AECOM Australia Pty Ltd
Wurundjeri and Bunurong Country
Tower 2, Level 10
727 Collins Street
Melbourne VIC 3008
Australia
www.aecom.com

+61 3 8670 6800 tel

ABN 20 093 846 925

Notice of Advice

Attention	Ewan Wymer	File No.	NOA-CI-0001[2]
Company	Urbis	Date	22-June-2023
CC	Ariani Anwar (Wardle) Will Rogers (Wardle) Alan Ting (Wardle) Nick Bamford (AECOM) Zamaneh Khoshdel (AECOM)	Total Page	6
Project Name	MGS Centre for Humanities	Project No.	60697173
AECOM Ref	60697173-MGS-NOA-CI-0001		
From	Alan Chen (AECOM)		
Service	Civil		
Email	Alan.Chen@aecom.com		

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Dear Ewan,

Overview

The development should be designed to satisfy Melbourne Planning Scheme 19.03-3S *'Integrated Water Management'* and 19.03-3L *'Stormwater Management (Water Sensitive Urban Design)'*. WSUD measures shall be designed in accordance with Urban Stormwater: Best Practice Environmental Management Guidelines (Victoria Stormwater Committee, 1999) and set out objectives for stormwater management, including reductions in typical urban stormwater pollutant loads noted below:

Total Suspended Solids (TSS): 80%

Total Phosphorus (TP): 45%

Total Nitrogen (TN): 45%

Litter/Gross Pollutants (GP): 70%

ADVERTISED PLAN

Other objectives include:

To promote the use of water sensitive urban design, including stormwater reuse;

To mitigate the detrimental effect of development on downstream waterways; and

To minimise the peak stormwater flows and stormwater pollutants.

The development is also targeting a 5-Star Green Star Buildings rating, where stormwater targets for achieving Waterway Protection (Credit 39) points exceed Best Practice targets. A minimum Credit Achievement has been specified for the development, with targets outlined in Table 1 and Table 2 below.

This fax transmission is strictly confidential and intended solely for the person or organisation to whom it is addressed. If you are not the intended recipient, you must not copy or distribute it or take action in reliance on it. If you have received this fax transmission in error, please notify us and return it to us by post as soon as possible.

Table 1 Reduction in Average Annual Stormwater Discharge

Compliance Level	Compliance Criteria	
	Point Credit	Reduction in Average Annual Stormwater Discharge (ML/yr)
Best Practice	N/A	Target not specified
Green Star Credit Achievement	2	40%
Green Star Exceptional Performance	2	80%

Table 2 Pollution Reduction Targets Comparison

Pollutant	Reduction Target (% of the typical urban annual Load)		
	Best Practice	Green Star Credit Achievement	Green Star Exceptional Performance
Total Suspended Solids (kg/yr)	80	85	90
Total Phosphorus (kg/yr)	45	90	95
Total Nitrogen (kg/yr)	45	45	60
Gross Pollutants (kg/yr)	70	65	70

The design shall also, where possible, consider the implementation of suitable stormwater treatment strategies such as swales, permeable paving, raingardens and bioretention to meet best practice and Green Star targets.

Rainwater Harvesting

A 30,000L rainwater harvesting tank (RWHT) is proposed to collect rainwater from non-trafficable roof areas of the Centre for Humanities building for reuse for toilet flushing and wash-down taps. Additional usage for irrigation of landscaped areas may also be considered pending further coordination with MGS and the irrigation consultant. The RWHT is expected to contribute to the reduction of annual stormwater discharge by minimising the quantity of rainwater discharged to the stormwater network. The current location for the tank is proposed to be located south-east of the building, underneath the existing oval (Refer Figure 1).

