

DEPARTMENT OF MINES
SOUTH AUSTRALIA

SOIL INVESTIGATION,
UPPER PORT REACH TIDAL BASIN

(First Report)

(S.A. Harbours Board)

by

P.R.G. Dunlop,
Geologist.

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27th September, 1960.

SOIL INVESTIGATION
UPPER PORT REACH TIDAL BASIN
(S.A. Harbours Board)

by

P.R.G. Dunlop, D.Sc.

ABSTRACT.

Test boring of the proposed Upper Port Reach Tidal Basin has been completed, with 33 bores totalling 518 feet. Sediments comprise mottled brown clays, sandy clays, sands, silts and shell beds with occasional travertine limestone. The proportion of clay in the effective drilling completed was 15.6%. Assessment of the settling characteristics of the sediments after dredging awaits results of particle size analyses now in progress.

INTRODUCTION.

The Port Adelaide Development Scheme, prepared by the South Australian Harbours Board, includes the development of a tidal basin in the Upper Port Reach. The proposed basin extends from the Port Adelaide railway bridge southward to Fort Street, Grange, a distance of about 260 chains, or $3\frac{1}{4}$ miles. Dredging of the basin is planned to a depth of seven feet below Low Water Datum (RL100.80) to a maximum width of 31 chains opposite the Old Port Road, decreasing to 16 chains opposite Hallam Terrace, about 30 chains from the southern end, thence to about six chains at the end of the basin. The dredged material will be used for reclamation of the adjoining low lying swamp lands for housing purposes.

A preliminary investigation was made by K. R. Miles in 1951. (Report No. 30/110, and 31/92, D.M.574/51). Seven test bores were sunk along the length of the Upper Port Reach at half mile intervals to a maximum depth of 20 feet. These bores disclosed silts, sands, shell beds and dark brown sandy clay. No hard bands were encountered in any of the bores, and it was concluded that the entire area proposed for dredging would be suitable for removal by bucket dredge equipment. It was considered that no hard rock would be encountered to the depth of proposed dredging.

In June 1960 the Harbours Board requested boring to determine in particular, the proportion of clay in the area to be dredged, so that a study might be made of the probable settling characteristics of the dredged material. The Harbours Board laid out 33 test bore sites, arranged in lines of two or three bores across the proposed tidal basin, at intervals of about 18 chains between lines. The bore sites are shown on Harbours Board Drg.16011/11, and on the attached plan.

The Upper Port Reach lies in a belt of swamp land east of the coastal sand dunes which rise to a maximum height of about 50 feet (RL.150') and form a strip averaging about 10 chains wide. To the east lies a belt of older sand dunes forming a long low ridge about 20 chains wide and rising to about RL.120'. Between the two sand dune belts lies a broad belt of estuarine plain consisting of low muddy and sandy samphire flats drained by the Port River. Access to the bore sites, most of which lay in this area, or in the river, was difficult. Ten bores were sunk using a light percussion plant, the remainder being drilled by hand. A barge was used to drill seven of the bores, in the river bed, three with a light plant, and four by hand.

A total of 518 feet of boring was completed at the 33 test sites. All bores were cased, and samples of cuttings recovered and stored in marked sample tins. Samples were taken at one foot intervals, with a few exceptions. Bore sludges were logged at the Mines Department sample room, and were subsequently forwarded to the S.A. Harbours Board Dockyard at Glanville.

GEOLOGY.

The subsurface geology of the area was described by Miles (Report 31/92 - 13/6/51), as follows:

Above RL.110 ft. - Recent or Older dune sand.

Approx. RL.110-90 ft. Recent dark and light sandy clays, with or without a thin shell bearing layer.

RL.90-80 ft.

Pleistocene-Recent marine sands,
(Shell beds).

Below RL.80 ft.

Pleistocene clays.

The present drilling has provided much more sub surface information than was previously available. In general, the bores disclosed stiff mottled brown clays overlying fine grained sands. These passed into sands bearing varying proportions of comminuted shells, with shell beds, or alternatively a thin travertine limestone layer, near the lower limit of proposed dredging. In some bores mottled brown clays passed through a sandy or silty phase above the sand. Several bores, notably No.9 disclosed a proportion of very fine sand or silt, which did not readily settle in the sample tins. Of the seven bores in the river bed, five encountered shell beds within the first two feet.

RESULTS OF TEST BORING.

A profile of each bore has been prepared, all being shown on the accompanying plan, (Fig. 1) in relation to RL 100 and the proposed dredging depth. As might be expected from estuarine sediments, there is considerable variation from bore to bore. It is not therefore considered practicable to attempt a correlation of the sediments appearing throughout the proposed basin. However, a feature in common with all but one bore (No.18) drilled on land was the presence of mottled clay or sandy clay overlying sands.

The presence of humic or peaty material, consisting of decayed vegetable matter was noted in six bores (No. 5, 2-3 ft.; No.9, 1-2ft; No.11, 2-4 ft.; No.12, 2-4 ft.; No.14, 2-3 ft. and No.17, 2-3 ft.). While this humus is believed local in character the possibility cannot be overlooked that there may be extensive areas of humus in the vicinity of these bores. This material, if present in quantity, may affect the settlement of dredgings from these localities. Further testing in the vicinity of these six bores, by means of shallow hand bores, may be considered warranted.

Since the special purpose of this test boring was to determine the proportion of clay present an assessment of the proportion of clay down to dredging depth has been made, based

on the geological logging of each bore.

The footage drilled in 33 bores was 482 feet - of this 75 feet was in clay or sandy or silty clay. That is, 15.6% of the material sampled was of a substantially clayey nature.

Although screen analyses were not requested in the first instance, it was considered desirable to have particle size analyses of the sands in several bores, to determine the grain size and proportion of the fines. Composite samples were then taken from four bores, from below the clays to the planned dredging depth, as follows -

Bore 9	-	2 - 16 ft.
18	-	0 - 15 ft.
23	-	4 - 17 ft.
31	-	2 - 17 ft.

The detailed screen analyses appear as appendix I. A graph of these four analyses appears as fig. 2.

In three bores, the -300 fraction was less than 10%, but in Bore No.9, which contained several sections largely of silt, 15.7% of the sample was in this fraction.

Based on the Atterberg size classification of soil particles, these sands fall principally into the fine sand range (0.2 mm. to 0.02 mm.) extending up into the coarse sand range at BSS+72. Fractions above BSS52 consisted predominantly of comminuted shell fragments. Those below the size consisted predominantly of quartz grains.

After discussion of these results with Mr. R.F. Beverly, Design Engineer, of the Harbours Board, it was considered that further particle size analyses should be made on a number of selected clays, sandy and silty clays, sands and silts. After joint consultations with Mr. A.L. Keats and Mr. D.W. Read, of the Australian Mineral Development Laboratories, it was decided that 20 samples be selected for analysis, with particular reference to the -300 fraction. Analysis of the fraction would be done by elutriation methods.

