DEPARTMENT OF MINES

SOUTH AUSTRALIA

Report on

BLUE LIMESTONE DEPOSIT

SEC 1022, HD. YANKALILLA CO. HINDMARSH

- H. & L.G. Dept. -

by

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GEOLOGIST

MINERAL RESOURCES SECTION

GEOLOGICAL BRANCH

CONTENTS

MAP NO	TITLE	SCALE
57-319/1	Blue Limestone Deposit Sec. 1022, Hd. Yankalilla Plan and Section of Proposed Quarry Site. - H. & L.G. Dept.	50' to 1"

D.M. 795/57

11th March, 1958

Report Book No 46/83

G.S. 943

46/83
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1. ABSTRACT

Permian tillites unconformably overly Cambrian limestones and calcareous slates in the area mapped. Diamond drilling has indicated a weathered zone approximately 20' wide in D.D. Hole No 2. and this is expected to extend through the centre of the proposed quarry site. A modification to the quarry layout is suggested to avoid the weathered zone, and two alternatives are suggested.

2. INTRODUCTION

Following an inspection by H. & L.G. Department officers of the area mapped in the above section, an alternative quarry site to the one recommended in G.S. Report No 740, was selected and a proposal for drilling the alternative site submitted. The writer suggested some modification to the footage to be drilled and an alternative floor level to that submitted by the H. & L.G. Dept. for the proposed quarry.

On 9/1/58 diamond drilling was commenced over the proposed alternative quarry site, and completed on 20/1/58. Details of the geological logs and core recoveries are appended to this report.

3. GEOLOGY

Sediments of Permian and Cambrian ages occur in the area mapped. The Permian consists of tillites which occur as sub horizontal unconsolidated sediments unconformably overlying steeply dipping cambrian beds.

The Cambrian sediments are chiefly limestones which have been divided into two groups and equated with the mottled limestone and calcareous slates group and the conformably underlying Lower Archaeocyathinae Limestone.

4. DRILLING

Near the contact of the two groups of cambrian sediments and parallel to it, a zone of weathered limestone and calcareous slate,

nearly 20' wide, was intersected in D.D. Hole No 2 between 26'-46', and is thought to extend along the length of the contact in the area mapped.

In D.D. Hole No 1 zones of poor core recovery occur between 0'-16' (5.7%) 20'-40' (10%) which may indicate inferior quality stone. Between 21'4" - 27'6" the rock is thought to be too deeply weathered to be of any use as screenings. Core recovery is approximately 45% for this hole. Most of this core appeared to be suitable for use as bitumen aggregate.

A feature particularly noticable in D.D. Hole No 1 core, from 69' to the bottom of the hole, is the occurrance of numerous lenticular calcite filled tensions gashes forming in echelon patterns along certai darker coloured beds. These tension gashes are intersected, and at times displaced by thin calcite filled cross fractures.

5. CONCLUSIONS

Because of the presence of a wide zone (20') of weathered rock running northerly through the centre of the proposed quarry site as shown on the accompanying plan (57-319), some modification to the layout of the quarry is considered necessary.

Three alternatives are suggested in order of preference below.

(1) The quarry be operated in two benches, one bench on each side of the weathered zone as shown on the accompanying plan and section.

(2) The quarry site be moved to the west of the weathered zone and the floor lowered to include the whole of the archaeocyathinae horizon and the quarry extended northwards along the strike of the beds.

(3) The quarry site be moved to the east of the weathered zone and extended to the east and north.

If the second or third alternative is adopted some further mapping to the north and some drilling would be necessary.

L. G. NIXON
GEOLOGIST

LGN:CERF
11/3/58

DEPARTMENT OF MINES, South Australia

LOG OF DIAMOND DRILL HOLE NO. 1.

6127-64

Project: BLUE LIMESTONE DEPOSIT. H & L.G. DEPT. D.M795/57

Sec. 1022 Hd. Yankalilla Co. Hindmarsh Hole Ser. No.DD.57/58

Collar Co-ords R.L. 847 258·17 Grid

Direction 295° Angle-20° Depth. 100' 30·48 Plan Ref. 57-319/1

Date Hole Commenced. 9/1/58 Completed. 10/1/58 Driller. S. Lopert

Hole Logged by L.G.Nixon On. 27/2/58 Hirer. H. & L.G. Dept.

