



NZ Blood Service - South Island Blood Centre

Christchurch

Tonkin & Taylor and Ruamoko Solutions for Ngai Tahu Property Ltd

Geotechnical and Structural Engineering



The South Island Blood Centre is a purpose designed facility comprised of a blood donor centre, manufacturing and testing laboratories along with specialised warehousing and support function offices. The two storey, 3500m² building was constructed on a 1.2m thick gravel raft due to soft ground and liquefiable soils present at the site.

Large uplift loads on the foundations are expected if a large earthquake was to occur. A conventional foundation solution would have been tension piles, however this carried the risk of piles 'sticking up' out of the ground after an earthquake relative to the rest of the building. Our innovative solution, developed in conjunction with Ruamoko Structural Engineers, was to construct a 'sub-slab' underneath the gravel raft, tied with reinforcing bars to the main foundation. When the building tries to lift up, the weight of the gravel above the sub-slab holds the building down, providing a technically superior and cheaper solution.

T&T were responsible for the geotechnical engineering of the project, in particular development of the ground improvement and foundation solution, assessment of bearing capacity, uplift capacity and foundation settlements. Ruamoko Solutions were the structural engineers, responsible for the foundation concept and design of the foundation slabs and tension connection between the 'sub slab' and the main foundation.

Judging & Copyright Statement

This project is a Finalist entry in the 2015 INNOVATE NZ Awards of Excellence competition. The winners will be announced on Saturday 1 August, 2015.

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