

601 Pacific Highway, St Leonards - Water Management Plan

Prepared for Stockland Development Pty Ltd

March 2026
Project Number S23095
Version D

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1. Executive summary

This Water Management Plan supports the State Significant Development Application and rezoning proposal for a mixed-use development at 601 Pacific Highway St Leonards. The report outlines the stormwater strategy the hydraulic assessment and the water quality approach needed to meet the Secretary's Environmental Assessment Requirements and the North Sydney Council DCP.

The stormwater design has been developed to assess pre and post development performance. The modelling outlines the required volume and permissible site discharge rate for the on-site detention tank. The adopted design provides an OSD tank volume of 78.04 m³ and a PSD rate of 56 L/s which meets Council requirements.

Water quality targets have been addressed through a treatment train that uses NPsorb StormFilter units and an OceanGuard device. MUSIC results show compliance with all pollutant reduction objectives in the DCP.

The integrated approach ensures effective runoff management and improved water quality prior to site discharge.

2. Introduction

This Water Management Plan has been prepared by BG&E and is submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a State Significant Development Application (SSDA) (SSD-85848713) and concurrent rezoning proposal for a new mixed-use development at 601 Pacific Highway, St Leonards (the site).

This report will outline the methodology adopted and associated results of:

- Requirement of a detention tank; and
- Water sensitive urban design.

2.1 Purpose of Report

The purpose of this Water Management Plan is to design the stormwater management system and prepare a supporting stormwater report for the State Significant Development Application, and to address the Secretary's Environmental Assessment Requirements (SEARs) issued on 4 July 2025, which identified the following specific assessment requirements: SEARs condition 11. Water Management.

This report will outline the methodology adopted and associated results of:

- Requirement of an on-site detention tank; and
- Water sensitive urban design
- SEARs condition 11. Water Management

Table 1: Compliance with SEARs

Item	SEARs Requirement	Relevant Section of Report
11. Water Management	Provide an integrated Water Management Plan for the development that:	
	Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater), Including: • Stormwater hydraulic calculations for pre and post development for the 1:5, 1:20 and 1:100 storm events • Compliance with North Sydney council's drainage requirements, identifying proposed stormwater treatment and water quality management measures.	Refer to Sections 5 and 6 for the adopted North Sydney Council DCP requirements and the stormwater design outcomes. These sections include the pre and post development hydraulic calculations for the 1:5, 1:20 and 1:100 storm events and confirm the OSD tank volume the PSD rate and compliance with the required pollutant reduction targets.

2.2 Referenced Standards and Documentation

The following documents have been used as part of this report:

- North Sydney Development Control Plan 2025

2.3 Development Controls

The development has used the North Sydney Council DCP requirements as a guidance and reference for the stormwater management design. The objectives of stormwater management in North Sydney Development Control Plan 2025, Part B Section 4 – Water are as follows:

- Minimise the impacts of development upon the water cycle and achieve more sustainable forms of urban development.
- Assist in the management of stormwater via On-Site detention to prevent any increase in downstream peak flows resulting from new developments.

3. Existing Scenario

3.1 Existing Scenario

The site is located on Cammeraygal country at 601 Pacific Highway, St Leonards within North Sydney (LGA). The site is legally described as Lot 71 in DP749690 and has a total area of 2,844m². The site is 4.5 km north of the Sydney CBD, 3 km from the North Sydney CBD, and within proximity to the centres of St Leonards, Chatswood, and Macquarie Park. The site is located 350 metres (walking distance) from St Leonards train station and approximately 400m (walking distance) from the Crows Nest Metro station.

A site aerial and location plan is provided at Figure 1 below.

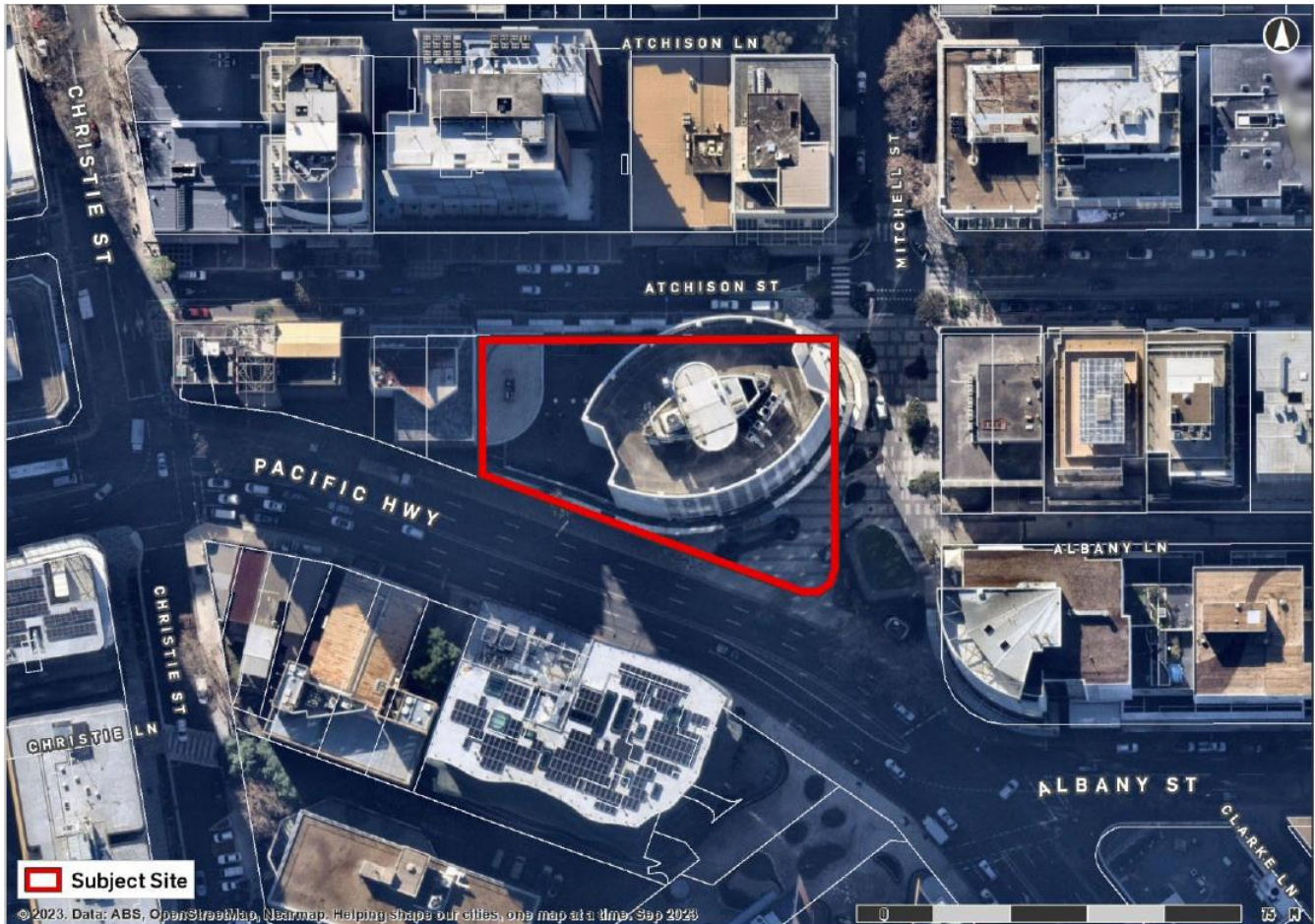


Figure 1: Aerial view of the site (Source: Urbis)

3.2 Existing Site Drainage Description

A review of the Before You Dig Australia (BYDA) information and survey prepared by LTS dated 12/08/2025 reveals that there is currently no stormwater drainage discharging to Atchison Street, Mitchell Street, or Pacific Highway. Refer to Appendix B for details.

4. Proposed Development

The proposal seeks consent for the following:

- An amendment to the North Sydney Local Environmental Plan 2013 (NLEP 2013) to rezone the site from E2 Commercial Centre to MU1 Mixed Use and to amend the minimum non-residential floor space ratio development standard under Clause 4.4A from 20:1 to 1:1.
- Demolition of the existing 14 storey commercial office building that is currently on the site.
- Site excavation, remediation and other preparatory works.
- Construction and operation of a new 52 storey (RL264.50) mixed use shop top housing development, with a FSR of 20:1 (maximum GFA of 56,880m²), comprising:
 - 538 dwellings including 508 Build-to-Sell apartments and 30 Affordable Housing apartments across a mix of apartment typologies.
 - A contribution of 5% of the residential GFA toward Affordable Housing.
 - Retail and commercial land uses at the ground and podium levels.
 - Internal and external residential amenities provided throughout the building.
 - Six levels of basement carparking, comprising a total of 300 car spaces, bicycle parking, loading bays, waste areas, plant, and back of house.
- Vehicular access to the basement via Atchison Street.
- Landscaping and Public Domain works.
- Reticulation of site services and infrastructure (electricity, telecommunication, water, and sewer connections).

Refer to Figure 2 for the proposed Level 1 plan.



Figure 2: Proposed Level 1 Plan (Batessmart)

5. Design Criteria

5.1 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:

- North Sydney Development Control Plan 2025

As part of the proposed development, in order to satisfy all relevant outlines in the above referenced documents, an On-site detention (OSD) tank is required to implement the following:

- To limit the total discharge from the site.
- Minimise discharge bypassing the site's OSD Tank.
- Implementation of Water Sensitive Urban Design (WSUD) products to control and enhance the quality of the water discharging from the site.

This is to be implemented on site through the following controls:

- Ensure that the maximum discharge of stormwater collected from the predevelopment site, which would occur during a 1 in 5-year storm of 1-hour duration is not exceeded.
- All other stormwater run-off from the site for all storms up to a 1 in 100-year storm event is to be retained on the site for gradual release to the kerb and gutter or piped drainage system.

5.2 Hydraulics

5.2.1 Methodology

The DRAINS software package has been used to model the hydrologic and hydraulic characteristics of stormwater runoff and flow to and from the Site. The model has been prepared to assess the necessary storm events for the sizing of the OSD tank per North Sydney Development Control Plan 2025. The DRAINS model has been prepared to evaluate the pre-development and post-development flows and size the OSD tank accordingly.

5.2.2 Assumptions & Parameters

The following assumptions and parameters were adopted from *Australian Rainfall and Runoff: A Guide to Flood Estimation* (ARR 2019), Book 9, Table 9.6.6, as North Sydney Council's DCP does not provide specific modelling setup information:

- Soil Type = 3
- Antecedent moisture content, AMC = 3
- Infiltration rates: Initial paved = 1 mm, grassed = 5 mm
- Rainfall Data from the Bureau of Meteorology
- Temporal Pattern from ARR Data Hub

5.3 Water sensitive Urban Design

The main objectives for stormwater quality are indicated in North Sydney Development Control Plan – Section 4 - Water. The technical requirements are presented below for the proposed site:

- Achieve a minimum of 90% reduction of the Gross Pollutants (GP) average annual load.
- Achieve a minimum of 85% reduction of the Total Suspended Solids (TSS) average annual load.
- Achieve a minimum of 65% reduction of the Total Phosphorus (TP) average annual load.
- Achieve a minimum of 45% reduction of the Total Nitrogen (TN) average annual load.

Methods to achieve the above treatment targets can include the use of proprietary products, rainwater reuse, raingardens, detention basins or treatment further downstream within the external stormwater network. The proposed development catchments are shown plan in Table 1.

Table 1: Summary of Catchment Plan Areas

Areas to be Treated	<i>m</i> ²
Impervious Area	1,685
Roof	1,160
Total	2,845

6. Analysis results

6.1 On-Site Detention

The on-site detention system has been designed for the proposed development in accordance with North Sydney Council DCP 2025 – Section 4- Water. The OSD tank volume has been verified using DRAINS by assessing the pre-development and post-development flows, with the results presented in Table 2.

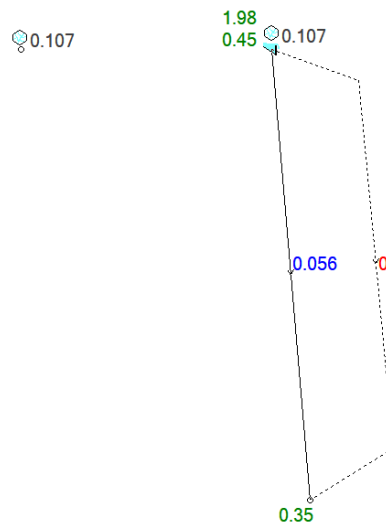


Figure 3: DRAINS Model – 1% AEP Results

Table 2: DRAINS Modelling Results

Year (ARI event)	Pre-Development Site Flows (L/s)	Post-Development OSD Flows (L/s)	Post < 5yr (1hr) ARI Pre-development Flows
5	73	37	Complies
10	87	43	Complies
20	101	48	Complies
50	95	51	Complies
100	107	56	Complies

The proposed development presents the design of the OSD tank located under the outdoor area adjacent to the proposed retail area along the eastern side of the site. Refer to Appendix B for civil plans. The OSD tank has been positioned with a volume of 78.04m³ and PSD rate of 56 L/s. Table 3 below provides a summary of the proposed OSD tank volume and PSD rate which comply with North Sydney Council's requirements.

Table 3: North Sydney Council's Requirements Vs Design

OSD Tanks	Required Volume (m ³)	Provided Volume (m ³)	Required PSD (L/s)	Designed PSD (L/s)
OSD Tank	74.3	78.04	73	56

6.2 Water Sensitive Urban Design Implementation

The water quality modelling software MUSIC v6.3 was used to analyse the performance of the treatment train. Figure 4 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 prior to stormwater runoff leaving the site.

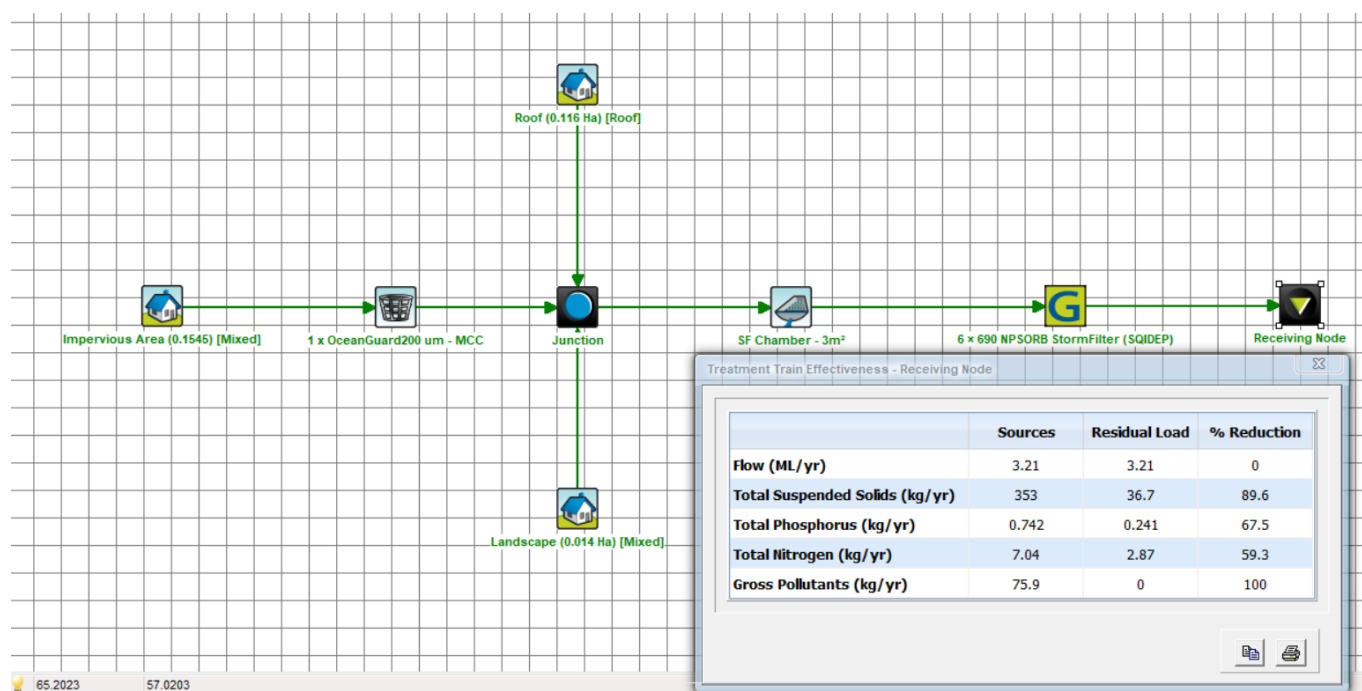


Figure 4: Music Model and Results

The results of the analysis showed the treatment train would achieve the water quality targets set out in Council's DCP. Table 4 below displays the effectiveness of the treatment train for the primary and secondary treatment. To meet the requirements set out by Council, the following treatment devices were implemented 6 x 690 NPSorb StormFilter (SQIDEP) and 1 x OceanGuard from Ocean Protect.

The water quality model created using MUSIC software provides an indication of the pollutant removal rates expected when a treatment train of water quality measures is applied to the proposed layout of the development. The MUSIC modelling results in Table 4 confirm that the pollutant reduction targets in the North Sydney Development Control Plan Section 4 Water requirements are met.

Table 4: MUSIC Model Results

Pollutant	Prior Treatment (kg/yr.)	Post Treatment (kg/yr.)	Percentage Reduction Achieved (%)	Water Quality Objective (%)
Gross Pollutants (GP)	75.9	0	100	90
Total Suspended Solids (TSS)	353	36.7	89.6	85
Total Phosphorus (TP)	0.742	0.241	67.5	65
Total Nitrogen (TN)	7.04	2.87	59.3	45

6.3 Mitigation Measures

The following measures are incorporated into the proposed development to manage water impacts:

- **On-Site Detention (OSD) Tank:** A 78.04 m³ OSD tank is proposed under Level 1 at the eastern end of the proposed retail areas to control post-development stormwater flows, ensuring discharge rates do not exceed pre-development levels for the 1:5, 1:20, and 1:100 Average Exceedance Probability (AEP) events. Refer to Section 6.1 for compliance.
- **Overflow Management:** The OSD tank includes an internal overflow weir, which safely directs runoff exceeding the 1 in 100-year event into the OSD sump and then discharges out via the outflow pipe.
- **Water Sensitive Urban Design (WSUD):** Six NPsorb StormFilter units (SQIDEP) and one OceanGuard device are included to improve the water quality on site by achieving the North Sydney Council pollutant reduction targets for Gross Pollutants, Total Suspended Solids, Total Phosphorus, and Total Nitrogen. Refer to Section 6.2 for compliance.

