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VICTOR PETROLEUM & RESOURCES LTD.

TASMANIAN EXPLORATION LICENCE - 16/81

RENEWAL & PROGRESS REPORT TO NOVEMBER 21, 1981

Licence Holder:

Victor Petroleum & Resources Ltd.

Report by:

Mr. K.C. Morrison

November 27, 1981.

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Appendix 1:

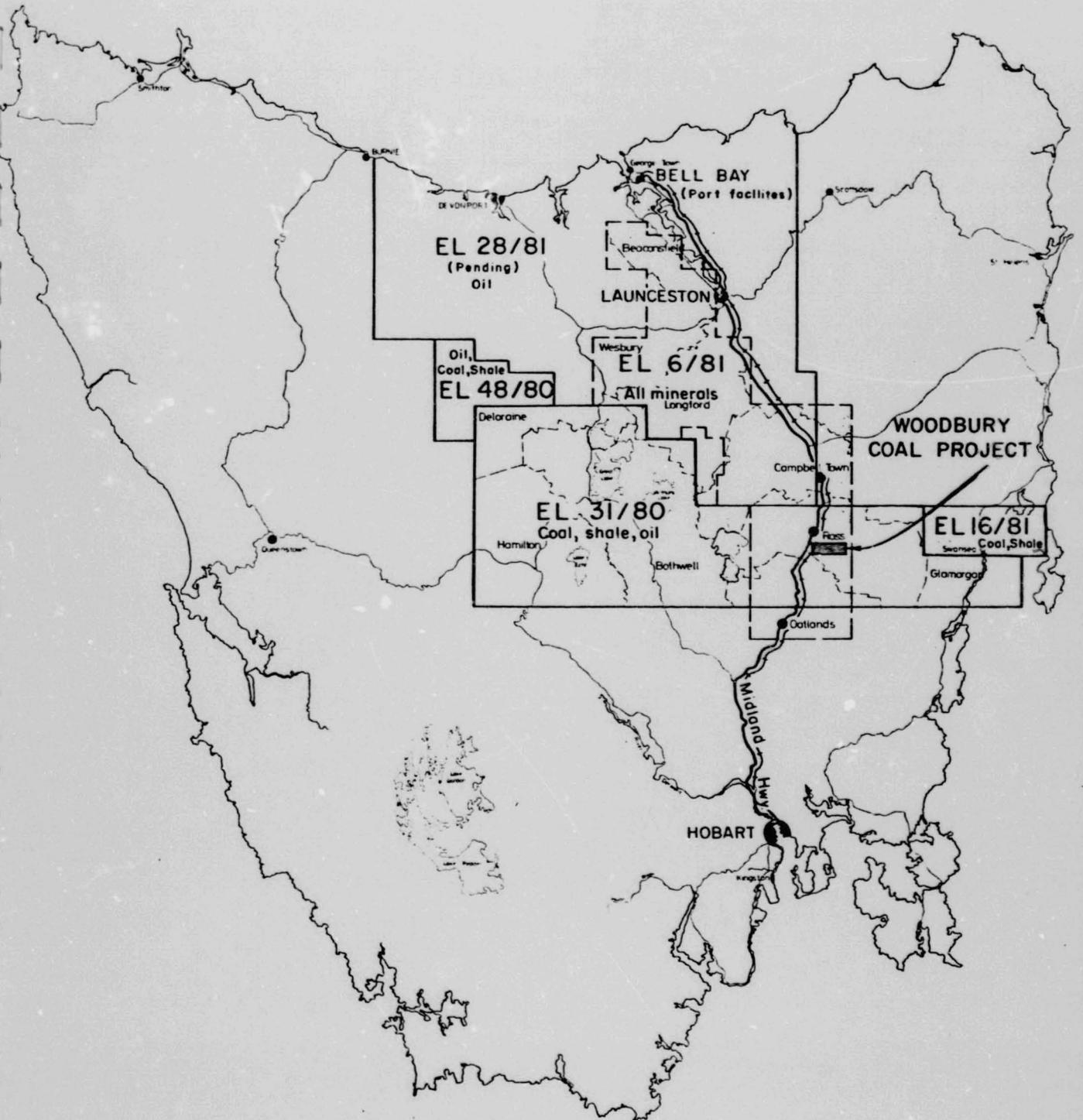
Re-Logging of Mines Department Diamond Drill Core

SUMMARY AND CONCLUSIONS

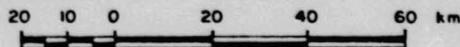
Broad interpretation of the field mapping suggests a stratigraphic trend exists from younger rocks (Triassic lithic sandstone sequence) in the S.E. to older rocks (Permian glacio-marine siltstones) in the N.W. The interpretation is consistent with Mines Department and industry drilling and mapping in the general region of the N.E. coalfields.