OBJECT: To test the suitability of the stone for use as bitumen aggregate

RESULT: Most of the core inspected appeared suitable for use as bitumen aggregate

LOG COMPRISES Geological Log
Details of Core recovery

Depth From	Depth To	GEOLOGICAL LOG
0'	10'	No core
10'	12' 4"	Limestone and calcareous slates varying from purplish to blue in colour and pieces of of Travertine. Travertine coating on pieces of limestone and slate.
12' 4"	16' 7"	No core
16' 7"	18' 0"	Limestone and calcareous slates varying in colour from purplish to blue, well fractured, with calcite veins filling the fractures. Travertine coating some pieces.
18' 0"	19' 8"	Fairly massive limestone and calcareous slates with calcite filled fractures. Travertine as above.
19' 8"	20'	No. core.
20'	21' 4"	Calcareous slates and limestone varying from purple to blue in colour. Travertine as above.
21' 4"	27' 6"	Iron stained limestone and calcareous slates.
27' 6"	91' 6"	Interbedded blue to purple coloured limestones and calcareous slates. From 69' onwards minor fractures along individual bedding planes quite marked. Beds at 39' make an angle of 63° to the length of the core. At 73' beds make an angle of 65° to the length of the core.
91' 6"	97'	Interbedded calcareous slates and limestone predominantly a reddish brown colour. Beds make an angle of 63° to the lenth of the core
97' 0"	100' 0"	Blue limestone and calcareous slates.

END OF HOLE

DETAILS OF CORE RECOVERY

DEPTH From	To	Recovery
0' 0"	10' 0"	No. core
10' 0"	12' 4"	11"
12' 4"	16' 7"	No core
16' 7"	17' 9"	10"
17' 9"	18' 0"	3"
18' 0"	18' 7"	7"
18' 7"	19' 8"	3"
19' 8"	20'00"	No core
20'00"	21' 4"	3"
21' 4"	27' 6"	2"
27' 6"	30' 8"	3"
30' 8"	30'10"	2"
30'10"	40' 5"	15"
40' 5"	42'10"	17"
42'10"	44'00"	18"
44'00"	48' 7"	30"
48' 7"	52' 8"	46"
52' 8"	53' 8"	10"
53' 8"	54' 1"	3"
54' 1"	58' 1"	41"
58' 1"	61' 3"	28"
61' 3"	68' 8"	85"
68' 8"	69' 0"	3"
69' 0"	69' 5"	5"
69' 5"	73' 6"	25"
73' 6"	74' 1"	2"
74' 1"	76'10"	27"
76'10"	83'00"	50"
83'00"	91' 6"	38"
91' 6"	97' 0"	39"
97'00"	100' 0"	7"
	100' 0"	533" = 44' 5"

= 44.5% Core Recovery

Department of Mines. South Australia

LOG OF DIAMOND DRILL HOLE NO 2.

6527-65

Project: Blue Limestone Deposit H & L.G. Dept. **D.M.** 795/57

Sec.: 1022 **Hd.** Yankalilla **Co.** Hindmarsh **Hole Serial No** 58/58

Collar Co-ords - **R.L.** 831 253.29 **Grid** -

Direction 295° **Angle** -20° **Depth** 55' 16.76 **Plan Ref.** 57-319/1

Date Hole Commenced 14.1.58 **Completed** 20.1.58 **Driller** S. Lopert.

Hole Logged by L.G. Nixon **On** 27.2.58 **Hirer** H & L.G. Dept.

OBJECT: To test the suitability of the stone for use as bitumen aggregate.

RESULT: Between 26' and 45' weathered limestone and calcareous slate unsuitable for the above purpose. Remainder of the core appeared suitable for bitumen aggregate.

LOG Comprises Geological Log
Details of Core Recovery.

