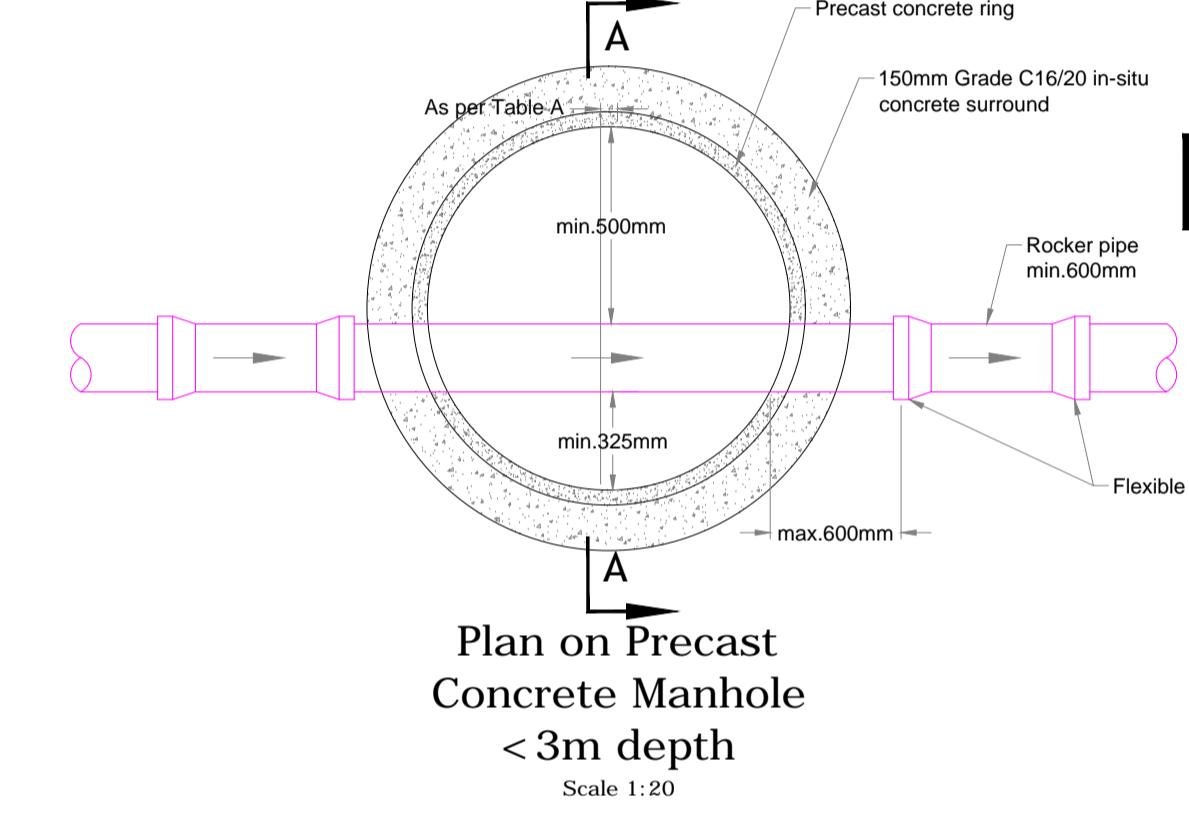
