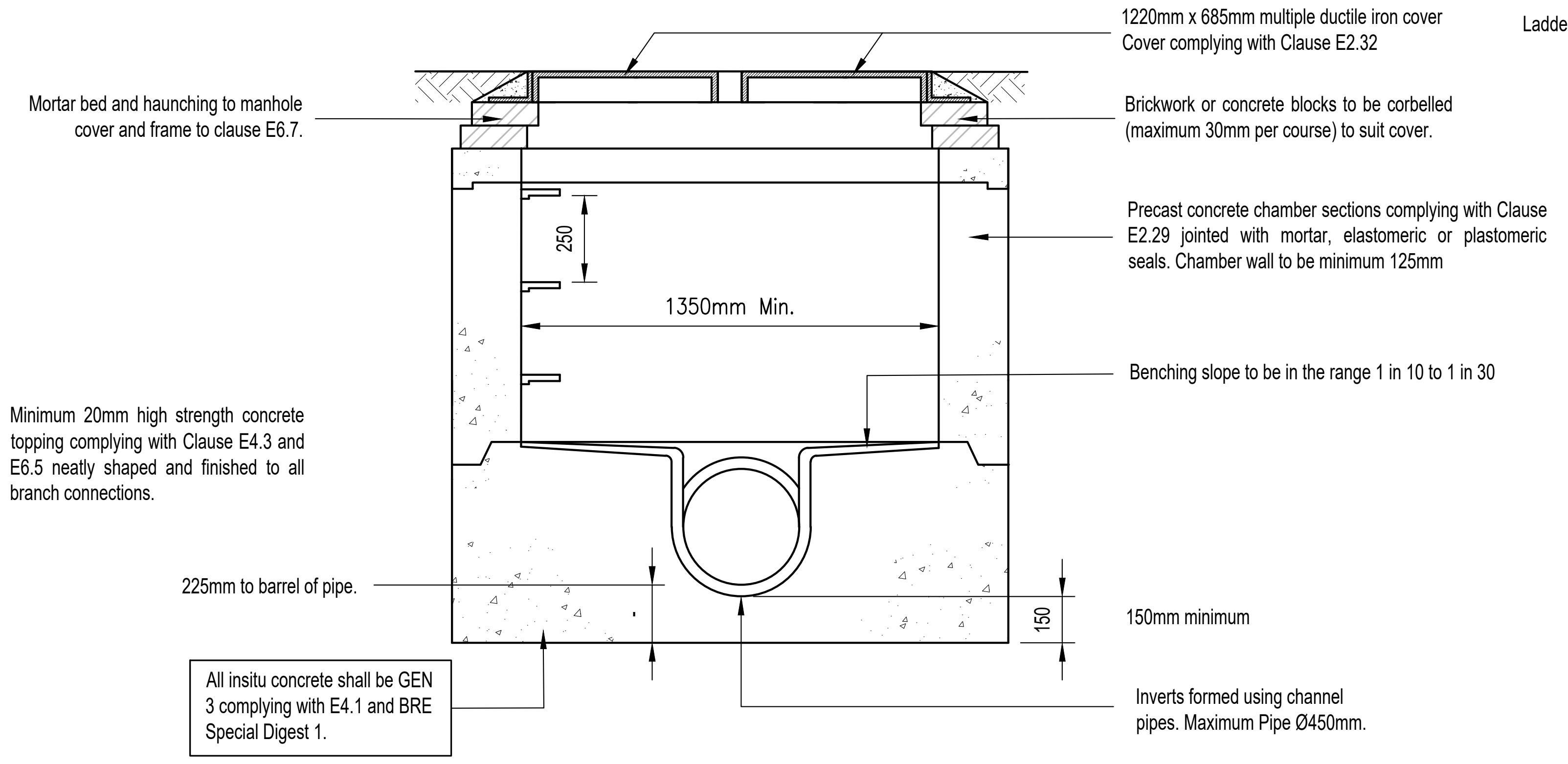