Three areas, Sherbourne Road, Cranbrook and Wye River, are implicated as potential coal targets, on the basis of outcrop mapping.

Consideration of the Mines Department regional gravity survey, and associated diamond drilling, indicate Cranbrook may be considered an unlikely prospect due to the presence of large volumes of dolerite and the apparent absence of coal within the sandstone sequence. An additional target, Swan River, of undifferentiated sedimentary rocks, buried beneath a shallow cover of Cainozoic sediments, is inferred by the gravity survey.



**VICTOR PETROLEUM & RESOURCES LTD.**  
**LOCALITY PLAN OF**  
**E.L. 28/81 , E.L. 48/80 , E.L. 6/81 , E.L. 31/80 & E.L. 16/81**



MARCH 1981

EL 16/811.0 INTRODUCTION

This report covers all exploration conducted within, or pertinent to EL 16/81 during the six month period ending November 22, 1981.

The work involved firstly, a reconnaissance mapping exercise to broadly classify the Parmeener Super Group rocks exposed at the surface and secondly a review of some previous geological and geophysical studies in eastern Tasmania, relevant to the Exploration Licence area.

The results of both aspects of the work are presented and consequent coal exploration targets are defined. A plan for the next stage of exploration is outlined.

2.0 INVESTIGATIONS BY VICTOR PETROLEUM AND RESOURCES2.1 Mapping

A programme of reconnaissance mapping, at scales of 1:42,000 and 1:100,000, was conducted in the Swansea-Cranbrook - Apslawn area. The aim was to determine the lithologies and general distribution of Parmeener Super Group rocks in those areas indicated as "windows" through the dolerite cover (Geological Survey of Tasmania, Oatlands Sheet 1:250,000). The results of the mapping are shown on Figure 2 and the Parmeener rock types are described below.

2.2 Lithologies2.2:1 Lithic Sandstone

Cross-bedded lithic or sub-lithic sandstones outcrop at three localities within the area and at least two localities south of Swansea, within EL16/81 (Figure 2). The main rock type is a medium grained quartz, rock fragment, feldspar arenite with clayey matrix.

2.2:1 Lithic Sandstone (Contd.)

Associated minor brown shale, mud pellet conglomerate, wisps of carbonaceous material and fragments of silicified wood 583,500m E., 5,341,300 m N. and indurated black shale , 595,000m E., 5, 352,300m N) occur within the lithic sandstones. In outcrop the lithic sandstone shows a subdued topography, dissimilar to the small cliffs with cave-like erosional features, typical of the more mature Triassic quartz arenites. In terms of texture, composition, bedding structure and associated minor rock types, the lithic sandstone is very similar to the Fingal Valley and Midlands coal measures lithic sandstones.

2.2:2 Quartz Sandstone

Quartz sandstones outcrop at Belbrook (5,825,000m E., 5,342,200m. N) and near the northern EL boundary (596,500m E., 5,354,500m M.). At Belbrook, two types of sandstone occur. The first is a thinly bedded, fine-medium grained, white quartz arenite, with minor micas and with minor clay matrix. The sandstones are cross bedded and dip towards the east. The second type ranges from very coarse quartz arenite to quartz granule conglomerate. Some of the granule conglomerate is texturally equivalent to a wacke, and some has been altered to ferricrete by iron cementation. No dip measurements have been obtained from the coarser sandstones and the stratigraphic relationship between the two types has not been resolved.

At Coombend (596,400m E., 5,334,500m N), a sequence of interbedded fine-medium grained quartz sandstones, sandy shales and carbonaceous shales outcrop. The sandstones are plane-bedded and were fine grained, thinly bedded and fissile. Fossil leaves and other plant debris are preserved in the black shales.

### 2.2:2 Quartz Sandstone (Contd.)

Generally the rocks appear to be indurated and leached, the sandstones being bright white in colour. The rocks dip to the S.E. indicating that they may be stratigraphically below the lithic sandstones which outcrop 1km to the S.W.

Evidence for quartz sandstone occurring stratigraphically below lithic sandstone is found in drilling by the Mines Department (Appendix 1, Threader, et al 1981) and industry (Walters, 1978).