These samples have now been taken, and work on them is in progress. Results will be recorded in an addendum to this report.

The reclamation of swamp lands adjoining the proposed tidal basin with dredged material, is akin to the settlement of finely ground mill residues resulting from the treatment of metallic ores, in large tailings dams. It is suggested that the methods used in the mining industry at Broken Hill might be studied with advantage by Harbours Board engineers involved in this project. The services of the Australian Mineral Development Laboratories might also be utilised in studying this problem.

It is believed that the dredged materials, when re-deposited, are likely to possess thixotropic properties. All fine sediments, especially when clayey, display thixotropic characteristics in varying degrees. Thixotropy is a process whereby remoulded material with high water content stiffens while at rest, but liquifies again immediately following disturbance or remoulding. This process can be repeated indefinitely while the water content remains above the plastic limit.

At the site under consideration, the dredged material will be fine, somewhat clayey, thoroughly remoulded and very wet. This material will be deposited on the stiff mottled clay occurring as the upper horizon of the natural soil. Hence, drainage will be slow, particularly after the natural clay becomes saturated, and the dredgings may tend to remain in the state of a thixotropic gel for a considerable time. It is therefore recommended that the thixotropic potential of the material be investigated, to be followed by a full scale dredge test in order to determine the time required for drainage and hardening.

It is emphasised that any tests carried out in the laboratory to determine settling characteristics or thixotropy should be made using sea water, in order to duplicate conditions at the site.

CONCLUSIONS.

Test boring of the proposed Upper Port Reach Tidal Basin has been completed, with 33 bores totalling 518 feet. Logging of the samples from these bores has disclosed clays, and sandy or silty clays comprising 15.6% of the effective drilling to the proposed depth of dredging overlying sands, silts, shell beds and travertine. Elucidation of the settling characteristics of these

sediments after dredging and using for reclamation of swamp lands adjoining the proposed tidal basin, is dependent on results of particle size analyses now in progress. Both laboratory and large scale tests of settling characteristics are considered desirable before the project is finalised.

PRGD:PMT
27/9/60.

P.R.G. Dunlop
P.R.G. Dunlop,
GEOLOGIST.

TEST BORE NO. 1.

Bore Serial No: 644/61.

Docket: 802/60.

Location: Port Reach

Hundred: Yatala Section: 1 and 2. R.L. At Collar: 104.5

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Wired: S.A. Harbours Board.

Plant: No. 11

Driller: W. D. Wilson

Nominal Bore Diam: 4 in.

Core Diam:

Total Depth: 12'

Date Commenced: 19/8/60

Date Completed: 19/8/60.

Logged by: P. Dunlop on 22/8/60.

Depth From To		Description.
River Bed	1'	Dark grey fine grained sand (or silt).
	1' 2'	Dark grey f.g. sand, small proportion clay - size material, 5% shell fragments.
	2' 3'	Dark grey f.g. slightly clayey sand, 5-10% small shells - shell fragments; - few plant fibres.
	3' 4'	ditto - (soft in sample tin).
	4' 5'	ditto - more frequent plant fibres and a few larger shell fragments.
	5' 6'	Fine grained grey sand, 5-10% shell fragments - occasional larger fragments - few plant fibres.
	6' 7'	ditto, but with fewer large shell fragments.
	7' 8'	ditto.
	8' 9'	ditto.
	9' 11'	Grey calcareous sand, 50% [±] small shell fragments, occasional larger shell fragments and plant fibres.
	11' 12'	Ditto.

END OF BORE.

TEST BORE NO. 2.

Bore Serial No: 644/61.

Docket: 802/60

Location: Port Reach

R.L. at Collar: 101.6

Hundred: Yatala Section: Old Port Reach

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: No. 11

Driller: W. D. Wilson

Nominal Bore Diam: 4 in.

Core diam:

Total Depth: 8'

Date Commenced: 19/8/60

Date Completed: 19/8/60.

Logged by: P. Dunlop on 22/8/60.

Depth		Description.
From	To	
River Bed	1'	Dark grey calcareous sand - over 50% small shells and shell fragments.
	1' 2'	Grey calcareous sand - over 50% small shells and shell fragments.
	2' 4'	ditto - but with frequent larger shell fragments.
	4' 6'	Dark brownish grey clayey silt - with 25% small shells, shell fragments and plant fibres.
	6' 7'	ditto.
	7' 8'	Calcareous grit - comprising larger shell fragments and small proportion (25%) dark grey silt.

END OF HOLE.

PERCUSSION TEST BORE NO.3.

Bore Serial No: 612/61

Docket: 802/60

Location: Port Reach

Hundred: Yatala Section: 78

R.I. at Collar: 109.43

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant:

Driller: D. Phillips

Nominal Bore Diam.: 4 ins.

Core Diam.:

Total Depth: 16'

Date Commenced: 16/8/60

Date Completed: 17/8/60.

Logged by: P. Dunlop on 22/8/60.

Depth From	To	Description
0	1'	Stiff, mottled brown silty clay.
1'	2'	Brown clayey silt to silty clay.
2'	3'	Brown silty clay.
3'	4'	ditto. passing to dark grey fine grained sand or silt.
4'	5'	Dark grey fine grained slightly clayey sand (or silt).
5'	6'	ditto.
6'	7'	Dark grey f. g. sand or silt.
7'	8'	ditto.
8'	9'	ditto. slightly clayey.
9'	10'	Dark to light grey silt.
10'	11'	Fine grained grey calcareous sand - 25% ⁺ small shell fragments.
11'	12'	ditto.
12'	13'	ditto.
13'	14'	Grey calcareous sand - over 50% small shells and shell fragments, plus plant fibres.
14'	15'	Fine grained grey calcareous sand - 25-50% small shells and shell fragments.
15'	16'	Light grey calcareous sand - 75% small shell fragments and lime nodules.

END OF BORE.

TEST BORE NO. 4.

Bore Serial No: 644/61

Docket: 802/60

Location: Port Reach

R.L. at Collar: 104.36

Hundred: Yatala

Section: Old Port Reach

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: No. 11

Driller: W. D. Wilson

Nominal Bore Diam: 4 in.

Core Diam:

Total Depth: 14'

Date Commenced: 19/8/60

Date Completed: 19/8/60

Logged by: P. Dunlop on 22/8/60.

Depth From To		Description
River Bed	1'	Dark grey silt with 10-25% small shell fragments, and occasional large shells.
	1' 2'	Grey silt and coarse calcareous grit composed of small shells and shell fragments.
	2' 3'	Fine grained grey sand or silt 5-10% small shell fragments.
	3' 5'	ditto.
	5' 7'	ditto but with 25% [±] small shell fragments.
	7' 8'	Soft grey slightly clayey, calcareous silt 5-10% small shell fragments.
	8' 9'	ditto.
	9' 10'	Soft grey, slightly clayey silt - 5% [±] small shell fragments.
	10' 11'	ditto, with lime nodules.
	11' 12'	Soft grey silt to sand 5% [±] small shell fragments.
	12' 14'	ditto.

