DEPARTMENT OF MINES
SOUTH AUSTRALIA

Report on

QUARTZITE DEPOSIT - EAGLE QUARRY

Pt. Secs. 922, 935, 946, Hd. Adelaide

(Mitchell & Holyoake)

by

J. N. Cramsie
Geologist

NON-METALLIC MINERALS SECTION
GEOLOGICAL SURVEY

CONTENTS

Plan No.	Title	Scale
64-594	Quartzite Deposit, Eagle Quarries Secs. 922, 935 & 946, Hd. Adelaide Geological Plan	50 ft. to 1 in.
64-603	Quartzite Deposit, Eagle Quarries Geological Cross Sections	50 ft. to 1 in.

Rept. Bk. No. 59/61
G.S. No. 2963
D.M. 124/61

20th August, 1964.

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Rept.Bk.No. 59/61
G.S.No. 2963
D.M. 124/61

Report on

QUARTZITE DEPOSIT - EAGLE QUARRY

Pt. Secs. 922, 935, 946, Hd. Adelaide

(Mitchell & Holyoake)

ABSTRACT

A geological and topographical survey has been completed at the site of a proposed quartzite quarry. The quarry is situated on the Stonyfell Quartzite formation about eight miles south-east of Adelaide. Ninety thousand cubic yards of stone are available for quarrying in the area mapped but it has not been possible to determine the proportion of good quality stone.

INTRODUCTION

The quartzite deposit forms a ridge which trends generally north-east and rises 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.

A reconnaissance survey of the deposit was carried out in 1961 (J.G. Olliver, unpublished*) when it was recommended that a further examination be made after bulldozing operations at the quarry site had been completed. It was not found possible to define limits of the various beds or to observe variations in quality of the stone because of talus cover.

Bulldozing at the quarry site has now been effected and further mapping of the area was undertaken by the author, with the assistance of Surveyor G. Samuel, in late March - early April of this year. (see plan 64-594 attached).

The stone is to be crushed for the provision of road making material and coarse construction aggregate.

---

* J.G. Olliver (1961), unpublished.: Quartzite Deposit Pt. Secs. 922, 935, 946; Hundred of Adelaide. (Mitchell and Holyoake).

GEOLOGY

The proposed quarry site is located on a ridge composed of interbedded quartzites, sandstones and argillaceous sediments of the Stonyfell Quartzite formation. This formation is cut off to the north and north-west by the Clarendon-Ochre Cove Fault, which is the boundary between the Stonyfell Quartzite and shaly sediments of the Sturtian Series.

As a decision had already been reached by the operators regarding location of the quarry, the detailed geological and topographical survey was confined to this area. Although no significant modification has been made to the regional picture proposed by Olliver (1961), obvious variations in rock type and stone quality were revealed by bulldozing of overburden on the proposed quarry site. An attempt has been made to delineate areas of inferior quality stone. Individual outcrops were designated as "good", "fair", or "poor". Some degree of persistence in stone quality was recognised, and areas of consistent quality have been located on the plan and cross-sections. Previous investigations of the Stonyfell Quartzite in other localities have shown that this formation contains only two or three horizons of good quality quartzite separated by inferior quality sandstones and silty sandstones.

The following classification was used in mapping:

- Good - highly silicified quartzite with little evidence of granular fabric; fractures with sharp edges. Generally white, pale fawn or pink in colour.
- Fair - partially silicified quartzite, with individual mineral grains apparent; some degree of friability. This classification has also been used for generally sound material with minor poor rock.
- Poor - friable arkosic sandstone, poorly cemented.

In areas marked "good" the outcrop shows a high proportion of sound rock. Areas in which outcrops are "poor" are generally underlain by softer friable beds.

The quality of the stone depends on the degree of silicification or cementation of the stone, and its mineral composition. Detailed examination of the proposed quarry area suggests that the highest quality material will be found at lower quarry levels.

Exposures of quartzite have been examined in several pits excavated by bulldozer beyond the initial quarry area.

1. Sound fawn coloured quartzite with a near horizontal attitude has been exposed at the top of the ridge between survey stations A and B.

2. Sound white to fawn quartzites, with occasional thin quartz veins, have been exposed 150 feet to the south of station A. The overburden is four feet thick.

3. Sound pale pink to pale fawn quartzites, closely jointed in places, have been exposed 50 feet to the west of station B.

