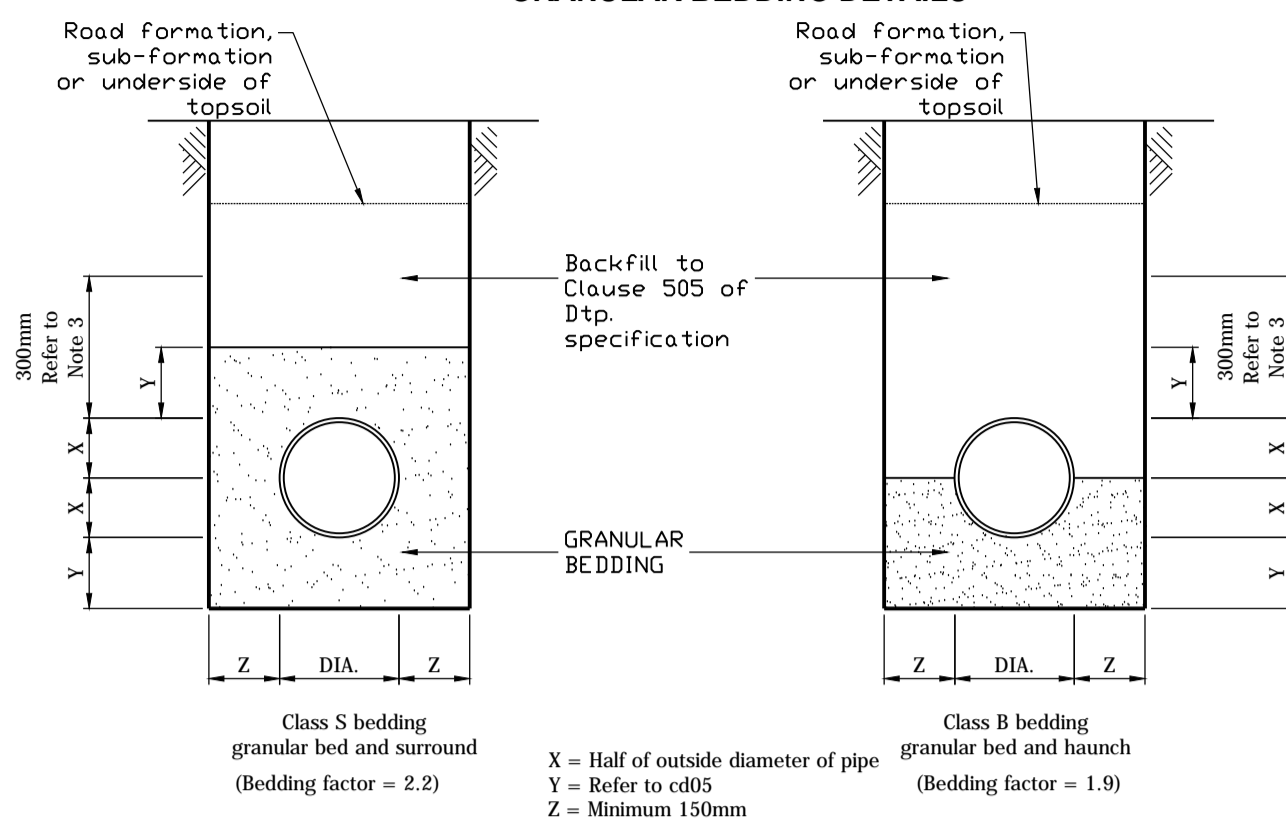


PIPE BEDDING DIMENSIONS

| PIPE DIAMETER | Y MINIMUM | | MAXIMUM TRENCH WIDTH | L |
|---------------|-----------|---------|----------------------|----|
| | Y1 MIN. | Y2 MIN. | | |
| 100 | 100 | 200 | 700 | 18 |
| 150 | 100 | 200 | 750 | 18 |
| 200 | 100 | 200 | 800 | 18 |
| 225 | 100 | 200 | 825 | 18 |
| 250 | 100 | 200 | 850 | 18 |
| 300 | 100 | 200 | 925 | 18 |
| 350 | 100 | 200 | 1000 | 18 |
| 375 | 100 | 200 | 1025 | 18 |
| 400 | 150 | 250 | 1050 | 18 |
| 450 | 150 | 250 | 1175 | 36 |
| 500 | 150 | 250 | 1240 | 36 |
| 525 | 150 | 250 | 1270 | 36 |
| 600 | 150 | 250 | 1370 | 36 |
| 675 | 150 | 250 | 1420 | 36 |
| 700 | 225 | 300 | 1460 | 36 |
| 750 | 225 | 300 | 1500 | 36 |
| 800 | 225 | 300 | 1560 | 36 |
| 825 | 225 | 300 | 1585 | 36 |
| 900 | 225 | 300 | 1675 | 36 |
| 975 | 225 | 300 | 1805 | 36 |
| 1050 | 225 | 300 | 1865 | 36 |
| 1125 | 225 | 350 | 1950 | 36 |
| 1200 | 375 | 350 | 2035 | 36 |
| 1350 | 375 | 400 | 2220 | 54 |
| 1500 | 375 | 450 | 2340 | 54 |
| 1650 | 375 | 500 | 2510 | 54 |
| 1800 | 375 | 500 | 2690 | 54 |