The rock type designated as silicified quartz sandstone is being quarried for road making at Gravelly Hill (582,500m E., 5,342,500m N) and by the Lake Leake Road (58,000m E., 5,348,300m N). Sand grains are rarely preserved, the typical texture being micro honeycombed silica. The rock usually has a mottled red and white colouration and occurs juxtaposed to dolerite. It is tentatively interpreted as a contact hornfels.

### 2.2:3 Siltstone with Dropstones and Marine Fossils, Sandstones and Conglomerate

This association of rock types is assigned to the Upper? Marine sequence on the basis of lithological and stratigraphic affinities with Ferntree Group (Banks in Spry and Banks 1962) correlates in other Tasmanian localities. At Hallam Cave (579,500m E., 5,341,500m N) at least 50 metres thickness of siltstones, shales, conglomerates and sandstones are exposed in a topographic depression surrounded by dolerite hills. The siltstones and shales are pale to dark grey in colour with bioturbation structures and rare dropstones. No fossils have been recognized. The siltstones are thickly bedded (0.5 to 1.0 metre).

The sandstones and conglomerates range from medium grained quartz feldspar arenite to granule wacke and poorly sorted conglomerate. Pebble and boulder-sized dropstones are common.

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2.2:3 (Contd.)

The field distribution of the various lithologies suggests that the coarser clastics may be interbedded with, and overlie, the siltstones. The vertical sequence indicates a coarsening upwards trend from the siltstones to the conglomerate, then a fining-up trend from conglomerate to granule conglomerate, pebbly sandstone and very coarse sandstone. In terms of depositional environments, this sequence may represent the transition from glacio-estuarine to on-shore glacio-fluvial/fluvial.

Several patches of outcrop and abundant float occur to the north and west of Cranbrook. Lithologies range from: indurated grey-white micaceous, clayey siltstone (588,300m E., 5,354,000mE) to indurated siltstone with occasional dropstones and occasional clusters of fossils (brachiopods, bryozoans) (586,500m E 5,349,000m N), to pebbly coarse sandstone in places arkosic, and granule conglomerate with abundant reworked? dropstones (588,000m E., 5,355,000m N). The coarser clastics often host a ferruginous cement.

2.2:4 Summary

If the broad distribution of the three main associations of Parmeener Super Group rock types is compared to the generally accepted stratigraphy for the Tasmanian central east coast region (Calver, Bacon, in Threader, et al 1981), then the trend is from younger rocks (Triassic lithic sandstones) in the SE., to older rocks (Permian marine siltstones) towards the N.W. The recognition of lithic sandstone outcrop south of Swansea (within EL 31/80) assists this interpretation.

### 2.3 Logging and Interpretation of Mines Department Drill Core

Two of the holes drilled as part of the Mines Department gravity survey (Leaman and Richardson, 1981) are located in the Cranbrook - Apslawn area, and are thus considered useful for exploration within EL16/81. The diamond drill core from three holes (Apslawn 963/456 and Cranbrook 894/497) was re-logged (Appendix A) by T. Summons and K. Morrison, in greater detail than the original logging which was required to give only the relative thickness of dolerite, sedimentary rocks and granite, for the purpose of interpreting gravity results.

The logging revealed the following information:

- in the case of Hole 894/497, the sandstone composition changed in the down-hole direction from lithic to inter-bedded sub-lithic, quartz and quartz feldspar
- the lower sandstones (52.1 to 114.5 metres) are green (glauconitic ?) in colour
- the bright white coloured quartz-rich sandstone (44.2 to 47.3 metres) occurs immediately above a dolerite contact, and its appearance may be in part the result of thermal alteration.
- Hole 963/456 intersected granite basement at 26.6 metres after drilling approximately 8 metres of white quartz sandstone overlying a 12 metre fining-up sequence of matrix - supported conglomerate to dark siltstone with granules and pebbles
- minor bright coal bands and plant fossils occur within the siltstones. The fossils have potential for determining whether the siltstones are Permian (Fern tree Group correlates) or Triassic age.

After comparing the core stratigraphy with the field mapping it is tentatively concluded that both holes were drilled through rocks stratigraphically in the lower part of, and below, the lithic sandstone - coal measures sequence.

### 2.3 (Contd.)

A second conclusion is that Hole 963/456 intersects the bottom 8 metres of quartz sandstone which commonly occurs below the lithic sandstone sequence (Threader et al 1981). Quartz sandstone and interbedded carbonaceous shale outcrop on the 40 metre contour, approximately 200 metres S.E. of Hole 963/456, and if the 7° dip at that site is projected back to Hole 963/456, then a true thickness of some 40 metres of quartz sandstone is inferred. Such a thickness is consistent with the total quartz arenite thickness below the coal measures sequence in the Royal George area (Waters 1978) and the Fingal Valley (Threader et al 1981).

