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THE SHELL COMPANY OF AUSTRALIA LIMITED  
EXPLORATION LICENCE 18/77, AVOCA  
RELINQUISHMENT REPORT ON EXPLORATION IN  
THE SOUTHERN PART OF E.L. 18/77, AVOCA

**MICROFILMED**

The Shell Company of Australia Limited  
260 Macquarie Street,  
HOBART. TAS.

January, 1979

CEPR 2/79

RELINQUISHMENT REPORT ON EXPLORATION IN  
THE SOUTHERN PART OF E.L. 18/77, AVOCA

CONTENTS

	<u>Page No.</u>
1. INTRODUCTION	
1.1 Scope	1
1.2 Tenure	1
1.3 Location and Access	1
1.4 Topography and Climate	1
2. REGIONAL GEOLOGY	
2.1 Stratigraphy	3
2.2 Structure	4
3. EXPLORATION RESULTS	
3.1 Photogeology	5
3.2 Mapping	6
3.3 Drilling	7
4. CONCLUSIONS	8
5. REFERENCES	9

LIST OF ENCLOSURES

1. Topographic Map, showing generalised geology, drillhole locations, and infrastructure.	(1:100,000)
2. Fracture Block Rose Diagrams and Suggested outline of Major Dislocations	(1:40,000)
3. Detailed Geological Map	(1:40,000)

Page No.

TABLE

1. Drilling Statistics	7
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APPENDIX

1. Borehole Lithological Logs AV8-AV9	
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1. INTRODUCTION

1.1 SCOPE

This report details the results of exploration activities conducted in the relinquished part of E.L. 18/77, Avoca during the 12 month period ended 26th January, 1979. Photogeological office studies, field mapping and diamond drilling have been completed.

1.2 TENURE

Exploration Licence 18/77, Avoca has been held by The Shell Company of Australia Limited for two 6 month periods, the initial period being granted on 26th January 1978. The area relinquished is that part of the original EL, lying south from AMG latitude 5350000 m N., and east of AMG longitude 584000 m E.

1.3 LOCATION AND ACCESS

The relinquished part of E.L. 18/77 is situated in the central-eastern portion of Tasmania and lies within the AMG coordinates 550 000 mE-595 000 mE and 5350000 mN-5340000 mN. The area is roughly rectangular in shape and covers an area of 498 sq km. (Encl 1).

Campbell Town (936) situated to the west of the area and Swansea (376) situated on the coast to the south-east, are the only notable townships in the area.

The major sealed roads through the area are the Esk Highway following the Fingal (South Esk River) Valley in the north and the Tasman Highway which follows the east coast in the far eastern sections of the E.L. The unsealed Lake Leake Road traverses the area from east to west and roughly parallels the southern boundary of the area. Other access in the area comprises a network of unsealed 4 wheel-drive property and logging tracks (Encl. 1). It is possible to traverse the area, using these tracks, from Benham Homestead near Avoca to Wellwood on the Lake Leake Road.

Benham Estates control most of the private land along and south of the Fingal Valley including the homesteads of Benham, Homebush, Windfalls, Stonehouse, Harrimount (unoccupied) and Springfield (unoccupied). On the east coast the private land is controlled by several smaller property owners.

1.4 TOPOGRAPHY AND CLIMATE

Most of the area relinquished comprises plateau country which in general slopes to the south-east falling from the highest point of 700 m.ASL in the west of the area to 100-150 m on the east coast. The dolerite plateau country has an average reduced level of 650m.ASL, and to the south of the Fingal Valley has developed as extensive, relatively flat lying areas. The lowest reduced levels, 100-200 m.ASL, are in the major river valleys, the main rivers being the Elizabeth River in the south and the Swan and Cygnet Rivers in the south-east. All these rivers, except the Elizabeth have eroded through the dolerite plateau exposing the softer, underlying Permo-Triassic sediments resulting in the development of steep scarps from the level of the valleys to the dolerite plateaux.

The drainage pattern is youthful, modified on the plateaux by local base level developments in the marshy areas. The scarps have deeply incised valleys commonly following lithological contacts and structural trends at lower levels. The major river valleys are wide but have relatively confined flood plains.

Average rainfall in the greater part of the area is much higher than indicated by the the following table.

AVERAGE RAINFALL/YEAR

Rainfall District

Midlands	557 mm
East Coast	829 mm

Rainfall Stations

	<u>Average (mm)</u>	<u>Days Rain</u>
Avoca	562	109
Campbell Town	547	91
Oatlands	540	165
St. Marys	1038	100
Swansea	621	117

Approximately twice as many rainfall days are experienced on the plateaux, particularly to the south. The restricted valley areas, where the recording stations are located, have different climatic conditions to the higher plateau regions which act as centres for precipitation. Almost all rain falls during the months May to November, the highest rainfall being during July-August.

Winters are severe with average winter temperatures ranging from  $-5^{\circ}\text{C}$  to  $5^{\circ}\text{C}$ . Snow-falls are common above 600m. from June to August and there is no frost free month. Summers are short, dry and have average maximum temperatures of approximately  $20^{\circ}\text{C}$ .

Mid-summer provides 15 hours daylight while this drops to approximately 9 hours during winter. In January daily sunshine averages approximately 9 hours/day while in winter averages approximately 3 hours/day.

Winds are predominantly north-west to south-west with greatest strength and persistence in late winter. Relative humidity is generally low particular when under the influence of dry westerly winds.

