DEPARTMENT OF MINES
SOUTH AUSTRALIA

RB 52/73

Report on

QUARTZITE DEPOSIT

PT. SECS. 922, 935, 946, HD. ADELAIDE

(Mitchell and Holyoake)

by

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MINERAL RESOURCES SECTION

GEOLOGICAL SURVEY

MINING REVIEW 114 : 138 - 140

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Plan No.	Title	Scale
61-302	Quartzite Deposit, Secs. 922, 935, 946, Hundred Adelaide.	330ft. to 1 mile

Rept. Bk. 52/73
G.S. 1971
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21st March, 1961

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1. ABSTRACT

Sandstones, quartzites and shales of the Stonyfell Quartzite formation form a ridge 400 feet high. The beds strike approximately 200° and dip about 25° to the east. Fifty million cubic yards of stone are available. However drilling or costeaning would be necessary to indicate the proportion of good quality stone.

2. INTRODUCTION

The quartzite deposit forms a ridge, 400 feet above creek level, in sections 922, 935 and 946, Hundred of Adelaide, 7½ miles south-east of the city. The property is bounded on the north by the Princes Highway.

After an inspection of the deposit with Mr. Mitchell on 8th February, mapping was undertaken by the writer on 24th February, 1st and 7th March, 1961. Data was plotted directly onto an enlargement (four times) of an air photo (No. 327/9563). Contour data was obtained from Adelaide and Environs sheet No. 8 topographical map.

The terrain is youthful and rugged. Although quartzite floaters are scattered over the ridge and slopes, rock is exposed only in a few isolated places. The area is covered by dense scrub.

The base of the ridge is reached by a narrow private track cut into the side of the hill below the main road. Several tracks provide access to the spurs from the top of the ridge.

3. GEOLOGY

(1) Lithology

The ridge is composed of interbedded sandstones, quartzites and argillaceous rocks of the Stonyfell Quartzite formation.

At A (as marked on accompanying plan), interbedded quartzites, sandstones and minor shales are exposed. The alternation of lithology, with layers up to four inches thick, is emphasised by differential weathering. In general, weathering has produced a knotty surface. Jointing is well developed with two near vertical joint sets, one with a strike of 310° dipping 80° to the east, the other a 275° strike dipping 85° to the north. A third joint set, which is often filled with one or two inches of quartz, strikes 230° with a dip varying from 55° to 80° to the north-west.

Below these rocks, at B, a jointed grey quartzite well suited for civil engineering projects is exposed. This horizon also exhibits two near vertical joint sets, one set striking at 305°, the other at 255°. A third less well-developed joint set strikes 255° with a 55° dip to the north. This quartzite also parts along the vertical plane in a north-south direction.

Similar but more massive tough and hard quartzite outcrops south of the house, at C. Bedding is poorly defined but jointing is well developed. Planes along which the rock breaks are:-

310° strike, dipping 40° to the east.
310° " " 85° " " "
315° " " 55° " " west
255° " " 55° " " south

The lowest member of the Stonyfell Quartzite formation exposed in the western extremities of the property is a very fine pink arkosic sandstone or siltstone, the finely laminated nature of the rock being clearly shown on the weathered surface. Quartz, up to three inches thick has intruded many of the joints.

(2) Structure

Throughout the deposit, the structure appears simple; the beds strike in a general north-south direction (from 170° to 220°) and dip gently to the east (15° to 30°).

The formation is cut off on the north-west by the Clarendon-Ochre Cove fault which has a general trend of 240°. At C, south of the house, the fault scarp is represented by a 50 foot high near vertical cliff of massive quartzite. North-west of t is face, an arkosic quartzite outcrops. This quartzite contains cubic pseudomorphs of limonite after pyrite which had been deposited in the fault zone. Throughout the Stonyfell Quartzite, large scale faults are characteristically represented by such an altered pyritic rock (G. R. Heath, pers. comm).

White quartz, often well crystallised and vughy is scattered over the ridge, probably representing minor faults. However they cannot be accurately defined.

The presence of well-developed joints and partings in the quartzite will assist quarry operations. These joint planes are often non-planar and may vary considerably in strike and dip.

4. RESERVES

Fifty million cubic yards of stone are available above the 1100 foot level, within the area outlined on the accompanying map.

However this stone represents a near-complete section (approximately 1,000 feet vertically) of the Stonyfell Quartzite formation. Previous investigations have shown that this formation contains only two or three horizons of good quality quartzite separated by inferior quality sandstones and schistose rocks. Two of these good quality quartzites outcrop at points B and C. However the nature of the intermediate rocks is unknown because of lack of outcrop and it is, therefore, impossible to compute reserves of good quality stone.

5. CONCLUSIONS

Reserves of stone, representing the Stonyfell Quartzite formation are estimated at 50 million cubic yards.

Exploratory work either in the form of drill holes or costeans is recommended to prove the proportion of good quality quartzite.

Quarries would be best placed at points B and C where quartzite outcrops.

The location of quarries at these sites would necessitate the construction of access roads from the main highway.

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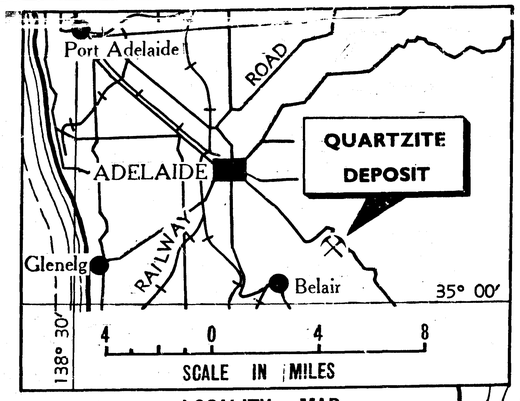

LOCALITY MAP

N

BARKER ROAD

EAGLE ON THE HILL HOTEL

Creek

Fence

Fault

Track

A

B

C

SCALE IN FEET

500 0 500 1000 1500 2000

LEGEND

PROTEROZOIC (Adelaide System)

Stonyfell Quartzite

Phyllite and Slates

Fault zone – quartzite with cubes

Strike and dip of bedding — 25

Strike and dip of jointing — 55

Points of reference — A

Vertical bedding

Area for which reserves calculated

Contours at 25 ft. intervals — 1600

61-302

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