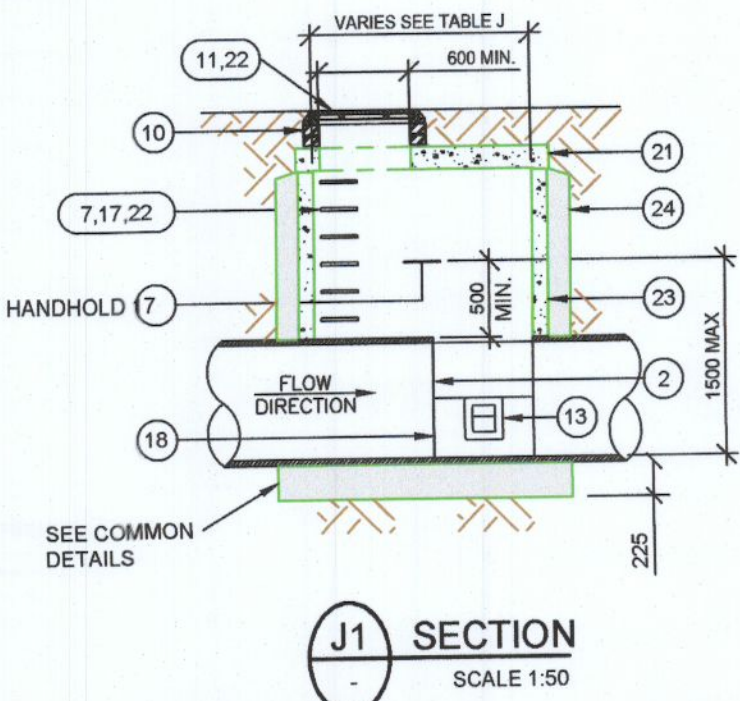
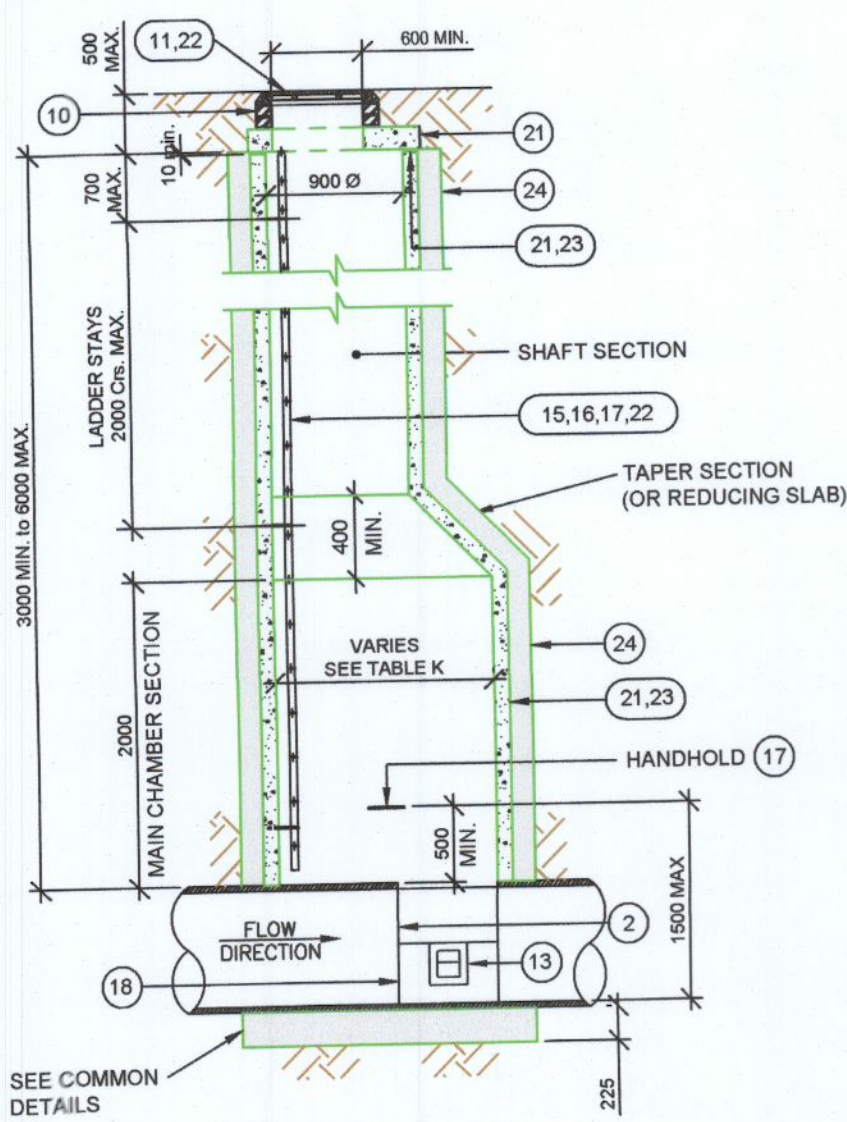