Quarry site preparation has been of little assistance in clarifying the structure of the deposit. The beds generally display gentle dips to the south, with dip ranging from 5 to 20 degrees.

The Clarendon - Ochre Cove Fault, which truncates the quartzite, has caused severe structural disturbance in the adjacent shaly and phyllitic sediments of the Sturtian Series. Accurate location of the fault was not possible owing to lack of outcrop.

Jointing in the quartzite is moderately well developed, and should be of assistance in quarrying operations. The jointing trend is variable.

RESERVES

Assuming a quarry floor at the level of the western road, 90,000 cubic yards of quartzite of generally good to fair quality are available for quarrying within the area cleared by bulldozer operations. A further 300,000 cubic yards of stone could be recovered by extending operations to the limits imposed by the road on the south and the track to the east but it is not possible to determine the proportion of inferior friable rocks.

CONCLUSIONS

Reserves of stone, representing the Stonyfell Quartzite formation are estimated at 90,000 cubic yards for the proposed quarry area, and at 400,000 cubic yards for an extended area. Total stone reserves held by quarry management have been estimated at 50 million cubic yards. It is considered likely that variability of stone quality will present problems and selective quarrying may be necessary to ensure a high standard product.

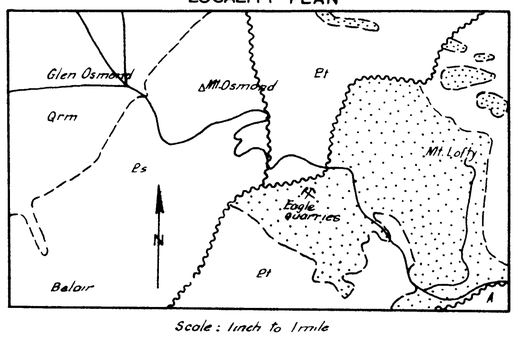
A further geological inspection is recommended when a quarry face has been established.

J. N. Cramsie
Geologist
NON-METALLIC MINERALS SECTION

JNC:AGK
20/8/64

PHYLLITES & SHALES
QUARTZITE
Bulldozed Track
Transformer Station
Primary Crusher
Boundary of Bulldozed Area
BOUNDARY OF QUARTZITE & SHALES APPROXIMATE POSITION
FAULTED
Storage Bins
Clay Shale
Phyllite
Claystone
Water Tank
Ferruginous Sandstone
GOOD
FAIR
POOR
BULLDOZED AREA
Creek
(Blasted Area)
Survey by G. Samuel

LOCALITY PLAN



Scale: 1 inch to 1 mile

Recent
- Qrm Alluvium clays & sands

Proterozoic
- Es Sturtian Series - slates & limestones
- Pt Torrensian Series - slates & phyllites with Stonyfell Quartzite

Archaean
- A Schists & gneisses
- Geological boundary
- Faulted geological boundary
- Road

LEGEND
- A–B Section lines (with name)
- 35° Strike and dip of bedding
- Faulted boundary of Quartzite against Phyllites and Shales (approx. only)
- GOOD Larger area / GOOD Isolated outcroppings } Quality of stone
- Boundary of bulldozed area
- 1360 / 1350 Contours (10' intervals)
- Datum: L.W.O.S.T. Pt. Adelaide = 100' approx.
- B 1600 Survey Stations with name and R.L.
- O52 Boreholes

