

Our Ref: 110419-11-Lot 8-SOFAC Response Letter.docx
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25 August 2020

Universal Property Group
PO Box 270
WENTWORTHVILLE NSW 2145

Attn: Graeme Allen

**Subject: Land and Environment Court Appeal (Case No. 2019/376150)
Letter of Advice – Lot 8**

Dear Graeme,

We refer to the Land and Environment Court Appeal (Case No. 2019/376150) where Council has raised several concerns with the proposed development application (DA-18-00159) for the future residential development at Lot 8, 1070-1082 Richmond Road, Marsden Park.

A Statement of Fact and Contentions filed with the Court on 20 February 2020 lists a series of contentions that require further information to allow a proper assessment of the development application. A number of these contentions relate to stormwater/drainage and development engineering matters, and have been addressed through a series of engineering plan updates. Refer to engineering plans 11041911DA421 to DA430. The specific contentions that are addressed in this letter are those related to water quality modelling (MUSIC) which are detailed below.

Contention 9.1

Revised MUSIC modelling is required to ensure that the water quality targets are achieved on the subject lot.

Response:

The MUSIC assessment has been revised. As a result, roof and private road areas have been determined based on the current architectural layouts of the proposed development product (ref: 20/08/2020).

See Table 1 and Plate 1 below for a summary of the areas used in the MUSIC model.



Table 1-MUSIC Source Node Areas

Pit Catchment	Total Area (ha)	Roof Area (ha)	Road Area (ha)	Other Imp Area (ha)	Pervious Area (ha)	Fraction Impervious
01/1	0.025			0.019	0.006	0.76
01/2	0.004			0.003	0.001	0.76
01/3	0.069	0.052		0.013	0.004	0.94
01/5	0.068	0.047		0.016	0.005	0.93
01/6	0.014			0.011	0.003	0.76
01/7	0.010			0.008	0.002	0.76
01/8	0.074	0.047		0.021	0.007	0.91
01/9	0.016			0.012	0.004	0.76
02/1	0.026			0.020	0.006	0.76
02/2	0.127	0.058		0.053	0.017	0.87
02/3	0.077			0.059	0.018	0.76
02/4	0.027			0.021	0.006	0.76
03/1	0.004		0.004			1.00
04/1	0.037			0.028	0.009	0.76
RAMP	0.013		0.013			1.00
TOTAL	0.593	0.204	0.017	0.283	0.089	0.85

The revised treatment train consists of the following:

- Pit filter inserts (200 micron) located in each surface inlet pit. An additional pit insert will be located in the basement sump pit to capture runoff from the driveway "RAMP" catchment.
- A StormFilter chamber containing 16 x 690 mm ZPG StormFilter cartridges.

See Table 2 below for a summary of the pollutant load reduction results.

Table 2-Summary of MUSIC Results

Pollutant	Total Developed Source Loads	Minimum Reduction Required	Total Residual Load From Site	Total Reduction Achieved	Target Reduction Required	Total Reduction Achieved
	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(%)	(%)
TSS	482	410	48.4	434	85%	90%
TP	0.952	0.619	0.304	0.648	65%	68%
TN	8.43	3.79	4.63	3.8	45%	45%
GP	96.2	86.6	0	96.2	90%	100%