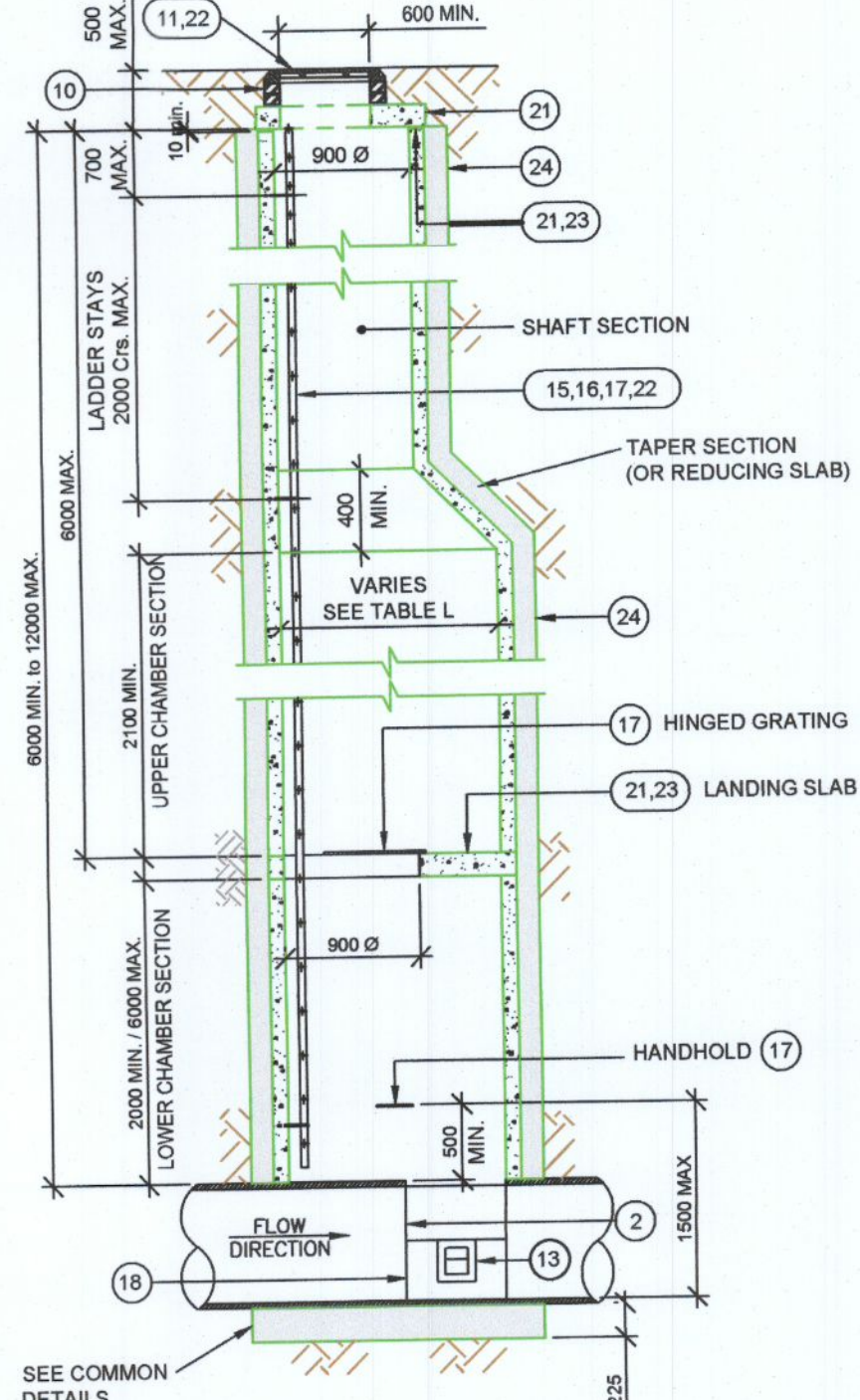
MANHOLE TYPE H
INTERCEPTOR TRAP DETAILS
FOR OUTFALL MANHOLES AT SITE BOUNDARY PRIOR TO
CONNECTING TO PUBLIC SYSTEM