These measures have been incorporated into the current design and comply with North Sydney Council requirements.

7. Conclusion

BG&E Pty Ltd (BG&E) has been engaged by Stockland Development Pty Ltd to prepare a Water Management Plan for the proposed mixed-use shop top housing development at 601 Pacific Highway, St Leonards NSW 2065 Australia.

This report has outlined the methodology adopted and associated results of:

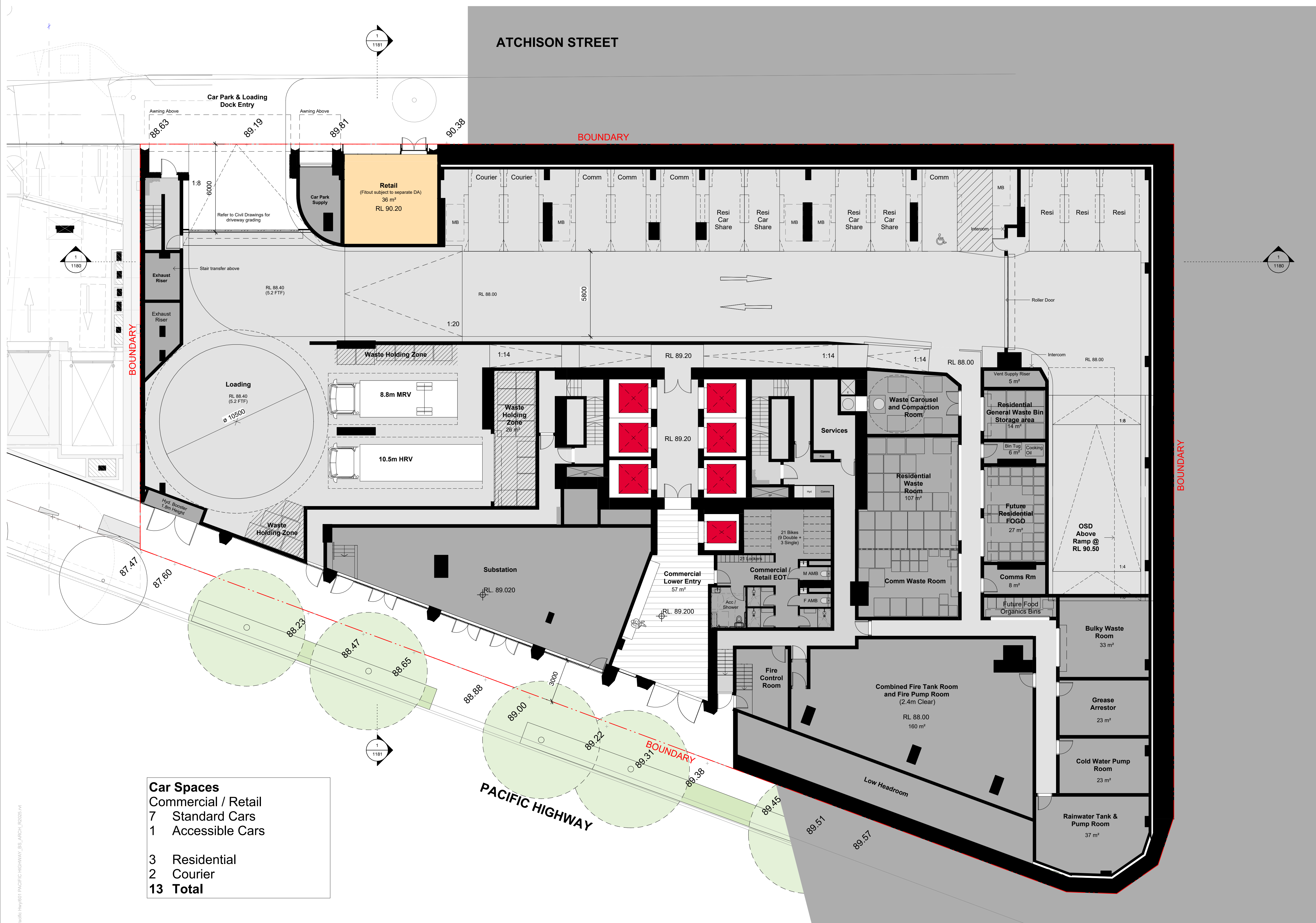
- Requirement of a detention tank; and
- Water sensitive urban design.

As outlined in this report, the following key items have been identified:

- A detention tank is required for this proposed development as required by North Sydney Council's DCP.
- An OSD tank with a capacity of 74.3m³ is required for the proposed developed, as per OSD sizing determined through DRAINS modelling.
- Water Sensitive Urban Design is required as part of the development site. This has been achieved using proprietary products. The site requires 6 x 690 NPsorb StormFilter (SQIDEP) and 1 OceanGuard from Ocean Protect or equivalent products installed as per manufacturer's instructions. This will need to be finalised and rationalised during detailed design.

Appendices

Appendix A - Architectural Drawings



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Kellie Payne 6454, Philip Vivian 6696, Guy Lake 7119, Matt Allen 8498.

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A	17/03/2026	SSDA Issue
P5	02/03/2026	For Information
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P3	31/10/2025	For Information
P2	16/10/2025	For Information
P1	08/10/2025	For Information

Project Title
601 Pacific Hwy
First Nations Country
Cammeraygal Country
Project Address
601 Pacific Hwy, St Leonards,
NSW

Project No.
S12758

Drawing Title
DA03 - General Arrangements
General Arrangement Plan Level B2

Phase
SSDA

Status
For Approval

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10B2

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Car Spaces
41 Standard Cars
8 Adaptable Cars
49 Total

9 Motorbike Spaces
53 Storage Cages

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Project Title
601 Pacific Hwy
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Project Address
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DA03 - General Arrangements
General Arrangement Plan Level B3

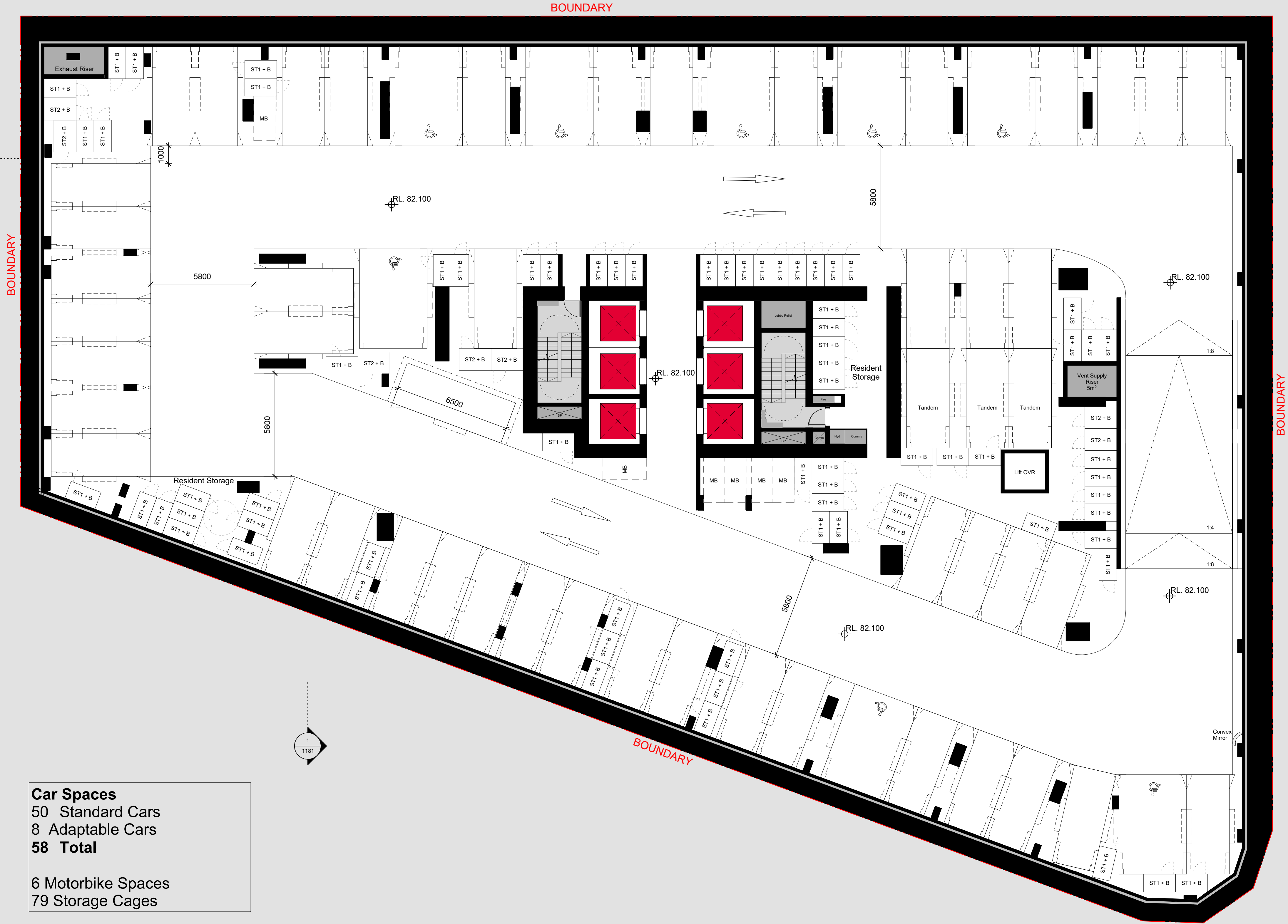
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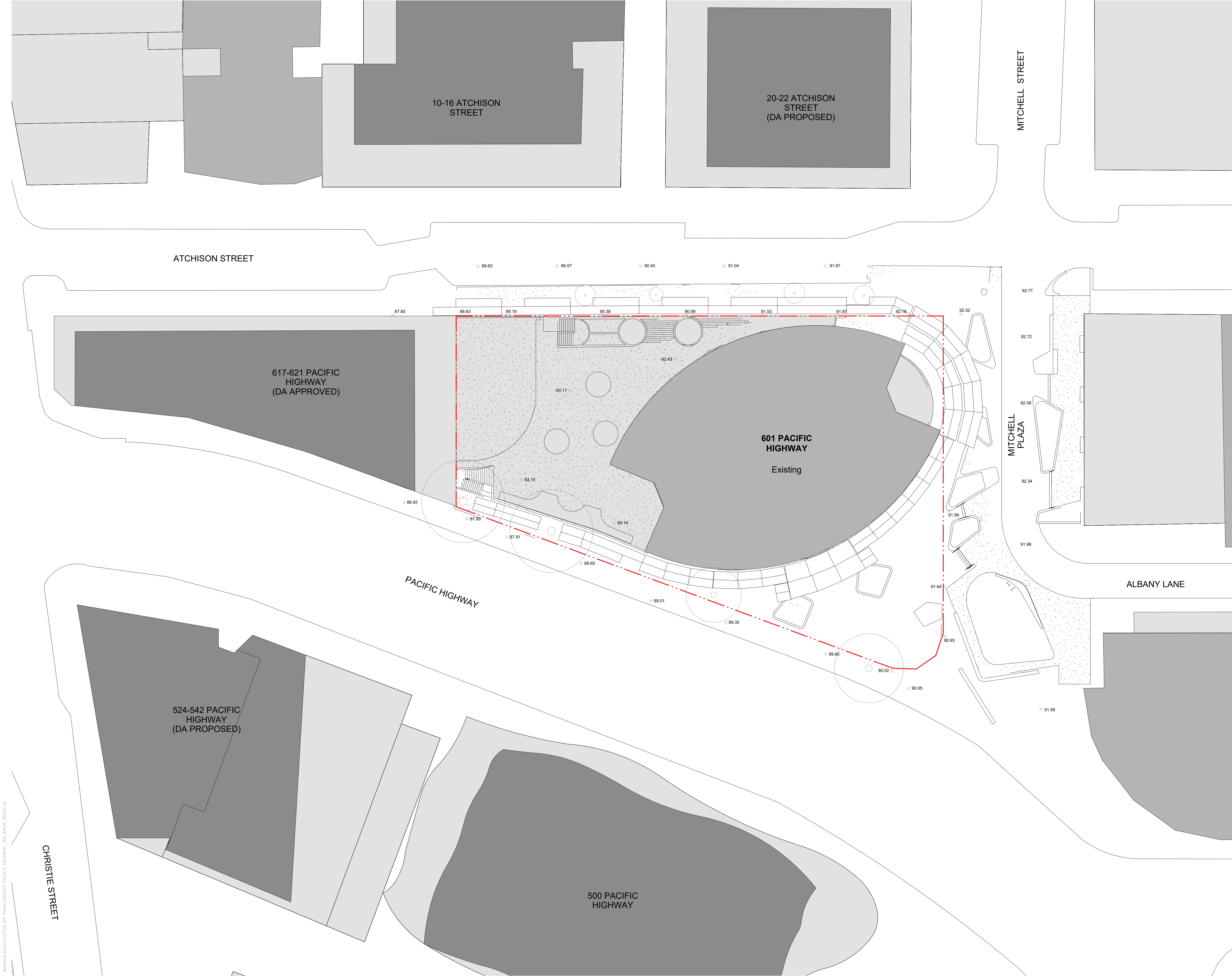
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Project Title
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Drawing Title
DA01 - Site Plans
Site Plan - Existing Conditions

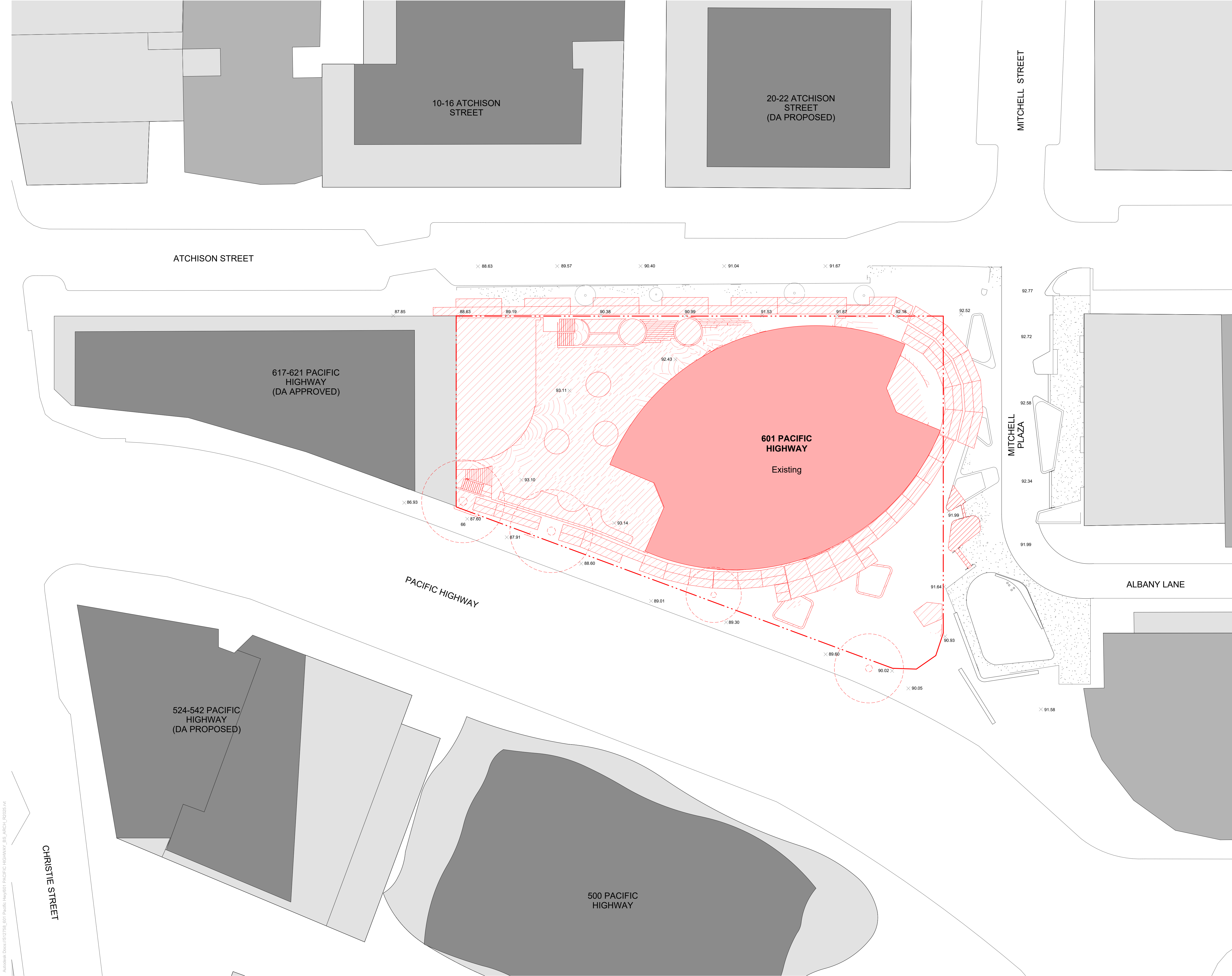
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DEMOLITION PLAN - LEGEND

- Structure to be demolished
- Site Boundary
- Trees to be Retained
- Trees to be Removed

Current Revision Description

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Rev	Date	Description

A	17/03/2026	SSDA Issue
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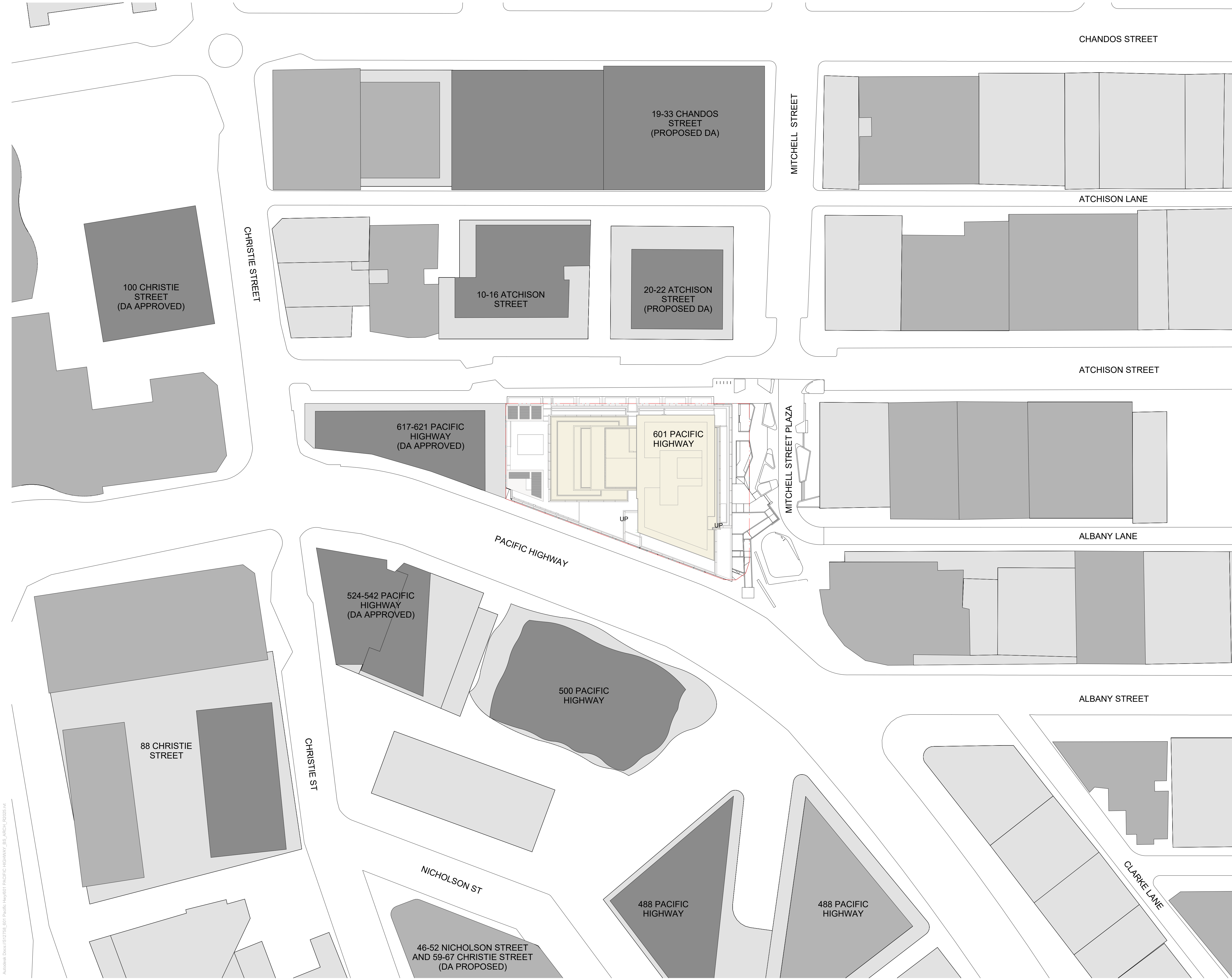
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DA01 - Site Plans
Site Plan - Demolition

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Site Plan - Site Plan

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Do not scale drawings.

