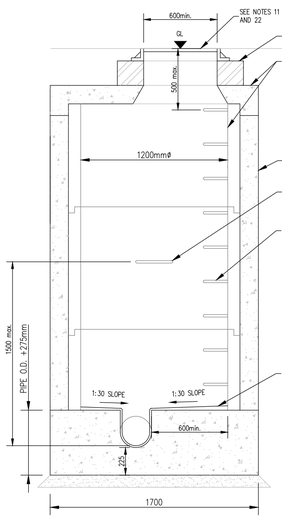
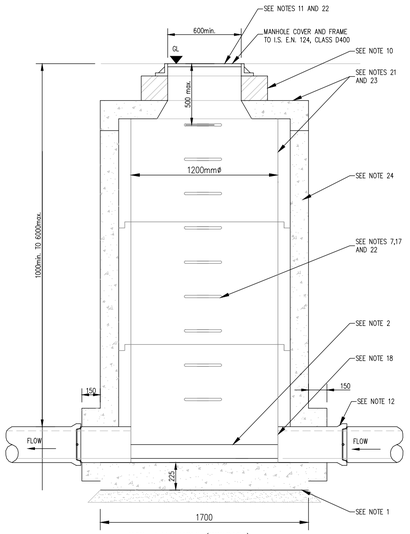
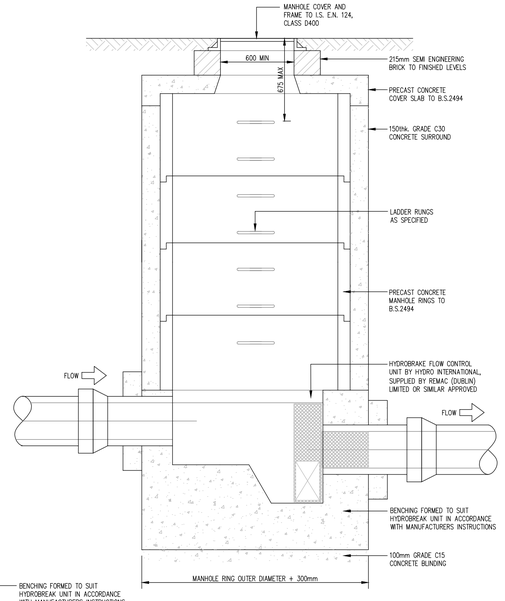


TYPE J MANHOLE (PRECAST)
SECTION A–A
SCALE 1:20

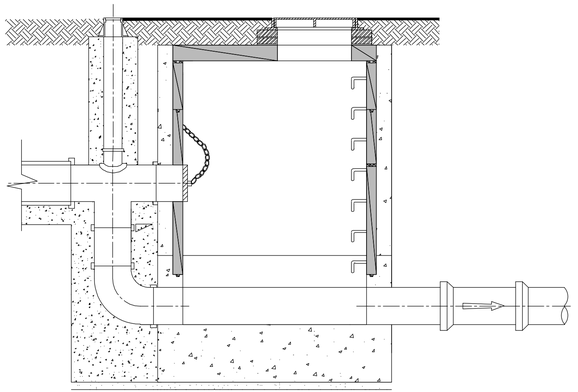
MANHOLE PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225mmØ	1200mmØ
300mmØ	1200mmØ
375mmØ	1200mmØ
450mmØ	1200mmØ
525mmØ	1200mmØ
600mmØ	1200mmØ
675mmØ	1350mmØ
750mmØ	1350mmØ
900mmØ	1500mmØ
1050mmØ	2100mmØ
1200mmØ	2100mmØ



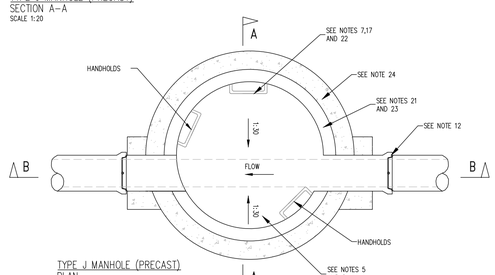
TYPE J MANHOLE (PRECAST)
SECTION B–B
SCALE 1:20



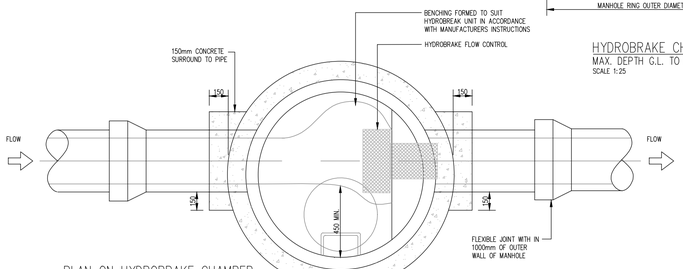
HYDROBRAKE CHAMBER
MAX. DEPTH G.L. TO I.L. – 3.0m
SCALE 1:25



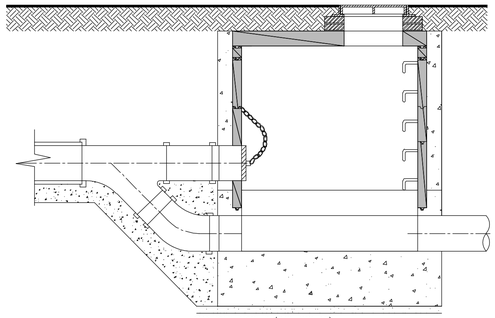
MANHOLE TYPE 2 (STD–WW–12)
REFER TO IRISH WATER WASTEWATER INFRASTRUCTURE DETAILS FOR SPECIFICATIONS
150mm – 450mm (INCL) DROP GREATER THAN 900mm AND LESS THAN 1700mm.
500mm – 900mm (INCL) DROP GREATER THAN 1300mm AND LESS THAN 2300mm.



