

# **MAYDENA SANDS PTY LTD**

ACN 111 938 428

ABN 65 111 938 428

**RETENTION LICENCE NO. 2/2003**

**MAYDENA, TASMANIA**

## **PARTIAL RELINQUISHMENT**

### **REPORT**

**GERHARD K. KRUMMEI**

**NOVEMBER 2015**

Suite 28, 487 St.Kilda Road, Melbourne Vic 3004 Australia  
Telephone and Facsimile: 61 3 9820 2595

## ABSTRACT

Limited, sporadic, low key investigation targeting high purity silica rock, road surface material and a potential processing site for silica sand were undertaken in the area subject to this report.

All activities resulted in negative outcomes.

Consequently, this part of RL2/2003 is of no further interest and has been assigned for relinquishment.

**Keywords:**

Maydena, Silica Rock.

.

## C O N T E N T S

### ABSTRACT

1. INTRODUCTION
2. LOCATION
3. ACCESS
4. EXPLORATION TARGETS
5. ACTIVITIES
  - 5.1 Previous
  - 5.2 Recent
6. RESULTS
7. ENVIRONMENTAL
8. CONCLUSIONS
9. REFERENCES

### APPENDICES

- Appendix 1 Assays – Production Monitoring
- Appendix 2 Polished Aggregate Friction Value

### ILLUSTRATIONS

- |          |                       |           |
|----------|-----------------------|-----------|
| Figure 1 | Location Map          | 1:100,000 |
| Figure 2 | Resource Location Map | 1: 25,000 |
| Figure 3 | Sample Location Map   | 1: 25,000 |

## 1. INTRODUCTION

This brief report has been compiled in compliance with requirements for the surrender of part of Retention Licence 2/2003, which totals 4sq.km. The relinquishment of the 1sq.km area represents 25% reduction of the current tenement.

## 2. LOCATION

The area to be surrendered is located just south of the sealed Gordon River road approximately 5 km west south west of Maydena and about 95 km by road from Hobart (Fig.1).

## 3. ACCESS

There is good access to the area, the last 5km via good gravel roads. Power, water, housing and basic facilities are readily available from within a short radius of the area. The last few years saw the progressive upgrade of the narrow gauge New Norfolk-Maydena rail line to passenger standard but only as far as the entrance to the Mt Field National Park. After a recent assets review, TasRail resolved to hand over the Derwent Valley Railway line west of Boyer to tourist and heritage operators in a deal yet to be finalised. In this context, mooted upgrades to freight standard of the entire stretch are now highly unlikely. An alternative rail loading facility, a major freight hub at Brighton, approx. 65km by road east of Maydena has been completed and is now fully operational. A 700m long gravel airstrip is located 1 km north west of the Western Quarry silica rock deposit.

## 4. EXPLORATION TARGET

In view of the upsurge of interest in the early to mid 1990s in the use of solar power locally and overseas, the Western Quarry was targeted as a potential source of high purity silica for the production of high purity, solar grade monosilicon and polysilicon for the photovoltaic (PV) industry.

## 5. ACTIVITIES

### 5.1 PREVIOUS

Exploration in the district by Pioneer Silicon Industries Pty. Ltd. in 1988/89 identified a lag deposit of hard silica rock at the Western Quarry containing a small resource of material deemed suitable for the manufacture of silicon. (Jones,1989). From this, approximately 19,500 tonnes of crushed, screened silica rock was produced in 1991 and 1992 for shipment, of which some 10,000 tonnes were consigned to Pioneer's silicon smelter at Electrona and about 9,500 tonnes went to TEMCO's Bell Bay ferrosilicon plant. Extraction, by Duggans Pty. Ltd. under M.L.1396 P/M, virtually ceased upon closure of the Electrona smelter south of Hobart in 1992, although a small parcel of 850 tonnes of silica rock is reported to have been mined in 1995. Subsequent to the emerging economic interest of the area, Calver et al 1999, established the basic geological framework of the district through geological mapping which helped guide further activity there.

