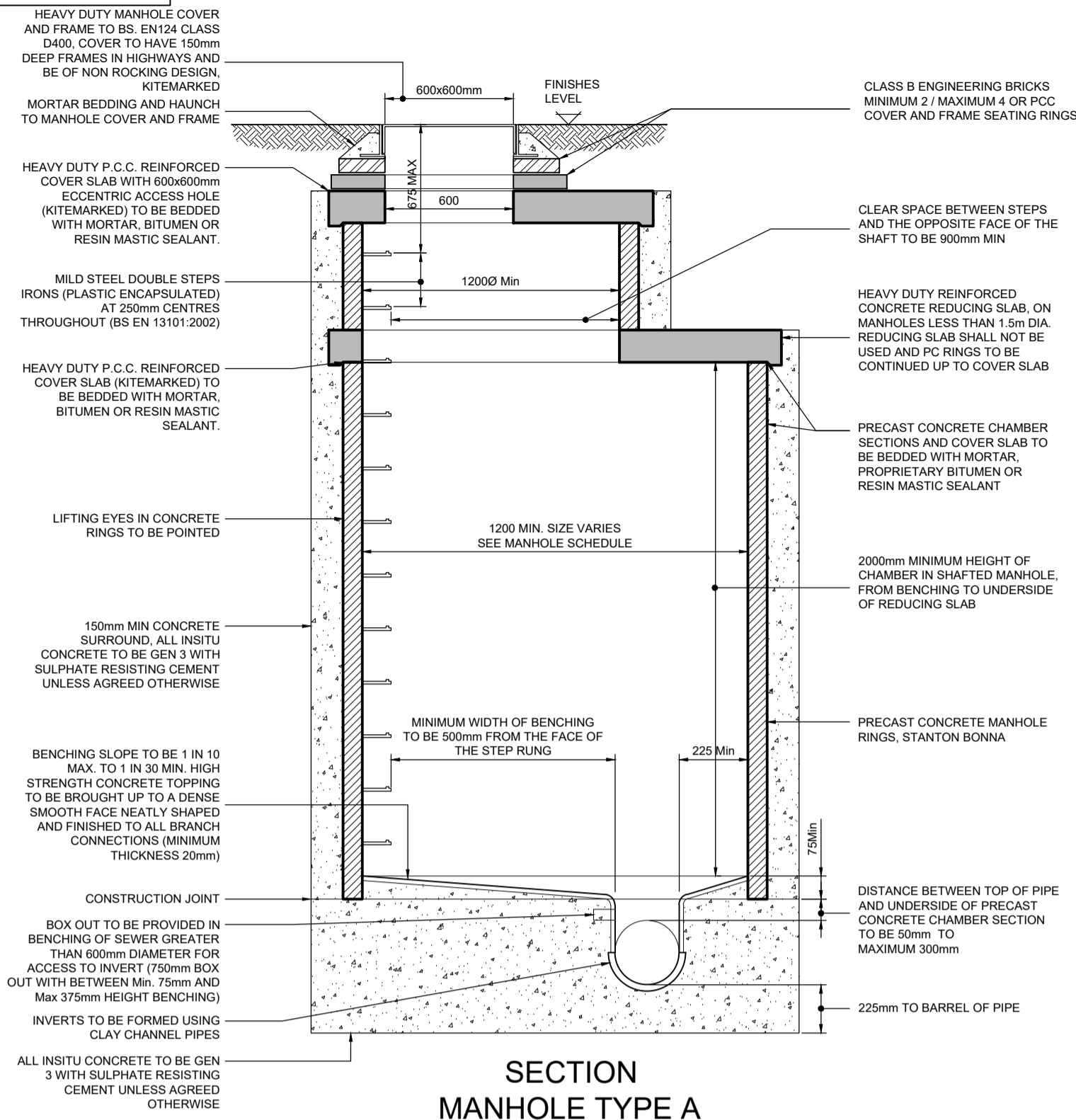
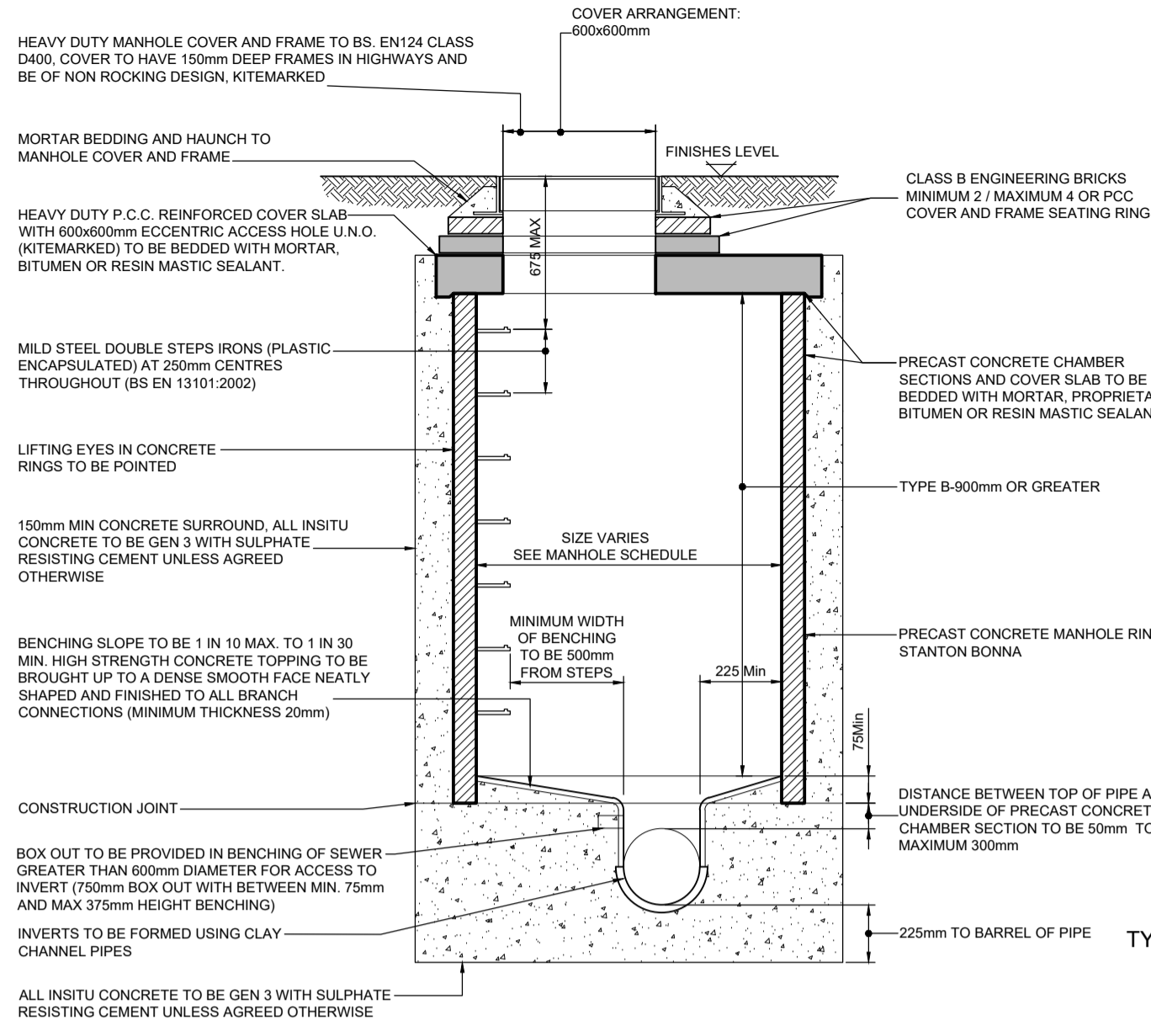


