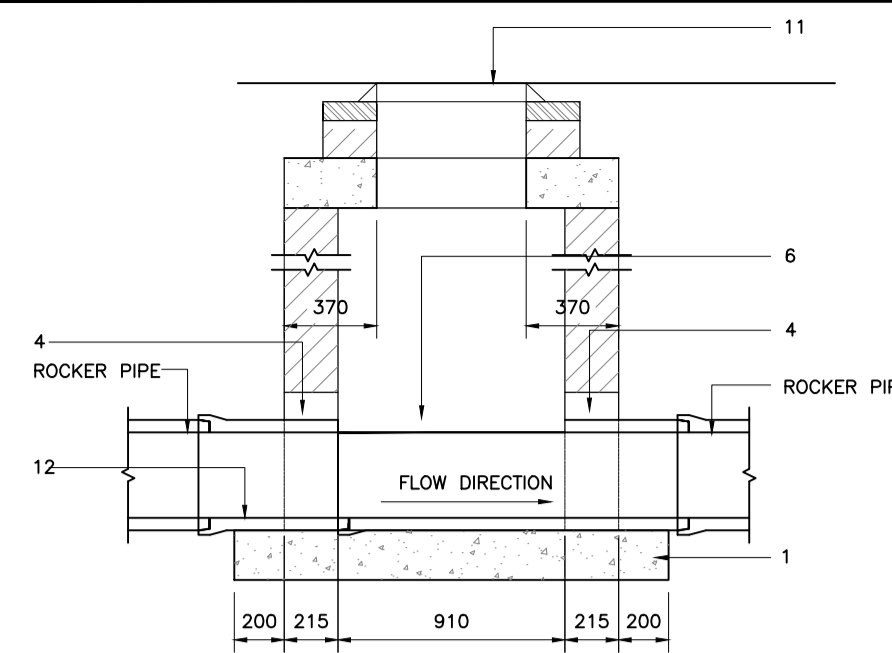
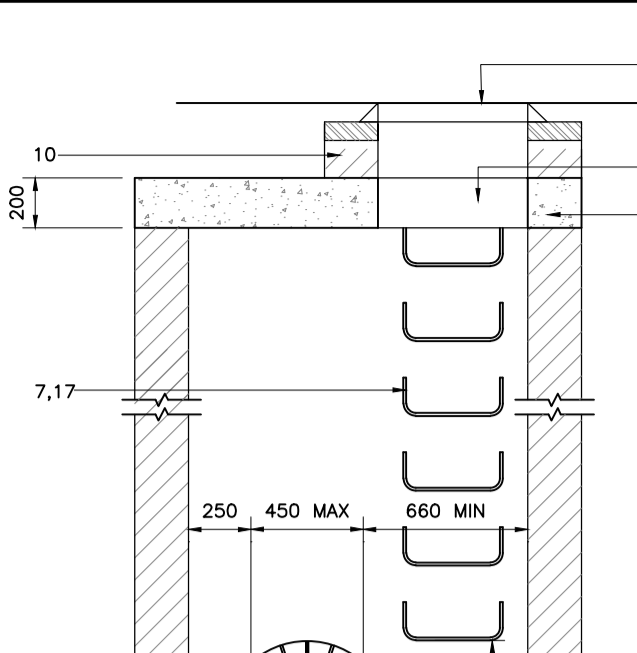


