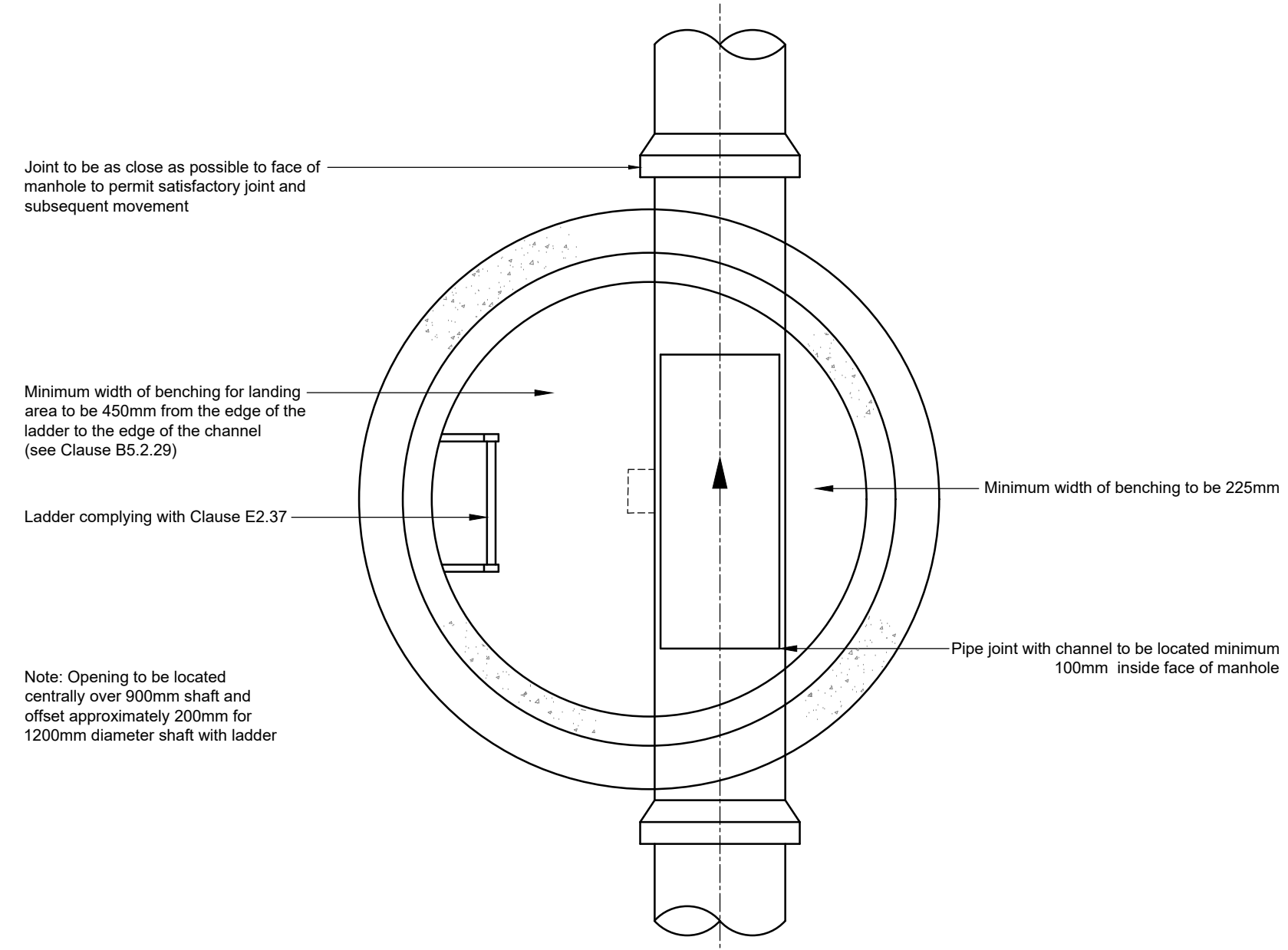