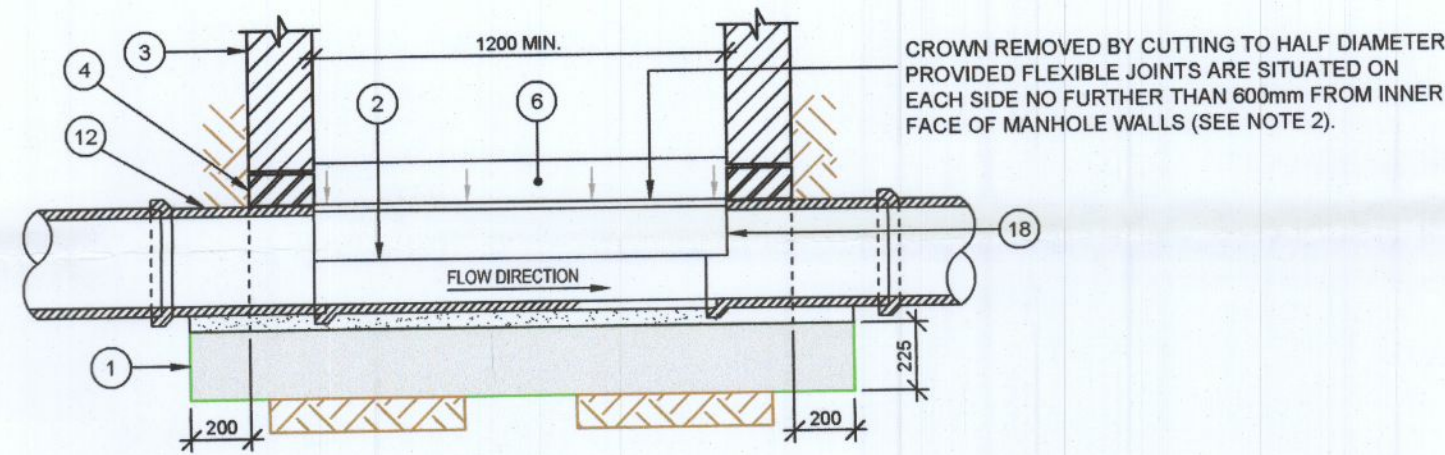
MANHOLE TYPE J
1m ≤ DEPTH TO INVERT < 3m



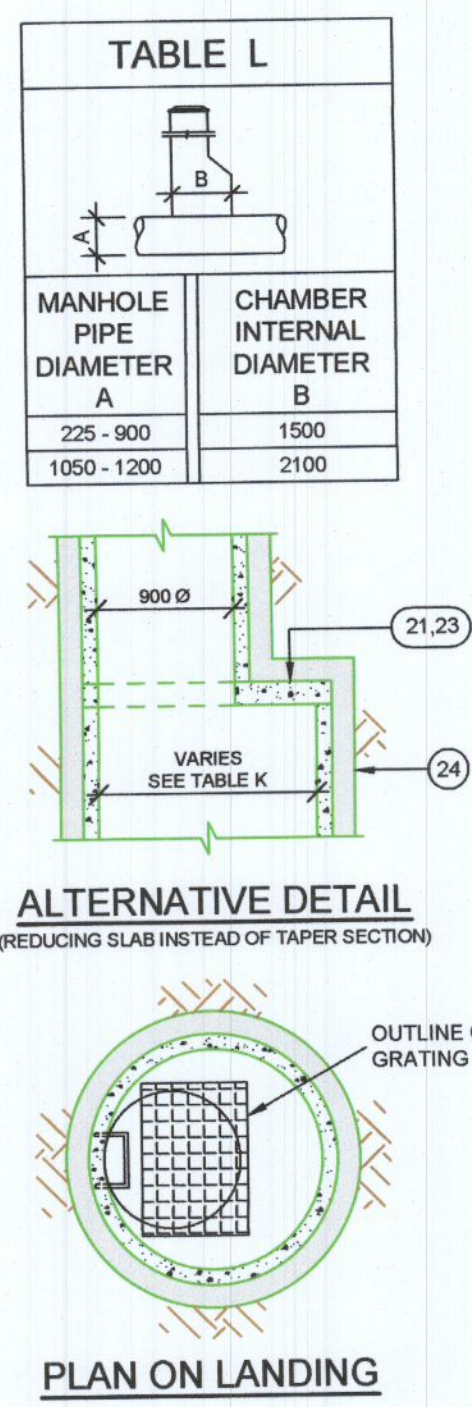
MANHOLE TYPE K
3m ≤ DEPTH TO INVERT < 6m



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



ALTERNATIVE METHOD OF FORMING CHANNEL THROUGH MANHOLE
SCALE 1:25

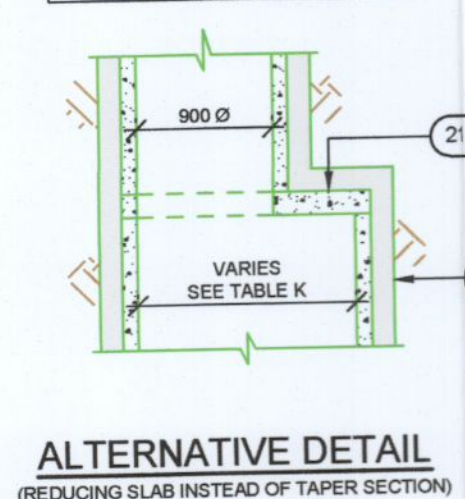


ALTERNATIVE DETAIL
(REDUCING SLAB INSTEAD OF TAPER SECTION)

