Office of the Technical Regulator

Bedding of trenches for sanitary drainage systems

Plumbing Advisory Note

Issued 4 June 2026

A compliant drainage installation begins with a properly prepared trench base. Where natural ground conditions are unsuitable, they must be corrected using appropriate materials and methods, and engineering input must be sought where required.

All licensed plumbers and drainage contractors are responsible for:

- assessing trench ground conditions prior to installation.
- selecting and implementing appropriate base preparation methods
- ensuring installations comply with AS/NZS 3500.2 requirements.

Failure to provide adequate trench base support may result in:

1. non-compliant installations
2. system failure
3. enforcement action

Installers must ensure that all work complies with the mandatory provisions of the Standard, not solely the informative appendices.

Bedding of drains

The bed onto which drains are laid shall continuously support the installed drain accommodating the loads from the pipeline and surrounding ground. Bedding of drains shall meet the following requirements:

In stable soils, drains shall either be –

1. Directly supported on the undisturbed base of the trench provided the base of trench is free from any rocks or tree roots.
2. Laid on a bedding material or similar recycled materials of nominal size between 7mm and 10mm
3. Cement mortar containing 1 part Portland cement to 4 parts sand by volume, thoroughly mixed with clean water to a workable consistency.
4. In clay rock or shale, gravel or ground containing hard objects, drains shall be supported on a bedding material placed in the trench.
5. Cement mortar bedding if the base of trench is rock or shale. If the grade is greater than 20% (1:5), the cement mortar shall be –
    i. a minimum depth of 50mm, measured below the barrel of the pipe;
    ii. not less than 75mm wide
    iii. not closer than 20mm to flexible joints; and
    iv. have pipes supported at not greater than 1500mm from the centres, before placing the mortar bedding
6. Free-running sand capable of passing through a 2mm sieve which does not contain clay, organic or any other deleterious materials
7. Ground or surface water entering the trench shall not disturb the bedding materials.

The minimum compacted pipe bedding material thickness is 75mm.

Legislative requirements

Sanitary drainage installations must meet the performance objectives of the National Construction Code Volume 3 Plumbing Code of Australia (PCA). The referenced deemed to satisfy (DTS) provision within the PCA for sanitary drainage installations is AS/NZS 3500.2. Normative trench bedding requirements are specified within the DTS provisions.

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Pipe support and pipe overlay material shall not be inferior to the pipe bedding material.

The sanitary drain services shall be surrounded with not less than 75mm of compacted sand or fine-grained soil, with no hard-edged object to come in contact with or rest against any pipe or fitting.

Backfill shall be free from builder's waste, bricks, concrete pieces, rocks or hard matter larger than 25mm and soil lumps larger than 75mm.

Drains in other than stable ground

If drains are to be laid in filled, unstable or water-charged ground, support and bedding shall be designed to withstand and suit the ground conditions. If an engineer has specified allowance for expansion and movement such as knuckle and expansion joints, the ground conditions are unstable. In this circumstance an appropriate bedding material is to be installed.

Appendix G of AS/NZS 3500.2

- Is provided as informative guidance only for residential class 1 buildings.
- Does not constitute mandatory compliance requirements.
- Should be used to support good practice but does not override normative clauses

The Office of the Technical Regulator recommends the use of 7-10mm screenings which self-compact and can be installed up to 200mm in depth (other bedding materials 100mm maximum depth).

Note: If the site engineer has specified the use of fittings to allow for ground movement such as but not limited to swivel, knuckle and expansion joints, it means that the soil is unstable.

Contact the Office of the Technical Regulator for more information

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