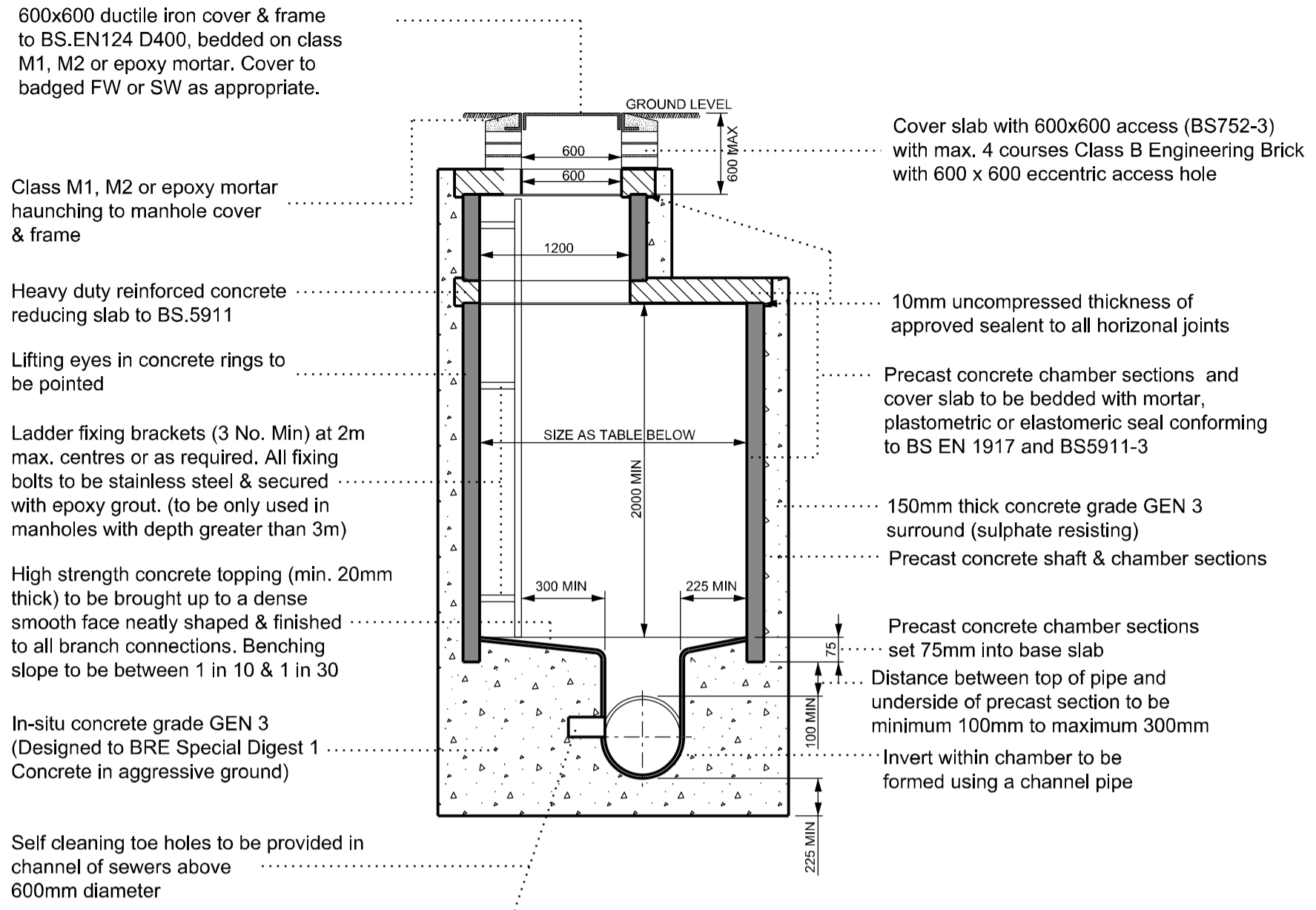


**TYPICAL MANHOLE DETAIL TYPE 1A**

(DEPTH TO SOFFIT 3m - 6m)



**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

Chambers with outgoing pipes greater than 600mm diameter shall be fitted with removable stainless steel (Grade 316) safety chains or polypropylene rope tethered to the side of the pipes. Chains to be hung across the pipes in manholes when outgoing pipe is 900Ø or larger. Manholes greater than 6m depth shall be subject to specific design