2. REGIONAL GEOLOGY

2.1 STRATIGRAPHY

E.L. 18/77 lies within the Permo-Triassic Tasmania Basin which extends over most of the eastern half of Tasmania. The northern section of the E.L. lies on the north-eastern flank of the basin while to the south and east the central regions of the basin are approached.

The rock types present within the area were formed during two distinct periods of sedimentation. These two periods of sedimentation were separated by a long period of geological time during which the older sediments were intruded by a granite batholith and peneplained before the sedimentation of the second cycle began. At the close of the second period of sedimentation the Jurassic saw the extensive intrusion of several sheets of dolerite and dolerite dykes, these intrusive phases being associated with faulting.

The first cycle of sedimentation is represented by the Mathinna Group sediments thought to range in age from Early Ordovician to Early Devonian. The thickness of the Mathinna is unknown but the component lithologies indicate a deltaic or estuarine environment of deposition. Sedimentation was closed by the Tabberabberan Orogeny during which the Mathinna was intensely folded along a north-westerly axis. The dominant lithologies recognised are quartzites, phyllites, siltstones and slates.

The Mathinna sediments were then intruded by the Devonian Ben Lomond Granite, with associated late stage hydrothermal fluids resulting in mineralization of certain areas.

A long period of erosion followed, probably extending from the Carboniferous to the early Permian, during which the Mathinna Group was peneplained in some areas exposing the underlying, intrusive granite leaving a roughly undulating topography upon which the Permian was deposited.

The lower Permian is represented by shallow fresh water deposits of conglomerates, grits and coarse sands which exhibit a general trend of upwards fining. A marine incursion followed with mudstones and siltstones being deposited, the mudstones being abundantly fossiliferous (marine) in the upper sections. Limestones were then deposited before conditions appeared to have change to very shallow marine during which fine sandstones were deposited. The final stage of the Permian saw the deposition of mainly freshwater mudstones.

Conformably following the Permian are the freshwater sediments of the Triassic. The lower Triassic although not always represented consists of thick, homogeneous, quartzose sandstones which show an increasing lithic content towards the top, until in the Upper Triassic, the sandstones are lithic. In the Upper Triassic/Lower Jurassic, coal measure sediments and coal seams are developed.

The mid-Jurassic saw the intrusion of dolerite into the Permian and Triassic sediments. The dolerites form extensive sill structures these often being transgressive. The intrusion of the dolerites now appear to be far more complex than was formerly recognised.

Intense block faulting occurred in the lower Tertiary along north-westerly and north-easterly trends. Tertiary sand and clay deposits are confined to Eocene structural and erosional depressions while tholeiitic and alkali basalts are present in many of the major river valleys.

Continuous erosion has followed the Tertiary often exposing the pre-Permian basement with Recent deposits being thin and confined to valley floors.

## 2.2 STRUCTURE

The Mathinna Group Sediments were intensely folded during the Tabberabberan Orogeny resulting in the development of a regional north-westerly axis for the folding. Bedding plane dips are extremely irregular, this in itself being characteristic of the Mathinna.

Permo-Triassic sediments in the region of E.L. 18/77 show a regional dip of less than 5 degrees in a south-westerly direction although faulting has caused deviations in both strike and dip, particularly when in the proximity of major faults. No folding has been observed in the Permo-Triassic.

Major faulting appears to post date the Permo-Triassic and is probably associated with the intrusion of the Jurassic dolerites. Repeated movements have probably occurred along major faults especially during the Tertiary when much minor block faulting also occurred. Major faults such as the Castle Carey Fault have throws in excess of 500m often bringing Permo-Triassic sediments into contact with basement. Major faulting trends in north-westerly and north-easterly directions.

### 3. EXPLORATION RESULTS

#### 3.1 PHOTOGEOLOGY

Consultant Geologists Layton and Associates performed an earth fracture analysis using stereographic techniques and Landsat Imagery. A base plan and photogeological overlay were prepared together with four fracture plans comprising:-

1. Total fracture trace plan.
2. Landsat imagery lineament plan.
3. A plan showing local variation of the fracture traces by means of rose diagrams.
4. A plan showing possible major anomalous lineaments.

The aim of the fracture analysis was to establish a detailed structural pattern for the E.L., highlighting individual domains within which minable panels were likely to be fault free, or at least, less faulted than other domains.

No field visits were made and the identification of the lithological groups mapped on the photogeological plan were based on the 1:250,000 Geological Survey of Tasmania sheets SK 55-4 and SK 55-6 and to a lesser extent on Hills, L., 1922, "The Coal Resources of Tasmania, Geological Survey of Tasmania, Mineral Resources No.7". For the geological plan the pattern of major lineaments was simplified with emphasis being placed on those thought to show evidence of actual displacement of geological boundaries.

The total fracture trace plot was prepared defining a fracture trace as a generally abundant, natural lineation.

The Landsat Imagery lineament plot was prepared from 1:100,000 computer enhanced colour and black and white Landsat Images, selecting lineaments greater than 2km in length. The scale was increased to the photoscale of 1:40,000.

Local variations in fracture traces are expressed by rose diagrams. Fracture traces were processed manually by defining areas bounded by major faults or geological contacts and being approximately 30 sq km in area. A rose diagram using 3 fracture length categories was then prepared for each block.

Using a combination of the 3 previously mentioned plans a plot showing possible major anomalous lineaments was compiled. (Encl. 2)

Field mapping does not generally agree with the photogeological boundaries shown. In the areas around and 8km to the west of Cranbrook no one fracture direction appears to be dominant and the rose diagrams cannot therefore be divided into fracture sets. A major Landsat lineament running north-south along the length of the Swan River appears to be a transition line on either side of which the fracture trends change. This corresponds to field observations indicating that different thicknesses of dolerite exist on either side of the approximate line.