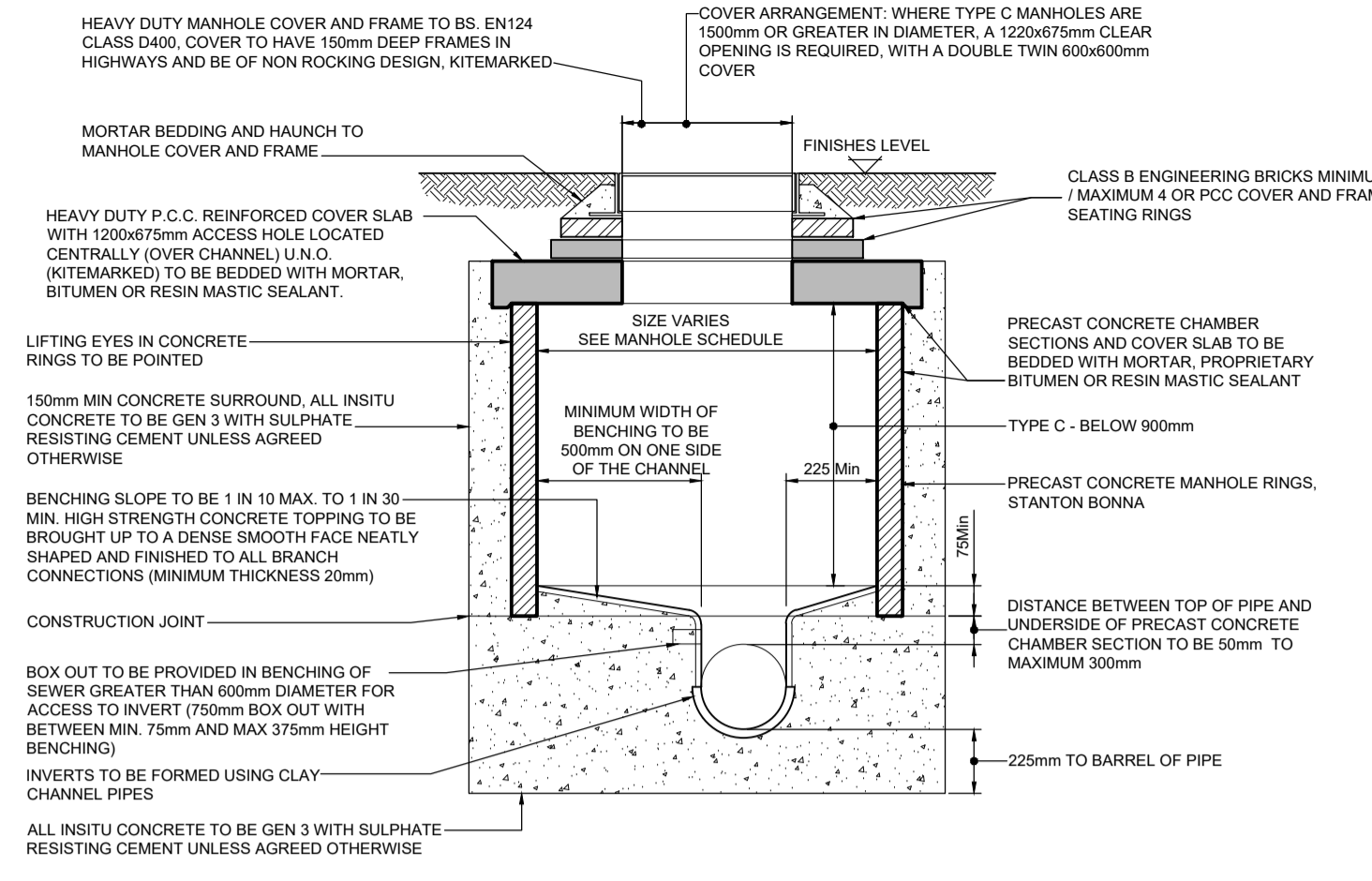
H-?-?-?-???