### 5.2 RECENT

This report addresses only those activities which are relevant to the area up for relinquishment:

- Desktop studies of available reports, plans.
- Discussions and sourcing available, production records and product assays from TEMCO and Duggans.
- Collection of several reconnaissance check samples from the quarry face and floor.
- Familiarisation visit by DIER personnel and its consultant to inspect the silica rock lithologies at the quarry and to collect a small (10kg approx.) composite sample for a Polished Aggregate Friction Value Test.
- Inclusions of the area in air-photo coverage of the Retention Licence.
- Inspection of a portion of a harvested pine plantation south of the quarry to determine its suitability for a silica and/flour processing site followed by preliminary discussion with owners Norske Skog.
- Brief inspection visits to the quarry by several other parties.
- Establishment of a dust and water quality monitoring station respectively.

## 6. RESULTS

The activities and results of Pioneer Silicon Industries (PSI) involvement in the Pine Hill area and at the Western Quarry were the subject of a comprehensive, detailed report by Jones, 1989, and will not be repeated here. The outcomes of the PSI work led to the establishment of a short lived silicon production facility, as a result of which some additional information became available from TEMCO on the quality of the silica rock feed from the Western Quarry. This assay data indicated a quality of feed substantially higher in impurities than indicated by PSI's initial resource assessment. Reported Fe<sub>2</sub>O<sub>3</sub> levels were erratic and as high as 2.2%, TiO<sub>2</sub> as high as 1.2% and Cr<sub>2</sub>O<sub>3</sub> as high as 0.02%. (Appendix 1). Such high levels of impurities of some of the critical elements, especially those including Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub> and Cr<sub>2</sub>O<sub>3</sub> render the material unusable as feed for the production of high purity photovoltaic silicon, particularly since much better quality material is available overseas.

Several small surface samples were collected at the quarry to test this negative conclusion with the following results:

	Al <sub>2</sub> O <sub>3</sub> %	CaO <sub>2</sub> %	Cr <sub>2</sub> O <sub>3</sub> ppm	Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %	P <sub>2</sub> O <sub>5</sub> %
WQR 01	N/A	N/A	N/A	N/A	N/A	N/A
WQR003	0.119	0.056	13	0.323	0.015	0.002
WQR004	0.113	0.039	10	0.479	0.017	0.004
WQR005	0.074	0.036	10	0.031	0.008	0.003
WQR026	0.017	0.024	7	0.124	0.002	0.009
WQR027	0.013	0.031	1	0.014	0.002	0.012

These results are lower than those for the production feed but are nevertheless still too high for PV silicon production, rendering the material "not fit for purpose".

There was also preliminary interest in the silica rock at this quarry from DIER for use in road surfacing.

Following a brief familiarisation inspection of the silica rock lithologies at the quarry by DIER personnel and their consultant, a 10kg (approx.) composite sample of larger lumps were collected for a Polished Aggregate Friction Value Test. The intent was to use the material for non-slip road surfacing. Test results were deemed unexceptional, with no further action taken. (Appendix 2).

In view of these two negative outcomes, further interest in the Western Quarry was abandoned.

The pine plantation, owned by Norske Skog and located to the south of the quarry appeared to occupy relatively flat lying ground potentially suitable as a processing site for the nearby silica sand resource. After preliminary discussions, Norske Skog expressed reluctance to allow part of this ground to be used as a sand processing site. In addition, a per tonne levy was to be charged for the use of the relevant section of Maynes Road. With the recent availability of a more suitable site, there was no further contact with Norske Skog on this matter.

## **7. ENVIRONMENTAL**

There was no environmental impact or damage as a result of Maydena Sands' activities in the area. No rehabilitation is necessary.

## **8. CONCLUSIONS**

- 8.1** This part of RL2/2003 is of no further interest, due to the poor quality of the silica rock at the Western Quarry for the manufacture of high grade PV silicon, the marginal quality at best for use as a road surface aggregate and unavailability of suitable ground under reasonable conditions for a sand processing plant.
- 8.2** It is proposed that this 1sq.km of RL2/2003 be relinquished as no further work or expenditure can be justified in this segment at this time.