3.2 MAPPING

Emphasis in mapping has been placed on the Triassic sediments and their relationship with the Jurassic dolerite. The Permian has therefore been mapped as undifferentiated. Results are presented as Enclosure 3.

Permian Rocks

The Permian section exposed is thin and is confined to the valleys of the Swan and Cygnet Rivers. A basal Permian horizon exists to the east of Skeggs Hill and consists of coarse grained, quartzose grits containing pebble beds. The pebbles are rounded fragments of quartz, quartzite, siltstone and mudstone, these probably being derived from the Mathinna. The basal section fines upwards to sandstones and siltstones located south-west of 'Brook Lodge'. Outcrops of the basal grits are poor, the unit being recognized by the quartzose gravel weathering products. Where outcrop does occur it is in the form of low rounded hills with a patchy gravel covering.

Overlying the grits and sandstones are pale cream and yellow mudstones which become abundantly fossiliferous higher in the succession. The upper fossiliferous beds are silicified forming good outcrops south of Lagoon Run Hill. This mudstone interval is undoubtedly the equivalent of the Castle Carey Mudstone (Blissett, 1959).

At this level in the Permian there appears to be a dislocation in the sequence which has been intruded by a dolerite sill approximately 60m. thick. The dolerite has baked both the overlying and underlying mudstones which after weathering produce a hard iron and manganese stained gravel containing pisolitic granules of manganese.

The mudstone above the dolerite sill is probably the equivalent of the Prospect Creek mudstone and is white to pale yellow in colour, silicified and showing a conchoidal fracture.

A continuous Permian Section was not located but remnants of all major Permian horizons, including sandstones were found.

Triassic in the vicinity of Cranbrook? (Swan River Valley)

Jurassic

RUC 19/3/79

Jurassic dolerite is extensive in area and covers the area east and west of the Swan River Valley. There appear to be at least two sheets of dolerite, the lower sheet intruding the Permian at the base of the Prospect Creek mudstone and the upper sheet intruding at a higher level in the same mudstone sequence. The lower sheet is medium to coarse grained showing large crystals of augite and hypersthene. The upper sheet is fine grained and homogeneous. The structure of the base of the dolerite is irregular and undulating, evidenced by the irregular nature of Permian outcrop. The dolerite appears to have a regional dip to the east with the base of the dolerite being almost at sea level at the Swan River.

The dolerite appears to thicken to the west where the true dolerite plateau begins. The ring structures marked on the Layton and Associates photogeological map could not be traced in the field; however, it is noticed that these structures are confined to the lower dolerite sheet and possibly are a result of cooling effects.

Tertiary

In the area of 'Windfalls' homestead Tertiary basalt forms a thin capping on the dolerite. The basalt is olivine bearing.

Quaternary

The Quaternary is confined to the alluvium of the Swan and Cygnet Rivers and the dolerite talus which is thought to obscure the Permian to the west of Skeggs Hill.

Structure

The Permian strata are flat lying with only localized tilting close to faults. Few faults were picked up during field mapping but those located indicate a north-south orientation. Faulting appears to be minor in nature but this could be a result of the poor Permian outcrop not allowing the detection of more important major faults.

3.3 DRILLING

Drilling was carried out during August and September, 1978 by Longyear (Australia) Pty. Ltd., using a Longyear 44 diamond drilling rig.

Two drillholes totalling 598.6m were drilled with both holes being fully diamond cored. Drilling statistics are presented in Table 1.

Both drillholes were drilled using water as the drilling lubricant; however, where caving and circulation problems were encountered a mud mixture of Quick-Trol and Quick-Jel was used. Where dolerite was being penetrated soluble cutting oil was added to the drilling fluid.

Drillholes AV8 and AV9 were sited within the relinquished area (Encl.1), and both holes were terminated within the Jurassic dolerite. The dolerite is fine to medium grained, grey-green in colour and very hard. It is homogeneous and has relatively few fractures or joints. Jointing and fracturing is normally at angles of 55°-60° often with infillings of calcite and talc. The lithological drill logs are presented in Appendix 1. Cores taken of the dolerite have been stored on galvanised iron sheets at the drill sites shown on Enclosure 1.

TABLE 1 - Drilling Statistics

HOLE NO.	METERAGE				THICKNESS (m)		
	TOTAL DEPTH	TRICONE	HQ CORE	NQ CORE	CASING	DOLERITE	TRIASSIC
AV 8	300.00	-	300.00	-	-	300.00	-
AV 9	298.60	-	298.60	-	-	298.60	-
TOTAL	598.60	-	598.60	-	-	598.60	-

## 4. CONCLUSIONS (Area S of AMG 5350000 mN and E of AMG 584000 mE)

Mapping indicates that in the eastern portions of the area the dolerite has intruded below the level of the Triassic while, in the west, drilling indicates that the dolerite east of Lake Leake is very thick.

It is considered that the area has little or no potential for the development of economic coal deposits.

