

46-50 Cowan Road, St Ives, NSW 2075 - Stormwater Report

Prepared for Traders in Purple Pty Ltd

June 2025
Project Number S24288
Version A



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Document Control				
Revision	Date	Prepared	Reviewed	Approved
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B	14/07/2025	A. Mohammed	S. Hazlewood	S. Hazlewood
C	22/07/2025	A. Mohammed	S. Hazlewood	S. Hazlewood

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1. Introduction

BG&E Pty Ltd (BG&E) has been engaged by Traders in Purple Pty Ltd to prepare a Stormwater Report for the proposed development of a residential building at 46-50 Cowan Road, St Ives, NSW 2075 (Site).

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

- Requirement of an on-site detention tank; and
- Water sensitive urban design.

It is understood that this report will be utilised in the Development Application submission and will also inform the basis of the next phases of design.

1.1 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 Plus Architecture dated June 2024
- Detailed Survey by ATS Land & Engineering Surveyors Pty Ltd dated March 2024
- Ku-ring-gai Council Development Control Plan 2024 – Part 24 Water Management
- Australian Rainfall and Runoff Guidelines 2019

2. Existing Scenario

2.1 Existing Scenario

The subject site is located at 46-50 Cowan Road, St Ives, where the site has undergone demolition of the existing buildings. The site area is approximately 5,903m² and forms part of the local government area of the Ku-ring-gai Council. The site is bounded by Cowan Road to the East, residential buildings to the North and South, and Pymble Golf Club to the West.



Figure 1: Site Aerial Image (Nearmap, 28/05/2025)

2.2 Existing Site Drainage Description

The survey conducted by ATS Land & Engineering Surveyors Pty Ltd in March 2024 does not show any existing site drainage, as the land is currently clear of buildings. However, the survey indicates the presence of a drainage easement along the western boundary, which the proposed development intends to use to connect to the existing drainage network located near the easement.

2.3 Existing Land & Flooding

The intended site is currently excavated and clear of any existing structures. Ku-ring-gai Council's flood maps indicate that the site is unaffected by flooding. This information was obtained from the Council's online mapping portal, as illustrated in Figure 2.



Figure 2:Flood extent - Ku-ring-gai Council's online mapping portal

3. Proposed Development

3.1 Design Proposal

The proposed development at 46-50 Cowan Road, St Ives, involves constructing a residential building for Traders in Purple, with a lower ground level and two basement levels underground. Access to the development will be via a driveway situated at the south-east region of the site, allowing vehicles to reach the underground basement levels beneath the building.



Figure 3: Proposed Upper Ground Floor Plan (Plus Architecture)

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:

- Ku-ring-gai Council Development Control Plan (DCP)2024 – Part 24 Water Management

On-Site Detention (OSD) is required for the proposed development, as outlined by Ku-ring-gai Council's DCP (2024) Part 24. The development must comply with Permissible Site Discharge (PSD) and Site Storage Requirements (SSR) as specified in parts 24R.2, 24R.3, and 24R.4. Refer to Section 5 for details.

To meet these requirements, the proposed OSD tank must:

- Limit the total discharge from the site.
- Minimise discharge by bypassing the site's OSD tank.
- Implement Water Sensitive Urban Design (WSUD) products to control and enhance the quality of the water discharging from the site.

4.2 Proposed Drainage Design

In accordance with Ku-ring-gai Council's DCP (2024) Part 24R.3, the PSD and SSR rates are determined in accordance with the proposed site's location in the relevant catchment. The site is located within the Cowan Creek (BC1) Catchment Area, and therefore, the SSR and PSD rates have been determined based on the figures noted for the BC1 catchment as shown in Figure 4.



Code	Catchment Area	Permitted Site Discharge (l/s/ha)	Equivalent Minimum OSD Storage Volume (m ³ /ha)
AC1	Avondale Creek	102	398
AC2	Avondale Creek	166	241
BB1	Blackbutt Creek	141	302
BB2	Blackbutt Creek	166	241
BC1	Cowan Creek	96	414
BC2	Cowan Creek	166	241
BG1	Blue Gum Creek	147	287
BG2	Blue Gum Creek	166	241

Figure 4: Excerpt from Ku-ring-gai Council's DCP (2024)- Part 24R.3- PSD & SSR

4.3 Water Sensitive Urban Design

The main objectives for stormwater quality are indicated in Part 24C.6 of Ku-ring-gai Council's DCP 2024-Stormwater Quality Control. The technical requirements are presented below:

- Achieve a minimum of 70% retention of the Gross Pollutants (GP) average annual load.
- Achieve a minimum of 85% retention of the Suspended Solids (TSS) average annual load.
- Achieve a minimum of 65% retention of the Total Phosphorus (TP) average annual load.
- Achieve a minimum of 45% retention 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 2.

Table 1: Summary of Catchment Plan Areas

Catchment Areas	<i>m</i> ²
Roof Catchment	2,913
Paving Bypassing	10
Paving to Treatment	2,136
Landscape Bypassing	280
Landscape to Treatment	1,284
Total	6,623

5. Analysis Results

5.1 On-Site Detention

The onsite detention tank has been sized in accordance with Section 4.2. As the proposed development is located within the BC1 Catchment, it must comply with the PSD and SSR requirements specified in Council’s DCP (2024), Part 24R.3. Therefore, the development is required to match the following criteria:

- PSD: 96 L/s/ha
- SSR: 414 m³/ha

The proposed development includes the design of an OSD tank situated under the proposed landscape along the western region of the site. The site is proposed to be developed with OSD tanks to restrict the flow from the site. The tanks have been designed to allow for 1,050 m² to bypass the tank, in line with council requirements. The OSD tanks are required to have a volume of 146.65 m³ and a PSD rate of 25.5l/s. The proposed OSD tank has a volume of 186m³, and a PSD rate of 25 L/s. Refer to Appendix C for civil plans. Attached also is the council checklist to show the PSD and SSR rates required by the council

5.2 Water Sensitive Urban Design Implementation

The water quality modelling software MUSIC v6.3 was used to analyse the performance of the treatment train. Figure 5 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.

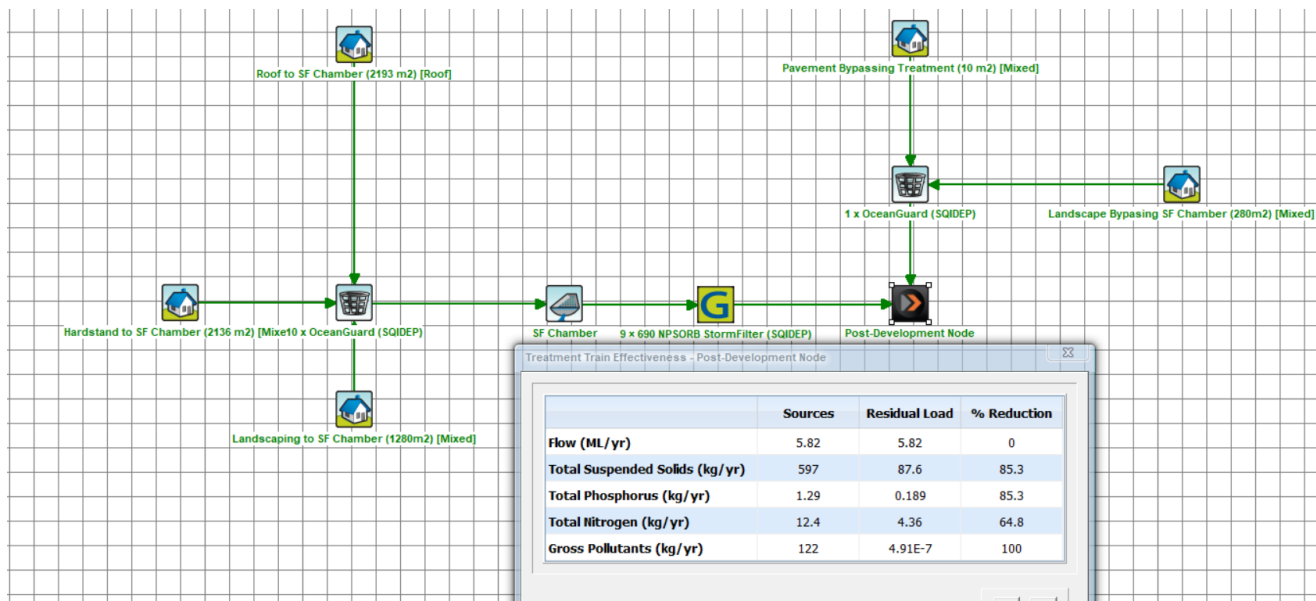


Figure 5: MUSIC Model and Results

The results of the analysis showed the treatment train would achieve the water quality targets set out in Council’s Stormwater Management Policy - Section 7. Table 3 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: 11 x OceanGuards and 9 x 690 NPsorb (MCC) StormFilters within a 5m² chamber from Ocean Protect or equivalent product. 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.



Table 2: MUSIC Model Results

Pollutant	Prior Treatment (kg/yr.)	Post Treatment (kg/yr.)	Percentage Reduction Achieved (%)	Water Quality Objective (%)
Gross Pollutants (GP)	122	4.91E-7	100	70
Total Suspended Solids (TSS)	597	87.6	85.3	85
Total Phosphorus (TP)	1.29	0.189	85.3	65
Total Nitrogen (TN)	12.4	4.36	64.8	45

6. Conclusion

BG&E Pty Ltd (BG&E) has been engaged by Traders in Purple Pty Ltd to prepare a Stormwater Report for the proposed development of a residential building at 46-50 Cowan Road, St Ives, NSW 2075. This report outlined the methodology adopted and associated results of:

- Requirement of an on-site detention tank; and
- Water sensitive urban design.

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

- The proposed site will drain to the existing drainage adjacent to the drainage easement along the western boundary of the site.
- The site is not affected by flooding.
- A detention tank is required for this proposed development as required by Council.
- The proposed development contains an OSD tank with a volume of 186m³, exceeding the required 146.63m³ storage requirement.
- The OSD tank has been designed with orifice plates to limit the flow from the site to 25.5 L/s.
- Water-sensitive urban design measures are required as part of the site's development. This is achieved using proprietary products, including:
 - A 10 kL rainwater tank.
 - 11 Oceanguard pit inserts.
 - 9 x 690 NPsorb (MCC) StormFilters from Ocean Protect, or equivalent products, installed according to the manufacturer's instructions.

These measures will need to be finalised and rationalised during the detailed design phase based on final area calculations

Appendices



Appendix A - Architectural Plans





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PROJECT 46-50 Cowan Road, St Ives	DRAWING TITLE GENERAL FLOOR PLAN - BASEMENT 01
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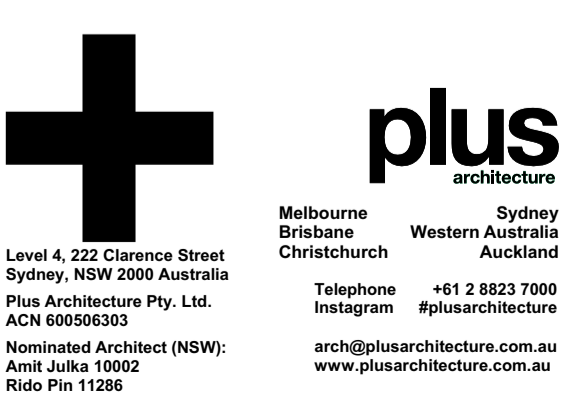
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SILL 174.42 SILL 174.32
 TOP OF WALL RL 174.60 EAVE RL 176.31 174.12 EAVE RL 176.31
 4 STOREY CEMENT RENDERED APARTMENTS
 NO. 52

BUILDING B



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DCP REAR
SETBACK

6,000
DCP SIDE
SETBACK

10,000
DCP STREET
SETBACK

12,000
SEPARATION

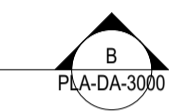
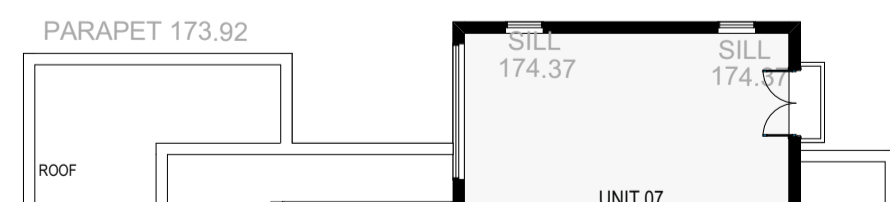
6,000
DCP REAR
SETBACK



BUILDING A

6,000
DCP SIDE
SETBACK

4 STOREY CEMENT RENDERED APARTMENTS
 No 30-32



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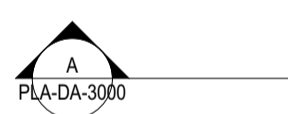
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 NO. 52

SITE BOUNDARY



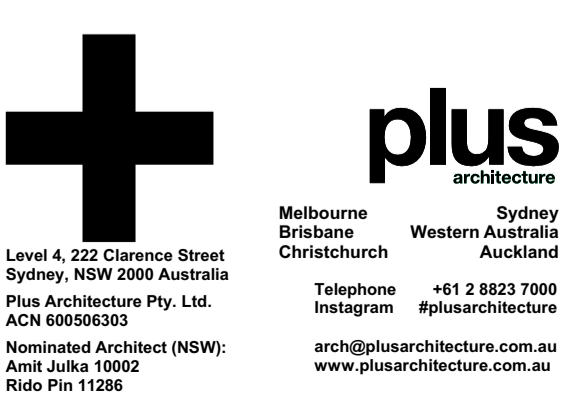
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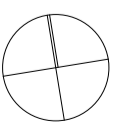
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DRAWN		
IC		
JOB NO.	DRAWING NO.	
20819	PLA-DA-1004	

LEGEND

- LHA PLATINUM
- LHA GOLD
- LHA SILVER





FOR DA SUBMISSION

DATE	REVISION	BY	CHK	NO.
31/03/2025	ISSUE FOR REVIEW			P1
8/04/2025	ISSUE FOR REVIEW	FT, IC	GH	P2
23/07/2025	ISSUE FOR DA	IC	GH	A

DATE	REVISION	BY	CHK	NO.