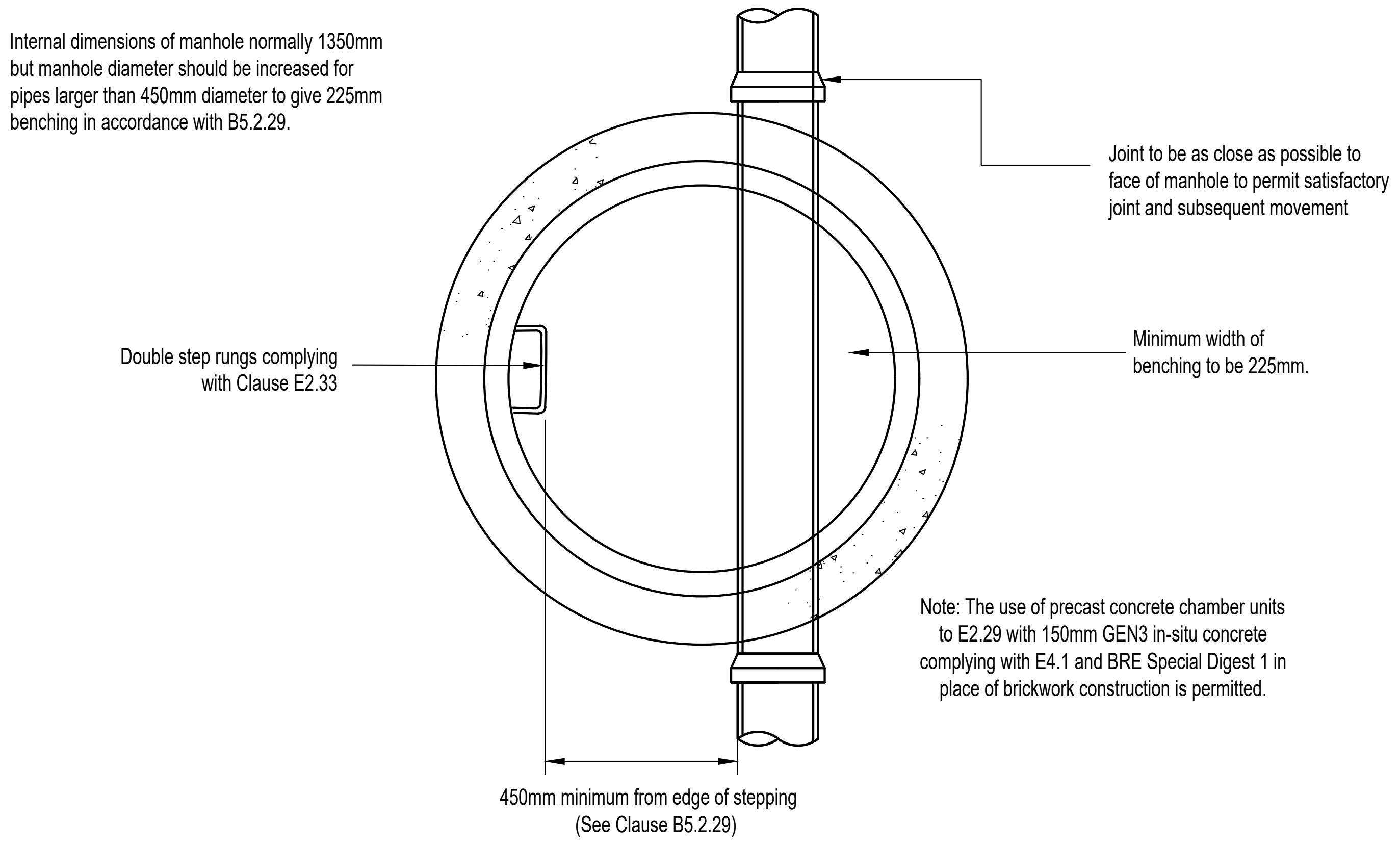
A1

