

General Drainage Notes

1. This drawing is to be read in conjunction with all other relevant Engineers and Architects details.
2. All material & workmanship to be in accordance with 'Sewers for Adoption 6th Edition'.
3. All work is to be carried out in accordance with the current British Standards, B.S. codes of practice & Building Regulations.
4. Refer to SFA Specification for concrete grades & sand/ cement mortar grades. All precast & in-situ concrete to contain a minimum Class 3 sulphate resisting cement.
5. Pre-formed channels are to be used at manholes.
6. Granolithic concrete benching to be steel trowelled to a dense smooth face neatly shaped & finished to all branch connections & laid in accordance with the Specification.
7. All dimensions are in millimetres u.n.o.
8. Pipe bends to suit direction of flow.
9. Manhole covers and frames to be to EN 124. Use grade D400 covers in vehicular movement areas and grade A15 covers in non-vehicular areas.
10. All trenches under carriageway to be backfilled with Type 1 Sub-base, well compacted in layers not exceeding 150mm loose depth.

Notes on Bedding Details

Generally vitrified clay drainage pipework should be laid in accordance with BS 65 and BS 8301.

A-Type A granular material shall comply with WIS No. 4-08-01 and shall be:-
(a) Imported single size or graded aggregate in accordance with BS 882 as shown in the table A.
(b) Selected as-dug granular bedding and sidefill material shall be free from organic matter, combustible materials, frozen soil, clay lumps larger than 75mm and stones larger than the maximum permitted particle size specified in table A depending on pipe size. The selected material shall be evaluated using the compaction fraction test detailed in Appendix A of WIS No. 4-08-01. Material excavated from trenches dug through land contaminated with domestic, building or industrial waste should not be used.

B-Type B selected fill shall be:
Uniform readily compactable material which is free from tree roots, vegetable matter, building rubbish, frozen soil, clay lumps and material retained on a 40mm sieve.

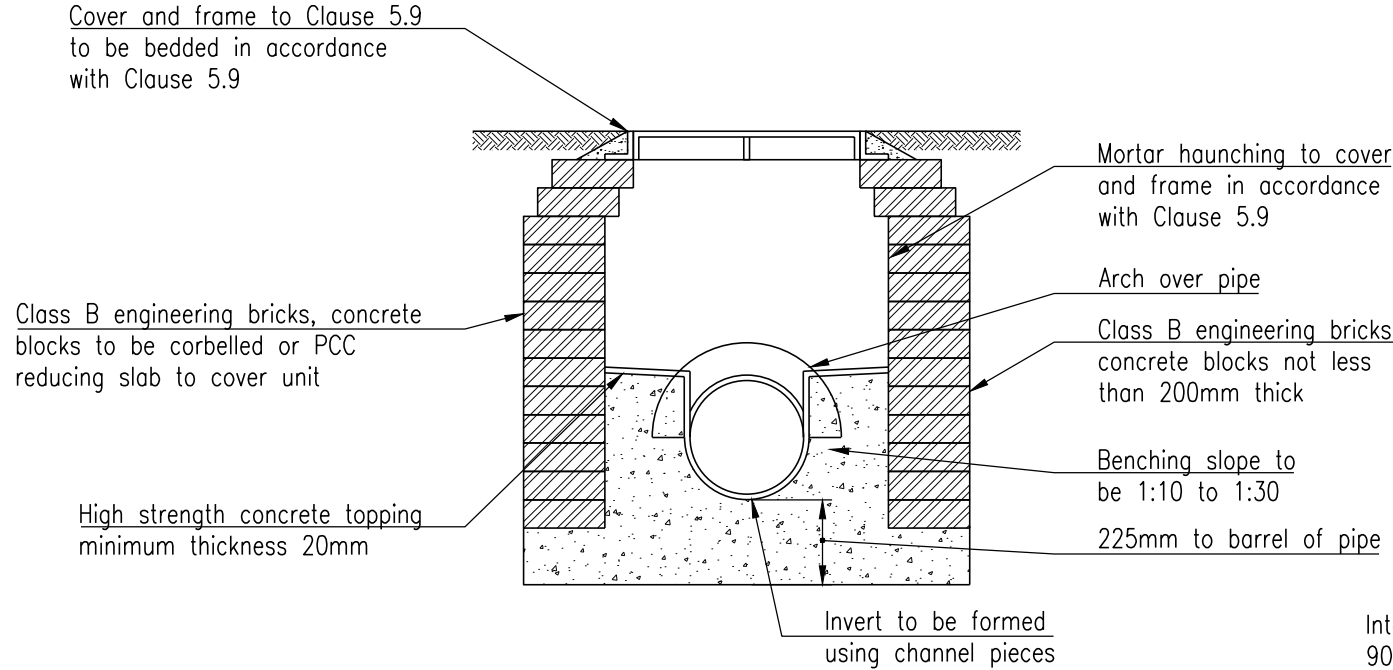
C-Concrete protection to pipe. For concrete grade refer to note 4 and concrete mix specification