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

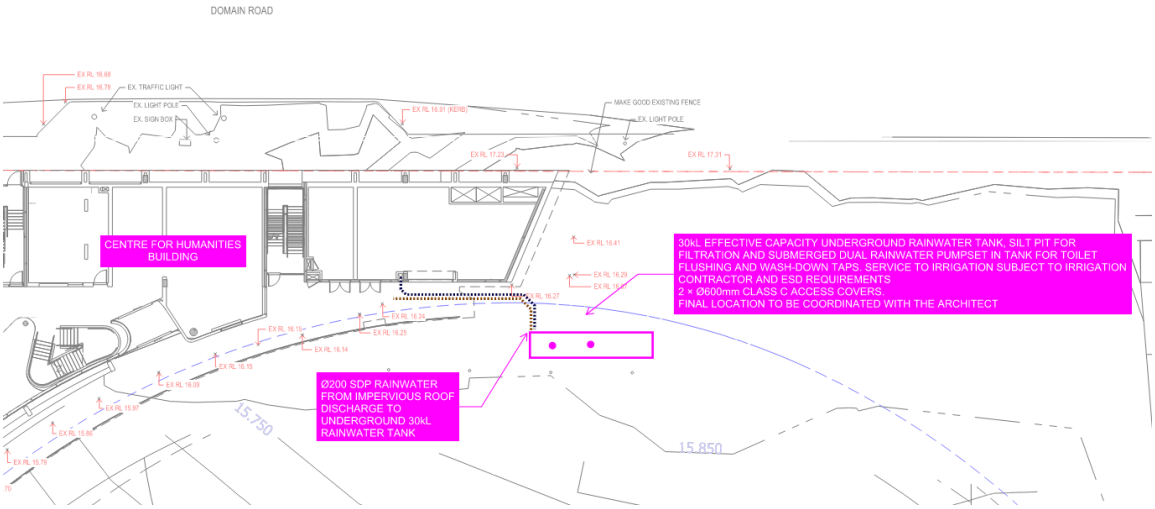


Figure 1 Location of Rainwater Harvesting Tank

On Site Detention

When the rainwater tank is full, an overflow connection shall be provided to divert roof runoff to the underground civil stormwater system. This will then connect to an on-site stormwater detention (OSD) tank which is to be sized in accordance with City of Melbourne engineering requirements. The OSD system will limit the rate of stormwater discharge to the pre-development rate to ensure that there is no adverse impact to the existing internal drainage network. The Legal Point of Discharge report (Ref. LPOD-2023-9987-revised dated 10 May 2023) received from City of Melbourne advised that the OSD system shall limit the rate of discharge to a Q5 (20% AEP) pre-development storm event and store up to a Q10 (10% AEP) post-development storm event. An additional 18.5% increase in storage shall also be factored in to account for increased rainfall intensities as a result of climate change. Refer to Appendix A for the full report. Based on the council parameters provided, a minimum storage volume of 10000L has been calculated. The calculated volume is provided in Appendix B and shall require review and approval from council.

The OSD tank is proposed to be located to the south-east of the building, outside of the building footprint and adjacent to the existing chapel. This location is downstream of the drainage network and RWHT serving the immediate area and will allow for the local catchment area to be detained. The approximate location is shown in Figure 2.

