TELFORD CIVIL
CONSULTING CIVIL & STORMWATER ENGINEERS

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Date: 23rd April 2026

The Council of the City of Ryde
To whom it may concern,

Proposal: 2-4 Giffnock Avenue, Macquarie Park **Application No: SSD-79017211**

In response to the City of Ryde Council comments dated 5 February 2026 under Stormwater comments section, we are pleased to provide you with our response below:

No	Comment	Consultant Response
10.a.	The OSD analysis has been undertaking utilizing DRAINS software however the data files have not been provided for review. As such, there is no ability to confirm whether the provided OSD design is adequate. Council requests this be provided.	The DRAINS model is provided.
	The stormwater system proposes a 10m^3 rainwater tank which is extremely underwhelming considering the scale of the development. It is pertinent to note that a typical duplex development in the Ryde council area would likely accommodate the same level of storage. The applicant should refer to the DCP Part 8.2 controls and associated documents for guidance on rainwater storage requirements. To be clear the level of rainwater capture is to be increased.	As per the BASIX report for Towers A1 and A2, a 5,000 L rainwater tank is provided and is required to collect rainwater from the building roof area. The same applies to Tower B1. Refer to the BASIX reports "ELAB_BASIX Report_2-4 Giffnock Avenue_A1 & A2_002" and "ELAB_BASIX Report_2-4 Giffnock Avenue_B1_002" for more details.
10.b.	Please update the Civil plans to indicate the new alignment of the kerb and gutter and stormwater infrastructure under the kerb and gutter. The plan is also to be updated to reflect:	This has been updated. Please refer to plans TEL24535.SW.DA - 2-4 Giffnock Avenue, Macquarie Park [G] sheet 101 for details.
	Kerb and gutter alignment to be shown.	This has been shown. Please refer to updated plans TEL24535.SW.DA - 2-4 Giffnock Avenue, Macquarie Park [G] sheet 101 for details.
	Please indicate cover depths and pipe classes under the footpath.	No new pipe is proposed in the updated set of drawings TEL24535.SW.DA - 2-4 Giffnock Avenue, Macquarie Park [G]
	Please provide a drainage network capacity assessment for the proposed connection(s) to Council's stormwater system. The assessment must confirm that the receiving network has adequate capacity to accommodate the development's discharge without causing surcharge or adverse downstream impacts.	Connection has been amended to become to the existing council easement – please refer to TEL24535.SW.DA - 2-4 Giffnock Avenue, Macquarie Park [G]

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	Where the assessment identifies insufficient capacity in the downstream system, the applicant must identify and propose any necessary upgrades to support the additional flows.	
	The outlet of the proposed pit to be 1% above the invert level of Council pit.	Connection has been amended – please refer to TEL24535.SW.DA - 2-4 Giffnock Avenue, Macquarie Park [G]
	Please include the outlet of the private junction pit higher than HGL backwater effect.	Connection has been amended – please refer to TEL24535.SW.DA - 2-4 Giffnock Avenue, Macquarie Park [G]
	HGL is to be clearly indicated on the plans.	Please refer to the Longitudinal Section on TEL24535.SW.DA - 2-4 Giffnock Avenue, Macquarie Park [G] – drawing 109
	Please clearly identify and annotate the ownership of all easements within your lot. Based on the available information, these easements service private developments and therefore must be maintained privately.	Connection has been amended to become to the existing council easement. This easement is clearly documented on the updated plans
	If any private easements are proposed to be extinguished, please note them on the plan.	No private easements are proposed on the updated set of plans

Yours faithfully,

Telford Consulting Pty Ltd
Yours truly,
PER

Dr. Michel Chaaya
B.E., M.E. (Res), Ph.D., F.I.E. Aust., CPEng., NER,
Civil/Structural Engineer (EA ID: 612963)

TELFORD CIVIL
CONSULTING CIVIL & STORMWATER ENGINEERS

Integrated Water Management Plan

2-4 Giffnock Avenue, Macquarie Park

Prepared for
388 LCR Development.

Issue B April 2026

Telford Consulting Pty Ltd
Sydney | Parramatta | Brisbane | Dubai | Beirut | Davao

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Document Information

Report Type: Integrated Water Cycle Management Plan				
Site Address: 2-4 Giffnock Avenue, Macquarie Park				
Document Filename: TEL24535.SW.IWMP - 2-4 Giffnock Avenue, Macquarie Park Issue[B]				
Issue A		**Position**	**Date**	**Comments**
Prepared By	Sergios Bou Francis	Stormwater Engineer	01 October 2025	Nil
Reviewed By	Michel Chaaya	Principal Engineer	01 October 2025	Nil
Issue B		**Position**	**Date**	**Comments**
Prepared By	Sergios Bou Francis	Stormwater Engineer	22 April 2026	Nil
Reviewed By	Michel Chaaya	Principal Engineer	22 April 2026	Nil

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Disclaimer

The advice and information contained within this report relies on the quality of the records and other data provided by the Client, site inspections along with the time and budgetary constraints imposed.

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1 INTRODUCTION

1.1 Executive summary

This Integrating Water Management Plan has been prepared by Telford Consulting Pty Ltd for 388 LCR Development to accompany a State Significant Development Application (SSDA) for a mixed-use development at 2-4 Giffnock Avenue, Macquarie Park, within the Ryde Local Government Area (LGA).

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-79017211) on 8 January 2025.

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

- Stormwater quantity assessment
- Stormwater quality treatment

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

1.2 Introduction

The SSDA seeks development consent for a mixed-use development at 2-4 Giffnock Avenue, Macquarie Park, comprising two tower elements above podiums, with retail premises, a childcare centre and residential uses within the building envelopes and recreation and road infrastructure uses on the reminder of the site.

Specifically, the SSDA seeks development consent for:

- demolition of two existing single storey buildings, one x two storey building and one car port
- site preparation and excavation work
- construction of two 44 storey towers, comprising:
    - a single basement, comprising 6 parking levels to service the entire development
    - ground floor retail premises
    - ground floor residential amenities and services
    - a centre based childcare centre (located on both ground and level 1 of northeastern only) accommodating 120 children and 20 staff
    - residential accommodation on the remaining levels (comprising a total of 741 units and dedication of affordable housing in perpetuity)
- landscaping and communal open space
- associated infrastructure and services
- streetscape upgrades including road widening to Drake Avenue by 2.5m (equivalent to 273m^2) and Hyundai Drive by 4m (equivalent to 258m^2)

- dedication of land for road infrastructure and open space purposes (equivalent to 4025m^2) pursuant to Clause 7.13 of the (RLEP 2014) and the Macquarie Park Design Guide
- embellishment of the dedicated open space area
- easements for access and maintenance to the new substation and for the new pipe over the dedicated recreation area
- subdivision to create a separate lot

The purpose of the project is to facilitate the delivery of high-quality residential and non-residential uses at a strategically located site, delivering a built form outcome that is consistent with the desired future character of Macquarie Park, as established by the Macquarie Park Transport Oriented Development.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 8 January 2025 and issued for the SSDA (SSD-79017211). Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Issue and Assessment Requirements	Supporting Documentation
11. Water Management • Detail the proposed drainage design and servicing infrastructure to be incorporated as part of the development (stormwater and wastewater). • 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.	Integrated Water Management Plan

1.3 Subject Site

The site is located at 2-4 Giffnock Avenue, Macquarie Park in the Ryde LGA. It is legally described as Lot 1 in DP1310550. 2-4 Giffnock Avenue is bound by Pocock Street to the northwest, Giffnock Avenue and Hyundai Drive to the northeast, Lane Cove Road (which is a classified road) to the east and Drake Avenue to the south.

As shown within Figure 1.3.1 below, the land being redeveloped as part of this SSD relates to part of Lot 235 in DP 1208568 and is referred to as 'the redevelopment site' throughout this report (see red shaded area below). The redevelopment site is irregular in shape and comprises an area of 12,386m^2. It is currently occupied by three commercial buildings, at-grade parking and vegetation.

The remaining area of the lot comprises the 'Veriu site' which comprises serviced apartments and is proposed to be subdivided from the redevelopment site.

The site is zoned MU1 Mixed Use and E2 Commercial Centre pursuant to the Ryde Local Environmental Plan 2014.

Figure 1.3.1: The site (Source: Nearmap)

The site is strategically located within the Macquarie Park Transport Orientated Development Accelerated Precinct and is approximately 190m walking distance from the Metro Station. It is also well serviced by buses which have stops on either side of Lane Cove Road.

1.4 Surrounding Context

The site directly interfaces commercial uses along all boundaries.

As shown within Figure 1.4.1 below, the broader locality is characterised by a mix of uses including established and newly developed commercial and residential buildings, the Macquarie Park Metro Station, Macquarie University, Macquarie University Hospital, shopping centres and recreational areas.

The site is also located approximately 16 kilometres from the Sydney CBD.

Figure 1.4.1: Surrounding Context (Source: Nearmap)

1.5 Existing Topography

Based on the survey provided by Ramsay Surveyors Pty Ltd dated 19/11/2024 (**Appendix B**), the topography of the subject site slopes from the southeast to northwest. The subject site accommodates a total level change of approximately 6.7 meters.

2 STORMWATER QUANTITY ASSESSMENT

2.1 Aims & Objectives

Ryde City Council states that On-site Stormwater Detention must be incorporated into the property stormwater drainage system for all development, unless the development satisfies an exemption condition as listed in Section 1.4.1 of the ***Stormwater and Floodplain Management Technical Manual.***

The subject site does not fall within any of the exemption categories from providing an On-Site Detention (OSD) system; therefore, an OSD system is required.

As the site area exceeds 3,000 m^2; therefore, the site does not meet all of the criteria outlined in section 1.4.3 of the ***Stormwater and Floodplain Management Technical Manual*** for applying the simplified method. Accordingly, the detailed method must be used.

City of Ryde Council also encourages the use of computer models for drainage design, with the DRAINS model preferred. At a minimum, it must be demonstrated that the proposed

development will not result in any increase in site runoff for storm events up to and including the 1% Annual Exceedance Probability (AEP), which is equivalent to the 100-year Average Recurrence Interval (ARI), for all storm durations.

The OSD is designed on the basis that the total stormwater discharge from the post-development site is less than or equal to that from the pre-development site.

To mitigate the increased post-development runoff, an OSD tank is proposed to be installed prior to the discharge point. The discharge point for the proposed development is the existing kerb inlet pit (KIP) located in Kittys Street.

The discharge from the OSD tank to the point of discharge will require an inter-allotment easement, as the discharge pipe is running beneath the Industrial Creek Park Dedication area.

Refer to the stormwater plans shown on **Appendix A** for more details.

2.2 Stormwater Design

The stormwater design intends to allow stormwater runoff to drain from the site by gravity.

Most of the roof runoff is designed to be collected and drained towards a 10kL rainwater tank. Any overflow from the rainwater tank will be conveyed to the proposed water quality devices located within the proposed stormfilter chamber.

All surface runoff from the paved and unpaved areas is also captured by the proposed pit and pipe network across the paved surface, and directed to the proposed stormfilter chamber for treatment before being discharged from the site at a legally approved point of discharge.

Refer to the stormwater plans shown on **Appendix A** for more details.

2.3 DRAINS Modelling and Results

DRAINS ILSAX model was used to analyse the detention requirements for a range of storm events (0.2EY, 10%, 5%, 2% & 1% AEP Storm events).

The following figures show the DRAINS modelling and results for 0.2EY and 1% AEP storm events.

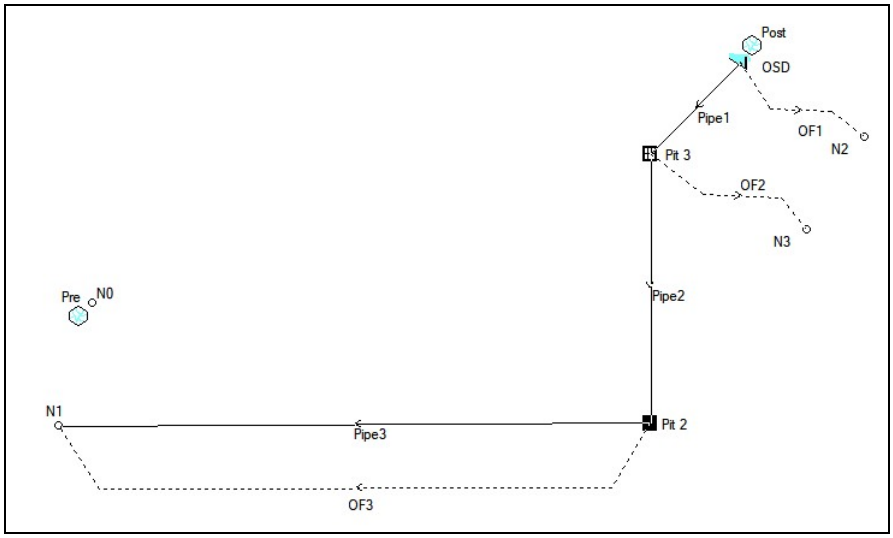


Figure 2.3.1: DRAINS Model

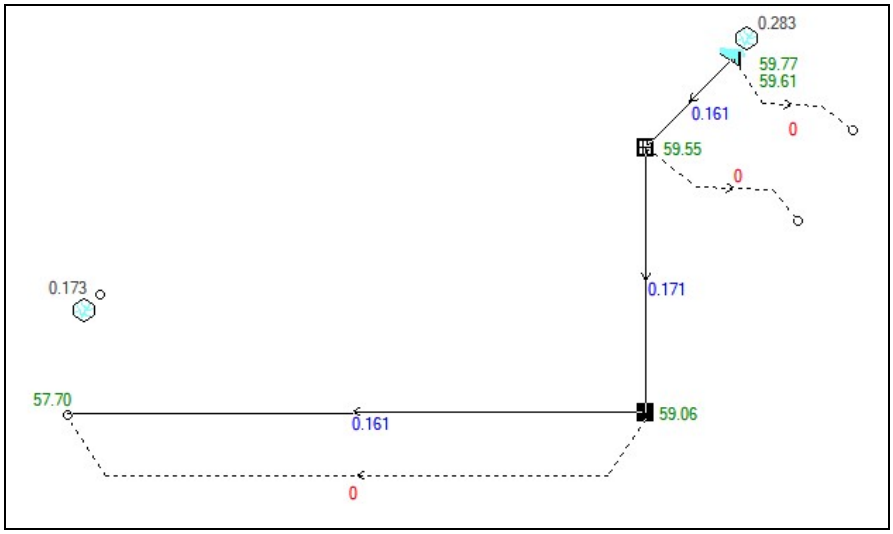


Figure 2.3.2: Minor Storm Event Result (0.2 EY)

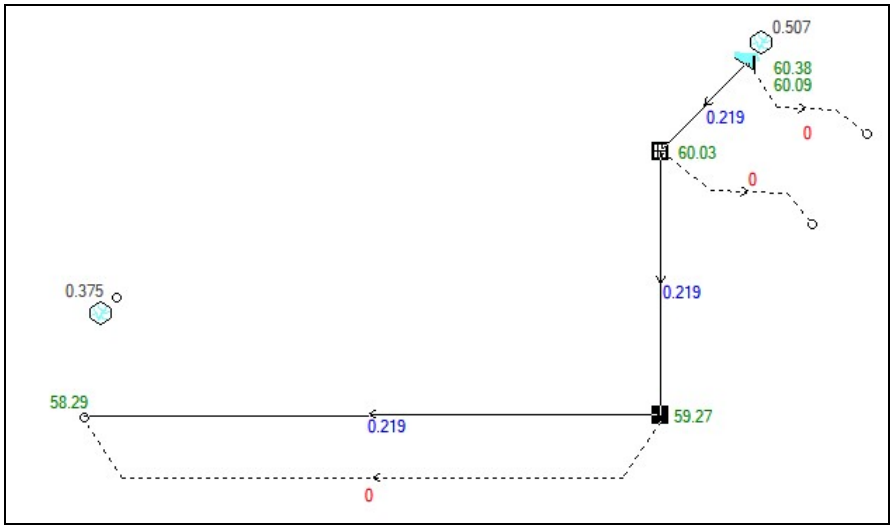


Figure 2.3.3 : Major Storm Event Result (1% AEP)

The table below details the preliminary detention storage requirements for the proposed On-Site Detention (OSD) tank.

Table 2.3-1 - Preliminary Detention Tank Properties

Name	Volume (m^3)	Area (m^2)	Average Depth (m)
OSD Tank	173.12	237.15	0.73

The following table summarises the peak discharge flows at all outlets for the site in both the pre-development and post-development scenarios.

Table 2.3-2 - Summary of peak discharge flows (l/s)

Outlet	Scenario	STORM EVENT (AEP)				
		0.2EY	10%	5%	2%	1%
Site	Pre-dev	173	229	273	330	375
	Post-dev	161	189	207	227	219

The results presented in Table 2.3-2 demonstrate that, by implementing the proposed detention tank, the development will successfully attenuate all post-development peak discharge flows from the proposed development, for all investigated return periods, limiting them to the pre-development discharge flows.

Refer to the Stormwater Concept Plans attached in **Appendix A** for further details.

3 STORMWATER QUALITY ASSESSMENT

3.1 Aims and Objectives

Ryde City Council's Water Sensitive Urban Design (WSUD) Guidelines aims to manage the effects of urban development on the urban water cycle by considering the management of potable water, wastewater and stormwater elements in an integrated manner.

The management objectives of water sensitive urban design for the City of Ryde are:

- Protection and enhancement of natural water systems (creeks and rivers etc.)
- Treatment of urban stormwater to meet water quality objectives for reuse and/or discharge to receiving waters
- Matching the natural water runoff regime as closely as possible (where appropriate)
- Reducing potable water demand through water efficient fittings and appliances, rainwater harvesting and wastewater reuse
- Minimising wastewater generation and maximising treatment to a standard suitable for effluent reuse opportunities and/or to release to receiving waters
- Integrating stormwater management into the landscape, creating multiple use corridors that maximise the visual and recreational amenity of urban development

As per DCP requirement, WSUD strategy must be submitted for development applications lodged within City of Ryde, for the following development types:

- Development on land located in a mixed-use business zone or industrial zone if the development is greater than 1,500m^2 in gross floor area. This will include residential flat buildings and mixed-use developments.
- Development on land for SP2 Infrastructure such as schools, hospitals and other institutions, greater than 1,500m^2 floor area.
- Above ground carparks accommodating more than 50 car spaces.
- Land subdivisions resulting in the creation of 5 or more lots.

The Water Sensitive Urban Design (WSUD) measures, for development types identified in the Ryde City DCP 2014, must satisfy the following pollutant target controls:

Pollutant	% Post Development Average Annual Load Reduction
Gross Pollutants	90%
Total Suspended Solids	85%
Total Phosphorus	60%
Total Nitrogen	45%

Table 3.1-1: WSUD Stormwater Quality Performance Targets

All treatments are to be located inside the confines of the property.

3.2 Site Analysis and Design Strategy

The proposed development offers the opportunity to provide stormwater quality treatment where none exists at present.

The proposed solution is to use Stormfilter Cartridges and rainwater tanks to treat and remove gross pollutants from the stormwater drainage cycle from roof, hard surface and landscape, and to limit the mean annual runoff volume from the development site as well as ensuring suitable low flow regime in the streams.

The elements of the proposed water quality management strategy include:

- Minimise areas of impervious surfaces to minimise runoff volume.
- Incorporate Stormfilter Cartridges to target TSS, TN & TP.
- Implement rainwater re-use tanks to reduce runoff volume.

MUSICX software was used to assess pollutant generation and the performance of stormwater treatment measures for the proposed development.

3.3 Water Quality Management Measures

3.3.1 *Rainwater tank*

Rainwater tanks collect roof runoff for subsequent reuse and therefore conserve potable mains water, reduce stormwater runoff volumes and remove pollutants. Rainwater tanks may be plumbed to all non-potable internal uses such as toilets, laundry and hot water units as well as used for irrigation to ensure a year-round demand.

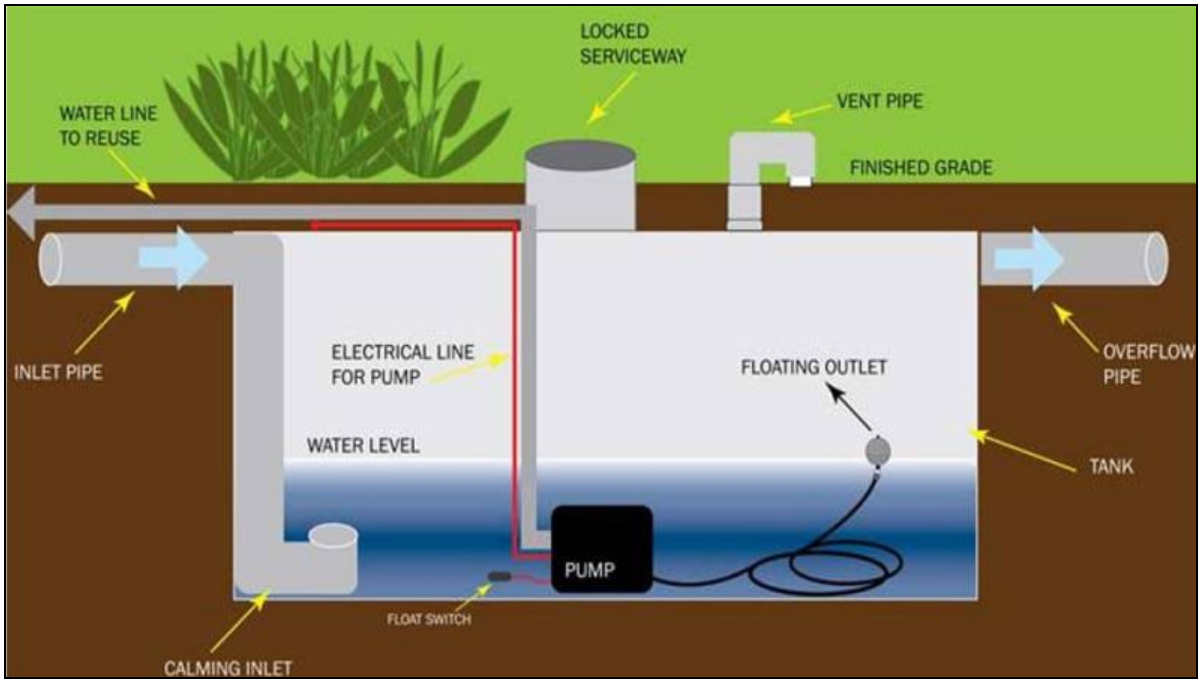


Figure 3.3.1: Rainwater tank

A rainwater tank is provided for the development based on the following assumptions:

- 100 % of roof area is captured by the rainwater tanks
- A total volume of 10m^3 is provided for the rainwater tank, to comply with BASIX requirement of a minimum 10kL RWT.
- The rainwater tank can be used for irrigation purposes.

3.3.2 *Stormfilters Cartridges (Ocean Protect)*

Stormfilter cartridges from OceanProtect installed within a chamber within the OSD tank as an end-of line treatment. The OceanProtect cartridges target the TSS, TP and TN. The number of Stormfilter cartridges proposed for the development was based on MUSIC modelling outcomes.

Refer to MUSIC results in section 3.4 of this report for more information.

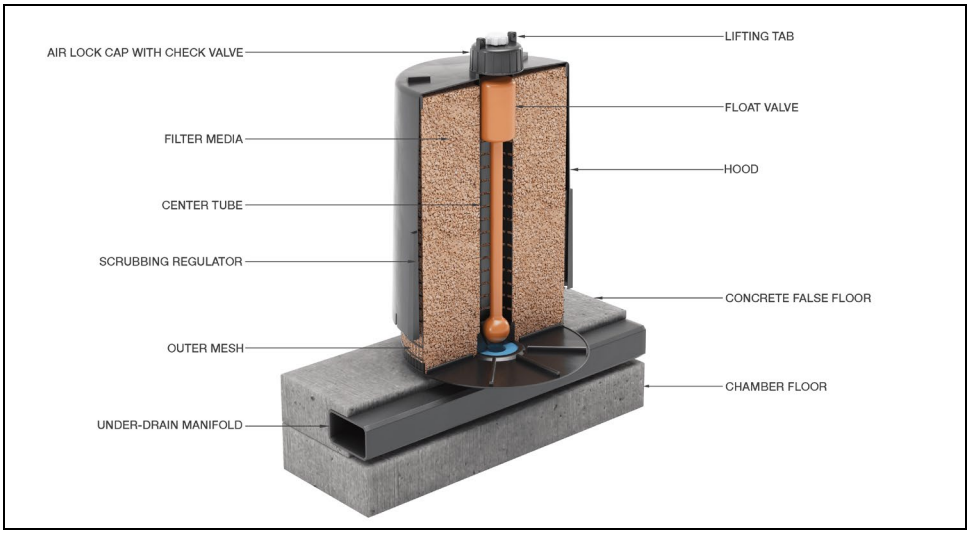


Figure 3.3.2: Ocean Protect Filtration Cartridge

3.4 MUSIC MODEL RESULTS

The water quality model adopted for this project is the MUSICX.

MUSIC Software can model a wide range of treatment devices to identify the best way to capture and reuse stormwater runoff, remove its contaminants, as well as reduce runoff frequency, to achieve WSUD and integrated water management goals.

The MUSIC model was generated using the rainfall data and Stormfilter nodes prepared by Ocean Protect.

Catchment characteristics were defined using a combination of catchments with varying imperviousness ratios to replicate the catchment for the development condition.

Figure below presents the MUSIC model.

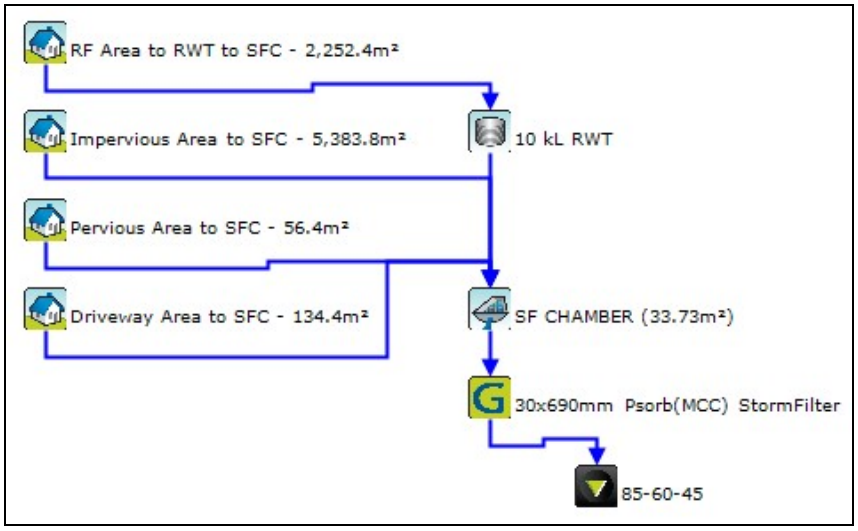


Figure 3.4.1: Music Model

Figure below presents the MUSIC results.

	Sources	Residual Load	% Reduction
Flow (ML/yr)	7.111	7.002	1.535
Total Suspended Solids (kg/yr)	990.1	147.6	85.09
Total Phosphorus (kg/yr)	1.837	0.3917	78.68
Total Nitrogen (kg/yr)	15.67	7.498	52.16
Gross Pollutants (kg/yr)	182.6	0	100

Figure 3.4.2 : Music Results

4 CONCLUSIONS

This Integrated Water Management Plan has been prepared for the proposed Development at 2-4 Giffnock Avenue, Macquarie Park. This report has demonstrated that the site will be able to manage stormwater quantity & quality requirements for the design storms up to and including the 1% AEP event.

The proposed stormwater management measures are as below:

The proposed stormwater quantity management measures, including an On-Site Detention (OSD), the pit and pipe network, have been designed to meet the requirements set out by City of Ryde Council, effectively controlling stormwater runoff and minimizing the impact on adjoining properties.

A filtration system with Storm filter cartridges and rainwater tank will be incorporated to provide stormwater quality treatment for the runoff from the proposed development

The conclusion of this Report is that by implementing the proposed stormwater quantity and quality management measures, the proposed development will ensure no worsening effects downstream of the proposed development and conforms to best engineering practices in accordance with the 'City of Ryde Council Development Control Plan 2014'.