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APPENDIX I

THE SHELL COMPANY OF AUSTRALIA LIMITED

BOREHOLE LITHOLOGICAL LOGS AV8 - AV9

(PAGES 119 - 130)

BOREHOLE LITHOLOGICAL LOG

203013

LEASE : AVOCA  
BOREHOLE : AV 8

## \*\*\* CORE DESCRIPTION \*\*\*

metres		
-	1.40	100% HIGHLY WEATHERED.
1.40 -	2.00	100% DOLERITE: MEDIUM GRAINED, BADLY BROKEN, VARIAGATED COLOUR, MODERATELY WEATHERED, STRONG ROCK, CLOSE JOINT SPACING, JOINTS DIP 60 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES.
2.00 -	6.00	100% DOLERITE: MEDIUM GRAINED, BADLY BROKEN, GREY, MODERATELY WEATHERED, STRONG ROCK,CLOSE JOINT SPACING, JOINTS DIP 35 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES.
6.00 -	8.50	100% DOLERITE: MEDIUM GRAINED, BADLY BROKEN, GREY, MODERATELY WEATHERED, STRONG ROCK,MODERATELY CLOSE JOINT SPACING, JOINTS DIP 50 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.
8.50 -	12.00	100% DOLERITE: MEDIUM GRAINED, GREY, SLIGHTLY WEATHERED, STRONG ROCK,MODERATELY WIDE JOINT SPACING, JOINTS DIP 30 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES.
12.00 -	14.00	100% DOLERITE: MEDIUM GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK,WIDE JOINT SPACING, JOINTS DIP 65 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.
14.00 -	17.00	100% DOLERITE: MEDIUM GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK,WIDE JOINT SPACING, JOINTS DIP 30 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES.
17.00 -	17.50	100% DOLERITE: MED.TO FINE GRAINED, CHLORITIC, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK,MODERATELY CLOSE JOINT SPACING, JOINTS DIP 15 DEG. ,TIGHT NON-PLANAR DISCONTINUITIES.
17.50 -	19.00	100% DOLERITE: MEDIUM GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK,WIDE JOINT SPACING, JOINTS DIP 70 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

BOREHOLE LITHOLOGICAL LOG

203014

LEASE : AVQCA  
BOREHOLE : AV 8

## \*\*\* CORE DESCRIPTION \*\*\*

- 19.00 - 21.00 100% DOLERITE: MEDIUM GRAINED, BADLY BROKEN, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, MODERATELY CLOSE JOINT SPACING, JOINTS DIP 60 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.
- 21.00 - 24.00 100% DOLERITE: MEDIUM GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 30 DEG. , TIGHT NON-PLANAR DISCONTINUITIES.
- 24.00 - 27.50 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING , OPEN, NON-PLANAR DISCONTINUITIES , INFILLED WITH CALCITE.
- 27.50 - 30.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, MODERATELY WIDE JOINT SPACING, JOINTS DIP 55 DEG. , TIGHT, PLANAR, SMOOTH DISCONTINUITIES , INFILLED WITH CALCITE.
- 30.00 - 34.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING , OPEN, NON-PLANAR DISCONTINUITIES , INFILLED WITH CALCITE.
- 34.00 - 37.50 100% DOLERITE: MED. TO FINE GRAINED, GREY, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 15 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.
- 37.50 - 40.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, MODERATELY WIDE JOINT SPACING, JOINTS DIP 30 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

BOREHOLE LITHOLOGICAL LOG

203015

LEASE : AVOCA  
BOREHOLE : AV 8

## \*\*\* CORE DESCRIPTION \*\*\*

40.00 - 43.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 55 DEG. ,TIGHT, PLANAR, SMOOTH DISCONTINUITIES , INFILLED WITH CALCITE.

43.60 - 48.00 100% DOLERITE: MED. TO FINE GRAINED, GREY, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 75 DEG. ,TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

48.00 - 53.00 100% DOLERITE: MED. TO FINE GRAINED, GREY, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 20 DEG. ,OPEN PLANAR, ROUGH DISCONTINUITIES.

53.00 - 54.00 100% DOLERITE: MED. TO FINE GRAINED, GREY, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 60 DEG. ,TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

54.00 - 62.00 100% DOLERITE: MED. TO FINE GRAINED, GREY, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 15 DEG. ,OPEN PLANAR, ROUGH DISCONTINUITIES.

62.00 - 64.50 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 60 DEG. ,TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

64.50 - 67.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING ,TIGHT NON-PLANAR DISCONTINUITIES , INFILLED WITH CALCITE.

67.00 - 71.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 15 DEG. ,TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

LEASE : AVOCA  
BOREHOLE : AV 8

## \*\*\* CORE DESCRIPTION \*\*\*

71.00 - 78.30 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 75 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

78.30 - 82.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK.

82.00 - 87.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 30 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

87.00 - 95.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 15 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

95.00 - 122.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 30 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

122.00 - 124.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH TALC ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 75 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

124.00 - 129.80 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 45 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

129.80 - 130.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 80 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

BOREHOLE LITHOLOGICAL LOG

203017

LEASE : AVOCA  
BOREHOLE : AV 8

## \*\*\* CORE DESCRIPTION \*\*\*

130.60 - 139.50 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 30 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

139.50 - 145.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 20 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES.

145.60 - 147.40 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 20 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CLAY & TALC.

147.40 - 151.80 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH MICA ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 20 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

151.80 - 153.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 85 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

153.00 - 174.20 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH TALC ON JOINTS, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 25 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

174.20 - 174.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH TALC ON JOINTS, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 70 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

174.60 - 180.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 25 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

BOREHOLE LITHOLOGICAL LOG

203018

LEASE : AVOCA  
BOREHOLE : AV 8

## \*\*\* CORE DESCRIPTION \*\*\*

180.00 - 181.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, SLIGHTLY WEATHERED, STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 75 DEG. . OPEN, PLANAR, SMOOTH DISCONTINUITIES . INFILLED WITH CALCITE.

