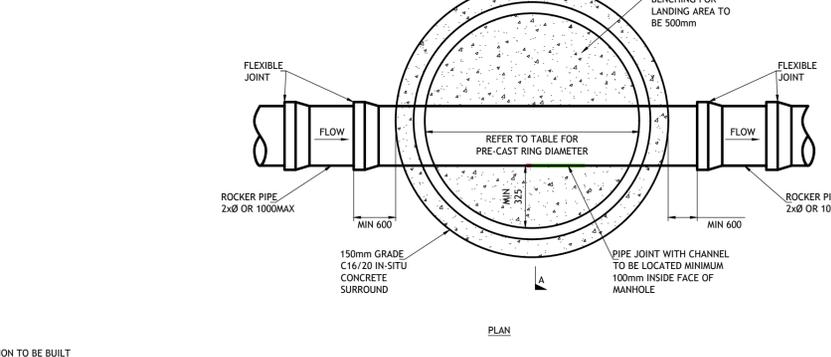
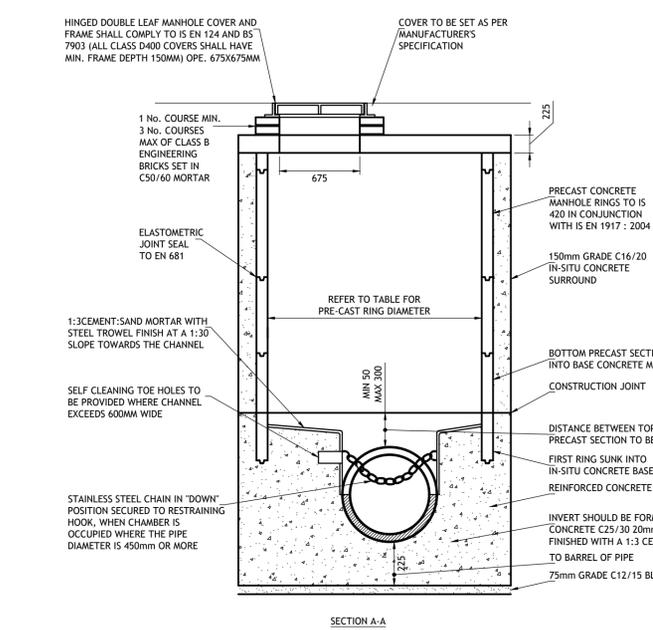


**MANHOLES 3m TO 6m DEEP (DETAIL USED ON ULVSS CONTRACT)**

SCALE: 1/25



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

- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND BS 5911-PART 3.
- THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE. APPROVED PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER APPROVAL AND COMPLYING WITH BS 5911-PART 4: 2002.
- STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER APPROVAL. 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.
- COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
- 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 SUBJECT TO APPROVAL FROM IRISH WATER.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 : 2013.

