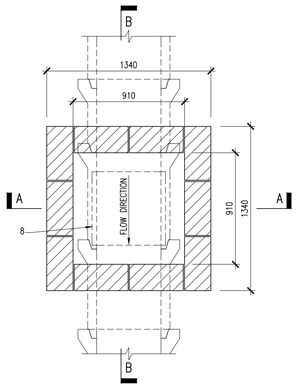
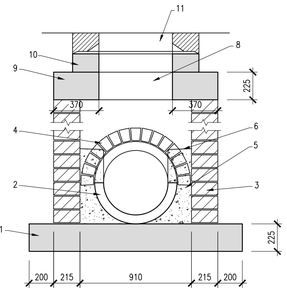
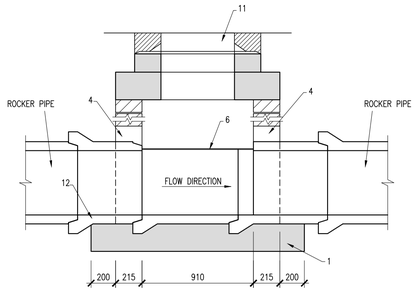


PLAN BELOW ROOF SLAB



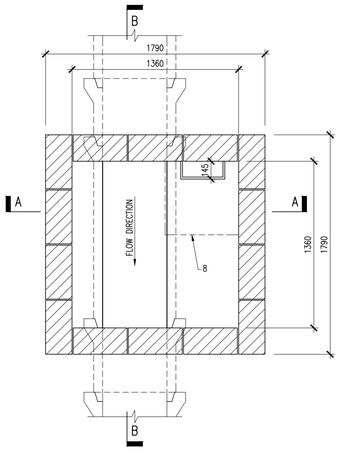
SECTION A–A



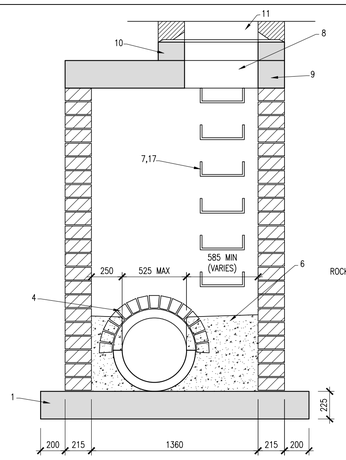
SECTION B–B

TYPE A MANHOLE
MANHOLE DETAILS FOR PIPE DIA's 150,225,300,375 & 450
DEPTH TO INVERT LESS THAN 1.0m

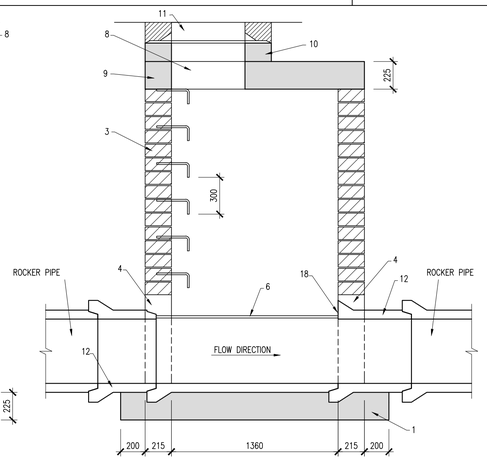
DETAIL 1A



PLAN BELOW ROOF SLAB



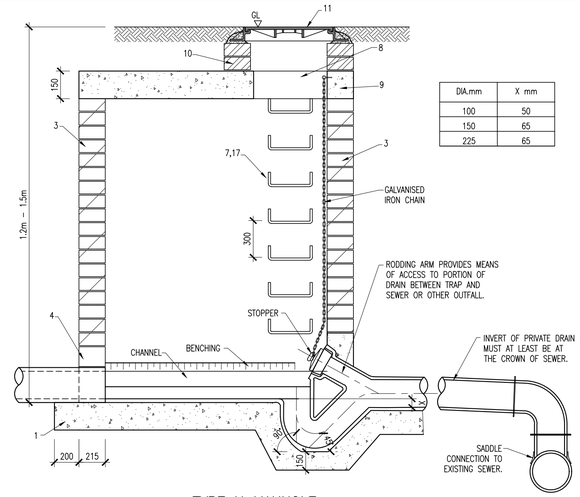
SECTION A–A



SECTION B–B

TYPE B MANHOLE
MANHOLE DETAILS FOR PIPE DIA's 225,300,375 & 450
DEPTH TO INVERT GREATER THAN 1.0m & LESS THAN 3.0m

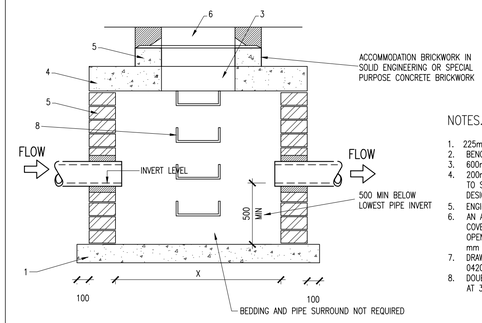
DETAIL 1B



DIA.mm	X mm
100	50
150	65
225	65

TYPE H MANHOLE
DETAIL OF MANHOLE WITH BROADS TRAP INTERCEPTOR
SCALE 1:25

DETAIL 1F



CATCHPIT MANHOLE SECTION (FILTER DRAINS ONLY)

NOTES.