TYPICAL MANHOLE CHAMBER SIZES*	
Dia. largest pipe in manhole.	Chamber section dia. required.
< 375	1200
375-450	1350
500-700	1500
750-900	1800

*For guidance only, refer to drg PJS21-065-508 Manhole Schedules

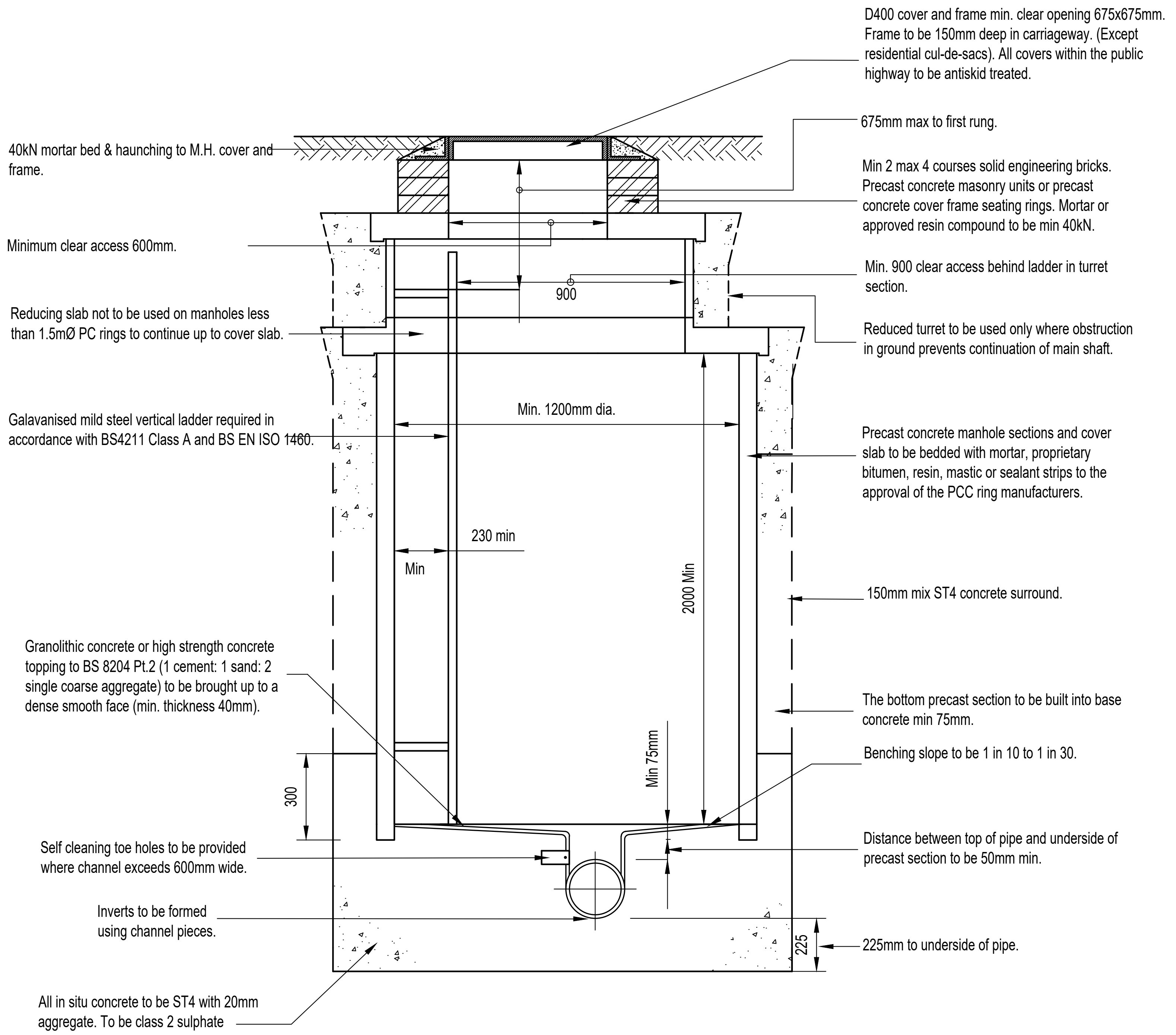
Int. Pipe Dia. (mm)	Ext. Pipe Over Barrel (Bc)	Agg. size for graded bedding material
150 225 300	203 286 375	14 to 5 mm
375 450 525 600 675 750	457 540 622 705 787 870	20 to 5 mm
825 900 975 1050 1125 1200 1275 1350 1425 1500 1575 1650 1725 1800 1875 1950	952 1035 1118 1194 1295 1372 1448 1549 1638 1715 1803 1880 1969 2057 2134 2210	40 to 5 mm