- NOTES:
- All dimensions are in millimetres.
 - DIMENSION Y1 shall be used unless Y2 is specified or is directed by the engineer.
 - DIMENSION Y2 shall be used in place of Y1 where the excavation is in rock or in mixed soils containing rock beds, boulders, large flints or other irregular hard spots.
 - DIMENSION Y2 shall be increased by 40mm for each additional 1.0m of cover in excess of 5.0m.
 - DIMENSION L is the width of compressible filler required at joints in concrete.

DETAIL 4.1 GRANULAR BEDDING DETAILS



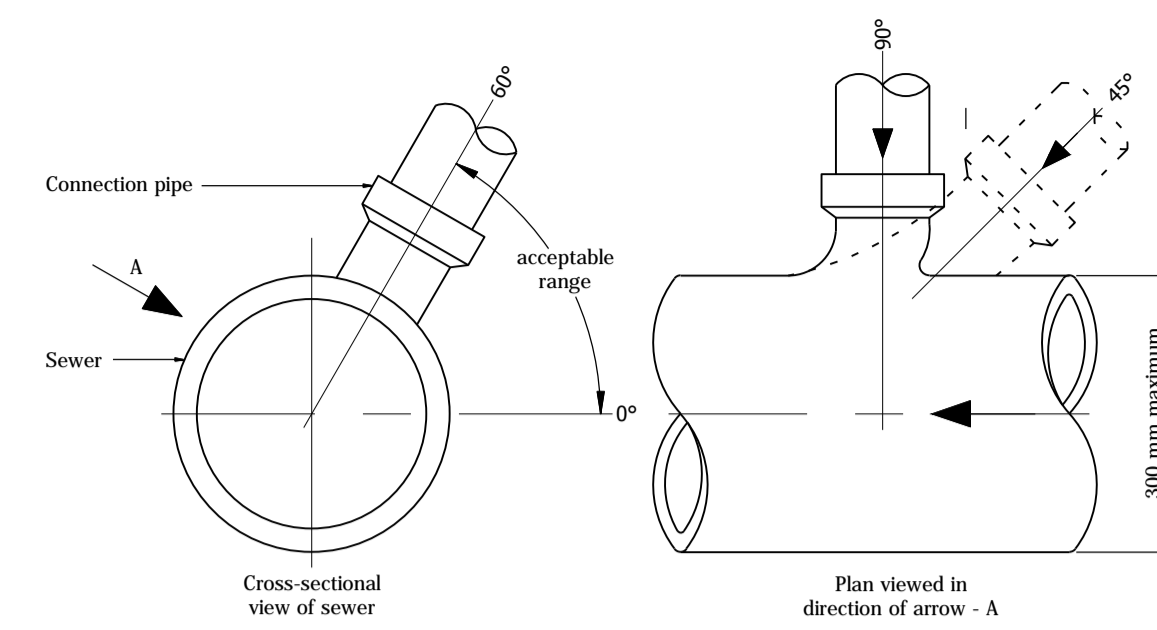
- NOTES:
- Refer to tables for dimensions and bedding details.
 - Bedding beneath and at the sides of the pipe to be well compacted.
 - The first 300mm of fill above the crown of the pipe is to be lightly tamped by hand, mechanical compaction may be used only above this level.
 - Geotextiles may be used where directed or approved by the engineer to contain bedding material in certain soils e.g. running sand.
 - In very wet conditions, where directed or approved by the engineer a temporary land drain may be laid within the granular bed.