Minimum width of benching to be 500mm

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

For manholes of 1800 dia or larger. Below 1800 dia chamber rings continue to cover slab (no shaft)

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

Heavy duty reinforced concrete reducing slab to BS.5911

Lifting eyes in concrete rings to be pointed

Ladder fixing brackets (3 No. Min) at 2m max. centres or as required. All fixing bolts to be stainless steel & secured with epoxy grout. (to be only used in manholes with depth greater than 3m)

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)

Self cleaning toe holes to be provided in channel of sewers above 600mm diameter

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

Heavy duty reinforced concrete reducing slab to BS.5911

Lifting eyes in concrete rings to be pointed

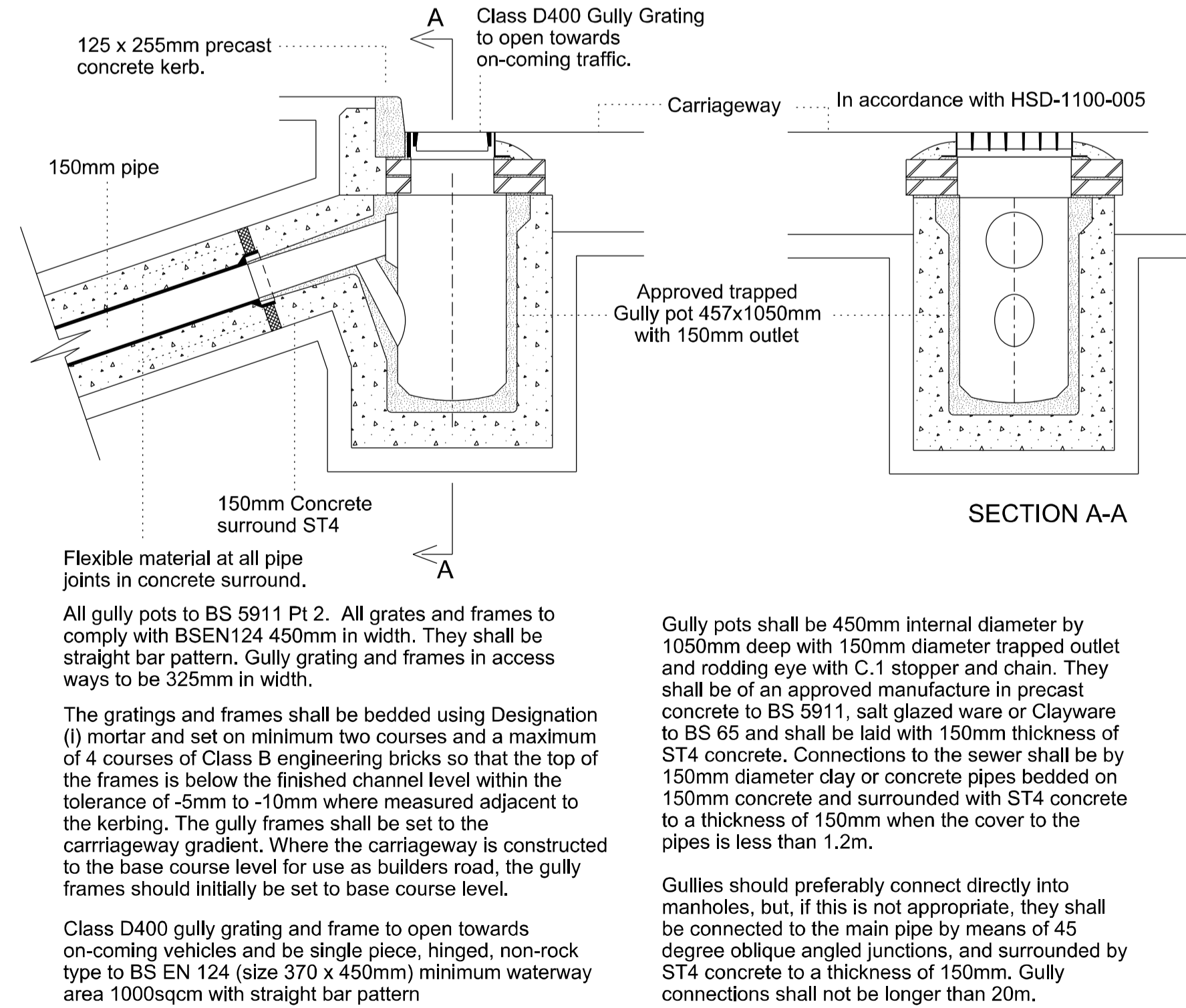
Ladder fixing brackets (3 No. Min) at 2m max. centres or as required. All fixing bolts to be stainless steel & secured with epoxy grout. (to be only used in manholes with depth greater than 3m)