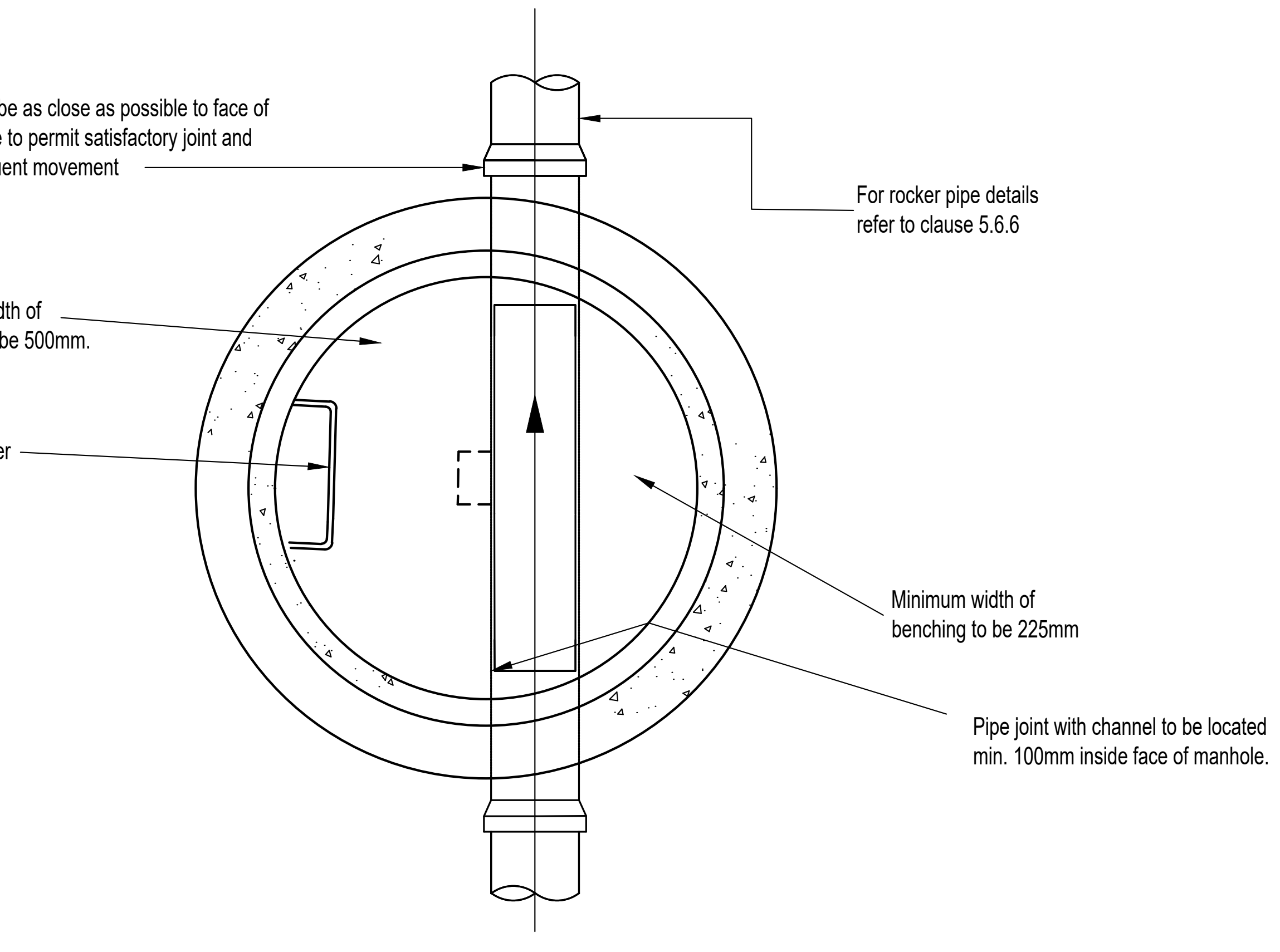

1220mm x 685mm multiple ductile iron cover Cover complying with Clause E2.32
Mortar bed and haunching to manhole cover and frame to clause E6.7.
Brickwork or concrete blocks to be corbelled (maximum 30mm per course) to suit cover.
Precast concrete chamber sections complying with Clause E2.29 jointed with mortar, elastomeric or plastomeric seals. Chamber wall to be minimum 125mm
250
1350mm Min.
Benching slope to be in the range 1 in 10 to 1 in 30
Minimum 20mm high strength concrete topping complying with Clause E4.3 and E6.5 neatly shaped and finished to all branch connections.
225mm to barrel of pipe.
150
150mm minimum
All insitu concrete shall be GEN 3 complying with E4.1 and BRE Special Digest 1.
Inverts formed using channel pipes. Maximum Pipe Ø450mm.


Internal dimensions of manhole normally 1350mm but manhole diameter should be increased for pipes larger than 450mm diameter to give 225mm benching in accordance with B5.2.29.
Joint to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement
Double step rungs complying with Clause E2.33
Minimum width of benching to be 225mm.
Note: The use of precast concrete chamber units to E2.29 with 150mm GEN3 in-situ concrete complying with E4.1 and BRE Special Digest 1 in place of brickwork construction is permitted.
450mm minimum from edge of stepping (See Clause B5.2.29)

TYPICAL MANHOLE DETAIL TYPE C

DEPTH FROM C.L. TO SOFFIT LESS THAN 1.5m
MAXIMUM PIPE SIZE 450MM DIAMETER
SCALE 1:20


D400 cover and frame min. clear opening 675x675mm. Frame to be 150mm deep in carriageway. (Except residential cul-de-sacs). All covers within the public highway to be antiskid treated.
40kN mortar bed & haunching to M.H. cover and frame.
675mm max to first rung.
Min 2 max 4 courses solid engineering bricks. Precast concrete masonry units or precast concrete cover frame seating rings. Mortar or approved resin compound to be min 40kN.
Minimum clear access 600mm.
Min. 900 clear access behind ladder in turret section.
900
Reducing slab not to be used on manholes less than 1.5mØ PC rings to continue up to cover slab.
Reduced turret to be used only where obstruction in ground prevents continuation of main shaft.
Galavanised mild steel vertical ladder required in accordance with BS4211 Class A and BS EN ISO 1460.
Min. 1200mm dia.
Precast concrete manhole sections and cover slab to be bedded with mortar, proprietary bitumen, resin, mastic or sealant strips to the approval of the PCC ring manufacturers.
230 min
Min
2000 Min
150mm mix ST4 concrete surround.
Granolithic concrete or high strength concrete topping to BS 8204 Pt.2 (1 cement: 1 sand: 2 single coarse aggregate) to be brought up to a dense smooth face (min. thickness 40mm).
The bottom precast section to be built into base concrete min 75mm.
Benching slope to be 1 in 10 to 1 in 30.
300
Min 75mm
Self cleaning toe holes to be provided where channel exceeds 600mm wide.
Distance between top of pipe and underside of precast section to be 50mm min.
Inverts to be formed using channel pieces.
225
225mm to underside of pipe.
All in situ concrete to be ST4 with 20mm aggregate. To be class 2 sulphate resistant unless otherwise agreed.