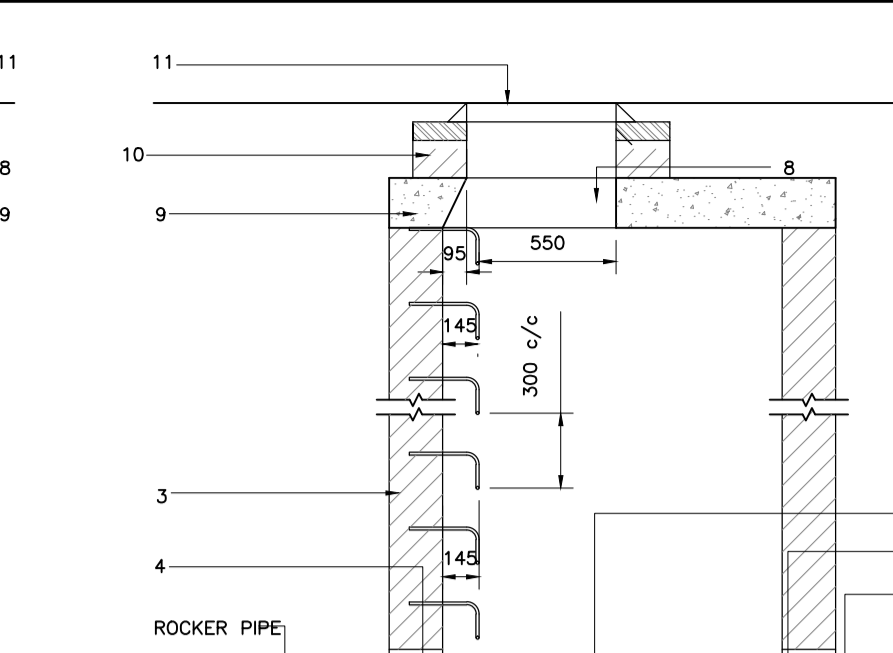
SECTION A-A



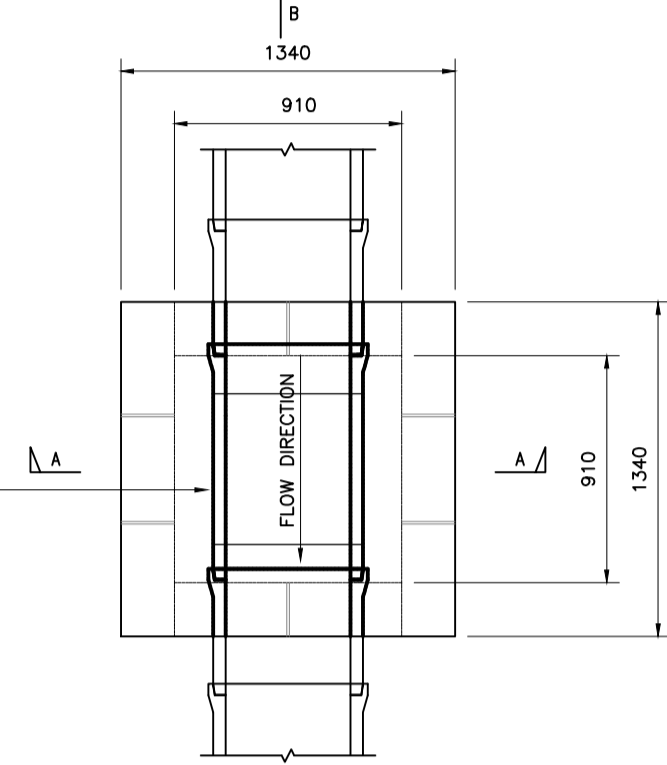
SECTION B-B



SECTION A-A



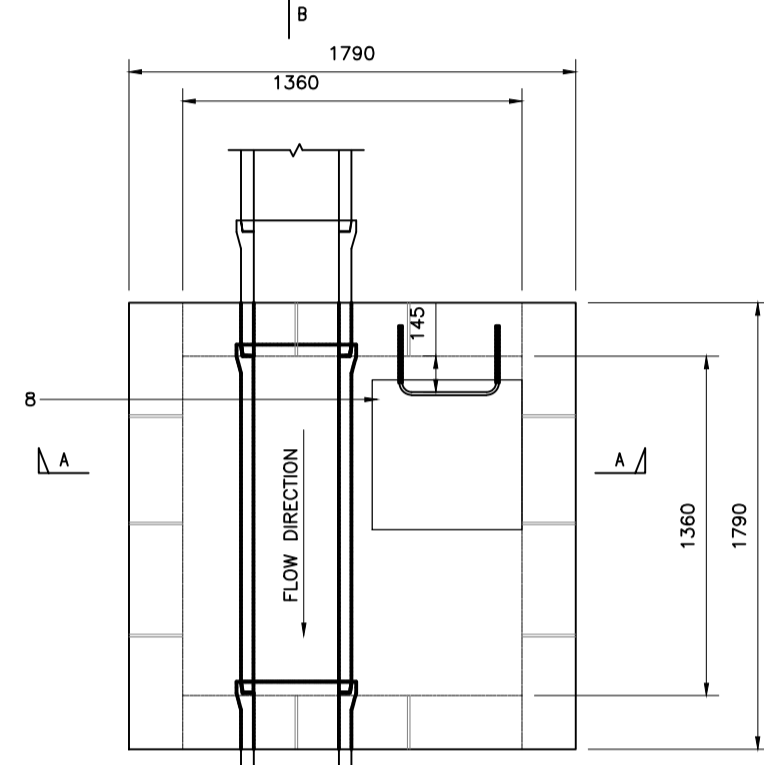
SECTION B-B



PLAN

TYPE A MANHOLE

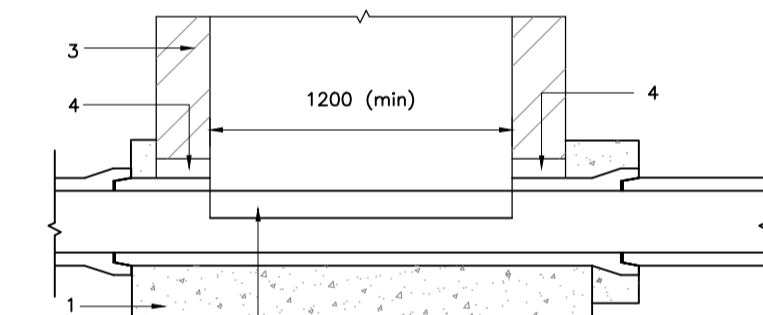
