

FIGURE 404-A: GENERAL ARRANGEMENT A (WHERE THERE IS ADEQUATE DISTANCE BETWEEN M.H AND DISCHARGE POINT TO INSTALL BACK FALLING SEWER)

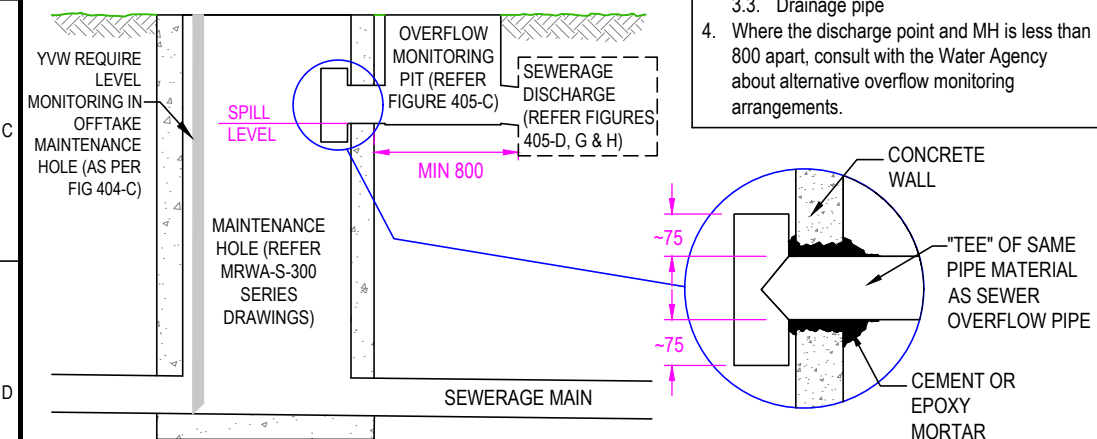


FIGURE 404-B: GENERAL ARRANGEMENT B (WHERE THERE IS NOT ADEQUATE DISTANCE BETWEEN M.H AND DISCHARGE POINT TO INSTALL BACK FALLING SEWER)

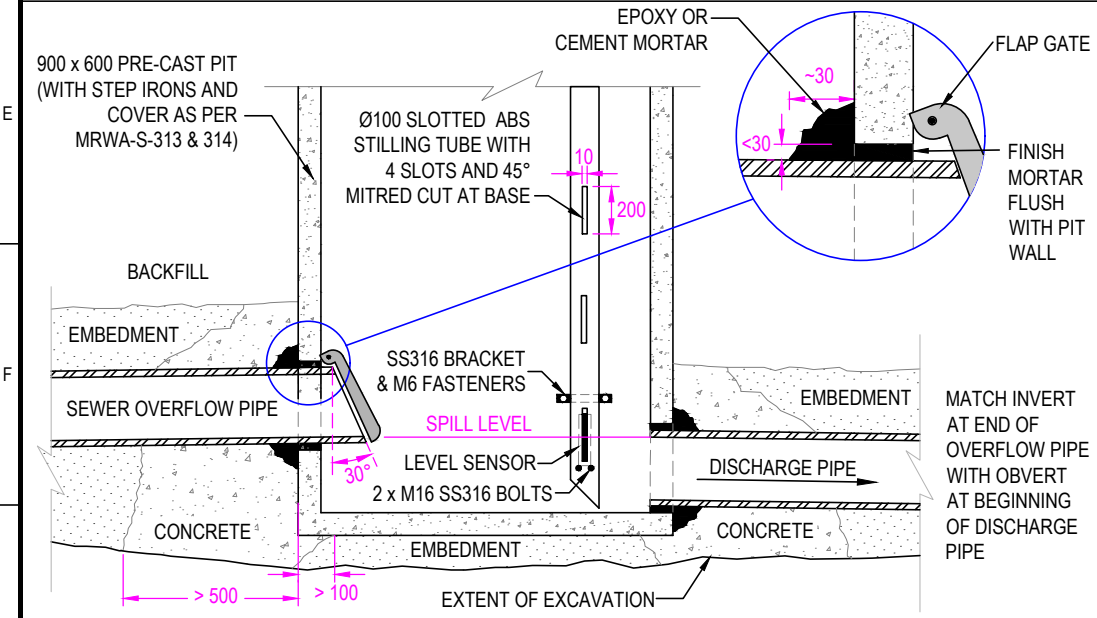


FIGURE 404-C: SEWER OVERFLOW MONITORING PIT

- NOTES Regarding Figure 404-C:**
- Support stilling tube with brackets top and bottom. Add centrally to maintain no more than 1.5m spacing between brackets.
 - Locate stilling tube 100 from vertical alignment of step irons.
 - Above ground electrical and telemetry connections and level sensor as per Water Agency requirements.
 - Flap gate not required in overflow monitoring pit where discharge is to waterway as per Figure 405-D.
 - Initially, locate pre-cast pit on an undersized bed of compacted embedment material to enable concrete to later support the underside perimeter of the pit.