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Client
Stockland Development

Current Revision Description

Data Issue Record
Current Revision released by
Rev Date Description

A	17/03/2026	SSDA Issue
P5	02/03/2026	For Information
P4	14/11/2025	For Information
P3	31/10/2025	For Information
P2	16/10/2025	For Information
P1	08/10/2025	For Information

Project Title
601 Pacific Hwy
First Nations Country
Cammeraygal Country
Project Address
601 Pacific Hwy, St Leonards,
NSW

Project No.
S12758

Drawing Title
DA03 - General Arrangements
General Arrangement Plan Level 01

Phase
SSDA

Status
For Approval

Drawing no.
1001

Scale
1 : 125 @ A1

Revision
A



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for the future city.

Bates Smart Architects Pty Ltd
ABN 68 094 740 986

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Data Issue Record		
Current Revision released by		
Rev	Date	Description

A	17/03/2026	SSDA Issue
P5	02/03/2026	For Information
P4	14/11/2025	For Information
P3	31/10/2025	For Information
P2	16/10/2025	For Information
P1	08/10/2025	For Information

Project Title
601 Pacific Hwy
First Nations Country
Cammeraygal Country
Project Address
601 Pacific Hwy, St Leonards,
NSW

Project No.
S12758

Drawing Title
DA03 - General Arrangements
General Arrangement Plan Level 05

Phase
SSDA
Status
For Approval
Drawing no.
1005
Scale
1 : 125 @ A1
Revision
A

Autosave Docs/S12758_601 Pacific Hwy/601 PACIFIC HIGHWAY_BS_ARCH_R2025.rvt





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Data Issue Record
Current Revision released by
Rev Date Description

A	17/03/2026	SSDA Issue
P6	04/03/2026	For Information
P5	02/03/2026	For Information
P4	14/11/2025	For Information
P3	31/10/2025	For Information
P2	16/10/2025	For Information
P1	08/10/2025	For Information

Project Title
601 Pacific Hwy
First Nations Country
Cammerraygal Country
Project Address
601 Pacific Hwy, St Leonards,
NSW

Project No.
S12758

Drawing Title
DA03 - General Arrangements
General Arrangement Plan Level 49

Phase
SSDA

Status
For Approval

Drawing no.
1049

Scale
1 : 125 @ A1

Revision
A

Autosave: Docs\1812758_601 Pacific Hwy\601 PACIFIC HIGHWAY_BS_ARCH_R2025.rvt



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Data Issue Record
Current Revision released by
Rev Date Description

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P6	04/03/2026	For Information
P5	02/03/2026	For Information
P4	14/11/2025	For Information
P3	31/10/2025	For Information
P2	16/10/2025	For Information
P1	08/10/2025	For Information

Project Title
601 Pacific Hwy
First Nations Country
Cammeraygal Country
Project Address
601 Pacific Hwy, St Leonards,
NSW

Project No.
S12758

Drawing Title
DA03 - General Arrangements
General Arrangement Plan Level 51

Phase
SSDA

Status
For Approval

Drawing no.
1051

Scale
1 : 125 @ A1

Revision
A



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Current Revision Description

Data Issue Record		
Current Revision released by		
Rev	Date	Description

A	17/03/2026	SSDA Issue
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P3	14/11/2025	For Information
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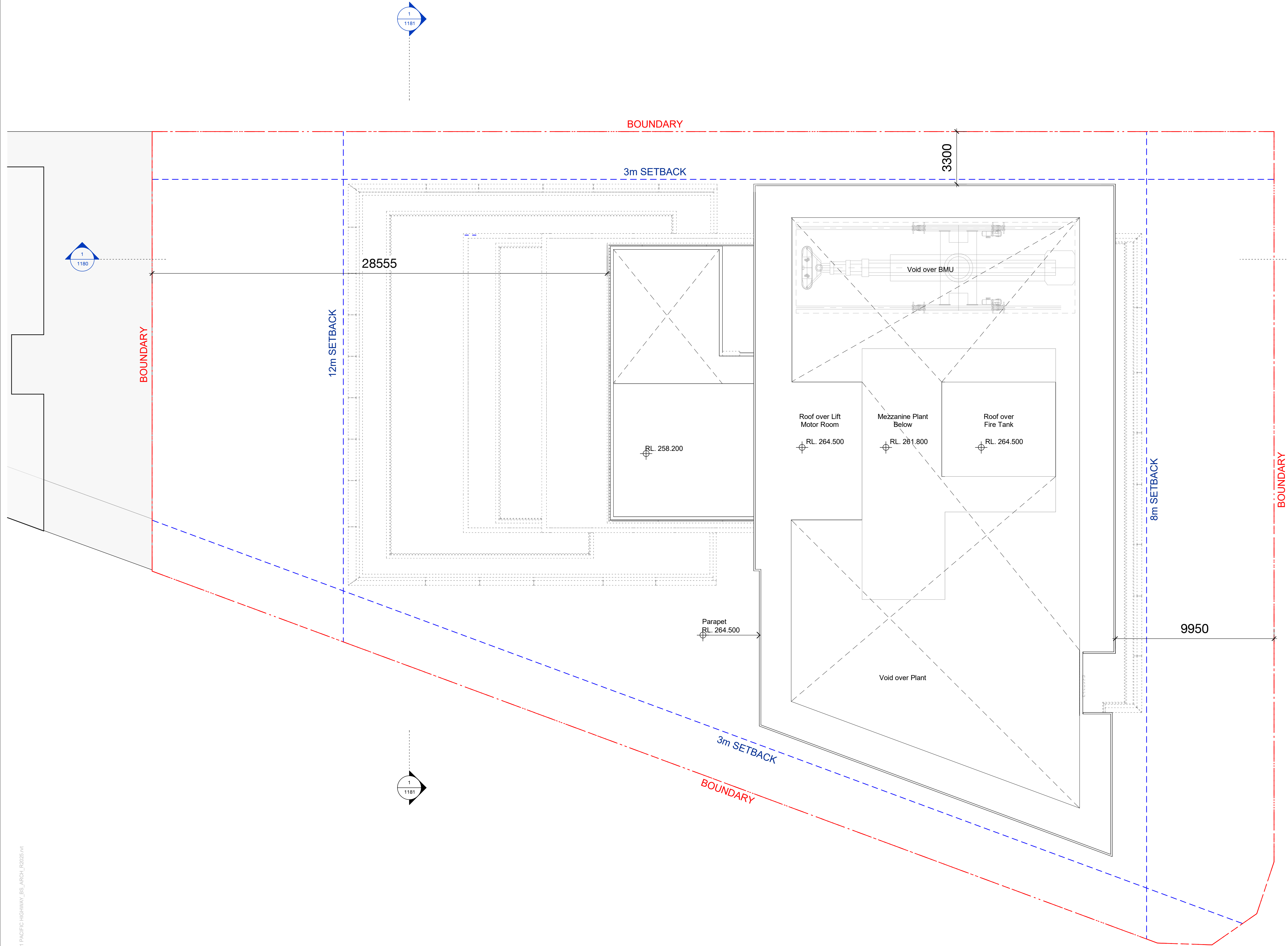
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601 Pacific Hwy
First Nations Country
Cammeraygal Country
Project Address
601 Pacific Hwy, St Leonards,
NSW

Project No.
S12758

Drawing Title
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General Arrangement Plan Roof

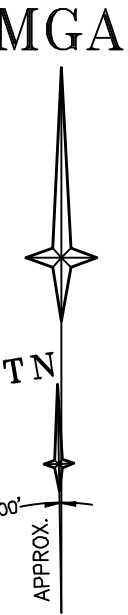
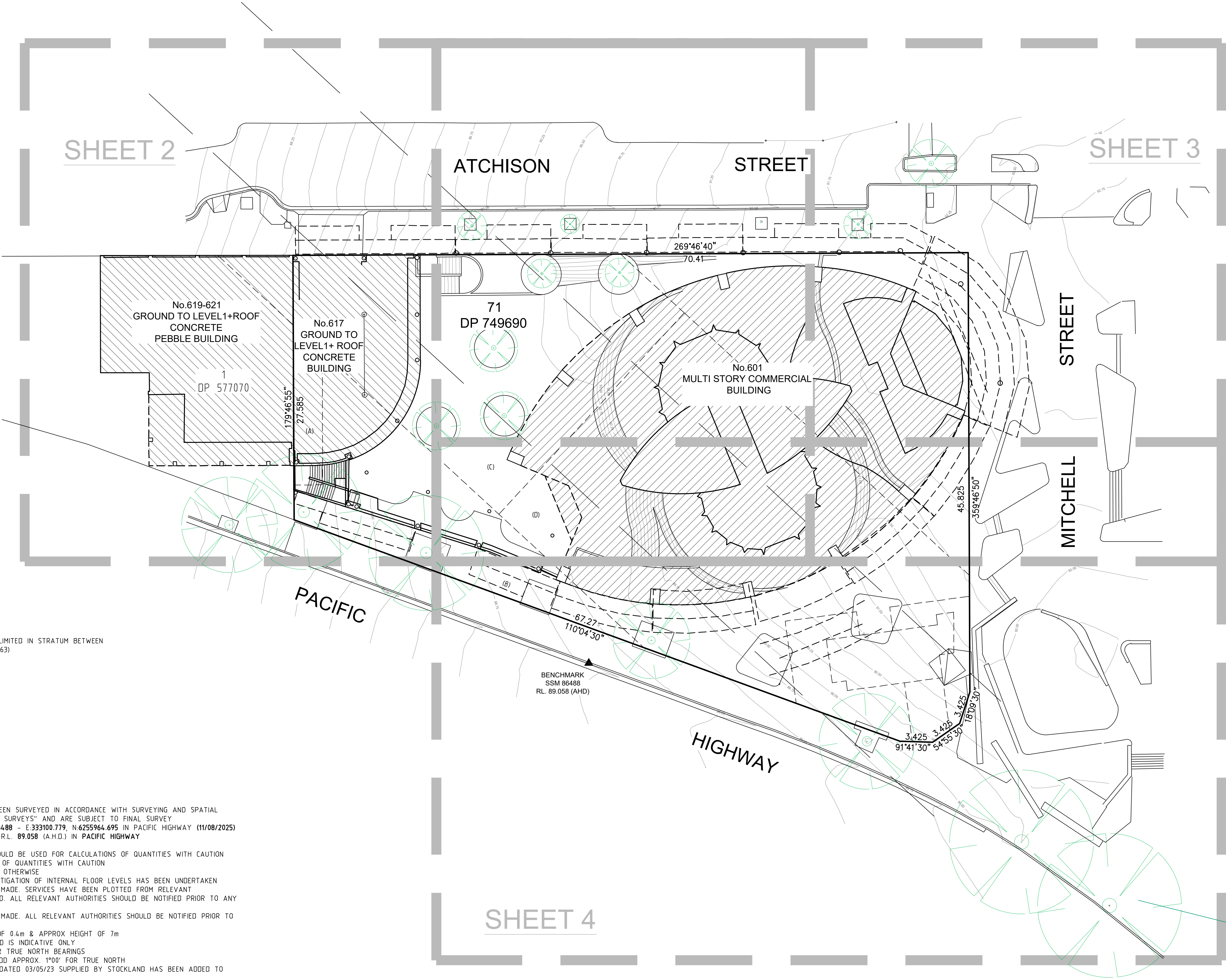
Phase
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Status
For Approval
Drawing no.
1053
Scale
1 : 125 @ A1
Revision
A

Autodesk Docs/S12758_601 Pacific Hwy/601 PACIFIC HIGHWAY_BS_ARCH_10025.v1



Appendix B - Survey

LEGEND	
BENCH MARK	▲
COMMS PIT	COM
ELECTRIC LIGHT POLE	ELP
ELECTRIC LIGHT BOL	LB
POWER POLE	PPL
POWER POLE WITH LIGHT	PP
GRATED INLET PIT	GIP
GRATED DRAIN	
SEWER INSPECTION POINT	SIP
SEWER MANHOLE	SMH
STOP VALVE	SV
HYDRANT	HYD
GAS VALVE	GAS
SERVICE PIT	PIT
SERVICE PIT	PIT
PIT WITH METAL LID	MLID
STREET SIGN	SS
BOL	BOL
COLUMN	COL
GATE	
VEHICLE CROSSING	(VC)
PRAM CROSSING	(PC)
WINDOW	W
DOOR	D
HEAD/SILL	H/S



EASEMENT
(A) EASEMENT FOR SIGNAGE ACCESS AND OVERHANG 3 WIDE LIMITED IN STRATUM BETWEEN HORIZONTAL PLANES AT RL98 AND RL 113 AHD. (DP1019263)

LEASE OF PREMISES
(F) SUBSTATION PREMISES NO.6594
(E) EASEMENT FOR RIGHT OF WAY (114.9811)
(G) EASEMENT FOR ELECTRICITY PURPOSES 4 WIDE (114.9811)

STRATUM LIMITS
(C) RAIL STRATUM LIH RL67.15 LID RL43.95
(D) RAIL STRATUM LIH RL69.15 LID RL45.95

- NOTES**
1. THE BOUNDARIES HAVE NOT BEEN MARKED ON GROUND
 2. THE BOUNDARY SURVEY (DIMENSIONS AND AREA) HAVE BEEN SURVEYED IN ACCORDANCE WITH SURVEYING AND SPATIAL INFORMATION REGULATION 2017 CLAUSE 10 "IDENTIFICATION SURVEYS" AND ARE SUBJECT TO FINAL SURVEY
 3. ORIGIN OF MGA2020 COORDINATES IS TAKEN FROM SSM 86488 - E:333100.779, N:6255964.695 IN PACIFIC HIGHWAY (11/08/2025)
 4. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM SSM 86488 R.L. 89.058 (A.H.D.) IN PACIFIC HIGHWAY
 5. CONTOUR INTERVAL 0.5 m
 6. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
 7. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
 8. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
 9. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN
 10. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
 11. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
 12. 8/4/7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m
 13. SHOWS APPROXIMATE POSITION OF ROAD LINEMARKING AND IS INDICATIVE ONLY
 14. BEARINGS SHOWN ARE MAGNETIC. ADD APPROX. 9°30' FOR TRUE NORTH BEARINGS
 15. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH
 16. UTILITY SERVICES PLAN BY VERIS 203610-UTIL-001A.DWG DATED 03/05/23 SUPPLIED BY STOCKLAND HAS BEEN ADDED TO THIS PLAN (AS A XREF)



BEFORE
YOU DIG
www.beyondig.com.au
Zero Damage - Zero Harm



GDA2020



0 4 8 12 16 20
SCALE 1:200 @ A1

Revision	Date	Description	Reference	Revision	Date	Description	Reference
H	00/00/00	—	00	D	00/00/00	—	00
G	00/00/00	—	00	C	00/00/00	—	00
F	00/00/00	—	00	B	00/00/00	—	00
E	00/00/00	—	00	A	00/00/00	—	00



LTS
CONFIDENCE TOGETHER

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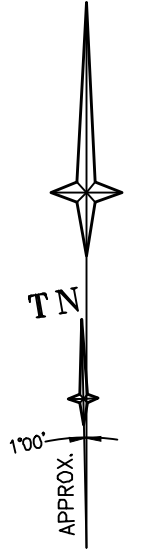
www.lts.com.au | P 1300 587 000