E-General backfill shall be:
Suitable excavated material from the trench (or imported) excluding boulders, lumps of concrete, timber and vegetable matter. Do not use heavy compactors before there is 600mm cover of material over the pipes.

Bc-External diameter of pipe.

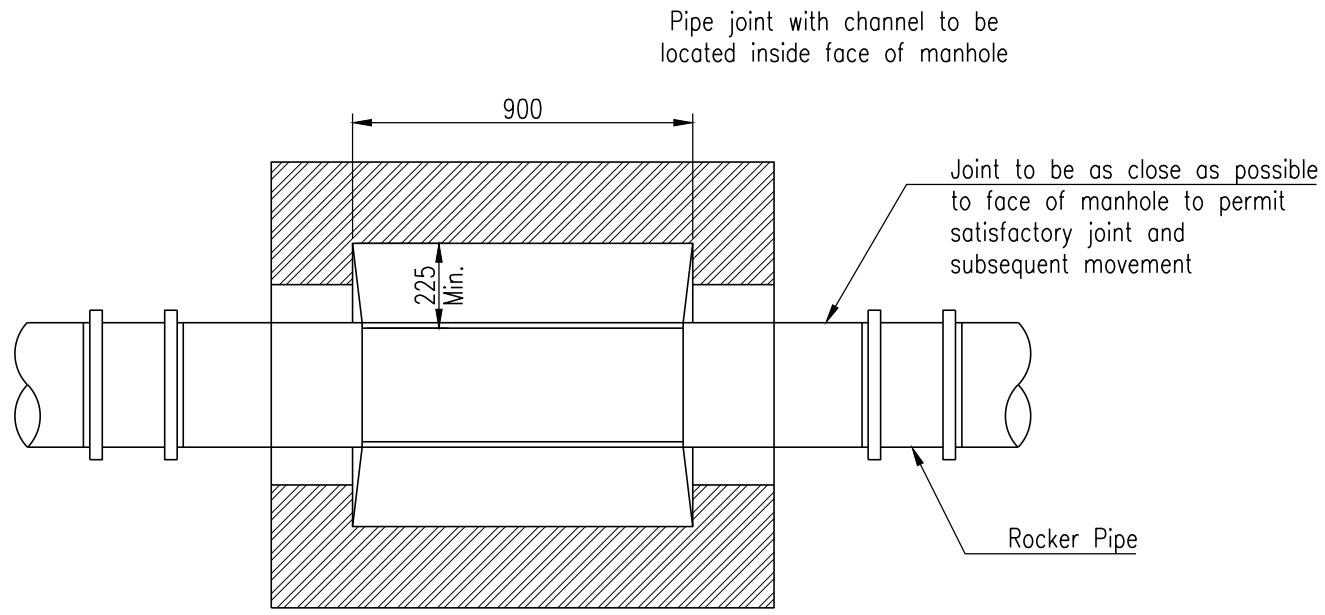
H-When 'H' (depth of cover) is less than 0.9m below the finished surface of a road or less than 0.3m elsewhere use bedding class A or Z as appropriate for the material being used, or;
Elsewhere use bedding class B or P as appropriate for the pipe being used. Provide temporary protection during construction against mechanical damage and frost.