END OF HOLE.

PERCUSSION TEST BORE NO. 5.

Bore Serial No: 614/61

Docket: 802/60

Location: Port Reach

R.L. at Collar: 109.61

Hundred: Yatala

Section: 96

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Handboring

Driller: D. Phillips.

Nominal Bore Diam: 4"

Core Diam:

Total Depth: 17'

Date Commenced: 18/8/60

Date Completed: 19/8/60

Logged by: P. Dunlop on 26/8/60.

Depth From To.		Description
0'	1'	Stiff mottled brown clay & sandy clay.
1'	2'	Light grey sand, and dark grey fibrous decomposed plant matter.
2'	3'	Fine Grained grey sand with abundant dark grey decomposed plant matter.
3'	4'	F.g. clayey grey sand with fine plant fibres throughout.
4'	5'	ditto.
5'	6'	ditto.
6'	7'	F.g. grey sand
7'	8'	F.g. grey sand, with 5-10% small shell fragments.
8'	9'	ditto.
9'	10'	ditto, - with increasing proportion shell fragments.
10'	11'	F.g. grey sand to silt with 10-25% small shells and shell fragments.
11'	12'	ditto
12'	13'	ditto
13'	14'	ditto - but with abundant fibres from decomposed plant matter.
14'	15'	ditto - fewer plant fibres
15'	46'	F.g. grey sand and silt - 5-10% small shell fragments.
16'	17'	light grey or cream calcareous sand - 75% and small shells, shell fragments and larger ssn shells.

END OF HOLE AT 17'

TEST BORE NO. 6.

Bore Serial No: 613/61.

Docket: 802/60

Location: Port Reach

Hundred: Yatala Section: 96

R.L. at Collar: 109.77

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant:

Driller: D. Phillips

Nominal Bore Diam: 4 ins.

Core Diam:

Total Depth: 16'

Date Commenced: 18/8/60

Date Completed: 18/8/60.

Logged by: P. Dunlop on 22/8/60

Depth From To		Description
0'	1'	Stiff mottled brown clays.
1'	2'	Stiff brown silty clay.
2'	3'	Dark grey silty clay, with abundant plant fibres.
3'	4'	Dark grey silt, with occasional (5%) shells and shell fragments.
4'	5'	Fine grained grey sand, with 5-10% small shell fragments.
5'	6'	F.g. grey sand to silt, with 5-10% " " "
6'	7'	F.g. grey calcareous sand " 5-10% " " "
7'	8'	F.g. grey calcareous sand, 10-25% small shell fragments.
8'	9'	ditto.
9'	10'	ditto.
10'	11'	ditto.
11'	12'	ditto.
12'	13'	ditto - 25% ⁺ small shell fragments.
13'	14'	Grey calcareous sand - 25-50% small shell fragments.
14'	15'	ditto. slightly clayey.
15'	16'	F.g. light grey calcareous sand 50% ⁺ small shell fragments.

END OF HOLE.

PERCUSSION TEST BORE NO 7

Bore Serial No: 662/61

Docket: 802/60

Location: Port Reach

River bed opp

Numbered: Yatala

Section: 926

R.L. of Datum 103.39

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: 10

Driller: W.D. Wilson

Nominal Bore Diam: 4"

Core Diam:

Total Depth: 10'

Date Commenced: 31/8/60

Date Completed: 31/8/60

Logged by: P. Dunlop on 6/9/60

Depth From To		Description
river bed.	2'	Shell bed - f.g. grey sand and shell fragments up to $\frac{1}{2}$ " diam. - probably 50% shell material.
2'	3'	f.g. grey sand with about 5% $\pm$ small shell fragments
3'	4'	f.g. grey silty sand (very soft) with 5% $\pm$ small shell fragments, occasional larger shells.
4'	5'	ditto
5'	6'	f.g. light grey sand, with 5% $\pm$ small shell fragments.
6'	7'	Shell bed f.g. light grey sand, with large shells and shell fragments - up to $\frac{1}{2}$ " diam.
7'	8'	ditto
8'	10'	f.g. light grey sand - 5% $\pm$ small shell fragments and occasional nodules limestone.

END OF BORE 10'

PERCUSSION TEST CORE NO. 2

Core Serial No. : 661/61

Docket : 302/60

Location : Port Reach

Hundred : Yatala Section : 97-98 boundary R.L. Datum : 108.28

Purpose : Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hirer : S.A. Harbours Board

Plant :

Driller : D. Phillips

Total Depth : 15'

Date Commenced : 31/3/60

Date Completed : 31/8/60

Logged by : P. Dunlop on 6/9/60

Depth From To		Description
0'	2'	Mottled brown silty clay.
2'	4'	Dark grey, slightly clayey, F.g. sand.
4'	6'	ditto
6'	8'	F.g. dark grey silty sand
8'	10'	F.g. grey sand
10'	12'	F.g. grey sand, with 5%+ small shells and shell fragments.
12'	14'	Calcareous grey sand (or sandy limestone) fairly abundant larger shells and high proportion of lime in fine sand.
14'	15'	Shell bed. 50%+ larger shells plus small shell fragments in siliceous sand.

END OF CORE 15'

PERCUSSION TEST BORE NO 9

Re Serial No: 663/61

Docket: 802/60

Location: Port Reach

Hundred: Yatala

Section: 97

R.L. at collar 109.54

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: 10

Driller: W. Wilson

Nominal Bore Diam: 4"

Core Diam:

Total Depth: 16'

Date Commenced: 1/9/60

Date Completed: 1/9/60

Logged by: P. Dunlop on 6/9/60

Depth From To		Description
0'	1'	Stiff mottled brown clay
1'	2'	Dark mottled brown and grey <u>humic clay</u> .
2'	5'	Dark grey silt, or clayey silt
5'	7'	f.g. grey sand, with 5% $\pm$ small shell fragments.
7'	9'	ditto
9'	10'	ditto, but with 10% small shell fragments.
10'	11'	Ditto, occasional larger fragments.
11'	12'	f.g. slightly silty grey sand, with 10% $\pm$ small shell fragments.
12'	13'	f.g. grey silty sand, with 10-25% small shell fragments.
13'	14'	grey slightly sandy silt, with 5% $\pm$ small shell fragments and occasional larger shells.
14'	15'	ditto
15'	16'	ditto, passing to travertine limestone layer.

END OF BORE 16'

PERCUSSION TEST BORE NO. 10

Bore Serial No: 661/60

Docket: 802/60

Location: Port Reach

River bed adj.

Hundred: Yatala

Section: 925

R.L. of Datum 103.71

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: Handboring

Driller: W.D. Wilson

Nominal Bore Diam. 4"

Core Diam:

Total Depth: 20' 11'

Date Commenced: 30/8/60

Date Completed: 30/8/60

Logged by: P. Dunlop on 6/9/60.