**PRE-CAST CONCRETE MANHOLE IN ACCORDANCE WITH IW STANDARD DETAILS STD-WW-10**

NTS

- NOTES**
- 225mm THICK C28/35 MASS CONCRETE FOUNDATIONS. REFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE. LOCATIONS VARY. REFER TO PLANS FOR DETAILS.
  - ALL WORKS ARE TO COMPLY WITH THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (CESWI) 7TH EDITION AND AMENDMENTS TO CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (CESWI) 7TH EDITION FRAMEWORK REFERENCE 13/112 - LOT 2.
  - ALL DIMENSIONS SHOWN ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
  - BENCHING AND PIPE CHANNEL PIPE SURROUND C16/20 CONCRETE.
  - BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH SMOOTH TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
  - STANDARD RUNGS AT 300mm VERTICALLY AND GALVANISED TO BS729.
  - 75mm GRADE S73 BLINDING.
  - NOT USED.
  - 1 TO 2 No. ENGINEERING BRICKS CLASS B TO I.S.91: 1983 SET IN 1:3 (CEMENT-SAND-MORTAR).
  - CLASS D400 MANHOLE COVER AND FRAME TO IS/EN 124. 150mm DEEP FRAME FOR PAVED AREA, 100mm DEEP FOR GREEN AREAS. NON-ROCK DESIGN. CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600x600 (OR 600 DIA)M CLEAR OPENINGS. COVER & FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL. COVER TO HAVE A MINIMUM 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 APPROVED MORTAR TO MANUFACTURERS CONSTRUCTION.
  - 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.
  - SAFETY CHAIN TO BE PROVIDED IN MANHOLES >450mm. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M16 NON CALIBRATED CHAIN TYPE 1, COMPLYING WITH BS: 4942 Part 2.
  - LADDERS SHALL BE USED. 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.
  - NOT USED.
  - ALL MANHOLES SHALL BE WATER TIGHT TO THE SATISFACTION OF THE ENGINEER.
  - FORWARD TO REINFORCEMENT CONCRETE AND MASS CONCRETE SHALL COMPLY TO CLASS 2, SECTION 6.2.7, BS8140: PART 1 : 1997.
  - FOR PRECAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 420 2004.
  - MANHOLE OPENINGS 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 THE BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
  - PRE-CAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C32/40 CONCRETE.
  - ALL BRICK TO BE CLASS B ENGINEERING BRICK.
  - ASSUME ALL EXISTING FOUL WATER (FW) DRAINAGE HAS TO BE MAINTAINED OPERATIONAL UNTIL THE DIVERSION IS FULLY COMPLETED AND OPERATIONAL.
  - PLACING AND CURING OF LEAN MIX CONCRETE SURROUND TO PIPES ALL EXCAVATIONS TO BE KEPT DRY BY OVERPUMPING GROUNDWATER FROM THE TRENCH UNTIL THE LEAN MIX CONCRETE SURROUND TO PIPES HAS SET AND ACHIEVED THE REQUIRED STRENGTH.

