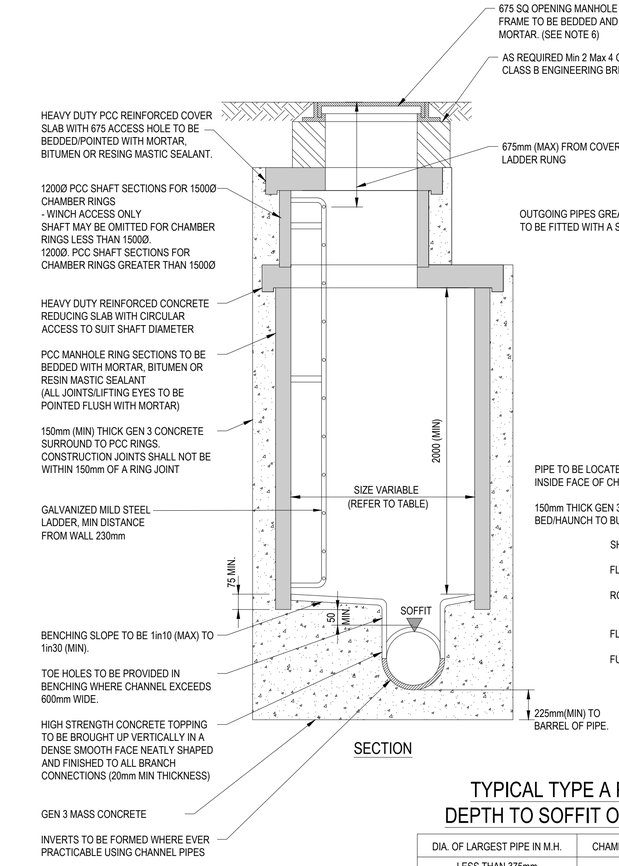
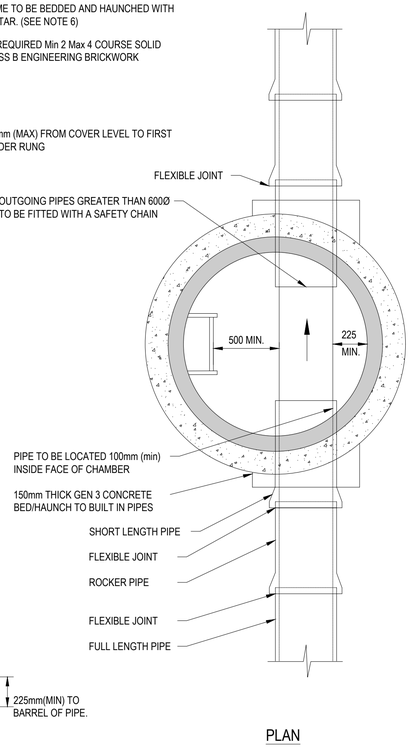
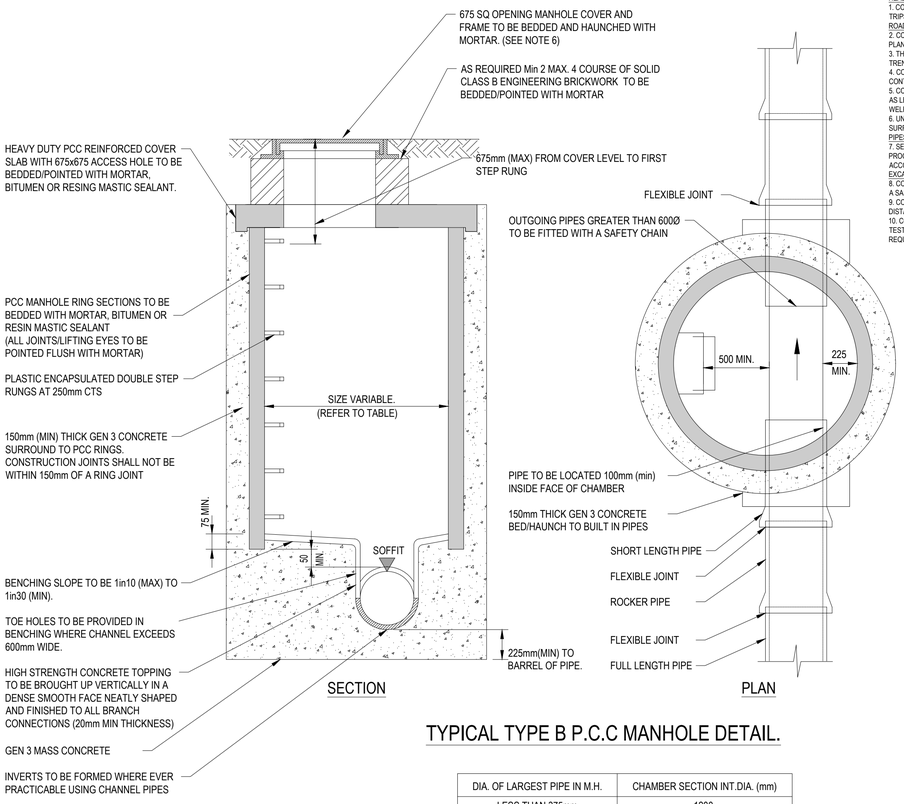




