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INFORMATION ON PROSPECTS AND DEPOSITS ON

EXPLORATION LICENCE 29/80

MINERAL HOLDINGS

MICROFILMED

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EXPLORATION LICENCE 29/80

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1. INTRODUCTION

An application was made in June 1980 for the area between Smithton and Detention on the north-west coast of Tasmania that was later granted as E.L.29/80.

Towards the end of 1980, Mineral Holdings Australia had produced a list of mineral prospects in the Licence area of E.L. 29/80. Information was obtained from the following sources.

- i Maps A and B in Bulletin No. 50 (1967).
- ii Other reports and publications.
- iii From general knowledge.
- iv Located by exploration in the Licence area.

Preliminary progress reports were prepared as the investigation of reports and exploration in the field progressed. The reports are :-

Mineral and Rock Deposits and Prospects on, and near,
E.L. 29/80, 21.10.80. (A note to Mr. Thomas).

Report on Results of Search in E.L. 29/80 for Mineral
Prospects shown on Map B of Geological Survey Bulletin
No. 50.

Field work continued to locate and examine the prospects referred to in the above reports and exploration was conducted to locate other mineral prospects on the Licence area and in particular those of silica and of silica sand.

Difficulty was experienced in finding some of the prospects from Map B of Bulletin No. 50 which is drawn to a scale of 1 inch to 16 miles (approx.). Most of the prospects were found, but a few are yet to be found.

The prospects and deposits will be described below.

Exploration work has not been completed, and this report has been prepared to provide information for a geological examination of the prospects by a consultant geologist.

2. PREVIOUS REPORTS

Tasmanian Geological Survey Bulletin No. 41, The Smithton District, by
P.B. Nye, K.J. Finucine and F. Blake, 1934.

Commonwealth Bureau of Mineral Resources Summary Report No. 24, by C.J. Sullivan, 1946.

Tasmanian Geological Survey Mineral Resource No. 10, Limestones in Tasmania by T.D. Hughes, 1957.

Tasmanian Geological Survey Bulletin No. 50, Geology and Mineral Resources of Tasmania, by I.B. Jennings, A.J. Naldart and E. Williams, 1957.

3. PROSPECTS AND DEPOSITS

3.1 OCHRE

a) Sampson Prospect. This prospect is shown on Map B of Bulletin No. 50 (1967). An examination of a copy of the Department of Mines mineral chart showed that the prospect was situated on former mineral lease 18M/42. The lease was held by M. Sampson during World War 2. It is situated about 0.5 miles to the south-east of the mouth of Deep Creek and about 3 miles to the east-north-east of Smithton.

Yellow ochre was mined from the prospect during 1943 and 1944 and 30 tons were produced. The following is a description from Summary Report No. 24 of the Commonwealth Bureau of Mineral Resources 1946.

"During 1943 and 1944, a total of 36 tons of yellow ochre was produced from a deposit situated 2 miles east-north-east of Smithton on the north-west coast. The ochre consists of finely divided ferric oxide which forms a mound spring. The colouration is very consistent (Thomas, 1945). Samples of ochre are brownish-yellow in colour and lack the brightness of the Northern Territory product, but have a high ferric oxide content and good staining strength. Mr. Sampson, the owner, states that the deposit covers an area of 1 to 2 acres and has a maximum thickness of 7 feet."

Bulletin No. 50 (1967) states that "yellow ochre has been produced from limonite deposits in the Smithton district. The Sampson prospect would be one, if not the only one, of the producers". In Bulletin No. 41 (1934), a mound around a spring is described, and the mound referred to as being "as composed of ironstone". This mound represents the Sampson prospect dealt with above.

b) Marthick Prospect. Bulletin No. 41 (1934) refers to a mound to the north of Marthick Siding on the Smithton railway. It is situated about 2.25 miles to the south-east of Smithton.

The mound is described as being of a chalybeate nature (iron carbonate). No testing has been done and, no other information is available about it at present.

c) 003

Davis Prospect. The ochre prospect is shown in Map B of Bulletin 50 (1967). This prospect is situated on the west side of Deep Creek 1.50 miles to the north of Fahey's Lane station on the Smithton railway, and about 4.5 miles to the south-east of Smithton.