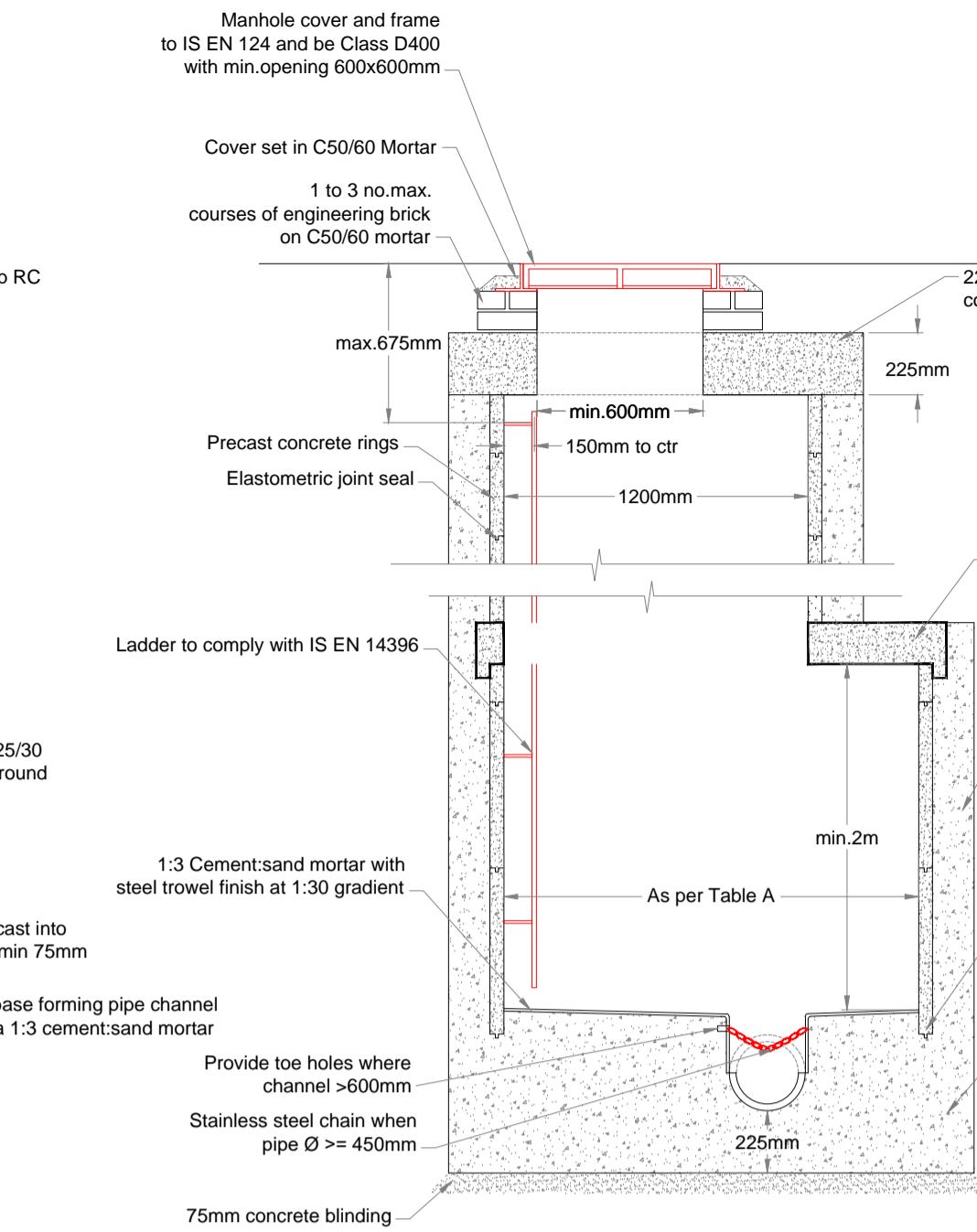


