

## Road making materials for the Public Works Department road reconstruction programme

by V. M. Threader

In southern Tasmania, the following materials have proved to be suitable as a base course in road construction.

1. River gravel.
2. Buckshot gravel.
3. Decomposed dolerite (granophyre).
4. Permo-Triassic 'gritstone'.
5. Permian siltstone scree.
6. Sedimentary rocks from intrusive contact zones.

- 1a. River gravels of recent age are composed almost entirely of waterworn dolerite pebbles and occur in stream beds. They are of limited distribution but may be a useful source of supply in areas adjacent to dolerite highlands.
- 1b. River gravels of Pleistocene age are composed of quartz and quartzite pebbles in a sandy matrix which has a very low content of fines (silt and clay grade). They occur in terraces which border the alluvial flats of the major watercourses and, in the areas examined, are only extensively developed in the Huon Valley.
2. Buckshot gravel consists of granules of limonite which form in the 'B' soil horizon adjacent to doleritic or basaltic highlands. This material occurs mainly in the Midlands district.
3. Dolerite of normal composition decomposes into clays but dolerite of certain composition, such as the Red Hill granophyre in the Channel district, breaks down to form a ferruginous quartz gravel which is sufficiently stable to be used for road making.

Little is known, at present, of the distribution of this rock type but it appears to occur in a number of places in Southern Tasmania.

4. Permo-Triassic 'gritstone' is a loosely consolidated conglomerate of siliceous material in the sand to pebble size range. It occurs within the Upper Permian sequence or at the base of the Triassic beds. It is abundant throughout the Midlands district where it varies from a few inches to tens of feet in thickness. It also occurs in the Hobart and Cygnet districts but most accessible occurrences have already been worked out.
5. Permian siltstone scree forms on the lower slopes of highlands composed of Permian siltstone. The material consists predominantly of silica ranging in particle size from silt grains to boulders of siltstone.
6. Sedimentary rock from intrusive contacts has undergone recrystallisation with consequent increase in toughness. It usually breaks into suitably sized angular fragments due to weathering along joint planes.
  - (a) Baked Ferntree siltstone is common in the Hobart district.
  - (b) Baked Triassic sandstone occurs in the Midlands district.

The contact zone is usually less than 10 feet in thickness and therefore flat dipping contacts are preferable as greater volumes of baked sediments are more easily accessible.

The numbers used in the foregoing descriptions are referred to in the following discussion with Roman numeral suffixes for specific occurrences (see figures 1 to 3 for locations).

## Ranelagh – Grove Road

Materials available: 1, 5, 6 (fig. 1)

**1a.** Doleritic river gravels are plentiful along Mountain River and some of its tributaries (1ai). It should be possible to remove some of this gravel without affecting the flood potential or lateral erosion of the streams.

**1b.** Most of the Ranelagh district is situated on a Pleistocene river terrace and therefore it is probable that quartz gravels lie concealed beneath many parts of the area. The gravels currently being extracted by S. J. Clarke lie on the edge of the terrace which surrounds the Huon River–Mountain River confluence (1bi).

Similar deposits are exposed at other points along the terrace (1bii and iii). As an aid to prospecting for concealed deposits within the terrace sediments it should be feasible to employ electric resistivity methods to determine test pit sites.

**5.** Scree slopes of Ferntree siltstone occur along the Ranelagh–Judbury road. The quarry (5i) is located in this material and, if required, it should be possible to find similar deposits in this area and also along the Crabtree road from Grove.

**6.** Baked Ferntree siltstone is exposed in a disused quarry on the Huon Highway at Grove (6i). The contact can be traced southeasterly along the north side of the Fourteen Turn Creek road for  $\frac{3}{4}$  mile thence southerly as shown on the sketch map (fig. 1). 6ii denotes a possible quarry site due east of Huonville on the same contact zone. This intrusive contact is steeply dipping and it would therefore be necessary to work a number of sites along the contact in order to obtain a sufficient volume of baked sediment.