CONSULTANTS			
STRUCTURAL	BGAE	T (02) 9770 3300	
FACADE ENGINEER	BGAE	T (02) 9770 3300	
CIVIL	BGAE	T (02) 9770 3300	
BUILDING SERVICES	NEURON	T 0481 222 862	
LANDSCAPE	LOCI	T 0481 271 241	
ACOUSTIC	ACOUSTIC LOGIC	T (02) 8339 8000	
BCA	CERTIFICATE	T (02) 9299 8058	
BASIX	JENSEN HUGHES	T (02) 9415 5260	
ACCESS/DIDA	ACCESSIBLE BUILDING SOLUTIONS	T 0450 334 995	
TRAFFIC	ASON GROUP	T (02) 9083 6601	
WASTE	COLLIERS	T (03) 9140 6874	
FIRE ENGINEER	INCODE SOLUTIONS	T 0415 508 019	

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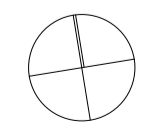
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Melbourne
Brisbane
Christchurch
Sydney
Western Australia
Auckland
Telephone +61 2 8823 7000
Instagram #plusarchitecture
arch@plusarchitecture.com.au
www.plusarchitecture.com.au

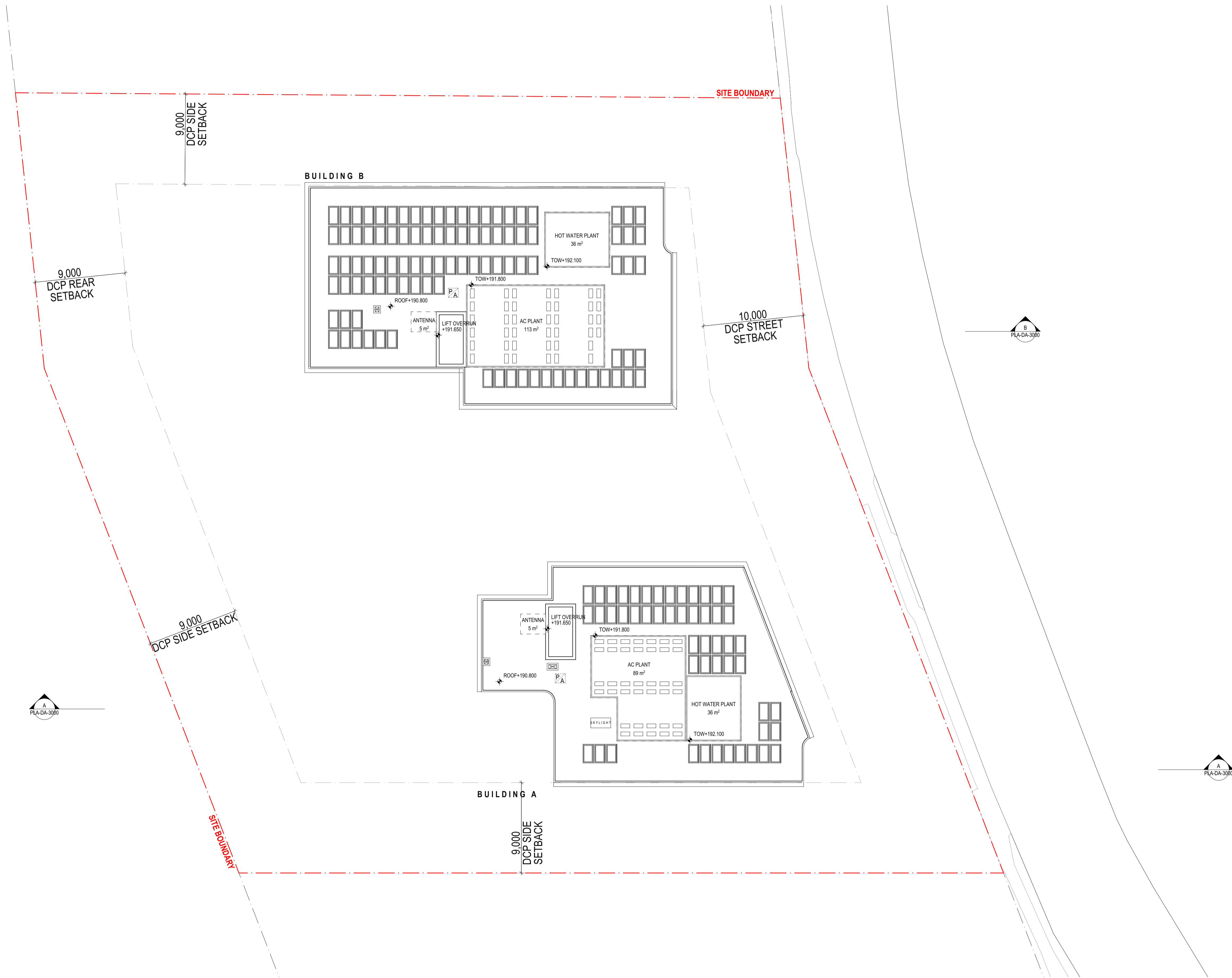
PROJECT 46-50 Cowan Road, St Ives	DRAWING TITLE GENERAL FLOOR PLAN - LEVEL 05
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SCALE	PLOT DATE	REVISION
1:200 @A1	23/07/2025	A
DATE	CHECKED	
23/07/2025	GH	
DRAWN		
IC		
JOB NO.	DRAWING NO.	
20819	PLA-DA-1005	

LEGEND

- LHA PLATINUM
- LHA GOLD
- LHA SILVER





FOR DA SUBMISSION

DATE	REVISION	BY	CHK	NO.
31/03/2025	ISSUE FOR REVIEW	FT, IC	GH	P1
8/04/2025	ISSUE FOR REVIEW	IC	GH	P2
23/07/2025	ISSUE FOR DA	IC	GH	A

DATE	REVISION	BY	CHK	NO.

CONSULTANTS			
STRUCTURAL	<input type="checkbox"/>	BGA&E	T (02) 9770 3300
FACADE ENGINEER	<input type="checkbox"/>	BGA&E	T (02) 9770 3300
CIVIL	<input type="checkbox"/>	BGA&E	T (02) 9770 3300
BUILDING SERVICES	<input type="checkbox"/>	NEURON	T 0401 222 862
LANDSCAPE	<input type="checkbox"/>	LOCI	T 0401 271 241
ACOUSTIC	<input type="checkbox"/>	ACOUSTIC LOGIC	T (02) 8339 8000
BCA	<input type="checkbox"/>	CERTIFICATE	T (02) 9299 8058
BASIX	<input type="checkbox"/>	JENSEN HUGHES	T (02) 9415 5260
ACCESSIBILITY	<input type="checkbox"/>	ACCESSIBLE BUILDING SOLUTIONS	T 0450 334 995
TRAFFIC	<input type="checkbox"/>	ASGN GROUP	T (02) 9083 6601
WASTE	<input type="checkbox"/>	COLLIERS	T (03) 9140 6074
FIRE ENGINEER	<input type="checkbox"/>	INCODE SOLUTIONS	T 0415 508 019

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PROJECT 46-50 Cowan Road, St Ives	DRAWING TITLE GENERAL FLOOR PLAN - ROOF PLAN
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SCALE 1:200 @A1	PLOT DATE 23/07/2025	
DATE 23/07/2025	CHECKED GH	
DRAWN IC		
JOB NO. 20819	DRAWING NO. PLA-DA-1006	REVISION A

Appendix B - Survey

Appendix C - Civil Drawings

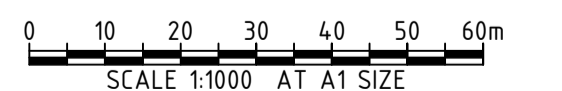
46-50 COWAN ROAD, ST. IVES, NSW 2075

LGA: CITY OF SYDNEY COUNCIL
ISSUED FOR APPROVAL



LOCALITY PLAN
SCALE 1:1000

DRAWING INDEX	
DRAWING No.	DESCRIPTION
CI-0000	COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
CI-0200	SITWORKS AND DRAINAGE PLAN LOWER GROUND FLOOR
CI-0201	SITWORKS AND DRAINAGE PLAN UPPER GROUND FLOOR
CI-0270	DRIVEWAY SECTION KERB RETURNS
CI-0300	CATCHMENT PLAN
CI-0340	DRAINAGE DETAILS
CI-0350	OSD PLAN, SECTIONS AND DETAILS
CI-0700	EROSION AND SEDIMENT CONTROL PLAN
CI-0710	EROSION AND SEDIMENT CONTROL DETAILS



REV	DATE	DESCRIPTION	REVISIONS	RVD	REV	DATE	DESCRIPTION	REVISIONS	RVD
C	30.07.2025	ISSUED FOR APPROVAL		SH					
B	25.07.2025	ISSUED FOR APPROVAL		SH					
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Sydney NSW 2000
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PROJECT

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ST. IVES, NSW 2075

STATUS

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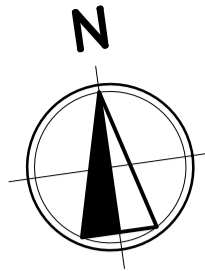
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JC	AM	SH	-

DATUM: AHD
GRID: GDA2020
MGA-56
SCALE: 1:1000
AT A1 SIZE

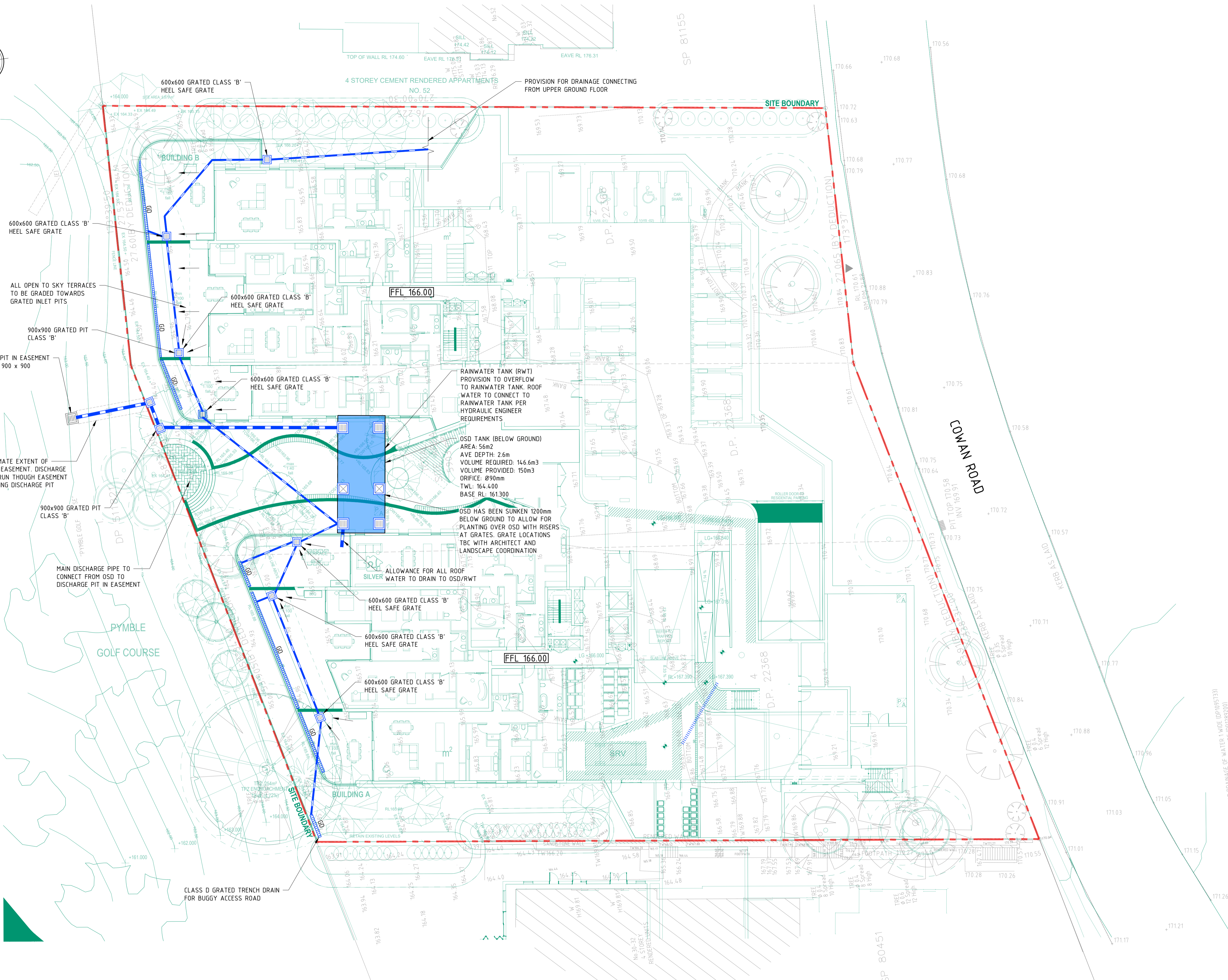
TITLE

COVER SHEET,
LOCALITY PLAN
AND DRAWING INDEX

PROJECT No. S24288
DRAWING No. CI-0000
REV C



LEGEND	
	SITE BOUNDARY
	ARCHITECTURAL 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
	PROPOSED OSD TANK



600x600 GRATED CLASS 'B' HEEL SAFE GRATE

ALL OPEN TO SKY TERRACES TO BE GRADED TOWARDS GRATED INLET PITS

900x900 GRATED PIT CLASS 'B'

EXISTING PIT IN EASEMENT ASSUMED 900 x 900 RL: 162.59 IL: 160.80

APPROXIMATE EXTENT OF EXISTING EASEMENT. DISCHARGE PIPE TO RUN THROUGH EASEMENT TO EXISTING DISCHARGE PIT

900x900 GRATED PIT CLASS 'B'

MAIN DISCHARGE PIPE TO CONNECT FROM OSD TO DISCHARGE PIT IN EASEMENT

RAINWATER TANK (RWT) PROVISION TO OVERFLOW TO RAINWATER TANK ROOF WATER TO CONNECT TO RAINWATER TANK PER HYDRAULIC ENGINEER REQUIREMENTS

OSD TANK (BELOW GROUND) AREA: 56m2 AVE DEPTH: 2.6m VOLUME REQUIRED: 146.6m3 VOLUME PROVIDED: 150m3 ORIFICE: Ø90mm TWL: 164.400 BASE RL: 161.300

OSD HAS BEEN SUNKEN 1200mm BELOW GROUND TO ALLOW FOR PLANTING OVER OSD WITH RISERS AT GRATES. GRATE LOCATIONS TBC WITH ARCHITECT AND LANDSCAPE COORDINATION