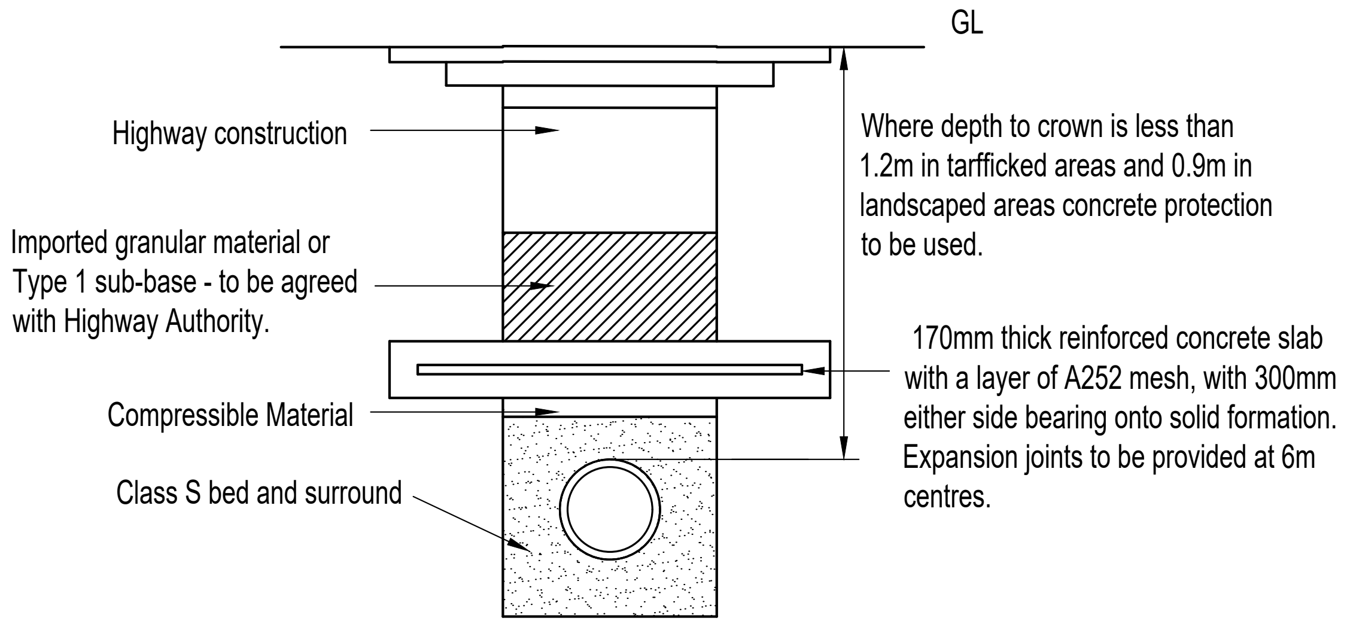

Joint to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement
For rocker pipe details refer to clause 5.6.6
Minimum width of benching to be 500mm.
Ladder
Minimum width of benching to be 225mm
Pipe joint with channel to be located min. 100mm inside face of manhole.

