DEPARTMENT OF MINES
SOUTH AUSTRALIA

GEOLOGICAL SURVEY

PALAEONTOLOGICAL SECTION

RESERVE BANK BUILDING FOUNDATION STRATIGRAPHY

by

T. M. Steel

Rept. Bk. 51/11
G.S. 1783
D.M. 525/60
Pal. Ref. 6/60

27th July, 1960

RB 51/11

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ABSTRACT:

Examination of four bores on the North-Eastern corner of Victoria Square showed a maximum thickness of fifty six feet of Pleistocene-Recent clays and sands, thirty four feet of Hallett Cove Limestone, four feet of Pt. Willunga beds, and at least thirty feet of Blanche Point Marl with some intercalated carbonaceous bands.

INTRODUCTION:

This work was done under the direction of the Palaeontologist for the Soils Section, to log and to establish the stratigraphical sequence in bores No. 1, 2, 3 and 4, drilled on the North-eastern corner of Victoria Square for the foundation testing of the proposed new Reserve Bank.

No detailed micropalaeontological study was attempted.

STRATIGRAPHIC SUMMARY:

The sediments represent mainly shallow water estuarine and marine deposition during part of the Tertiary Period near the central eastern margin of the St. Vincent Basin.

The oldest beds entered in the bores are the equivalents of the Blanche Point Marls, a sequence of paralic Upper Eocene very carbonaceous clays and sands. The Blanche Point marls are succeeded by the mainly fossiliferous basal glauconitic calcareous sands of the Port Willunga Beds of Oligocene-Miocene age. These are disconformably overlain by a sequence of fossiliferous calcareous sands and sandy limestones of Pliocene age, the Hallett Cove Limestones.

Pleistocene to Recent mottled sands and clays, very calcareous near the surface, comprise the uppermost and youngest beds of the sequence.

3. PLEISTOCENE-RECENT

These are the youngest beds present, and comprise a series of very calcareous sandy clays near the surface, underlain by about fifty feet of very mottled greenish grey,

red-brown and yellow-brown slightly sandy stiff clays and slightly clayey friable sand.

Probably representing a non marine phase of deposition, they are unfossiliferous in this area.

4. HALLETT COVE LIMESTONE:

These beds underlie the Pleistocene-Recent sands and clays, and are composed of mainly slightly sandy limestone, in parts very hard, and grading downward through a very calcareous fossiliferous slightly clayey sand to a greenish grey and yellow brown mottled slightly sandy stiff friable clay. This clay is shown on petrographic analysis (see Appendix) to consist of mainly illite and quartz, with minor meta halloysite and tourmaline. It has the property of absorbing extremely large amounts of water which is bound into the clay quite closely. It is probable that the clay is infilling solution cavities of the surface of the underlying Port Willunga Beds.

Foraminifera include:

Elphidium adelaidense Parr

Rotalia beccarii Linne

The beds are of Pliocene age.

5. PORT WILLUNGA BEDS:

These beds underlie the Pliocene sediments, and are separated from them by a considerable timebreak. They consist of only a thin band of greenish grey and yellow brown slightly sandy and glauconitic calcareous stiff but friable clay, which appears to be the basal member of this group, and represent shallow water deposition.

Foraminifera include:

Cibicides umbonifer Parr

Lagena sp.

Elphidium sp.

Guttulina sp.

Only the basal part of the Port Willunga Beds remain, probably of Oligocene age.

6. BLANCHE POINT MARLS:

This formation is present only in the deepest bore, number 4, and is a sequence of fossiliferous dark glauconitic marls, crowded with Turritella and underlain by carbonaceous sandy clays and white pyritic and micaceous fine sands, representing probable salt swamp conditions with marine intercalations.

The most abundant fossil is:

Turritella aldingae Tate

Foraminifera include:

Lagena sp. - very rare, specimens being juvenile and pauperate.

These beds are of Eocene Age.

T. M. Steel

Tech. Assistant
Palaeontology

TMS:PMC
27/7/60

PERCUSSION TEST BORE NO. 1

Bore Serial No.: P.D. 740/60 **Location:** Victoria Square

Hundred: Adelaide **Section:** ?

Purpose: Foundation testing for proposed new Reserve Bank Building.