ALLOWANCE FOR ALL ROOF WATER TO DRAIN TO OSD/RWT



REV	DATE	DESCRIPTION	REVISED BY	DATE	DESCRIPTION	REVISED BY
C	30.07.2025	ISSUED FOR APPROVAL	SH			
B	25.07.2025	ISSUED FOR APPROVAL	SH			
A	26.06.2025	ISSUED FOR APPROVAL	SH			

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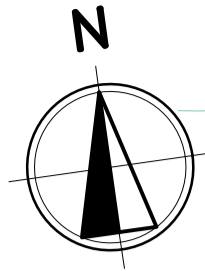
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PROJECT
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 ST. IVES, NSW 2075

STATUS			
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DRAWN	DESIGNED	CHECKED	APPROVED
JC	AM	SH	-
DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	1:200	

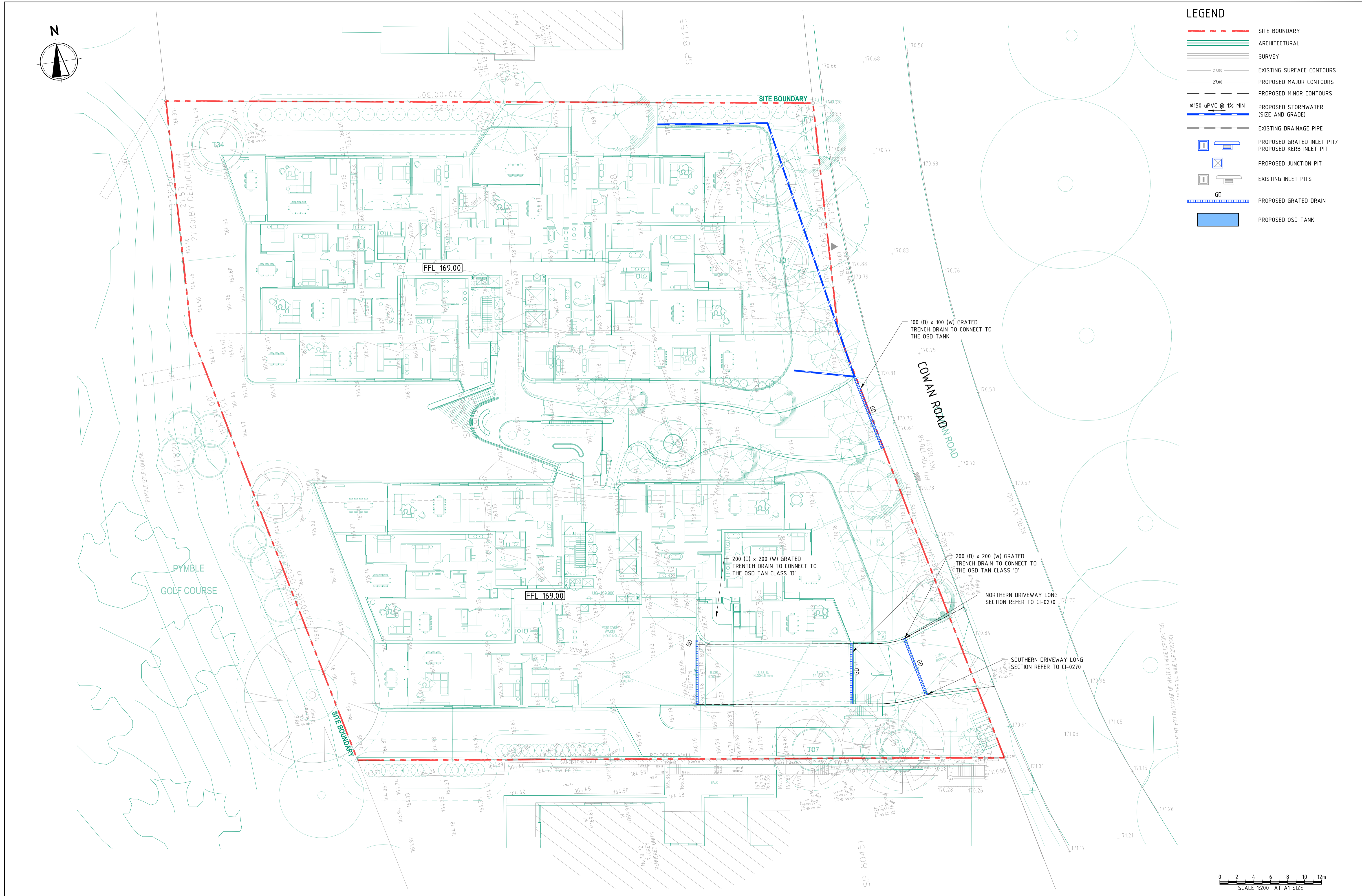
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SITWORKS AND DRAINAGE PLAN LOWER GROUND FLOOR		
PROJECT No.	DRAWING No.	REV
S24288	CI-0200	C

130651701251288 44-58 COWAN RD ST IVE'S NSW 2075 2 LEVEL AUTOCAD 2024 2024 08 11 11:00:00



LEGEND

- SITE BOUNDARY
- ARCHITECTURAL SURVEY
- EXISTING SURFACE CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- $\phi 150$ 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
- PROPOSED OSD TANK



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
C	30.07.2025	ISSUED FOR APPROVAL	SH				
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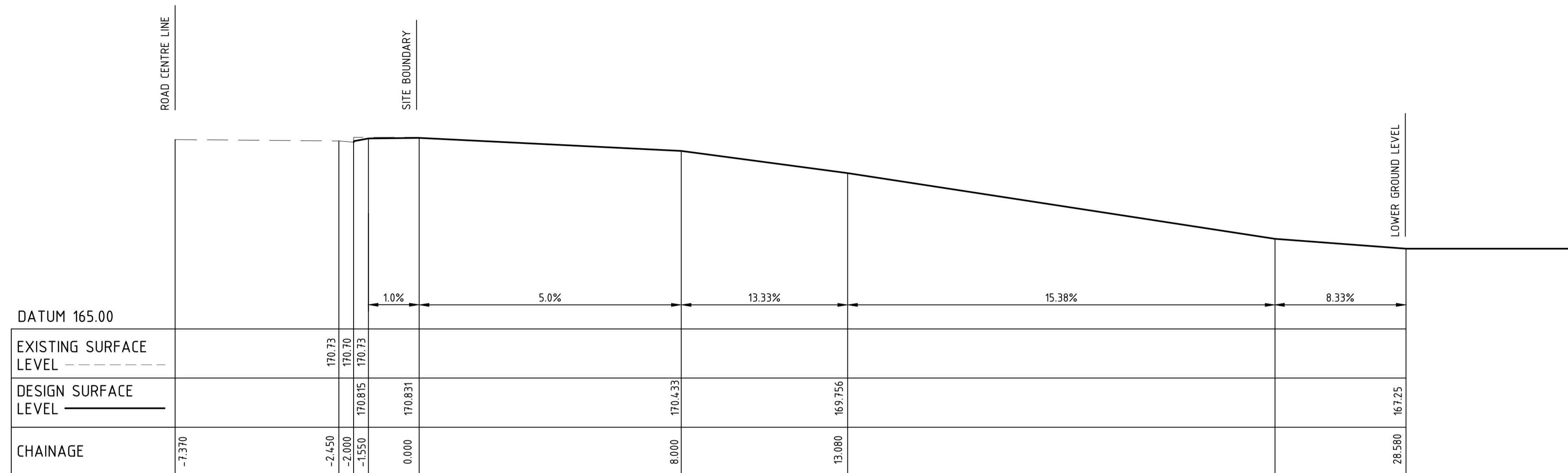
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46-50 COWAN ROAD
 ST. IVES, NSW 2075

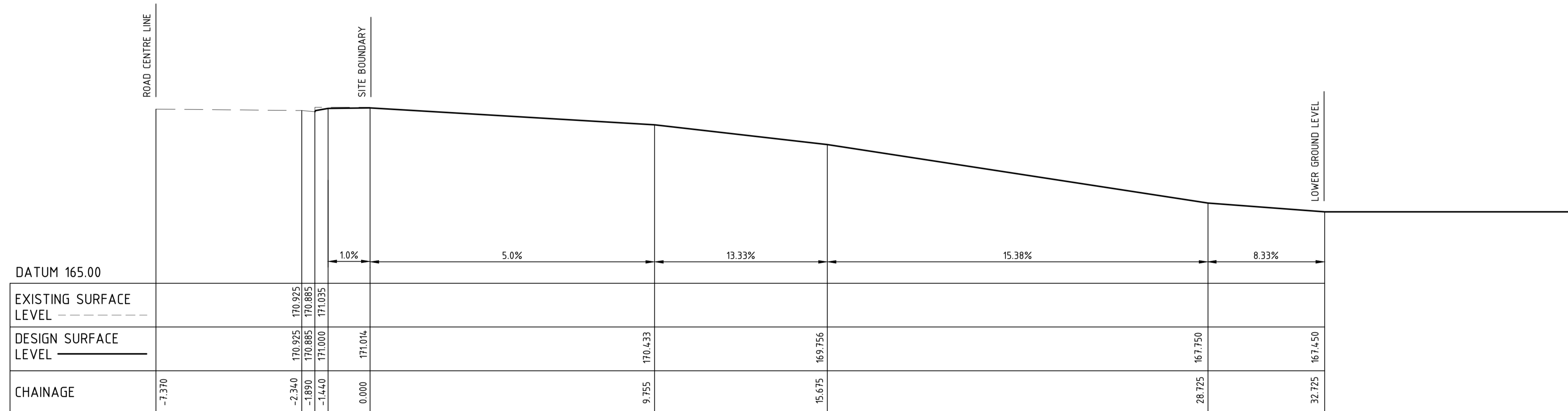
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NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
JC	AM	SH	-
DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	1:200	

TITLE		
SITWORKS AND DRAINAGE PLAN UPPER GROUND FLOOR		
PROJECT No.	DRAWING No.	REV
S24288	CI-0201	C

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DRIVEWAY NORTHERN LONGITUDINAL SECTION



DRIVEWAY SOUTHERN LONGITUDINAL SECTION



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
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PROJECT

46-50 COWAN ROAD
 ST. IVES, NSW 2075

STATUS

ISSUED FOR APPROVAL
 NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
JC	AM	SH	-

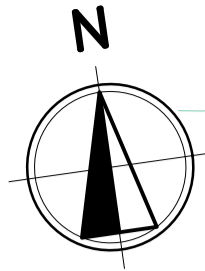
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 SCALE: AS SHOWN

TITLE

DRIVEWAY SECTION
 KERB RETURNS

PROJECT No.	DRAWING No.	REV
S24288	CI-0270	C

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 7/30/2025 2:38:53 PM



LEGEND

- SITE BOUNDARY
- ARCHITECTURAL SURVEY
- ROOF CATCHMENT = 2,193m²
- PAVING BYPASSING TREATMENT = 10m²
- PAVING TO TREATMENT = 2,136m²
- LANDSCAPE BYPASSING TREATMENT = 280m²
- LANDSCAPE TO TREATMENT = 1284m²
- TOTAL = 5,903m²

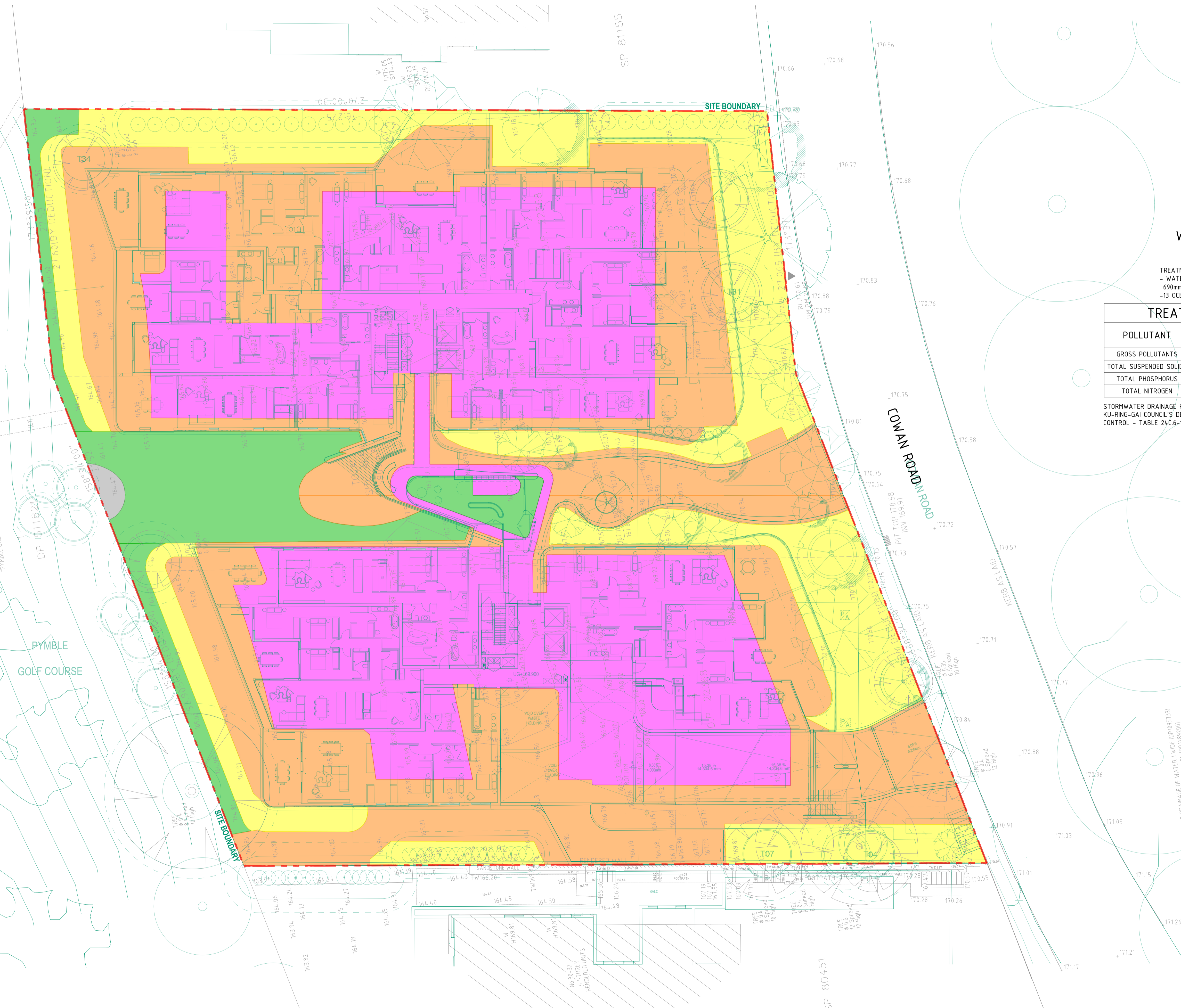
WATER QUALITY FOR DEVELOPMENT

TREATMENT DEVICES:
 - WATER QUALITY CHAMBER WITH 9 OCEAN PROTECT
 690mm NPSORB (SOIPE) STORMFILTER CARTRIDGES
 -13 OCEAN PROTECT OCEANGUARDS