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)

Self cleaning toe holes to be provided in channel of sewers above 600mm diameter

**GULLY DETAIL**



Flexible material at all pipe joints in concrete surround.

All gully pots to BS 5911 Pt 2. All grates and frames to comply with BSEN124 450mm in width. They shall be straight bar pattern. Gully grating and frames in access ways to be 325mm in width.

The gratings and frames shall be bedded using Designation (I) mortar and set on minimum two courses and a maximum of 4 courses of Class B engineering bricks so that the top of the frames is below the finished channel level within the tolerance of -5mm to -10mm where measured adjacent to the kerbing. The gully frames shall be set to the carriageway gradient. Where the carriageway is constructed to the base course level for use as builders road, the gully frames should initially be set to base course level.

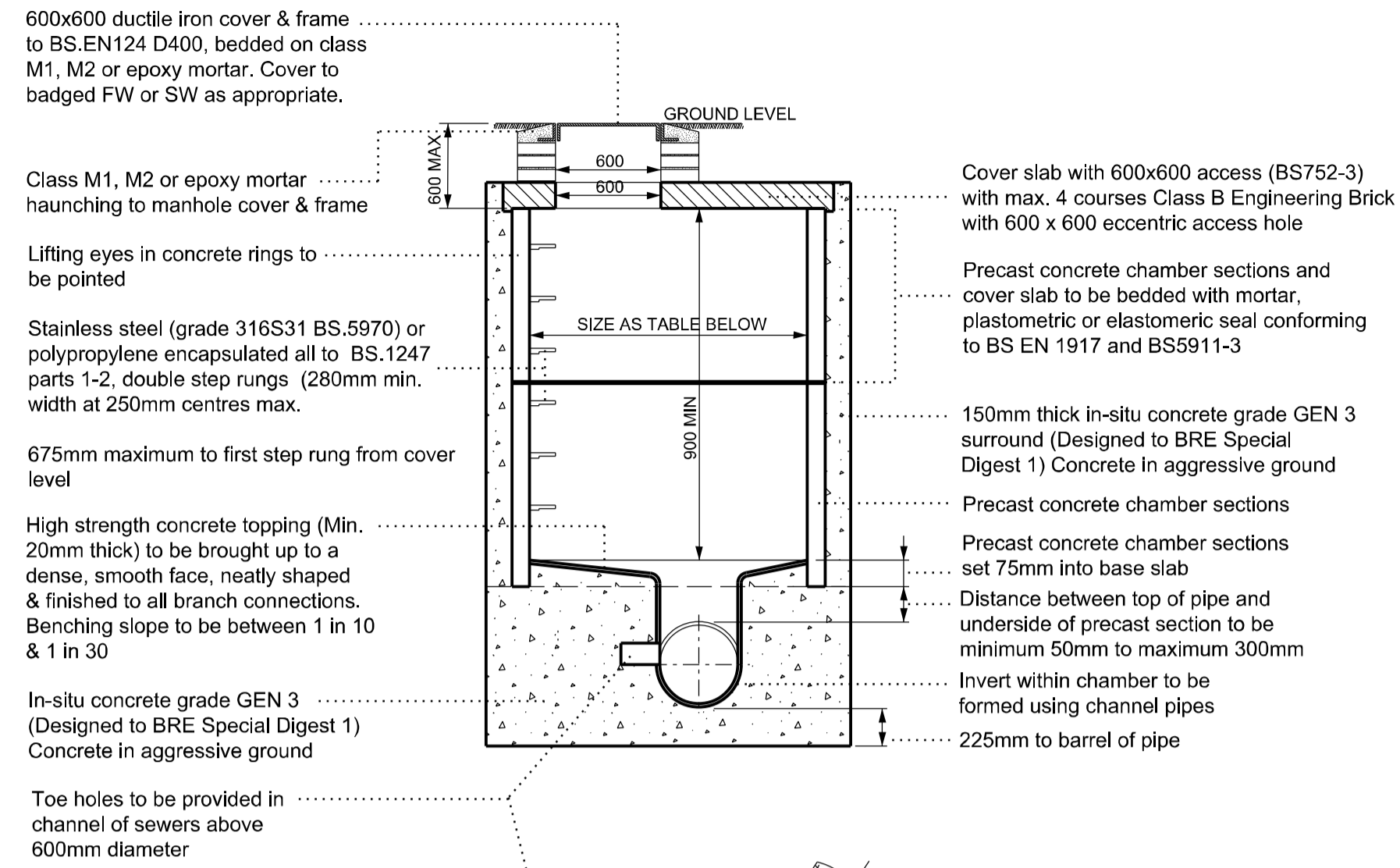
Class D400 gully grating and frame to open towards on-coming vehicles and be single piece, hinged, non-rock type to BS EN 124 (size 370 x 450mm) minimum waterway area 1000sqcm with straight bar pattern

