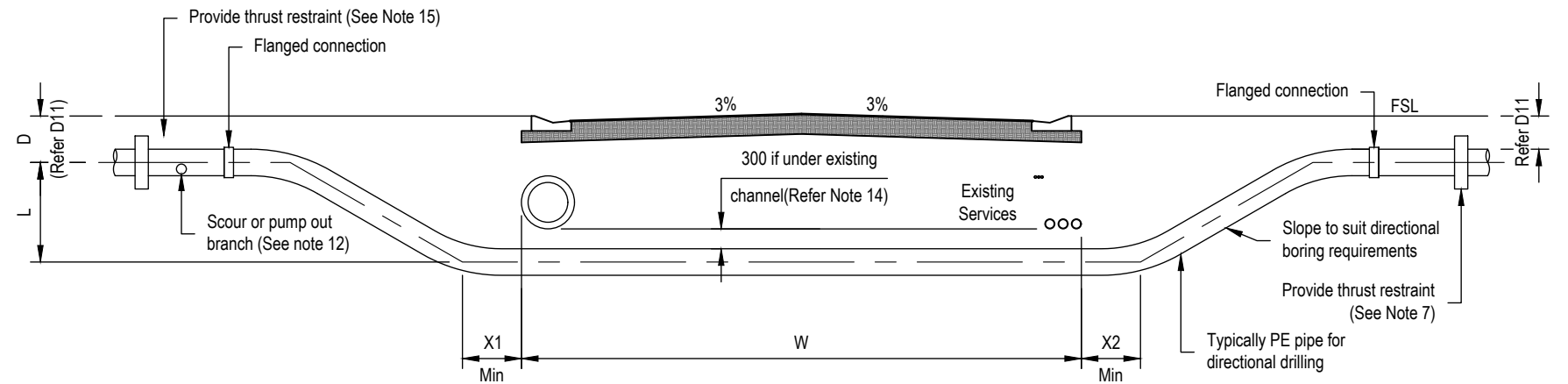
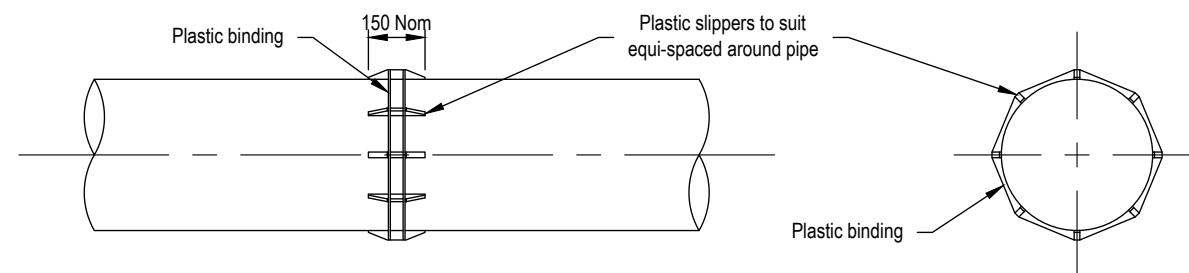


1. All dimensions in millimeters
2. Details shown are typical. The designer shall provide a specific design for the installation and obtain approval from the relevant authority for the design. prior to construction, the contractor must obtain approval from the relevant authority to access the site.
3. Bored and jacked encasing pipe method.
 - Encasing pipe
 - Reinforced concrete class 4 butt joined with steel locating bands, or welded mild steel jacking pipe.
 - Water main
 - Steel cement lined with fusion bonded PE coating
 - DICL flange class
 - PE (See note 15 & 16)
4. Steel pipe joints to be either plain ends with welded collar, butt welded or slip-in type welded joints
5. Dimensions "W", "L", "X1" & "X2" and location of bulkheads & reinforcing to be shown in design drawings. "W" shall be ultimate road, creek, culvert or services width.
6. Fill voids outside encasing pipe with grout during installation.
7. Install air relief and isolation valves where shown in design drawings.
8. Construction to be in accordance with design drawings.
9. PE acceptable if not boring or jacking
10. Plastic pipe materials where approved shall be managed for floatation and thermal reversion during the grouting process.
11. For underboring in state controlled roads refer to TMR specifications MRTS140, 141 and 142 as well as Technical Note TN163
12. Where required provide scour or pump-out branch as detailed in design drawings.
13. 300 min cover to apply except for major stream crossings or where conditions such as dredging or navigation requirements might apply. for such applications increased depth of cover to be decided after consultation with authority responsible for waterway.
14. No joins permitted in the pipe section under the obstruction.
15. Provide thrust restraints where PE pipework is connected to RRR pipework.
16. Transition may be on sloped pipe lengths
17. Bored hole to encasing pipe grout mix by weight is 0.67 water : 1.0 cement : 1.0 sand with the sand to be well rounded sand and approved plasticisers may be used.
18. Encasing pipe to water pipe grout mix is a flowable 1mpa minimum grout with a low heat of hydration with aggregate being a fine well rounded sand and plasticisers may be used. the mix design shall be appropriate for the specific pipe materials and site conditions and shall be approved by the superintendent. Considering the impact of future water main maintenance or replacement the annulus grouting may not be always required. Contact LGA for grouting requirement.