MANHOLE DETAILS FOR PIPE #s 150, 225, 300, 375 & 450mm. DEPTH TO INVERT LESS THAN 1.0m.



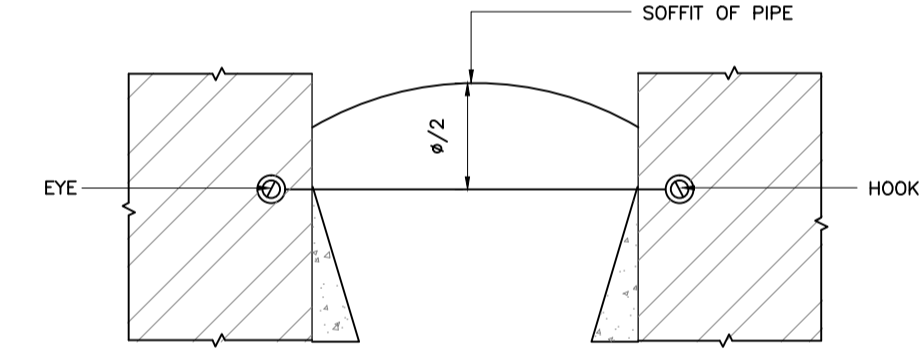
PLAN

TYPE B MANHOLE

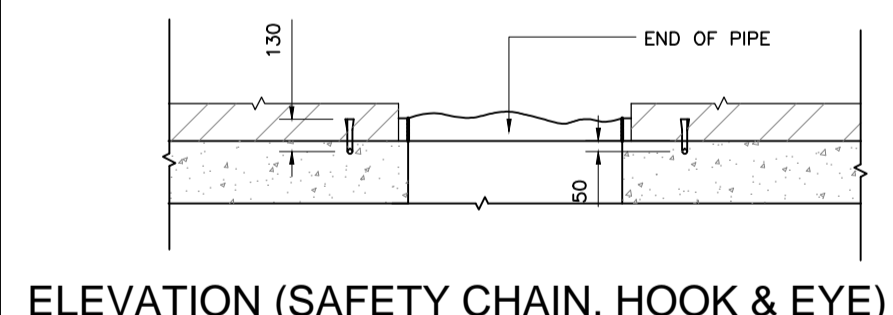
MANHOLE DETAILS FOR PIPE #s 225, 300, 375 & 450mm. DEPTH TO INVERT 1.0m TO 3.0m.