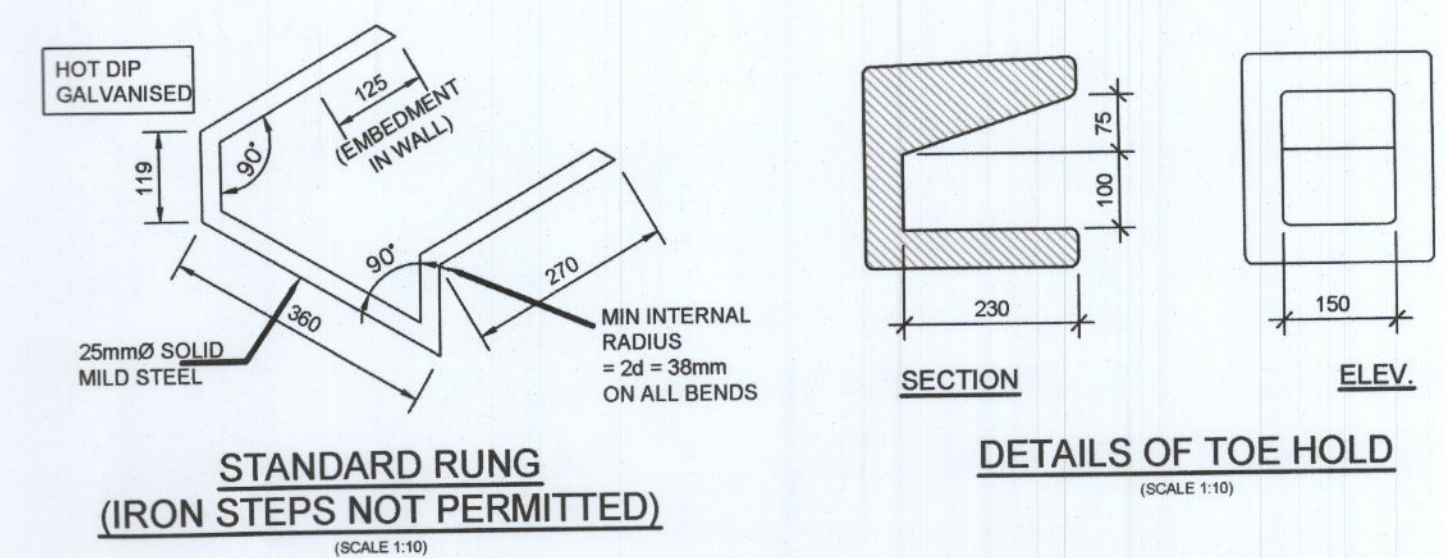
PLAN ON LANDING

MANHOLE 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

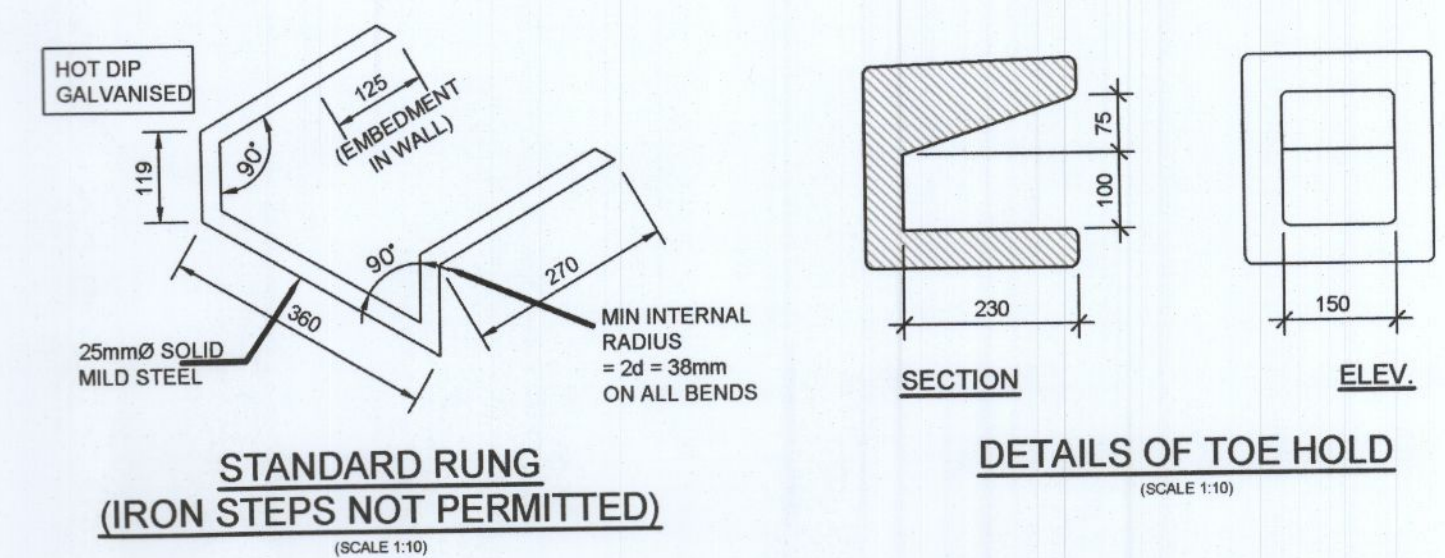
MANHOLE PIPE Ø A	CHAMBER INTERNAL Ø B
225	1200
300	1200
375	1200
525	1200
600	1200
675	1350
750	1500
900	1500
1050	2100
1200	2100