Plant: Ruston No. 24 **Driller:** R. S. Munro

Date Commenced: 3/5/60 **Date Completed:** 12/5/60

Depth	Description	Penetration	Blows
0'0" - 1'0"	3" of asphalt and fill, then red-brown to dark brown calcareous friable sandy clay. Dull and moist.	0' - 1'	7
1'0" - 2'0"	Medium yellow-brown to brown firm, slightly friable fine sandy clay with well rounded limestone (kunkar) nodules, grading to very light yellow brown to light brown friable soft very calcareous clay with hard well rounded limestone nodules. Dull and moist.	1' - 2'	13
2'0" - 3'0"	Light pinkish to yellowish brown and cream very slightly sandy clayey friable soft limestone with brown clay lenses. Dull and moist.	2' - 3'	26
3'0" - 4'0"	Dirty cream to very light yellowish brown very slightly sandy clayey soft friable limestone with small thin red brown ferruginous clayey lenses. Damp and dull.	3' - 4'	16
4'0" - 5'0"	Dirty cream slightly sandy clayey friable soft limestone intermixed with greenish-grey (with brown streaks) slightly sandy calcareous clay, which is much firmer. Dull and damp.	4' - 5'	14
5'0" - 6'0"	Greenish-grey with intermixed yellow-brown to brown very slightly sandy stiff clay with small included firm to soft friable patches of dirty cream clayey limestone, more clayey at bottom. Numerous small (0.1") black well rounded grains of iron minerals. Fractures unevenly - Dull and damp.	5' - 6'	13
6'0" - 7'6"	Blue grey to green grey with yellow brown and red brown patches very slightly sandy stiff clay with very rare calcareous patches. Dull and moist. - only about 3" recovered.	6' - 7'6"	20
7'6" - 8'0"	Greenish-grey (with yellow-brown to brown patches) of very slightly sandy stiff clay with small pinkish cream limestone patches. At 7'6" a large patch of reddish cream slightly clayey limestone with small pieces ($\frac{1}{8}$"-$\frac{1}{4}$") of black iron minerals. Moist.	7'6"- 8'	7

Depth	Description	Penetration	Blows
8'0" - 9'0"	Greenish-grey very stiff very slightly sandy clay with yellow to reddish brown small irregular patches. Fractures unevenly.	8' - 9'	9
9'0" - 12'0"	Greenish-grey very stiff very slightly sandy clay with yellow to reddish brown small irregular patches, becoming more reddish brown with depth.	9'- 10'6" 10'6"-12'	20 21
12'0" - 19'0"	Greenish grey very stiff very slightly sandy clay with mainly brick red mottling, including numerous small lateritic patches. Moist. Sealed tube from 12' to 13'6".	12' -13'6" 13'6"-14' 14' -15' 15' -16' 16' -17' 17' -18' 18' -19'	20 7 7 9 10 12 11
19'0" - 20'6"	Greenish-grey very stiff very slightly sandy clay with yellow but mainly red brown mottling, with some plant remains (rare). Moist. Sealed tube sample.	19' -20'6"	31
20'6" - 21'6"	Greenish-grey very stiff very slightly sandy clay with yellow and red-brown mottling. Some evidence of shear at about 45°. Moist.	20'6"-21'6"	10
21'6" - 24'0"	Greenish grey very stiff very slightly sandy clay with red-brown and yellow brown mottling, becoming more yellow brown with depth. Some occasional evidence of shear at about 45°.	21'6"-22' 22' -23' 23' -24'	8 12 15
24'0" - 30'0"	Greenish-grey very stiff very slightly sandy clay with mainly yellow-brown but some red-brown patches and some evidence of shear at about 45°. Moist. Sealed tube from 25'-26'6".	24' -25' 25' -26'6" 26'6"-27'6" 27'6"-28' 28' -29' 29' -30'	15 24 10 8 16 15
30'0" - 31'6"	Cream, greenish-grey, yellow brown and red brown mottled very clayey fine angular sand - very stiff and moist. Sealed tube sample.	30' -31'6"	40
31'6" - 34'0"	Light to greenish-grey, yellow-brown and increasingly red brown clayey fine angular quartz sand, heavily stained by ferruginous material, which in part forms to cement. Stiff but friable. Moist.	31'6"-32'3" 32'3"-33' 33' -34'	22 31 47
34'0" - 36'0"	Light to greenish-grey, yellow brown and red brown mottled clayey fine angular sand, which is heavily ferruginized and has laterite grains up to ¼" diam. Stiff but friable. Moist.	34' -35' 35' -36'	35 54
36'0" - 37'0"	Greenish-grey slightly sandy clay with small yellow patches and large "veins" of very ferruginous slightly clayey friable sand with some small laterite grains.	36' -37'	33
37'0" - 38'6"	Yellow and greenish grey very slightly sandy stiff clay with yellow brown and red brown mottling. Moist.	37' -38'6"	45