5 References

- City of Ryde Council Development Control Plan 2014
- Stormwater and Floodplain Management Technical Manual – City of Ryde
- Water Sensitive Urban Design Guidelines – City of Ryde

APPENDIX A

Stormwater Plans

2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT

STORMWATER CONCEPT PLANS

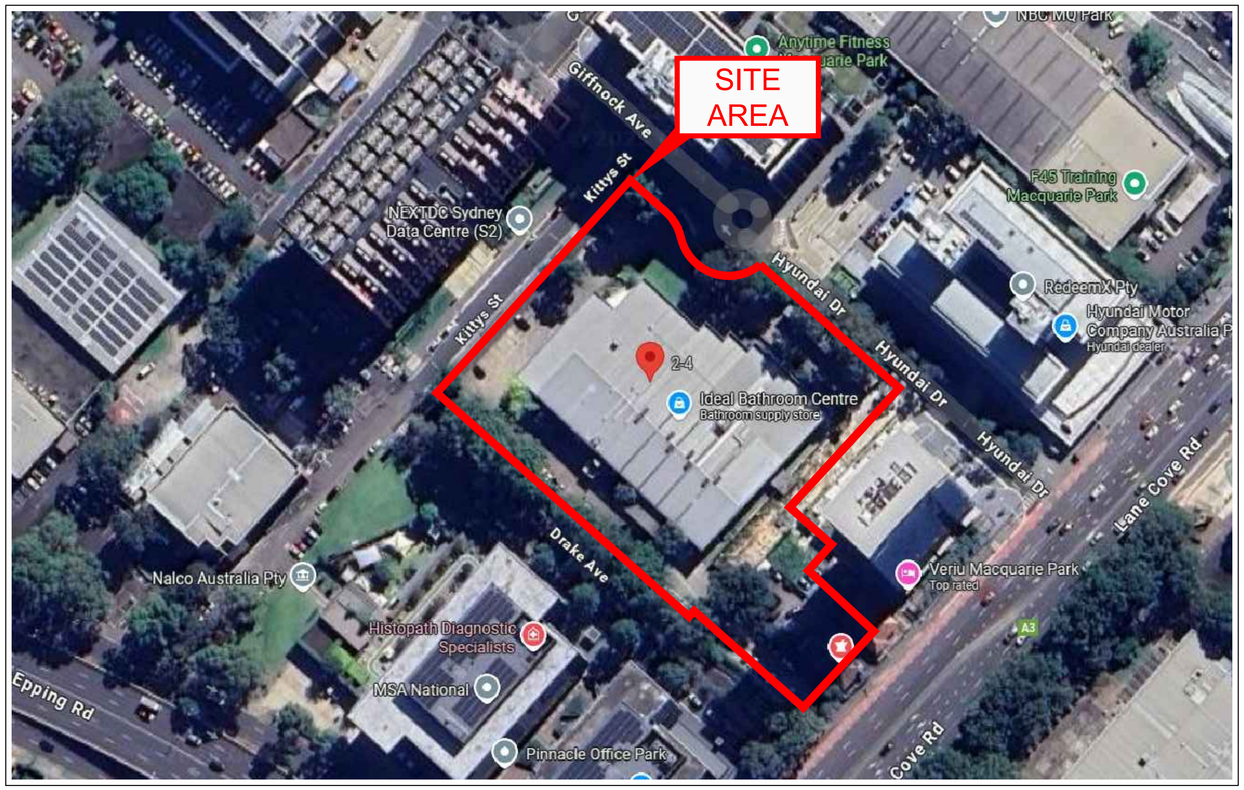
LEGEND

- PROPOSED STORMWATER DRAINAGE PIPE
- PROPOSED STORMWATER DRAINING TO OSD
- PROPOSED STORMWATER BYPASSING OSD
- Ø100 HDPE OR PVC STORMWATER DRAINAGE PIPE CAST IN SLAB
- 65 — Ø65 HDPE OR PVC STORMWATER DRAINAGE PIPE CAST IN SLAB
- 50 — Ø50 HDPE OR PVC STORMWATER DRAINAGE PIPE CAST IN SLAB
- RWT — PROPOSED STORMWATER PIPE TO RAINWATER TANK
- SS — Ø100 SUBSOIL DRAINAGE TO BE WRAPPED IN GEOTEXTILE BIDIMA34
- RISER PIPE
- DP — DOWNPIPE Ø100
- VD — VERTICAL DROP Ø100
- D — VERTICAL DROP FROM SLAB
- PG — PLANTER GRATE Ø150
- FG — FLOOR GRATE Ø150
- FG — FLOOR GRATE 200x200 (ALLOW MINIMUM 1.0% FALL TO FG)
- FW — FLOOR GRATE 300x300 (ALLOW MINIMUM 1.0% FALL TO FW)
- RWO — RAINWATER OUTLET Ø260 SPS (ALLOW MINIMUM 1.0% FALL TO RWO)
- SPB — SUSPENDED PLANTER BOX RAINWATER OUTLET
- TD — AC CONDENSER TUNDISH TO MANUFACTURER'S DETAILS
- IL 31.00 — INVERT LEVEL
- RL 29.65 — DESIGN SURFACE LEVEL
- NS 28.31 — EXISTING SURFACE LEVEL
- ExSW — EXISTING STORMWATER DRAINAGE
- ExW — EXISTING WATER MAIN
- ExS — EXISTING SEWER MAIN
- ExT — EXISTING TELESTRA
- ExE — EXISTING ELECTRICAL
- ExEU — EXISTING ELECTRICAL UNDERGROUND
- ExEO — EXISTING OVERHEAD ELECTRICAL
- ExG — EXISTING GAS
- HD — EXISTING HOUSE DRAINAGE
- ExOP — EXISTING OPTIC FIBER
- LOT BOUNDARY
- EXISTING LOT BOUNDARY
- K&G — PROPOSED KERB & GUTTER
- Ex. K&G — EXISTING KERB & GUTTER
- PROPOSED ROAD CENTRELINE
- DC — PROPOSED DISH CROSSING
- KO — PROPOSED KERB ONLY

GENERAL NOTES

1. ALL LINES ARE TO BE Ø100 uPVC 1.0% GRADE UNLESS NOTED OTHERWISE. CHARGED LINES TO BE SEWERGRADE & SEALED.
2. EXISTING SERVICES LOCATIONS SHOWN INDICATIVE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
3. ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL PITS IN LANDSCAPED AREAS TO BE 450x450 PLASTIC.
5. PITS LESS THAN 600mm DEEP MAY BE BRICK, PRECAST OR CONCRETE.
6. ALL BALCONIES AND ROOFS TO BE DRAINED AND TO HAVE SAFETY OVERFLOWS IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
7. ALL EXTERNAL SLABS TO BE WATERPROOFED.
8. ALL GRATES TO HAVE CHILD PROOF LOCKS.
9. ALL DRAINAGE WORKS TO AVOID TREE ROOTS.
10. ALL DPs TO HAVE LEAF GUARDS.
11. ALL EXISTING LEVELS TO BE CONFIRMED BY BUILDER PRIOR TO CONSTRUCTION.
12. ALL WORK WITHIN COUNCIL RESERVE TO BE INSPECTED BY COUNCIL PRIOR TO CONSTRUCTION.
13. COUNCIL'S ISSUED FOOTWAY DESIGN LEVELS TO BE INCORPORATED INTO THE FINISHED LEVELS ONCE ISSUED BY COUNCIL.
14. ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. AND A.S.3500.3.
15. REFER TO LANDSCAPE ARCHITECT'S DRAWINGS FOR LANDSCAPING.
16. CARE TO BE TAKEN AROUND EXISTING SEWER. STRUCTURAL ADVICE IS REQUIRED FOR SEWER PROTECTION AGAINST ADDITIONAL LOADING FROM NEW PITS, PIPES, RETAINING WALLS AND OSD BASIN WATER LEVELS.
17. ALL PIPES IN BALCONIES TO BE Ø65 uPVC CAST IN CONCRETE SLAB. CONTRACTOR TO PROVIDE A BREAK / OPEN VOID IN RAIL / BALUSTRADE FOR STORMWATER EMERGENCY OVERFLOW. ALL ENCLOSED AREAS/PLANTER BOXES TO BE FITTED WITH FLOOR WASTES & DRAINED TO OSD DOWNPIPES TO BE CHECKED BY ARCHITECT & PLUMBER PRIOR TO CONSTRUCTION.
18. THE OSD BASIN / TANK IS TO BE BUILT TO THE CORRECT LEVELS & SIZE AS PER THIS DESIGN. ANY VARIATIONS ARE TO BE DONE UNDER CONSULTATION FROM OUR OFFICE ONLY. ANY AMENDMENTS WITHOUT OUR APPROVAL WOULD RESULT IN ADDITIONAL FEES FOR REDESIGN AT OC STAGE OR IF A SOLUTION CANNOT BE FOUND, RECONSTRUCTION IS REQUIRED UNDER THE CONTRACTOR'S EXPENSES

- PROPOSED DRIVEWAY
- PROPOSED CONCRETE FOOTPATH
- RESTORATION OF ROAD PAVEMENT
- PROPOSED GRANITE PAVING
- PROPOSED PRAM RAMP



LOCALITY PLAN
N.T.S.

DRAWING INDEX

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103	ON-SITE DETENTION DETAILS SHEET 1 OF 3
104	ON-SITE DETENTION DETAILS SHEET 2 OF 3
105	ON-SITE DETENTION DETAILS SHEET 3 OF 3
106	MUSIC CATCHMENT PLAN AND RESULTS
107	SOIL AND WATER MANAGEMENT / SEDIMENT AND EROSION CONTROL PLAN AND DETAILS SHEET 1 OF 2
108	SOIL AND WATER MANAGEMENT / SEDIMENT AND EROSION CONTROL PLAN AND DETAILS SHEET 2 OF 2
109	MISCELLANEOUS DETAILS SHEET 1
110	MISCELLANEOUS DETAILS SHEET 2
111	TYPICAL CROSS SECTIONS

PIPES NOTE:

Ø65 PVC @ MIN 1.0%
Ø90 PVC @ MIN 1.0%
Ø100 PVC @ MIN 1.0%
Ø150 PVC @ MIN 1.0%
Ø225 PVC @ MIN 0.5%
Ø300 PVC @ MIN 0.4%
UNLESS NOTED OTHERWISE

NOTE:
ALL LINEAR GRATED DRAINS TO BE MIN. 100mm DEEP UNLESS NOTED OTHERWISE.

NOTE:
PITS DEEPER THAN 1.0m TO BE FITTED WITH STEP IRONS.

NOTE:
1. CONTRACTOR IS TO PROVIDE OVERFLOW OUTLETS & EMERGENCY OVERFLOW SPITTERS TO ALL TRAPPED AREAS.
2. DP/VD ARE Ø100 PIPES UNLESS NOTED OTHERWISE.
3. ALL TRANSFERRING PIPES ARE SUSPENDED UNLESS NOTED OTHERWISE.
4. BALCONIES PIPES ARE Ø50mm HDPE OR PVC CAST IN SLAB AT MIN 1.0% SLOPE.

NOTE:
ALL STORMWATER DRAINAGE PIPES ARE Ø100 PVC AT MIN 1.0% SLOPE UNLESS NOTED OTHERWISE.

NOTE:
ALL GRATES WITHIN FOOTWAY AREAS TO BE HEEL GUARD & BIKE SAFE.

NOTE:
IT IS CONTRACTOR'S RESPONSIBILITY TO ENSURE MINIMUM PONDING IS ACHIEVED OVER THE FLOOR WASTES BY GRADING CATCHMENTS' SURFACES AT MINIMUM 1.0% FALL.

NOTE:
ALL REDUNDANT PIPELINES WITHIN FOOTPATH AREA MUST BE REMOVED AND FOOTPATH/KERB REINSTATED.

NOTE:
REFER ARCHITECTURAL DRAWINGS FOR FINAL SET-OUT LEVELS.

NOTE:
ALL NON-TRAFFICABLE AREAS DRAINAGE SYSTEM IN UPPER LEVELS IS SUBJECT TO DETAILED DESIGN STAGE & TO BE CONNECTED TO THE SUSPENDED RAINWATER TANK.

ALL TRAFFICABLE AREAS DRAINAGE SYSTEM IN UPPER LEVELS IS SUBJECT TO DETAILED DESIGN STAGE & TO BE CONNECTED TO THE SUSPENDED WSUD TANK.

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
D	ISSUE FOR SSDA	22/04/2026	EAB	SBF
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

1cm at full size 10cm 20cm

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Client
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Scale

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Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
COVER SHEET PLAN

Scale	Project No.	Dwg. No.	Issue
A1 N.T.S.	24535	000	D

HYUNDAI DRIVE

EXISTING PRAM RAMP TO BE RECONSTRUCTED TO COUNCIL SPECIFICATIONS.

PROPOSED KERB AND GUTTER TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

~4.28m DEDICATED AREA TO COUNCIL

PROPOSED ROAD CENTRELINE.

PROPOSED FULL WIDTH CONCRETE FOOTPATH TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

PROPOSED ROAD PAVEMENT TO BE CONSTRUCTED TO COUNCIL SPECIFICATIONS.

EXTENT OF WORKS.
PROVIDE SMOOTH CONNECTION TO EXISTING SURFACES.

PROPOSED DISH CROSSING TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

PROPOSED KERB ONLY TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

EXTENT OF WORKS

PROVIDE SMOOTH CONNECTION TO EXISTING SURFACES

EX. LOT BOUNDARY

LOT BOUNDARY

2.82m

2.50m

3.00m

Ø150 PVC @ MIN 1.0%

Ø225 PVC @ MIN 0.5%

KITTYS STREET

EX. LOT BOUNDARY

GARI NAWI PARK
INDUSTRIAL WOVEN WAY (SOUTH)

PLAYGROUND

REFER LANDSCAPE DRAWINGS FOR DETAIL

SUSPENDED OSD/WSUD TANK	
CAPACITY	173.12m³
TANK AREA	237.15m²
AVERAGE DEPTH	0.73m
TWL	60.50

SUSPENDED RAINWATER TANK	
VOLUME REQUIRED	10.00m³
CAPACITY	10.05m³
TANK AREA	10.26m²
AVERAGE DEPTH	0.98m
TWL	60.60
RL BASE	59.52

OSD

SFC

RWT

Ø375mm RCP DISCHARGE PIPE AT IL 59.30 @ MIN 1.0%

PIT 3
900 x 900
SL 60.50
IL 59.21

EXISTING KERB AND GUTTER TO REMAIN UNDISTURBED.

EXISTING STORMWATER KERB INLET PIT (1).
SL 58.29
IL 57.50 (T.B.C.)

ASSUMED EXISTING DRAINAGE PIPE WITHIN THE EXISTING EASEMENT. PIPE SIZE AND LEVELS TO BE CONFIRMED.

CYAN HATCH DENOTES INDUSTRIAL CREEK PARK DEDICATION.

EXISITNG EASEMENT 2.5m WIDE

Ø375mm RCP @ MIN 1.0%

Ø150 PVC @ MIN 1.0%

IL 58.80

CIVIL WORKS WITH TPZ OF EXISTING TREES WILL BE UNDER SUPERVISION OF ARBORIST.

CONSTRUCT A NEW PIT (2) ON TOP OF EXISTING STORMWATER PIPE TO COUNCIL'S SPECIFICATIONS. PIT IL TO MATCH EXISTING STORMWATER PIPE IL.
SL 60.50
IL 58.70 (T.B.C.)

Ø300 PVC @ MIN 0.5%

Ø225 PVC @ MIN 0.5%

Ø150 PVC @ MIN 1.0%

BUILDING ABOVE OUTLINE

BUILDING BELOW OUTLINE

EX. LOT BOUNDARY

LOT BOUNDARY

2.5m DEDICATED AREA TO COUNCIL

4.11m

EXISTING KERB AND GUTTER TO REMAIN UNDISTURBED.

DRAKE AVENUE

PROPOSED FULL WIDTH GRANITE PAVING TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

CYAN HATCH DENOTES PEDESTRIAN AND CYCLIST BRIDGE DEDICATION.

VERIU MACQUARIE PARK

BUDYARI MULLINAWUL GARDEN

INDICATIVE FUTURE CYCLE BRIDGE

COVE RD

LANE

RETAIL
RESI LOBBY
CHILDCARE LOBBY
MAIL
DOCK
WASTE STORAGE
BIKE WORKSHOP
SUBSTATION
CSA
PARCEL
GREEN LINK
YURA PLACE
AWNING ABOVE
CARPARK ACCESS RAMP
CORE A1
CORE B1
EGRESS FROM TOWER

GROUND FLOOR PLAN

SCALE 1:250

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
G	ISSUE FOR SSDA	22/04/2026	EAB	SBF
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E	ISSUE FOR COORDINATION	29/09/2025	EAB	SBF
D	ISSUE FOR COORDINATION	22/09/2025	EAB	SBF
C	ISSUE FOR COORDINATION	19/09/2025	EAB	SBF

0 1cm at full size 10cm 20cm

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Scale
0 2 4 6 8 10 12 m
SCALE 1:250 @ A1

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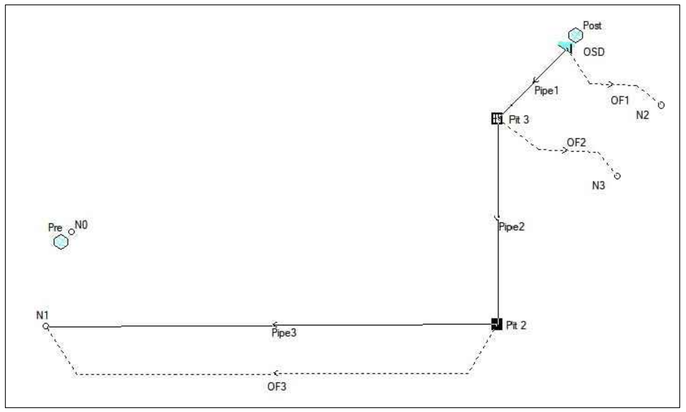
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

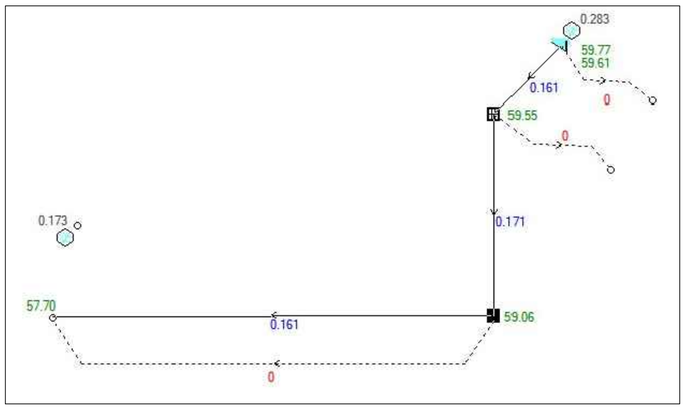
Drawing Title
STORMWATER CONCEPT PLAN
GROUND FLOOR

Scale	A1	Project No.	Dwg. No.	Issue
1:250		24535	101	G



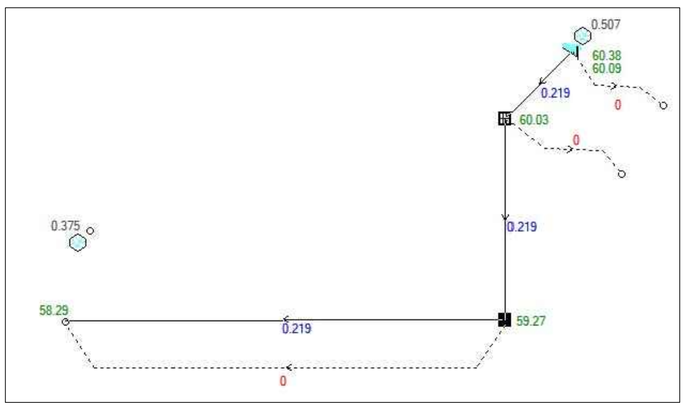
DRAINS MODEL - WITHOUT RESULTS

N.T.S



DRAINS RESULTS - 0.2EY AEP STORM

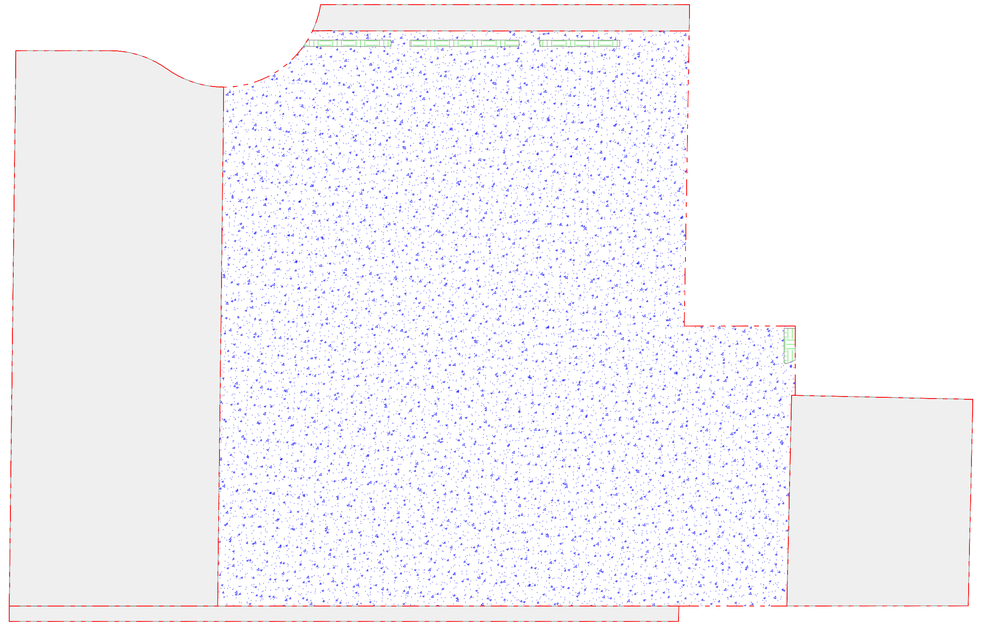
N.T.S



DRAINS RESULTS - 1% AEP STORM

N.T.S

DRAINS RESULTS					
STORM EVENT (AEP)	PRE-DEV INTERNAL FLOWS (L/s)	OSD POST-DEV FLOWS (L/s)	BYPASS FLOWS (L/s)	TOTAL POST-DEV FLOWS (L/s)	WATER STORAGE LEVEL (m)
0.2EY	173	161	0	161	59.77
10%	229	189	0	189	59.85
5%	273	207	0	207	59.93
2%	330	227	0	227	60.13
1%	375	219	0	219	60.38



POST-DEVELOPMENT CATCHMENT PLAN

SCALE 1:500

POST-DEVELOPMENT CATCHMENT LEGEND

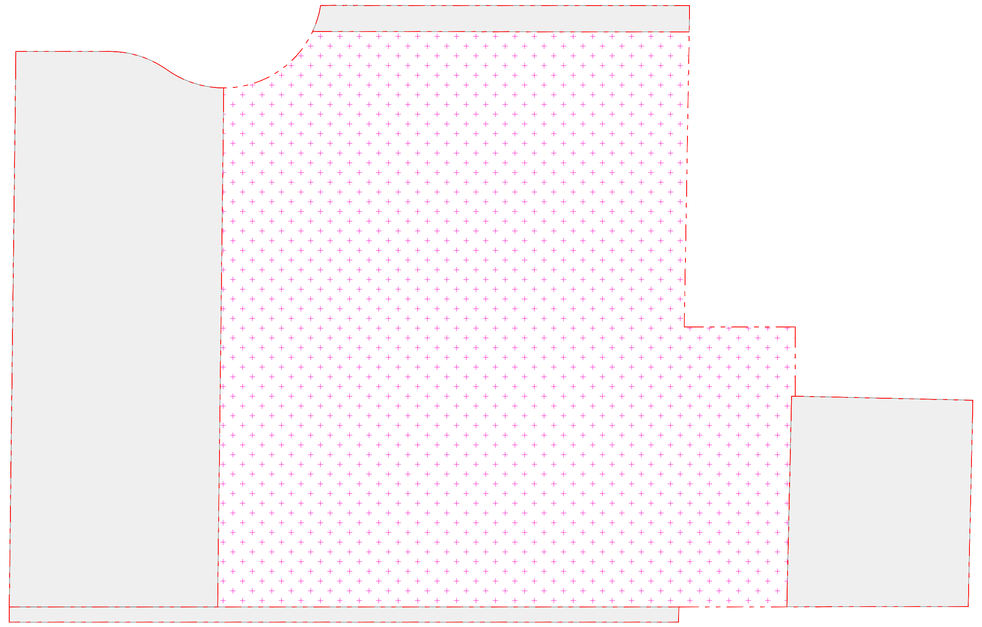
IMPERVIOUS AREA TO OSD = 7,770.6m^2

PERVIOUS AREA TO OSD = 56.4m^2

TOTAL SITE AREA = 12,386.0m^2

TOTAL SITE AREA (INCLUDED IN CALCULATION) = 7,827.0m^2

TOTAL BYPASS AREA = 0.0m^2



PRE-DEVELOPMENT CATCHMENT PLAN

SCALE 1:500

PRE-DEVELOPMENT CATCHMENT LEGEND

PERVIOUS AREA = 7,827.0m^2

PRE-DEVELOPMENT CATCHMENT TO BE ASSUMED "STATE OF NATURE" (100% PERVIOUS), AS PER CITY OF RYDE, PART: 8.2 - STORMWATER AND FLOODPLAIN MANAGEMENT, SECTION 2.4.

NOT FOR CONSTRUCTION

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D	ISSUE FOR SSDA	22/04/2026	EAB	SBF
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
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A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

10cm at full size 100m 200m

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Scale
0 10 20 30 m
SCALE 1:500 @ A1

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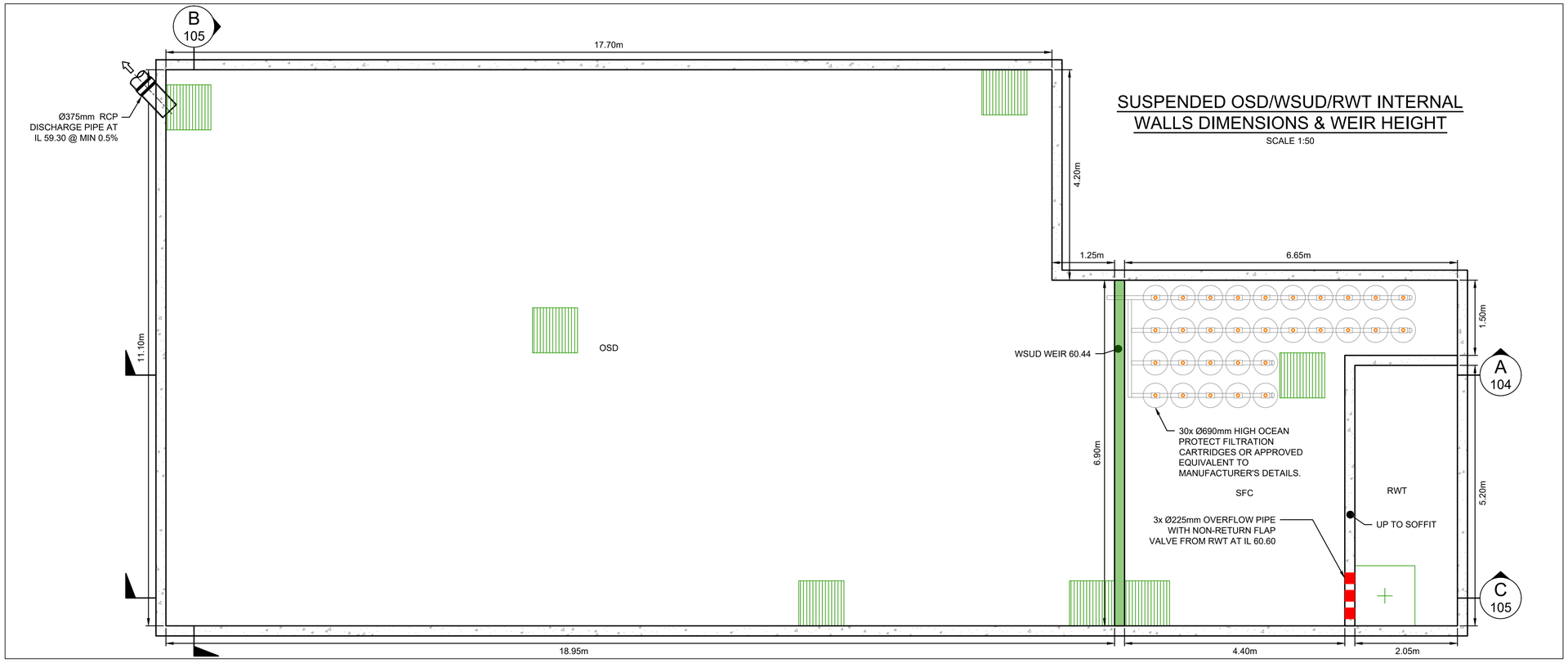
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

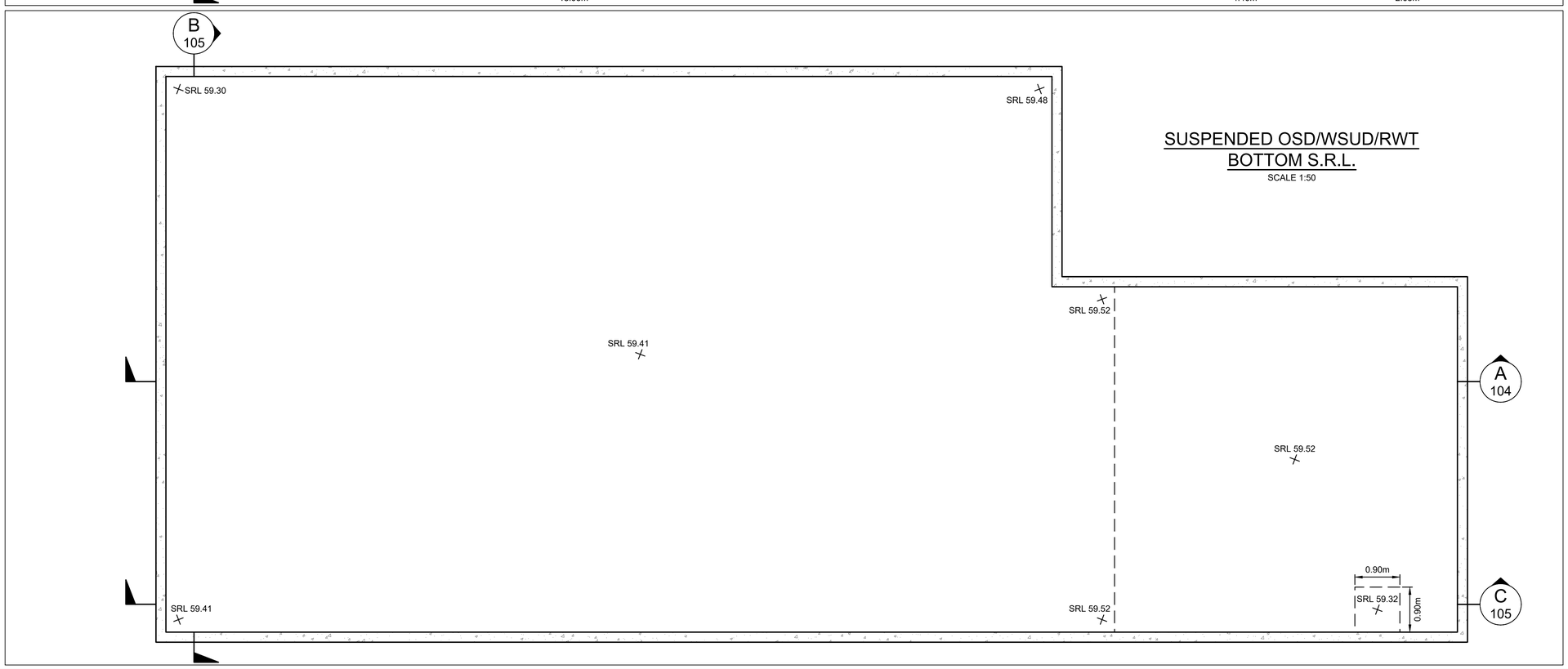
Drawing Title
OSD CATCHMENT PLAN AND DRAINS RESULT

Scale	Project No.	Dwg. No.	Issue
As Shown (A1)	24535	102	D



SUSPENDED OSD/WSUD/RWT INTERNAL WALLS DIMENSIONS & WEIR HEIGHT

SCALE 1:50



SUSPENDED OSD/WSUD/RWT BOTTOM S.R.L.