Depth		Description
From	To	
River bed	1'	Shell bed - Dark grey sand and 5% shell fragments and occasional shells.
1'	3'	ditto
3'	5'	ditto
5'	6'	ditto - through with slightly less shells
6'	7'	Light grey calcareous grit - 75% $\pm$ shell fragments and small shells
7'	8'	ditto - over 75% small shells and shell fragments
8'	9'	f.g. light grey sand - with 25-50% small shell fragments and calcareous sand
9'	11'	f.g. light grey sand, with approx 5% small shell fragments.

END OF BORE 11'

PERCUSSION TEST BORE NO. 11

Bore Serial No.: 567/61

Docket : 802/60

Location : Port Reach

Hundred : Yatala

Section : 99

R.L. at Datum : 110.16

Purpose : Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer : S.A. Harbours Board

Plant :

Driller :

Nominal Bore Diam. :

Core Diam. :

Total Depth :

Date Commenced : 1/9/60

Date Completed : 1/9/60

Logged by : P. Dunlop on 6/9/60

Depth		Description
From	To	
0'	2'	Stiff mottled brown clay
2'	3'	Dark brown clay, with abundant decomposed plant matter (humus)
3'	4'	ditto, passing to slightly clayey grey sand
4'	5'	F.G. dark grey sand with 5-10% small shell fragments
5'	7'	ditto, 10%± small shell fragments
7'	9'	ditto
9'	11'	ditto, occasional longer shell fragments
11'	13'	F.G. grey sand and silt (very soft) less than 5% small shell fragments
13'	15'	F.G. grey slightly salty sand. 5%± small shell fragments
15'	17'	ditto

END OF BORE 17'

PERCUSSION TEST BORE NO. 12

Bore Serial No. : 668/61

Docket : 802/60

Hundred : Yatala

Section : 99

R.L. Datum : 109.58

Purpose : Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclaiming of adjacent housing estates.

Hirer : S.A. Harbours Board.

Plant :

Driller : D. Phillips

Total Depth : 16'

Date Commenced : 1/9/60

Date Completed : 1/9/60

Logged by : P. Dunlop on 6/9/60

Depth From To		Description
0'	2'	Stiff mottled brown clay.
2'	4'	Dark brown sandy clay with abundant <u>decomposed plant</u> (humic) matter
4'	6'	F.G. dark grey sand
6'	8'	F.G. grey sand - occasional small shell fragments
8'	10'	F.G. light grey sand with 25% small shell fragments
10'	11'	ditto
11'	13'	Grey silty sand (rather soft) with up to 10% small shells and shell fragments
13'	14'	Calcareous grit. 75%± and small shells and shell fragments
14'	15'	Light grey calcareous silt or mud. 25%± siliceous sand or silt. Occasional lime nodules.
15'	16'	F.g. light grey silty sand, with about 10% small shell fragments.

END OF BORE 16'

PERCUSSION TEST BORE NO. 13.

Bore Serial No: 656/61

Docket: 802/60

Location: Port Reach

R.L. of Collar: 100.3 (ground)

Hundred: Yatala Section: Old Port Reach

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Handboring

Driller: W. Wilson

Nominal Bore Diam.: 4 in.

Core Diam.:

Total Depth: 8'.

Date Commenced: 23/8/60

Date Completed: 23/8/60.

Logged by: P. Dunlop on 31/8/60.

Depth		Description.
From	To	
River Bed	1'	Fine grained grey sand, with about 10% small shell fragments.
1'	2'	Shell bed - mixture of fine grained grey sand and silt, with 50% or more shell fragments up to $\frac{1}{2}$ inch diam. Also plentiful plant fibres.
2'	3'	Shell bed - 75% shells and shell fragments up to $\frac{1}{2}$ inch diameter, with remainder sand and silt and plant fibres
3'	4'	ditto.
4'	5'	Shell bed - over 75% shells and shell fragments larger proportion of calcareous fines.
5'	6'	Fine grained light grey calcareous sand. 50% or more of small shell fragments. Rest sand and silt.
6'	8'	ditto.

END OF BORE AT 8'.

PERCUSSION TEST BORE NO. 14

Bore Serial No: 603/61

Docket: 802/60

Location: Port Reach

Hundred: Yatala

Section: 99-100

R.L. at Collar: 109.74

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant:

Driller: D. Phillips

Nominal Bore Diam.:

Core Diam:

Total Depth: 17'

Date Commenced: 10/8/60

Date Completed: 12/8/60

Logged by: P. Dunlop on 15/8/60

Depth From To		Description
0'	1'	Stiff brown clay.
1'	2'	Sticky light brown clay.
2'	3'	Dark grey ("peaty") friable clay, with abundant plant fibres and small proportion of sand.
3'	4'	Ditto.
4'	5'	F.g. dark grey slightly clayey sand, some plant fibres present.
5'	6'	F.g. dark grey sand.
6'	7'	F.g. dark grey silty sand.
7'	8'	" " " " "
8'	9'	F.g. grey silty sand, with 5-10% calc. matter.
9'	10'	" " " " " 10-20% " " (small shell fragments)
10'	11'	Ditto.
11'	12'	Ditto.
12'	13'	Ditto.
13'	14'	Ditto.
14'	15'	Dark grey slightly clayey silty sand, with small shell fragments and plant fibres.
15'	16'	Ditto.
16'	16'6"	Grey f.g. silty sand, very little calc. matter.
16'6"	17'	Modular limestone layer with calcareous (50%) sand.

END OF BORE 17'

PERCUSSION TEST BORE NO. 15

Bore Serial NO: 602/61

Docket: 302/60

Location: Port Reach

Hundred: Yatala Section: 100 R.L. at Collar: 107.91

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant:

Driller: D. R. Phillips

Nominal Bore Diam:

Core Diam:

Total Depth: 14'

Date Commenced: 9/8/60

Date Completed: 9/8/60

Logged by: P. Dunlop on 15/8/60

Depth From To		Description
0'	1'	Dark brown to grey silty clay, with abundant plant matter.
1'	2'	Dark grey clayey silt.
2'	3'	Ditto.
3'	4'	Ditto with occasional small shell fragments.
4'	5'	Dark grey slightly clayey silt, with fairly frequent small shells and shell fragments (5-10%).
5'	6'	Ditto.
6'	7'	Ditto with up to 25% shell fragments.
7'	8'	F.g. grey silty sand, with up to 25% small shell fragment
8'	9'	" " " " " 10-25% " " "
9'	10'	Ditto.
10'	11'	F.g. light grey calcareous sand - 50%± shell fragments and lime nodules.
11'	12'	F.g. light grey sand. 5 -10% small shell fragments.
12'	13'	" " " " 10- 25% " " "
13'	14'	Light grey calcareous sand over 75% grit sized shell fragments - forms hard cake in bottom of sample tin.

