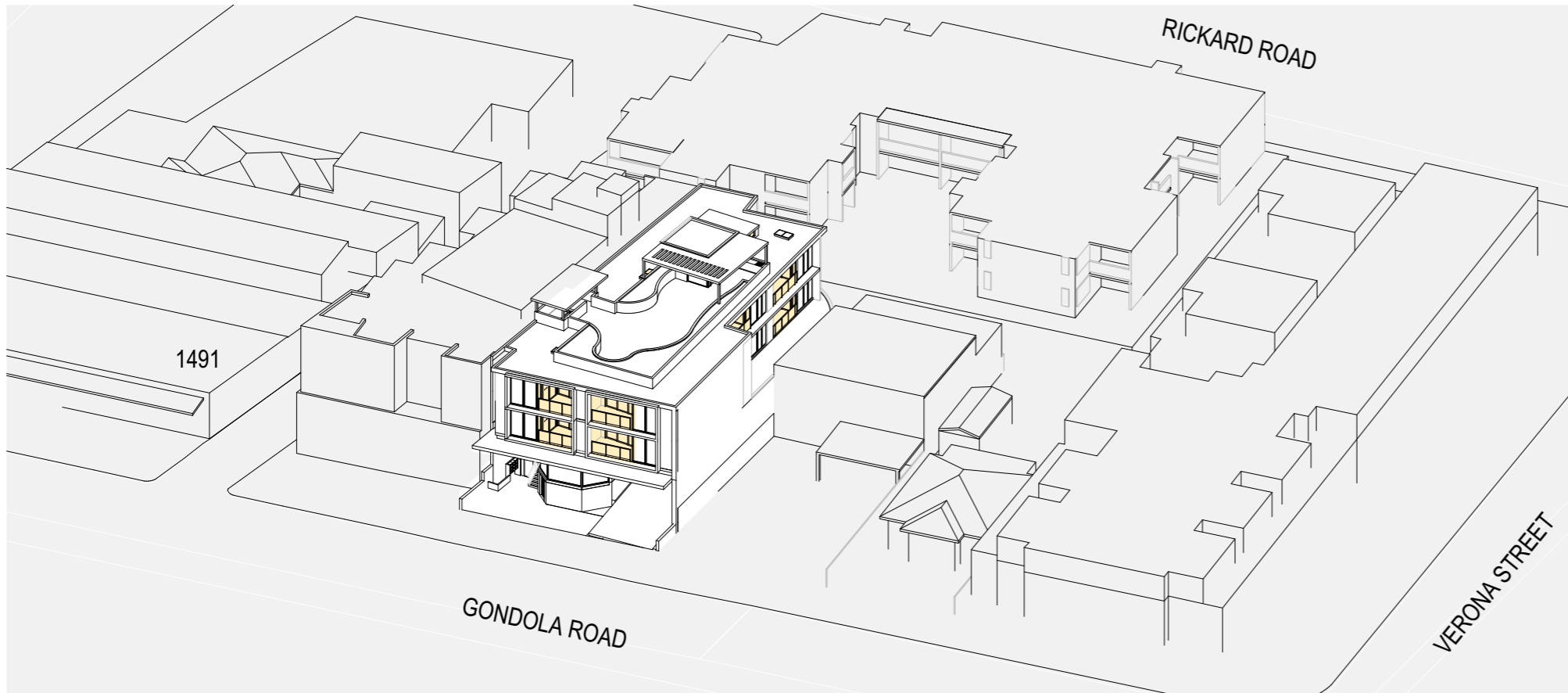
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SOLAR ACCESS 21 JUN 11 AM



