TASMANIA
DEVELOPMENT
AND RESOURCES

Mineral Resources Tasmania
REPORT 1993/38

Stability assessment: Proposed subdivision for Cutts Forestry, off William Street, Ulverstone

by R. C. Donaldson

The proposed two residential lots at Ulverstone, with access off William Street (lots 2 and 3), are situated at the base of the northern slopes of Heazlewoods Hill (old coastal escarpment) and are underlain by Tertiary age basalt materials.

Two basic slope segments can be recognised; a steeper segment with measured angles of 15° that occupies the southern portion of the lots, and a more gently sloping segment with measured angles ranging from 3° to 8° to the north. Measured slope segments are shown on Figure 1.

The surface soils across the site are typically dark brown clay of high plasticity. These materials extend to a minimum depth of 0.5 m as observed in two shallow cuts excavated some time ago towards the northern boundary of both lots. A profile exposed in a 1-2 m deep cut associated with an access track immediately upslope (to the south) showed a surface brown clay grading down into a yellow brown clay (CH) with some gravel to boulder-size basalt rock fragments. In situ bedrock was not recognisable in the profile.

Active or recently active landslides are known to have developed on the same slope segment of Heazlewoods Hill as the land under discussion. These shallow earth-flow type features occur immediately to the east (and upslope) and also some 350 m further to the east adjacent to Clarke Street. The existing slips have occurred on slopes of 18–20° and more; these slope angles are greater than those associated with the proposed subdivision (15°) but indicate the potential for landslide activity along this slope.

Experience has indicated that there is the potential for landsliding to develop in basalt terrain on slopes in excess of 14°, and given the same type of material, the risk increases with increasing slope.

While there is no evidence of either past or recent landslide activity on lots 2 & 3, the more steeply sloping land segments are at about the lower limit where there is the potential for landslides, given certain unfavourable conditions. These include conditions such as extensive periods of rainfall, and unwise development practices involving the removal of material (excavation) in critical areas of the slope.

It is recognised that the existing houses to the west and south of lots 2 & 3 appear to be in a structurally sound condition, being situated on slopes similar to those considered for development. Nevertheless, in light of the landslide activity in the general region, it would be considered prudent that two or three test pits be dug to determine the nature of the materials and their distribution. This would allow for a more considered opinion on the development potential of the steeper portions of the land. There is, however, no necessity for additional investigation on the more gently sloping land segments; these areas are considered to be suitable for development.

[20 July 1993]

