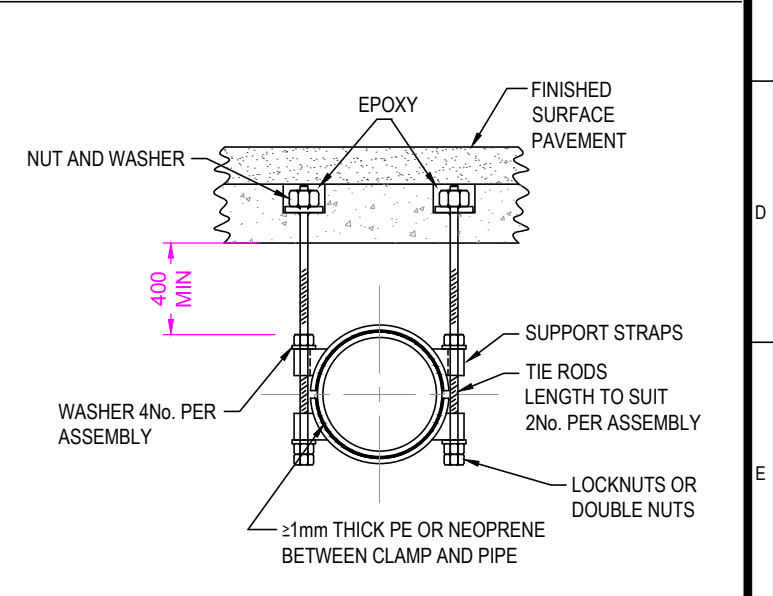
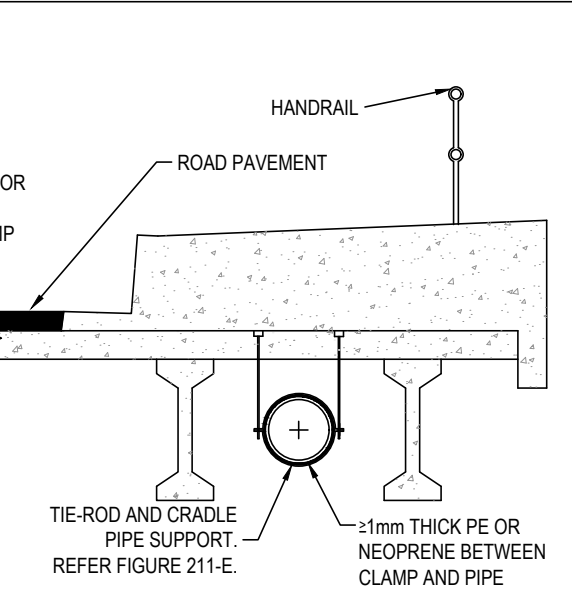
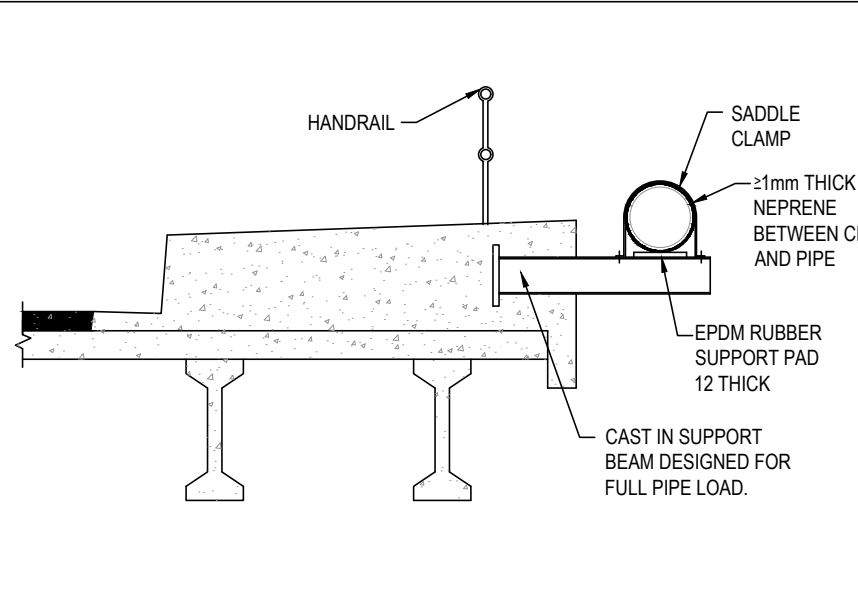
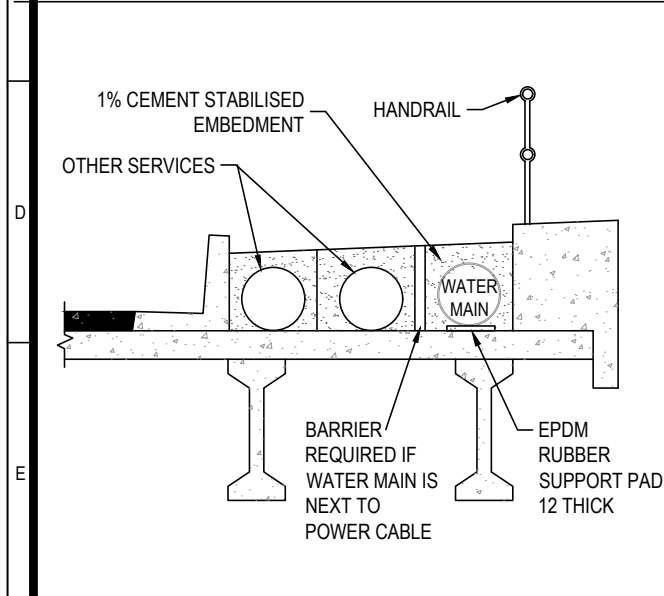