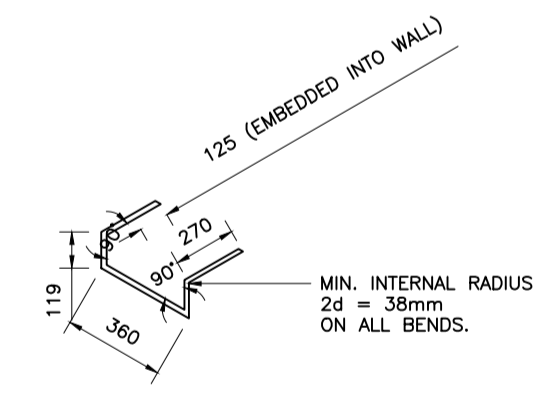
ALTERNATIVE METHOD OF FORMING CHANNEL THRU' MANHOLE



ELEVATION

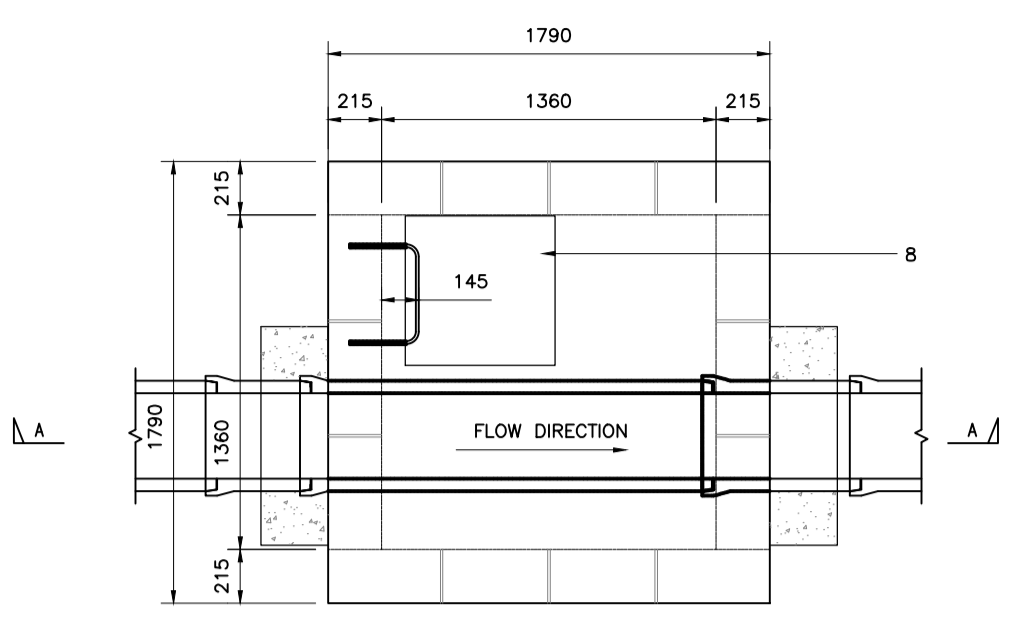


ELEVATION (SAFETY CHAIN, HOOK & EYE)



STANDARD RUNG (HOT DIP GALVANISED)