Geological Log

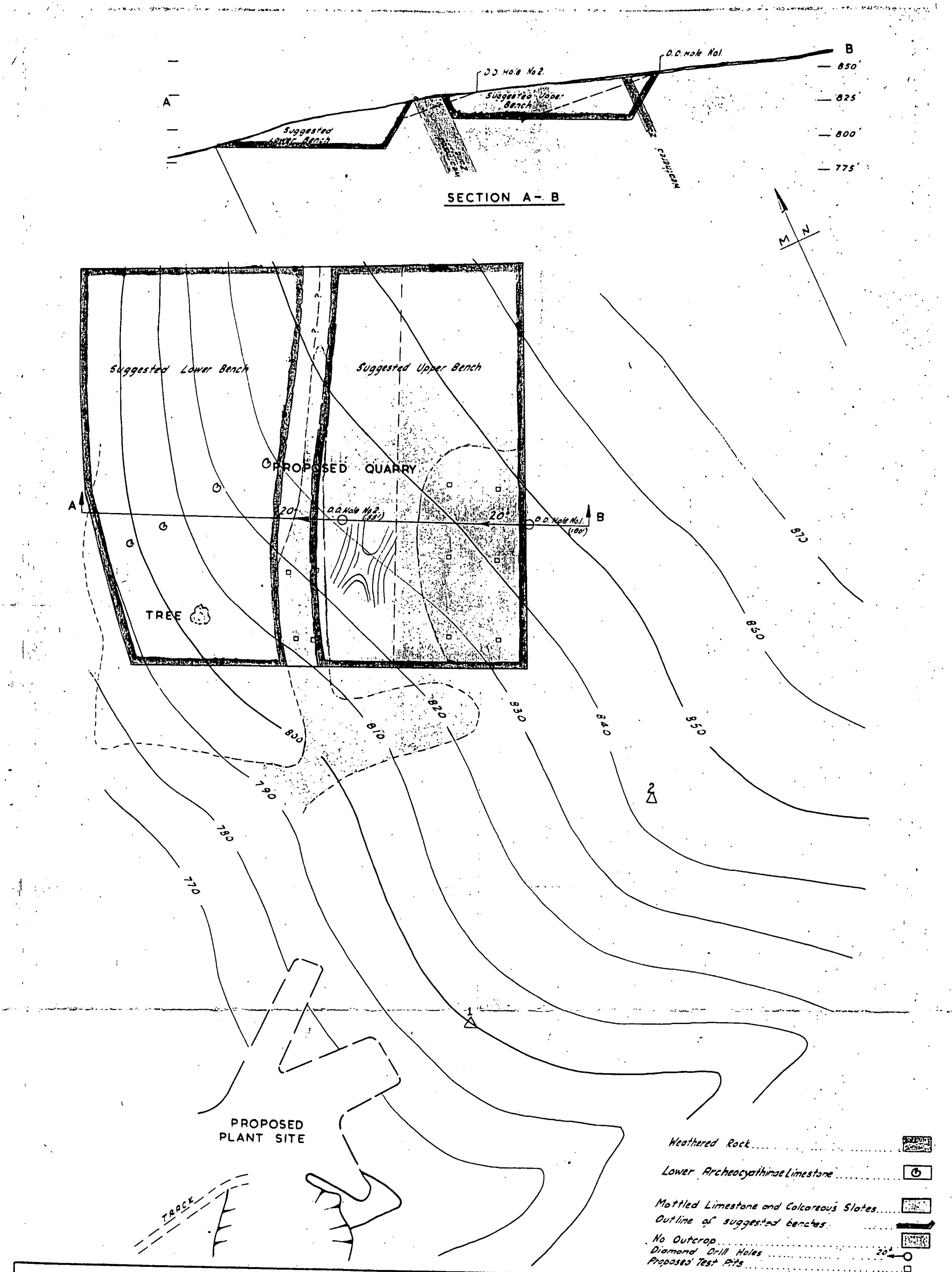
Depth From	Depth To	
0'	6'	Travertine and weathered calcareous slates and limestone.
6'	8'10"	Weathered slates and limestones showing fractures filled with calcite.
8'10"	26'	Blue limestone and calcareous slate. Sediments fractured and filled with calcite.
26'	45'	Very poor core recovery in zone of altered and weathered limestones and slates along the probable contact? of blue limestone and calcareous slate formationaand the underlying lower archaeocyathinal horizon.
45'	55'	In massive blue archaeocyathinal limestone

Details of Core Recovery

Depth From	Depth To	Recovery
0'	6'	2"
6'	8'10"	4"
8'10"	13'4"	17"
13'4"	14'6"	14"
14'6"	16'11"	21"
16'11"	20'0"	44"
20'0"	24'8"	51"
24'8"	26'	15"
26'0"	26'10"	7"
26'10"	45'	No core
45'0"	51'	5"
51'0"	55'	32"

212" = 17'8"

= 32.3%



S.A. DEPARTMENT OF MINES

BLUE LIMESTONE DEPOSIT
SEC.1022 Hd. YANKALILLA
PLAN AND SECTION OF PROPOSED QUARRY SITE
H.& L.G DEPT.

No.	Amendment	Ent.	Date

Approved	Passed		
		Drn.	Scale: 50' to 1"
		Trd. R.W	57-319
		Ckd. R.R.	Hc7
			Date 15-10-57