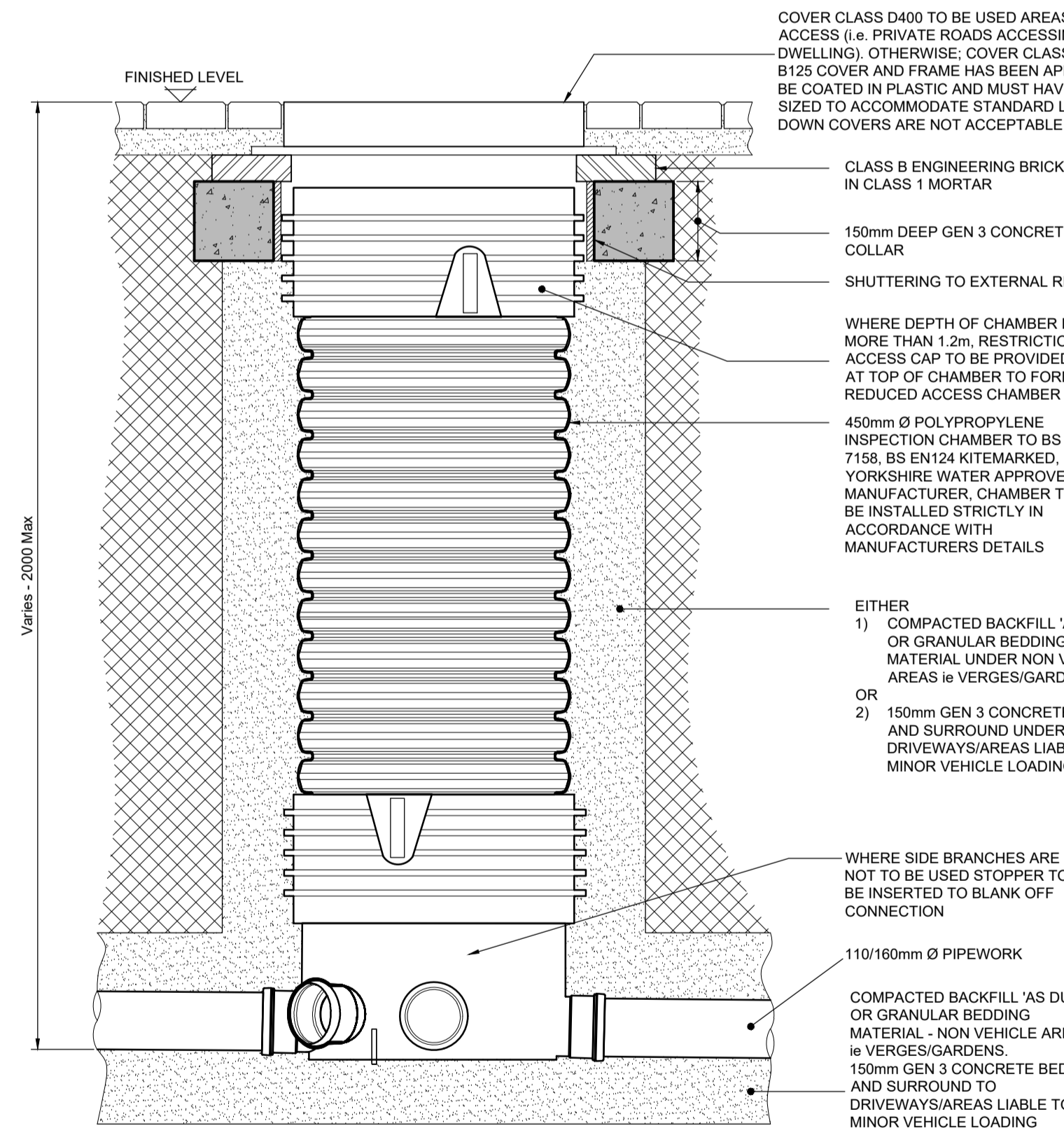
SECTION MANHOLE TYPE A FOR USE WHERE DEPTH FROM COVER TO SOFFIT IS BETWEEN 3.0m & 6.0m