TREATMENT STANDARDS

POLLUTANT	POST	REDUCTION ACHIEVED (%)	COUNCIL REQUIREMENTS (%)
GROSS POLLUTANTS	4.9E-7	100	70
TOTAL SUSPENDED SOLIDS	86.9	85.4	85
TOTAL PHOSPHORUS	0.191	85.2	65
TOTAL NITROGEN	4.32	65	45

STORMWATER DRAINAGE REQUIREMENTS HAVE BEEN CALCULATED IN ACCORDANCE WITH KU-RING-GAI COUNCIL'S DEVELOPMENT CONTROL PLAN, PART 24C.6 STORMWATER QUALITY CONTROL - TABLE 24C.6-1



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
C	30.07.2025	ISSUED FOR APPROVAL	SH				
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PROJECT

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 ST. IVES, NSW 2075

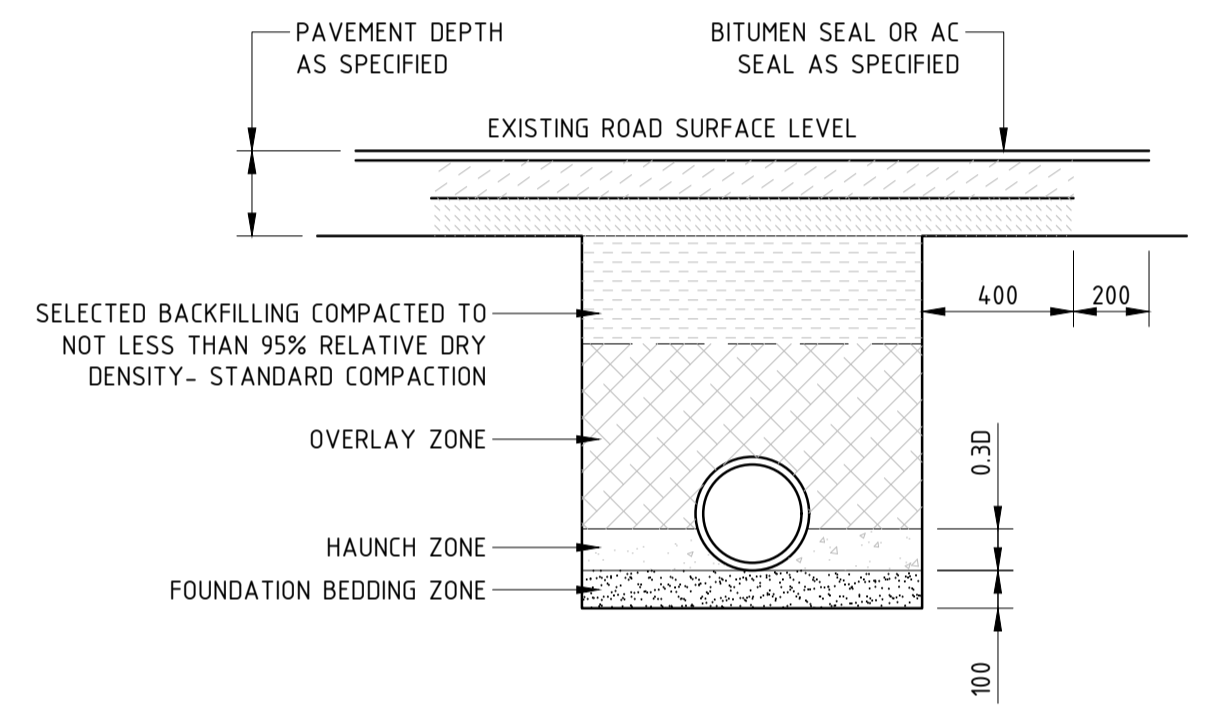
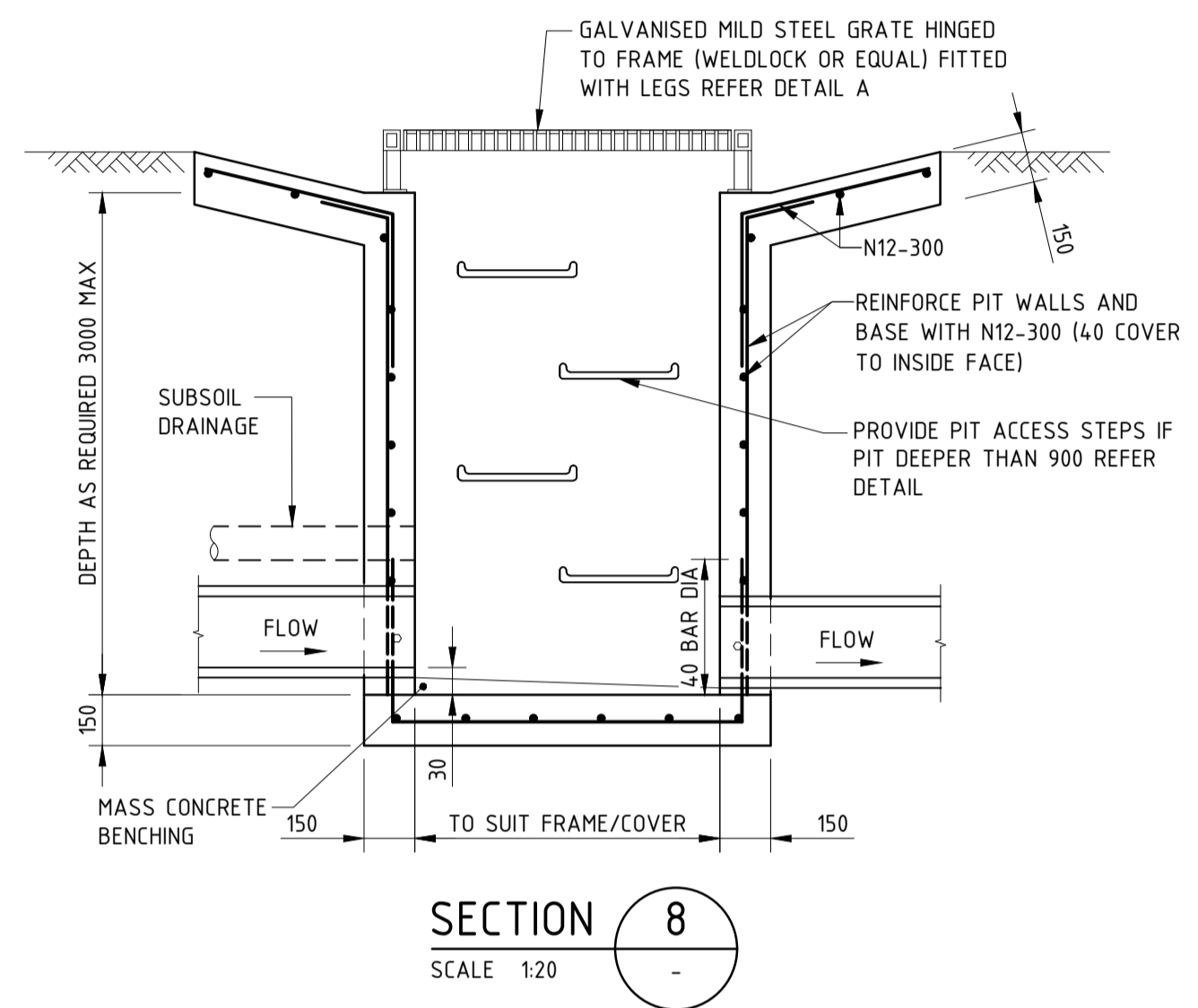
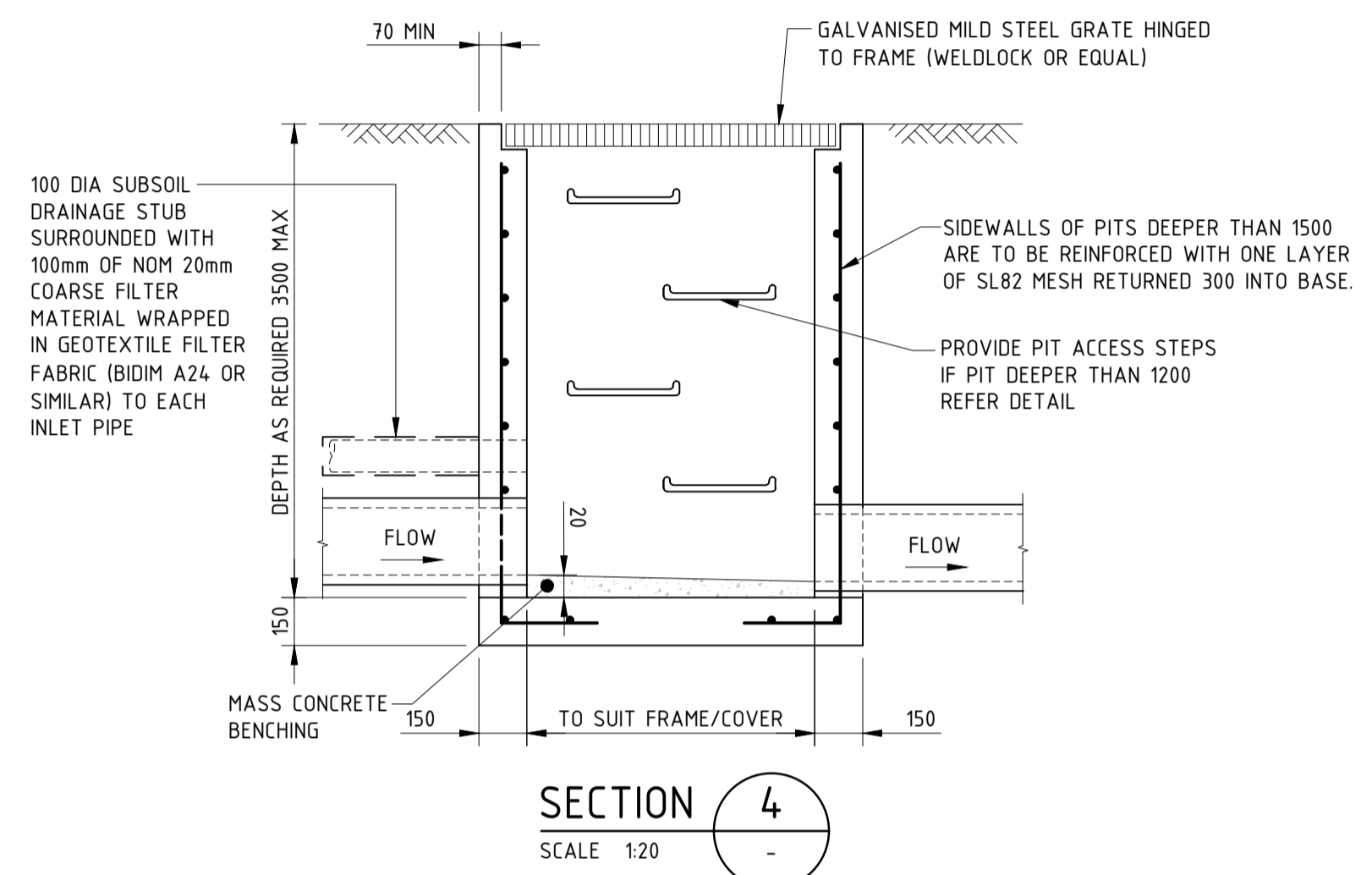
STATUS: ISSUED FOR APPROVAL
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DRAWN: JC	DESIGNED: AM	CHECKED: SH	APPROVED: -
DATUM: AHD	GRID: GDA2020 MGA-56	SCALE: 1:200	AT A1 SIZE