Depth	Description	Penetration	Blows
38'6" - 39'3"	Yellow brown, red brown and greenish grey very mottled very slightly sandy stiff clay. Tendency to break at angle of 45°. Moist.	38'6"-39'3"	14
39'3" - 44'0"	Greenish grey very slightly sandy stiff clay with light yellow brown and some red brown mottling. Moist. Sealed tube from 40' to 41'6".	39'3"-40' 40' -41'6" 41'6"-42'3" 42'3"-43' 43' -44'	16 36 10 9 22
44'0" - 55'0"	Greenish-grey very slightly sandy stiff clay with yellow-brown and a little red brown, mottling. Uneven fracture. Moist. Sealed tube sample from 45' to 46'6" and from 50' to 51'6".	44' -45' 45' -46'6" 46'6"-47'3" 47'3"-48' 48' -49' 49' -50' 50' -51'6" 51'6"-52'3" 52'3"-53' 53' -54' 54' -55'	18 32 14 11 23 12 28 6 6 11 10
55'0" - 56'6"	Greenish-grey very slightly sandy stiff clay with yellow brown and red brown mottling, with some small cream limestone pebbles near 56'6". Sealed tube sample.	55' -56'6"	27
56'6" - 57'3"	Greenish-grey very slightly sandy stiff clay with yellow and red brown mottling changing to a dirty cream slightly clayey broken limestone intermixed with greenish grey, yellow and red-brown mottled clay.	56'6"-57'3"	17
57'3" - 60'0"	Dirty cream slightly clayey and sandy broken limestone with patches of green-ish and yellowish grey slightly sandy stiff clay. Friable to stiff. Moist.	57'3"-58' 58' -59' 59' -60'	22 30 31
60'0" - 61'0"	Light to greenish grey slightly clayey extremely fine sand with some medium well rounded grains. Friable and wet.	60' -61'	50
61'0" - 61'6"	Greenish-grey slightly clayey very fine sand with lenses of brown very clayey fine sand.	61' -61'6"	53
61'6" - 62'3"	Greenish-grey slightly clayey very fine sand grading to a cream to light grey hard slightly sandy limestone.	61'6"-62'3"	?
62'3" - 71'0"	Light yellowish grey very fine very slightly sandy limestone. Hard bars at 64'6" (6" thick) at 67' (1" thick) and at 70'6" (6" thick).	Sludge Samples	
71'0" - 72'0"	Light grey to cream very calcareous fine sand with patches of very hard waterworn very slightly sandy limestone - Water.	71' -72'	43
72'0" - 78'0"	Light yellowish grey very fine very slightly sandy limestone - hard in parts.	Sludge Samples	

Depth	Description	Penetration	Blows
78'0" - 80'0"	Light yellow brown fine sandy limestone, becoming sandy at base.	Sludge Samples	
80'0" - 81'0"	Light yellow brown (becoming darker with depth) very calcareous and shelly slightly clayey fine sand.	80' -81'	50
81'0" - 82'0"	Yellow-brown very calcareous very slightly clayey shelly fine sand.	81' -82'	49
82'0" - 83'0"	Light yellowish grey to yellow very calcareous and shelly slightly clayey fine sand.	82' -83'	?
0 - 56'6"	Pleistocene - Recent.		
56'6" - 83'	Pliocene.		

PERCUSSION TEST BORE 2

Bore Serial No: PD748/60 **Location:** Reserve Bank, Victoria Square.

Hundred: Adelaide **Section:** ?

Purpose: Foundation testing for proposed new Reserve Bank Building.