TYPICAL TYPE A P.C.C. MANHOLE DETAIL
DEPTH TO SOFFIT OF PIPE 3000mm TO 6000mm

DIA. OF LARGEST PIPE IN M.H.	CHAMBER SECTION INT.DIA. (mm)
LESS THAN 375mm	1200
375 TO 700	1500
750 TO 900	1800
GREATER THAN 900	CONSULT UNDERTAKER

TABLE APPLICABLE TO P.C.C. MANHOLE TYPES - WITH LADDERS
(CHAMBER SIZES ARE MINIMUM REQUIRED)



TYPICAL TYPE B P.C.C MANHOLE DETAIL.

NOMINAL SIZE	EFFECTIVE LENGTH (mm)
150 TO 600	600
675 TO 750	1000
825 AND ABOVE	1250

SHORT AND ROCKER PIPE LENGTHS TABLE
APPLICABLE TO ALL MANHOLE TYPES

DIA. OF LARGEST PIPE IN M.H.	CHAMBER SECTION INT.DIA. (mm)
LESS THAN 375mm	1200
375 TO 700	1500
750 TO 900	1800
GREATER THAN 900	CONSULT UNDERTAKER

TABLE APPLICABLE TO P.C.C. MANHOLE TYPES - WITH DOUBLE STEP RUNGS
(CHAMBER SIZES ARE MINIMUM REQUIRED)

HEALTH & SAFETY
1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.
ROADS & DRAINAGE
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY SCOTTISH WATER APPROVED CONTRACTOR ONLY.
5. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WEILS DISEASE) AND RECOMMENDED PRECAUTIONS. ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.
PIPES & CABLES
7. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.
EXCAVATION/FILL
8. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
9. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
10. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.

NOTES:-

1. ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION CURRENT SEWER CONSTRUCTION GUIDELINES AND ADOPTING WATER AUTHORITY/SEWERAGE AGENCY REQUIREMENTS AND SPECIFICATIONS.

2. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2002 EDITION.

3. CONTRACTOR TO ESTABLISH POSITION SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.

4. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.

5. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.

6. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.

7. PIPES UP TO AND INCLUDING 300mmØ TO BE UNPLASTICISED PVC. PIPES 375mmØ AND GREATER TO BE CONCRETE CLASS H.

8. INSITU AND PRECAST CONCRETE UNITS SHALL HAVE SULPHATE RESISTING PORTLAND CEMENT TO BS 4027, UNLESS AGREED OTHERWISE WITH THE ADOPTING AUTHORITY.

9. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED.
CONCRETE PIPES TO BE CLASS H UNLESS NOTED OTHERWISE.

10. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124, HAVE MINIMUM 675 x 675 CLEAR OPENINGS WITH 150 DEEP FRAMES UNLESS OTHERWISE SPECIFIED. MANHOLE COVERS AND FRAMES TO BE OF A NON-ROCKING DESIGN WITHOUT CUSHION INSERTS AND BE KITEMARKED. LOAD CLASS D400 IN VEHICULAR TRAFFICKED AREAS AND LOAD CLASS B125 IN FOOTWAYS AND PEDESTRIAN AREAS.

11. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS REGULARLY CARRYING FAST MOVING HEAVY VEHICLES. CLASS C250 TO BE USED IN LESSER TRAFFICKED AREAS eg. ESTATE ROADS, CUL-DE-SACS, RESIDENTIAL CAR PARKING AREAS ETC.

12. CLASS Z BEDDING DETAIL SHALL BE PROVIDED WHERE COVER TO THE PIPE BARREL IS LESS THAN 1.2M IN VEHICULAR TRAFFICKED AREAS AND 0.9M ELSEWHERE, TO ALL ROAD GULLY CONNECTIONS AND WITHIN AREAS OF DEEP ROOTING VEGETATION.