TITLE: CATCHMENT PLAN

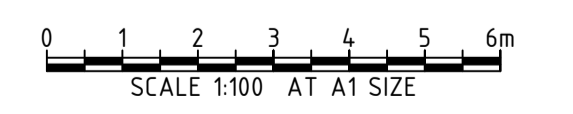
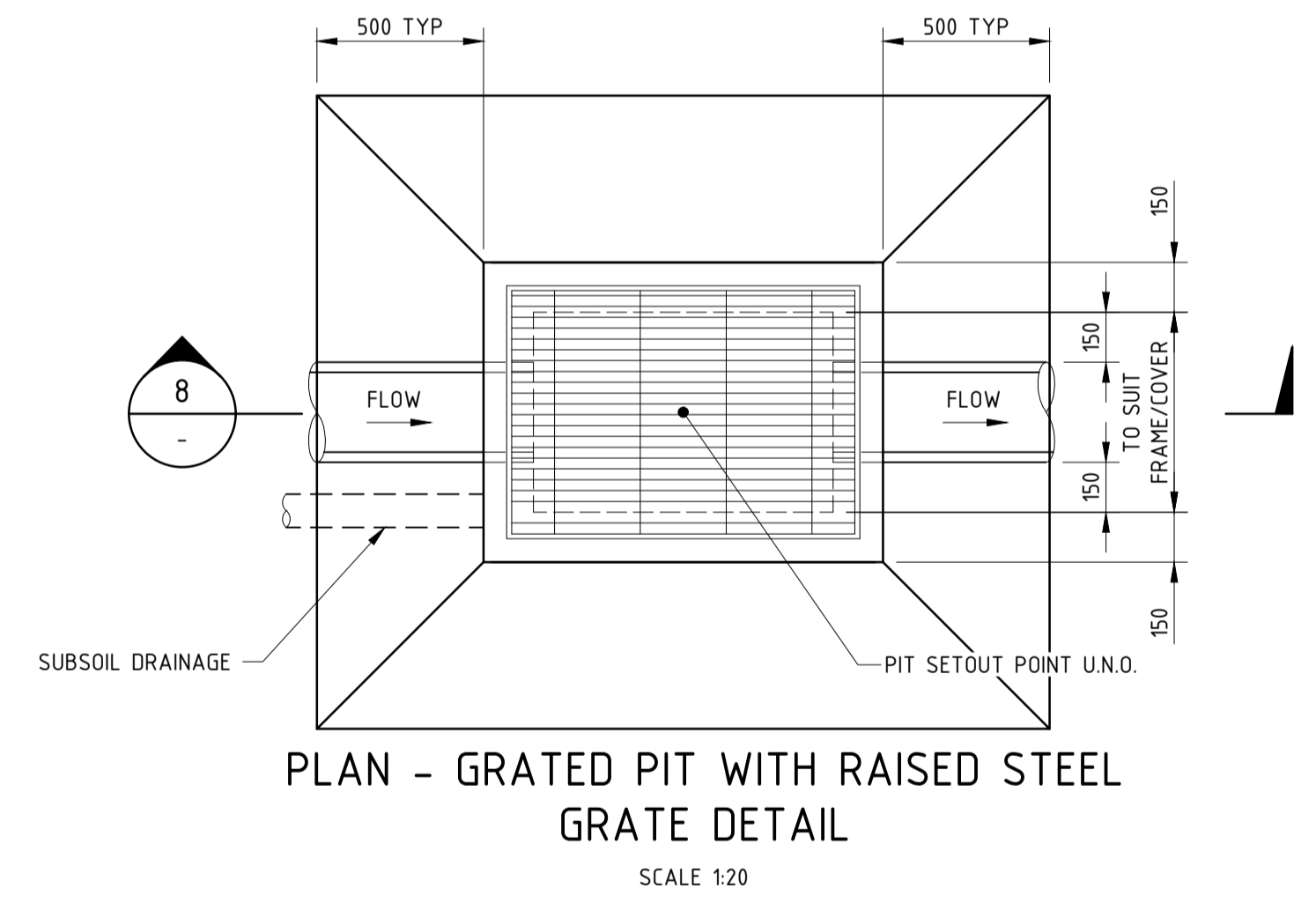
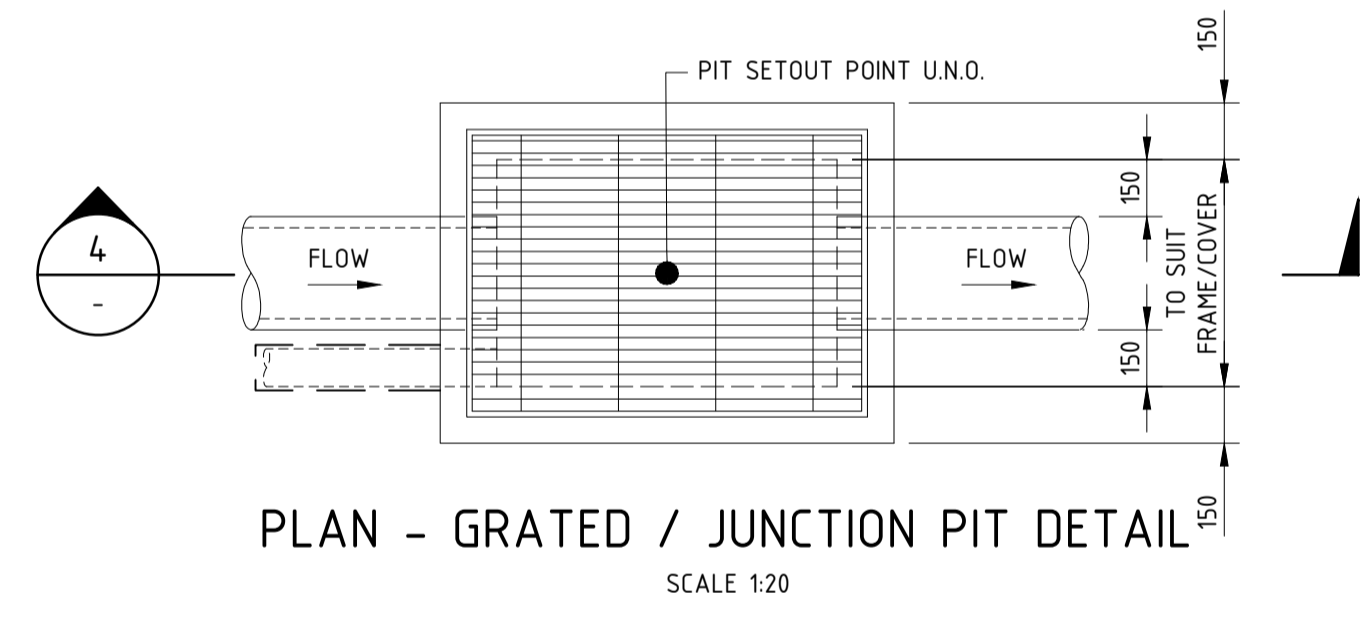
PROJECT No: S24288	DRAWING No: CI-0300	REV: C
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TYPICAL STORMWATER DRAINAGE INSTALLATION IN EXISTING ROADWAY

SCALE : N.T.S



REV	DATE	DESCRIPTION	REVISIONS	RVD	REV	DATE	DESCRIPTION	REVISIONS	RVD
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PROJECT

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ST. IVES, NSW 2075

STATUS

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NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
JC	AM	SH	-

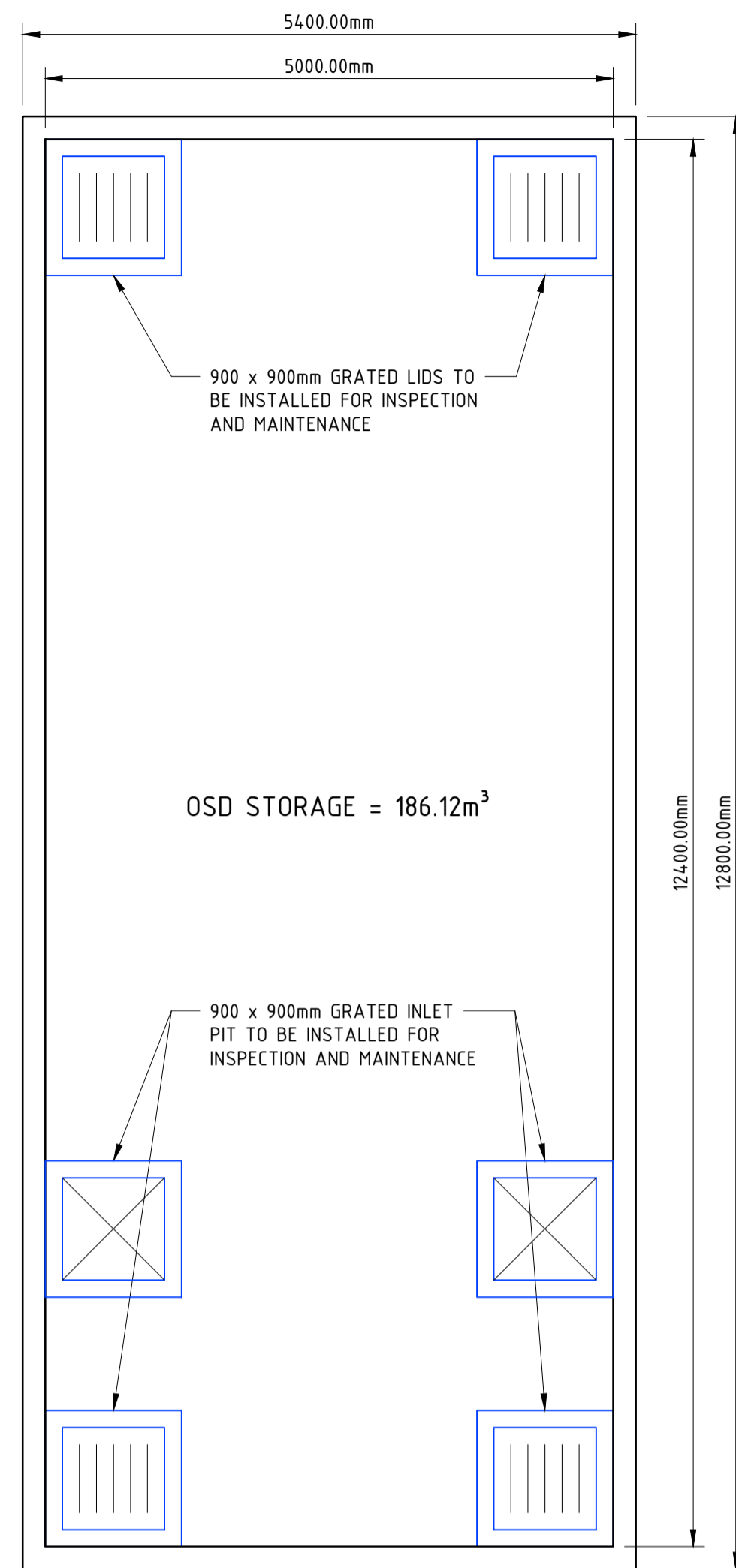
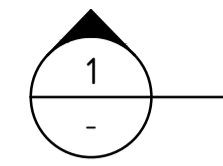
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AT A1 SIZE

TITLE

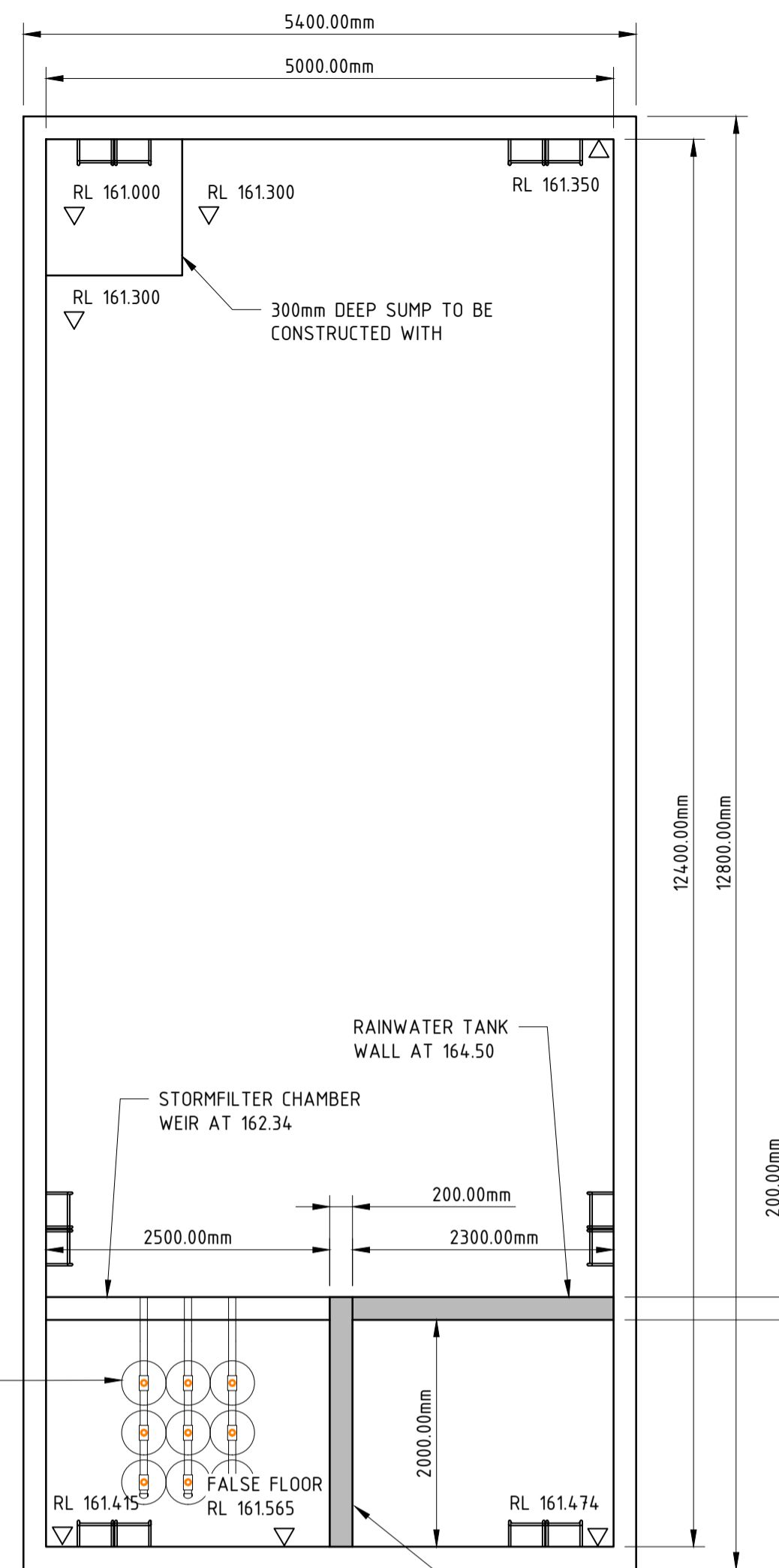
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PROJECT No.	DRAWING No.	REV
S24288	CI-0340	C