TYPE J MANHOLE (PRECAST)
PLAN
SCALE 1:20

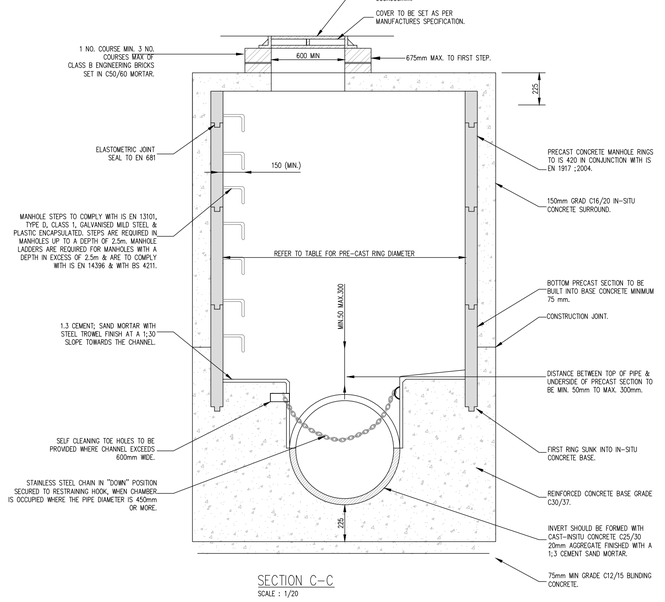


PLAN ON HYDROBRAKE CHAMBER
MAX. DEPTH G.L. TO I.L. –3.0m
SCALE 1:25

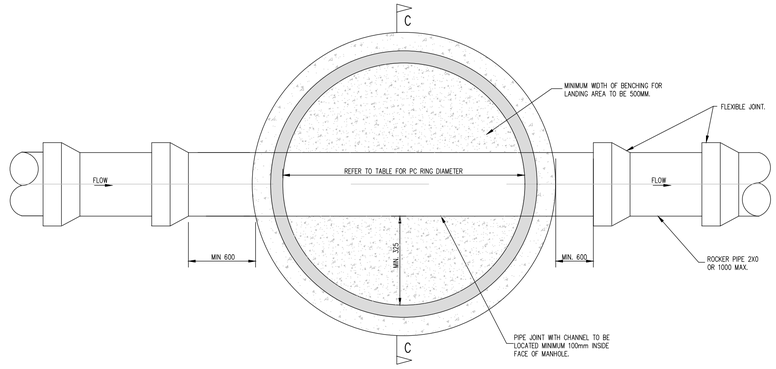


MANHOLE TYPE 3 (STD–WW–12)

REFER TO IRISH WATER WASTEWATER INFRASTRUCTURE DETAILS FOR SPECIFICATIONS
150mm – 450mm (INCL) DROP GREATER THAN 600mm AND LESS THAN 900mm.
500mm – 900mm (INCL) DROP GREATER THAN 600mm AND LESS THAN 1300mm.

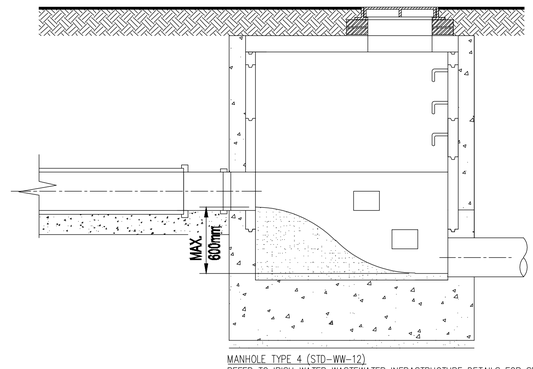


SECTION C–C
SCALE : 1/20



FOUL MANHOLES TO IRISH WATER SPECIFICATIONS (STD–WW–10)
SCALE : 1/20

MINIMUM MANHOLE DIAMETERS "D"	
DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375 TO 450	1350
500 TO 750	1500



MANHOLE TYPE 4 (STD–WW–12)
REFER TO IRISH WATER WASTEWATER INFRASTRUCTURE DETAILS FOR SPECIFICATIONS
150mm – 450mm (INCL) DROP LESS THAN 600mm.
500mm – 900mm (INCL) DROP LESS THAN 600mm.