PLAN

TYPICAL MANHOLE DETAIL TYPE A

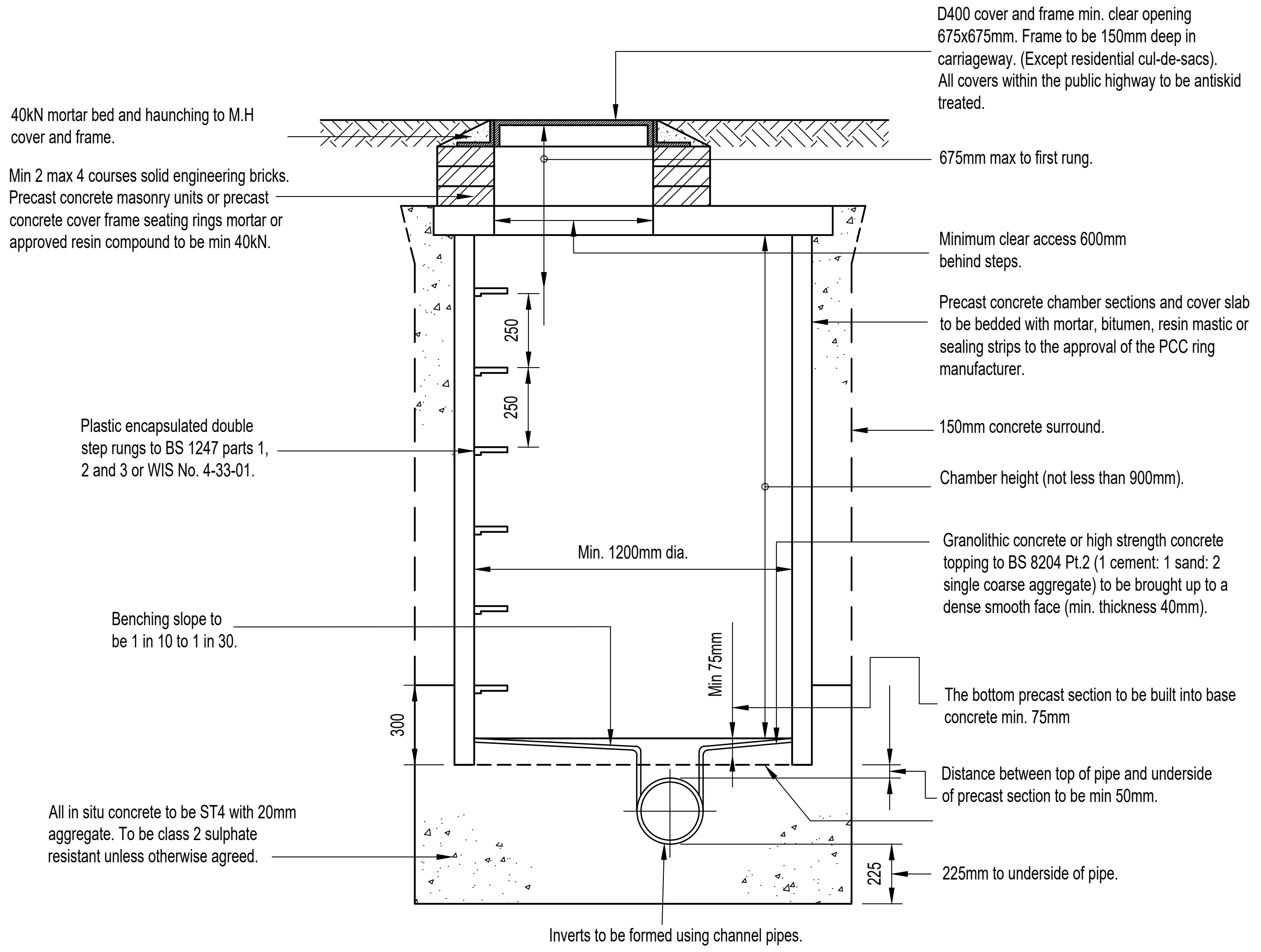
DEPTH FROM C.L. TO SOFFIT 3.0m TO 6.0m

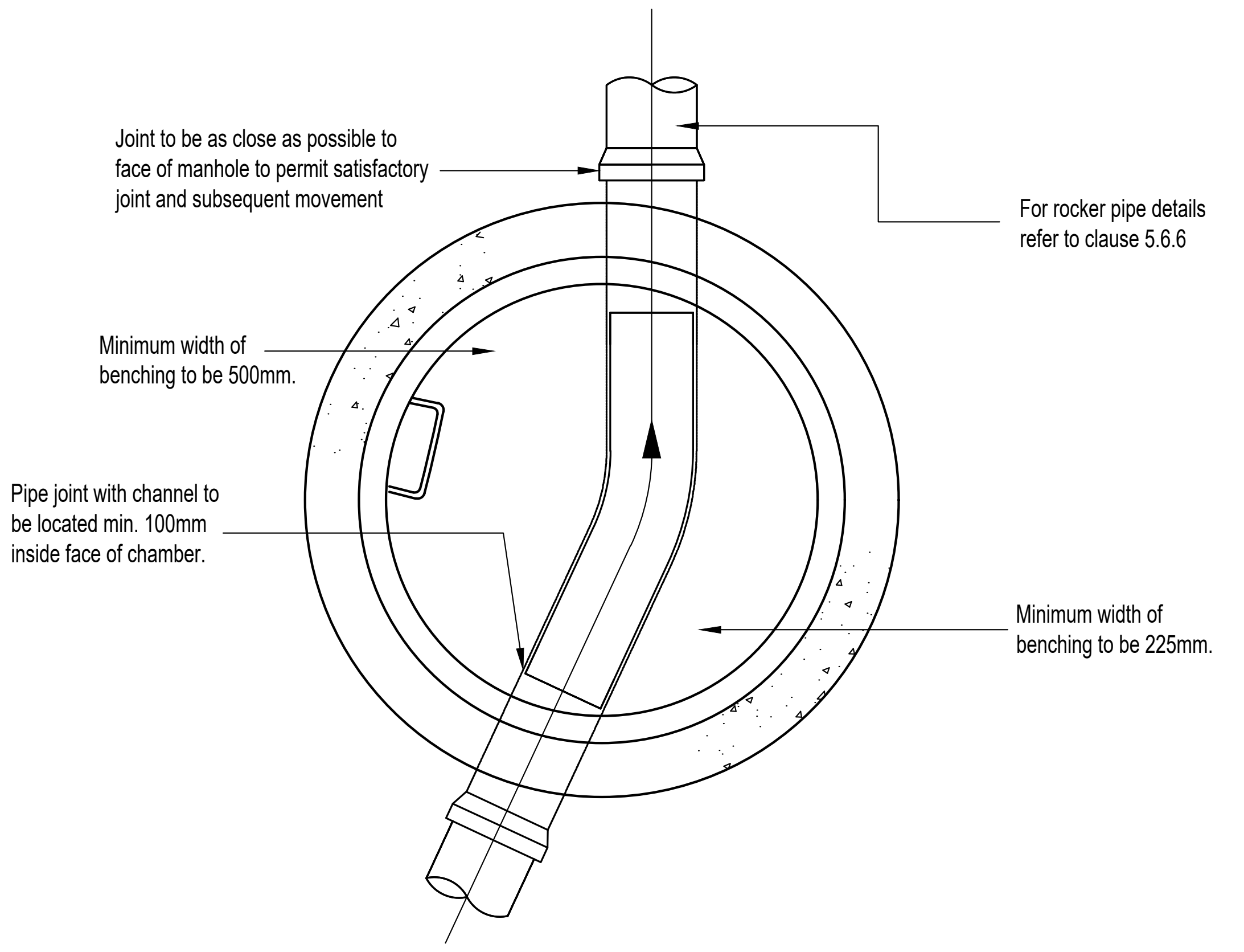
SCALE 1:20


GL
Highway construction
Imported granular material or Type 1 sub-base - to be agreed with Highway Authority.
Compressible Material
Class S bed and surround
Where depth to crown is less than 1.2m in tarfficked areas and 0.9m in landscaped areas concrete protection to be used.
170mm thick reinforced concrete slab with a layer of A252 mesh, with 300mm either side bearing onto solid formation. Expansion joints to be provided at 6m centres.

PROTECTIVE CONCRETE SLAB DETAIL

NTS


D400 cover and frame min. clear opening 675x675mm. Frame to be 150mm deep in carriageway. (Except residential cul-de-sacs). All covers within the public highway to be antiskid treated.
40kN mortar bed and haunching to M.H cover and frame.
Min 2 max 4 courses solid engineering bricks. Precast concrete masonry units or precast concrete cover frame seating rings mortar or approved resin compound to be min 40kN.
675mm max to first rung.
Minimum clear access 600mm behind steps.
Precast concrete chamber sections and cover slab to be bedded with mortar, bitumen, resin mastic or sealing strips to the approval of the PCC ring manufacturer.
250
250
Plastic encapsulated double step rungs to BS 1247 parts 1, 2 and 3 or WIS No. 4-33-01.
150mm concrete surround.
Chamber height (not less than 900mm).
Granolithic concrete or high strength concrete topping to BS 8204 Pt.2 (1 cement: 1 sand: 2 single coarse aggregate) to be brought up to a dense smooth face (min. thickness 40mm).
Min. 1200mm dia.
Benching slope to be 1 in 10 to 1 in 30.
Min 75mm
The bottom precast section to be built into base concrete min. 75mm
300
Distance between top of pipe and underside of precast section to be min 50mm.
All in situ concrete to be ST4 with 20mm aggregate. To be class 2 sulphate resistant unless otherwise agreed.
225
225mm to underside of pipe.
Inverts to be formed using channel pipes.