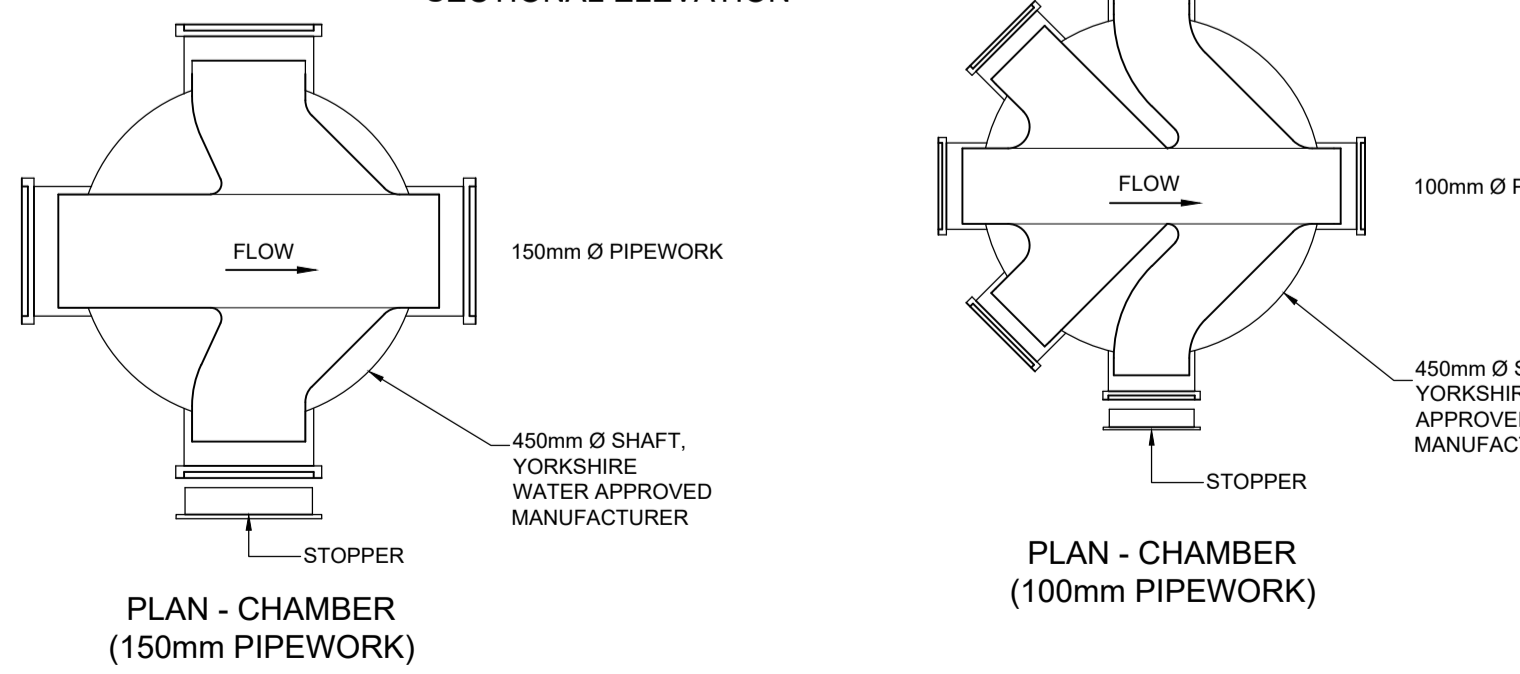
SECTION MANHOLE TYPE B - DEPTH 1.5-3.0m SOFFIT