Plant: Ruston No. 24 **Driller:** D. Wilson

Date Commenced: 16/5/60 **Date Completed:** 23/5/60

Logged by: T. M. Steel

Depth From	Depth To	Description	Penetration From-To	Blows
0'0"	0'6"	Asphalt and fill.		
6"	1'	Dark brown calcareous sandy clay with asphalt fragments. Firm and damp.	6"- 1'	4
1'0"	2'0"	Yellowish and greenish grey very slightly sandy stiff clay with small limestone nodules. Damp.	1' - 2'	16
2'0"	3'0"	Yellowish brown slightly sandy and calcareous stiff clay with limestone patches. Moist.	2' - 3'	17
3'0"	4'0"	Slightly reddish and yellowish brown slightly sandy and calcareous stiff clay - very small limestone patches - band of dark decomposed wood at 3'6" surrounded by light grey clay. Moist.	3' - 4'	12
4'0"	5'0"	Mid-brown very slightly reddish slightly sandy stiff clay with numerous very small limestone grains. Moist.	4' - 5'	7
5'0"	6'0"	Slight reddish brown with small green grey mottling, slightly sandy stiff clay with small limestone fragments. Moist.	5' - 6'	7
6'0"	7'6"	Red-brown and brown with greenish grey mottling slightly sandy stiff clay with few small limestone fragments. Moist. (Sealed tube)	6' - 7'6"	11
7'6"	8'3"	Greenish-grey with yellowish and reddish brown mottling slightly sandy stiff clay with calcareous patches to 7'9". Moist.	7'6"- 8'3"	7
8'3"	14'	Greenish-grey with red and yellowish brown mottling very slightly sandy and stiff clay. Moist.	8'3"- 9' 9' -10' 10' -11' 11' -12' 12' -13' 13' -14' 14' -15' 15' -16' 16' -17'	7 12 9 12 8 6 6 15 9
14'0"	17'0"	Greenish-grey very stiff very slightly sandy clay with some yellow but mainly brick red mottling. Moist.		
17'0"	17'6"	Greenish-grey very stiff very slightly sandy clay with some yellow but mainly brick red mottling. Moist.	17' -17'6"	8

Depth From	Depth To	Description	Penetration From-To	Blows
17'6"	21'	Greenish grey very stiff very slightly sandy clay with less frequent yellow and brick red mottling - small patch indeterminate iron minerals moist. (Sealed tube from 18'6" to 20').	17'6"-18'6" 18'6"-20' 20' -21'	12 20 9
21'0"	22'	Greenish-grey very stiff sandy clay with frequent yellow and brick red mottling calcareous patch at 21'6". Moist.	21' -22'	17
22'0"	28'6"	Greenish-grey very slightly sandy very stiff clay with less frequent mainly yellow brown and some reddish mottling. Moist. Sealed tube sample from 23'6" to 25'	22' -23' 23' -23'6" 23'6"-25' 25' -26' 26' -27' 27' -27'9" 27'9"-28'6"	9 5 21 9 12 6 7
28'6"	30'	Light cream, greenish grey, yellow brown and red brown mottled very clayey fine angular sand, friable and moist. Sealed tube.	28'6"-30'	28
30'0"	33'6"	Light to greenish-grey, yellow-brown and increasingly red brown (with depth) clayey fine angular quartz sand. Friable, moist.	30' -31' 31' -32' 32' -32'9" 32'9"-33'6"	39 66 31 35
33'6"	38'6"	Light grey yellow brown and rust red very slightly clayey medium to coarse sand increasingly iron rich depth with occasional large pieces of laterite and becoming very clayey from 38' Sealed tube from 33'6"-35' friable and wet.	33'6"-35' 35' -36' 36' -37' 37' -37'9" 37'9"-38'6"	29 31 60 51 19
38'6"	40'0"	Light grey very slightly sandy very stiff clay with slight yellow-brown mottling and frequent red brown patches with laterite. Moist.	38'6"-40'	60
40'0"	43'6"	Greenish grey very slightly sandy very stiff clay with light yellow brown and brick red mottling, becoming more yellow brown with depth. Moist.	40' -41' 41' -42' 42' -42'6" 42'6"-43'6"	35 16 11 20
43'6"	53'6"	Greenish grey very slightly sandy very stiff clay with light yellow brown mottling and very occasional red brown mottling. Moist. Sealed tube from 43'6"-45' and also sealed tube 48'6"-50'	43'6"-45' 45' -46' 46' -47' 47' -47'9" 47'9"-48'6" 48'6"-50' 50' -51' 51' -52' 52' -52'9" 52'9 -53'6	38 22 29 13 13 39 28 16 10 10
53'6"	55'	Greenish-grey very slightly sandy very stiff clay with light yellow brown mottling grading to green grey clay with cream and pinkish sandy limestone. Moist. Sealed tube sample.	53'6"-55'	25
55'0"	56'0"	Greenish-grey and yellow very stiff slightly sandy clay with patches of cream and pinkish sandy limestone. Evidence of possible shear at 45°.	55' -56'	12