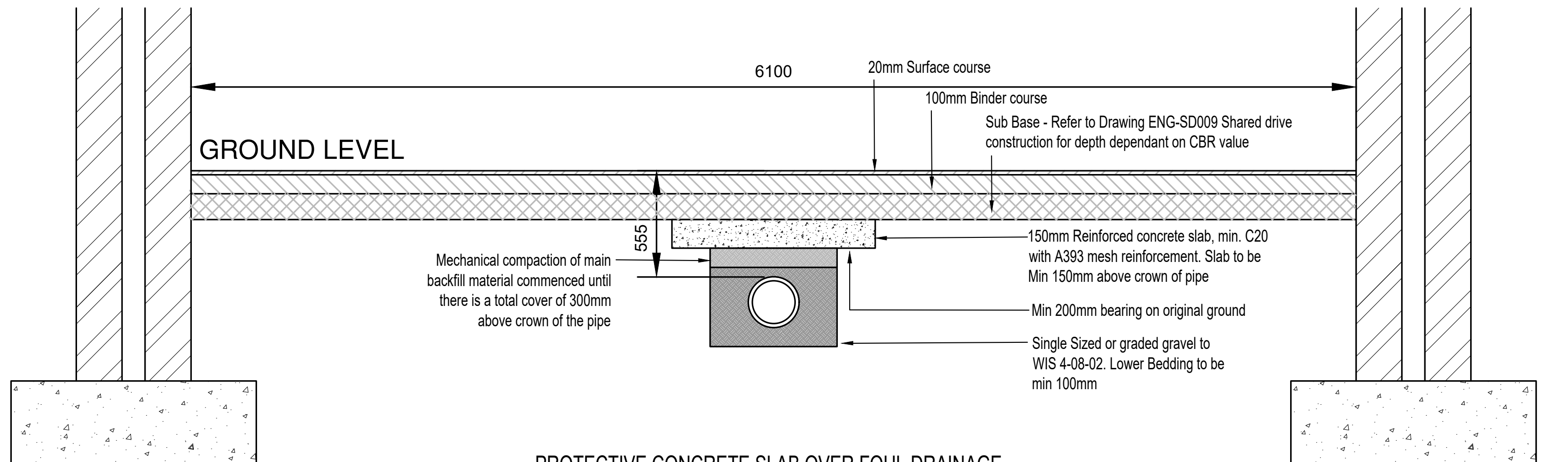

Joint to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement
For rocker pipe details refer to clause 5.6.6
Minimum width of benching to be 500mm.
Pipe joint with channel to be located min. 100mm inside face of chamber.
Minimum width of benching to be 225mm.

PLAN

TYPICAL MANHOLE DETAIL TYPE B

DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 1.5m TO 3.0m

SCALE 1:20


6100
20mm Surface course
100mm Binder course
Sub Base - Refer to Drawing ENG-SD009 Shared drive construction for depth dependant on CBR value
GROUND LEVEL
555
150mm Reinforced concrete slab, min. C20 with A393 mesh reinforcement. Slab to be Min 150mm above crown of pipe
Mechanical compaction of main backfill material commenced until there is a total cover of 300mm above crown of the pipe
Min 200mm bearing on original ground
Single Sized or graded gravel to WIS 4-08-02. Lower Bedding to be min 100mm

PROTECTIVE CONCRETE SLAB OVER FOUL DRAINAGE

Notes.

1. Do not scale this drawing. If in doubt, ask.

2. This drawing is to be read in conjunction with all other relevant Engineers, Architects and specialist design drawings and details.

3. All dimensions are in millimetres unless noted otherwise. All levels are in metres unless noted otherwise.

4. Any discrepancies noted on site are to be reported to the Engineer immediately.

5. The Contractor shall check all tie-ins for line and level with existing before commencing any works. The Engineer shall be notified immediately in writing, should any errors be found.

6. It is the responsibility of the Contractor to locate any service apparatus in the vicinity of the works. The client will accept no claims whatsoever in respect of any losses or damage caused in respect of such apparatus, however caused.

7. It is the responsibility of the Contractor to execute the works at all times in strict accordance with the requirements of the Health and Safety at Work Act 1974, and the C.D.M. Regulations 2015. The Contractor will be deemed to have allowed for full compliance, including full liaison with the Principal contractor/ designer, within his rates.

8. The Contractor is responsible for ensuring that all works are to the satisfaction of the Engineer, and shall be deemed to have included within his rates for any necessary testing.

9. Sewers shall be constructed to the satisfaction of Severn Trent Water and in accordance with the Design and Construction Guidance (DCG).

10. All specification clauses refer to the aforementioned document.

11. This drawing is intended for guidance only, is not fully comprehensive and must be read in conjunction with the above document, which will supersede this document in the event of conflict.

12. Flows in existing sewers shall be maintained at all times.

13. Manholes with outgoing pipes greater than 600mm diameter shall be fitted with safety chains, guard bars or similar.

14. All lifting eyes in P.C.C. products shall be pointed smooth after fixing.

15. Corbelling of brickwork shall note exceed 30mm per course.

16. Cut pipes to be machined cut and ground smooth.

17. All cement and concrete products to use sulphate resisting cement.

18. All pipework to have spiggot and socket flexible joints unless otherwise specified.

19. Wherever appropriate, geotextiles shall be used to contain bedding material e.g. in areas of running sand.

20. Manhole rings are not to be cut.

ANY WORKS CARRIED OUT ON SITE PRIOR TO RECEIVING TECHNICAL APPROVALS WILL BE UNDERTAKEN AT THE DEVELOPERS RISK

B	13.12.23	Foul drainage cross section Updated	DC	TN
A	21.11.23	Foul drainage cross section added as per IWNL request	DC	TN
Rev	Date	Amendments	By	Chk

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Client

Davidsons Homes

Project

Lutterworth Road, Burbage

Drawing Title

Drainage Construction Details

	Drawn	Checked	Status	Scale
Initial	ML	TN	Approval	As Shown
Date	25/10/22	25/10/22		

Project Number	Drawing Number	Revision
PJS21-65	DR-910	B