## 9. REFERENCES

- Calver, C.R. & Forsyth, S.M. 1999 Maydena, Tasmania; Digital Geological Atlas, 1:25,000 Series: Tasmanian Geological Survey
- Jones, P.A. 1989 Exploration Licence No. 14/88, Maydena, Tasmania. Progress Report on Exploration Activity. 5<sup>th</sup> August 1988 to 5<sup>th</sup> July 1989.

## **APPENDIX 1**

### **ASSAYS – PRODUCTION MONITORING**

①

TEMCO  
ATTENTION

D HASSELL

Western Union for  
Total Prod  
for Pioneer

used  
Ceramic Bowl for  
sample prep

Time samples (2 hr samples of prod<sup>m</sup> belt)

Typical  
and byers  
using Ceramic  
Bowl

PIONEER SILICON INDUSTRIES  
MAYDNA QUARTZ DEPOSIT

Date	Lab No	Al2O3	Fe2O3	TiO2	CaO
22/1/91	884	0.086	0.065	0.110	0.030
22/1/91	886	0.086	0.110	0.032	0.030
23/1/91	890	0.120	0.019	0.029	0.040
23/1/91	890	0.100	0.038	0.025	0.046
24/1/91	811	0.110	1.280	0.028	0.034
24/1/91	812	0.210	0.870	0.046	0.028
29/1/91	813	0.110	0.048	0.067	0.031
30/1/91	814	0.120	0.030	0.068	0.042
30/1/91	815	0.120	0.079	0.068	0.045
31/1/91	859	0.088	0.019	0.022	0.043
31/1/91	860	0.120	0.008	0.029	0.024
1/2/91	851	0.048	0.031	0.017	0.028
4/2/91	852	0.120	0.083	0.042	0.047
4/2/91	854	0.120	0.091	0.042	0.032
4/2/91	855	0.180	0.140	0.038	0.029
6/2/91	725	0.034	0.130	0.004	0.052
6/2/91	727	0.170	0.081	0.030	0.055
6/2/91	728	0.110	0.084	0.034	0.045
7/2/91	729	0.340	0.360	0.050	0.043
8/2/91	740	0.170	0.048	0.019	0.030
11/2/91	818	0.180	0.010	0.032	0.045
11/2/91	819	0.087	0.021	0.013	0.038
12/2/91	817	0.290	0.054	0.034	0.060
13/2/91	820	0.250	0.027	0.078	0.030
13/2/91	875	0.220	0.021	0.064	0.035
14/2/91	873	0.140	0.068	0.021	0.041
14/2/91	874	0.470	0.058	0.120	0.028
15/2/91	871	0.160	0.015	0.021	0.034
16/2/91	872	0.130	0.024	0.042	0.058
18/2/91	868	0.130	0.019	0.013	0.025
18/2/91	870	0.077	0.081	0.038	0.058
18/2/91	867	0.120	1.320	0.017	0.028
19/2/91	865	0.210	0.012	0.021	0.064
20/2/91	1221	0.087	0.028	0.042	
20/2/91	1222	0.100	0.072	0.038	
21/2/91	1223	0.170	0.015	0.140	
21/2/91	1224	0.120	0.040	0.058	
22/2/91	1225	0.120	0.500	0.006	
25/2/91	1226	0.087	0.510	0.004	
26/2/91	1227	0.120	0.090	0.017	
26/2/91	1228	0.038	0.007	0.008	
27/2/91	1229	0.130	0.170	0.017	
28/2/91	1230	0.240	0.170	0.029	
28/2/91	1231	0.140	0.024	0.034	
2/3/91	1232	0.110	0.110	0.038	
Average:		0.162	0.159	0.042	0.042
Std Dev:		0.079	0.290	0.021	0.014
No. of samples:		45			

using Pioneer Ceramic Bowl

NOTE: These are results for samples of crushed silica rock obtained by Duggans under contract for Pioneer Silicon for the Electrona Silicon Smelter

# FACSIMILE TRANSMISSION

**BHP Manganese  
- TEMCO**

If there are any problems with this transmission, please call:

Temco Road  
Bell Bay, Tasmania, Australia 7283  
PO Box 184, George Town  
Tasmania, Australia 7283

Telephone: 003 82 1411  
Facsimile: 003 82 3001  
Telex: AA58873



6

Date: 25-6-92

Attention: MR. A. DUGGAN

At: DUGGANS PTY. LTD.