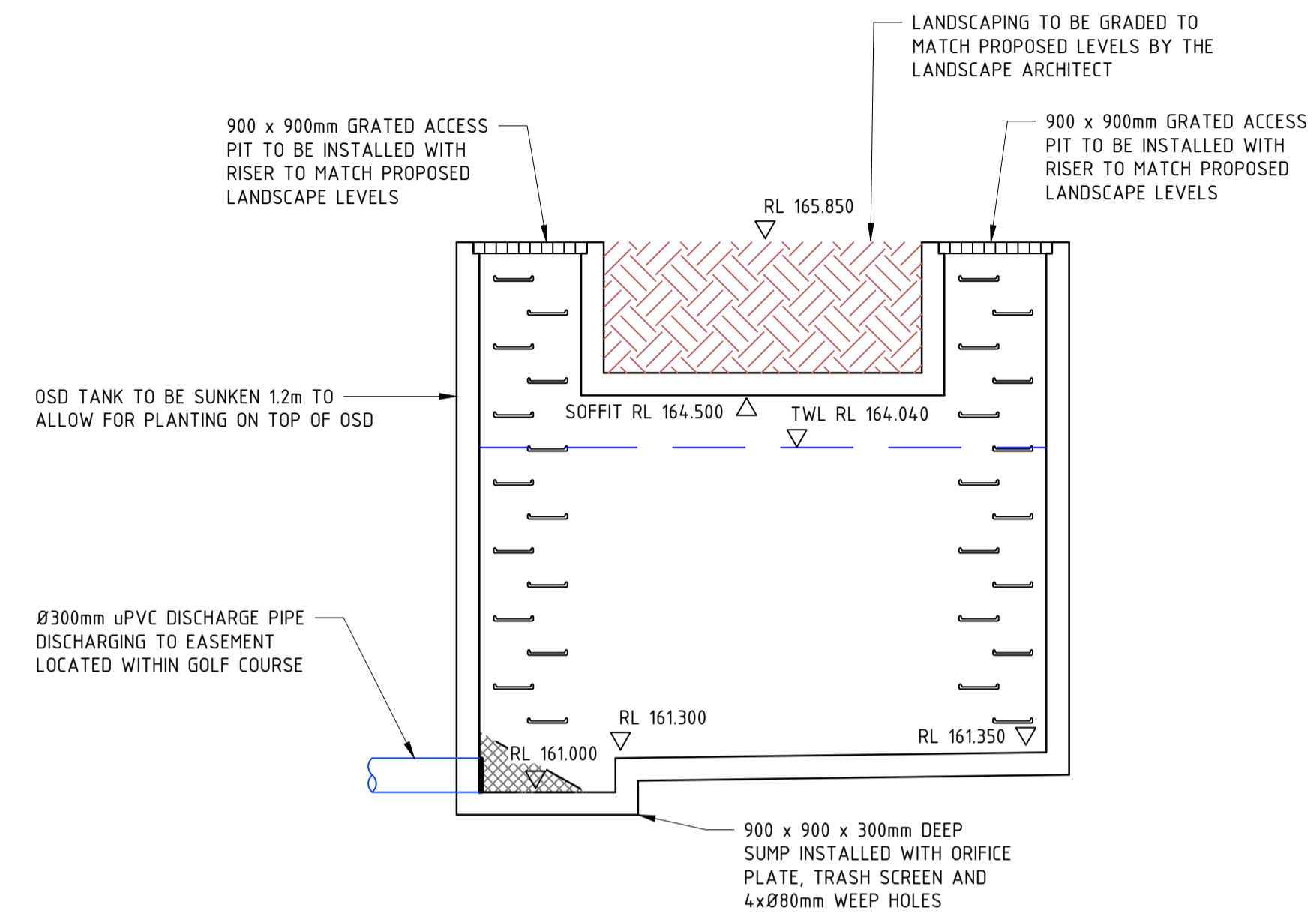
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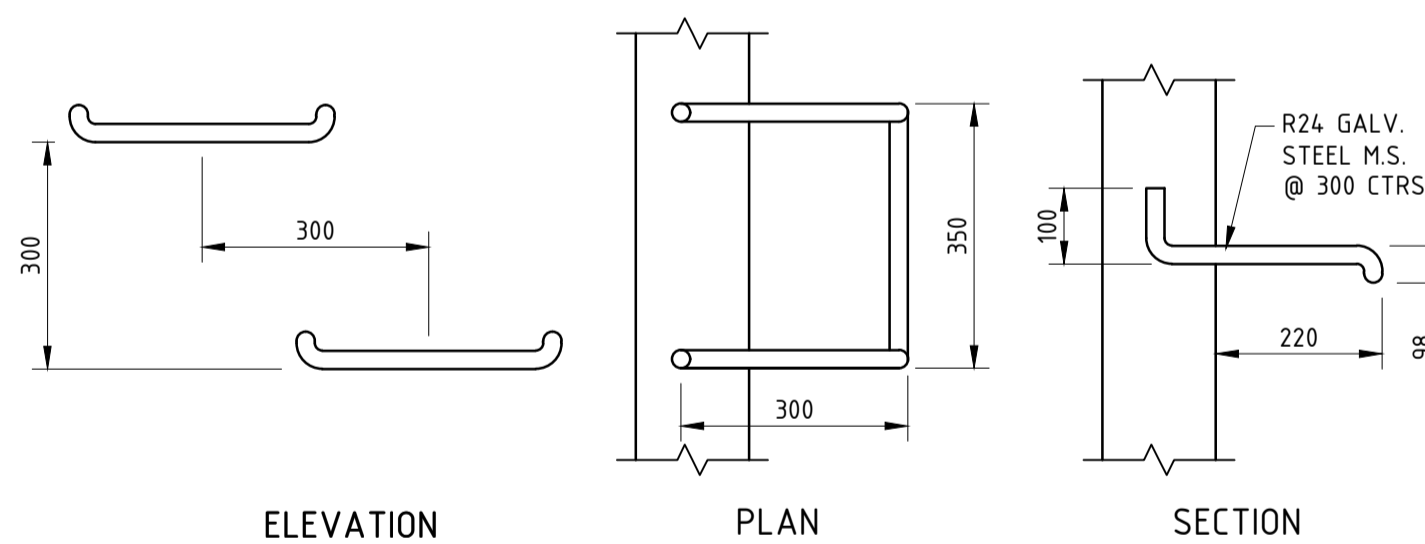
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SCALE 1:50



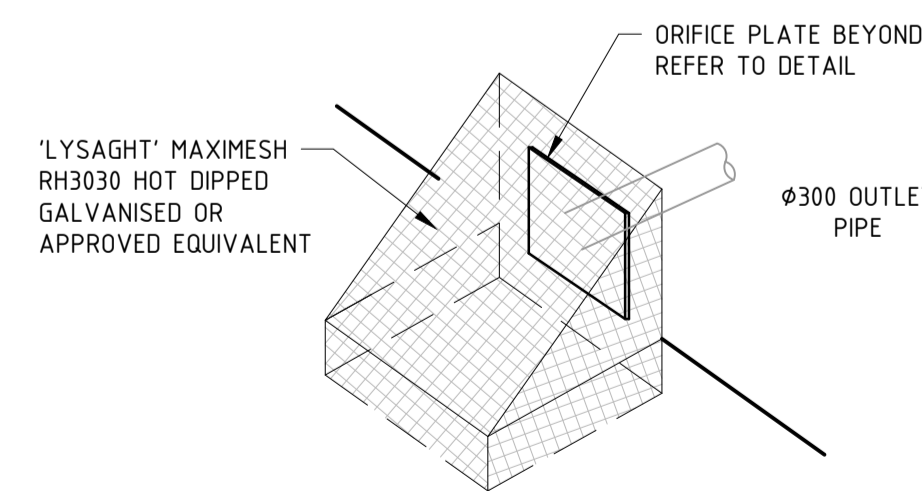
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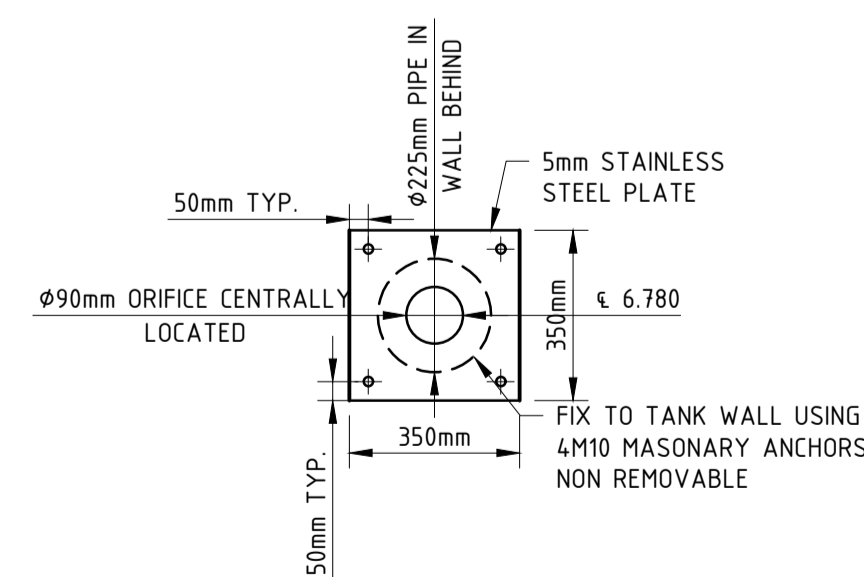
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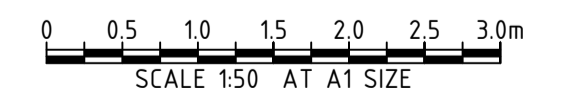
TYPICAL STEP IRON DETAILS
N.T.S.



TRASH SCREEN DETAIL
N.T.S.



Ø90mm ORIFICE PLATE DETAIL
N.T.S.



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
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B	25.07.2025	ISSUED FOR APPROVAL	SH				
A	26.06.2025	ISSUED FOR APPROVAL	SH				

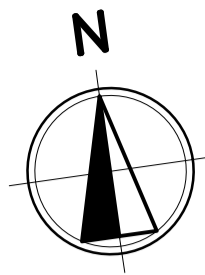
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PROJECT
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DRAWN	DESIGNED	CHECKED	APPROVED
JC	AM	SH	-
DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	AS SHOWN	

TITLE		
OSD PLAN, SECTIONS AND DETAILS		
PROJECT No.	DRAWING No.	REV
S24288	CI-0350	C

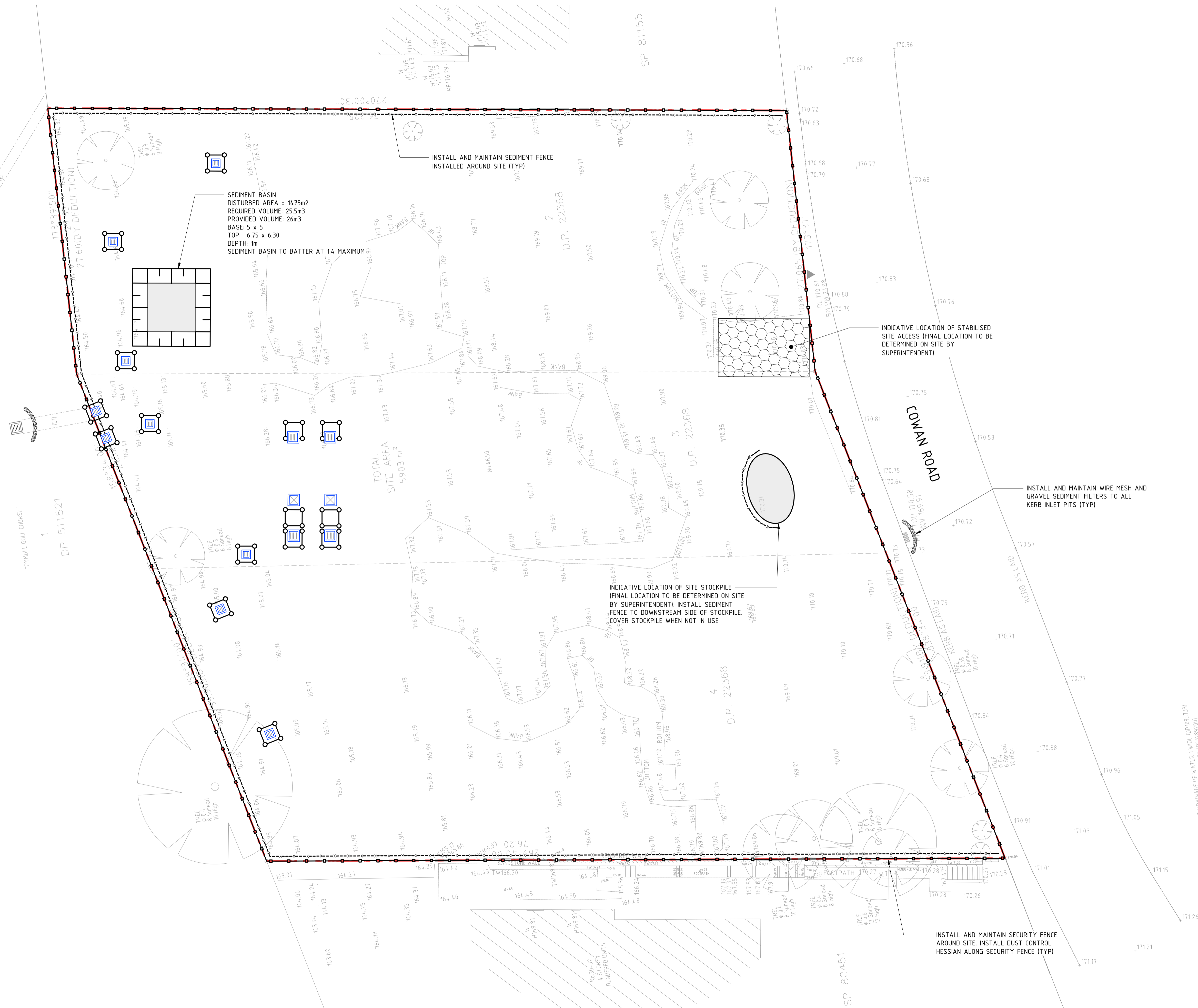


LEGEND

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

- ### NOTES
1. REFER DRAWING CI-0710 FOR EROSION AND SEDIMENT CONTROL DETAILS.
 2. CONTRACTOR TO ENSURE SITE DRAINAGE IS NOT ADVERSELY IMPACTED DURING CONSTRUCTION.
 3. CONTRACTOR TO PROVIDE 'SANDBAG SEDIMENT 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.

