

TYPICAL MANHOLE DETAIL TYPE 2

(Maximum depth from cover level to soffit of pipe 3m)

600x600 ductile iron cover & frame to BS EN124 D400, bedded on class M1, M2 or epoxy mortar. Cover to be badged FW or SW as appropriate.

Class M1, M2 or epoxy mortar haunching to manhole cover & frame

Lifting eyes in concrete rings to be pointed

Stainless steel (grade 316S31 BS.5970) or polypropylene encapsulated all to BS.1247 parts 1-2, double step rungs (280mm min. width at 250mm centres max.

675mm maximum to first step rung from cover level

High strength concrete topping (Min. 20mm thick) to be brought up to a dense, smooth face, neatly shaped & finished to all branch connections. Benching slope to be between 1 in 10 & 1 in 30

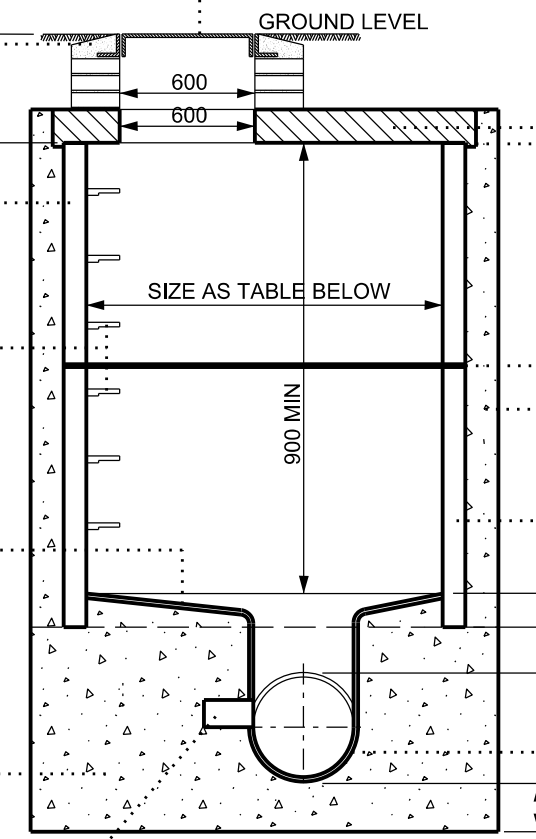
In-situ concrete grade GEN 3 (Designed to BRE Special Digest 1) Concrete in aggressive ground

Toe holes to be provided in channel of sewers above 600mm diameter

CHAMBER DIAMETERS	
DIA. OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375 TO 700	1500
750 TO 900	1800

Minimum width of benching to be 500mm

Chambers with outgoing pipes greater than 600mm diameter shall be fitted with removable stainless steel (Grade 316) safety chains or polypropylene rope leathered to the side of the pipes. Chains to be hung across the pipes in manholes when outgoing pipe is 900Ø or larger



Cover slab with 600x600 access (BS752-3) with max. 4 courses Class B Engineering Brick with 600 x 600 eccentric access hole

Precast concrete chamber sections and cover slab to be bedded with mortar, elastomeric or elastomeric seal conforming to BS EN 1917 and BS5911-3

150mm thick in-situ concrete grade GEN 3 surround (Designed to BRE Special Digest 1) Concrete in aggressive ground

Precast concrete chamber sections

Precast concrete chamber sections set 75mm into base slab

Distance between top of pipe and underside of precast section to be minimum 50mm to maximum 300mm

Invert within chamber to be formed using channel pipes

225mm to barrel of pipe

225mm to barrel of pipe

Minimum width of benching to be 225mm

Pipe joint with channel to be located minimum 100mm inside face of manhole

Joint to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement

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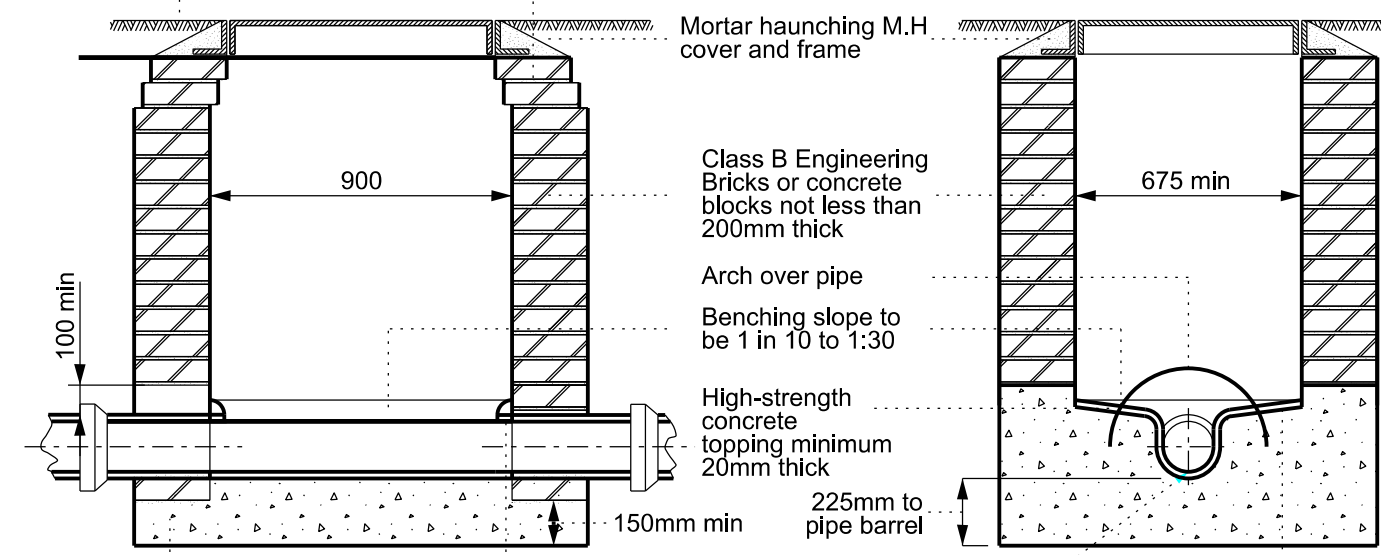
Joint to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement

TYPICAL BRICK MANHOLE DETAIL

(Depth to soffit less than 1.0m)

675mm x 675mm minimum ductile iron cover bedded on mortar

Brickwork or concrete blocks to be corbelled (maximum 30mm per course) to suit cover

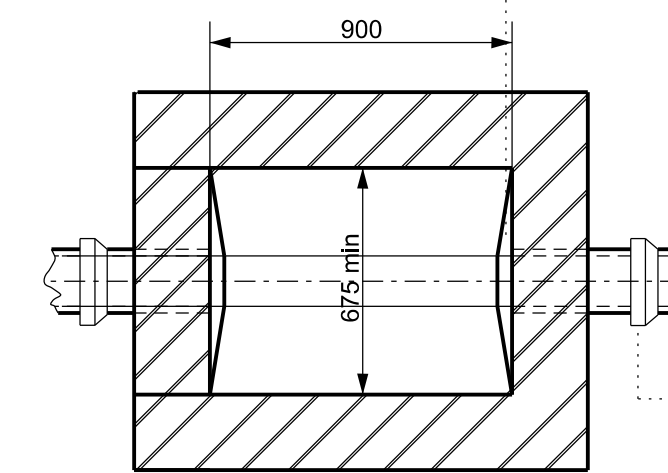


In-situ concrete to be GEN3 (designed to BRE Special Digest 1 Concrete in Aggressive Ground)

Pipe joint with channel to be located 100mm inside face of manhole

Invert to be formed using channel pieces

High-strength concrete topping minimum 20mm thick



Joint to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement

See Clause 5.6.6.2 for rocker pipe details

Internal dimensions of manholes normally 900x675mm but manhole width should be increased for pipes larger than 225mm diameter to give a minimum 225mm benching each side, with the brickwork/masonry units corbelled down to suit cover.

Note: The use of precast rectangular concrete manhole units with 150mm grade GEN3 concrete surround (designed to BRE Special Digest 1 Concrete in Aggressive Ground) is permitted

Notes.

1. Backfilling under roads and paving: Backfill from top of granular bedding up to formation level with Granular Subbase Material Type 1 to Highways Agency specification for Highway Works 1998 Clause 803, laid and compacted in 150mm layers.

2. Backfilling under landscaped areas: Backfill from top of granular bedding up to underside of topsoil with selected Class 1B material. Class 1B fill whether selected from locally excavated material or imported, shall consist of uniform readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 80 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones retained on 75mm and 37.5mm sieves respectively shall be excluded from the fill material. Laid and compacted in layers not exceeding 300mm.