ALTERNATIVE DETAIL
(REDUCING SLAB INSTEAD OF TAPER SECTION)



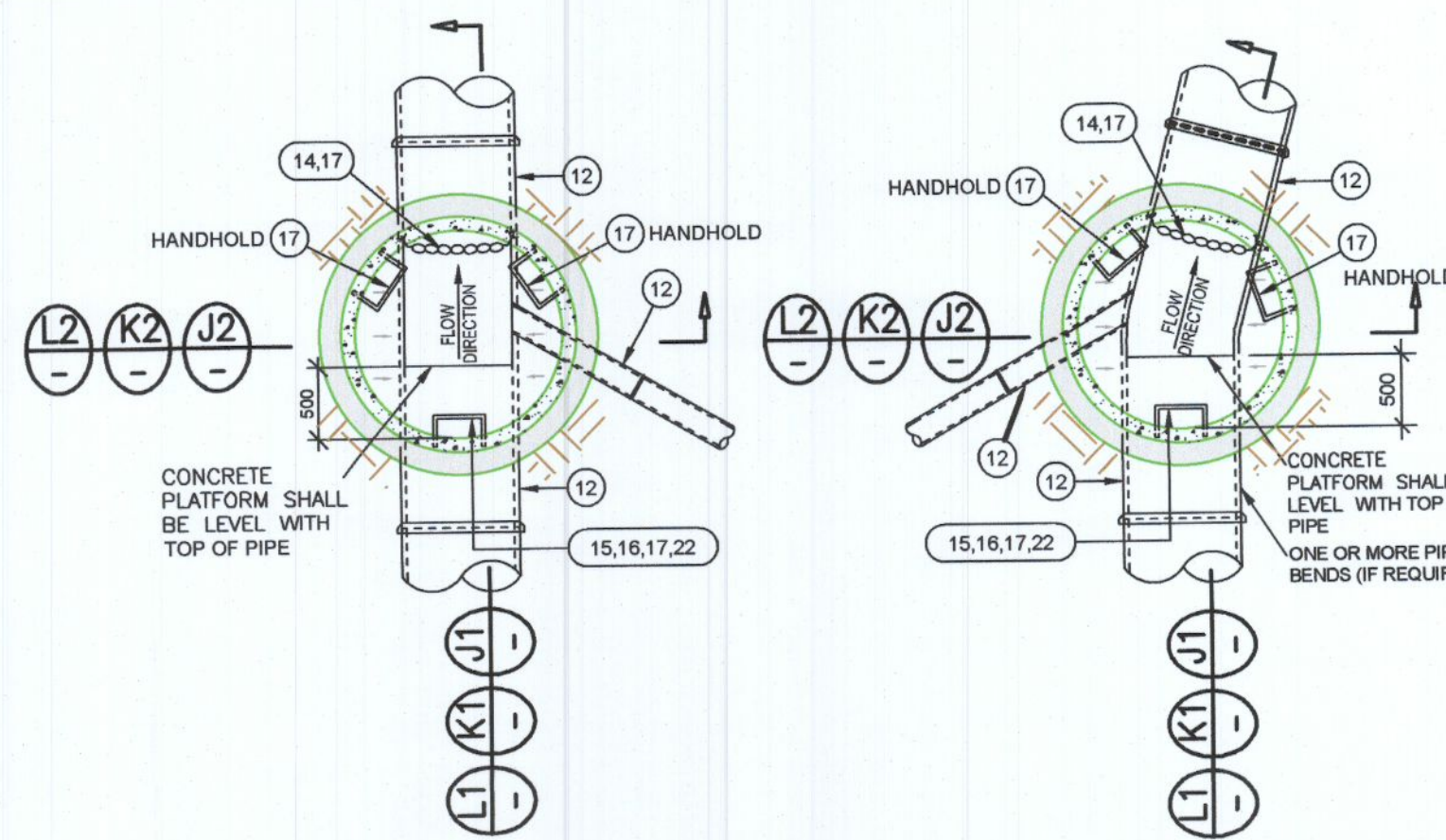
SAFETY CHAIN, HOOK & EYE DETAIL
N.T.S.



