

UR1973-52

Stability of a proposed subdivision between Rose Lane and Westbury Road, Launceston.

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At the request of P. Verbaan a geological examination was undertaken to assess the stability of a small triangular block of land which is bounded by Rose Lane, Westbury Road, Norwich and Wellington Streets.

PHYSIOGRAPHY

The block is situated on the ridge that separates the valleys of Glen Dhu and Lawrence Vale. The area is an old clay pit. The crown of the ridge has been removed, leaving a level ground surface of the quarry floor. The old quarry face borders Norwich Street with slopes of 10°, increasing to 30° at the south-west corner of the block. The top of the quarry stands at an estimated height of 3-4.5 m above the quarry floor at the south-west corner. Norwich Street appears to follow the curvature of the ridge and the land slopes at 7° to the north-east and at 5° to the south-west.

GEOLOGY

Clays and ferruginous sands (Launceston Beds) of Tertiary age are poorly exposed on the quarry face. One metre of closely bedded, fine-grained sandstone of the Launceston Beds is exposed on the south-western bank of Norwich Street and poor outcrops continue down this street to Westbury Road. The Launceston Beds are very well exposed at the foot of the ridge in Glen Dhu Road at the western end of Rose Lane. Sandstone beds also occur in the old clay pits below Westbury Road (Matthews, 1973). There is little doubt that the ridge on which the block is situated is underlain by a considerable thickness of Launceston Beds.

ENGINEERING GEOLOGY

A small amount of water seepage was present on the quarry face. The only large building near the subdivision is the Glen Dhu Infant School. This three storey building was examined and showed the characteristic signs of foundation instability and movement with many cracks in the inside plaster walls. On the north-eastern corner of the school a set of steps and a concrete patio have moved away from the building. Another new set of steps, replacing a previous set, have a long horizontal crack up to 12 mm in width. The bricks on the north-eastern corner of the ground floor wall are very badly cracked, have been repaired with cement, and are again cracking.

It is expected that similar subsurface geological conditions will exist in the proposed subdivision and if similar building techniques were used then comparable damage would recur.

RECOMMENDATIONS

- (1) No building should be placed on the artificially steepened quarry face unless the slope is strengthened by a crib wall or by rock-fill.
- (2) If multi-storey structures are contemplated then adequate load testing of the underlying sediments should be undertaken by a competent soil mechanics engineer.
- (3) For normal housing the foundations should be at a depth below the level at which shrinkage of the sediments does not occur through the wetting and drying cycle.

- (4) The drainage and sewerage pipes should be of a type that will allow for ground movement and which will not leak when displaced or placed in tension.

REFERENCE

MATTHEWS, W.L. 1973. Stability of land, Glen Dhu area, Launceston. *Unpubl. Rep. Dep. Mines Tasm.* 1973/42.

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