Gully pots shall be 450mm internal diameter by 1050mm deep with 150mm diameter trapped outlet and rodding eye with C.1 stopper and chain. They shall be of an approved manufacture in precast concrete to BS 5911, salt glazed ware or Clayware to BS 65 and shall be laid with 150mm thickness of ST4 concrete. Connections to the sewer shall be by 150mm diameter clay or concrete pipes bedded on 150mm concrete and surrounded with ST4 concrete to a thickness of 150mm when the cover to the pipes is less than 1.2m.

Gullies should preferably connect directly into manholes, but, if this is not appropriate, they shall be connected to the main pipe by means of 45 degree oblique angled junctions, and surrounded by ST4 concrete to a thickness of 150mm. Gully connections shall not be longer than 20m.

**TYPICAL MANHOLE DETAIL TYPE 2**

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



**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

**ROCKER PIPES**

SEWER DIAMETER (mm)	EFFECTIVE LENGTH (mm)
150 TO 600	600
601 TO 750	1000
OVER 750	1250

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 tethered to the side of the pipes. Chains to be hung across the pipes in manholes when outgoing pipe is 900Ø or larger

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

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

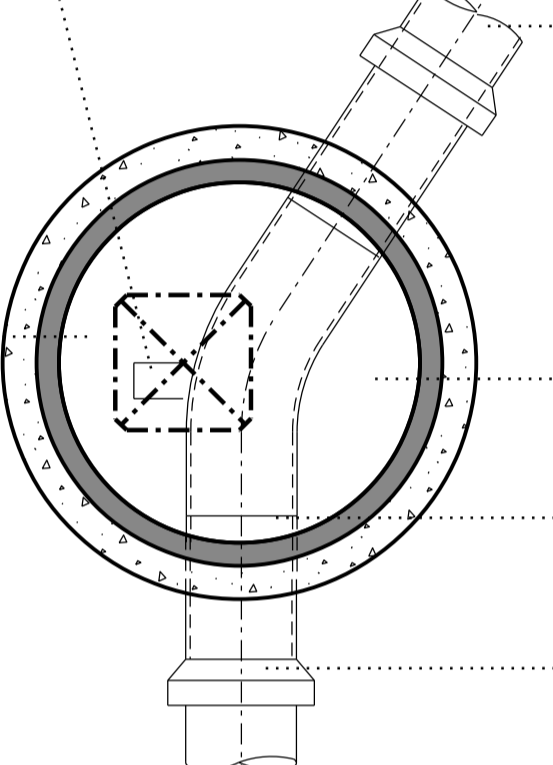
Toe holes to be provided in channel of sewers above 600mm diameter

