

# Integrated Stormwater Management Plan for: 16-20 Old Castle Hill Road, Castle Hill

Prepared for Urban Property Group

12/2025  
Project Number S25014  
Version 002



OPPORTUNITIES  
THROUGH  
EXCELLENCE  
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Document Control				
Revision	Date	Prepared	Reviewed	Approved
A	05/12/2025	S Morgan	A Mohammed	S Hazlewood
B	16/12/2025	S Morgan	A Mohammed	S Hazlewood

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# 1. Executive Summary

This Integrated Stormwater Management Report has been prepared by BG&E to accompany a State Significant Development Application (SSDA) for the residential development including affordable housing at 16-20 Old Castle Hill Road, Castle Hill (the site). The site is made up of four lots. The legal description of the site is outlined in Table 1.

**Table 1: Legal Description**

Property Address	Title Description
16 Old Castle Hill Road	Lot 10 in DP 881332
18 Old Castle Hill Road	Lot 11 in DP 881332
20 Old Castle Hill Road	Lot 20 in DP 222257
20 Old Castle Hill Road	Lot 1 in DP 204335

This report has been prepared to address the Secretary’s Environmental Assessment Requirements (**SEARs**) issued for the project (**SSD-85238209**).

This report concludes that the proposed residential development is suitable and warrants approval, subject to the implementation of the following mitigation measures.

- A 120m<sup>3</sup> OSD tank is proposed to be installed to limit the PSD to 30L/s.
- The installation of 1x OceanGuard from Ocean Protect and a stormfilter chamber with 2x 690Psorb filters to manage water runoff quality

Following the implementation of the above mitigation measures, the remaining impacts are considered appropriate.

## 2. Introduction

This report supports a State Significant Development Application and Concurrent Rezoning (SSDA) being lodged with the Department of Planning, Housing and Infrastructure (DPHI) for a residential development including affordable housing at 16-20 Old Castle Hill Road, Castle Hill (the site). The proponent for the SSDA is UPG Castle Corner Pty Ltd (UPG).

*State Environmental Planning Policy (Planning Systems) 2022* (Planning Systems SEPP) identifies development which is declared to be State Significant. The site was declared SSD pursuant to State Significant Declaration Order 2025 (No 7) (the Order) issued on 13 May 2025.

A separate 'Early Works' SSDA seeks approval for site establishment, tree removal, bulk excavation, infrastructure services augmentation and ancillary site works. This 'Main Works' SSDA and Concurrent Rezoning seeks approval for the built form aspects of the residential flat building.

The proposal aims to:

- Facilitate transport-oriented development within an area of high amenity, promoting increases to both market and affordable housing supply proximate to public transport, open space, and employment.
- Respond to the housing challenges facing NSW through boosting the delivery of housing in an area of growth.
- Align with the NSW Government's strategic ambitions to deliver 23,300 homes in The Hills by 2029.
- Deliver affordable housing in accordance with the in-fill affordable housing provisions of *State Environmental Planning Policy (Housing) 2021*.
- Deliver a built form that relates to the surrounding context and respects the character of its environs.

In accordance with section 4.39 of the Environmental Planning & Assessment Act 1979 (EP&A Act), Secretary's Environmental Assessment Requirements (SEARs) for SSD-85238209 has been issued. This report has been prepared to respond to the issued SEARs, as set out in table below.

**Table 2: SEARs Requirements**

Item	SEARS Requirement	Relevant Section of Report
11 Water Management	Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater).	Refer to Appendix C for Stormwater Drawings.  Refer to section 4 and 5 for all requirements for the site's stormwater quality and quantity management.  Refer to the hydraulic engineer for the wastewater design.
	Demonstrate how the development complies with council's drainage requirements and identify proposed stormwater treatment and water quality management measures to minimise adverse environmental impacts.	Refer to section 5.2 for the results on stormwater quality and quantity management.

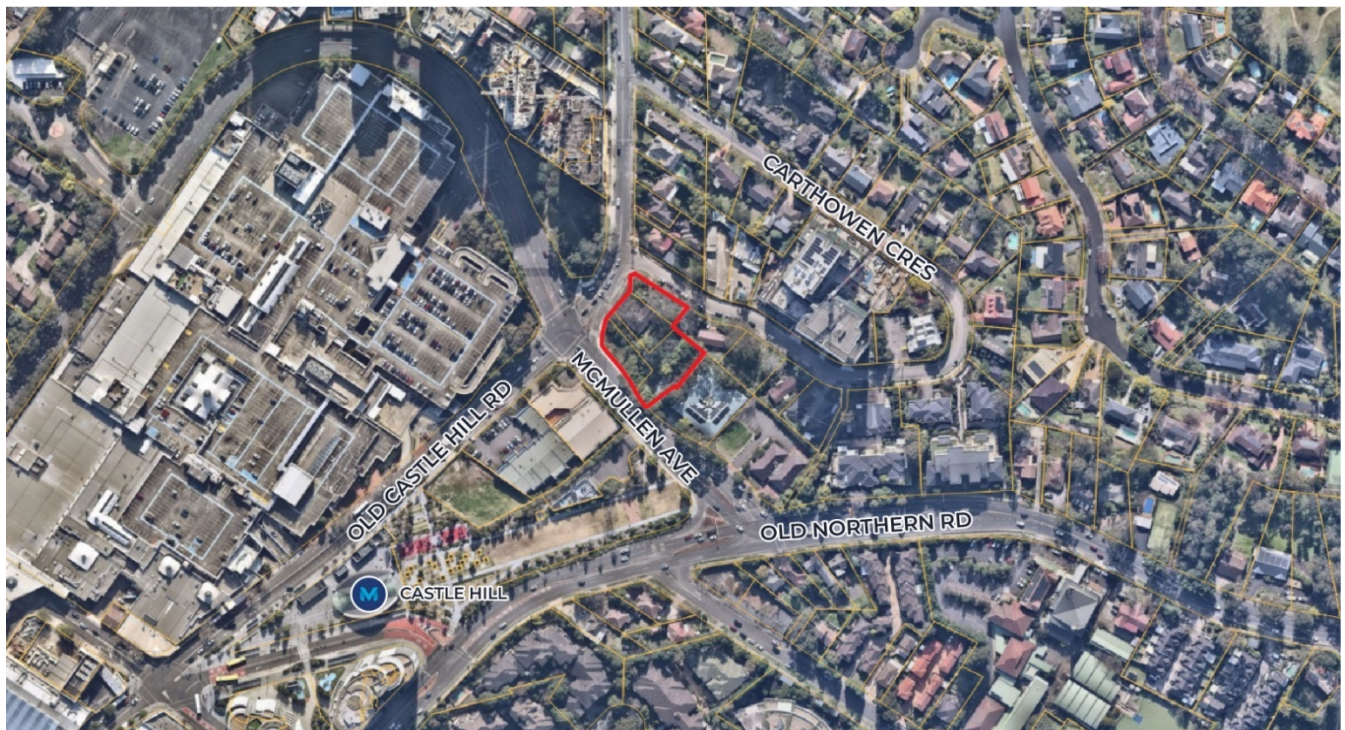
## 2.1 The Site

The site is situated at 16-20 Old Castle Hill Road, Castle Hill, within The Hills Local Government Area (LGA). It is well located, being approximately 250m from Castle Hill Metro Station which provides services to Rouse Hill, Macquarie Park, Chatswood and the Sydney CBD. It is equally proximate to Castle Towers shopping centre, a major regional retail hub. The site has ready access to public open space being less than 100m from Arthur Whitting Park and Eric Fenton Reserve.

The site is located at the corner of Old Castle Hill Road and McMullen Avenue comprising an area of 3,180.4m<sup>2</sup>. It comprises 4 lots in an irregular configuration, legally described as:

- Lot 10 in DP 881332
- Lot 11 in DP 881332
- Lot 20 in DP 222257
- Lot 1 in DP 204335

A Site Aerial is provided in Figure 1 below.



 The Site

 NOT TO SCALE

**Figure 1: Site Aerial Map (Source: Nearmap, edits by Colliers Urban Planning)**

The site currently contains development comprising two detached residential dwellings located on 18 and 20 Old Castle Hill Road. There is currently no development on 16 Old Castle Hill Road. The site is covered in dense vegetation and has a steep slope upwards from the north-west to the south-east.

## 2.2 The Proposed Development

A high-level summary of the proposed development is described below, with further details provided within the Environmental Impact Assessment and Rezoning Report (EIS).

The SSDA seeks approval for:

- The construction and operation of a 40-storey residential flat building, comprising the following:
  - Market and affordable housing units.
  - Basement parking; and
  - Communal open space.
- Associated landscaping and public domain works.

## 2.3 Relevant Documentation

The following documentation has been used as a reference in the preparation of this report and the stormwater concept plans:

- Architectural Drawings by Woods Bagot dated November 2025
- Detailed Survey by LTS Pty Ltd dated October 2025
- Australian Rainfall and Runoff Guidelines 2019

## 3. Existing Site Context

### 3.1 Existing Site Drainage

Currently, the site holds multiple residential properties that discharge into the public network along the kerbline of Old Castle Hill Road. There is an existing network that surrounds the property on McMillen Av, Garthowen Cr and Old Castle Hill Road as shown in Figure 2 below. These pipes range from 375-600mm as shown in Figure 2 The invert levels have been picked up by the detailed survey completed by LTS Pty Ltd.



Figure 2: Existing stormwater network (GIS)

### 3.2 Existing Land Condition and Flooding

#### 3.2.1 Land Conditions

The site has not been demolished and still has multiple individual houses and a pool on lot 20. The lots slope towards Old Castle Hill Road, and the other sides of the site interface with McMullen and Garthowen Road. The site slopes from SE to NW with a total height difference of 5.5m. The site contours are shown in Figure 3 below.

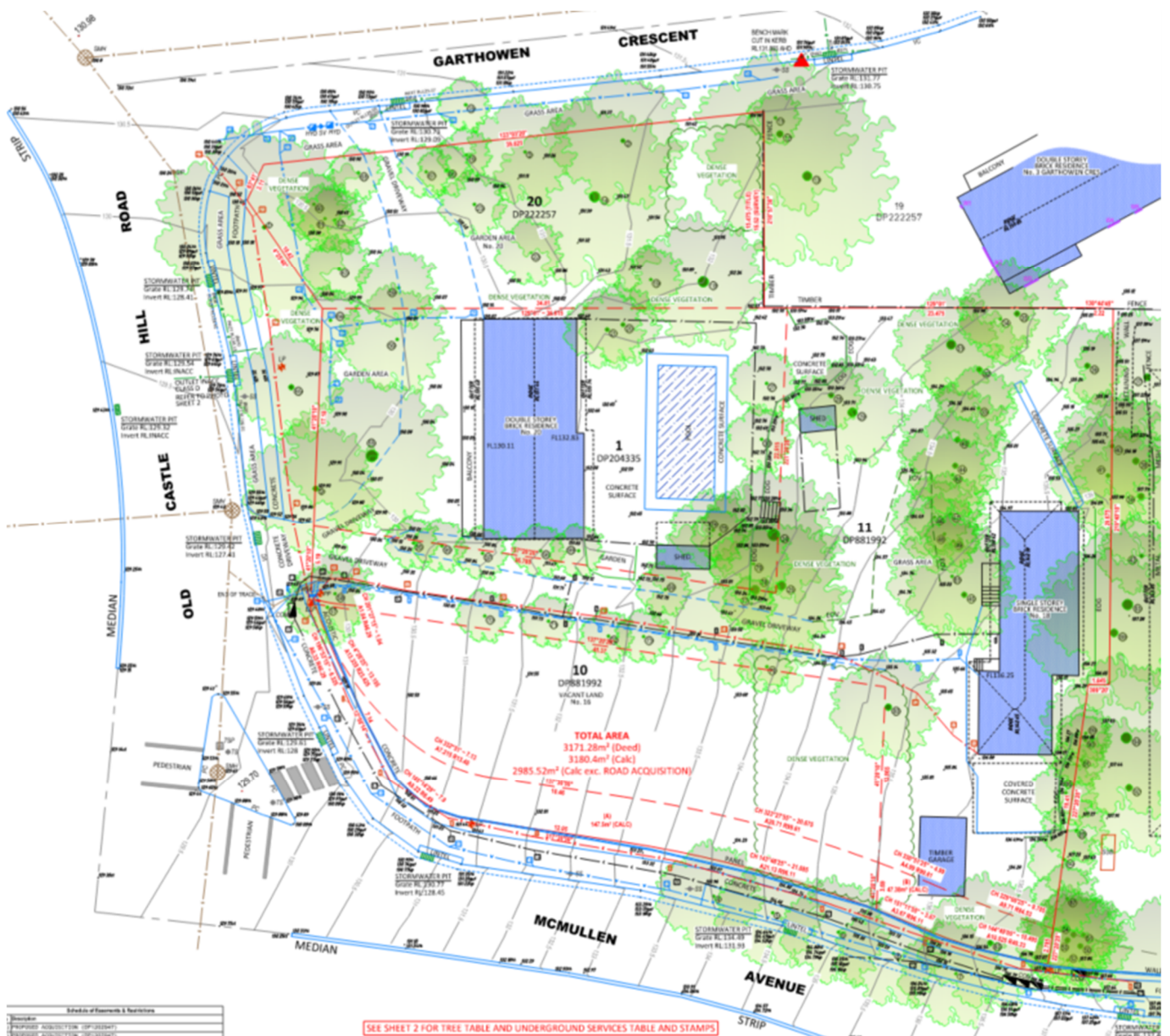


Figure 3: Existing Site Survey

### 3.2.2 Flooding

A flood impact and risk assessment was undertaken by BG&E and concluded that the proposed development is not considered within flood prone land. The site's elevated location ensures that flooding is not a concern, and the potential effects of climate change are likely to be negligible. The proposal is considered to meet the requirements of the SEARS. Refer to the flood assessment "16-20 Old Castle Hill Rd, Castle Hill - Flood Impact and Risk Assessment" by BG&E for detailed information.

## 4. Design Criteria

### 4.1 Stormwater Policies and Objectives

An integrated stormwater management and water-sensitive urban design concept has been prepared for the development. The strategy has been developed to meet the following objectives and comply with:

- Australian Rainfall and Runoff Guidelines 2019
- Water Sensitive Urban Design Technical Guidelines for Western Sydney (NSW Government Stormwater Trust and UPRCT, May 2004)
- Australian Runoff Quality (Engineers Australia 2005).
- The Hills Shire Council Design-Guidelines-Subdivision-Developments

As part of the proposed development, to satisfy all relevant requirements outlined in the above-stated documents, an On-site Detention (OSD) tank is required to limit total discharge from the Site and implement WSUD equipment to increase the quality of water discharging from the Site.

### 4.2 Site Specific Requirements

As the site is located within the Hawkesbury River Catchment and has an approximate ground slope of 8% from the survey, on-site stormwater detention (OSD) is required in accordance with The Hills Shire Council Design Guidelines for Subdivisions/Developments. For slopes between 6% and 10%, Table 4.14 shown in Figure 4 below specifies a Permissible Site Discharge (PSD) of 104 L/s/ha and a Site Storage Volume (SSV) of 362 m<sup>3</sup>/ha. The OSD will be located under the proposed driveway entering the site.

The purpose of OSD is to limit post-development runoff to the allowable PSD and to provide the required storage volume to protect the downstream drainage system. OSD design must also comply with Council's additional detention basin requirements, including maximum basin depths, side slopes, and outlet configuration criteria.

Site Slope	PSD (l/s/ha)	SSV (m <sup>3</sup> /ha)
Greater than 15%	136	298
Between 10% and 15%	115	336
Between 6% and 10%	104	362
Between 3% and 6%	92	396
Between 0% and 3%	87	412

Figure 4: Hills Shire Council PSD and SSV Requirements

### 4.3 Water Sensitive Urban Design Requirements

Stormwater quality for the proposed development has been assessed in accordance with The Hills Shire Council Design Guidelines and the supporting Water Sensitive Urban Design (WSUD) Technical Guidelines for Western Sydney. These guidelines require medium to large-scale developments to achieve the following post-construction pollutant-retention performance:

- 80% retention of coarse sediment ( $\leq 0.5$  mm)
- 45% retention of Total Phosphorus (TP)
- 45% retention of Total Nitrogen (TN)
- 70% retention of litter greater than 5 mm

In addition to these quantitative requirements, Council requires integration of WSUD principles that minimise directly connected impervious areas, maximise stormwater reuse, promote vegetated flow paths, and protect downstream riparian and aquatic environments. To meet these objectives, the stormwater management strategy for the site incorporates appropriate WSUD measures such as biofiltration systems, rainwater harvesting, gross pollutant trapping, and other approved treatment devices to ensure pollutant loads are reduced to best-practice levels and that the development achieves Council's stormwater quality outcomes

## 5. Analysis Results

### 5.1 On-Site Detention

The proposal also allows the site to drain to an OSD tank, ensuring runoff from the site does not exceed the council PDS and SSV requirements. This will be done by draining the whole development to the OSD, with minimal bypass. This OSD will ensure the runoff rate matches the pre-site development runoff rate. This will then discharge directly into the proposed underground pipe network, connecting to the council system, rather than running directly onto the road, as is currently the case.

Based on Figure 4 above, from the council requirements, the Permissible Site Discharge (PSD) is shown as 104 L/s/ha for a site slope of 8%. Therefore, the PSD(q) for the catchment size of 0.32ha is calculated below:

$$\begin{aligned} PSD &= 104 \times 0.32 \\ &= 33.28 \text{ L/s} \end{aligned}$$

Based on Figure 4 above the Site Storage Volume (SSV) is shown to be 362 m<sup>3</sup>/ha. From this we can calculate the necessary storage volume required for the OSD tank below:

$$\begin{aligned} SSV &= 362 \times 0.32 \\ &= 115.84 \text{ m}^3 \end{aligned}$$

Based on this we can calculate the required orifice size as shown below:

$$\begin{aligned} Q_{psd} &= 30 \text{ L/s} \\ Q &= C_o \times A_o \times \sqrt{(2gh)} \end{aligned}$$

Where:

- $C_o = 0.60$  (discharge coefficient)
- $g = 9.81 \text{ m/s}^2$
- $A_o =$  orifice area (m<sup>2</sup>) based on an assumed trial diameter of 100 mm, refined by iteration to meet the PSD.
- $h =$  hydraulic head (m)

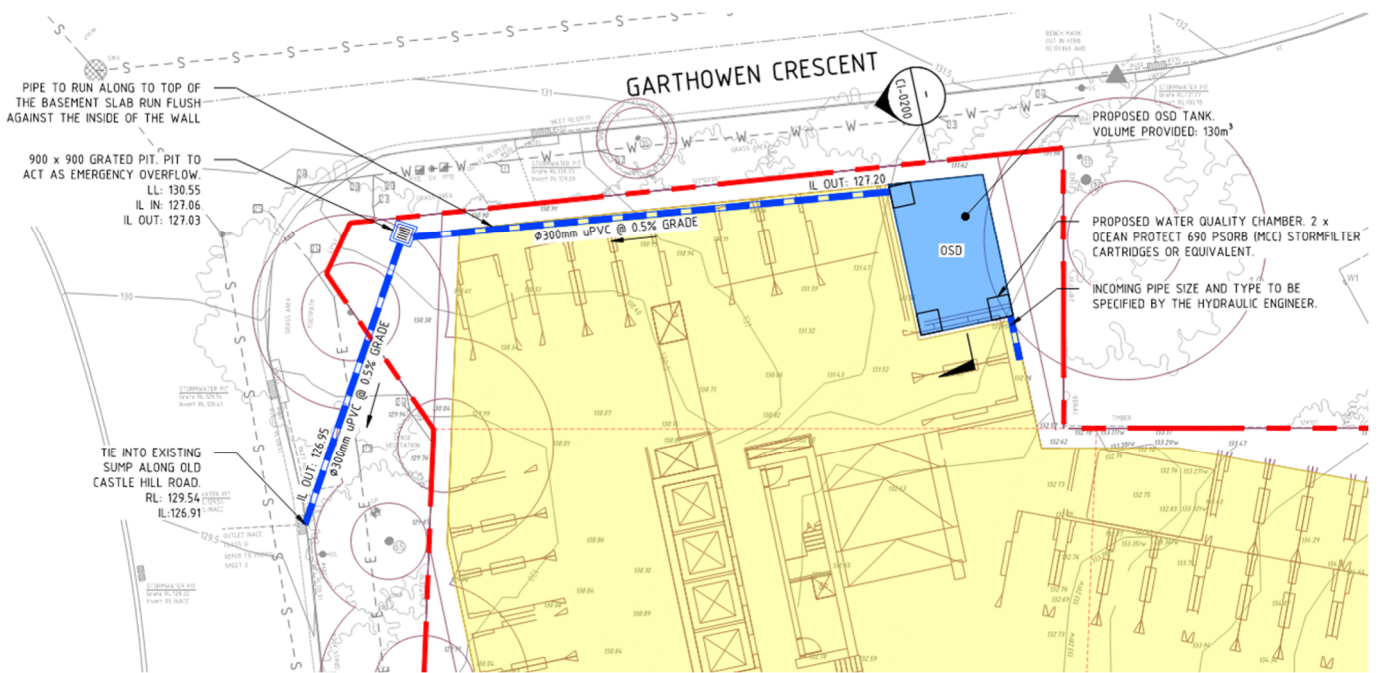
$$\begin{aligned} A_{o} &= \pi d^2 / 4 \\ Q_o &= 0.60 \times 0.00785 \times \sqrt{(2 \times 9.81 \times 1.97)} \end{aligned}$$

$$Q_o = 29.30 \text{ L/s} \approx Q_{psd} = 30 \text{ L/s}$$

Therefore, provide a 100 mm diameter orifice.

The results calculated above show that using the tank of 120m<sup>3</sup> and an orifice of 100mm, the site can achieve a PSD of 29.30L/s which complies with the council's requirements.

The OSD is proposed to discharge to the existing pit along Old Castle Hill Road through a 300mm uPVC pipe as shown in Figure 5 below:



**Figure 5: Proposed Discharge to Existing Catchpit**

In the situation where the OSD overtops the driveway will be graded so that any excess water will spill out and flow down towards Garthowen Crescent and away from the site.

The proposed pit-and-pipe system has been designed in accordance with The Hills Shire Council 'major/minor' drainage system concept, with the minor system sized to convey storms up to the 5 % AEP event within the piped network, and the overland flow paths (including driveway grades and finished surface levels) configured to safely convey flows from up to the 1 % AEP event without adverse impact on adjoining properties or public safety.