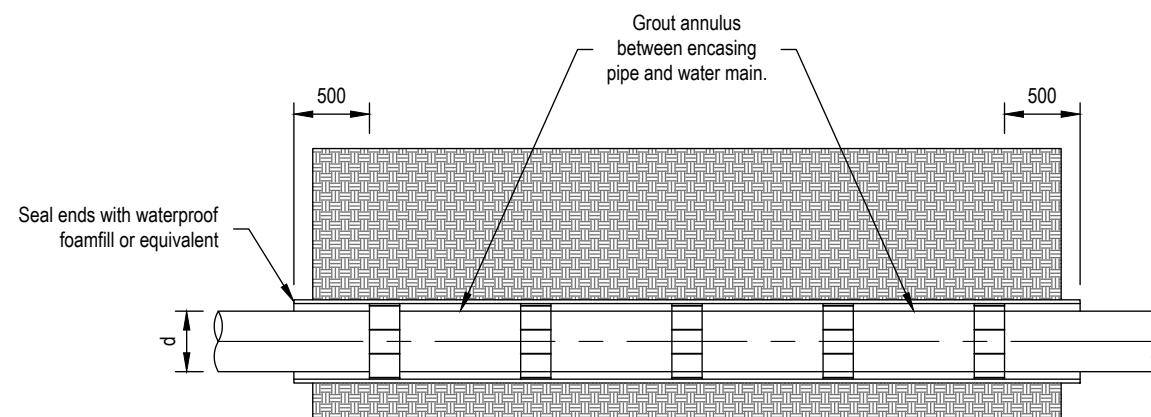
Directional Drilling Method Caps < DN450

Scale: 1:100



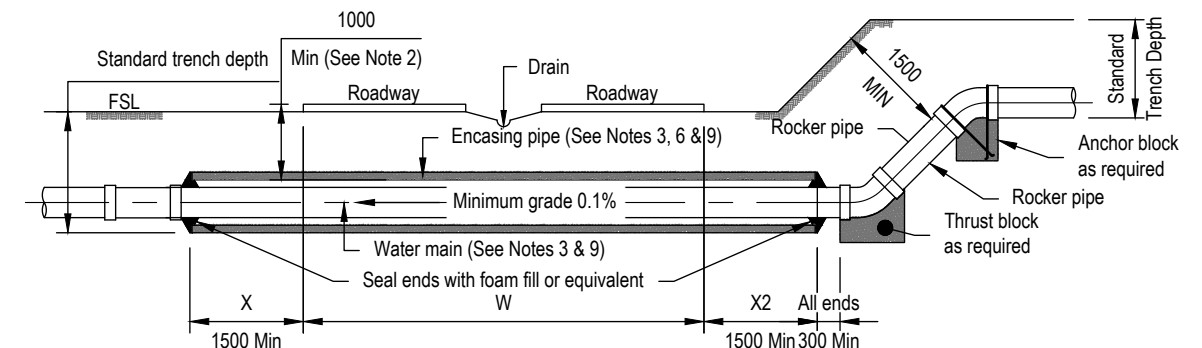
WATER MAIN SUPPORTS DETAIL

Scale: 1:50



TYPICAL FINISHED INSTALLATION

Scale: 1:50



BORED AND JACKED ENCASING PIPE METHOD - MAJOR ROADWAYS & > DN450

Scale: 1:100

ENCASING PIPE DIAMETERS										
Diameter of pipe	100	150	200	250	300	400	500	550	650	800
Steel encasing pipe Diameter	300	375	375	450	525	600	700	750	825	1000

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE	<p>DISCLAIMER.</p> <p>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</p>	<p>Capricorn Municipal Development Guidelines</p> <p>Incorporating:</p> <div><div>Banana Shire Council (BSC)</div><div>Central Highlands Regional Council (CHRC)</div><div>Gladstone Regional Council (GRC)</div><div>Livingstone Shire Council (LSC)</div></div> <div><div>Maranoa Regional Council (MRC)</div><div>Rockhampton Regional Council (RRC)</div><div>Isaac Regional Council (IRC)</div></div>	<p>WATERMAIN UNDERBORE DETAILS</p>	WATER											
										STANDARD DRAWING	A3						
										CMDG-W-045							
										REV.	A						
A	NEW DRAWING	11/2022															