UR1973_87

Groundwater prospects on the property of K.G. Brooks, Tinderbox Road, near Blackmans Bay.

C.J. Knights

Water is required for a proposed subdivision which is located on the seaward side of Tinderbox Road, about 1.5 km south of Blackmans Bay.

GEOLOGY

Rocks of three ages are present in this area; their surface distribution is shown in Figure 1:

Jurassic dolerite (igneous intrusive)
Triassic sandstone
Permian mudstone and siltstone

Permian rocks are exposed in the lower part of the area and form high coastal cliffs. They consist dominantly of thin-bedded fossiliferous mudstone, overlain by pale coloured siltstone.

Triassic quartz sandstone is exposed in a small cliff just below the road and extends uphill from the road. The Triassic sandstone is probably underlain by Permian rocks at no great distance below the surface (fig. 1).

Dolerite is a hard blue coloured igneous rock which was intruded during Jurassic times. It forms a horizontal cap to Tinderbox Hill, and occurs as a vertical dyke running across the hill. At the base of the sea cliffs thin (0.25-0.5 m) dykes and sills intrude the Permian mudstone which also appears to be hard and indurated. This evidence supports the interpretation of a gravity survey (Leaman, 1972) which suggests that there is a hidden dolerite sheet just below sea level (fig. 1).

WATER-BEARING CHARACTERISTICS OF THE ROCK UNITS

Water is contained and transmitted through fractures and partings within the rocks, and these control the properties of the aquifer.

Permian. Mudstone of mid-Permian age tends to be permeable due to vertical fracturing and distinct bedding partings. Supplies of 19-26 *l*/min are normal.

Triassic sandstone. These rocks tend to be thick bedded, and are less reliable sources of groundwater. However supplies of 15-23 *l*/min are not uncommon.

Jurassic dolerite. This is a very hard rock, and difficult to drill. With present knowledge it is not recommended as a water source.

WATER QUALITY

Water with less than 500 ppm total dissolved solids is generally suitable for drinking. Water with 500-1 000 T.D.S. may be unsuitable due to taste, or because of an excess of a particular constituent. It is unlikely that undiluted groundwater in this area will be suitable for drinking.

HYDROLOGY

Groundwater which moves eastwards towards the coast is likely to be blocked by the dolerite dyke. Land between the dyke and the coast will

therefore not contain useful supplies of water, and drilling might encounter the dolerite sill. Land on the uphill (south-west) side of the dyke could hold water in storage and is a reasonable prospect for drilling.

CONCLUSIONS

Any proposed bore should be drilled uphill of the dyke, and in the lower ground near a creek. Before deciding on drilling, a seismic survey should first be done to ensure that no dolerite is present within 50 m of the surface at the drilling sites.

Bores should be at least 30 m apart, and 30-45 m deep. It is not advisable to drill below 50 m. Water is likely to be too salty for drinking.

