MAROOCHY SHIRE COUNCIL PLANNING SCHEME
POLICY NO. DC4
STORMWATER QUALITY

DC 4.1 INTRODUCTION

(1) Conventional urban development generally increases stormwater runoff quantity and decreases stormwater runoff quality.

(2) The increased stormwater quantity (i.e. flow/volume) is a direct result of converting pervious surfaces to impervious surfaces and installing collection and drainage systems to concentrate and remove stormwater as efficiently as possible.

(3) The decrease in stormwater quality results from the pollutants that are generated in urban environments combined with the improved mobility that conventional drainage systems offer these pollutants.

(4) The consequences of urban development on our waterways are felt both locally and regionally through erosion, siltation, pollution, flooding and the loss of sensitive ecosystems and habitats.

(5) It is for these reasons that Council is committed to improving the health of the Shire's waterways.

(6) This Planning Scheme Policy is the mechanism to partially fund, via developer contributions, the construction of the Trunk Stormwater Quality Treatment Network.

(7) The scope of infrastructure for which funding is obtained via this planning scheme policy is limited to Stormwater Quality Treatment infrastructure that relates to the achievement of Shire wide environmental values.

NOTE DC 4.1.7 INTERNAL STORMWATER QUALITY TREATMENT INFRASTRUCTURE FOR LOCAL ENVIRONMENTAL VALUES

a. The 'internal' Stormwater Quality Treatment infrastructure (eg. Vegetation filters, Physical and Biological filters, Aquatic Environments) is the responsibility of the Developer and will be applied as a condition in any development approval.

b. Where 'internal' Stormwater Quality Treatment infrastructure is required it is to be designed and constructed by suitably qualified personnel and provided generally in accordance with Best Management Practices

c. For the purpose of clarity it is recorded that the Council is not responsible for the construction or the cost of any part of internal Stormwater Quality Treatment facilities

d. Infrastructure contributions payable by a Developer pursuant to this Planning Scheme Policy are additional to the 'internal' infrastructure that the Developer is required to provide as part of a development

(8) The provisions in this planning scheme policy relate to the Infrastructure Contributions for the trunk Stormwater Quality Treatment network as follows -

a) The Future Stormwater Quality Treatment infrastructure (see section DC 4.2);
b) The desired standard of service for Stormwater Quality Treatment infrastructure (see section DC 4.3);
c) The estimated establishment cost of future Stormwater Quality Treatment infrastructure (see section DC 4.4);
d) The estimated establishment cost of future Stormwater Quality Treatment infrastructure to be funded by the contribution (see section DC 4.5);

e) Infrastructure contributions and calculations (see sections DC 4.6 and Schedule DC 4).

DC 4.2 FUTURE TRUNK STORMWATER QUALITY TREATMENT INFRASTRUCTURE

(1) The future Stormwater Quality Treatment infrastructure to be provided across the Shire is shown on Figure 4.2.1 (refer Appendix 1).

DC 4.3 DESIRED STANDARD OF SERVICE FOR STORMWATER QUALITY TREATMENT INFRASTRUCTURE

(1) The desired standard of service for stormwater quality is outlined in Appendix 2.

DC 4.4 ESTIMATED COST OF STORMWATER QUALITY TREATMENT INFRASTRUCTURE

(1) The estimated establishment cost of Stormwater Quality Treatment Infrastructure is outlined in Table DC 4.4.1 —

TABLE DC 4.4.1 STORMWATER QUALITY TREATMENT TRUNK INFRASTRUCTURE COSTS ($)

Conceptual Treatment Styles	Structural Measures	Aquatic Environments	Physical and Biological Filters	Total
Conceptual Treatment Costs	$76,529,629	$71,353,135	$102,259,815	$250,142,580

DC 4.5 PROPORTION OF STORMWATER QUALITY TREATMENT TRUNK INFRASTRUCTURE ESTABLISHMENT COSTS TO BE FUNDED BY INFRASTRUCTURE CONTRIBUTIONS

(1) The proportion of trunk Stormwater Quality Treatment infrastructure costs attributable to infrastructure contributions is outlined in Table DC 4.5.1.