GRANULAR BEDDING AND SIDEFILL MATERIALS

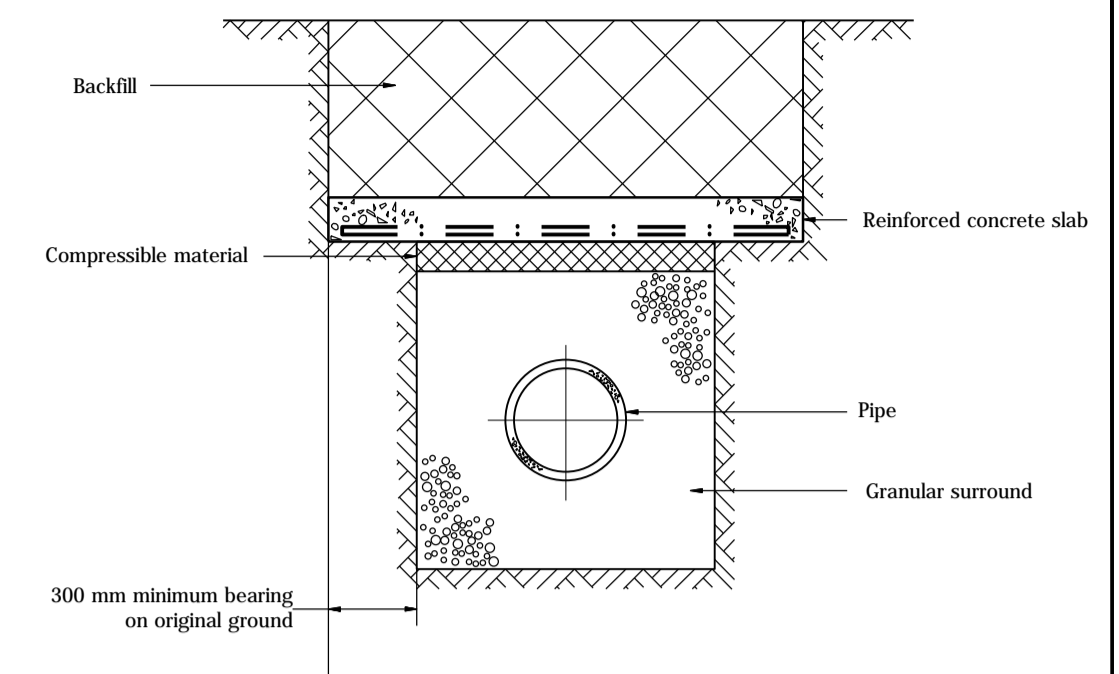
| PIPE DIAMETER | CLASS OF BEDDING | IMPORTED GRANULAR MATERIAL (NOTE 1) |
|-------------------|------------------|--|
| 100 | S B | 10mm NOMINAL SIZE |
| OVER 100 TO 150 | S B | 10 OR 14mm NOM. SINGLE SIZE OR 14 TO 5mm GRADED |
| OVER 150 TO 500 | S B | 10, 14, 20mm NOM. SINGLE SIZE OR 14 TO 5mm GRADED OR 20 TO 5mm GRADED |
| OVER 500 (NOTE 2) | S B | 10, 14, 20mm NOM. SINGLE SIZE CRUSHED ROCK OR 14 TO 5mm GRADED OR 20 TO 5mm GRADED OR 40 TO 5mm GRADED |

- NOTES:
- Imported granular materials to include aggregates to BS 882, Air-cooled blast furnace slag to BS 1047 & sintered pulverized fuel ash to BS.3797.
 - Angular materials should be chosen to ensure sufficient support is provided.
 - To heavier pipes.
 - CLASS S bedding shall be used with flexible pipes.