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



Rocker pipe to table

Minimum width of benching to be 225mm

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

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

Minimum width of benching to be 225mm

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

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

Minimum width of benching to be 225mm

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

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

Minimum width of benching to be 225mm

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

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

Minimum width of benching to be 225mm

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

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

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

Minimum width of benching to be 225mm

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

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

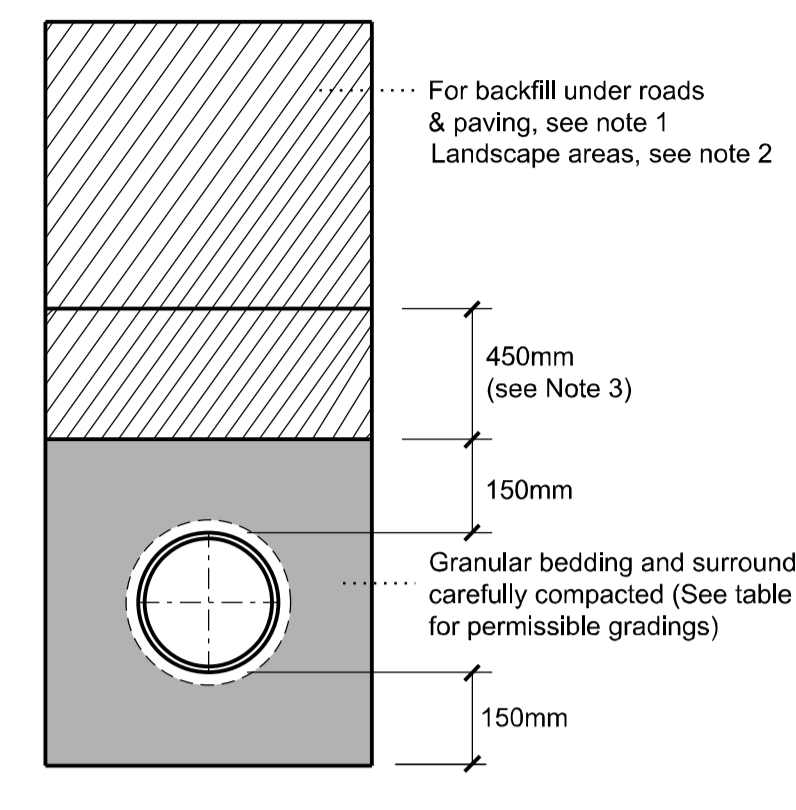
Minimum width of benching to be 225mm

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

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

**CLASS S BEDDING DETAIL**

(Rigid Pipes)



For backfill under roads & paving, see note 1 Landscape areas, see note 2

450mm (see Note 3)

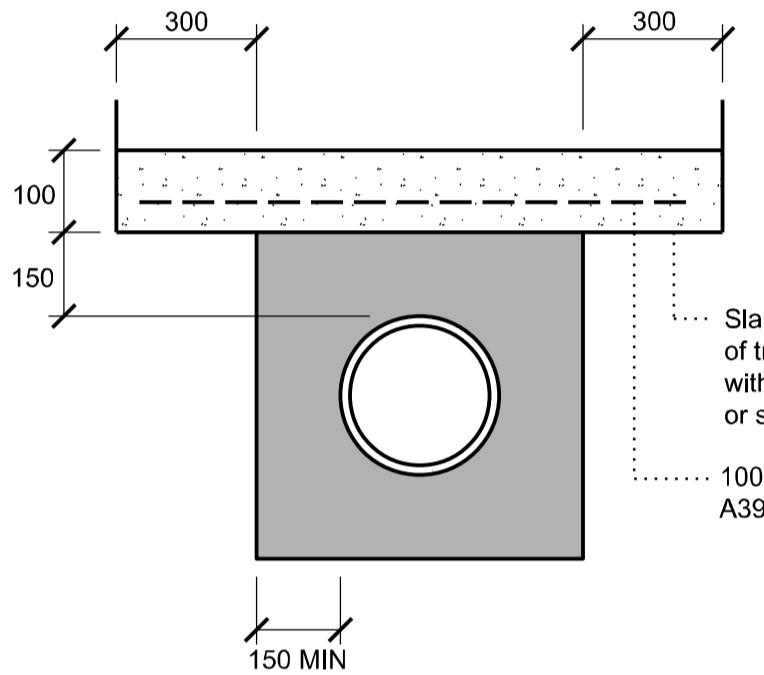
150mm

Granular bedding and surround carefully compacted (See table for permissible gradings)