Registered Surveyor NSW

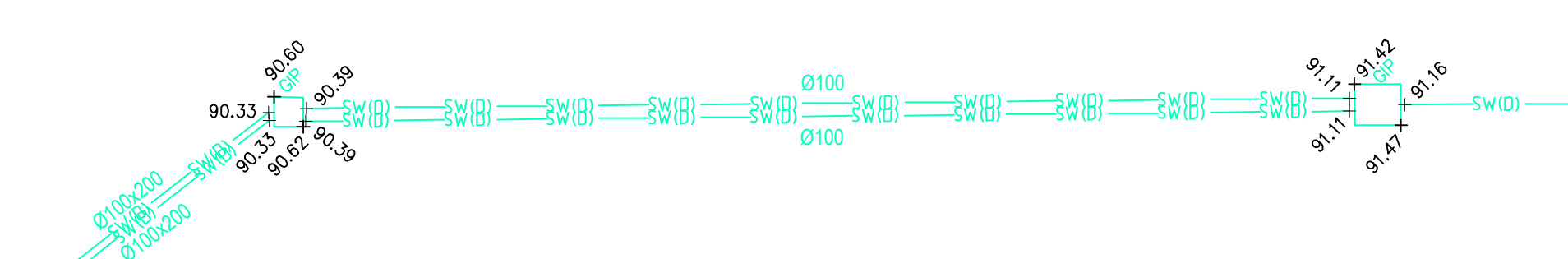
Client STOCKLANDS
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 71 IN DP 749690
KNOWN AS NO.601 PACIFIC HIGHWAY, ST LEONARDS

datum	AHD	reference	number	52414 002DT
site Area	2842 m²	scale	1:200	@A1
LGA	NORTH SYDNEY	date of survey	12/08/2025	
		SHEET	9	1

MGA



CH12.940.000 CL RL54.223



ATCHISON

STREET

No.619-621
GROUND TO LEVEL1+ROOF
CONCRETE
PEBBLE BUILDING

No.617
GROUND TO
LEVEL1+ ROOF
CONCRETE
BUILDING

71
DP 749690

No.601
MULTI STORY COMMERCIAL
BUILDING

PACIFIC

HIGHWAY

SEE SHEET 1 FOR LEGEND & NOTES

H	00/00/00	—	00
G	00/00/00	—	00
F	00/00/00	—	00
E	00/00/00	—	00
Revision	Date	Description	Reference

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Revision	Date	Description	Reference

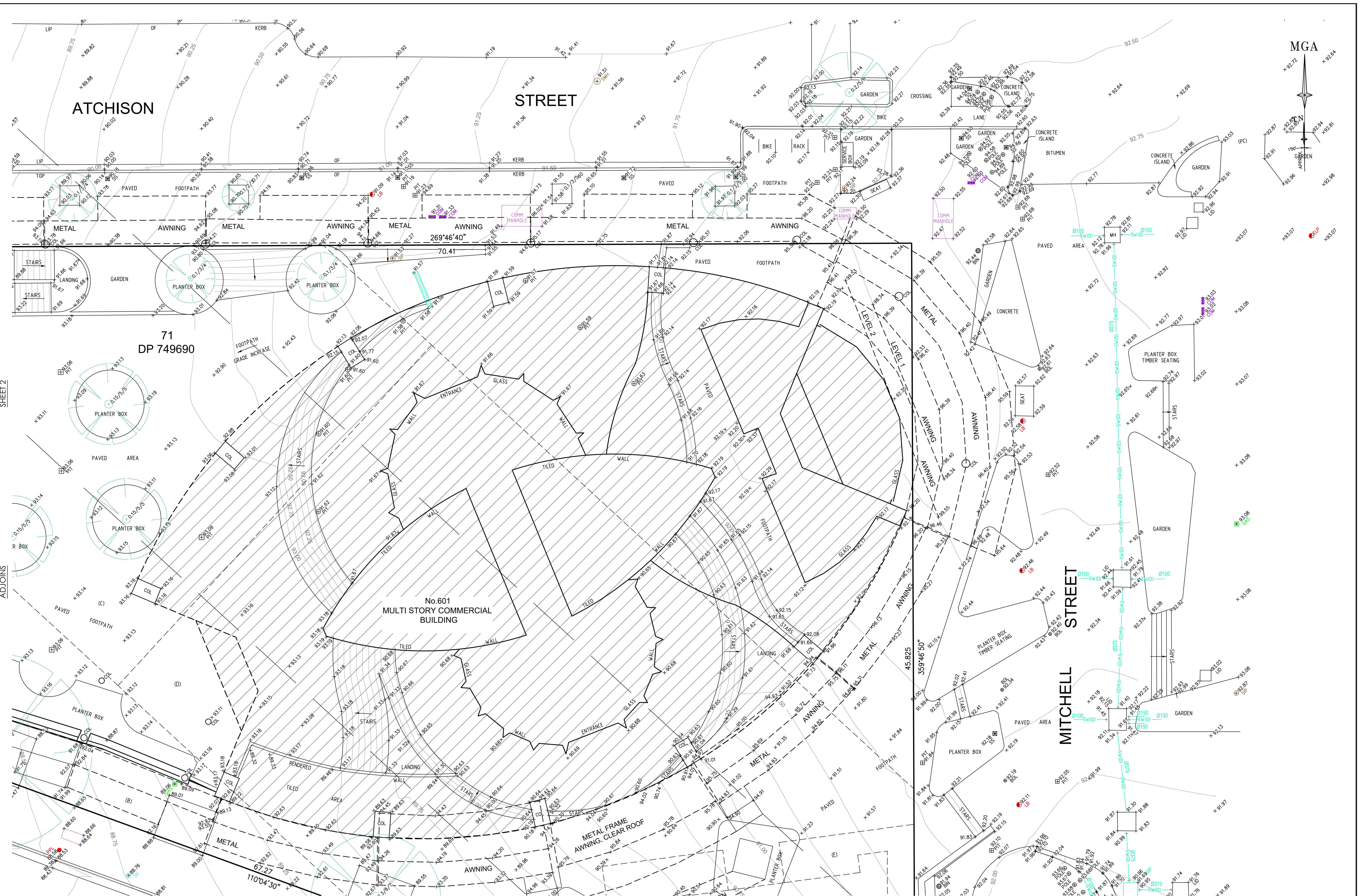
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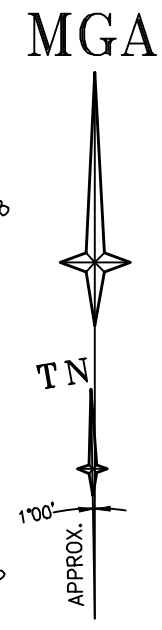
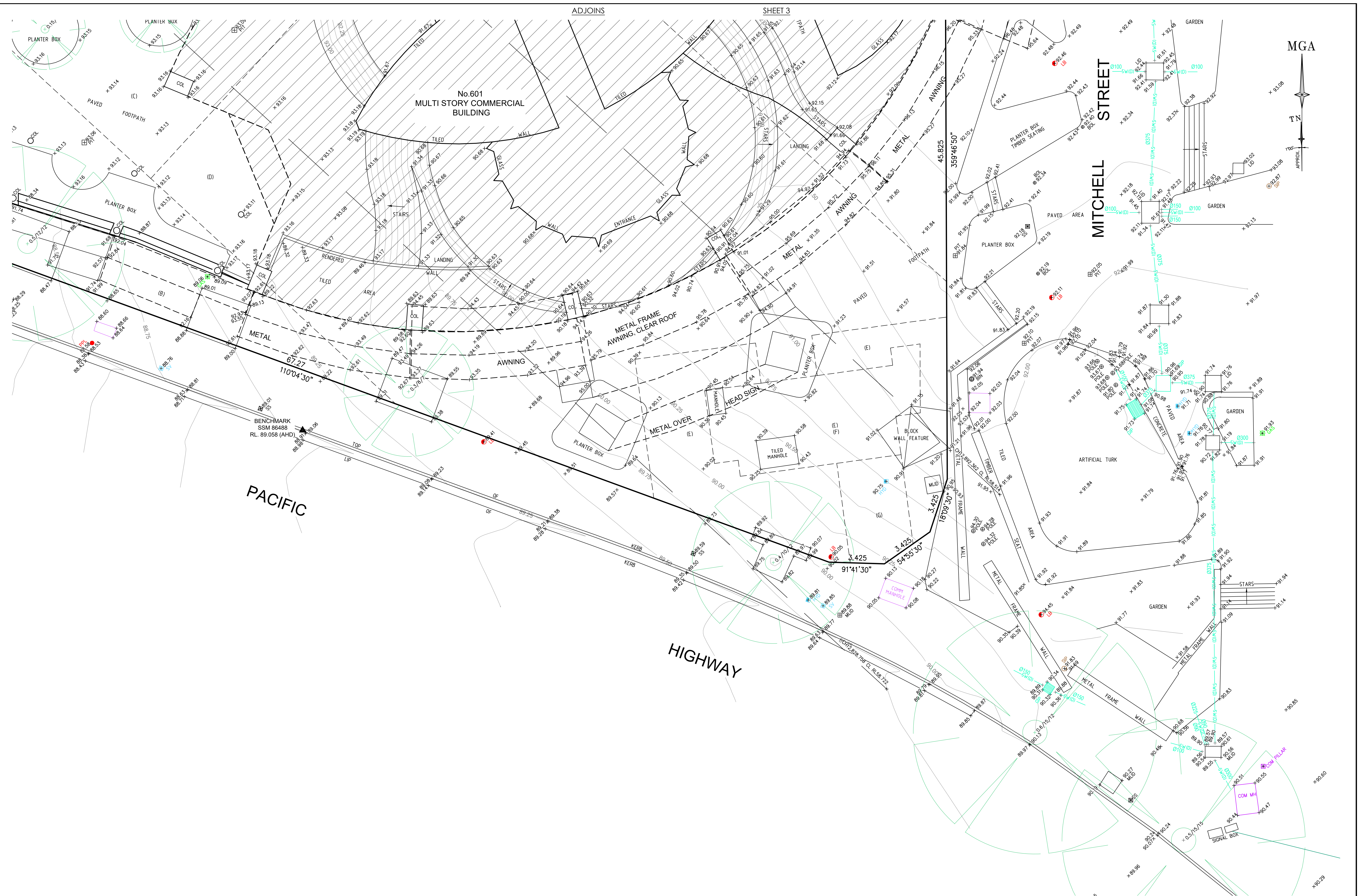


THIS IS THE PLAN REFERRED
TO IN MY LETTER
DATED:
.....
Registered Surveyor NSW

Client STOCKLANDS
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 71 IN DP 749690
KNOWN AS NO.601 PACIFIC HIGHWAY, ST LEONARDS

datum
AHD
site Area
2842 m²
LGA
NORTH SYDNEY
reference
number
52414 002DT
scale
1:100
date of survey
12/08/2025
SHEET
9
2









SCALE 1:100 @ A1

SEE SHEET 1 FOR LEGEND & NOTES

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B	00/00/00	—	00																																				
A	00/00/00	—	00																																				
Revision	Date	Description	Reference	Revision	Date	Description	Reference																																



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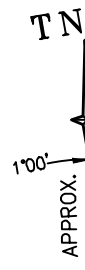
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Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 71 IN DP 749690
KNOWN AS NO.601 PACIFIC HIGHWAY, ST LEONARDS

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site Area	2842 m ²	scale	1:100
LGA	NORTH SYDNEY	date of survey	12/08/2025
		SHEET	4
		OF	9

ATCHINSON

STREET

MGA



STREET

MITCHELL

PACIFIC

HIGHWAY

71
DP749690

1
DP 577070

+ 88.68
B1
+ 85.13
B2

+ 88.46
B1

+ 87.83
B1
+ 85.10
B2

+ 85.12
B2
+ 87.88
B1

+ 85.08
B2

+ 85.03
B2

+ 87.10
B1

+ 84.60
B2

+ 83.49
B2

+ 85.83
B1

+ 85.23
B2

+ 85.13
B2

+ 85.19
B2
+ 85.14
B1

+ 88.69
B1

+ 88.54
B1

+ 85.21
B2

+ 87.94
B1



SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
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G	00/00/00	—	00
F	00/00/00	—	00
E	00/00/00	—	00

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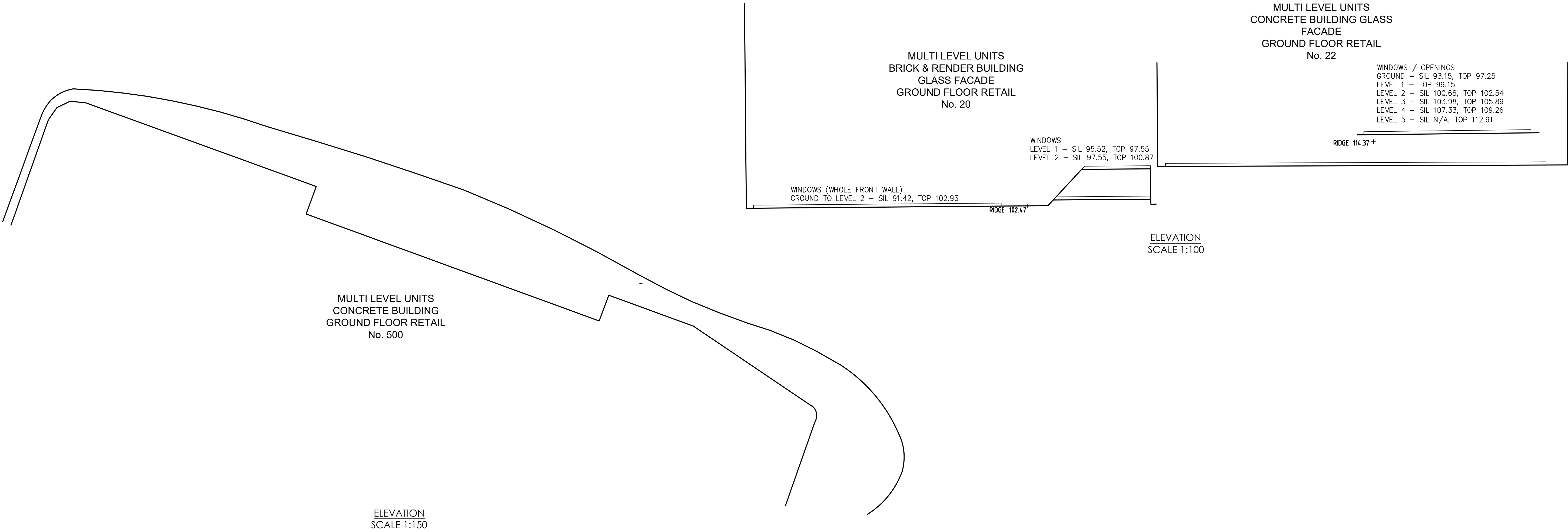
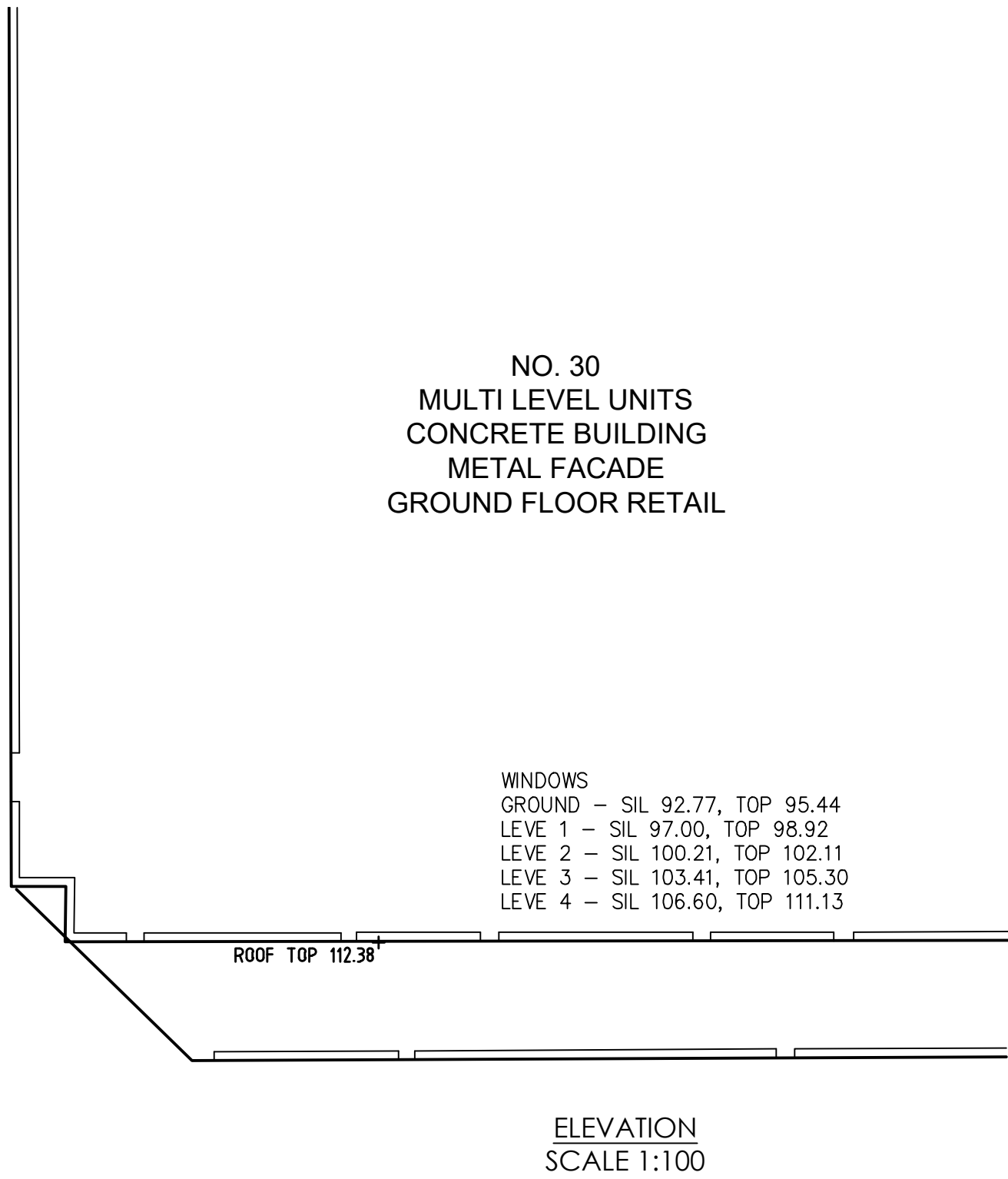
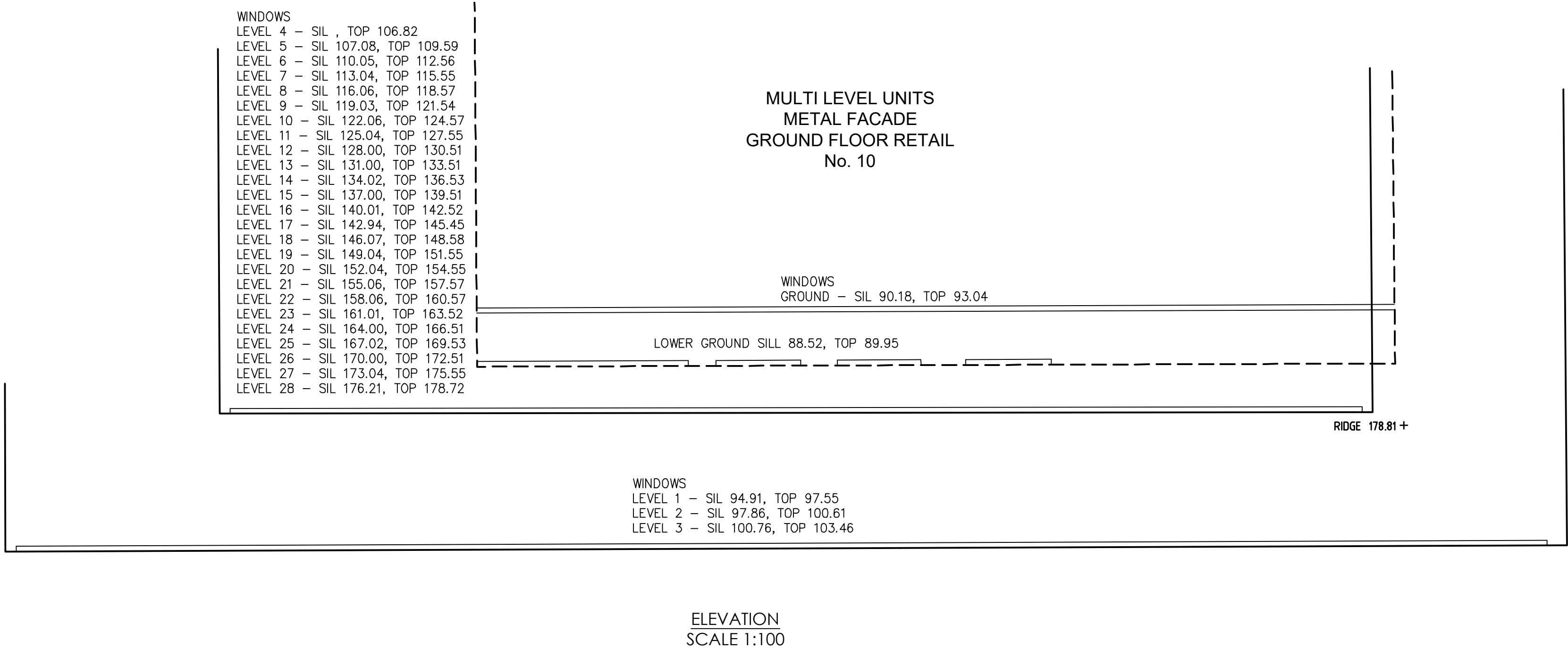