## 5.2 Water Sensitive Urban Design Requirement

### 5.2.1 Proposed Catchment Plan

The proposed development catchment plan is shown in Figure 6 below:



Figure 6: Proposed MUSIC Catchment Plan

### 5.2.2 Water Quality Proposal

The quality of water discharging from the Site will be managed using multiple OceanProtect products, specifically the OceanGuards and Ocean Filters.

The water quality modelling software MUSIC v6.3 was used to analyse the treatment train's performance. Figure 7 below shows the MUSIC node and link diagram used to describe the proposed treatment train. The model has been built to assess the adequacy of the proposed stormwater treatment measure and ensure that stormwater quality meets the objectives before stormwater runoff leaves the Site.

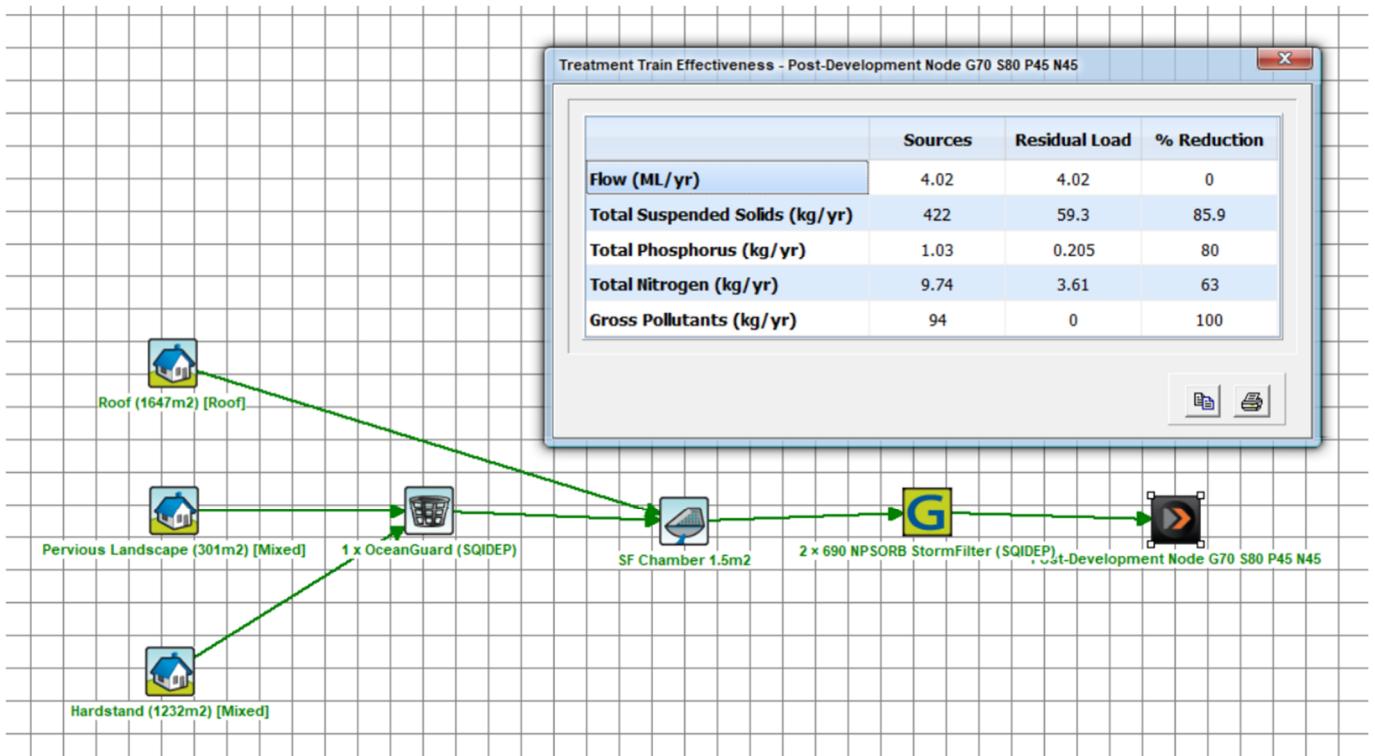


Figure 7: MUSIC Model and Results

The analysis showed that the treatment train would achieve the water quality targets in the Council's DCP. Table 3 below displays the effectiveness of the treatment train for the primary and secondary treatment. To meet the Council's requirements, the following treatment devices were implemented: 1x OceanGuard from Ocean Protect and a SF chamber with 2x 690Psorb filters. The number of products used will vary based on final area calculations and layout. This will need to be re-evaluated during detailed design. The water quality model developed with MUSIC software indicates the pollutant removal rates expected when a treatment train of water-quality measures is applied to the proposed development layout. Refer to Appendix D for standard details for the StormFilters and OceanGuard (OG).

Table 3: Water Sensitive Urban Design Results

Pollutant	Before Treatment (Kg/yr.)	Post Treatment (Kg/yr.)	Water Quality Objective (%)	Percentage Reduction (%)
Gross Pollutant (GP)	94	0	70%	100
Total Suspended Solids (TSS)	409	59.3	80%	85.9
Total Phosphorus (TP)	1.02	0.205	45%	80
Total Nitrogen (TN)	10.4	3.61	45%	63

The gross pollutant (GP) removal rate of 100 % satisfies Council's 70 % litter removal objective, and the OceanGuard and StormFilter devices are configured in accordance with manufacturer specifications and consistent with the WSUD Technical Guidelines.

## 6. Conclusion

BG&E Pty Ltd (BG&E) has prepared this Integrated Stormwater Management Plan in support of the State Significant Development Application for the proposed residential development at 16–20 Old Castle Hill Road, Castle Hill. The stormwater management strategy has been developed in accordance with Australian Rainfall and Runoff (2019), the Water Sensitive Urban Design (WSUD) Technical Guidelines for Western Sydney, and The Hills Shire Council Design Guidelines, ensuring compliance with all relevant stormwater quantity and quality requirements for the site.

The analysis presented in this report confirms that the site can be suitably serviced by the proposed stormwater system. The key outcomes of the stormwater assessment are as follows:

### On-Site Detention (OSD) System:

- The development includes a 120 m<sup>3</sup> OSD tank, sized in accordance with The Hills Shire Council PSD/SSV requirements for the Hawkesbury River Catchment and the site's 8% slope.
- The allowable Permissible Site Discharge (PSD) was calculated as 30 L/s, based on the adopted catchment area and Council's PSD rate of 104 L/s/ha.
- A 100 mm diameter orifice has been designed to regulate outflows from the OSD. Hydraulic modelling confirms a discharge of 29.30 L/s, satisfying the PSD limit.
- The OSD system is configured so that runoff from the full site is directed into the detention tank ensuring post-development discharges are in line with Councils PSD requirements.
- The OSD will discharge to the existing Council pit on Old Castle Hill Road via a 300 mm uPVC pipeline, providing a compliant lawful point of discharge.

### Water Sensitive Urban Design (WSUD) Measures:

- Stormwater quality has been addressed using a treatment train consisting of:
- OceanGuard gross pollutant capture units, and
- An Ocean Protect StormFilter (SF) chamber fitted with Psorb 690 cartridges.

MUSIC modelling demonstrates that the proposed treatment train satisfies all Hills Shire Council pollutant-reduction targets, achieving:

- 100% reduction of gross pollutants,
- 86.7% reduction of Total Suspended Solids,
- 77.6% reduction of Total Phosphorus, and
- 62.2% reduction of Total Nitrogen

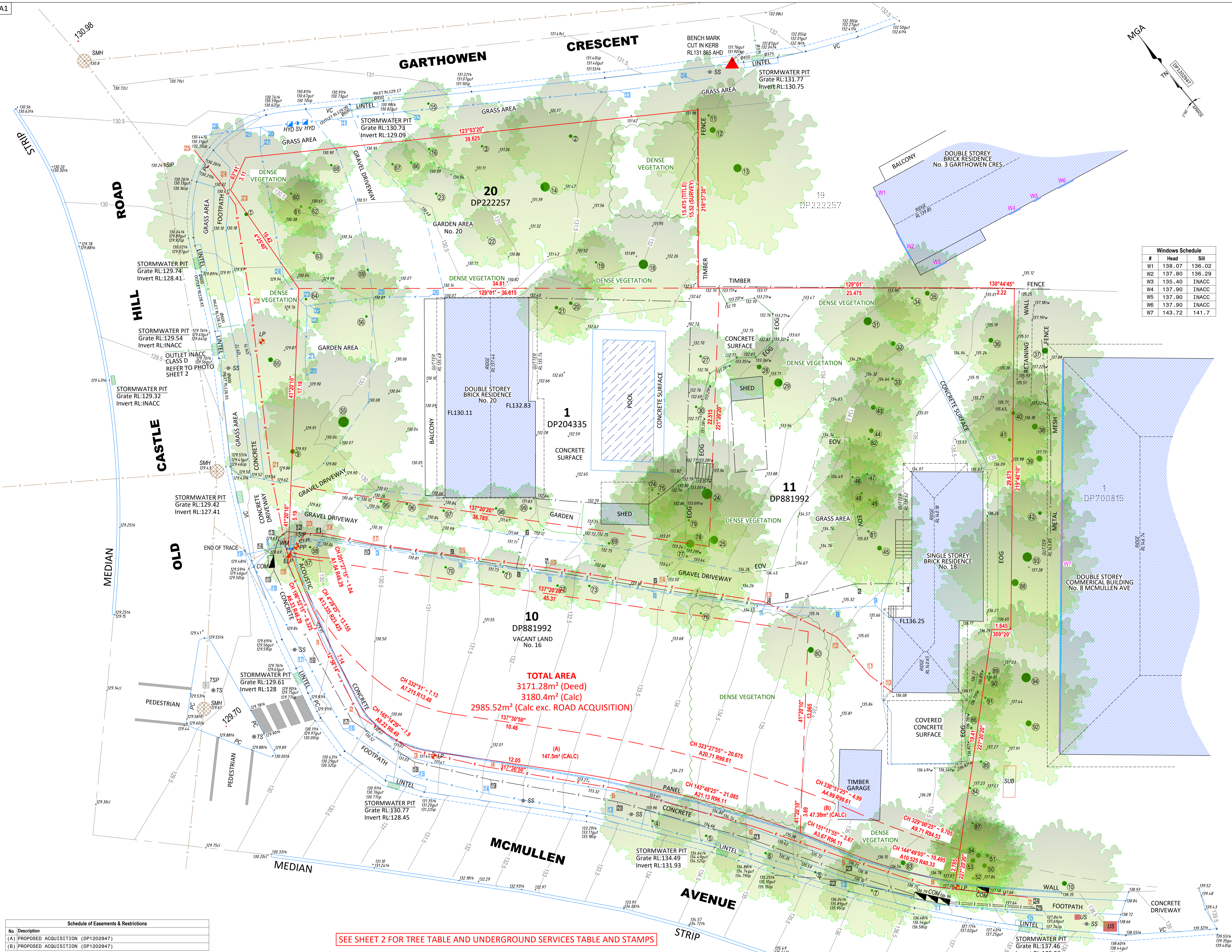
This exceeds the minimum performance requirements set out in the WSUD Technical Guidelines. Subject to implementation of the stormwater infrastructure identified in this report, the development is considered suitable from a stormwater management perspective.

# Appendices



# Appendix A - Site Survey

A1



**GENERAL NOTES**

ONLY TREES GREATER THAN 3.5 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITIONS ARE DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.

CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.

LEVELS ARE ON AUSTRALIAN HEIGHT DATUM (AHD).

ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK SHOWN ON THIS PLAN.

**BOUNDARY NOTES**

A BASIC BOUNDARY SURVEY HAS BEEN DONE SUITABLE FOR DA LODEGMENT PURPOSES.

BOUNDARIES HAVE NOT BEEN MARKED.

**SURVEY INFORMATION NOTES**

THE ORIGIN OF COORDINATES COMES FROM SSM67978 E315552.533 N6266047.426 CLASS B POSITIONAL UNCERTAINTY (PU) 0.03 (MGA2020) ADOPTED FROM SCIMS DATED 29/04/2024.

THE ORIGIN OF LEVELS COMES FROM SSM67978 RL130.974 CLASS XX POSITIONAL UNCERTAINTY (PU) 0.03 ADOPTED FROM SCIMS DATED 29/04/2024.

THE ORIENTATION OF THIS PLAN IS MGA NORTH WHICH HAS BEEN DETERMINED BY DP1202947.

**CERTIFICATE OF TITLE NOTES**

THE FOLLOWING INFORMATION RELATES TO THE RESPECTIVE CERTIFICATE OF TITLE OF EACH LOT:

- LOT 1 IN DP204335  
(CT VOL 9047 FOL 32 SEARCH DATE 30/04/2024)  
- COVENANT (C221153)
- LOT 10 IN DP881332  
(CT EDITION 3 DATED 29/09/2010 SEARCH DATE 30/04/2024)  
- COVENANT (C221153)  
- COVENANT (G829460)
- LOT 11 IN DP881332  
(CT EDITION 1 DATED 03/11/1998 SEARCH DATE 30/04/2024)  
- COVENANT (C221153)
- LOT 20 IN DP222257  
(CT EDITION 1 DATED 19/08/1999 SEARCH DATE 30/04/2024)  
- COVENANT (J716262)

COVENANTS AND RESTRICTIONS NOTED ON THE TITLE HAVE NOT BEEN INVESTIGATED. THESE SHOULD BE INVESTIGATED PRIOR TO DESIGN TO ENSURE ANY FUTURE DEVELOPMENT COMPLIES.

**SERVICES NOTES**

ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019.

UNDERGROUND SERVICES HAVE BEEN LOCATED FOR BY ON POINT ON 29/04/2024 USING EQUIPMENT AS NOTED ON REPORT PROVIDED DATED 29/04/2024. THE SERVICE POSITION IS SHOWN ON THE PLAN AND THEIR RESPECTIVE DEPTH AND QUALITY ARE AS STATED IN THE TABLE.

UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM 'DIAL-BEFORE-YOU-DIG' PLANS, ARE QUALITY LEVEL D AS DEFINED BY AS 5488.1:2019 AND ARE ONLY CURRENT AT THE DATE OF SEARCH.

ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

**LEGEND**

TAG	DESCRIPTION
COM	COMMUNICATIONS PIT
ELP	ELECTRICITY PILLAR
GR	GRATE
HYD	HYDRANT
LP	LIGHT POLE
PC	PEDESTRIAN CROSSING
PP	POWER POLE
SIP	SEWER INSPECTION PIT
SMH	SEWER MANHOLE
SS	STREET SIGN
SUB	SUBSTATION
SV	STOP VALVE
TS	TRAFFIC SIGNAL
TSP	TRAFFIC SIGNAL PIT
US	UNCLASSIFIED SERVICE
VC	VEHICLE CROSSING
WM	WATER METER
EOG	EDGE OF GARDEN
EOV	EDGE OF VEGETATION

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**PROJECT:**  
 DETAIL AND LEVEL SURVEY OF  
 LOT 20 IN DP222257, LOT 1 IN DP204335,  
 LOT 10 & 11 IN DP881332

16-20 OLD CASTLE HILL ROAD  
 CASTLE HILL

**CLIENT:** URBAN PROPERTY DEVELOPMENT  
**FILE:** 9163 - DETAIL SURVEY - ISSUE 3

**LGA:** THE HILLS SHIRE

REF: 9163	CONTOURS: 0.5M
ISSUE: B	DATUM: AHD
SURVEY DATE: 07/08/2024	AZIMUTH: MGA2020
SCALE: 1:150	SHEET 1 OF 3 SHEETS



ISSUE	DATE	AMENDMENT	SURV	CHK
A	29/04/24	ORIGINAL ISSUE	AZ	MD
B	07/05/24	ADDITIONAL DETAIL SH3		

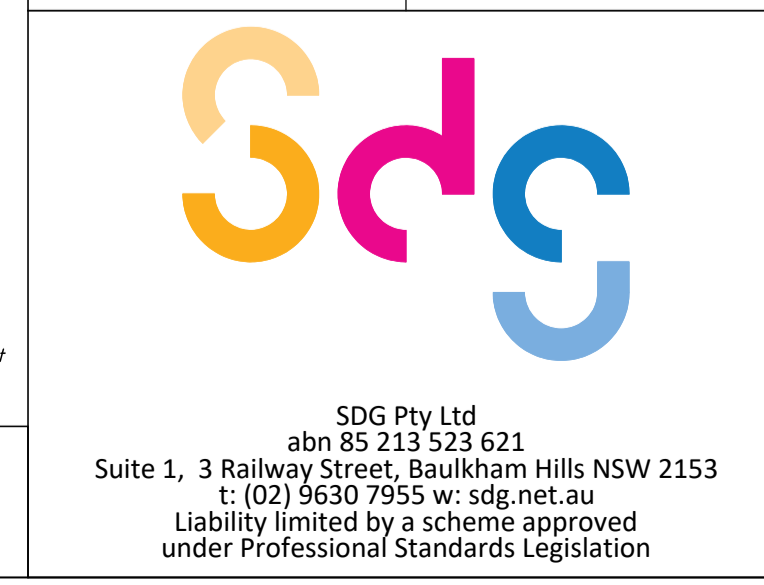
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**GDA2020**

**SDG**

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 t: (02) 9630 7955 w: sdg.net.au  
 Liability limited by a scheme approved under Professional Standards Legislation

MICHAEL DARK ID: SU008949  
 REGISTERED LAND SURVEYOR



SEE SHEET 1 FOR TREES AND UNDERGROUND SERVICES

No	Diam	Spread	Height
1	0.3	15	8
2	0.3	10	6
3	0.2	8	5
4	0.2	8	5
5	0.2	8	5
6	0.2	8	5
7	0.2	8	5
8	0.2	8	5
9	0.4	10	8
10	0.4	10	15
11	0.2	4	7
12	0.5	12	15
13	0.7	14	10
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15	0.2	4	3
16	0.2	4	3
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21	0.3	6	9
22	0.1	5	7
23	0.2	5	4
24	0.9	10	19
25	0.7	10	15
27	0.2	5	4
28	0.4	5	7
29	0.7	8	12
30	0.2	5	8
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77	0.2	4	8
78	0.7	15	18
79	0.2	6	8
80	0.5	8	11
81	0.2	9	5
82	0.2	6	10
83	0.4	10	12
84	0.2	5	7
85	0.2	5	7
86	0.2	5	7
87	0.2	5	7
88	0.6	12	15
89	0.2	4	6
90	0.2	4	6
91	0.2	4	6
92	0.5	10	15
93	0.8	12	18
94	0.8	12	18
95	0.2	4	5
96	0.2	4	5
97	0.2	4	5
98	0.2	4	5
99	0.2	4	5

No	Surface RL	Approx Depth	Service Obvert RL	Quality
1	135.66	0.20	135.46	B
2	135.24	0.30	134.94	B
3	134.71	0.30	134.41	B
4	134.54	0.30	134.24	B
5	133.39	0.30	133.09	B
6	131.85	0.30	131.55	B
7	132.38	0.30	132.08	B
8	131.89	0.30	131.59	B
9	131.21	0.30	130.91	B
10	130.37	0.30	130.07	B
11	130.02	0.30	129.72	B
12	129.71	0.30	129.41	B
13	129.62	0.50	129.12	B
14	129.62	0.30	129.32	B
15	129.64	0.30	129.34	B
16	129.89	0.50	129.39	B
17	130.33	0.60	129.73	B
18	131.20	0.40	130.80	B
19	132.09	0.50	131.59	B
20	133.63	0.50	133.13	B
21	135.05	0.40	134.65	B
22	135.90	1.10	134.80	B
23	136.01	0.50	135.51	B
24	137.93	0.60	137.33	B
25	137.92	0.50	137.42	B

No	Surface RL	Approx Depth	Service Obvert RL	Quality
1	129.60	0.40	129.20	B
2	130.04	0.50	129.54	B
3	130.38	0.50	129.88	B
4	131.21	0.30	130.91	B
5	132.17	0.50	131.67	B
6	133.42	0.30	133.12	B
7	134.55	0.60	133.95	B
8	135.28	0.40	134.88	B
9	135.58	0.30	135.28	B
10	137.82	1.00	136.82	B
11	136.83	0.90	135.93	B
12	135.91	0.90	135.01	B
13	133.60	0.90	132.70	B
14	132.08	1.00	131.08	B
15	131.21	1.20	130.01	B
16	130.30	1.60	128.70	B
17	129.84	1.80	128.04	B
18	129.63	1.90	127.73	B
19	129.47	1.00	128.47	B
20	129.78	0.30	129.48	B
21	129.75	0.30	129.45	B
22	129.74	0.30	129.44	B
23	129.71	0.30	129.41	B
24	129.91	0.60	129.31	B
25	130.03	0.30	129.73	B
26	130.05	0.30	129.75	B
27	130.65	0.70	129.95	B
28	130.44	0.80	129.64	B
29	130.21	0.70	129.51	B
30	130.23	0.70	129.53	B
31	130.76	0.70	130.06	B
32	131.03	0.80	130.23	B
33	131.52	0.70	130.82	B
34	131.71	0.80	130.91	B
35	129.75	0.3	129.45	B

No	Surface RL	Approx Depth	Service Obvert RL	Quality
1	129.93	0.70	129.23	B
2	130.38	1.30	129.08	B
3	131.15	1.00	130.15	B
4	132.05	0.70	131.35	B
5	133.61	0.70	132.91	B
6	135.08	0.70	134.38	B
7	137.89	0.70	137.19	B
8	136.87	0.80	136.07	B
9	136.03	0.80	135.23	B
10	135.99	0.50	135.49	B
11	135.83	0.50	135.33	B
12	135.57	0.60	134.97	B
13	134.49	0.60	133.89	B
14	133.36	0.80	132.56	B
15	132.16	0.70	131.46	B
16	131.21	0.80	130.41	B
17	130.39	1.20	129.19	B
18	129.71	0.80	128.91	B
19	130.03	1.20	128.83	B
20	129.80	1.20	128.60	B
21	129.60	0.80	128.80	B
22	129.78	1.20	128.58	B
23	130.34	1.00	129.34	B
24	130.36	1.20	129.16	B
25	130.35	1.20	129.15	B

**UNDERGROUND SERVICES LEGEND**  
QUALITY LEVEL D (AS 5488.1:2019)

— S — SEWER MAIN

CAUTION: FIBRE OPTIC CABLES ARE PRESENT IN THIS AREA

APPROXIMATE POSITION ONLY VIDE 'DIAL-BEFORE-YOU-DIG' PLANS JOB No. 36562506 SEARCH DATE 29/04/2024. WHERE CRITICAL TO DESIGN, UNDERGROUND SERVICES SHOULD BE LOCATED BY MORE ACCURATE METHODS.