TABLE DC 4.5.1 PROPORTION OF STORMWATER QUALITY TREATMENT TRUNK INFRASTRUCTURE COSTS SUBJECT TO INFRASTRUCTURE CONTRIBUTIONS ($)

Level Of Works	Costs Not Subject To Infrastructure Contributions	Costs Subject To Infrastructure Contributions
Conceptual Treatment Costs	$125,795,560	$124,347,020

NOTE DC 4.5 PROPORTION OF STORMWATER QUALITY TREATMENT INFRASTRUCTURE COSTS TO BE FUNDED BY INFRASTRUCTURE CONTRIBUTIONS

a. The costs associated with achieving the community's Shire wide environmental values are to be shared across the full community.

b. This Policy requires new development to contribute a proportion of costs towards the achievement of the Shire wide environmental values that relates to the proportion of future development to ultimate development levels.

c. Consequently, new development is required to comply with local environmental values and contribute towards Shire wide values.

d. The remainder of the costs to achieve Shire wide environmental values will be met by Council's capital works program.

DC 4.6 INFRASTRUCTURE CONTRIBUTIONS AND CALCULATIONS

(1) Those areas of the Shire and the type of development applications subject to Stormwater Quality Treatment infrastructure contributions together with the method of calculating the contribution is outlined in Schedule DC 4.

SCHEDULE DC 4: STORMWATER QUALITY TREATMENT TRUNK INFRASTRUCTURE CONTRIBUTIONS SCHEDULE

AREAS WHERE INFRASTRUCTURE CONTRIBUTIONS APPLY

(1) All urban areas of the Shire are subject to a Shirewide infrastructure contribution.

(2) Those urban areas of the Shire subject to the stormwater quality treatment infrastructure contribution are outlined in Table 1 and the boundaries of the Planning Areas and the various precinct classes within each Planning Area are shown on the Planning Area Maps found in Volume 3 of this Planning Scheme.

TABLE 1 PLANNING AREAS SUBJECT TO STORMWATER QUALITY TREATMENT TRUNK INFRASTRUCTURE CONTRIBUTIONS

PLANNING AREA	SHIREWIDE
ALEX HEADLAND/COTTON TREE (7)	✓
BLACKALL RANGE (19)	✓
BLI BLI (13)	✓
BUDERIM (6)	✓
CENTRAL HINTERLAND (27)	✓
COOLUM BEACH (11)	✓
EUDLO CREEK VALLEY (21)	✓
EUMUNDI (17)	✓
KENILWORTH (18)	✓
KULUIN/KUNDA PARK (8)	✓
MAROOCHY RIVER PLAINS (23)	✓
MAROOCHYDORE (1)	✓
MARY RIVER VALLEY (30)	
MOOLOOLABA (4)	✓
MOUNTAIN CREEK (5)	✓
MOUNTAIN CREEK VALLEY (20)	✓
MT COOLUM (10)	✓
NAMBOUR (2)	✓
NORTH SHORE (9)	✓
NORTHERN COASTAL PLAINS (25)	✓
NORTHERN HINTERLAND (26)	
OBI OBI CREEK VALLEY (29)	
PALMWOODS (14)	✓
PETRIE/PAYNTERS CREEK PLAINS (22)	✓
SIPPY DOWNS (3)	✓
SOUTH PEREGIAN (12)	✓
SOUTHERN HINTERLAND (28)	
WOOMBYE (15)	✓
YANDINA (16)	✓
YANDINA CREEK VALLEY (24)	✓

APPLICATION OF CONTRIBUTION

(3) Stormwater quality treatment infrastructure contributions apply to every development application that involves -

a) Reconfiguring a lot; or
b) A material change of use.

DETERMINATION OF STORMWATER QUALITY TREATMENT TRUNK INFRASTRUCTURE UNIT RATES

(4) For the purpose of determining infrastructure contributions towards Stormwater Quality Treatment infrastructure, proportions of the costs to achieve the Shirewide Environmental Values were determined for each catchment based upon percentages of future populations and percentages of developable areas.

(5) Costs to achieve the Shirewide Environmental Values were averaged across all urban catchments within the Shire.

NOTE 1 SCHEDULE DC4

Note on Apportioning Costs

1) It would be possible to apportion the costs of Stormwater Quality Treatment infrastructure to each of the catchments individually however it is likely that this would bias or burden some catchments whose physical topographies limit the potential to treat stormwater runoff whilst still contributing significant pollutant loads to the receiving waters.

(6) The stormwater quality treatment infrastructure unit rate for each planning area is 2,192.

(7) A typical dwelling unit (with an assumed population base of 2.75 persons per dwelling unit) has been adopted as the Demand Unit for determining the infrastructure charges.