Given this information, and the assumption of no faulting, a section was drawn (Figure 3) in the down dip direction from Hole 963/456. If the lithic sandstone which outcrops on the 80 metre contour near the Tasman Highway - Sherbourne Road intersection (Figure 2) is projected under the dolerite cover, it is cut by the section at a distance of 2 km from the drill hole. This assessment allows the prediction of a potential thickness of lithic sandstone sequence in the order of 200 metres.

## 3.0 PREVIOUS WORK IN THE AREA

### 3.1 Coal Exploration

The only mention of coal occurring within the area is a 15 cm seam at Cranbrook (Hills et al 1922). Two outcrops of this seam were reported to be separated by a 2 metre dolerite dyke. Neither outcrop was located during the current mapping and Hole 894/497, which was drilled at Cranbrook, did not intersect any coal. The southern part of the Llandaff coal fields extends down to the northern margin of EL16/81. This area was considered prospective by I.M.I. (Edgvean, 1975) and is still held within their FL5/61.

3.2 Geology of the Apsley Area, Bacon, C.A. 1979 B.Sc. Honours Thesis, University of Tasmania

This study was conducted in a quadrangle immediately north of the eastern part of EL16/81. Several findings have relevance to current exploration:

- a fining-up sequence of quartz arenites is recognised in drill core. The quartz arenities interdigitate with Permian marine limestone and are overlain by the lithic sandstone sequence.
- the quartz arenites are interpreted as probably beach deposits.
- metamorphosed lithic sandstones appear white in the field. The lithic fragments have been altered to chlorite and the clay matrix replaced by calcite.
- lithic arenites have been dated with macro and micro floras as Karnian (Late Triassic) age.
- total thickness of the Triassic may be up to 400 metres in places.
- rhyolite float and tuff outcrop were found in the field. The lithic sandstones in drill core show an upwards increase in the proportion of volcanic rock fragments. The volcanic source is interpreted as rhyolite domes flanked by bodies of ignimbrite.
- the coal flora indicates a broad leaf forest type, deposited in aerobic, fresh water swamps and ox-bow lakes.
- the Markov cycles show significant upward lithotype transitions which require a subsiding basin to allow preservation.

### 3.3 Gravity Survey of the East Coast Coalfields Geological Survey Bulletin 60 (Leaman and Richardson 1981)

The survey was designed to identify bodies of sedimentary rocks which would represent coal exploration targets, and to provide information regarding the configuration of basement rocks and dolerite intrusions. Several positive (+40 to +60  $\mu\text{m/s}^2$ ) and negative (in excess of -50  $\mu\text{m/s}^2$ ) residual Bouguer anomalies were identified. Those anomalies occurring within EL16/81 are shown on Figure 2.

The survey was initially interpreted qualitatively, following which the Fingal Tier section was subjected to a quantitative analysis. The qualitative treatment was considered adequate to identify dolerite feeders and drilling targets. Two major points of interest to current exploration emerge:

- a small negative anomaly (maximum -22  $\mu\text{m/s}^2$ ) is recognised along the Swan River between Cranbrook and the Grange. This anomaly is offset from the smaller of two major negative anomalies which are interpreted as Tertiary basins. The Swan River offset is considered to indicate "a section of Triassic rocks with minimal dolerite intrusions". This area represents a drilling target.
- the major positive anomaly near Cranbrook (Figure 2), when considered in conjunction with the abundant dolerite outcrop within the immediate area, and the absence of coal in Hole 894/497, suggests that the Cranbrook occurrence of lithic sandstone may be an unlikely coal exploration target.

## 4.0 PROPOSED EXPLORATION PROGRAMME FOR PERIOD TO 22nd NOVEMBER 1982

- ### 4.1 Further prospecting for outcrop of Parmeener Group rocks in the area bounded by Swansea - Tooms Lake and Buxton Point will be conducted during the coming summer. Streams such as the Wye, Meredith, Stony and Buxton Rivers, plus several vehicular tracks, should provide adequate summer access to the area.

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4.2 Scout drilling of coal targets defined during the current period will be carried out. This should be done in conjunction with the testing of targets in the coastal section of EL31/80.