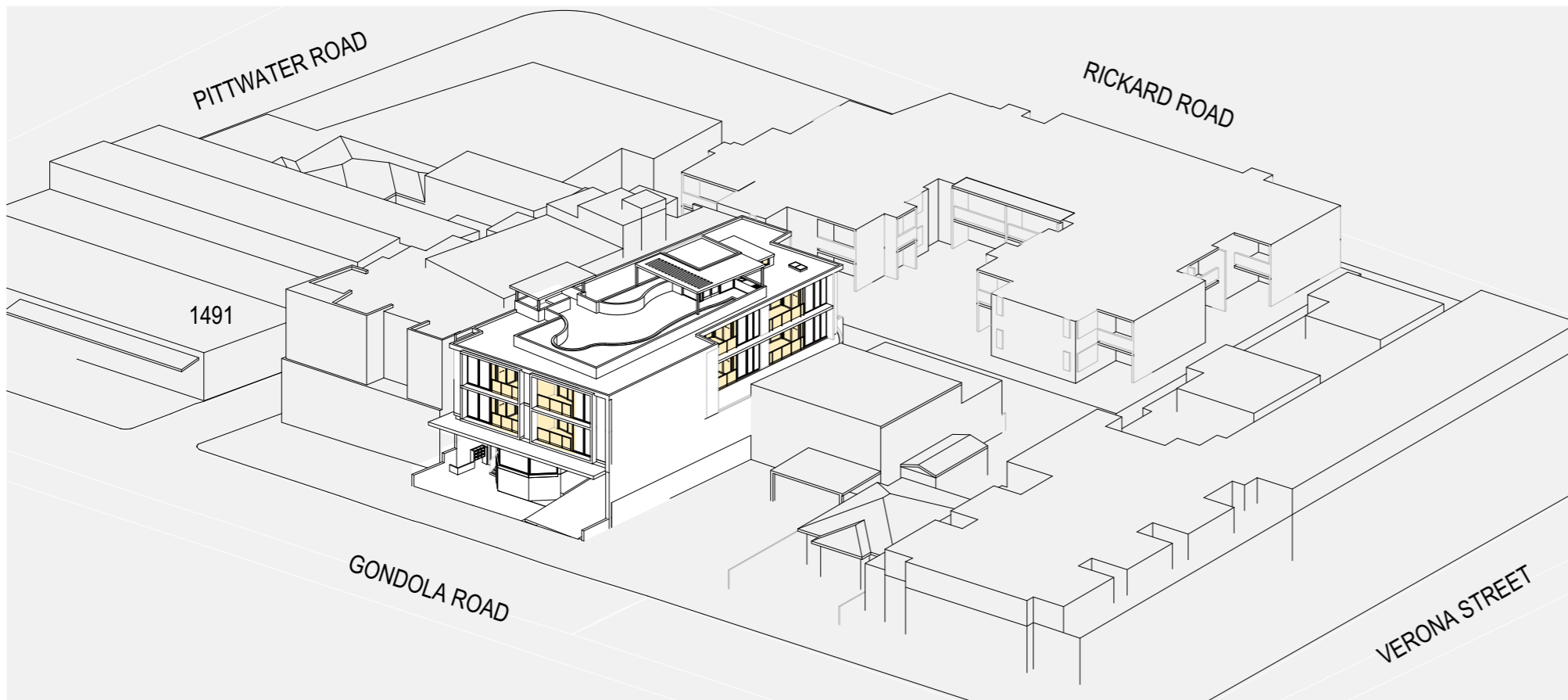
2
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SOLAR ACCESS 21 JUN 12 PM



