DEPARTMENT OF MINES
SOUTH AUSTRALIA

GEOLOGICAL SURVEY

SOILS GEOLOGY SECTION

REPORT ON SITE INVESTIGATION
SOUTH AUSTRALIAN BREWING COMPANY,
HOTEL SITE - LOCKLEYS

by

J. B. Firman,
Geologist

8th November, 1961

D.M. 1560/61

RB 53/123

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HOTEL SITE - LOCKLEYS

INTRODUCTION

A percussion bore was put down near the intersection of Henley Beach Road and Tapleys Hill Road to test foundation conditions below the proposed Lockleys Hotel.

The bore was put down to 18 feet on 18th September, 1961. Sealed tubes equipment was used and samples were extruded at the site. The core was logged by R. D. Steel, Geologist, Soils Geology Section.

Details of lithology and penetration are set out in Appendix 1 and on the attached graphic log.

STRATA PENETRATED AND FOUNDATION CHARACTERISTICS

The sequence contains layered sediments throughout. The upper portion of the sequence to a depth of about 6 feet below ground surface has been described as a soil of the Patawalonga Association.

Tables showing details of composition and characteristics of Patawalonga Association Soils are set out in Appendix 2. These tables show variations in composition and characteristics that could be expected at this site, although depths and thicknesses of horizons are not strictly comparable.

The sediments above 9 feet have a very low bearing capacity and are sensitive to severe vibration when the water table is high. The sediments below 9 feet appear to have a higher bearing capacity than those above, but the presence of silt, the thin and lensing character of the beds, the presence of plant material between 12ft. 6 ins. and 15 feet, the moist nature of the material and poor consolidation suggests that settlement may occur under low loads.

GROUNDWATER

Water was struck at 7 feet in the bore. The rise of the water table to within a few feet of the surface during winter months will significantly reduce the bearing capacity of the soil.

Salt damp may be a problem at this site.

RECOMMENDATION

An authority on soil mechanics should be consulted before foundations are designed.

J. B. Firman,
Geologist
SOILS GEOLOGY SECTION

JBF:MIP:CERF
8/11/61

APPENDIX 1

GEOLOGICAL LOG

PERCUSSION DRILL LOG NO. 1

PROJECT: S.A. BREWING CO. HOTEL SITE
LOCATION: HENLEY BEACH
PURPOSE: Test of Subsurface Foundation Conditions
Plant No: 15 **Driller:** W. Farrow
Depth: 18ft. **Bore Logged by:** R. B. Steel
Date Commenced: 18/9/61 **Date Completed:** 18/9/61
R.L. 1566/61

Depth	Description	Depth	Type of Sample	No. of Blows/ft
0'0" - 1'0"	Dark grey to dark grey-brown finely granular silty clay, with scattered plant remains etc. Fairly friable.	0- 1'	Open tube	12
1'0" - 1'2"	Dark grey to dark grey-brown finely granular silty clay loam. Fairly friable.	1- 2'	"	8
1'2" - 3'0"	Brownish silty to finely sandy clay loam. Generally compact to fairly friable, with few hard lumps. Few plant remains etc.	2- 3'	"	11
3'0" - 4'2"	Brownish to slight greyish-brown very sandy clay to clayey fine sand. Finely granular. Compact, moist but fairly friable.	3- 4'	"	9
4'2" - 5'8"	Greyish to brownish and greyish-brown very silty to finely sandy clay, with vague yellow-brown mottling. Finely granular slightly porous.	4'-5' 5'-6'	" "	10 7
5'8" - 6'9"	Dark grey to dark blue-grey finely granular silty clay. Firm and very moist. Few plant fragments etc.	6- 7'	"	7
6'9" - 8'0"	Greyish to greyish brown silty clay, with pockets of brownish and yellowish-brown clayey fine sand. Few small grit fragments. Generally soft and moist.	7- 8'	"	8
8'0" - 9'0"	Brownish to reddish-brown and slight yellowish-brown mottled clayey fine sand. Generally very compact, slightly friable. Numerous small grit fragments.	8- 9'	"	13
9'0" - 10'11"	Brownish to greyish-brown and light greyish-brown silty clay, with pockets of mid-grey clay. Very limey in irregular patches, with some semi cemented limey clay rubble and hard nodules. Probably firm to stiff and moist.	9-10' 10-11'	" "	16 23
10'11"- 12'6"	Brownish slightly clayey sand, with some slight yellow-brown and red-brown mottling. Few pockets of bluish-grey, soft and very moist, silty clay.	11-12'	"	30
12'6" - 15'0"	Brownish to dark yellowish-brown, grey-brown and slight reddish-brown mottled silty clay, becoming finely sandy in part. Firm and very moist, with odd small plant remains.	12-13' 13-14' 14'-15'	" " "	19 21 29

Percussion Drill Log No. 1, Manley Beach (Contd.)

Depth	Description	Depth	Type of Sample	No. of Blows
15'0" - 15'9"	Dark grey to blue-grey and greenish silty to finely sandy clay, with prominent dark brown mottling. Firm and very moist.	15-16'	Open tube	28
15'9" - 16'9"	Greyish to brownish silty to very sandy clay, with some pockets sand. Fairly soft, very moist.	16-17'	"	24
16'9" - 18'0"	Light yellow-grey to brown and yellow-brown medium grain sand. Few clayey pockets near base.	17-18'	"	25

END OF HOLE 18'
Water Cut 7'

APPENDIX 2

COMPOSITION AND CHARACTERISTICS OF PATAMALONGA ASSOCIATION SOILS

GENERAL GUIDE TO VARIATION OF SOIL CHARACTERISTICS IN THESE SOILS.