Section A-A  
Type A <3m depth



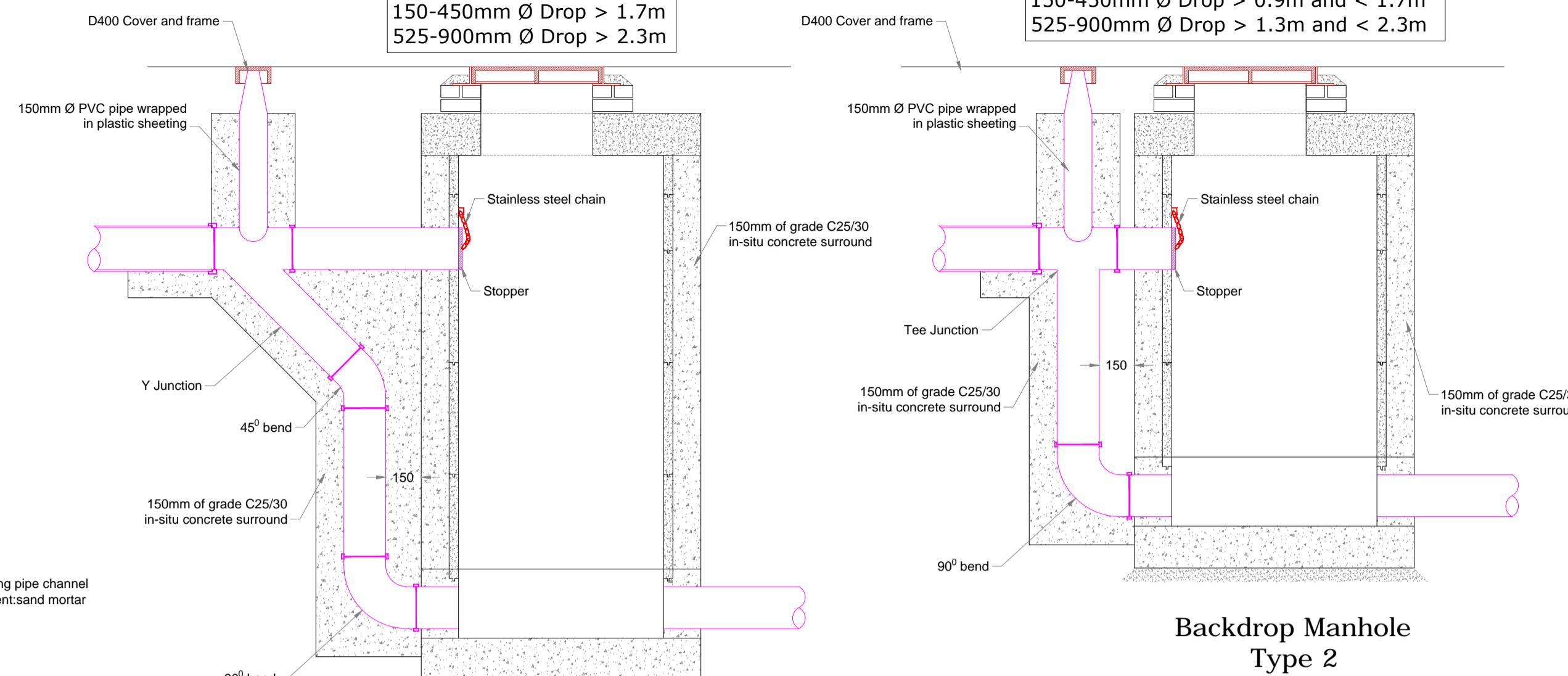
Plan on Precast  
Concrete Manhole  
<3m depth