SEDIMENT BASIN CALCULATION
 CATCHMENT AREA: 1,475m²
 SOIL TYPE D
 $VSZ = 10 \times CV \times A \times R$
 $= 10 \times 0.35 \times 0.1475 \times 32.8$
 $= 17 \text{ m}^3$
 $VSS = VSZ \times 0.5$
 $= 8.5 \text{ m}^3$
 REQUIRE, VSB = 25.5m³



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
C	30.07.2025	ISSUED FOR APPROVAL	SH				
B	25.07.2025	ISSUED FOR APPROVAL	SH				
A	28.06.2025	ISSUED FOR APPROVAL	SH				

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Sydney Office –
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PROJECT
 46-50 COWAN ROAD
 ST. IVES, NSW 2075

STATUS
ISSUED FOR APPROVAL
 NOT TO BE USED FOR CONSTRUCTION

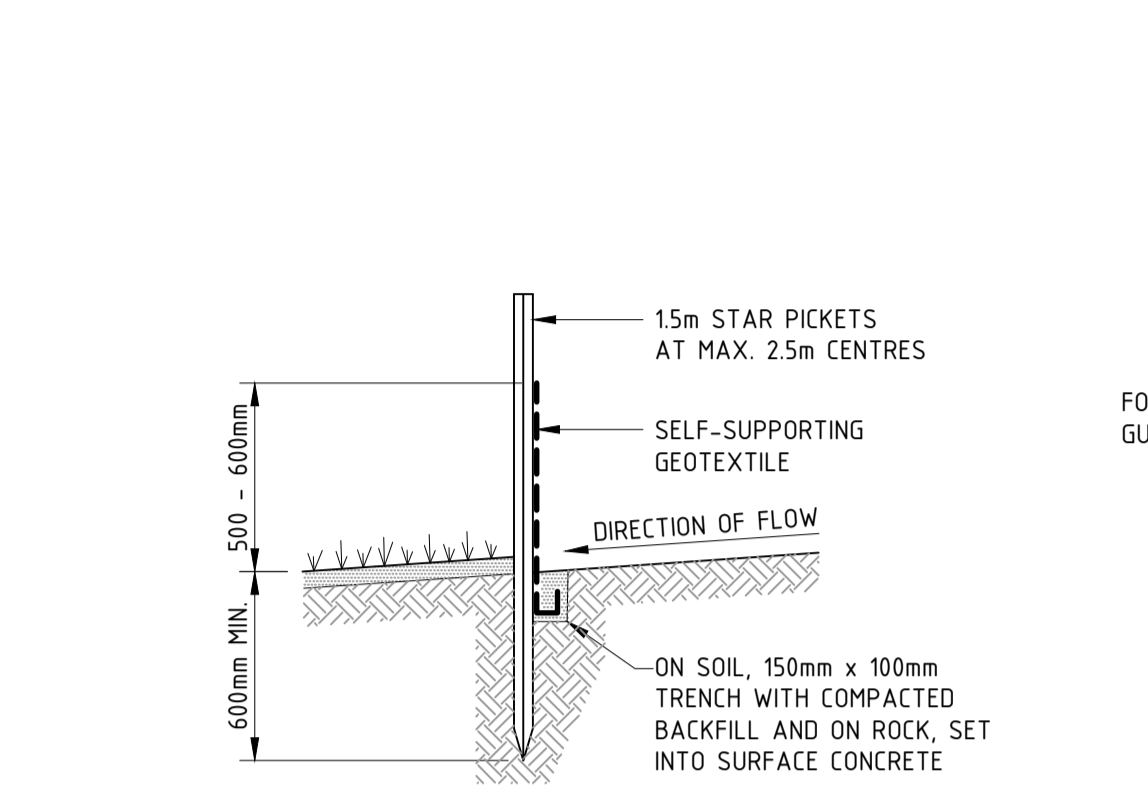
DRAWN	DESIGNED	CHECKED	APPROVED
JC	AM	SH	-

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

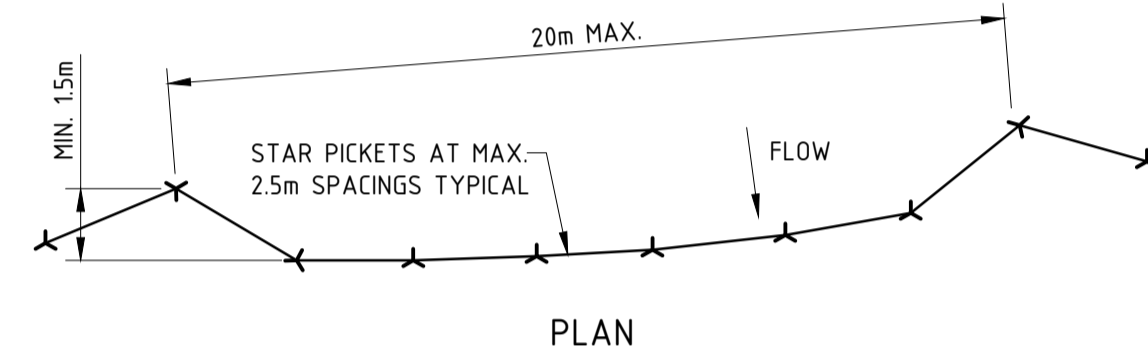
TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT No: S24288 DRAWING No: CI-0700 REV: C

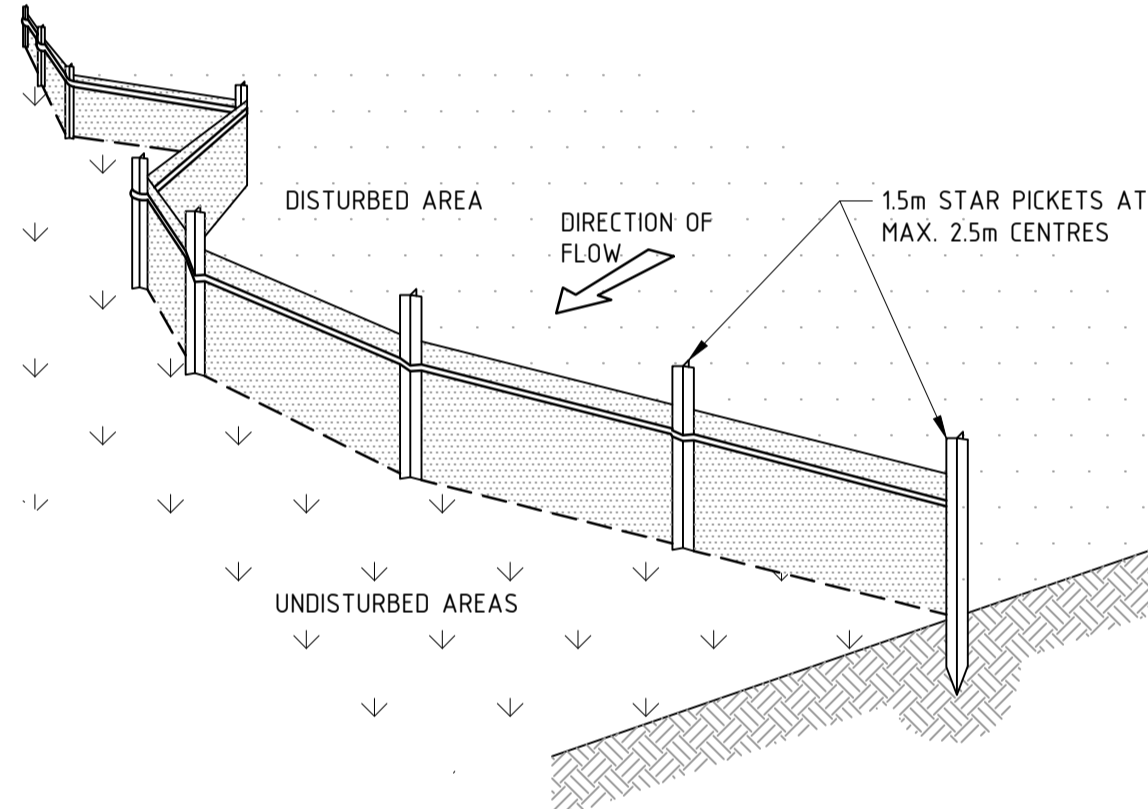
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SECTION DETAIL

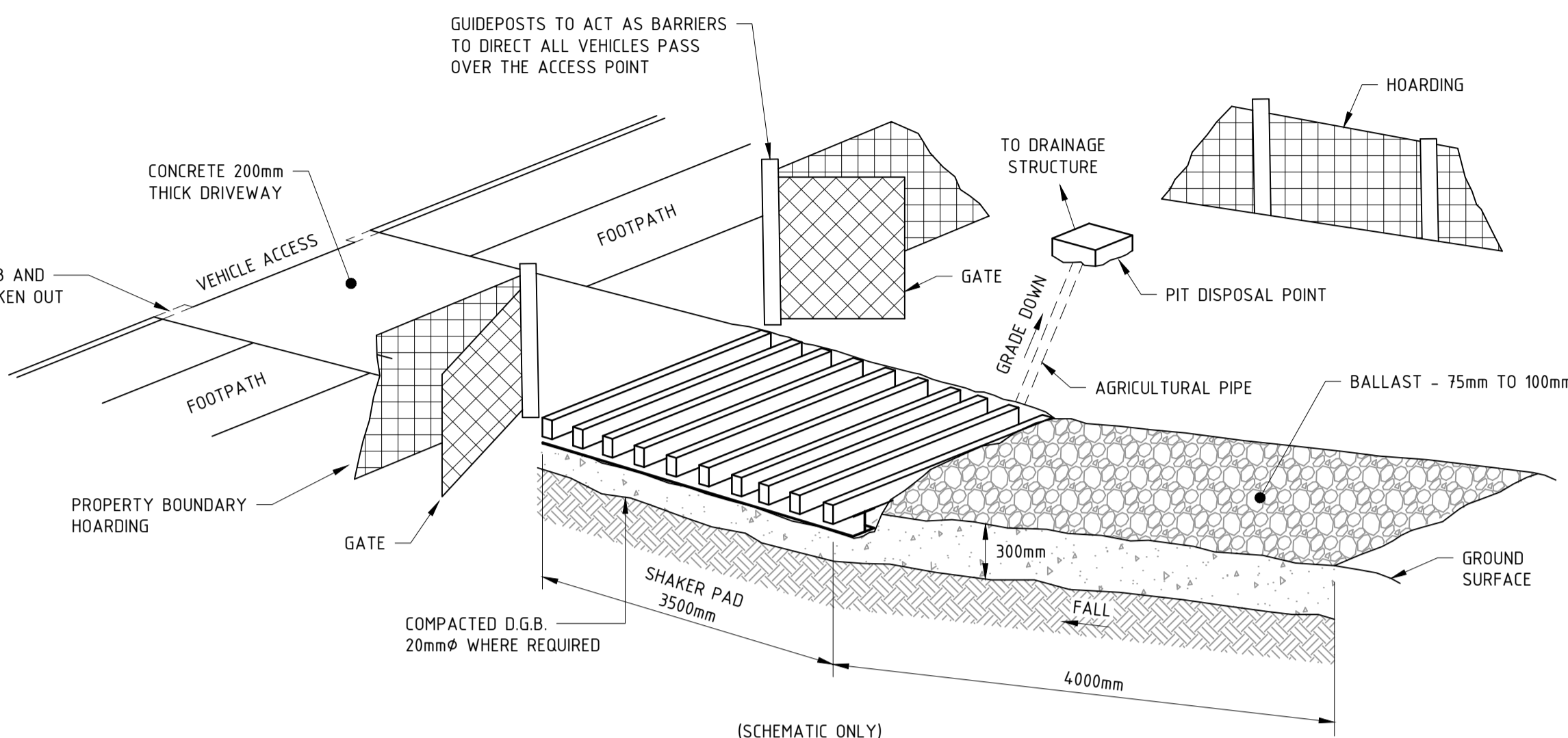


PLAN

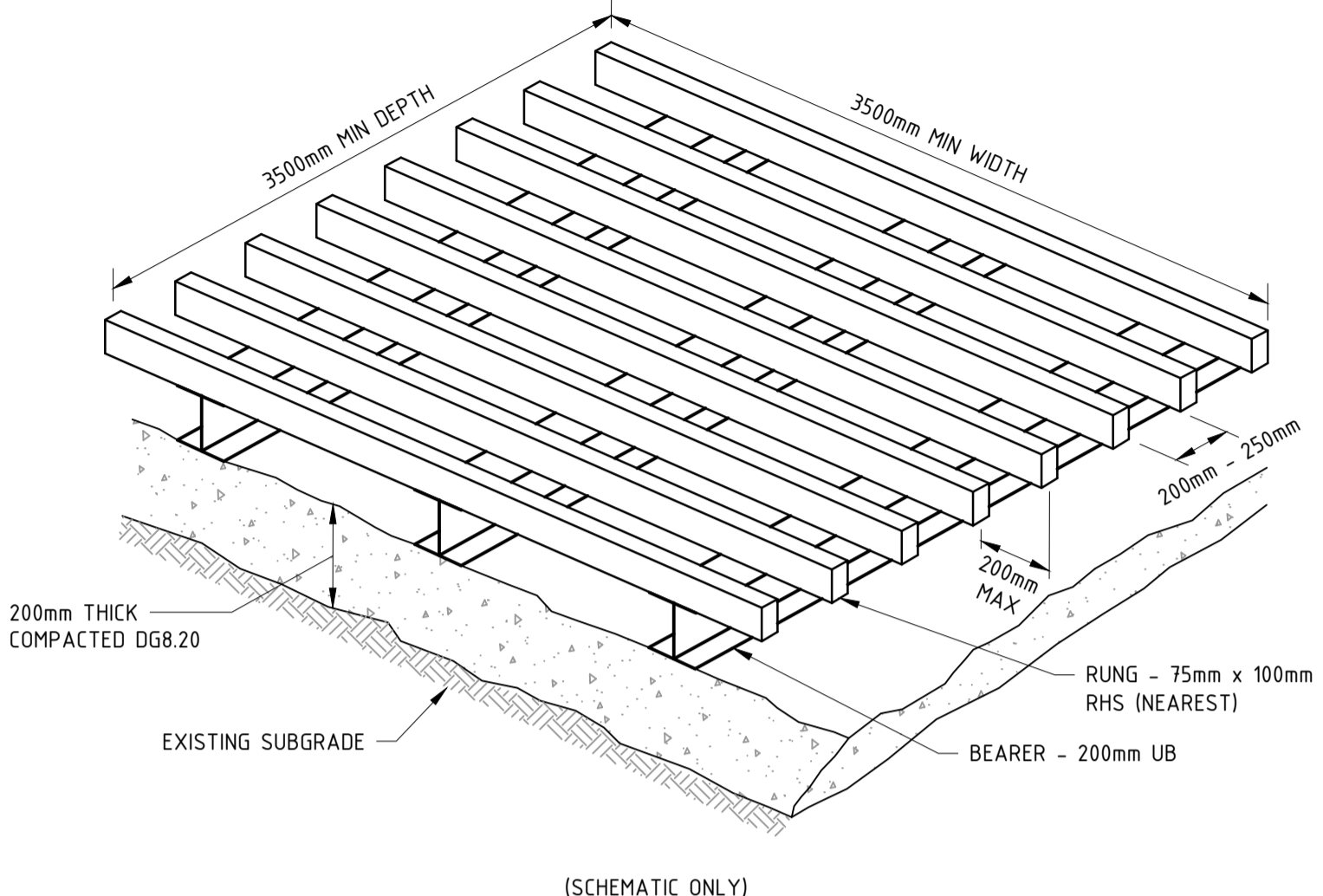


- SEDIMENT FENCE CONSTRUCTION NOTES:**
- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED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