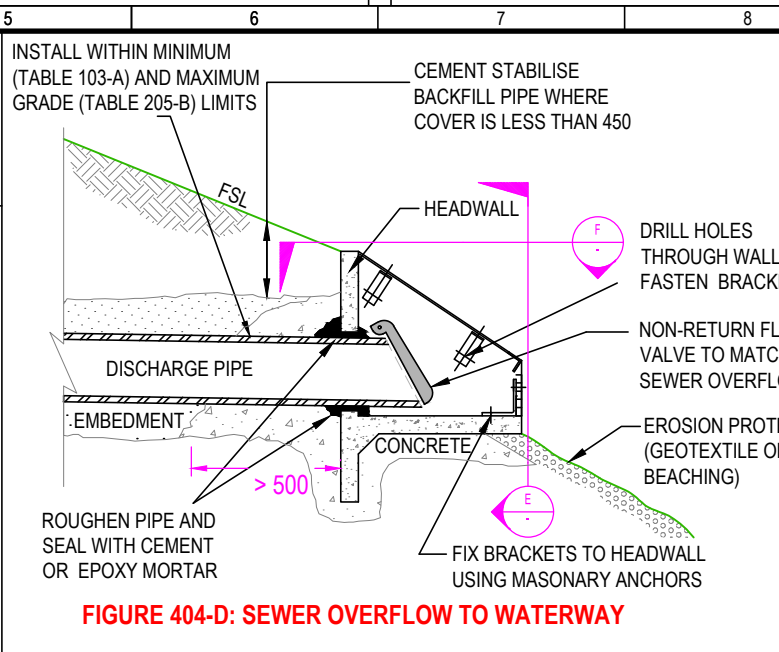


FIGURE 404-D: SEWER OVERFLOW TO WATERWAY

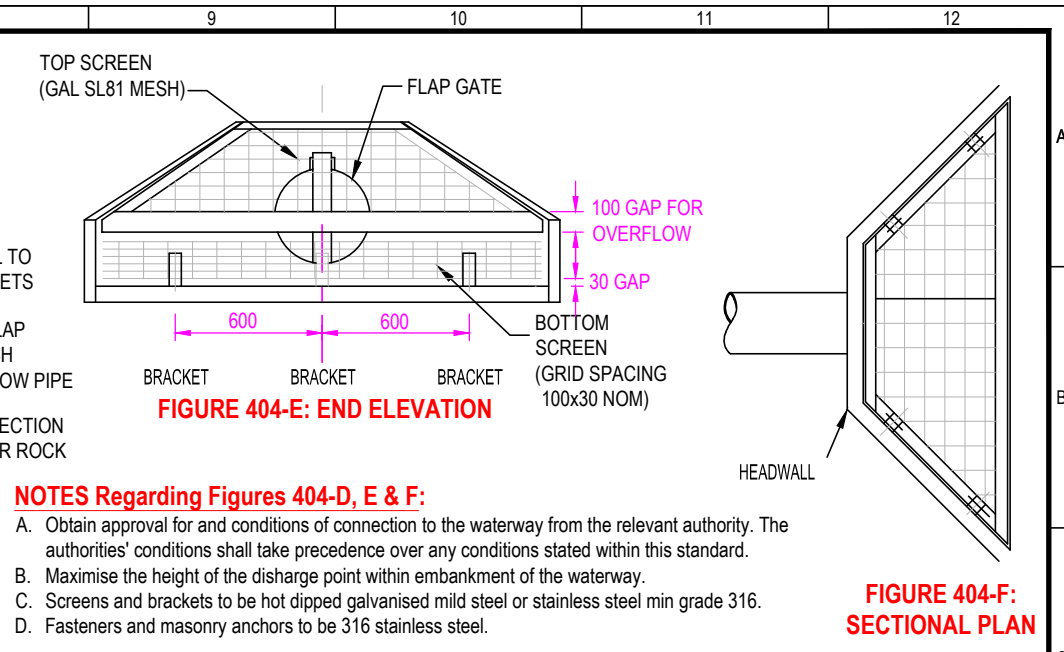


FIGURE 404-E: END ELEVATION

- NOTES Regarding Figures 404-D, E & F:**
- Obtain approval for and conditions of connection to the waterway from the relevant authority. The authorities' conditions shall take precedence over any conditions stated within this standard.
 - Maximise the height of the discharge point within embankment of the waterway.
 - Screens and brackets to be hot dipped galvanised mild steel or stainless steel min grade 316.
 - Fasteners and masonry anchors to be 316 stainless steel.

FIGURE 404-F: SECTIONAL PLAN

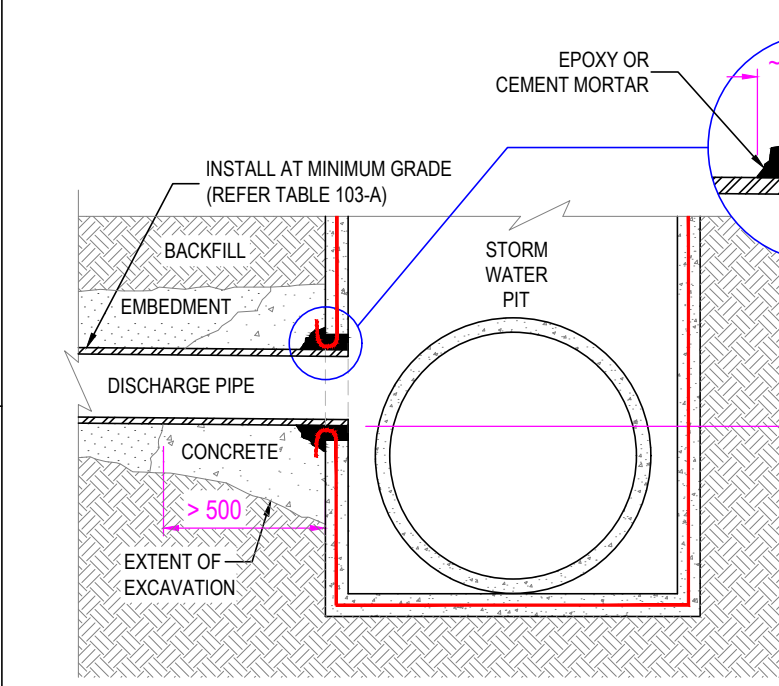


FIGURE 404-G: SEWER OVERFLOW TO STORM WATER PIT CONNECTION

- NOTES Regarding Figure 404-G & H:**
- Obtain approval for and conditions of connection to the storm water system from the drainage authority. The drainage authorities conditions shall take precedence over any conditions stated within this standard. (eg: refer Melbourne Water drawing 7251/8/307 for their requirements).
 - Diameter of sewer overflow pipe must be less than half the diameter of any existing drain.
 - Connect the sewer pipe to the storm water drain or pit at between 45° and 90° of the upstream alignment of the drain.
 - Construct as follows:
 - Do not undertake works during or shortly after wet weather events where the water level in the storm water drain may approach the level of the cut out.
 - Mark the centre of the hole to be cut, ensuring the connection is as high as possible (while not connecting within Drain Ø/6 of the crown of a drain).
 - For connections into R.C drainage pipe or pits, carefully break through concrete, keeping the reinforcement intact and minimising the overbreak (to < 50). Cut any reinforcement centrally and bend bars back and into the space to be concrete encased. For larger drains, fix additional reinforcement bars above the drain to beyond the crown of the drain.