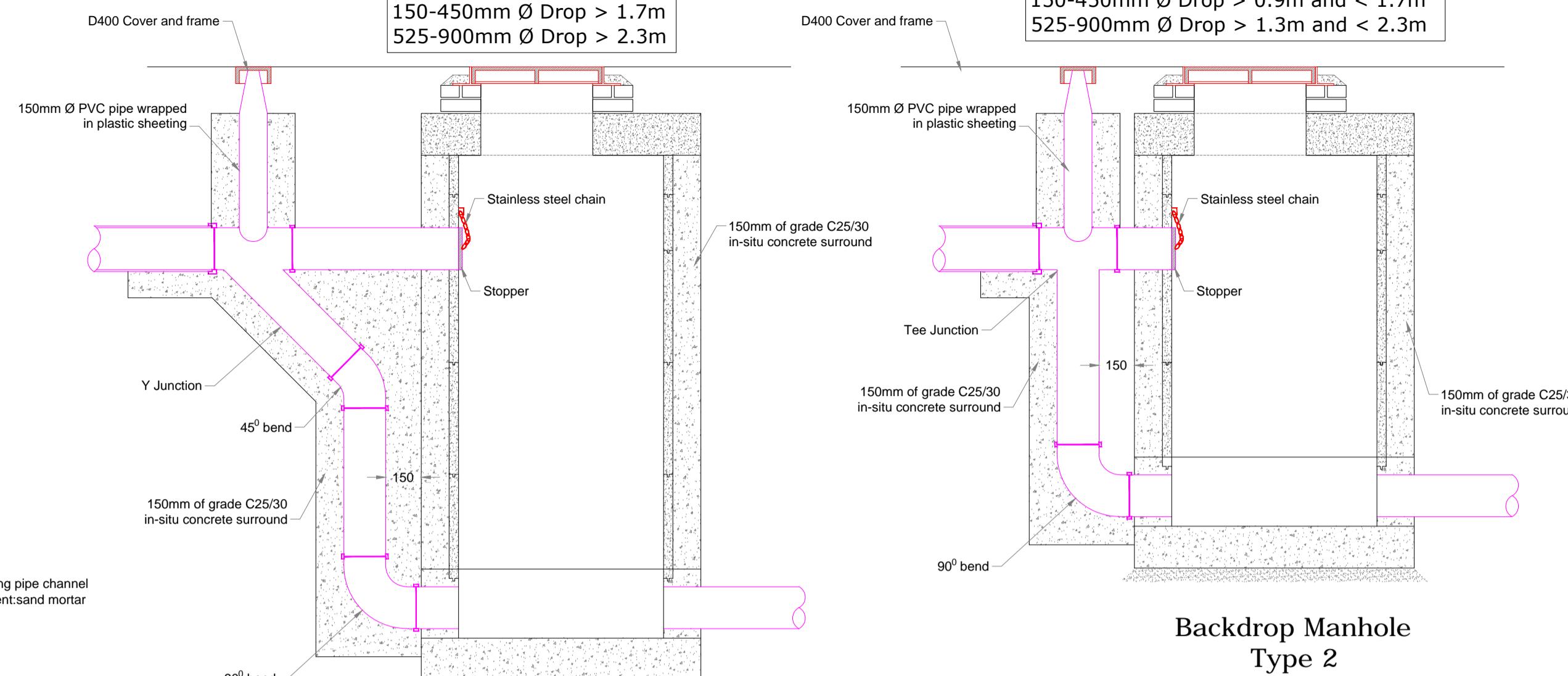
Section A-A  
Type B 3-6m depth

### TYPICAL MANHOLE DETAIL

DEPTH (m)	TYPE	PIPE DIAMETER (mm)				
		150	225	300	375	450
0-1	PRECAST	A 1050Ø	A 1200Ø	A 1200Ø	A 1200Ø	A 1200Ø
1-3	PRECAST	A 1050Ø	A 1200Ø	A 1200Ø	A 1350Ø	A 1350Ø
3-6	PRECAST	B 1200Ø	B 1200Ø	B 1200Ø	B 1350Ø	B 1500Ø