150mm

225mm to barrel of pipe

**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

150 MIN

150

100

300

300

150 MIN

150

100

300

300

150 MIN

150

100

300

300

150 MIN

150

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300

300

150 MIN

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100

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300

150 MIN

150

100

300

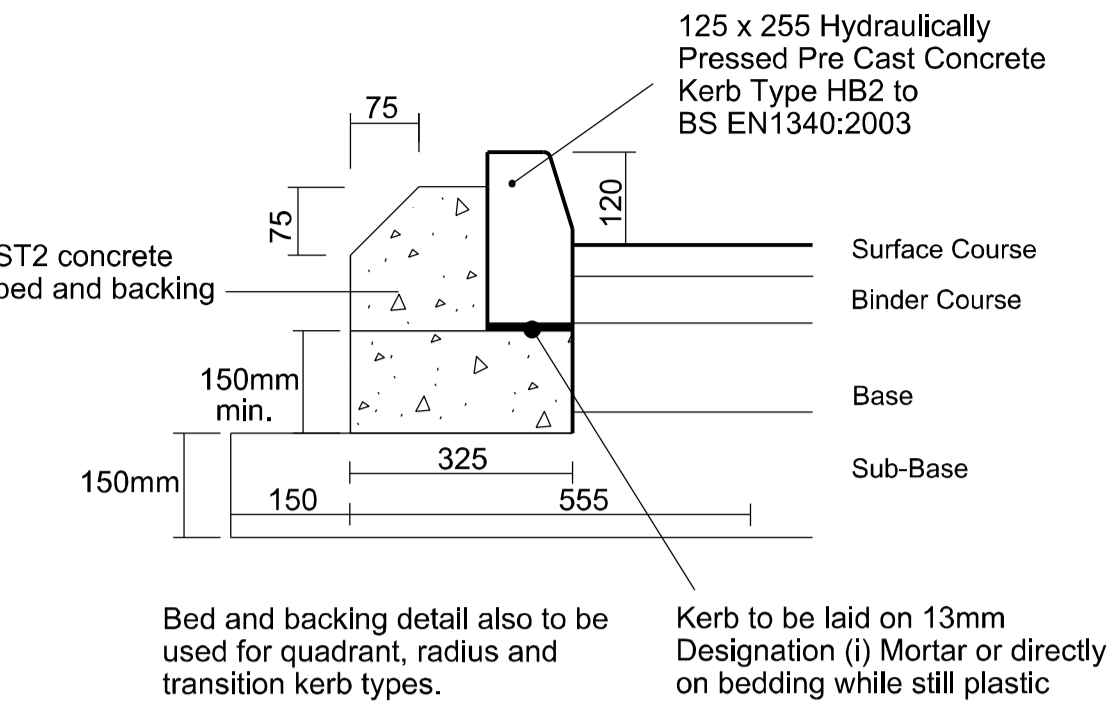
300

150 MIN

150

**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



Bed and backing detail also to be used for quadrant, radius and transition kerb types.

Kerb to be laid on 13mm Designation (i) Mortar or directly on bedding while still plastic

125 x 255 Hydraulically Pressed Pre Cast Concrete Kerb Type HB2 to BS EN1340:2003