Facsimile No: 002 663593

Copies: \_\_\_\_\_

From: D. HASSELL

No of pages including header: TWO

Message:

LATEST MAYDEN A PROD'N RESULTS.  
  
NOTE  $Fe_2O_3$  TOO HIGH (SPECIFICATION 0.5% MAX)  
APPEARS TO BE INCREASING IN RECENT PRODUCTION  
SAMPLES.  
(ACKNOWLEDGE APPROX 0.3% "PICK UP" IN GRINDING  
PROCESS.)

REGARDS Dave Hassell

16:16 TETRO BELL BHT

TASMANIAN ELECTRO METALLURGICAL CO. PTY. LTD.  
 BELL BAY - TASMANIA

P.2/2

LABORATORY REPORT: D. Hassell

DATE: 23/7/02

WORK NO:

MATERIAL: Maydena Prod. Q+g

Western Quarry

SAMPLE	S.O <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	TO <sub>2</sub>	CaO	MgO	Na <sub>2</sub> O	K <sub>2</sub> O	MnO	RO <sub>2</sub>						
10am 13/4	99.4	.16	.3	.01	.02	.06	<.1	<.1	<.1	.07	<.01						
12pm 13/4	99.2	.16	.4	.01	.03	.05	<.1	<.1	<.1	.07	<.01						
3pm 13/4	99.3	.18	.2	.02	.03	.06	<.1	<.1	<.1	.16	<.01						
3pm 14/4	99.5	.17	.2	.01	.03	.04	<.1	<.1	<.1	.05	<.01						
5.30pm 14/4	99.5	.12	.2	.01	.02	.04	<.1	<.1	<.1	.04	<.01						
10am 15/4	99.4	.12	.4	.02	.02	.04	<.1	<.1	<.1	.06	<.01						
12pm 15/4	99.5	.08	.3	.02	.01	.04	<.1	<.1	<.1	.06	<.01						
		.14															

COMMENTS:

\*? Elevated values possibly due to contamination during sample prep<sup>n</sup> (- crushing/grinding equipment)

MAY 08 '02 12:11 TEMCO BELL BAY  
 TASMANIAN ELECTRO METALLURGICAL CO. PTY. LTD.  
 BELL BAY - TASMANIA

LABORATORY REPORT: D. Hassell

DATE: 7.5.02

WORK NO: .....

MATERIAL: Maydena Prod. Qtz Western Ave

SAMPLE	S:O <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	TiO <sub>2</sub>	SiO <sub>2</sub>	MgO	Na <sub>2</sub> O	K <sub>2</sub> O	MnO	P <sub>2</sub> O <sub>5</sub>
23/4 10 am	99.0	.11	.4	.01	.04	.05	<.1	<.1	<.1	.13	<.01
23/4 12 pm	99.2	.08	.4	.02	.04	.04	<.1	<.1	<.1	.12	<.01
23/4 3 pm	99.0	.10	.7	.02	.03	.03	<.1	<.1	<.1	.09	<.01
23/4 5:30 pm	99.6	.07	.3	.02	.03	.04	<.1	<.1	<.1	.03	<.01
24/4 10 am	99.8	.02	.4	.02	.03	.04	<.1	<.1	<.1	.03	<.01
24/4 12 pm	99.5	.09	.2	.02	.04	.05	<.1	<.1	<.1	.19	<.01
24/4 3 pm	98.5	.07	1.2	.02	.02	.04	<.1	<.1	<.1	.04	<.01
24/4 5:30 pm	99.4	.08	.3	.02	.04	.03	<.1	<.1	<.1	.03	<.01
	HV	.05	.15								

COMMENTS:

\*? Elevated values possibly due to contamination during sample prep (- crushing/grinding equipment)

TASMANIAN ELECTRO METALLURGICAL CO. PTY. LTD.  
 BELL BAY - TASMANIA

LABORATORY REPORT: D. Hassell

DATE: 7.5.92

WORK NO: .....