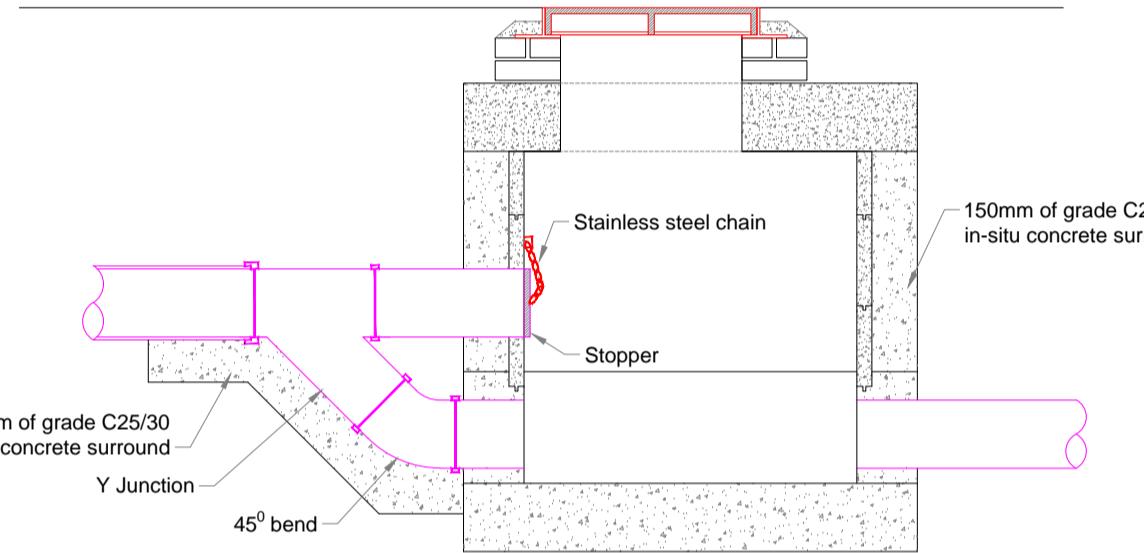


Backdrop Manhole  
Type 1  
Scale 1:20



Backdrop Manhole  
Type 2  
Scale 1:20

150-450mm Ø Drop > 0.6m and < 0.9m  
525-900mm Ø Drop > 0.6m and < 1.3m



Backdrop Manhole  
Type 3  
Scale 1:20

150-450mm Ø Drop > 0.9m and < 1.7m  
525-900mm Ø Drop > 1.3m and < 2.3m

### NOTES:

1. Read in conjunction with all relevant Architect's & Engineer's drawings and cross read the detailed notes on the various manholes.
2. The minimum diameter of manholes as shown in Table A, this may need be increased subject to the number of branches, this is made up as follows:  
For pipes up to 150mmØ, provide the sum of the branches + 200mm deep. For pipes over 150mmØ, provide the sum of the branches + 300mm per branch + 300mm (for no pipes up to 150mmØ are used): for 1x150Ø + 1x225Ø pipes on one side, length = 1525mm (subject to minimum length)
3. Access steps shall be provided in manholes greater than 1m to the invert level of the pipe.
4. A 200mm concrete surround, 100mm deep, shall be provided around manhole covers in grassed areas.
5. Class U2 finish to the top of slabs. Reinforcement in the slabs to details as directed by the Engineer.
6. Manhole foundations to be 225mm C30/37 mass concrete with 75mm lean mix concrete.
7. Use preformed half-round channel pipes through manholes but the pipeline may be laid through the manhole and the crown cut out to half diameter ensuring that flexible joints are located either side of manhole at max.600mm as measured from the inner face of manhole wall.
8. Use CL 20/10 concrete for banching and pipe channel pipe surround.
9. Banching to be finished in 1:3 cement-sand mortar with a smooth trowel finish, at 1 in 30 slope towards channel. Form a 25mm radius nosing on banching, level with crown of the pipe.
10. Standard grained (BS 729) rungs to be positioned @ 300c/c vertically.
11. Rungs to have a min. 600mm square ope.
12. 225mm Precast R.C. Roof Slab in C30/37 Concrete. Cover to steel shall be 40mm.
13. MH cover frame to be laid on 1 No. min to 3 No. max. courses of engineering bricks CL 1 to 1.5.9.1983 set in C50/60 mortar.
14. MH cover and frames to be Class D400 to 15/EN 124/150mm deep frame for roads, 100mm deep for footpaths and green areas. Class B250 manhole covers may be used in private areas accessible to light vehicular traffic. Non-rock design, closed keyways, manufactured from spheroidal graphite cast iron (ductile cast iron), 600mm min. (1.5.9.1983) or 1.5.9.1983 (1.5.9.1983) cover to steel shall be 40mm, other approved material, cover to have a maximum mass of 140kg/m<sup>2</sup>, frame bearing area shall be 80.000mm<sup>2</sup> min., frames shall be designed to prevent covers falling into manhole. Frames shall be bedded on C50/60 mortar to manufacturers instructions.
15. Galvanised steel safety railings to be provided in banching of sewers greater than 450mm Ø and depth to invert>3m for access to invert. Toe holes of 230mm min. depth to be provided where channel >600mm.
16. Safety chain to be provided on pipes that exceed 450mm Ø. Stainless steel safety chain shall be no less than size graded M(H) non calibrated chain type 1, complying with 1.5.9.1983 Part 2.
17. When depth of Manholes to invert is greater than 3.0m, ladders shall be used, instead of rungs 25mm in diam. B.S.4211 except that strings should not be less than 65x20mm, in section and rungs 25mm in diam. Fixed Ladders should meet the dimensional requirements of B.S.4211.
18. Ladder strings should be adequately supported from the Manhole wall at intervals of not more than 2.0m. Strings should be bolted to cleats to allow renewal.
19. Socket of pipe to be cut flush with the inner surface of the manhole wall.
20. Where there are changes in deep manholes, provide a 90mm square ope in the intermediate roof slab.
21. All Manholes shall be watertight to the satisfaction of the Engineer. Formwork to reinforced concrete and mass concrete shall comply to Class 2, Section 4.2.7 BS8110:Part 1:1997. Finish to the top of slabs shall comply to Type A, Section 6.2.7 BS8110: Part 1: 1997. Manholes are designed to B.S.8005 and wall thicknesses to I.S.325.
22. Precast Manholes, Chamber walls and cover slab to be constructed to 15 EN 1917 and I.S.420 2000.
23. All manholes to be situated furthest from the nearest carriageway. Manhole steps/ access to be positioned to allow viewing of oncoming traffic.
24. For bedding and sealing of chamber rings, the top ring below PC slab and bottom ring to be bedded with cement mortar. For intermediate rings, joints to be sealed with approved pre-formed jointing strip.
25. Pre cast Manholes to be surrounded with a minimum of 150mm thick Grade C25/30 concrete.