181.60 - 195.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 30 DEG. . TIGHT PLANAR, ROUGH DISCONTINUITIES . INFILLED WITH CALCITE.

195.60 - 198.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, MODERATELY STRONG ROCK, CLOSE JOINT SPACING, JOINTS DIP 70 DEG. . TIGHT, PLANAR, SMOOTH DISCONTINUITIES . INFILLED WITH CLAY & TALC.

198.60 - 200.00 100% DOLERITE: MEDIUM GRAINED, GREY-GREEN, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 60 DEG. . TIGHT PLANAR, ROUGH DISCONTINUITIES . INFILLED WITH CALCITE.

200.00 - 205.30 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 30 DEG. . TIGHT PLANAR, ROUGH DISCONTINUITIES . INFILLED WITH CALCITE.

205.30 - 206.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH TALC ON JOINTS, VERY STRONG ROCK, . TIGHT NON-PLANAR DISCONTINUITIES . INFILLED WITH CALCITE.

206.60 - 237.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 30 DEG. . TIGHT PLANAR, ROUGH DISCONTINUITIES . INFILLED WITH CALCITE.

237.00 - 239.50 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, VERY STRONG ROCK, . TIGHT PLANAR, ROUGH DISCONTINUITIES . INFILLED WITH CLAY & TALC.

BOREHOLE LITHOLOGICAL LOG

203019

LEASE : AVOCA  
BOREHOLE : AV 8

## \*\*\* CORE DESCRIPTION \*\*\*

239.50 - 251.30 100% DOLERITE: MED. TO FINE GRAINED. GREY-GREEN. VERY STRONG ROCK. WIDE JOINT SPACING. JOINTS DIP 30 DEG. .TIGHT PLANAR, ROUGH DISCONTINUITIES .INFILLED WITH CALCITE.

251.30 - 253.60 100% DOLERITE: MED. TO FINE GRAINED. GREY-GREEN. VERY STRONG ROCK. .TIGHT NON-PLANAR DISCONTINUITIES .INFILLED WITH CLAY & TALC.

253.60 - 273.30 100% DOLERITE: MED. TO FINE GRAINED. GREY-GREEN. VERY STRONG ROCK. VERY WIDE JOINT SPACING. JOINTS DIP 30 DEG. .TIGHT PLANAR, ROUGH DISCONTINUITIES .INFILLED WITH CALCITE.

273.30 - 275.00 100% DOLERITE: MED. TO FINE GRAINED. GREY-GREEN. WITH TALC ON JOINTS. VERY STRONG ROCK. MODERATELY CLOSE JOINT SPACING. JOINTS DIP 65 DEG. .TIGHT PLANAR, ROUGH DISCONTINUITIES .INFILLED WITH CALCITE.

275.00 - 300.10 100% DOLERITE: MED. TO FINE GRAINED. GREY-GREEN. VERY STRONG ROCK. VERY WIDE JOINT SPACING. JOINTS DIP 50 DEG. .TIGHT PLANAR, ROUGH DISCONTINUITIES .INFILLED WITH CALCITE.

BOREHOLE LITHOLOGICAL LOG

203020

LEASE : AVOCA  
BOREHOLE : AV 9

## \*\*\* CORE DESCRIPTION \*\*\*

-	2.50	100%.
2.50 -	10.60	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, SLIGHTLY WEATHERED, STRONG ROCK, MODERATELY WIDE JOINT SPACING, JOINTS DIP 45 DEG. .OPEN PLANAR, ROUGH DISCONTINUITIES.
10.60 -	16.00	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, SLIGHTLY WEATHERED, STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 10 DEG. .OPEN PLANAR, ROUGH DISCONTINUITIES.
16.00 -	19.50	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, SLIGHTLY WEATHERED, STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 45 DEG. .OPEN PLANAR, ROUGH DISCONTINUITIES.
19.50 -	29.00	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 30 DEG. .OPEN PLANAR, ROUGH DISCONTINUITIES.
29.00 -	31.00	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 45 DEG. .OPEN PLANAR, ROUGH DISCONTINUITIES.
31.00 -	36.00	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 15 DEG. .TIGHT PLANAR, ROUGH DISCONTINUITIES.
36.00 -	37.80	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, MODERATELY WIDE JOINT SPACING, JOINTS DIP 30 DEG. .OPEN PLANAR, ROUGH DISCONTINUITIES.
37.80 -	41.00	100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, EXTREMELY WIDE JOINT SPACING, JOINTS DIP 10 DEG. .TIGHT PLANAR, ROUGH DISCONTINUITIES.

BOREHOLE LITHOLOGICAL LOG

203021

LEASE : AVOCA  
BOREHOLE : AV 9

## \*\*\* CORE DESCRIPTION \*\*\*

41.00 - 47.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 60 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

47.00 - 88.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK,VERY WIDE JOINT SPACING, JOINTS DIP 45 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

88.60 - 94.80 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK,VERY WIDE JOINT SPACING, JOINTS DIP 25 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES.

94.80 - 97.00 100% DOLERITE: BADLY BROKEN, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, STRONG ROCK,MODERATELY CLOSE JOINT SPACING, JOINTS DIP 80 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

97.00 - 104.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK,WIDE JOINT SPACING, JOINTS DIP 80 DEG. ,OPEN PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

104.00 - 106.00 100% DOLERITE: BADLY BROKEN, GREY-GREEN, UNWEATHERED, STRONG ROCK.