**SERVICES NOTES:**

- ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND IF SHOWN AS '—' ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019. LEVELS SHOWN ARE SURFACE LEVELS UNLESS NOTED OTHERWISE.
- UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM 'DIAL-BEFORE-YOU-DIG' PLANS. ARE QUALITY LEVEL D AS DEFINED BY AS 5488.1:2019 AND ARE ONLY CURRENT FOR 3 MONTHS FROM THE SEARCH DATE NOTED ABOVE. ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

**UNDERGROUND SERVICES LEGEND**  
QUALITY LEVEL B (AS 5488.1:2019)

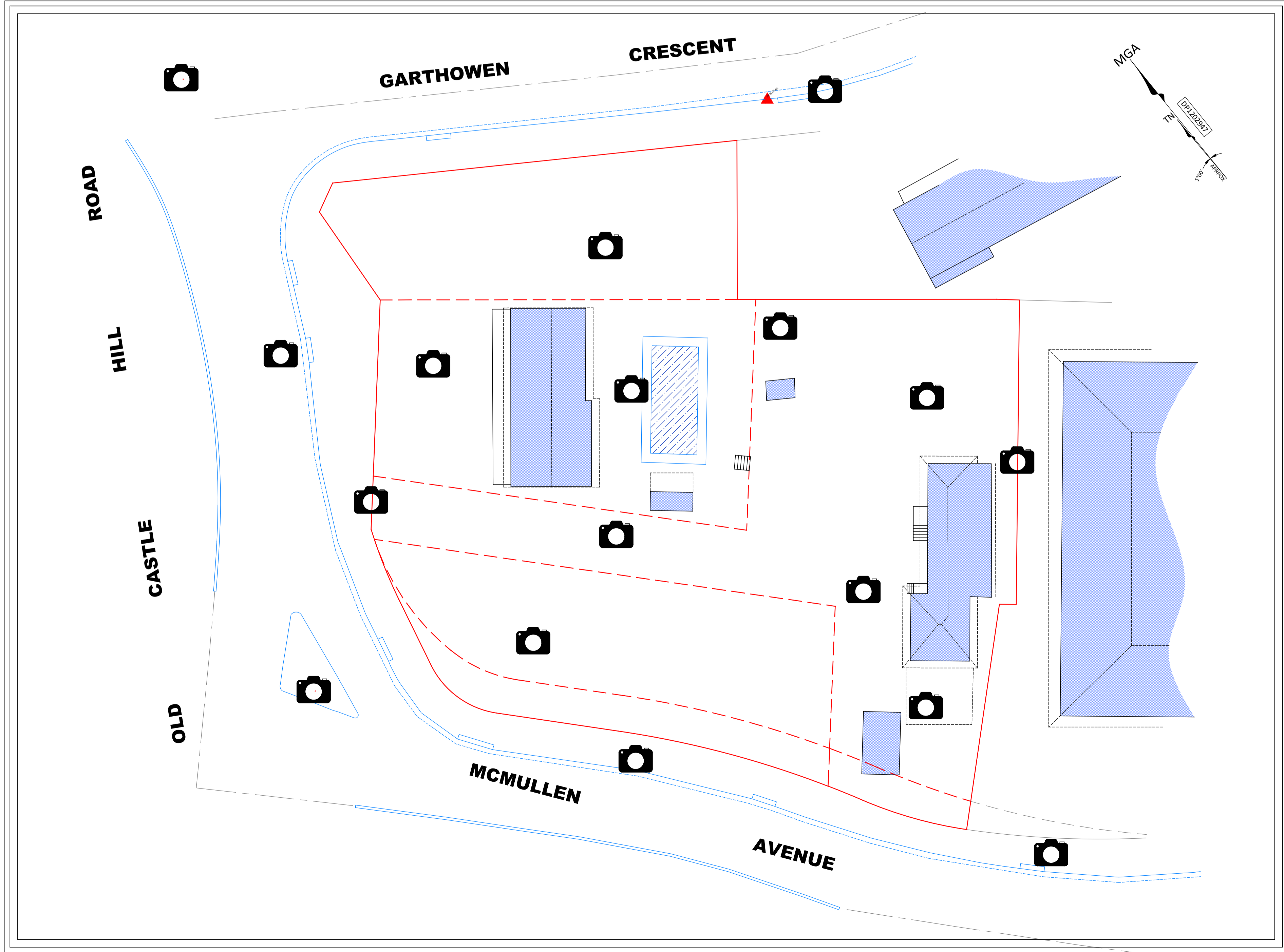
— W — POTABLE WATER MAIN  
— C — COMMUNICATIONS CABLES  
— E — ELECTRICITY CABLES

CAUTION: FIBRE OPTIC CABLES ARE PRESENT IN THIS AREA

**SERVICES NOTES:**

- ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND IF SHOWN AS '—' ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019. LEVELS SHOWN ARE SURFACE LEVELS UNLESS NOTED OTHERWISE.
- UNDERGROUND SERVICES HAVE BEEN LOCATED FOR POSITION AND DEPTH AND HAVE BEEN DETERMINED FROM USING EQUIPMENT ON REPORT PROVIDED BY ON POINT ON 29/04/2024. ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

360 VIEW PHOTOS DIAGRAM (N.T.S)



CLICK THE CAMERA ICON TO SEE A 360° PHOTO IN THAT LOCATION

**GENERAL NOTES**

ONLY TREES GREATER THAN 3.5 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITIONS ARE DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.

CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.

LEVELS ARE ON AUSTRALIAN HEIGHT DATUM (AHD).

ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK SHOWN ON THIS PLAN.

**BOUNDARY NOTES**

A BASIC BOUNDARY SURVEY HAS BEEN DONE SUITABLE FOR DA LODGEMENT PURPOSES.

BOUNDARIES HAVE NOT BEEN MARKED.

**SURVEY INFORMATION NOTES**

THE ORIGIN OF COORDINATES COMES FROM SSM67978 E31552.533 N6266047.426 CLASS B POSITIONAL UNCERTAINTY (PU) 0.03 (MGA2020) ADOPTED FROM SCIMS DATED 29/04/2024.

THE ORIGIN OF LEVELS COMES FROM SSM67978 RL130.974 CLASS XX POSITIONAL UNCERTAINTY (PU) 0.03 ADOPTED FROM SCIMS DATED 29/04/2024.

THE ORIENTATION OF THIS PLAN IS MGA NORTH WHICH HAS BEEN DETERMINED BY DP1202947.

**CERTIFICATE OF TITLE NOTES**

THE FOLLOWING INFORMATION RELATES TO THE RESPECTIVE CERTIFICATE OF TITLE OF EACH LOTS:

- LOT 1 IN DP204335 (CT VOL 9047 FOL 32 SEARCH DATE 30/04/2024) - COVENANT (C221153)
- LOT 10 IN DP881332 (CT EDITION 3 DATED 29/09/2010 SEARCH DATE 30/04/2024) - COVENANT (C221153) - COVENANT (G829460)
- LOT 11 IN DP881332 (CT EDITION 1 DATED 03/11/1998 SEARCH DATE 30/04/2024) - COVENANT (C221153)
- LOT 20 IN DP222257 (CT EDITION 1 DATED 19/08/1999 SEARCH DATE 30/04/2024) - COVENANT (J716262)

COVENANTS AND RESTRICTIONS NOTED ON THE TITLE HAVE NOT BEEN INVESTIGATED. THESE SHOULD BE INVESTIGATED PRIOR TO DESIGN TO ENSURE ANY FUTURE DEVELOPMENT COMPLIES.

**SERVICES NOTES**

ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019.

UNDERGROUND SERVICES HAVE BEEN LOCATED FOR BY ON POINT ON 29/04/2024 USING EQUIPMENT AS NOTED ON REPORT PROVIDED DATED 29/04/2024. THE SERVICE POSITION IS SHOWN ON THE PLAN AND THEIR RESPECTIVE DEPTH AND QUALITY ARE AS STATED IN THE TABLE.

UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM 'DIAL-BEFORE-YOU-DIG' PLANS, ARE QUALITY LEVEL D AS DEFINED BY AS 5488.1:2019 AND ARE ONLY CURRENT AT THE DATE OF SEARCH.

ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

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**PROJECT:**  
DETAIL AND LEVEL SURVEY OF LOT 20 IN DP222257, LOT 1 IN DP204335, LOT 10 & 11 IN DP881332

16-20 OLD CASTLE HILL ROAD  
CASTLE HILL

**CLIENT:** URBAN PROPERTY DEVELOPMENT  
**FILE:** 9163 - DETAIL SURVEY - ISSUE B

<b>LGA:</b> THE HILLS SHIRE	
<b>REF:</b> 9163	<b>CONTOURS:</b> N/A
<b>ISSUE:</b> B	<b>DATUM:</b> AHD
<b>SURVEY DATE:</b> 07/08/2024	<b>AZIMUTH:</b> MGA2020
<b>SCALE:</b> N/A	<b>SHEET 2 OF 3 SHEETS</b>



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t: (02) 9630 7955 w: sdg.net.au  
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ISSUE	DATE	AMENDMENT	SURV	CHK
A	29/04/24	ORIGINAL ISSUE	AZ	MD
B	07/05/24	ADDITIONAL DETAIL SH3		

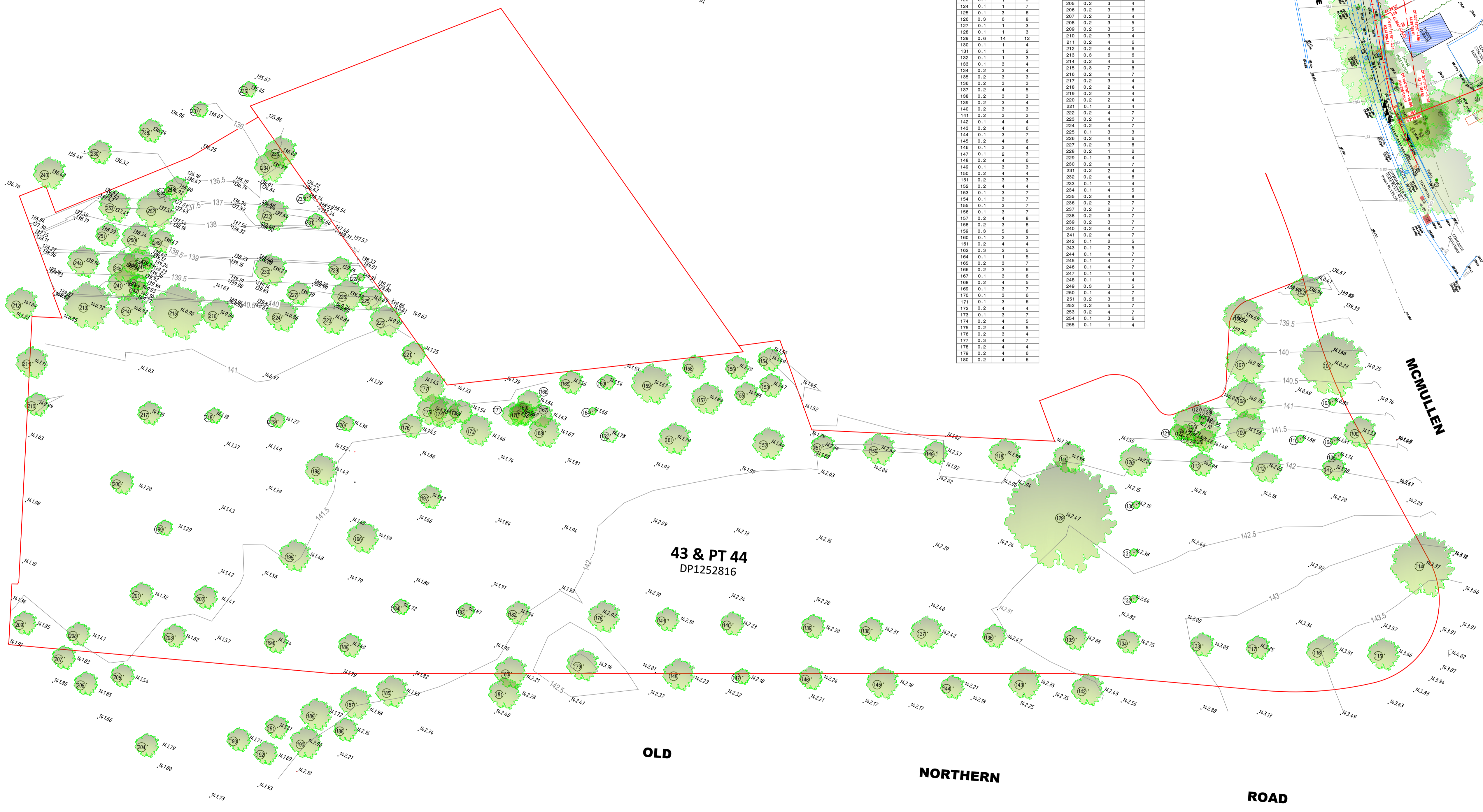
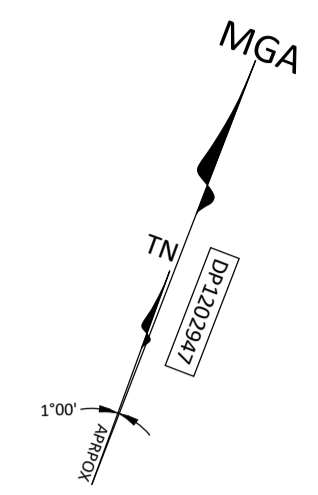


MICHAEL DARK ID: SU008949  
REGISTERED LAND SURVEYOR

**GENERAL NOTES**  
 ONLY TREES GREATER THAN 3 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITIONS ARE DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.  
 CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.  
 LEVELS ARE ON AUSTRALIAN HEIGHT DATUM (AHD).

No	Dim	Spread	Height
100	0.2	4	6
101	0.4	8	8
102	0.2	4	5
103	0.1	1	4
104	0.1	1	6
105	0.1	1	5
106	0.2	5	6
107	0.2	5	6
108	0.2	5	7
109	0.3	5	7
110	0.1	1	3
111	0.2	3	5
112	0.2	4	4
113	0.2	3	4
114	0.4	8	8
115	0.2	4	4
116	0.2	4	4
117	0.2	3	4
118	0.2	4	5
119	0.2	4	5
120	0.2	4	4
121	0.1	2	7
122	0.1	2	7
123	0.1	1	5
124	0.1	1	7
125	0.1	3	6
126	0.3	6	8
127	0.1	1	3
128	0.1	1	3
129	0.6	14	12
130	0.1	1	4
131	0.1	1	2
132	0.1	1	3
133	0.1	3	4
134	0.2	3	4
135	0.2	3	3
136	0.2	3	3
137	0.2	4	5
138	0.2	3	3
139	0.2	3	4
140	0.2	3	3
141	0.2	3	3
142	0.1	4	4
143	0.2	4	6
144	0.1	3	7
145	0.2	4	6
146	0.1	3	4
147	0.1	2	3
148	0.2	4	6
149	0.1	3	3
150	0.2	4	4
151	0.2	3	3
152	0.2	4	4
153	0.1	3	7
154	0.1	3	7
155	0.1	3	7
156	0.1	3	7
157	0.2	4	8
158	0.2	3	8
159	0.3	5	8
160	0.1	2	3
161	0.2	4	4
162	0.3	2	4
164	0.1	1	5
165	0.2	3	7
166	0.2	3	6
167	0.1	3	6
168	0.2	4	5
169	0.1	3	7
170	0.1	3	6
171	0.1	3	6
172	0.2	4	4
173	0.1	3	7
174	0.2	4	5
175	0.2	4	5
176	0.2	3	4
177	0.3	4	7
178	0.2	4	4
179	0.2	4	6
180	0.2	4	6

No	Dim	Spread	Height
181	0.2	4	6
182	0.2	3	4
183	0.2	2	4
184	0.2	2	4
185	0.2	4	6
186	0.2	3	5
187	0.2	4	6
188	0.1	3	8
189	0.2	4	6
190	0.2	4	5
191	0.2	3	5
192	0.2	3	5
193	0.2	3	5
194	0.2	3	4
195	0.2	4	4
196	0.3	4	5
197	0.2	3	4
198	0.2	4	4
199	0.2	2	4
200	0.2	3	4
201	0.2	3	4
202	0.2	3	4
203	0.2	3	4
204	0.2	3	5
205	0.2	3	4
206	0.2	3	6
207	0.2	3	4
208	0.2	3	5
209	0.2	3	5
210	0.2	3	4
211	0.2	4	6
212	0.2	4	6
213	0.3	6	6
214	0.2	4	6
215	0.3	7	8
216	0.2	4	7
217	0.2	3	4
218	0.2	2	4
219	0.2	2	4
220	0.2	2	4
221	0.1	3	4
222	0.2	4	7
223	0.1	4	7
224	0.2	4	7
225	0.1	3	6
226	0.2	4	6
227	0.2	3	6
228	0.2	1	2
229	0.1	3	4
230	0.2	4	7
231	0.2	4	6
232	0.2	4	6
233	0.1	1	4
234	0.1	2	7
235	0.2	4	8
236	0.2	2	7
237	0.2	3	7
238	0.2	3	7
239	0.2	3	7
240	0.1	2	5
241	0.2	4	7
242	0.1	2	5
243	0.1	2	5
244	0.1	4	7
245	0.1	4	7
246	0.1	4	7
247	0.1	1	4
248	0.1	1	4
249	0.3	3	5
250	0.1	4	7
251	0.2	3	6
252	0.2	5	7
253	0.2	4	7
254	0.1	3	6
255	0.1	1	4



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**PROJECT:**  
 DETAIL AND LEVEL SURVEY OF LOT 20 IN DP222257, LOT 1 IN DP204335, LOT 10 & 11 IN DP881332

16-20 OLD CASTLE HILL ROAD  
 CASTLE HILL

CLIENT: URBAN PROPERTY DEVELOPMENT  
 FILE: 9163 - DETAIL SURVEY - ISSUE B

LGA: THE HILLS SHIRE	
REF: 9163	CONTOURS: N/A
ISSUE: B	DATUM: AHD
SURVEY DATE: 07/08/2024	AZIMUTH: MGA2020
SCALE: 1:300	SHEET 3 OF 3 SHEETS



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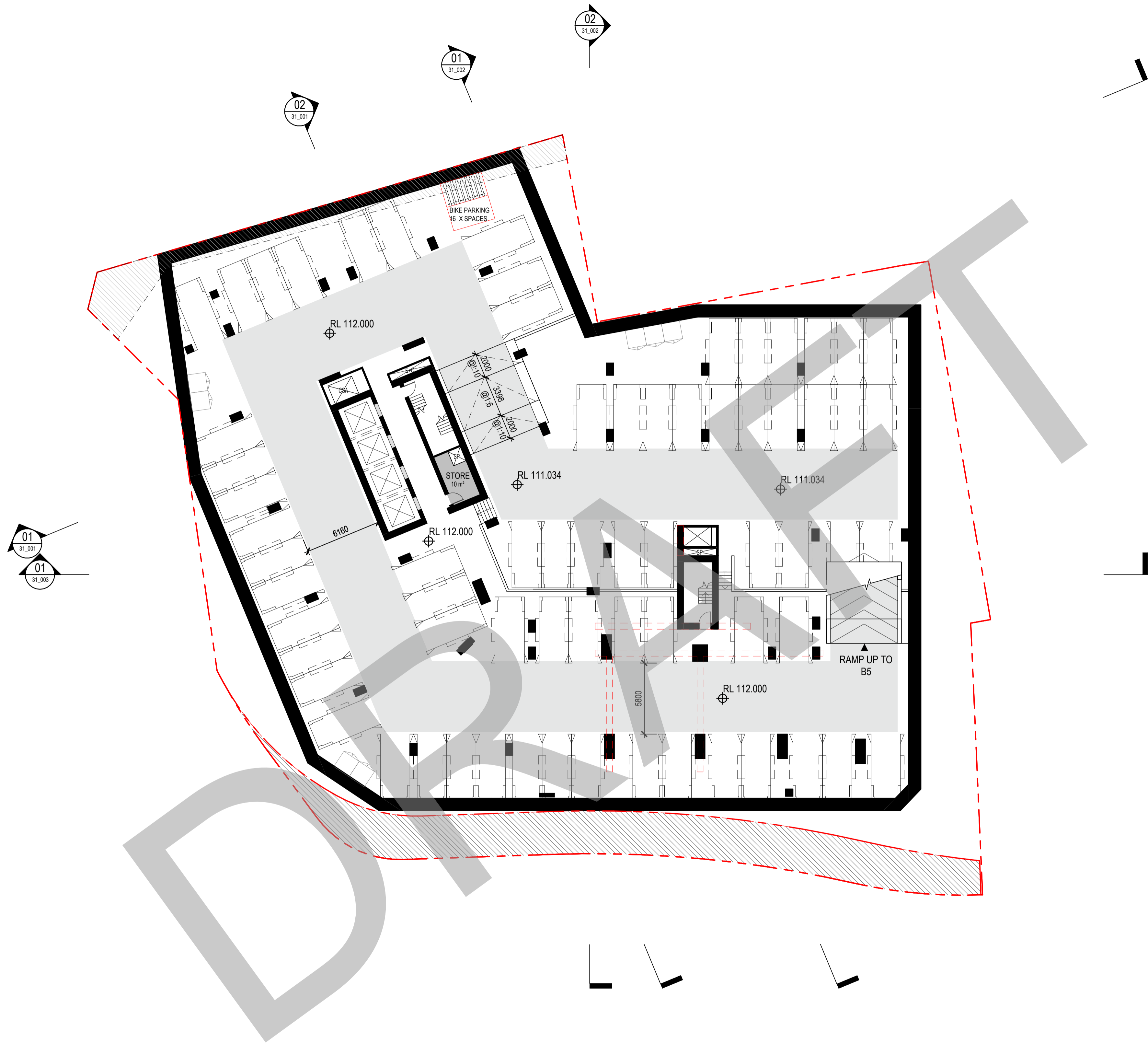
ISSUE	DATE	AMENDMENT	SURV	CHK
A	29/04/24	ORIGINAL ISSUE	AZ	MD
B	07/05/24	ADDITIONAL DETAIL SH3		

