TEES


Tee (SOC/SOC/SOC)


Tee (FL/FL/FL)


Tee (SOC/SOC/FL)


Tee (SOC/SP/FL)


Tee (SP/SP/SP)


Tee (SP/SP/FL)

TAPERS


Taper (SOC/SOC)


Taper (concentric) (FL/FL)


Taper (eccentric) (FL/FL)


Taper (SP/FL)


Taper (SP/SP)

BENDS

11¼


11¼° Bend (SOC/SOC)


11¼° Bend (FL/FL)

22½


22½° Bend (SOC/SOC)


22½° Bend (FL/FL)

45


45° Bend (SOC/SOC)


45° Bend (FL/FL)

90


90° Bend (SOC/SOC)


90° Bend (FL/FL)

CONNECTORS


Connector (SOC/SOC)


Connector (FL/SOC)


Connector (FL/SP)

GIBAULT


Gibault

END CAPS


End Cap


Blank Flange

RISER/ SPACER

Riser (FL/FL)

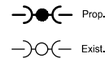
WYES


Wye (Soc/Soc/Soc)


Wye (Fl/Fl/FL)

FITTINGS

FH



Fire Hydrant (SOC/SOC)

SV

Sluice Valve (SOC/SOC)

Sluice Valve (FL/FL)

ScV

Scour Valve (SOC/SOC)

Scour Valve (FL/FL)

AV


Air Valve (SOC/SOC)


Air Valve (FL/FL)

RECYCLED EFFLUENT MAIN CONSTRUCTION NOTES

1. All recycled water mains to be on 1.8m alignment unless otherwise noted
2. Recycled water mains shall be RRJ to AS1477 Series 2 (lilac colour) Material Class 400. uPVC Class 12, mPVC Class 16 or oPVC Class 16.
3. Minimum cover to recycled water mains to be 900mm for road pavements and 600mm elsewhere.
4. Sluice Valves are to be clockwise closing.
5. Place detectable marker tape in trench approx. 300 mm above pipe.

WATER CONSTRUCTION NOTES

1. All water mains to be on 2.5m alignment unless otherwise noted.
2. Watermains shall be RRJ to AS1477 Series 2 (blue colour) uPVC Class 12, mPVC Class 16 or oPVC Class 16. Material Class 400.
3. Minimum cover to Watermains shall be 900mm for road pavements and 600mm elsewhere.
4. Concrete thrust blocks to be constructed in accordance with Std. Dwg. CMDG-W-041.
5. Water Sluice Valves are to be anti-clockwise closing.
6. Hydrant box as per Std. Dwg. CMDG-W-061 to be provided with 0.6m turf surround. Hydrant markers to be blue rrpm's (stimsonite or equiv) positioned offset on crown of road & fixed in accordance with manufacturers recommendations. Refer Std. Dwg. CMDG-W-062.
7. Hydrants & valves to be installed in accordance with Std. Dwg. CMDG-W-060.
8. Place detectable marker tape in trench approx. 300 mm above pipe.

SEWER RISING MAIN CONSTRUCTION NOTES

1. All sewer rising mains to be on 1.8m alignment unless otherwise noted.
2. Sewer rising mains shall be RRJ to AS1477 Series 2 (cream or grey colour) Material Class 400. uPVC Class 12, mPVC Class 16 or oPVC Class 16.
3. Minimum cover to rising rmain to be 900mm for road pavements and 600mm elsewhere.
4. Concrete thrust blocks to be constructed in accordance with CMDG-W-041.
5. Scour Valves to be installed in accordance with Std. Dwg. CMDG-S-073.
6. Air Valves to be installed in accordance with Std. Dwg. CMDG-S-072.
7. Valves to be installed in accordance with Std. Dwg. CMDG-W-060 and provided with 600mm turf surround.
8. Valves to be fitted with a concrete surround 50mm above natural surface level.
9. Backfilling of all driveway and road crossings to be cement stabilised.
10. Sluice Valves are to be clockwise closing.
11. Place detectable marker tape in trench approx. 300 mm above pipe.