106.00 - 112.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK,WIDE JOINT SPACING, JOINTS DIP 80 DEG. ,TIGHT PLANAR,ROUGH DISCONTINUITIES ,INFILLED WITH CALCITE.

112.00 - 113.00 100% DOLERITE: BADLY BROKEN, GREY-GREEN, WITH CHLORITE ON JOINTS AND TALC ON JOINTS, UNWEATHERED, STRONG ROCK.

BOREHOLE LITHOLOGICAL LOG

203022

LEASE : AVOCA  
BOREHOLE : AV 9

## \*\*\* CORE DESCRIPTION \*\*\*

113.00 - 122.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, EXTREMELY WIDE JOINT SPACING, JOINTS DIP 30 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

122.00 - 137.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, EXTREMELY WIDE JOINT SPACING, JOINTS DIP 45 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

137.00 - 137.30 100% DOLERITE: BADLY BROKEN, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, STRONG ROCK.

137.30 - 139.30 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 60 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

139.30 - 139.60 100% DOLERITE: BADLY BROKEN, GREY-GREEN, WITH CHLORITE ON JOINTS AND CALCITE ON JOINTS, UNWEATHERED, STRONG ROCK, MODERATELY CLOSE JOINT SPACING, JOINTS DIP 45 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES.

139.60 - 148.20 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 60 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

148.20 - 159.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 30 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

159.00 - 178.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, EXTREMELY WIDE JOINT SPACING, JOINTS DIP 25 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

BOREHOLE LITHOLOGICAL LOG

203023

LEASE : AVOCA  
BOREHOLE : AV 9

## \*\*\* CORE DESCRIPTION \*\*\*

178.60 - 203.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, EXTREMELY WIDE JOINT SPACING, JOINTS DIP 45 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

203.00 - 208.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 45 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

208.00 - 210.00 100% DOLERITE: CHLORITIC, BADLY BROKEN, GREY-GREEN, WITH TALC ON JOINTS, UNWEATHERED, STRONG ROCK, MODERATELY WIDE JOINT SPACING, JOINTS DIP 30 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

210.00 - 212.50 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS AND CHLORITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 45 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES.

212.50 - 225.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 45 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

225.00 - 235.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, VERY WIDE JOINT SPACING, JOINTS DIP 45 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

235.60 - 237.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 20 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES.

BOREHOLE LITHOLOGICAL LOG

203024

LEASE : AVOCA  
BOREHOLE : AV 9

## \*\*\* CORE DESCRIPTION \*\*\*

237.60 - 237.80 100% DOLERITE: BADLY BROKEN, CHLORITIC, GREY-GREEN, UNWEATHERED, STRONG ROCK, MODERATELY CLOSE JOINT SPACING, JOINTS DIP 60 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES.

237.80 - 249.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 30 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES.

249.00 - 256.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH MICA ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 65 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

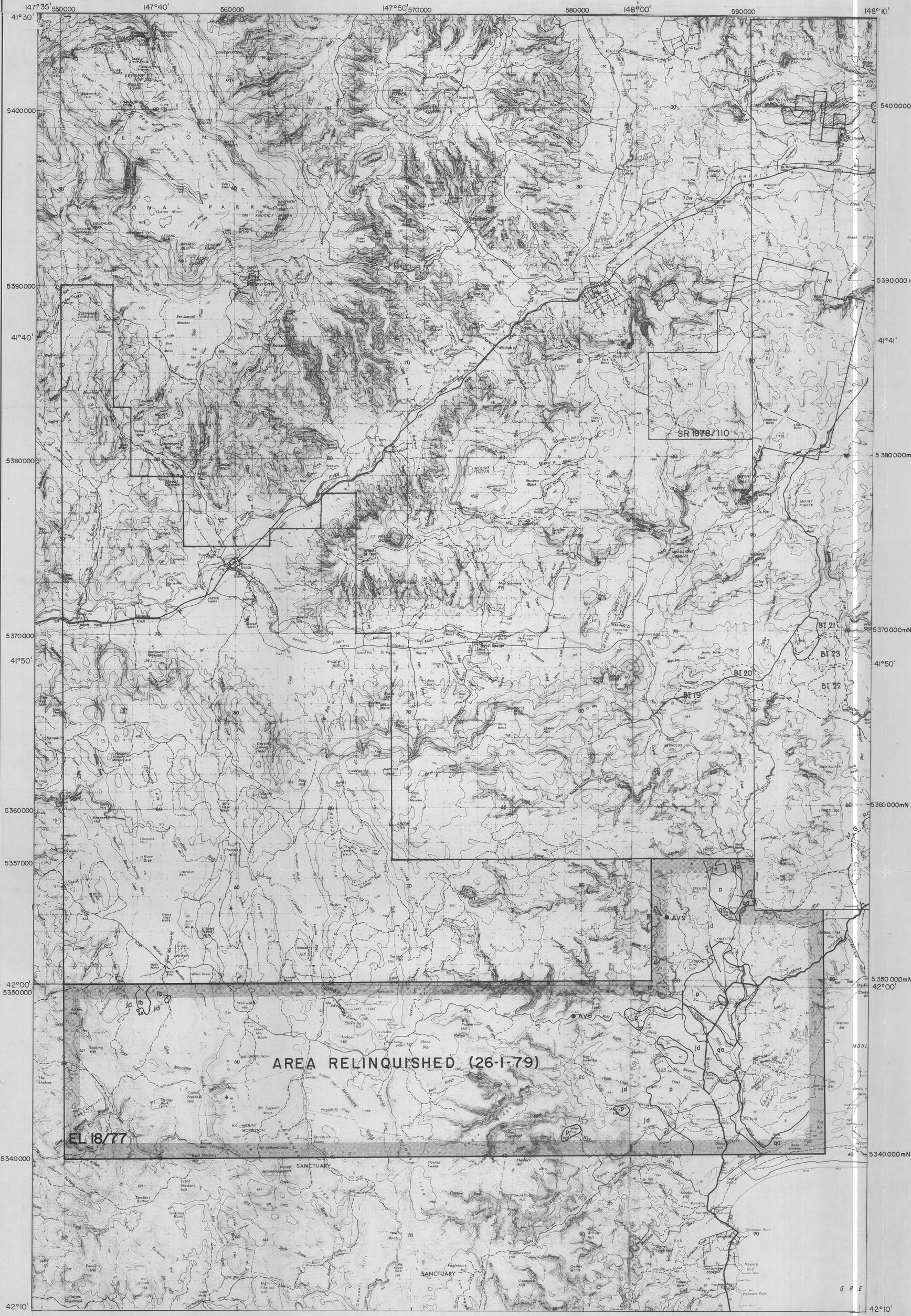
256.00 - 269.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 30 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES.