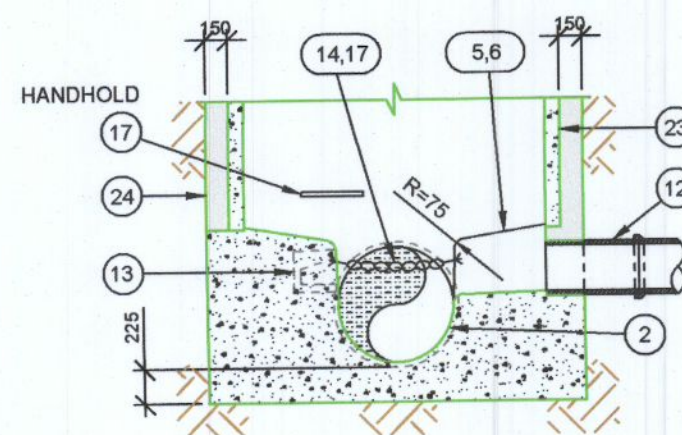
STANDARD RUNG
(IRON STEPS NOT PERMITTED)
SCALE 1:10

DETAILS OF TOE HOLD
(SCALE 1:10)

MISCELLANEOUS MANHOLE DETAILS

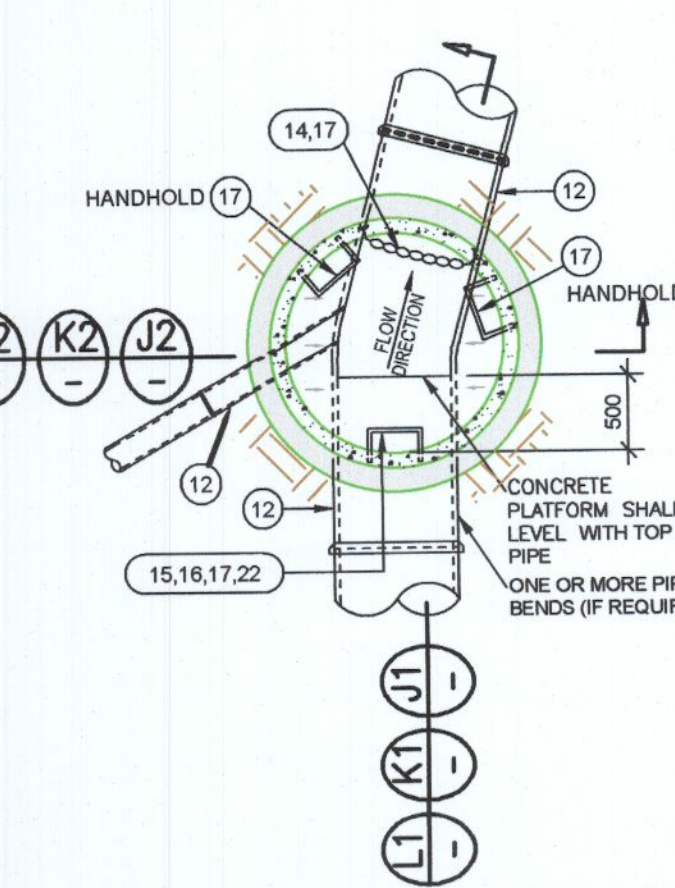


PLAN ON STRAIGHT INVERT
(WITHOUT COVER SLAB)

