

Rept. Bk. No. 56/115
G.S. No. 2623
D.M. 325/63

ENG. GEOLOGY SECTION



**DEPARTMENT OF MINES
SOUTH AUSTRALIA**

GEOLOGICAL SURVEY
SOILS GEOLOGY SECTION

REPORT ON SITE INVESTIGATION
S.A. CO-OP. BULK HANDLING LTD. SITE
RAILWAY YARDS - PARILLA

by

J. B. Firman
Geologist

22nd May, 1963

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REPORT ON SITE INVESTIGATION

S.A. CO-OP. BULK HANDLING LTD. SITE

RAILWAY YARDS - PARILLA

INTRODUCTION

A bore was put down at the railway yards, Parilla, to test foundation conditions below a site selected by S.A. Co-operative Bulk Handling Ltd. Parilla is in the Hundred of Parilla, County Chandes, and in the north-west quadrant of Parilla 1-Mile Sheet (834 in Zone 6 of the Australian National Grid).

The bore was put down to a depth of 65 feet below ground surface. Sealed tube samples were taken for testing at depths of about 5, 10, 15, 20, 25, 30, 35 and 40 feet (See Geological Log).

Locality plans, a geological map of the site, and a geological section showing penetration rate are set out on the attached plate. A detailed log is given in Appendix 1. A general log of a hydrology bore, TA, showing materials to a depth of 415 feet is given in Appendix 2.

STRATA PENETRATED AND FOUNDATION CHARACTERISTICS

The bore penetrated about 4 feet of sandy fill overlying about 7 feet of sandy clay. The sandy clay is the clayey B horizon of a soil formed at the top of a fine-grained sand (Parilla Sand) with lenses of medium-grained sand.

The fill can be expected to vary in thickness and character and should be removed from the site during excavation.

The clay should be everywhere present and about the same thickness. The clay is logged as stiff (implying an unconfined compressive strength from 1 to 2 tons/square foot). The penetration rate varies between 17 and 42 blows/foot which would indicate similar values.

The Parilla sand occurs below 13 feet. From 14 to 24 feet the number of blows/foot is higher than any estimate based on size composition and density would indicate. Below 24 feet the penetration figures are more in keeping with the density and lie close to 70 blows/foot.

The Parilla sand occurs widely in this part of the Murray Basin. At the site it should be encountered everywhere at about the same depth. Beneath the site, sands, probably including Lexton Sand, occur to a depth of 240 feet where they overlie limestone.

GROUNDWATER

The foundation bore was dry. In hydrology bore TA water was cut at 347-400 feet and static level was 311 feet. The supply from TA was 3,000 gallons/hour. Salinity was 48-96 grains/gallon.

JBF:AGK
22/5/63

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APPENDIX 1

BORE LOGS - PARILLA SILO SITE

PERCUSSION TEST BORE NO. 1

Bore Serial No.: 1

Decket: 325/63

Location: Parilla

Hundred: Parilla

Purpose: Foundation Testing

Hirer: Bulk Handling

Core Diameter: 4"

Total Depth: 65 feet

Date Commenced: 1/4/63

Date Completed: 4/4/63

Logged by: J.B. Firman

<u>Depth</u>		<u>Description</u>	<u>Penetration</u>		<u>Blews/</u>
<u>From</u>	<u>To</u>		<u>Depth</u>	<u>From</u>	
			<u>From</u>	<u>To</u>	<u>Ft.</u>
0	6"	Sand fill with kunkar rubble.			
6"	4'6"	Limey sand fill with some charcoal, becoming clayey sand in the last feet. Dense	6"	1'6"	24
			1'6"	2'6"	34
			2'6"	3'6"	29
			3'6"	4'6"	15
4'6"	6'0"	No record. Sealed Tube	4'6"	6'0"	
6'0"	13'0"	Light brown sandy clay with a few scattered small light grey mottles. Stiff.	6'0"	7'0"	17
			7'0"	8'0"	18
			8'0"	9'0"	21
			9'0"	10'0"	29
		Sealed Tube.	10'	11'0"	
			11'0"	12'0"	35
			12'0"	13'0"	42
13'0"	65'0"	Light yellowish brown fine-grained slightly silty sand. Friable in hand specimen. Becoming medium-grained in some places: from 28-30, 48-49, 53-59 and 63-65. Medium-grained sand is pale yellowish grey to light grey in colour.	13'0"	13'6"	50
			14'	14'4"	105
			14'4"	14'8"	216
			14'8"	15'0"	216
		(Sealed Tube	(15'0"	15'6"	
			15'0"	16'	162
			16'0"	16'6"	144
			16'6"	17'0"	152
			17'0"	17'6"	94
			17'6"	18'0"	96
			18'0"	18'6"	124
			18'6"	19'0"	116
			19'0"	19'6"	108
			19'6"	20'	110
		Sealed Tube.	20'0"	21'0"	
			21'	21'6"	108
			21'6"	22'	108
			22'	22'6"	102
			22'6"	23'	82
			23'	23'6"	84
			23'6"	24'	82
			24'	24'6"	70
			24'6"	25'	62
		Sealed Tube.	25'0"	26'0"	
			29'6"	30'	98
		Sealed Tube.	30'0"	31'0"	
			31'	31'6"	74
			31'6"	32'	78
			32'	32'6"	82
			32'6"	33'	80

