

**CARRIAGEWAY
DRAIN TYPE D1
ALL PIPES**

More than 1200 cover
Bedding Factor 2.2

**CARRIAGEWAY
DRAIN TYPE D2
PLASTIC**

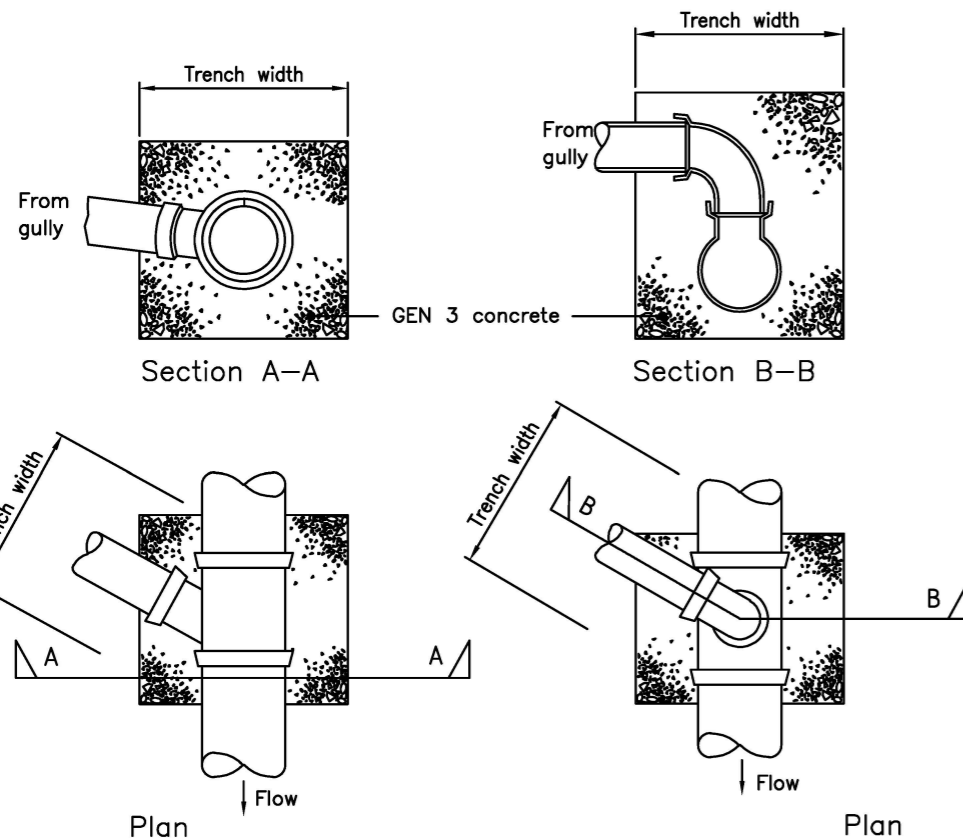
Less than 1200 cover

**CARRIAGEWAY
DRAIN TYPE D3
CONCRETE, CLAY OR PLASTIC**

Less than 1200 cover
Bedding Factor 2.6

**FOOTWAY / CYCLEWAY
DRAIN TYPE D4**

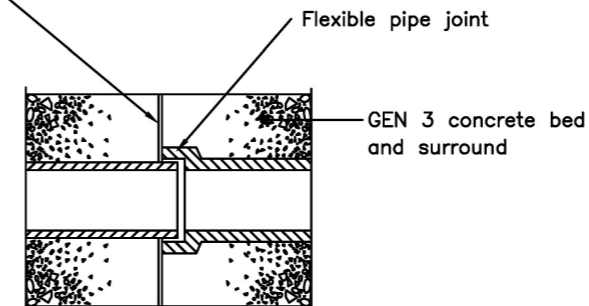
Less than 1200 cover
Bedding Factor 2.6



GULLY CONNECTION DETAILS

Compressible board or joint filler for full thickness of surround

less than 450	18mm
450 - 1200	36mm
over 1200	54mm



**FLEXIBLE JOINT FOR CONCRETE SURROUND
(Reinforced slab similar)**

Safe supporting strength of pipe $W_s = \frac{W_t F_m}{F_s}$

Where

W_t = Crushing strength – see British Standards

F_m = Bedding Factor

F_s = Factor of Safety = 1.25

Notes

- All dimensions are in millimetres
- Water Authorities Association guide Sewers for Adoption and Specification for Highway Works (SHW) applies except where modified by this drawing.
- Pipes shall be :
Vitrified clay pipes to BS 65 and BS EN 295
Concrete pipes to BS EN 1916
PVCU structured wall pipe to MCHW Clause 518 SDR 34 min.
Concrete to accord with:
BS EN 206-1
BS 8500-1 & 2
BS 8000
- Minimum cover without concrete protection is 1200
Concrete protection to terminate at suitable pipe joint.
- Flexible joints must be provided in concrete bed and surround or reinforced slab
- The structural design of pipelines shall generally accord with the provisions of BS EN 1295

CONCRETE AND CLAY PIPES

- Determination of pipe and bedding combinations shall be in accordance with DTp advice Note HA 40/01
- If maximum trench width is exceeded it may be necessary to increase the strength of the pipe

PVCU PIPES

- PVCU Pipes must be laid in accordance with BS 5955 PART 6.
- RC 30 concrete slab with BS 4483: 2005 A193 mesh reinforcement (or equivalent) may be used as an alternative to concrete surround. Design to be approved by the Engineer.

ALL PIPES

- Pipe and bedding must be adequate for the worst conditions and materials must not be changed between chambers.
- Minimum pipe diameter to be 225 for carrier drains.
- Saddle connections may only be used with the approval of the Engineer.
- Carrier drains will not normally be permitted in footways or cycleways.
- Existing public highway shall be reinstated in accordance with HAUC Specification for Reinstatement of Openings in Highways.
- Section 38 estate roads and footways shall be reinstated with lapped joints and materials to match existing.

C	APR 19	Updated title block	NR
B	Jun 13	Concrete grades revised	KPT
A	Mar 11	Various BS EN amendments	KPT

Do not scale this drawing

Rev	Date	Checked
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Project
STANDARD DRAWINGS

Title
PIPES UNDER PAVED AREAS

Drawing No.
SD/500/1C

Scale **NOT TO SCALE** Date **MAY 04**

Department of Place,
Planning & Regeneration