1. 225mm THK C20 MASS CONCRETE FOUNDATIONS
2. BENCHING AND PIPE CHANNEL PIPE SURROUND – C20 CONCRETE.
3. 600mm SQUARE OPENING IN ROOF SLAB.
4. 200mm THK PRECAST R.C. ROOF SLAB IN C20 CONCRETE. COVER TO STEEL SHALL BE 40mm. SLAB SHALL BE CONTRACTOR DESIGNED TO BS5911
5. ENGINEERING BRICK H53 TO I.S.91:1983 SET IN TYPE (ii)
6. AN APPROVED DEEP SEAL PATERN GALVANISED IRON AIR TIGHT COVER AND FRAME WEIGHING MIN. 4.3 kg, 600 x 600 MM CLEAR OPENING SIZE. FRAME TO BE BEDDED IN MASTIC AND 25 x 25 mm SEAL TO BE FILLED WITH MANHOLE GREASE.
7. DRAWING TO BE READ IN CONJUNCTION WITH DBFL DRAWINGS 042097–3201, 042097–3202 & 042097–3203
8. DOUBLE STEP RUNGS TO BE FIXED IN LINE VERTICAL AND SPACED AT 300 mm CENTRES.

MANHOLE TYPE	X	Y
BROADS TRAP/OUTFALL	1200 mm	1200 mm
> 1.5 m	600 mm	900 mm
< 1.5 m	600 mm	750 mm

DETAIL 1G

EXTRACTED FROM THE GREATER DCC REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS

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 MANHOLES HIGH–DENSITY BLOCKS TO CL.S10 OF IS.20 PART 1:1987 OR CL. 30N/20MM IN–SITU 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.

ALL FOUL MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN. CLASS A OR B), OR IN–SITU CONCRETE FOR 1 METRE ABOVE BENCHING LEVEL.

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 – CL. 20/20 CONCRETE.
6. BENCHING FINISHED IN 2:1 SAND–CEMENT MORTAR WITH A SMOOTH TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
7. STANDARD RUNGS AT 300C/C VERTICALLY AND GALVANIZED TO THE LATEST VERSION OFB.S. 729 OR EQUIVALENT. NOTE: STEPS IRONS ARE NOT ACCEPTABLE.
8. 600MM SQUARE OPENING 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 C.L.B 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), 600 X 600 (600 DIAM.) CLEAR OPENING, COVER AND 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 MANUFACTURES 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 GALVANIZED 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 SAFETY CHAIN SHALL BE 10MM NOMINAL SIZE GRADE M(H) 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 65 X 12MM 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 GALVANIZED 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 OPENING IN INTERMEDIATE ROOF SLAB.

ALL MANHOLES SHALL BE WATERTIGHT 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 MANHOLES ARE BASED ON BLOCK WORK HAVING A COORDINATING SIZE OF 450 X 225 X 100.

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 IN–SITU CONCRETE. REINFORCING MESH REF. A393 @ 6.16KG/M TO BE FIXED AT MIDPOINT 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.

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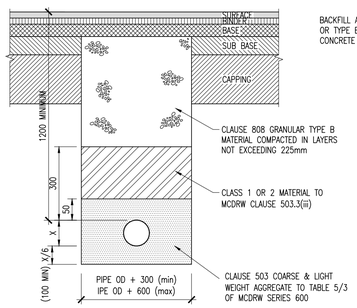
ON ORIGINAL

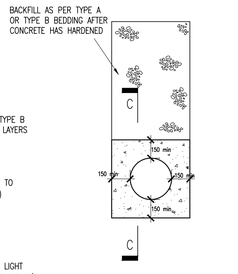
0 5 10 15 20 25 30 40 50mm

NOTES:

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH NRA SPECIFICATION FOR ROADWORKS UNLESS OVERRIDDEN BY GREATER DUBLIN REGIONAL CODES OF PRACTICE FOR DRAINAGE WORKS AS AMENDED BY DUBLIN CITY COUNCIL
2. ALL DRAWINGS TO BE CHECKED BY CONTRACTOR ON SITE AND ENGINEER INFORMED OF DISCREPANCIES BEFORE WORK COMMENCES.
3. ALL LEVELS ARE IN METRES AND ARE RELATED TO THE ORDANANCE DATUM.
4. CONTRACTOR SHALL SATISFY HIMSELF AS TO THE ACCURACY OF PAVEMENT LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS.
5. ALL SURFACE WATER MANHOLES TO BE TAKEN IN CHARGE BY DCC TO BE BLOCKWORK OR IN SITU CONCRETE AS PER THE GREATER DUBLIN REGIONAL CODES OF PRACTICE FRO DRAINAGE WORKS AS AMENDED BY DUBLIN CITY COUNCIL.
6. ALL FOUL MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH IRISH WATER'S CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.
7. ALL MANHOLES TO BE RETAINED IN PRIVATE OWNERSHIP TO BE PRE–CAST CONCRETE MANHOLES AS PER DRAINAGE DESIGN DETAILS.



