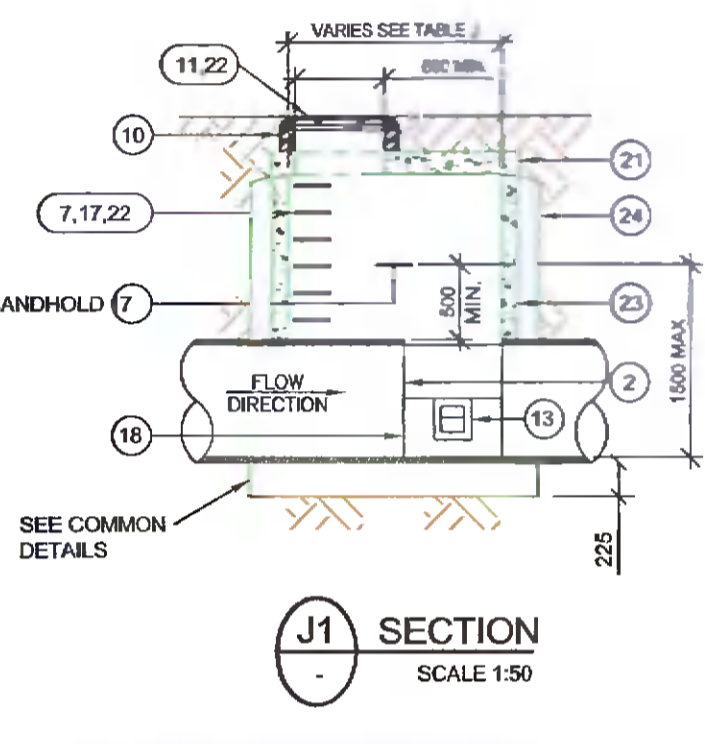
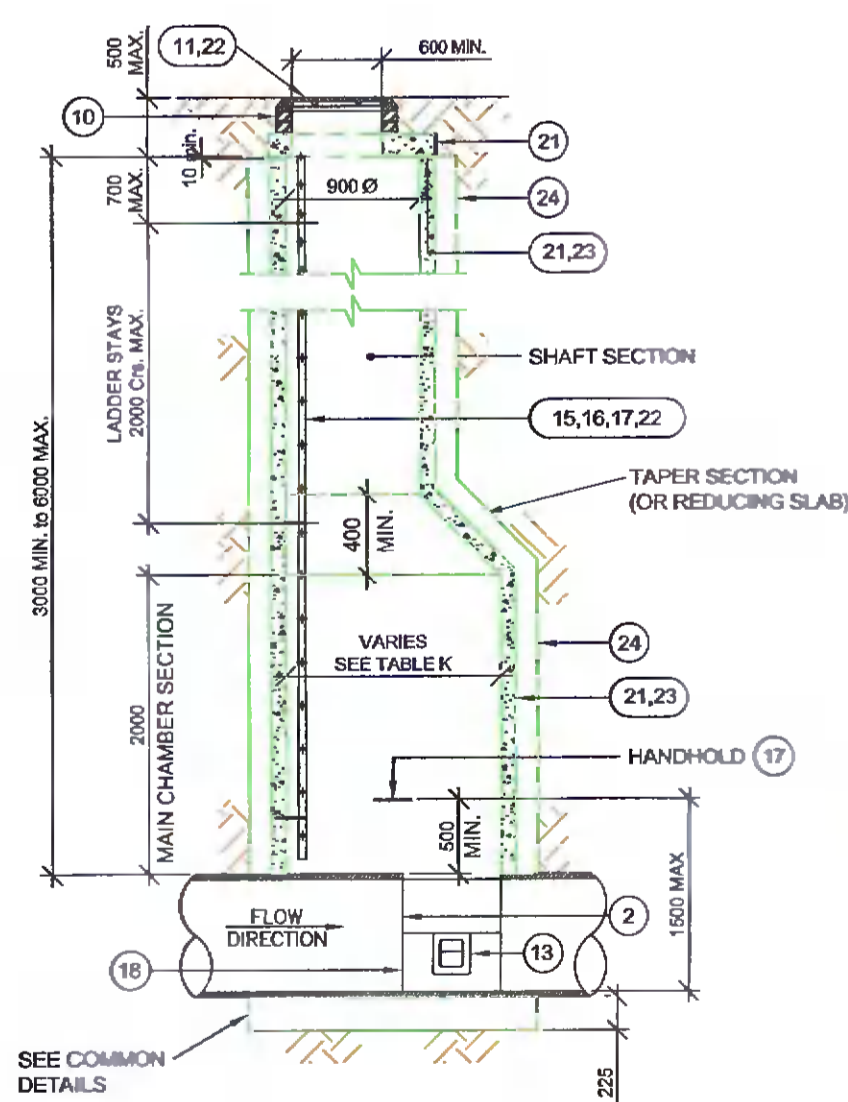