3. Do not use heavy compactors before there is 600mm of material over pipe.

Table - Granular bedding and sidefill materials for rigid pipes

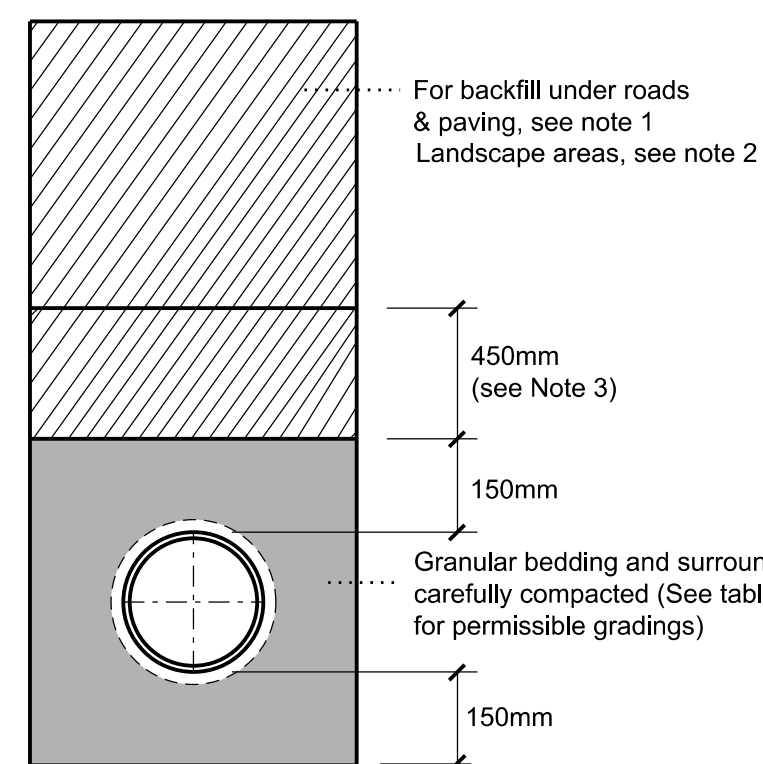
Pipe Nominal Bore (DN)	Maximum Particle Size (mm)	Class of Bedding	Suitable materials	
			Imported granular materials (Note a)	Maximum CF value for as-dug granular material (Note b)
100	10	S	10mm nominal single-size	0.15
		B		0.30 (Note c)
		F		0.15
		N	Course, Medium or fine sand	
Over 100 to 150	15	S	14mm to 5mm graded	0.15
		B		0.30 (Note c)
		F		0.15
		N	Coarse, medium or fine sand	
Over 150 to 500	20	S	14mm to 5mm graded or 20mm to 5mm graded	0.15
		B		0.30 (Note c)
		F		0.15
		N	All in aggregate or coarse medium or fine sand	
Over 500 (Note d)	40	S	14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded	0.15
		B		0.30 (Note c)
		F		0.15
		N	All in aggregate or coarse medium or fine sand	

Notes

(a) Imported granular materials to include aggregates to BS 882, air-cooled blast furnace slag to BS 1047 and sintered pulverized-fuel ash to BS 3797. Compaction fraction value. See Appendix A

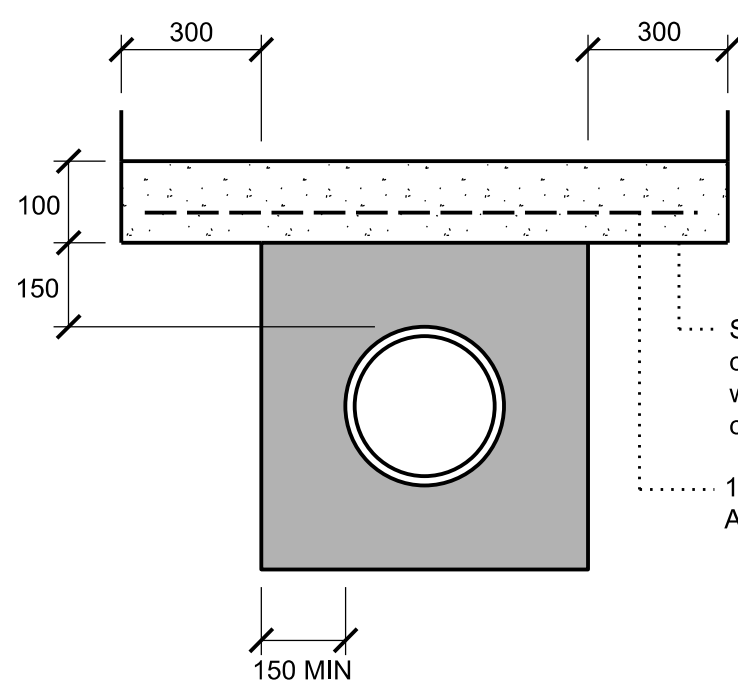
(b) The higher the CF value for as dug bedding and sidefill materials the greater the required effort for adequate compaction.

(c) Angular materials should be chosen to ensure sufficient support is provided to these heavier pipes. Crushed rock aggregates to BS 882 are recommended. Air-cooled blast furnace slag to BS 3797 or other granular materials may be used if they show a similar degree of angularity



CLASS S BEDDING DETAIL

(Rigid Pipes)



CONCRETE PROTECTION

Slab to span 300mm outside of trench and to be provided with a flexible joint (Flexcell or similar) at ever 6 metres

100mm C20 concrete with A393 reinforcement

Notes

1. Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding. © This drawing is copyright

2. All works to be undertaken in accordance with Sewers for Adoption 7th Edition

UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT AUTHORITIES, ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN IT IS ENTIRELY AT HIS OWN RISK.

Revision	Description	AT	JF	06.06.17
A	Type 1 manhole removed and shallow manhole detail added	Drawn	Checked	Date

Preliminary Information Tender Construction As Built

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Title: UPPER HEYFORD TRIDENT ROADS

Details: TYPICAL DRAINAGE DETAILS

Scale: N.T.S @ A1 Date: DECEMBER 2016 Drawn: AT Chk: JF

Please consider the environment before printing this drawing

HEYF/5/1005 A