Standard Details For Wastewater Networks		
Drawing No.	Drawing Title	Details Required
STD-WW-01	Wastewater service connection maintenance responsibility	Y
STD-WW-02	Typical layout for sewer within new developments	N
STD-WW-03	Drain & service connection pipework	N
STD-WW-04	Typical sewer / service pipe connection	N
STD-WW-05	Typical service layout indicating separation distances	Y
STD-WW-05A	Wastewater service connection vertical separation distances	Y
STD-WW-06	Restrictions on wastewater infrastructure works adjacent to trees	Y
STD-WW-06A	Restrictions on new trees/shrubs planting adjacent to sewers	Y
STD-WW-07	Trench backfill & bedding	Y
STD-WW-08	Concrete protection slab, bed, haunch & surround to wastewater pipes	Y
STD-WW-09	Blockwork manhole (<450mm dia.)	N
STD-WW-10	Pre-cast concrete manhole with cast in-situ base	Y
STD-WW-10A	Pre-cast concrete manhole with pre-cast base	N
STD-WW-10B	Pre-cast concrete pumping station inlet manhole with cast in-situ concrete base	N
STD-WW-10C	Pre-cast concrete pumping station inlet manhole with precast concrete base	N
STD-WW-11	In-situ concrete manhole	N
STD-WW-11A	Cast in-situ concrete pumping station inlet manhole	N
STD-WW-12	Backdrop and cascade manholes	N
STD-WW-13	Private side inspection chamber	N
STD-WW-14	Thrust blocks for rising mains	N
STD-WW-15	Scour valve chamber (foul rising main <200mm dia.)	N
STD-WW-16	Sluice valve details for rising mains ductile iron (D.I.) pipe (<200mm dia.) (sheet 1 of 2)	N
STD-WW-17	Sluice valve details for rising mains polyethylene (P.E.) pipe (<200mm dia.) (sheet 2 of 2)	N
STD-WW-18	Air valve chamber (foul rising main <200mm dia.)	N
STD-WW-19	Duct chamber	N
STD-WW-20	Emergency overflow structure & emergency overflow to storm sewer	N
STD-WW-21	Typical ditch/stream crossing for gravity sewer (sheet 1 of 2)	N
STD-WW-22	Typical ditch/stream crossing for ductile iron rising main (sheet 2 of 2)	N
STD-WW-22A	Typical ditch/stream crossing for polyethylene rising main	N
STD-WW-23	Typical bridge crossing for rising main (sheet 1 of 2)	N
STD-WW-24	Typical bridge crossing for rising main (sheet 2 of 2)	N
STD-WW-24A	Typical culvert and services crossing details for rising main	N
STD-WW-25	Security gate & fencing gaisade option (preferred)	N
STD-WW-25A	Security gate & fencing wire mesh option	N
STD-WW-26	Indicative pumping station site layout - access via lay-by	N
STD-WW-26A	Indicative pumping station site layout - direct access from public road	N
STD-WW-27	Flow meter chamber (foul rising main <200mm dia.) cast in-situ concrete option	N
STD-WW-27A	Flow meter & valve chamber (foul rising main <200mm dia.) cast in-situ concrete option	N
STD-WW-27B	Flow meter & valve chamber (foul rising main <200mm dia.) pre-cast concrete option	N
STD-WW-27C	Flow meter & valve chamber (foul rising main <200mm dia.) pre-cast concrete option	N
STD-WW-28	Cast in-situ indicative submersible pumping station	N
STD-WW-28A	Indicative pre-cast concrete submersible pumping station with cast in-situ valve chamber	N
STD-WW-28B	Indicative pre-cast concrete submersible pumping station and pre-cast valve chamber	N
STD-WW-29	Rising main discharge stand-off manhole	N
STD-WW-30	Type 1 pumping station control kiosk	N
STD-WW-30A	Type 2 and type 3 pumping station control kiosk	N
STD-WW-31	Pumping station wet kiosk	N
STD-WW-31A	Pumping station wet kiosk water service connection arrangement	N
STD-WW-32	Handstanding area pumping station (permeable & impermeable)	N
STD-WW-33	Lamp bollard & lamp standard	N
STD-WW-34	Vent stack	N
STD-WW-35	Rising main rodding chamber in-situ concrete option	N
STD-WW-35A	Rising main rodding chamber pre-cast concrete option	N
STD-WW-36	Marker posts/plates	Y
STD-WW-37	Section showing wastewater services separation details in high density developments 2.5m wide footpaths with 6.0m wide carriageway	N
STD-WW-38	Layout plan showing below ground services separation details in high density developments 2.5m wide footpaths with 6.0m wide carriageway	N
STD-WW-39	Section showing wastewater services separation details in high density developments 1.8m wide footpaths, 2.5m wide parallel parking bays with 6.0m wide carriageway	N
STD-WW-40	Layout plan showing below ground services separation details in high density developments 1.8m wide footpaths, 2.5m wide parallel parking bays with 6.0m wide carriageway	N

NOTE: THIS TABLE IS APPLICABLE ONLY TO THE DIVERSION PART OF THE DEVELOPMENT.

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COLOUR DRAWING

NSAI Certified

Rev	Amendment	By	Date	Rev	Amendment	By	Date	Client:
C01	ISSUE FOR DIVERSION APPLICATION	IBS	2022-02-25					

**PUNCH consulting engineers**

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Project: **GREAT CONNELL SHD, NEWBRIDGE**

Title: **PROPOSED KILCULLEN FOUL WATER SEWER DIVERSION DETAILS**

Drawn: IBS Date drawn: FEB 2022 Technician Check: P.M. Engineer Check: MCD Approved: LB

Project No: 192229 Model Ref: 192229-PUNCH-XX-XX-M2-C-0508 Drawing Status: A0 PLANNING

Scale: AS SHOWN Date of Issue: 192229-PUNCH-XX-XX-DR-C-0508 Revision No: C01

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