

UR1973-39

Stability of a house block at Thelma Street, Launceston

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Lots 9 and 10 Thelma Street, Punchbowl, Launceston, occupied by No. 20 Thelma Street, was inspected on 17 May 1973 in the presence at various times of the owner, K.A. Finney and his agent H. Black of C.J. Weedon & Co., Cameron Street, Launceston.

Some areas of cracked ground had been noticed and an opinion on the likelihood of landslip was required.

GEOLOGY

The Punchbowl area and Thelma Street lie wholly in the Launceston Beds which consist of clay, soft sandstone, sand and gravel of Tertiary age. This succession is very variable, and the variation has not been mapped in detail. The clay is plastic in the presence of water and is always present where landslip activity is seen in the Tamar Valley.

Outcrops in these soft rocks are not common and this hides much of the detailed geology, but a brief examination of Lots 9 and 10 and those adjoining showed that the flat top of the hill on which Punchbowl School stands is formed of soft weakly-cemented sandstone. A section on the uphill side of the house on Lot 12 showed about 1.5 m of soil overlying about 2 m of sandstone and followed below by mottled clay and sand beds. Within Lot 10 some sandstone floaters could be seen on the slope.

Excavations carried out for another purpose on the slopes to the north of Norwood Avenue showed that clay was present at the foot of the slope and it is a justifiable assumption that clay is present in the lower parts of Lots 9 and 10. How far down slope the sandstone exists is not clear.

SURFACE INDICATIONS

The presence of clay and clay soil is indicated to some extent by the slight creeping movements on steep slopes which are associated with them, but not with the sandstone.

The low brick wall on the north side of the driveway has moved slightly, in aggregate perhaps 4 cm downhill. Likewise the concrete slabs of the drive have crept downhill a similar amount, and these movements may be interpreted as indicating the presence of clay beneath. These movements have no significance as far as landslip is concerned but do indicate the presence of clay.

The ground cracking on the grounds of the school close to the upper end of the footway is occurring in fill and is a natural consequence of the settlement of this material. It has no landslip significance.

The other area of cracking in the upper part of the slope to the north of Mr Finney's house is minor, amounting in all to about 8 cm of movement, but is a cause of concern because it indicates the potential for movement possessed by the whole slope. The movement in this case appears to have been caused by the excavation of french drains along the contour, part way down the slope and below the area of cracking.

An area where water is to be seen running down the slope below the house is apparently due to the blocking of a sullage drain. This is minor in itself, but if the water comes in contact with clay strata it could soften

and load it and so trigger off serious, irrevocable and continuing movement. Such apparently minor causes have been shown elsewhere in the Tamar Valley to have contributed to the total destruction of houses (Stevenson, 1971). The presence of water on the surface suggests that clay and not sand forms the subsurface.

Some slight cracking has occurred in the brickwork of the house particularly in the chimney at the north end. This cracking is not sufficient cause for concern in the absence of any other disturbance, and is not further considered.

CONCLUSIONS

- (1) Some areas of clay exist in the slope below the house.
- (2) There is a potential for movement of the clay if unnatural amounts of moisture are allowed access to it, or if the slope is weakened by cutting, trenching or both.
- (3) Present movements are very slight and do not involve the house.

RECOMMENDATIONS

- (1) The drainage system is cleared so as to prevent water flow on the surface. This is important and should not be delayed. The drains should be extended as far down slope as is practicable, if possible by connection to the sewer, and should be examined periodically for leaks which might be adding water to the slope. Even after sewer connection, ground creep can fracture pipes, and some type of pipe which can accept elongation strain without leakage is desirable.
- (2) No cutting or trenching of the slope should be allowed and the growth of trees should be encouraged.

REFERENCE

STEVENSON, P.C. 1971. A mud spring and a landslip at Deviot. *Tech.Rep.Dep. Mines Tasm.* 14:79-82.