NOTE 2 SCHEDULE DC4

Note on Demand Units

a. Residential Development

The dwelling unit in all residential precincts is treated as the baseline indicator of demand, generating one demand unit. For example a ten lot subdivision generates ten demand units, whilst in a multi storey residential precinct, a building containing twenty apartments generates 20 demand units.

b. Multi Storey Residential Development

As per residential development the costs are apportioned on population projections. It is recognised that a multi storey residential development may have a lower impact on stormwater quality per person than a traditional residential development of a similar population. However, achieving the community's Shire-wide Environmental Values provides a benefit to the entire population of the Shire and hence this strategy seeks to spread the costs across the whole population.

c. Commercial or Industrial Development

The cost apportioning to commercial or industrial development is less straightforward than residential development as it is difficult to assume a population for a commercial or industrial site to derive the apportioned cost. Unlike the residential development costs, this Policy suggests that costs apportioned to commercial or industrial development be impact based and relate to the site area. To maintain a link to the principles used to derive costs applied to residential development typical impervious areas of residential and commercial/industrial developments were considered.

The Queensland Urban Drainage Manual (QUDM) suggests percentages of impervious area for residential, commercial/industrial and central business areas of approximately 50%, 90% and 100% respectively. If residential development is considered as one demand unit and assumed to represent a development area of 1000m2 (including roadway) then a commercial or industrial site will attract apportioned costs at a rate of 1.8 (90/50) demand units per 1000m2 or more simply 0.18 demand units per 100m2 site area and a central business site (being land within the Town Centre Precincts) will attract apportioned costs at a rate of 2 (100/50) demand units per 1000m2 or 0.2 demand units per 100m2 of site area.

DETERMINATION AND CALCULATION OF STORMWATER QUALITY TREATMENT TRUNK INFRASTRUCTURE CONTRIBUTIONS

(8) The stormwater quality treatment infrastructure contribution for any proposed development is to be calculated as follows –

[(A – B) – C] x D x E

Where

A (being proposed demand) is –
   i. For reconfiguring a lot the stormwater quality treatment infrastructure demand factor for the Land or lots (excluding any Dedicated Lots) included in the development application determined using the rates outlined in Table 2(a) or Table 2(b).
   ii. For a material change of use the stormwater quality treatment infrastructure demand factor for the use or Land calculated using the rates outlined in Table 2(a) or Table 2(b).

B (being existing use demand entitlements) is -
   i. For vacant land, the stormwater quality treatment infrastructure demand factor allowed for a single detached house (1cu) or where previous infrastructure contributions have been paid to Council the demand on which the previous contributions were based[1].
   ii. Otherwise, the existing use demand entitlement[2].

C is any applicable infrastructure credit for the land (granted as a result of providing advanced funding for the construction of trunk infrastructure or contributing trunk infrastructure) as outlined in the Register of Infrastructure Contributions and Credits.

D is the stormwater quality treatment infrastructure unit rate as outlined in paragraph (6) of this Schedule.

E Is the stormwater quality treatment infrastructure unit charge at the date of payment (refer to Section 3.5 Infrastructure Unit Charges in Planning Scheme Policy DCA - Administration for details of the stormwater quality treatment infrastructure unit charge currently in force).

NOTE 3 SCHEDULE DC 4
Unit Charges
a. For convenience, the infrastructure unit charge for stormwater quality treatment infrastructure is contained in the Local Government's Scale of Fees and Charges.

[1] The onus is upon the applicant to provide evidence of any previous infrastructure contributions paid to Council

[2] Refer to Division 10 – Glossary of Terms in Planning Scheme Policy DCA – Administration for an explanation of the term "existing use demand entitlement".

NOTE 4 SCHEDULE DC 4
EXAMPLES

(1) (a) It is proposed to reconfigure 3 hectares of land at Coolum Beach on the boundaries of Precincts 4 and 9 into:
(A): 1 lot (8000m^2) for future unspecified shops;
(B): 1 lot (5000m^2) for future house sites (unspecified number of lots)
(C): 19 residential lots on 1.7 hectares comprising 15 traditional house lots and 4 courtyard lots.

(b) No previous stormwater quality treatment infrastructure contributions were paid nor is the land subject to infrastructure credits.