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Registered Surveyor NSW

Client STOCKLANDS
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 71 IN DP 749690
KNOWN AS NO.601 PACIFIC HIGHWAY, ST LEONARDS

datum AHD
site Area 2842 m²
LGA NORTH SYDNEY

reference number 52414 002DT
scale 1:100 @A1
date of survey 12/08/2025
SHEET 9 OF 6



SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
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F	00/00/00	–	00
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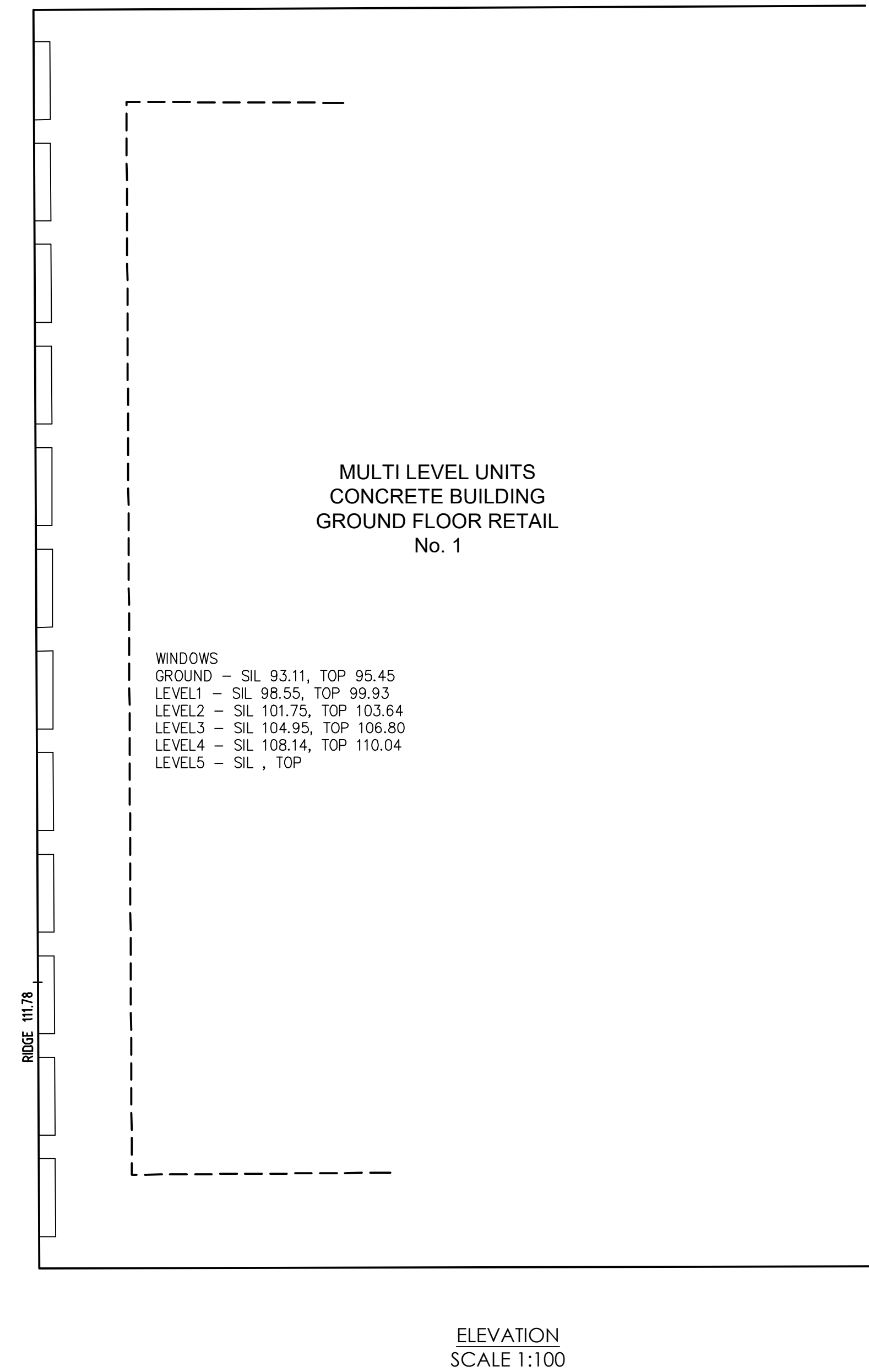
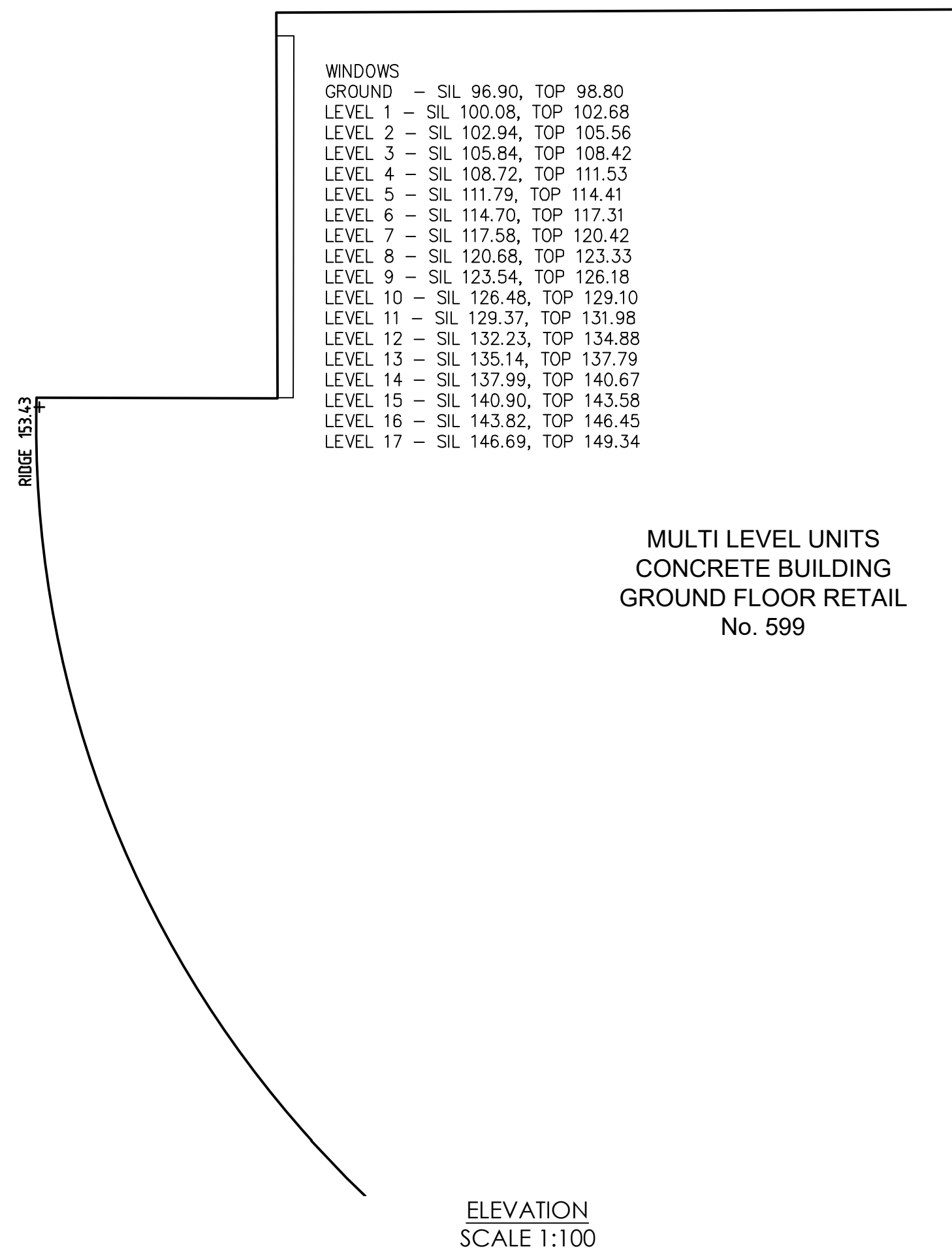


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DATED: _____

Registered Surveyor NSW

Client STOCKLANDS
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 71 IN DP 749690
KNOWN AS NO.601 PACIFIC HIGHWAY, ST LEONARDS

datum AHD	reference number	52414 002DT
site Area 2842 m ²	scale 1:100	date of survey 12/08/2025
LGA NORTH SYDNEY	SHEET OF 9	7



SEE SHEET 1 FOR LEGEND & NOTES



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F	00/00/00	-	00
E	00/00/00	-	00
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C	00/00/00	-	00
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Registered Surveyor NSW

Client STOCKLANDS

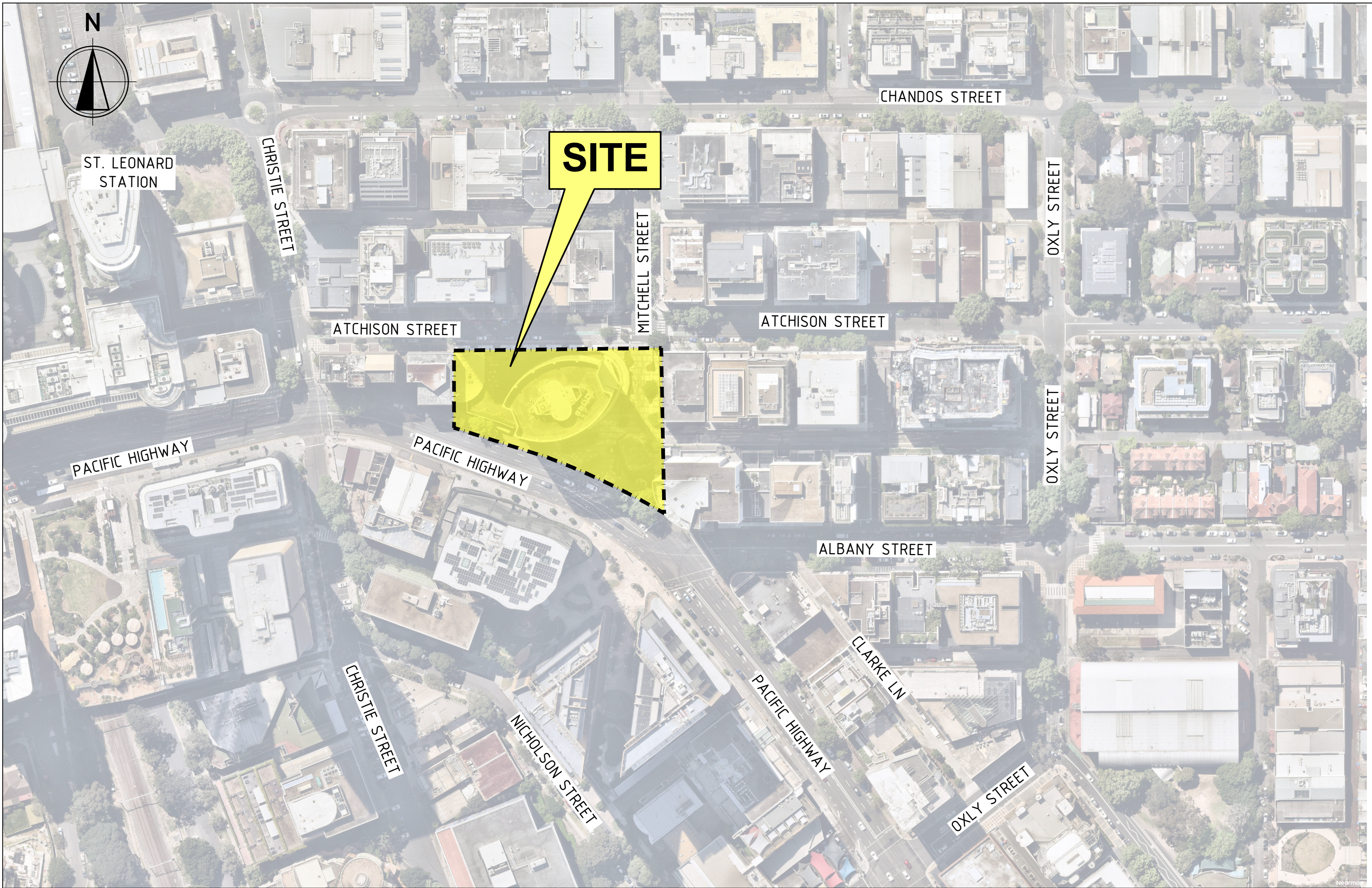
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	SHEET OF 9
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Appendix C - Civil Plans

601 PACIFIC HIGHWAY ST LEONARDS, NSW 2065

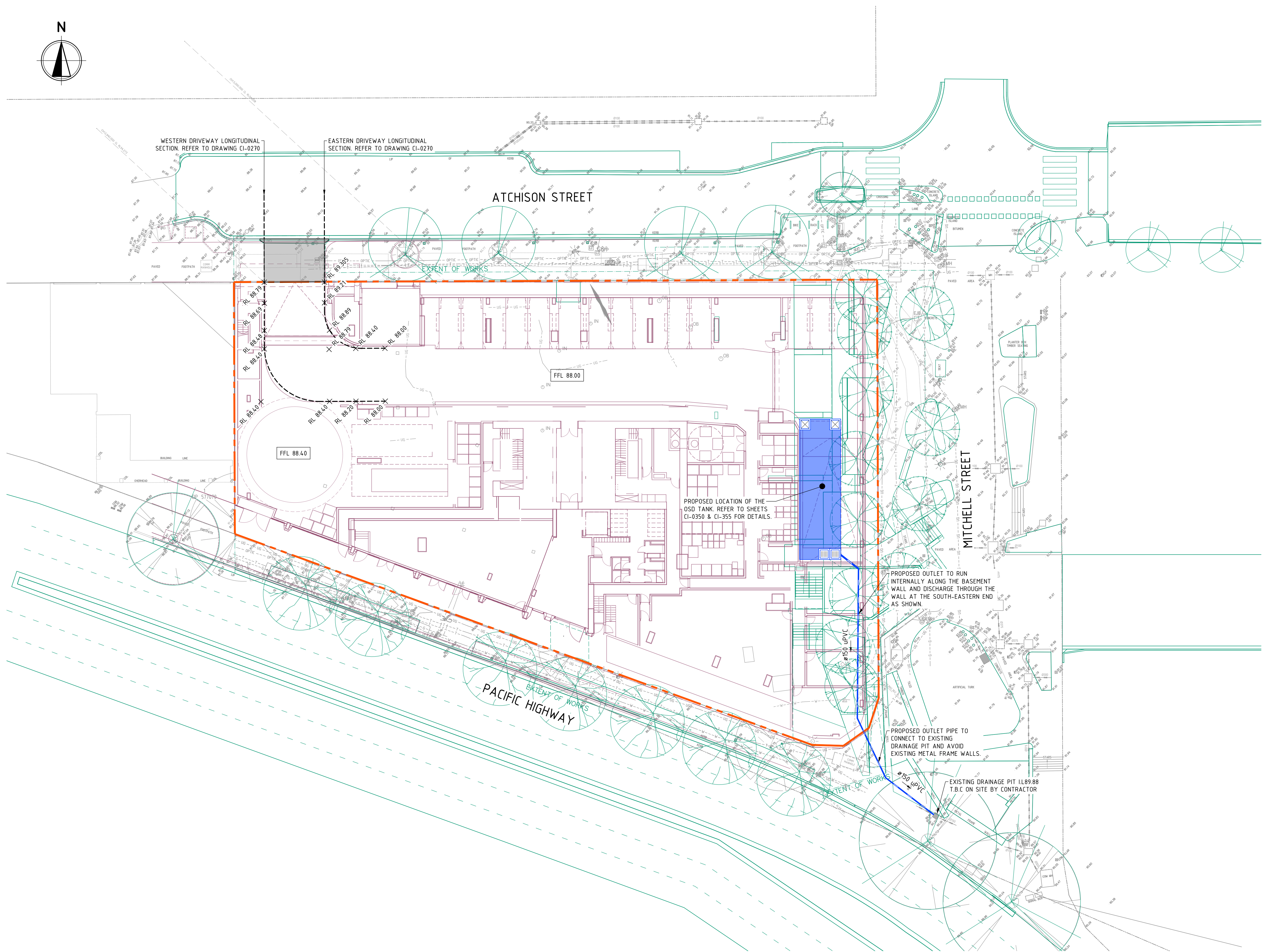
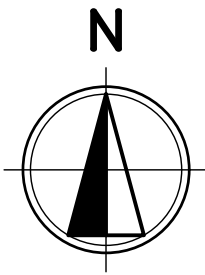
LGA: NORTH SYDNEY CITY COUNCIL
DEVELOPMENT: ISSUED FOR SSDA