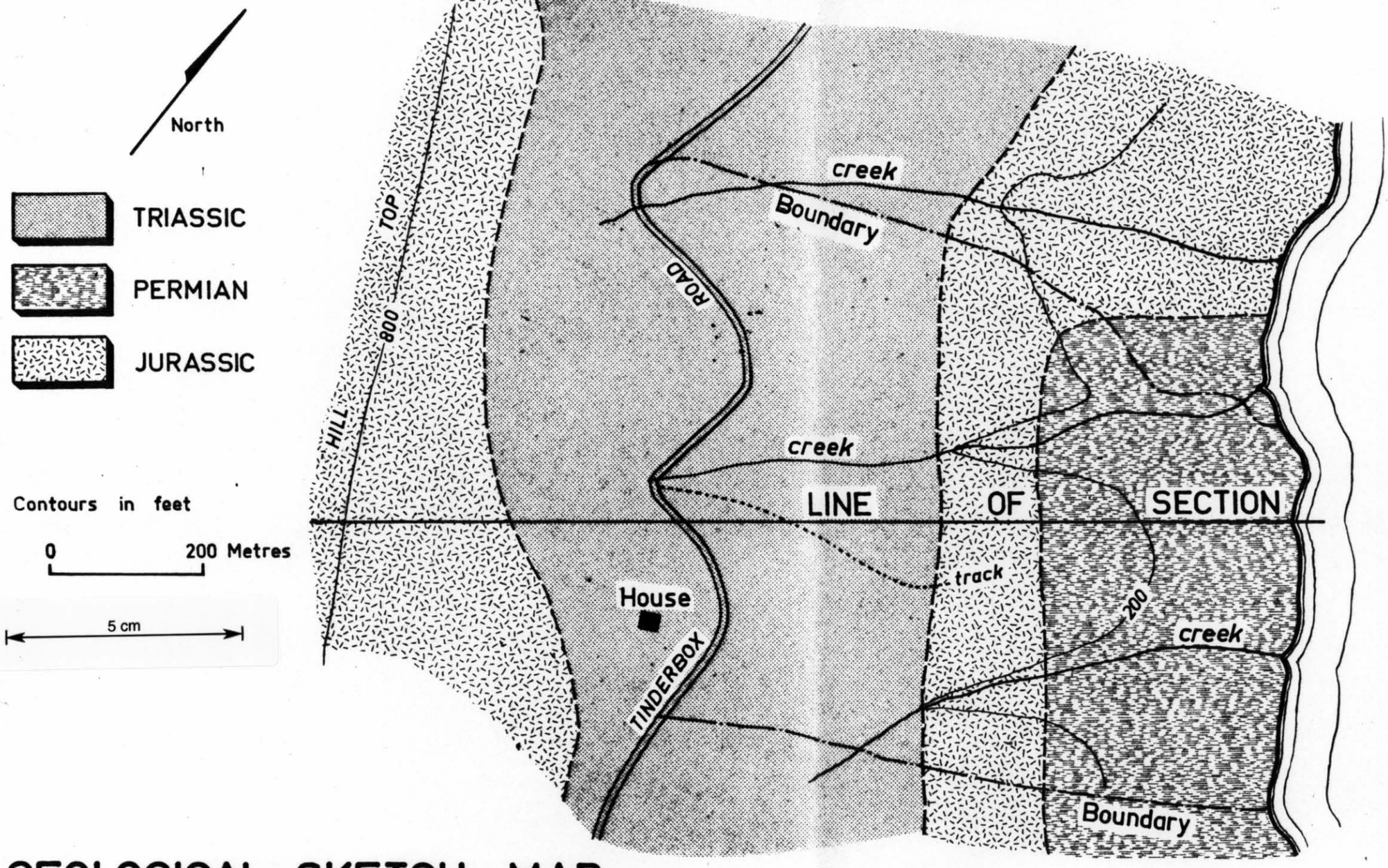
REFERENCE

LEAMAN, D.E. 1972. Gravity survey of the Hobart district. *Bull.geol.Surv. Tasm.* 52.

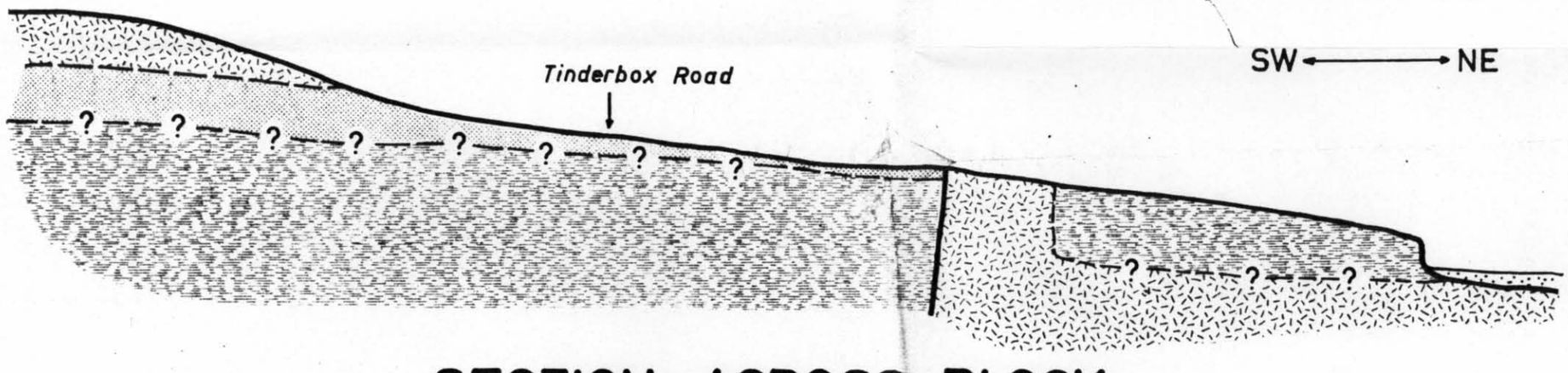
[16 November 1973]

litres per minute to gallons per hour

1	13	51	673	101	1333	151	1993
2	26	52	686	102	1346	152	2006
3	40	53	700	103	1360	153	2020
4	53	54	713	104	1373	154	2033
5	66	55	726	105	1386	155	2046
6	79	56	739	106	1399	156	2059
7	92	57	752	107	1412	157	2072
8	106	58	766	108	1426	158	2086
9	119	59	779	109	1439	159	2099
10	132	60	792	110	1452	160	2112
11	145	61	805	111	1465	161	2125
12	158	62	818	112	1478	162	2138
13	172	63	832	113	1492	163	2152
14	185	64	845	114	1505	164	2165
15	198	65	858	115	1518	165	2178
16	211	66	871	116	1531	166	2191
17	224	67	884	117	1544	167	2204
18	238	68	898	118	1558	168	2218
19	251	69	911	119	1571	169	2231
20	264	70	924	120	1584	170	2244
21	277	71	937	121	1597	171	2257
22	290	72	950	122	1610	172	2270
23	304	73	964	123	1624	173	2284
24	317	74	977	124	1637	174	2297
25	330	75	990	125	1650	175	2310
26	343	76	1003	126	1663	176	2323
27	356	77	1016	127	1676	177	2336
28	370	78	1030	128	1690	178	2350
29	383	79	1043	129	1703	179	2363
30	396	80	1056	130	1716	180	2376
31	409	81	1069	131	1729	181	2389
32	422	82	1082	132	1742	182	2402
33	436	83	1096	133	1756	183	2416
34	449	84	1109	134	1769	184	2429
35	462	85	1122	135	1782	185	2442
36	475	86	1135	136	1795	186	2455
37	488	87	1148	137	1808	187	2468
38	502	88	1162	138	1822	188	2482
39	515	89	1175	139	1835	189	2495
40	528	90	1188	140	1848	190	2508
41	541	91	1201	141	1861	191	2521
42	554	92	1214	142	1874	192	2534
43	568	93	1228	143	1888	193	2548
44	581	94	1241	144	1901	194	2561
45	594	95	1254	145	1914	195	2574
46	607	96	1267	146	1927	196	2587
47	620	97	1280	147	1940	197	2600
48	634	98	1294	148	1954	198	2614
49	647	99	1307	149	1967	199	2627
50	660	100	1320	150	1980	200	2640



GEOLOGICAL SKETCH MAP
Property owned by K.G. BROOKS



SECTION ACROSS BLOCK

Natural scale

Department of Mines , November 1973

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