SCALE 1:50

THIS IS AN

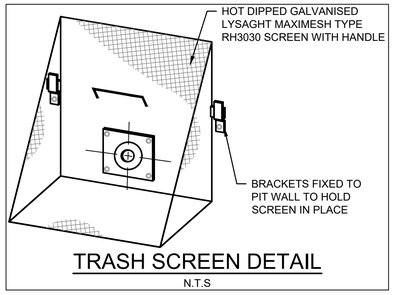
ON-SITE STORMWATER DETENTION SYSTEM

REQUIRED BY YOUR LOCAL COUNCIL

IT IS AN OFFENCE TO REDUCE THE VOLUME OF THE TANK OR BASIN OR TO INTERFERE WITH THE ORIFICE PLATE THAT CONTROLS THE OUTFLOW

THE BASE OF THE OUTLET CONTROL PIT AND THE DEBRIS SCREEN MUST BE CLEANED OF DEBRIS AND SEDIMENT ON A REGULAR BASIS BY THE OWNER

THIS PLATE MUST NOT BE REMOVED



TRASH SCREEN DETAIL

N.T.S

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

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Scale
0 1 2 3 m
SCALE 1:50 @ A1

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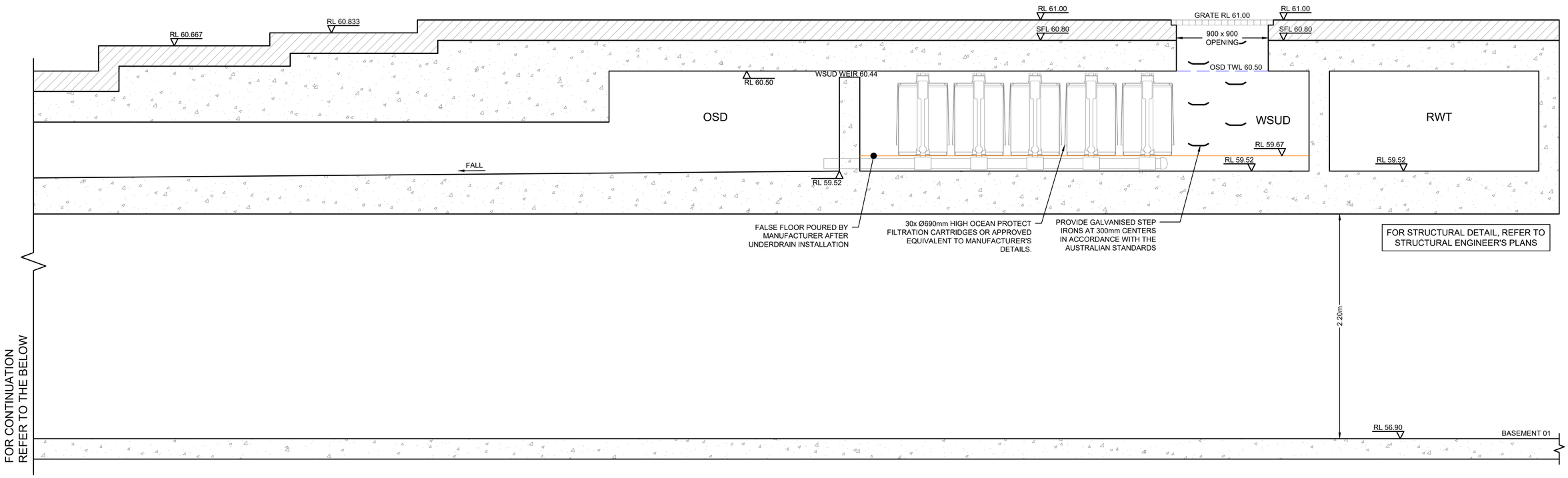
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
ON-SITE DETENTION DETAILS
SHEET 1 OF 3

Scale	Project No.	Dwg. No.	Issue
A1 As Shown	24535	103	C



SUSPENDED OSD/WSUD & RAINWATER TANKS DETAILS
SECTION A

SCALE 1:20

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

1cm at full size — 10cm — 20cm

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Client
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Scale
0 400 800 1200 mm
SCALE 1:20 @ A1

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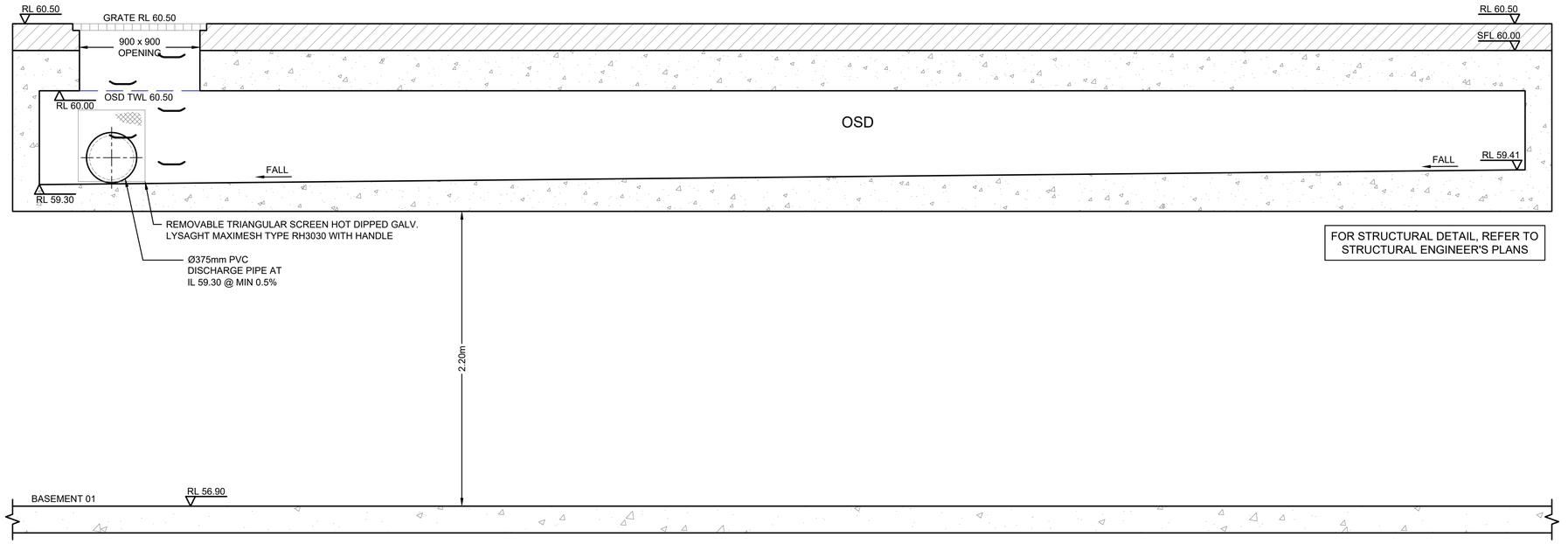
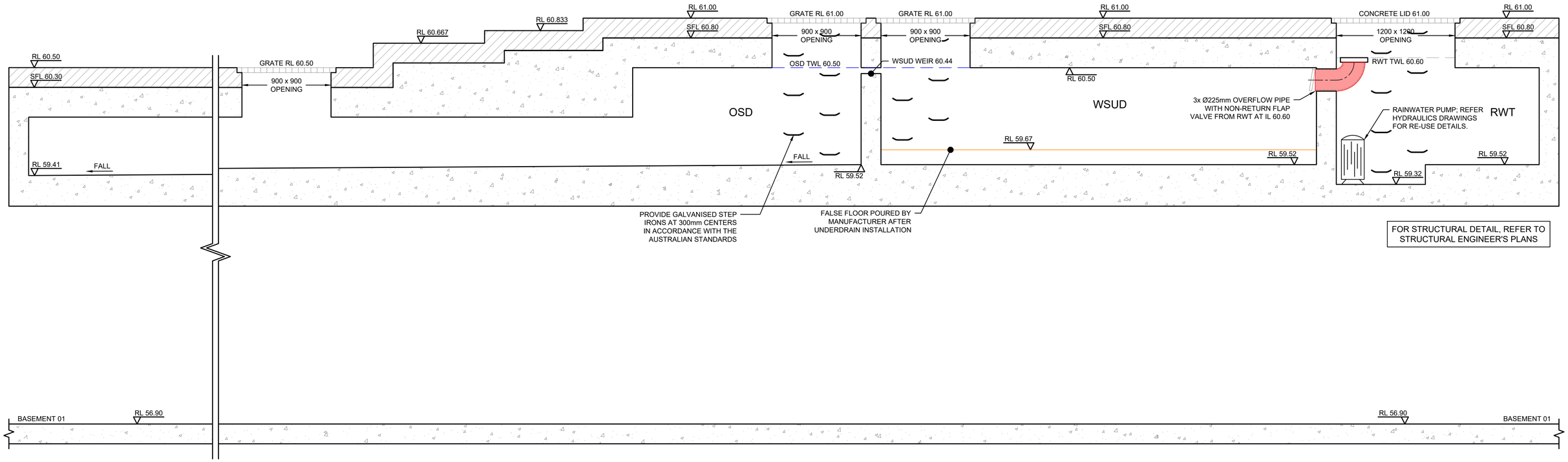
Drawing Title
ON-SITE DETENTION DETAILS
SHEET 2 OF 3

Scale	A1	Project No.	Dwg. No.	Issue
1:20		24535	104	C



SUSPENDED OSD/WSUD/RWT TANKS DETAILS
SECTION B

SCALE 1:20



SUSPENDED OSD/WSUD & RAINWATER TANKS DETAILS
SECTION C

SCALE 1:20

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

1cm at full size 10cm 20cm

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Scale
0 400 800 1200 mm
SCALE 1:20 @ A1

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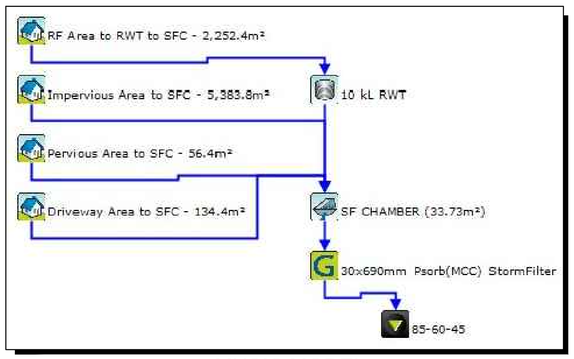
DEVELOPMENT APPLICATION

Drawing Title
ON-SITE DETENTION DETAILS
SHEET 3 OF 3

Scale	A1	Project No.	Dwg. No.	Issue
1:20		24535	105	C



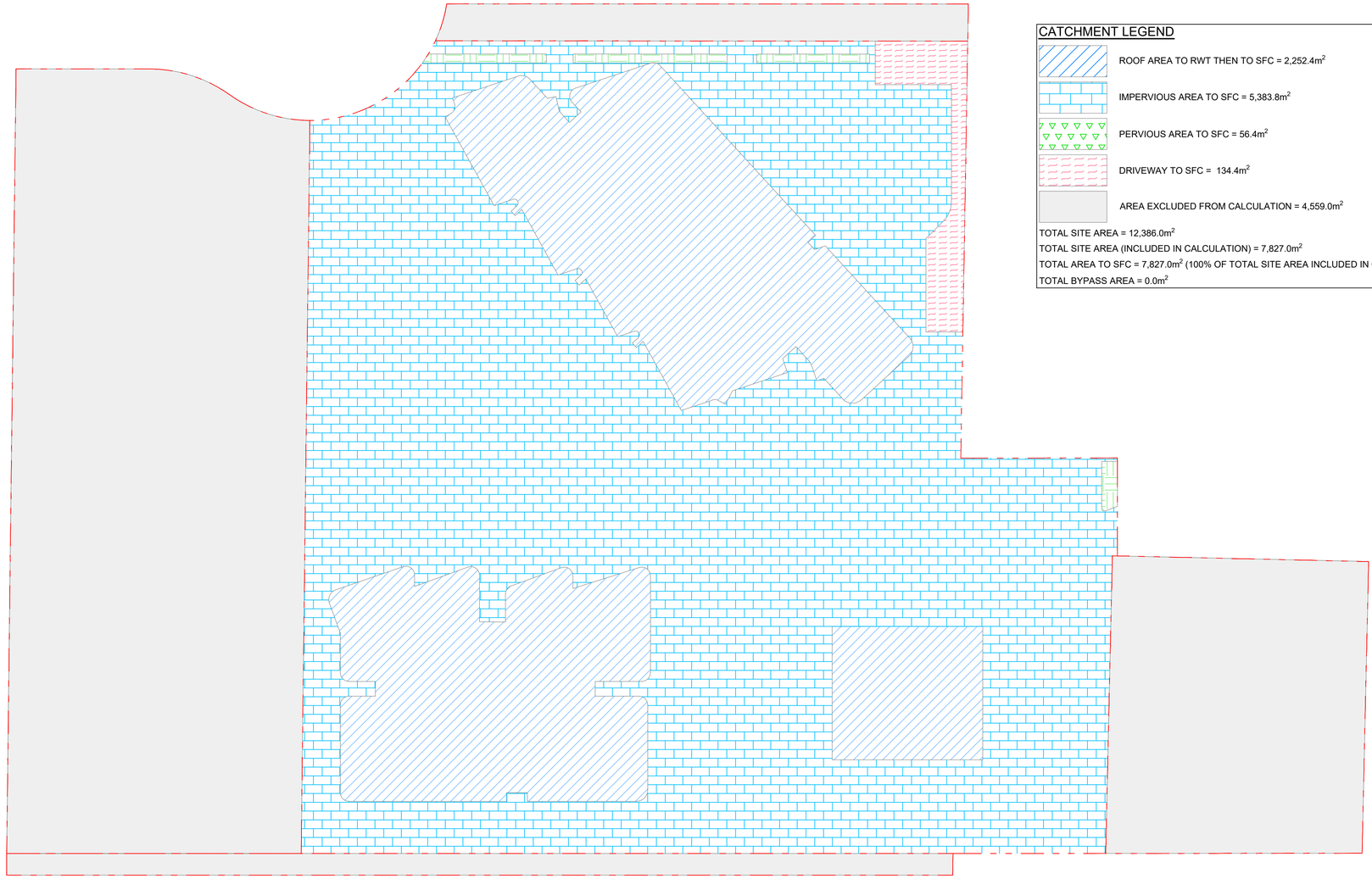
MUSIC MODEL

N.T.S.

	Sources	Residual Load	% Reduction
Flow (ML/yr)	7.111	7.002	1.535
Total Suspended Solids (kg/yr)	990.1	147.6	85.09
Total Phosphorus (kg/yr)	1.837	0.3917	78.68
Total Nitrogen (kg/yr)	15.67	7.498	52.16
Gross Pollutants (kg/yr)	182.6	0	100

MUSIC RESULTS

N.T.S.



CATCHMENT LEGEND

- ROOF AREA TO RWT THEN TO SFC = 2,252.4m²
- IMPERVIOUS AREA TO SFC = 5,383.8m²
- PERVIOUS AREA TO SFC = 56.4m²
- DRIVEWAY TO SFC = 134.4m²
- AREA EXCLUDED FROM CALCULATION = 4,559.0m²

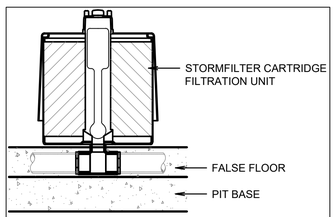
TOTAL SITE AREA = 12,386.0m²
TOTAL SITE AREA (INCLUDED IN CALCULATION) = 7,827.0m²
TOTAL AREA TO SFC = 7,827.0m² (100% OF TOTAL SITE AREA INCLUDED IN CALCULATION)
TOTAL BYPASS AREA = 0.0m²

MUSIC CATCHMENT PLAN

SCALE 1:250

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.



STORMFILTER CARTRIDGE DETAIL

N.T.S.

Facility Component Requiring Maintenance	Maintenance Activity	When Maintenance Activity Is Required	Expected Facility Performance After Maintaining	INSPECTION/MINOR MAINTENANCE (TIMES/YEAR)	MAJOR MAINTENANCE (TIMES/YEAR)
StormFilter® Cartridges and Containment Structure	Trash and Debris Removal	Floatable objects or other trash is present in the filter. Remove to avoid hindrance of filtration and eliminate unsightly debris and trash.	Permanent removal from storm system.	2 (and after major storms)	1 (except in case of a spill)
	Cartridge Replacement and Sediment Removal	1. Media has been contaminated by high levels of pollutants, such as after a spill.	1. New media is able to effectively treat stormwater.	-	-
Drainage System Piping	Flushing With Water	Drainage system is obstructed by debris or sediment.	Outflow is not restricted.	-	-

FILTRATION UNIT MAINTENANCE SCHEDULE

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
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388 LCR Development

Scale
0 3 6 9 12 15 18 m
SCALE 1:300 @ A1

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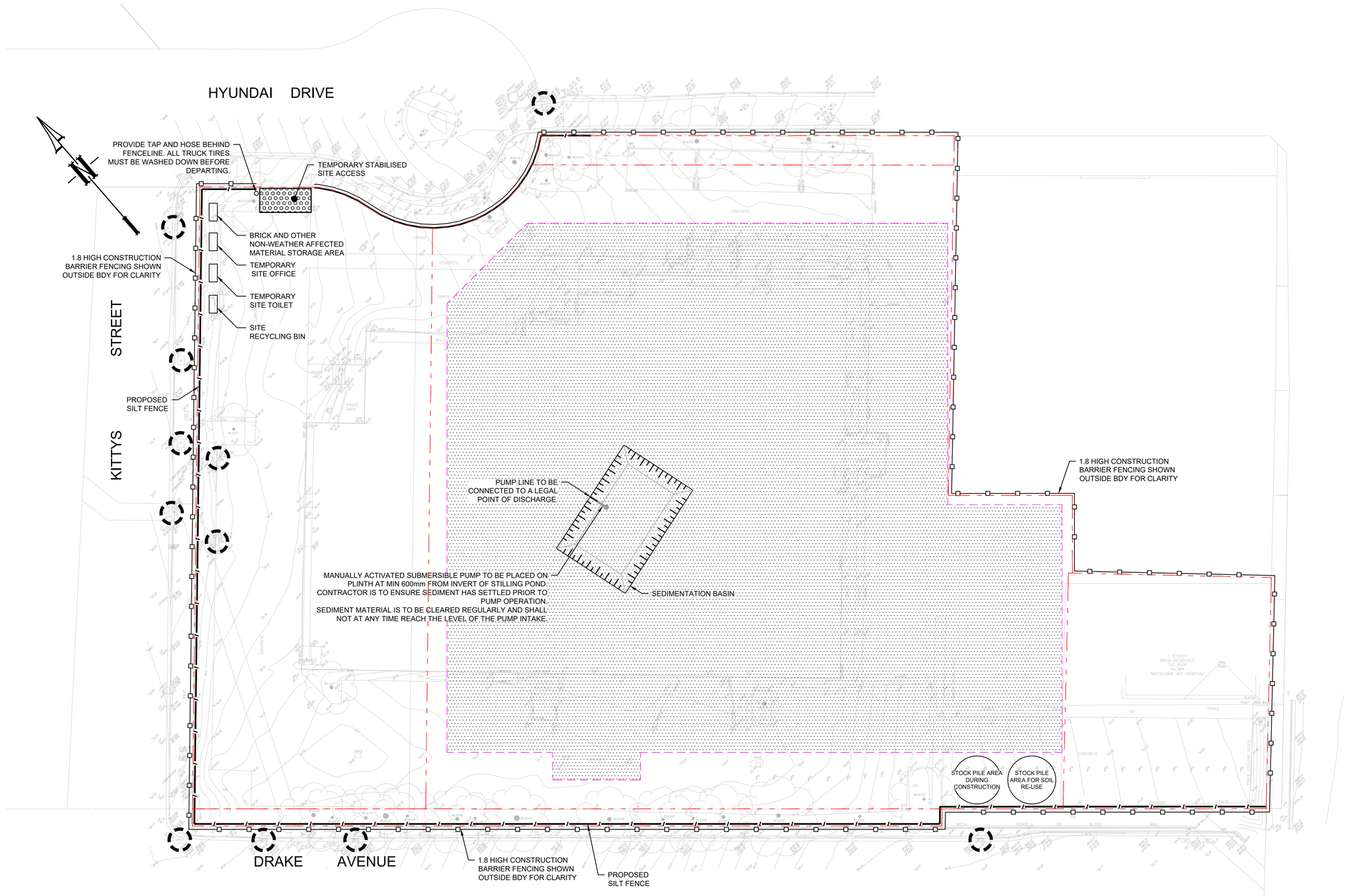
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
MUSIC CATCHMENT PLAN AND RESULTS

Scale	Project No.	Dwg. No.	Issue
As Shown A1	24535	106	D

LEGEND

- EXISTING CONTOUR (26.45)
- EXISTING SURFACE LEVEL (NS 26.31)
- EARTHWORKS LEVELS (EL: 47.00)
- DESIGN SURFACE LEVELS (RL 47.00)
- SILT FENCE
- STABILISED SITE ACCESS
- 1.8 HIGH CONSTRUCTION BARRIER FENCING
- TREES TO BE RETAINED
- INLET PROTECTION
- BASEMENT CUT EXTENT



SEDIMENT & EROSION CONTROL PLAN

SCALE 1:300

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	22/04/2026	EAB	SBF
B	ISSUE FOR SSDA	01/10/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

10cm at full size — 10cm — 20cm

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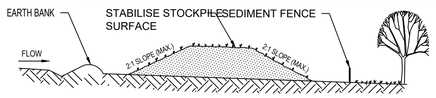
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
SOIL & WATER MANAGEMENT / SEDIMENT & EROSION CONTROL PLAN & DETAILS SHEET 1 OF 2

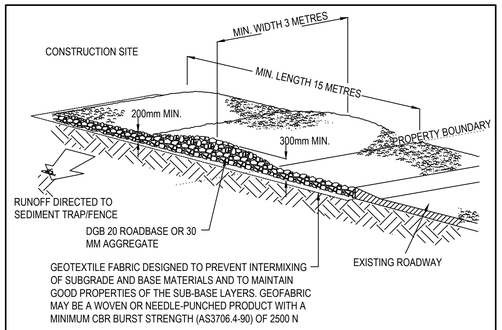
Scale	A1	Project No.	Dwg. No.	Issue
1:300		24535	107	C



CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. ALL STOCKPILES ARE TO BE LOCATED AND PLACED IN ACCORDANCE WITH THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
5. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) NO STABILISATION IS REQUIRED. REVIEW THE ADEQUACY OF SEDIMENT CONTROLS IF RAINFALL IS PREDICTED.
6. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) THE FOLLOWING ADDITIONAL CONTROLS ARE REQUIRED:
   -MAXIMUM BATTER SLOPE REDUCED TO 1:4
   -CONSTRUCT A CONTOUR DRAIN ON THE LOW SIDE OF THE STOCKPILE, AND DISCHARGING THROUGH A STRAW BALE OR 200mm HIGH GRAVEL DAM
   -ESTABLISH GRASS COVER TO SURFACE OF STOCKPILE WITHIN 14 DAYS, USING HYDROMULCH WITH A 75:25 MIX OF SEASONAL AND PERMANENT GRASS SEEDS, AND A STRAW MULCH THICKNESS OF NO LESS THAN 5mm.
7. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

STOCKPILES SD 4-1

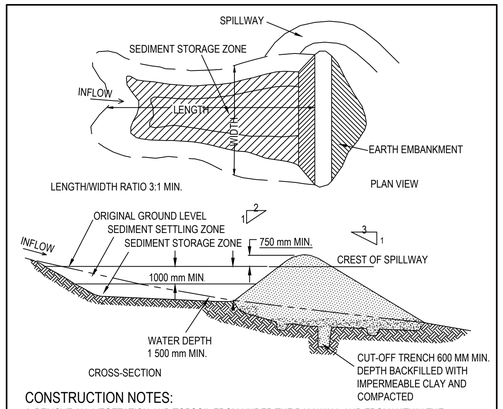


GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOFABRIC MAY BE A WOVEN OR NEEDLE-PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE

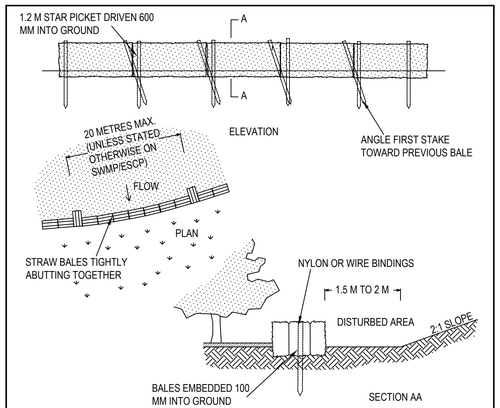
STABILISED SITE ACCESS SD 6-14



CONSTRUCTION NOTES:

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500 MM DEEP AND 1,200 MM WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100 MM TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100 MM TO 150 MM LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY. 8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

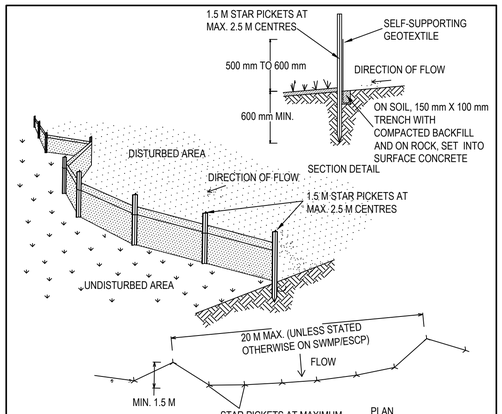
EARTH BASIN - WET (APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY) SD 6-4



CONSTRUCTION NOTES:

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE DRIVE THEM 600 mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER SD 6-7



CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DIAGRAM 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.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE 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.
4. 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.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE SD 6-8

SEDIMENT & EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO THE COMMENCEMENT OF ANY WORKS BEING CARRIED OUT. ALL SOIL AND EROSION MEASURES SHALL BE MAINTAINED AND KEPT IN PLACE FOR THE FULL DURATION OF THE WORKS AND SHALL ONLY BE REMOVED AT FINAL STABILISATION OF THE WORKS. WHERE IT IS NECESSARY TO UNDERTAKE STRIPPING IN ORDER TO CONSTRUCT A SEDIMENT CONTROL DEVICE ONLY SUFFICIENT GROUND SHALL BE STRIPPED TO ALLOW CONSTRUCTION.
2. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED & MAINTAINED AS INDICATED ON THESE DRAWINGS. LOCATION AND EXTENT OF SOIL & WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT.
3. CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ANY NECESSARY CONTROL IS IN PLACE EVEN THOUGH SUCH CONTROL MAY NOT BE SHOWN ON THE PLAN.
4. THE CONTRACTOR SHALL INFORM ALL SUBCONTRACTORS & ALL EMPLOYEES OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION & POLLUTION TO DOWNSTREAM AREAS
5. IN ADDITION TO SEDIMENT BASINS, THE CONTRACTOR SHALL REGULARLY MAINTAIN SEDIMENT AND EROSION CONTROL STRUCTURES & DESILT SUCH STRUCTURES PRIOR TO THE REDUCTION IN CAPACITY OF 30% DUE TO ACCUMULATED SEDIMENT. THE SEDIMENT SHALL BE DISPOSED OF ON SITE IN A MANNER APPROVED BY THE ENGINEER.
6. THE CONTRACTOR SHALL TEMPORARILY REHABILITATE WITHIN TEN (10) DAYS ANY DISTURBED AREAS PROVIDING A MINIMUM 60% COVER. FINAL REHABILITATION IS TO BE PROVIDED WITHIN A FURTHER 60 DAYS WITH A MINIMUM 70% COVER.
7. THE CONTRACTOR SHALL PROVIDE WATERING OF THE VEGETATED BATTERS FOR MAINTENANCE PERIOD. PLANT, MACHINERY AND VEHICLES SHALL NOT BE DRIVEN OVER GRASSED AREAS UNLESS ON AN APPROVED HAULAGE ROUTE.
8. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS QUICKLY AS POSSIBLE TO MINIMISE RISK OF EROSION.
9. SITE ACCESS SHALL BE RESTRICTED TO THE NOMINATED POINTS. THE CONTRACTOR SHALL PROVIDE STABILISED SITE ACCESS.
10. DUST AND SITE DISTURBANCE MUST BE KEPT TO A MINIMUM. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS MUST BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO REDUCE WIND EROSION. ERECT BARRIER FENCING TO MINIMISE LAND DISTURBANCE BY PREVENTING VEHICULAR AND PEDESTRIAN ACCESS TO AREAS BEING REHABILATATED AND LANDS THAT DO NOT NEED TO BE DISTURBED BY THIS PROJECT.
11. STOCKPILE TOPSOILS, SUBSOILS AND OTHER MATERIALS SEPARATELY.
12. TOPSOIL SHALL BE STORED IN LOW MOUNDS NO MORE THAN 2 METRES HIGH AND RE-USED WITHIN TWO MONTHS TO MAINTAIN ACTIVE POPULATIONS OF BENEFICIAL SOIL MICROBES & SEED.
13. PLACE ALL STOCKPILES AT LEAST FIVE METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS, ESPECIALLY EARTH BANKS AND ROADS. IF NECESSARY, EARTH BANKS OR DRAINS WILL BE CONSTRUCTED TO DIVERT LOCALISED RUN-ON.
14. TURN TOPSOIL STOCKPILES OVER TO AERATE THEM AT MONTHLY INTERVALS. ENSURE VEGETATION IS NOT INCORPORATED INTO THE SOIL.
15. AVOID REVERSING THE SOIL PROFILE MATERIALS DURING FILL OPERATIONS - REPLACE DISTURBED SOILS IN THEIR ORIGINAL ORDER.
16. ON COMPLETION OF MAJOR EARTHWORKS AND BEFORE ADDING TOPSOIL, LEAVE DISTURBED LANDS WITH A LOOSE SURFACE. ALTERNATELY, DISTURBED AREAS PREVIOUSLY COMPACTED BY CONSTRUCTION WORKS WILL BE RIPPED TO MORE THAN 200mm ALONG THE CONTOUR BEFORE APPLYING TOPSOIL
17. PROVIDING MATERIALS ARE AVAILABLE, SPREAD TOPSOIL TO A MINIMUM DEPTH OF 75mm IN REVEGETATION AREAS ON SLOPES OF 4(H):1(V) OR LESS AND TO A DEPTH OF 40 TO 60mm IN REVEGETATION AREAS STEEPER THAN 4:1.
18. LEAVE TOPSOIL IN A SCARIFIED OR ROUGH CONDITION ONCE REPLACED TO HELP MOISTURE INFILTRATION AND REDUCE SOIL EROSION.
19. ENSURE SOIL IS THOROUGHLY SOAKED TO A DEPTH OF 75mm (RAIN OR IRRIGATION) IMMEDIATELY BEFORE PLANTING.
20. HANDLE TOPSOIL ONLY WHEN IT IS MOIST (NOT WET OR DRY) TO AVOID DECLINE OF SOIL STRUCTURE
21. THE CONTRACTOR SHALL MAINTAIN A LOG BOOK DETAILING:
    - RECORDS OF ALL RAINFALL
    - CONDITION OF SOIL AND WATER MANAGEMENT STRUCTURES
    - ANY APPLICATION OF FLOCCULATING AGENTS TO SEDIMENT BASIN
    - VOLUMES OF ALL WATER DISCHARGED FROM SEDIMENT BASINS
    - ANY ADDITIONAL REMEDIAL WORKS REQUIRED.
22. THE LOG BOOK SHALL BE MAINTAINED ON A WEEKLY BASIS AND BE MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. THE ORIGINAL LOG BOOK SHALL BE ISSUED TO THE PROJECT MANAGER AT THE COMPLETION OF WORKS
23. ALL ROAD EMBANKMENTS TO BE STABILISED AS PER LANDSCAPE ARCHITECTS DETAILS.
24. A SELF AUDITING PROGRAM SHOULD BE ESTABLISHED BASED ON A CHECK SHEET DEVELOPED FOR THE SITE. A SITE INSPECTION USING THE CHECK SHEET SHOULD BE MADE BY THE SITE MANAGER AT LEAST WEEKLY, IMMEDIATELY BEFORE SITE CLOSURE AND IMMEDIATELY FOLLOWING RAINFALL EVENTS THAT CAUSE RUNOFF.
25. UNDERTAKE THE SELF AUDIT BY:
    - WALKING AROUND THE SITE SYSTEMATICALLY (E.G. CLOCKWISE)
    - RECORDING THE CONDITION OF EVERY BMP EMPLOYED
    - RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH BMP
    - RECORDING THE SITE WHERE SEDIMENT IS DISPOSED
    - FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER/SITE OPERATOR FOR THEIR INFORMATION
26. IN PARTICULAR, INSPECT:
    - LOCATIONS WHERE VEHICLES ENTER AND LEAVE THE SITE
    - ALL INSTALLED EROSION AND SEDIMENT CONTROL MEASURES, ENSURING THEY ARE OPERATING CORRECTLY
    - AREAS THAT MIGHT SHOW WHETHER SEDIMENT OR OTHER POLLUTANTS ARE LEAVING THE SITE OR HAVE POTENTIAL TO DO SO
    - ALL DISCHARGE POINTS, TO ASSESS WHETHER THE EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING IMPACTS TO THE RECEIVING WATERS
27. A SITE INSPECTION USING THE CHECK SHEET WILL BE MADE BY THE SITE MANAGER AT LEAST WEEKLY, IMMEDIATELY BEFORE SITE CLOSURE, AND IMMEDIATELY FOLLOWING RAINFALL EVENTS GREATER THAN 5mm IN 24 HOURS.