DRAWING INDEX	
DRAWING No.	DESCRIPTION
CI-0000	COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
CI-0200	SITEWORKS AND DRAINAGE BASEMENT 1 PLAN
CI-0201	SITEWORKS AND DRAINAGE LEVEL 1 PLAN
CI-0270	DRIVEWAY SECTIONS
CI-0300	DRAINAGE CATCHMENT PLAN
CI-0340	DRAINAGE DETAILS
CI-0350	OSD PLAN
CI-0355	OSD SECTIONS AND DETAILS
CI-0700	EROSION AND SEDIMENT CONTROL PLAN
CI-0710	EROSION AND SEDIMENT CONTROL DETAILS



				CLIENT		ARCHITECT		PROJECT		STATUS		TITLE					
				 Stockland				Sydney Office— L2, 8 Windmill St, Sydney NSW 2000 P / +61 2 9770 3300 E / info@bgeeng.com bgeeng.com—				601 PACIFIC HIGHWAY ST LEONARDS, NSW 2065		ISSUED FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION		COVER SHEET, LOCALITY PLAN AND DRAWING INDEX	
C	18.03.2026	ISSUED FOR SSDA	NG														
B	19.11.2025	ISSUED FOR DEVELOPMENT APPROVAL	SH														
A	06.11.2025	ISSUED FOR INFORMATION	SH														
REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD										
REVISIONS				REVISIONS													



LEGEND

- SITE BOUNDARY
- ARCHITECTURAL
- LANDSCAPE
- SURVEY
- 27.00 EXISTING SURFACE CONTOURS
- 29.00 PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- Ø150 uPVC @ 1% MIN PROPOSED 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

EXISTING

- SW --- STORMWATER PIPE
- D --- D --- STORMWATER DRAINAGE
- COMM --- TELECOMMUNICATIONS
- NBN --- NBN
- OPTIC --- OPTIC FIBRE
- T --- T --- TELESTRA
- E --- E --- ELECTRICITY
- HV --- HIGH VOLTAGE ELECTRICITY
- LV --- LOW VOLTAGE ELECTRICITY
- OH --- OVERHEAD ELECTRICITY
- UG --- UNDERGROUND ELECTRICITY
- G --- G --- GAS
- S --- S --- SEWER
- RM --- SEWER RISING MAIN
- W --- W --- WATER



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
C	18.03.2026	ISSUED FOR SSDA	NG				
B	19.11.2025	ISSUED FOR DEVELOPMENT APPROVAL	SH				
A	06.11.2025	ISSUED FOR INFORMATION	SH				
REVISIONS							

CLIENT

ARCHITECT

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P / +61 2 9770 3300
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PROJECT

601 PACIFIC HIGHWAY
ST LEONARDS, NSW 2065

STATUS

ISSUED FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

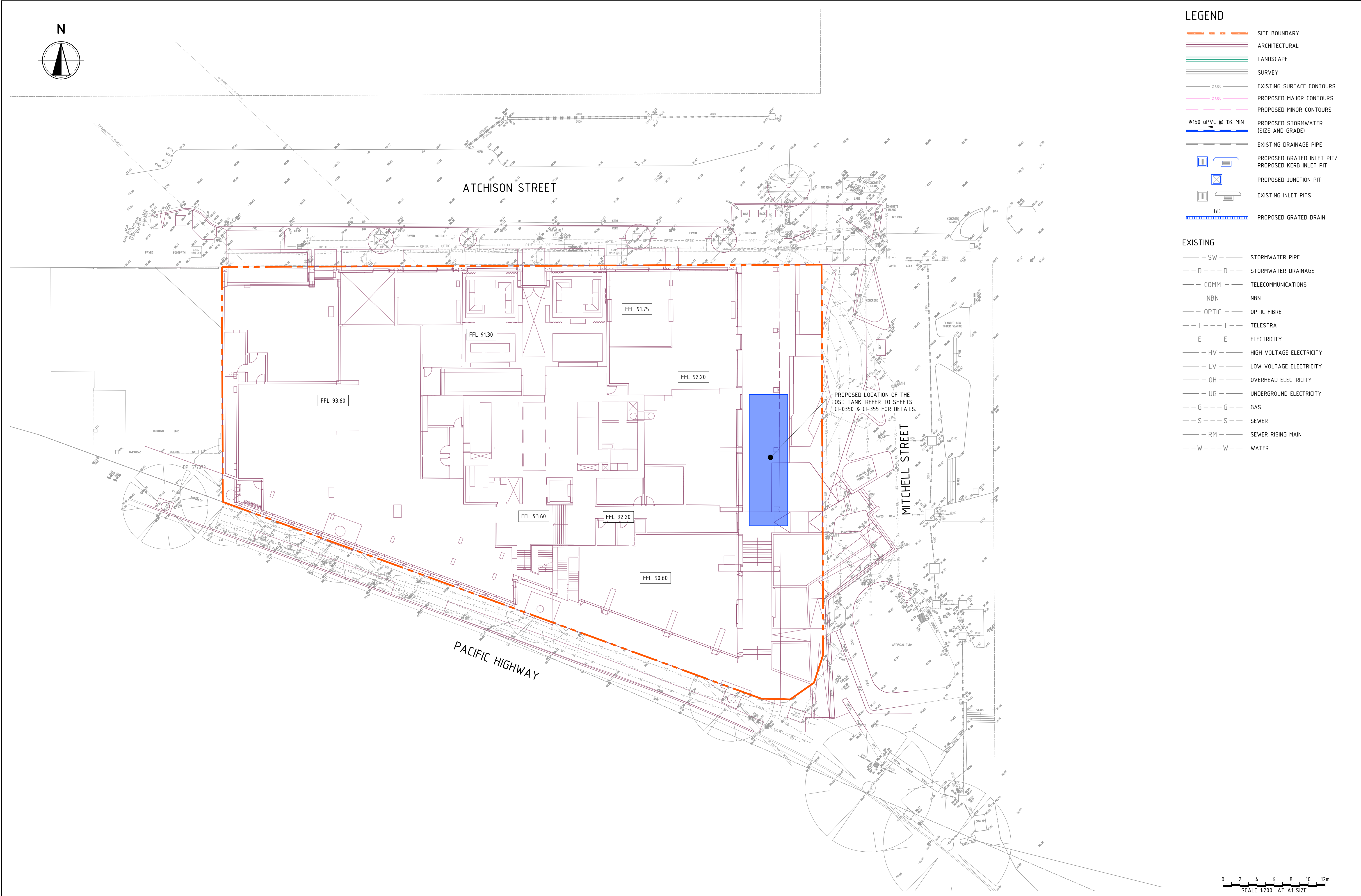
DRAWN	DESIGNED	CHECKED	APPROVED
BS	SM	NG	SH
DATUM	GRID	SCALE	
AHD	GDA 2020 MGA-56	1:200	

AT A1 SIZE

TITLE

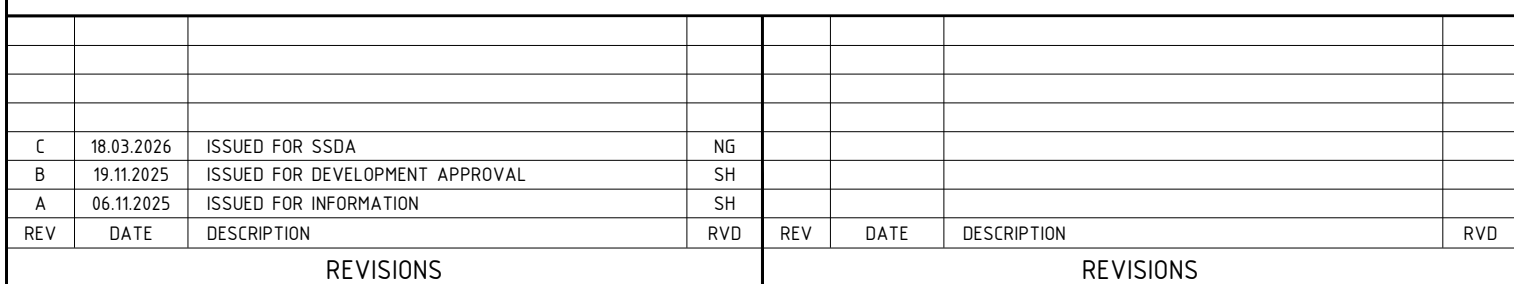
SITEWORKS AND DRAINAGE
BASEMENT 1 PLAN

PROJECT No.	DRAWING No.	REV.
S23095	CI-0200	C



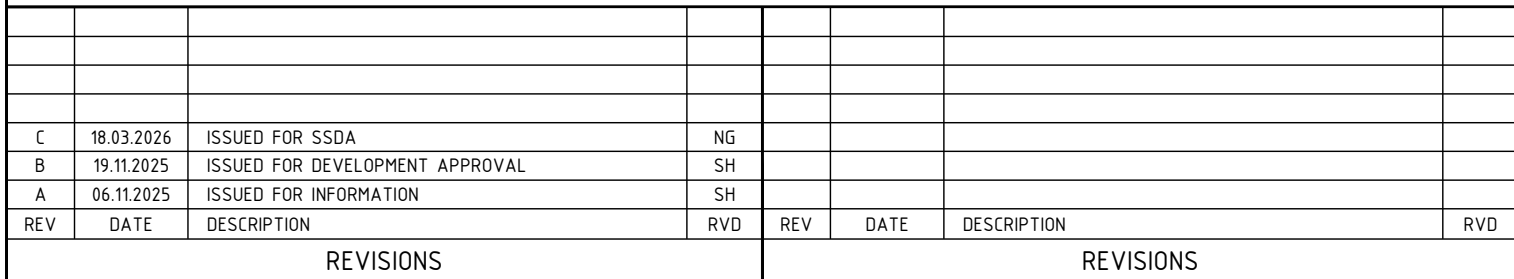
	SITE BOUNDARY
	ARCHITECTURAL
	LANDSCAPE
	SURVEY
	EXISTING SURFACE CONTOURS
	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
	PROPOSED STORMWATER (SIZE AND GRADE)
	EXISTING DRAINAGE PIPE
	PROPOSED GRATED INLET PIT/ PROPOSED KERB INLET PIT
	PROPOSED JUNCTION PIT
	EXISTING INLET PITS
	PROPOSED GRATED DRAIN

— — — — — SW — — — — —	STORMWATER PIPE
— — — — — D — — — — — D — — — — —	STORMWATER DRAINAGE
— — — — — COMM — — — — —	TELECOMMUNICATIONS
— — — — — NBN — — — — —	NBN
— — — — — OPTIC — — — — —	OPTIC FIBRE
— — — — — T — — — — — T — — — — —	TELESTRA
— — — — — E — — — — — E — — — — —	ELECTRICITY
— — — — — HV — — — — —	HIGH VOLTAGE ELECTRICITY
— — — — — LV — — — — —	LOW VOLTAGE ELECTRICITY
— — — — — OH — — — — —	OVERHEAD ELECTRICITY
— — — — — UG — — — — —	UNDERGROUND ELECTRICITY
— — — — — G — — — — — G — — — — —	GAS
— — — — — S — — — — — S — — — — —	SEWER
— — — — — RM — — — — —	SEWER RISING MAIN
— — — — — W — — — — — W — — — — —	WATER



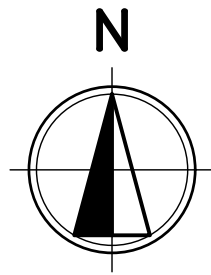
STATUS				
ISSUED FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION				
DRAWN	DESIGNED	CHECKED	APPROVED	
BS	SM	NG	SH	
DATUM	GRID	SCALE		
AHD	GDA 2020 MGA-56	1:200		
		AT A1 SIZE		

PROJECT No.	DRAWING No.	REV.
S23095	CI-0201	



STATUS			
ISSUED FOR APPROVAL			
NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
BS	SM	NG	SH
DATE	GRID	SCALE	
AHD	GDA 2020 MGA-56	1:100	AT A1 SIZE

PROJECT No.	DRAWING No.	REV.
S23095	CI-0270	C



LEGEND

- SITE BOUNDARY
- ARCHITECTURAL
- LANDSCAPE
- SURVEY
- STORMWATER CATCHMENT BOUNDARY
- ROOF CATCHMENT = 1160m²
- IMPERVIOUS AREA = 1545m²
- LANDSCAPE = 140m²
- TOTAL = 2,845m²

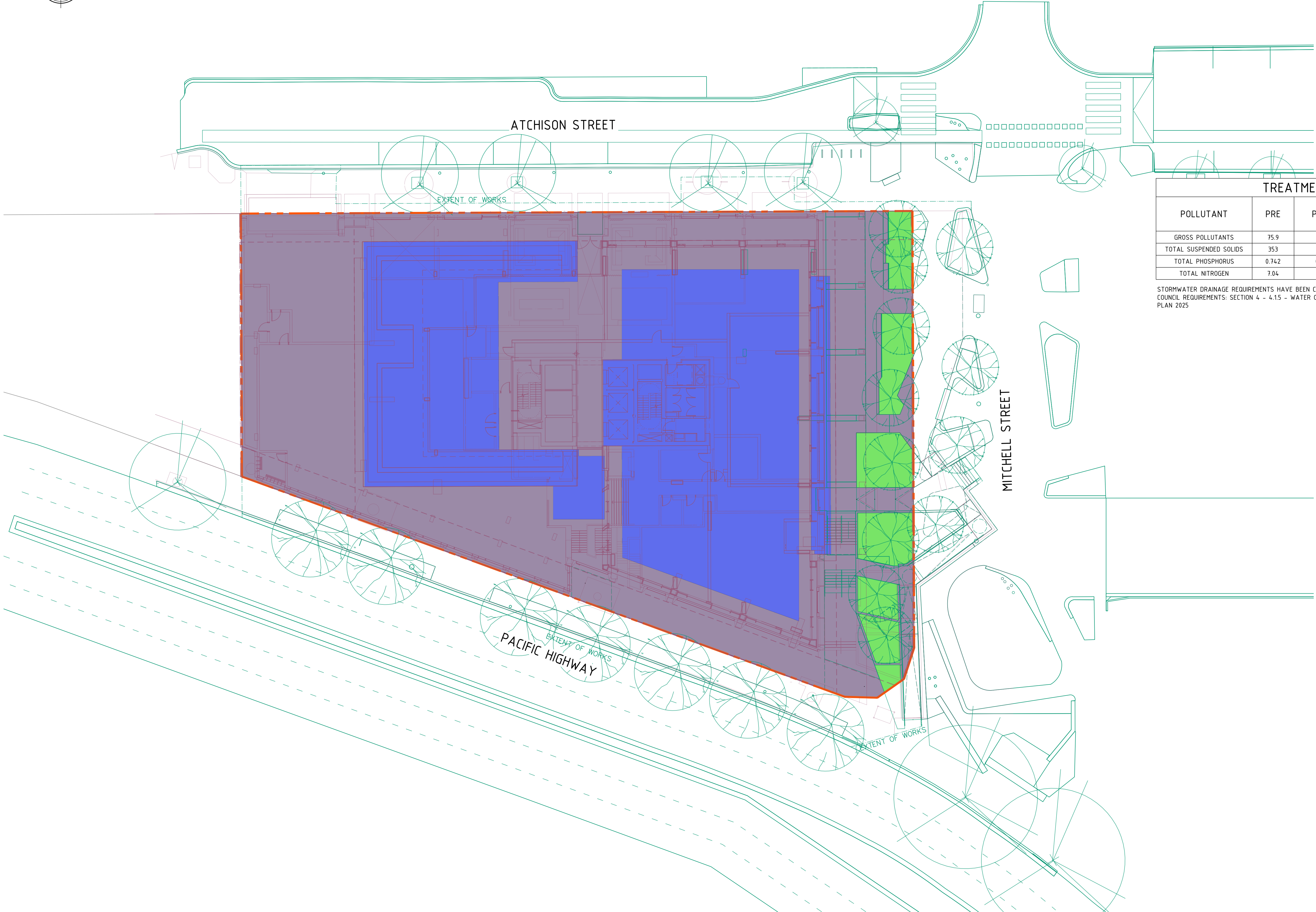
WATER QUALITY FOR DEVELOPMENT

- TREATMENT DEVICES:
- WATER QUALITY CHAMBER WITH 6 OCEAN PROTECT 690 NPSORB (SQIDEP) STORMFILTER CARTRIDGES
 - 1 OCEANGUARD OG200 PIT INSERT

TREATMENT STANDARDS

POLLUTANT	PRE	POST	REDUCTION (%)	COUNCIL REQUIREMENT (%)
GROSS POLLUTANTS	75.9	0	100	90
TOTAL SUSPENDED SOLIDS	353	36.7	89.6	85
TOTAL PHOSPHORUS	0.742	0.241	67.5	65
TOTAL NITROGEN	7.04	2.87	59.3	45

STORMWATER DRAINAGE REQUIREMENTS HAVE BEEN CALCULATED IN ACCORDANCE WITH NORTH SYDNEY COUNCIL REQUIREMENTS: SECTION 4 - 4.15 - WATER OF THE NORTH SYDNEY DEVELOPMENT CONTROL PLAN 2025