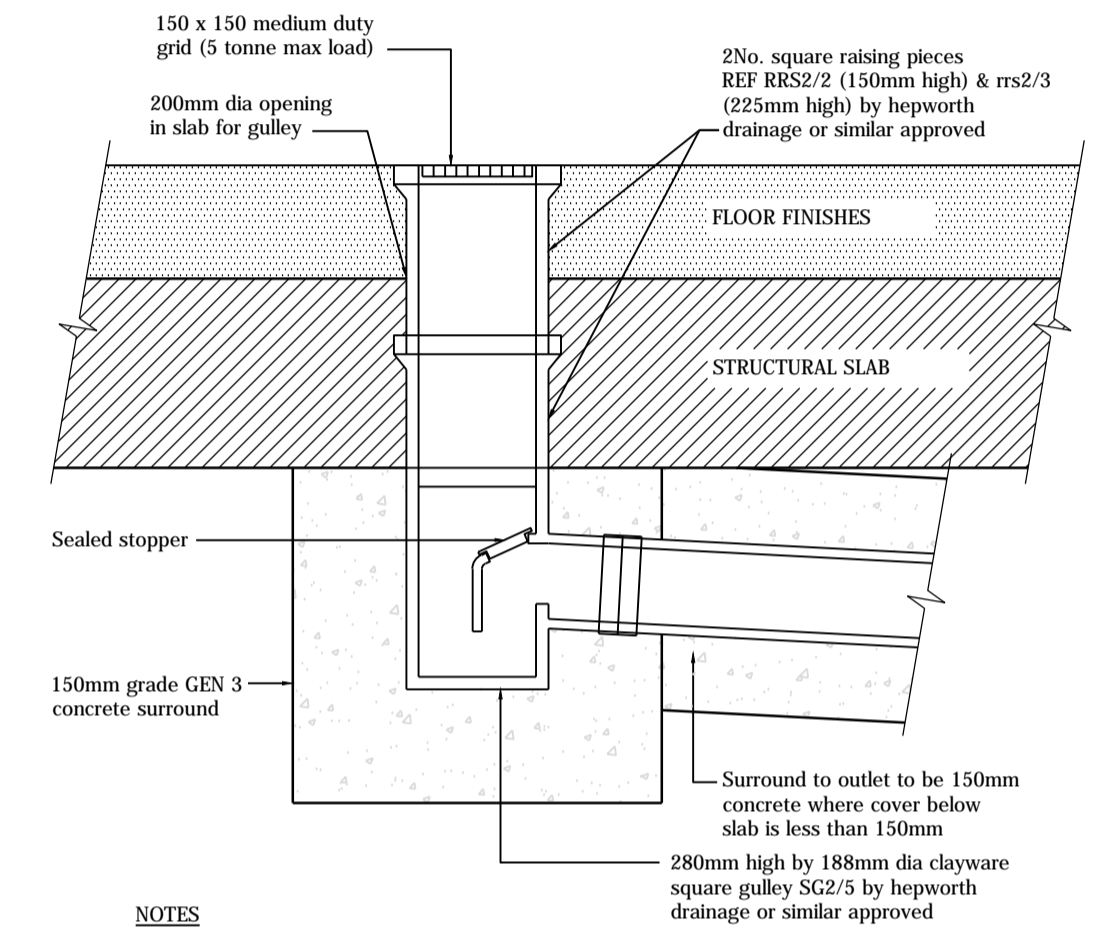
DETAIL 4.2 CONNECTIONS TO SEWER



DETAIL 4.3 PROTECTION OF PIPES