MATERIAL: Moydena Prod. Qtz

*Westerly quarry*

SAMPLE	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	FeO	CaO	TiO <sub>2</sub>	CaO	MgO	Na <sub>2</sub> O	K <sub>2</sub> O	MnO	P <sub>2</sub> O <sub>5</sub>						
10am 29/4	98.8	.16	.8	.03	.01	.08	<.1	<.1	<.1	.07	<.01						
12pm 29/4	98.7	.30	.7	.02	.03	.18	<.1	<.1	<.1	.09	<.01						
3pm 29/4	99.0	.18	.5	.02	.02	.08	<.1	<.1	<.1	.05	<.01						
5pm 29/4	99.0	.16	.6	.02	.02	.11	<.1	<.1	<.1	.03	<.01						
10am 30/4	98.9	.20	.8	.02	.01	.03	<.1	<.1	<.1	.02	<.01						
12pm 30/4	98.1	.23	1.4	.02	.02	.09	<.1	<.1	<.1	.08	<.01						
3pm 30/4	99.0	.17	.8	.02	.02	.09	<.1	<.1	<.1	.03	<.01						
5pm 30/4	98.9	.19	.7	.02	.02	.09	<.1	<.1	<.1	.04	<.01						
10am 1/5	98.9	.13	.9	.02	.02	.03	<.1	<.1	<.1	.08	<.01						
12pm 1/5	98.3	.23	1.0	.02	.03	.14	<.1	<.1	<.1	.16	<.01						
3pm 1/5	98.3	.15	1.1	.02	.01	.15	<.1	<.1	<.1	.19	.06						
		<u>.11</u>	<u>.9</u>														

COMMENTS:

*\*? Skewed values for water in the analysis due to during sample prep for crushing in wet equipment*

A. Shierlow  
 ANALYST.

R. Selator  
 CHEMIST.

**TASMANIAN ELECTRO METALLURGICAL CO. PTY. LTD.**  
**BELL BAY - TASMANIA**

**LABORATORY REPORT:** D. Hassell

**DATE:** 25.6.92

**WORK NO:** .....

**MATERIAL:** 7 Maldena Qtz

Western District

SAMPLE	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	TiO <sub>2</sub>	GeO	MgO	Na <sub>2</sub> O	K <sub>2</sub> O	MnO	P <sub>2</sub> O <sub>5</sub>				
3/6 12pm	98.0	.30	1.0	.02	.01	.10	.2	<.1	<.1	.24	<.01				
4/6 5pm	98.4	.18	1.2	.02	.01	.04	<.1	<.1	<.1	.04	<.01				
13/6 12pm	97.6	.13	2.2	.02	.01	.04	<.1	<.1	<.1	.04	<.01				
15/6 3pm	97.7	.16	2.0	.02	.02	.04	<.1	<.1	<.1	.03	<.01				
16/6 10am	98.1	.15	1.4	.02	.02	.04	<.1	<.1	<.1	.12	<.01				
16/6 12pm	98.6	.16	1.1	.02	.01	.04	<.1	<.1	<.1	.03	<.01				
17/6 3pm	97.9	.11	1.7	.02	.03	.04	<.1	<.1	<.1	.05	<.01				
18/6 10am	98.5	.20	1.0	.01	.02	.04	<.1	<.1	<.1	.06	<.01				
18/6 12pm	98.3	.22	1.2	.01	.02	.03	<.1	<.1	<.1	.02	<.01				
20/6 10am	98.6	.13	1.1	.02	.02	.04	<.1	<.1	<.1	.03	<.01				
20/6 12pm	98.6	.12	1.0	.02	.02	.03	<.1	<.1	<.1	.13	<.01				
20/6 3pm	99.0	.09	.6	.01	.02	.03	<.1	<.1	<.1	.17	<.01				

**COMMENTS:**

.....  
 .....