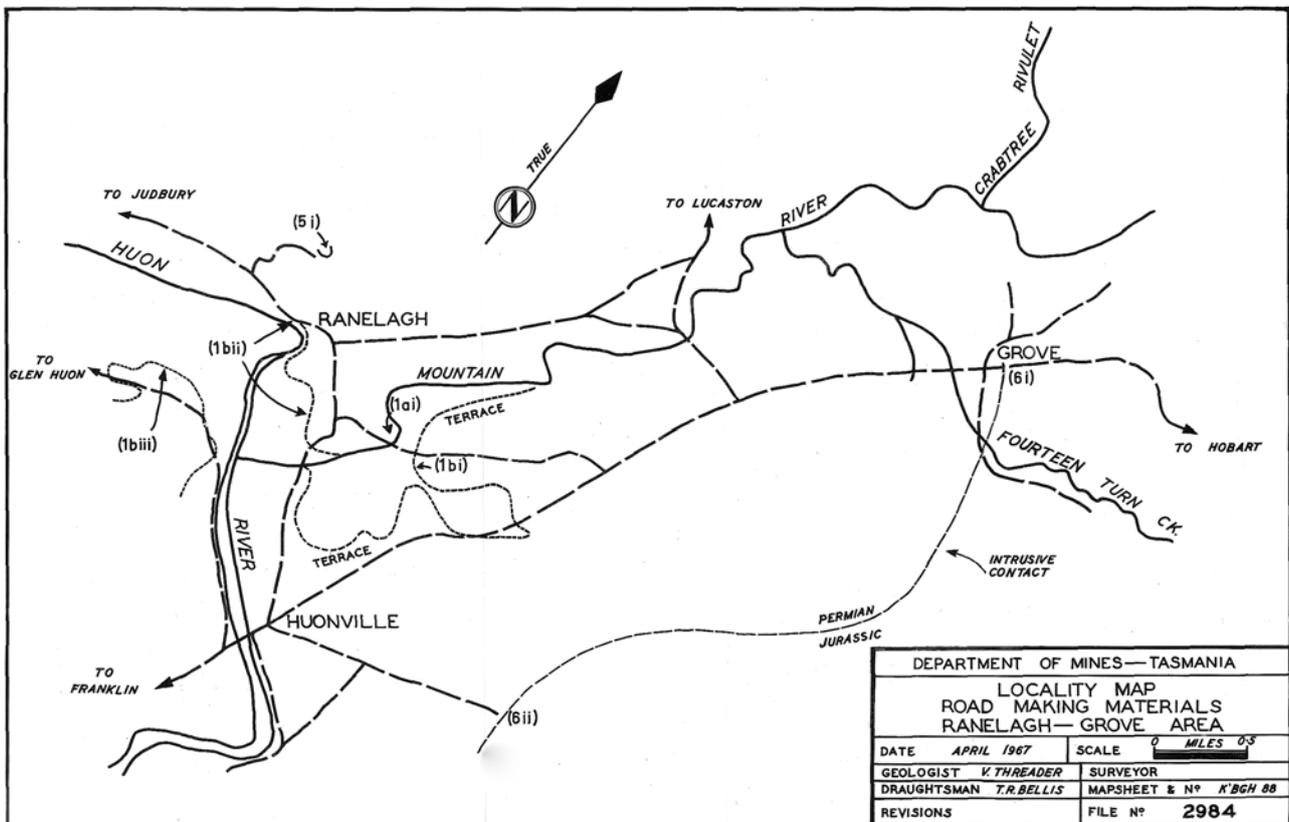


Figure 1

### **Nicholls Rivulet – Oyster Cove Road**

*Materials available: 3, 5 (fig. 2)*

3. Sugary dolerite scree has been quarried from the Red Hill granophyre at 3i and from a dolerite half way along the road (3ii). As there appears to be adequate reserves of this material it is assumed that the Public Works Department considers its use in road construction to be undesirable.

5. Baked Permian sediments are abundant at several points along this road and also at both ends of it where it joins the Channel Highway. 5i is a quarry operated by the Kingborough Commission and is situated on a steeply intrusive contact. 5ii is a low hill on the southeast corner of the Channel Highway–Nicholls Rivulet Road intersection. The hill is covered with baked Permian sediment which probably overlies a flat dipping intrusive contact. It should be possible to strip the material from the surface without the necessity of establishing a quarry face but it would be necessary to first expose the contact zone to determine its attitude.

5iii, iv, v and vi are localities of accessible intrusive contacts from which suitable material could be obtained at various points along the road.

### **Midland Highway (Bridgewater–Ross)**

*Materials available: 1, 2, 3, 4, 5 and 6 (fig. 3)*

1a. Doleritic river gravels occur plentifully along watercourses throughout the Midlands district. The Bagdad Rivulet in the vicinity of Bagdad (1ai) is typical of many.

2. Buckshot gravels occur to a depth of 2 feet in the Interlaken–Auburn area. The deposit is well known and has been used for many years (2i).

3. Dolerite scree is quarried from ‘The Sugarloaf’, locally known as ‘Red Hill’, 1 mile from Kempton on the Hunting Ground road (3i). So far as is known there are no other dolerites of a composition to yield this type of weathering product in the Midlands. If the gravel is considered suitable for road making, it might be considered useful to carry out further field work in the area either to determine the reserves of this deposit or locate others.

4. Permo-Triassic grits occur in the Tunbridge–Ross area (4i), and on the Ross–Auburn road (4ii and iii). The grit bed varies in thickness from a few inches to a few feet and locally may be present in sufficient quantity to constitute a gravel deposit. Numerous outcrops have been observed but some prospecting would first be necessary to determine thicknesses.