# Appendix B - Architectural GA Plans



History

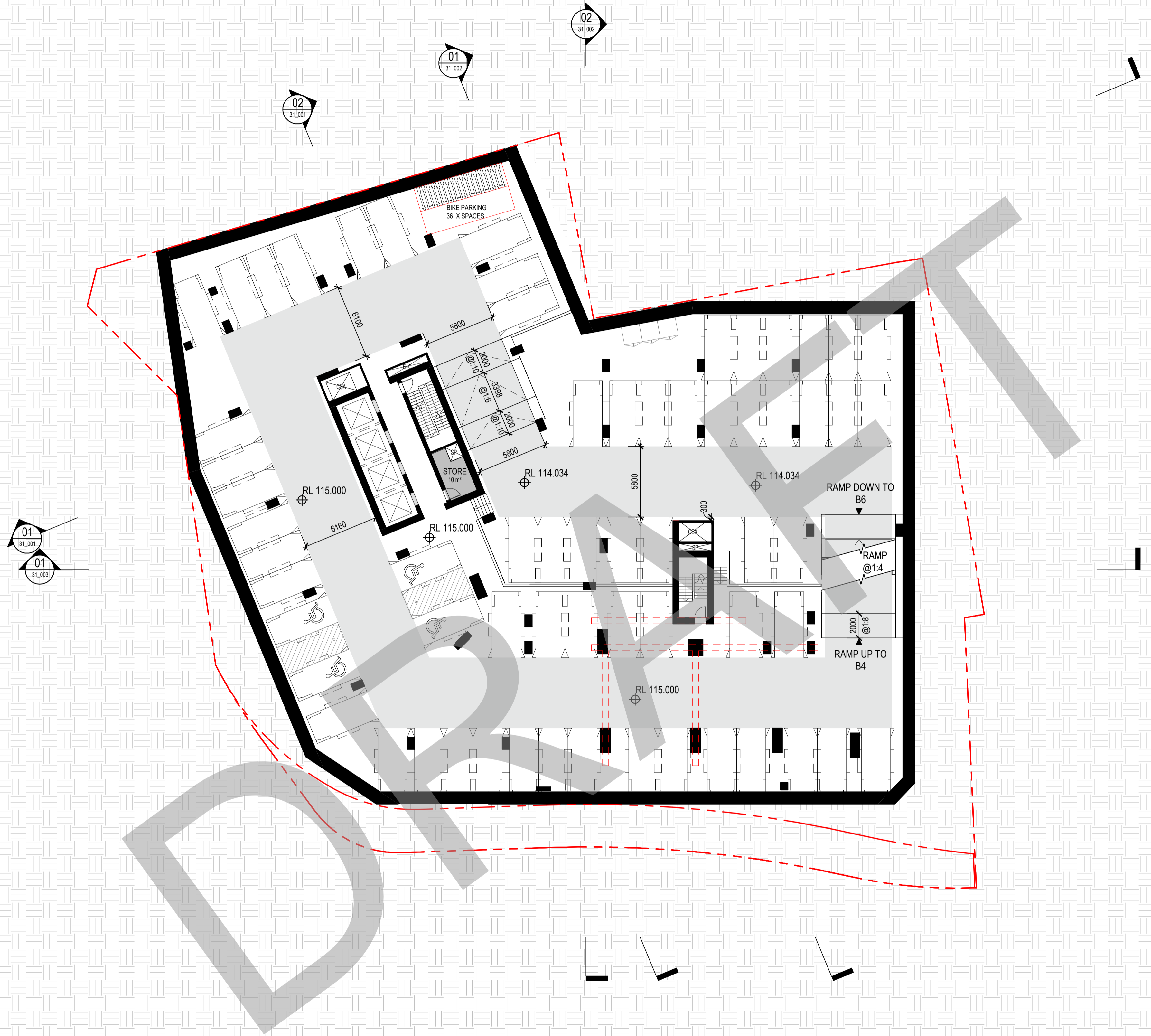
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-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025



Level	Type			Total
	Standard	DDA	Tandem	
BASEMENT 1	53	4	6	63
BASEMENT 2	54	4	6	64
BASEMENT 3	54	4	6	64
BASEMENT 4	54	4	6	64
BASEMENT 5	54	4	6	64
BASEMENT 6	62	0	6	68
	331	20	36	387

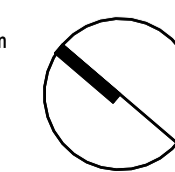
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-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025



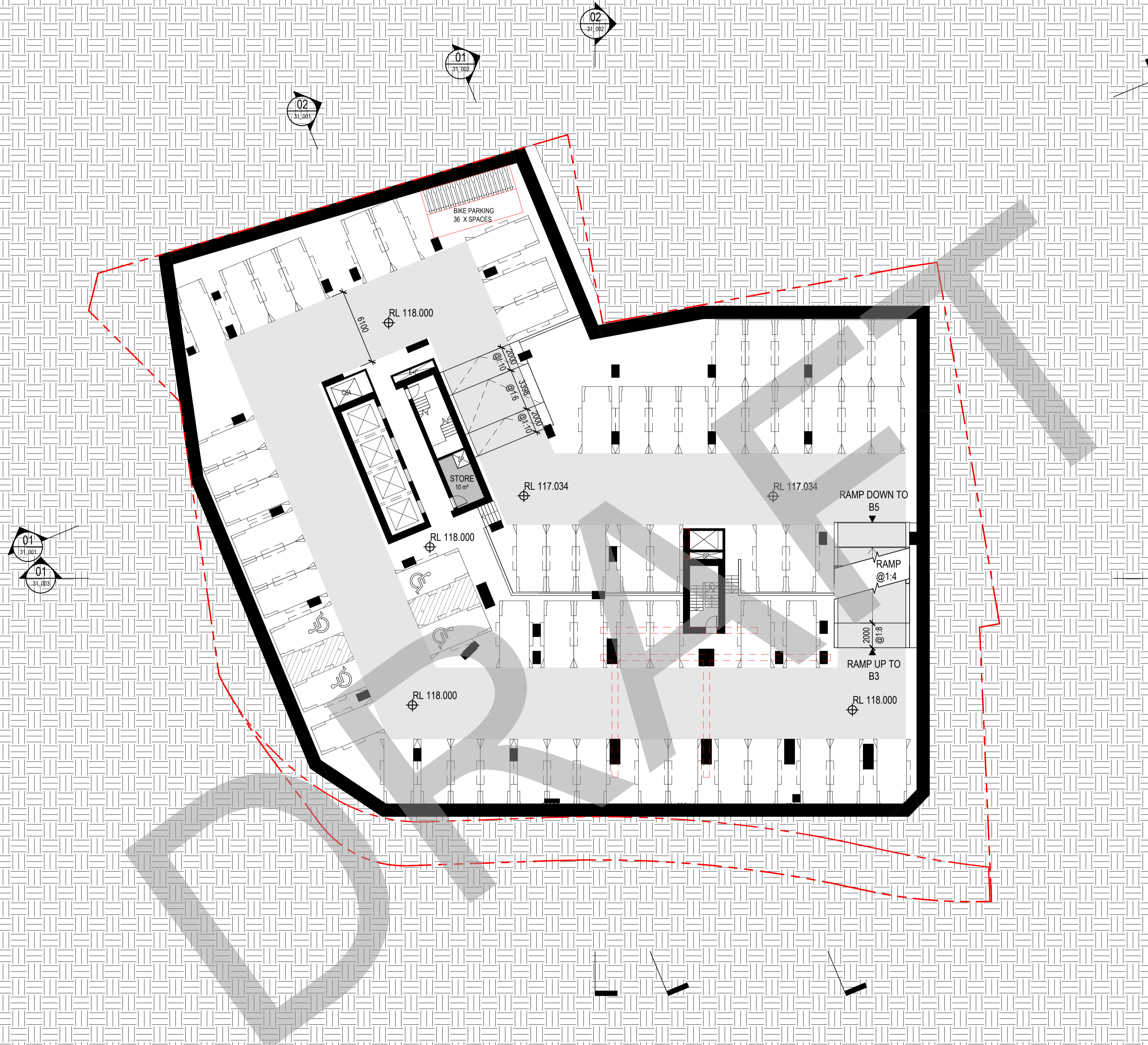
PARKING SCHEDULE

Level	Type			Total
	Standard	DDA	Tandem	
BASEMENT 1	53	4	6	63
BASEMENT 2	54	4	6	64
BASEMENT 3	54	4	6	64
BASEMENT 4	54	4	6	64
BASEMENT 5	54	4	6	64
BASEMENT 6	62	0	6	68
	331	20	36	387



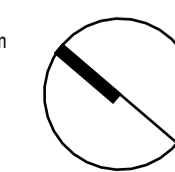
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-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025



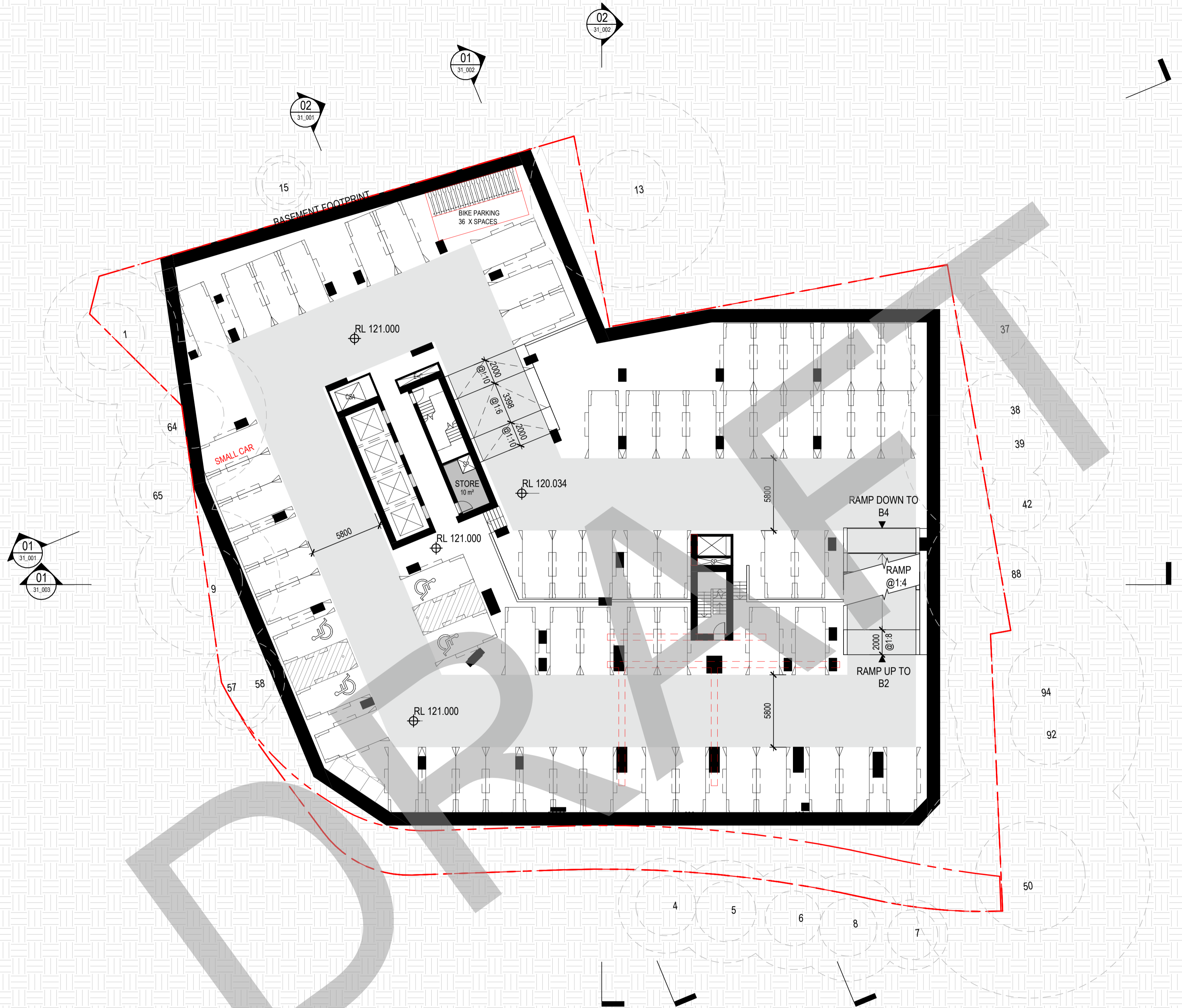
PARKING SCHEDULE

Level	Type			Total
	Standard	DDA	Tandem	
BASEMENT 1	53	4	6	63
BASEMENT 2	54	4	6	64
BASEMENT 3	54	4	6	64
BASEMENT 4	54	4	6	64
BASEMENT 5	54	4	6	64
BASEMENT 6	62	0	6	68
	331	20	36	387



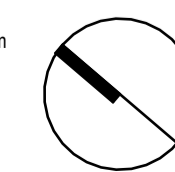
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-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025



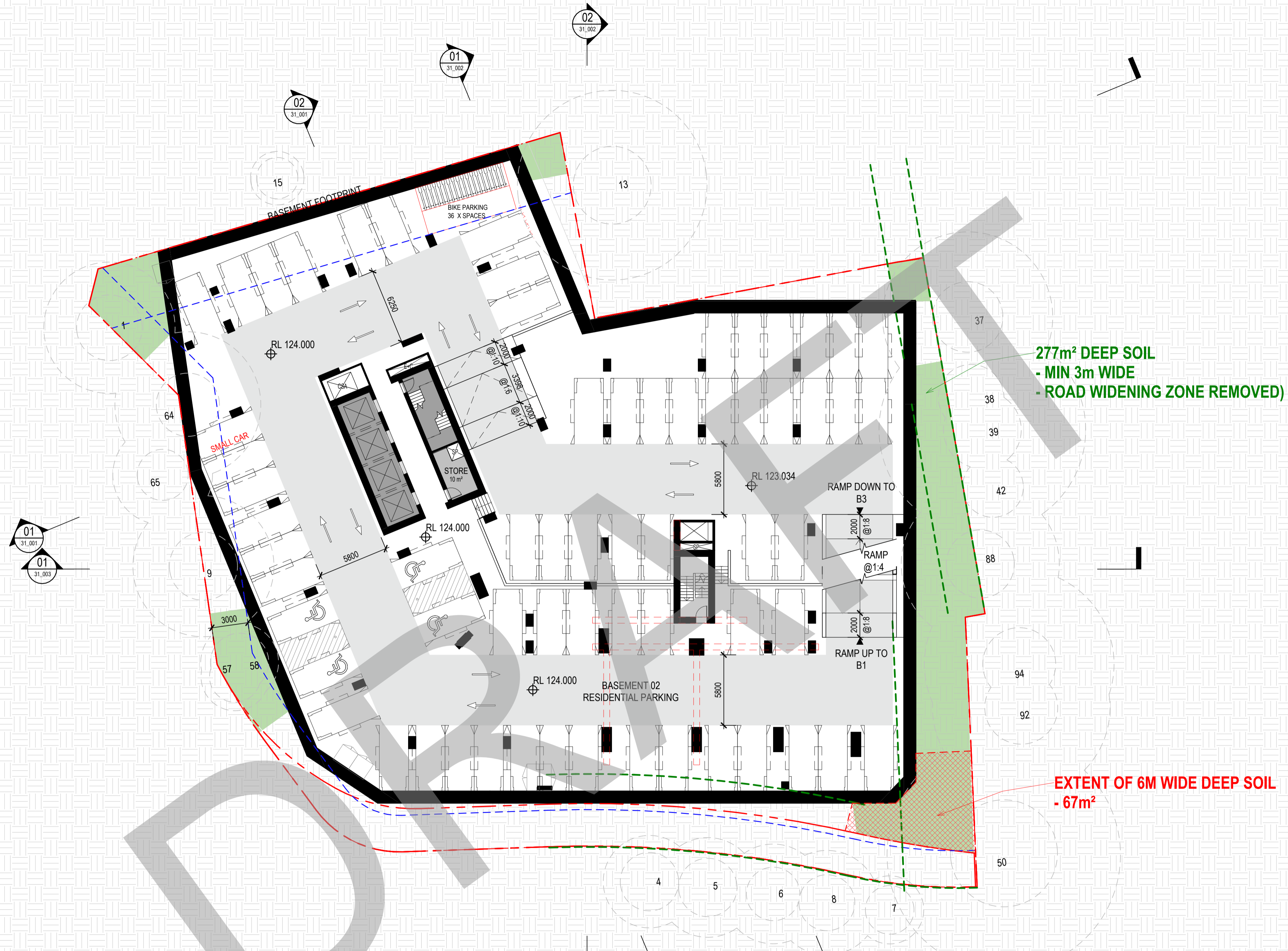
PARKING SCHEDULE

Level	Type			Total
	Standard	DDA	Tandem	
BASEMENT 1	53	4	6	63
BASEMENT 2	54	4	6	64
BASEMENT 3	54	4	6	64
BASEMENT 4	54	4	6	64
BASEMENT 5	54	4	6	64
BASEMENT 6	62	0	6	68
	331	20	36	387



History

[Rev#]	[Description]	[Date]dd.mm.yy
-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025

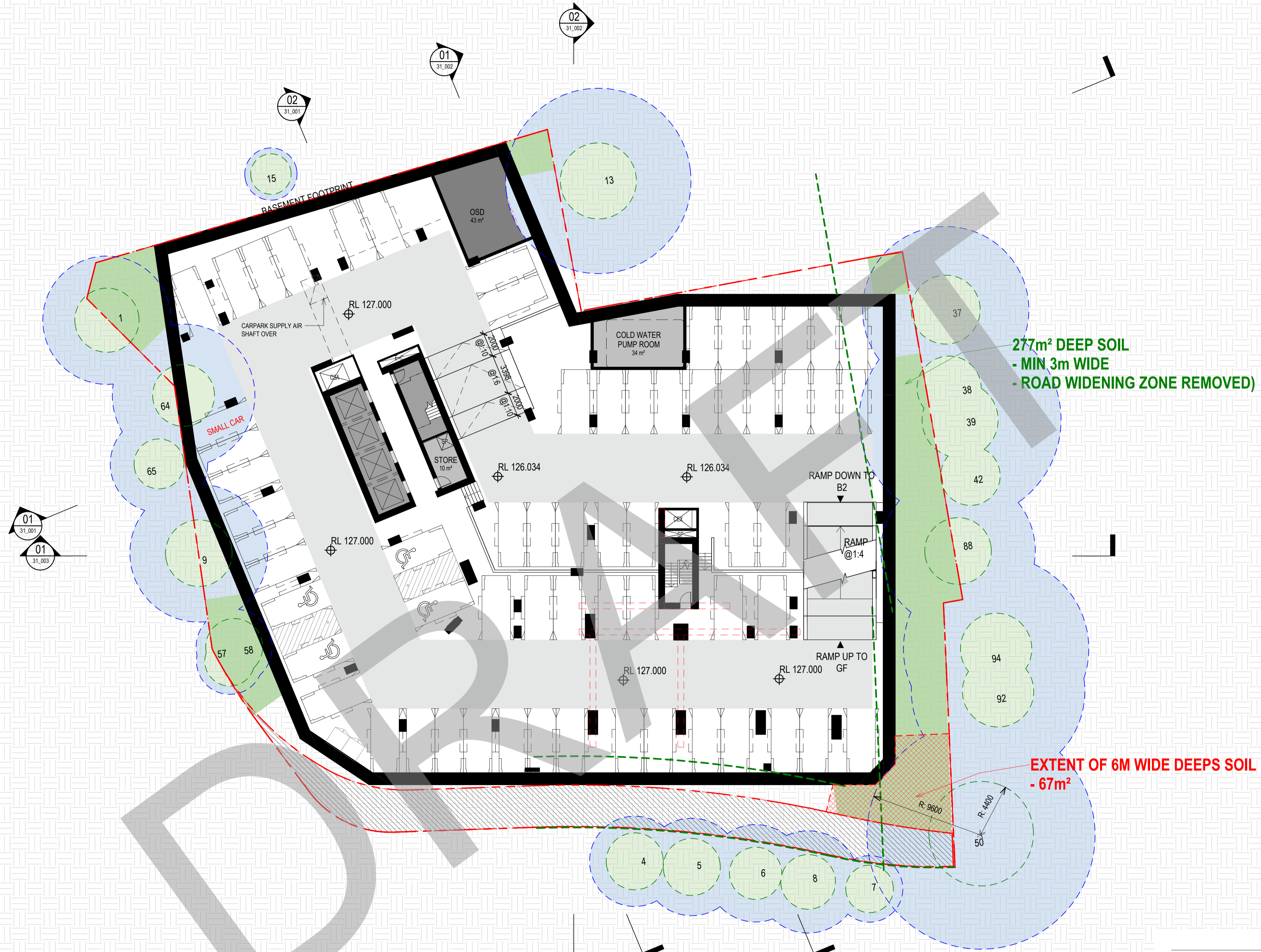


PARKING SCHEDULE

Level	Type			Total
	Standard	DDA	Tandem	
BASEMENT 1	53	4	6	63
BASEMENT 2	54	4	6	64
BASEMENT 3	54	4	6	64
BASEMENT 4	54	4	6	64
BASEMENT 5	54	4	6	64
BASEMENT 6	62	0	6	68
	331	20	36	387

History

[Rev#]	[Description]	[Date]dd.mm.yy
-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025