Depth From	Depth To	Description	Penetration From-To	Blows
56'0"	57'9"	Greenish-grey and brown slightly sandy stiff clay with cream to pink slightly sandy limestone becoming increasingly calcareous with depth.	56' -57'	22
			57' -57'9"	17
57'9"	59'6"	Cream to light grey slightly sandy limestone (very broken) and a little greenish grey very stiff clay in patches. Wet.	57'9"-58'6"	47
			58'6"-59'6"	60
59'6"	63'6"	Light grey to greenish-grey very fine sandy clay and soft sandy decomposed limestone becoming increasingly clayey with depth, but with some harder patches. Varying from stiff to friable. Wet.	59'6"-60'6"	56
			60'6"-61'	28
			61' -62'	53
			62' -63'	63
			63' -63'6"	33
63'6"	71'	Light yellow brown to cream very slightly sandy limestone.	Sludge Sample	
71'0"	71'9"	Very light grey very calcareous fine to medium sand becoming a slightly sandy limestone with depth.	71' -71'9"	53
71'9"	75'	Light grey very calcareous fine to medium sandstone.	Sludge Sample	
75'0"	77'	Light yellow brown very calcareous fine to medium sandstone.	Sludge Sample	
77'0"	78'3"	Light grey to yellow brown slightly to very clayey calcareous fine sand. Wet.	77' -78'	80
78'3"	82'	Light yellow brown slightly clayey very calcareous fine sand.	Sludge Sample	
82'	84'	Greenish grey and yellow brown extremely fine very sandy and calcareous stiff clay with some darker red brown mottling and occasional patches of friable cream limestone. Wet.	82' - 83'	53
0'	53'6"	Pleistocene - Recent		
53'6"	84'	Pliocene.		

PERCUSSION BORE NO. 3

Bore Serial No: PD750/60 **Location:** Reserve Bank, Victoria Square

Hundred: Adelaide **Section:** ?

Purpose: Foundation testing for proposed new Reserve Bank Building.

Plant: Ruston No. 24 **Driller:** D. Wilson

Date Commenced: 24/5/60 **Date Completed:** 3/6/60

Logged by: T. M. Steel

Depth From	Depth To	Description	Penetration From-To	Blows
0'0"	0'6"	Asphalt and filling.		
6"	1'0"	Dark brown slightly reddish very slightly calcareous sandy firm to stiff clay. Moist.	6"- 1'	5
1'0"	2'0"	Dark brown very slightly calcareous sandy stiff clay grading from 1'6" to a light to reddish brown slightly sandy very calcareous friable clay - moist.	1' - 2'	16
2'0"	3'0"	Light to reddish-brown slightly sandy and clayey friable broken limestone - moist.	2' - 3'	26
3'0"	5'0"	Dirty cream to light pinkish brown slightly sandy very clayey friable broken limestone. Small patches brown clay. Moist.	3' - 4' 4' - 5'	20 17
5'0"	8'0"	Greenish and brownish grey and cream slightly sandy patchy firm clay and friable broken limestone - moist.	5' - 6' 6' - 7' 7' - 8'	17 15 12
8'0"	10'0"	Greenish grey slightly sandy, calcareous stiff clay with small yellow mottling, and patches of light grey slightly sandy very calcareous friable clay. Moist.	8' - 9' 9' - 10'	15 15
10'0"	11'0"	Greenish-grey very slightly sandy calcareous stiff clay with yellow mottling and some very small cream limestone fragments - Moist.	10' -11'	14
11'0"	18'0"	Greenish-grey very slightly sandy stiff clay with some well defined yellow mottling. Moist. Sealed tube sample from 18'6"-20'	11' -12' 12' -13' 13' -14' 14' -15' 15' -16' 16' -17' 17' -17'9" 17'9"-18'6" 18'6"-20'	17 12 11 14 14 15 13 13 18
20'0"	25'0"	Greenish-grey very stiff very slightly sandy clay with frequent yellow mottling. Moist. Sealed tube from 23'6"-25'	20' -21' 21' -22' 22' -22'9" 22'9"-23'6" 23'6"-25'	8 10 8 7 22