The material is mainly a brownish limonite and the deposit is described in Bulletin No. 41 (1934), as follows:-

"The deposit is accessible by cart-track from Smoker's Bank road, the track branching off the road a short distance west of the bridge over Deep Creek.

The deposit forms a small mound rising above the level of Deep Creek flood plain. The bottom of the deposit and its relation to the bedrock cannot be seen, as no development work has been performed. It appears certain, however, that the deposit represents a secondary one, due either to formation under swampy conditions (bog iron ore) or from a spring.

A sample was crushed and used as a paint material. The colour was a dark-brown, and not a very satisfactory one for paint purposes. On calcining a sample, it gave a dark-red colour, somewhat darker than that usually sought in such paints.

A sample of the raw material was analysed, with the following result:-

Registered No.	Constituents	Per Cent
1271	Iron	52-82

Mr. Davis calcines and crushes small quantities of the material and sells small amounts in the Smithton district."

3.2 CLAY

a) Mawbanna Prospect. Map B of Bulletin No. 50 (1967) shows a clay prospect that is situated about 1.75 miles to the north-north-west along the railway from Mawbanna. The prospect agrees generally in position with a former mineral lease 64M/40 of 40 acres situated with its south-west corner on the railway and extending to the north-east of the railway.

No workings appear to have been done on the lease, but clay is present in railway cuttings to the north-north-west and the south-south-east of the probable position of the lease. The southern most exposures are in two cuttings about 200 yards apart. In the southern most cutting, clay extends for about 100 feet along the cutting and in the northern most cutting the clay extends for 50 feet. The height of the cuttings is about 4 feet. The colour of the clay is mainly yellowish, but there are patches of white clay in it.

Up to 20 chains to the north-north-west there is a small clay seam.

004

The former lease is just north of the southern boundary of E.L. 29/80 and its southern boundary more or less coincides with that of the E.L..

If the clay in the two cuttings referred to above is on the lease area they will be within the E.L. 29/80. It is not certain at present that the two cuttings are on the Licence area and in the copy of the mineral chart (county sheets) of Wellington 2A, 2B and 2C are used as the basis for mineral charts). They are at present shown south of the southern boundary of E.L. 29/80. Additional investigations and surveys will be made to determine the positions of the clay in the railway cutting.

No detailed geological map is available but the Burnie sheet of the 1:250,000 series (geological) shows that the area around the clay is occupied by Precambrian rocks.

The former lease indicates that the land was Crown land at the period when it was granted.

- b) A.P.P.M. Clay. A clay deposit is shown on Map B of Bulletin No. 56 (1967) in a position about 3 miles to the west-south-west of Hellyer.

This deposit was examined by Mr. K. Pinner and found to be a clay pit formerly worked by A.P.P.M., but not being worked at present.

An examination of the Department of Mines mineral chart showed a former mineral lease 39M/40 and the pit would undoubtedly be on the former lease. The lease (and pit) are situated about 0.76 miles to the south of the southern boundary of E.L. 29/80.

The deposit was described briefly in the typewritten report of 17/3/81 and a copy of that report is attached.

A geological examination will however be made to ascertain if the clay could continue to the north and therefore be on E.L. 29/80.

3.3 SILICA

- a) Deep Creek Quartzites. These quartzites are situated at, and to the south of, the road bridge over Deep Creek, the bridge being 3.5 miles south-east from Smithton. The quartzites are in a range of hills (White Hills or Beacon Hills) situated on the western side and extending southerly on south-south-easterly from Smoker's Bank road.

The quartzites are interbedded with the Pre-cambrian rocks as shown on the Burnie Sheet of the 1:250,000 series of the Geological Map of Tasmania. They are also shown on the maps accompanying Bulletin No. 41 (1934).