END OF BORE 14'

Drilled by hand

PERCUSSION TEST BORE NO. 16

Bore Serial No. : 665/61

Docket No. : 802/60

Location : Port Reach

Hundred : Yatala

Section : 929

R.L. of Datum : 103.12

Purpose : Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hired : S. A. Harbours Board

Plant :

Driller : W. Wilson

Total Depth : 15'

Date Commenced : 30/8/60

Date Completed : 30/8/60

Logged by : P. Dunlop on 31/8/60

Depth From ' To		Description
0'	1'	Mottled brown silty clay, with small amount of plant fibres.
1'	2'	Gray sand - few plant fibres
2'	4'	F.g. gray slightly silty sand with 10%± medium to small size shell fragments.
4'	6'	ditto
6'	8'	F.g. gray sand - 5%± small shell fragments and some decomposed plant matter (humus)
8'	10'	F.g. Slightly silty grey sand 5%± small shell fragments
10'	12'	F.g. light grey silty sand - 10%± small shell fragments
12'	13'	F.g. light grey calcareous sand - 75%± CaCO ₃ - few visible shell fragments
13'	14'	ditto - slightly less calcareous material
14'	15'	ditto.

END OF BORE 15'

PERCUSSION TEST BORE NO. 17.

Bore Serial No: 648/61

Docket: 802/60

Location: Port Reach

R.L. of Collar: 109.47

Hundred: Yatala

Section: 100.

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: Handboring

Driller: D. Phillips

Nominal Bore Diam.: 4 in.

Core Diam.:

Total Depth: 16 ft.

Date Commenced: 23/8/60

Date Completed: 23/8/60.

Logged by: P. Dunlop on 26/8/60.

Depth From	To	Description
0'	1'	Stiff mottled brown clay.
1'	2'	ditto.
2'	3'	Dark brown sandy clay with abundant <u>plant matter</u> .
3'	4'	ditto - slightly sandy.
4'	5'	Dark grey sandy clay, with abundant <u>plant fibres</u> .
5'	6'	ditto, passing to fine grained dark grey sand.
6'	7'	Fine grained dark grey sand to silt, slightly clayey, with occasional decomposed <u>plant remains</u> .
7'	8'	Fine grained dark grey sand to silt.
8'	9'	ditto.
9'	11'	F.g. grey sand to silt, with 5-10% small shell fragments and calcareous material.
11'	12'	F.g. mottled grey sand to silt, with 5-10% small shell fragments and occasional small lime nodules.
12'	13'	Cream nodular limestone and lime sand. Probably 25%± siliceous sand.
13'	14'	Cream coloured, light grey lime sand - occasional lime nodules. 50%± fine grained siliceous sand.
14'	15'	ditto.
15'	16'	Light grey calcareous sand - up to 50% small shells and shell fragments. Occasional larger shells.

END OF HOLE AT 16'.

PERCUSSION TEST BORE NO. 18.

Bore Serial No: 656/61

Docket: 802/60

Location: Port Reach

R.L. at Collar: 108.04

Hundred: Yatala

Section: 929.

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Handboring

Driller: W. Wilson

Nominal Bore Diam.: 4 in.

Core Diam.:

Total Depth: 15'.

Date Commenced: 23/8/60

Date Completed: 23/8/60.

Logged by: P. Dunlop on 31/8/60.

Depth From To		Description
0'	1'	Fine grained light brown sand, with few plant fibres.
1'	2'	F.g. pale brown sand.
2'	3'	F.g. pale brown to grey sand.
3'	4'	F.g. grey sand.
4'	5'	F.g. slightly silty grey sand.
5'	6'	ditto.
6'	7'	ditto - light grey.
7'	8'	ditto - light grey.
8'	9'	F.g. grey sand with 10% shell fragments and occasional lime nodules.
9'	10'	ditto - but no nodules.
10'	11'	ditto - slightly silty.
11'	12'	ditto.
12'	13'	ditto.
13'	14'	ditto.
14'	15'	ditto.

END OF HOLE AT 15'.

PERCUSSION TEST BORE NO. 12.

Bore Serial No: 651/61

Docket: 802/60

Location: Port Reach

Hundred: Yatala

Section: 102

R.L. of Collar: 110.36

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Handboring

Driller: D. Phillips

Nominal Bore Diam: 4 in.

Core Diam:

Total Depth: 17 ft.

Date Commenced: 26/8/60

Date Completed: 26/8/60

Logged by: P. Dunlop on 31/8/60.

Depth		Description
From	To	
0	1'	Stiff light brown clay.
1'	2'	Sticky " " "
2'	3'	Sticky dark grey sandy clay.
3'	4'	ditto.
4'	5'	Dark grey, slightly clayey sand.
5'	6'	F.g. slightly silty dark grey sand.
6'	7'	ditto.
7'	9'	ditto.
9'	11'	F.g. slightly silty grey sand - 5% [±] small shell fragments.
11'	13'	ditto - 10% [±] small shell fragments.
13'	14'	Light grey nodular limestone - 75% [±] CaCO ₃ .
14'	15'	ditto.
15'	16'	ditto.
16'	17'	ditto.

END OF HOLE AT 17'.

PERCUSSION TEST BORE 20

Bore Serial No: 660/61

Docket: 802/60

Location: Port Reach

Hundred: Yatala

Section: 928

R.L. at Datum: 108.22

Purchase: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: 10

Driller: W.D. Wilson

Nominal Bore Diam:

Core Diam:

Total Depth: 15'

Date Commenced: 29/8/60

Date Completed: 29/8/60

Logged by: P. Dunlop on 31/8/60

0'	1'	Sticky brown clay, with abundant <u>plant fibres</u>
1'	2'	f.g. grey sand
2'	4'	f.g. silty grey sand with 25% large shell fragments (shell bed)
4'	5'	f.g. grey clayey sand and silt with 5% $\pm$ shell fragments.
5'	6'	Shell bed - over 75% large shells & shell fragments.
6'	7'	f.g. grey sand, with 25-50% large shells and smaller shell fragments.
7'	8'	ditto
8'	9'	f.g. grey silty sand, with 25% $\pm$ small shell fragments
9'	10'	ditto - but including larger shells and limestone nodules.
10'	12'	f.g. grey slightly silty sand with 25% small shell fragments.
12'	13'	f.g. grey slightly silty sand with 10-25% small shell fragments.
13'	15'	ditto.

END OF BORE 15'

PERCUSSION TEST BORE NO. 21.

Bore Serial No: 659/61.

Docket: 802/60.

Location: Port Reach

Hundred: Yatala

Section: 928

R.L. at Collar: 105.58

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S. A. Harbours Board.

Plant: Handboring

Driller: W. Wilson

Nominal Bore Diam.: 4 in.

Core Diam.:

Total Depth: 12 ft.

Date Commenced: 26/8/60

Date Completed: 26/8/60.

Logged by: P. Dunlop on 31/8/60.