1
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SOLAR ACCESS 21 JUN 1 PM



2
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SOLAR ACCESS 21 JUN 2 PM



SOLAR ACCESS 21 JUN 3 PM

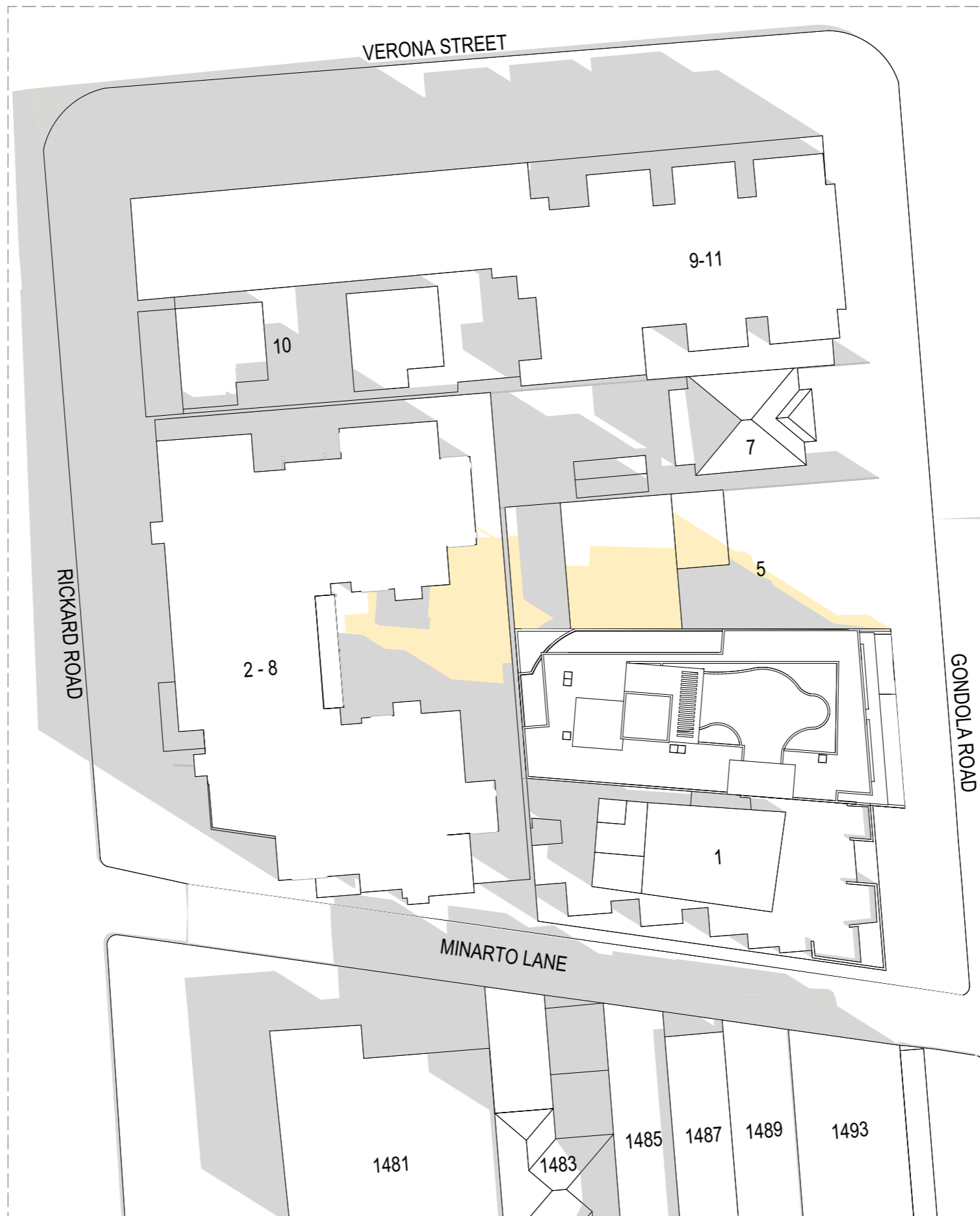
1
-

	UNIT No.	9-10am	10-11am	11-Noon	Noon-1pm	1-2pm	2-3pm	solar access
FIRST FLOOR								
	U101							Y
	U102							N
	U103 (s) (a)							Y
	U104							Y
SECOND FLOOR								
	U201							Y
	U202							N
	U203 (s) (a)							Y
	U204							Y

LEGEND

SOLAR ACCESS TO POS+LIVING ROOM
 NO SOLAR ACCESS TO POS+LIVING ROOM

Total Number of Units	8
ADG's min 70% to have 2h direct solar access	5.6
Number of proposed units with minimum 2 hour solar access	6
% of total Units	75%
ADG's max 15% of units with no direct solar access	1.2
Number of proposed units with no direct solar access	0
% of total Units	0%