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REVISIONS							



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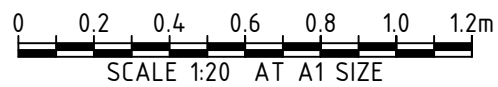
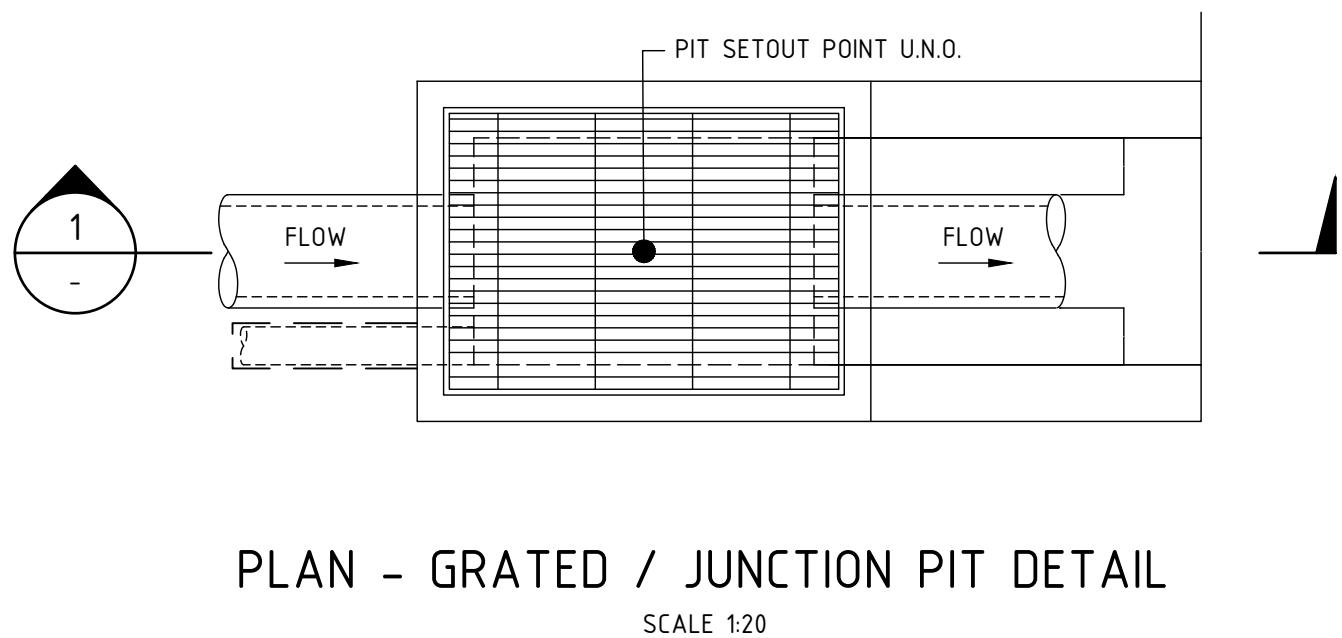
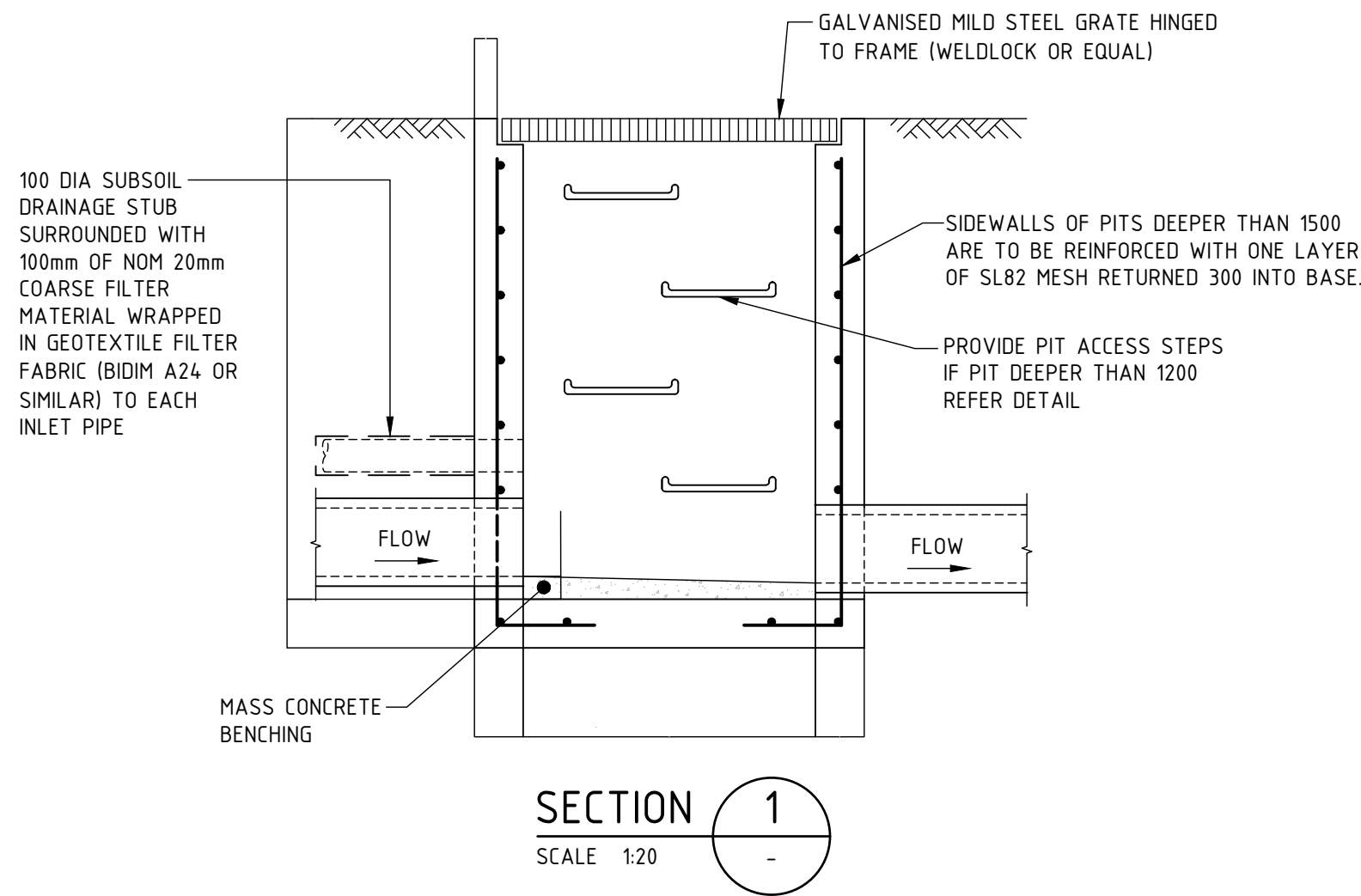
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601 PACIFIC HIGHWAY
ST LEONARDS, NSW 2065

STATUS ISSUED FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION			
DRAWN BS	DESIGNED SM	CHECKED NG	APPROVED SH
DATUM AHD	GRID GDA 2020 MGA-56	SCALE 1:200	AT A1 SIZE

TITLE DRAINAGE CATCHMENT PLAN		
PROJECT No. S23095	DRAWING No. CI-0300	REV C



REV		DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
REVISIONS								
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PROJECT

601 PACIFIC HIGHWAY
ST LEONARDS, NSW 2065

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DRAWN	DESIGNED	CHECKED	APPROVED
BS	SM	NG	SH
DATUM	GRID	SCALE	
AHD	GDA 2020 MGA-56	1:20	

TITLE

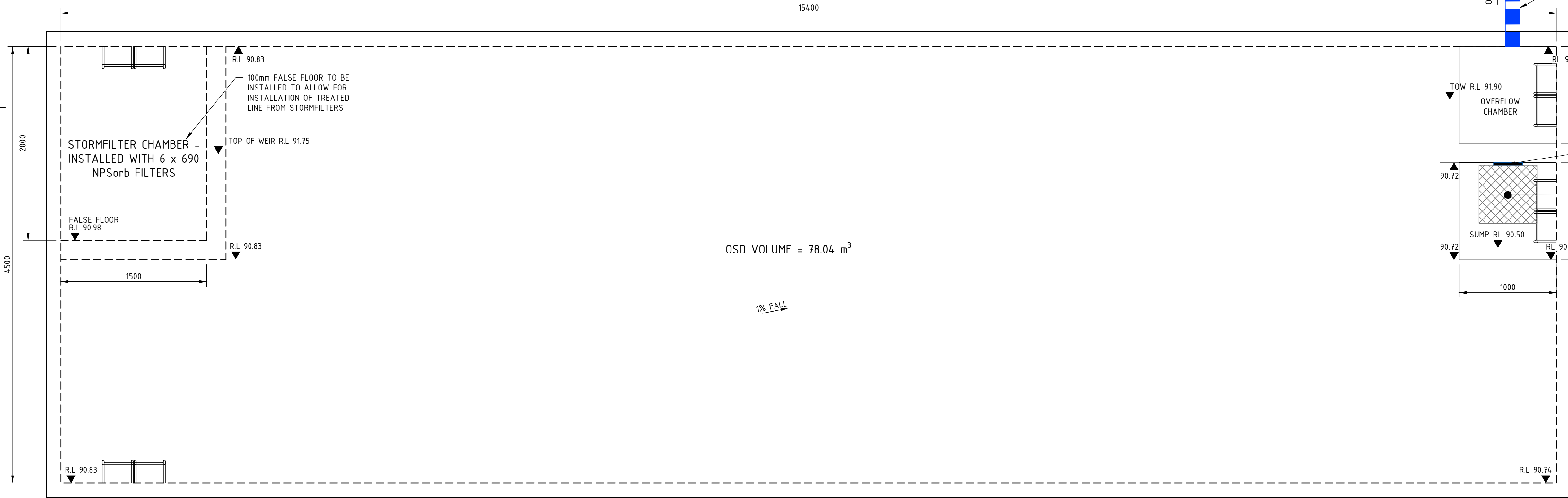
DRAINAGE DETAILS

PROJECT No.	DRAWING No.	REV.
S23095	CI-0340	C



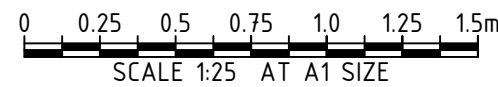
OSD TANK PLAN

SCALE 1:25



OSD TANK BASE PLAN

SCALE 1:25



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C	18.03.2026	ISSUED FOR SSDA	NG				
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PROJECT

601 PACIFIC HIGHWAY
ST LEONARDS, NSW 2065

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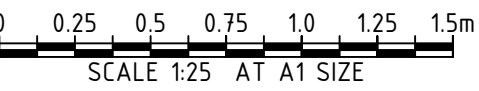
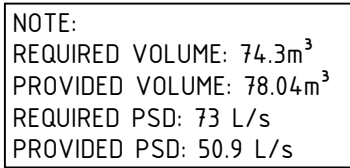
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BS	SM	NG	SH

DATUM	GRID	SCALE	AT	A1 SIZE
AHD	GDA 2020 MGA-56	1:25		

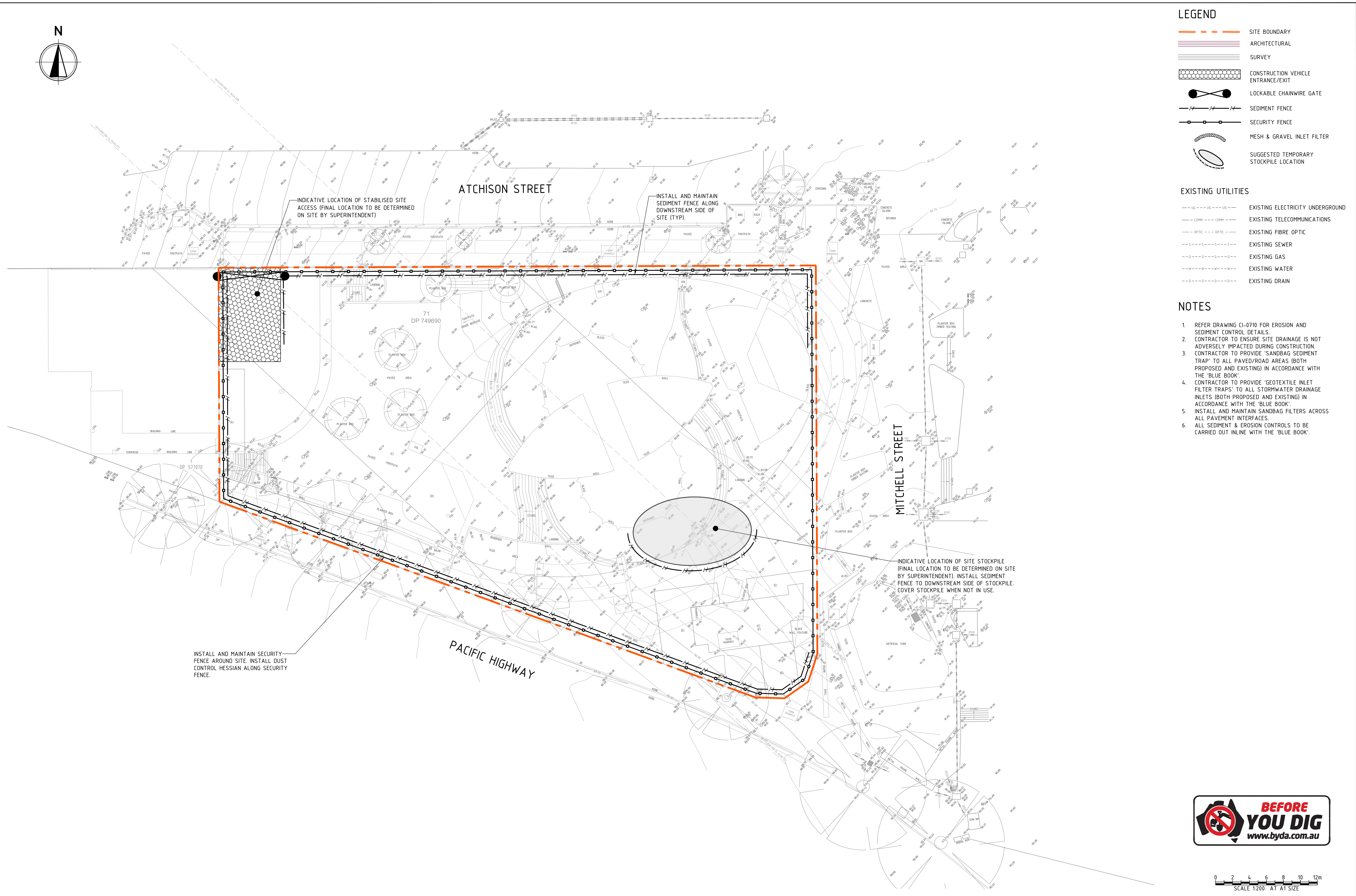
TITLE

OSD PLAN

PROJECT No.	DRAWING No.	REV.
S23095	CI-0350	C



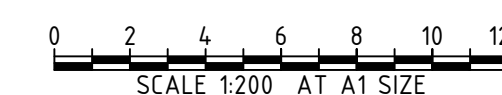
TITLE		
OSD SECTIONS AND DETAILS		
PROJECT No.	DRAWING No.	REV.
S23095	CI-0355	C



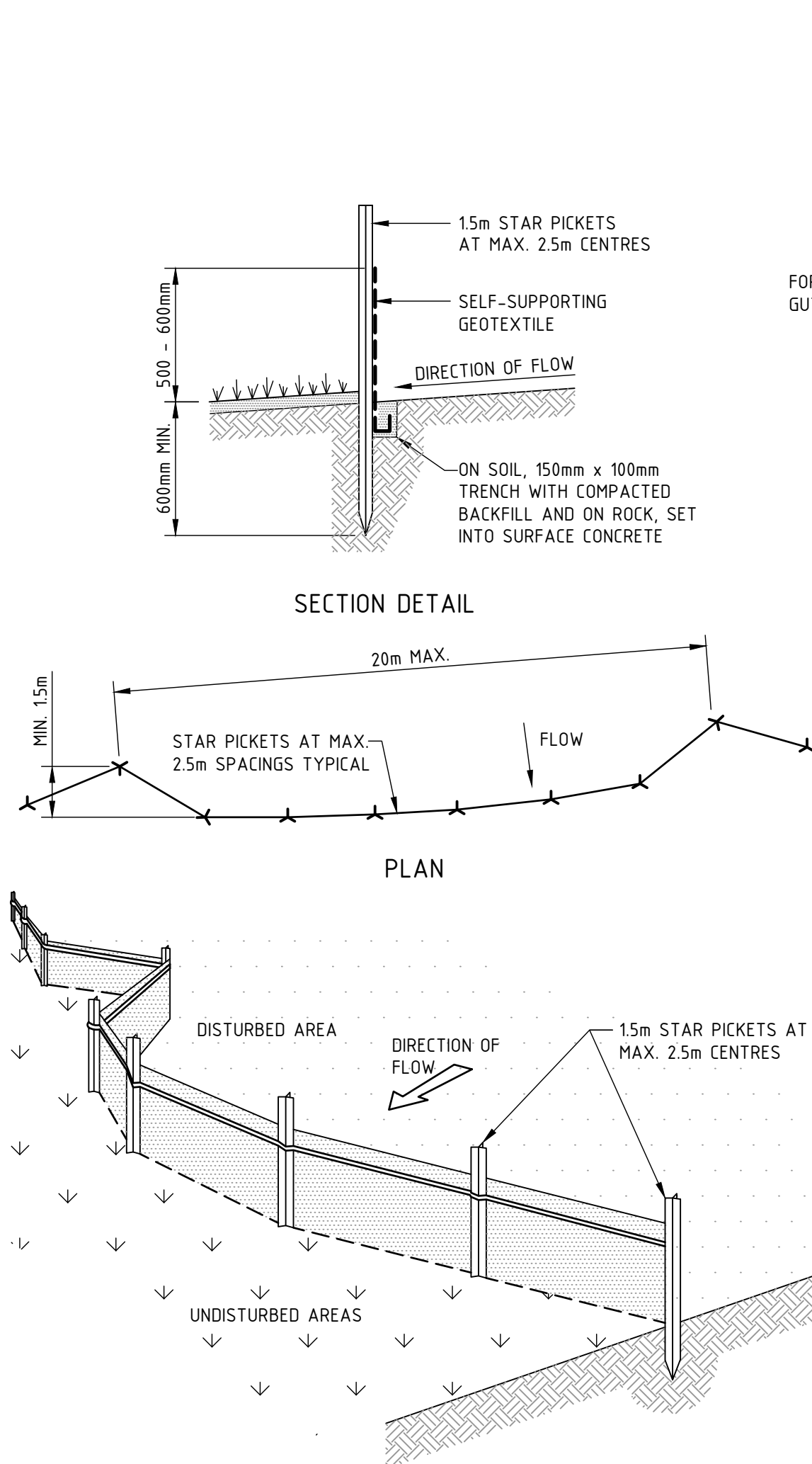
	SITE BOUNDARY
	ARCHITECTURAL
	SURVEY
	CONSTRUCTION VEHICLE ENTRANCE/EXIT
	LOCKABLE CHAINWIRE GATE
	SEDIMENT FENCE
	SECURITY FENCE
	MESH & GRAVEL INLET FILTER
	SUGGESTED TEMPORARY STOCKPILE LOCATION

— UG — UG — UG — UG —	EXISTING ELECTRICITY UNDERGROUND
— COMM — COMM —	EXISTING TELECOMMUNICATIONS
— OPTIC — OPTIC —	EXISTING FIBRE OPTIC
— S — S — S — S — S —	EXISTING SEWER
— G — G — G — G — G —	EXISTING GAS
— W — W — W — W — W —	EXISTING WATER
— D — D — D — D — D —	EXISTING DRAIN

1. REFER DRAWING C1-0710 FOR EROSION AND SEDIMENT CONTROL DETAILS.
2. CONTRACTOR TO ENSURE SITE DRAINAGE IS NOT ADVERSELY IMPAIRED DURING CONSTRUCTION.
3. CONTRACTOR TO PROVIDE "SANDBAG SEEDING TRAP" TO ALL PAVED/ROAD AREAS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE "BLUE BOOK".
4. CONTRACTOR TO PROVIDE "GEOTEXTILE INLET FILTER TRAPS" TO ALL STORMWATER DRAINAGE INLETS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE "BLUE BOOK".
5. INSTALL AND MAINTAIN SANDBAG FILTERS ACROSS ALL PAVEMENT INTERFACES.
6. ALL SEDIMENT & EROSION CONTROLS TO BE CARRIED OUT INLINE WITH THE "BLUE BOOK".