SCALE

Feet 50 25 0 50 100 150 200 Feet

To accompany a report by J.N. Cromsie

S.A. DEPT. OF MINES

QUARTZITE DEPOSIT – EAGLE QUARRIES
PT. SECS. 922, 935 & 946 HD. ADELAIDE
MITCHELL & HOLYOAKE
GEOLOGICAL PLAN

Associated Drawing	No.	No.	Amendment:	Exd.	Date

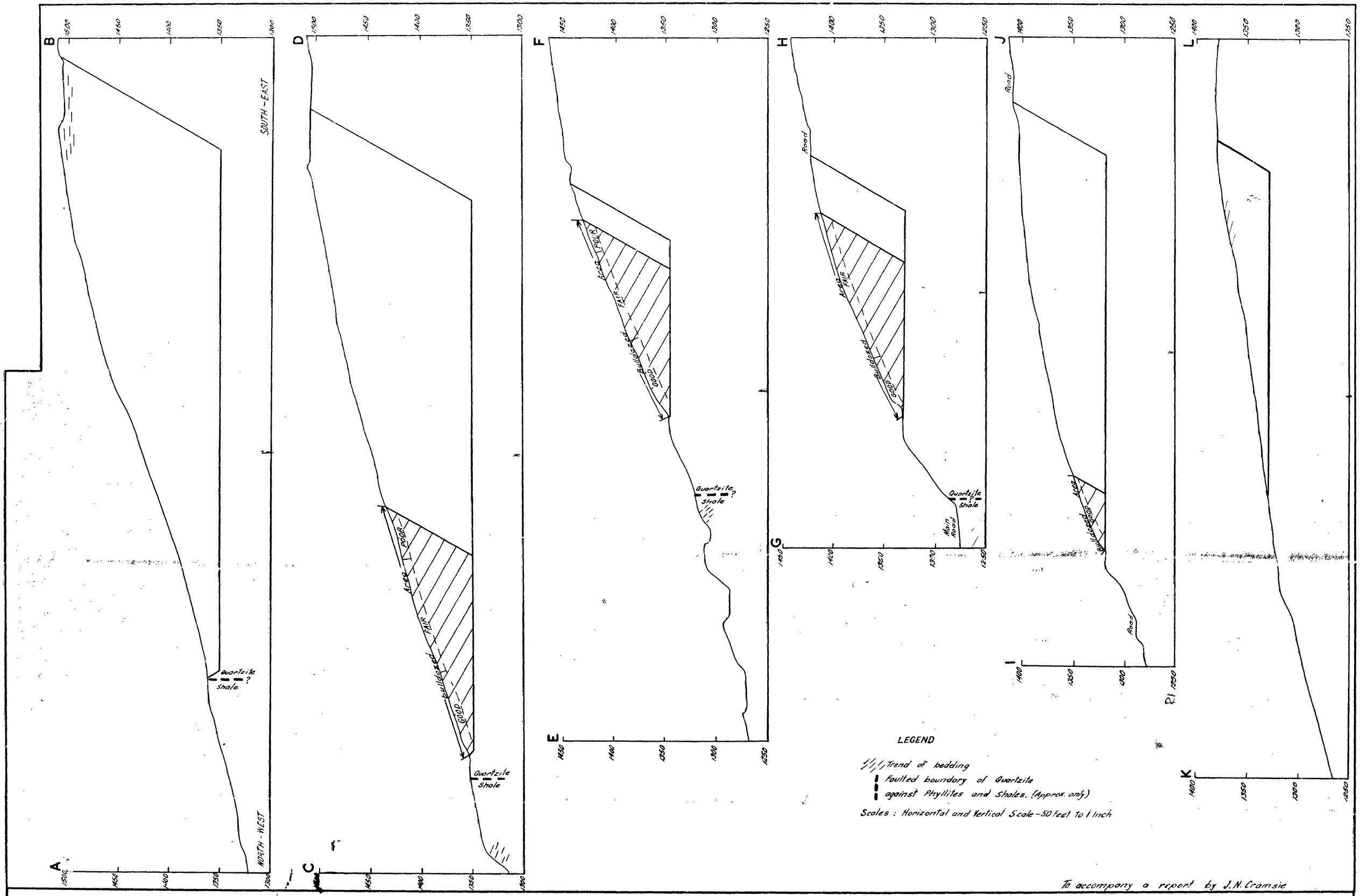
Req. No.
D.M.
Compiled from

Approved	Passed
Director of Mines	

Stocks P/Books Nos. 265/16
Drn.
Tcd. B.L.S.
Ckd.
Exd.

Scale 1 inch to 50 feet
64–594
Date 24-7-64 Ha6

S20—10.57 6967



To accompany a report by J.N. Cramsie

S.A. DEPT. OF MINES

QUARTZITE DEPOSIT - EAGLE QUARRIES
PT. SECS. 922 935 & 946 HD. ADELAIDE
MITCHELL & HOLYOAKE
GEOLOGICAL CROSS SECTIONS

Associated Drawing	No.	No.	Amendment	Exd.	Date

Req. No.
D.M.
Compiled from

Approved	Passed
Director of Mines	

Drn.
Tcd. B.L.S.
Ckd.
Exd.

Scale : 50 Feet to 1 Inch

64-603

1106

Date 29-7-64