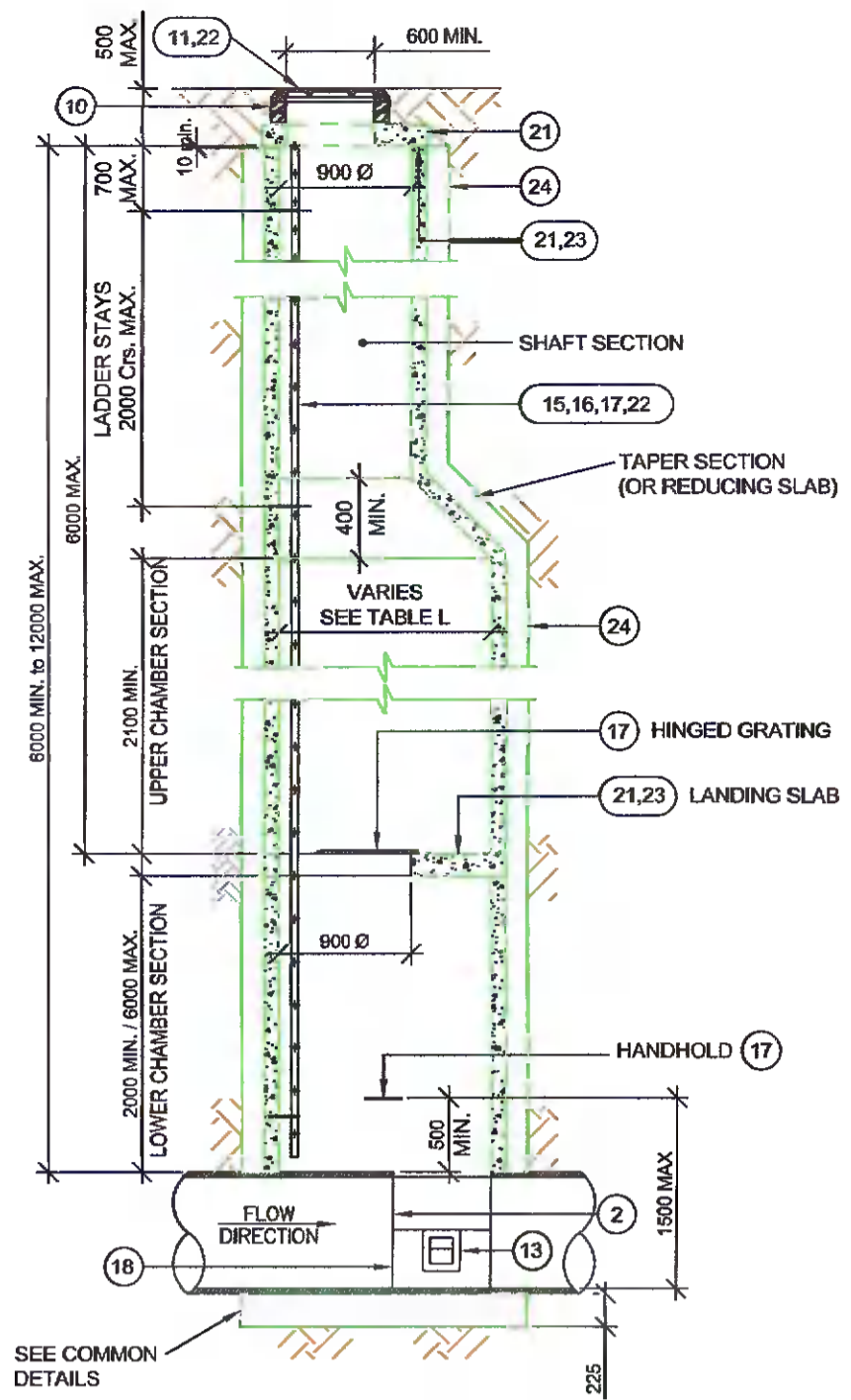
**MANHOLE TYPE H**  
**INTERCEPTOR TRAP DETAILS**  
FOR OUTFALL MANHOLES AT SITE BOUNDARY PRIOR TO CONNECTING TO PUBLIC SYSTEM