- NOTES Regarding Figure 211-A:**
1. Allow free movement of pipe in abutment. Wrap pipe in neoprene & insert pipe through hole in the abutment.
  2. Locate thrust block around welded on thrust rings or ductile iron puddle flange as per MRWA-W-205A. Locate 2 to 3 metres away from bridge abutment.
  3. Locate divide valves approximately 10m from both sides of the bridge, ensuring no connections to the main in between the 2 divide valves. Valves will require bypass valve and pipework if main is  $\geq$ DN450 (refer MRWA-W-105).
  4. Locate hydrant or air valve on the high side adjacent to a divide valve to facilitate charging of the main, designer to determine most appropriate fitting in accordance with MRWA-W-304.
  5. Two 45 degree bends may be used instead of two 90 degree bends adjacent to each abutment.



- GENERAL NOTES:**
- A. Use only welded cathodically protected MS pipe or fully butt welded PE pipe.
  - B. Figure 211-B is the preferred option and shall be adopted if practicable.
  - C. All exposed hanging pipework must be above the 1 in 100 year flood level.
  - D. Buried water mains may cross waterways above culverts provided minimum cover requirements and minimum bedding requirements are met.

- MATERIALS NOTES:**
- a. Pipe supports to be hot dipped galvanised steel (as per AS3679.1 grade 250) or 316 stainless steel.
  - b. Pipe supports (support beam, clamps, tie rods etc) to be designed and sized to meet load conditions.
  - c. Use stainless steel steel min grade 316 for the tie rods, cradle supports, clamps, bolts, nuts and washers.
  - d. Insulate all metallic fittings from mild steel pipe with neoprene or PE sheet ( $\geq$ 1mm thick).
  - e. All fastenings to be terminated with lock or double nuts.

DESIGNED:	R. JAGGER	DATE:	13/04/2011
DRAWN:	D. TOLENTINO	DATE:	13/04/2011
CHECKED:	NAME	DATE	APPROVED: NAME
3	CWV C. RIVETTE	23/03/12	CWV R.CARRUTHERS
2	SEWL C.PAXMAN	23/03/12	SEWL G.REYNOLDS
1	YVW K.DAWSON	23/03/12	YVW A.COSHAM
REV	DESCRIPTION	DATE	APPROVED



MELBOURNE RETAIL WATER AGENCIES

**MRWA WATER SUPPLY STANDARDS**

**BRIDGE CROSSINGS**

NOT TO SCALE

**MRWA-W-211**

ISSUED 2012 REVISION NO. 3