Depth From	To	Description	Penetration From	To	Blows
25'0"	30'0"	Greenish-grey very stiff very slightly sandy clay with frequent yellow and occasional brick red mottling. Moist. Sealed tube from 28'6"-30'	25'	-26'	14
			26'	-27'	13
			27'	-27'9"	11
			27'9"	-28'6"	7
			28'6"	-30'	22
30'0"	31'0"	Greenish-grey very stiff slightly sandy clay with very frequant yellow and brick red mottling. Moist.	30'	-31'	22
31'0"	32'0"	Light grey, yellow brown and red brown mottled very clayey fine angular friable sand - moist.	31'	-32'	58
32'0"	35'0"	Light grey, yellow-brown and increasingly red brown mottled very clayey fine angular friable sand - moist.	32'	-32'9"	43
			32'9"	-33'6"	62
			33'6"	-35'	81
35'0"	48'6"	Light greenish grey very sandy clay with some quartz pebbles to 35'2" and then greenish grey very slightly sandy stiff clay with much yellow brown mottling, and very occasional small patches of decomposed carbonaceous material - moist. Occasional evidence of a shear at 45°. Sealed tube from 38'6" to 40' and from 43'6" to 45'.	35'	-36'	37
			36'	-37'	11
			37'	-37'9"	12
			37'9"	-38'6"	10
			38'6"	-40'	22
			40'	-41'	18
			41'	-42'	15
			42'	-42'9"	10
			42'9"	-43'6"	13
			43'6"	-45'	20
			45'	-46'	17
			46'	-47'	19
			47'	-47'9"	10
			47'9"	-48'6"	10
48'6"	51'	Light grey and pale yellow brown mottled very slightly sandy stiff marl with some small red-brown marl patches. Moist. Sealed tube sample.	48'6"	-50'	34
			50'	-51'	24
51'0"	55'0"	Dirty cream and pinkish very slightly sandy clayey limestone with some small yellow brown hard limestone patches, and some greenish grey stiff clay, the clay becoming more frequent from 52'9" to 55'.	51'	-52'	30
			52'	-52'9"	37
			52'9"	-53'6"	34
			53'6"	-55'	52
55'0"	56'0"	Dirty cream and slightly pinkish very slightly sandy and slightly clayey friable limestone with some small greenish grey stiff clay patches. Moist.	55'	-56'	48
56'0"	57'0"	Dirty cream very slightly sandy and slightly clayey friable limestone with very occasional small greenish grey stiff clay patches. Moist.	56'	-57'	27
57'0"	57'6"	Dirty cream and very light yellow-brown slightly clayey hard to friable limestone, somewhat decomposed, with patches of greenish grey stiff clay.	57'	-57'6"	33
57'6"	58'0"	Dirty cream and light reddish brown very hard to friable limestone, somewhat decomposed, with irregular patches of greenish grey stiff clay.	57'6"	-58'	26

Depth From	To	Description	Penetration From-To	Blows
58'0"	- 58'6"	Very light grey to light brown slightly clayey hard to friable partly decomposed limestone with small greenish grey clay patches - wet.	58' -58'6"	24
58'6"	- 64'0"	Light yellow brown slightly sandy and clayey decomposed hard limestone.	Sludge Samples.	
64'0"	- 65'0"	Brownish grey stiff sandy clay with large pieces hard yellow brown weathered limestone and patches of small friable light grey decomposed limestone. - wet.	64' -65'	67
65'0"	- 75'0"	Light grey to grey slightly sandy clay decomposed limestone with hard patches from 65'-67', 69'-72' and from 72'6"-74'6".	Sludge Samples.	
75'0"	- 81'0"	Light yellow brown slightly clayey calcareous sandstone with very hard patches.	Sludge samples	
81'0"	- 82'0"	Light to dark yellow brown slightly clayey slightly calcareous fine to coarse sand. Friable and wet - Becoming very clayey at bottom.	81' -82'	?
82'0"	- 83'0"	Greenish-grey slightly sandy stiff clay with large patches of yellow brown clayey friable fine to coarse sand. Wet.	82' -83'	48
83'0"	- 85'0"	Light to dark greenish grey slightly sandy slightly calcareous stiff clay with small irregular patches of yellow brown very clayey sand, and very occasional impressions of decomposed shells.	83' -84' 84' -84'6" 84'6"-85'	64 52 20
85'0"	- 89'6"	Light to dark greenish grey sandy slightly calcareous stiff clay with patches of yellow brown clayey sand and small patches of dark grey clay and becoming slightly ironstained with depth. Sealed tube sample from 85' to 86'6" - Moist.	85' -86'6" 86'6"-87'6" 87'6"-88' 88' -89' 89' -89'6"	76 72 66 41 36
0'0"	- 51'	Pleistocene - Recent.		
51'	- 85'	Pliocene		
85'	- 89'6"	Oligocene		

PERCUSSION BORE NO. 4.

Bore Serial No. 757/60 — Location: Reserve Bank Victoria Square

Hundred: Adelaide — Section: ?

Purpose: Foundation testing for proposed new Reserve Bank Building.