(c) The stormwater quality treatment infrastructure demand for the proposed development using the rates outlined in Table 2 (a) is as follows:-

A 8000m^2 For commercial uses, only the land (site) area method is applicable.	B 5000 m^2 As there is no actual proposal for the lot use, the land area method to determine the demand factor	C 1.7 ha As there is a proposal for the land use both the land area and the number of lots method to determine the demand factor and choose whichever method has the greatest demand factor (i.e. cu)
$\frac{8000m^2 \times 0.2 \text{ cu}}{100m^2}$ = 16 cu ✓	$\frac{10 \text{ cu/ha} \times 5000m^2}{10000m^2}$ = 5 cu ✓	10 cu/ha x 1.7 ha = 17 cu ✗ OR 15 trad. lots x 1 cu = 15 cu 4 c'yard lots x 1 cu = 4 cu = 19 cu ✓

(d) The stormwater quality treatment infrastructure demand for the development (A) = 40 cu

(e) As the land is not subject to infrastructure credits nor the subject of previous stormwater quality treatment infrastructure contributions the existing demand is that allowed for a single detached house (refer to 'B' in the calculation formula).

(f) The demand for a detached house is 1cu (refer to 'B' in the calculation formula) (B) = 1 cu

(g) The increase in demand is A – B = 39 cu

(h) The infrastructure contribution is -
39 x 2,192 (from Schedule DC4 (6))
85,488 x $1.0762 (Infrastructure Unit Charge)

= $92,002.19

(2) (a) It is proposed to extend by 500m^2 an existing 1000m^2 shop at Kuluin / Kunda Park (i.e. GFA increase only – no requirements for additional parking, landscaping, etc).

(b) The shop is on land (3000m^2) within the 'Local Centre' Precinct.

(c) No previous stormwater quality treatment infrastructure contributions were paid nor is the land subject to infrastructure credits.

(d) The stormwater quality treatment infrastructure demand for the proposed development using the rates outlined in Table 2(a) is as follows-

For commercial uses, only the land (site) area method is applicable.

$$\frac{0.2 \text{ cu} \times 3000\text{m}^2}{100\text{m}^2}$$

= 6 cu ✓

(e) The stormwater quality treatment infrastructure demand for the development (A) = 6 cu

(f) The existing stormwater quality treatment infrastructure demand for the shop is as follows-

$\frac{2300\text{m}^2 \times 0.2 \text{ cu}}{100\text{m}^2}$ B= 4.6 cu

(To ascertain the demand factor for an existing use only the site area, eg buildings, car-parking, landscaping, etc approved or actually used for the use is used - in this example 2300 m^2)

(g) The increase in infrastructure demand is A – B which equals 1.4 cu

(h) The infrastructure contribution is-

1.4 x 2,192 (from Schedule DC4 (6)

3,068.80 x $1.0762 (Infrastructure Unit Charge)

= $3,302.64

(3) (a) In this example assume the same parameters as example (2) except that the land area is 5000m^2.

(b) The stormwater quality treatment infrastructure demand for the proposed development using the rates outlined in Table 2(a) is as follows-

For commercial uses, only the land (site) area method is applicable.

$$\frac{0.2 \text{ cu} \times 5000\text{m}^2}{100\text{m}^2} = 10 \text{ cu} \quad ✓$$

(c) The stormwater quality treatment infrastructure demand for the development (A) = 10 cu.

(d) The existing stormwater quality treatment infrastructure demand is 4.6 cu (refer example 2).

(e) The increase in infrastructure demand is A–B which equals 5.4 cu.

(f) The infrastructure contribution is-

5.4 x 2,192 (from Schedule DC4(6))

11,836.80 x $1.0762 (Infrastructure Unit Charge)

= $ 12,738.76

(g) In this example an infrastructure credit of 4.6 cu would accrue to the land.

(4) (a) In this example assume the same parameters as outlined in example (2) except that previous contributions of $ 4000 were paid for the existing centre.

(b) The stormwater quality treatment infrastructure demand for the development (A) = 6 cu (refer example 2).

(c) The existing cu demand is to be equal to the cu on which the previous payment was determined. It was ascertained that the $4,000 previous payment was determined using 4 cu. The 4 cu becomes the existing use demand factor.

(d) The increase in infrastructure demand is A-B which equals 2 cu.

(e) The infrastructure contribution is-

2 X 2,192 (from Schedule DC 4 (6)

4,384 X $1.0762 (Infrastructure Unit Charge)

= $4,718.06

(5) (a) It is proposed to change (by demolition) an existing fabrication industry (2000m^2 GFA) to 2500m^2 shops at Kunda Park.

(b) The land is 8000m^2 within the 'Local Centre' Precinct.

(c) No previous stormwater quality treatment infrastructure contributions were paid nor is the land subject to infrastructure credits.