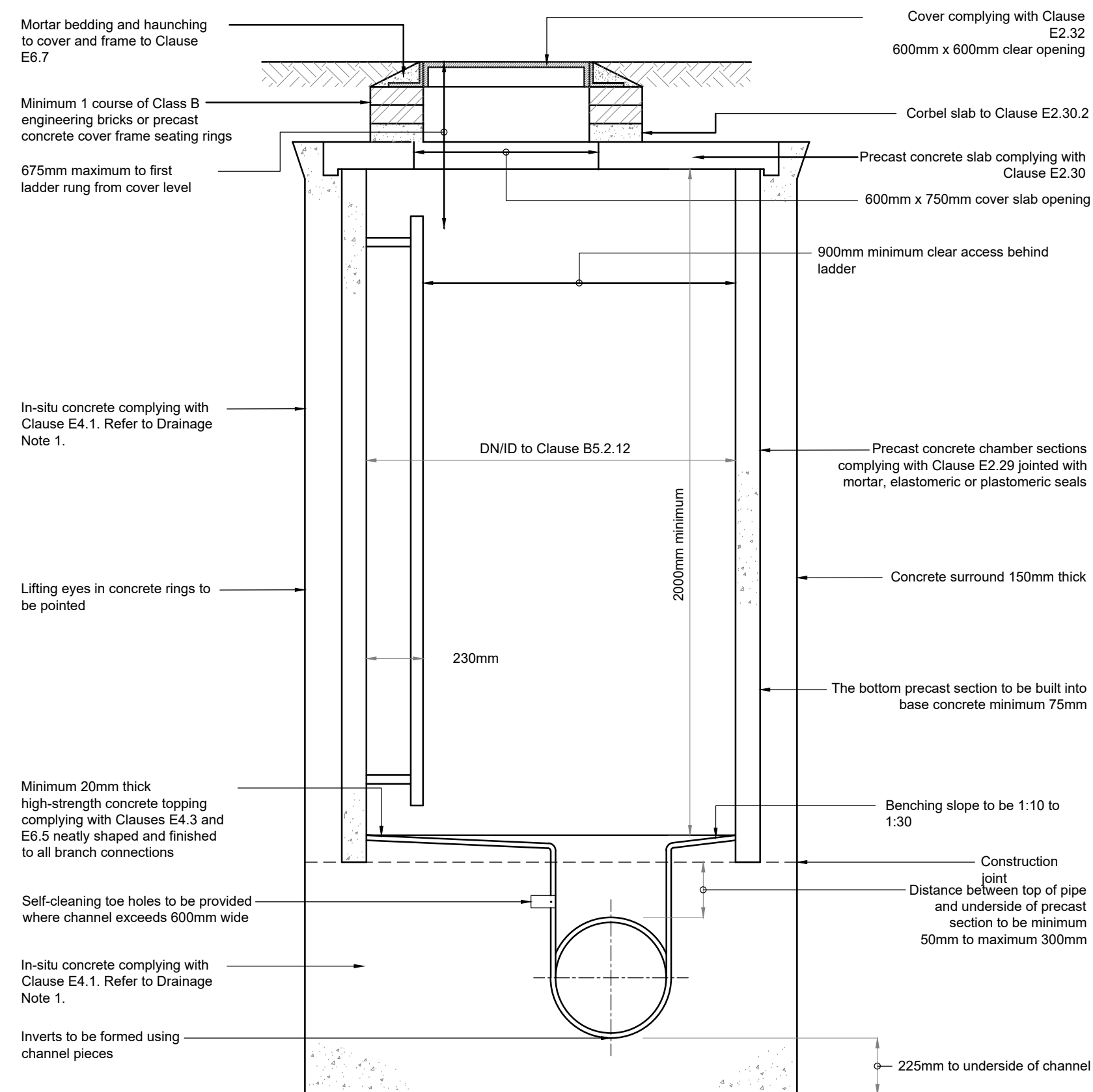