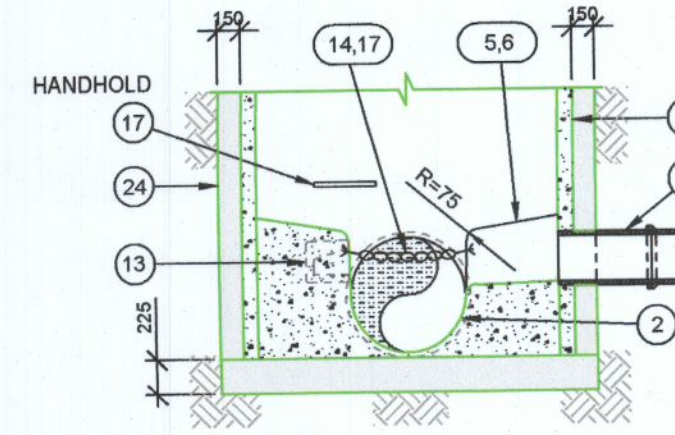


SECTIONS L2, K2 & J2 THROUGH PRECAST BASE
SCALE 1:50

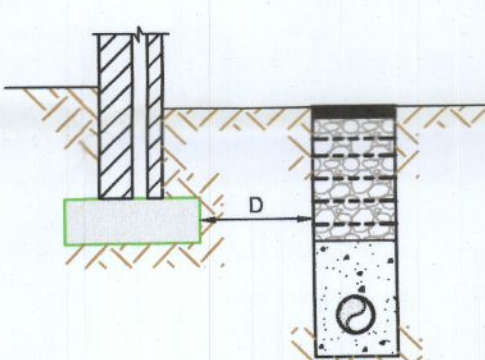
COMMON DETAILS



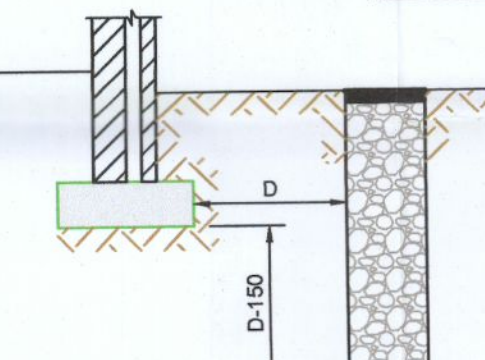
PLAN ON CURVED INVERT
(WITHOUT COVER SLAB)



SECTIONS L2, K2 & J2 THROUGH INSITU BASE
SCALE 1:50

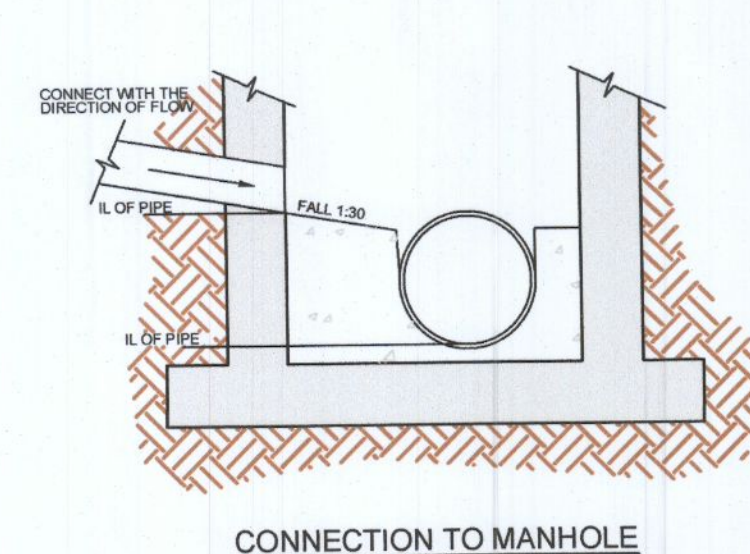


WHERE 'D' IS LESS THAN 1m
CONCRETE FILL TO LEVEL OF FOUNDATION BOTTOM

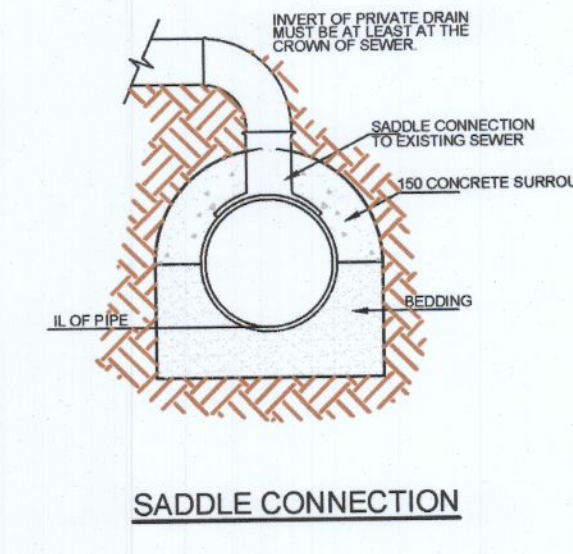


WHERE 'D' IS 1m OR MORE
CONCRETE FILL TO WITHIN D - 150mm OF LEVEL OF FOUNDATION BOTTOM

CONCRETE PIPE LAID NEAR FOUNDATIONS

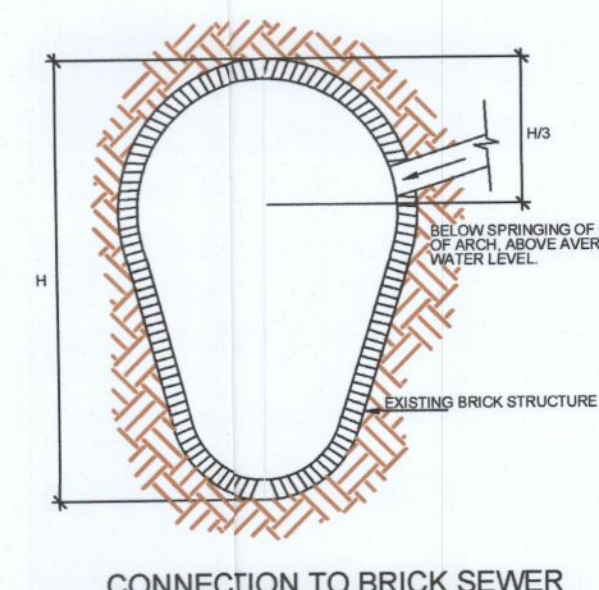


CONNECTION TO MANHOLE



SADDLE CONNECTION

MANHOLE CONNECTIONS
(DCC AREA ONLY)



CONNECTION TO BRICK SEWER

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 20047-DOW-0000 FOR PROJECT SPECIFICATION.