4.3 An exploration expenditure of \$25,000 is proposed to carry out the above programme.

5.0 REFERENCES

Bacon, C.A. 1979. Part A. Regional Geology of the Apsley Area. Unpublished Honours Thesis, University of Tasmania

Edyvean, M.D. 1975. I.M.I. Pty. Ltd. 6/61 EL Report. Open File 75-1101. Tasmanian Department of Mines

Hills, L., Reid A., Nye, P., Reid, H., Reid, W., 1922. The Coal Resources of Tasmania. Miner. Resour. geol. Surv. Tasm. 7.

Leaman, D.E. and Richardson, R.G. 1981. Gravity Survey of the East Coast Coalfields. Geological Survey Bulletin Co. Tasm. Dept. Mines.

Spry, A. and Banks, M. (Eds) 1962. The Geology of Tasmania. Journ. Geol. Soc. Aust. Vol. 9 Part 2.

Threader, V., Castleden, R., Bacon, C. 1981. Report on the Department of Mines Coal Exploration Programme at Fingal. Unpublished Report 1981/10. Tasmanian Department of Mines.

Waters, D.D., 1978. Investigator Coal Exploration Pty. Ltd. 16/77 EL Report. Open File 55/9. Tasmanian Department of Mines.

APPENDIX 1RE-LOGGING OF MINES DEPARTMENT DIAMOND DRILL CORE

## 1. APSLAWN 963/456

<u>Metres Down</u>	<u>Description</u>
6.5 to 8.9	Sandstone, white, medium, quartz, quartz-mica. Some bedding defined by dark minerals, organic ? matter. Minor interbedded khaki mudstone, silty mudstone.
8.9 to 14.2	Sandstone, as above, with red-brown oxidation markings.
14.2 to 21.5	Siltstone. Dark grey, micaceous, carbonaceous (plant fossils). Sparse quartz granules, occasional granite pebble. One minor (3 cm.) sand band.
21.5 to 21.75	Siltstone. Higher percentage of quartz granules, several 2 mm. bright coal bands. Host siltstone is low S.G. (almost heavy dull coal).
21.75 to 22.7	Conglomerate. Open framework, granule - small pebble sized. Granite - derived clasts plus minor mudstone pellets. 20% Recovery.
22.7 to 23.3	Mudstone, coarsening down to sandstone with minor pebbles. Transitional boundary.
23.3 to 26.4	Conglomerate. Matrix supported, dark grey matrix of similar composition to siltstone ? Granule, pebble clasts of granite + minor quartzite, chert, mudstone.
26.4 to 26.6	Conglomerate. As above, with microcline-rich section. One fragment with pyrite veinlets.
26.6 to 31.5	Granite.

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## 2. CRANBROOK B7 (894/497)

<u>Metres Down</u>	<u>Description</u>
0 to 24.3	Sandstone. Lithic, with minor carbonaceous laminae. Fine-medium grained.
25.3 to 29.0	Mudstone. Dark grey, occasionally carbonaceous, sharp boundary.
29.0 to 30.2	Sandstone. Lithic.
30.2 to 32.2	Siltstone, carbonaceous, plus mudstone.
32.2 to 34.4	Mudstone, grey, indurated.
34.4 to 38.6	Siltstone. Sandy to muddy.
38.6 to 39.1	Mudstone. Dark grey, carbonaceous. Minor (2 cm.) crush zone.
39.1 to 44.2	Mudstone, siltstone. Grey/green.
44.2 to 47.3	Sandstone. White, quartz, quartz-mica. Crush zone at 47.1 - 47.3 metres. 50% of Recovery.
47.3 to 48.8	Contact altered sandstone/dolerite.
48.8 to 49.2	Sandstone, contact baked.
49.2 to 52.1	Dolerite.
52.1 to 70.6	Sandstone. Lithic, fine grained, with less Rock Frays, than usual. Pale green colour, some feldspar, biotite, heavy minerals. Minor siltstone.
70.6 to 76.0	Siltstone/Mudstone. Interbedded. Red bed at 75.0 - 76.0. Sharp boundary.
76.0 to 78.0	Sandstone, sub-lithic, with ferruginous mottling. 50% recovery.
78.0 to 80.0	Sandstone, sub-lithic to sub-arkosic. Minor carbonaceous laminae.
80.0 to 83.0	Mudstone/siltstone.
83.0 to 108.2	Sandstone. Quartz-feldspar, feldspar-quartz, sub-lithic. Pale green, heavy minerals (spinel ? cassiterite ?). Minor sandstone with mud pellets. Minor mudstone units.
108.2 to 109.2	Mudstone, dark, mottled. (Triassic ? red bed weathering).
109.2 to 112.0	Sandstone, green with minor pink colouration.
112.0 to 114.5	Sandstone, dark green (glaucconitic ?)
114.5 to 136.0	Dolerite.