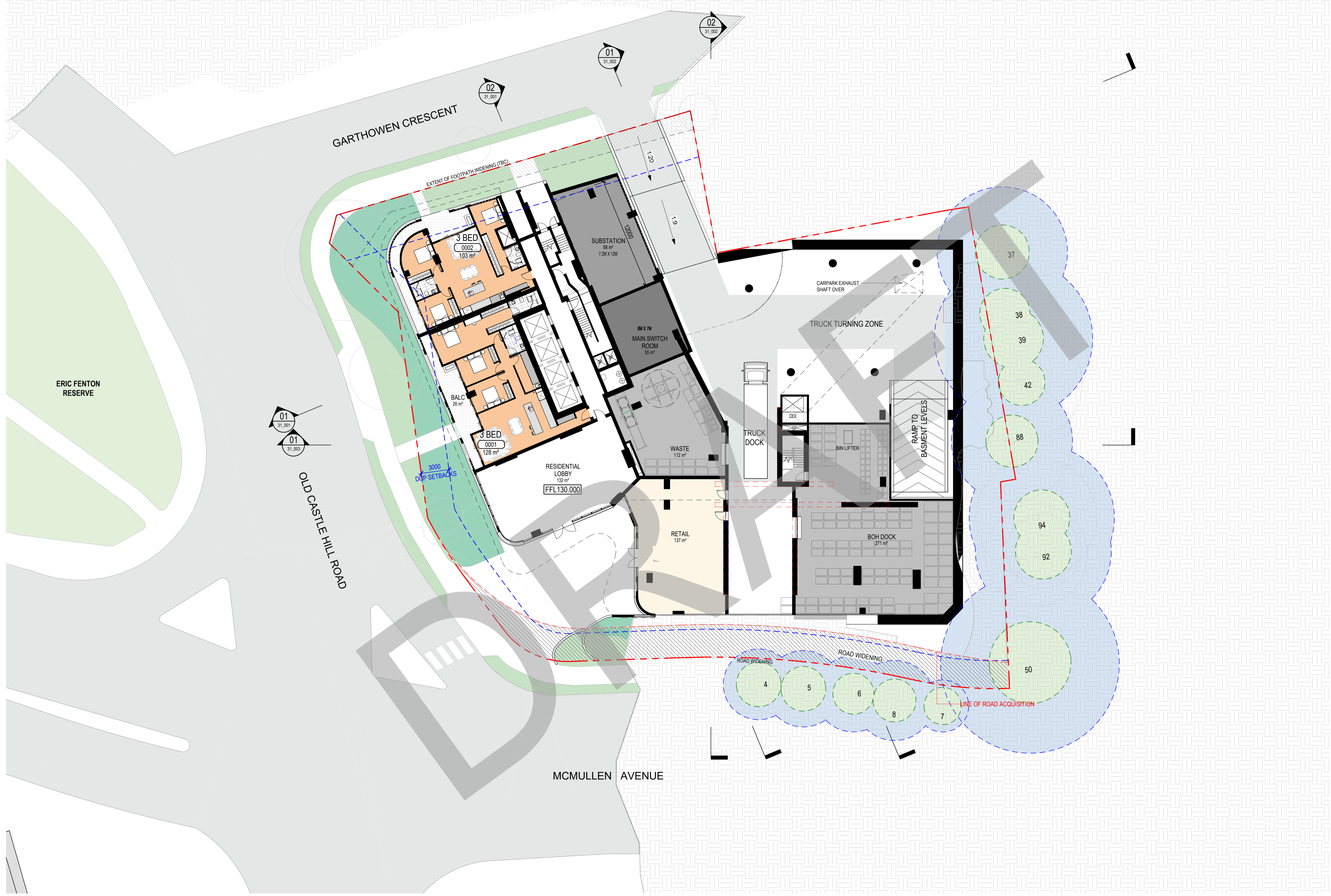


PARKING SCHEDULE

Level	Type			Total
	Standard	DDA	Tandem	
BASEMENT 1	53	4	6	63
BASEMENT 2	54	4	6	64
BASEMENT 3	54	4	6	64
BASEMENT 4	54	4	6	64
BASEMENT 5	54	4	6	64
BASEMENT 6	62	0	6	68
	331	20	36	387

History

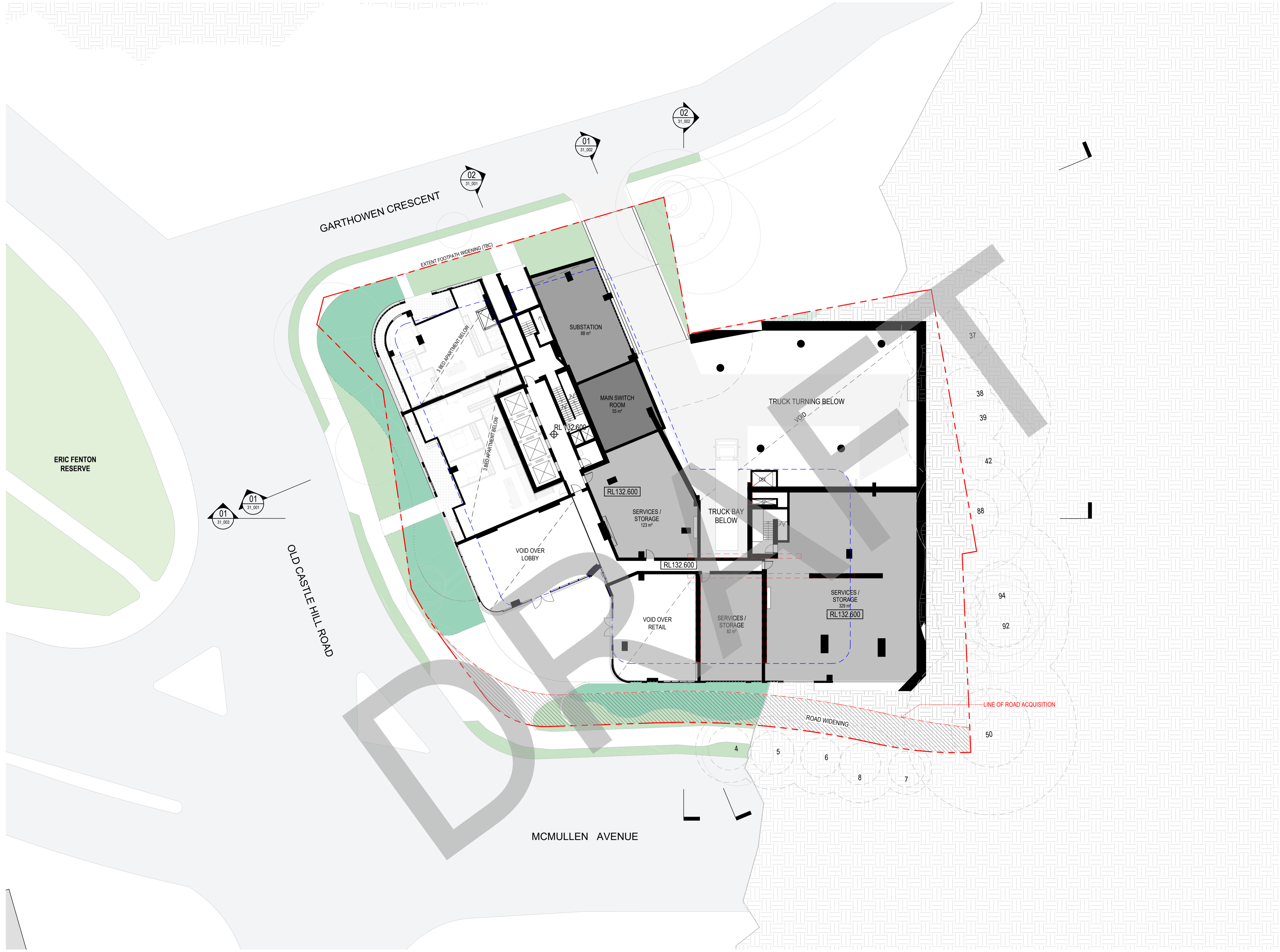
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A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025



UNIT MIX		
UNIT TYPE	COUNT	MIX
1 BED	90	24%
2 BED	194	52%
3 BED	83	22%
4 BED	4	1%
		371

History

[Rev#]	[Description]	[Date]dd.mm.yy
-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025



UNIT MIX		
UNIT TYPE	COUNT	MIX
1 BED	90	24%
2 BED	194	52%
3 BED	83	22%
4 BED	4	1%
		371

History

[Rev#]	[Description]	[Date]dd.mm.yy
-	PRELIMINARY	TBC
A	PRELIMINARY	14.10.2025
B	FOR COORDINATION	04.11.2025
C	DRAFT ISSUE FOR TOA	28.11.2025



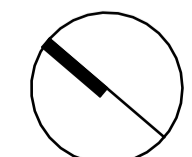
UNIT MIX		
UNIT TYPE	COUNT	MIX
1 BED	90	24%
2 BED	194	52%
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4 BED	4	1%
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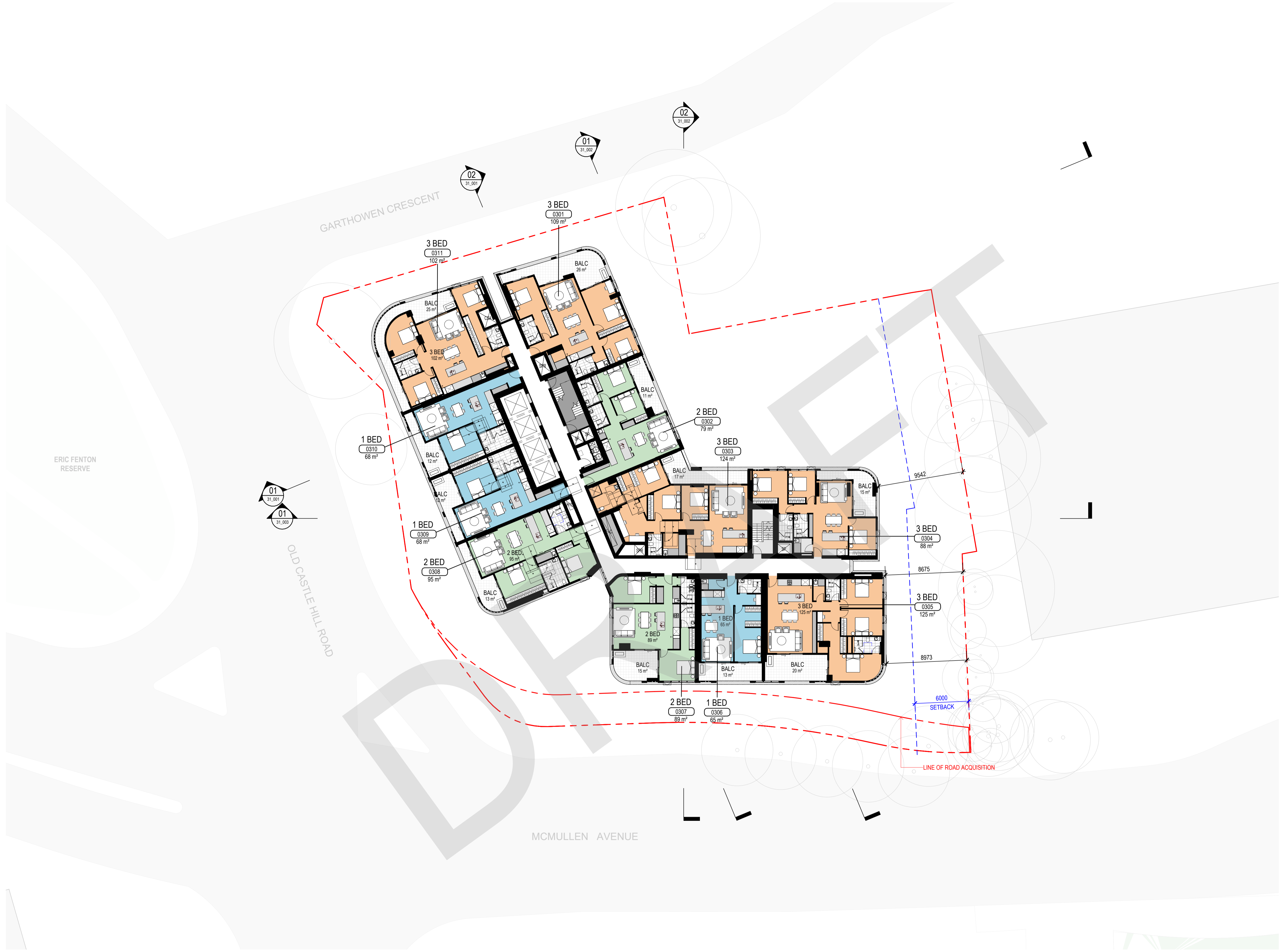


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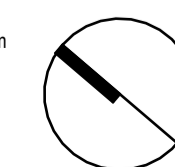


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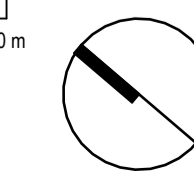


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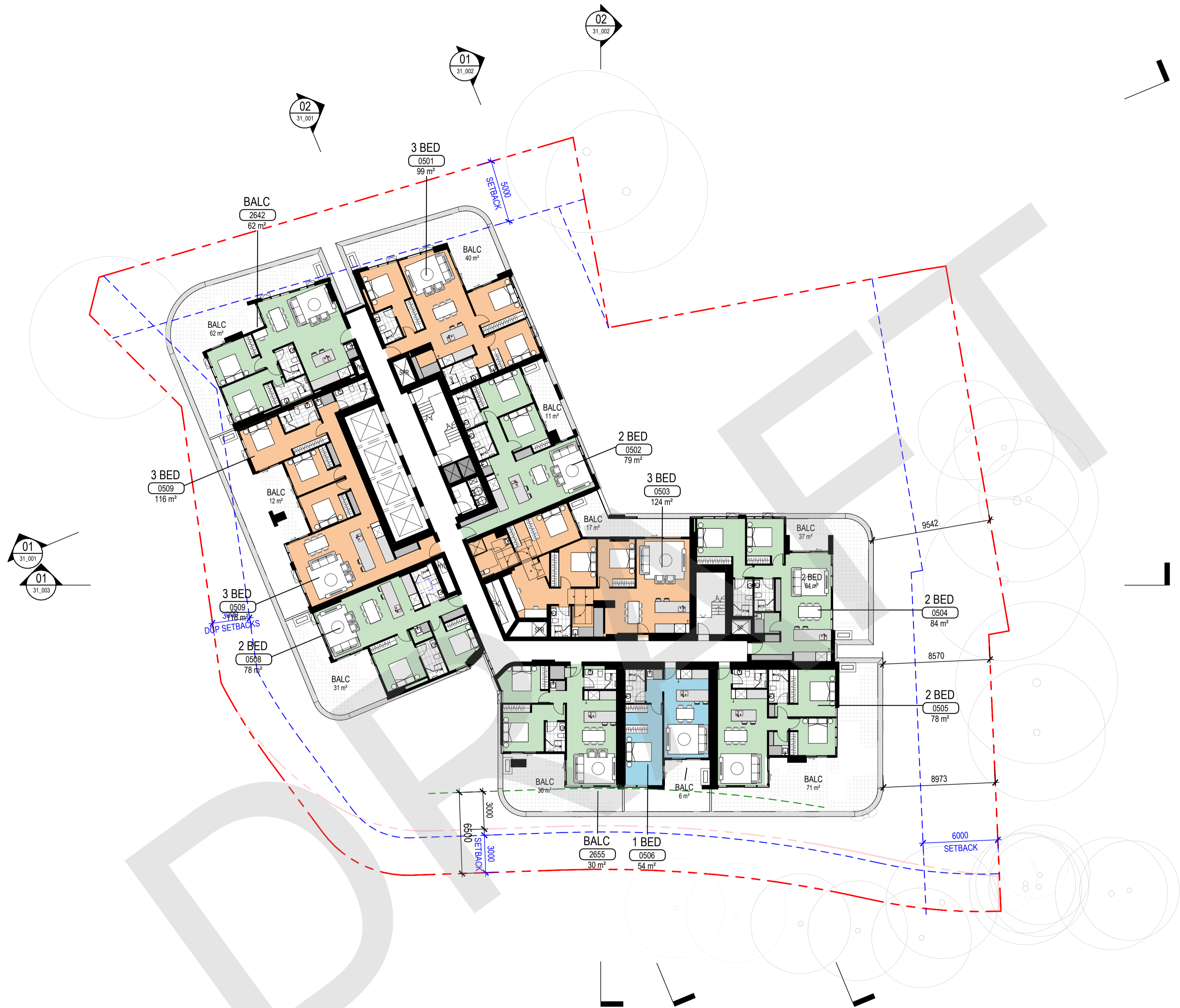


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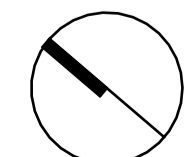
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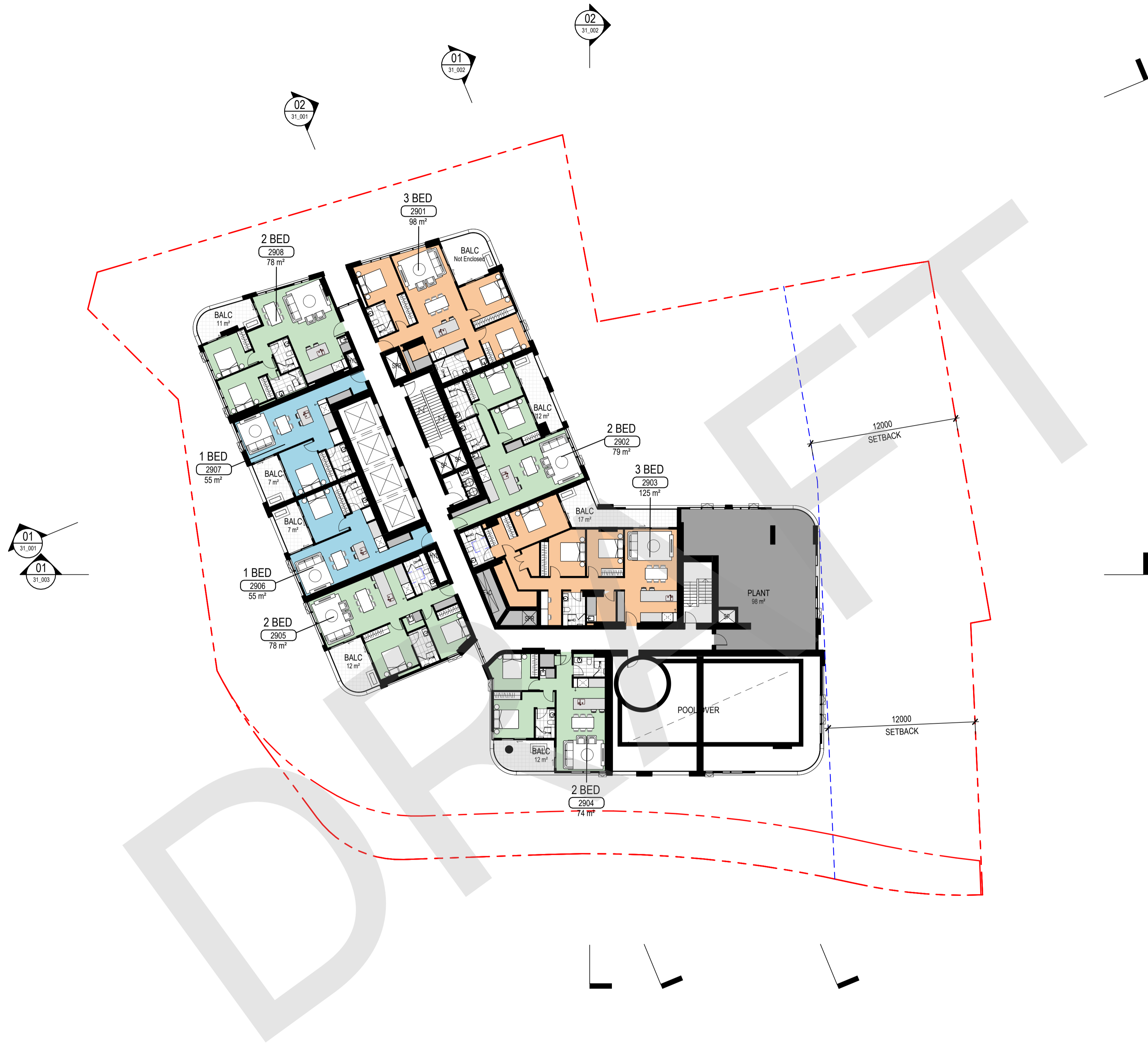
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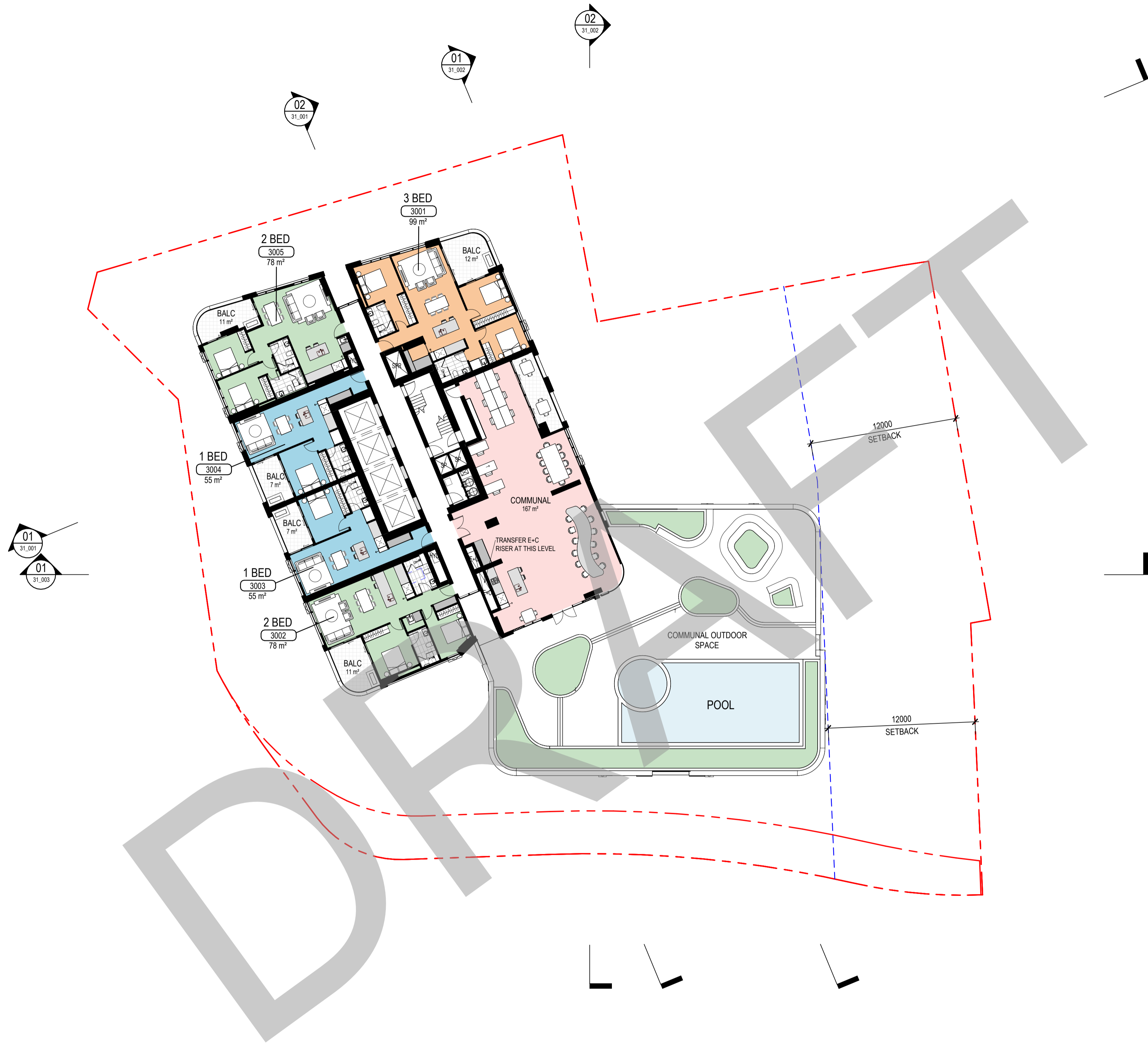
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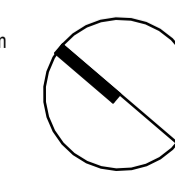
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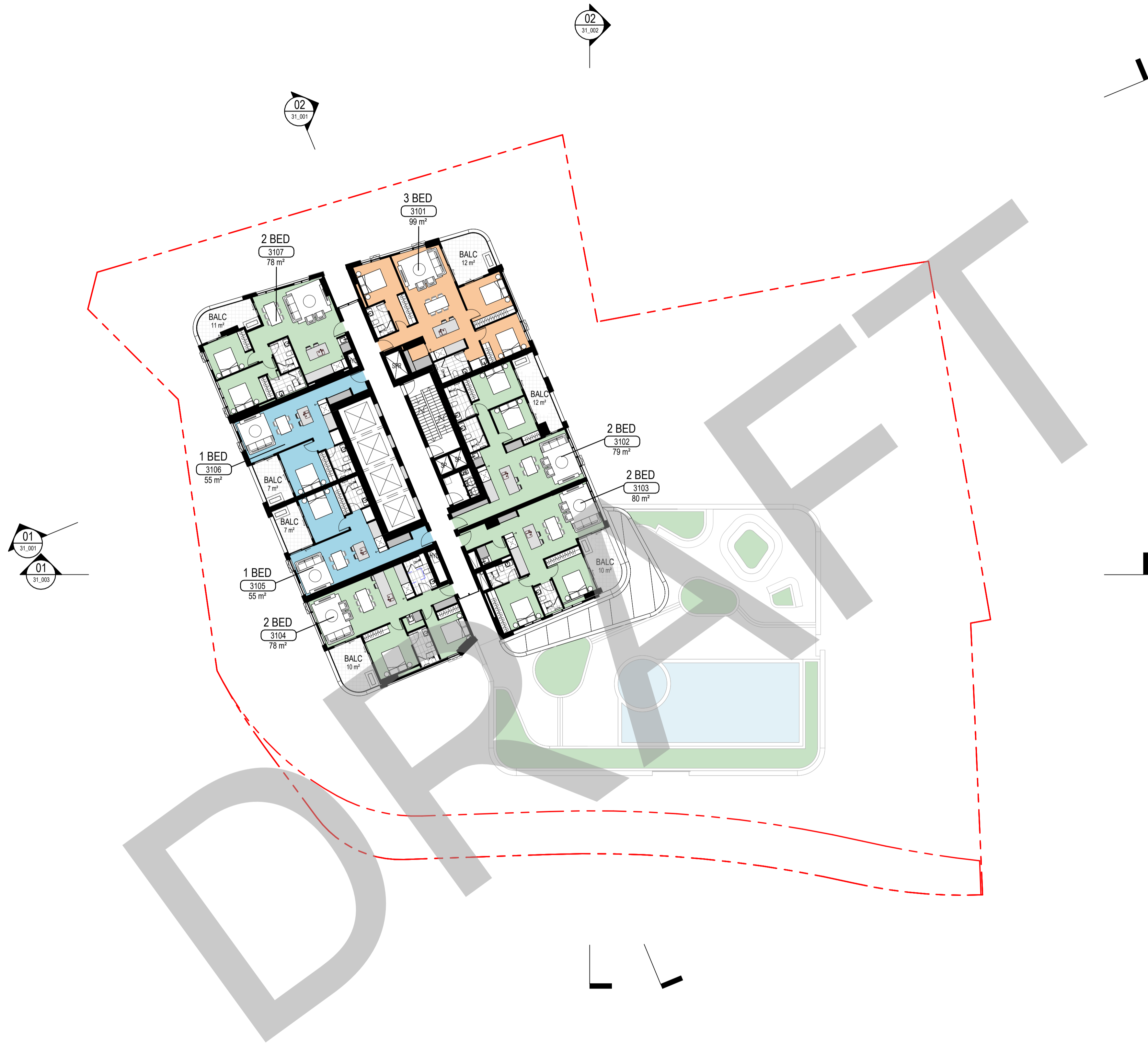