C. Ferguson  
 ANALYST.

R. Selinger  
 CHEMIST.

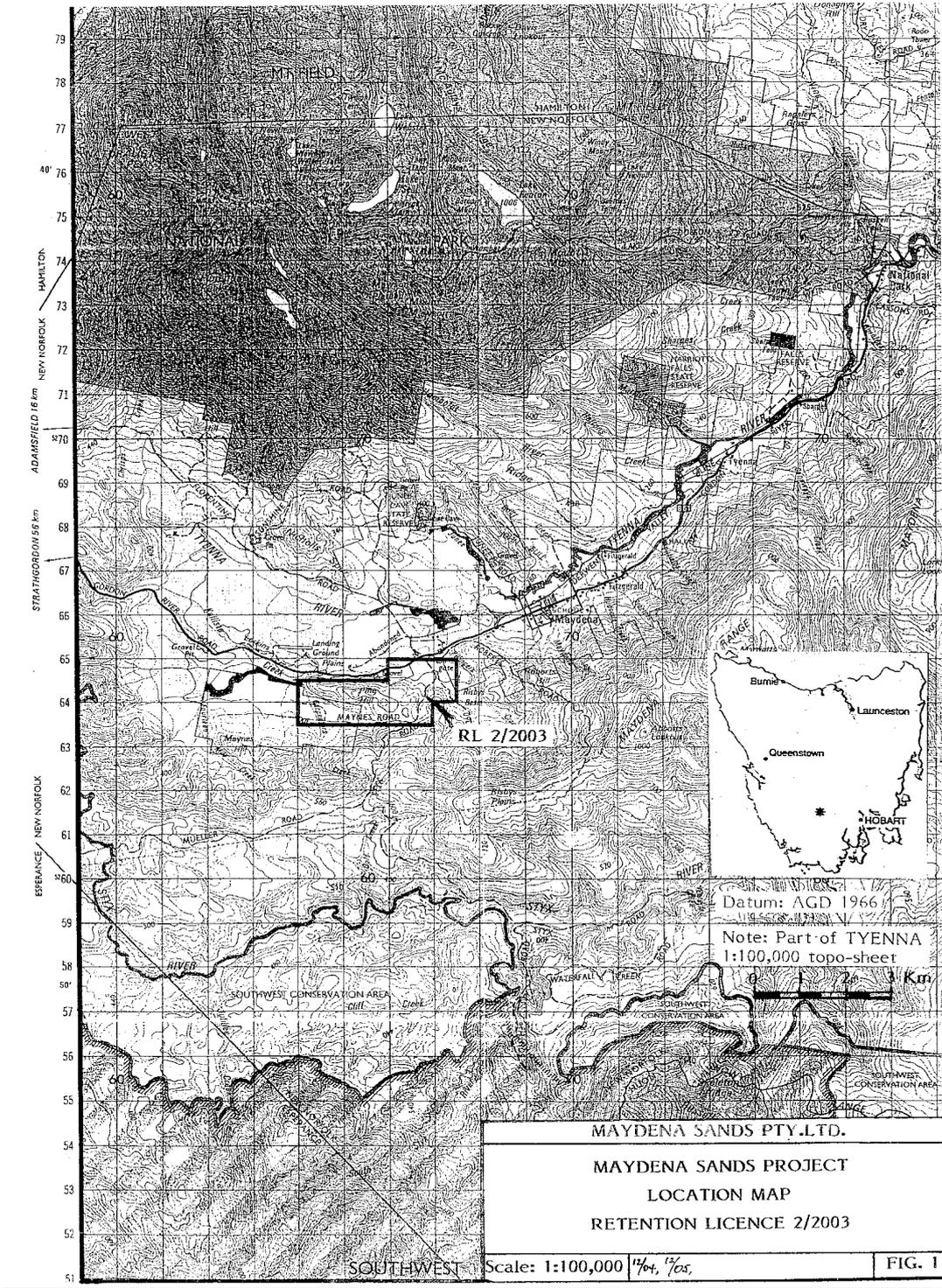
**APPENDIX 2**

**POLISHED AGGREGATE**

**FRICTION VALUE**



## ILLUSTRATIONS



MAYDENA SANDS PTY.LTD.

**MAYDENA SANDS PROJECT  
LOCATION MAP  
RETENTION LICENCE 2/2003**

Scale: 1:100,000  $\frac{1}{64}$ ,  $\frac{1}{64}$  OS.

FIG. 1