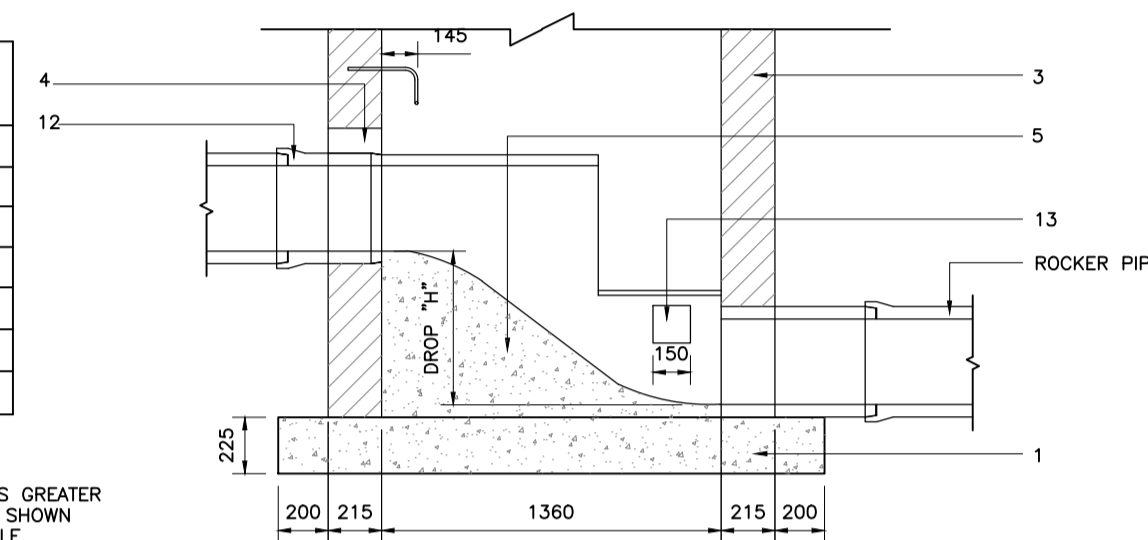
STANDARD RUNG & SAFETY CHAIN DETAILS



PLAN

INLET DIA (mm)	"H" (MAX) (mm)
225	600
300	600
375	750
450	750
525	750
600	750
750	750

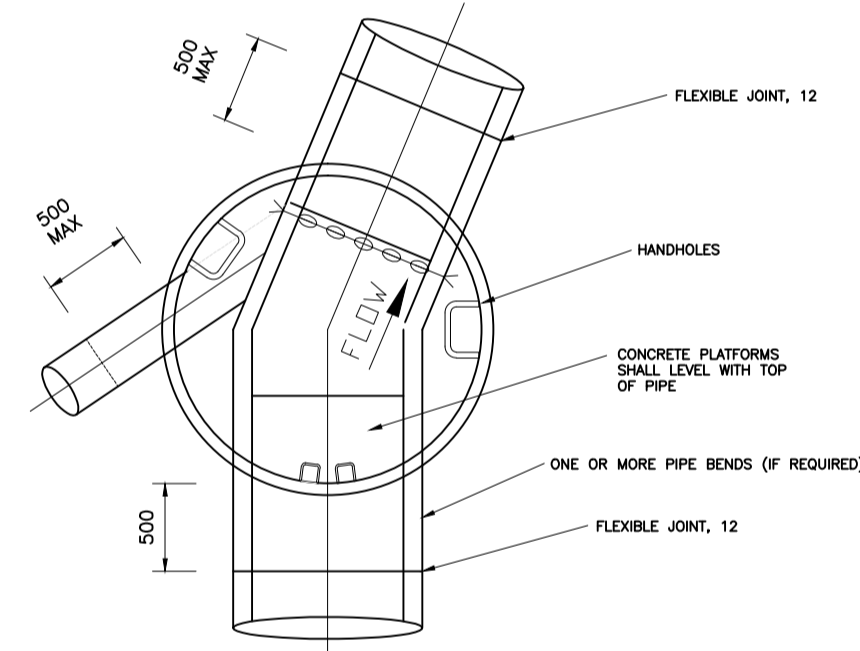
WHEN THE DROP "H" IS GREATER THAN THE MAX. VALUE SHOWN USE BACKDROP MANHOLE.