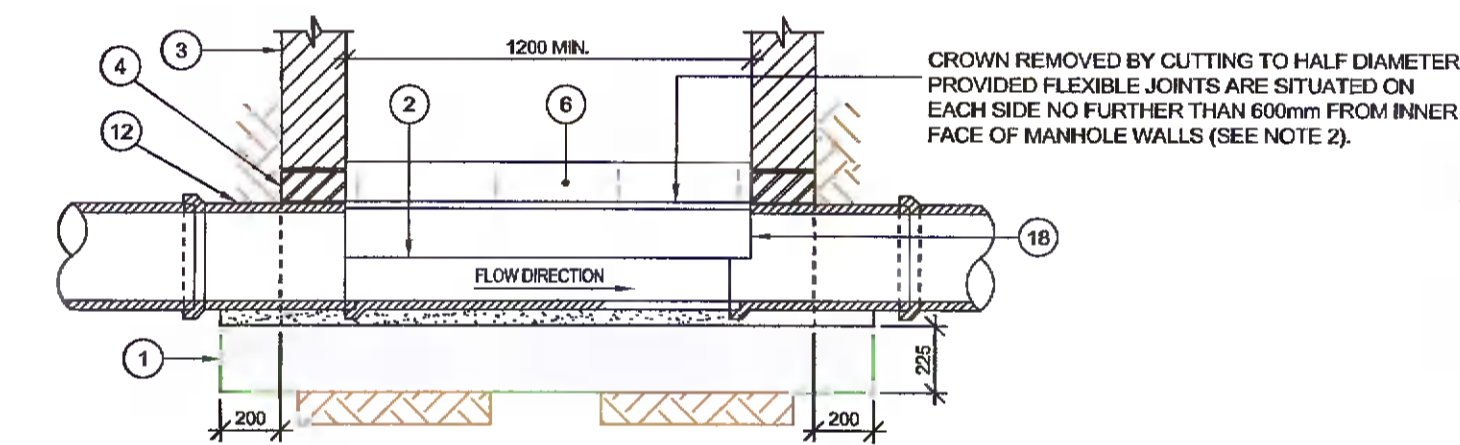
**MANHOLE TYPE J**  
3m ≤ DEPTH TO INVERT < 3m



