




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)

END CAPS




End Cap




Blank Flange

RISER/
SPACER




Riser
(FL/FL)

FITTINGS




Gibault

WYES



Wye
(Soc/Soc/Soc)



Wye
(FI/FI/FL)

FITTINGS SCHEDULE

DETAIL ID	SIZE	DESCRIPTION	QTY
①	100 Ø	Tee (FI/FI/FL)	3
②		Gibault	2
N/A		11¼° Bend (Soc/Soc)	7
③		11¼° Bend (FI/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 (FI/Soc)	7	
⑤	150 Ø	Connector (FI/Spig)	3
⑥		Sluice Valve (FI/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

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

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. Water mains 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 Water mains 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 main to be 900mm for road pavements and 600mm elsewhere.

4. Concrete thrust blocks to be constructed in accordance with Std. Dwg. 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. All sewers to be on 1.5m alignment from front and back boundaries or 1.0m from side boundaries, unless noted otherwise.

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 compлас type.

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-090 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.

15. Trench compaction to be 85%.

REVISIONS

		DATE
D	IRC ADDED	11/2016
C	GRC AND LSC ADDED	09/2014
B	FALL THROUGH MANHOLE TABLE AMENDED	02/2013
A	POST AMALGAMATION REVIEW	

DISCLAIMER.

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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-W-005

REV.

A	B	C	D		
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