**Victor Petroleum & Resources Ltd.**

Incorporated in Victoria

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EMA:jlb

November 27, 1981.

Department of Mines,  
G.P.O. Box 124B,  
HOBART. Tas. 7001

Exploration Licence 16/81Statement of Expenditure for Quarter ended 31st October, 1981

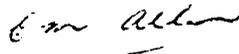
	<u>Total to</u> <u>31.7.81</u>	<u>1.8.81 to</u> <u>31.10.81</u>	<u>Total</u> <u>to Date</u>
1. Salaries & Consulting Fees	\$3,745	\$3,342	\$7,087
2. Travel & Accommodation	718	504	1,222
3. Operation & Field Expenses	2,836	840	3,676
4. Administration	1,175	1,997	3,172
5. Geochemical Analyses	-	-	-
6. Geophysics Contracts	-	1,693	1,693
7. Drilling	-	-	-
	<u>\$8,474</u>	<u>\$8,376</u>	<u>\$16,850</u>

Statutory Declaration

I, Ernest Maxwell Allen of 1 Dale Street, Deepdene Melbourne 3103 in the State of Victoria, do solemnly and sincerely declare that to the best of my knowledge and belief the above statement of expenditure fulfils the requirements of Schedule "A" (Revised), Conditions of the Special Prospectors' Licences and Exploration Licences under the Mining Act, 1929.

And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of an Act of the Parliament of Victoria rendering persons making a false declaration punishable for wilful and corrupt perjury.

Declared at Melbourne  
in the State of Victoria  
this 27th day of November,  
1981.



Before me:-



A Commissioner of the Supreme Court  
of Victoria for taking Affidavits.

RECONNAISSANCE MAPPING - E.L. 16/81

- CAINOZOIC SEDIMENT
- TRIASSIC LITHIC SANDSTONE
- TRIASSIC? QUARTZ SANDSTONE
- PERMIAN GLACIO-MARINE SEDIMENTS
- SILICIFIED QUARTZ-RICH SANDSTONE
- JURASSIC DOLERITE

----- INFERRED GEOLOGICAL BOUNDARY

-?-?-?-? LOCATION OF INFERRED BOUNDARY NOT PREDICTED.

⊕ POSITIVE GRAVITY ANOMALY

(LEAMAN AND RICHARDSON, 1981)

⊖ NEGATIVE GRAVITY ANOMALY

x HOLE 963/506 . CO-ORDINATES OF MINES DEPARTMENT HOLES.

↘ STRIKE AND DIP DIRECTION

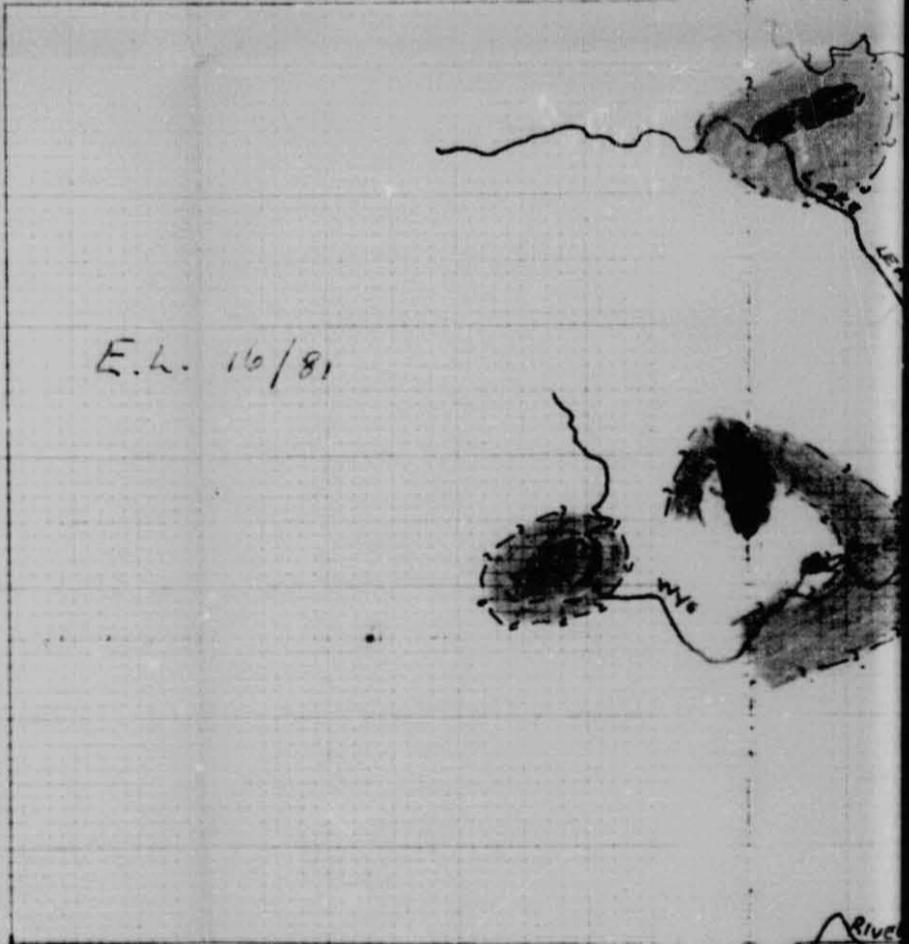
A — B SECTION A-B (Fig. 3)