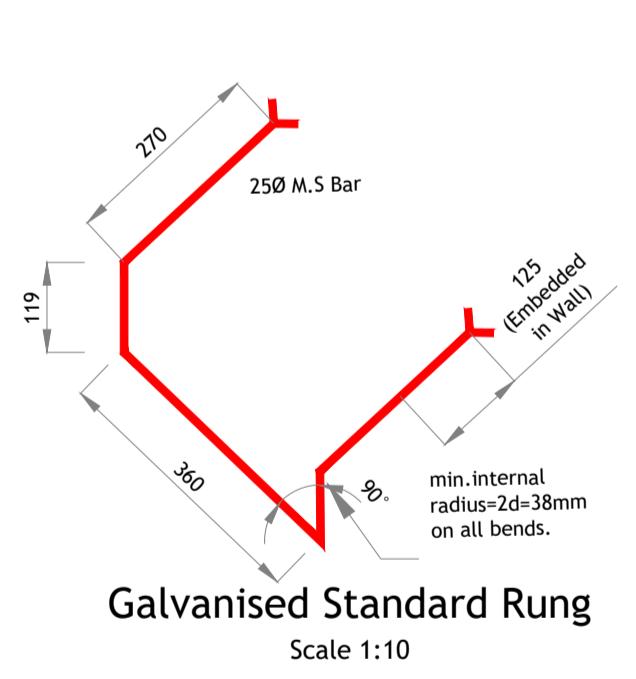
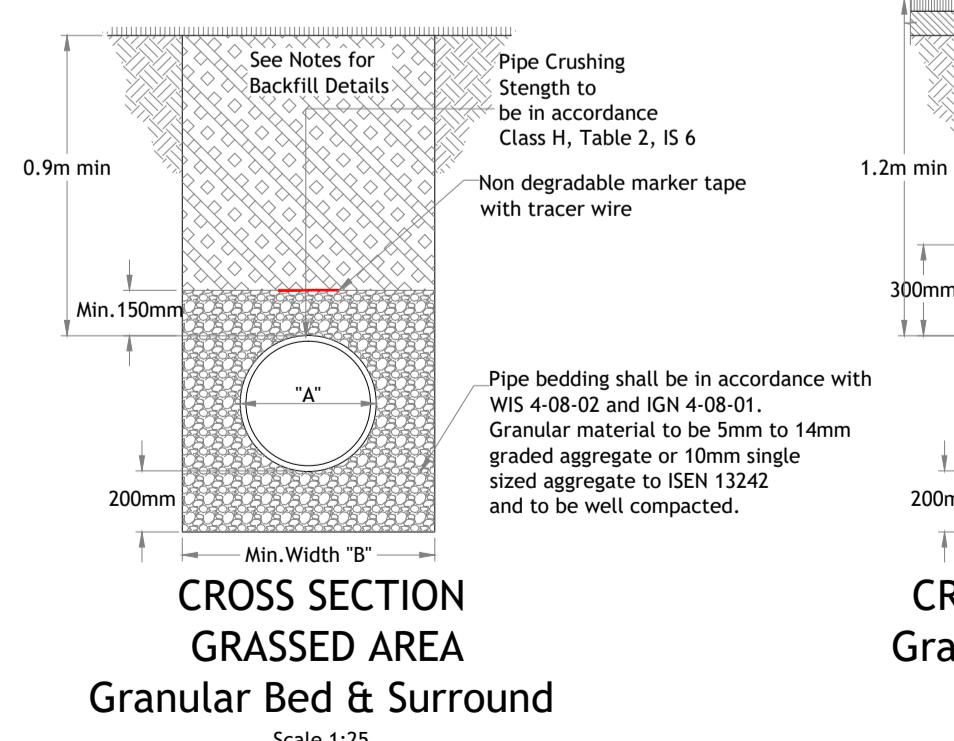
### PIPE BEDDING & BACK FILLING NOTES:-