(d) The stormwater quality treatment infrastructure demand for the proposed development using the rates outlined in Table 2 (a) is as follows:-

For commercial and industrial uses, only the land (site) area method is applicable

$$\frac{0.2\text{cu} \times 8000\text{m}^2}{100\text{m}^2}$$

= 16 cu ✓

(e) The stormwater quality treatment infrastructure demand for the development (A) = 16 cu.

(f) The existing stormwater quality treatment infrastructure demand for the fabrication industry is as follows-

$\frac{4000\ \text{m}^2}{100\ \text{m}^2}$ x 0.18 cu* B = 7.2 cu

(To ascertain the demand factor for an existing use only the site area eg, buildings, carparking, hard-surfaced storage, etc approved or actually used for the use is used - in this example 4000 m^2).

* Because the fabricating industry is an inconsistent use in the Local Centre Precinct, the stormwater quality treatment infrastructure demand-factor has been determined using the Precinct that most closely aligns with the existing use – in this example the Core Industry Precinct, which has a demand factor of 0.18 cu / 100 m^2 site area (refer Table 2(a)).

(g) The increase in infrastructure demand is A – B which equals 8.8 cu.

(h) The infrastructure contribution is -

8.8 x 2,192 (from Schedule DC 4 (6)

19,289.60 x $1.0762 (Infrastructure Unit Charge)

= $20,759.47

(6) (a) It is proposed to change (by demolition) existing shops (2000m^2 GFA)to 120 dwelling units and 1000m^2 shops at Maroochydore.

(b) The land is 8000 m^2 within the 'Multi-Storey Residential' Precinct.

(c) No previous stormwater quality treatment infrastructure contributions were paid nor in the land subject to infrastructure credits.

(d) The stormwater quality treatment infrastructure demand for the proposed development using the rates outlined in Table 2 (a) is as follows –

Use both the land area and number of dwelling units method to determine the residential demand factor and choose whichever method has the highest demand factor (i.e. cu). For the commercial land use, only the land (site) area method is applicable.

Residential Demand:

$$\frac{71.42 \text{ cu} \times 8000 \text{m}^2}{10000 \text{ m}^2}$$

= 57.136 cu ✘

OR

120 units x 1 cu / du = 120 cu

Commercial Demand:

$$\frac{8000 \text{ m}^2 \times 0.2 \text{ cu}}{100 \text{ m}^2} = 16 \text{ cu}$$

Total Demand

= 136 cu ✓

(e) The stormwater quality treatment infrastructure demand for the development (A) = 136 cu

(f) The existing stormwater treatment infrastructure demand for the shops is as follows:-

$\frac{5000 \text{ m}^2}{100 \text{m}^2} \times 0.2 \text{ cu}^*$ B = 10 cu

(To ascertain the demand factor for an existing use only the site area, eg. Buildings, carparking, etc approved or actually used for the use is used – in this example 5000m^2).

*The demand factor for commercial uses is 0.2 cu / 100 m^2 site area (refer Table 2(a)).

(g) The increase in infrastructure contribution is A – B which equals 126 cu.

(h) The infrastructure contribution is –

126 X 2,192 (from Schedule DC 4 (6)

276,192 X $1.0762 (Infrastructure Unit Charge)

= $297,237.83

Notes:

cu	=	Chargeable Unit
du	=	Dwelling Unit
GFA	=	Gross Floor Area
ha	=	Hectare

Stormwater Quality Treatment Demand Factor Rates

(9) The stormwater quality treatment demand factor rates for the various precinct classes within each Planning Area outlined in Volume 3 of this Planning Scheme is shown in Table 2 (a) or Table 2 (b).

(10) Where a Table has more than one calculation method for determining the stormwater quality treatment demand factor rate, the method producing the highest demand factor rate is to be used as the stormwater quality treatment demand factor.

(11) Where a use is proposed within a precinct and that use or use type is not consistent with the stormwater quality treatment demand factor assumed for the precinct (eg retirement village development within the Neighbourhood Residential Precinct), the stormwater quality treatment demand factor for the use is to be based on the dwelling unit or GFA method for the precinct outlined in the following tables that most closely align with the proposed development (provided that as a minimum the stormwater quality treatment demand factor for the land is not to be below the per hectare (ha) population capacity rate as outlined for the relevant precinct).

