

**TASMANIA DEPARTMENT OF MINES  
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**Testing of clay samples from Danbury Park, West Tamar**

*by W. R. Moore*

Soil laboratory tests were undertaken on clay samples collected from the southern investigation trench on Habner's site at Danbury Park, between North Riverside and Legana.

The XRD results show that the upper clay layer is composed dominantly of the highly expansive montmorillonite family. This clay has an exceptionally high linear shrinkage of 31% and a plasticity index of 104. The second, lower clay layer of decomposed and completely weathered dolerite has montmorillonite present in moderate amounts and it will also be highly expansive, although not to the degree of the surface layer.

With these clays forming a 1.2–1.3 m thick layer above what is thought to be the dolerite rock surface, the potential soil movement associated with seasonal moisture content fluctuations is going to be considerable. It is abundantly clear, both on field evidence and soil laboratory tests, that Mr Habner's site has an expansive soil problem.

If strip and pillar foundations are to be used on the house, these will have to be taken down to the presumed rock surface at 1.2–1.3 m depth. These will be costly foundations.

The alternative is to remove much of the upper clay layer and to obtain a competent foundation engineer to design a reinforced slab capable of withstanding the seasonal potential movements in the soil.

*[13 October 1983]*

**APPENDIX 1**

**Soil laboratory results — Habner: Danbury Park**

<i>Sample No.</i>	<i>Depth (m)</i>	<i>Moisture content (%)</i>	<i>Plastic limit</i>	<i>Liquid limit</i>	<i>Plasticity index</i>	<i>Linear shrinkage (%)</i>	<i>XRD</i>
1	0.5	45	28	132	104	31%	Montmorillonite (strong) Kaolinite (weak)
2	0.9	34	Not completed	97	Not completed	Not completed	Montmorillonite (mod.) Kaolinite (weak)