Depth from to		Description.
River Bed	2'	Fine grained dark grey sand 5% [±] small shells and shell fragments.
2'	4'	F.g. grey sand, slightly silty with 25% [±] small shells and shell fragments.
4'	5'	Greenish-grey silt, with 5% [±] shell fragments.
5'	6'	ditto.
6'	7'	Greenish grey silt and f.g. sand - with 5% [±] shell fragments.
7'	8'	F.g. grey silty sand, with 10% [±] small shells and shell fragments.
8'	9'	Calcareous sand - 75% [±] shells and shell fragments up to ½" diameter.
9'	10'	F.g. grey sand, 50% [±] shells and shell fragments.
10'	11'	ditto.
11'	12'	ditto.

END OF BORE 12'.

PERCUSSION TEST BORE NO 22

Bore Serial No: 664/61.

Docket: 802/60

Location: Port Reach

Hundred: Yatala

Section: 928

R.L. of Collar: 109.16

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A.Harbours Board

Plant: 10

Driller: W. Wilson

Nominal Bore Diam: 4"

Core Diam:

Total Depth: 16'

Date Commenced: 29/8/60

Date Completed: 29/8/60

Logged by: F. Dunlop on 31/8/60

Depth From To		Description
0'	1'	Mottled light brown sticky clay with plant remains.
1'	2'	Dark grey silty clay
2'	3'	" " " "
3'	4'	Slightly clayey f.g. grey sand.
4'	6'	Ditto, with small amount of plant fibres throughout.
6'	7'	f.g. silty grey sand, with abundant <u>plant fibre</u> from decayed vegetable matter.
7'	9'	ditto
9'	11'	ditto, passing to f.g. light grey sand
11'	12'	f.g. light grey sand.
12'	13'	ditto, with 10% $\pm$ small shells and shell fragments.
13'	14'	ditto
14'	15'	ditto
15'	16'	ditto.

END OF BORE 16'

TEST BORE NO. 23.

Bore Serial No: 606/61.

Docket: 802/60

Location: Port Reach

Hundred: Yatala Section: 105. R.L. at Collar: 110.17

Purpose: Sampling of soil prior to dredging of Upper
Port Reach Tidal Basin for reclamation of
adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: No. 10.

Driller: W. D. Wilson

Nominal Bore Diam: 4 in.

Core Diam:

Total Depth: 20'

Date Commenced: 10/8/60

Date Completed: 15/8/60.

Logged by: P. Dunlop on 22/8/60.

Depth From	To	Description
0'	1'	Stiff mottled brown clay.
1'	2'	ditto.
2'	3'	ditto - passing to grey clayey sand.
3'	4'	Sticky brown slightly sandy clay - very wet.
4'	5'	Fine grained grey sand (or silt).
5'	6'	ditto.
6'	7'	Fine grey silt.
7'	8'	ditto.
8'	10'	Fine grained grey sand - with small (5-10%) proportion small shell fragments and lime.
10'	11'	F.g. grey sand with up to 25% shell fragments - a few larger ($\frac{1}{2}$ " shell fragments present.
11'	13'	ditto.
13'	14'	ditto.
14'	15'	ditto - with occasional nodules travertine limestone.
15'	16'	Grey calcareous silt - up to 50% calcareous material, and small proportion grey clay. Sample very soft when wet.
16'	17'	F.g. grey calcareous sand up to 50% small shell fragments plus frequent lime nodules. (Sample sets hard in sample tin.)
17'	18'	ditto - but somewhat less (25-50%) shell fragments (no nodules).
18'	19'	ditto - 25% shell fragments - no lime nodules.
19'	20'	F.g. grey sand with 10-25% small shell fragments.

END OF HOLE.

PERCUSSION TEST BORE NO. 24

Bore Serial No: 605/61

Docket: 802/60

Location: Port Reach

Hundred: Yatala

Section: 105

R.L. at Collar: 109.95

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant:

Driller: W. D. Wilson

Nominal Bore Diam:

Core Diam:

Total Depth: 20'

Date Commenced: 10/8/60

Date Completed: 10/8/60

Logged by: F. Dunlop on 15/8/60

Depth From' To		Description
0'	1'	Stiff dark brown silty clay.
1'	2'	Brown-dark brown stiff silty clay.
2'	3'	Brown silty clay to f.g. grey to brown clayey sand.
3'	4'	Brown f.g. clayey sand to sandy clay.
4'	6'	Dark grey f.g. clayey sand and silt.
6'	7'	" " " " " " "
7'	9'	F.g. grey sand and silt, slightly calcareous (5% visible calc. matter)
9'	11'	F.g. grey sand and silt, slightly calcareous, occasional small lime nodules and shells.
11'	13'	F.g. grey sand, slightly calcareous (5%+ calc matter, occ. lime nodules).
13'	14'	F.g. grey sand, slightly calcareous (5-10% calc. matter).
14'	15'	F.g. grey silty sand, slightly calcareous (5-10% calc. matter).
15'	16'	F.g. grey silty sand, slightly calcareous.
16'	18'	" " " " " "
18'	19'	" " " " " "
19'	20'	" " " " " "

END OF BORE 20'

PERCUSSION TEST BORE NO. 25.

Bore Serial No: 650/61

Docket: 802/60

Location: Port Reach

R.L. of Collar: 110.42

Hundred: Yatala

Section: 106.

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: Handboring

Driller: D. Phillips

Nominal Bore Diam.: 4 in.

Core Diam.:

Total Depth: 17 ft.

Date Commenced: 25/8/60

Date Completed: 25/8/60

Logged by: P. Dunlop on 26/8/60.

Depth From	To	Description
0'	1'	Mottled stiff brown clay.
1'	2'	ditto.
2'	3'	ditto - passing to brown sandy clay.
3'	4'	F.g. grey brown clayey sand to sandy clay.
4'	5'	F.g. dark grey sand, grading to silt.
5'	6'	Ditto.
6'	7'	Ditto.
7'	9'	Ditto.
9'	11'	Ditto.
11'	13'	F.g. grey sand, grading to silt. Small (less than 5%) calcareous material.
13'	14'	F.g. grey sand. 5-10% small shells and shell fragments.
14'	15'	Light grey calcareous sand, with 50-75% calcareous matter and lime nodules.
15'	16'	F.g. cream coloured calcareous sand - 50% [±] very fine grained calcareous material.
16'	17'	Lime nodules and fine grained cream coloured calcareous sand (75% calcareous material).

END OF HOLE AT 17'.

PERCUSSION TEST BORE NO. 26

Bore Serial No: 658/61

Docket: 802/60

Location: Port Reach

R.L. At Collar: 108.49

Hundred: Yatala

Section: 106

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Handboring

Driller: D. Phillips

Nominal Bore Diam: 4 in.

Core Diam.

Total Depth: 15ft.