SEDIMENT BASIN CALCULATION:

THE MINIMUM VOLUME OF THE UPPER SETTING ZONE IS DEFINED BY EQUATION:

$V_S = 10 \cdot R_{(y\%,5\text{-day})} \cdot C_V \cdot A$

WHERE: V_S = VOLUME OF THE SETTING ZONE (m^3)
$R_{(y\%,5\text{-day})}$ = Y%, 5-DAY RAINFALL DEPTH (mm)
C_V = VOLUMETRIC RUNOFF COEFFICIENT
A = EFFECTIVE CATCHMENT SURFACE AREA TO BE CONNECTED TO THE BASIN (ha)
$R_{(y\%,5\text{-day})} = K_1 \cdot I_{(1yr,120hr)} + K_2$

WHERE: K = CONSTANT = 17
K_2 = CONSTANT = 11.2
$I_{(1yr,120hr)}$ = AVERAGE RAINFALL INTENSITY FOR A 1 IN 1 YEAR ARI, 120 HR STORM (mm/hr) = 1.3

THEN: $R_{(y\%,5\text{-day})} = 17 \times 1.3 + 11.2 = 33.3$

SEDIMENT BASIN:
$R_{(y\%,5\text{-day})}$ = 33.3
C_V = 0.5
A = 12,386 m^2= 1.2386 ha

THEN $V_S = 10 \times 33.3 \times 0.5 \times 1.2386 = 206.23\ m^3$

GENERAL:

- WHERE POSSIBLE SEED ALL TOPSOIL AREAS TO STABILISE LOTS.
- CONSIDERATION SHOULD BE GIVEN TO LAYING A STRIP OF TURF AT THE BASE OF THE RETAINING WALLS ALONG HIAWATHA ROAD.
- STABILISATION OF KERBSIDE WOULD OCCUR VIA TURF STRIP AND FOOTPATH CONSTRUCTION AS SOON AS PRACTICAL.

BASIN DEWATERING NOTES:

ALL SEDIMENT BASINS ON-SITE ARE TO BE CONTINUOUSLY MONITORED AND MAINTAINED BEFORE AND AFTER RAIN EVENTS. DEWATERING IS TO BE ACHIEVED BY:

- AFTER A RAIN EVENT, ALLOW UP TO 24 HOURS FOR ALL SURFACE FLOWS AND GROUND WATER TO CONTINUE SEEPING INTO THE BASIN;
- PLACE INDUSTRY STANDARD FLOCCULANT FOR A PERIOD OF 24-48 HOURS. MORE TIME MAY BE REQUIRED DEPENDING ON GROUND SEEPAGE FROM UPSTREAM CATCHMENT;
- WATER QUALITY TESTING BY AN ACCREDITED ENVIRONMENTAL ENGINEER AND LABORATORY FOR TOTAL SUSPENDED SOLIDS (TSS) IS TO OCCUR;
- ONCE CLEARANCE BY AN ENVIRONMENTAL ENGINEER HAS BEEN SOUGHT, PUMP WATER IN NEARBY DRAINAGE SYSTEM

SEDIMENT BASIN DIMENSIONS

SCALE 1:100

NOT FOR CONSTRUCTION

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0 10cm at full size 10cm 20cm

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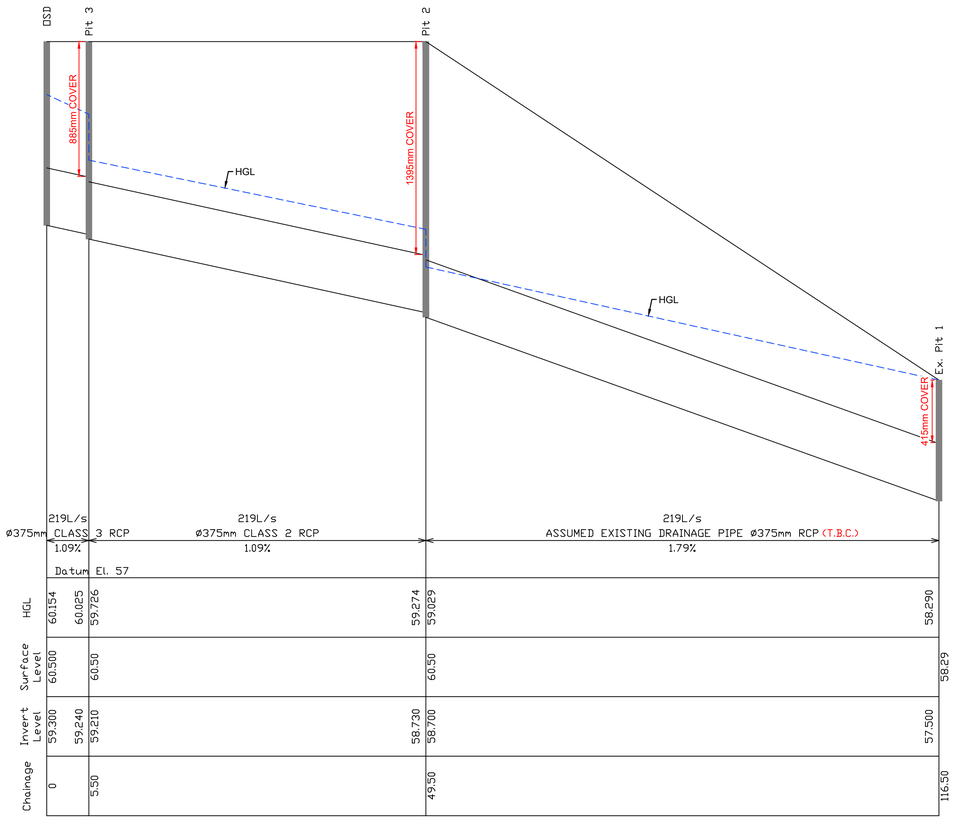
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
SOIL & WATER MANAGEMENT/ SEDIMENT & EROSION CONTROL PLAN & DETAILS SHEET 2 OF 2

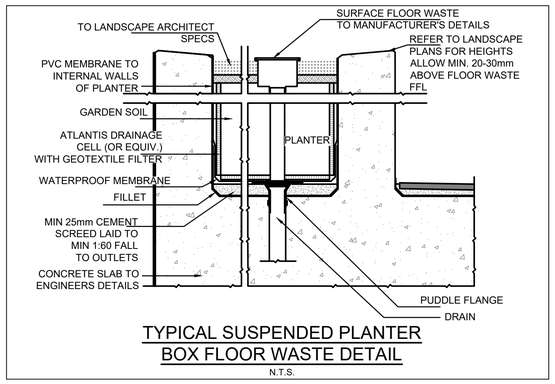
Scale A1	Project No.	Dwg. No.	Issue
As Shown	24535	108	C



100 YEAR ARI STORM DRAINAGE LONGITUDINAL SECTION

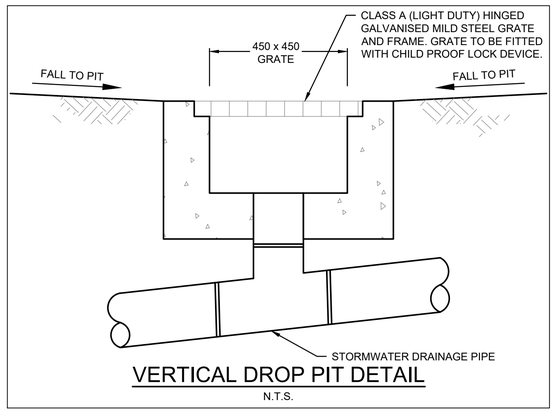
HORIZONTAL SCALE 1:400
VERTICAL SCALE 1:20

NOTE:
DETAIL TO BE CONFIRMED BY WATERPROOFING CONSULTANT/ARCHITECT.



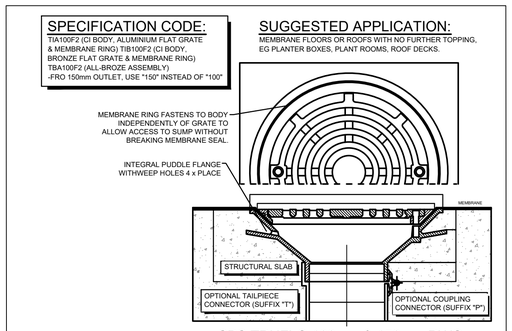
TYPICAL SUSPENDED PLANTER BOX FLOOR WASTE DETAIL

N.T.S.



VERTICAL DROP PIT DETAIL

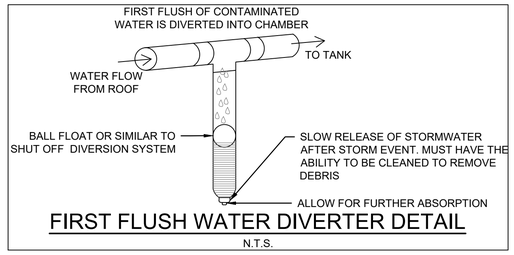
N.T.S.



SPS TRUFLO 100mm & 150mm RWO WITH FLAT GRATE & MEMBRANE CLAMP

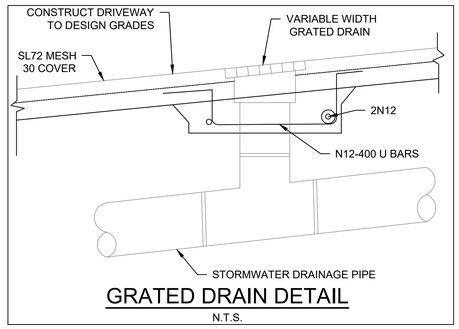
N.T.S

N.B	A	B	C	D	E	F	G	FLOW RATE* L/S
100	260	240	110	98	28	45	25	8.5
150	260	238	160	90	28	37	25	9.4



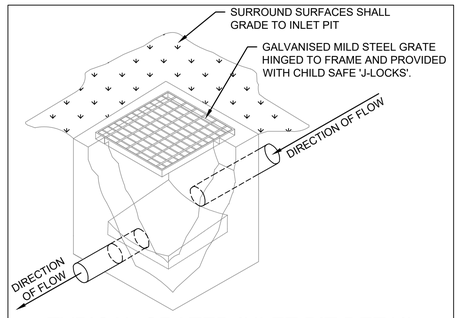
FIRST FLUSH WATER DIVERTER DETAIL

N.T.S.



GRATED DRAIN DETAIL

N.T.S.



TYPICAL GRATED INLET PIT DETAIL

N.T.S.

Stormwater Drainage System Maintenance Schedule

Maintenance Action	Frequency	Responsibility	Procedure
General			
Inspect roof drainage system of building and remove any debris/sludge	Six Monthly	Strata/Maintenance Contractor	Remove any leaves or debris and sludge from gutters of building and flush downpipes of building to remove any blockages. Pits downstream of downpipes to be cleaned of flushed debris.
Inspect pits and trench drains on site and remove debris/litter/sludge	Monthly or following Rain Period	Strata/Maintenance Contractor	Remove grate. Remove any debris/litter/sludge from within pits.
Inspect site for litter and floatable debris and remove	Fortnightly	Strata/Maintenance Contractor	Remove litter from site and sweep all driveway and pathways in order to remove leaves or sediments that may enter into the drainage system.
Basement Pump out			
Inspect and clean flap valve,	Six Monthly	Strata/Maintenance Contractor	Remove grate and check flap valve and pipe for blockages and clean. Check hinges for rust and test operation by moving flap to full extent.
Check hinge operation.	Annually	Strata/Maintenance Contractor	Inspect hinge and check its operation.
Check attachment of flap valve to wall pit.	Annually	Strata/Maintenance Contractor	Remove grate and ensure valve fixings are secure.
Check flap valve seal.	Six Monthly	Strata/Maintenance Contractor	Remove grate and fill pit with water, ensure flap seals against side of pit with minimal leakage.
Inspect walls for cracking or spalling.	Annually	Strata/Maintenance Contractor	Remove grate to inspect internal walls, remove vegetation to inspect external wall, repair as required.
Inspect sump and clean.	Six Monthly	Strata/Maintenance Contractor	Remove grate and clean sediment/sludge from sump.
Inspect grate for damage or blockage.	Six Monthly	Strata/Maintenance Contractor	Check both sides of grate for corrosion (particularly welds and corners); also check for damage and blockages
Inspect outlet pipe and remove blockages	Six Monthly	Strata/Maintenance Contractor	Remove grate and flush outlet pipe to ensure it drains freely. Check for debris on upstream side of return line.
Outlets			
Inspect & remove any blockage of orifices	Six monthly	Strata/Maintenance Contractor	Remove grate & screen to inspect orifice. See plan for location of outlets
Check attachment of orifice plates to wall of chamber and/or pit (gaps less than 5 mm)	Annually	Strata/Maintenance Contractor	Remove grate and screen. Ensure plates are mounted securely, tighten fixings if required. Seal gaps as required.
Check orifice diameters are correct and retain sharp edges	Five yearly	Strata/Maintenance Contractor	Compare diameter to design (see Work-as-Executed) and ensure edge is not pitted or damaged.
Inspect screen and clean	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screens if required to clean them.
Check attachment of screens to wall of chamber or pit	Annually	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Ensure screen fixings are secure. Repair as required.
Check screen(s) for corrosion	Annually	Strata/Maintenance Contractor	Remove grate(s) and examine screen(s) for rust or corrosion, especially at corners or welds.
Inspect walls (internal and external, if appropriate) for cracks or spalling	Annually	Strata/Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect outlet sumps & remove any sediment/sludge	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Remove sediment/sludge build-up and check orifices are clear.
Inspect grate(s) for damage or blockage	Six monthly	Strata/Maintenance Contractor	Check both sides of a grate for corrosion, (especially corners and welds) damage or blockage.
Inspect outlet pipe & remove any blockage	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Ventilate underground storage if present. Check orifices and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/debris on upstream side of return line.
Check step irons for corrosion	Annually	Strata/Maintenance Contractor	Remove grate. Examine step irons and repair any corrosion or damage
Check fixing of step irons is secure	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and ensure fixings are secure prior to placing weight on step iron.
Storage			
Inspect storage & remove any sediment/sludge in pit	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Remove sediment/sludge build-up.
Inspect internal walls of storage (and external, if appropriate) for cracks or spalling	Annually	Strata/Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect & remove any debris/litter/mulch etc blocking grates	Six monthly	Strata/Maintenance Contractor	Remove blockages from grate(s) and check if storage is blocked.
Inspect areas draining to the storage(s) & remove debris/mulch/litter etc likely to block screens/grates	Six monthly	Strata/Maintenance Contractor	Remove debris and floatable material likely to be carried to grates.
Compare storage volume to volume approved. (Rectify if loss > 5%)	Annually	Strata/Maintenance Contractor	Compare actual storage available with Work-as Executed plans. If volume loss is greater than 5%, arrange for reconstruction to replace the volume lost. Council to be notified of the proposal.
Inspect storages for subsidence near pits	Annually	Strata/Maintenance Contractor	Check along drainage lines and at pits for subsidence likely to indicate leakages.

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
D	ISSUE FOR SSDA	22/04/2026	EAB	SBF
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

Check if not full size 10cm 20cm

Certification By Dr. Michel Chaaya
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Council
Ryde City Council

Client
388 LCR Development

Scale
0 400 800 1200 mm
SCALE 1:20 @ A1
0 8 16 24 m
SCALE 1:400 @ A1

TELFORD CIVIL
CONSULTING CIVIL & STORMWATER ENGINEERS
Level 14, 32 Smith Street, Parramatta NSW 2150
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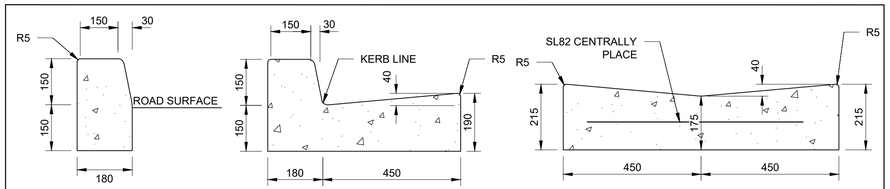
Email: info@telfordcivil.com.au
Phone: 02 7809 4931
Company: Telford Consulting Pty Ltd

Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
MISCELLANEOUS DETAILS SHEET 1

Scale	Project No.	Dwg. No.	Issue
As Shown A1	24535	109	D



KERB ONLY
SCALE N.T.S.

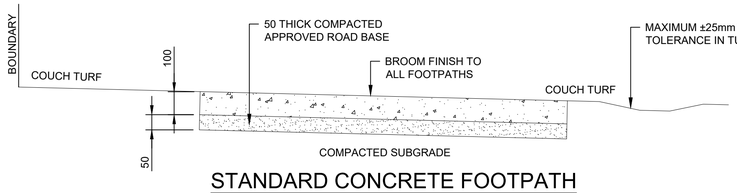
KERB AND GUTTER
SCALE N.T.S.

DISH CROSSING
SCALE N.T.S.

NOTES:

1. ALL ROADSIDE KERBS SHALL BE LAID ON A MINIMUM 100mm THICKNESS COMPACTED APPROVED ROADBASE.
2. ALL CORNERS SHALL HAVE A 25mm RADIUS UNLESS NOTED OTHERWISE.
3. ALL KERBS, GUTTERS AND EDGE STRIPS SHALL BE STEEL FLOAT FINISHED.
4. EXPANSION JOINTS SHALL BE PROVIDED AND AT INTERVALS OF 7m ALONG STRAIGHT ALIGNMENT AND 3m ALONG CURVED ALIGNMENT. REFER TO CIV.11 FOR JOINT DETAIL
5. CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 25MPa MINIMUM.
6. CONCRETE SHALL BE PLACED WITH A MAXIMUM SLUMP OF 80mm.
7. REFER TO CIV.1.2.1 FOR ROAD RESTORATION DETAIL.
8. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

CIV 1.1.1 STANDARD KERBS AND GUTTERS
N.T.S.



STANDARD CONCRETE FOOTPATH
SCALE N.T.S.

INSTALLATION OF GRANITE

CONCRETE BLINDING LAYER:
PLACE 125mm THICK CONCRETE (25MPA) WITH SL72 MESH MINIMUM COVER 40mm. PLACE CONCRETE BLINDING LAYER ON MINIMUM 50mm DEEP DGB20 TO 98% STANDARD DRY COMPACTION IN ACCORDANCE WITH AS1289.5.1.1. REFER TO DETAIL PV1.1 & PV1.2 ANY SOFT SPOTS IN SUB-GRADE TO BE REMOVED AND IDENTIFIED WITH CITY OF RYDE (CoR) PROJECT MANAGER.

PAVER JOINTING:
BETWEEN INDIVIDUAL PAVERS-JOIN FLUSH TOGETHER LEAVING A 2mm GAP. FORM CONTINUOUS EVEN SURFACE TO AVOID TRIP HAZARDS. THE JOINTS BETWEEN PAVERS ARE TO BE FILLED WITH ULTRA FINE SILICA SAND CEMENT MIX AS SUPPLIED BY BENEDICTS SAND AND SOIL (PH.9986 3500) OR AN APPROVED EQUIVALENT. AT ISOLATION AND EXPANSION JOINTS - FILL 5-10mm GAP WITH FOAM BACKING ROD AND APPROVED ONE COMPONENT, THIXOTROPIC, POLYURETHANE BASED JOINT SEALANT. SEALANT COLOUR TO BE BLACK UNLESS SPECIFIED OTHERWISE. REFER TO DETAILS PV3.1.1-PV3.6.

BLINDING SLAB JOINTS:
AS PER CONCRETE JOINTS WITH ADDITION OF ISOLATION JOINTS FOAM TO FINISH 20mm BELOW FINISHED PAVER LEVEL TO ACCOMMODATE BACKING ROD AND APPROVED JOINT SEALANT. REFER DETAILS PV3.1.1-PV3.6.

SETOUT- PAVERS:
PAVERS SHALL BE SETOUT AS PER DIMENSIONS AND LOCATIONS AS SHOWN IN TYPICAL DETAILS PV4.1-PV4.9.

LAYING - PAVERS:
LAYING OF PAVERS IS TO COMMENCE FROM PROPERTY BOUNDARY TOWARDS BACK OF KERB. REFER TO DETAIL PV4.1 - PV4.9 UNLESS OTHERWISE SPECIFIED. ENSURE ALL PAVERS ARE FULLY BEDDED ON A 30mm THICK 8:1 SAND/CEMENT SCREED. SAND USED SHALL BE WHITE WELL GRADED WASHED SAND. PASSING A 4.75mm SIEVE. PAVERS ARE TO BE MANUALLY TAMPERED WITH A RUBBER MALLET INTO THE WET MORTAR. THE USE OF VIBRATING COMPACTION EQUIPMENT EG. WAKA PLATE, IS STRICTLY PROHIBITED. WHERE PAVERS ARE TO BE LAID IN A RADIAL OR CURVE ALIGNMENT, PAVERS TO BE CUT RADIAL TO CENTRE. REFER TO DETAILS PV4.1 - PV4.9 ALL PAVERS TO BE LAID LEVEL TO THOSE ADJACENT TO AVOID TRIP HAZARDS. MINIMUM CUT PAVER WIDTH SHOULD BE NO LESS THAN 100mm UNLESS APPROVED BY SUPERINTENDENT.

KERB RAMP:
GENERALLY KERB RAMPS ARE TO BE SETOUT AS SHOWN IN DETAILS PV4.6, PV4.7 & PV4.6 WHERE ANY CHANGES ARE REQUIRED, CONFIRM WITH CoR PROJECT MANAGER. MINIMUM CUT PAVER WIDTH IS TO BE 100mm UNLESS APPROVED BY CoR PROJECT MANAGER.

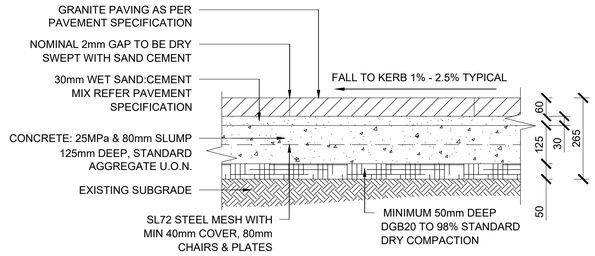
GRADE >1:8:
ALL PAVERS LAID ON A GRADE STEEPER THAN 1:8 (12.5%) ARE REQUIRED TO BE A 'V' RATED PAVER WITH A BUSH HAMMERED FINISH.

ROOF OUTLETS:
WHERE ROOF OUTLET CONNECTIONS ARE TO BE PROVIDED USE 150mm x 90mm GALVANISED STEEL RECTANGULAR HOLLOW SECTION. WHERE MORTAR COVER CANNOT BE ACHIEVED PAVERS ARE TO BE GLUED TO STEEL SECTION AS REQUIRED WITH HIGH STRENGTH EPOXY ADHESIVE.

SERVICE LID TREATMENT:
REPLACE ALL EXISTING SERVICE LIDS WITH STAINLESS STEEL OR GALVANISED STEEL INFILL COVERS AND FRAMES. NEW SERVICE LIDS ARE TO BE PRE APPROVED BY THE APPROPRIATE AUTHORITY. ADJUST HEGHT OF PIT FRAME/LID AS REQUIRED TO SUIT FINISH LEVEL OF NEW WORK. PROVIDE 10mm WIDE SEALANT (COLOUR: BLACK) AROUND PERIMETER OF SERVICE LID/FRAME.

CLEANING OF PAVERS:
ALL PAVERS LAID DURING THE COURSE OF ONE WORKING DAY MUST HAVE JOINTING SAND BROOMED IN AND BE CLEANED AT THE END OF THAT DAY BEFORE PROCEEDING WITH LAYING OF SUBSEQUENT PAVERS. THIS IS TO PREVENT RESIDUE BUILD UP ON PAVERS WHICH MAY BECOME DIFFICULT TO CLEAN IF LEFT OVERNIGHT OR FOR PROLONGED PERIODS.

GRANITE PAVER SPECIFICATION	
TYPE	GENERAL PAVER - SELECT FLAME EXFOLIATED GRANITE GRADE >1:8 PAVER - SELECT BUSH HAMMERED GRANITE
DESCRIPTION:	NATURAL STONE WHICH IS OF UNIFORM QUALITY, SOUND, FREE FROM DEFECTS (SUCH AS VENT, CRACK, FISSURES, SEAMS, POROUS INCLUSION, FOREIGN MATERIAL, LOOSE SURFACE MATERIAL STRIATIONS, STAINS, AND DISCOLOURATION) LIABLE TO AFFECT ITS STRENGTH, APPREARANCE, DURABILITY, OR PROPER FUNCTIONING UNDER THE INTENDED CONDITIONS OF USE.
MATCHING:	SELECT STONE FOR THE OPTIMUM MATCHING OF VISUAL PROPERTIES SUCH AS COLOUR AND PATTERN.
FINISH:	GENERAL PAVER, W RATED - SAWN EDGES WITH EXFOLIATED SURFACE TO PROVIDE A FINISH IN ACCORDANCE WITH AS/NZS 4586:2004. GRADE > 1:8 PAVER, V RATED - SAWN EDGES WITH BUSH HAMMERED SURFACE TO PROVIDE A FINISH IN ACCORDANCE WITH AS/NZS 4586:2004.
COLOUR:	RAVEN BLACK OR COLOUR CODE G684 HEADER PAVING AND BANDING AS PER LANDSCAPE DRAWINGS. FOR TOP RYDE CBD, ROSA (MATCHING EXISTING MATERIAL LAID IN BLAXLAND RD, RYDE)
SIZE:	FOOTPATHS 600 x 300 x 60mm (INFILL PAVERS: 300 x 300 x 60mm (HEADER PAVERS) DRIVEWAYS: 600x300x60mm (INFILL PAVERS); 300 X 300 X 60MM (HEADER PAVERS) 50x60mm SPECIAL PAVERS: 150 x 150 x 60 mm
BREAKING LOAD:	MINIMUM 5Km PLAN AREA +/-1mm
TOLERANCE	THICKNESS: +/-2mm
WATER ABSORPTON:	MAXIMUM 0.3% MOISTURE CONTENT AND TOTAL WATER ABSORPTION IN ACCORDANCE WITH ASTM C97
CHAMFERS AND EDGES:	STONE EDGE IS NOT TO BE CHAMFERED UNLESS SPECIFIED. FINISH TO EXPOSED EDGES TO MATCH SURFACE FINISH - NO SAWN EDGES TO BE EXPOSED



PV 1.2 PAVEMENT TYPE GRANITE - TYPICAL
SCALE 1:10

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR SSDA	22/04/2026	C.C.B.	J.A.B.