**MANHOLE TYPE K**  
3m ≤ DEPTH TO INVERT < 6m

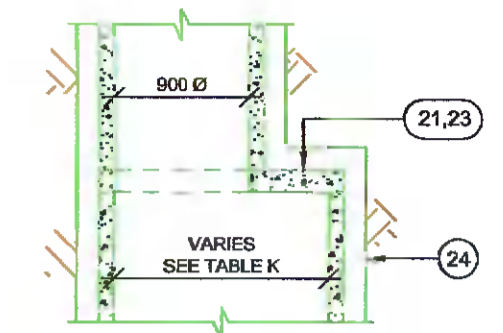


**MANHOLE TYPE L**  
6m ≤ DEPTH TO INVERT < 12m

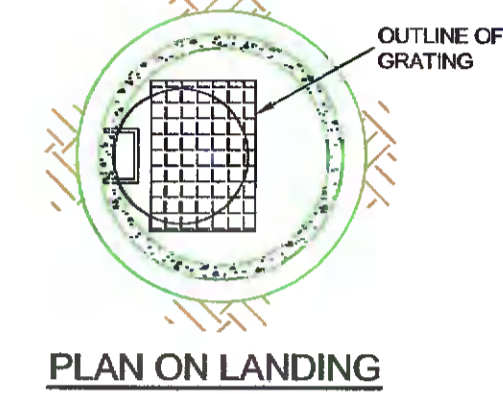


**ALTERNATIVE METHOD OF FORMING CHANNEL THROUGH MANHOLE**

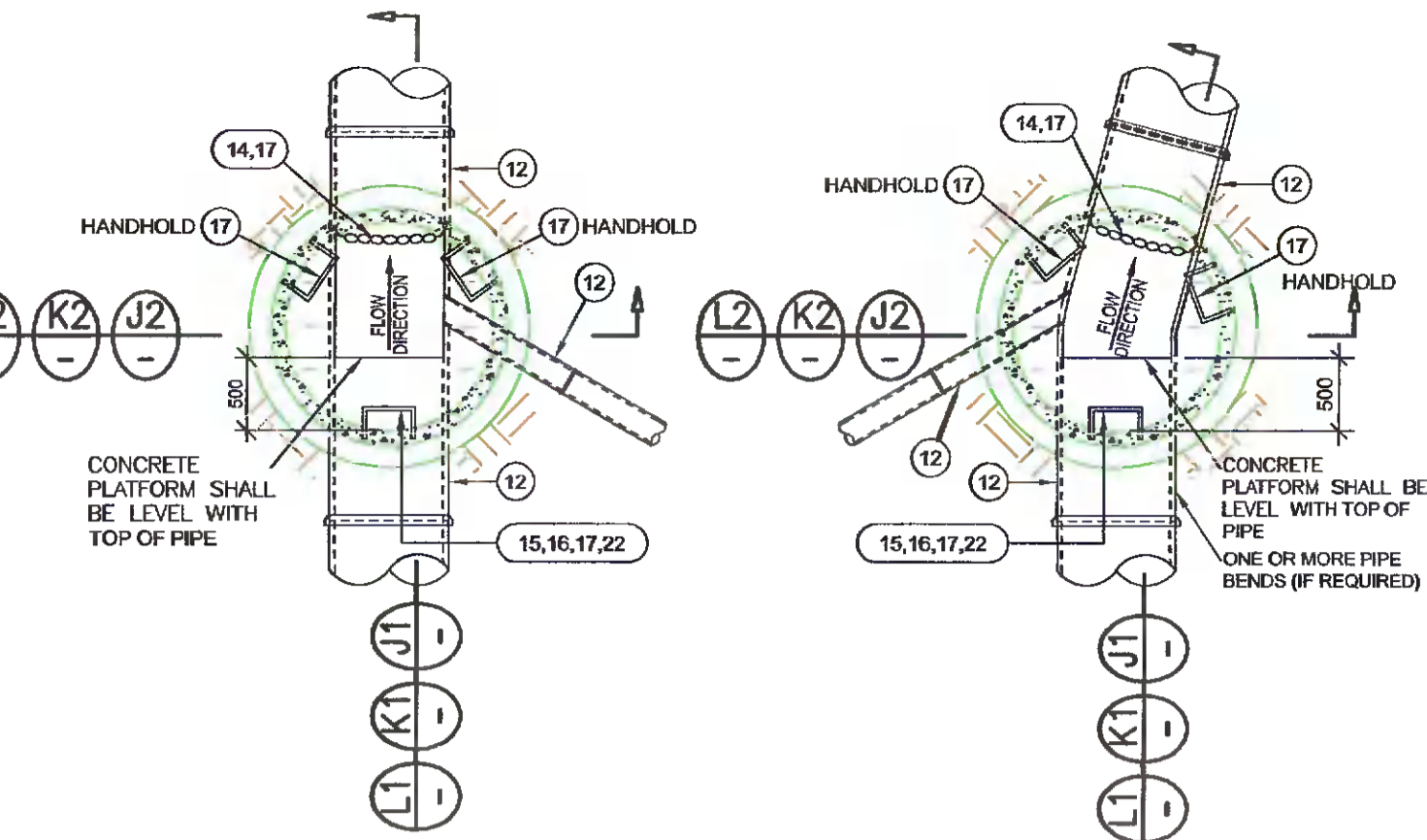
MANHOLE PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225 - 300	1200
375 - 450	1500
600 - 750	1800
900 - 1050	2100