LEGEND

EXISTING SHADOW
 PROPOSED SHADOW
 SITE BOUNDARY



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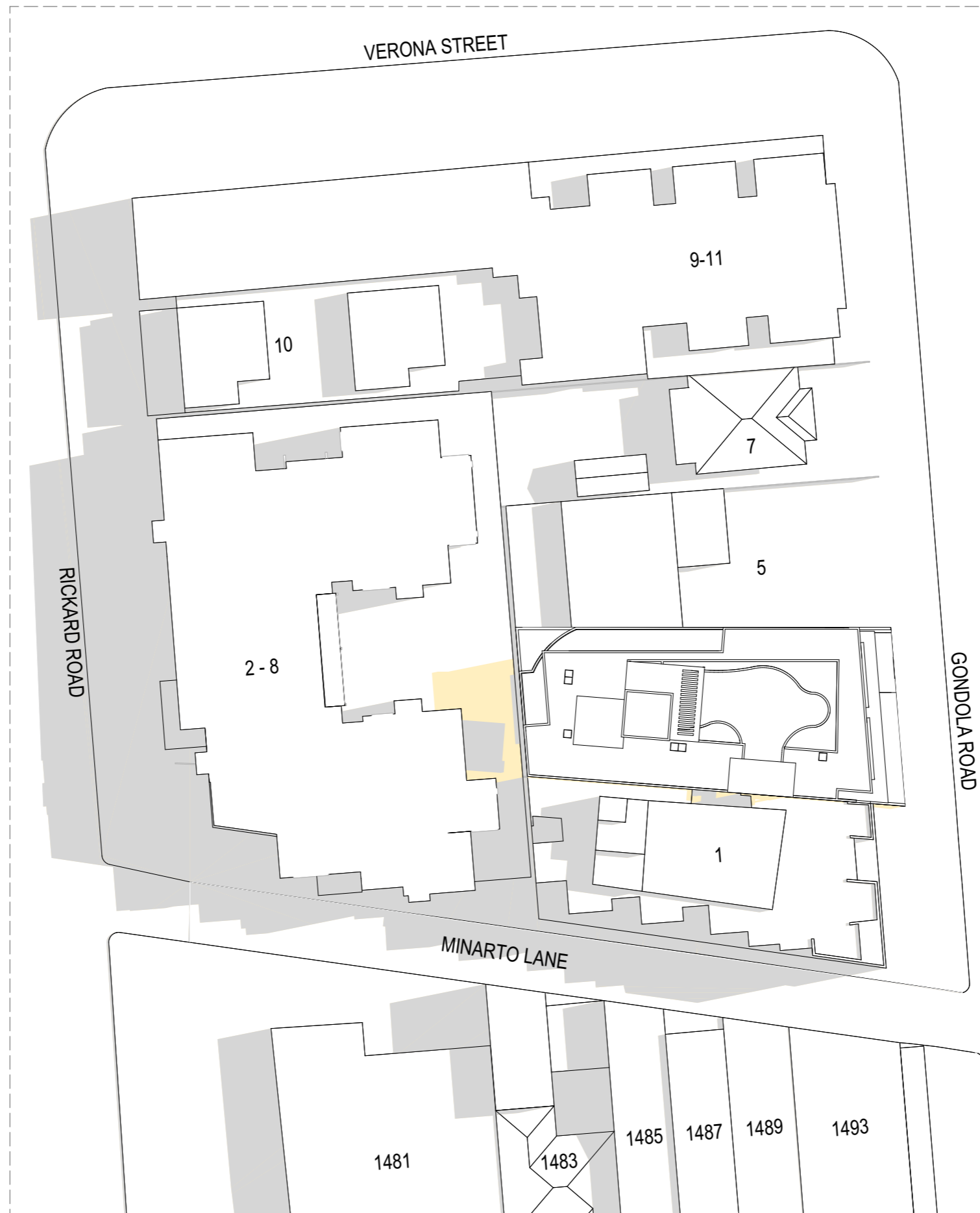
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PROJECT NORTH

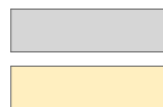
PROJECT
 Development Application
 3 GONDOLA RD
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JUN 21 SHADOW DIAGRAM 9 AM
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A4100
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LEGEND

