FACT SHEET

Sanitary Drainage in Reactive Soils

Background

MidCoast Council (Council) serves as the plumbing regulator for the MidCoast Local Government Area (LGA) under delegation from the NSW Department of Fair Trading. Council is responsible for ensuring that plumbing and drainage installations comply with the National Construction Code (NCC) and relevant Australian Standards.

The NCC provides three pathways for compliance:

1. Deemed-to-Satisfy (DTS) provisions, which prescribe standard construction methods which are deemed to comply with NCC Performance Requirements.

2. Performance Solutions, which need to demonstrate compliance with NCC Performance Requirements i.e. via evidence of suitability, verification, expert judgement

3. Combination of Solutions, which will use both Deemed-to-Satisfy provisions and Performance Solutions to achieve compliance with NCC Performance Requirements.

NCC (Volume 3), Section C2P7 (Notes) states that “there are no Deemed-to-Satisfy Provisions for sanitary drainage systems to address ground movement.”

As a result, sanitary drainage installations in reactive soils typically require a Performance Solution.

Relevant Codes and Standards

The following standards provide guidance relevant to these conditions:

AS 2870–2011 – Residential Slabs and Footings

- Section 2.1.2 defines site classifications based on expected ground surface movement and the depth to which it occurs. Classifications H1, H2, and E indicate high to extreme ground movement due to moisture changes.
- Section 2.1.3 states that Class P is not defined by movement parameters alone but indicates the potential for significant ground movement. The basis for this classification must be recorded in the classification report, along with recommendations for further geotechnical investigation.
- Sections 5.6.4 and 6.6 outline plumbing requirements that apply in highly and extremely reactive soils.

AS/NZS 3500.2 – Plumbing and Drainage, Part 2: Sanitary Plumbing and Drainage

- Appendix G provides guidance for installing sanitary drainage in unstable soils (differential soil movement) where the site classification is based on soil reactivity.
- It also notes that a site classification of P, by itself, will not usually provide sufficient information to enable a sanitary drainage design to be prepared. Additional information is typically needed to identify suitable design measures to address the specific P classification factors (e.g. methods of support and bedding for sanitary drainage system)

Requirements

The requirements for flexible joints in drains has been outlined by the Department of Fair Trading NSW, as follows:

It is the responsibility of the licensed plumber drainer to ascertain whether the site is subject to a classification that requires flexible joints to be installed on the sanitary drainage system. If applicable, the plumber is to submit the Performance Solution to NSW Department of Fair Trading via their MyInspections Gateway (including the required documents) prior to starting work.

The following documents are to be submitted:

- Covering Letter with property information and Evidence of Suitability Statement,
- Notice of Work with Sanitary Plumbing & Drainage to be indicated as “Combined”,
- Letter from the Owner,
- Letter from the Network Utility Operator (which can be found on page 4),
- Detailed design of the proposed drainage system for the property including location of flexible joints from a suitably qualified engineer.
- The Evidence of Suitability Statement is to be provided from an engineer or recognised expert certifying:

  “The sanitary drainage design consists of a Performance Solution for the use of flexible joints to be used to accommodate unstable soil and potential ground movement. The design meets the Performance Requirements set out in Part C2 and specifically C2P7(1) of the Plumbing Code of Australia 2022 and is the equivalent to the level of health, safety and amenity provided by the Deemed-to-Satisfy Requirements. All other elements of the Sanitary Drainage system not listed above are to be installed in accordance with the Deemed-to-Satisfy Requirements of the Plumbing Code of Australia”.

Fair Trading will assess the Performance Solution information provided, and if all requirements have been satisfied a Letter of Acknowledgement will be issued to the Responsible Person.

Note: A suitably qualified expert (e.g. Engineer) may deem the existing site/soil conditions (i.e. Filled Ground, Unstable Ground and Water-charged Ground.) are adequate and that no additional provisions are required for the sanitary drainage installation. Please click on the link below (Drains in other than stable ground) that will detail the wording to be included in the verifying statement from the engineer to justify that no additional provisions are required.

LINKS & ADDITIONAL INFORMATION

Use of flexible joints in drains I NSW Fair Trading

Drains in other than stable ground | NSW Fair Trading

Guideline for plumbing and drainage: Installing Code Compliant Work and Performance Solutions

Table 1: Classification based on soil reactivity

Soil Classification	Soil Foundation	Typical - Characteristic Surface Movement [ys] mm
A	Most sand and rock sites with little or no ground movement from moisture changes	Zero
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes	0-20mm
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes	21-40mm
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes	41-60mm
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes	61-75mm
E	Extremely reactive clay sites, which may experience extreme ground movement from moisture changes	76mm+
Classification Not Based on Soil Reactivity		
P	Applies to “problem” sites (e.g. filled soil or potential to collapse)	AS TESTED (Additional Information Required)

Acknowledgement Letter

To whom it may concern,

RE: Performance Solutions for Sanitary Drainage in Unstable Ground

MidCoast Council acknowledges that there are no deemed-to-satisfy provisions for sanitary drainage systems to address ground movement. Council also acknowledges that a performance solution would be required in instances where sanitary drainage is proposed in reactive soils prone to ground movement.

Council has no objection to applicants connecting to Council's sewer system, where they are required to install flexible joints due to reactive soils.

When the NSW Department of Fair Trading have assessed the performance solution and issued their letter of acknowledgement, please provide a copy to Council via WS.Plumbing@Midcoast.nsw.gov.au (including the engineered design drawing).

It is important that Council receive a copy of the documents prior to sanitary drainage inspections, to ensure that the flexible joints are installed as per the performance solution.

Should you require further details, contact Council's Water Development & Assessment Team on (02) 7955 7777

Warm Regards,

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Infrastructure & Engineering Services