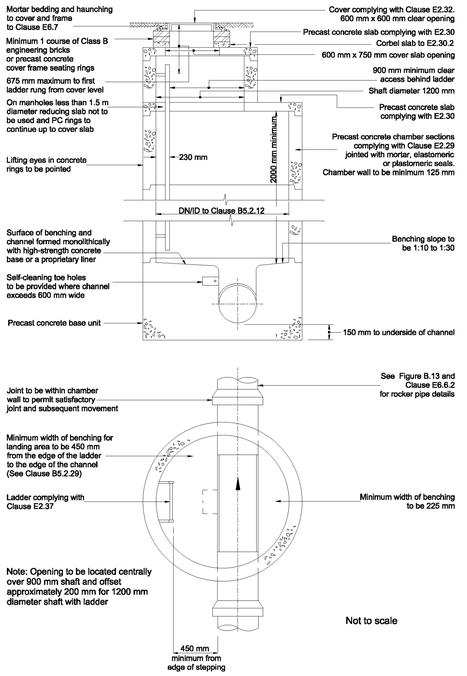
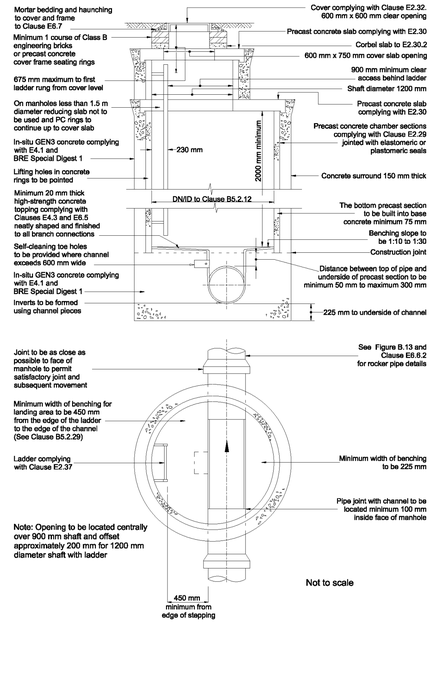
Typical manhole detail – Type A1
Depth from cover level to soffit of pipe 3 m to 6 m with ladder and reducing slab
Rigid material construction without concrete surround



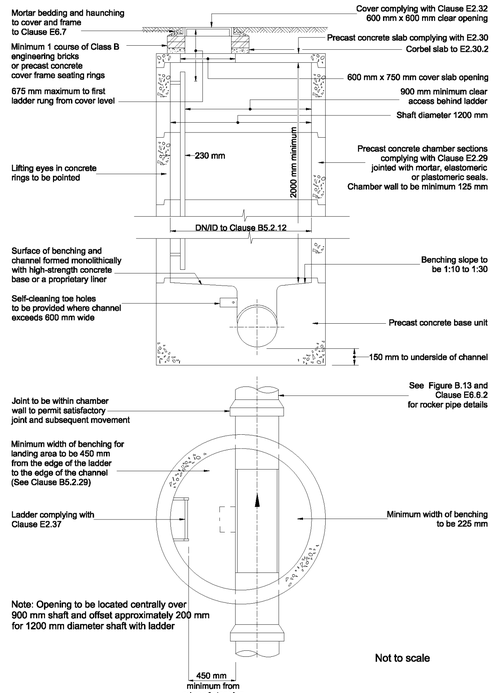
Not to scale

Typical manhole detail – Type A1
Depth from cover level to soffit of pipe 3 m to 6 m with ladder and reducing slab
Rigid material construction with concrete surround



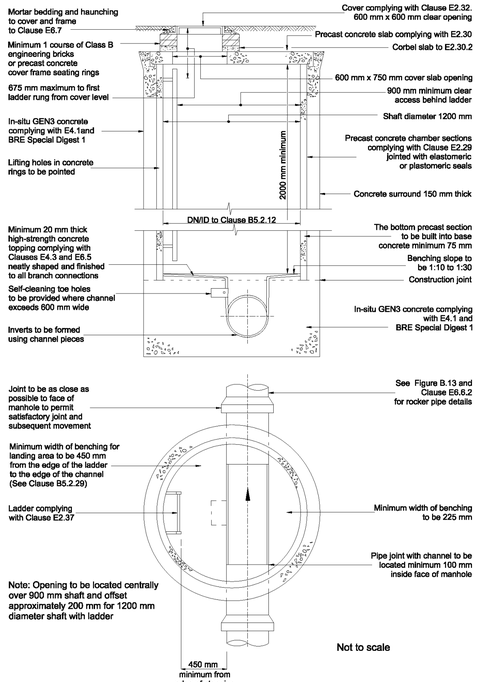
Not to scale

Typical manhole detail – Type A2
Depth from cover level to soffit of pipe 3 m to 6 m with ladder
Rigid material construction without concrete surround