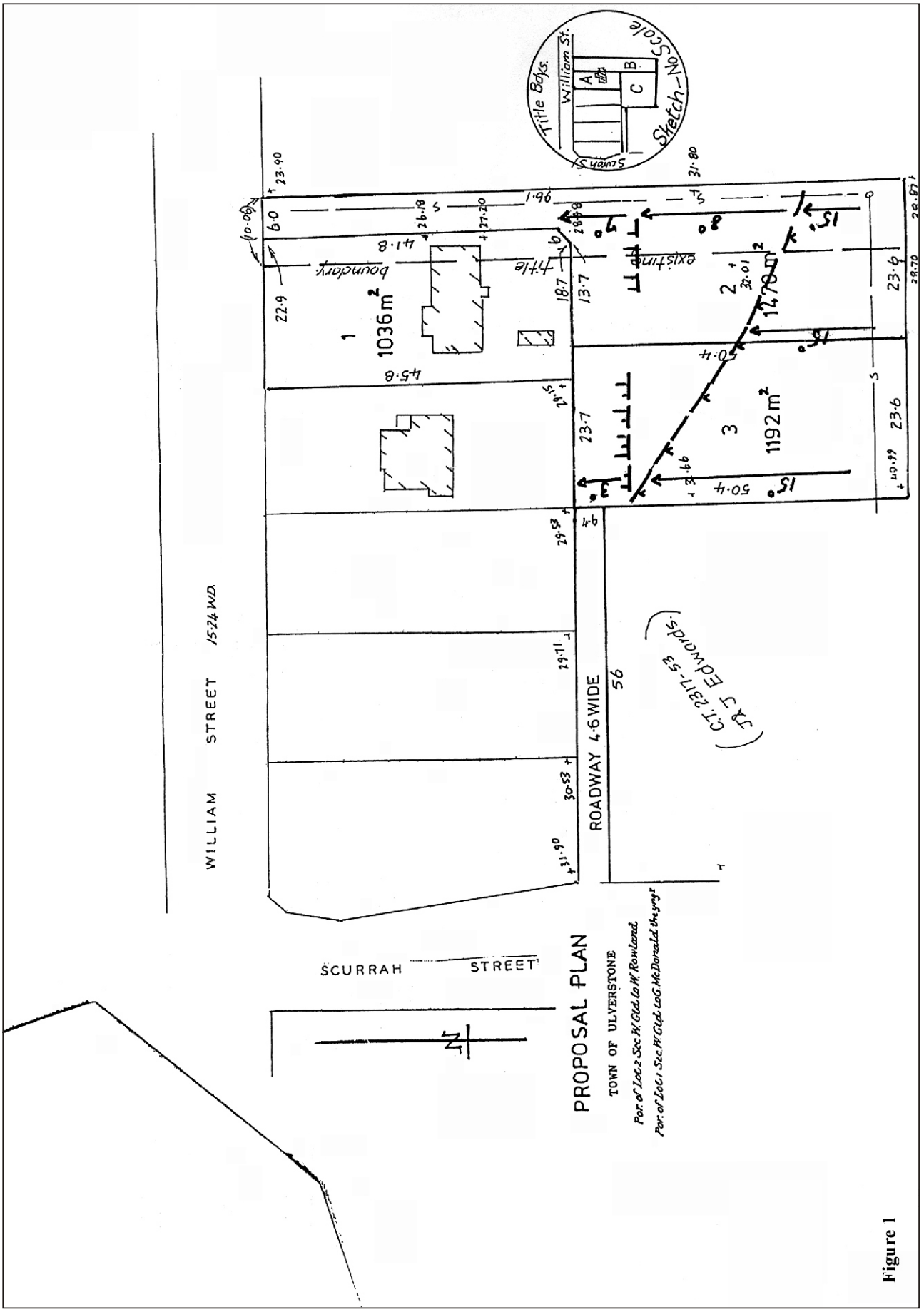

PROPOSAL PLAN
TOWN OF ULVERSTONE
Por. of Lot 2 Sec. H. Gtd. to H. Rowland.
Por. of Lot 1 Sec. H. Gtd. to G. McDonald
WILLIAM STREET 15·24 WD.
SCURRAH STREET
ROADWAY 4·6 WIDE
56
1
1036 m²
2
1478 m²
3
1192 m²
boundary
fence
existing
Title Boys.
William St.
Sketch No 10
Scurah St.
A
B
C
C.T. 2317-63
Sgd. J. Edwards

