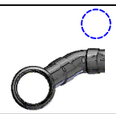
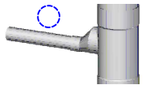
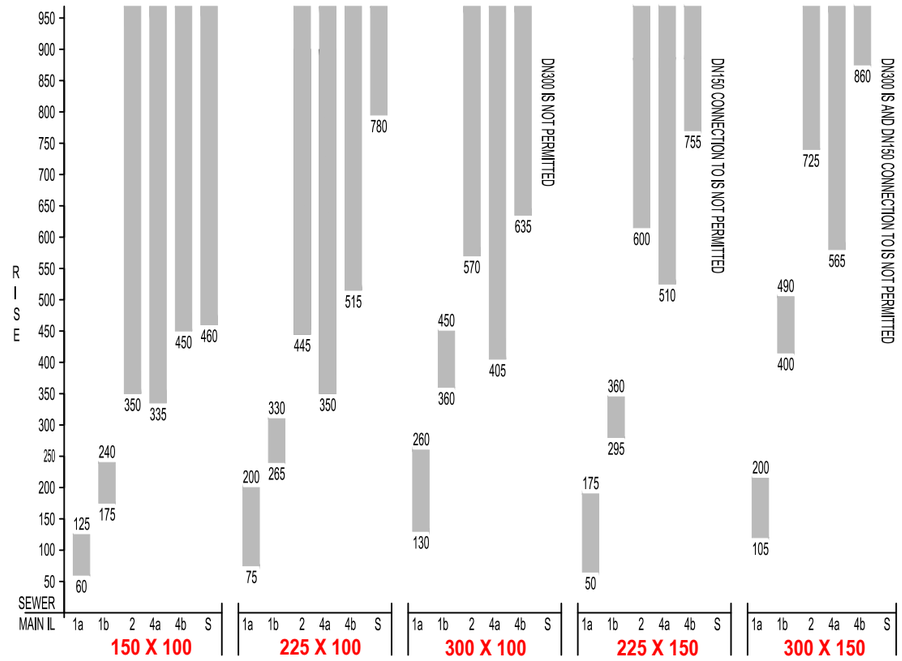
TABLE 301-A: PROPERTY CONNECTION TYPES, LIMITATIONS AND SITUATIONS OF USE