1. Pipe backfill to be granular material to C1804/808 in accordance with the NRA Specification for Road Works. Use only L.808 material when within 500mm of cement bound materials such as concrete kerbs/paths/haunching.
2. Backfill material to be well compacted in accordance with CL.802 of the NRA specification.
3. Backfill in open spaces shall consist of suitable selected excavated material, shall be free from stones greater than 25mm in size, builders rubble, vegetable matter and lumps of clay greater than 75mm in size and shall be compacted in 150mm layers. It shall meet the requirements of 'Acceptable material' as defined in Clause 601 of the NRA Specification for Road Works.
4. Pipe bedding shall be in accordance with WIS 4-08-02 and IGN 4-08-01. Granular material to be 50mm thick grade C16/20 and compacted to 1.242.
5. All pipes to have a 150mm concrete surround where the cover is less than 900mm in trafficked areas. All other pipework to be bedding details as shown.
6. Concrete for pipe bedding, haunching and surrounds shall be grade C16/20 and have expansion joints at all pipe joints using 18mm filler board.
7. Formwork for Reinforced Concrete and mass concrete shall be class F2.
8. Wrap PE pipes in plastic sheeting before casting into concrete.

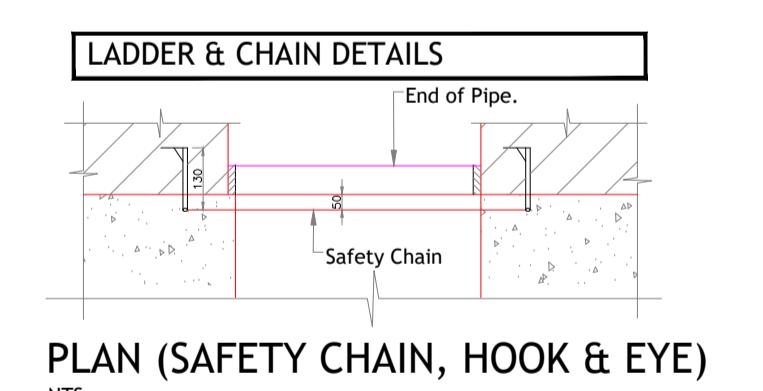
All pipe/manhole details to be compliant with  
Uisce Éireann's Wastewater Infrastructure  
Standard Details document

THIS IS A PLANNING DRAWING AND IS  
FOR THE APPROVAL OF Uisce Éireann

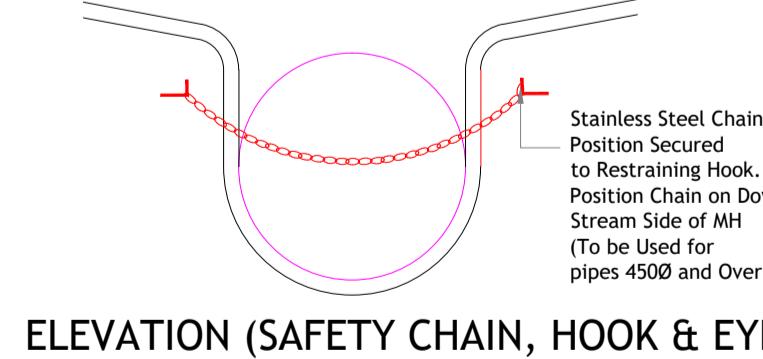
Pipe Diameter "A" (mm) < 80 Rising Main	Trench Width "B" (mm) < 500 TBC with Eng.
100	< 500 TBC with Eng.
150	600
200	600
250	750
300	750
350	750
400	900
450	900