Figure 1

APPENDIX 1

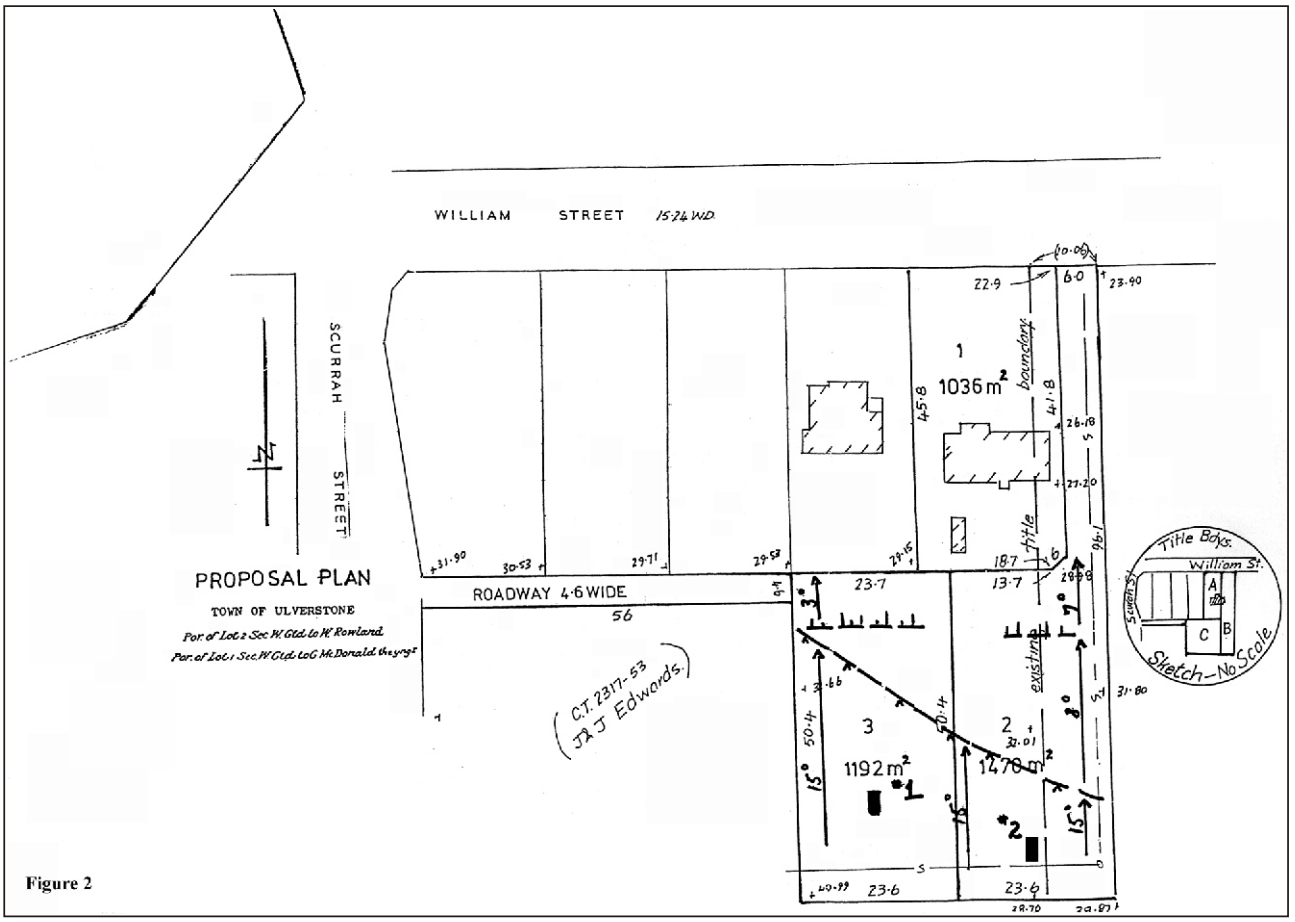
Test pits

Two test pits were dug, one on each of lots 2 and 3. Their locations are shown on Figure 2 and details of the materials encountered are contained in the engineering log forms.

In summary, the site is underlain by high plasticity clay materials to a depth of approximately 1.0 m, below which extremely to moderately weathered basalt is encountered. It is considered this latter material is probably in situ weathered bedrock.

In light of the above findings, it is our opinion that the 15° slope segment common to both lots can be safely developed provided foundations are taken below the clay profile (as described in the engineering logs) to the underlying weathered bedrock.

[28 July 1993]