0 1cm at full size 10cm 20cm

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Client
388 LCR Development

Scale
0 200 400 600mm
SCALE 1:10 @ A1

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Email: info@telfordcivil.com.au
Phone: 02 7809 4931
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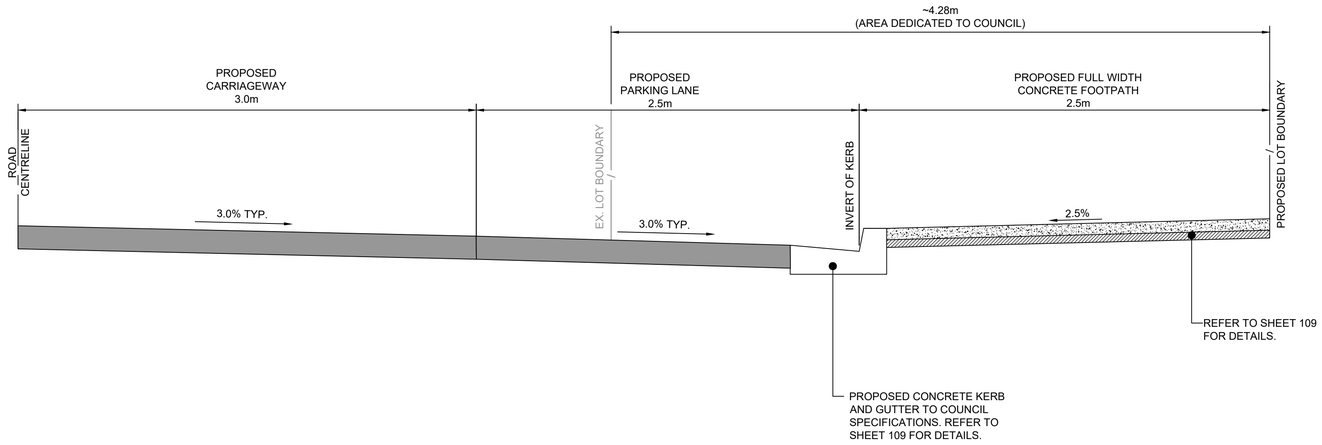
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

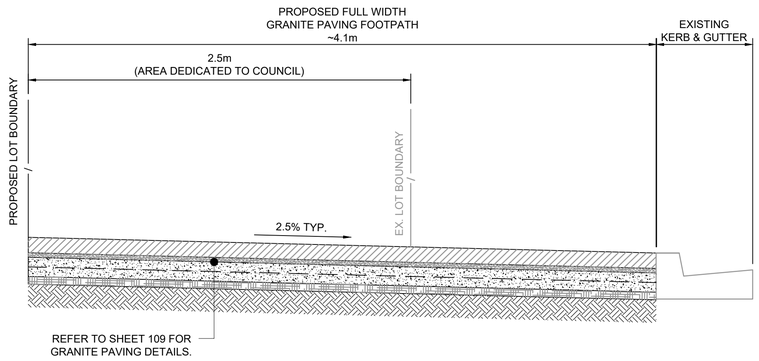
Drawing Title
MISCELLANEOUS DETAILS SHEET 2

Scale A1	Project No.	Dwg. No.	Issue
As Shown	24535	110	A



HYUNDAI DRIVE - TYPICAL CROSS SECTION

SCALE 1:100



DRAKE AVENUE - TYPICAL CROSS SECTION

SCALE 1:100

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR SSDA	22/04/2026	C.C.B.	J.A.B.

0 1cm at full size 10cm 20cm

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Scale
0 2 4 6 m
SCALE 1:100 @ A1

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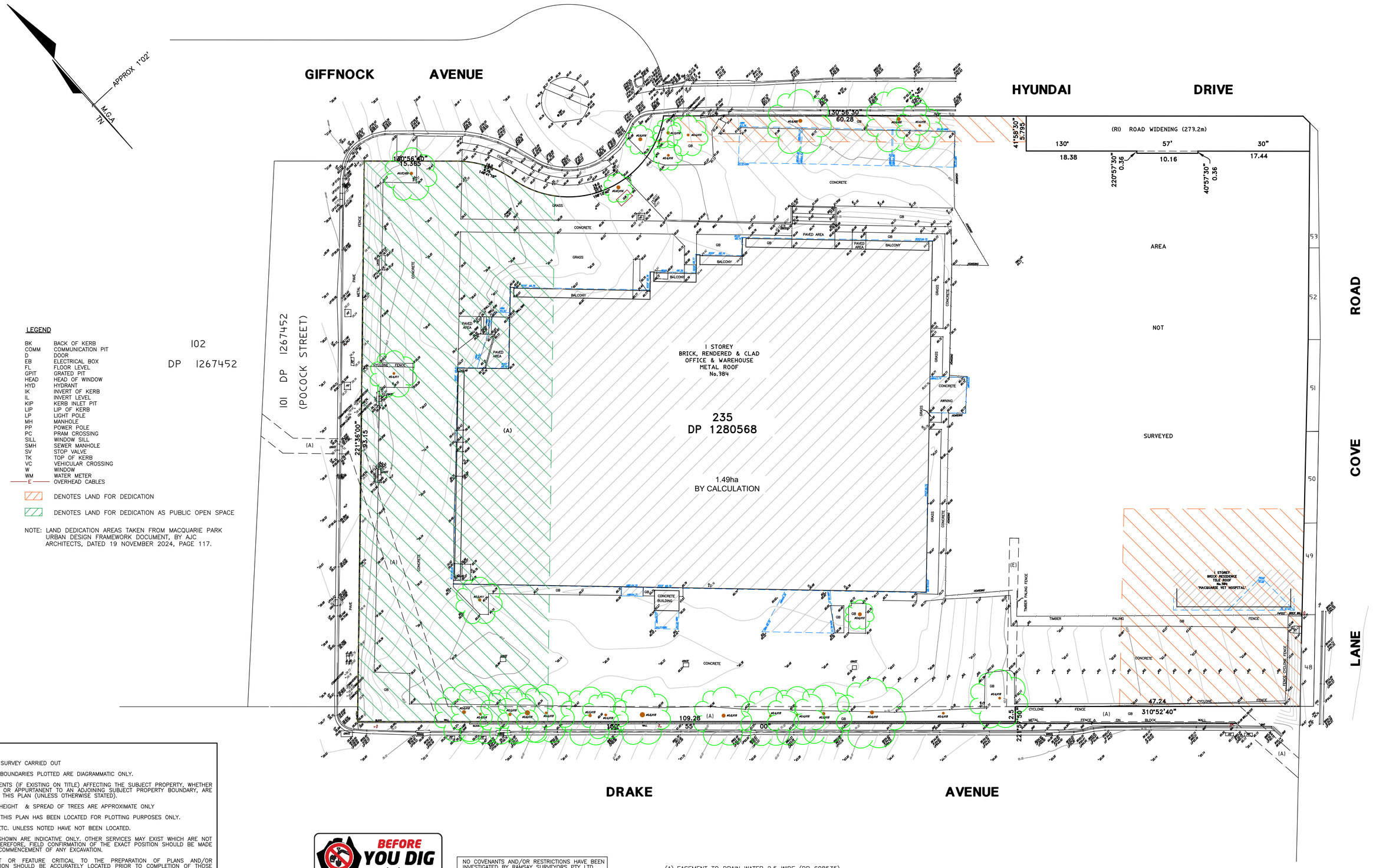
Drawing Title
TYPICAL CROSS SECTIONS

Scale	A1	Project No.	Dwg. No.	Issue
1:100		24535	111	A

APPENDIX B

Survey

OVERVIEW



LEGEND

BK	BACK OF KERB
COMM	COMMUNICATION PIT
D	DOOR
EB	ELECTRICAL BOX
FL	FLOOR LEVEL
GPIT	GRATED PIT
HEAD	HEAD OF WINDOW
HYD	HYDRANT
IK	INVERT OF KERB
IL	INVERT LEVEL
KIP	KERB INLET PIT
LIP	LIP OF KERB
LP	LIGHT POLE
MH	MANHOLE
PP	POWER POLE
PC	PRAM CROSSING
SILL	WINDOW SILL
SMH	SEWER MANHOLE
SV	STOP VALVE
TK	TOP OF KERB
VC	VEHICULAR CROSSING
W	WINDOW
WM	WATER METER
E	OVERHEAD CABLES

DENOTES LAND FOR DEDICATION

DENOTES LAND FOR DEDICATION AS PUBLIC OPEN SPACE

NOTE: LAND DEDICATION AREAS TAKEN FROM MACQUARIE PARK URBAN DESIGN FRAMEWORK DOCUMENT, BY AJC ARCHITECTS, DATED 19 NOVEMBER 2024, PAGE 117.

NOTES:

BOUNDARY SURVEY CARRIED OUT

ADJOINING BOUNDARIES PLOTTED ARE DIAGRAMMATIC ONLY.

ALL EASEMENTS (IF EXISTING ON TITLE) AFFECTING THE SUBJECT PROPERTY, WHETHER BURDENING OR APPURTANENT TO AN ADJOINING SUBJECT PROPERTY BOUNDARY, ARE SHOWN ON THIS PLAN (UNLESS OTHERWISE STATED).

DIAMETER, HEIGHT & SPREAD OF TREES ARE APPROXIMATE ONLY

DETAIL ON THIS PLAN HAS BEEN LOCATED FOR PLOTTING PURPOSES ONLY.

SERVICES ETC. UNLESS NOTED HAVE NOT BEEN LOCATED.

SERVICES SHOWN ARE INDICATIVE ONLY. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN. THEREFORE, FIELD CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE PRIOR TO COMMENCEMENT OF ANY EXCAVATION.

ANY POINT OR FEATURE CRITICAL TO THE PREPARATION OF PLANS AND/OR CONSTRUCTION SHOULD BE ACCURATELY LOCATED PRIOR TO COMPLETION OF THOSE PLANS AND/OR COMMENCEMENT OF CONSTRUCTION.

BOUNDARY DIMENSIONS AND BEARINGS FROM DP 1280568
ORIGIN OF LEVELS: BENCH MARK CUT OF KERB RL 64.2 (AHD), TAKEN FROM PLAN BY C-SIDE SURVEYORS, REF:131006-DET, REV:B, DATED 26/2/2016

CONTOUR INTERVALS ARE 0.2 MINOR AND 1.0 MAJOR

USE STATED DIMENSIONS. DO NOT SCALE.

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

NO COVENANTS AND/OR RESTRICTIONS HAVE BEEN INVESTIGATED BY RAMSAY SURVEYORS PTY LTD

(A) EASEMENT TO DRAIN WATER 2.5 WIDE (DP 608535)

(E) EASEMENT TO DRAIN WATER 1.5 WIDE (V639435)

THIS PLAN & THE INFORMATION CONTAINED HEREON REMAINS THE PROPERTY OF RAMSAY SURVEYORS PTY LTD AND MUST NOT BE COPIED IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF RAMSAY SURVEYORS PTY LTD & IS NOT TO BE USED FOR ANY OTHER PURPOSE THAN FOR THAT WHICH IT HAS BEEN PREPARED FOR THE SOLE USE OF THE INSTRUCTING PARTY &/OR THEIR NOMINATED CLIENT

AMENDMENTS

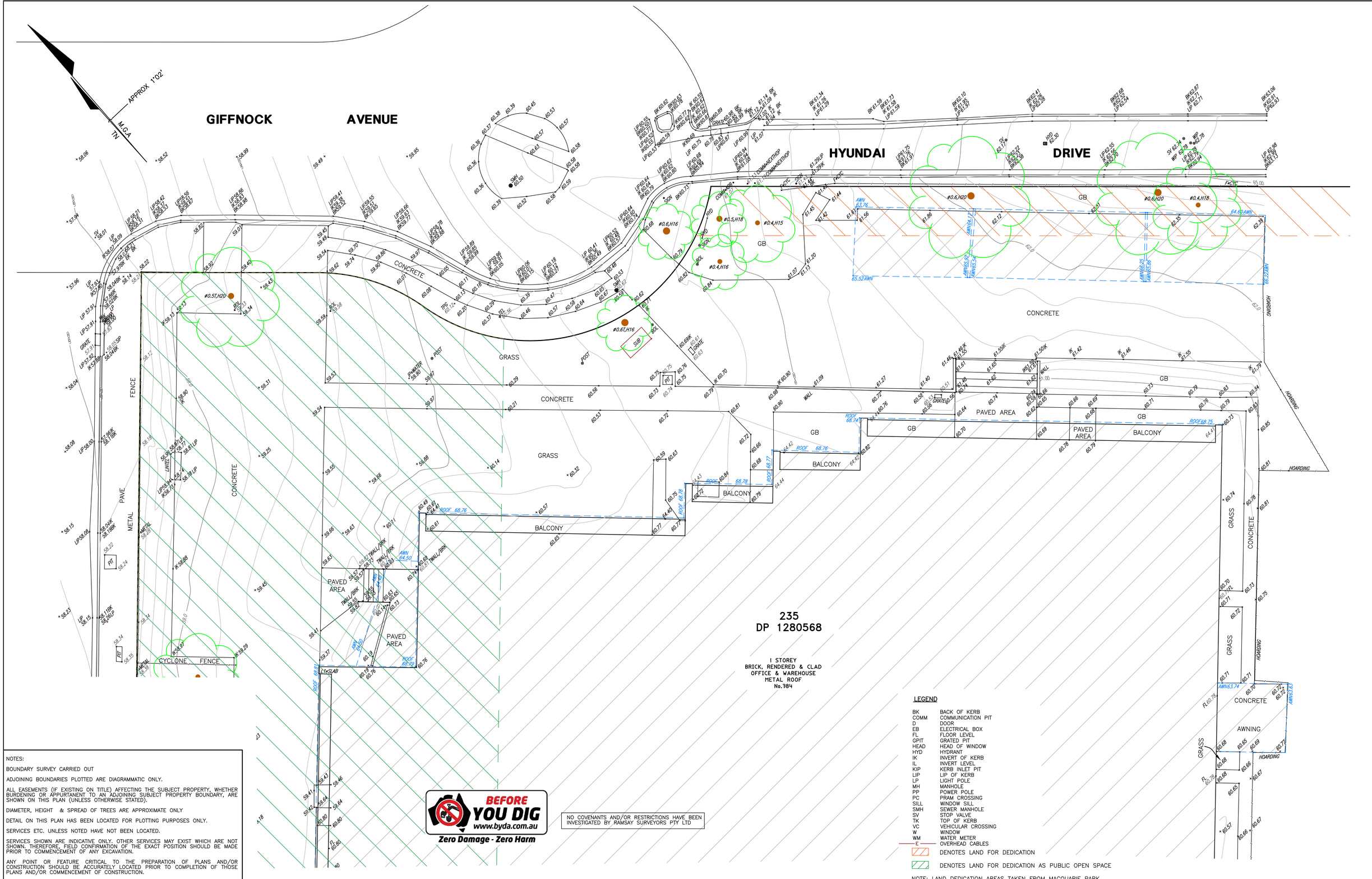
DATE	DESCRIPTION

L.G.A	CITY OF RYDE
LOCALITY:	MACQUARIE PARK
INSTRUCTED BY:	ELIYAH EL KHOURY
RE:	HOLDMARK

H RAMSAY & CO. SURVEYORS EST. 1962
Ramsay Surveyors Pty Limited ACN 607 389 748
"CARLINGFORD CENTRAL" SUITE 15, 241-245 PENNANT HILLS RD, CARLINGFORD NSW 2118
P.O. BOX 2244 CARLINGFORD NSW 2118 PH: (02) 9635 5840
EMAIL: surveyor@hramsay.com.au www.hramsay.com.au

PLAN SHOWING DETAIL AND LEVELS OVER LOT 235 IN DP 1280568 No.2-4 GIFFNOCK STREET, MACQUARIE PARK

SCALE	1:300@A1
DATUM	AHD
SURVEY	RVN
DRAWN	VR
DATE	19/11/24
OUR REF	8275
SHEET	1 OF 4 SHEETS



NOTES:

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BOUNDARY DIMENSIONS AND BEARINGS FROM DP 1280568
ORIGIN OF LEVELS: BENCH MARK CUT OF KERB RL 64.2 (AHD), TAKEN FROM PLAN BY C-SIDE SURVEYORS, REF:131006-DET, REV:B, DATED 26/2/2016

CONTOUR INTERVALS ARE 0.2 MINOR AND 1.0 MAJOR

USE STATED DIMENSIONS. DO NOT SCALE.

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

NO COVENANTS AND/OR RESTRICTIONS HAVE BEEN INVESTIGATED BY RAMSAY SURVEYORS PTY LTD

LEGEND

BK	BACK OF KERB
COMM	COMMUNICATION PIT
D	DOOR
EB	ELECTRICAL BOX
FL	FLOOR LEVEL
GPIT	GRATED PIT
HEAD	HEAD OF WINDOW
HYD	HYDRANT
IK	INVERT OF KERB
IL	INVERT LEVEL
KIP	KERB INLET PIT
LIP	LIP OF KERB
LP	LIGHT POLE
MH	MANHOLE
PP	POWER POLE
PC	PRAM CROSSING
SILL	WINDOW SILL
SMH	SEWER MANHOLE
SV	STOP VALVE
TK	TOP OF KERB
VC	VEHICULAR CROSSING
W	WINDOW
WM	WATER METER
E	OVERHEAD CABLES

DENOTES LAND FOR DEDICATION

DENOTES LAND FOR DEDICATION AS PUBLIC OPEN SPACE

NOTE: LAND DEDICATION AREAS TAKEN FROM MACQUARIE PARK URBAN DESIGN FRAMEWORK DOCUMENT, BY AJC ARCHITECTS, DATED 19 NOVEMBER 2024, PAGE 117.

AMENDMENTS	
DATE	DESCRIPTION

L.G.A
CITY OF RYDE

INSTRUCTED BY:
ELIYAH EL KHOURY

LOCALITY:
MACQUARIE PARK

RE:
HOLDMARK

H RAMSAY & CO. SURVEYORS EST.1962
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P.O. BOX 2244 CARLINGFORD NSW 2118 PH: (02) 9635 5840
EMAIL: surveyor@hramsay.com.au www.hramsay.com.au

PLAN SHOWING DETAIL AND LEVELS OVER LOT 235 IN DP 1280568 No.2-4 GIFFNOCK STREET, MACQUARIE PARK

SCALE	1:150@A1
DATUM	AHD
SURVEY	RVN
DRAWN	VR
DATE	19/11/24
OUR REF	8275
SHEET 2 OF 4 SHEETS	

STREET

KITTYS

235
DP 1280568

1 STOREY
BRICK, RENDERED & CLAD
OFFICE & WAREHOUSE
METAL ROOF
No.384

CONCRETE BUILDING

AWNING

GRASS

CONCRETE

HOARDING

FENCE

METAL

PAVE

GB

CYCLONE

BLOCK WALL

CONCRETE

DRAKE AVENUE

NOTES:

BOUNDARY SURVEY CARRIED OUT

ADJOINING BOUNDARIES PLOTTED ARE DIAGRAMMATIC ONLY.

ALL EASEMENTS (IF EXISTING ON TITLE) AFFECTING THE SUBJECT PROPERTY, WHETHER BURDENING OR APPURTANENT TO AN ADJOINING SUBJECT PROPERTY BOUNDARY, ARE SHOWN ON THIS PLAN (UNLESS OTHERWISE STATED).

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BOUNDARY DIMENSIONS AND BEARINGS FROM DP 1280568
ORIGIN OF LEVELS: BENCH MARK CUT OF KERB RL 64.2 (AHD), TAKEN FROM PLAN BY C-SIDE SURVEYORS, REF:131006-DET, REVB, DATED 26/2/2016

CONTOUR INTERVALS ARE 0.2 MINOR AND 1.0 MAJOR

USE STATED DIMENSIONS. DO NOT SCALE.

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APPROX 1°02'
M.G.A
T/N

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

NO COVENANTS AND/OR RESTRICTIONS HAVE BEEN INVESTIGATED BY RAMSAY SURVEYORS PTY LTD

LEGEND

BK	BACK OF KERB
COMM	COMMUNICATION PIT
D	DOOR
EB	ELECTRICAL BOX
FL	FLOOR LEVEL
GPIT	GRATED PIT
HEAD	HEAD OF WINDOW
HYD	HYDRANT
IK	INVERT OF KERB
IL	INVERT LEVEL
KIP	KERB INLET PIT
LIP	LIP OF KERB
LP	LIGHT POLE
MH	MANHOLE
PP	POWER POLE
PC	PRAM CROSSING
SILL	WINDOW SILL
SMH	SEWER MANHOLE
SV	STOP VALVE
TK	TOP OF KERB
VC	VEHICULAR CROSSING
W	WINDOW
WM	WATER METER
E	OVERHEAD CABLES

DENOTES LAND FOR DEDICATION

DENOTES LAND FOR DEDICATION AS PUBLIC OPEN SPACE

NOTE: LAND DEDICATION AREAS TAKEN FROM MACQUARIE PARK URBAN DESIGN FRAMEWORK DOCUMENT, BY AJC ARCHITECTS, DATED 19 NOVEMBER 2024, PAGE 117.

AMENDMENTS	
DATE	DESCRIPTION

L.G.A
CITY OF RYDE

LOCALITY:
MACQUARIE PARK

INSTRUCTED BY:
ELIYAH EL KHOURY

RE:
HOLDMARK

HRAMSAY & CO. SURVEYORS EST.1962
Ramsay Surveyors Pty Limited ACN 607 389 748
"CARLINGFORD CENTRAL" SUITE 15, 241-245 PENNANT HILLS RD, CARLINGFORD NSW 2118
P.O. BOX 2244 CARLINGFORD NSW 2118 PH: (02) 9635 5840
EMAIL: surveyor@hramsay.com.au www.hramsay.com.au

PLAN SHOWING DETAIL AND LEVELS OVER LOT 235 IN DP 1280568 No.2-4 GIFFNOCK STREET, MACQUARIE PARK

SCALE	1:150@A1
DATUM	AHD
SURVEY	RVN
DRAWN	VR
DATE	19/11/24
OUR REF	8275
SHEET 3 OF 4 SHEETS	

235
DP 1280568

1 STOREY
BRICK, RENDERED & CLAD
OFFICE & WAREHOUSE
METAL ROOF
No.384

1 STOREY
BRICK RESIDENCE
TILE ROOF
No.384
'MACQUARIE VET HOSPITAL'

APPROX 1°02'
M.G.A
TN

LEGEND

BK	BACK OF KERB
COMM	COMMUNICATION PIT
D	DOOR
EB	ELECTRICAL BOX
FL	FLOOR LEVEL
GPIT	GRATED PIT
HEAD	HEAD OF WINDOW
HYD	HYDRANT
IK	INVERT OF KERB
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PC	PRAM CROSSING
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VC	VEHICULAR CROSSING
W	WINDOW
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ROAD

COVE

LANE

DRAKE

AVENUE

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DATE	DESCRIPTION

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RE:	HOLDMARK

H RAMSAY & CO. SURVEYORS EST. 1962
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EMAIL: surveyor@hramsay.com.au www.hramsay.com.au

PLAN SHOWING DETAIL AND LEVELS OVER LOT 235 IN DP 1280568 No.2-4 GIFFNOCK STREET, MACQUARIE PARK

SCALE	1:150@A1
DATUM	AHD
SURVEY	RVN
DRAWN	VR
DATE	19/11/24
OUR REF	8275
SHEET 4 OF 4 SHEETS	

2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT

STORMWATER CONCEPT PLANS

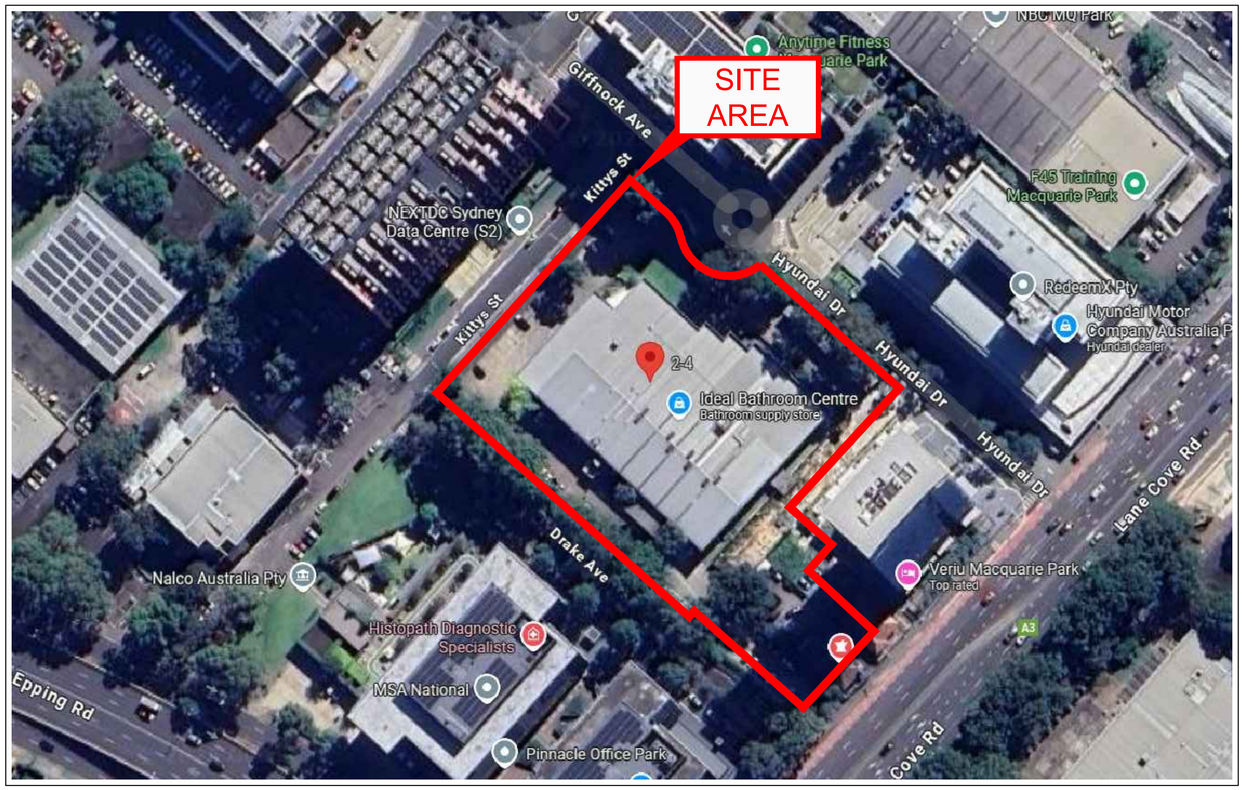
LEGEND

- PROPOSED STORMWATER DRAINAGE PIPE
- PROPOSED STORMWATER DRAINING TO OSD
- PROPOSED STORMWATER BYPASSING OSD
- Ø100 HDPE OR PVC STORMWATER DRAINAGE PIPE CAST IN SLAB
- 65 — Ø65 HDPE OR PVC STORMWATER DRAINAGE PIPE CAST IN SLAB
- 50 — Ø50 HDPE OR PVC STORMWATER DRAINAGE PIPE CAST IN SLAB
- RWT — PROPOSED STORMWATER PIPE TO RAINWATER TANK
- SS — Ø100 SUBSOIL DRAINAGE TO BE WRAPPED IN GEOTEXTILE BIDIMA34
- RISER PIPE
- DP — DOWNPIPE Ø100
- VD — VERTICAL DROP Ø100
- D — VERTICAL DROP FROM SLAB
- PG — PLANTER GRATE Ø150
- FG — FLOOR GRATE Ø150
- FG — FLOOR GRATE 200x200 (ALLOW MINIMUM 1.0% FALL TO FG)
- FW — FLOOR GRATE 300x300 (ALLOW MINIMUM 1.0% FALL TO FW)
- RWO — RAINWATER OUTLET Ø260 SPS (ALLOW MINIMUM 1.0% FALL TO RWO)
- SPB — SUSPENDED PLANTER BOX RAINWATER OUTLET
- TD — AC CONDENSER TUNDISH TO MANUFACTURER'S DETAILS
- IL 31.00 — INVERT LEVEL
- RL 29.65 — DESIGN SURFACE LEVEL
- NS 28.31 — EXISTING SURFACE LEVEL
- ExSW — EXISTING STORMWATER DRAINAGE
- ExW — EXISTING WATER MAIN
- ExS — EXISTING SEWER MAIN
- ExT — EXISTING TELESTRA
- ExE — EXISTING ELECTRICAL
- ExEU — EXISTING ELECTRICAL UNDERGROUND
- ExEO — EXISTING OVERHEAD ELECTRICAL
- ExG — EXISTING GAS
- HD — EXISTING HOUSE DRAINAGE
- ExOP — EXISTING OPTIC FIBER
- LOT BOUNDARY
- EXISTING LOT BOUNDARY
- K&G — PROPOSED KERB & GUTTER
- Ex. K&G — EXISTING KERB & GUTTER
- PROPOSED ROAD CENTRELINE
- DC — PROPOSED DISH CROSSING
- KO — PROPOSED KERB ONLY

GENERAL NOTES

1. ALL LINES ARE TO BE Ø100 uPVC 1.0% GRADE UNLESS NOTED OTHERWISE. CHARGED LINES TO BE SEWERGRADE & SEALED.
2. EXISTING SERVICES LOCATIONS SHOWN INDICATIVE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
3. ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL PITS IN LANDSCAPED AREAS TO BE 450x450 PLASTIC.
5. PITS LESS THAN 600mm DEEP MAY BE BRICK, PRECAST OR CONCRETE.
6. ALL BALCONIES AND ROOFS TO BE DRAINED AND TO HAVE SAFETY OVERFLOWS IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
7. ALL EXTERNAL SLABS TO BE WATERPROOFED.
8. ALL GRATES TO HAVE CHILD PROOF LOCKS.
9. ALL DRAINAGE WORKS TO AVOID TREE ROOTS.
10. ALL DPs TO HAVE LEAF GUARDS.
11. ALL EXISTING LEVELS TO BE CONFIRMED BY BUILDER PRIOR TO CONSTRUCTION.
12. ALL WORK WITHIN COUNCIL RESERVE TO BE INSPECTED BY COUNCIL PRIOR TO CONSTRUCTION.
13. COUNCIL'S ISSUED FOOTWAY DESIGN LEVELS TO BE INCORPORATED INTO THE FINISHED LEVELS ONCE ISSUED BY COUNCIL.
14. ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. AND A.S.3500.3.
15. REFER TO LANDSCAPE ARCHITECT'S DRAWINGS FOR LANDSCAPING.
16. CARE TO BE TAKEN AROUND EXISTING SEWER. STRUCTURAL ADVICE IS REQUIRED FOR SEWER PROTECTION AGAINST ADDITIONAL LOADING FROM NEW PITS, PIPES, RETAINING WALLS AND OSD BASIN WATER LEVELS.
17. ALL PIPES IN BALCONIES TO BE Ø65 uPVC CAST IN CONCRETE SLAB. CONTRACTOR TO PROVIDE A BREAK / OPEN VOID IN RAIL / BALUSTRADE FOR STORMWATER EMERGENCY OVERFLOW. ALL ENCLOSED AREAS/PLANTER BOXES TO BE FITTED WITH FLOOR WASTES & DRAINED TO OSD DOWNPIPES TO BE CHECKED BY ARCHITECT & PLUMBER PRIOR TO CONSTRUCTION.
18. THE OSD BASIN / TANK IS TO BE BUILT TO THE CORRECT LEVELS & SIZE AS PER THIS DESIGN. ANY VARIATIONS ARE TO BE DONE UNDER CONSULTATION FROM OUR OFFICE ONLY. ANY AMENDMENTS WITHOUT OUR APPROVAL WOULD RESULT IN ADDITIONAL FEES FOR REDESIGN AT OC STAGE OR IF A SOLUTION CANNOT BE FOUND, RECONSTRUCTION IS REQUIRED UNDER THE CONTRACTOR'S EXPENSES

- PROPOSED DRIVEWAY
- PROPOSED CONCRETE FOOTPATH
- RESTORATION OF ROAD PAVEMENT
- PROPOSED GRANITE PAVING
- PROPOSED PRAM RAMP



LOCALITY PLAN
N.T.S.

