

Stability of a proposed subdivision, Norwood, St Leonards.

W.L. Matthews

Plans were drawn up in 1959 for the subdivision of some 6 hectares of land south-west of the junction of Old Opossum Road and Quarantine Road. Campbell Smith, Phelps, Pedley and Associates, surveyors, of Launceston, requested advice on the stability of the area on behalf of their clients H.D. Schramm and others.

GEOLOGY AND RELIEF

The landsurface is incised by valleys extending through the area. The valley sides slope at angles ranging from about 7° to more than 15°. The landsurface flattens along the south-west margin of the area, near the Quarantine Station.

The area is underlain by Tertiary sediments consisting mainly of clay with some beds of deeply weathered arkose with clay pellets. The arkose contains only a small percentage of quartz grains and a little ilmenite. A thin cover of quartz gravel and sand overlies the clay and arkose beds on the flatter areas.

DISCUSSION OF STABILITY

A clay pit operated by a Launceston brick company has been dug near the base of one of the slopes. The angle of slope was about 8-9° before excavation began (from the contours on the 1959 plan, fig. 1). A slip has developed in the clay pit and this has been caused by the oversteepening of the slope. The Tertiary clay beds have a relatively high sensitivity i.e. there is a considerable lowering in strength from an unsheared to a sheared condition. Even if movement on the slip ceases, the shear strength of the clay will remain in a lowered condition for a considerable time. If the landsurface was evenly graded from the Quarantine Station fence to the valley in front of the slip the slope would still be of the order of 8°. It is recommended that no subdivision for housing development be undertaken in this area or on the small ridge surrounding the slip. The surrounding land has lost some of its support because of the slip.

Five blocks situated along a slope south-east of the active slip are on steep slopes (some more than 15°) and any disturbance by excavation around the side of the slope or at the foot, could promote instability. Slips commonly occur on more gentle slopes in the Launceston district. Some excavation would be necessary for drains and house foundations and as a slip has occurred nearby, it is recommended that these blocks are also excluded from the subdivision.

Area A (fig. 1) is relatively steep land and has a surface which is somewhat irregular suggesting possible old movements. A seepage occurs near the foot of one of the slopes near the Quarantine Station boundary and there are definite old slips immediately to the south. Subsurface investigations should be made to examine the underlying materials and ground water conditions. Four to six test pits about 4 m deep should be dug in this area.

Much of the remainder of the subdivision is on slopes of 7-10° and although no old movements are obvious, old slips occur on land just to the east of Old Opossum Road. The subsurface material and ground water conditions should be investigated. Three or four test pits about 4 m deep should be dug for this purpose.

RECOMMENDATIONS

It is recommended that an area around an active slip in a clay pit and some steep land south-east of the slip be excluded from the subdivision.

Test pits dug with a backhoe are suggested for the remainder of the subdivision. Four to six holes are recommended for area A and three to four for the remainder of the steeper slopes. The purpose of these is to examine both the material underlying the area and the ground water conditions.

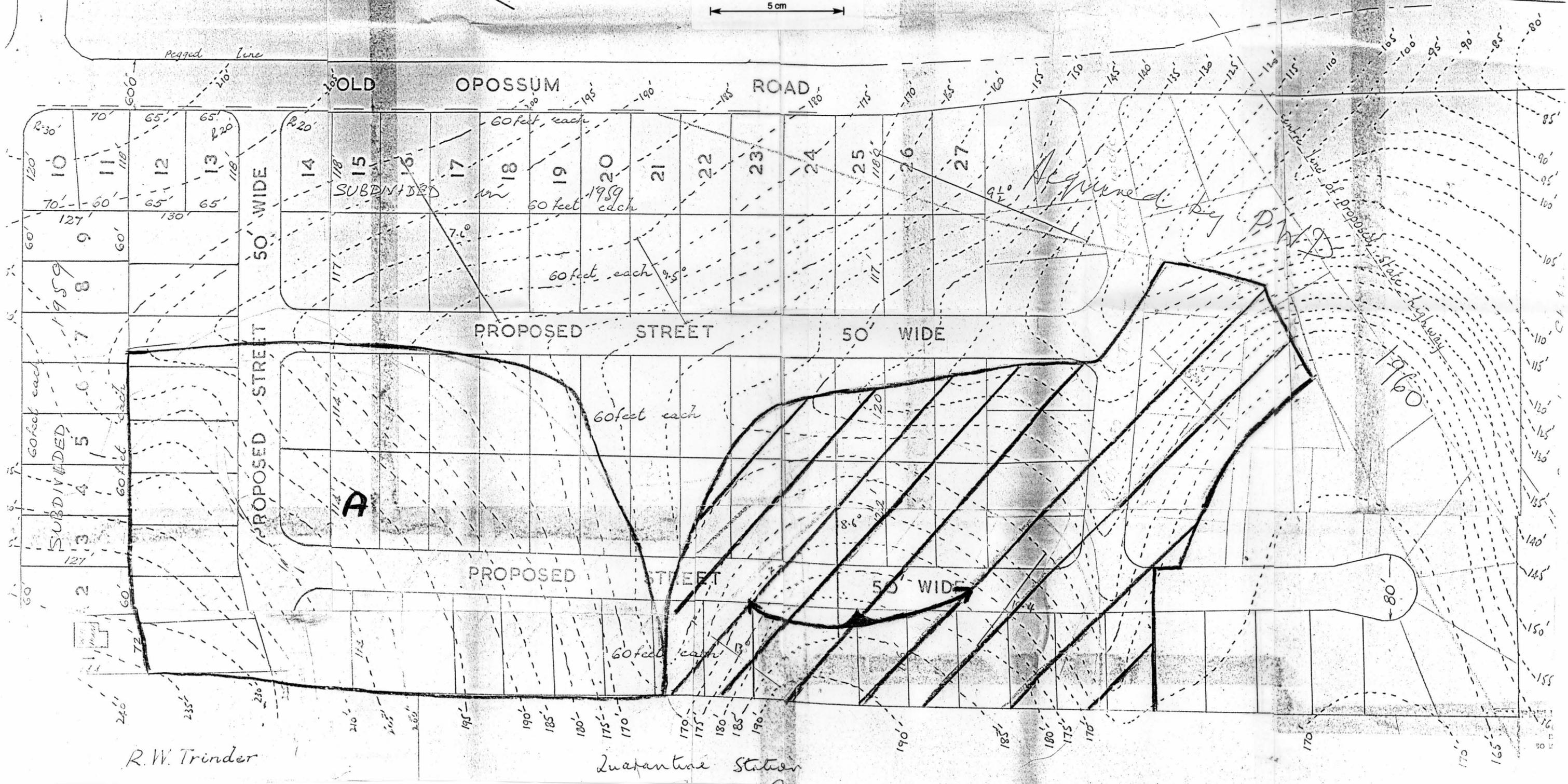
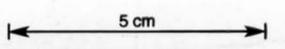
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PROPOSED SUBDIVISION  
TOWN OF ST. LEONARDS

H.D. Schramm & Others  
R.S. Neumann Owners.

Scale - 80 feet to an inch

 Active Slip - Approximate position  
 Area not recommended for development.



R.W. Trinder

Quapantia Station