Table 2 (a): Stormwater Quality Treatment Demand Factor Rates for General Precincts

PRECINCT	STORMWATER QUALITY TREATMENT DEMAND FACTOR*
Business and Industry	0.18cu/100m^2 site area
Core Industry	0.18cu/100m^2 site area
General Rural Lands	N/A
Hillslope Residential	1cu/du or 5cu/ha
Local Centre	0.2cu/100m^2 site area
Master Planned Community**	To determine demand factor rates, use the precinct or precincts from this table that most closely align with the proposed development.
Mixed Housing**	1cu/du or 35.07cu/ha
Multi-storey Residential	1cu/du or 71.42cu/ha
Neighbourhood Residential	1cu/du or 10cu/ha
Special Purpose	To determine demand factor rates, use the precinct or precincts from this table that most closely align with the proposed development
Sustainable Cane Lands	N/A
Sustainable Horticultural Lands	N/A
Sustainable Pastoral Lands	N/A
Sustainable Rural Residential	1cu/du or 1.42cu/ha
Town Centre Core**	1cu/du or 71.42cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
Town Centre Frame	1cu/du or 35.07cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
Village Centre	1cu/du or 35.07cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
Water Resource Catchment Area	N/A

* The stormwater quality treatment demand factor is to be based on the highest chargeable unit rate

** Demand Factor variations exist for some Specific Precincts – Refer to Table 3 (b) Stormwater Quality Treatment Demand Factor Rates for Specific Precincts

Notes:

cu = Chargeable Unit
du = Dwelling Unit
ha = Hectare

TABLE 2(b): Stormwater Quality Treatment Demand Factor Rates for Specific Precincts