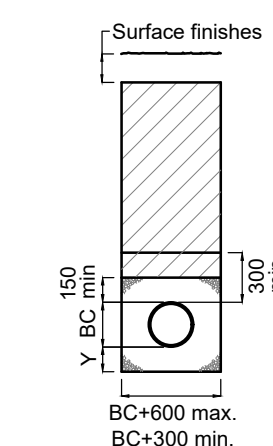


TYPICAL MANHOLE DETAIL - TYPE A

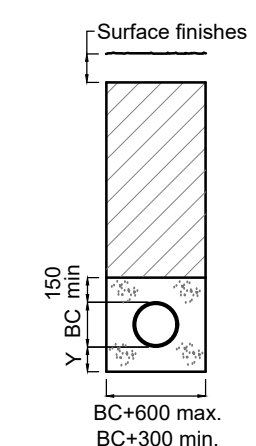
SCALE 1:20

Depth from cover level to soffit of pipe 3m to 6m with ladder.  
Alternative rigid material construction with concrete surround.

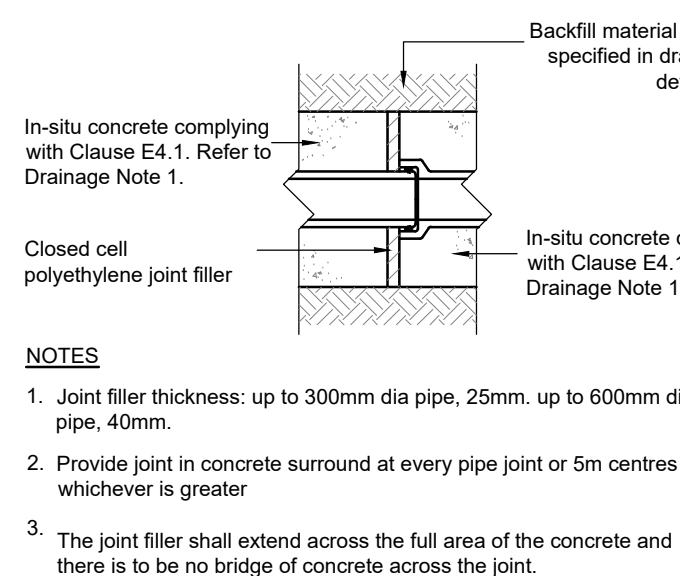
| KEY                                                           |                                                                                                                           |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|                                                               | Granular material (see table below)                                                                                       |
|                                                               | Granular type 1 material deposited in layers not exceeding 225mm unconsolidated thickness and then fully compacted.       |
|                                                               | Concrete - Refer to Drainage Note 1.                                                                                      |
| BC                                                            | Outside diameter of pipe                                                                                                  |
| Y                                                             | BC/6 or 100mm under barrels and 50mm min. under sockets whichever is greater (400mm max.)                                 |
| OR                                                            |                                                                                                                           |
| Y                                                             | BC/4 or 200mm under barrels and 150mm min. under sockets whichever is greater (400mm max.) for trenches in hard material. |
| Z                                                             | BC/4 or 100mm under barrels whichever is greater.                                                                         |
| —                                                             | Earthworks outline.                                                                                                       |
| GRANULAR MATERIAL                                             |                                                                                                                           |
| DIA. OF DRAIN                                                 | AGGREGATE                                                                                                                 |
| 100mm                                                         | 10mm single size                                                                                                          |
| 150mm                                                         | 10mm or 14mm single size or 5-20mm graded.                                                                                |
| 225-525mm                                                     | 10mm or 14mm single size or 5-20mm graded.                                                                                |
| over 625mm                                                    | 10, 14, 20 or 40mm single size or 5-40mm graded.                                                                          |
| NOTE: No mechanical compaction within 300mm of crown of pipe. |                                                                                                                           |