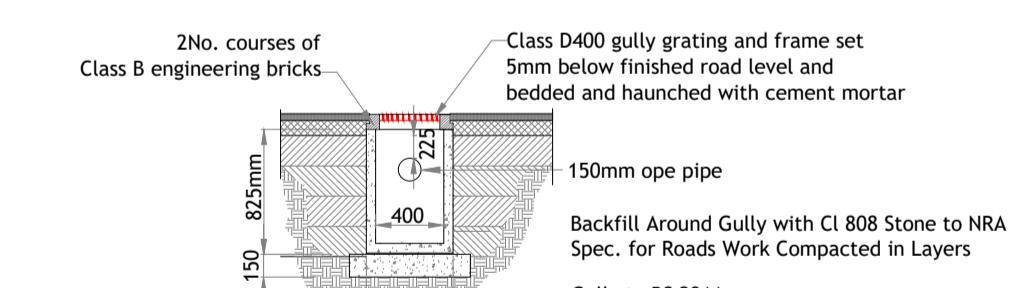
Galvanised Standard Rung  
Scale 1:10



PLAN (SAFETY CHAIN, HOOK & EYE)  
NTS

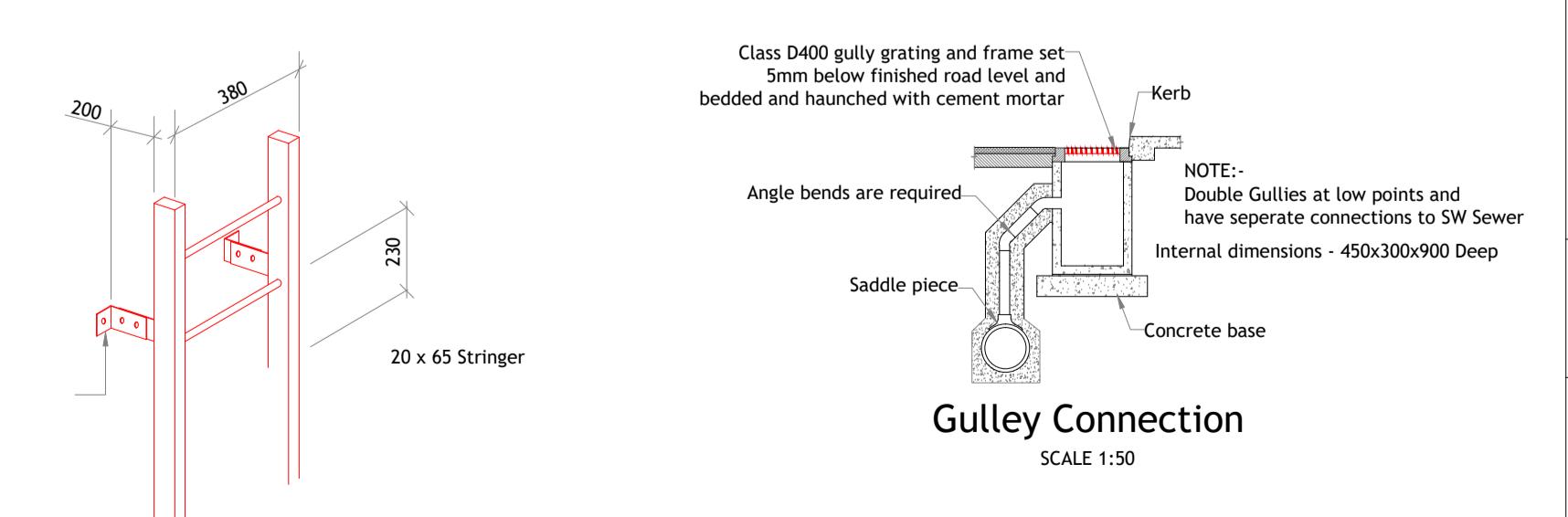


ELEVATION (SAFETY CHAIN, HOOK & EYE)  
NTS



PRECAST CONCRETE  
GULLY PIT  
SCALE 1:50

All gullies to be positioned at low points and no ponding of S/W is acceptable. Adjustment to site conditions to be discussed with RMA where variation to drawings occurs



Gully Connection  
SCALE 1:50

REV	DATE	DESCRIPTION			
		ROGER MULLARKEY & ASSOCIATES Consulting Structural and Civil Engineers Duncreevan, Kilcock, Co.Kildare Tel: +353 1 610 3755 Mob: +353 87 232 4917 E-mail: info@rmullarkey.ie www.rmullarkey.ie			
		Project: BOHERBOY			
		Drawing Title: MANHOLE DETAILS Architect: MCORM & Davey Smith			
Date	Drawn By	Scales	Dwg. No.	Stage	Rev
Mar'25	RM	As Shown	1324D/446	LRD STAGE 3	