Y-Depth of granular bedding Y shall be not less than 100mm beneath pipe barrels and shall be greater in soft, or wet conditions or where the trench bottom is irregular.



Section

Internal dimensions of manhole normally 900mm x 675mm but manhole widths should be increased for pipes larger than 225mm diameter to give 225 benching each side and the brickwork / masonry units corbelled down to suit cover or PCC reducing slab to suit cover size.



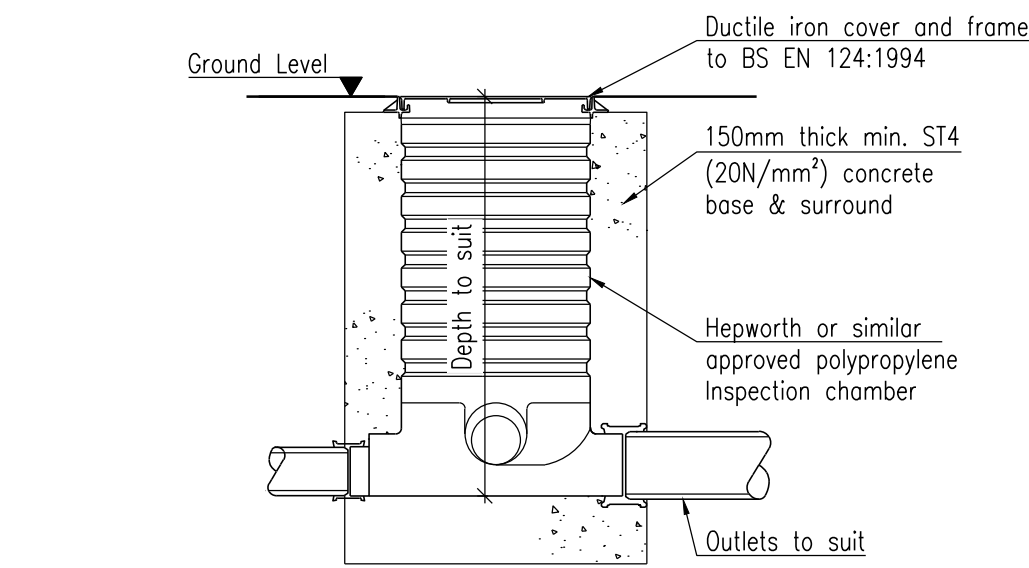
Plan

The use of precast rectangular concrete manhole units with 150mm C16/20 concrete surround is permitted. The concrete to be made with sulphate resisting cement unless otherwise agreed.