TYPE S (GRANULAR) BED AND SURROUND



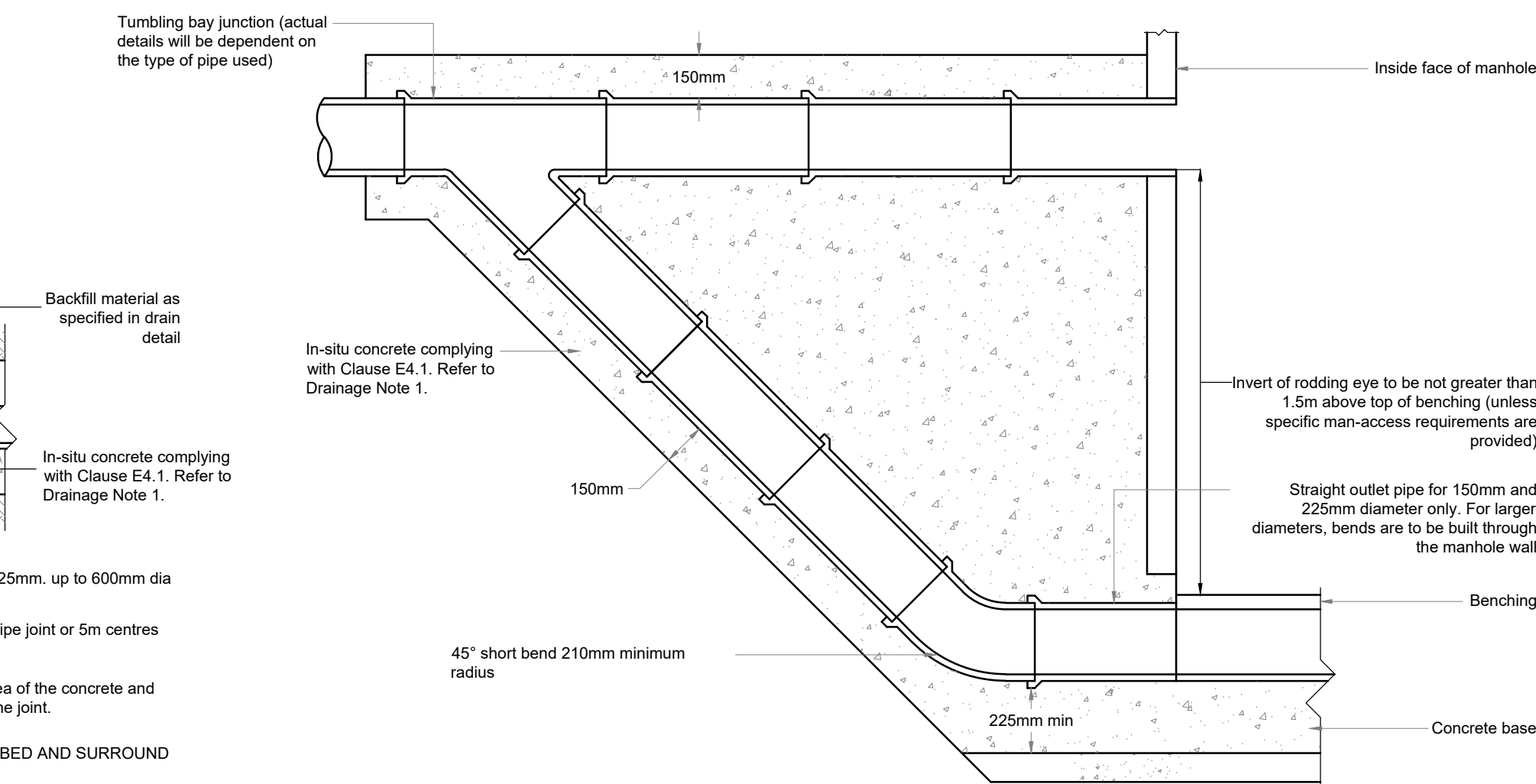
TYPE Z (CONCRETE) BED AND SURROUND



FLEXIBLE JOINT DETAIL FOR CONCRETE BED AND SURROUND