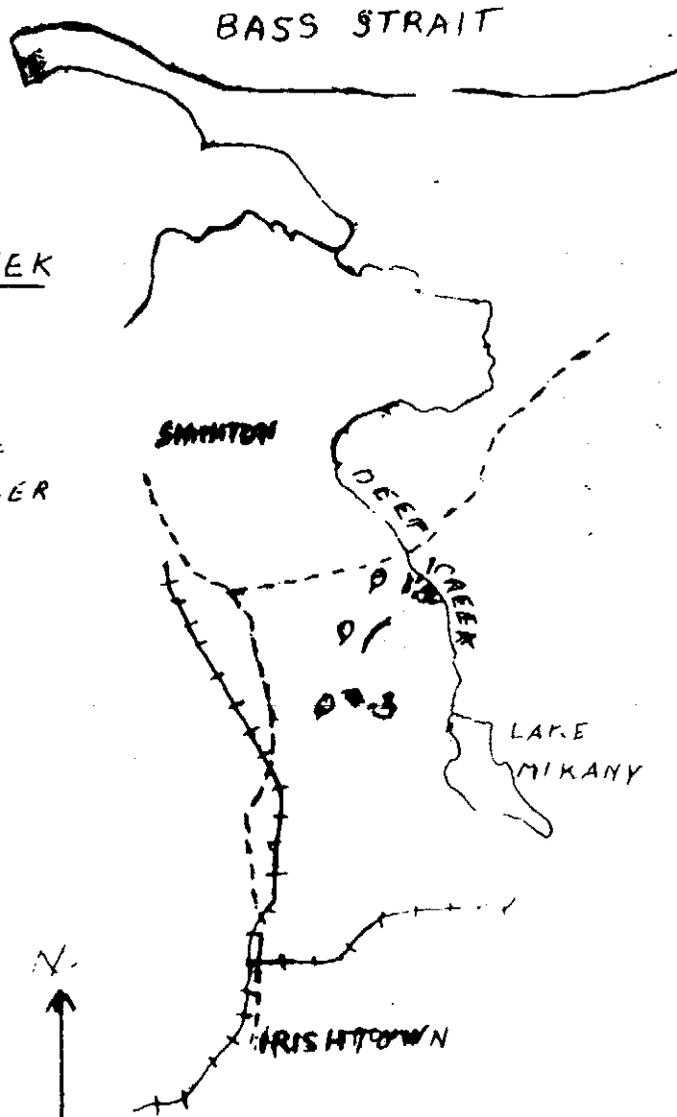
The attached plan shows the place from which surface samples have been taken.

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DEEP CREEK
SILICA

Q - QUARRY
• / SAMPLE
& NUMBER



SCALE 1:100000

5 cm

Two samples were taken from the outcrop near Smokers Bank Road and on the western side of the outcrop. No. 1 was taken from a place about 600 feet south from the road and where some quarrying had been done. Sample No. 2 was taken about 600 feet to the south of No. 1 and where a large quarry is present. No. 3 was taken about 3000 feet to the south-south-east of No. 2 sample. Results of analysis of the samples are given in the following table (No. 1).

TABLE NO. 1

Registered No.	Sample No.	Analysis			Length of Sample (Feet)	Remarks
		Silica %	Fe %	Al ₂ O ₃ %		
801540	1	98.2			36	from surface where some quarrying
1	2	97.0			80	from large quarry
813905	3	99.2	0.55	0.06		from quarry

At the northern end of the outcrop and extending southwards from Smoker's Bank Road, the Municipality of Circular Head holds a mineral lease (879 P/M). The municipality quarries the rocks for road metal. A short distance to the west, a lease (917 P/M) is held in the names of T.J. & M.J. Leis. Both leases are held over private property.

- b) Black River. Quartzite is present on the southern side of Black River near its mouth. It is situated close to the old road that used to cross the river.

The bed of quartzite is about 30 feet wide and a 28 foot sample was taken across it. The result of the analysis of the sample was 96.9 percent silica (SiO₂).

A sample of quartzite was taken in 1970 by Mining Systems Pty. Limited in mistake for dolomite. The results of the analysis are given in Table 2 below.

TABLE NO. 2

SiO ₂ %	MgO %	Ca %	Al ₂ O ₃ %	P %	S %	Mm PPM	L. or I. %
97.6	0.03	0.06	0.02	0.004	0.02	26	0.56

3.4 SILICA SAND

- a) Hellyer 1. (Silica Sand 1). This prospect is situated about 700 feet south-east of Hellyer on the North West railway and about 500 feet south of the railway.

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Mr. K. Pinner discovered an area of sand and reported that :-

- i) its thickness was not known accurately but it was 10 feet where sampled;
- ii) its area was about 1 acre. A sample (No. 1) was analysed and the results are given in the following table (No. 3).