269.00 - 275.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 20 DEG. , TIGHT PLANAR, ROUGH DISCONTINUITIES.

275.00 - 282.50 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, VERY STRONG ROCK, EXTREMELY WIDE JOINT SPACING, JOINTS DIP 75 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES , INFILLED WITH CALCITE.

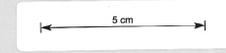
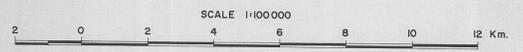
282.50 - 284.00 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, UNWEATHERED, STRONG ROCK, MODERATELY CLOSE JOINT SPACING, JOINTS DIP 5 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES.

284.00 - 298.60 100% DOLERITE: MED. TO FINE GRAINED, GREY-GREEN, WITH CALCITE ON JOINTS, UNWEATHERED, VERY STRONG ROCK, WIDE JOINT SPACING, JOINTS DIP 30 DEG. , OPEN PLANAR, ROUGH DISCONTINUITIES.



**LEGEND**

- qa QUATERNARY *Quaternary alluvium*
- q1 QUATERNARY *Quaternary dolerite tals*
- tb TERTIARY *Tertiary basalt*
- jd JURASSIC *Jurassic dolerite*
- t TRIASSIC *Undifferentiated lithic sandstone, mudstone, carbonaceous shale, quartzose sandstone*
- p PERMIAN *Undifferentiated sandstone, grits, conglomerate, mudstone, fossiliferous mudstone, siltstone*
- dg DEVONIAN *Devonian granite*
- sm SILURIAN *Undifferentiated Mathinna Group quartzite, slate, shist, siltstone*
- Geological boundary
- Fault
- AV8 Drillhole
- Cliff; Contour with value; Depression contour
- Coal outcrop
- Y Mine Adit
- Mine Shaft
- ▨ Abandoned mine workings
- Exploration licence & State Reserve Boundary



**AREA RELINQUISHED (26-1-79)**

**EL 18/77**

203025 79-1323

**THE SHELL COMPANY OF AUSTRALIA LTD.**  
 SHELL EL 18/77 NE TASMANIA  
**TOPOGRAPHIC MAP**  
 showing 024  
 Generalised geology, drillhole locations  
 and infrastructure  
 Scale 1:100000  
 Author: J.K. IVETT Date: January 1979  
 Report No: CEPR 2/79 Drawing No: C-1294 Encl. 1



RELINQUISHED AREA 26-1-79

025

- Fractures  $\leq 0.8$  km.
- Fractures  $> 0.8 < 2$  km.
- ▨ Fractures  $\geq 2$  km.

1mm = 1 Fracture  
 792 Total number of fractures in block

Major dislocations as suggested by coincidence of sub-continuous fracture traces and lineaments, Landsat Imagery lineaments and photogeological fault boundaries.  
 Anomalous lineaments of probable major significance suggested by a comparison of the regional and local fracture trace patterns.

LEGEND

- Drainage
- Major road
- - - Minor road
- Railway line
- Photo corner
- Run no. Photo no. Photo corner showing run & photo numbers
- EL boundary is approximate only
- Base compiled from aerial photos only and is uncontrolled