SURFACE WATER MANHOLE NOTES:

1. 225mm THICK CL.20N/20mm MASS CONCRETE FOUNDATIONS.
2. PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY, WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE AND 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.
3. MANHOLE CONSTRUCTION.
   - FOR SURFACE WATER MANHOLE HIGH DENSITY BLOCKS TO CLS10 OF IS.20 PART 1:1987 OR CI. 30N/20mm INSITU CONCRETE.
   - BLOCK WORK SHALL BE BEDDED AND JOINTED USING MORTAR TO IS406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.
   - JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.
   - BRICK TO BE BONDED TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.
4. RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A OR B AS PER DRAWING. RELIEVING ARCHES USED 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.
5. BENCHING AND PIPE CHANNEL PIPE SURROUND–C.20/20 CONCRETE.
6. BENCHING FINISHED IN 2:1 SAND–CEMENT MORTAR WITH A SMOOTH TROWEL FINISH, AT 1:13 SLOPE TOWARDS CHANNEL.
7. STANDARD RUNGS AT 300 CENTRES VERTICALLY AND GALVANISED TO THE LATEST VERSION OF B.S.729 OR EQUIVALENT. NOTE: STEP IRONS ARE NOT ACCEPTABLE.
8. 600mm SQUARE OPE IN ROOF SLAB.
9. PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN CLASS 30N/20mm, WITH 40mm COVER TO STEEL.
10. 1 TO 2 COURSES OF SOLID ENGINEERING BRICKS CLS TO I.S.91:1983 SET IN 1:3 (CEMENT AND MORTAR).
11. CLASS D400 OR E600 MANHOLE COVER AND FRAME TO IS/EN 124. 150mm DEEP FRAME FOR ROADS AND 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON–ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600x600 (600mmØ) CLEAR OPENING, COVER AND FRAME COATED IN BITUMEN OR OTHER PAPROVED 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 MANUFACTURERS INSTRUCTIONS.
12. SHORT LENGTH PIPE AND PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
13. TOE HOLES OF 230mm MINIMUM DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525mm DIAMETER AND DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
14. A SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M(Y) NON–CALIBRATED CHAIN, TYPE 1, COMPLYING WITH B.S.4942 PART 2 OR EQUIVALENT.
15. WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED INSTEAD OF RUNGS TO B.S.4211 OR EQUIVALENT EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65x12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S.4211 OR EQUIVALENT.
16. 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.
17. ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO B.S.729 OR EQUIVALENT.
18. 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).
19. 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 AND MASS CONCRETE SHALL COMPLY WITH CLASS 2 , SECTION 6.2.7, B.S.8110:PART 1:1997.
    - FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE A, SECTION 6.2.7, B.S.8110: PART 1:1997.
    - PLAN DIMENSIONS OF MANHOLE ARE BASED ON BLOCK WORK HAVING A COORDINATING SIZE OF 450x225x100.
    - MANHOLES ARE DESIGNED TO B.S.8005 AND WALL THICKNESS TO LS.325 BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE.
    - REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
20. FOR MANHOLES >3m DEPTH TO INVERT USE 30N/20mm INSITU CONCRETE. REINFORCING MESH REF. A393Ø 6.16KG/m TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
21. FOR PRECAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 420 2004.
22. MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS/ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
23. FOR BEDDING AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRECAST COVER SLAB AND BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE–FORMED JOINTING STRIP.
24. PRECAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C20/40 CONCRETE
25. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION.
26. DO NOT SCALE FROM THIS DRAWING USE STATED DIMENSIONS ONLY. IF IN DOUBT CONSULT THE ENGINEER.
27. LEVELS REFER TO O.S. DATUM MALIN HEAD.

GENERAL NOTES
ALL BRICK TO BE SOLID ENGINEERING BRICK CLASS A OR B.
FOR PIPE DIAMETER >750mm USE MANHOLE WITH INTERNAL SIZE=PIPE SIZE + 1m + 300mm.
DISTANCE FROM THE TOP RUNG OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500mm

FOUL MANHOLE NOTES–STD–WW–10

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
2. PRECAST MANHOLES UNITS, COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND BS 5911–PART 3.
3. THICKER MANHOLE BASE REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE
4. APPROVED PRE–CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER APPROVAL AND COMPLYING WITH BS 5911–PART 42002.
5. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
6. MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER APPROVAL.
7. MANHOLE ROOFS SHOULD CONSIST OF RE–INFORCED CONCRETE SLAB OF IN–SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY APPROVED PRE–CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO IRISH WATER APPROVAL AND COMPLIANCE WITH BS 5911 PART 4; 2002.
8. COVER AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
9. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
10. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECTED TO APPROVAL FROM IRISH WATER.
11. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206; 2013.

D077

PLANNING DRAWING

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Rev. No.	Date	REVISION NOTE	Dm. By	Chkd. By
P1	03.03.2022	ISSUED FOR PLANNING STAGE 3	DD	OS

Architect	JFOC Architects
Project	Edmondstown Lands
Title	Typical Drainage Details Sheet 1 of 2
Dwg. No.	EDM-CSC-GF-XX-DR-C-0015

Date	Drn by	Chkd by	Aprvd by	Scale	Revision
Nov 2020	PJC	RFM	OS	AS SHOWN @ A1	P1

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