## NOTES

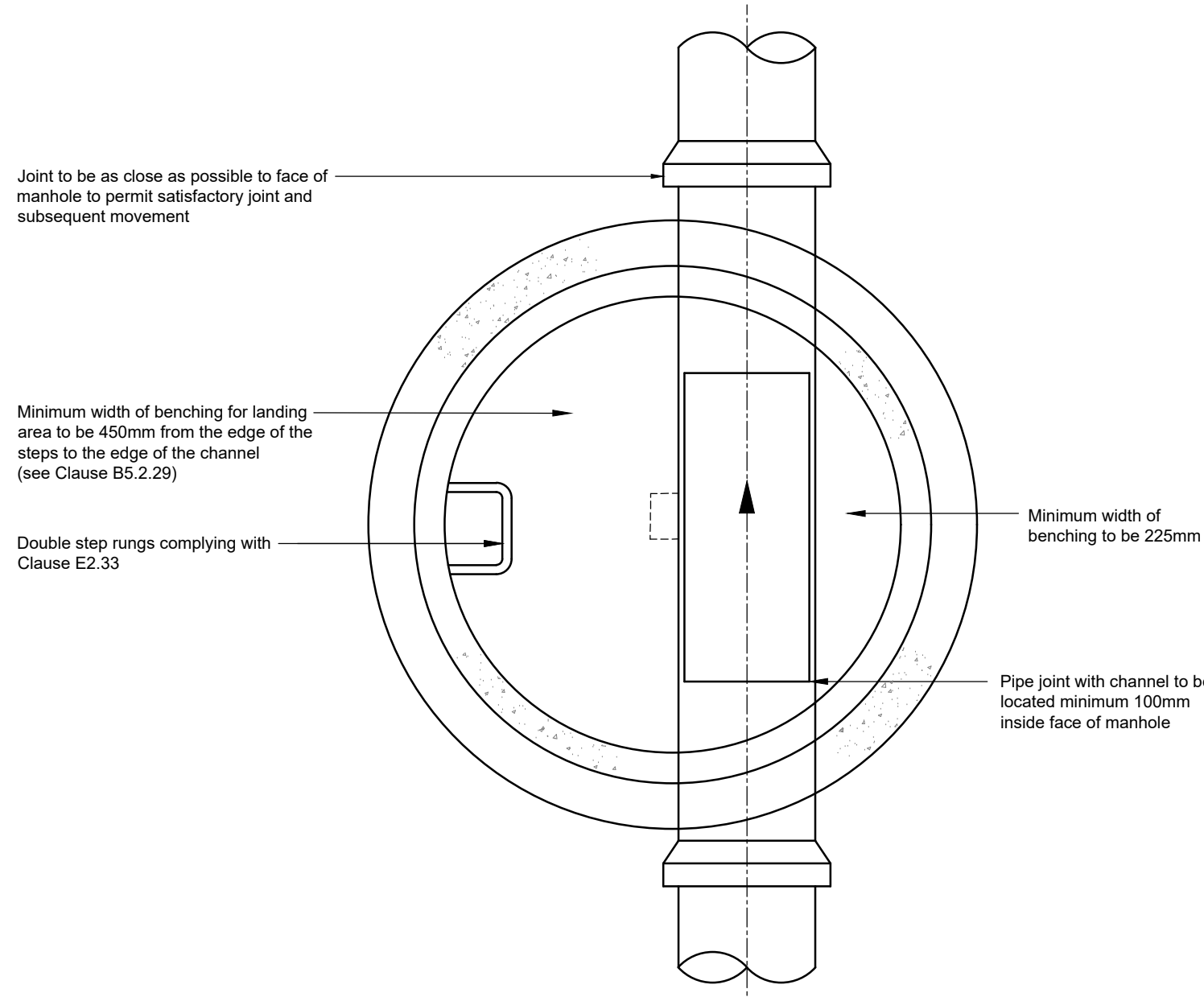
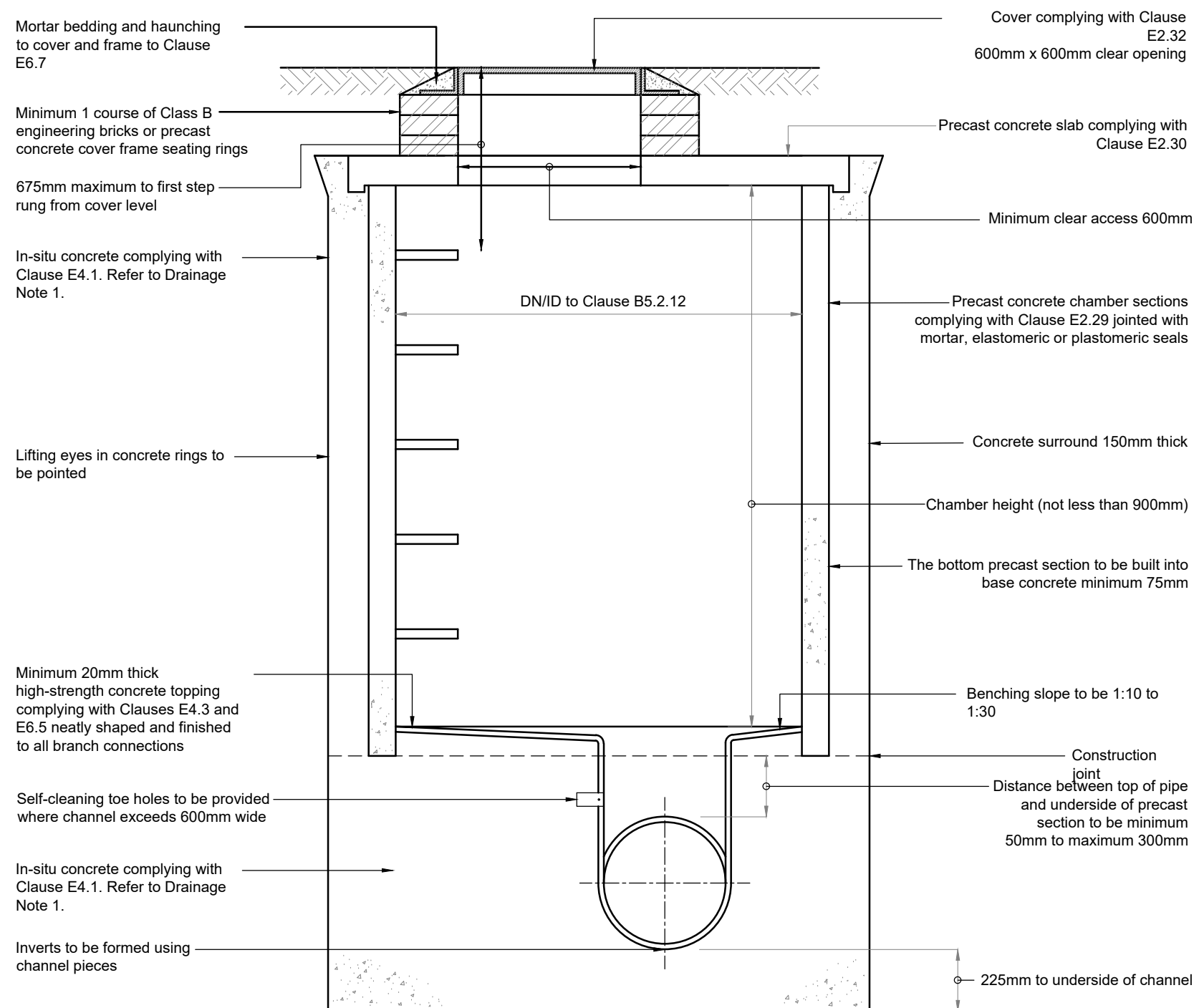
- Joint filler thickness: up to 300mm dia pipe, 25mm; up to 600mm dia pipe, 40mm.
- Provide joint in concrete surround at every pipe joint or 5m centres whichever is greater
- The joint filler shall extend across the full area of the concrete and there is to be no bridge of concrete across the joint.