LAID AT SHALLOW DEPTHS

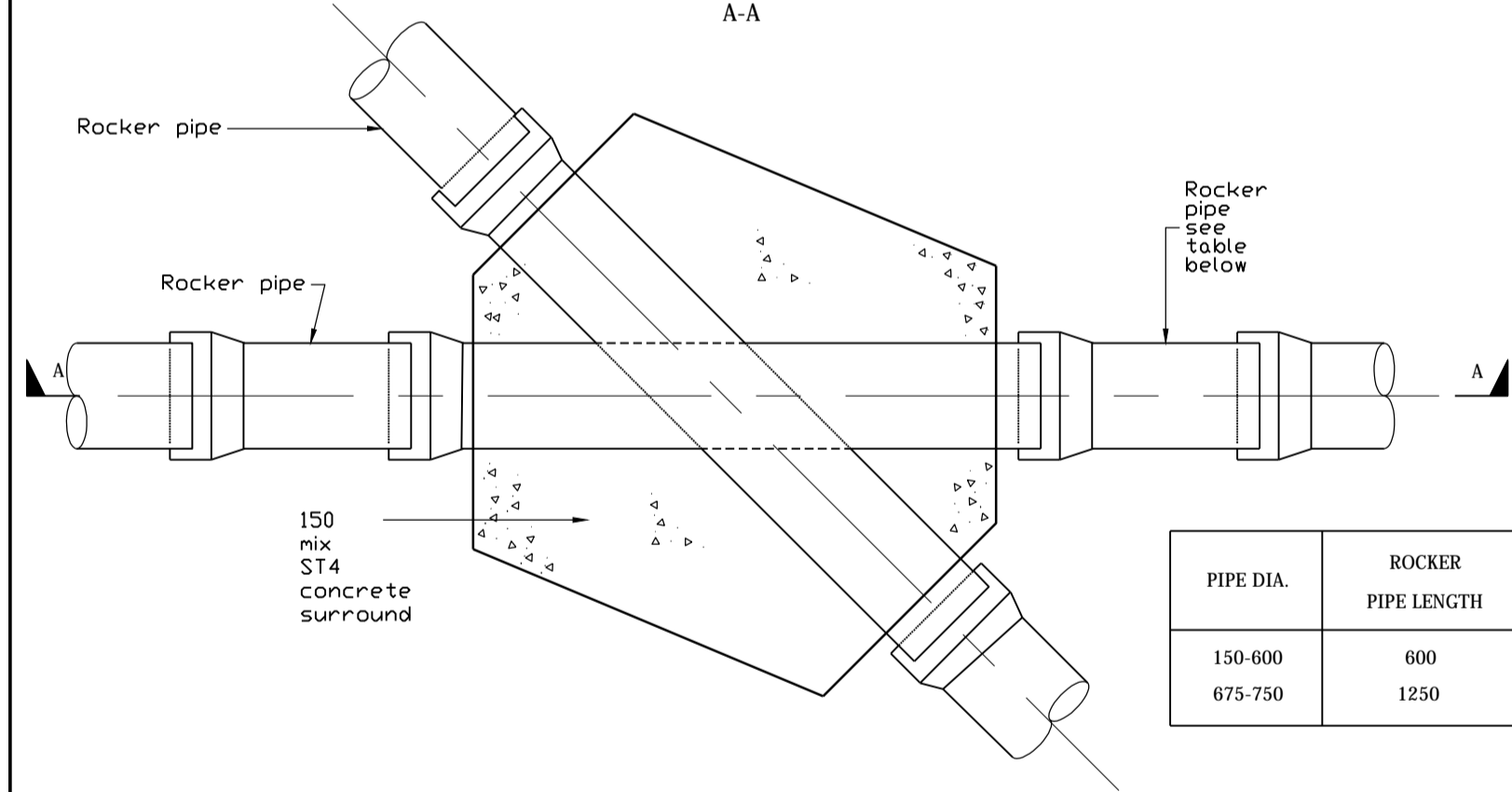
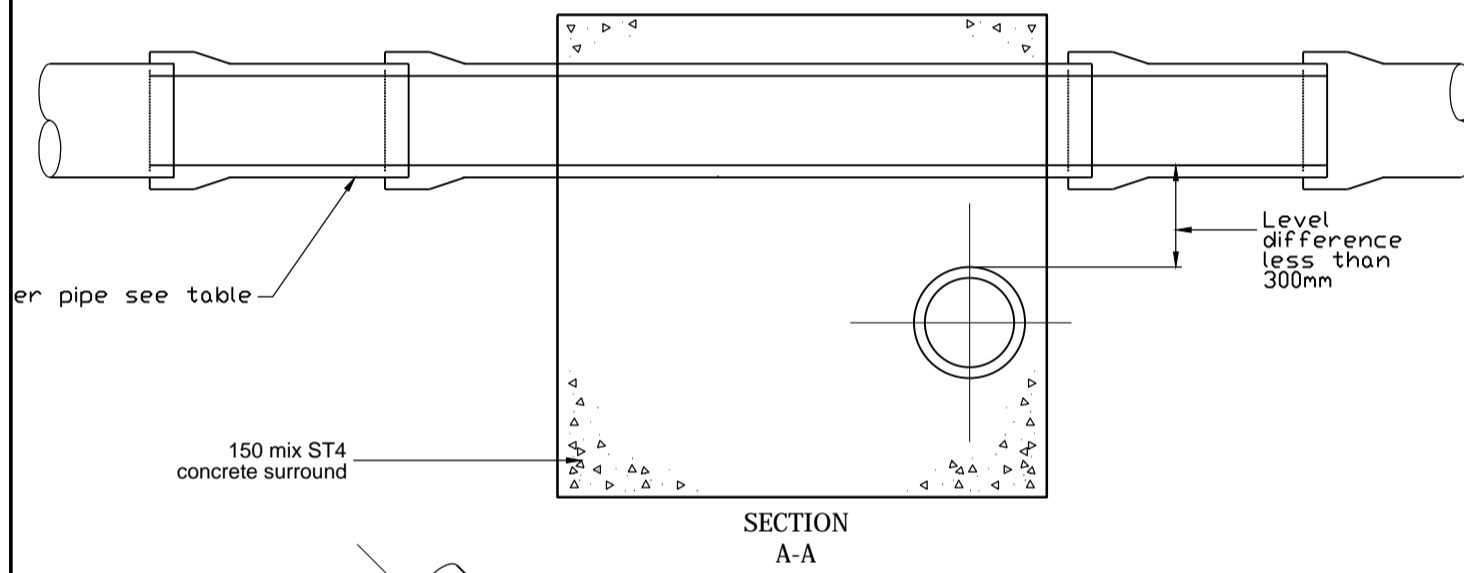