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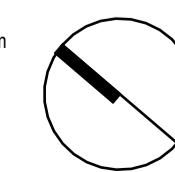


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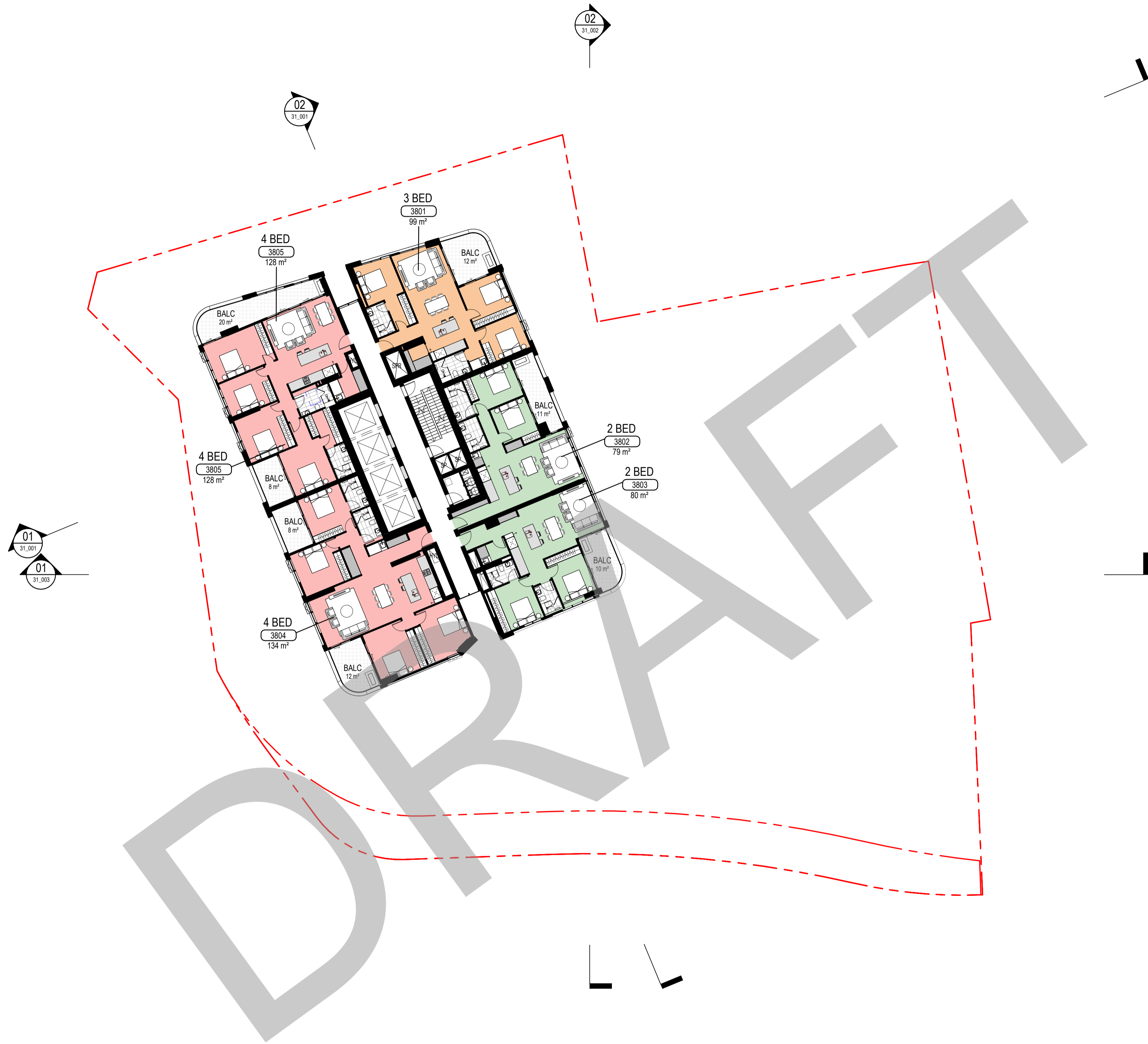


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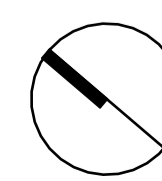


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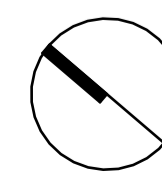
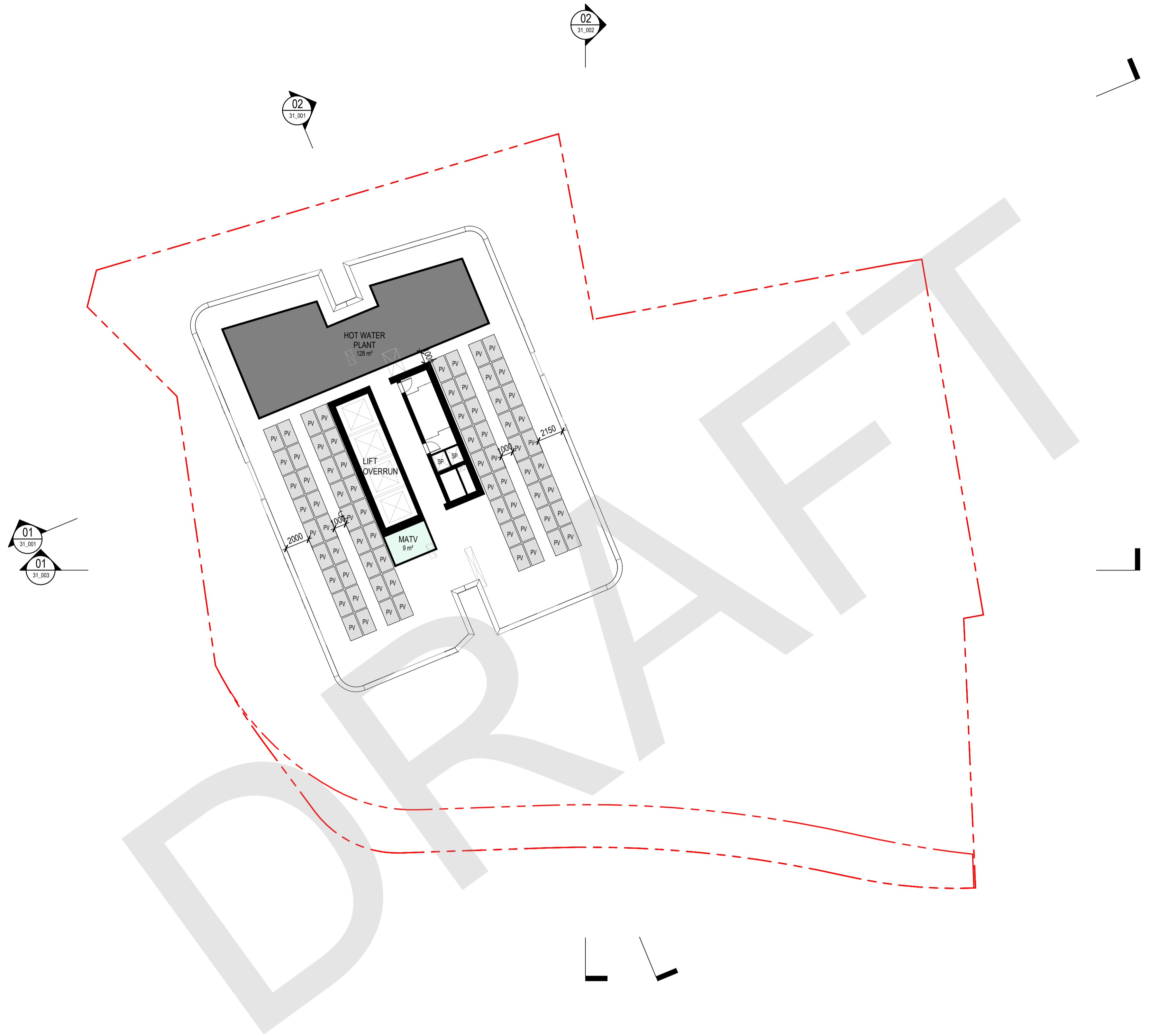


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# Appendix C - Stormwater Plans

# OLD CASTLE HILL ROAD, 16-20 OLD CASTLE HILL ROAD, NSW 2154, AUSTRALIA



LGA: THE HILLSIDE SHIRE COUNCIL  
ISSUED FOR INFORMATION

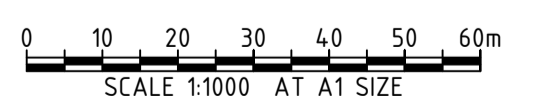


DRAWING INDEX	
DRAWING No.	DESCRIPTION
CI-0000	COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
CI-0200	DRAINAGE GROUND FLOOR PLAN
CI-0201	DRAINAGE BASEMENT 1 PLAN
CI-0270	DRIVEWAY LONGITUDINAL SECTIONS
CI-0300	MUSIC CATCHMENT PLAN
CI-0340	DRAINAGE OSD PLAN, SECTION AND DETAILS
CI-0341	DRAINAGE DETAILS
CI-0700	EROSION AND SEDIMENT CONTROL PLAN
CI-0710	EROSION AND SEDIMENT CONTROL DETAILS



LOCALITY PLAN  
SCALE 1:1000

SOURCE: NEARMAP



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
A	08/12/25	ISSUED FOR INFORMATION	SM				

CLIENT

ARCHITECT

Sydney Office—  
L2, 8 Windmill St  
Sydney NSW 2000  
P / +61 2 9770 3300 E / info@bgeeng.com  
bgeeng.com—

PROJECT

OLD CASTLE HILL ROAD  
16-20 OLD CASTLE HILL ROAD,  
NSW 2154 AUSTRALIA

STATUS			
ISSUED FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
NA	SM	SH	-
DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	1:1000	AT A1 SIZE

TITLE

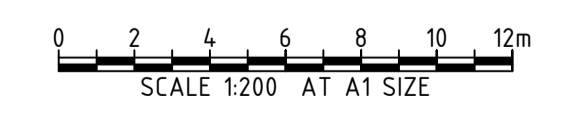
COVER SHEET,  
LOCALITY PLAN  
AND DRAWING INDEX

PROJECT No.	DRAWING No.	REV
S25014	CI-0000	A



- ### LEGEND
- SITE BOUNDARY
  - ARCHITECTURAL
  - LANDSCAPE
  - SURVEY
  - $\phi 150$  uPVC @ 1% MIN PROPOSED STORMWATER (SIZE AND GRADE)
  - PROPOSED SUSPENDED STORMWATER SIZE AND GRADE
  - EXISTING DRAINAGE PIPE
  - PROPOSED GRATED INLET PIT / PROPOSED KERB INLET PIT
  - PROPOSED JUNCTION PIT
  - EXISTING INLET PITS
  - GD PROPOSED GRATED DRAIN
  - PROPOSED OSD TANK
- ### EXISTING UTILITIES
- SW STORMWATER PIPE
  - D STORMWATER DRAINAGE
  - COMM TELECOMMUNICATIONS
  - NBN NBN
  - OPTIC OPTIC FIBRE
  - T TELESTRA
  - E ELECTRICITY
  - HV HIGH VOLTAGE ELECTRICITY
  - LV LOW VOLTAGE ELECTRICITY
  - OH OVERHEAD ELECTRICITY
  - UG UNDERGROUND ELECTRICITY
  - G GAS
  - S SEWER
  - RM SEWER RISING MAIN
  - W WATER

- ### NOTES
- REFER TO DRAINAGE LONGSECTION FOR DETAILS



REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
A	08.12.25	ISSUED FOR INFORMATION	SM		
REVISIONS					

CLIENT

ARCHITECT

Sydney Office –  
L2, 8 Windmill St  
Sydney NSW 2000  
P / +61 2 9770 3300 E / info@bgeeng.com  
bgeeng.com

PROJECT

**OLD CASTLE HILL ROAD**  
16-20 OLD CASTLE HILL ROAD,  
NSW 2154 AUSTRALIA

STATUS			
ISSUED FOR INFORMATION			
NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
NA	SM	SH	-
DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	1:200	

TITLE	
DRAINAGE GROUND FLOOR PLAN	
PROJECT No.	DRAWING No.
S25014	CI-0200
REV	
A	

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**LEGEND**

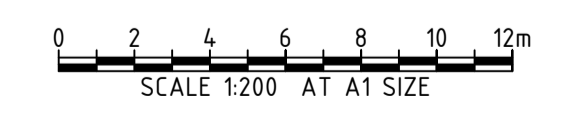
	SITE BOUNDARY
	ARCHITECTURAL
	LANDSCAPE
	SURVEY
	HARDSTAND TO OCEANGUARD AND SF CHAMBER 1,232 m <sup>2</sup>
	LANDSCAPE TO OCEANGUARD AND SF CHAMBER 301 m <sup>2</sup>
	ROOF TO SF CHAMBER 1,647 m <sup>2</sup>
	TOTAL SITE AREA: 3,180 m <sup>2</sup>

**WATER QUALITY FOR DEVELOPMENT**

- TREATMENT DEVICES:
- 2 x 690 NPSORB STORMFILTER BY OCEANPROTECT
  - 1 x OCEANGUARD BY OCEANPROTECT

TREATMENT STANDARDS				
POLLUTANT	PRE	POST	WATER QUALITY OBJECTIVE	DEVELOPMENT ACHIEVED PERCENTAGE
GROSS POLLUTANTS (GP)	94	0	70%	100
TOTAL SUSPENDED SOLIDS (TSS)	409	54.6	80%	86.7
TOTAL PHOSPHORUS (TP)	102	0.229	45%	77.6
TOTAL NITROGEN (TN)	10.4	3.93	45%	62.2

STORMWATER DRAINAGE REQUIREMENTS HAVE BEEN CALCULATED IN ACCORDANCE WITH WESTERN SYDNEY COUNCIL'S POLICY FOR STORMWATER MANAGEMENT FOR THE HILLS SHIRE COUNCIL.