SECTION MANHOLE TYPE C - DEPTH LESS THAN 1.5m SOFFIT



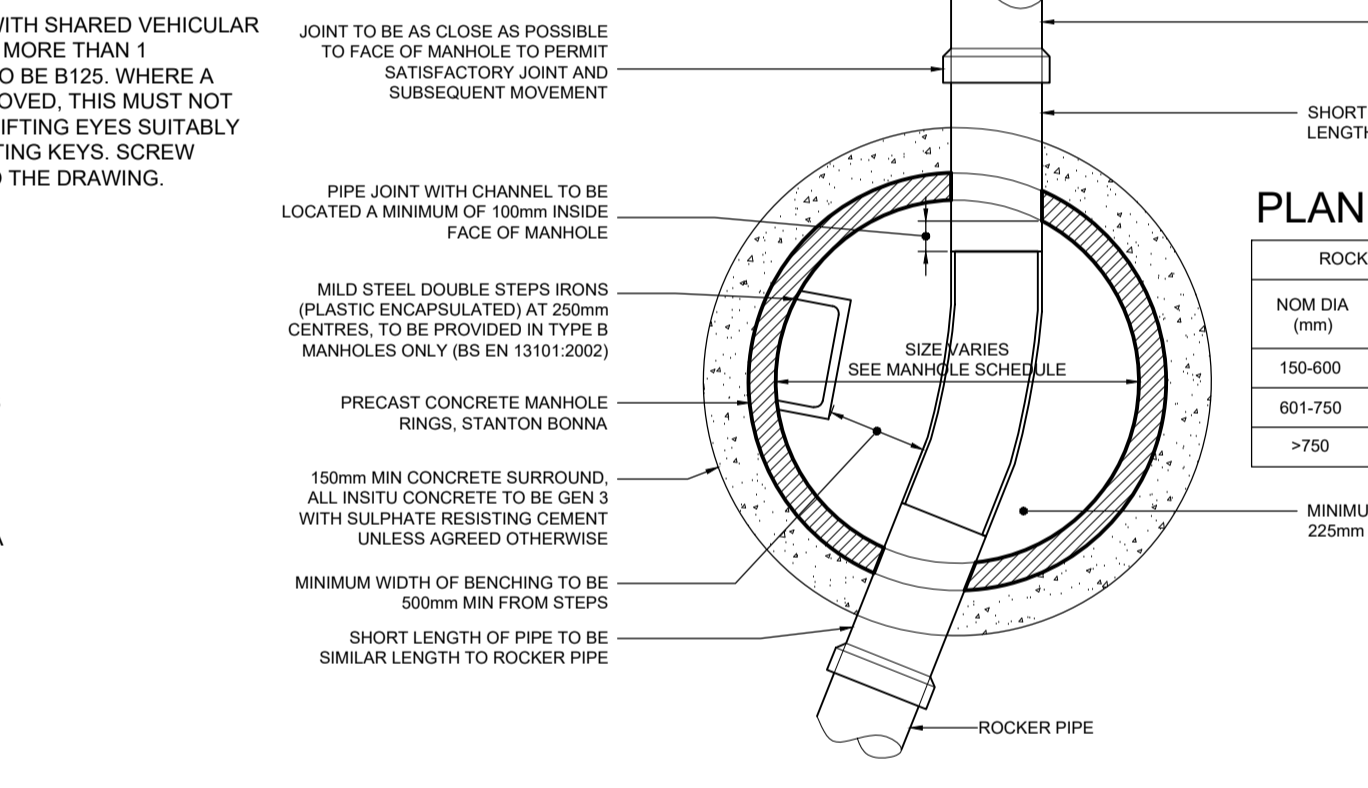
SECTIONAL ELEVATION



PLAN - CHAMBER (150mm PIPEWORK)

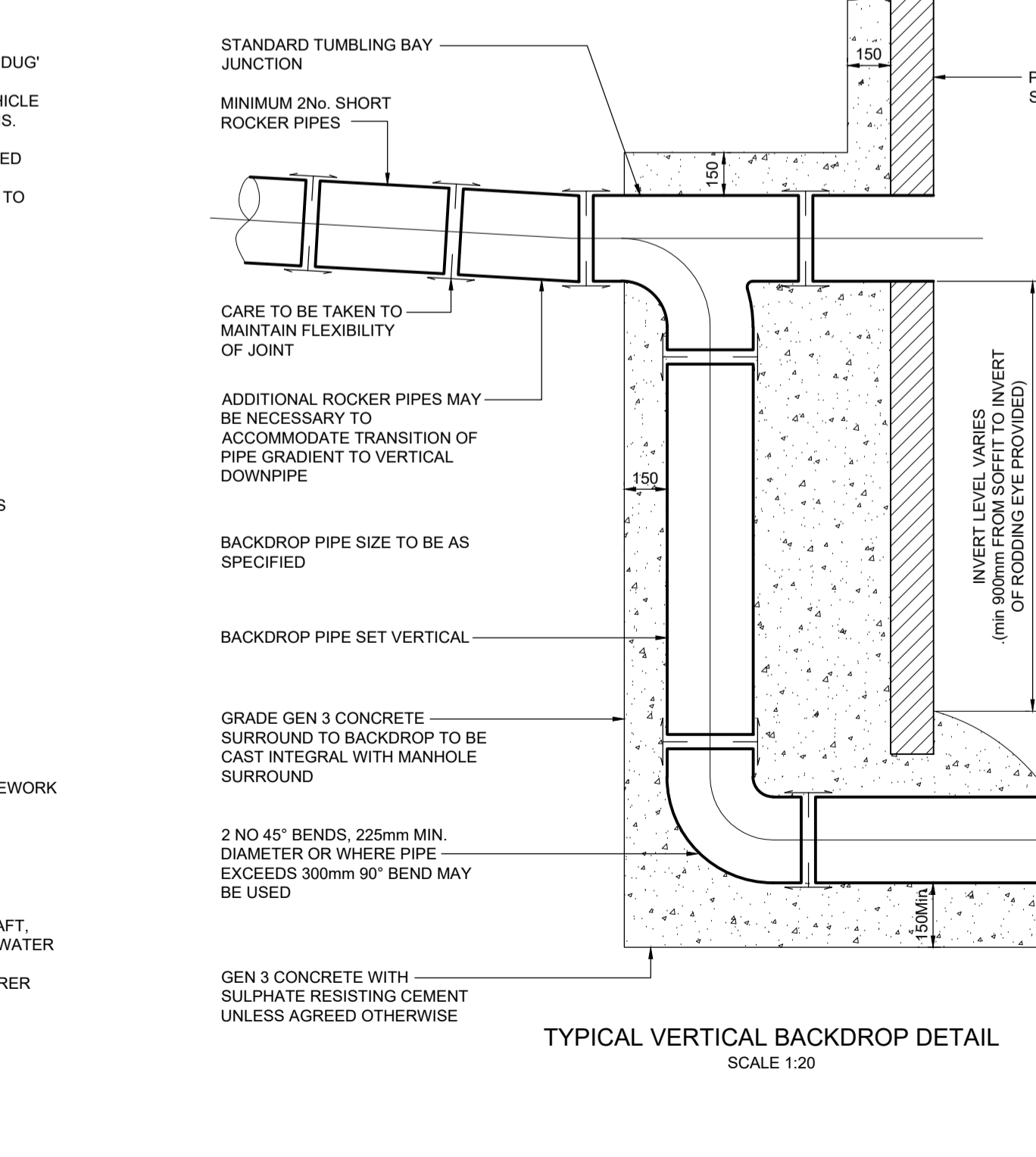
PLAN - CHAMBER (100mm PIPEWORK)