13. WHERE CLASS Z TRENCH BEDDING DETAIL IS USED. THE CONCRETE BED AND SURROUND SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION BY MEANS OF A SHAPED COMPRESSIBLE FILLER.

14. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM MATERIAL FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS, ORGANIC MATTER AND FROZEN SOIL. SELECTED BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 225mm, EACH LAYER COMPACTED TO FORM A STABLE TRENCH BACKFILL.

15. GENERAL BACKFILL MATERIAL TO BE FREE FROM STONES LARGER THAN 40mm. GENERAL BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS AND EACH LAYER COMPACTED BY HAND. NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300mm ABOVE THE CROWN/BARREL OF THE PIPE.

16. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY, OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE REQUIREMENTS OF "THE STREET WORKS REGULATIONS 1992" AND RELEVANT PROVISIONS OF H.A.U.C. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" JUNE 1992, BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.

17. BACKFILL TO DRAINAGE TRENCHES IN HARD PAVED AREAS SHALL BE G.S.B. TYPE 1.

18. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUTED, ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.

19. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.

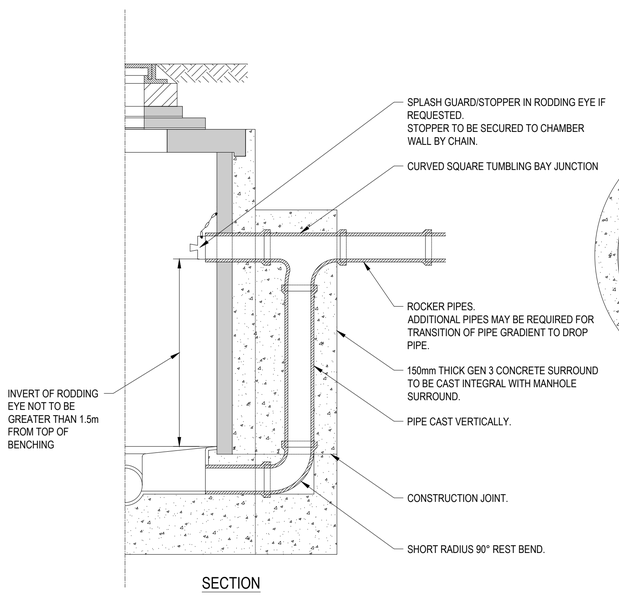
20. ANY EXISTING DRAINAGE WHICH BECOMES UNDER TRAFFICKED AREAS IN THE NEW SCHEME SHOULD BE SUBJECT TO THE FOLLOWING REMEDIALS/REVISIONS. WHERE DEPTH OF COVER IS LESS THAN 1200MM, THE EXISTING PIPEWORK SHALL BE EXPOSED & SURROUNDED WITH 150MM CONCRETE AS CLASS "Z" BEDDING. WHERE THE EXISTING MANHOLE COVER & FRAME IS NOT AS MANHOLE DETAIL A OR B, OR TO BS497 GRADE A, OR EN124 CLASS D, THEN IT SHOULD BE CHANGED FOR SUCH.

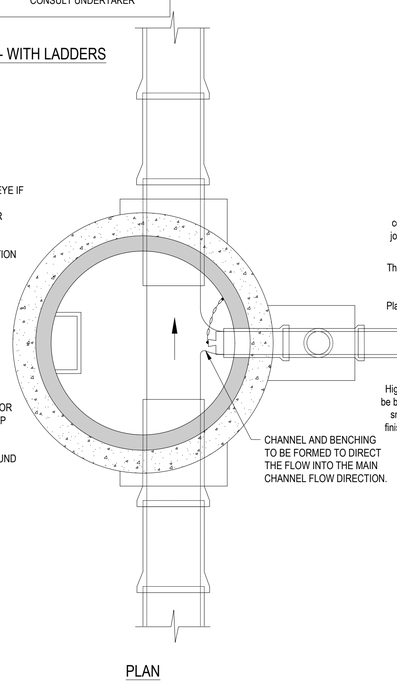
21. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.

22. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.

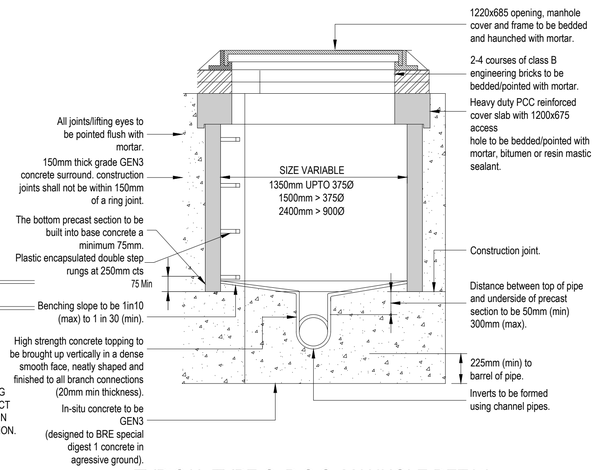
23. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES, PRIOR TO COMMENCING WORKS.