DRAWING INDEX

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000	COVER SHEET PLAN
101	STORWMATER CONCEPT PLAN GROUND FLOOR
102	OSD CATCHMENT PLAN AND DRAINS RESULTS
103	ON-SITE DETENTION DETAILS SHEET 1 OF 3
104	ON-SITE DETENTION DETAILS SHEET 2 OF 3
105	ON-SITE DETENTION DETAILS SHEET 3 OF 3
106	MUSIC CATCHMENT PLAN AND RESULTS
107	SOIL AND WATER MANAGEMENT / SEDIMENT AND EROSION CONTROL PLAN AND DETAILS SHEET 1 OF 2
108	SOIL AND WATER MANAGEMENT / SEDIMENT AND EROSION CONTROL PLAN AND DETAILS SHEET 2 OF 2
109	MISCELLANEOUS DETAILS SHEET 1
110	MISCELLANEOUS DETAILS SHEET 2
111	TYPICAL CROSS SECTIONS

PIPES NOTE:

Ø65 PVC @ MIN 1.0%
Ø90 PVC @ MIN 1.0%
Ø100 PVC @ MIN 1.0%
Ø150 PVC @ MIN 1.0%
Ø225 PVC @ MIN 0.5%
Ø300 PVC @ MIN 0.4%
UNLESS NOTED OTHERWISE

NOTE:
ALL LINEAR GRATED DRAINS TO BE MIN. 100mm DEEP UNLESS NOTED OTHERWISE.

NOTE:
PITS DEEPER THAN 1.0m TO BE FITTED WITH STEP IRONS.

NOTE:
1. CONTRACTOR IS TO PROVIDE OVERFLOW OUTLETS & EMERGENCY OVERFLOW SPITTERS TO ALL TRAPPED AREAS.
2. DP/VD ARE Ø100 PIPES UNLESS NOTED OTHERWISE.
3. ALL TRANSFERRING PIPES ARE SUSPENDED UNLESS NOTED OTHERWISE.
4. BALCONIES PIPES ARE Ø50mm HDPE OR PVC CAST IN SLAB AT MIN 1.0% SLOPE.

NOTE:
ALL STORMWATER DRAINAGE PIPES ARE Ø100 PVC AT MIN 1.0% SLOPE UNLESS NOTED OTHERWISE.

NOTE:
ALL GRATES WITHIN FOOTWAY AREAS TO BE HEEL GUARD & BIKE SAFE.

NOTE:
IT IS CONTRACTOR'S RESPONSIBILITY TO ENSURE MINIMUM PONDING IS ACHIEVED OVER THE FLOOR WASTES BY GRADING CATCHMENTS' SURFACES AT MINIMUM 1.0% FALL.

NOTE:
ALL REDUNDANT PIPELINES WITHIN FOOTPATH AREA MUST BE REMOVED AND FOOTPATH/KERB REINSTATED.

NOTE:
REFER ARCHITECTURAL DRAWINGS FOR FINAL SET-OUT LEVELS.

NOTE:
ALL NON-TRAFFICABLE AREAS DRAINAGE SYSTEM IN UPPER LEVELS IS SUBJECT TO DETAILED DESIGN STAGE & TO BE CONNECTED TO THE SUSPENDED RAINWATER TANK.

ALL TRAFFICABLE AREAS DRAINAGE SYSTEM IN UPPER LEVELS IS SUBJECT TO DETAILED DESIGN STAGE & TO BE CONNECTED TO THE SUSPENDED WSUD TANK.

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
D	ISSUE FOR SSDA	22/04/2026	EAB	SBF
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

1cm at full size 10cm 20cm

Certification By Dr. Michel Chaaya
B.E., M.E. (Res), Ph.D., F.I.E. Aust., CPEng.,
Civil & Structural Engineer

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Sydney NSW 2000 Australia
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Council
Ryde City Council

Client
388 LCR Development

Scale

TELFORD CIVIL
CONSULTING CIVIL & STORMWATER ENGINEERS
Level 14, 32 Smith Street, Parramatta NSW 2150
PO BOX 3579 Parramatta 2124
Email: info@telfordcivil.com.au
Phone: 02 7809 4931
Company: Telford Consulting Pty Ltd

Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
COVER SHEET PLAN

Scale	Project No.	Dwg. No.	Issue
A1 N.T.S.	24535	000	D

HYUNDAI DRIVE

EXISTING PRAM RAMP TO BE RECONSTRUCTED TO COUNCIL SPECIFICATIONS.

PROPOSED KERB AND GUTTER TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

~4.28m DEDICATED AREA TO COUNCIL

PROPOSED ROAD CENTRELINE.

PROPOSED FULL WIDTH CONCRETE FOOTPATH TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

PROPOSED ROAD PAVEMENT TO BE CONSTRUCTED TO COUNCIL SPECIFICATIONS.

EXTENT OF WORKS.
PROVIDE SMOOTH CONNECTION TO EXISTING SURFACES.

PROPOSED DISH CROSSING TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

PROPOSED KERB ONLY TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

EXTENT OF WORKS

PROVIDE SMOOTH CONNECTION TO EXISTING SURFACES

EX. LOT BOUNDARY

LOT BOUNDARY

2.82m

2.50m

3.00m

Ø150 PVC @ MIN 1.0%

Ø225 PVC @ MIN 0.5%

KITTYS STREET

EX. LOT BOUNDARY

GARI NAWI PARK
INDUSTRIAL WOVEN WAY (SOUTH)

PLAYGROUND

REFER LANDSCAPE DRAWINGS FOR DETAIL

SUSPENDED OSD/WSUD TANK	
CAPACITY	173.12m³
TANK AREA	237.15m²
AVERAGE DEPTH	0.73m
TWL	60.50

SUSPENDED RAINWATER TANK	
VOLUME REQUIRED	10.00m³
CAPACITY	10.05m³
TANK AREA	10.26m²
AVERAGE DEPTH	0.98m
TWL	60.60
RL BASE	59.52

OSD

SFC

RWT

Ø375mm RCP DISCHARGE PIPE AT IL 59.30 @ MIN 1.0%

PIT 3
900 x 900
SL 60.50
IL 59.21

EXISTING KERB AND GUTTER TO REMAIN UNDISTURBED.

EXISTING STORMWATER KERB INLET PIT (1).
SL 58.29
IL 57.50 (T.B.C.)

ASSUMED EXISTING DRAINAGE PIPE WITHIN THE EXISTING EASEMENT. PIPE SIZE AND LEVELS TO BE CONFIRMED.

CYAN HATCH DENOTES INDUSTRIAL CREEK PARK DEDICATION.

EXISITNG EASEMENT 2.5m WIDE

Ø375mm RCP @ MIN 1.0%

Ø150 PVC @ MIN 1.0%

IL 58.80

CIVIL WORKS WITH TPZ OF EXISTING TREES WILL BE UNDER SUPERVISION OF ARBORIST.

CONSTRUCT A NEW PIT (2) ON TOP OF EXISTING STORMWATER PIPE TO COUNCIL'S SPECIFICATIONS. PIT IL TO MATCH EXISTING STORMWATER PIPE IL.
SL 60.50
IL 58.70 (T.B.C.)

Ø300 PVC @ MIN 0.5%

Ø225 PVC @ MIN 0.5%

Ø150 PVC @ MIN 1.0%

BUILDING ABOVE OUTLINE

BUILDING BELOW OUTLINE

EX. LOT BOUNDARY

LOT BOUNDARY

2.5m DEDICATED AREA TO COUNCIL

4.11m

EXISTING KERB AND GUTTER TO REMAIN UNDISTURBED.

DRAKE AVENUE

PROPOSED FULL WIDTH GRANITE PAVING TO COUNCIL SPECIFICATIONS. REFER TO SHEET 109 FOR DETAILS.

CYAN HATCH DENOTES PEDESTRIAN AND CYCLIST BRIDGE DEDICATION.

VERIU MACQUARIE PARK

BUDYARI MULLINAWUL GARDEN

INDICATIVE FUTURE CYCLE BRIDGE

COVE RD

LANE

RETAIL
RESI LOBBY
CHILDCARE LOBBY
MAIL
DOCK
WASTE STORAGE
BIKE WORKSHOP
SUBSTATION
CSA
PARCEL
GREEN LINK
YURA PLACE
AWNING ABOVE
CARPARK ACCESS RAMP
CORE A1
CORE B1
EGRESS FROM TOWER

GROUND FLOOR PLAN

SCALE 1:250

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
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0 1cm at full size 10cm 20cm

Certification By Dr. Michel Chaaya
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Council
Ryde City Council

Client
388 LCR Development

Scale
0 2 4 6 8 10 12 m
SCALE 1:250 @ A1

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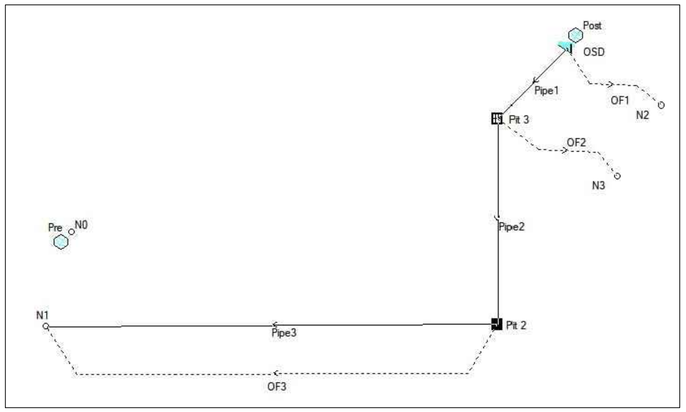
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

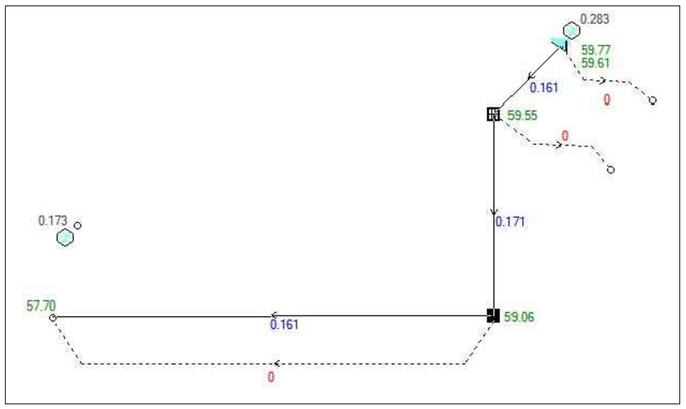
Drawing Title
STORMWATER CONCEPT PLAN
GROUND FLOOR

Scale	A1	Project No.	Dwg. No.	Issue
1:250		24535	101	G



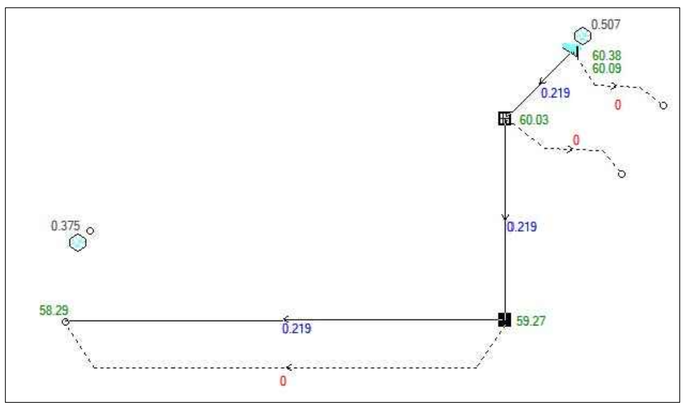
DRAINS MODEL - WITHOUT RESULTS

N.T.S



DRAINS RESULTS - 0.2EY AEP STORM

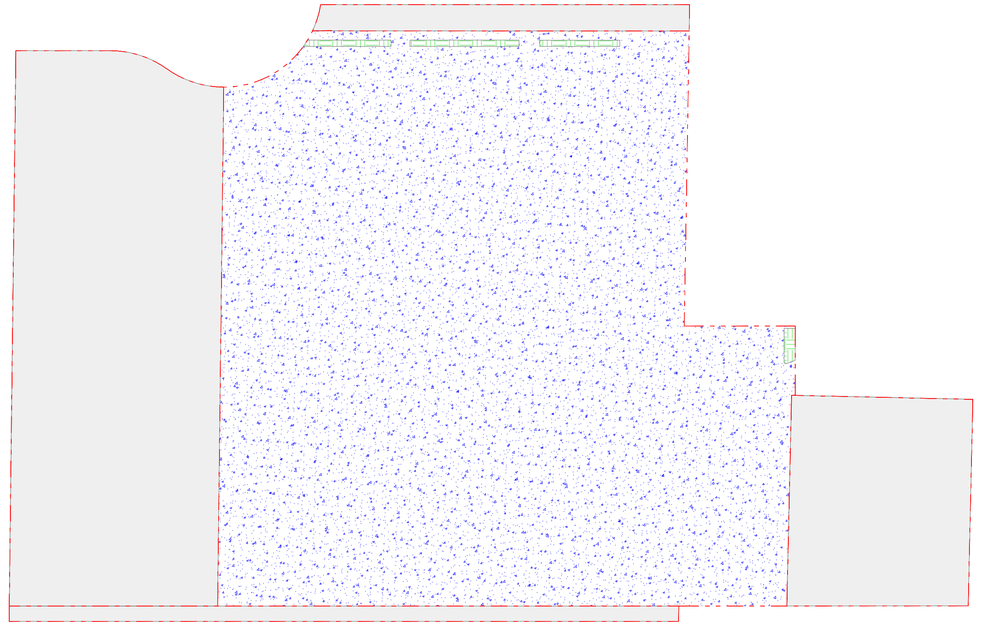
N.T.S



DRAINS RESULTS - 1% AEP STORM

N.T.S

DRAINS RESULTS					
STORM EVENT (AEP)	PRE-DEV INTERNAL FLOWS (L/s)	OSD POST-DEV FLOWS (L/s)	BYPASS FLOWS (L/s)	TOTAL POST-DEV FLOWS (L/s)	WATER STORAGE LEVEL (m)
0.2EY	173	161	0	161	59.77
10%	229	189	0	189	59.85
5%	273	207	0	207	59.93
2%	330	227	0	227	60.13
1%	375	219	0	219	60.38



POST-DEVELOPMENT CATCHMENT PLAN

SCALE 1:500

POST-DEVELOPMENT CATCHMENT LEGEND

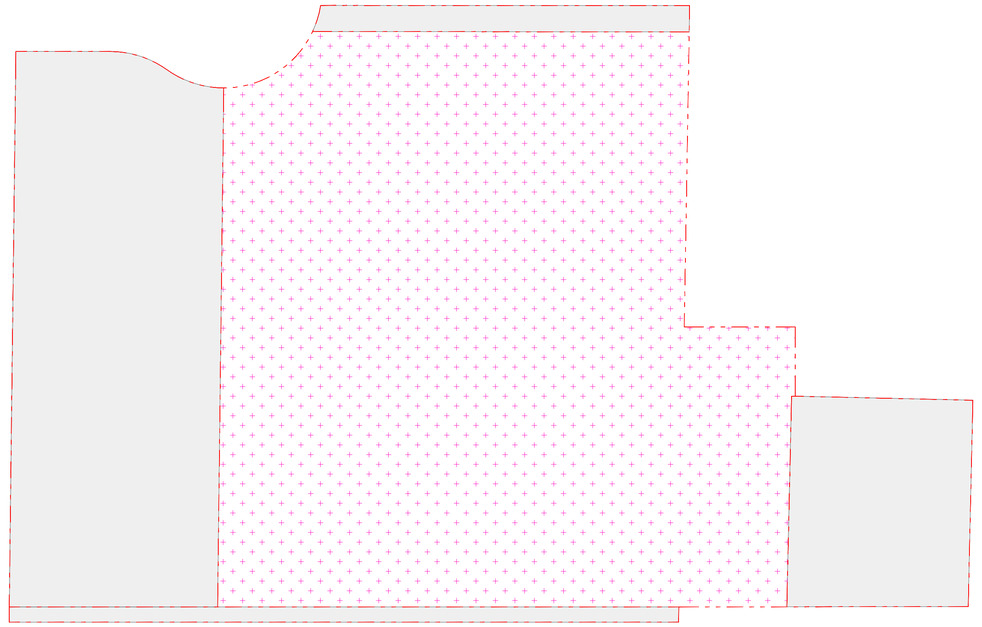
IMPERVIOUS AREA TO OSD = 7,770.6m^2

PERVIOUS AREA TO OSD = 56.4m^2

TOTAL SITE AREA = 12,386.0m^2

TOTAL SITE AREA (INCLUDED IN CALCULATION) = 7,827.0m^2

TOTAL BYPASS AREA = 0.0m^2



PRE-DEVELOPMENT CATCHMENT PLAN

SCALE 1:500

PRE-DEVELOPMENT CATCHMENT LEGEND

PERVIOUS AREA = 7,827.0m^2

PRE-DEVELOPMENT CATCHMENT TO BE ASSUMED "STATE OF NATURE" (100% PERVIOUS), AS PER CITY OF RYDE, PART: 8.2 - STORMWATER AND FLOODPLAIN MANAGEMENT, SECTION 2.4.

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
D	ISSUE FOR SSDA	22/04/2026	EAB	SBF
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

10cm at full size 100m 200m

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Client
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Scale
0 10 20 30 m
SCALE 1:500 @ A1

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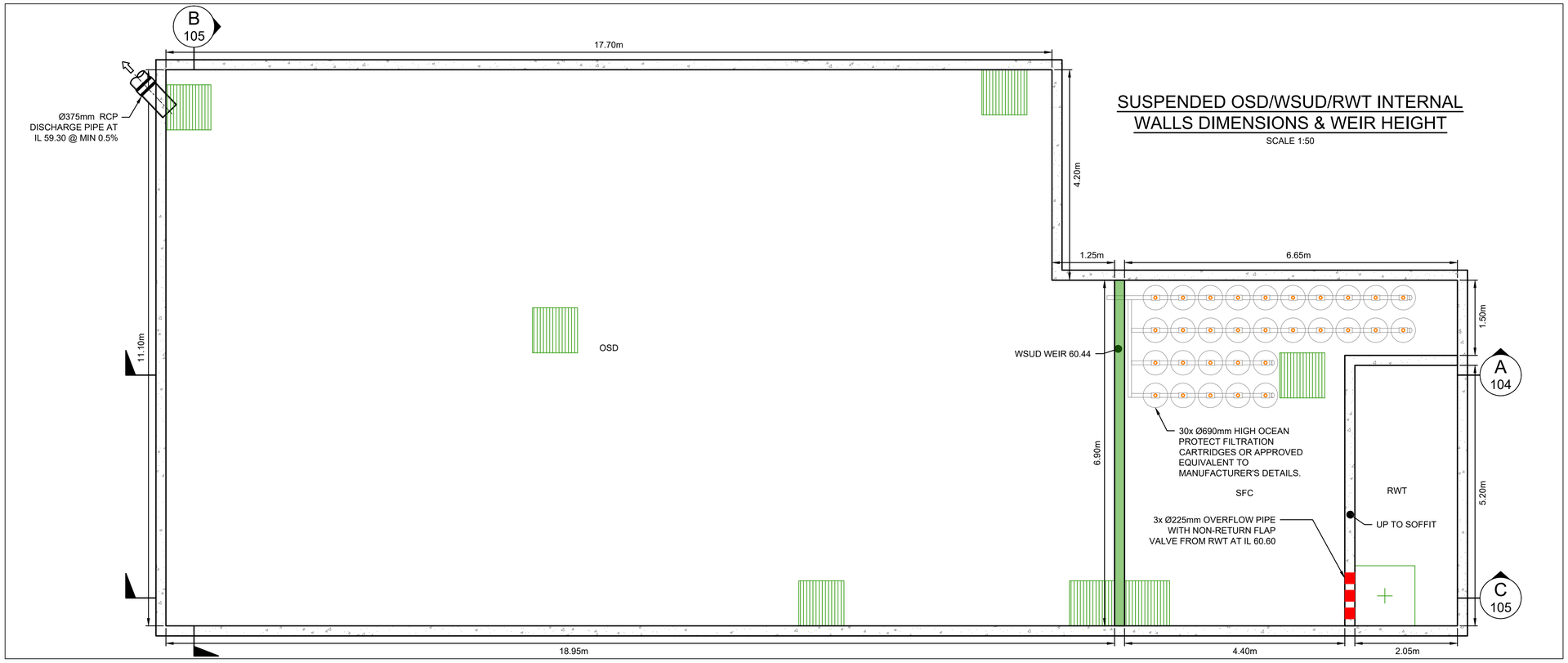
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

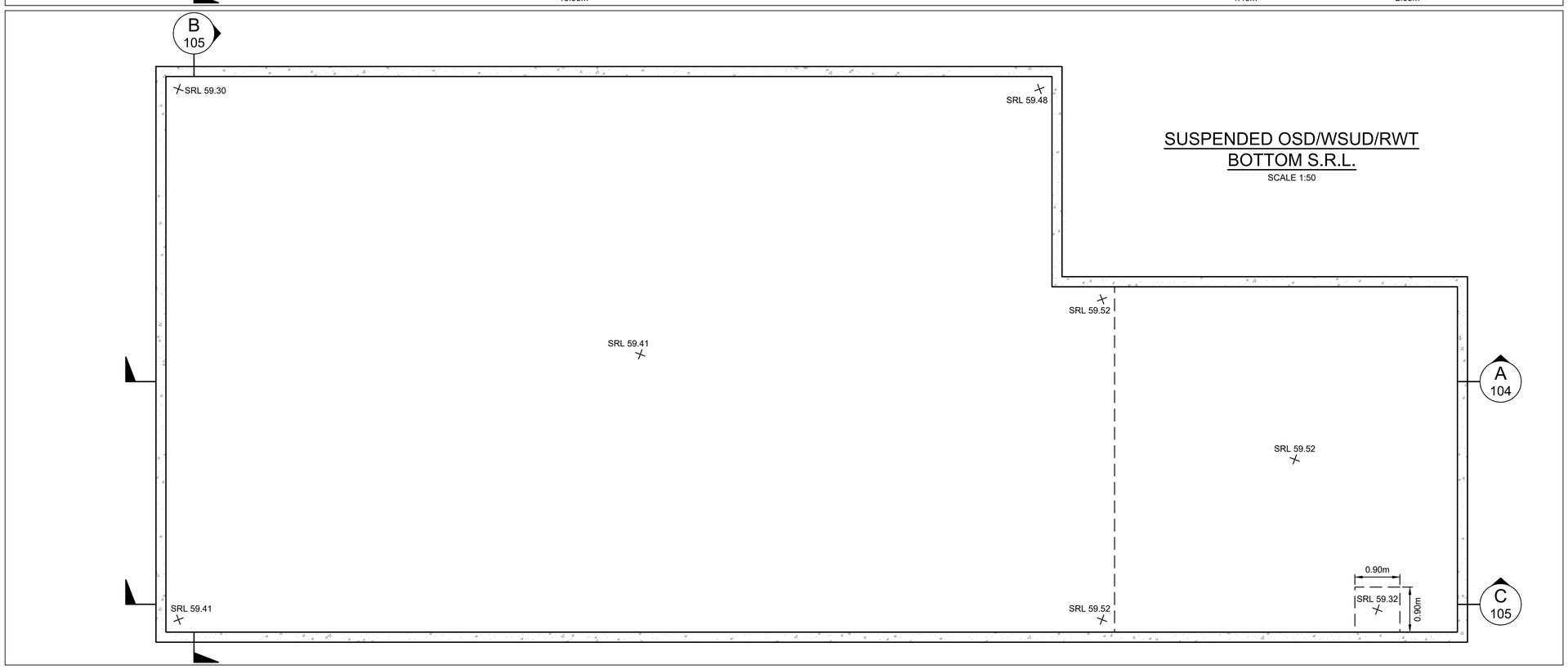
Drawing Title
OSD CATCHMENT PLAN AND DRAINS RESULT

Scale	Project No.	Dwg. No.	Issue
As Shown (A1)	24535	102	D



SUSPENDED OSD/WSUD/RWT INTERNAL WALLS DIMENSIONS & WEIR HEIGHT

SCALE 1:50



SUSPENDED OSD/WSUD/RWT BOTTOM S.R.L.