BRICK MANHOLE DETAIL

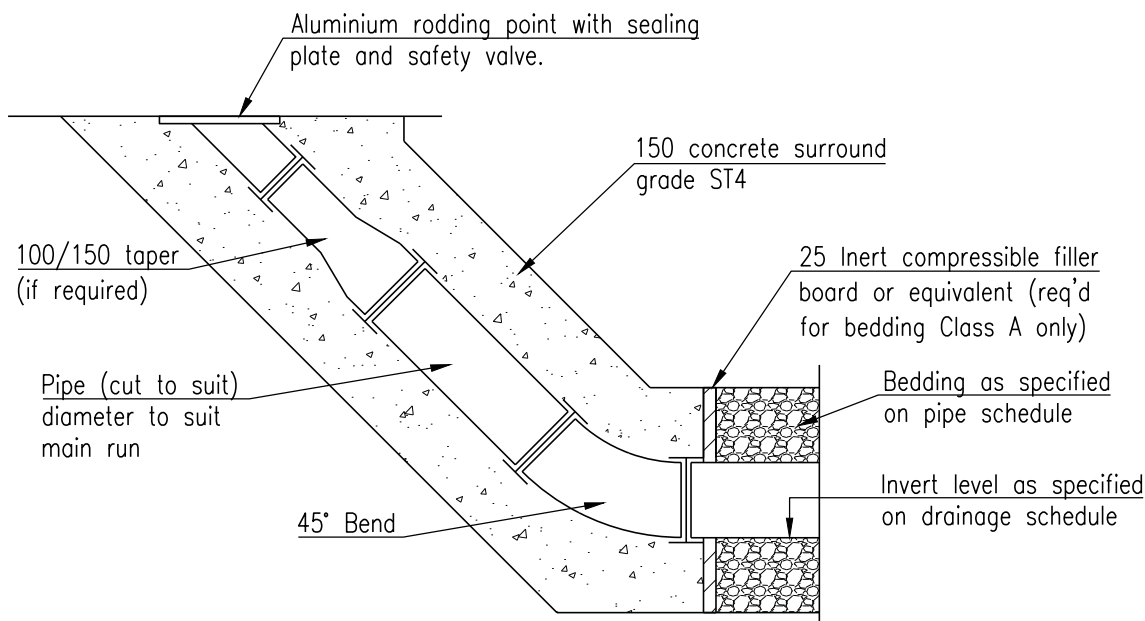
Max. Depth To Pipe Soffit 1m
Scale 1:20

Refer to Lincolnshire County Council Development Road Specification and Construction guide for Clause details



Typical Polypropylene Inspection Chamber

Scale 1:20



Detail for non trafficked area, medium duty cover in car parks (Class C250 to be EN 124)

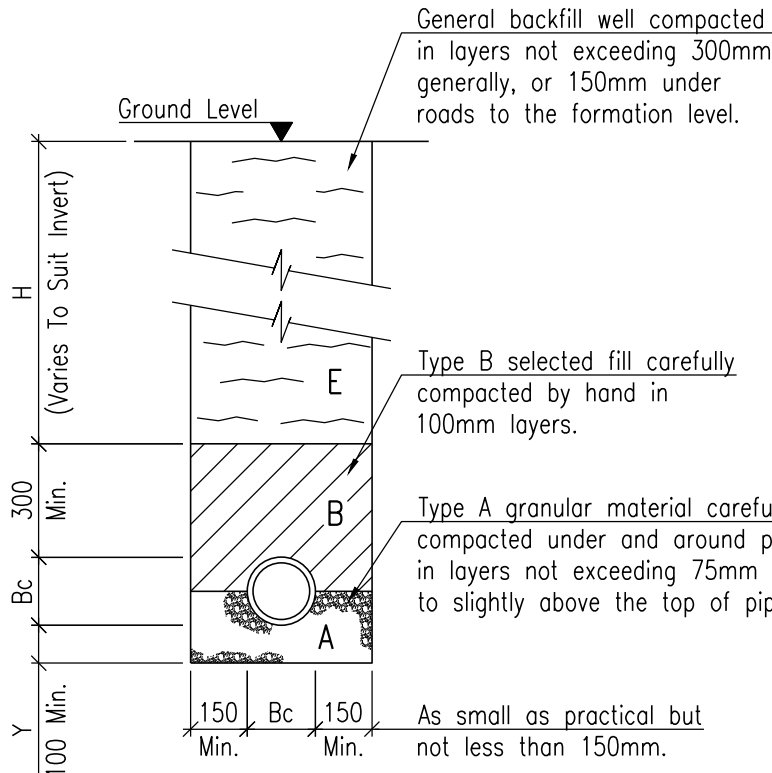
Light Duty Rodding Eye Detail

Scale 1:20

PERMITTED PIPE/BEDDING TYPES		
DEPTH OF COVER BELOW ROADS		
1.2m-3.5m		
PIPE BEDDING	TYPE S	TYPE S
PIPE TYPE	CONCRETE CLASS 120 TO BS:5911-1	VITRIFIED CLAY TO BS:65, WITH FLEXIBLE JOINTS SUPER STRENGTH CLASS FOR 225 AND 300mmØ. EXTRA STRENGTH CLASS FOR ALL OTHER SIZES.
COVER DEPTH	0.9m-1.2m	<0.9m
PIPE BEDDING	TYPE S + 150 CONC. SLAB	TYPE Z
PIPE TYPE	CONCRETE CLASS 120 TO BS:5911-1 AND VITRIFIED CLAY TO BS:65	CONCRETE CLASS 120 TO BS:5911-1 AND VITRIFIED CLAY TO BS:65