SEWER GRAVITY MAIN CONSTRUCTION NOTES

1. Sewer alignments to be as specified in D12 Sewerage Network - Design and Construction Guideline.
2. All 150 diam. sewer pipes shall be uPVC Class SN8 up to 3m deep (cream or grey colour) to AS1260. Refer to sewerage longitudinal sections for sewer diameters.
3. Manhole locations shall be pegged by surveyor prior to construction.
4. Finished manhole top levels to be confirmed on site. Generally top of finished MH should be 75mm above surrounding finished surface levels.
5. Manhole lids to be Class C or D.
6. Provide a 1.5m long star picket driven 0.5m into the ground within 200mm of the ends of each house connection.
7. Plastic warning tape 0.3mm thick x 50mm wide shall be attached to the top of the jump-up and wired to the base of the star picket.
8. Sewer manholes to be precast and minimum 1050Ø. Concrete manholes to be in accordance with Std. Dwg. CMDG-S-021.
9. Lamphole to be constructed in accordance with Std. Dwg. CMDG-S-026.
10. Bases to be fibreglass complas type or approved equivalent base.
11. House connections to be constructed in accordance with Std. Dwg. CMDG-S-030.
12. Provide concrete stops in accordance with Std. Dwg. CMDG-S-091 on slopes greater than 1 on 6.
13. Maximum manhole spacing to be 90m. Maximum lamphole segment to be 40m.
14. Place detectable marker tape in trench approx. 300 mm above pipe.

FITTINGS SCHEDULE

DETAIL ID	SIZE	DESCRIPTION	QTY
①	100Ø	Tee (Fl/Fl/Fl)	3
②		Gibault	2
N/A		11¼° Bend (Soc/Soc)	7
③		11¼° Bend (Fl/Fl)	1
N/A		22½° Bend (Soc/Soc)	2
N/A		45° Bend (Soc/Soc)	1
N/A		90° Bend (Soc/Soc)	1
N/A		Connector (Soc/Soc)	2
④		Connector (Fl/Soc)	7
⑤	150Ø	Connector (Fl/Spig)	3
⑥		Sluice Valve (Fl/Fl)	7
N/A		Scour Valve (Soc/Soc)	2
N/A		Air Valve (Soc/Soc)	2
⑦		End Cap	2
⑧	Misc.	375 x 300 Taper	1

SEWER RISING MAINS (PRESSURE)

DIRECTION	MIN GRADIENT
Up	0.200% (1 in 500)
Down	0.400% (1 in 250)

HORIZONTAL BENDS

CHANGE OF ANGLE	STD FITTINGS
78.75°	45° + 22.5° + 11.25° Bend
67.5°	45° + 22.5° Bend
56.25°	45° + 11.25° Bend
45°	45° Bend
33.75°	22.5° Bend + 11.25° Bend
22.5°	22.5° Bend
11.25°	11.25° Bend
6°	Connector
1°	Pipe Joint

SEWER GRAVITY MAINS (NON PRESSURE)

PIPE DIA	MIN GRADIENT
150	0.667% (1 in 150)
225	0.345% (1 in 290)
300	0.238% (1 in 420)
375	0.175% (1 in 570)
450	0.133% (1 in 750)

FALL THROUGH MANHOLE (FIBREGLASS BASE)

MANHOLE DESC.	DIAGRAM	MIN. DROP (mm)
Straight through		20
Deflection up to 40°		30
Deflection 40°-90°		40
Branch <40Ø		30
Branch 40° - 90°		40

MAIN AND BRANCH VARY IN DIA.

MAIN DIA.	BRANCH DIA		MIN DROP (mm)
300	225		80
300	150		150
300	100		200
225	150		80
225	100		130
150	100		50

NOTE: For House Drains & Concrete Manhole Bases refer CMDG Std Dwg CMDG-S-020

VERTICAL BENDS

ANGLE	CHANGE OF GRADIENT	FITTING
45°	100.00%	Std Bend
22.5°	41.40%	Std Bend
11.25°	19.90%	Std Bend
6°	10.50%	Std Connector
3°	5.20%	All M&F Joints

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
G	IRC ADDED	11/2016
F	AMEND SEWER GRAVITY MAIN NOTE 1	10/2016
E	SEWER NOTE 10 AMENDED	03/2015
D	GRC AND LSC ADDED	09/2014
C	SEWER GRAVITY MAIN NOTE 10 AMENDED	05/2014
B	FALL THROUGH TABLE AMENDED	02/2014
A	POST AMALGAMATION REVIEW	04/2016

Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)
Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

SEWER/WATERMAIN INFORMATION FITTING AND BEND SYMBOLS, PIPE INFORMATION AND GENERAL NOTES

STANDARD

STANDARD DRAWING

CMDG-S-005

REV. A B C D E F

REV. G