

TABLE 317-A: PRESSURE MAIN CONNECTION RISK CONTROL REQUIREMENTS

OBJECTIVES. PRESSURE MAIN SHALL	REQUIREMENT	RELEVANCE	REFERENCES
A Connect to sewers of adequate hydraulic capacity	Comply with or seek planning advice as to suitable location for pressure main discharge	SPS & PSS pressure mains	
B Have stable hydraulics. Maintain pressure main pipe full condition as much as practical	Prefer invert of pressure main at or within 10m of discharge to be greater than both of the following where practical: 1. Pressure main high point obvert(s). This is required to maintain pipe full condition as much as practical. Discharge level and pressure main vertical alignment shall be considered in tandem to minimise the number and length of high points which may empty after pumps stop. Refer WSA 04 and Water Agency SPS standards on measures to reduce Falling Mains risks and determine the optimum static HGL at the discharge point. 2. One meter above the level of high point air valve(s) base flanges. This is required to ensure there is adequate static head to seal the air valve. Nominate available sealing pressure the discharge level provides each air valve.	SPS pressure mains	FIGURES 319-G to K
C Limit drop turbulence in Closed Systems (ie: limit odour complaints / corrosion)	When discharging to a Closed System, only use drops to: 1. Maintain pressure main pipe full condition as described in Objective B above, or 2. Limit depth of discharge connections which would otherwise be deep (ie: > 3m deep). Control drop turbulence as per "closed system" of Table 307-D.	Pressure mains ≥DN110PE	TABLE 307-D MRWA-S-401 FIGURE 311-E
D Ensure sewage is correctly contained, ie: limit splashing, hydraulic jumps or "blowback"	<ul style="list-style-type: none"> Pressure main discharge channel shall be 150° to 210° from outflow sewer, unless pressure main Ø is ≤ 0.3 of outflow sewer Ø. Reduce pressure main discharge velocity to below 1 m/s or as low as reasonably practical. Upsize last section of pressure main (ie: last 10m) and upsize the MH channel. Ensure height of any hydraulic jump in the gravity system is below the MH table & outflow sewer obvert. Consider upsizing the outflow sewer by one size to the next structure downstream if a significant hydraulic jump is possible. 	SPS pressure mains only *	FIGURES 319-A to F FIGURE 311-E
E Discharge to system with suitable corrosion controls	Assess corrosion risk level using MRWA-S-401 method. Water Agency to confirm if discharging to Open or Closed system. Apply Table 307-E and Water Agency standard MH corrosion controls to: 1. The discharge MH, and 2. Any downstream structures & concrete sewers that change Table 401-C Risk Level due to the new pressure main discharge.	SPS & PSS pressure mains	MRWA-S-401 TABLE 307-E

* SPS inflows are typically pulse inflows at peak flow rates so present greater containment challenges than pressure sewer reticulation inflows which are typically more continuous.

TABLE 317-B: VENTILATION AND AIR TREATMENT REQUIREMENTS

H ₂ S RISK LEVEL (REFER MRWA-S-401)	CUSTOMER IMPACT (REFER TABLE 317-C)	PREFERRED OPTION	REQUIREMENTS
1 No Risk, or discharge to Closed System	NA	No vent	NA
2 Low Risk (preferred option unless otherwise specified)	Any	Capped vent stub	Provide PVC DWV vent pipe stub at structure, 1.2m below FSL. Cap 500 from MH shaft. Size as per Table 402B-B. Provide 1m x 1m space above stub at ground level for future vent
3 Medium Risk	Low Customer Impact	Ground level Air Admittance Valve(s) induct	Refer Figure 301-B (DN150 / DN225 vents) or Figure 305-C (DN300 vent) and Figure 402B-I
4 Medium Risk	Medium Customer Impact	High level vent, or if this not possible, Air Treatment	Refer MRWA-S-402 & 402B
5 High Risk	Customer Impact Difficult to Predict	High level vent + provision for Air Treatment. If high level vent not possible, Air Treatment	Refer MRWA-S-402 & 402B. Provide 6m ² suitable hardstand area with vehicle access adjacent to MH where practical.
6 High Risk	High Customer Impact	High level vent with Air Treatment	Refer MRWA-S-402 & 402B. Provide air treatment (typically activated carbon canister) as per Water Agency standards and requirements (if standards available).