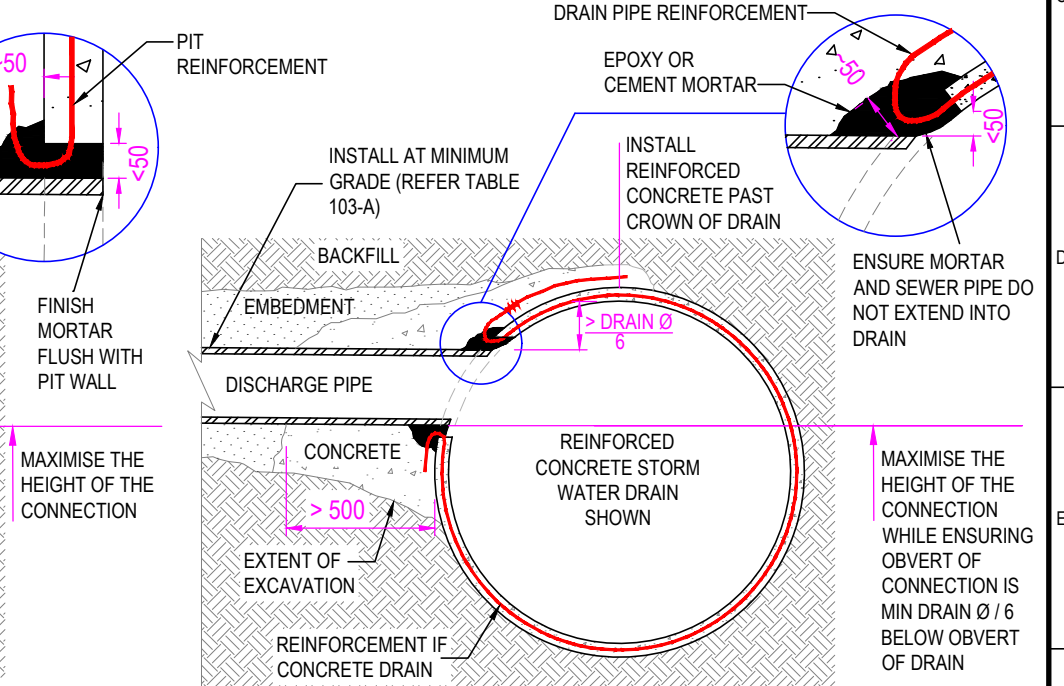


FIGURE 404-H: SEWER OVERFLOW TO STORM WATER DRAIN CONNECTION

- For connections into plastic / GRP drainage pipe, machine core a hole through the drain no more than 20 greater in diameter than the outside diameter of the sewer overflow pipe.
- Profile the end of the sewer overflow pipe so that it matches the curvature of the storm water drain / pit at that location.
- Using a suitable adhesive, "sand" the end of the sewer overflow pipe to ensure this pipe bonds adequately to the drainage pipe or pit. Wait until the bonding agent has satisfactorily set.
- Draw a witness mark on the sewer overflow pipe, set back the thickness of the storm water pit (if connecting to pit) or the thickness of the pipe - 10 (if connecting to a pipe).
- Insert the sewer overflow pipe into the cut out to the witness mark. It is essential that the overflow pipe does not over extend into the storm water drain.
- Epoxy or cement mortar fill the gap around pipe penetration and produce a fillet 50 (in radius) around the outside of the joint. Finish the inside mortar from within the pit or drain if practicable to ensure a clean inside finish.
- Embed the joint in concrete to a minimum 500 back from joint. Ensure minimum 65 clear cover of reinforcement is achieved.
- Bed and backfill as per MRWA-S-201 & 202 after concrete has set (ie: min 24 hours after placement).

ALL DIMENSIONS IN mm UNLESS STATED OTHERWISE			
2	PUBLISHED FIRST ISSUE	01/10/15	CP / JT / KD / RJ
1	PRE-PUBLISHED DRAFT	01/03/15	CP / JT / KD / RJ
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DESIGNED:	R. JAGGER	DATE:	1 JULY 2015
DRAWN:	R. JAGGER	DATE:	1 JULY 2015
CHECKED:	NAME	DATE	APPROVED: NAME
<input checked="" type="checkbox"/>	CWW	D. MOORE	01/09/15
<input checked="" type="checkbox"/>	SEW	C. PAXMAN	01/09/15
<input checked="" type="checkbox"/>	YVW	K. DAWSON	01/09/15
<input checked="" type="checkbox"/>	CWW	R. CARRUTHERS	01/09/15
<input checked="" type="checkbox"/>	SEW	D. O'DONOVAN	01/09/15
<input checked="" type="checkbox"/>	YVW	J. TOMASI	01/09/15
ISSUED	2015	VERSION	1

MELBOURNE RETAIL WATER AGENCIES

MRWA SEWERAGE STANDARDS

EMERGENCY RELIEF STRUCTURES

NOT TO SCALE		
MRWA-S-404		
Planning	Design	Construction
✓	✓	✓