SCALE 1:50

THIS IS AN

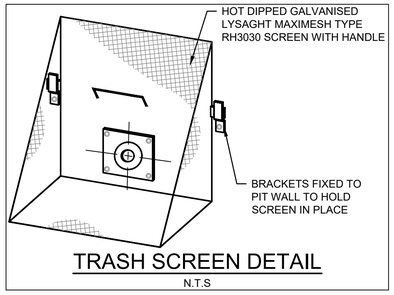
ON-SITE STORMWATER DETENTION SYSTEM

REQUIRED BY YOUR LOCAL COUNCIL

IT IS AN OFFENCE TO REDUCE THE VOLUME OF THE TANK OR BASIN OR TO INTERFERE WITH THE ORIFICE PLATE THAT CONTROLS THE OUTFLOW

THE BASE OF THE OUTLET CONTROL PIT AND THE DEBRIS SCREEN MUST BE CLEANED OF DEBRIS AND SEDIMENT ON A REGULAR BASIS BY THE OWNER

THIS PLATE MUST NOT BE REMOVED



TRASH SCREEN DETAIL

N.T.S

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

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Scale
0 1 2 3 m
SCALE 1:50 @ A1

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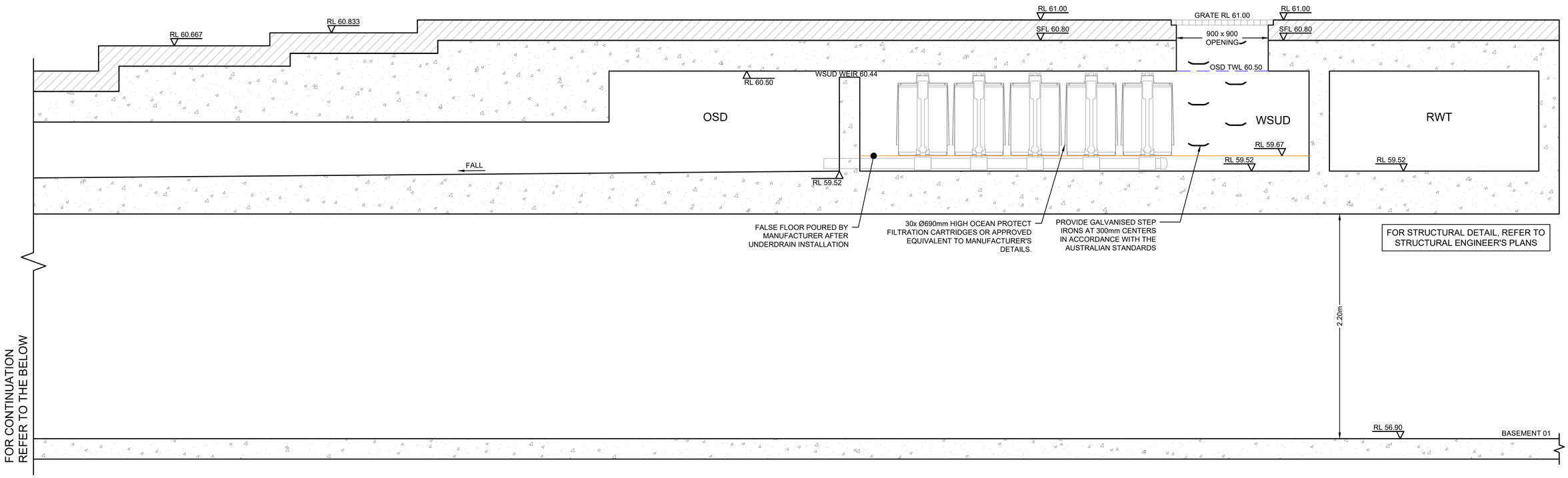
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
ON-SITE DETENTION DETAILS
SHEET 1 OF 3

Scale	Project No.	Dwg. No.	Issue
A1 As Shown	24535	103	C



SUSPENDED OSD/WSUD & RAINWATER TANKS DETAILS
SECTION A

SCALE 1:20

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

1cm at full size — 10cm — 20cm

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Ryde City Council

Client
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Scale
0 400 800 1200 mm
SCALE 1:20 @ A1

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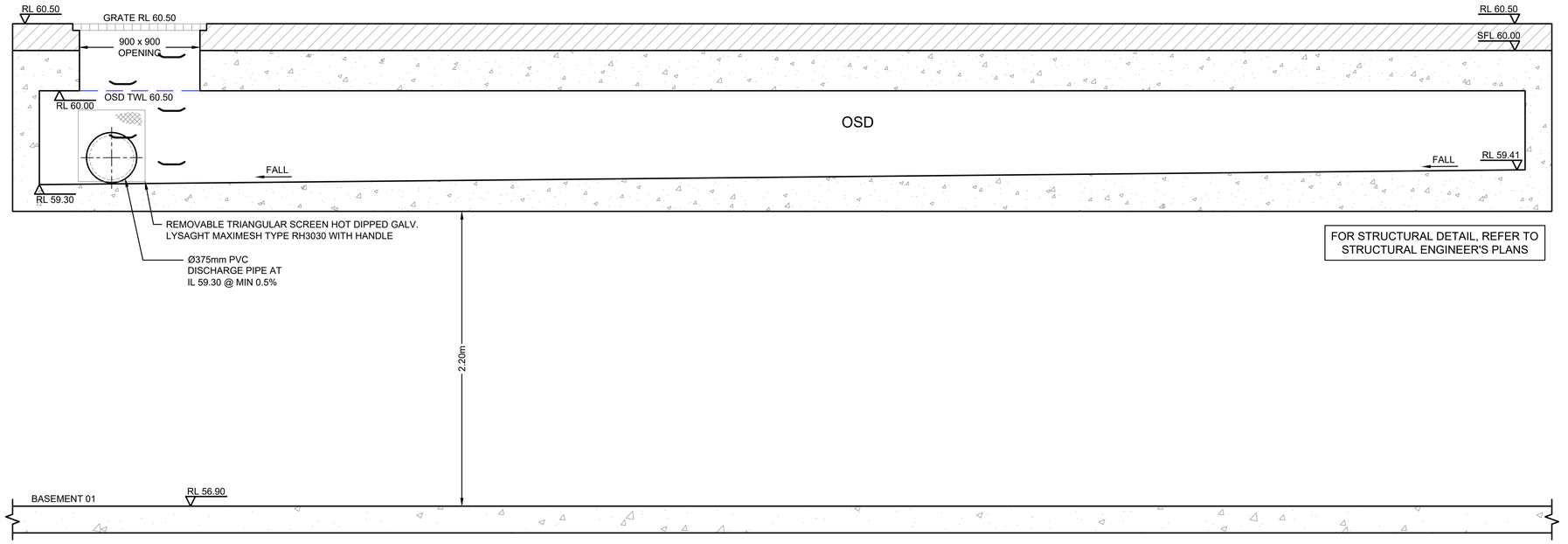
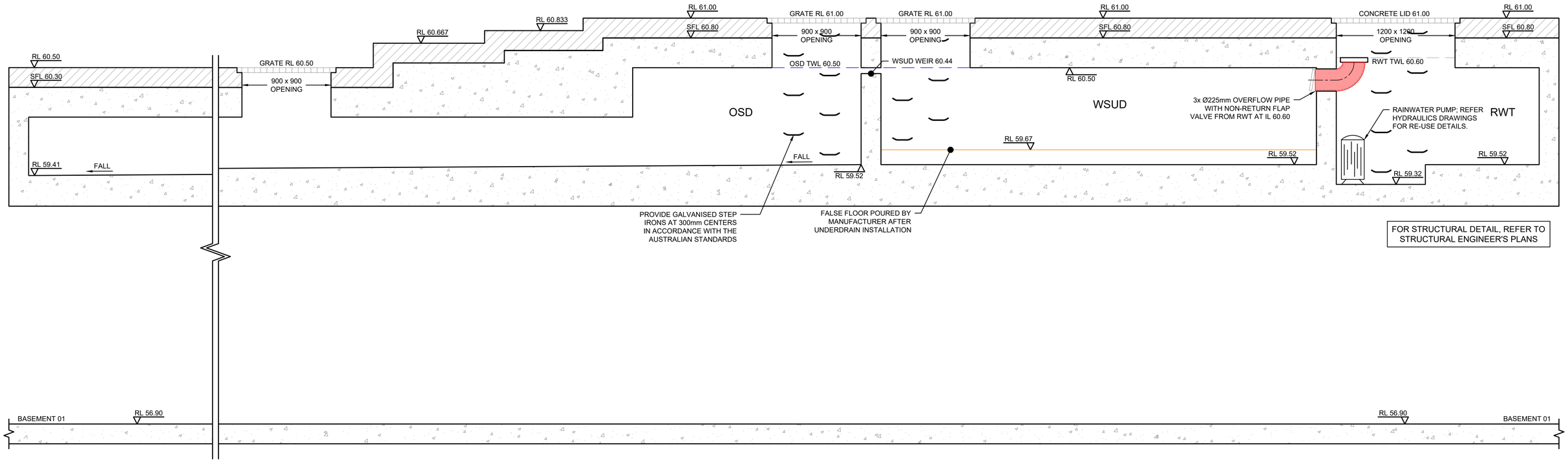
Drawing Title
ON-SITE DETENTION DETAILS
SHEET 2 OF 3

Scale	A1	Project No.	Dwg. No.	Issue
1:20		24535	104	C



SUSPENDED OSD/WSUD/RWT TANKS DETAILS
SECTION B

SCALE 1:20



SUSPENDED OSD/WSUD & RAINWATER TANKS DETAILS
SECTION C

SCALE 1:20

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

1cm at full size 10cm 20cm

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Scale
0 400 800 1200 mm
SCALE 1:20 @ A1

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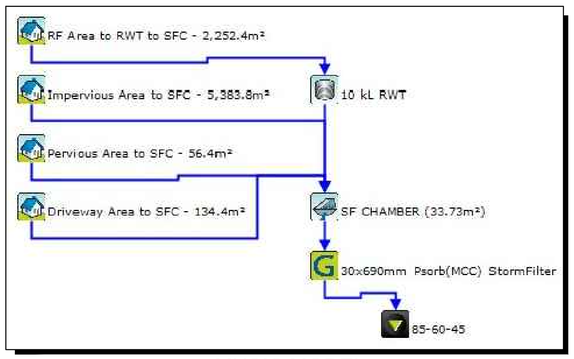
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
ON-SITE DETENTION DETAILS
SHEET 3 OF 3

Scale	A1	Project No.	Dwg. No.	Issue
1:20		24535	105	C



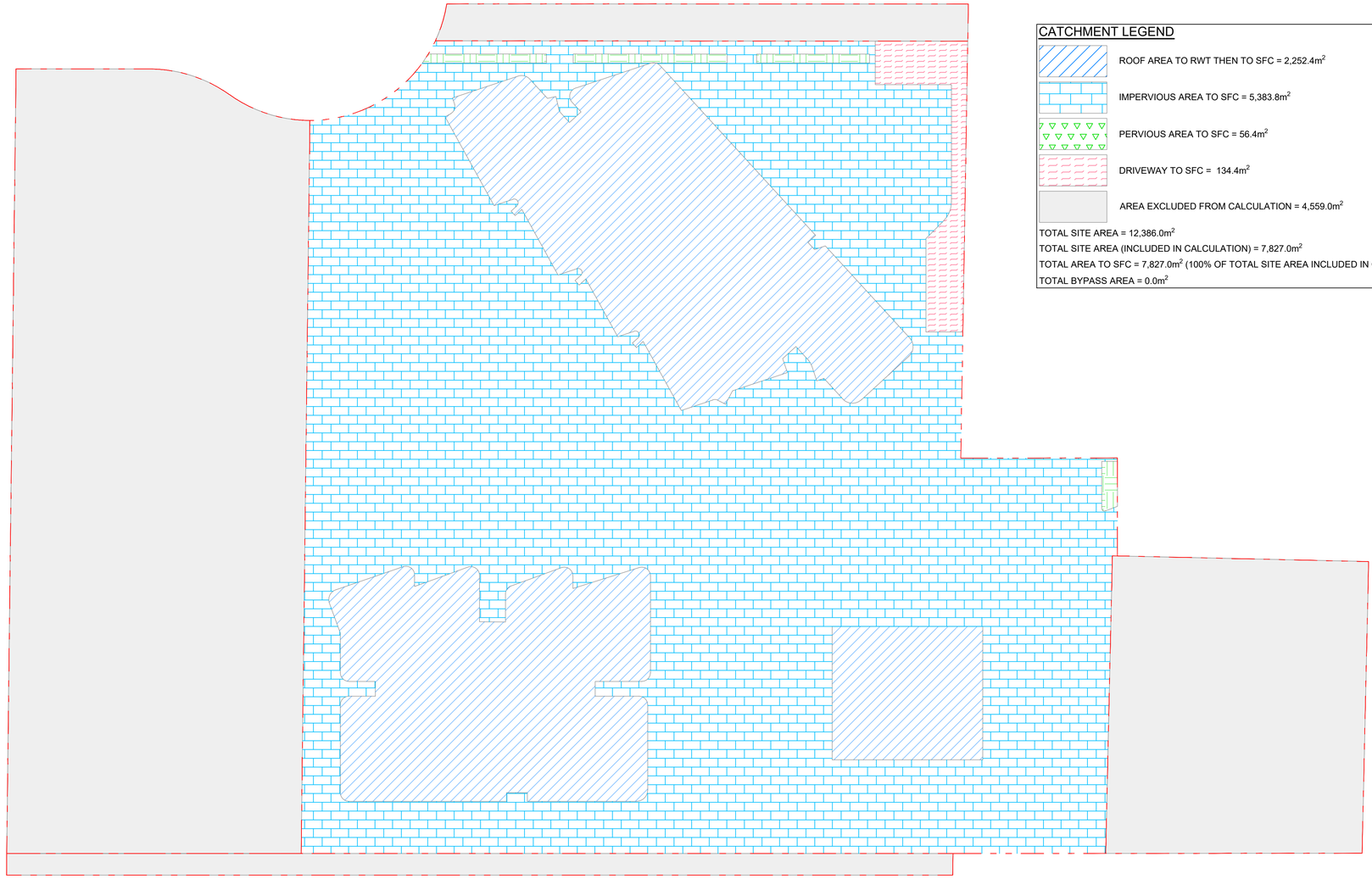
MUSIC MODEL

N.T.S.

	Sources	Residual Load	% Reduction
Flow (ML/yr)	7.111	7.002	1.535
Total Suspended Solids (kg/yr)	990.1	147.6	85.09
Total Phosphorus (kg/yr)	1.837	0.3917	78.68
Total Nitrogen (kg/yr)	15.67	7.498	52.16
Gross Pollutants (kg/yr)	182.6	0	100

MUSIC RESULTS

N.T.S.



CATCHMENT LEGEND

- ROOF AREA TO RWT THEN TO SFC = 2,252.4m²
- IMPERVIOUS AREA TO SFC = 5,383.8m²
- PERVIOUS AREA TO SFC = 56.4m²
- DRIVEWAY TO SFC = 134.4m²
- AREA EXCLUDED FROM CALCULATION = 4,559.0m²

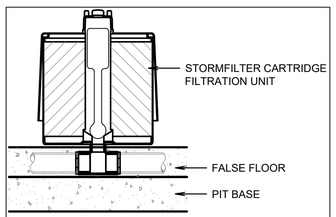
TOTAL SITE AREA = 12,386.0m²
TOTAL SITE AREA (INCLUDED IN CALCULATION) = 7,827.0m²
TOTAL AREA TO SFC = 7,827.0m² (100% OF TOTAL SITE AREA INCLUDED IN CALCULATION)
TOTAL BYPASS AREA = 0.0m²

MUSIC CATCHMENT PLAN

SCALE 1:250

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.



STORMFILTER CARTRIDGE DETAIL

N.T.S.

Facility Component Requiring Maintenance	Maintenance Activity	When Maintenance Activity Is Required	Expected Facility Performance After Maintaining	INSPECTION/MINOR MAINTENANCE (TIMES/YEAR)	MAJOR MAINTENANCE (TIMES/YEAR)
StormFilter® Cartridges and Containment Structure	Trash and Debris Removal	Floatable objects or other trash is present in the filter. Remove to avoid hindrance of filtration and eliminate unsightly debris and trash.	Permanent removal from storm system.	2 (and after major storms)	1 (except in case of a spill)
	Cartridge Replacement and Sediment Removal	1. Media has been contaminated by high levels of pollutants, such as after a spill.	1. New media is able to effectively treat stormwater.	-	-
Drainage System Piping	Flushing With Water	Drainage system is obstructed by debris or sediment.	Outflow is not restricted.	-	-

FILTRATION UNIT MAINTENANCE SCHEDULE

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
D	ISSUE FOR SSDA	22/04/2026	EAB	SBF
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1cm at full size 10cm 20cm

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Client
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Scale
0 3 6 9 12 15 18 m
SCALE 1:300 @ A1

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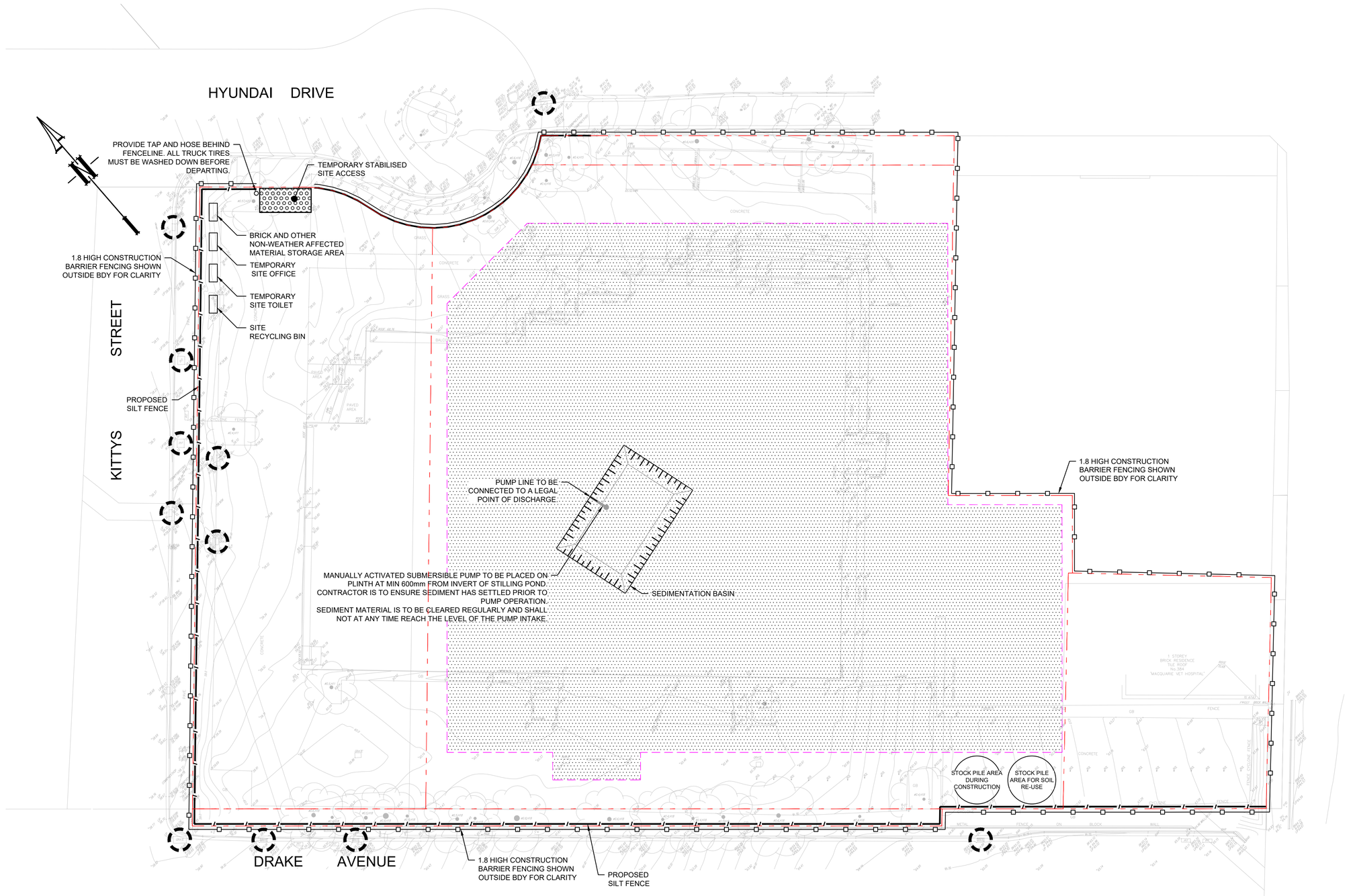
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
MUSIC CATCHMENT PLAN AND RESULTS

Scale	Project No.	Dwg. No.	Issue
As Shown A1	24535	106	D

LEGEND

- EXISTING CONTOUR (26.45)
- EXISTING SURFACE LEVEL (NS 26.31)
- EARTHWORKS LEVELS (EL: 47.00)
- DESIGN SURFACE LEVELS (RL 47.00)
- SILT FENCE
- STABILISED SITE ACCESS
- 1.8 HIGH CONSTRUCTION BARRIER FENCING
- TREES TO BE RETAINED
- INLET PROTECTION
- BASEMENT CUT EXTENT



SEDIMENT & EROSION CONTROL PLAN

SCALE 1:300

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	22/04/2026	EAB	SBF
B	ISSUE FOR SSDA	01/10/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

10cm at full size — 10cm — 20cm

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Scale
0 3 6 9 12 15 18 m
SCALE 1:300 @ A1

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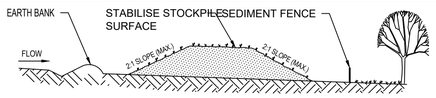
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
SOIL & WATER MANAGEMENT / SEDIMENT & EROSION CONTROL PLAN & DETAILS SHEET 1 OF 2

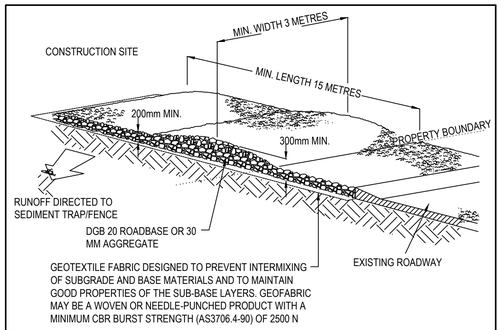
Scale	A1	Project No.	Dwg. No.	Issue
1:300		24535	107	C



CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. ALL STOCKPILES ARE TO BE LOCATED AND PLACED IN ACCORDANCE WITH THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
5. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) NO STABILISATION IS REQUIRED. REVIEW THE ADEQUACY OF SEDIMENT CONTROLS IF RAINFALL IS PREDICTED.
6. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) THE FOLLOWING ADDITIONAL CONTROLS ARE REQUIRED:
   -MAXIMUM BATTER SLOPE REDUCED TO 1:4
   -CONSTRUCT A CONTOUR DRAIN ON THE LOW SIDE OF THE STOCKPILE, AND DISCHARGING THROUGH A STRAW BALE OR 200mm HIGH GRAVEL DAM
   -ESTABLISH GRASS COVER TO SURFACE OF STOCKPILE WITHIN 14 DAYS, USING HYDROMULCH WITH A 75:25 MIX OF SEASONAL AND PERMANENT GRASS SEEDS, AND A STRAW MULCH THICKNESS OF NO LESS THAN 5mm.
7. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

STOCKPILES SD 4-1

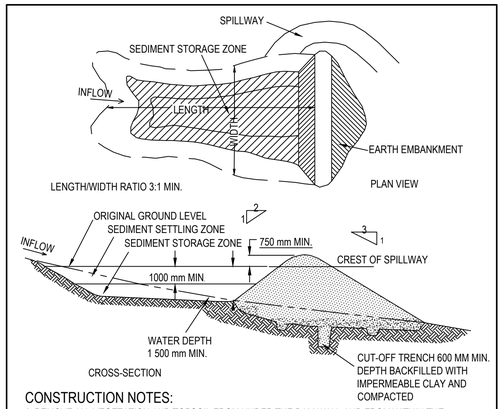


GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOFABRIC MAY BE A WOVEN OR NEEDLE-PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE

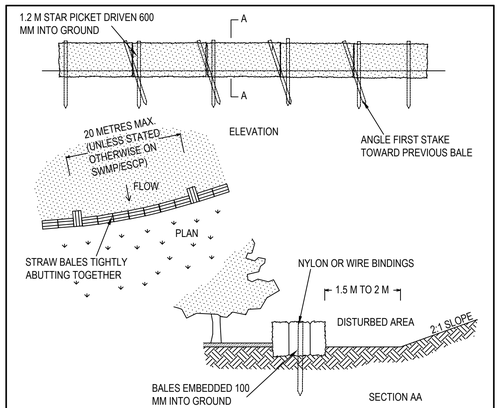
STABILISED SITE ACCESS SD 6-14



CONSTRUCTION NOTES:

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500 MM DEEP AND 1,200 MM WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100 MM TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100 MM TO 150 MM LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY. 8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

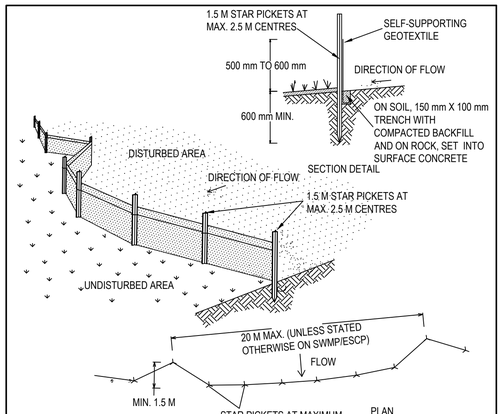
EARTH BASIN - WET (APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY) SD 6-4



CONSTRUCTION NOTES:

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE DRIVE THEM 600 mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER SD 6-7



CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DIAGRAM 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.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE 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.
4. 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.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE SD 6-8

SEDIMENT & EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO THE COMMENCEMENT OF ANY WORKS BEING CARRIED OUT. ALL SOIL AND EROSION MEASURES SHALL BE MAINTAINED AND KEPT IN PLACE FOR THE FULL DURATION OF THE WORKS AND SHALL ONLY BE REMOVED AT FINAL STABILISATION OF THE WORKS. WHERE IT IS NECESSARY TO UNDERTAKE STRIPPING IN ORDER TO CONSTRUCT A SEDIMENT CONTROL DEVICE ONLY SUFFICIENT GROUND SHALL BE STRIPPED TO ALLOW CONSTRUCTION.
2. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED & MAINTAINED AS INDICATED ON THESE DRAWINGS. LOCATION AND EXTENT OF SOIL & WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT.
3. CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ANY NECESSARY CONTROL IS IN PLACE EVEN THOUGH SUCH CONTROL MAY NOT BE SHOWN ON THE PLAN.
4. THE CONTRACTOR SHALL INFORM ALL SUBCONTRACTORS & ALL EMPLOYEES OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION & POLLUTION TO DOWNSTREAM AREAS
5. IN ADDITION TO SEDIMENT BASINS, THE CONTRACTOR SHALL REGULARLY MAINTAIN SEDIMENT AND EROSION CONTROL STRUCTURES & DESILT SUCH STRUCTURES PRIOR TO THE REDUCTION IN CAPACITY OF 30% DUE TO ACCUMULATED SEDIMENT. THE SEDIMENT SHALL BE DISPOSED OF ON SITE IN A MANNER APPROVED BY THE ENGINEER.
6. THE CONTRACTOR SHALL TEMPORARILY REHABILITATE WITHIN TEN (10) DAYS ANY DISTURBED AREAS PROVIDING A MINIMUM 60% COVER. FINAL REHABILITATION IS TO BE PROVIDED WITHIN A FURTHER 60 DAYS WITH A MINIMUM 70% COVER.
7. THE CONTRACTOR SHALL PROVIDE WATERING OF THE VEGETATED BATTERS FOR MAINTENANCE PERIOD. PLANT, MACHINERY AND VEHICLES SHALL NOT BE DRIVEN OVER GRASSED AREAS UNLESS ON AN APPROVED HAULAGE ROUTE.
8. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS QUICKLY AS POSSIBLE TO MINIMISE RISK OF EROSION.
9. SITE ACCESS SHALL BE RESTRICTED TO THE NOMINATED POINTS. THE CONTRACTOR SHALL PROVIDE STABILISED SITE ACCESS.
10. DUST AND SITE DISTURBANCE MUST BE KEPT TO A MINIMUM. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS MUST BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO REDUCE WIND EROSION. ERECT BARRIER FENCING TO MINIMISE LAND DISTURBANCE BY PREVENTING VEHICULAR AND PEDESTRIAN ACCESS TO AREAS BEING REHABILATATED AND LANDS THAT DO NOT NEED TO BE DISTURBED BY THIS PROJECT.
11. STOCKPILE TOPSOILS, SUBSOILS AND OTHER MATERIALS SEPARATELY.
12. TOPSOIL SHALL BE STORED IN LOW MOUNDS NO MORE THAN 2 METRES HIGH AND RE-USED WITHIN TWO MONTHS TO MAINTAIN ACTIVE POPULATIONS OF BENEFICIAL SOIL MICROBES & SEED.
13. PLACE ALL STOCKPILES AT LEAST FIVE METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS, ESPECIALLY EARTH BANKS AND ROADS. IF NECESSARY, EARTH BANKS OR DRAINS WILL BE CONSTRUCTED TO DIVERT LOCALISED RUN-ON.
14. TURN TOPSOIL STOCKPILES OVER TO AERATE THEM AT MONTHLY INTERVALS. ENSURE VEGETATION IS NOT INCORPORATED INTO THE SOIL.
15. AVOID REVERSING THE SOIL PROFILE MATERIALS DURING FILL OPERATIONS - REPLACE DISTURBED SOILS IN THEIR ORIGINAL ORDER.
16. ON COMPLETION OF MAJOR EARTHWORKS AND BEFORE ADDING TOPSOIL, LEAVE DISTURBED LANDS WITH A LOOSE SURFACE. ALTERNATELY, DISTURBED AREAS PREVIOUSLY COMPACTED BY CONSTRUCTION WORKS WILL BE RIPPED TO MORE THAN 200mm ALONG THE CONTOUR BEFORE APPLYING TOPSOIL
17. PROVIDING MATERIALS ARE AVAILABLE, SPREAD TOPSOIL TO A MINIMUM DEPTH OF 75mm IN REVEGETATION AREAS ON SLOPES OF 4(H):1(V) OR LESS AND TO A DEPTH OF 40 TO 60mm IN REVEGETATION AREAS STEEPER THAN 4:1.
18. LEAVE TOPSOIL IN A SCARIFIED OR ROUGH CONDITION ONCE REPLACED TO HELP MOISTURE INFILTRATION AND REDUCE SOIL EROSION.
19. ENSURE SOIL IS THOROUGHLY SOAKED TO A DEPTH OF 75mm (RAIN OR IRRIGATION) IMMEDIATELY BEFORE PLANTING.
20. HANDLE TOPSOIL ONLY WHEN IT IS MOIST (NOT WET OR DRY) TO AVOID DECLINE OF SOIL STRUCTURE
21. THE CONTRACTOR SHALL MAINTAIN A LOG BOOK DETAILING:
    - RECORDS OF ALL RAINFALL
    - CONDITION OF SOIL AND WATER MANAGEMENT STRUCTURES
    - ANY APPLICATION OF FLOCCULATING AGENTS TO SEDIMENT BASIN
    - VOLUMES OF ALL WATER DISCHARGED FROM SEDIMENT BASINS
    - ANY ADDITIONAL REMEDIAL WORKS REQUIRED.
22. THE LOG BOOK SHALL BE MAINTAINED ON A WEEKLY BASIS AND BE MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. THE ORIGINAL LOG BOOK SHALL BE ISSUED TO THE PROJECT MANAGER AT THE COMPLETION OF WORKS
23. ALL ROAD EMBANKMENTS TO BE STABILISED AS PER LANDSCAPE ARCHITECTS DETAILS.
24. A SELF AUDITING PROGRAM SHOULD BE ESTABLISHED BASED ON A CHECK SHEET DEVELOPED FOR THE SITE. A SITE INSPECTION USING THE CHECK SHEET SHOULD BE MADE BY THE SITE MANAGER AT LEAST WEEKLY, IMMEDIATELY BEFORE SITE CLOSURE AND IMMEDIATELY FOLLOWING RAINFALL EVENTS THAT CAUSE RUNOFF.
25. UNDERTAKE THE SELF AUDIT BY:
    - WALKING AROUND THE SITE SYSTEMATICALLY (E.G. CLOCKWISE)
    - RECORDING THE CONDITION OF EVERY BMP EMPLOYED
    - RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH BMP
    - RECORDING THE SITE WHERE SEDIMENT IS DISPOSED
    - FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER/SITE OPERATOR FOR THEIR INFORMATION
26. IN PARTICULAR, INSPECT:
    - LOCATIONS WHERE VEHICLES ENTER AND LEAVE THE SITE
    - ALL INSTALLED EROSION AND SEDIMENT CONTROL MEASURES, ENSURING THEY ARE OPERATING CORRECTLY
    - AREAS THAT MIGHT SHOW WHETHER SEDIMENT OR OTHER POLLUTANTS ARE LEAVING THE SITE OR HAVE POTENTIAL TO DO SO
    - ALL DISCHARGE POINTS, TO ASSESS WHETHER THE EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING IMPACTS TO THE RECEIVING WATERS
27. A SITE INSPECTION USING THE CHECK SHEET WILL BE MADE BY THE SITE MANAGER AT LEAST WEEKLY, IMMEDIATELY BEFORE SITE CLOSURE, AND IMMEDIATELY FOLLOWING RAINFALL EVENTS GREATER THAN 5mm IN 24 HOURS.