TABLE 317-C: CUSTOMER IMPACT

CUSTOMER IMPACT	GUIDELINE
LOW	Smell Outside Private Property. Complaints Unlikely.
MEDIUM	Smell On Private Property. Some Complaints.
HIGH	Smell In Residence, Large Number Of Complaints, Complaint to EPA

TABLE 317-D: PRESSURE MAIN CONNECTIONS TO GRAVITY SEWERS AND STRUCTURES

PRESSURE MAIN SIZE	CONNECTION LEVEL	CONNECTION STRUCTURE	CONNECTION SIZE
≤DN40PE	BASE	TYPE 1	DN100
		MS, MC or Plastic MH	DN150 or DN225
		Made to Order MH	Directly connect pressure main
≥DN50PE to ≤DN90PE	SHAFT (CWW, SEW)	TYPE 2, TYPE 4, IS, MS, MC or MH	DN100
		SHAFT (YVW)	MH
		MH	DN100
≥ DN100	BASE or SHAFT	MC or Plastic MH	DN150 or DN225
		Made to Order MH	Directly connect pressure main
		MH	DN100
≥ DN100	BASE or SHAFT	Plastic MH	DN150, DN225 or DN300
		Made to Order MH	Directly connect pressure main

TY1, TY2 and TY4 pressure main connections require that the DWV end shown in Figure 317-A be connected to the end IO fitting of the property service (eg: Item G in MRWA-S-301).

TABLE 317-E: CONNECTION REFERENCES

CONNECTION	APPLICABLE REFERENCES
IS or PROPERTY CONNECTION	MRWA-S-301, 302, 303 and 304. TABLE 317-F
MS or MC, BASE or SHAFT	MRWA-S-305 and 306. TABLE 317-F
PLASTIC MH BASE or SHAFT	MRWA-S-306B and FIGURE 317-A & B. TABLE 317-F
MADE TO ORDER (CONC or GRP)	MRWA-S-310 (BASE)
MH BASE or SHAFT	TABLE 307-D & MRWA-S-311 (SHAFT)

IF CONNECTION IS TO AN EXISTING SEWER, ALSO REFER 500 SERIES STANDARDS

TABLE 317-F: ADAPTING PRESSURE PIPE TO GRP OR DWV GRAVITY SEWER PIPE

PRESSURE PIPE	GRAVITY SEWER	CONNECTION AND REFERENCE
PE	PVC DWV	Refer Figure 317-A & B and Table 317-G
PE	GRP (either)	PE stub flange to GRP flange. Refer MRWA-W-306B, Table 306B-C
DI, PVC O / M	PVC DWV	Straub Grip coupling + EPDM bush. Refer Figure 514-E
DI, PVC O / M	GRP - AS 3571.1	Straub Grip coupling (pipes have same OD)
GRP - AS 3571.1	PVC DWV	Straub Grip coupling + EPDM bush. Refer Figure 514-E
GRP - AS 3571.1	GRP - AS 3571.1	No adaptor required. ISO 10467 GRP drop pipework not suitable

NOTES REGARDING Table 317-F:

- Pressure pipe shall directly integrate with Made to Order MH base connections (refer Figures 310-D, F & G).
- Examples of when to apply Table 317-F are:
 - Shaft connection drop pipework (DWV or GRP required as per Table 307-C). Custom fabricate a FL - SOC GRP MH connector to connect PE to GRP if concrete MH connection.
 - Plastic maintenance structure base connection (DWV required), or
 - Gravity sewerage pipe connection.
- Adapt pressure pipe to DWV or GRP gravity pipe within 1m of the Maintenance Structure.
- GRP (either) means that the GRP gravity sewer may be either to ISO 10467 or AS 3571.1.
- It is assumed that GRP pressure pipe is GRP AS 3571.1.
- Where GRP AS 3571.1 is quoted as the gravity sewer, it is required to enable the connection type indicated.

TABLE 317-G: ADAPTING PE PIPE to DWV PIPE (FIGURE 317-A COMPONENTS)

NO.	DESCRIPTION	MATERIAL &/OR TYPE &/OR SIZE
1	SEWER PIPE STUB	DWV, DN100 (OD110), DN150 (OD160), DN225 (OD250)
2	SEWER TAPER (IF REQ'D) ^	SCJ DWV, DN150 x DN100, DN225 x DN100, DN225 x DN150
3	SEWER COUPLING	RESTRAINED SS316 COUPLING (ie: STRAUB GRIP COUPLING)
4	PRESSURE PIPE TAPER (IF REQ'D)	SDR11 /17 PE (110 x 50/63, 160 x 90/110/125, 250 x 180)
5	JOINER (REDUCING IF REQ'D)	MECHANICAL (±DN110PE), BUTT WELDED (±DN125)
6	PRESSURE PIPE	PE100

^ Sewer taper only required when connecting to plastic Maintenance Structures. Two consecutive DWV tapers may be req'd where large PE to DWV size difference (eg: DN225 DWV to DN40PE).