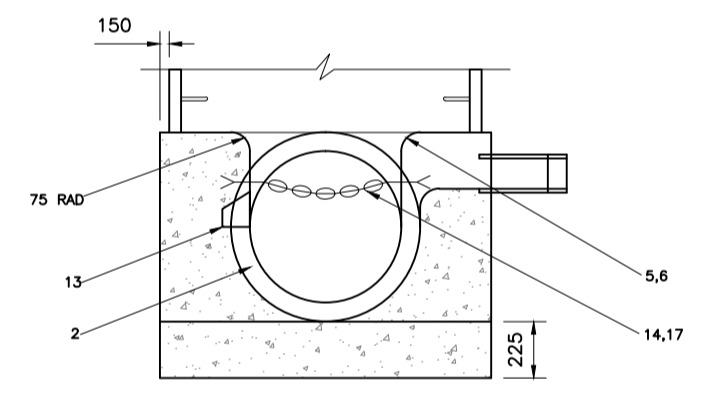
SECTION A-A

TYPE F MANHOLE (RAMP)

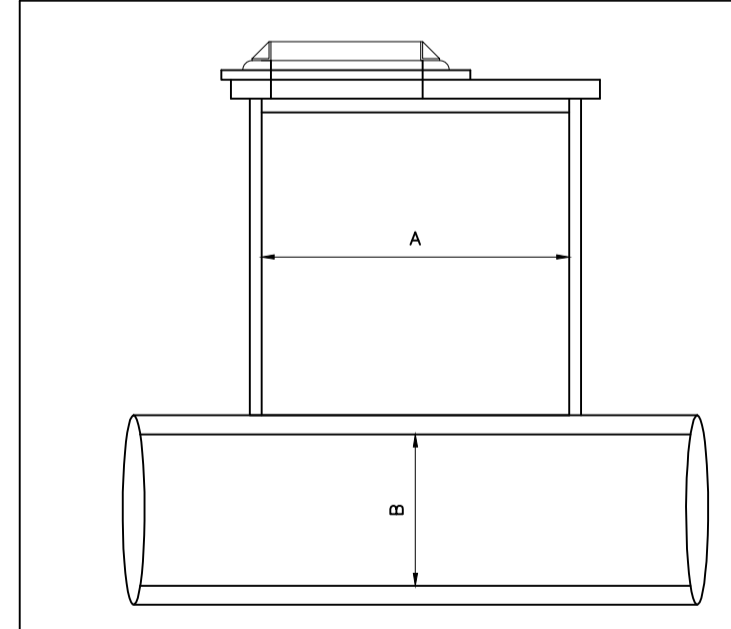
RAMP MANHOLE DETAIL FOR PIPE #s 150, 225, 300, 375, 450, 525, 600 & 750mm. DROP < 750mm



PLAN ON CURVED INVERT (WITHOUT COVER SLAB)



SECTION Y-Y



TYPE J MANHOLE (PRECAST)

MAXIMUM PIPE DIAMETER A (mm)	CHAMBER INTERNAL DIAMETER B (mm)
225	1200
300	1200
375	1200
450	1200
525	1200
600	1200
675	1350
750	1350
900	1500
1050	2100
1200	2100