[23 May 1973]

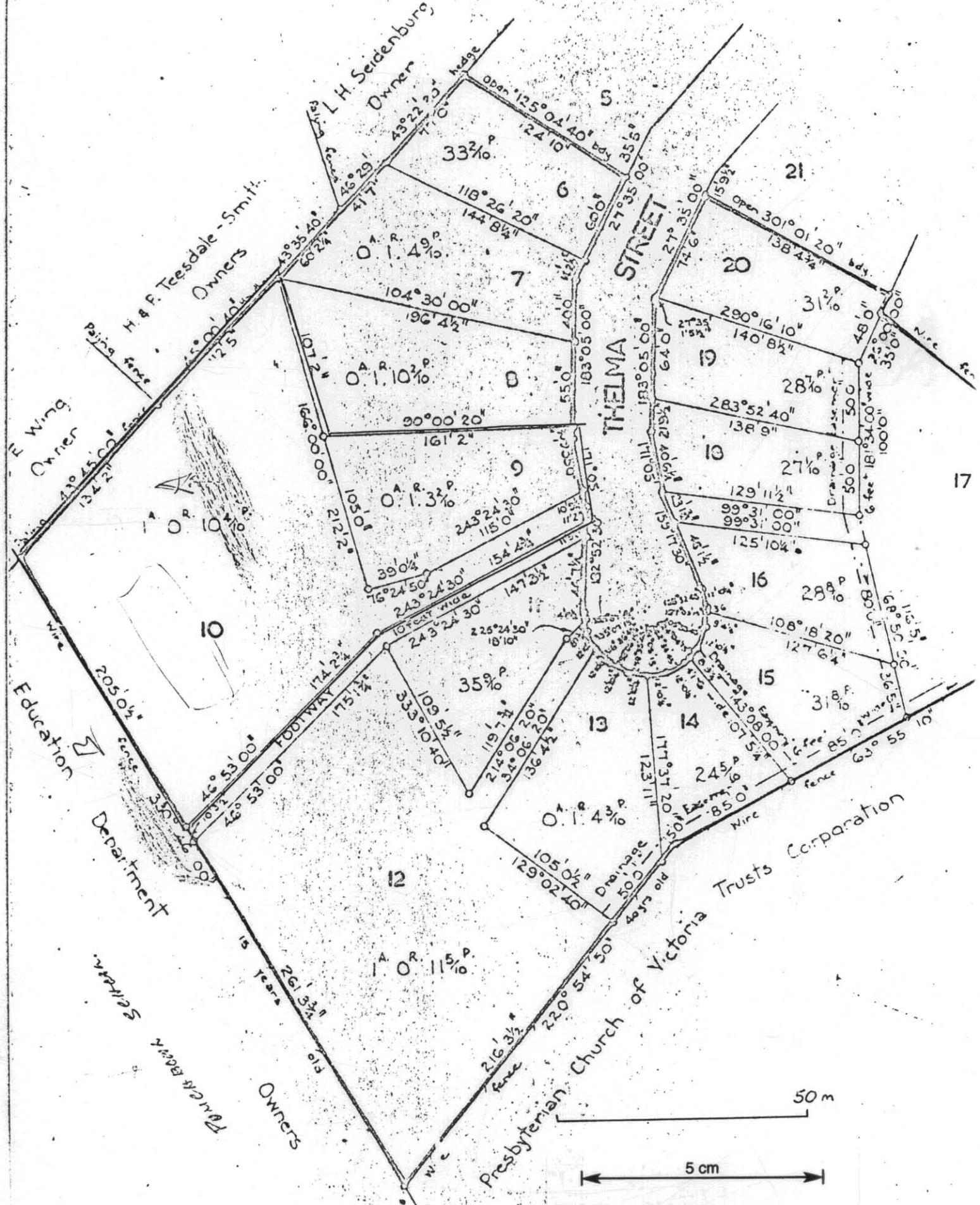
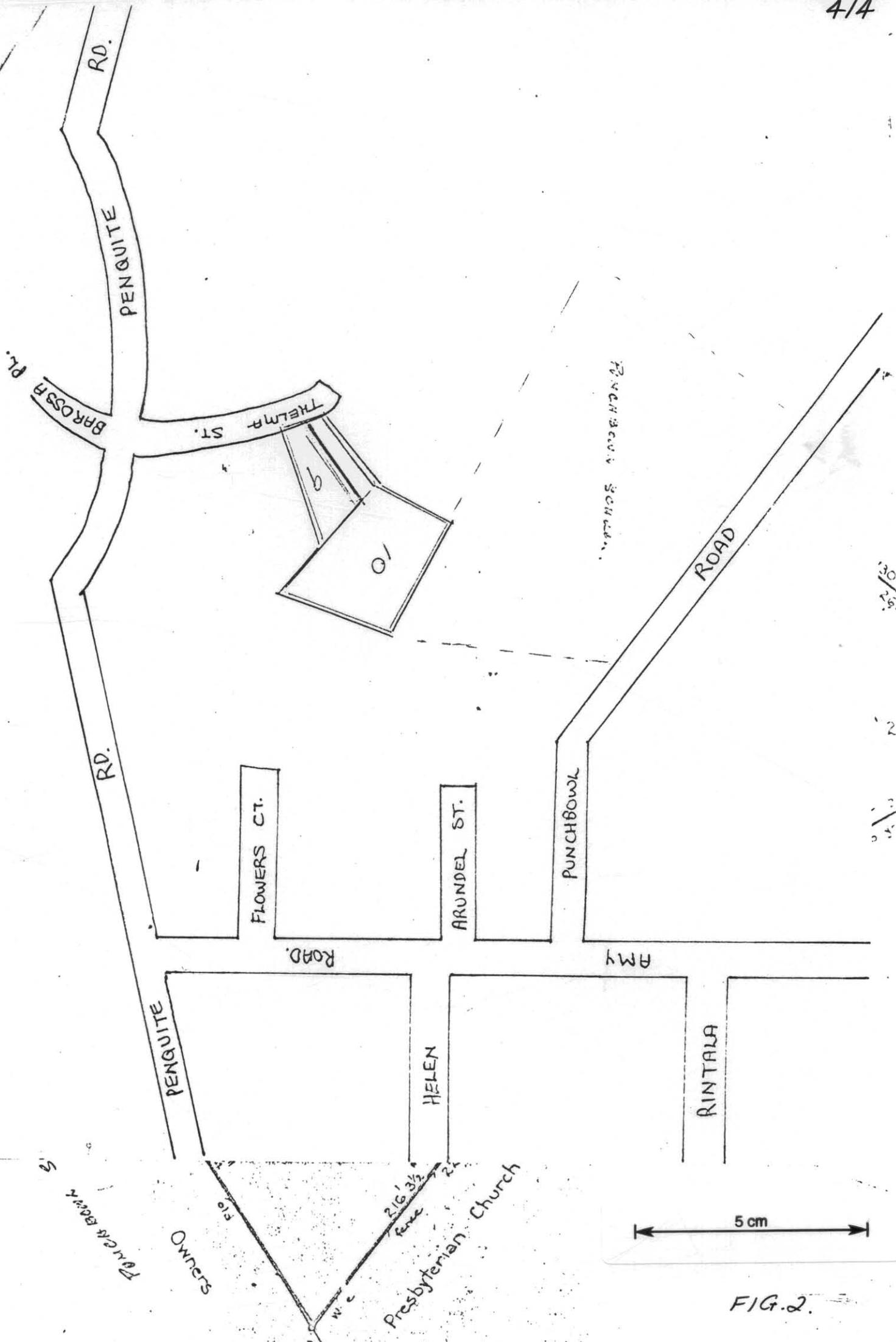


FIG. 1.



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2

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5 cm

FIG.2.