TASMANIA DEPARTMENT OF MINES

ENGINEERING LOG – EXCAVATION

excavation no. 1
sheet 1 of 1

project SUBDIVISION FOR CUTTS FORRESTRY location OFF WILLIAM ST ULVERSTONE

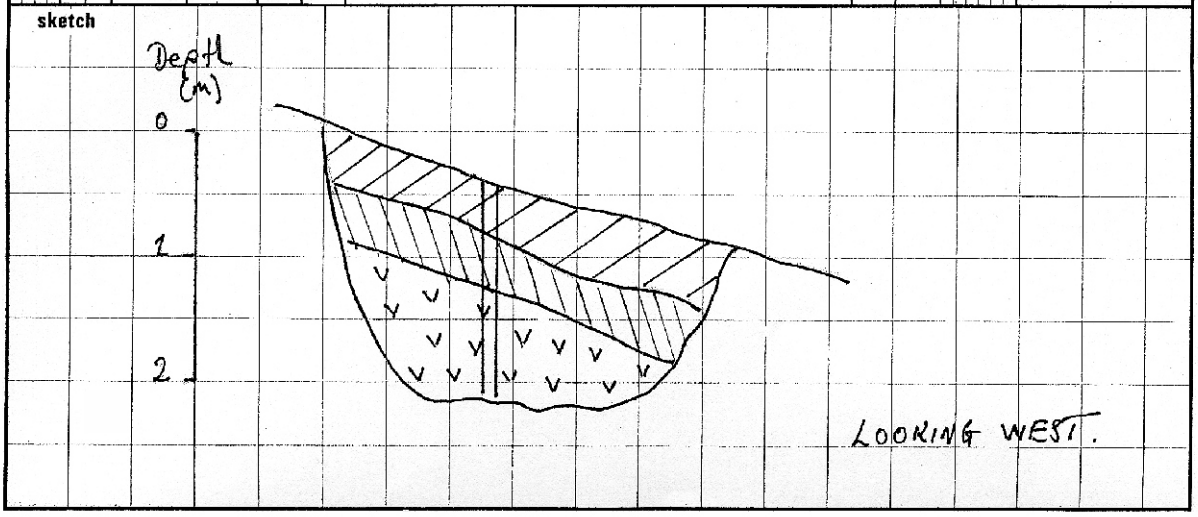
co-ordinates Refer site plan
R.L.
excavation dimensions 3.1m l x 0.6m w x 2.2m deep.

exposure type Test Pit
equipment Backhoe JCB 3CX - 600mm bucket
operator Ian Dolbel

pit commenced 21 July '93
pit completed —"—
logged by RC Donaldson.
checked by

penetration 1 2 3	support	water	notes samples, tests	metres R.L. / depth	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
	NOT ENCOUNTERED			1		CH	CLAY: high plasticity, brown, some fine sand, some organic matter.	M≈PL	Fr.		TOPSOIL.
							CLAY: high plasticity, grey, some fine - medium sand.	M>PL	F to St.		RESIDUAL CLAY.
				2			BASALT: Extremely - highly weathered, mottled yellow brown to grey, vesicular, prominent iron staining, VL. Strength. E.W rock remoulds to CH CLAY.				WEATHERED BEDROCK.
				3			TEST PIT TERMINATED AT REQUIRED DEPTH OF 2.2m IN PROBABLE IN-SITU HIGHLY WEATHERED BASALT.				

sketch



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ENGINEERING LOG – EXCAVATION

excavation no. 2
sheet 1 of 1

project SUBDIVISION FOR CUTTS FORRESTRY location OFF WILLIAM ST ULVERSTONE.

co-ordinates Refer Site Plan
R.L.
excavation dimensions 3·2m l x 0·6m w x 2·1m deep

exposure type Test Pit
equipment Backhoe JCB 3CX · 600mm bucket
operator Ian Dolbel

pit commenced 21 July '93
pit completed —"—
logged by R. C. Donaldson.
checked by

penetration 1 2 3	support	water	notes samples, tests	metres R.L. / depth	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
		NOT ENCOUNTERED.		1		CH	CLAY: high plasticity, brown, some fine sand, some organic matter.	M ≈ PL	FR		TOPSOIL
							CLAY: high plasticity grey, some fine - medium sand.	M > PL	F to VST		RESIDUAL CLAY
				2	V V V V V V		BASALT: Highly - moderately weathered, grey brown - grey, partly vesicular, iron staining prominent, L-M strength.				WEATHERED BEDROCK.
				3			TEST PIT TERMINATED AT REQUIRED DEPTH OF 2·1m IN PROBABLE IN-SITU MODERATELY WEATHERED BASALT.				

sketch