REV	DATE	DESCRIPTION	REVISIONS
A	08.12.25	ISSUED FOR INFORMATION	SM

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NSW 2154 AUSTRALIA

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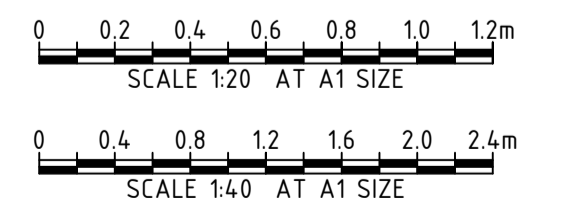
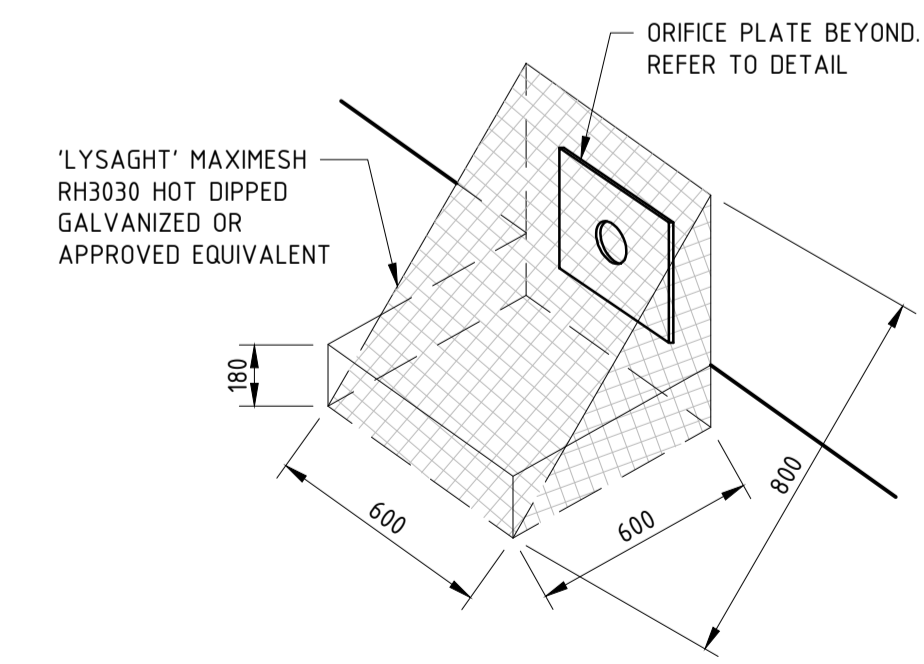
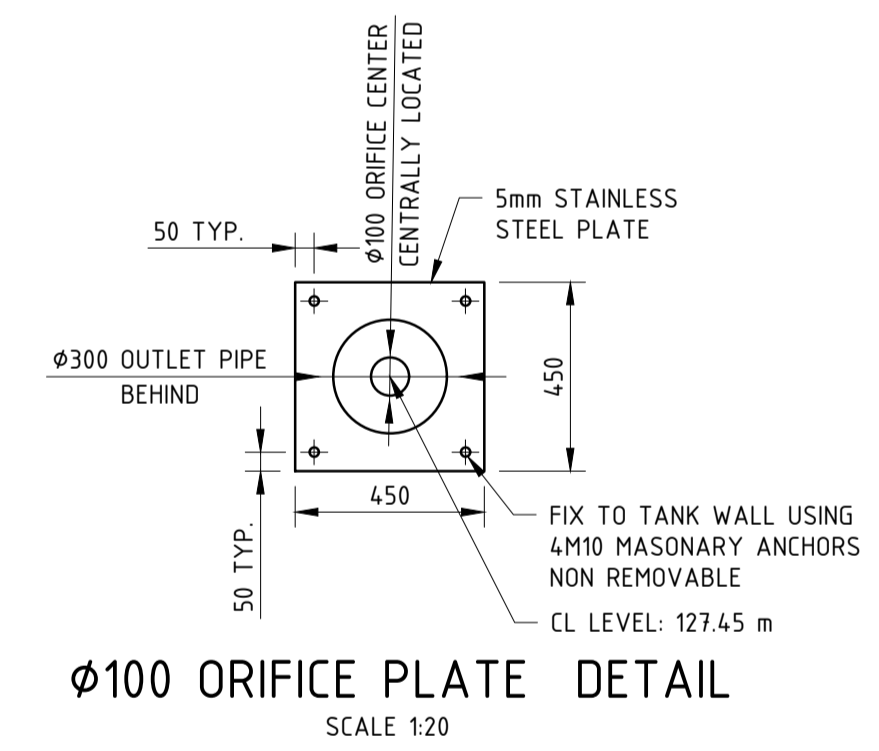
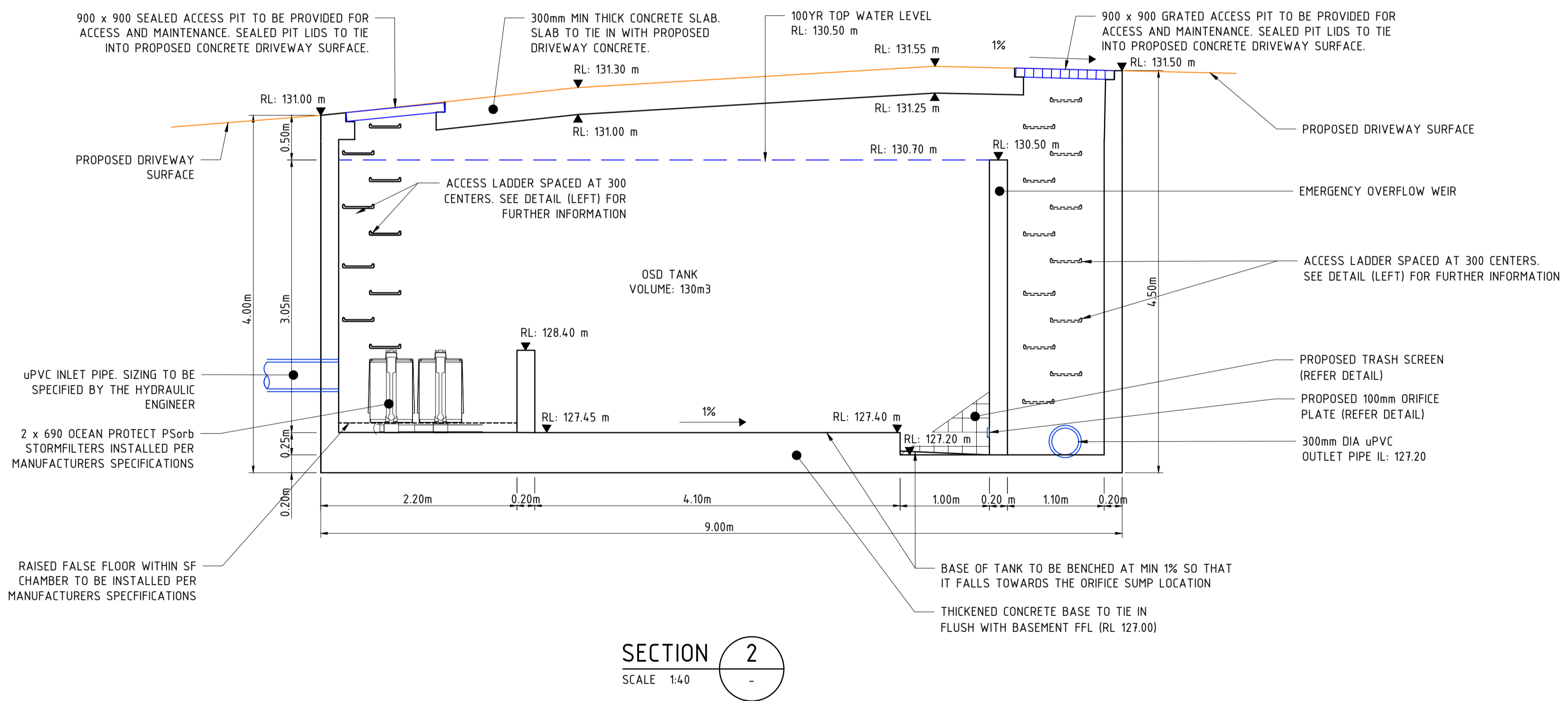
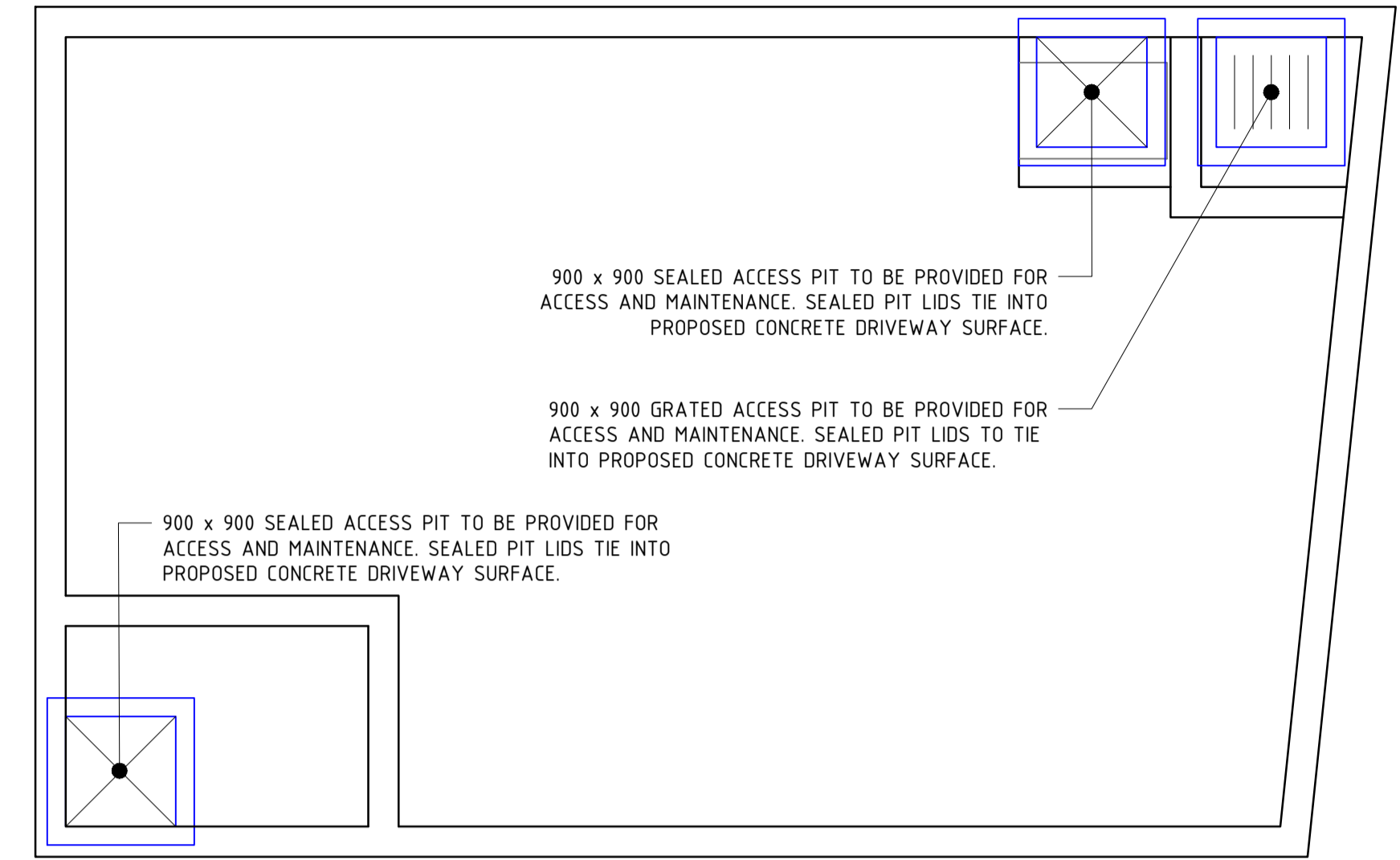
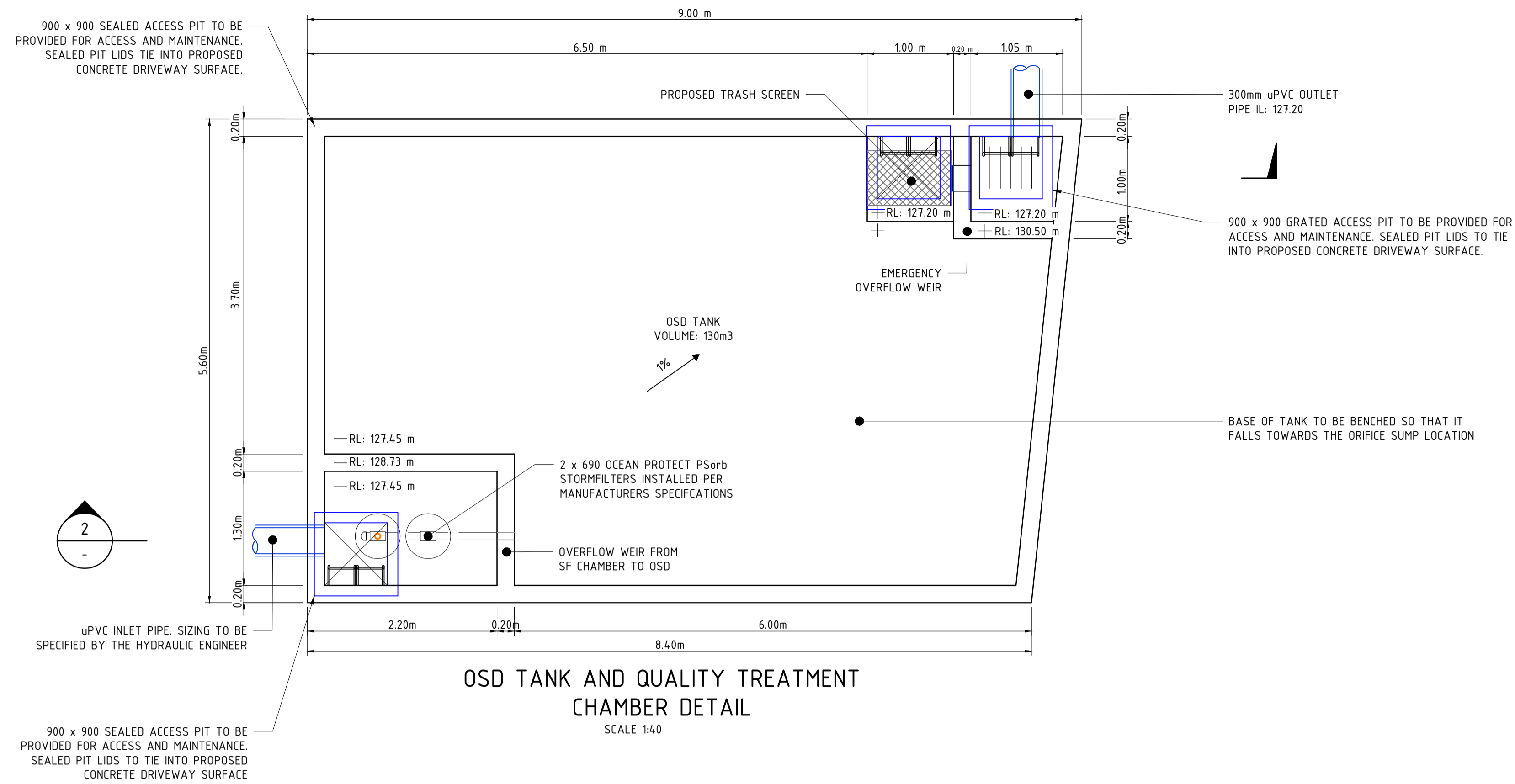
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DATUM: AHD  
GRID: GDA2020 MGA-56  
SCALE: 1:200 AT A1 SIZE

TITLE

MUSIC CATCHMENT PLAN

PROJECT No: S25014  
DRAWING No: CI-0300  
REV: A



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
A	08.12.25	ISSUED FOR INFORMATION	SM				

CLIENT

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Sydney NSW 2000  
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NSW 2154 AUSTRALIA

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ISSUED FOR INFORMATION  
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DRAWN	DESIGNED	CHECKED	APPROVED
NA	SM	SH	-

DATUM

GRID	SCALE
GDA2020	AS SHOWN
MGA-56	

PROJECT No. S25014  
DRAWING No. CI-0340  
REV A

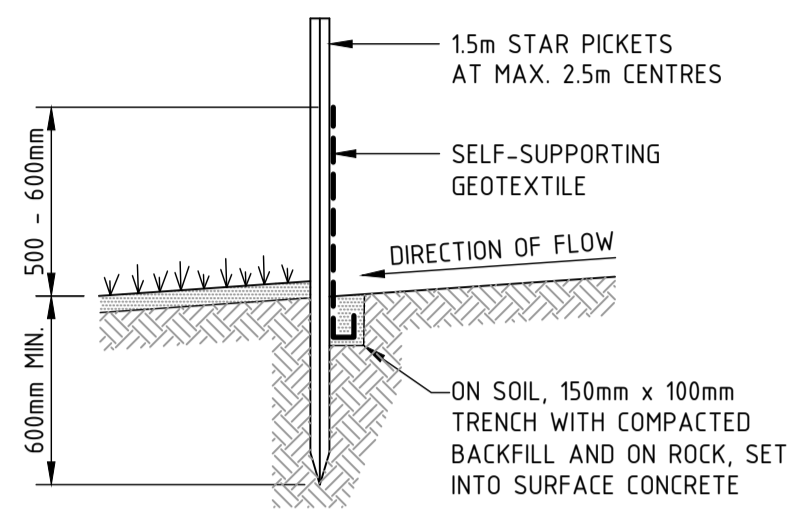
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DRAINAGE OSD PLAN,  
SECTION AND DETAILS

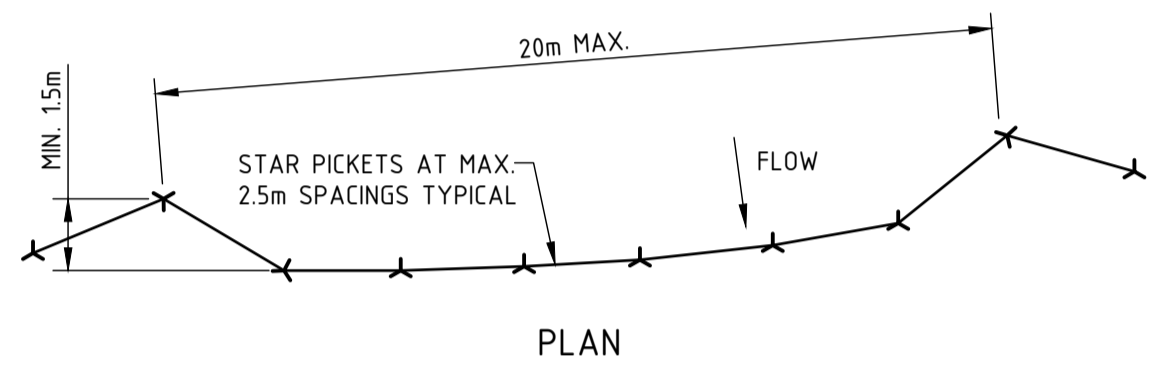
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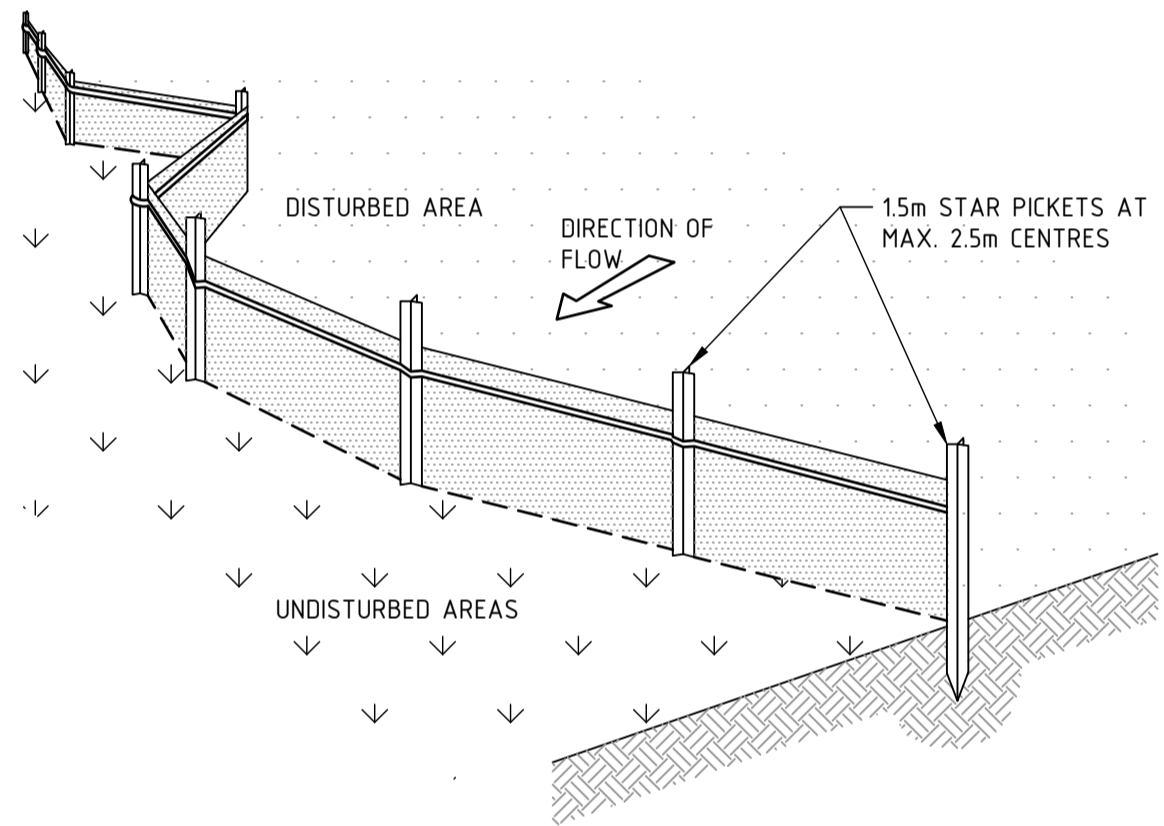




SECTION DETAIL



PLAN

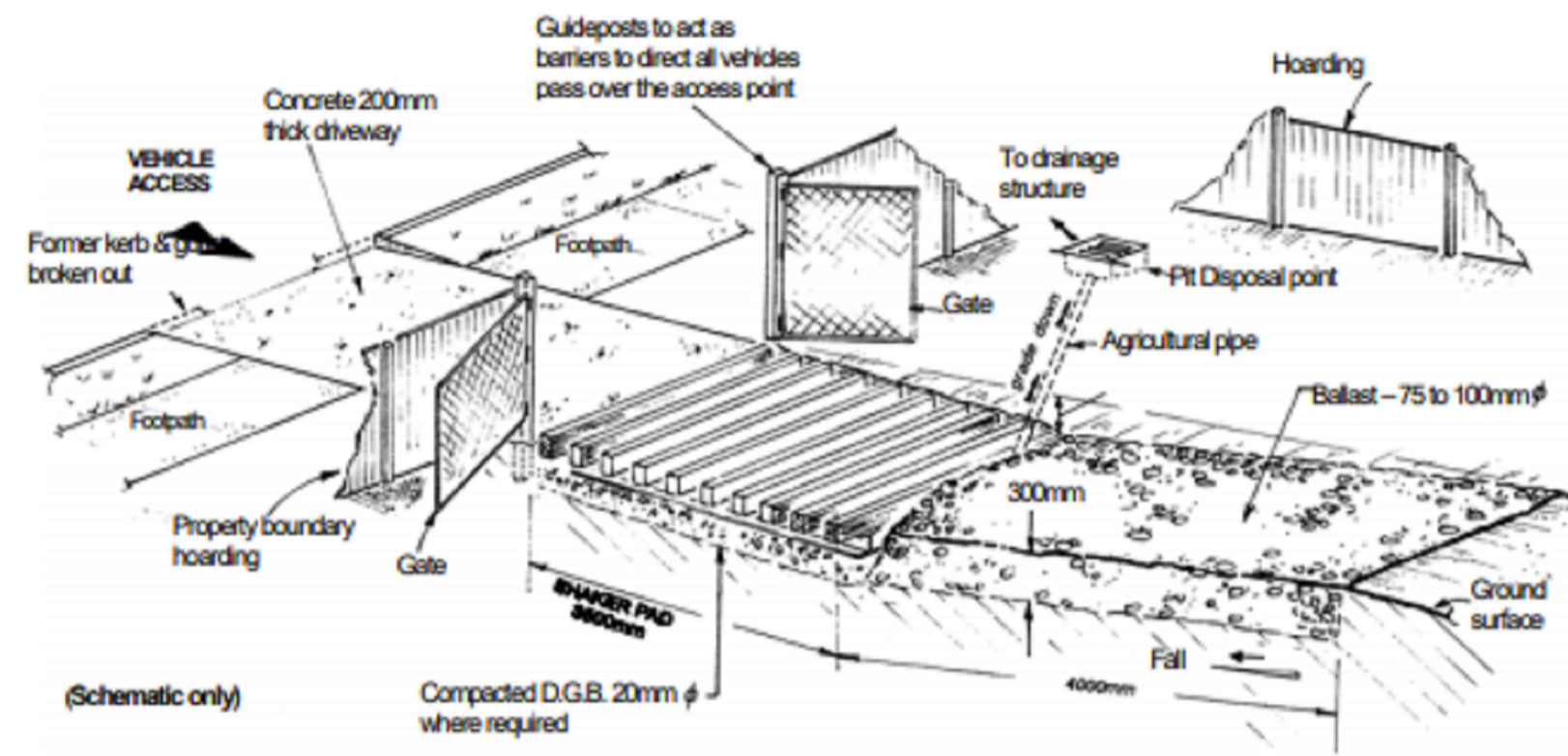


**SEDIMENT FENCE CONSTRUCTION NOTES:**

- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- DRIVE 15m LONG STAR PICKETS INTO GROUND AT 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