**ALTERNATIVE DETAIL**  
(REDUCING SLAB INSTEAD OF TAPER SECTION)

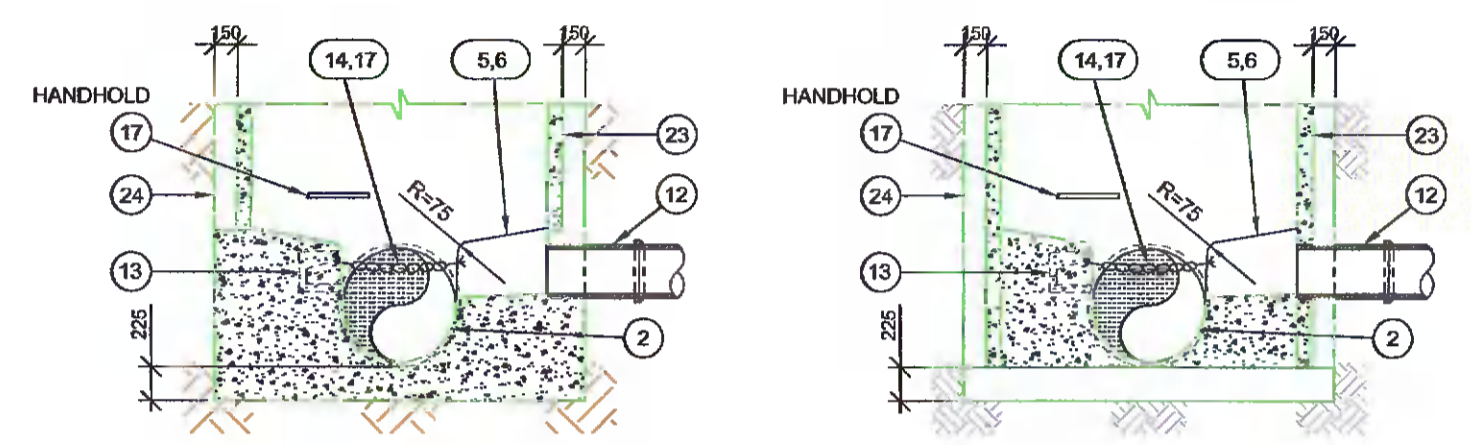


**PLAN ON LANDING**



**PLAN ON STRAIGHT INVERT**  
(WITHOUT COVER SLAB)

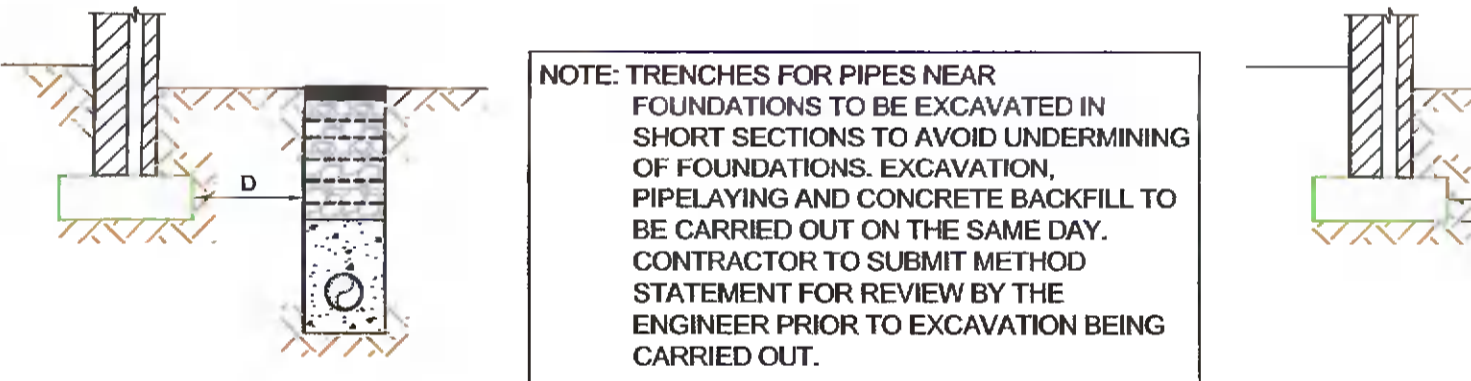
**PLAN ON CURVED INVERT**  
(WITHOUT COVER SLAB)