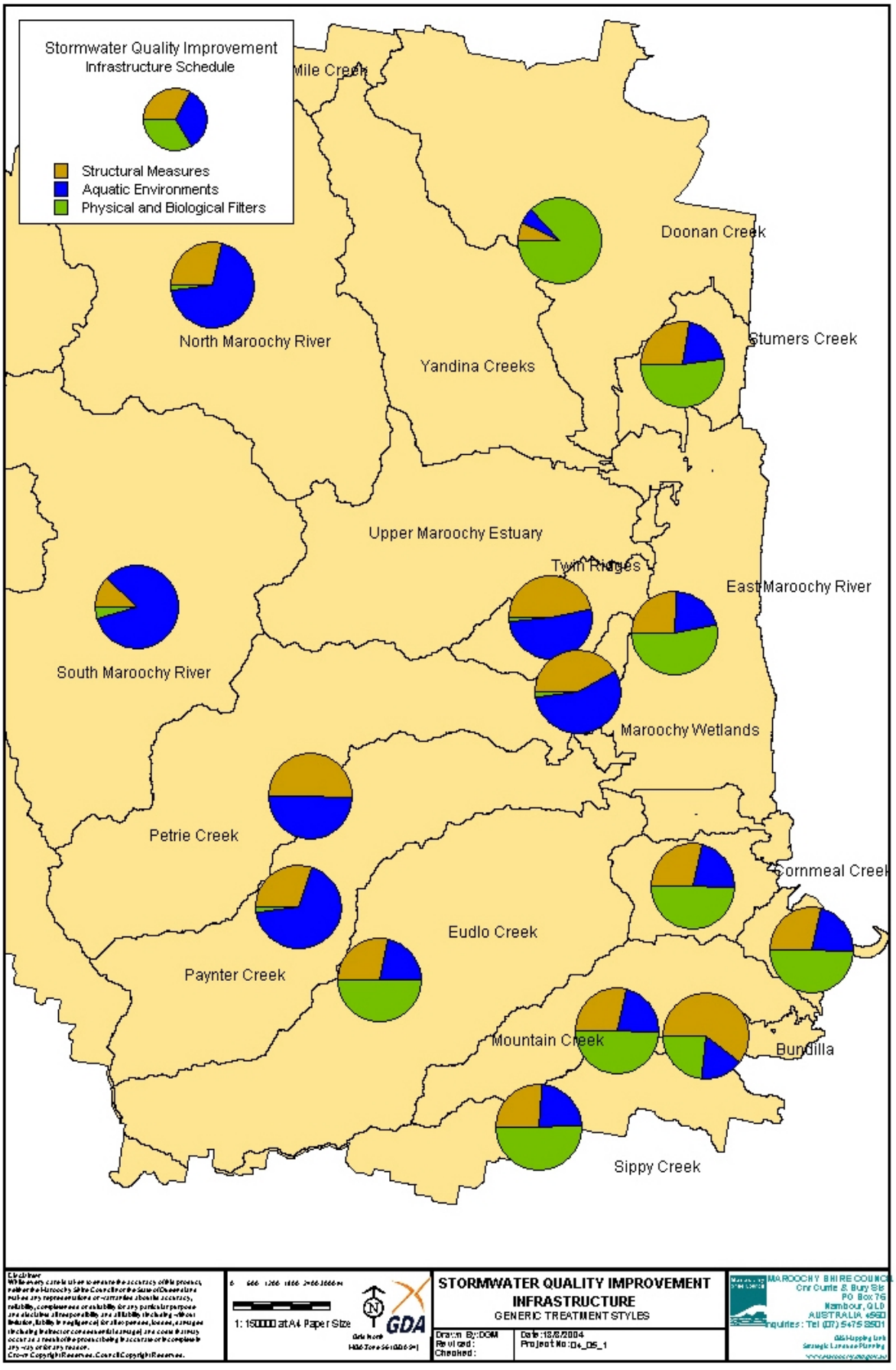
Code	Planning Area	Index	Precinct	Stormwater Quality Treatment Demand Factor *
1	Maroochydore	1	Town Centre Core	1cu/du or 200cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	2	Town Centre Core	1cu/du or 200cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	3	Town Centre Core	1cu/du or 200cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	4	Town Centre Core	1cu/du or 200cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	9	Master Planned Community	1cu/du or 34cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	10	Master Planned Community	1cu/du or 34cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	11	Master Planned Community	1cu/du or 34cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	13	Mixed Housing	1cu/du or 42cu/ha
1	Maroochydore	15	Master Planned Community	1cu/du or 28cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
1	Maroochydore	17	Mixed Housing	1cu/du or 38cu/ha
1	Maroochydore	20	Mixed Housing	1cu/du or 38cu/ha
1	Maroochydore	23	Mixed Housing	1cu/du or 34cu/ha
1	Maroochydore	25	Mixed Housing	1cu/du or 42cu/ha
1	Maroochydore	27	Mixed Housing	1cu/du or 38cu/ha
2	Nambour	3	Mixed Housing	1cu/du or 25cu/ha
2	Nambour	4	Mixed Housing	1cu/du or 25cu/ha
2	Nambour	28	Master Planned Community	1cu/du or 11cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
3	Sippy Downs	4	Master Planned Community	1cu/du or 12.5cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
3	Sippy Downs	5	Master Planned Community	1cu/du or 12.5cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
3	Sippy Downs	8	Master Planned Community	1cu/du or 12.5cu/ha 0.2cu/100m^2 site area (Commercial Uses)
3	Sippy Downs	11	Master Planned Community	1cu/du or 12.5cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
4	Mooloolaba	1	Town Centre Core	1cu/du or 200cu/ha (Residential Uses) or 0.2cu/100m^2 site area (Commercial Uses)
4	Mooloolaba	7	Mixed Housing	1cu/du or 42cu/ha
4	Mooloolaba	8	Mixed Housing	1cu/du or 42cu/ha

Code	Planning Area	Index	Precinct	Stormwater Quality Treatment Demand Factor *
4	Mooloolaba	13	Mixed Housing	1cu/du or 44cu/ha
6	Buderim	2	Mixed Housing	1cu/du or 27cu/ha
7	Alexandra Headland/Cotton Tree	5	Mixed Housing	1cu/du or 38cu/ha
7	Alexandra Headland/Cotton Tree	8	Mixed Housing	1cu/du or 44cu/ha
7	Alexandra Headland/Cotton Tree	10	Mixed Housing	1cu/du or 38cu/ha
7	Alexandra Headland/Cotton Tree	11	Mixed Housing	1cu/du or 42cu/ha
8	Kuluin/Kunda Park	4	Mixed Housing	1cu/du or 22cu/ha
9	North Shore	13	Mixed Housing	1cu/du or 22cu/ha
9	North Shore	16	Master Planned Community	1cu/du or 59cu/ha or 0.2cu/100m^2 site area (Commercial Uses)
10	Mt. Coolum	2	Mixed Housing	1cu/du or 44cu/ha
10	Mt. Coolum	8	Master Planned Community	1cu/du or 31cu/ha or 0.2cu/100m^2 site area (Commercial Uses)
10	Mt. Coolum	9	Master Planned Community	1cu/du or 11cu/ha or 0.2cu/100m^2 site area (Commercial Uses)
11	Coolum Beach	3	Mixed Housing	1cu/du or 63cu/ha or 0.2cu/100m^2 site area

* The stormwater quality treatment demand factor is to be based on the highest chargeable unit rate.

