

Provisional zone mapping of the Tamar Valley landslides

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Provisional geological mapping has outlined the following zones with respect to urban style housing developments in the Tamar Valley.

It is emphasised that the zone map is provisional only and that the zones will be refined as further data become available. It is, however, a very worthwhile first attempt at a complex problem and should allow broad-scale planning in the area to proceed in a more orderly manner backed by a scientific assessment of the stability of the area. Future changes of the zone boundaries are envisaged as being refinements and generally of a minor nature, except for zone 4 which includes areas about which insufficient geotechnical data are available. As a rough guide it would be expected that as the problems of the zone 4 area are better understood it seems probable that the majority of this area will likely be rezoned as zone 5, so far as normal urban style building is concerned.

The zones outlined are:

Zone 5

No building permitted, subject to active landslides or adjacent to active landslides.

Zone 4

Generally areas of old landslides or adjacent areas. These represent a special problem and more information is needed to assess whether such areas are likely to become unstable with the disturbance inseparable from urban development. For the time being no building should be permitted in these areas until further studies have been carried out.

Zone 3

These are the 'grey' areas where there are no currently active slides and little or no evidence of old slides, but which because of their inherent geological characteristics, the hydrology and geomorphology, must be regarded as suspect and where building, if permitted, should be subject to a strict building code or series of codes, which have yet to be devised.

Zone 2

Areas considered to be stable but underlain by 'soft' rocks such as clay, sand, terrace deposits etc. Generally, building could be permitted in this zone providing the existing building regulations are properly applied and rigidly administered by properly qualified building inspectors.

Zone 1

Generally 'hard' rock areas but subject to varying degrees and depths of weathering. The areas represent special problems and no abnormal risks and building should be permitted, as for zone 2.

Conclusions

The geological mapping and preparation of the provisional zone map of the Tamar Valley has been a most interesting exercise of considerable value. Although much work remains to be done in the future, some general and very important conclusions requiring urgent and decisive action have emerged from the study. These are:

- (1) The Tamar Valley region should be recognised as a special area from the viewpoint of forward urban planning and development.
- (2) The problems present in the area are numerous and complex and continuing studies are necessary. These will include an increasing element of engineering investigation, as opposed to a purely geological approach.
- (3) As the problems are complex and widespread, they require regional treatment and solutions. It must be clearly recognised at this stage that landslide problems in the Tamar Valley have no respect for municipal boundaries. A piecemeal approach by the various councils acting independently will only result in confusion, inadequate understanding of the problem, and possibly supervision and control by improperly trained staff.
- (4) The local councils should be encouraged to take a greater interest and involvement in the landslide problems. The existing building regulations should be rigidly enforced and the qualifications and abilities of the municipal building inspectors should be higher than those engaged in less contentious areas.

- (5) Councils must be made aware that it is not good enough for them to pay 'lip' service to recommendations regarding building codes and restrictions in their municipalities and then if failure occurs, expect the government to pay compensation.
- (6) For the time being, all land except zones 1 and 2 will be 'locked up' so far as urban development is concerned. The zone 3 land will become available in perhaps a year or so and will be subject to certain restrictions and conditions which will vary from mild to quite extensive.
- (7) It would appear preferable in the long term to encourage a few large subdivisions, able to support adequate drainage and sewerage systems as well as foundation investigation and special designs, rather than to encourage a host of small subdivisions which simply cannot support the financial requirements to meet the above.
- (8) Septic tanks should be banned or severely restricted in the area and careful attention is necessary to the design and construction of drainage systems.

Recommendations

- (1) The Tamar Valley area should be proclaimed or recognised in some way as a special area with respect to future urban development.
- (2) The urban planning and development of this area should be controlled by a single authority with statutory powers to control planning of subdivisions, drainage, sewage and sullage disposal; powers to impose whatever restrictions or special features that may be required in the design and construction of homes, retaining walls etc.; and powers to require either subdividers or builders or both to carry out such investigations as may be required to assess the type of building, drainage and design features which may be necessary in any particular area.
- (3) Septic tanks should be banned or restricted to areas where the disposal of effluents presents no hazards to the property owners and neighbouring properties.
- (4) Stormwater and sullage disposal should similarly be carefully controlled.
- (5) Existing homes within zone 3 should be carefully inspected by council officers to ensure that their stormwater, sullage and septic tank effluents are not likely to disturb the stability of the surrounding area and where doubt exists or likely damage is indicated, steps should be taken to enforce rectification of any undesirable situations.
- (6) The problems associated with zone 5 can only be resolved by the formulation of a series of special building codes to cover the special problems associated with this zone. It is anticipated that these codes would specify a range of drainage requirements, site investigations and foundation designs suitable for areas of varying stability. This is by no means an unusual situation and similar codes have been drawn up and are strictly enforced in other parts of Australia.

The evolution of these codes and a standard set of foundation designs is largely an engineering matter outside the professional expertise of officers of this department. It is anticipated that this department would liaise closely with the body drawing up the codes and provide any advice upon geological matters which may be required.

The selection of a body to devise these codes is fairly open. It could be composed of any of the following:

- (1) A firm of consultant engineers experienced in soil mechanics and design of small buildings in areas subject to foundation and stability problems.
- (2) A special committee set up representing both government and private enterprise and containing members trained in geology, soil mechanics, civil engineering, planning and architecture.
- (3) The CSIRO Building Research group may well be prepared to undertake the task on behalf of the Tasmanian Government.

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