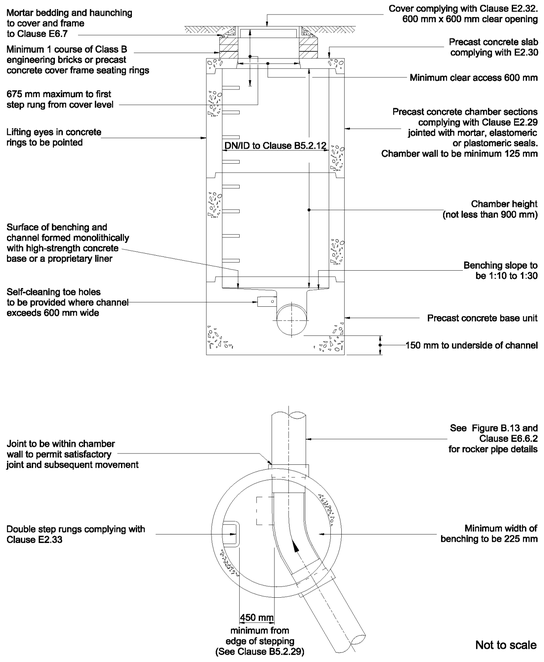
Not to scale

Typical manhole detail – Type A2
Depth from cover level to soffit of pipe 3 m to 6 m with ladder
Alternative rigid material construction with concrete surround



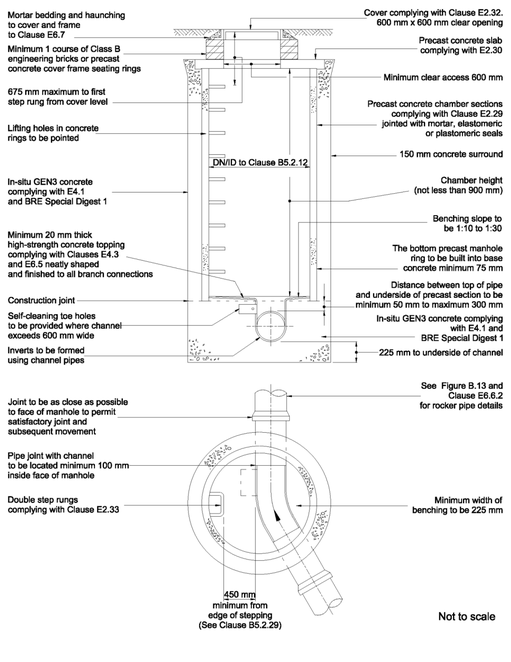
Not to scale

Typical manhole detail – Type B
Depth from cover level to soffit of pipe 1.5 m to 3 m
Rigid material construction without concrete surround



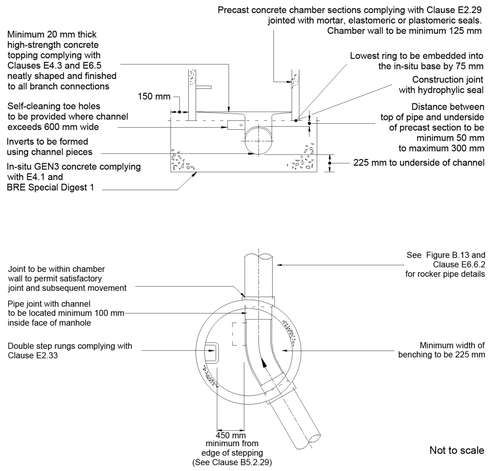
Not to scale

Typical manhole detail – Type B
Depth from cover level to soffit of pipe 1.5 m to 3 m
Alternative rigid material construction with concrete surround



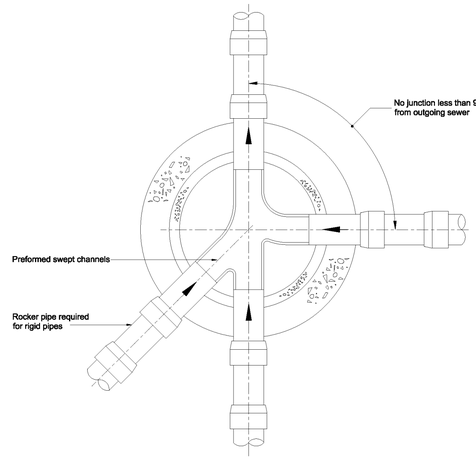
Not to scale

Alternative base detail for Type A and Type B manholes without concrete surround



Not to scale

Typical arrangement of pipe junctions within manholes



Sectional Plan

Rigid pipes built into manhole should have a flexible joint as close as feasible to the external face of the structure and the length of the next rocker pipe should be as shown.

Nominal diameter (mm)	Maximum effective length (m)
150 - 600	0.6
601 - 750	1.00
over 750	1.25

All pipes entering the bottom of the manhole to have soffits level.

