

APPENDIX C:

MUSIC MODELLING PARAMETERS



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All MUSIC modelling was undertaken in accordance with MUSIC Modelling Guidelines for SEQ (WBDb, 2010). User specified parameters assumed for the modelling are detailed the following sections.

Water Sensitive Urban Design Meets Best Practice Targets

Streetscape bioretention systems were used with the parameters listed in Table C1.

Table C1 Best Practice WSUD MUSIC Modelling Parameters

MUSIC Parameter	Value Assumed
Extended Detention depth (m)	0.1
Saturated Hydraulic Conductivity (mm/hr)	200
Filter Depth (m)	0.5
TN Content of Filter Media (mg/kg)	800
Orthophosphate Content of Filter Media	50
Exfiltration Rate (mm/hr)	0
Is base Lined	Yes
Underdrain Present	Yes
Saturated Zone with Carbon Present	Yes
Depth of Submerged Zone (m)	0.25

Table C2 and C3 represent the land use characteristics modelled for applicable greenfield development (>2,500 m² no DA) in existing and future conditions respectively. Existing and future land use characteristics for applicable brownfield development (>2,500 m² no DA) are detailed in Table C4.

Table C2 Existing Land Use Characteristics for Greenfield Development

Catchment	Greenfield Development - Existing Land Use Area (ha)			
	Forested	Agriculture	Rural Res	Rural
Bribie Island	37.3	0.0	43.2	
Pumicestone Passage	21.9	620.8	48.1	
Redcliffe	11.9	0.0	139.1	
Caboolture River	50.5	352.7	822.4	
Burpengary Creek	48.7	119.0	279.9	
Hays Inlet	290.1	84.2	547.0	
Brisbane Coastal	10.9	0.0	7.2	
Lower Pine River	48.1	61.5	421.6	
Upper Pine River	0.3	0.0	1.9	
Stanley River	9.3	20.3	31.9	
CIGA	604	1924	114	1517

Table C3 Future Land Use Characteristics for Greenfield Development

Catchment	Greenfield Development - Future Landuse (ha)				
	Commercial	Low Density Residential	Medium Density Residential	High Density Residential	Industry
Bribie Island		79.1	1.5		
Pumicestone Passage	3.6	400.1	14.1		273.0
Redcliffe		131.0	19.5		0.5
Caboolture River	5.8	365.4	108.7	3.5	742.3
Burpengary Creek	5.5	371.7	16.5	0.0	53.9
Hays Inlet	47.1	341.8	117.7	20.1	394.6
Brisbane Coastal		3.5	14.5		
Lower Pine River	7.9	189.8	100.5	3.1	230.0
Upper Pine River	0.3	0.3			1.6
Stanley River		61.1			0.4
CIGA ¹	80.2	2854.3			61.3

¹ Also modelled with park/open space area of 16.25 ha and Rural area (waterway/buffer) of 853.45 ha

Table C4 Existing and Future Land Use Characteristics for Brownfield Development

Catchment	Brownfield Development Areas (ha)		
	Existing Industry	Future Low Density Res	Future High Density Res
Caboolture River	0.9	0.5	0.3
Burpengary Creek	0.9	0.9	
Lower Pine River	12.2	12.2	

WSUD Retrofit

Parameters assumed for bioretention basins and wetland retrofitted in the catchment are listed in Table C5 and C6 respectively.

Table C5 Bioretention Basin MUSIC Modelling Parameters

MUSIC Parameter	Value Assumed
Extended Detention depth (m)	0.3
Saturated Hydraulic Conductivity (mm/hr)	200
Filter Depth (m)	0.6
TN Content of Filter Media (mg/kg)	800
Orthophosphate Content of Filter Media	50
Exfiltration Rate (mm/hr)	0
Is base Lined	No
Underdrain Present	Yes
Saturated Zone with Carbon Present	Yes
Depth of Submerged Zone (m)	0.3

Table C6 Wetland MUSIC Modelling Parameters

MUSIC Parameter	Value Assumed
Surface Area	from Council mapping
Extended Detention depth (m)	0.5
Exfiltration Rate (mm/hr)	0
Evaporative Loss as % PET	125
Pipe sized to Provide Notional Detention Time	Approx 48 hrs