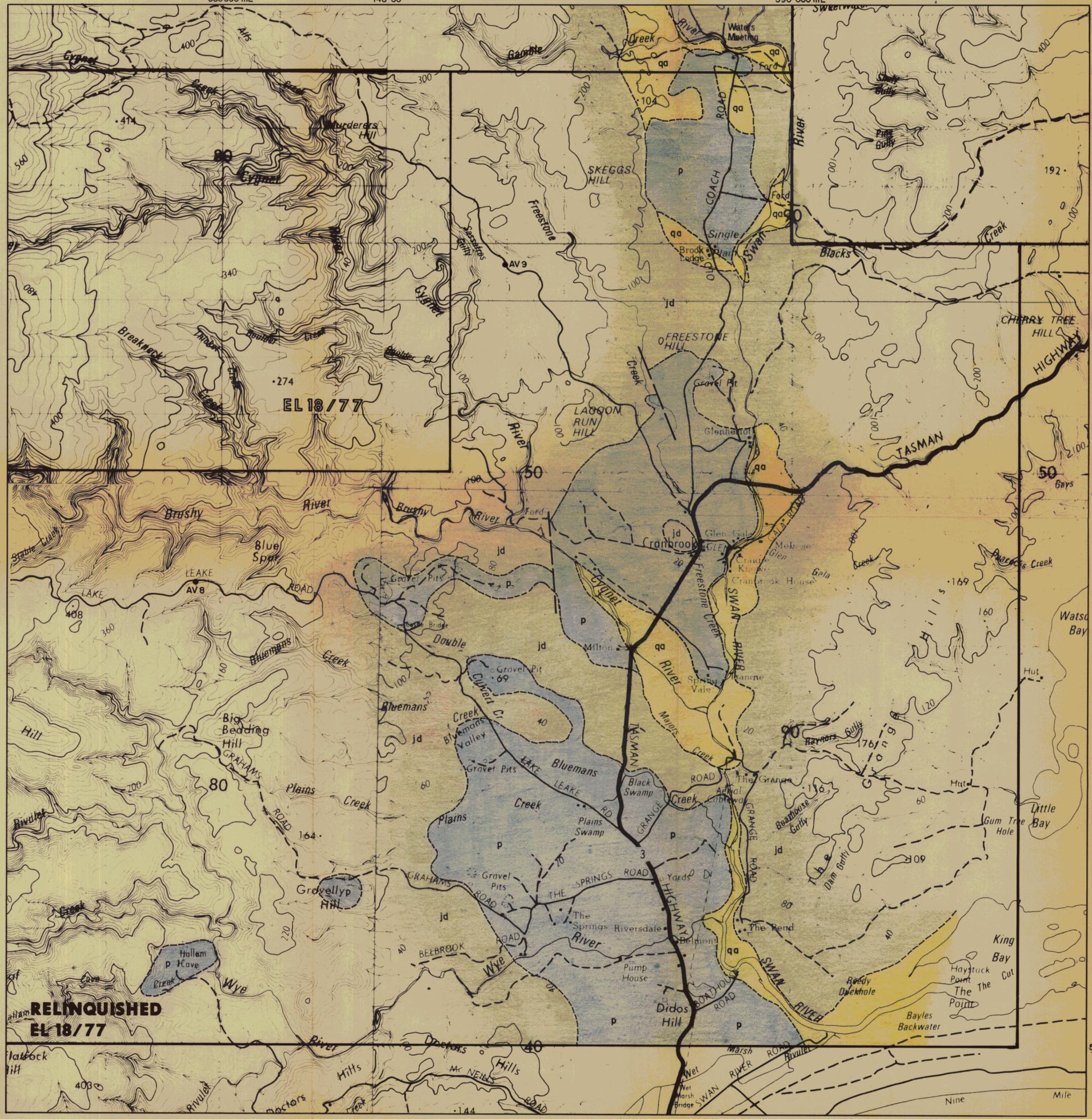
203026  
 5 km

THE SHELL COMPANY OF AUSTRALIA LTD.

EL 18/77 — TASMANIA  
 FRACTURE BLOCK ROSE DIAGRAMS  
 AND SUGGESTED OUTLINE OF MAJOR  
 DISLOCATIONS POTENTIALLY DISRUPTIVE  
 TO COAL MINING OPERATIONS

SCALE APPROX 1:40,000  
 0 400 800 1200 1600 2000 METRES 025  
 0 1 2 3 km

Produced by Layton & Associates Pty. Ltd. Brisbane  
 Report No. CEPR 2/79 Drg. No. C-1346 Encl. 2



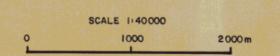
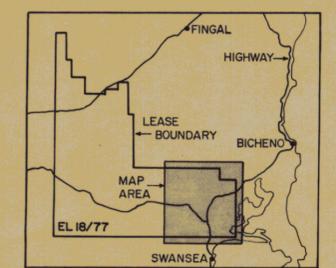
*There is abundant medium-grained lithic sandstone (Upper Freshwater Sequence of the Permian Super Group) in the Gairbrook area.*  
 RHC 19/3/79

**LEGEND**

- qa QUATERNARY Quaternary alluvium
  - qt QUATERNARY Quaternary dolerite talus
  - tb TERTIARY Tertiary basalt
  - jd JURASSIC Jurassic dolerite
  - t TRIASSIC Undifferentiated lithic sandstone, mudstone, carbonaceous shale, quartzose sandstone
  - p PERMIAN Undifferentiated sandstone, grits, conglomerate, mudstone, fossiliferous mudstone, siltstone
  - dg DEVONIAN Devonian granite
  - sm SILURIAN Undifferentiated Mathinna Group quartzite, slate, schist, siltstone
- AV 8 Diamond corehole

*What mapped Permian is in fact Tertiary sediments and clay, sands, laterites e.g. around Riversdale & Gairbrook other areas at Gairbrook and Single Burn are Triassic mudstone sandstone.*  
 DEL 20/3/79

**LOCALITY PLAN**



203027

RELINQUISHED EL 18/77

**THE SHELL COMPANY OF AUSTRALIA LTD.**

TASMANIA SOUTHERN PART EL 18/77 - AVOCA

**DETAILED GEOLOGICAL MAP**

Scale 1:40000 026

Author: J. K. Ivett	Date: Jan, 1979	Encl. 3
Report No: CEPR 2/79	Drawing No: C-1357	