EXTERNAL RAMPED BACKDROP

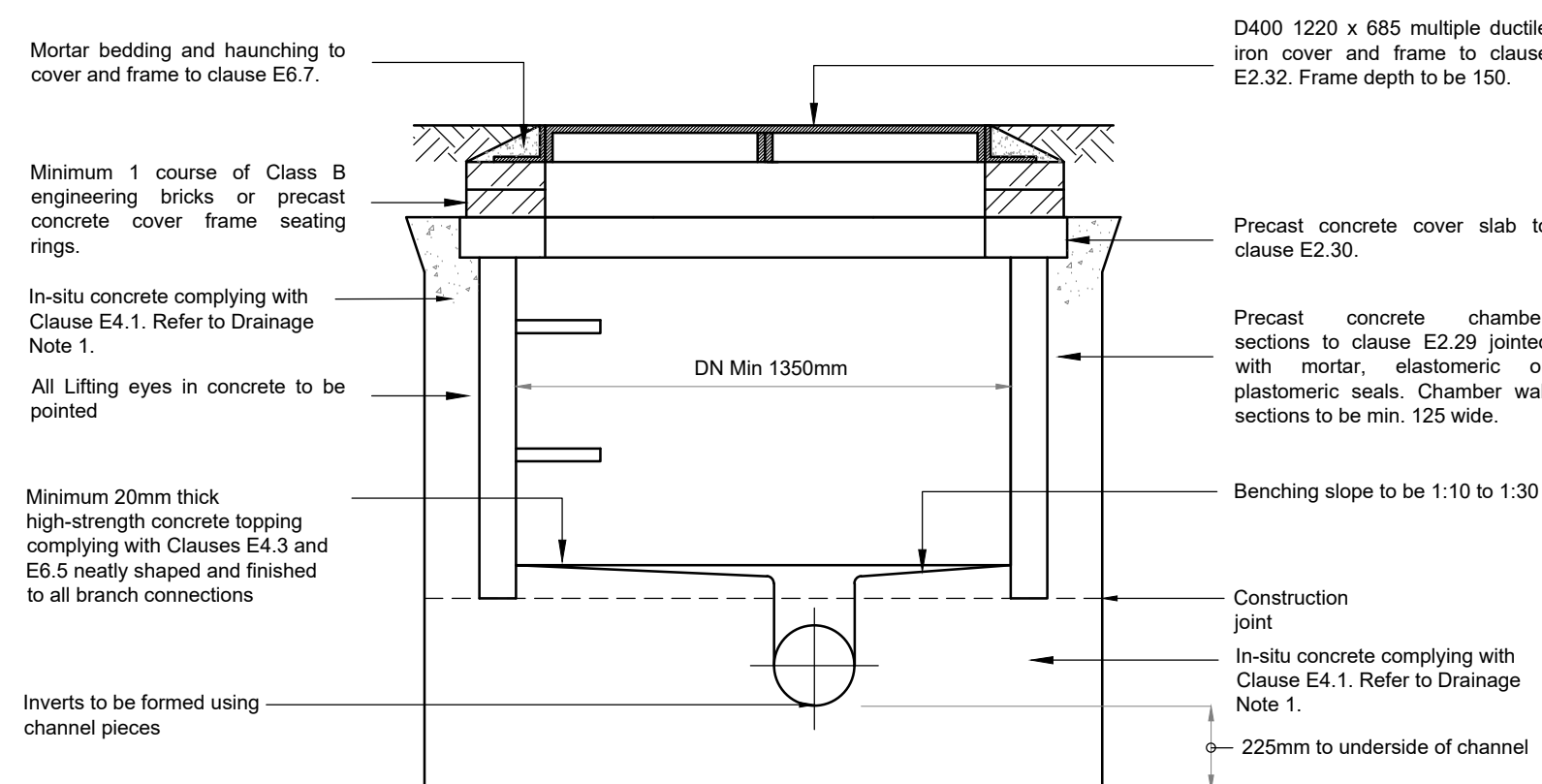
SCALE 1:20

Rigid material construction



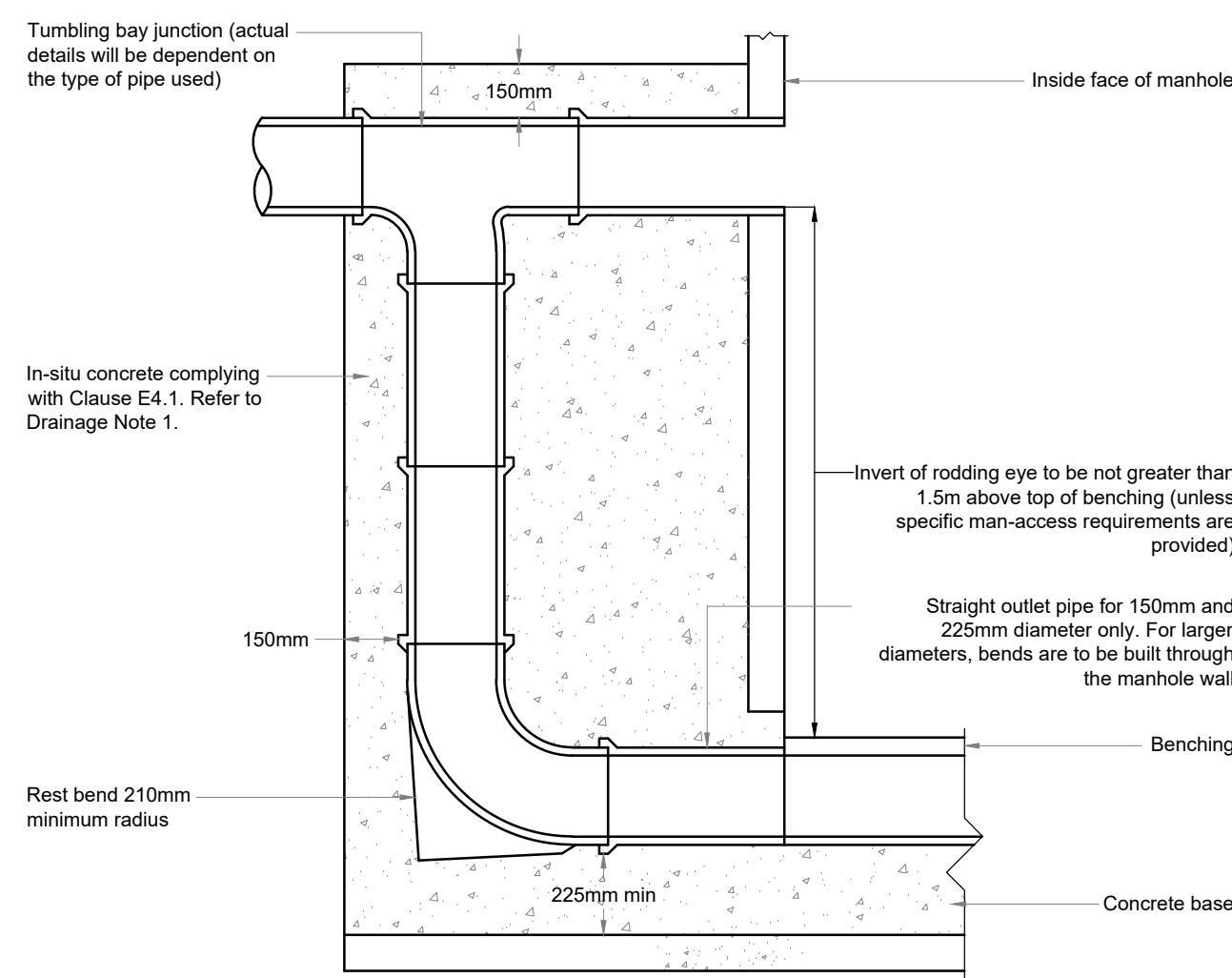
TYPICAL MANHOLE DETAIL - TYPE B

SCALE 1:20

Depth from cover level to soffit of pipe 1.5m to 3m.  
Alternative rigid material construction with concrete surround.

TYPICAL MANHOLE DETAIL - TYPE C

SCALE 1:20

Depth from cover level to soffit of pipe less than 1.5m.  
Rigid material construction without concrete surround.

EXTERNAL VERTICAL BACKDROP

SCALE 1:20

Rigid material construction

## GENERAL NOTES

- DO NOT SCALE.
- This drawing is to be read in conjunction with all other relevant drawings and details.
- Should there be any conflict between the details indicated on this drawing and those on other drawings the Engineer should be informed PRIOR to construction on site.
- Until technical approval has been obtained from the relevant Authority, it should be understood that all drawings issued are Preliminary and NOT for construction. Should the Contractor commence site works prior to such approval being provided it is entirely at their own risk.
- All dimensions are in millimetres unless otherwise stated.
- The Rodgers Leask Designer's Risk Assessment(s) for this project must be reviewed PRIOR to the commencement of any works on site.
- Temporary protection to be provided to drainage work during construction as necessary.
- All drainage work is to be strictly in accordance with the requirements of the Building Regulations 2015, Approved Document Part H, "Drainage and waste disposal".
- This drawing is for planning issue only and is not for construction.

## DRAINAGE NOTES

- Ground conditions indicate Design Sulphate Class 4 and Aggressive Chemical Environment Class 4. Concrete specification to be Class DC-4, in compliance with BRE Special Digest 1, unless further testing demonstrates otherwise.
- Refer to Sewerage Sector Guidance Appendix C 'Design and Construction Guidance' document for specification clause references.