5. Permian siltstone scree is quarried from Hart’s property in the Whitefoord area 11 miles from the Midland Highway (5i). To date no other deposit of this material has been found. A similar material is quarried from Rutland, 7 miles from Jericho, but this deposit is of slightly harder stone suggesting the proximity of dolerite intrusion.

6. Sediments in the vicinity of intrusive contacts occur at the following places:

Baked Permian siltstone at Rutland (6ai), on the Ross–Auburn road (6aai) and on the Broadmarsh road 1½ miles from Mangalore (6aiii).

Baked Triassic sandstone at ‘Lemon Hill’ (Webb’s property) (6bi), ‘The Glebe’ 1 mile north of Oatlands and ¼ mile west of the highway (6bii) — this deposit was reported to the Public Works Department by J. Cashion several years ago. It was recently visited by the writer and it appears to be of high quality and considerable extent.

A third occurrence lies east of Oatlands on the Ross–Lake Leake road (6biii).

Samples of all materials described are held in the Department of Mines and quantities for testing can be readily obtained if required.

[21 April 1967]

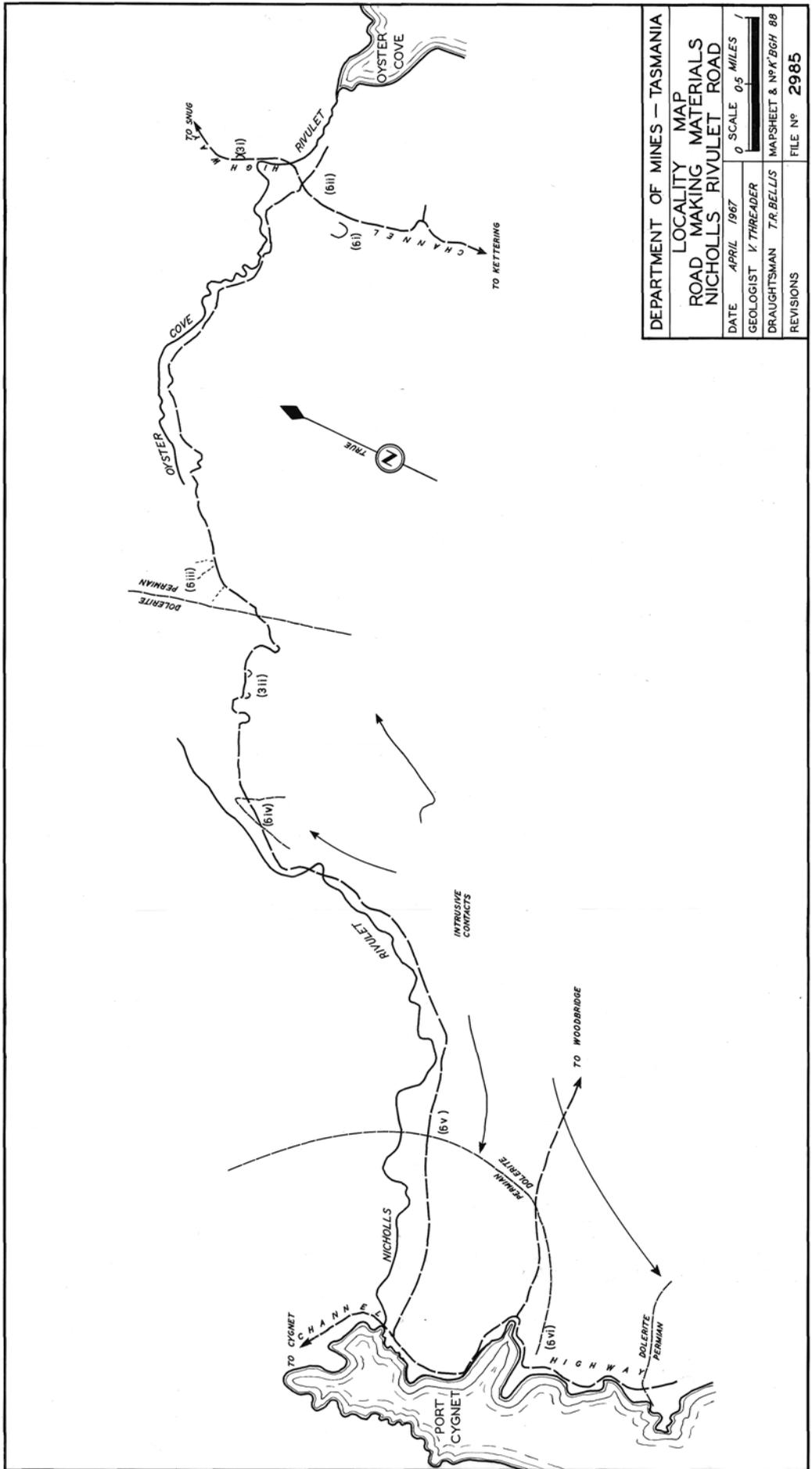
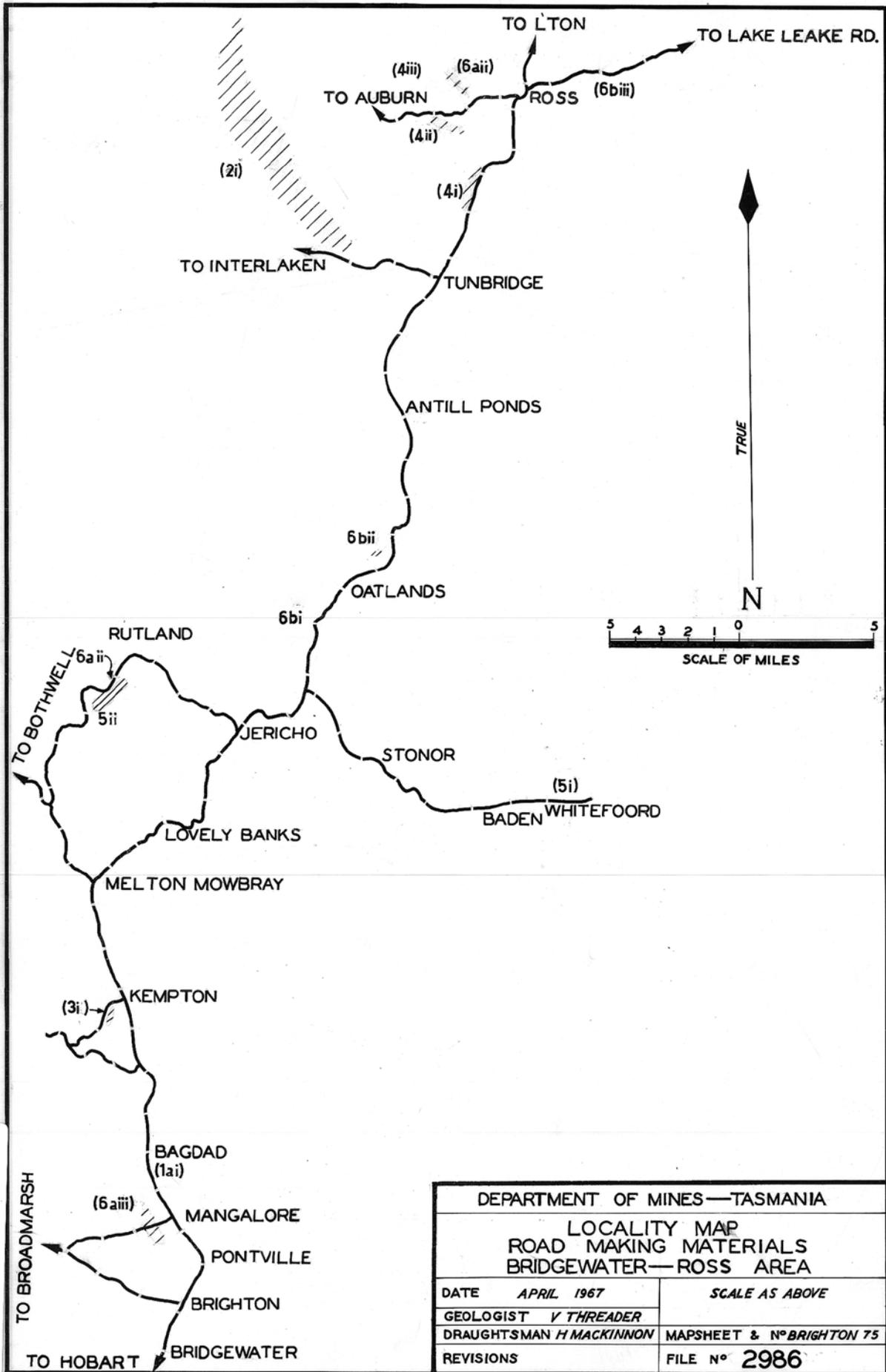


Figure 2



DEPARTMENT OF MINES—TASMANIA	
LOCALITY MAP ROAD MAKING MATERIALS BRIDGEWATER—ROSS AREA	
DATE <i>APRIL 1967</i>	SCALE <i>AS ABOVE</i>
GEOLOGIST <i>V THREADER</i>	
DRAUGHTSMAN <i>H MACKINNON</i>	MAPSHEET & N <sup>o</sup> <i>BRIGHTON 75</i>
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Figure 3