Date Commenced: 25/8/60

Date Completed: 25/8/60

Logged by: P. Dunlop on 31/8/60

Depth		Description
From	To.	
0'	1'	Stiff brown clay
1'	2'	ditto, passing to Fine grained grey sand
2'	3'	Fine Grained grey silty sand, with 5% [±] small shell fragments.
3'	4'6"	Dark grey silt, with 5% [±] small shell fragments.
4'6"	5'	F.g. grey calcareous sand 25% [±] small shell fragments
5'	6'	ditto
6'	7'	ditto - somewhat silty
7'	8'	ditto
8'	9'	ditto
9'	10'	ditto - with increasing proportion of CaCO ₃ in fines.
10'	12	ditto
12	13	ditto
13	14	F.g. grey sand with up to 50% shell fragments and larger shells.
14	15	F.g. calcareous sand. 50% [±] small shell fragments.

END OF HOLE AT 15'

PERCUSSION TEST BORE NO. 27.

Bore Serial No: 649/61

Docket: 802/60

Location: Port Reach

R.L. at Collar: 109.22

Hundred: Yatala

Section: 107

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Handboring

Driller: D. Phillips

Nominal Bore Diam.: 4 in.

Core Diam.:

Total Depth: 17 ft.

Date Commenced: 24/8/60

Date Completed: 24/8/60.

Logged by: P. Dunlop on 26/8/60.

Depth		Description
From	To	
0'	1'	Dark grey brown sticky clay.
1'	2'	Mottled brown sticky clay.
2'	3'	Sticky mottled brown clay to sandy clay.
3'	4'	Fine grained grey clayey sand to sandy clay, with some plant fibres.
4'	5'	F.g. grey sand.
5'	6'	F.g. dark grey sand.
6'	7'	F.g. mottled grey sand.
7'	8'	F.g. light grey sand.
8'	9'	F.g. grey sand.
9'	11'	F.g. grey sand grading to silt, small (less than 5%) proportion calcareous material.
11'	12'	F.g. grey sand to silt - 5% ⁺ small shell fragments.
12'	13'	Light grey calcareous sand, 50% ⁺ small shells and shell fragments.
13'	15'	ditto - no larger shells.
15'	17'	ditto with occasional lumps of limestone, and larger shells.

END OF HOLE AT 17'.

PERCUSSION TEST BORE NO.23.

Docket: 802/60

Bore Serial No: 657/61

R.L. at Collar: 109.42

Location: Port Reach

Hundred: Yatala

Section:107

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Handboring

Driller: D. Phillips.

Total Depth: 16'

Nominal Bore diam.:4"

Core Diam:

Date Commenced: 23/8/60

Date Completed: 24/8/60

Logged by P. Dunlop on 26/8/60

Depth		Description
From	To.	
Surf.	1'	Stiff brown clay
1'	2'	Dark grey-brown clayey sand
2'	3'	Dark grey fine grained slightly clayey sand
3'	4'	Fine grained dark grey sand and silt, slightly clayey.
4'	5'	F.g. grey silty sand.
5'	7'	ditto - with less than 5% small shell fragments.
7'	8'	F.g. grey sand with limestone nodules and 10%+ small shell fragments.
8'	9'	F.g. grey silty sand, with 10% small shell fragments.
9'	10'	ditto.
10'	11'	ditto - with a few larger shell fragments.
11'	12'	ditto
12'	13'	ditto
13'	14'	ditto - but no large shell fragments.
14'	16'	ditto

END OF HOLE AT 16'

PERCUSSION TEST BORE NO. 29

Bore Serial No: 604/61

Docket: 802/60

Location: Port Reach

Hundred: Yatala Section: 107 R.L. at Collar: 110.58

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant:

Driller: W. D. Wilson

Nominal Bore Diam.

Core Diam:

Total Depth: 20'

Date Commenced: 5/8/60

Date Completed: 8/8/60

Logged by: P. Dunlop on 11/8/60

Depth From To		Description
0'	1'	Stiff brown clay.
1'	2'	Stiff brown clay passing to fine grained light grey sand.
2'	3'	F.g. light grey sand to sticky brown clay.
3'	5'	F.g. brown clayey sand.
5'	7'	F.g. grey sand to silt.
7'	8'	Grey clayey silt to sticky brown clay.
8'	9'	Grey silt, with 5%± small shell fragments.
9'	10'	" " " " " " "
10'	11'	" " " 10%± " " "
11'	12'	" " " " " " "
12'	14'	Light grey silt with 25%± small shell fragments.
14'	16'	Light grey sand, 50%± small shell fragments.
16'	17'	Light grey shelly sand, over 50% shells and shell fragments.
17'	18'	F.g. light grey sand, over 50% shell fragments.
18'	20'	" " " " " " "

END OF BORE 20'

PERCUSSION TEST BORE NO. 30

Bore Serial No: 592/61.

Docket: 802/60.

Location: Port Reach.

Hundred: Yatala

Section: 107

R.L. at Collar: 110.14

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin, for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: Percussion No. 10.

Driller: W.D. Wilson

Nominal Bore Diameter: 4 inch.

Core Diameter:

Total Depth: 20 ft.

Date Commenced: 4/8/60

Date Completed: 5/8/60

Logged by: P. Dunlop

<u>Depth</u>		<u>Description</u>
<u>From</u>	<u>to</u>	
0	1	Stiff brown clay.
1	2	Sticky brown clay passing to fine grained grey sand.
2	4	Light grey clayey silt. Saturated.
4	5	Fine grained light grey sand. Saturated.
5	7	Dark grey clayey silt, with 10%± calcareous matter.
7	8	Grey clayey silt - 25%± calcareous fragments.
8	9	" " " " " "
9	10	Light grey clayey silt - 25%± calcareous fragments.
10	12	Light grey clayey silt with abundant (up to 50%) calcareous fragments.
12	13	Light grey clayey silt " " (" " 50%) calcareous fragments.
13	15	Light grey silt with 10%± calcareous fragments.
15	16	" " " " " "
16	17	" " " " " "
17	18	" " " " " "
18	19	" " " " " "
19	20	" " " " " "

END OF BORE.

PERCUSSION TEST BORE NO. 31

Bore Serial No: 591/61

Docket: 1021/60

Location: Port Reach

Hundred: Yatala

Section: 103

R.L. at Collar: 110.60

Purpose: Sampling of soil prior to dredging of Upper Port Reach Tidal Basin for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board

Plant: 10

Driller: W. D. Wilson

Nominal Bore Diam.: 4"

Core Diam:

Total Depth: 20'

Date Commenced: 4/8/60

Date Completed: 4/8/60

Logged by: P. Dunlop on 11/8/60

Depth From' To		Description
0'	1'	Stiff brown clay.
1'	2'	Stiff brown clay passing to light grey sand.
2'	3'	Light brown fine grained sand, slightly calcareous.
3'	4'	Light brown slightly clayey f.g. sand, slightly calc.
4'	5'	F.g. light grey sand, slightly calcareous (less than 5%).
5'	6'	" " " " " "
6'	7'	F.g. grey sand, slightly calcareous.
7'	8'	" " "
8'	9'	F.g. grey sand, 5-10% est. calcareous fragments.
9'	11'	F.g. grey sand, 10-25% est. small shell fragments.
11'	12'	" " " " " " " "
12'	13'	F.g. grey sand to silt, 10-25%." " "
13'	14'	Grey silt, f.g. sand, 10-25% " " "
14'	15'	" " " " 25% " " "
15'	16'	" " " " " " " with occ. lime nodules.
16'	17'	Grey silt, f.g. sand. 25% no nodules.
17'	18'	" " " " 25%+ small shell fragments.
18'	19'	" " " " "
19'	20'	" " " " "

END OF BORE 20'

PERCUSSION TEST BORE NO. 32

Bore Serial No: 590/61

Docket: 802/60

Location: Upper Port Reach

Hundred: Yatala

Section: 108

R.L. at Collar: 112.94

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin, for reclamation of adjacent housing estates.