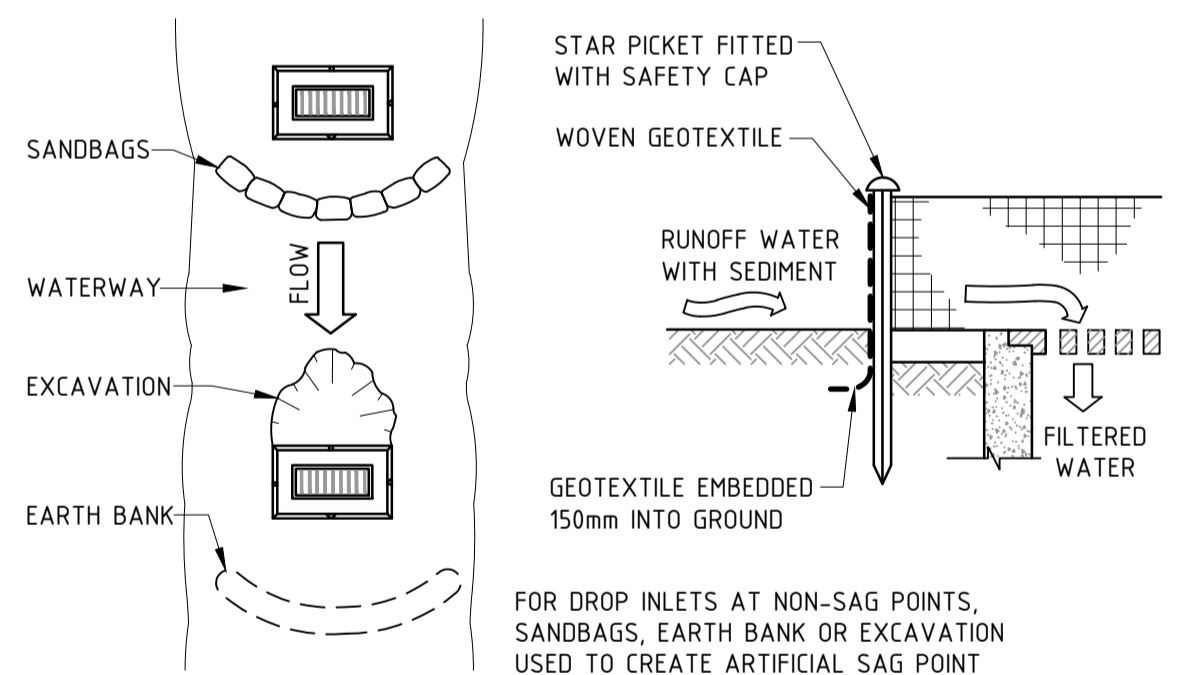
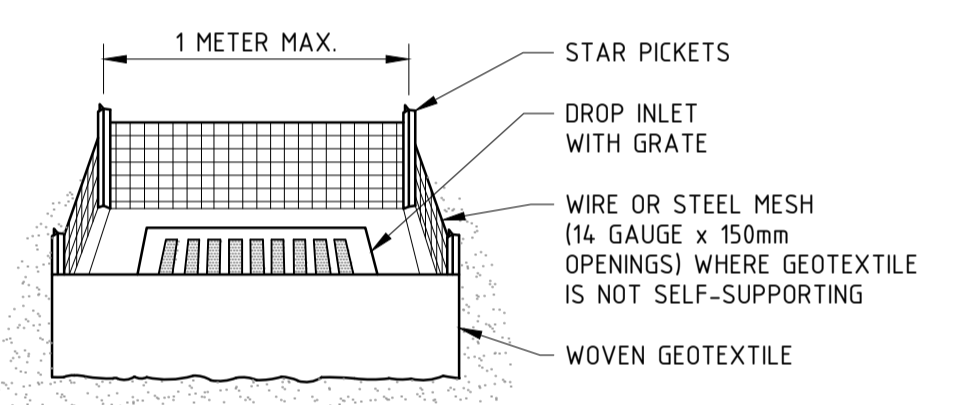


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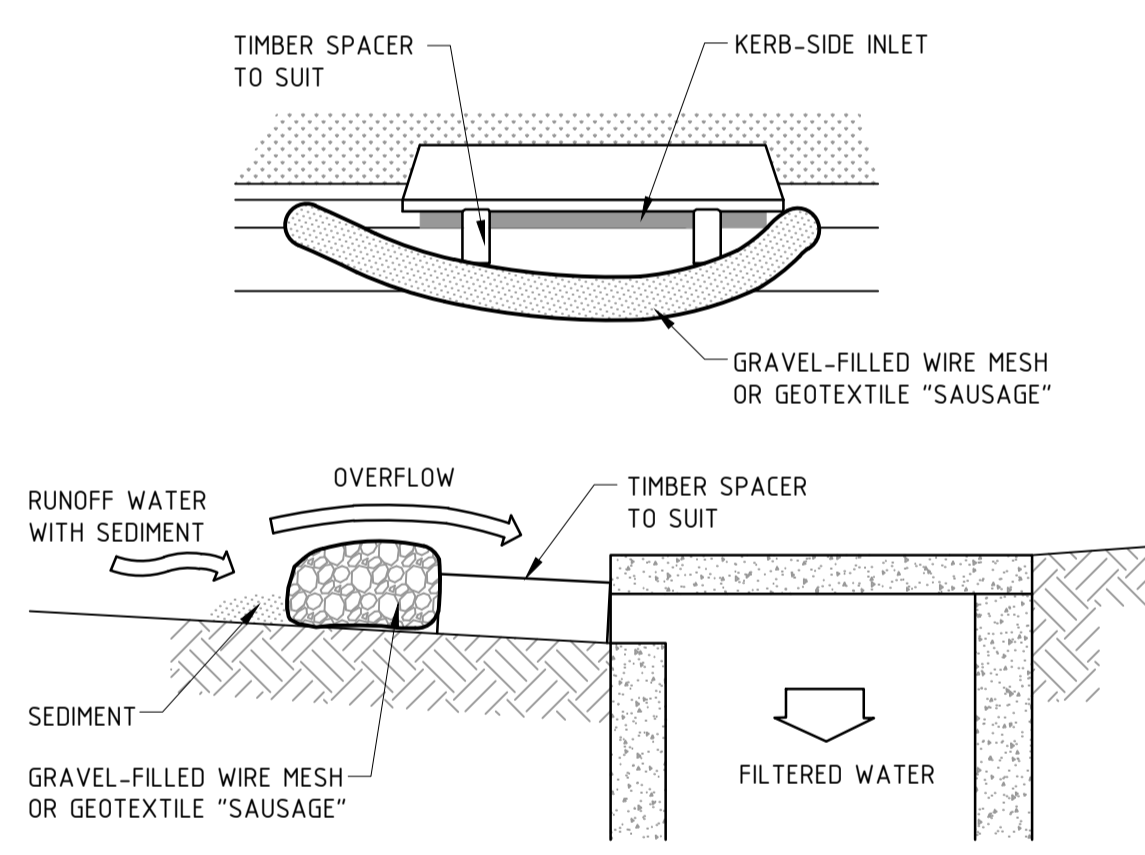
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STABILISED SITE ACCESS - SHAKER GRID
SCALE N.T.S



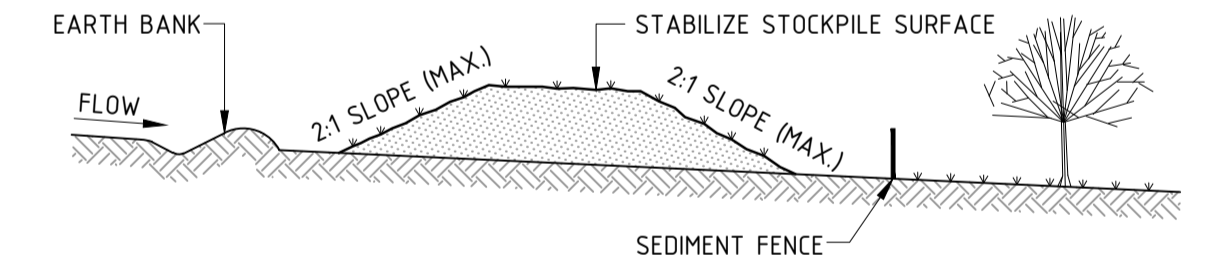
- GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:**
- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
 - PICKET SPACING TO BE A MAXIMUM 1.0m CENTRES.
 - IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
 - DO NOT COVER THE INLET WITH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

REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
C	30.07.2025	ISSUED FOR APPROVAL	SH				
B	25.07.2025	ISSUED FOR APPROVAL	SH				
A	26.06.2025	ISSUED FOR APPROVAL	SH				

CLIENT

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JC	AM	SH	-
DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	AS SHOWN	

TITLE	
EROSION AND SEDIMENT CONTROL DETAILS	
PROJECT No.	DRAWING No.
S24288	CI-0710
REV	C

Appendix D - MUSIC Link



MUSIC-link Report

Project Details		Company Details	
Project:	46-50 Cowan Road, St Ives	Company:	BG&E
Report Export Date:	25/06/2025	Contact:	
Catchment Name:	Prelim DA	Address:	
Catchment Area:	0.59ha	Phone:	
Impervious Area*:	73.55%	Email:	
Rainfall Station:	66062 SYDNEY		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1963 - 31/12/1993 11:54:00 PM		
Mean Annual Rainfall:	1275mm		
Evapotranspiration:	1261mm		
MUSIC Version:	6.4.0		
MUSIC-link data Version:	6.40		
Study Area:	Ku-ring-gai Council		
Scenario:	Ku-ring-gai		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: Post-Development Node	Reduction	Node Type	Number	Node Type	Number
Flow	0.00115%	Sedimentation Basin Node	1	Urban Source Node	5
TSS	85.3%	Generic Node	2		
TP	85.3%	GPT Node	2		
TN	64.8%				
GP	100%				

Comments
OceanProtect Products



Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
GPT	1 x OceanGuard (SQIDEP)	Hi-flow bypass rate (cum/sec)	None	None	0.02
GPT	10 x OceanGuard (SQIDEP)	Hi-flow bypass rate (cum/sec)	None	None	0.2
Post	Post-Development Node	% Load Reduction	None	None	0.00115
Post	Post-Development Node	GP % Load Reduction	70	None	100
Post	Post-Development Node	TN % Load Reduction	45	None	64.8
Post	Post-Development Node	TP % Load Reduction	65	None	85.3
Post	Post-Development Node	TSS % Load Reduction	85	None	85.3
Sedimentation	SF Chamber	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber	High Flow Bypass Out (ML/yr)	None	None	0
Urban	Hardstand to SF Chamber (2136 m2)	Area Impervious (ha)	None	None	0.214
Urban	Hardstand to SF Chamber (2136 m2)	Area Pervious (ha)	None	None	0
Urban	Hardstand to SF Chamber (2136 m2)	Total Area (ha)	None	None	0.214
Urban	Landscape Bypassing SF Chamber (280m2)	Area Impervious (ha)	None	None	0
Urban	Landscape Bypassing SF Chamber (280m2)	Area Pervious (ha)	None	None	0.028
Urban	Landscape Bypassing SF Chamber (280m2)	Total Area (ha)	None	None	0.028
Urban	Landscaping to SF Chamber (1280m2)	Area Impervious (ha)	None	None	0
Urban	Landscaping to SF Chamber (1280m2)	Area Pervious (ha)	None	None	0.128
Urban	Landscaping to SF Chamber (1280m2)	Total Area (ha)	None	None	0.128
Urban	Pavement Bypassing Treatment (10 m2)	Area Impervious (ha)	None	None	0.001
Urban	Pavement Bypassing Treatment (10 m2)	Area Pervious (ha)	None	None	0
Urban	Pavement Bypassing Treatment (10 m2)	Total Area (ha)	None	None	0.001
Urban	Roof to SF Chamber (2193 m2)	Area Impervious (ha)	None	None	0.219
Urban	Roof to SF Chamber (2193 m2)	Area Pervious (ha)	None	None	0
Urban	Roof to SF Chamber (2193 m2)	Total Area (ha)	None	None	0.219

Only certain parameters are reported when they pass validation



Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Sedimentation	SF Chamber	Notional Detention Time (hrs)	8	12	0.0343
Sedimentation	SF Chamber	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber	Total Suspended Solids - k (m/yr)	8000	8000	1

Only certain parameters are reported when they pass validation

Appendix E – Council Checklist

PART 4: On-site Stormwater Detention

4.1 On-site Detention Calculation Sheet

On-Site Detention Calculation Sheet

Address		46-50 Cowan Road, St Ives	
Catchment Detail			
1.	Catchment Name	Cowan Street	
2.	Catchment Discharge Rate	.. 0.0096 ..	l/sec/m ² A
3.	Catchment Storage Rate	.. 0.0414 ..	m ³ /m ² B
Site Details			
4.	Site Area	5904 m ² ^	60% of site area 3542.40 m ² C
5.	Area(s) not draining to the detention system	1050 m ²	
6.	Total impervious area (roofs, driveways, paving, etc.)	4371 m ²	D
7.	Impervious area bypassing detention system	1050 m ²	E
Permitted Site Discharge			
8.	C [3542.40 m ²] x A [.. 0.0096 .. l/sec/m ²] =		.. 34.01 .. l/sec Flow 1
9.	Adjustment for any uncontrolled impervious flow E / D =		.. 0.24 .. (<0.25) F
10.	Flow 1 [34.01 l/sec] x F [.. 0.25 ..] =		.. 5.51 .. l/sec Flow 2
11.	Flow 1 [34.01] - Flow 2 [5.51] =		.. 25.5 .. l/sec PSD
Site Storage Requirement			
12.	C [3542.40 m ²] x B [.....m ³ /m ²] =		146.65 m ³ SSR1
13.	If the storage is in a landscaped basin, SSR1 x 1.2 =		.. NA .. m ³ SSR2
Outlet Control			
14.	Height difference between top water surface level and the centre of the orifice		2.74 m G
15.	Orifice Diameter $21.8 \times \sqrt{\frac{PSD}{G}}$		86.1 mm OD
<p>PSD = Permitted Site Discharge SSR1 = Site Storage Requirement (except for landscaped basins) SSR2 = Site Storage Requirement (landscaped basins) (Note: Use only SSR1 or SSR2) OD = Orifice Diameter</p>			
Signature		Name	
Qualifications		Date	



At BG&E, we are united by a common purpose – we believe that truly great engineering takes curiosity, bravery and trust, and is the key to creating extraordinary built environments.

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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