24. CONTRACTOR TO CCTV SURVEY ALL NEW DRAINAGE ON COMPLETION OF WORKS.

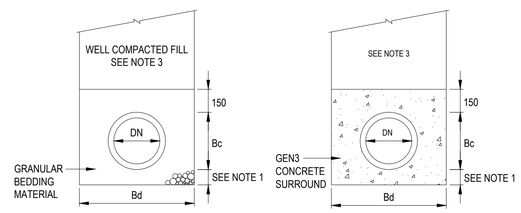




TYPICAL VERTICAL BACKDROP MANHOLE DETAIL
(NOTE: CONSTRUCTION DETAILS AS STANDARD PPC MANHOLE.)



TYPICAL TYPE C P.C.C. MANHOLE DETAIL
DEPTH TO SOFFIT OF PIPE 1000 TO 1500m
(NON-MAN ENTRY)



1. THIS DIMENSION TO BE 1/6 Bc OR 150mm WHICHEVER IS THE GREATER, OR IN THE CASE OF ROCK, OR WHERE IRREGULAR HARD SPOTS MAY OCCUR, THE DIMENSION IS TO BE 1/4 Bc OR 200mm WHICHEVER IS THE GREATER, BUT IN ANY CASE NOT LESS THAN 50mm UNDER THE SOCKETS.
2. SELECTED BACKFILL IS TO BE FREE FROM VEGETABLE MATTER, RUBBISH AND FROZEN SOIL, AND IS TO EXCLUDE STONES AND LUMPS RETAINED ON A 40mm SIEVE, HAND COMPACTED IN LAYERS NOT EXCEEDING 150mm.
3. WHERE PIPELINES RUN UNDER PAVED/TRAFFICKED AREAS, BACKFILL TO THE TRENCH TO BE D.O.T. TYPE 1 SUB-BASE, CONSOLIDATED IN 150mm LAYERS UP TO THE UNDERSIDE OF THE PAVEMENT CONSTRUCTION.

1. THIS DIMENSION TO BE 1/6 Bc OR 150mm WHICHEVER IS THE GREATER, OR IN THE CASE OF ROCK, OR WHERE IRREGULAR HARD SPOTS MAY OCCUR, THE DIMENSION IS TO BE 1/4 Bc OR 200mm WHICHEVER IS THE GREATER, BUT IN ANY CASE NOT LESS THAN 50mm UNDER THE SOCKETS.
2. PIPELINE FLEXIBILITY IS TO BE RETAINED BY INTERRUPTING THE CONCRETE SURROUND OVER ITS FULL CROSS-SECTION AT EVERY JOINT, BY A COMPRESSIBLE FILLER WHICH IS TO COINCIDE WITH PIPE JOINTS.
3. WHERE PIPELINES RUN UNDER PAVED/TRAFFICKED AREAS, BACKFILL TO THE TRENCH TO BE D.O.T. TYPE 1 SUB-BASE, CONSOLIDATED IN 150mm LAYERS UP TO THE UNDERSIDE OF THE PAVEMENT CONSTRUCTION.

CLASS S BEDDING | CLASS Z BEDDING

NOMINAL SIZE OF PIPE DN(mm)	RECOMMENDED OVERALL TRENCH WIDTH Bd(m)	PIPE BEDDING REQUIREMENT (mm)
150	0.60	10 OR 14 NOM. SINGLE SIZE OR 14 TO 5 GRADED
225	0.70	10, 14 OR 20 NOM. SINGLE SIZE OR 14 TO 5 GRADED OR 20 TO 5 GRADED
300	0.85	

Bd IS THE TRENCH WIDTH AT THE CROWN OF THE PIPE

SUBJECT TO THE APPROVAL OF ALL RELEVANT AUTHORITIES

Rev.	Revision Notes	Date	Drawn By	Checked | Approved
P01	INITIAL ISSUE	24/11/23	MP	-- | --

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CLIENT
LOVELL

PROJECT
MILL LANE
WHITBURN

TITLE
TYPICAL DRAINAGE DETAILS

HYDROCK PROJECT NO.	SCALE @ A1
C-29128	NTS

STATUS DESCRIPTION	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
29128-HYD-XX-XX-DR-C-1001	P01