NOTES:

1. FOR GENERAL NOTES REFER TO RENAISSANCE DRAWING STM-REN-00-FN-DR-C-01100. FOR DRAINAGE NOTES REFER TO C-03100 SERIES.
2. DO NOT SCALE FROM THIS DRAWING. ANY AMBIGUITIES OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS TO BE CHECKED/ VERIFIED ON SITE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RENAISSANCE, ARCHITECTS, LANDSCAPE ARCHITECTS AND BUILDING SERVICES ENGINEERS DRAWINGS.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNO
5. ALL BELOW GROUND DRAINAGE WORKS TO BE IN ACCORDANCE WITH RELEVANT BUILDING REGULATIONS AND SEWER SECTOR GUIDANCE APPENDIX C- DESIGN AND CONSTRUCTION GUIDANCE. IF DISCREPANCIES ARE NOTED BETWEEN SSG AND DRAWINGS THESE SHOULD BE BROUGHT TO THE ATTENTION OF RENAISSANCE FOR REVIEW.
6. THE CHAMBER SIZE OF PCC MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
7. MANHOLE COVERS ARE TO BE ACCORDANCE WITH BS EN 124 FOR THE RATING INDICATED IN THE MANHOLE SCHEDULE. THE CONTRACTOR IS TO SUBMIT DETAILS FOR THE PROPOSED MANHOLE COVERS TO THE ENGINEER AND LANDSCAPE ARCHITECT FOR REVIEW PRIOR TO INSTALLATION.
8. ALL INTERNAL COVERS TO BE RECESSED AND TRIPLE SEALED
9. COVER SLABS MUST CARRY THE BSI KITEMARK. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOAD BEARING REDUCING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO REQUIRED SIZE.
10. ALL SEWERS TO BE BSI KITEMARK (CERTIFIED TO WIS 4-35-01)
11. ALL CONCRETE PIPES TO BE TO ES EN 1916 CLASS 120 (54kN/m).
12. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENTS OF THE WATER INDUSTRY SPECIFICATION 4-08092 (TABLE A2).
13. IF PLASTIC PIPES ARE TO BE USED THEN THE FOLLOWING MUST APPLY:
    A.BSI KITEMARK (CERTIFIED TO BS EN 13476-1 AND WIS 4-35-01)
    B.PIPES LESS THAN OR EQUAL TO 500mm DIA.
    C.BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENTS OF THE WATER INDUSTRY SPECIFICATION 4-08092 (TABLE A2)
14. THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100mm DIA. 40kN/m, 150mm DIA. 40kN/m, 225mm DIA. 45kN/m AND 300mm DIA. 72kN/m.
15. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE - (CLASS 120 TO EN 1916/BS5911-1 2002). PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN13476.
16. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVIDING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
17. CONCRETE BENCHING AND PIPE SURROUND SHALL BE PLACED IN SINGLE CONTINUOUS OPERATION FROM TOP OF BASE SLAB TO TOP OF BENCHING AND PIPESURROUND.
18. CONNECTION INTO MANHOLES SHALL BE CONSTRUCTED WITH THE SOFFITS AT THE LEVEL UNLESS DETAILED DIFFERENTLY ON CONTRACT DRAWINGS.
19. METALWORK
    LADDERS, HANDRAILING AND SAFETY CHAIN REFER TO DETAILS
20. CONCRETE SURROUND TO MANHOLES
    A CONCRETE SURROUND IS NOT NORMALLY REQUIRED TO UNLESS INSTALLED IN AREAS OF UNSTABLE GROUND, UNDER CONDITIONS OF FLOTATION OR WHERE SUBJECTED TO EXCEPTIONAL OR ECCENTRIC LOADS. IN WHICH CASES A 150 SURROUND OF AT LEAST 20 N/mm CONCRETE SHALL BE PROVIDED. ANY JOINTS SHOULD BE STAGGERED WITH PRECAST CONCRETE JOINTS
21. CUT ENDS OF REINFORCED CONCRETE PIPES SHALL BE TREATED WITH EPOXY RESIN PAINT/MORTAR
22. MINIMUM LENGTH OF CHANNEL (X Min)

CHAMBER DIA	"X" Min
1200	950
1500	1050
1800	1150
2100	1300
2400	1450
2700	1550
3000	1700

23. DOUBLE STEPS SHALL BE PLASTIC ENCAPSULATED CARBON STEEL TO BS EN 1247-2. DOUBLE STEPS SHALL NOT BE USED WHERE COVER-TO-SOFFIT DIMENSION IS >3.0m
24. COVER AND FRAME
    150mm DEEP COVERS ARE TO BE USED IN CATEGORY 1,2, 3 ROADS
    100mm DEEP COVERS ARE TO BE USED IN CATEGORY 4 ROADS.
    FRAME TO BE SET AS PER SPECIFICATION
25. CONCRETE
    ALL IN-SITU CONCRETE TO BE DC - 3 OR FND3.

Rev:	Description:	Date:	By:	Chkd:
P02	STAGE 4	14.05.24	JB	AI
P01	STAGE 3	15.02.23	HW	AI

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Project:
ST MICHAELS, MANCHESTER

Drawing Title:
BELOW GROUND DRAINAGE DETAILS SHEET 1

Status:
STAGE 4

Size:	Date:	Drawn by:	Designed by:	Checked by:
A1	FEB 23	HW		AI

Scale: NTS | Project No: 2203-05

Project - Originator - Volume - Level - Type - Role - Number: STM-REN-00-FN-DR-C-03100 | Revision: P02

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