**SECTIONS L2, K2 & J2 THROUGH PRECAST BASE**

**SECTIONS L2, K2 & J2 THROUGH INSITU BASE**

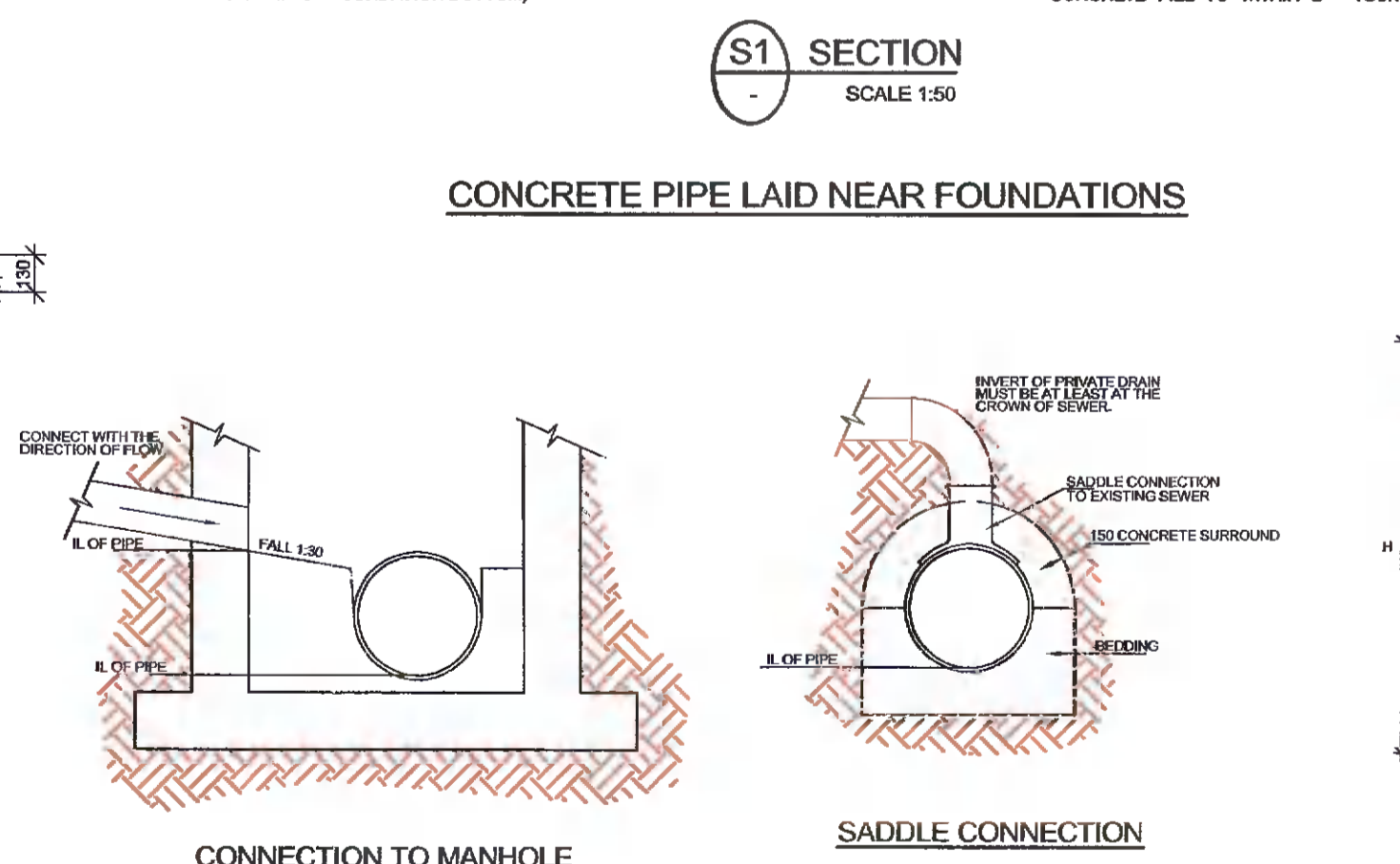
**COMMON DETAILS**



**CONCRETE PIPE LAID NEAR FOUNDATIONS**

**WHERE 'D' IS LESS THAN 1m**  
CONCRETE FILL TO LEVEL OF FOUNDATION BOTTOM

**WHERE 'D' IS 1m OR MORE**  
CONCRETE FILL TO WITHIN D - 150mm OF LEVEL OF FOUNDATION BOTTOM

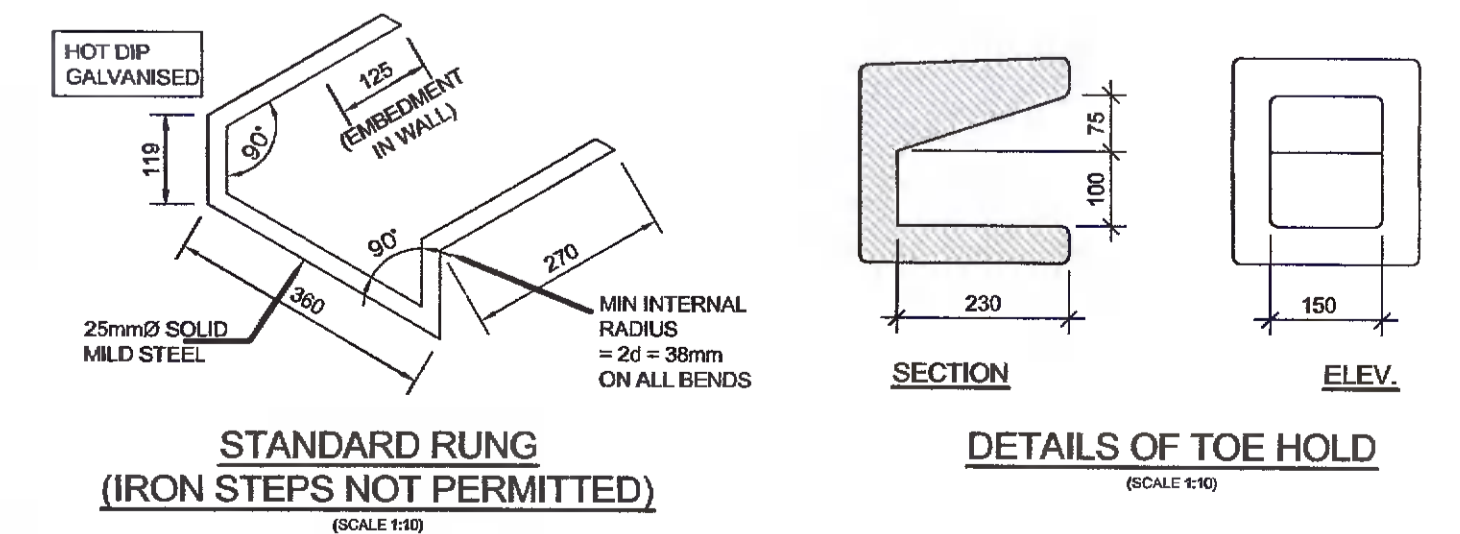


**CONNECTION TO MANHOLE**

**SADDLE CONNECTION**

**CONNECTION TO BRICK SEWER**

**MANHOLE CONNECTIONS**  
(DCC AREA ONLY)



**SAFETY CHAIN, HOOK & EYE DETAIL**

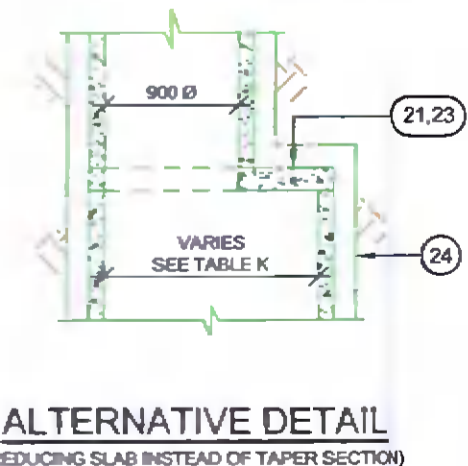
**STANDARD RUNG**  
(IRON STEPS NOT PERMITTED)

**DETAILS OF TOE HOLD**  
(SCALE 1:10)

**MISCELLANEOUS MANHOLE DETAILS**

MAXIMUM PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225	1200
300	1200
375	1200
525	1200
600	1200
675	1350
750	1500
900	1500
1050	2100
1200	2100

MANHOLE PIPE Ø A	CHAMBER INTERNAL Ø B
225	1200
300	1200
375	1200
525	1200
600	1200
675	1350
750	1500
900	1500
1050	2100
1200	2100



**ALTERNATIVE DETAIL**  
(REDUCING SLAB INSTEAD OF TAPER SECTION)

**NOTES**

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS.
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ENGINEER TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE ANY WORK PROCEEDS.
- REFER TO DRAWING JOB NUMBER 000 FOR PROJECT SPECIFICATION.

