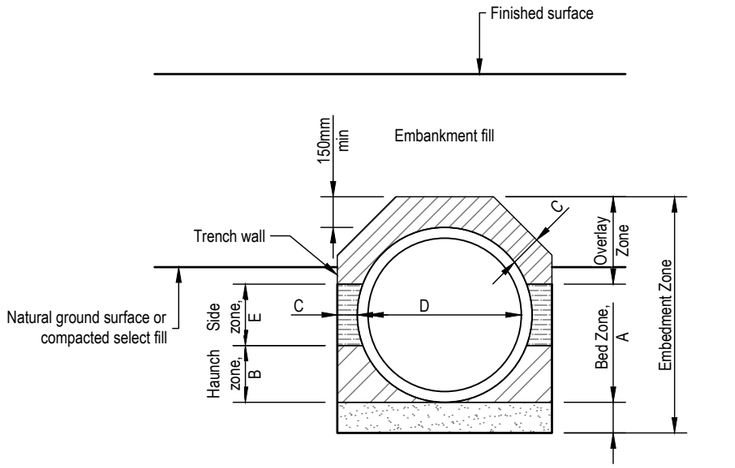
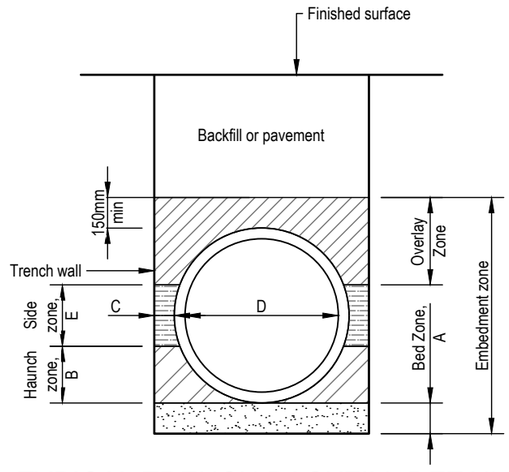


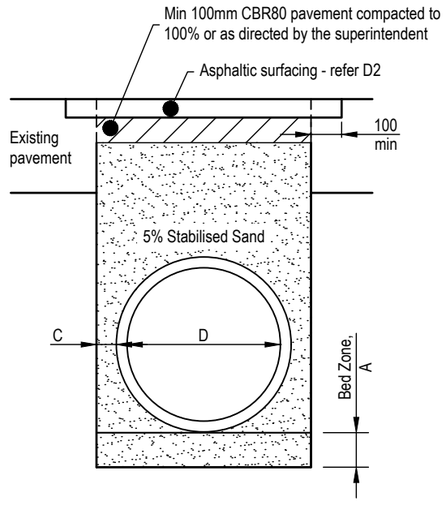
TYPICAL EMBANKMENT BACKFILL DETAIL

Where flexible pipe is to be used, the total embedment zone is to be backfilled with bedding/haunch material.



TYPICAL TRENCH BACKFILL DETAIL

Where flexible pipe is to be used, the total embedment zone is to be backfilled with bedding/haunch material.



ALTERNATIVE TRENCH BACKFILL DETAIL

Nominal Internal Diameter, D (mm)	Trench Dimensions (mm)											
	Concrete								Flexible			
	Type H2 Support				Type HS3 Support							
	A	B	C	E	A	B	C	E	A	B	C	E
150	N/A			N/A	N/A				100	Where flexible pipe is to be used, the total embedment zone is to be backfilled with bedding/haunch material.	100	N/A
225									150		150	
300	100	90	150		100	90	150	150	150		150	
375	100	112.5	150		100	112.5	150	187.5	150		200	
450	100	135	150		100	135	150	225	150		200	
525	100	157.5	150		100	157.5	150	262.5	150		300	
600	100	180	150		100	180	150	300	150		300	
750	100	225	150		100	225	150	375	150		300	
900	100	270	150		100	270	150	450	150		300	
1050	100	315	175		100	315	175	525	200		350	
1200	100	360	200		100	360	200	600	200		350	
1350	100	405	225		100	405	225	675	200		350	
1500	100	450	250		100	450	250	750	200		350	
1650	150	495	275		150	495	275	825	300		338.25	
1800	150	540	300		150	540	300	900	300		369	
1950	150	585	325		150	585	325	975	300		399.75	
2100	150	630	350		150	630	350	1050	300		430.5	
2400	150	720	400		150	720	400	1200	300		492	
2700	150	810	450		150	810	450	1350	300		553.5	
3000	150	900	500		150	900	500	1500	300		615	

Pipe Cover Requirements	Minimum cover (m)
Not subject to vehicular loading	0.3
Subject to vehicular loading:	
not in roadways	0.45
in roadways	0.6

Material Grading		
	% Passing by mass	
AS Sieve Size (mm)	Bed and Haunch Zone	Side Zone
75	-	100
19	100	-
9.5	-	100-50
2.36	100-50	100-30
0.60	100-50	50-15
0.30	60-10	-
0.15	25-0	-
0.075	10-0	25-0

NOTES:

1. Where the pipe support type is not shown on the project drawings for rigid pipes, the support type shall be HS3 in the road reserve and H2 elsewhere.
2. Backfill in all cases shall be carried through to the headwall extremities and continued 300 thick for the length and height of the headwall & wingwalls.
3. Refer to C221 for compaction requirements.
4. Refer project drawings for alternative trench details.
5. Pipes are to be designed to their correct strength class under all construction loads, dead loads and in-service loads.
6. All dimensions in millimetres.
7. Where groundwater or dispersive soils are encountered the superintendent must be notified and an appropriate trench drainage solution provided by an RPEQ.
8. Insitu material in embedment zone to be firm and stable , and generally continuous and consistent for 2.5 x pipe diameters either side of the trench.
9. Spacing between parallel pipes to be 150mm for D ≤ 600mm, 200mm for 600 < D ≤ 1200mm, or D ÷ 6 for D > 1200mm. Where stabilised sand is used, spacing my be reduced to 100mm for all diameters.
10. All necessary measure to prevent migration of fines between material types must be specified on the project drawings by the RPEQ
11. Overlay zone and side zone (H2 only) to be select backfill in accordance with C221
12. Minimum cover to pipes shall be in accordance with the manufacturer's specifications, whereever possible a minimum cover of 600mm is preferred.

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

REVISIONS		DATE
H	FLEXIBLE PIPE INFORMATION ADDED	10/2025
G	MINOR CORRECTION-ALTERNATIVE B & TABLE	06/2017
F	IRC ADDED	12/2016
E	GRC AND LSC ADDED	09/2014
D	NOTE 9 ADDED RE; GROUNDWATER	03/2012
C	MRC ADDED	04/2011

Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)
Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

EXCAVATION, BEDDING AND BACKFILLING OF CONCRETE/REINFORCED FIBRE & FLEXIBLE DRAINAGE PIPES

DRAINAGE
STANDARD DRAWING A3
CMDG-D-010
REV. C D E F G H