G. N.



SCALE. 1 : 100,000

1 CM. = 1 KM.



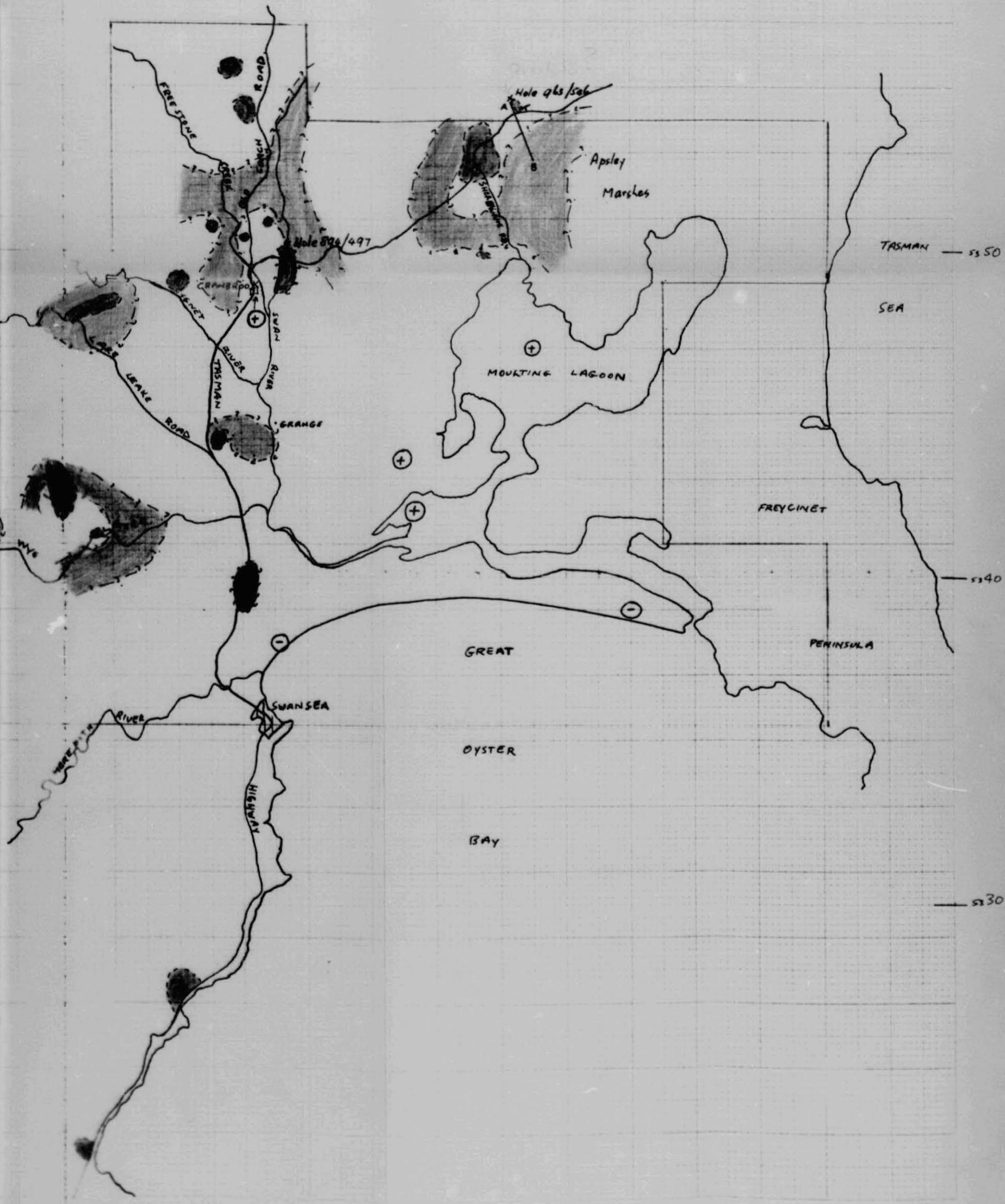
E.L. 31/80

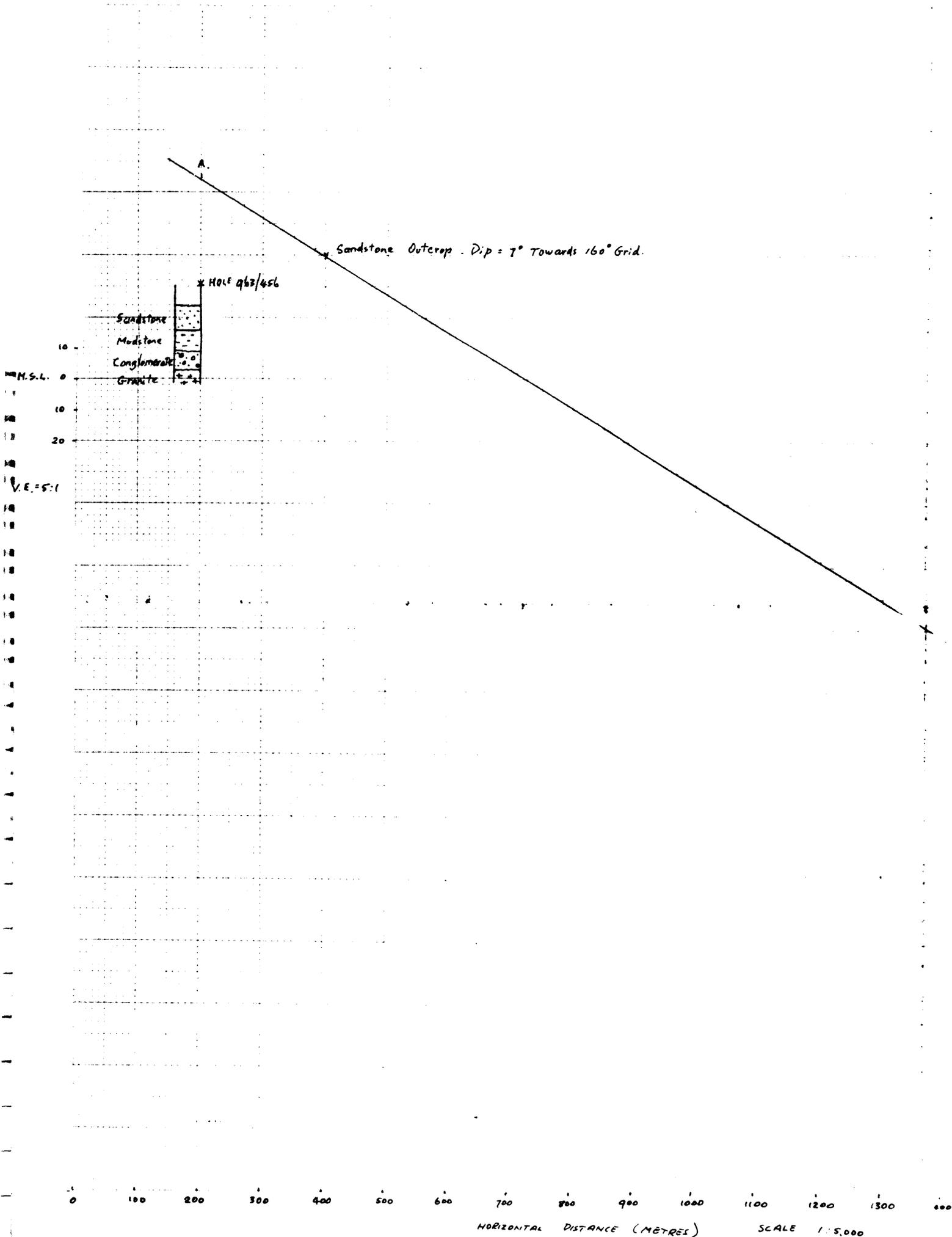
K. MORRISON 11/1981

— 590 —

— 600 —

— 610 —





8  
PROJECTED LITHIC SANDSTONE OUTCROP

PREDICTED POTENTIAL  
LITHIC SANDSTONE SEQUENCE THICKNESS  
~ 220 METRES