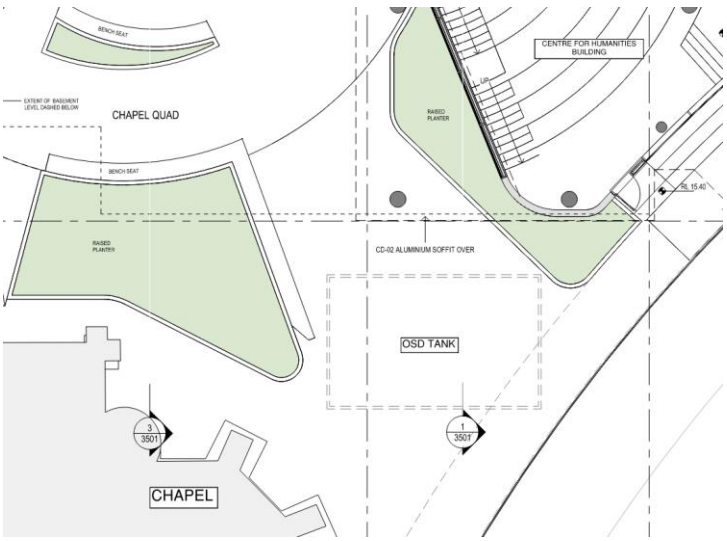


Figure 2 Location of On Site Detention Tank

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED
PLAN

Water Quality Modelling

A MUSIC model will be prepared during detailed design to incorporate reuse demand and proposed treatment strategies to identify the treatment train effectiveness. Coordination with the landscape architect will also be required to determine feasibility of incorporating raingardens. Raingardens are regarded to provide effective removal of chemical pollutants from entering the stormwater system. However, given the relatively large proportion of trafficable areas and the limited spatial allowance for raingardens, end-of-the-line proprietary filtration units (SPEL, Ocean Protect or equivalent) are currently proposed to remove secondary and tertiary pollutants to meet the project objectives. Gross pollutant traps can also be installed at-source (within grated pits) or end-of-the-line in a proprietary tank for removal of primary pollutants such as litter and sediment.

The size and/or reuse demand of the RWHT may also need to be increased (where it can be justified) in order to meet the Green Star flow reduction requirements.

Further consultation with City of Melbourne will be required to confirm acceptance of the proposed WSUD measures. Approval will also need to be sought to define the assessment area which should typically only be limited to the development area and not the wider site where there is no change to stormwater flows and pollutant loads. Refer to Figure 3 which defines the area subject of new works (2445m2), from which the OSD and water quality modelling has been based on.

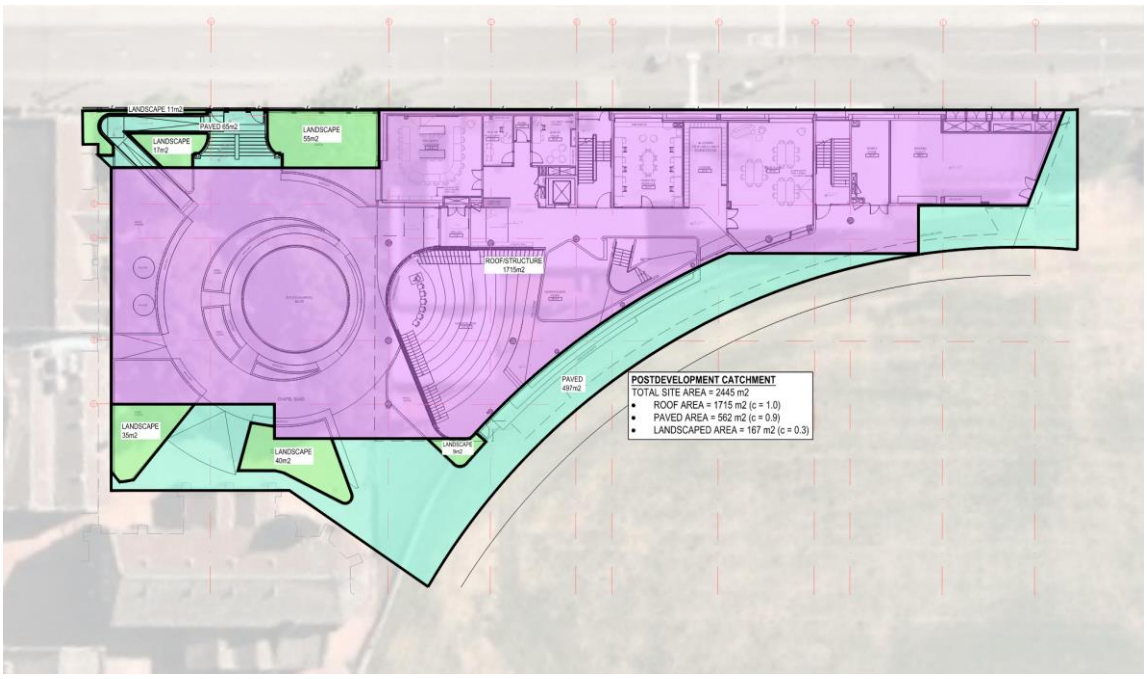


Figure 3 WSUD Assessment Area

It is also noted that all WSUD elements will require regular maintenance and cleaning to ensure that they operate efficiently across their design life. This may include removal of litter, changing of filter baskets and replacement of soil media. For any proprietary products, it is recommended to engage in a maintenance contract with the supplier as these systems typically require specialised servicing.