TYPE	CONFIGURATION	DESCRIPTION	RISE OF CONNECTION	SITUATIONS OF USE AND COMMENTS
TYPE 1a (MRWA-S-302)		ON GRADE CONNECTION WITH 45° BEND AT JUNCTION	150 X 100 = 60 to 125 225 X 100 = 75 to 200 300 X 100 = 130 to 260 225 X 150 = 50 to 175 300 X 150 = 105 to 200	Only for connections which control (or almost control) the sewer main's level. Property connection may drown (flood) during peak flows. May or may not be an obstruction above or below property connection
TYPE 1b (MRWA-S-302)		ON GRADE CONNECTION WITH 60° BEND AT JUNCTION	150 X 100 = 175 to 240 225 X 100 = 265 to 330 300 X 100 = 360 to 450 225 X 150 = 295 to 360 300 X 150 = 400 to 490	For connections where: i) the lot's control level enables a higher connection (to prevent flooding of connection) ii) the lot's control level is not high enough for a riser. May or may not be an obstruction above or below the property connection.
TYPE 2 TYPE 2F (MRWA-S-303)		RISER (JUMP UP) CONNECTION	150 X 100 > 350 225 X 100 > 445 300 X 100 > 570 225 X 150 > 600 300 X 150 > 725	For connections where the lot's control level permits a riser pipe to be fitted. May or may not be an obstruction above or below the property connection. "Double jump up" (ie: 2 risers) not allowed. If obstruction above, lot's control level shall be below obstruction minus min clearance. If riser pipe > 2m tall, special couplings required --> becomes TY2F
TYPE 4a TYPE 4aF (MRWA-S-304)		OFFSET RISER (JUMP UP). 45° BEND AT JUNCTION.	150 X 100 > 335 225 X 100 > 350 300 X 100 > 405 225 X 150 > 510 300 X 150 > 565	For connections where: i) the connection's point is on the other side of an obstruction from the sewer main. ii) the obstruction controls (or almost controls) the sewer main's level. iii) the lot's control level permits a riser pipe on the lot's side of the obstruction. iii) If riser pipe > 2m tall, special couplings required --> becomes TY4aF
TYPE 4b TYPE 4bF (MRWA-S-304)		OFFSET RISER (JUMP UP). 60° BEND AT JUNCTION.	150 X 100 > 450 225 X 100 > 515 300 X 100 > 635 225 X 150 > 755 300 X 150 > 860	For connections where: i) the connection's point is on the other side of an obstruction from the sewer main. ii) the obstruction's level enables higher connection to the sewer main (so no flooding) iii) the lot's control level permits a riser pipe on the lot's side of the obstruction. iv) If riser pipe > 2m tall, special couplings required --> becomes TY4bF
TYPE S (IS) (MRWA-S-302 to 304)		CONNECTION TO END OF SEWER MAIN'S RISER	150 X 100 > 460 225 X 100 > 780 300 X 100 . NOT PERMITTED 225 X 150 . NOT PERMITTED 300 X 150 . NOT PERMITTED	For connections where: i) the lot is at the end of the sewer main. ii) the lot's control level permits connection to a riser at the end of the sewer main.
TYPE B		CONNECTION TO BASE OF MS, MC, MH	> 80	Generally for connections which control sewer main level. For connecting to base of maintenance structure where suitable to locate one nearby.
TYPE 4B TYPE 4BF	(MS, MC or MH)	CONNECTION TO BASE OF MS, MC, MH WITH OFFSET RISER	> 80 + MIN RISE OF BENDS	i) For where connection's point is on other side of an obstruction from the structure. ii) where the lot's control level permits a riser pipe on the lot's side of the obstruction. iii) If riser pipe > 2m tall, special couplings required --> becomes TY4BF
TYPE S		CONNECTION TO SHAFT OF MS, MC, MH	MS & MC > 750 MH > 500 to 900 (Ø dependant)	For connecting to shaft of maintenance structures where suitable to locate one nearby.
TYPE 4S TYPE 4SF	(MS, MC or MH)	CONNECTION TO SHAFT OF MS, MC, MH WITH OFFSET RISER	MS & MC > 750 MH > 500 to 900 (Ø dependant) + MIN RISE OF BENDS	i) For where connection's point is on other side of an obstruction from the structure. ii) where the lot's control level permits a riser pipe on the lot's side of the obstruction. iii) If riser pipe > 2m tall, special couplings required --> becomes TY4SF

NOTES Regarding Table 301-A:

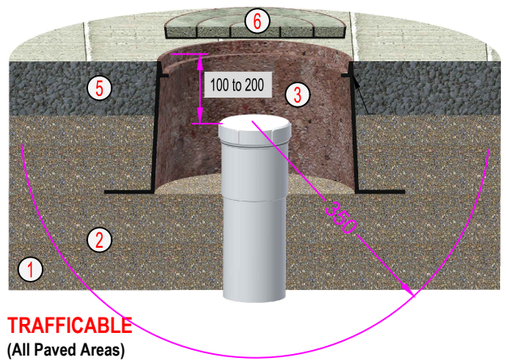
- Connection's point shall be < 1500 deep where possible. Maximum depth of connection's point shall be 2500.
- Sewerage main's invert at connection shall be < 4000 deep.
- Notation example: 300 (main size) x 100 (connection size).
- Rises include a provision of 50 for the fall required for up to 3m of property connection pipe work.
- Should the property connection be longer than 3m, an additional fall shall be taken into account.
- Only one riser (jump up) permitted on any connection.

FIGURE 301-A: SEWER MAIN AND INSPECTION SHAFT PROPERTY CONNECTION RISES



Where the available rise is in between the maximum rise of one connection type and minimum rise of the next connection type, select the connection type with the lower rise range.

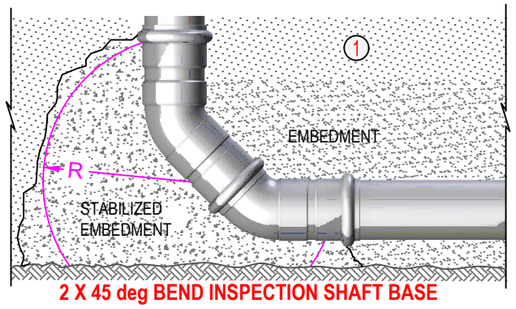
FIGURE 301-B : DN150 INSPECTION SHAFT (IS) and INSPECTION OPENING (IO) SURFACE ARRANGEMENTS (ISOMETRIC VIEW)