TABLE NO. 3

Registered No.	Sample No.	Analyses			Possible Area (Acres)	Approx Depth (Feet)
		SiO ₂ %	Fe ₂ O ₃ %	Al ₂ O ₃ %		
	1	99.7	260	30	1	10 (where sampled)
	2	99.6	280	20	1(quarried)	10 approx.
	3	99.5	190	40	<1	
	4	99.6	290	160	1	10

b) Hellyer 2. (Silica Sand 2). This prospect is situated about 400 feet to the north-east of Prospect Hellyer 1. Pinner states that it is on a small hill and its area is probably less than one acre. It was discovered by Mr. K. Pinner. The results of analysis of a sample (No. 2) is given in Table 3 above.

c) Black River (Silica Sand 3). This prospect is situated near the mouth of the Black River, and between the North West Railway from Stanley to Smithton on the west and Black River on the east, and is about 800 feet south from the North West railway into Stanley. It was discovered by Mr. K. Pinner.

The dimensions and the results of the analysis of a sample (No. 3) are given in Table No. 3 above.

The prospect is situated in holocene sedimentary rocks (alluvial, sand, gravel and balus) but it is not known if the prospect is part of that sequence.

d) Grays Creek (Silica Sand 4). This prospect is situated a short distance north of the Bass Highway at a place about 4.9 miles (by airline) to the east-north-east of Smithton. It is about midway between two branches of Grays Creek which cross the highway.

The sand is exposed in a trench dug for the water pipe from Smithton to Stanley. It was found by Mr. K. Pinner. The measurements and analyses of a sample (No. 4) are given in Table No. 3 above.

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3.5 LIMESTONE

- a) Pulbeena Limestone (Marl). This deposit at Pulbeena is situated about 2.75 miles to the south-south-east of Smithton. It is shown on Map B of Bulletin No. 50 (1967), and information is available from other sources. It consists of Pleistocene fresh water marls, etc..

It has been mined for many years. The report in Bulletin 41 (1934) drew attention to it and the mining increased after that year.

The following is an extract from Bulletin No. 41 :

"The Pulbeena deposit occurs on the 198 acre soldier settler's block leased to A.B. Fenton, immediately north of Pulbeena Station. The limestone occurs at and immediately beneath the surface to a depth of at least 5 feet. It has been exposed in a shallow excavation, from which a quantity was removed for agricultural purposes, and in many of the drains in the vicinity.

Part of the deposit, especially that within 2 feet of the surface, is of a cellular nature, and represents replacements and casts of leaves, twigs, moss, grass &c. The material at a greater depth is more friable and of a marly nature. Both types and particularly the marl, contain numerous small freshwater shells.

Recent drains have given good exposures of the limestone, and also show that it occurs in thin layers, interbedded with a black peat or peaty soil. In general, the layers do not exceed 1 foot in thickness. In Fenton's excavation the limestone is apparently 3 to 4 feet in thickness, but at a distance of less than 2 chains it is found to be interbedded with peat.

From the occurrence it is obvious that the limestone and peat were formed in freshwater ponds, lagoons, swamps &c., which may have been partly fed from the warm springs of the neighbourhood.

These conditions probably existed over several hundred acres in the vicinity of Pulbeena, but the limestone does not appear to have been formed throughout this area. So far as the excavations, drains, &c., show, the limestone occurs along a length of some 15 chains on the eastern side of the railway. The width is not known.

The quality of the limestone is shown by the analyses of Samples I, II, and III in Table No. 12. It is to be observed that the limestone is of fairly high grade, and contains approximately 94 per cent calcium carbonate and 3 per cent magnesium carbonate.

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The quantity available could not be estimated without a considerable amount of shaft-sinking or boring. The thin beds of limestone and peat, of which individual beds would probably not continue over any great distance, would render this testing necessary. Generally speaking, there is probably sufficient to supply a small, but not a large, demand.

As regards working facilities, the material is soft and near the surface, and could therefore be easily and cheaply obtained. Much would depend, however, as to whether the peat would have to be rejected. If it contains any desirable properties from the agricultural viewpoint, it could possibly be left with the limestone for treating the land.

The deposit is alongside the railway and close to a road, so that there would be no transport difficulties."

The analyses of Samples I, II and III referred to in the above extract are shown in Table 4 further on in this report.