DETAIL 4.7 DETAIL OF INTERNAL FLOOR GULLEY



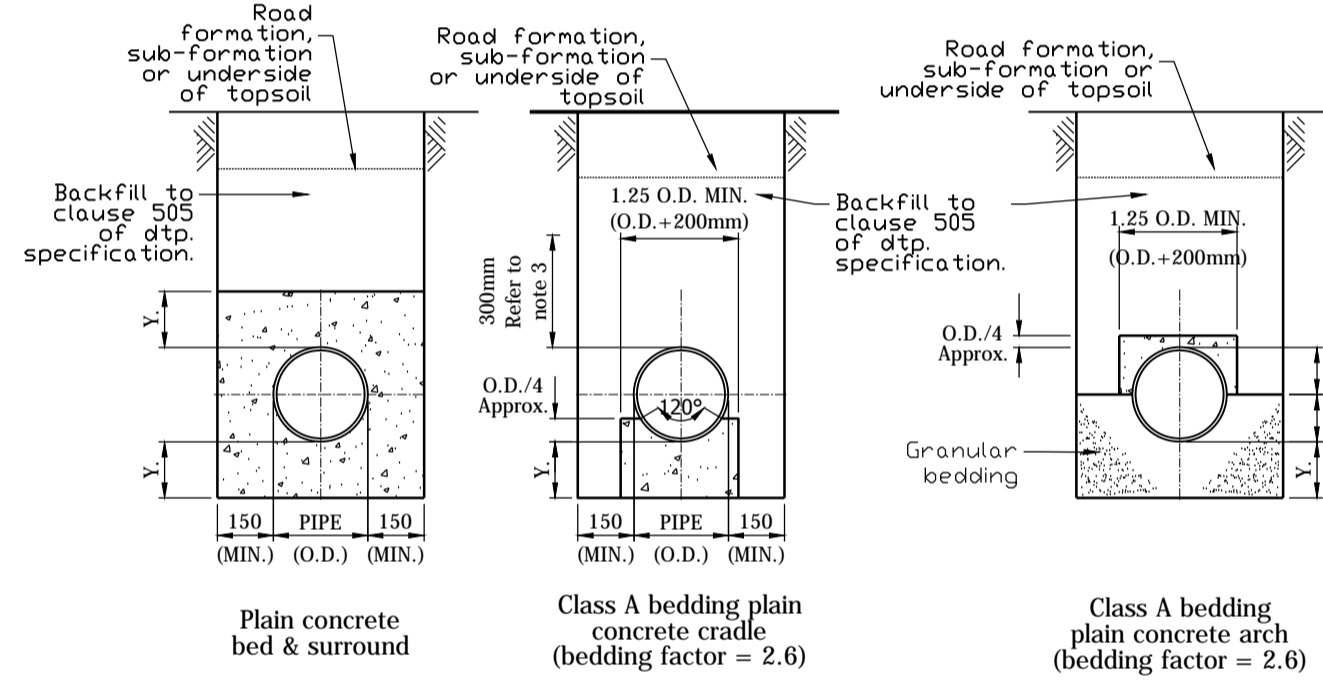
- NOTES:
- All dimensions are in millimetres.
 - Pipes between gully and drain whether flexible or rigid shall have flexible joints, see note 3, for 200mm from gully, however for untrapped gullies the first joint from the gully pot shall be fully enclosed in concrete as shown.
 - Flexible joints shall be formed with 18mm thick fibre board, pre-cut to pipe diameter, the height and width equal to the concrete cross section.
 - Concrete to have class DS-2/AC-2 Resistance to sulphates, where depths are greater than 4m below ground level concrete to have class DS-3/AC-2 Sulphate resistance.
 - Where a prefabricated junction is used, the concrete surround to the drain junction may be omitted.