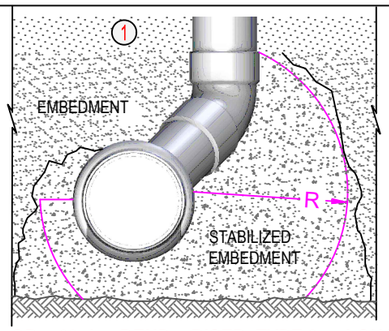
TRAFFICABLE
(All Paved Areas)

NON TRAFFICABLE

FIGURE 301-C: SHAFT SUPPORTS (SECTION VIEWS)



2 X 45 deg BEND INSPECTION SHAFT BASE



OB + 60 deg BEND + RISER. TYPE 2 or LONG TYPE 1 IO

TABLE 301-B: CEMENT STABILIZED EMBEDMENT PARAMETERS

RISER Ø	R	SUPPORT VOLUME	MASS CEMENT
100	350	0.1 m^3 (1/2 WHEEL BARROW)	5 kg (1/4 BAG)
150	500	0.2 m^3 (1 WHEEL BARROW)	10 kg (1/2 BAG)
225	600	0.4 m^3 (2 WHEEL BARROWS)	20 kg (1 BAG)

NOTES Regarding Figure 301-C:

- Mix 6% cement to embedment material thoroughly prior to placement. No cement shall be visible once mixed.
- Place under and behind bend. Not required above the bend.

TABLE 301-C: FIGURE 301-B COMPONENTS

ITEM ID	DESCRIPTION	MATERIAL	NOTES
1	NORMAL BACKFILL	GRANULAR BACKFILL	REFER TO MRWA BACKFILL SPECIFICATION
2	STABILIZED BACKFILL	6% CEMENT MIXED GRANULAR FILL	ALL BACKFILL WITHIN 350 OF CENTRE OF COVER
3	FRAME	DI FRAME	≥200Ø CLEAR OPENING, ≥ 320Ø UNDERNEATH ID, ≥ 230 TALL
4	FRAME & SURROUND	DI FRAME WITH DI OR CONCRETE SURROUND	≥200Ø CLEAR OPENING, ≥ 320Ø UNDERNEATH ID, ≥ 230 TALL
5	PAVEMENT	BITUMEN, PAVING or CONCRETE	CONSTRUCTED BY OTHERS TO ENCASE FRAME
6	COVER	DI or DI / CONCRETE	REFER TABLE 313-E FOR COVER TYPE AND SURFACE
7	TOP SOIL	NATIVE SOIL	IF IN PUBLIC LAND, RE-INSTATE AS PER RESERVE OWNERS' SPECIFICATION
8	GRASS		
9	SHROUD / THIMBLE	DN300 DWV	> 450 LONG

NOTES Regarding Figure 301-B items:

- Refer to Figure 305-C for DN225 IS covers and frames.
- Only **GWW** and **YVW** require IO to surface.
- Locate screw cap within shroud / cover within 50 to 100 of FSL.

Item 2. ¼ standard bag cement (5kg) to ½ wheel barrow of FCR (0.1m^3) per installation. Mix thoroughly prior to placement. No cement shall be visible once mixed.

Items 3 & 4. Underneath frame recess for any shroud / thimble insertion shall be ≥60 tall. Shroud / thimble not required when frame underneath recess ≥150 tall.

REV	DESCRIPTION	DATE	APPROVED
3	TABLE 301-A. TYB, IS/IO CONSTRUCTION REQ'S	SEP 20	CP / GA / RL
2	PUBLISHED FIRST ISSUE	01/10/15	CP / JT / KD / RJ
1	PRE-PUBLISHED DRAFT	01/03/15	CP / JT / KD / RJ

		DATE
DESIGNED:	R. JAGGER	1 JULY 2015
DRAWN:	R. JAGGER	1 JULY 2015

CHECKED:	NAME	DATE	APPROVED:	NAME	DATE
☒ GWW	D. MOORE		☒ GWW	R. CARRUTHERS	
☒ SEW	C. PAXMAN		☒ SEW	D. O'DONOVAN	
☒ YVW	K. DAWSON		☒ YVW	J. TOMASI	

ISSUED 2015 — VERSION 1

MELBOURNE RETAIL WATER AGENCIES

Greater Western Water · South East Water · Yarra Valley Water

MRWA SEWERAGE STANDARDS

PROPERTY CONNECTIONS (GENERAL) & IS AND TYPE 2 CONSTRUCTION DETAILS

NOT TO SCALE

MRWA-S-301

Planning	Design	Construction
	✓ ✓ ✓ ✓	✓ ✓