The deposit is described also in Mineral Resources No. 10 in the Section Under Recent Limestones and an extract is given below.

"One of the most attractive sources of agricultural lime occurs at Pulbeena, a small railway siding about four miles south of Smithton. Recent deposits formed in freshwater ponds and swamps and probably fed from hot springs, consist of a fine friable calcium carbonate powder with narrow bands of peat. Near the surface the limestone has become hardened for a thickness of about nine inches. There is an overburden of one to four feet of soil. The lime deposit varies in thickness from six to nine feet, and where the overburden is greatest, the lime beds are thicker. An area of 30 acres has been partly proved and doubtless in the vicinity are other areas.

Two pits are now being operated, one on either side of the railway line. In one the material is loaded by a dragline scraper on to a conveyor belt and tipped straight into railway trucks; in the other it is loaded on to side-tip trucks and from these tipped into the railway trucks.

The material is very fine grained (it has been stated that 75 per cent is -200) but, the water table being very close to the surface here, it is often wet and has to be put on the ground by special wet spreaders."

The analyses of three samples were included in both the above two publications, and are given in Table 4, below.

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TABLE NO. 4

Sample No.	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	MgO	CaO	Ig. Loss
1579 ..	0.48	0.56	0.24	1.72	53.76	43.70
1269 ..	0.88	0.44	N.D.	1.35	52.59	44.90
1270 ..	0.84	0.52	N.D.	1.51	52.39	44.72

3.6 DOLOMITE

- a) Black River Dolomite. This prospect is situated close to the Black River Quartzite but is on the opposite side (northern) of the river. It was sampled by Mr. K. Pinner and the details of the samples (No. 1 & 2) and the results of analyses are given in Table 5 below.

TABLE NO. 5

Registered No.	Sample No.	Analyses			Width of Samples (Feet)
		MgO %	CaO %	SiO ₂ %	
1	791177	19.8	29.2	5.8	45
2	791178	20.6	29.2	4.2	25

On the Burnie sheet of the 1:250,000 series, the bedrocks are Precambrian in age.

The following description is based on that in Mineral Resources No. 10, 1957. The dolomite at Black River occupies the center of a synclinal basin of which the long axis trends at 80°. The dimensions of the deposit are approximately 1500 feet by 600 feet with a maximum depth of 200 feet. The folding is with steep dips to the south on the south side and shallow dips to the south on the north side. Thus the deepest portion of the deposit is on the south side. Outcrop is intermittent and it is expected that quite a lot of the dolomite included in the estimated area will have been eroded away and its place taken by recent river wash.

As aggregate chip sample across the outcrop showed the following results (Table 6) on analysis.

TABLE NO. 6

Constituent	Amount %
CaCO_3	54.3
MgCO_3	43.9
Al_2O_3	0.3
Fe_2O_3	0.4
Insoluble	0.9
	<u>99.8</u>

Although many factors are favourable, the fact that the dolomite crops out only a few feet above sea level on either side of the river seems to preclude it as a commercial source.

- b) *Forest*
South Foster Dolomite Prospect. Map B of Bulletin No. 50 (1967) shows three small areas of dolomite extending from near the mouth of the Black River south-westerly for about 5.5 miles. The area at the north-eastern end and probably that near the mouth of Black River is probably the Black River prospect described in 3.6(a) above.

The next prospect to the south-west is situated a short distance to the east of South Forest. Its south-western end is on the southern boundary of E.L. 29/80. As shown on Map B, the length of the dolomite could be about a mile. No other information about it has been found to date.

The third area on Map B would be to the south of the southern boundary of E.L. 29/80.

This prospect is only included tentatively in this report, and will be amended after further investigation and field work.

3.7 LIGNITE

- a) Detention River Lignite. This prospect is shown on Map B in Bulletin No. 5, but has not yet been located in the field.

It appears from Map B to be situated westerly from Detention River siding on the north-west railway and about 0.25 miles west from the railway and a slightly greater distance to the south of the railway in the right-angled bend of the railway between Detention River and Hellyer sidings.

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On the Burnie 1:250,000 geological sheet, the position of the prospect would be close to the boundary between Tertiary basalt to the south and Holocene sediments to the north. The lignite is probably present in tertiary sediments underlying the basalt.