**NOTES**

- 225mm THICK C20/27 MASS CONCRETE FOUNDATIONS.
- PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY, WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE & THE CROWN CUT OUT TO HALF DIAMETER. PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF MANHOLE WALL.
- NOTE: WHERE PIPE DIAMETER CHANGES AT A MANHOLE PIPE CROWN TO LINE UP.
- MANHOLE CONSTRUCTION:**
  - FOR SURFACE WATER MANHOLES HIGH DENSITY BLOCKS 20N STRENGTH TO U.S. EN 1791 OR C20/27 IN SITU CONCRETE TO U.S. EN 206.
  - BLOCK WORK SHALL BE BEDDED & JOINTED USING MORTAR TO LE 400. BEDS & VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.
  - JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.
- ALL FOLI MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN CLASS 'W' OR 'F') OR IN SITU CONCRETE FOR 1m ABOVE BENCHING LEVEL. BRICK TO BE BUNDED TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.
- MAXIMUM DEPTH OF BLOCK WORK MANHOLE IS 12m (THE USE OF BLOCK WORK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH USE WILL REQUIRE DETAILED STRUCTURAL DESIGN AND WRITTEN APPROVAL FROM IRISH WATER).
- RELIEVING ARCH FORMED BY 215 x 100 x 85 SOLID ENGINEERING BRICK CLASS 'W' OR 'F'. RELIEVING ARCHES LAID IN BRICK OR BLOCK WORK MANHOLES EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm.
- BENCHING & PIPE CHANNEL PIPE SURROUND - C20/26 CONCRETE.
- BENCHING FINISHED BY 21 SAND-CEMENT MORTAR WITH A SMOOTH-TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
- STANDARD RINGS AT 300 C/C VERTICALLY & GALVANISED TO THE LATEST VERSION OF BS 1228 OR EQUIVALENT. NOTE: STEPPED RINGS ARE NOT ACCEPTABLE.
- 600mm SQUARE OPE IN ROOF SLAB.
- PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN GRADE C 20/27, WITH 40mm COVER TO STEEL, REINFORCED TO RESIST TO FULL TRAFFIC LOADING.
- 1 TO 3 COURSES OF SOLID ENGINEERING BRICKS CL 'W' TO U.S. EN 846 SET IN M20 MORTAR.
- CLASS D400 OR 600 MANHOLE COVER & FRAME TO U.S. EN 124. 150mm DEEP FRAME FOR ROADS & 100mm DEEP FOR FOOTPATHS & GREEN AREAS. NON-ROCK DESIGN. CLOSED RINGS, MANUFACTURED FROM SPHERICAL GRAPHITE CAST IRON (DUCTILE CAST IRON, 100 x 600) CLEAR SPRING COVER & FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL. COVER TO HAVE A MINIMUM MASS OF 10kg/m<sup>2</sup>. FRAME BEARING AREA SHALL BE 800mm<sup>2</sup> MIN. FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURERS INSTRUCTIONS.
- SHORT LENGTH PIPE & PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
- TOE HOLES OF 220mm MINIMUM DEPTH & GALVANISED STEEL. SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SLOPES GREATER THAN 25% AND DEPTH TO INVERT > 3m FOR ACCESS TO INVERT.
- A STAINLESS STEEL SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 400mm IN DIAMETER, COMPLYING WITH ISO 8835 OR EQUIVALENT.
- WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED, INSTEAD OF RUNGS TO BS 4214 OR EQUIVALENT EXCEPT THAT STRUNGERS SHOULD BE NOT LESS THAN 65 x 12mm IN SECTION & FLANGES 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF BS 4214 OR EQUIVALENT. DISTANCE FROM THE TOP RING OF THE LADDER TO GROUND LEVEL SHOULD NOT EXCEED 500mm.
- LADDER STRUNGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0m. STRUNGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE REMOVAL.
- ALL LADDERS, RUNGS, HARMS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO BS 1851 OR EQUIVALENT.
- PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL SO THAT THE CHANNEL EXTENDS THE FULL LENGTH OF THE MANHOLE (EXCEPT FOR PRECAST MANHOLES).
- POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLAB.
- ALL MANHOLES SHALL BE WATER TIGHT TO THE SATISFACTION OF THE ENGINEER.
- FORMWORK TO REINFORCED CONCRETE & MASS CONCRETE SHALL COMPLY WITH BS EN 1062-1:1
- FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE 'W', BS EN 1062-1:1
- ALL DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATING SIZE OF 450 x 225 x 100. FOR PIPE DIAMETER 250mm USE MANHOLE WITH INTERNAL DIAMETER SIZE: PIPE SIZE + 14mm + 300mm
- MANHOLES ARE DESIGNED TO IS EN 752 & WALL THICKNESS TO BS 1228 BLOCK WORK DESIGN CODE TAKING GRAVILAR FILL, PRESSURE & H.S. SURFACE.
- REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
- FOR MANHOLES > 3m DEPTH TO INVERT USE C 20/27 IN SITU CONCRETE. REINFORCING MESH/R. ASB TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
- PRECAST MANHOLES, CHAMBER WALLS & COVER SLAB TO BE CONSTRUCTED TO U.S. EN 1917 & BS 422:2004
- MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARPARKWAY. MANHOLE STEPS ACCESS TO BE POSITIONED TO ALLOW VIEWING OF CONCERNING TRAFFIC.
- FOR BEDDING & SEALING OF CHAMBER RINGS, THE TOP RING TO PRECAST COVER SLAB & BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
- PRECAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C20/26 CONCRETE.
- FOR FOUL DRAINAGE TO BE TAKEN IN CHARGE BY IRISH WATER, MANHOLES ARE TO BE CONSTRUCTED STRICTLY IN ACCORDANCE WITH THE REQUIREMENTS OF IRISH WATER WHICH MAY DIFFER FROM THE DETAILS PROVIDED. REFER TO IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE AND ASSOCIATED WASTEWATER STANDARD DETAILS, ALONG WITH ANY PARTICULAR REQUIREMENTS.

**PRECAST MANHOLES NOT PERMITTED WITHIN DCC AREA.**

Rev	Date	Amendments	by	chkd

PROJECT  
**PROPOSED PAINT STORE AT GALCO, BALLYMOUNT**

CLIENT  
**GALCO**

DRAWING TITLE  
**MANHOLE DETAILS SHEET 2 OF 2**

drawn by: DB	date: 01.04.22	scale: N.T.S	@ A1	chk: IC
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<b>GALC - DOW - 00 - XX - DR - CE</b>	Project Originator	Volume Level	Type Role
21183	5011		P-01
DOW Project No.	drp. no.	rev.	

**S4 - FOR STAGE APPROVAL**  
Suitability Status: Code - Description

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