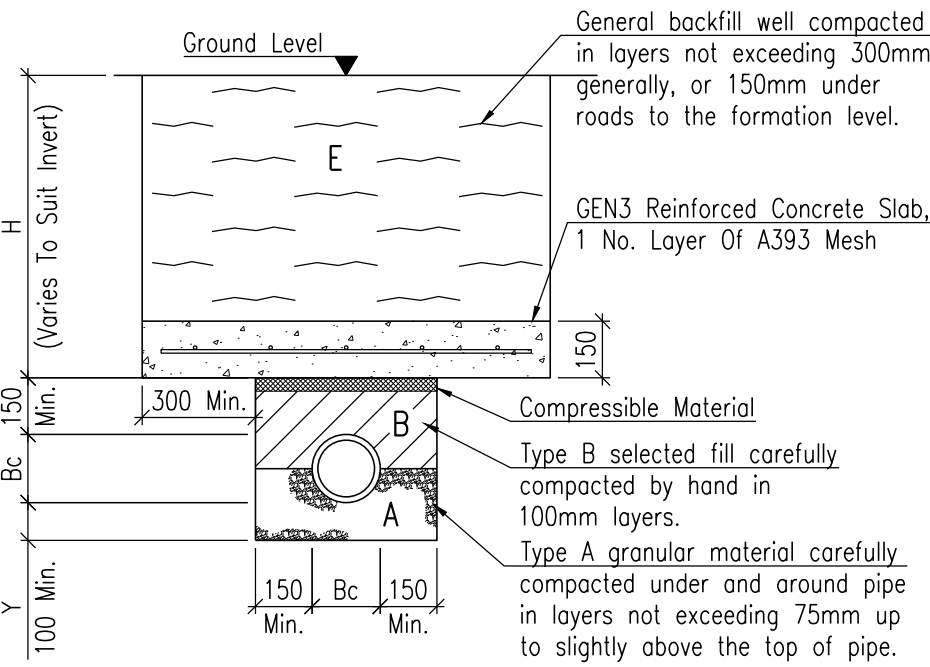
Table A
Granular bedding and sidefill material for vitrified clay pipes

PIPE SIZE DN (mm)	MAX. PARTICLE SIZE (mm)	NOMINAL SINGLE SIZE (mm)	GRADED SIZE (mm)	MAXIMUM CFE VALUE FOR AS-DUG
110	10	10	NOT PERMITTED	0.15
OVER 110 to 160	15	10 or 14	14 to 5	0.15
OVER 160 to 300	20	10,14 or 20	14 or 20 to 5	0.15
OVER 300 to 600	20	14 or 20	14 or 20 to 5	0.15



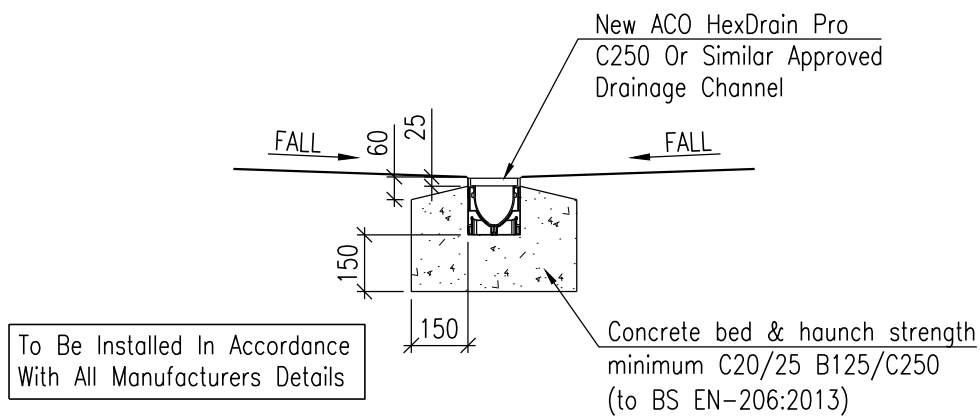
Type S Pipe Bedding

(Granular bed & surround)
Scale 1:20



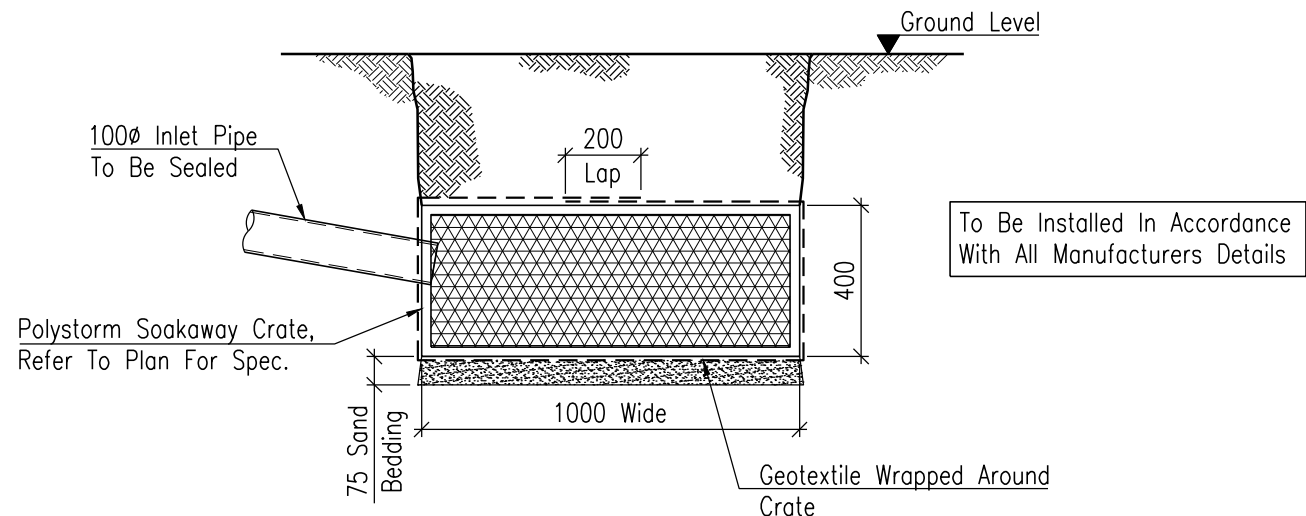
Type S Pipe Bedding With Concrete Slab Protection

(Granular bed & surround)
Scale 1:20



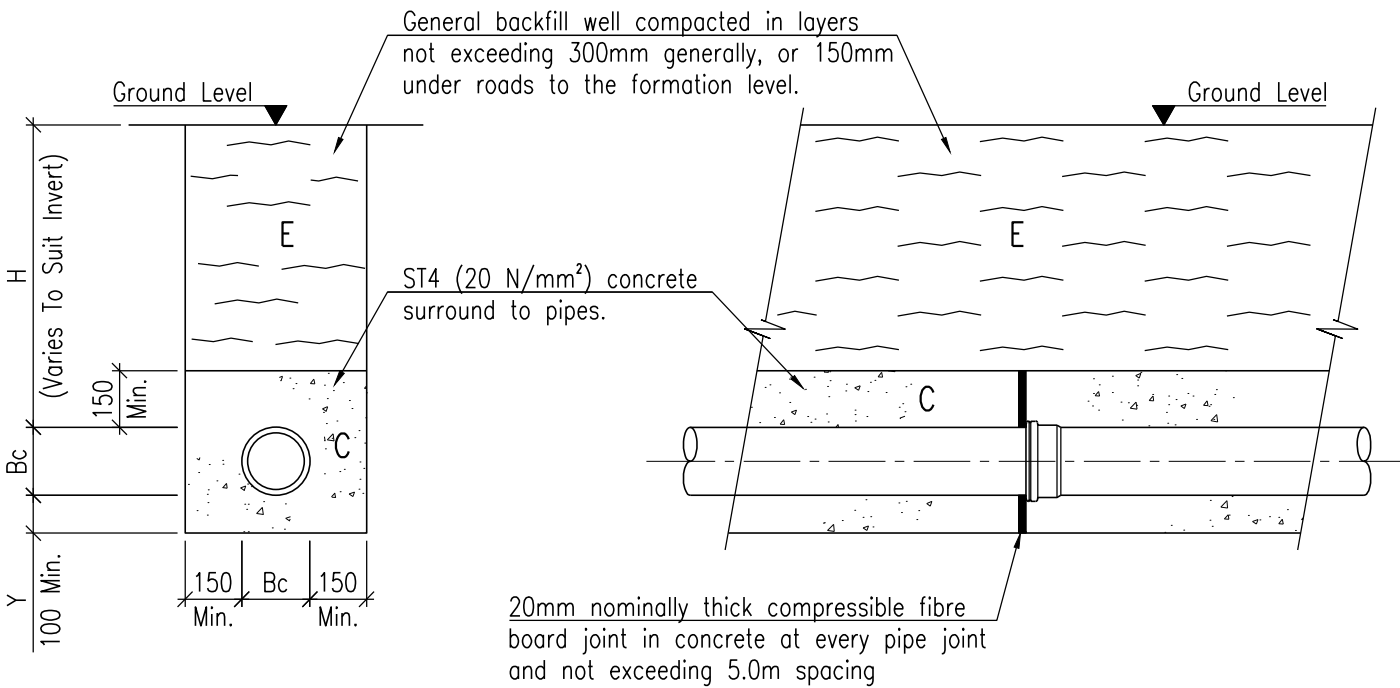
ACO Channel Detail

Scale 1:20

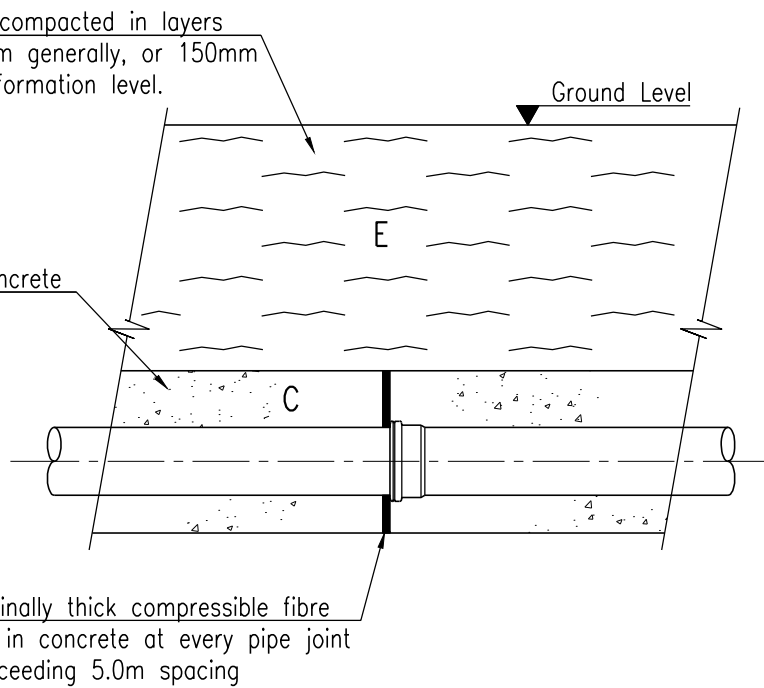


Soakaway Trench Detail

Scale 1:20



Section Through Pipe Trench



Section Along Pipe Trench

Type Z Pipe Bedding

(Concrete surround)
Scale 1:20