APPENDIX 1

FIGURE 4.2.1: STORMWATER QUALITY IMPROVEMENT INFRASTRUCTURE – TREATMENT STYLES



APPENDIX 2

DESIRED STANDARDS OF SERVICE FOR STORMWATER QUALITY

A2.1 The desired standard of service (DSS), or performance objectives, for which stormwater quality is planned/designed to, is determined by the community through the identification of environmental values.

A2.2 Environmental values describe the expectations or aspirations a community have for their waterways.

A2.3 These values represent more than just the community's use of the waterway but also include their visions for the waterway and their perceptions of its potential.

NOTE on A2.1 – A2.3

a. It is acknowledged that in some cases, due to local circumstances, the desired standard of service may not be met. In these situations, Stormwater Quality Treatment infrastructure aims to meet the standards to the greatest degree practicable. Knowing how the community value a waterway is a fundamental step in developing a responsible stormwater management plan for the catchment. For instance, strategies for the management of stormwater for a catchment whose receiving waters have been valued as secondary recreation should differ from those whose receiving waters have been valued as drinking water.

A2.4 Environmental values are agreed to through consultation with the community.

A2.5 The values can only be decided by people, there are no algorithms or formulas that can be used to mimic the community's wishes.

A2.6 The environmental values adopted to determine these Infrastructure Contributions were determined during the South East Queensland Regional Water Quality Management Strategy, September 2001.

A2.7 It is possible to determine environmental values on a local, regional or Shire wide level.

NOTE on A2.7 ENVIRONMENTAL VALUES

a. The environmental values adopted in the Draft Urban Stormwater Quality Management Plan (USQMP) for Maroochy Shire November 2002 are regional values and are appropriate for the purposes of developing a Shire wide strategy to achieve Water Quality Objectives (WQOs). Local environmental values are assigned to receiving waters where a local strategy can be applied and monitored. Shire wide environmental values refer to the collective regional environmental values derived for each catchment in the USQMP.

A2.8 Following the determination of the community's nominated environmental values, a measurable objective is required to monitor the compliance or attainment of such values. These objectives are known as the Water Quality Objectives

NOTE on A2.8 WATER QUALITY OBJECTIVES

a. Water Quality Objectives are set using either state or national guidelines – supplemented with local studies (if available). Water Quality Objectives are defined in EPP Water as being numerical concentration levels or statements for indicators that protect a stated environmental value.

b. Water quality models are used as a tool to evaluate the potential impacts of development on water quality. The Draft Urban Stormwater Quality Management Plan for Maroochy Shire (USQMP), November 2002 developed water quality models for 15 of the Shire's creek catchments using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) developed by the Cooperative Research Centre for Catchment Hydrology (CRC-CH).

c. Pollutant concentrations of TSS, TN and TP were calculated for an ultimate development scenario of each catchment and compared against the WQO's assigned to each catchment

A2.9 The Maroochy Plan (2000) and associated planning scheme policies require developers to be responsible for the stormwater quality within and discharging from their sites.

A2.10 Planning Scheme Policy 11 Flooding and Stormwater Management Report Requirements states that the environmental values and associated water quality objectives may be determined by a Catchment Management Plan or in the interim adopt values supplied by Council.

A2.11 Assuming these criteria are complied with for all new development, leads to the assumption that the cost of achieving localised environmental values via the adoption of Water Sensitive Urban Design (WSUD) will be borne by future development.

NOTE on A2.9 – A2.11 STORMWATER QUALITY TREATMENT

a. Stormwater quality can be improved by applying the principles of Water Sensitive Urban Design (WSUD). WSUD principles encompass all aspects of water cycle management including water supply, sewerage and stormwater management. Structural measures such as stormwater quality improvement devices SQIDs (i.e. swales, bio-retention, GPTs and wetlands) are one of the elements of WSUD.

b. The Draft Urban Stormwater Quality Management Plan for Maroochy Shire (USQMP) used the water quality model developed for each catchment to determine the number and size of a range of SQIDs that are required to meet the WQO's and hence deliver the desired environmental values to the community.

c. Generic development layouts and treatment efficiencies were adopted for the water quality models and hence numbers and sizes of devices are indicative only of Best Management Practices (BMPs). On this basis it is not the intention of the USQMP to develop a program of SQIDs to be constructed in each catchment.