DETAIL 4.4 PLAN CROSSOVER DETAIL

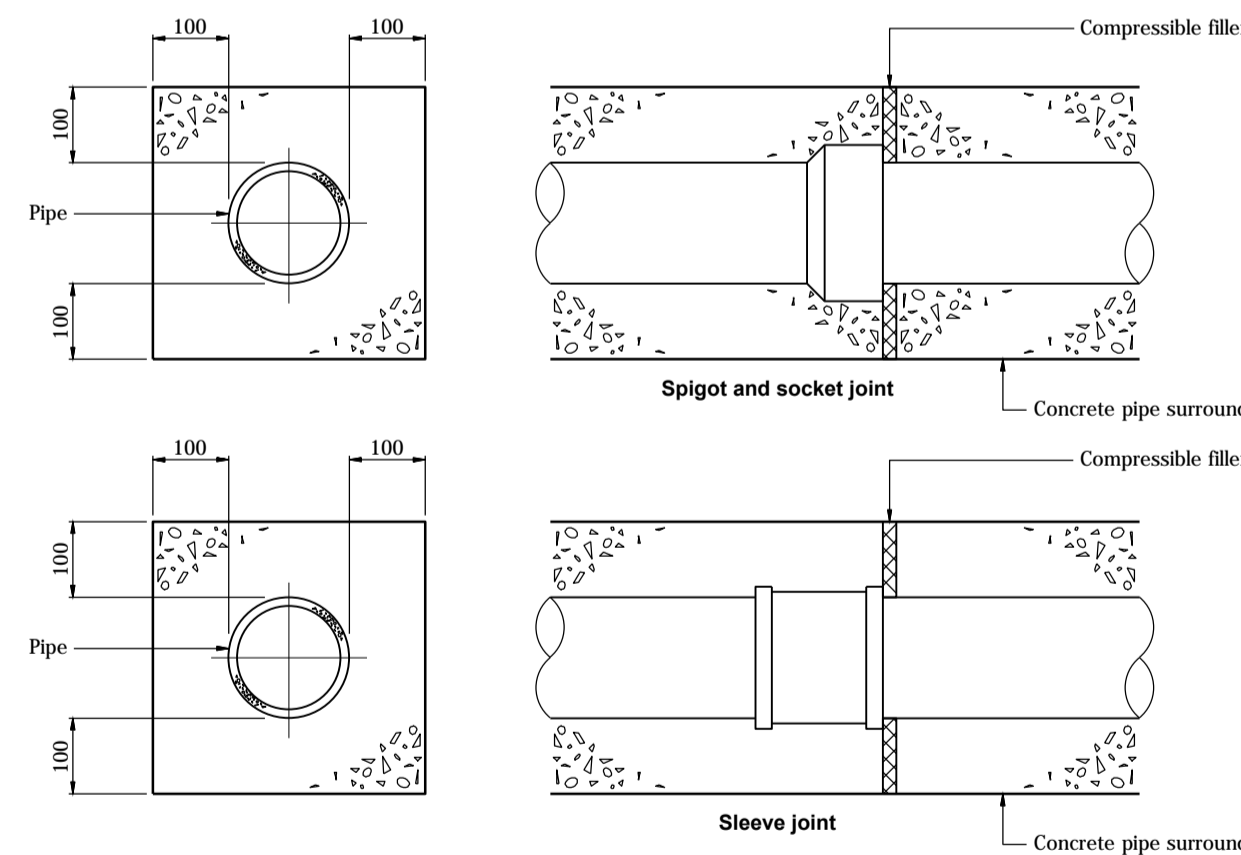


| PIPE DIA. | ROCKER PIPE LENGTH |
|-----------|--------------------|
| 150-600 | 600 |
| 675-750 | 1250 |

DETAIL 4.5 CONCRETE BEDDING DETAILS

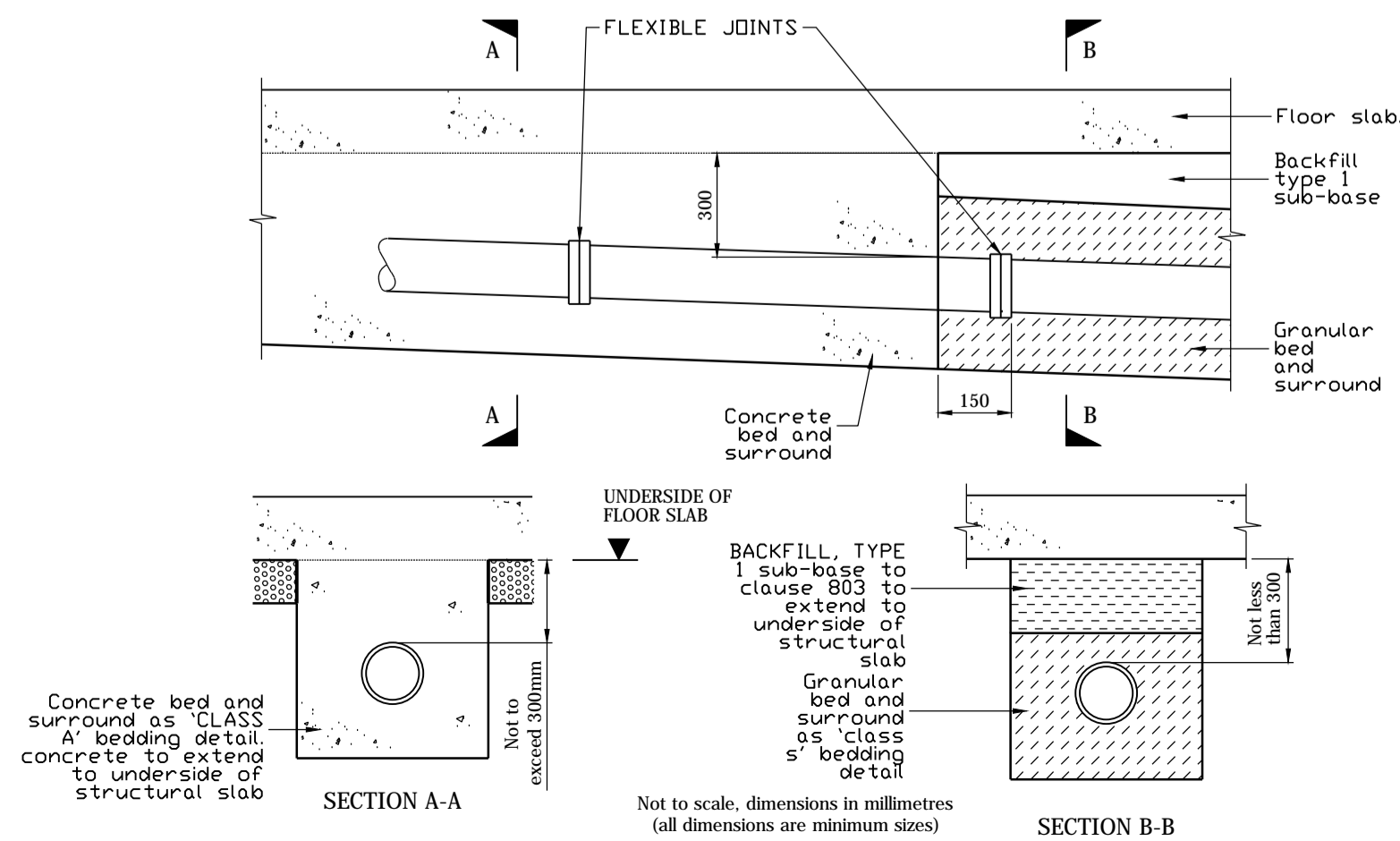


DETAIL 4.8 JOINTS FOR CONCRETE ENCASED PIPES

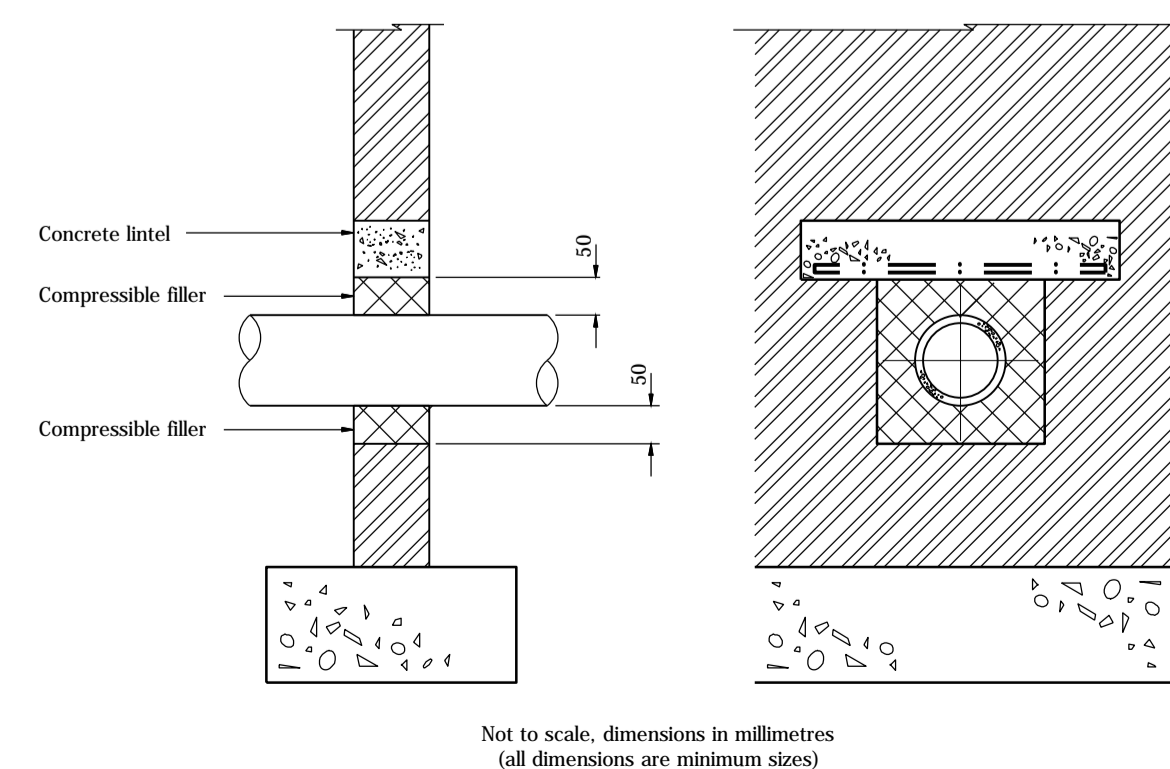


- NOTES:
- Refer to tables for dimension and bedding materials.
 - Bedding beneath and at sides of the pipe to be well compacted.
 - Where a concrete cradle is provided, the first 300mm of fill above the crown of the pipe is to be lightly compacted by hand, mechanical compaction may be used only above this level.
 - Concrete cradles and arches may be extended to the sides of the trench.
 - Geotextiles may be used where directed or approved by the engineer to contain bedding material in certain soils e.g. running sand.
 - In very wet conditions, where directed or approved by the engineer a temporary land drain may be laid within the granular bed.
 - Where pipes with flexible joints are used, the concrete protection is to be interrupted over its full cross-section at intervals not exceeding 3 metres (or as directed by the engineer) by a shaped former of bitumen impregnated compressible filler, these interruptions shall coincide with pipe joints, see dimensions for pipe bedding table for thickness of compressible filler.
 - Concrete to be class 2; sulphate resisting ST4 concrete.