- All manholes and inspection chambers situated in areas subject to vehicular loading to have min. class D400 covers and frames to BS EN124 and those not subject to vehicular loading to have class B125 covers and frames.
- The first flexible joint in pipes adjoining a manhole shall be a maximum length of 600mm from the inside face of the manhole, connecting to a rocker pipe. The length of the rocker pipe shall be as follows:

| Pipe diameter | Length of Rocker pipe |
|---------------|-----------------------|
| 150-600mm     | 600mm                 |
| 675-750mm     | 1000mm                |
| over 750mm    | 1250mm                |

- All pipes, chambers and fittings shall be installed, bedded and backfilled in accordance with the manufacturers instructions.
- Type S bed and surround to be used for all pipework except where depth from finish surface to crown of pipe is:
  - less than 1.2m and subject to trafficking in excess of 7.5m vehicle weight (eg HGVs), or
  - less than 0.9m generally.
 In which case Type Z concrete bed and surround should be used.
- The following types of pipe may be used unless noted or agreed otherwise:
  - Pipes up to 300mm to be super strength Vitrified Clay pipes to BS 295.
  - Pipes over 300mm diameter to be Concrete to BS 5911.
- Both Clay and Concrete pipes shall be strength class 120 (100/150mm min crushing strength 28kN/m).
- Pipes which run adjacent to buildings shall be installed in strict accordance with Part H, Clauses 2.23 to 2.25.

|              |             |            |    |
|--------------|-------------|------------|----|
| P01/21.02.25 | First Issue | CB         | DB |
| Rev          | Date        | Amendments | By |

**RLRE**  
Consulting Engineers  
LIMITED

## Indurent

Project  
**Indurent Park, Newport  
Units 15-18**

Drawing Title

**Drainage Construction Details  
Sheet 1 of 3**

Status

## For Planning

| Scale    | Drawn | Checked | Date     |
|----------|-------|---------|----------|
| As shown | CB    | DB      | 21.02.25 |

RLL Project/Drawing Number  
**24054-RLL-25-XX-DR-C-0111** P01

BIM Drawing Reference

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