<u>Depth</u>		<u>Description</u>	<u>Penetration</u>		<u>Blows</u>
<u>From</u>	<u>To</u>		<u>Depth</u>	<u>To</u>	
			<u>From</u>	<u>To</u>	<u>ft.</u>
13'0"	65'0"		33'	33'6"	72
(contd.)			33'6"	34'	66
			34'	34'6"	64
			34'6"	35'	64
		Scaled Tube	35'0"	35'6"	
			35'6"	36'	88
			36'	36'6"	80
			36'6"	37'	80
			37'	37'6"	64
			37'6"	38'	62
			38'	38'6"	60
			38'6"	39'	56
			39'	40'	30
		Scaled Tube	40'0"	40'9"	
			40'9"	41'3"	80
			41'3"	41'9"	80
			41'9"	42'3"	80
			42'3"	43'	67
			43'	43'6"	80
			43'6"	44'	76
			44'	44'6"	76
			44'6"	45'	78
			45'	45'6"	84
			45'6"	46'	82
			46'	46'6"	86
			46'6"	47'	80
			47'	47'6"	76
			47'6"	48'	76
			48'	48'6"	76
			48'6"	49'	72
			49'	49'6"	70
			49'6"	50'	72
			50'	50'6"	70
			50'6"	51'	70
			51'	51'6"	68
			51'6"	52'	68
			52'	52'6"	66
			52'6"	53'	64
			53'	53'6"	66
			53'6"	54'	64
			54'	54'6"	64
			54'6"	55'	68
			55'	55'6"	70
			55'6"	56'	72
			56'	56'6"	70
			56'6"	57'	66
			57'	57'6"	66
			57'6"	58'	66
			58'	58'6"	66
			58'6"	59'	66
			59'	59'6"	64
			59'6"	60'	66
			60'	60'6"	70
			60'6"	61'	68
			61'	61'6"	70
			61'6"	62'	70
			62'	62'6"	72
			62'6"	63'	70
			63'	63'6"	72
			63'6"	64'	72
			64'	64'6"	70
			64'6"	65'	70

END OF BORE AT 65'.

APPENDIX 2

BORE LOG - HYDROLOGY BORE TA

HYDROLOGY BORE NO. TA

Bore No.: TA

Docket: 325/63

Hundred: Parilla T/S Lot 8

Hirer: S.A. Co-op.
Bulk Handling

Total Depth: 415'

Logged by: Driller

<u>Depth</u>		<u>Description</u>
<u>From</u>	<u>To</u>	
0	16'	Red clay - sandy in parts
16'	97'	Red yellow clayey sand
97'	127'	Bright yellow sand - fine.
127'	135'	Cream sand - fine.
135'	152'	Reddish gritty sand - coarse.
152'	175'	Yellow gravel - fine. Some clay.
175'	181'	Pale yellow sand - fine to coarse.
181'	198'	Pale yellow calcareous (?) sand - fine. Traces mica.
198'	241'	Reddish clayey sand - some limonite nodules.
241'	248'	Sticky blue clay - traces of shells.
248'	325'	Cream to grey bryozoal limestone.
307'	353'	Coral limestone (Driller's log only).
353'	415'	Bryozoal limestone

END OF BORE AT 415'.