 - Where flexible pipes are used, care must be taken to prevent the pipes from floating.

DETAIL 4.9 DRAINS UNDER BUILDINGS



DETAIL 4.10 PROTECTION OF PIPES PENETRATING SINGLE LEAF BOUNDARY WALLS



- NOTES:
- Concrete bed and surround shall be provided as section a-a where distance between underside of slab and pipe soffit is less than or equal to 300mm.
 - Where pipes with flexible joints are used the concrete protection shall be interrupted over its full cross-section at each joint by a shaped compressible filler, (see dimensions for pipe bedding table for thickness of compressible filler).
 - If pipes are surrounded in concrete, the joints shall be protected from the ingress of concrete by wrapping them with two coats of mastic bandage tape.

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

Note

Works to comply with requirements of Sewers for Adoption 7th edition.

PRELIMINARY ISSUE

| P1 | FIRST ISSUE | DCF | AP | ACP | 16.10.17 |
|-----|-------------|-----|-----|-----|----------|
| REV | DESCRIPTION | BY | CHK | APP | DATE |



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SPTA SFA LARKHILL

Drawing Title:
DRAINAGE DETAILS
SHEET 4

| Scale @ | A1 | Drawn | Date | Checked | Date | Approved | Date |
|-------------|--------|----------|-------------|----------|----------|----------|------|
| NTS | DCF | 12.10.17 | AP | 12.10.17 | ACP | 12.10.17 | |
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| A100941-3 | 28 | C | 1854 | | P1 | | |