Regards,

Alan Chen

Civil Engineer, Building Civil, Victoria
M +61-488-210-089
alan.chen@aecom.com

AECOM

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED
PLAN

Appendix A

Point of Discharge Report

Building Regulations 2018 (Reg. 133) / Local Government Act 1989 (Sect. 200)

GPO Box 1603
Melbourne VIC 3001
(03) 9658 9658
ABN 55 370 219 287

CITY OF MELBOURNE

Site address	**Senior School Melbourne Grammar School 47 Domain Road, MELBOURNE, 3004**		
Report	**LPOD-2023-9987**	Date of issue	14/03/2023 4:32 PM

Point of discharge- North corner of the property

Point of connection

1. **Kerb and channel with OSD connection**

   The location of the Legal Point of Discharge from the above property is the internal drain age network via on-site detention.

   The on-site detention is to limit the rate of discharge to Q5 (5 minute storm pre development). The storage is to be sized for a Q10 event (post development) with an additional 18.5% storage included for increased rainfall intensity predicted due to climate change.

Indicative plan

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Notes:

1. The above plan showing Council pits/pipes is indicative only. You are responsible for proving onsite the existence of Council pits/pipes and all relevant data prior to any design or works.
2. You must obtain Council consent for works prior to any works commencing.
3. The maximum discharge permitted to the kerb and channel or laneway at any point is limited to 16 L/sec.
4. You must not discharge stormwater to the kerb and channel or laneway under head.

Delegated officer

Bandara Rajapakse
Manager Infrastructure

City of Melbourne does not warrant the accuracy, currency or completeness of information in this product. Any person using or relying upon such information does so on the basis that the City of Melbourne shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Page 1/1

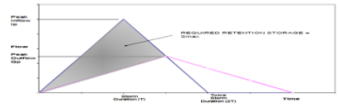
Appendix B

TOTAL SITE

Coefficient of Runoff (C)		0.70
Intensity (I) (mm/hr)		92
Total Site Area (A) (ha)		0.2445
Total PSD (Q) (m^3/s)		0.044

	Area (A) (ha)	Post dev. Co-eff. (C)	Sum of CA
Pervious	0.0167	0.30	0.005
Impervious	0.2277	1.00	0.2277
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
Total area	0.2444	Sum of CA =	0.2327

BOYDS FORMULA



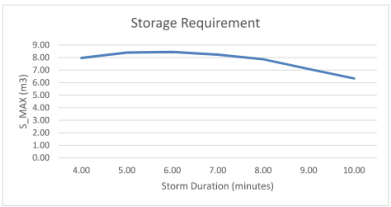
$S_{max} = V_1 (1 - Q_p/I_p)$

S_{max} = Maximum Volume of temporary Storage (m^3)
V_1 = Volume of inflow flood (m^3)
I_p = Peak discharge of inflow hydrograph (m^3/s)
Q_p = Peak discharge of outflow hydrograph (m^3/s)

1% AEP

D

STORM DURATION (minutes)	RAINFALL INTENSITY (mm/hr.)	I_p = CIA/360 (m3/s)	PSD (m^3/s)	V_1 = VOL. OF INFLOW FLOOD	S_{MAX} = MAX. VOL OF TEMP. STORAGE (m^3)
4.00	119	0.077	0.044	18.462	7.96
5.00	111	0.072	0.044	21.526	8.40
6.00	104	0.067	0.044	24.202	8.46
7.00	98	0.063	0.044	26.607	8.24
8.00	93	0.060	0.044	28.856	7.86
9.00	88	0.057	0.044	30.718	7.10
10.00	84	0.054	0.044	32.579	6.34
20.00	59	0.038	0.044	45.766	-6.72
30.00	46	0.030	0.044	53.523	-25.21
60.00	49	0.032	0.044	114.028	-43.43
90.00	36	0.023	0.044	125.663	-110.52
100.00	21	0.013	0.044	79.543	-182.89
120.00	18	0.012	0.044	84.509	-230.41



(Select relevant area in 'ARI SET' for	Adopt the largest Volume from the S_{MAX}	Apply 18.5% climate change factor	With PSD (L/s)
	8.46	10.0	44

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright