

Good Vibrations Foundations

By Paul Robertson, Heaney & Partners

A council has been found not to be liable for defects in the foundations of a Southland home. The plaintiffs sued their builder and the council for \$365,000, which represented the losses associated with the need to repair the foundations. The High Court accepted that the damage to the foundations was likely to have been caused by a previously unidentified vein of unsuitable matter (blue pug) under the house. Neither the builder nor the council were at fault for failing to identify the blue pug.

In spite of this finding, the court commented on the informal practice of accepting an alternative material (pea gravel) to support concrete slab floors saying that a more formal process should be adopted.

“... I consider it would be expected that there would be a formal decision [regarding the acceptability of the pea gravel and] why it is regarded as an acceptable alternative ...”

Apart from the comments on the practice of the council, the decision confirms the importance of engaging competent witnesses when defending decisions of a council. The evidence of the witnesses instructed by Heaney & Partners for the council was preferred to the evidence of the plaintiffs' witnesses.

ROCK AND ROLL

The case involved a single storey house built on what had been a farm paddock. The owners of the land arranged for a kitset house to be constructed. A local and friend of the owner was engaged to prepare the foundations. Because the area was prone to flooding, the regional council imposed a requirement that the floor be elevated. The decision was made to use a thick layer of pea gravel under the concrete slab floor.

The perimeter foundations were excavated until the builder and council inspector were satisfied that they were observing 'good ground'. The grassed area that would be excavated was left grassed to stop the site becoming too muddy.

By the next inspection the ground under the floor had been excavated, pea gravel had been spread, underfloor heating, steel and insulation had been installed and the house was ready for the pouring of the 100 mm concrete floor. The builder confirmed that grass and other organic matter under the pea gravel had been removed and, with the approval of the council inspector, the pour went ahead.

Once completed the house was occupied by the plaintiffs until serious cracks in the concrete floor were observed following an earthquake. It was discovered that there was a void under the floor. How had this happened?

THE COMPETING THEORIES

The plaintiffs relied upon evidence from two engineers to establish the reasons for the void. They also called a former council inspector who criticised the council's processes.

The plaintiffs' experts said that grass and related organic material had not been removed from under the concrete floor. This would have rotted away leading to the formation of a void. They also complained about the use of pea gravel saying it does not meet the requirements of B1 (pursuant to NZS 3604:1999 clause 7.5.3.1) because it cannot be compacted. This is because pea gravel is smooth and regular in size; there are no smaller rocks to fill the voids and the gravel does not crush down. Their theory was that the gravel had migrated into the soft soil contributing to the void above. They also said that a high water table would have contributed to the settlement of the pea gravel.

The builder gave evidence that grass and related organic material had been removed in accordance with accepted practice to a depth of 75 to 100mm. The judge accepted this evidence which removed one of the main causes of the subsidence relied upon by the plaintiffs / their experts.

In relation to the pea gravel, the court accepted evidence that it would have become intermingled with the soil underneath the foundations during construction. Then, given the incompressible nature of the pea gravel, the pea gravel would have remained 'locked in' by the concrete perimeter foundations. It was unlikely to have subsided contributing to the void under the floor slab.

Because of these findings, the court held that neither the builder nor the council had caused or contributed to the subsidence.

WHAT WAS THE PROBLEM?

A layer of blue pug was discovered in the course of remedial work. The pug was in a localised area immediately under the house, was not found in the excavations for the perimeter foundations and was not seen by the builders or the council. There was evidence that such pug has high shrinkage characteristics. The compaction

of this layer of pug was the more likely cause of the subsidence.

PEA GRAVEL AS AN ALTERNATIVE SOLUTION

Because the plaintiffs could not link the cracking of their concrete floor with the presence of organic material, or the use of pea gravel, the claims against the builder and the council fell away. However, the court went on to comment on the use of pea gravel. It found that:

- Pea gravel does not comply with clause 7.5.3.1 of NZS3604:1999;
- There was evidence of the use of pea gravel in foundations over many year, and that it was likely to be acceptable as an alternative solution;
- There was no specific consideration of the use of pea gravel on this job; and
- If the council wanted to allow the use of such an alternative solution on a widespread basis, then it would be prudent of the council to make a formal decision on the use of pea gravel.

Having failed with their claim, the plaintiffs were ordered to pay the builder and the council a contribution towards their costs (amount to be confirmed).

COMMENTS

The use of pea gravel in foundations goes back many years in Southland. There is no record of when and why the material had first been accepted as a suitable material. It is suspected that the use of pea gravel had been approved by the council's engineer sometime before the passing of the Building Act in 1991.

The concerns of the judge illustrate that, from the court's perspective, councils must follow through on processes set out in the Building Acts. The long 'in service' history of the pea gravel may not have been a good defence to the claim against the council if the pea gravel had been found to have caused the cracking of the concrete floor.

Currie v Gordon [2015] NZHC 2057 [28 August 2015]
(a copy of the decision of the court is available on the Heaney Partners website – www.heaneypartners.com)

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