DEMARCATON CHAMBER CONSTRUCTION DETAIL POLYPROPYLENE INSPECTION CHAMBER (PPIC) SCALE 1:10

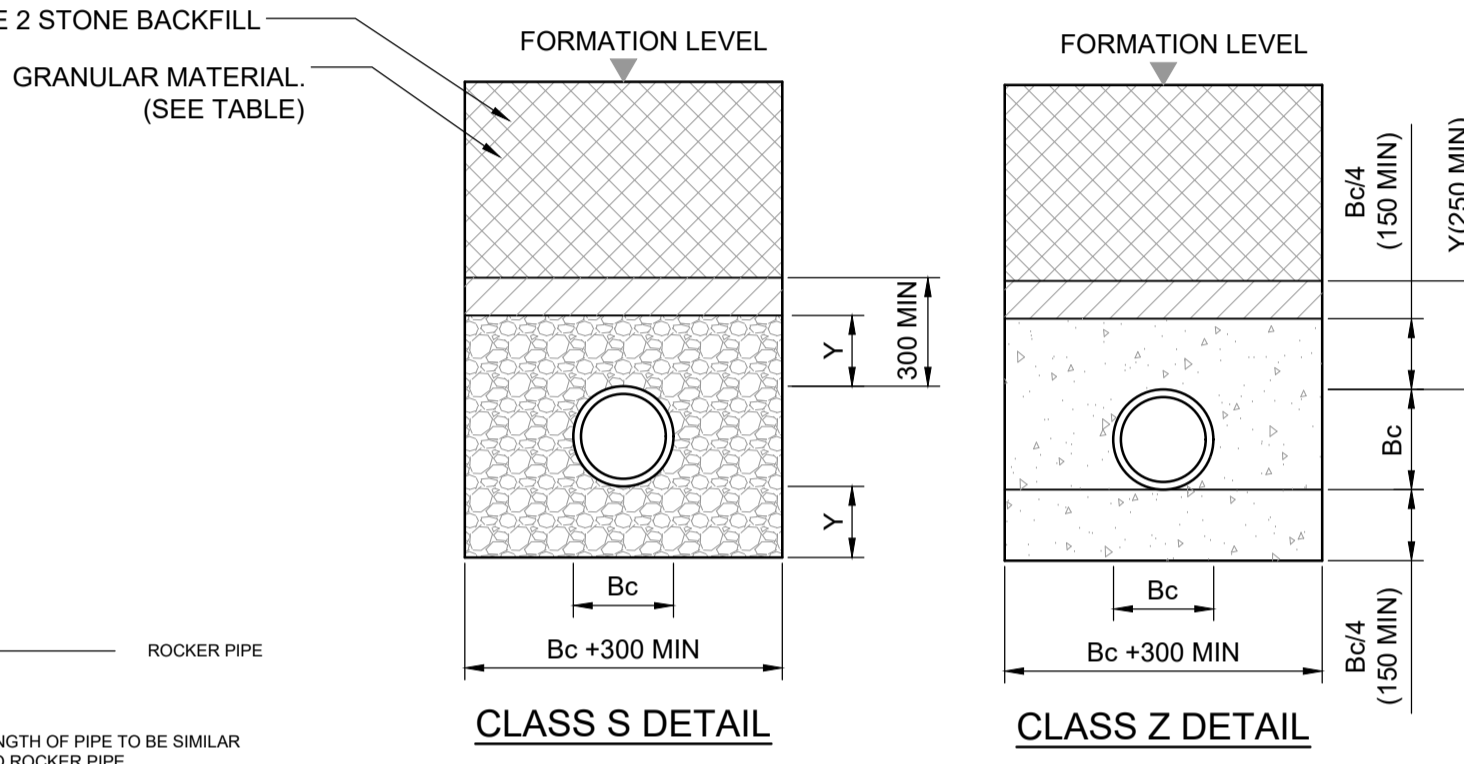


ROCKER PIPE LENGTH

NOM DIA (mm)	EFFECTIVE LENGTH (m)
150-600	0.60
601-750	1.00
>750	1.25



TYPICAL VERTICAL BACKDROP DETAIL SCALE 1:20



NOTE:

A) Bc = OUTSIDE DIAMETER OF PIPE BARREL

B) Y = FOR UNIFORM SOILS:

Y = Bc/6, WITH MIN. 100mm UNDER BARRELS (MIN. 50mm FOR SLEEVE JOINTED) AND Bc/6 OR MIN. 50mm UNDER SOCKETS, WHICHEVER IS THE GREATER, WITH MAX. OF 400mm

C) Y = FOR ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, STONES OR OTHER IRREGULAR HARD SPOTS:

Y = Bc/4, WITH MIN. 200mm UNDER BARRELS (MIN. 150mm FOR SLEEVE JOINTED) AND Bc/4 OR MIN. 150mm UNDER SOCKETS, WHICHEVER IS THE GREATER, WITH MAX. OF 400mm

NOMINAL PIPE DIA (mm)	SINGLE SIZED (mm)	GRADED (mm)
100	10	N/A
OVER 100 TO 150	10 OR 14	14 TO 5
OVER 150 TO 300	10, 14 OR 20	14 TO 5 OR 20 TO 5
OVER 300 TO 550	14 OR 20	14 TO 5 OR 20 TO 5
GREATER THAN 550	14, 20 OR 40	14 TO 5, 20 TO 5 OR 40 TO 5

PLAN - TYPICAL

NOTE:

A) Bc = OUTSIDE DIAMETER OF PIPE BARREL

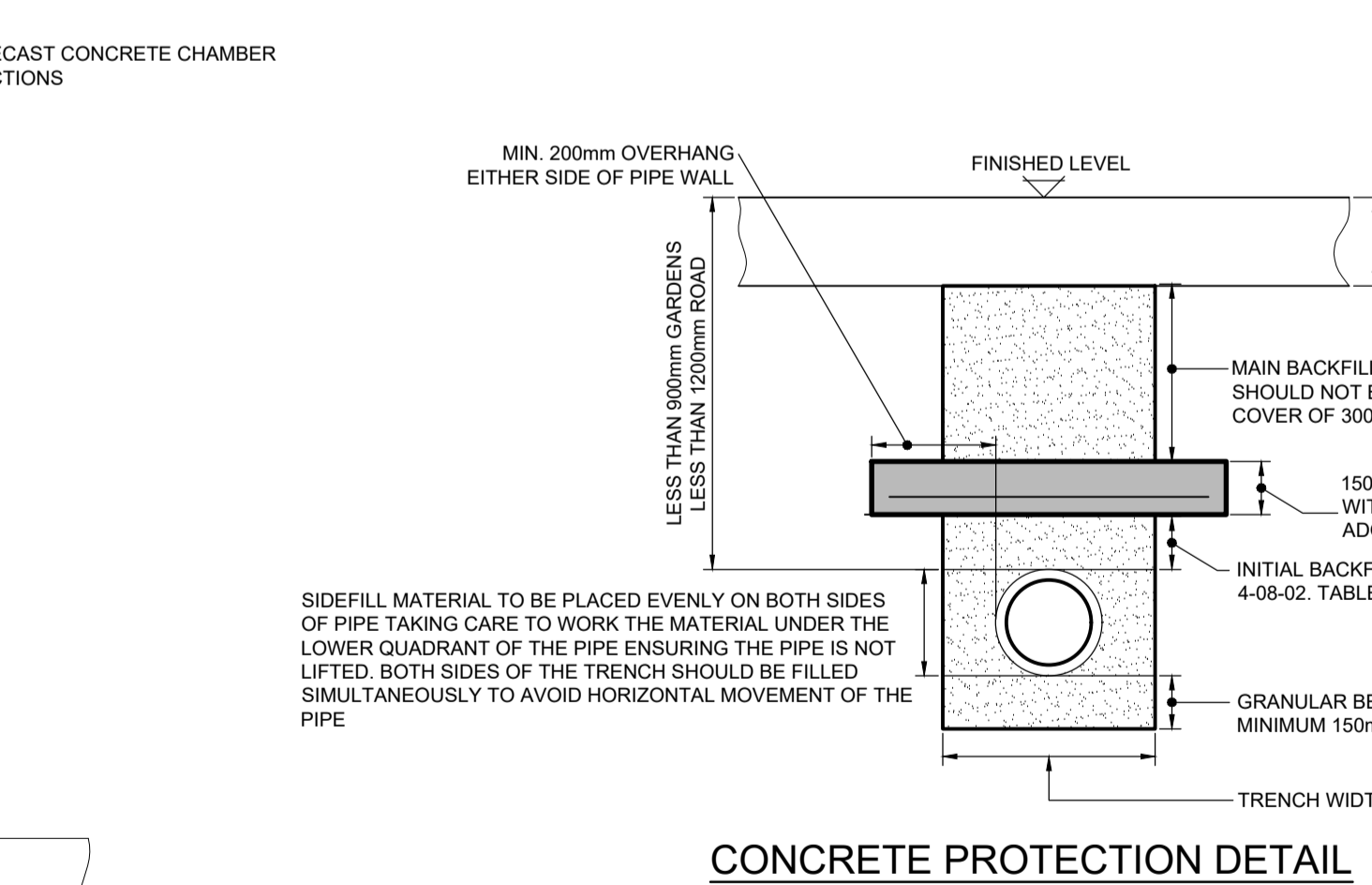
B) Y = FOR UNIFORM SOILS:

Y = Bc/6, WITH MIN. 100mm UNDER BARRELS (MIN. 50mm FOR SLEEVE JOINTED) AND Bc/6 OR MIN. 50mm UNDER SOCKETS, WHICHEVER IS THE GREATER, WITH MAX. OF 400mm

C) Y = FOR ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, STONES OR OTHER IRREGULAR HARD SPOTS:

Y = Bc/4, WITH MIN. 200mm UNDER BARRELS (MIN. 150mm FOR SLEEVE JOINTED) AND Bc/4 OR MIN. 150mm UNDER SOCKETS, WHICHEVER IS THE GREATER, WITH MAX. OF 400mm

NOMINAL PIPE DIA (mm)	SINGLE SIZED (mm)	GRADED (mm)
100	10	N/A
OVER 100 TO 150	10 OR 14	14 TO 5
OVER 150 TO 300	10, 14 OR 20	14 TO 5 OR 20 TO 5
OVER 300 TO 550	14 OR 20	14 TO 5 OR 20 TO 5
GREATER THAN 550	14, 20 OR 40	14 TO 5, 20 TO 5 OR 40 TO 5



CONCRETE PROTECTION DETAIL

GRANULAR BEDDING MATERIAL - RIGID PIPES WIS 4-08-02 PROCESSED GRANULAR MATERIALS TO INCLUDE AGGREGATES TO BS880, AIR COOLED BLASTFURNACE SLAG TO BS1047 AND LIGHTWEIGHT AGGREGATES TO BS 3797

YORKSHIRE WATER NOTES:

- ALL ADAPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH CODE FOR ADOPTION. THE RELEVANT BRITISH EUROPEAN AND YORKSHIRE WATER'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
- MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.
- FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
- YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAIN/LAND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADAPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LAISE WITH THE LOCAL AUTHORITY, LAND DRAINAGE SECTION REGARDING THE DISPOSAL OF THE FILTER DRAIN/LAND DRAINAGE RUN-OFF.
- THE ADAPTABLE SEWERS SHOULD BE A MINIMUM OF 1m AND MANHOLES 0.5m FROM KERB FACES AND SERVICE MARGINS.
- SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CANOPY AT MATURE HEIGHT.
- SEWERS TO BE LAID IN CLASS 'S' BEDDING (150mm GRANULAR BED AND SURROUND), WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONVEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
- BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).
- YORKSHIRE WATER POLICY IS THAT TYPE 'C' BRICK MANHOLES AND 1050mm DIAMETER MANHOLE RINGS ARE NOT PREFERRED. INSTEAD, IT IS PREFERRED THAT YOU USE A TYPE 'B' MANHOLE WITH 1200mm DIAMETER OR 1500mm DIAMETER RINGS, WITH THE OPENING SIZED OVER THE CHANNEL, WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1 - 1.5m.
- ADAPTABLE PLASTIC SEWER PIPES TO BE BS1 KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS EN13476). ADAPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD REQUIRE CLAY WARE CHANNEL IN MANHOLES.
- 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. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE (CLASS 120 TO EN 1916BS 5911-1:2002). PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN13476.
- WHERE A BY25 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.
- THERE MUST BE ENOUGH CLEARANCE AT CROSSOVERS TO ACCOMMODATE BEDDING TO BOTH PIPES, APPROX. 300mm. IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY NEED TO BE INCREASED.

THE INFORMATION ON THIS DRAWING IS FOR APPROVAL PURPOSES ONLY. NO CONSTRUCTION WORKS ARE TO BE UNDERTAKEN UNTIL WRITTEN APPROVAL IS RECEIVED FROM YORKSHIRE WATER.

CONCRETE NOTES:

- DESIGNED CONCRETE:
- ALL DESIGNED CONCRETE TO CONFORM TO BS 8500-2
 - STRUCTURAL CONCRETE:
 - COMPRESSIVE STRENGTH CLASS - C45/55
 - MAXIMUM WATER CEMENT RATIO - 0.35
 - MINIMUM CEMENT CONTENT - 360 kg/m³
 - CEMENT COMBINATION TYPE - SRPC
 - MAXIMUM AGGREGATE SIZE - 20mm
 - CONSISTENCY CLASS - TO BE AGREED ON SITE
 - COVER TO CONCRETE - 55mm (MINIMUM)
- DESIGNATED CONCRETE:
- ALL DESIGNATED CONCRETE TO CONFORM TO BS 8500-2
 - BLINDING CONCRETE:
 - DESIGNATION - GEN 3
 - CEMENT TYPE - SRPC
 - MAXIMUM AGGREGATE SIZE - 20mm
 - CONSISTENCY CLASS - TO BE AGREED ON SITE
- PRECAST CONCRETE
- PRECAST CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS 5911 PART 20.
 - PRECAST CONCRETE RINGS AND COVER SLABS TO BE JOINTED WITH CEMENT MORTAR.
 - ALL CONCRETE PIPES TO BE CLASS 120 TO BS EN 1916BS 5911-1:2002.
 - ALL CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS 1917BS EN 5911-3:2010.
 - INSITU AND PRECAST CONCRETE UNITS SHALL HAVE SULPHATE RESISTING PORTLAND CEMENT TO BS 4027, UNLESS AGREED OTHERWISE WITH THE ADOPTING AUTHORITY.
 - NOMINAL COVER TO ALL REINFORCEMENT TO BE 50mm (UNLESS NOTED OTHERWISE).
 - ALL HIGH YIELD REINFORCEMENT (H BARS) TO BE GRADE 500.
 - BOTTOM STEEL REINFORCEMENT TO BE SUPPORTED ON 50x50x50mm DEEP CONCRETE BLOCKS OR SIMILAR, WIRED TO THE REINFORCEMENT.
 - TYING WIRE TO BE STAINLESS STEEL.
 - SPACING OF REINFORCEMENT TO BE ADJUSTED LOCALLY AS REQUIRED IN PARTICULAR TO AVOID HOLES, POCKETS, SOCKETS, RECESSES AND HOLDING DOWN BOLTS.
 - ALL EXPOSED EDGES TO HAVE 20x20mm CHAMFER.
 - IMMEDIATELY AFTER LAYING, CONCRETE SHALL BE PROTECTED FROM RAIN, RAPID TEMPERATURE CHANGE, FROST AND FROM DRYING OUT. ALSO MAINTAIN THE CONCRETE ABOVE 7° IN WILD WEATHER. THE METHODS USED SHALL BE IN ACCORDANCE WITH BS 5400, OR APPROVED BY THE ENGINEER.

NOTES:

- THESE NOTES ARE INTENDED TO AUGMENT DRAWINGS AND SPECIFICATIONS. WHERE CONFLICT OF REQUIREMENTS EXIST THE ORDER OF PRECEDENCE SHALL BE AS SHOWN IN THE DRAWING. OTHERWISE THE STRICTEST PROVISION SHALL GOVERN.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS AND ARCHITECTS DRAWINGS.
- DRAWINGS NOT TO BE SCALED. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES TO BE NOTIFIED TO THE ENGINEER AND FURTHER INSTRUCTIONS OBTAINED BEFORE WORK IS COMMENCED.
- ALL LEVELS ARE AOD (ABOVE ORDNANCE DATUM) UNO.

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Rev	Description	Date	By	Crk	App

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Project: **PROPOSED DEVELOPMENT AT LAND OFF WAREMILL GARDENS, PENISTONE**

Client: **MULGRAVE PROPERTY GROUP LTD**

Drawing: **SECTION 104 - TYPICAL DETAILS**

Role: **CIVIL ENGINEER**

Drawing Status: **FOR APPROVAL** Submittal Code: **S4**

Job no. **47480** Scale@ A1: **AS NOTED** Rev. **P01**

Project Originator Zone Level Type Role Number
MDL - AWP - ZZ - XX - DR - C - 3701