Plant: Ruston No. 24 — Driller: D. Wilson

Date Commenced: 7/6/60 — Date Completed: 17/6/60

Depth From	Depth To	Description	Penetration From-To	Blows
0'0"	0'6"	Bitumen and road fill		
0'6"	1'	Light yellow brown to dark brown slightly sandy slightly calcareous soft clay with one patch of hard cream limestone. Moist.	6"- 1'	5
1'0"	2'	Dark brown to yellow brown slightly sandy soft calcareous clay to 1'6", then brown clay with large pieces light pinkish brown and friable decomposed limestone.	1' -2'	17
2'0"	3'	Light grey to light reddish brown slightly sandy very calcareous friable clay. Damp.	2' -3'	16
3'	6'	Light grey to pinkish grey very clayey friable decomp. limestone with small patches of dark brown clay. Damp.	3' - 4' 4' - 5' 5' - 6'	22 24 6
6'	7'	Light grey to greenish grey and brown very clayey friable decomp. limestone grading to greenish grey slightly sandy slightly calcareous stiff clay with some brown mottling. Moist.	6' - 7'	
7'	10'	Greenish grey, yellow brown and red brown mottled slightly sandy stiff clay. Moist.	7' - 8' 8' - 9' 9' -10'	12 15 15
10'	12'	Greenish grey slightly sandy very stiff clay with yellow brown and red brown mottling. Moist.	10' -11' 11' -12'	15 14
12'0"	21'6"	Greenish grey slightly sandy very stiff clay with some yellow brown but mainly red brown mottling. Moist. Sealed tube sample from 20' to 21'6"	12' -13' 13' -14' 14' -15' 15' -16' 16' -17' 17' -18' 18' -19' 19' -20' 20' -21'6"	11 15 16 22 18 29 17 21 32
21'6"	30'	Greenish grey slightly sandy very stiff clay with some red but mainly yellow brown mottling. Moist. Sealed tube sample from 25' to 26'6".	21'6"-22'3" 22'3"-23' 23' -24' 24' -25' 25' -26'6" 26'6"-27'3" 27'3"-28' 28' -29' 29' -30'	9 12 14 17 41 16 16 33 42

Depth From	To	Description	Penetration From-To	Blows
30'0"	- 36'0"	Light grey yellow brown and red brown slightly clayey medium to coarse angular quartz sand with rare small pockets of grey sandy stiff clay. Moist	30' -31'6"	50
			31'6"-32'	41
			32' -32'3"	42
			32'3"-32'6"	41
			32'6"-32'9"	38
			32'9"-33'3"	33
			33'3"-33'6"	28
			33'6"-33'9"	25
			33'9"-34'	24
			34' -34'6"	28
			34'6"-35'	36
			35' -35'6"	35
			35'6"-36'	40
36'0"	- 48'6"	Light grey yellow brown and red brown slightly clayey medium to coarse angular quartz sand to 36'3" then greenish grey and light yellow brown mottled slightly sandy very stiff clay Moist. Sealed tube samples from 38'6"-40', and from 43'6" to 45'.	36' -37'	42
			37' -37'9"	21
			37'9"-38'6"	18
			38'6"-40'	44
			40' -41'	38
			41' -42'	29
			42' -42'9"	23
			42'9"-43'6"	23
			43'6"-45'	69
			45' -46'	27
			46' -47'	41
			47' -47'9"	16
			47'9"-48'6"	9
48'6"	- 50'9"	Greenish grey and yellow brown mottled slightly sandy very stiff clay with dirty cream to pale brown hard to soft decomposed limestone patches.	48'6"-50'	42
			50' -50'6"	20
			50'6"-50'9"	24
50'9"	- 54'	Reddish buff to buff slightly sandy clayey limestone.	Sludge Sample	
54'0"	- 55'	Greenish grey slightly sandy very stiff clay with red brown mottling. Moist.	54' -55'	32
55'0"	- 56'6"	Greenish grey and yellow brown mottled slightly sandy very stiff clay with dirty cream and pale brown hard to soft decomposed limestone patches.	55' -56'6"	49
56'6"	- 58'	Light yellow brown very clayey lime-stone probably similar to above.	Sludge Sample.	
58'	- 61'	Greenish grey very sandy stiff clay grading to very clayey medium to coarse sand with little yellow brown and red brown mottling.	58' -59'	57
			59' -59'6"	31
			59'6"-60'6"	41
			60'6"-61'	32
61'0"	- 62'0"	Greenish grey medium to coarse very sandy stiff clay with hard and soft light grey to yellow brown limestone. Wet.	61' -61'3"	24
			61'3"-62'	61
62'0"	- 64'0"	Light yellowish grey slightly clayey limestone.	Sludge Sample	
64'0"	- 76'0"	Light grey and light yellow brown hard limestone.	Sludge Sample	
76'0"	- 80'0"	Light grey to yellow brown hard lime-stone.	Sludge Sample	

