

## Landslip potential of a subdivision at Don.

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The area was examined on 7 November at the request of Messrs Lester, Franks and Company of Devonport acting for W.Y. Bovill Pty Ltd.

### GEOLOGY

The geological succession in the area is not apparent within the proposed subdivision but may be seen from surrounding areas to consist of:

- (1) Tertiary basalt, deeply weathered and now represented by thick red soil and red clays.
- (2) Tertiary sediments, not exposed, having been masked by the basalt above, but known to consist of clays and sands.
- (3) Permian mudstone, exposed in road banks as light grey, soft, easily weathered shale.

The basalt and its remnants are usually well drained while the sediments, both Tertiary and Permian, are more impermeable. This contrast accounts for the presence of the line of springs which occur in the deeply incised 'springhead valley' on Blocks 7 and 8 and along the boundary of Blocks 9, 10 and 13.

### LANDSLIPS

Except in the vicinity of the springs no landslip tendency is apparent. Close above the springs, crescent shaped slices of soil are seen and in periods of high rainfall these will become active and slump downward into the watercourses.

The absence of any signs of landslip over most of the area indicates a general balance between erosive processes and the ground slope. Along the creek sides however, high slope angles are evident. Seventeen degrees is measurable from the contours and locally higher angles exist. These must be regarded, from experience in red soil areas, as presenting a risk when subjected to the impact of a housing subdivision.

Housing, when unsewered and without storm water drains adds large quantities of water to the groundwater body. The absolute quantity is not so important as the fact that unlike rainfall the water is added at discreet points and so produces local loading and weakening of the soil.

Even where fully drained and sewerred, the usually accepted standard of construction has been shown to be inadequate to prevent slight leakages which become large when the pipes are subjected to tension by slight ground movement and so exacerbate the original damage.

### CONCLUSIONS

No undue risk of slip appears to exist within Blocks 1 to 6 and 10, 11 and 12.

Blocks 7, 8, 9 and 13 contain steep slopes in red soil and these slopes are controlled by groundwater flow from the springs. Any increase in this flow either from natural or human causes could cause the slopes to be undermined and increase their slip potential.

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The slopes will also be endangered by road building operations in the positions suggested on Blocks 7, 8 and 9.

To a lesser extent, building of single houses close to the top of steep slopes will increase the risk of slip both by cutting into the slope and by increasing the loading.

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