EXAMPLE 1: Adapt DN40PE pipe to DN150 DWV pipe

- DN150 DWV short spigot
- DWV DN150 x DN100 taper
- DN110 Sewer Coupling.
- DN110PE x DN50PE Taper.
- DN50PE x DN40PE Reducing Joiner.
- DN40PE pipe.

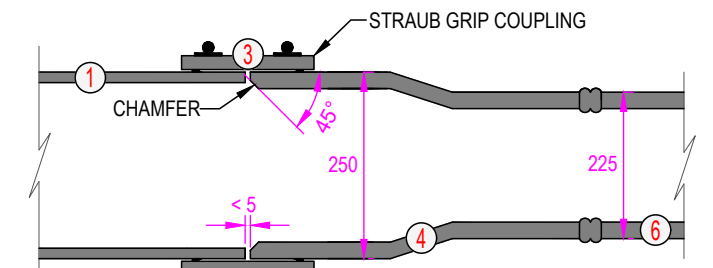


FIGURE 317-B: ADAPTING DN225 DWV PIPE to DN225PE PIPE

EXAMPLE 2: Couple DN225 DWV pipe to DN225PE pipe

- DN225 DWV pipe (OD = 250).
- DN250 Straub grip coupling.
- DN250PE to DN225PE taper.
- DN225PE pressure main. (PE to PE items butt welded)

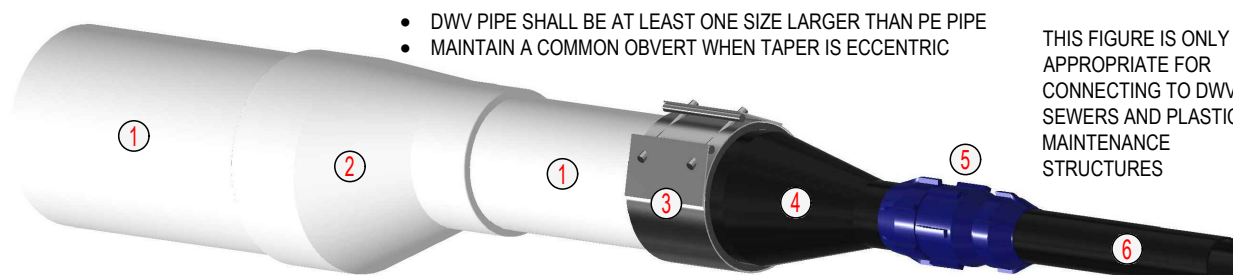


FIGURE 317-A: ADAPTING DN150 DWV PIPE to ≤DN90PE PIPE

ALL DIMENSIONS IN mm UNLESS STATED OTHERWISE				DESIGNED: R. JAGGER DATE: JAN 2020			MELBOURNE RETAIL WATER AGENCIES			MRWA SEWERAGE STANDARDS			NOT TO SCALE								
				DRAWN: R. JAGGER DATE: JAN 2020			City West Water			PRESSURE MAIN (SPS or PSS) DISCHARGE TO GRAVITY SYSTEM REQUIREMENTS			MRWA-S-317								
				CHECKED: NAME DATE APPROVED: NAME DATE			South East Water			Yarra Valley Water			<table border="1"> <tr> <th>Planning</th> <th>Design</th> <th>Construction</th> </tr> <tr> <td>✓</td> <td>✓</td> <td>✓</td> </tr> </table>			Planning	Design	Construction	✓	✓	✓
Planning	Design	Construction																			
✓	✓	✓																			
3	FIRST PUBLICATION VERSION	SEP 20	CP / GA / RL	✓ CWW	G. ANTHONSEN	SEP 20	✓ CWW	S. TRIKHA	SEP 20												
2	SECOND DRAFT FOR COMMENT	5/2020	CP / GA / NG	✓ SEW	C. PAXMAN	SEP 20	✓ SEW	D. STEWART	SEP 20												
1	FIRST DRAFT FOR COMMENT	01/2020	CP / GA / WS	✓ YVW	N. GERHARD	SEP 20	✓ YVW	R. LEON	SEP 20												
REV	DESCRIPTION	DATE	APPROVED	ISSUED 2020			VERSION 1														