Further field surveys will be required to locate the prospect. In the north-western Tasmania it is generally associated with the Tertiary sediments.

*P.B. NYE*P.B. NYE

Melbourne
9/12/81

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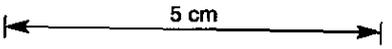


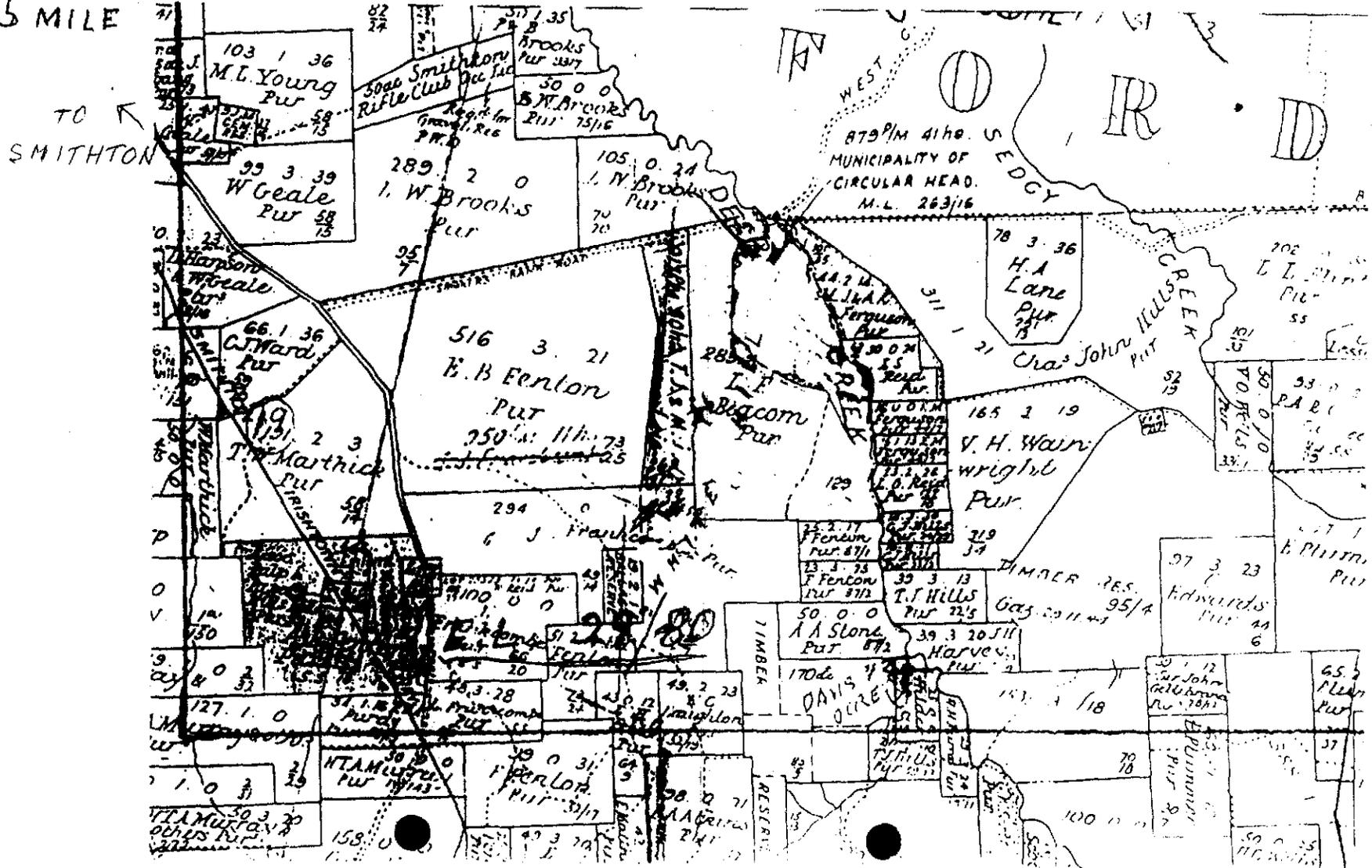
PHOTO COPY OF PART OF MINERAL CHART

(SHOWN ON WELLINGTON 2A)
SHOWING LEASES



SCALE

1 INCH = 0.5 MILE



310