TABLE 1

- MANHOLE GENERAL NOTES:**
- ALL BRICK TO BE SOLID ENGINEERING BRICK CLASS A OR B
 - FOR PIPE DIAMETER >750MM USE MANHOLE WITH INTERNAL DIAMETER SIZE = PIPE SIZE + 1 METRE + 300MM
 - DISTANCE FROM TOP RUNG OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500MM
- MANHOLE DRAWING NOTES:**
- 225mm THICK CL20/20 MASS CONCRETE FOUNDATIONS.
 - PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE AND THE CROWN OUT TO HALF DIAMETER. PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF THE MANHOLE WALL.
 - MANHOLE CONSTRUCTION FOR SURFACE WATER MANHOLES HIGH DENSITY BLOCKS TO CL.S10 OF I.S.20 PART 1: 1987 OR CL.30/20 IN-SITU CONCRETE. BLOCKWORK SHALL BE BEDDED AND JOINTED USING MORTAR DESIGNATION THREE TO I.S.406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID. JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS. ALL FOUL MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN CLASS A OR B), OR IN-SITU CONCRETE FOR 1m ABOVE BENCHING LEVEL BRICK TO BE BONDED TO BLOCKWORK USING ENGLISH GARDEN WALL BOND.
 - RELIEVING ARCH FORMED BY 215x103x65 BRICK CLASS A OR B AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCKWORK MANHOLES TO EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCHE IS TO BE FORMED FOR PIPE DIAMETRES GREATER THAN 600mm.
 - BENCHING AND PIPE CHANNEL PIPE SURROUND -CL20/20 CONCRETE.
 - BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH SMOOTH TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
 - STANDARD RUNGS AT 300c/c VERTICALLY AND GALVANISED TO LATEST VERSION OF BS729 OR EQUIVALENT.
 - 600mm SQUARE OPE. IN ROOF SLAB.
 - PRECAST R.C. ROOF SLAB SHALL BE 200MM THICK IN CL.30N/20MM CONCRETE, WITH 40MM COVER TO STEEL.
 - 1 TO 2 COURSES OF SOLID ENGINEERING BRICKS CLASS B TO I.S.91:1983 SET IN 1:3 (CEMENT AND MORTAR) TO TII CLAUSE 2404.
 - CLASS D400 OR E600 LOCKABLE MANHOLE COVER AND FRAME TO I/S/EN 124. 150mm DEEP FRAME FOR ROADS, 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON-ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600x600 (OR 600 DIAM) CLEAR OPENING. COVER & FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL. COVER TO HAVE A MINIMUM MASS OF 140kg/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 CONSTRUCTIONS.
 - SHORT LENGTH PIPE, PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
 - TOE HOLES OF 230mm MIN. DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525 DIAMETER, AND DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
 - SAFETY CHAIN TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M(H) NON CALIBRATED CHAIN TYPE 1, COMPLYING WITH BS: 4942 Part 2 OR EQUIVALENT.
 - WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED. INSTEAD OF RUNGS, TO BS4211 EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65x12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF BS 4211.
 - LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0m. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
 - ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO BS729.
 - SOCKET OF PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL SO THAT THE CHANNEL EXTENDS FULL LENGTH OF THE MANHOLE (EXCEPT FOR PRECAST MANHOLES).
 - POSITION OF 910 SQUARE OPENING IN INTERMEDIATE ROOF SLAB.
 - ALL MANHOLES SHALL BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.
 - FORMWORK TO REINFORCEMENT CONCRETE AND MASS CONCRETE SHALL COMPLY TO CLASS 2, SECTION 6.2.7, BS8110: PART 1: 1997.
 - FINISH TO THE TOP OF SLABS SHALL COMPLY TO TYPE A, SECTION 6.2.7, BS8110: PART 1: 1997.
 - PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCKWORK HAVING A CO-ORDINATING SIZE OF 450x225x100.
 - MANHOLES ARE DESIGNED TO BS8005 AND WALL THICKNESSES TO IS3225 BLOCKWORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE.
 - REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
 - FOR MANHOLES >3.0m DEPTH TO INVERT USE 30N/20 IN-SITU CONCRETE. REINFORCING MESH REF. A393 @6.16kg/m TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
 - PRECAST COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 420 2004.
 - MANHOLE OPENING TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS/ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
 - FOR BEDDING AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRECAST COVER SLAB) AND BOTTOM TING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.

Rev	Description	By	Date	Chk'd	Auth

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Client
Comhairle Contae Fhine Gall
Fingal County Council

Project
HOLYWELL FOUL PUMPING STATION RELOCATION

Title STANDARD CONSTRUCTION DETAILS SHEET 1 of 3				
Original Scale	Drawn	Checked	Authorised	
N.T.S.	MG	GH	JN	
Status	Date	Date	Date	Rev
P	10/02/17	10/02/17	10/02/17	-
Drawing Number	RK5155181C010			