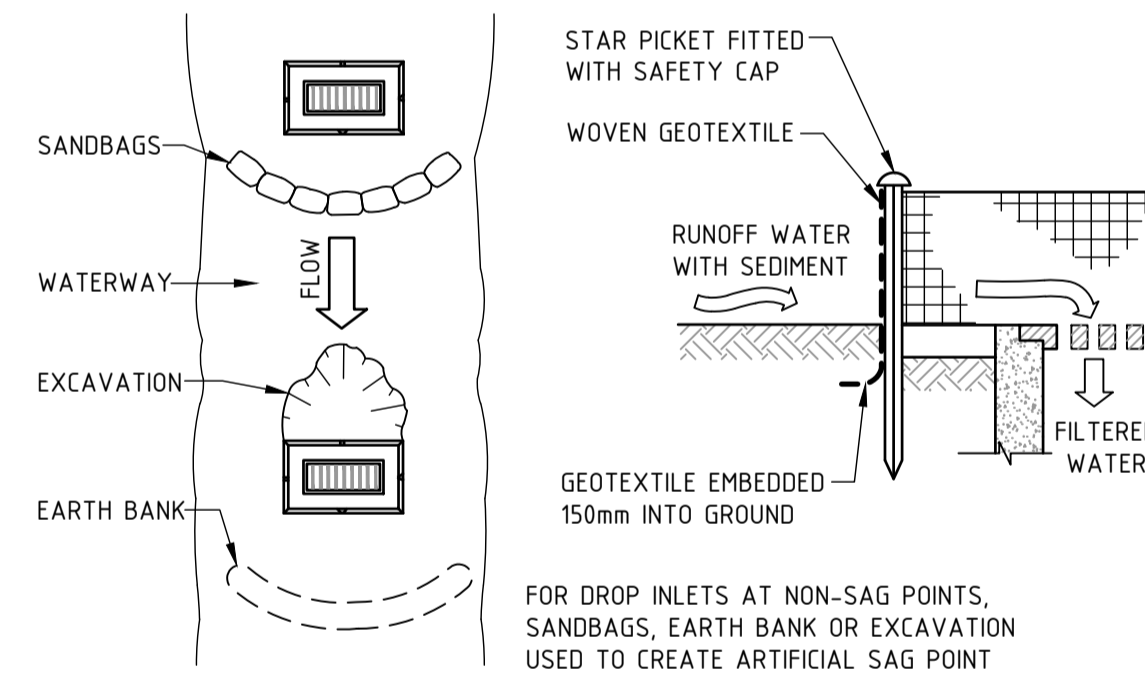
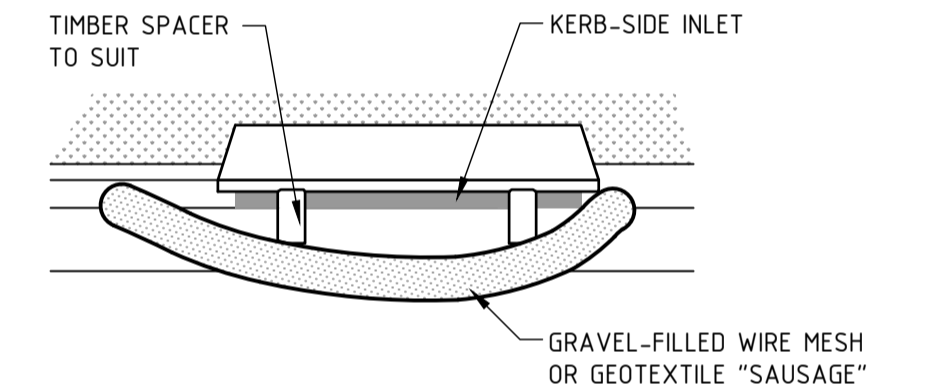
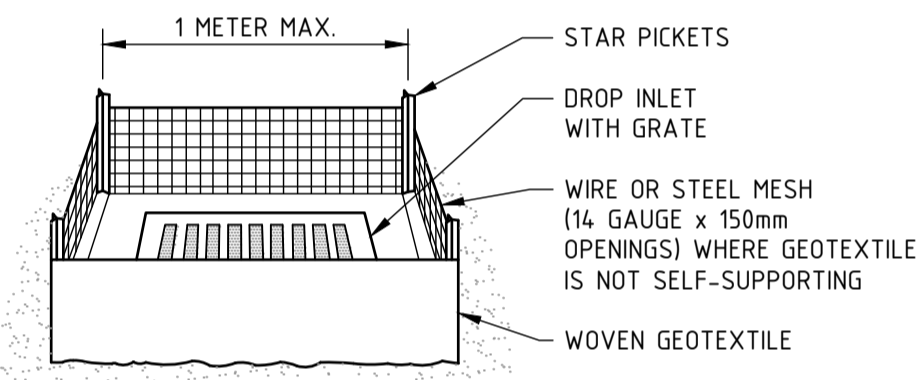
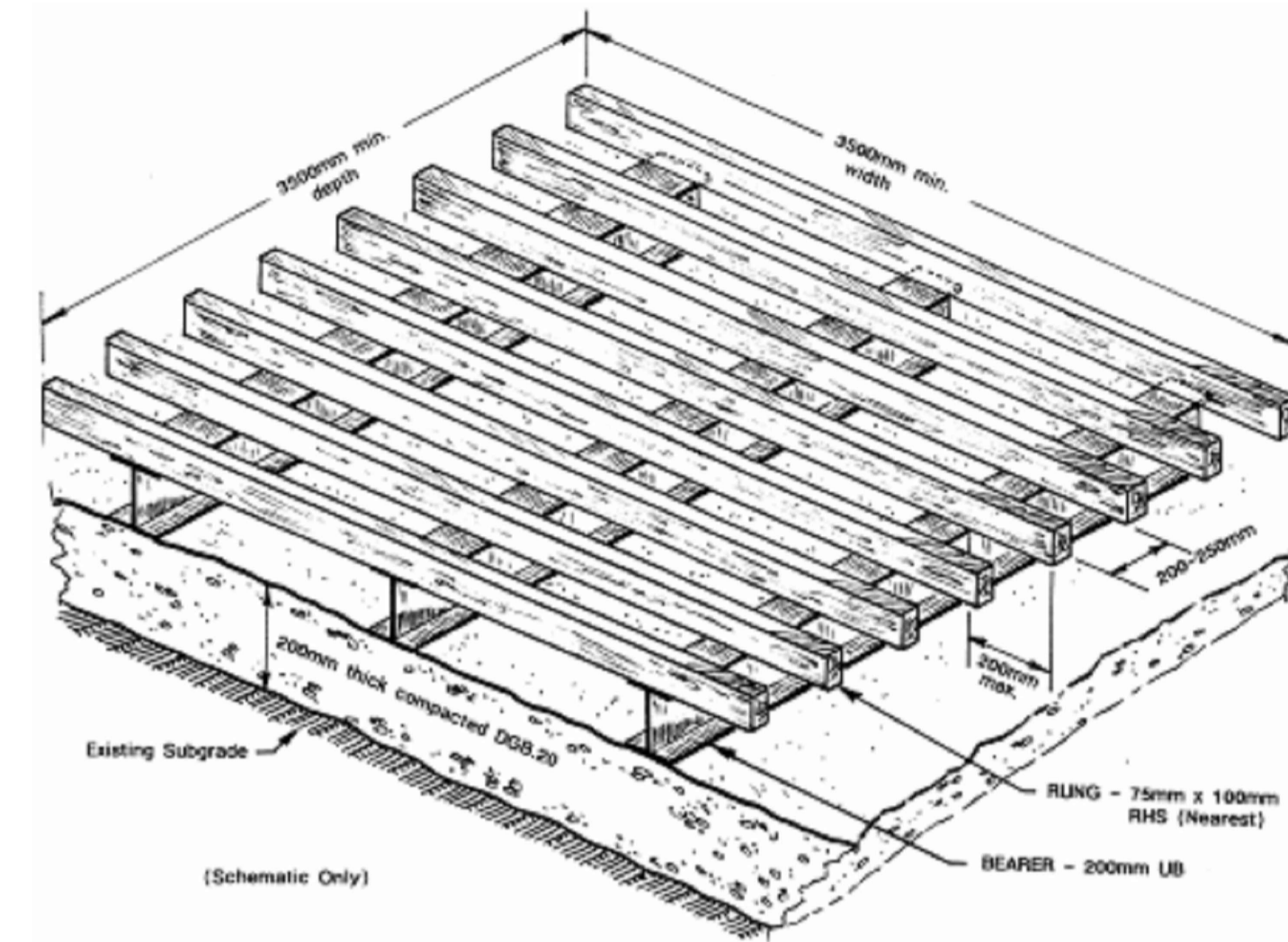
**SEDIMENT FENCE**

SCALE N.T.S.



**STABILISED SITE ACCESS - SHAKER GRID**

SCALE N.T.S.

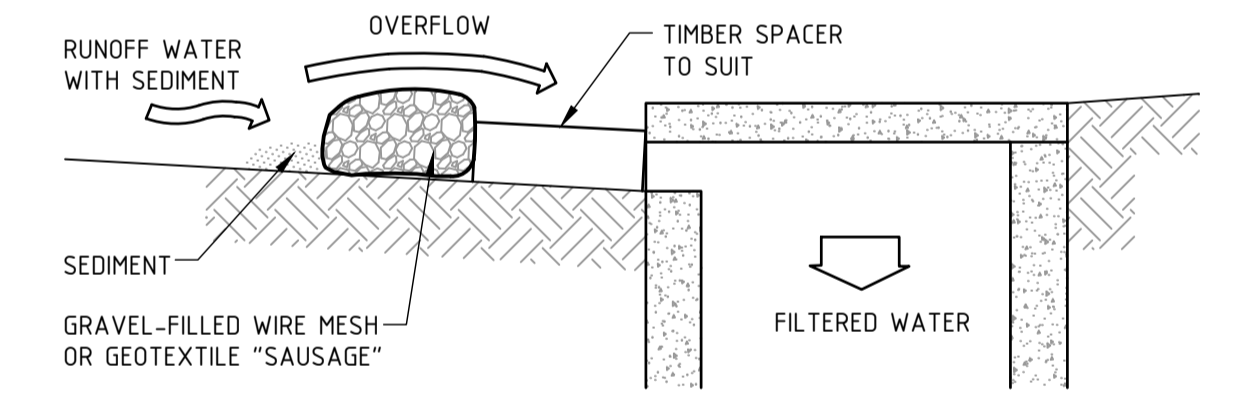


**GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:**

- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
- PICKET SPACING TO BE A MAXIMUM 1.0m CENTRES.
- IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
- DO NOT COVER THE INLET WITH GEOTEXTILES UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

**GEOTEXTILE INLET FILTER**

SCALE N.T.S.

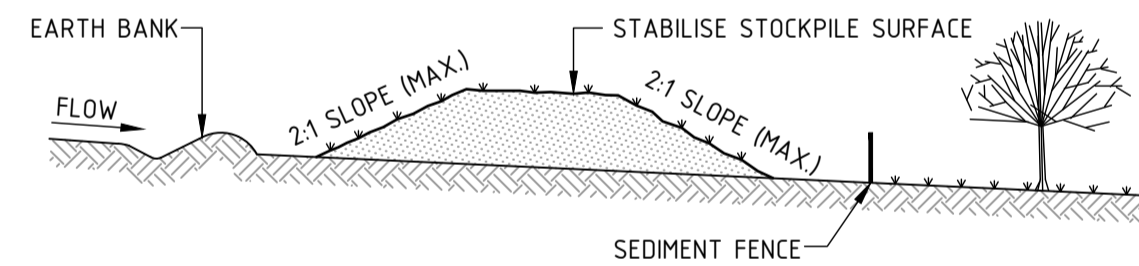


**MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:**

- INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
- FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
- FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
- PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
- FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
- SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

**MESH & GRAVEL INLET FILTER**

SCALE N.T.S.



**STOCKPILE CONSTRUCTION NOTES:**

- PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
- CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
- WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
- WHERE THEY ARE TO BE PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
- CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

**STOCKPILES**

SCALE N.T.S.

REV	DATE	DESCRIPTION	REVISIONS
A	08/12/25	ISSUED FOR INFORMATION	SM

CLIENT: **URBAN PROPERTY GROUP** **Studio.SC**

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bgeeng.com—

PROJECT: **OLD CASTLE HILL ROAD**  
16-20 OLD CASTLE HILL ROAD,  
NSW 2154 AUSTRALIA

STATUS: <b>ISSUED FOR INFORMATION</b> NOT TO BE USED FOR CONSTRUCTION			
DRAWN: NA	DESIGNED: SM	CHECKED: SH	APPROVED: -
DATUM: AHD	GRID: GDA2020 MGA-56	SCALE: NTS	PROJECT No: S25014

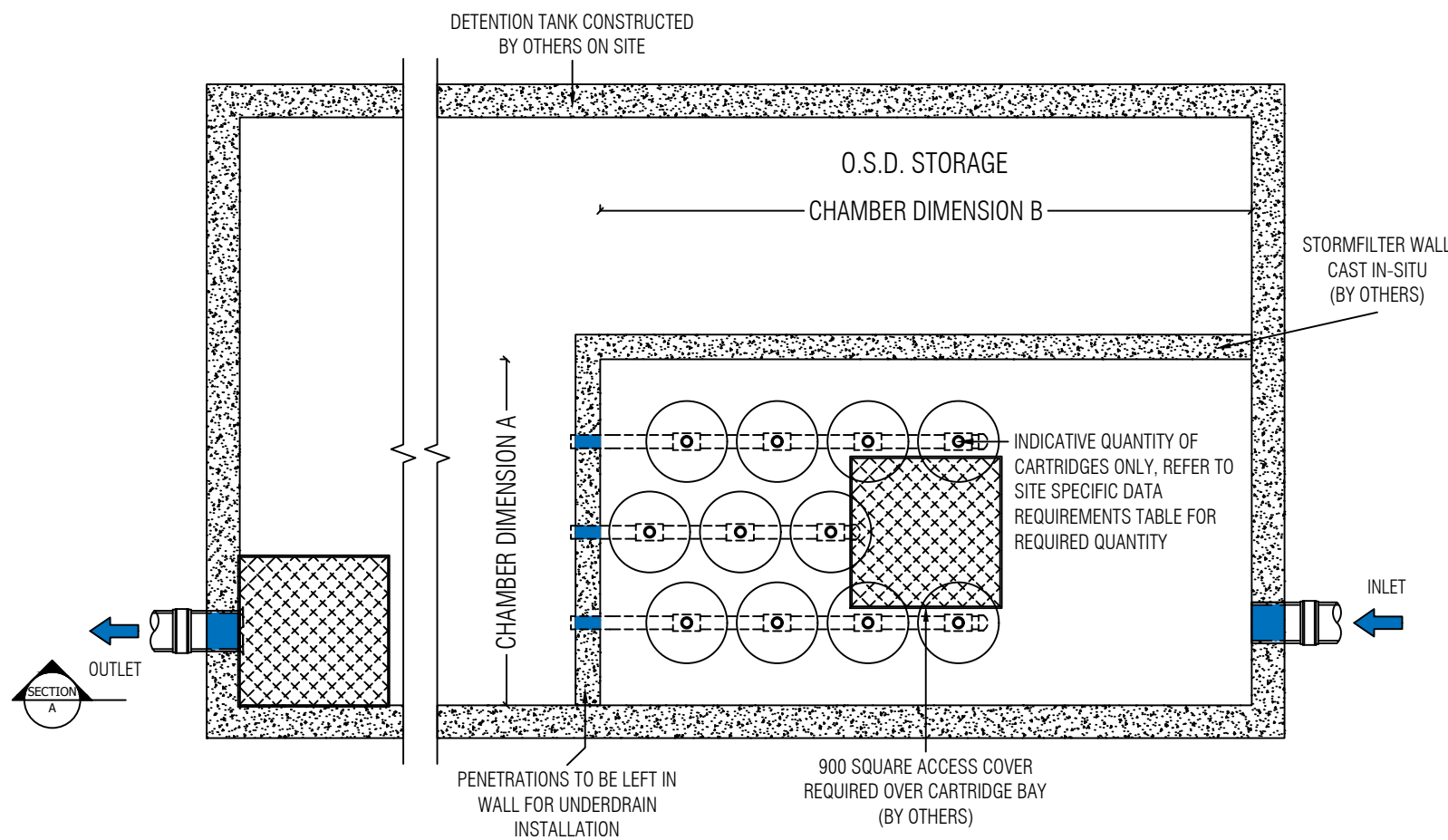
TITLE: <b>EROSION AND SEDIMENT CONTROL DETAILS</b>	
DRAWING No: CI-0710	REV: A

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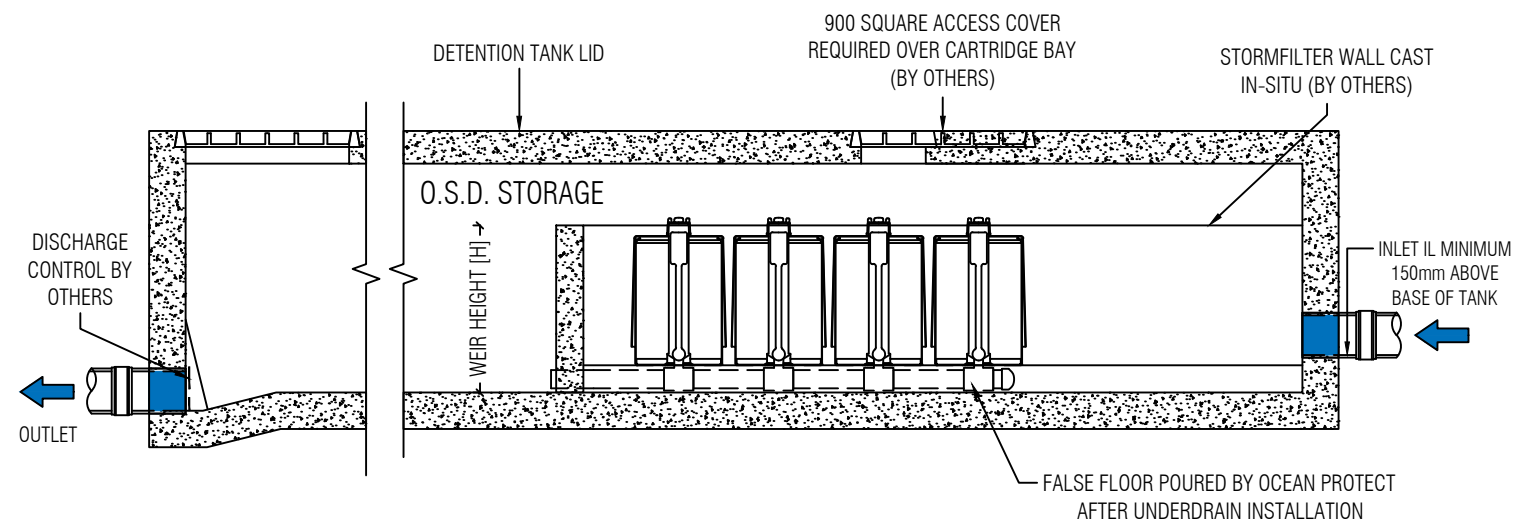
# Appendix D - WSUD Details



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**PLAN LAYOUT**

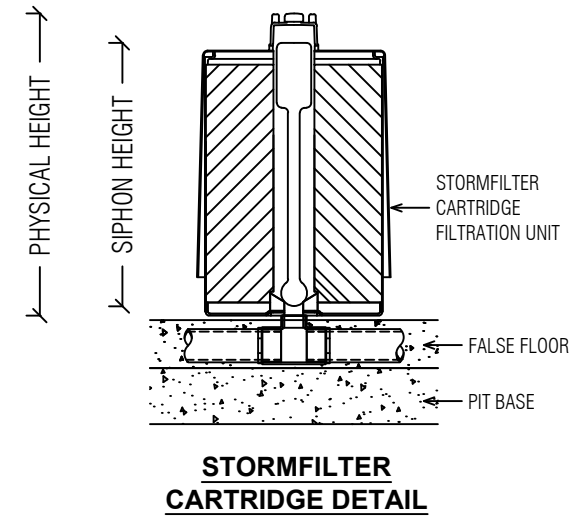


**SECTION A**

**STORMFILTER DESIGN TABLE**

- STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED.
- THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S).
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm.

CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
TYPICAL WEIR HEIGHT [H] (mm)	920	690	540
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39



**STORMFILTER CARTRIDGE DETAIL**

**SITE SPECIFIC DATA REQUIREMENTS**

STRUCTURE ID	[ ]
NUMBER OF CARTRIDGES REQ'D	[ ]
SIPHON HEIGHT (310 / 460 / 690)	[ ]
MEDIA TYPE (ZPG / PSORB)	[ ]
WATER QUALITY FLOW RATE (L/S)	[ ]
DIMENSION A	[ ]
DIMENSION B	[ ]

TOTAL CARTRIDGE BAY AREA (A x B) TO MATCH AREA REQUIRED BY MUSIC MODELLING OR COUNCIL SPECIFIC REQUIREMENTS

**GENERAL NOTES**

1. INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
2. A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SUSPENSION OF SOLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
3. ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
4. SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
5. THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
6. CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900 X 900 ABOVE CARTRIDGES. OH&S REGARDING ACCESS COVERS AND TANK ACCESS TO BE ASSESSED BY OTHERS ON SITE.
7. THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
8. DRAWINGS NOT TO SCALE.

**INSTALLATION NOTES**

1. UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.



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OCEAN PROTECT  
 STORMFILTER SYSTEM  
 DETENTION TANK ARRANGEMENT  
 SPECIFICATION DRAWING

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Our teams in Australia, New Zealand, South East Asia, the United Kingdom and the Middle East, design and deliver engineering solutions for clients in the Property, Transport, Ports and Marine, Water, Defence, Renewables and Resources sectors.

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