SOIL TYPE KM1

The following soils data is reproduced from Department of Mines Bulletin No. 32: The Soils and Geology of Adelaide and Suburbs, by G. D. Aitchison, R. C. Sprigg and G. M. Cochrane.

The information is offered as a general guide and may not apply in all respects to the soil examined.

For a full discussion the reader is referred to Bulletin 32 and to other publications quoted therein.

Composition and Characteristics

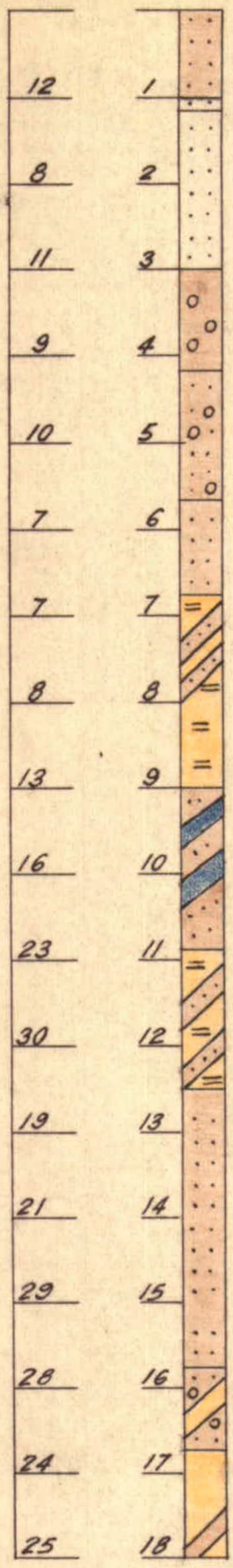
Location of sample - Graymore					
Soil No.	10,780	10,781	10,782	10,783	10,784
Depth, in.	0-2	2-6	10-16	21-33	33-52
Reaction, pH	7.0	7.2	8.4	8.8	8.6
Total soluble salts, per cent	0.024	0.081	0.050	0.022	0.018
Chlorides, as NaCl, per cent	0.010	0.013	0.016	0.005	0.005
Mechanical Analysis -	A	A	A	A	A
Coarse sand	6	7	1	14	22
Fine sand	38	31	70	81	73
Silt	56)	19	29)	1	1
Clay	)	43	)	4	4

SOIL TYPE KM2

Composition and Characteristics

Location of sample - Graymore						
Soil No.	10,785	10,786	10,787	10,788	10,789	10,790
Depth, in.	0-4	4-8	11-23	23-36	36-42	42-66
Reaction, pH	6.7	8.8	9.4	9.5	8.9	8.9
Total soluble salts, per cent	0.203	0.442	0.582	0.488	0.924	0.788
Chlorides, as NaCl, per cent	0.084	0.157	0.208	0.162	0.337	0.283
Mechanical Analysis -	A	A	A	A	A	A
Coarse sand	2	1	3	5	4	10
Fine sand	66)	28	44	66	18	29
Silt	)	21	53)	10	78)	19
Clay	32	50	)	19	)	42

NOTE - (1) Mechanical Analysis -
A = Hydrometer method (vide C.S. Piper; "Soils and Plant Analysis," 1942).
B = Pipette method (vide C.S. Piper: "Soils and Plant Analysis," 1942)/
C = Plummet Method (vide J. T. Hutton: C.S.I.R.O., Division of Soils, Tech. Memo. 7/50).



Blows/foot	Depth (feet)	Texture.	Remarks.	Foundation characteristic.
12	1	Silty clay.	Finely granular Friable	Very low bearing capacity. Sensitive to vibration with rise in water table. Possible salt damp.
		Silty clay-loam.	Friable	
8	2	Silty to fine sandy clay-loam.		
11	3			
9	4	Sandy clay.	Finely granular Compact Moist Friable	
10	5	Very silty sandy clay.	Finely granular	
7	6	Silty clay.	Finely granular Firm Very moist	
7	7	Silty clay with clayey fine sand.	Soft Moist	
8	8			
13	9	Clayey fine sand.	Very compact Slightly friable	
16	10	Silty clay.	Irregular limey patches, limey clay rubble with hard nodules.	Both zones are probably subject to settlement under light loads.
23	11	Clayey sand with pockets of moist silty clay.		Low bearing capacity.
30	12			
19	13	Silty clay.	Firm Moist Contains plant remains	
21	14			
29	15	Silty clay.	Firm Very moist	
28	16	Silty and sandy clay.	Soft Moist Contains sand pockets.	
24	17	Medium grained sand with clay pockets near base.		
25	18			

LEGEND

Primary Texture.

- Clay
- Sand
- Loam

Other materials present.

- Silt
- Clay
- Sand
- Lime

To accompany report by J.B. Firman.

S.A. DEPARTMENT OF MINES

Approved	Passed	Drn. J.B.F.	S. A. BREWING Co. HOTEL SITE - HENLEY BEACH GRAPHIC LOG	D.M.	Scale 2 feet to 1 inch
		Tcd. R.R.		Req.	S 2931 Ha 5
		Ckd.			
Director		Exd.			Date 10-11-61

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