- EXISTING SHADOW
- PROPOSED SHADOW
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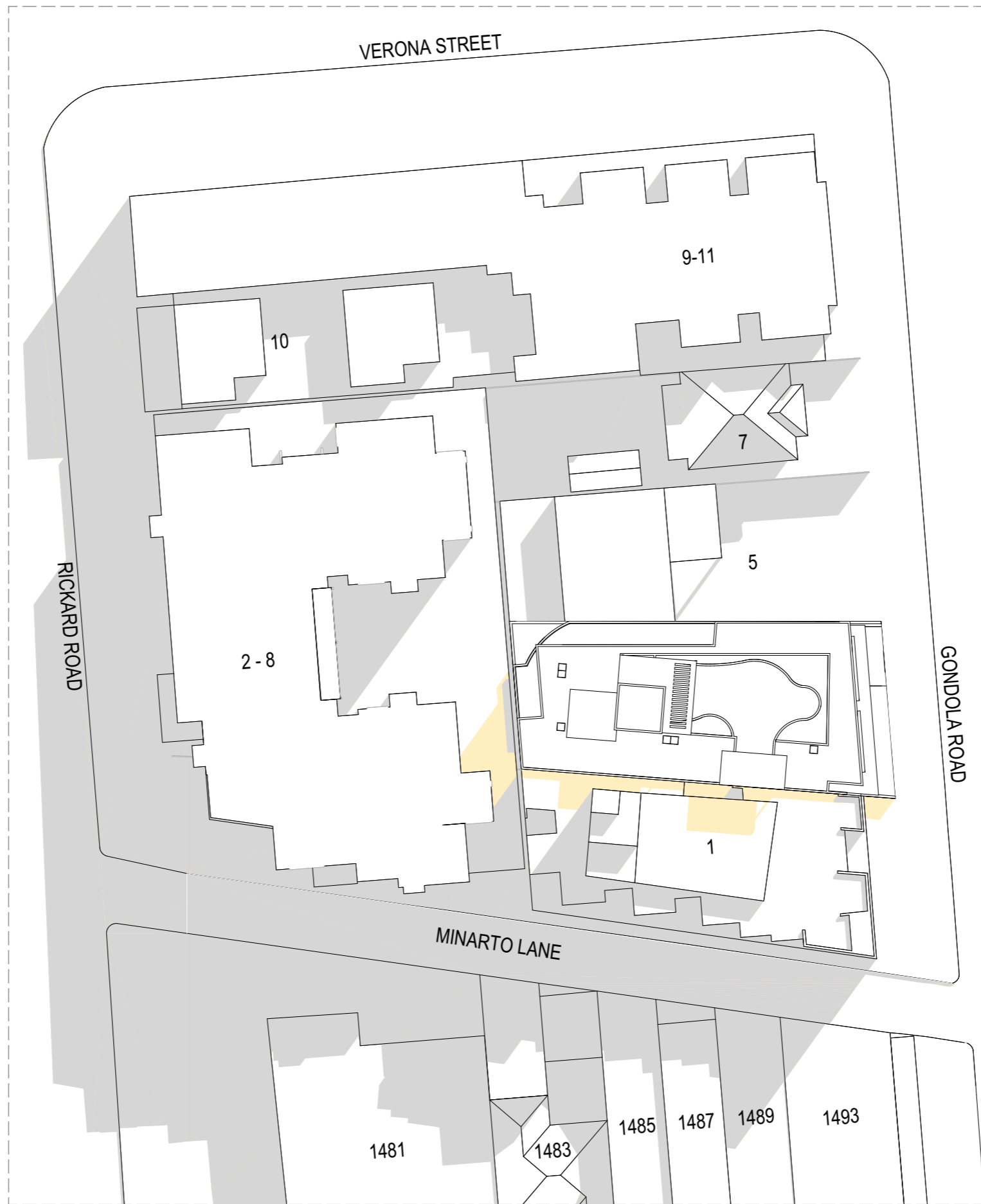
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PROJECT NORTH

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JUN 21 SHADOW DIAGRAM 12 PM

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PROJECT NORTH

PROJECT
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JUN 21 SHADOW DIAGRAM 3 PM
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 DRAWING NO.:
A4102
 ISSUE:
DA
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NO. 5 GONDOLA RD

LEGEND

- - - - SITE BOUNDARY
- - - - EXISTING BLDG
- - - - BASEMENT LINE
- - - - BLDG ABOVE

SITE AREA : 638.7 m2