SEDIMENT BASIN CALCULATION:

THE MINIMUM VOLUME OF THE UPPER SETTING ZONE IS DEFINED BY EQUATION:

$V_S = 10 \cdot R_{(y\%,5\text{-day})} \cdot C_V \cdot A$

WHERE: V_S = VOLUME OF THE SETTING ZONE (m^3)
$R_{(y\%,5\text{-day})}$ = Y%, 5-DAY RAINFALL DEPTH (mm)
C_V = VOLUMETRIC RUNOFF COEFFICIENT
A = EFFECTIVE CATCHMENT SURFACE AREA TO BE CONNECTED TO THE BASIN (ha)
$R_{(y\%,5\text{-day})} = K_1 \cdot I_{(1yr,120hr)} + K_2$

WHERE: K = CONSTANT = 17
K_2 = CONSTANT = 11.2
$I_{(1yr,120hr)}$ = AVERAGE RAINFALL INTENSITY FOR A 1 IN 1 YEAR ARI, 120 HR STORM (mm/hr) = 1.3

THEN: $R_{(y\%,5\text{-day})} = 17 \times 1.3 + 11.2 = 33.3$

SEDIMENT BASIN:
$R_{(y\%,5\text{-day})}$ = 33.3
C_V = 0.5
A = 12,386 m^2= 1.2386 ha

THEN $V_S = 10 \times 33.3 \times 0.5 \times 1.2386 = 206.23\ m^3$

GENERAL:

- WHERE POSSIBLE SEED ALL TOPSOIL AREAS TO STABILISE LOTS.
- CONSIDERATION SHOULD BE GIVEN TO LAYING A STRIP OF TURF AT THE BASE OF THE RETAINING WALLS ALONG HIAWATHA ROAD.
- STABILISATION OF KERBSIDE WOULD OCCUR VIA TURF STRIP AND FOOTPATH CONSTRUCTION AS SOON AS PRACTICAL.

BASIN DEWATERING NOTES:

ALL SEDIMENT BASINS ON-SITE ARE TO BE CONTINUOUSLY MONITORED AND MAINTAINED BEFORE AND AFTER RAIN EVENTS. DEWATERING IS TO BE ACHIEVED BY:

- AFTER A RAIN EVENT, ALLOW UP TO 24 HOURS FOR ALL SURFACE FLOWS AND GROUND WATER TO CONTINUE SEEPING INTO THE BASIN;
- PLACE INDUSTRY STANDARD FLOCCULANT FOR A PERIOD OF 24-48 HOURS. MORE TIME MAY BE REQUIRED DEPENDING ON GROUND SEEPAGE FROM UPSTREAM CATCHMENT;
- WATER QUALITY TESTING BY AN ACCREDITED ENVIRONMENTAL ENGINEER AND LABORATORY FOR TOTAL SUSPENDED SOLIDS (TSS) IS TO OCCUR;
- ONCE CLEARANCE BY AN ENVIRONMENTAL ENGINEER HAS BEEN SOUGHT, PUMP WATER IN NEARBY DRAINAGE SYSTEM

SEDIMENT BASIN DIMENSIONS

SCALE 1:100

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
C	ISSUE FOR SSDA	22/04/2026	EAB	SBF
B	ISSUE FOR SSDA	01/10/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

0 10cm at full size 10cm 20cm

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Ryde City Council

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Scale
0 2 4 6 m
SCALE 1:100 @ A1

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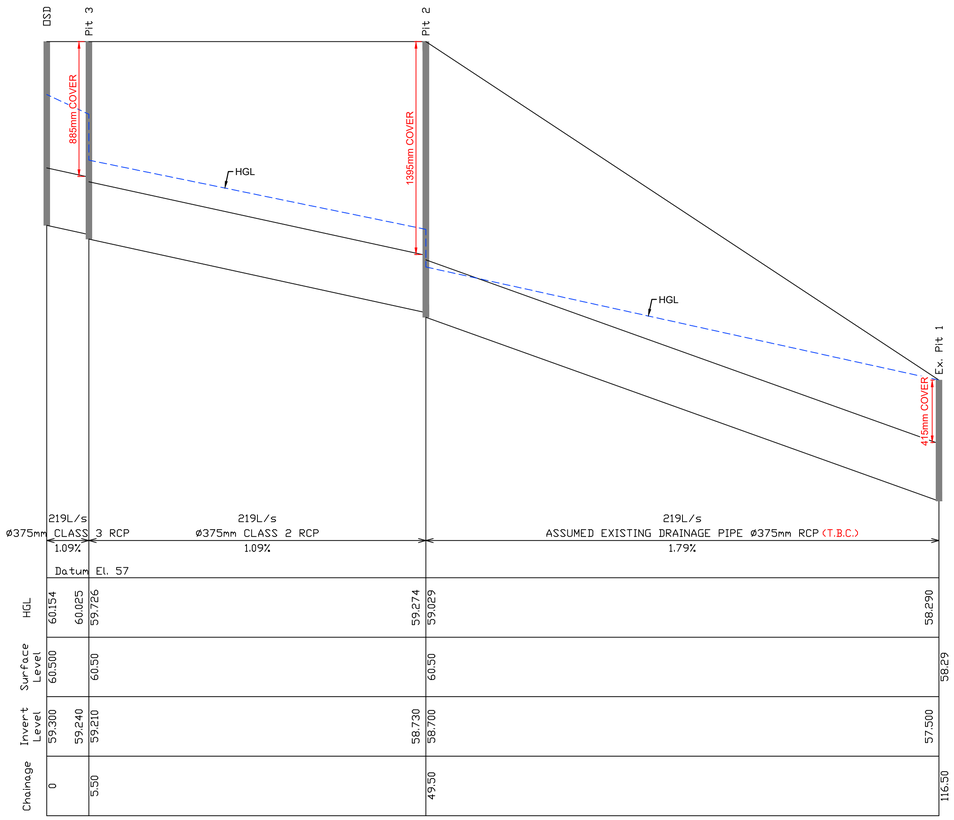
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
SOIL & WATER MANAGEMENT/ SEDIMENT & EROSION CONTROL PLAN & DETAILS SHEET 2 OF 2

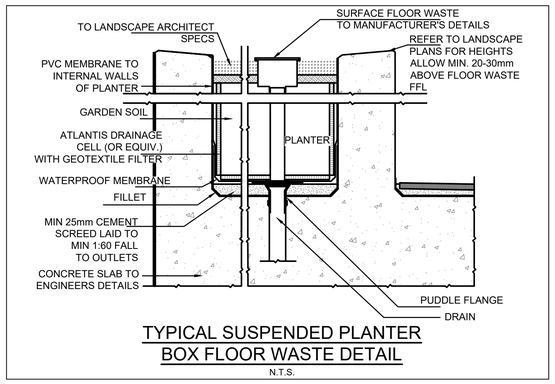
Scale A1	Project No.	Dwg. No.	Issue
As Shown	24535	108	C



100 YEAR ARI STORM DRAINAGE LONGITUDINAL SECTION

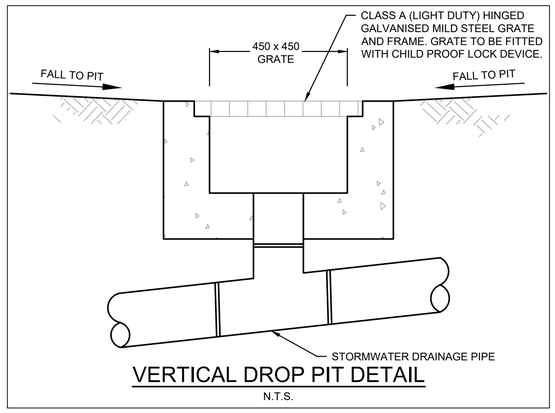
HORIZONTAL SCALE 1:400
VERTICAL SCALE 1:20

NOTE:
DETAIL TO BE CONFIRMED BY WATERPROOFING CONSULTANT/ARCHITECT.



TYPICAL SUSPENDED PLANTER BOX FLOOR WASTE DETAIL

N.T.S.



VERTICAL DROP PIT DETAIL

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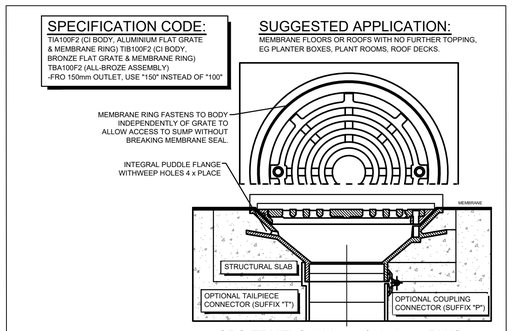
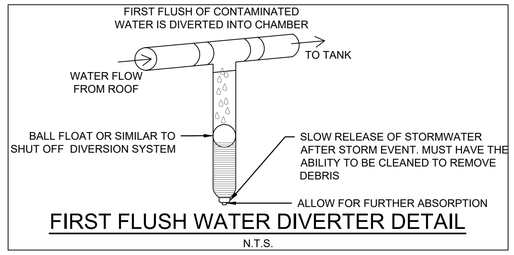


SPS TRUFLO 100mm & 150mm RWO WITH FLAT GRATE & MEMBRANE CLAMP

N.T.S

N.B	A	B	C	D	E	F	G	FLOW RATE* L/S
100	260	240	110	98	28	45	25	8.5
150	260	238	160	90	28	37	25	9.4



FIRST FLUSH WATER DIVERTER DETAIL

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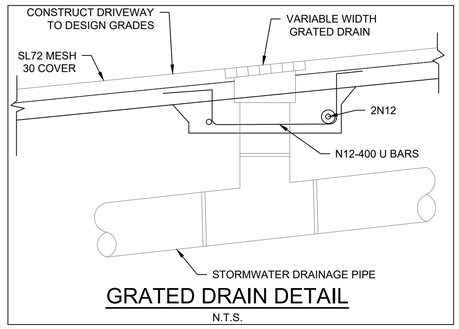

GRATED DRAIN DETAIL

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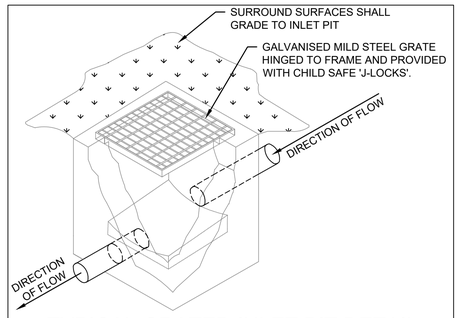

TYPICAL GRATED INLET PIT DETAIL

N.T.S.

Stormwater Drainage System Maintenance Schedule

Maintenance Action	Frequency	Responsibility	Procedure
General			
Inspect roof drainage system of building and remove any debris/sludge	Six Monthly	Strata/Maintenance Contractor	Remove any leaves or debris and sludge from gutters of building and flush downpipes of building to remove any blockages. Pits downstream of downpipes to be cleaned of flushed debris.
Inspect pits and trench drains on site and remove debris/litter/sludge	Monthly or following Rain Period	Strata/Maintenance Contractor	Remove grate. Remove any debris/litter/sludge from within pits.
Inspect site for litter and floatable debris and remove	Fortnightly	Strata/Maintenance Contractor	Remove litter from site and sweep all driveway and pathways in order to remove leaves or sediments that may enter into the drainage system.
Basement Pump out			
Inspect and clean flap valve,	Six Monthly	Strata/Maintenance Contractor	Remove grate and check flap valve and pipe for blockages and clean. Check hinges for rust and test operation by moving flap to full extent.
Check hinge operation.	Annually	Strata/Maintenance Contractor	Inspect hinge and check its operation.
Check attachment of flap valve to wall pit.	Annually	Strata/Maintenance Contractor	Remove grate and ensure valve fixings are secure.
Check flap valve seal.	Six Monthly	Strata/Maintenance Contractor	Remove grate and fill pit with water, ensure flap seals against side of pit with minimal leakage.
Inspect walls for cracking or spalling.	Annually	Strata/Maintenance Contractor	Remove grate to inspect internal walls, remove vegetation to inspect external wall, repair as required.
Inspect sump and clean.	Six Monthly	Strata/Maintenance Contractor	Remove grate and clean sediment/sludge from sump.
Inspect grate for damage or blockage.	Six Monthly	Strata/Maintenance Contractor	Check both sides of grate for corrosion (particularly welds and corners); also check for damage and blockages
Inspect outlet pipe and remove blockages	Six Monthly	Strata/Maintenance Contractor	Remove grate and flush outlet pipe to ensure it drains freely. Check for debris on upstream side of return line.
Outlets			
Inspect & remove any blockage of orifices	Six monthly	Strata/Maintenance Contractor	Remove grate & screen to inspect orifice. See plan for location of outlets
Check attachment of orifice plates to wall of chamber and/or pit (gaps less than 5 mm)	Annually	Strata/Maintenance Contractor	Remove grate and screen. Ensure plates are mounted securely, tighten fixings if required. Seal gaps as required.
Check orifice diameters are correct and retain sharp edges	Five yearly	Strata/Maintenance Contractor	Compare diameter to design (see Work-as-Executed) and ensure edge is not pitted or damaged.
Inspect screen and clean	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screens if required to clean them.
Check attachment of screens to wall of chamber or pit	Annually	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Ensure screen fixings are secure. Repair as required.
Check screen(s) for corrosion	Annually	Strata/Maintenance Contractor	Remove grate(s) and examine screen(s) for rust or corrosion, especially at corners or welds.
Inspect walls (internal and external, if appropriate) for cracks or spalling	Annually	Strata/Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect outlet sumps & remove any sediment/sludge	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Remove sediment/sludge build-up and check orifices are clear.
Inspect grate(s) for damage or blockage	Six monthly	Strata/Maintenance Contractor	Check both sides of a grate for corrosion, (especially corners and welds) damage or blockage.
Inspect outlet pipe & remove any blockage	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Ventilate underground storage if present. Check orifices and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/debris on upstream side of return line.
Check step irons for corrosion	Annually	Strata/Maintenance Contractor	Remove grate. Examine step irons and repair any corrosion or damage
Check fixing of step irons is secure	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and ensure fixings are secure prior to placing weight on step iron.
Storage			
Inspect storage & remove any sediment/sludge in pit	Six monthly	Strata/Maintenance Contractor	Remove grate(s) and screen(s). Remove sediment/sludge build-up.
Inspect internal walls of storage (and external, if appropriate) for cracks or spalling	Annually	Strata/Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect & remove any debris/litter/mulch etc blocking grates	Six monthly	Strata/Maintenance Contractor	Remove blockages from grate(s) and check if storage is blocked.
Inspect areas draining to the storage(s) & remove debris/mulch/litter etc likely to block screens/grates	Six monthly	Strata/Maintenance Contractor	Remove debris and floatable material likely to be carried to grates.
Compare storage volume to volume approved. (Rectify if loss > 5%)	Annually	Strata/Maintenance Contractor	Compare actual storage available with Work-as Executed plans. If volume loss is greater than 5%, arrange for reconstruction to replace the volume lost. Council to be notified of the proposal.
Inspect storages for subsidence near pits	Annually	Strata/Maintenance Contractor	Check along drainage lines and at pits for subsidence likely to indicate leakages.

NOT FOR CONSTRUCTION

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D	ISSUE FOR SSDA	22/04/2026	EAB	SBF
C	ISSUE FOR SSDA	01/10/2025	EAB	SBF
B	ISSUE FOR COORDINATION	09/09/2025	EAB	SBF
A	ISSUE FOR COORDINATION	22/08/2025	EAB	SBF

Check if not full size 10cm 20cm

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Scale
0 400 800 1200 mm
SCALE 1:20 @ A1
0 8 16 24 m
SCALE 1:400 @ A1

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Project
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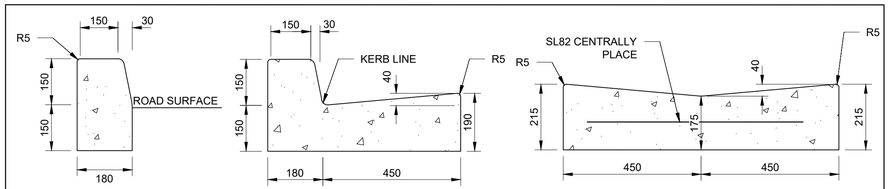
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
MISCELLANEOUS DETAILS SHEET 1

Scale	Project No.	Dwg. No.	Issue
As Shown A1	24535	109	D



KERB ONLY
SCALE N.T.S.

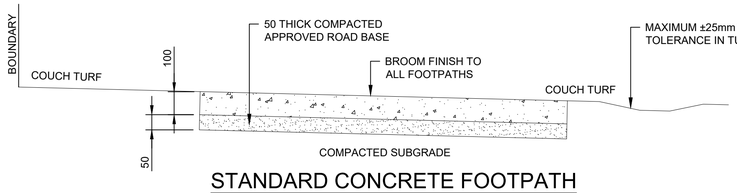
KERB AND GUTTER
SCALE N.T.S.

DISH CROSSING
SCALE N.T.S.

NOTES:

1. ALL ROADSIDE KERBS SHALL BE LAID ON A MINIMUM 100mm THICKNESS COMPACTED APPROVED ROADBASE.
2. ALL CORNERS SHALL HAVE A 25mm RADIUS UNLESS NOTED OTHERWISE.
3. ALL KERBS, GUTTERS AND EDGE STRIPS SHALL BE STEEL FLOAT FINISHED.
4. EXPANSION JOINTS SHALL BE PROVIDED AND AT INTERVALS OF 7m ALONG STRAIGHT ALIGNMENT AND 3m ALONG CURVED ALIGNMENT. REFER TO CIV.11 FOR JOINT DETAIL
5. CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 25MPa MINIMUM.
6. CONCRETE SHALL BE PLACED WITH A MAXIMUM SLUMP OF 80mm.
7. REFER TO CIV.1.2.1 FOR ROAD RESTORATION DETAIL.
8. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

CIV 1.1.1 STANDARD KERBS AND GUTTERS
N.T.S.



STANDARD CONCRETE FOOTPATH
SCALE N.T.S.

INSTALLATION OF GRANITE

CONCRETE BLINDING LAYER:
PLACE 125mm THICK CONCRETE (25MPA) WITH SL72 MESH MINIMUM COVER 40mm. PLACE CONCRETE BLINDING LAYER ON MINIMUM 50mm DEEP DGB20 TO 98% STANDARD DRY COMPACTION IN ACCORDANCE WITH AS1289.5.1.1. REFER TO DETAIL PV1.1 & PV1.2 ANY SOFT SPOTS IN SUB-GRADE TO BE REMOVED AND IDENTIFIED WITH CITY OF RYDE (CoR) PROJECT MANAGER.

PAVER JOINTING:
BETWEEN INDIVIDUAL PAVERS-JOIN FLUSH TOGETHER LEAVING A 2mm GAP. FORM CONTINUOUS EVEN SURFACE TO AVOID TRIP HAZARDS. THE JOINTS BETWEEN PAVERS ARE TO BE FILLED WITH ULTRA FINE SILICA SAND CEMENT MIX AS SUPPLIED BY BENEDICTS SAND AND SOIL (PH.9986 3500) OR AN APPROVED EQUIVALENT. AT ISOLATION AND EXPANSION JOINTS - FILL 5-10mm GAP WITH FOAM BACKING ROD AND APPROVED ONE COMPONENT, THIXOTROPIC, POLYURETHANE BASED JOINT SEALANT. SEALANT COLOUR TO BE BLACK UNLESS SPECIFIED OTHERWISE. REFER TO DETAILS PV3.1.1-PV3.6.

BLINDING SLAB JOINTS:
AS PER CONCRETE JOINTS WITH ADDITION OF ISOLATION JOINTS FOAM TO FINISH 20mm BELOW FINISHED PAVER LEVEL TO ACCOMMODATE BACKING ROD AND APPROVED JOINT SEALANT. REFER DETAILS PV3.1.1-PV3.6.

SETOUT- PAVERS:
PAVERS SHALL BE SETOUT AS PER DIMENSIONS AND LOCATIONS AS SHOWN IN TYPICAL DETAILS PV4.1-PV4.9.

LAYING - PAVERS:
LAYING OF PAVERS IS TO COMMENCE FROM PROPERTY BOUNDARY TOWARDS BACK OF KERB. REFER TO DETAIL PV4.1 - PV4.9 UNLESS OTHERWISE SPECIFIED. ENSURE ALL PAVERS ARE FULLY BEDDED ON A 30mm THICK 8:1 SAND/CEMENT SCREED. SAND USED SHALL BE WHITE WELL GRADED WASHED SAND. PASSING A 4.75mm SIEVE. PAVERS ARE TO BE MANUALLY TAMPERED WITH A RUBBER MALLET INTO THE WET MORTAR. THE USE OF VIBRATING COMPACTION EQUIPMENT EG. WAKA PLATE, IS STRICTLY PROHIBITED. WHERE PAVERS ARE TO BE LAID IN A RADIAL OR CURVE ALIGNMENT, PAVERS TO BE CUT RADIAL TO CENTRE. REFER TO DETAILS PV4.1 - PV4.9 ALL PAVERS TO BE LAID LEVEL TO THOSE ADJACENT TO AVOID TRIP HAZARDS. MINIMUM CUT PAVER WIDTH SHOULD BE NO LESS THAN 100mm UNLESS APPROVED BY SUPERINTENDENT.

KERB RAMP:
GENERALLY KERB RAMPS ARE TO BE SETOUT AS SHOWN IN DETAILS PV4.6, PV4.7 & PV4.6 WHERE ANY CHANGES ARE REQUIRED, CONFIRM WITH CoR PROJECT MANAGER. MINIMUM CUT PAVER WIDTH IS TO BE 100mm UNLESS APPROVED BY CoR PROJECT MANAGER.

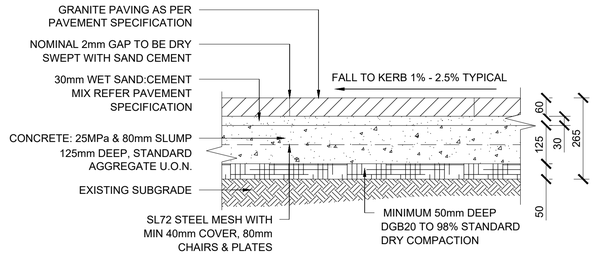
GRADE >1:8:
ALL PAVERS LAID ON A GRADE STEEPER THAN 1:8 (12.5%) ARE REQUIRED TO BE A 'V' RATED PAVER WITH A BUSH HAMMERED FINISH.

ROOF OUTLETS:
WHERE ROOF OUTLET CONNECTIONS ARE TO BE PROVIDED USE 150mm x 90mm GALVANISED STEEL RECTANGULAR HOLLOW SECTION. WHERE MORTAR COVER CANNOT BE ACHIEVED PAVERS ARE TO BE GLUED TO STEEL SECTION AS REQUIRED WITH HIGH STRENGTH EPOXY ADHESIVE.

SERVICE LID TREATMENT:
REPLACE ALL EXISTING SERVICE LIDS WITH STAINLESS STEEL OR GALVANISED STEEL INFILL COVERS AND FRAMES. NEW SERVICE LIDS ARE TO BE PRE APPROVED BY THE APPROPRIATE AUTHORITY. ADJUST HEGHT OF PIT FRAME/LID AS REQUIRED TO SUIT FINISH LEVEL OF NEW WORK. PROVIDE 10mm WIDE SEALANT (COLOUR: BLACK) AROUND PERIMETER OF SERVICE LID/FRAME.

CLEANING OF PAVERS:
ALL PAVERS LAID DURING THE COURSE OF ONE WORKING DAY MUST HAVE JOINTING SAND BROOMED IN AND BE CLEANED AT THE END OF THAT DAY BEFORE PROCEEDING WITH LAYING OF SUBSEQUENT PAVERS. THIS IS TO PREVENT RESIDUE BUILD UP ON PAVERS WHICH MAY BECOME DIFFICULT TO CLEAN IF LEFT OVERNIGHT OR FOR PROLONGED PERIODS.

GRANITE PAVER SPECIFICATION	
TYPE	GENERAL PAVER - SELECT FLAME EXFOLIATED GRANITE GRADE >1:8 PAVER - SELECT BUSH HAMMERED GRANITE
DESCRIPTION:	NATURAL STONE WHICH IS OF UNIFORM QUALITY, SOUND, FREE FROM DEFECTS (SUCH AS VENT, CRACK, FISSURES, SEAMS, POROUS INCLUSION, FOREIGN MATERIAL, LOOSE SURFACE MATERIAL STRIATIONS, STAINS, AND DISCOLOURATION) LIABLE TO AFFECT ITS STRENGTH, APPREARANCE, DURABILITY, OR PROPER FUNCTIONING UNDER THE INTENDED CONDITIONS OF USE.
MATCHING:	SELECT STONE FOR THE OPTIMUM MATCHING OF VISUAL PROPERTIES SUCH AS COLOUR AND PATTERN.
FINISH:	GENERAL PAVER, W RATED - SAWN EDGES WITH EXFOLIATED SURFACE TO PROVIDE A FINISH IN ACCORDANCE WITH AS/NZS 4586:2004. GRADE > 1:8 PAVER, V RATED - SAWN EDGES WITH BUSH HAMMERED SURFACE TO PROVIDE A FINISH IN ACCORDANCE WITH AS/NZS 4586:2004.
COLOUR:	RAVEN BLACK OR COLOUR CODE G684 HEADER PAVING AND BANDING AS PER LANDSCAPE DRAWINGS. FOR TOP RYDE CBD, ROSA (MATCHING EXISTING MATERIAL LAID IN BLAXLAND RD, RYDE)
SIZE:	FOOTPATHS 600 x 300 x 60mm (INFILL PAVERS: 300 x 300 x 60mm (HEADER PAVERS) DRIVEWAYS: 600x300x60mm (INFILL PAVERS); 300 X 300 X 60MM (HEADER PAVERS) 50x60mm SPECIAL PAVERS: 150 x 150 x 60 mm
BREAKING LOAD:	MINIMUM 5Km PLAN AREA +/-1mm
TOLERANCE	THICKNESS: +/-2mm
WATER ABSORPTON:	MAXIMUM 0.3% MOISTURE CONTENT AND TOTAL WATER ABSORPTION IN ACCORDANCE WITH ASTM C97
CHAMFERS AND EDGES:	STONE EDGE IS NOT TO BE CHAMFERED UNLESS SPECIFIED. FINISH TO EXPOSED EDGES TO MATCH SURFACE FINISH - NO SAWN EDGES TO BE EXPOSED



PV 1.2 PAVEMENT TYPE GRANITE - TYPICAL
SCALE 1:10

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR SSDA	22/04/2026	C.C.B.	J.A.B.

0 1cm at full size 10cm 20cm

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Client
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Scale
0 200 400 600mm
SCALE 1:10 @ A1

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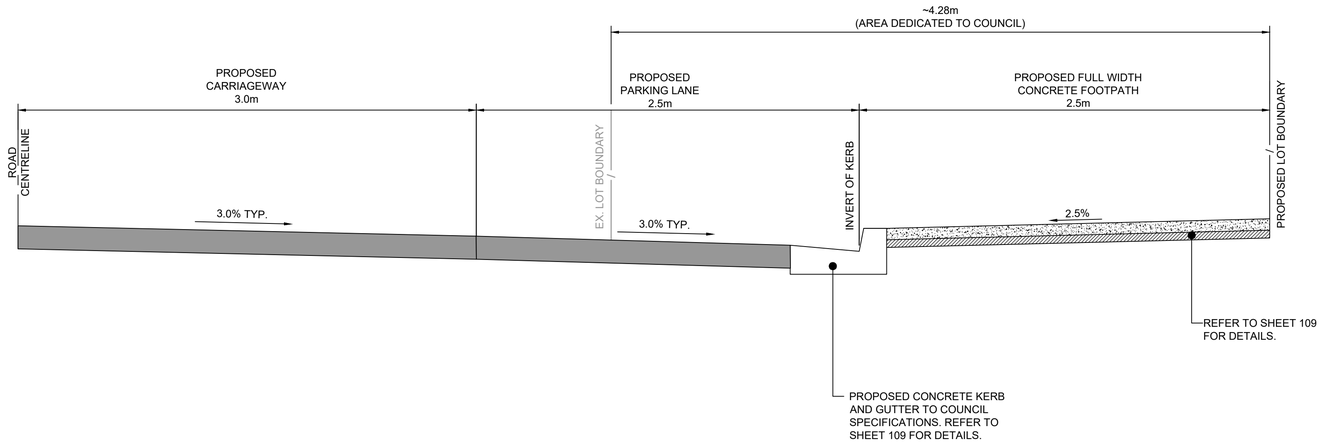
Project
2-4 GIFFNOCK AVENUE, MACQUARIE PARK
PROPOSED MIXED-USE DEVELOPMENT
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

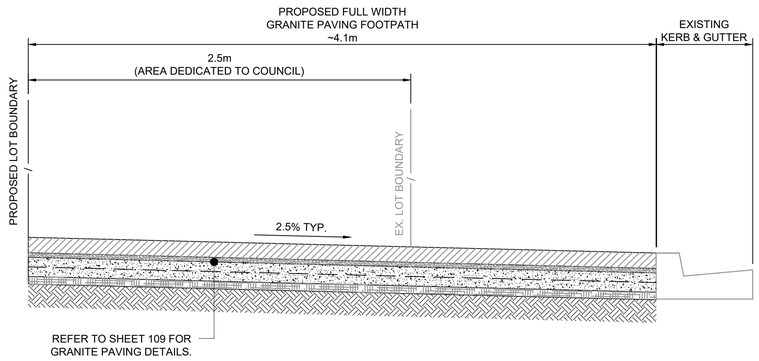
Drawing Title
MISCELLANEOUS DETAILS SHEET 2

Scale A1	Project No.	Dwg. No.	Issue
As Shown	24535	110	A



HYUNDAI DRIVE - TYPICAL CROSS SECTION

SCALE 1:100



DRAKE AVENUE - TYPICAL CROSS SECTION

SCALE 1:100

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Scale
0 2 4 6 m
SCALE 1:100 @ A1

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Drawing Title
TYPICAL CROSS SECTIONS

Scale	A1	Project No.	Dwg. No.	Issue
1:100		24535	111	A