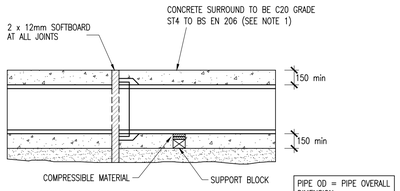
BEDDING/BACKFILL DETAIL
IN ROADWAYS/VERGES/PATHS
TYPE S
(COVER> 1.2 METRES TO CROWN)



RIGID PIPES : SURROUND

PIPE BEDDING DETAILS
SCALE 1:25

CONCRETE BEDDING
TO BE USED WHERE COVER LESS THAN 1.2m AND / OR AS DIRECTED BY THE ENGINEER (REFER TO LONGITUDINAL SECTIONS)



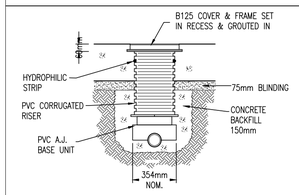
SECTION C – C

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DIMENSION X IS THE EXTERNAL DIAMETER OF THE PIPE (ø225 = 301mm, ø450 = 588mm & WIDER AT SOCKETS).
3. THE MINIMUM AND MAXIMUM WIDTH OF THE TRENCH APPLIES ON AND BELOW A LINE 300mm ABOVE THE OUTSIDE TOP OF THE PIPE. ABOVE THE 300mm LINE THE TRENCH BACKFILL MATERIAL SHALL BE AS PER TYPICAL TRENCH DETAILS.
4. BEDDING TO BE COMPACTED IN ACCORDANCE WITH SPECIFICATION & MANUFACTURERS RECOMMENDATIONS

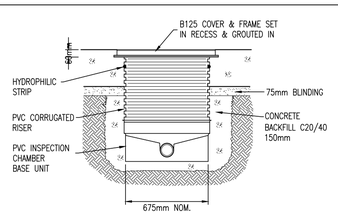
TYPE Z
CONCRETE BEDDING/SURROUND
(COVER 750mm – 1200mm)

DETAIL 1C



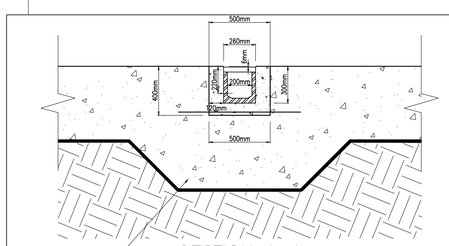
A.J. DETAIL(450mm MAX DEPTH)
SCALE 1:25

DETAIL 1D

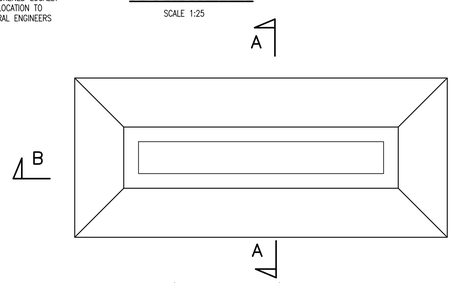


INSPECTION CHAMBER(1200mm MAX DEPTH)
SCALE 1:25

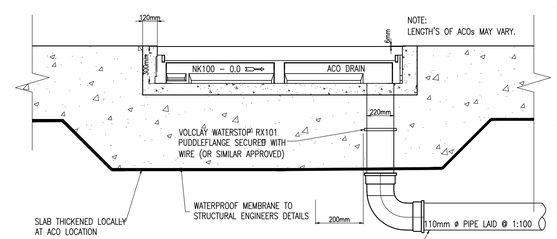
DETAIL 1E



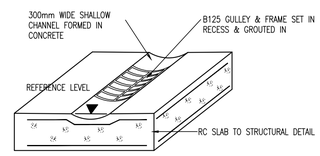
SECTION A–A
SCALE 1:25



ACO DRAIN (NK100 0.0) IN 300mm SLAB
SCALE 1:25



SECTION B–B
SCALE 1:10



SLAB CHANNEL
NTS

DETAIL 1H

WARNING

1. IF UNCERTAIN OF A DETAIL OR NOTE. DO NOT PROCEED UNTIL CLARIFICATION IS SOUGHT FROM THE ENGINEER AND SUITABLE INFORMATION PROVIDED
2. ALL ANOMALIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY TO ALLOW TIME FOR REMEDIAL ACTION

rev	date	description	by	chkd.
P01	02-12-20	PLANNING	BS	NJF

client approval
- A - Approved
- B - Approved with comments
- C - Do not use

suitability: S2 - INFORMATION
issue purpose: PLANNING

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project ref.
CASTLEFORBES DEVELOPMENT

drawing title
TYPICAL DRAINAGE DETAILS SHEET 1

client
GLENVEAGH

designed by	author	scale	sheet size
NJF	BS	AS SHOWN	A1

drawing no. 180159-3110
revision P01