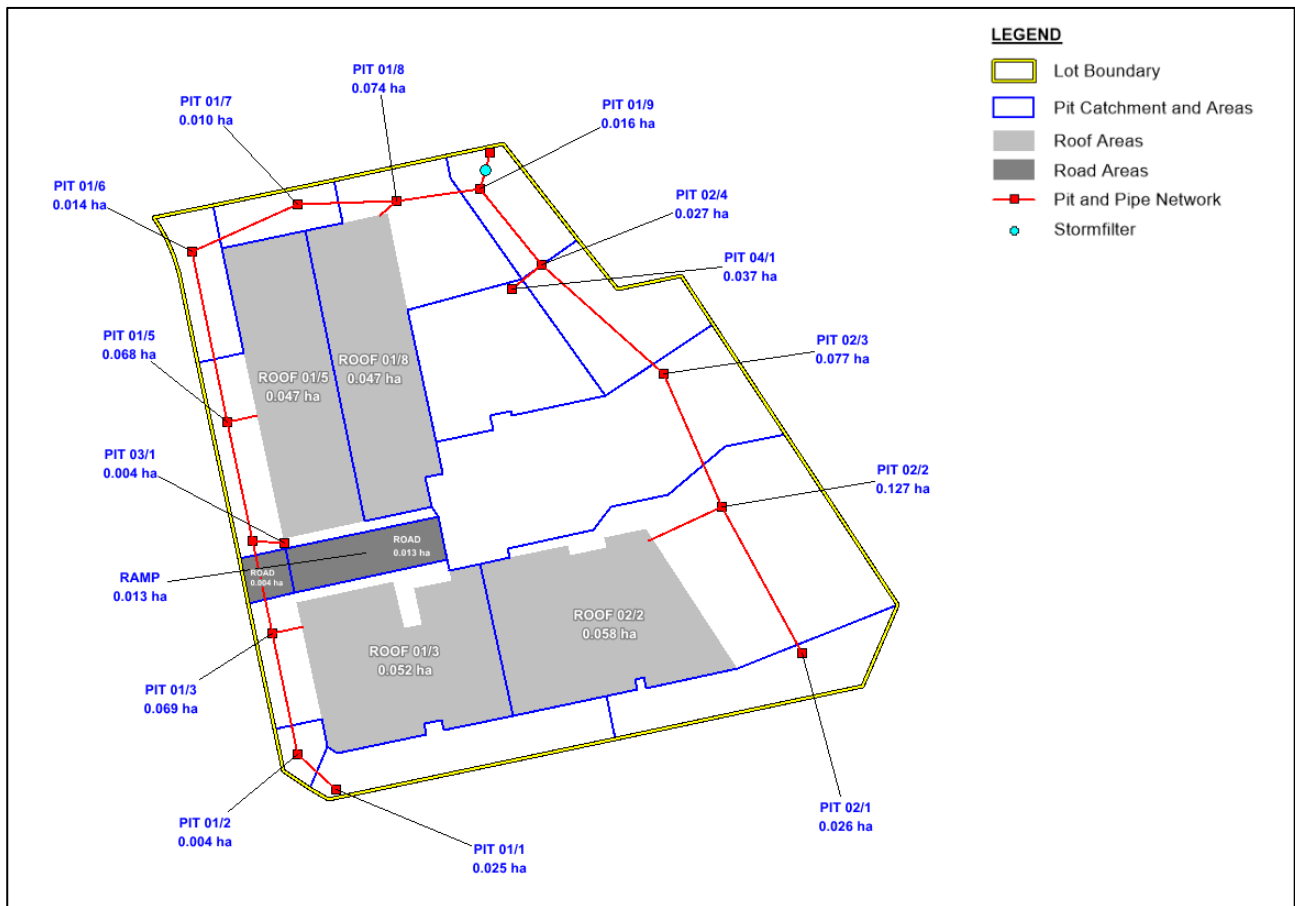


Plate 1 - MUSIC Catchments and Areas

Contention 9.2

Provide a MUSIC catchment plan showing all areas of bypass.

Response:

Refer to Plate 1 above for details of the MUSIC model breakup which reflects the catchments draining to each surface inlet pit within the site. Refer to the engineering drawing set 11041911DA421-430 for further details of the drainage network.

Contention 9.3

Provide two separate and additional MUSIC models (pre and post) to demonstrate that the Stream Erosion Index (SEI) is less than 3.5 based on the technique in Council's MUSIC Modelling Guide in part 4 of the Developer Handbook for Water Sensitive Urban Design available on Council's website. The pre development is to consider a vacant pervious block. Provide all calculations used to determine $Q_{critical}$.

Response:

A stream erosion index (SEI) assessment has been undertaken for Lot 8 consistent with Council's MUSIC Modelling Guide. See Table 3 below for details of the critical flow calculations and SEI results.

Table 3-Summary of SEI Assessment

Assessment Location	Determination of Critical Flow							Stream Erosion Index		
	Area (km ²)	$t_c = 0.76A^{0.38}$ (hour)	t_c (minutes)	I_2 (mm/hr)	C_2	Q_2 (m ³ /s)	Q_{crit} (m ³ /s)	Pre Dev Outflow (ML/yr)	Post Dev Outflow (ML/yr)	SEI
Lot 8	0.00593	0.11	6	93	0.444	0.068	0.017	0.137	0.473	3.5

We note that Council have indicated that an SEI of <3.5 should be demonstrated in accordance with the 'Developer Handbook for Water Sensitive Urban Design'. However, the 'Growth Centre Precincts DCP (2016)' indicates that an SEI of 3.5-5.0 is considered acceptable. Therefore an SEI of 3.5 is compliant with the relevant Council guideline for development in a Growth Centre area.

A MUSIC model package will accompany the revised set of engineering plans which will contain the following MUSIC files pertaining to this lot:

- 110419-11_MU1_Lot 8.sqz (note: pre and post SEI calculations are in a single model)

CONCLUSION

We therefore suggest that the outstanding contentions (9.1, 9.2 and 9.3) presented in the Statement of Fact and Contentions filed with the Court on 20 February 2020 have been satisfied and should no longer be items of contention.

Yours faithfully

J. WYNDHAM PRINCE



DAVID CROMPTON

Manager – Stormwater and Environment Group