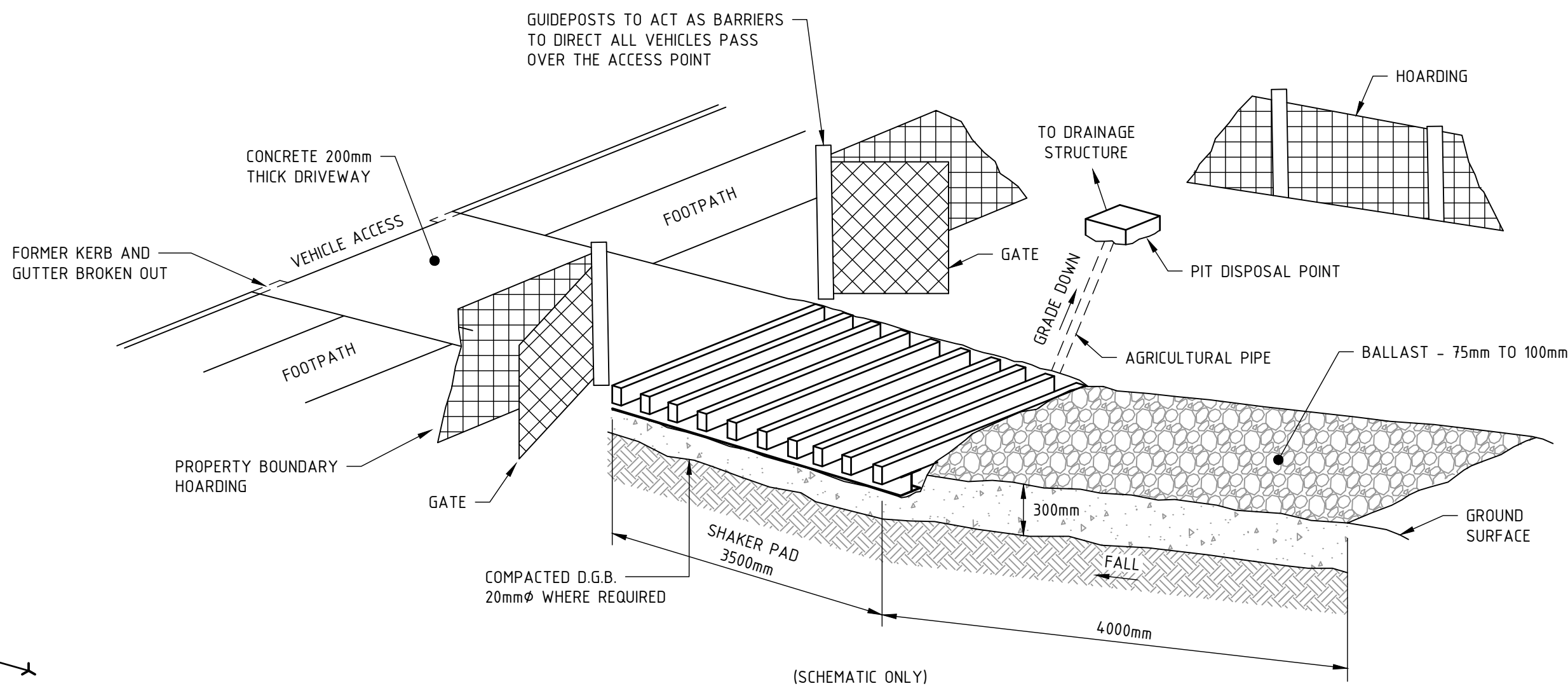


CLIENT		ARCHITECT		Sydney Office— L2, 8 Windmill St, Sydney NSW 2000 P / +61 2 9770 3300 E / info@bgeeng.com bgeeng.com—		PROJECT	601 PACIFIC HIGHWAY ST LEONARDS, NSW 2065	TITLE	STATUS				TITLE			
									ISSUED FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION				EROSION AND SEDIMENT CONTROL PLAN			
									DRAWN	DESIGNED	CHECKED	APPROVED				
									BS	SM	NG	SH				
									DATUM	GRID	SCALE	AT		PROJECT No.	DRAWING No.	REV.
									AHD	ODA 2020 MGA-58	1:200	A1		S23095	CI-0700	C

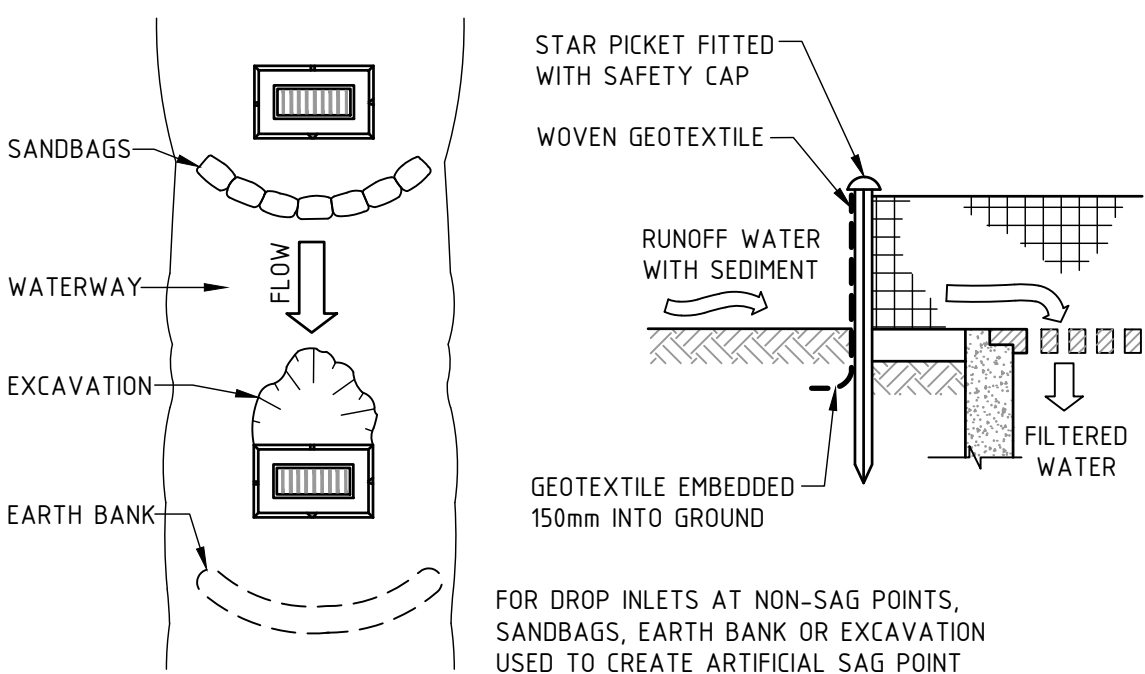
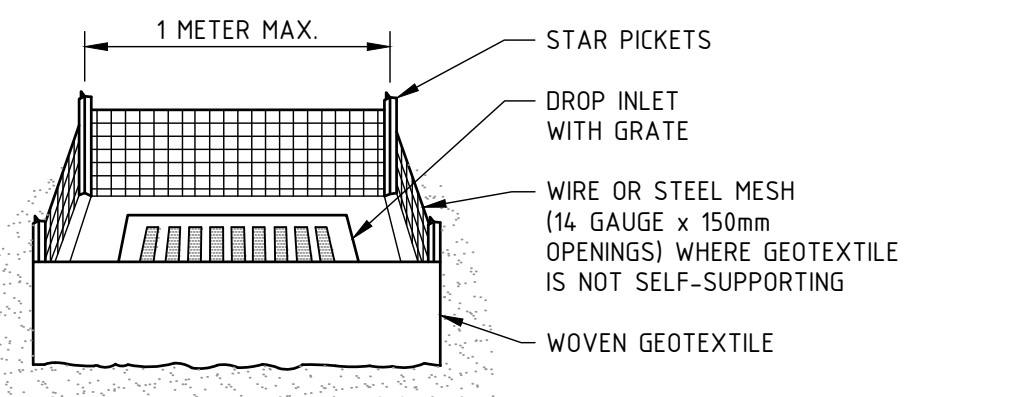
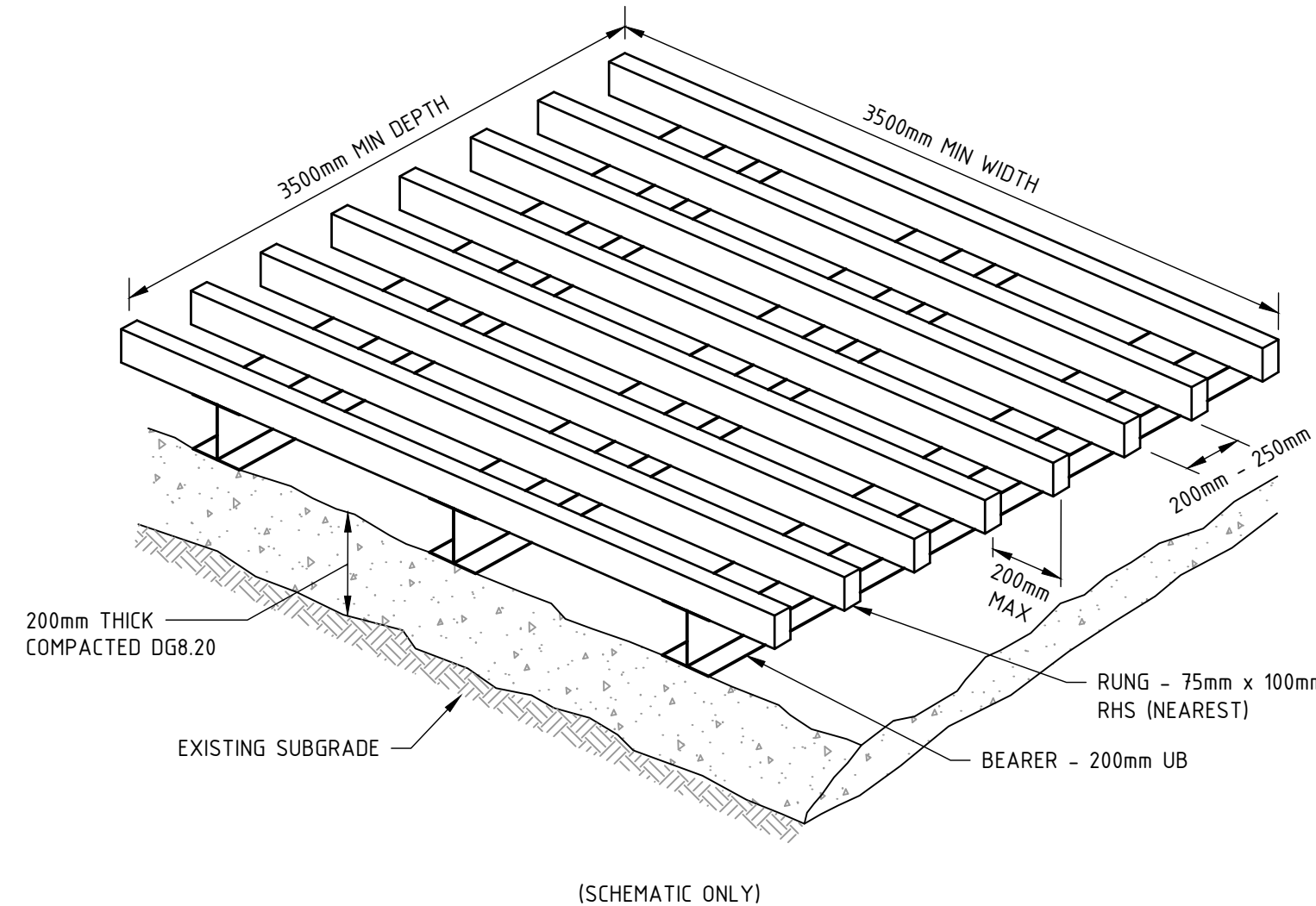


- SEDIMENT FENCE CONSTRUCTION NOTES:**
- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITERS 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

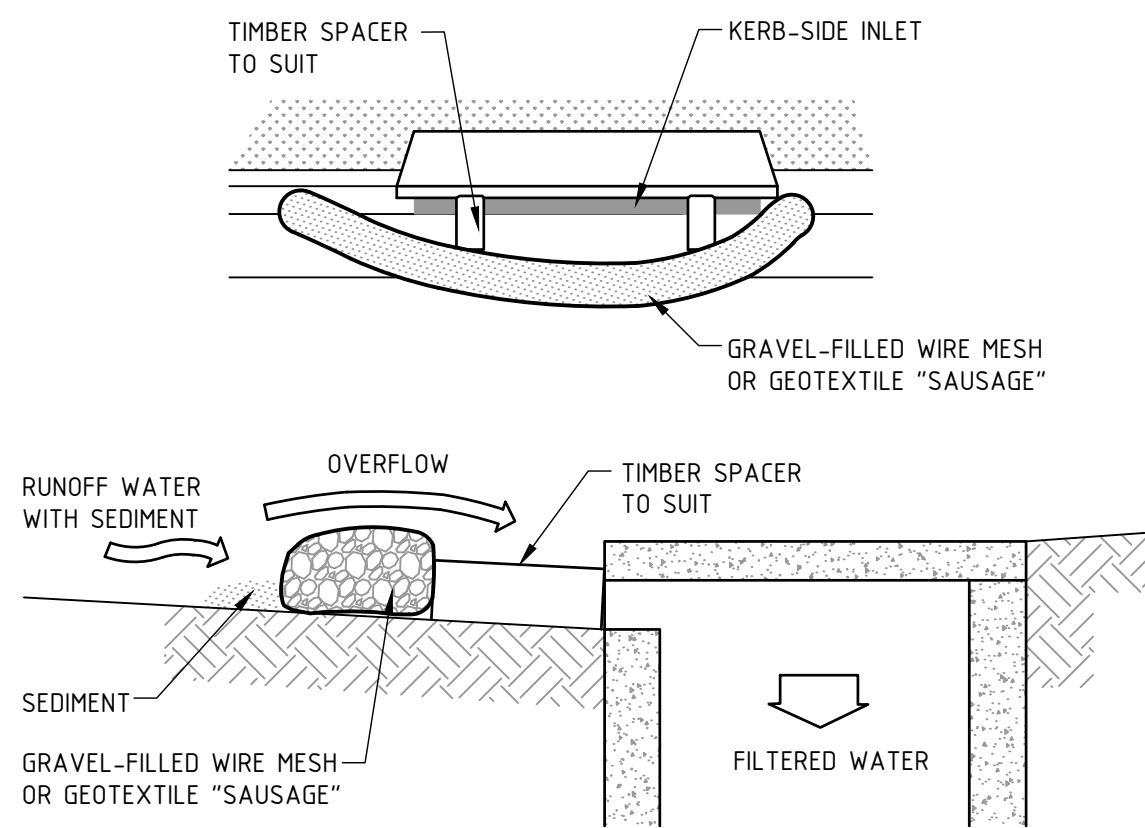


STABILISED SITE ACCESS - SHAKER GRID
SCALE N.T.S



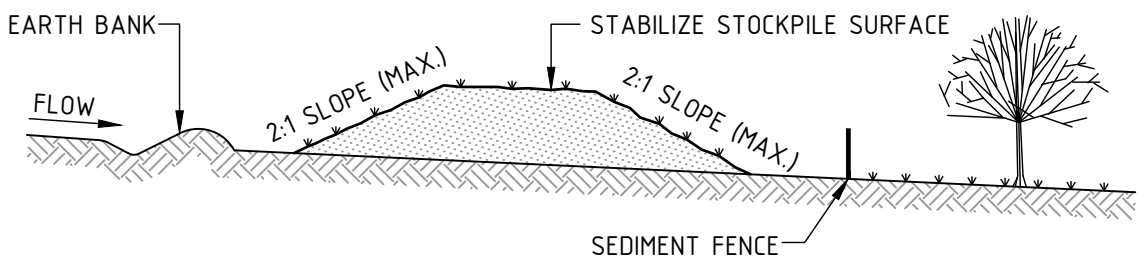
- GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:**
- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
 - PICKET SPACING TO BE A MAXIMUM 1.0m CENTRES.
 - IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
 - DO NOT COVER THE INLET WITH 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, STABILIZE 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

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CLIENT				ARCHITECT				PROJECT				STATUS				TITLE			
Stockland				BATESSMART™				Sydney Office— L2, 8 Windmill St, Sydney NSW 2000 P / +61 2 9770 3300 E / info@bgeeng.com bgeeng.com—				ISSUED FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION				EROSION AND SEDIMENT CONTROL DETAILS			
601 PACIFIC HIGHWAY ST LEONARDS, NSW 2065				DRAWN BS DESIGNED SM CHECKED NG APPROVED SH				DATE AHD GRID GDA 2020 MGA-56 SCALE NTS				PROJECT No. S23095				DRAWING No. CI-0710			
REV. C				AT A1 SIZE															

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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.

We collaborate with leading contractors, developers, architects, planners, financiers and government agencies, to create projects for today and future generations.

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