NOTES

- 25mm THICK C30/37 MASS CONCRETE FOUNDATIONS.
- PERFORMED HALF-CIRCLE CHANNEL PIPES, THE PIPELINE MAY, WHERE PRACTICABLE, BE LAD 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 CROWNS TO LINE UP.
- MANHOLE CONSTRUCTION:**
 - FOR SURFACE WATER MANHOLES HIGH-DENSITY BLOCKS 20N STRENGTH TO I.S. EN 771 OR C30/37 INSITU CONCRETE TO I.S. EN 206
 - BLOCK WORK SHALL BE BEDDED & JOINTED USING MORTAR TO I.S. 406. BEDS & JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.
 - FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE 'X', IS EN 1992-1-1
 - PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATING SIZE OF 450 x 225 x 100. FOR PIPE DIAMETER > 750mm USE MANHOLE WITH INTERNAL DIAMETER SIZE PIPE SIZE + 150mm
 - MANHOLES ARE DESIGNED TO IS EN 752 & WALL THICKNESS TO I.S. 225 BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE & H.S. SURCHARGE
 - REINFORCEMENT TO SLABS TO ENGINEER'S DETAILS.
- FOR MANHOLES > 3m DEPTH TO INVERT USE C 30/37 INSITU CONCRETE. REINFORCING NEAR REF. AXIS TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
- THICKNESS OF WALL: A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS
- REINFORCING ARCH FORMED BY 215 x 103 x 65 SOLID ENGINEERING BRICK CLASS 'X' OR 'Y' RELIEVING ARCHES USED IN BRICK OR BLOCK WORK MANHOLES EXTEND OVER FULL THICKNESS OF WALL.
- BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH A SMOOTH FINISH.
- STANDARD RUNGS AT 300 OC VERTICALLY & GALVANISED TO THE LATEST VERSION OF B.S. 729 OR EQUIVALENT. NOTE: STEP IRONS ARE NOT ACCEPTABLE.
- 600mm SQUARE OPE IN ROOF SLAB.
- PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN GRADE C 30/37, WITH 40mm COVER TO STEEL, DESIGNED TO BS 8100 TO TAKE FULL TRAFFIC LOADING.
- 1 TO 3 COURSES OF SOLID ENGINEERING BRICKS CL. 'Y' TO I.S. EN 998 SET IN M40 MORTAR
- CLASS D400 OR E600 MANHOLE COVER & FRAME TO I.S. EN 124. 150mm DEEP FRAME CLOSED KEYWAYS, MANUFACTURED FROM SPHERICAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600 x 600 (600)mm CLEAR OPENING. COVER & FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL COVER TO HAVE A MINIMUM MASS OF 1400g/m². FRAME BEARING AREA SHALL BE 80,000mm² MIN. FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURER'S INSTRUCTIONS.
- SHORT LENGTH PIPE & PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
- TOE HOLES OF 200mm MINIMUM DEPTH GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 125mm Ø & DEPTH TO INVERT > 3m FOR ACCESS TO INVERT.
- A STAINLESS STEEL SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER, COMPLYING WITH ISO 1855 OR EQUIVALENT.
- WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED, INSTEAD OF RUNGS TO B.S. 729 OR EQUIVALENT EXCEPT THAT STRUNGERS SHOULD BE NOT LESS THAN 65 x 12mm IN SECTION & RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S. 4111 OR EQUIVALENT. DISTANCE FROM THE TOP RUNG OF THE LADDER TO GROUND LEVEL SHOULD NOT EXCEED 500mm.

PRECAST MANHOLES NOT PERMITTED WITHIN DCC AREA.

Rev	Date	Amendments	by	chkd
P03	30.09.22	GENERAL REVISIONS	AG	IC
P02	20.01.21	TITLEBLOCK REVISED	AG	IC
P01	07.12.20	ISSUED FOR PLANNING	AG	IC

PROJECT
PROPOSED HOUSING DEVELOPMENT AT CLONBRONE, LUCAN, DUBLIN 20.

CLIENT
NACUL DEVELOPMENTS Ltd.

DRAWING TITLE
MANHOLE DETAILS SHEET 2 OF 2

drawn by: AG	date: 30.11.20	scale: N/A	@ A1	chk: IC
Project	Originator	Volume	Level	Type
20047	4001			P03

DOW Project No. **4001** rev. **P03**

SD - SUITABLE FOR PLANNING

Suitability Status: Code - Description

Cashel Business Centre,
Cashel Road, Kimmage, Dublin 12
T 01 4901611
E admin@downesassociates.ie
www.downesassociates.ie