Depth From- To	Description	Penetration From-To	Blows
80'0" - 82'0"	Light to dark yellow brown and some greenish grey very shelly slightly clayey sand to 80'7" and then as above with no shells.	80' -80'6"	41
		80'6"-81'	42
		81' -82'	52
82'0" - 84'0"	Greenish grey and yellow brown mottled slightly sandy stiff friable clay.	82' -83'	23
		83' -84'	27
84'0" - 85'	Greenish grey and yellow brown mottled slightly sandy stiff friable clay.	84' -85'	19
85'0" - 87'3"	Greenish grey slightly sandy glauconitic shelly stiff marl. Moist.	85' -86'6"	26
		86'6"-87'3"	
87'3" - 88'	Greenish grey slightly sandy glauconitic shelly stiff marl with a little dark grey to black carbonaceous matter. Moist.	87'3"-88'	12
88'0" - 89'0"	Greenish grey very slightly sandy slightly shelly glauconitic stiff marl.	88' -89'9	17
89'0" - 90'0"	Greenish grey to very dark grey slightly sandy slightly carbonaceous stiff to friable clay. Moist.	89' -90'	14
90'0" - 91'6"	Very dark greenish grey slightly sandy carbonaceous clay some mica. Sealed tube sample.	90' -91'6"	28
91'6" - 95'	Dark greenish grey to black very carbonaceous slightly sandy glauconitic stiff clay with occasional shell fragments and some mica. Moist.	91'6"-92'3"	11
		92'3"-93'	11
		93' -94'	13
		94' -95'	11
95'0" - 96'6"	Sealed tube sample	95' -96'6"	20
96'6" - 97'3"	Light to greenish grey and yellow brown clayey fine to medium friable sand. Wet.	96'6"-97'3"	8
97'3"-100'	Light greenish grey clayey fine to medium sand with some yellow brown and dark grey mottling slightly micaceous. Wet.	97'3"-98'	8
		98' -99'	10
		99'- 100'	19
100' -107'	Greenish yellow to greenish grey slightly clayey fine to medium sand. Wet and "running"	Bailer	
107' -109'	Pale greenish yellow clayey very fine to fine slightly micaceous friable sand. Wet.	107'-108'	38
		108'-109'	11
109' -110'	Pale greenish grey slightly clayey micaceous fine to very fine sand with some slight yellow mottling. Wet.	109'-110'	10
110' -111'	Greenish grey and yellow slightly clayey micaceous fine to very fine sand. Wet.	110'-111'	13
111' -112'	Pale bluish grey very stiff slightly sandy clay with some yellow brown mottling grading to dark to black slightly sandy very micaceous carbonaceous clay. Moist.	111'-112'	25

Depth From	To	Description	Penetration From-to	Blows
112'	- 120'	Dark greenish brown to black slightly sandy micaceous and pyritic carbonaceous clay. Moist. Sealed tube from 113'-114'6" and 118'6" to 120'.	112'-113'	20
			113'-114'6"	30
			114'6-115'6	17
			115'6-116'6	21
			116'6-117'6	24
			117'6-118'6	21
			118'6-120'	31

0'0"	- 48'6"	Pleistocene - Recent
48'6"	- 80'	Pliocene
80'	- 84'	Oligocene
84'	- 120'	Eocene

21st July, 1960

MINERALOGY & PETROLOGY SECTION

REPORT NO. 1.2.0/883

MATERIAL:	Clay Sample
SUBMITTED BY:	T. M. Steel, Department of Mines, Rundle Street.
DATE RECEIVED:	20/7/60
MARKS or NOS:	P 441/60
SOURCE or LOCALITY:	Adelaide - Corner of Victoria Square and Flinders Street. Reserve Bank Bore No. 3, 84' - 84'6".
INFORMATION REQUIRED:	Petrological Description
METHODS OF EXAMINATION:	Microscope and X-ray diffraction.

RESULTS OF EXAMINATION:

The sample was examined under the microscope and seen to consist essentially of extremely fine clay material and angular grains of quartz, of silt grade. In addition there are occasional grains of tourmaline present.

The clay material was examined by X-ray diffraction using filtered cobalt radiation. In order to carry out this examination, the silt grade material was removed by elutriation. The X-ray diffractograph on the elutriated clay sample showed the major constituents to be illite and quartz with a trace of metahalloysite.

The composition of the original sample is therefore:-

Major	=	Illite Quartz
Trace	=	Metahalloysite Tourmaline

R. A. Both
MINERALOGIST.

and A. E. Tynan
MINERALOGIST.