Surface Course

Binder Course

Base

Sub-Base

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

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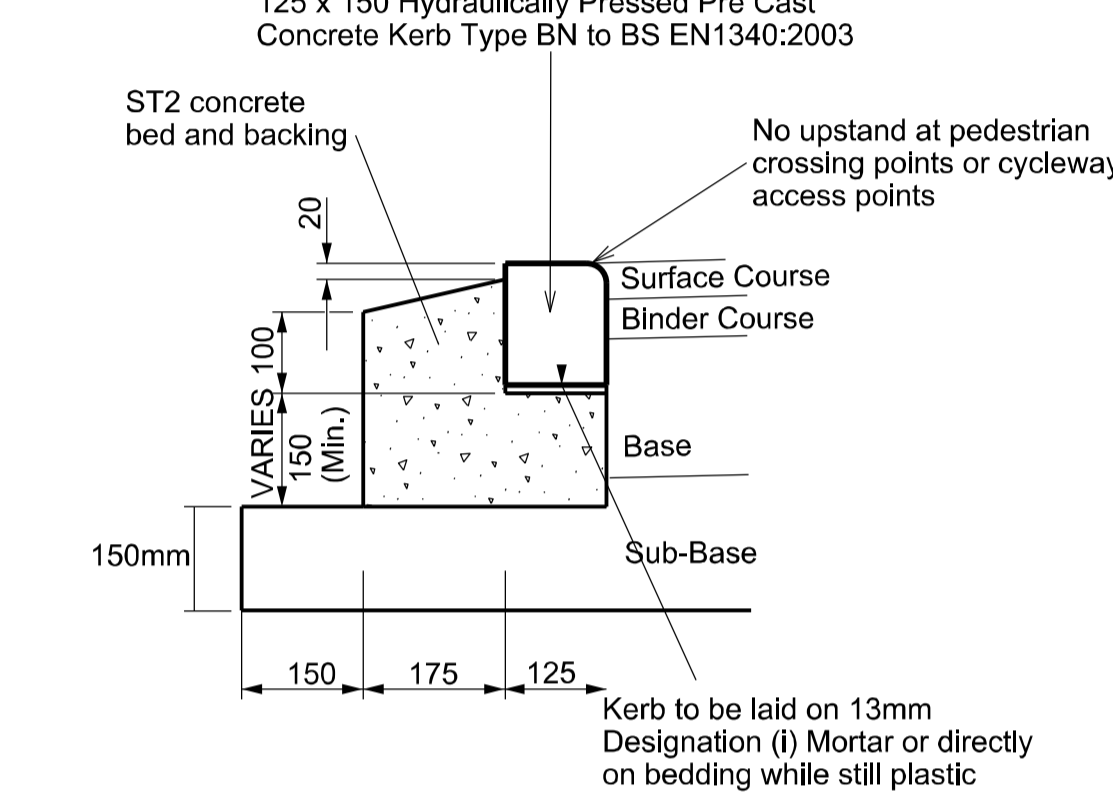
150mm

150mm

150mm

150mm

**HALF BATTERED KERB (HB2)**



125 x 150 Hydraulically Pressed Pre Cast Concrete Kerb Type BN to BS EN1340:2003

Surface Course

Binder Course

Base

Sub-Base

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

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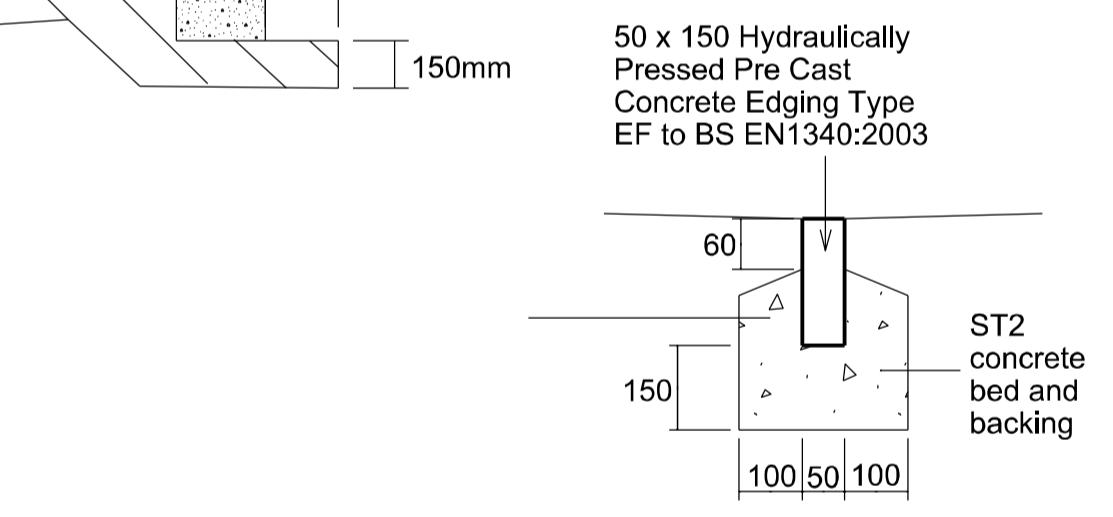
150mm

150mm

150mm

150mm

**BULL- NOSED KERB (BN)**



50 x 150 Hydraulically Pressed Pre Cast Concrete Edging Type EF to BS EN1340:2003

Surface Course

Binder Course

Base

Sub-Base

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm

150mm