Hirer: S. A. Harbours Board

Plant: Percussion No. 10.

Driller: W.D. Wilson

Nominal Bore Diameter: 4 inch.

Core Diameter:

Total Depth: 20 ft.

Date Commenced: 2/8/60

Date Completed: 3/8/60

Logged by: P. Dunlop

<u>Depth</u>		<u>Description</u>
<u>From</u>	<u>To</u>	
0	1	Fine brown sand - (dry).
1	2	Fine light brown sand (dry).
2	3	Fine light brown sand, passing to stiff dark brown clay.
3	4	Dark grey to buff coloured clay.
4	6	Fine light grey sand - saturated.
6	8	" " " " - "
8	10	" " " " - "
10	11	Fine grained light grey sand, with about 5% calcareous fragments.
11	12	Fine grained " " " " " 10% "
12	14	Fine grained light grey sand, with abundant calcareous matter, shell fragments and occasional lime nodules.
14	16	Fine grained light grey sand, with small (5-10%) calcareous fragments.
16	18	Fine grained light grey sand, with abundant (25%) shell fragments and small lime nodules.
18	20	Fine grey silt, with fairly abundant shell fragments and small lime nodules.

END OF BORE.

PERCUSSION TEST BORE NO. 33.

Bore Serial No: 589/61.

Docket: 802/60

Location: Upper Port Reach

Hundred: Yatala Section: 484 R.L. at Collar: 109.64

Purpose: Sampling of soil prior to dredging of Upper Port Reach
Tidal Basin, for reclamation of adjacent housing estates.

Hirer: S.A. Harbours Board.

Plant: Percussion No. 10.

Driller: W. D. Wilson

Nominal Bore Diameter: 4 inch.

Core Diameter:

Total Depth: 20 ft.

Date Commenced: 1/8/60

Date Completed: 2/8/60.

Logged by: P. Dunlop

Depth From To		Description
0'	1'	Sticky dark brown clay.
1'	2	" " " "
2	3	Slightly sandy dark brown clay.
3	4	" " " grey "
4	7	Dark grey slightly clayey fine sand.
7	7'6"	Fine grained cream calcareous sandstone to nodular limestone.
7'6"	8	Fine grained cream calcareous sand.
8	9	Fine grained light grey sand - slightly calcareous.
9	10	Fine grained light grey sand with 25-50% shell fragments and occasional lime nodules.
10	11	Fine grained light grey sand with 5-10% calcareous matter.
11	13	Fine grained " " " " 10-20% " matter.
13	17	" " " " " " " "
17	19	" " " " " " 5-10% " "
19	20	" " " " " " " " occasional larger shell fragments.

END OF BORE.

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

METALLURGICAL SECTION

SCREEN SIZING

Sample No. P476/60

Test No. Bore 31, 2' -- 17'

Locality: S.A. Harbors Board,
Upper Port Reach.

Tested by: A.S.

Submitted by: P. Dunlop.

Date: 7/9/60.

Mesh B.S.S.	Nominal Opening Inches.	Weight Percent	Cumulative Weight Percent.
	+1/2		
	+3/8		
	+1/4		
	+3/16		
+5	0.1320	0.2	0.2
+7	0.0949	0.2	0.4
+10	0.0660	0.3	0.7
+14	0.0474	0.4	1.1
+18	0.0336	0.6	1.7
+25	0.0236	0.7	2.4
+36	0.0166	2.1	4.5
+52	0.0116	8.2	12.7
+72	0.0083	26.5	39.2
+100	0.0060	29.1	68.3
+150	0.0041	15.4	83.7
+200	0.0030	7.1	90.8
+300		1.4	92.2
-300		7.8	100.0

D. W. Read,
CHIEF METALLURGIST.

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

METALLURGICAL SECTION

SCREEN SIZING.

Sample No. P. 474/60

Locality: S.A. Harbors Board,
Upper Port Reach

Submitted by: P. Dunlop

Test No. Bore 23,
4' - 17'.

Tested by: A.S.

Date: 7.9.60.

Mesh B.S.S.	Nominal Opening Inches.	Weight Percent	Cumulative Weight Percent.
	+1/2		
	+3/8		
	+1/4		
	+3/16		
+9	0.1320	1.5	1.5
+7	0.0949	0.4	1.9
+10	0.0660	0.5	2.4
+14	0.0474	0.5	2.9
+18	0.0336	0.8	3.7
+25	0.0236	0.7	4.4
+36	0.0166	2.3	6.7
+52	0.0116	5.4	12.1
+72	0.0083	20.1	32.2
+100	0.0060	31.8	64.0
+150	0.0041	16.0	80.0
+200	0.0030	9.2	89.2
+300	0.0021	2.3	91.5
-300		8.5	100.0

D. W. Read,
CHIEF METALLURGIST.

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES.

METALLURGICAL SECTION

SCREEN SIZING.

Sample No. P.474/60.

Test No. Bore 18, 0' - 18'

Locality: S.A. Harbors Board,
Upper Port Reach.

Tested by A.S. Date, 7.9.60.

Submitted by: P.R.G. Dunlop.

Mesh B.S.S.	Nominal Opening Inches.	Weight Percent	Cumulative Weight Percent.
	+1/2		
	+3/8		
	+1/4		
	+3/16		
+5	0.1320	1.4	1.4
+7	0.0949	0.6	2.0
+10	0.0660	0.6	2.6
+14	0.0474	0.4	3.0
+18	0.0336	0.6	3.6
+25	0.0236	0.8	4.4
+36	0.0166	2.6	7.0
+52	0.0116	10.3	17.3
+72	0.0083	37.4	54.7
+100	0.0060	23.2	77.9
+150	0.0041	10.6	88.5
+200	0.0030	6.1	94.6
+300	0.0021	0.7	95.3
-300		4.7	100.0

D. W. Read,

CHIEF METALLURGIST.

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

METALLURGICAL SECTION

SCREEN SIZING

Sample No. P.487/60

Locality: S.A. Harbours Board,
Upper Port Reach

Submitted by: P. Dunlop

Test Bore: Bore 9,
2' - 16'.

Tested by: A.S.

Date: 16/9/60

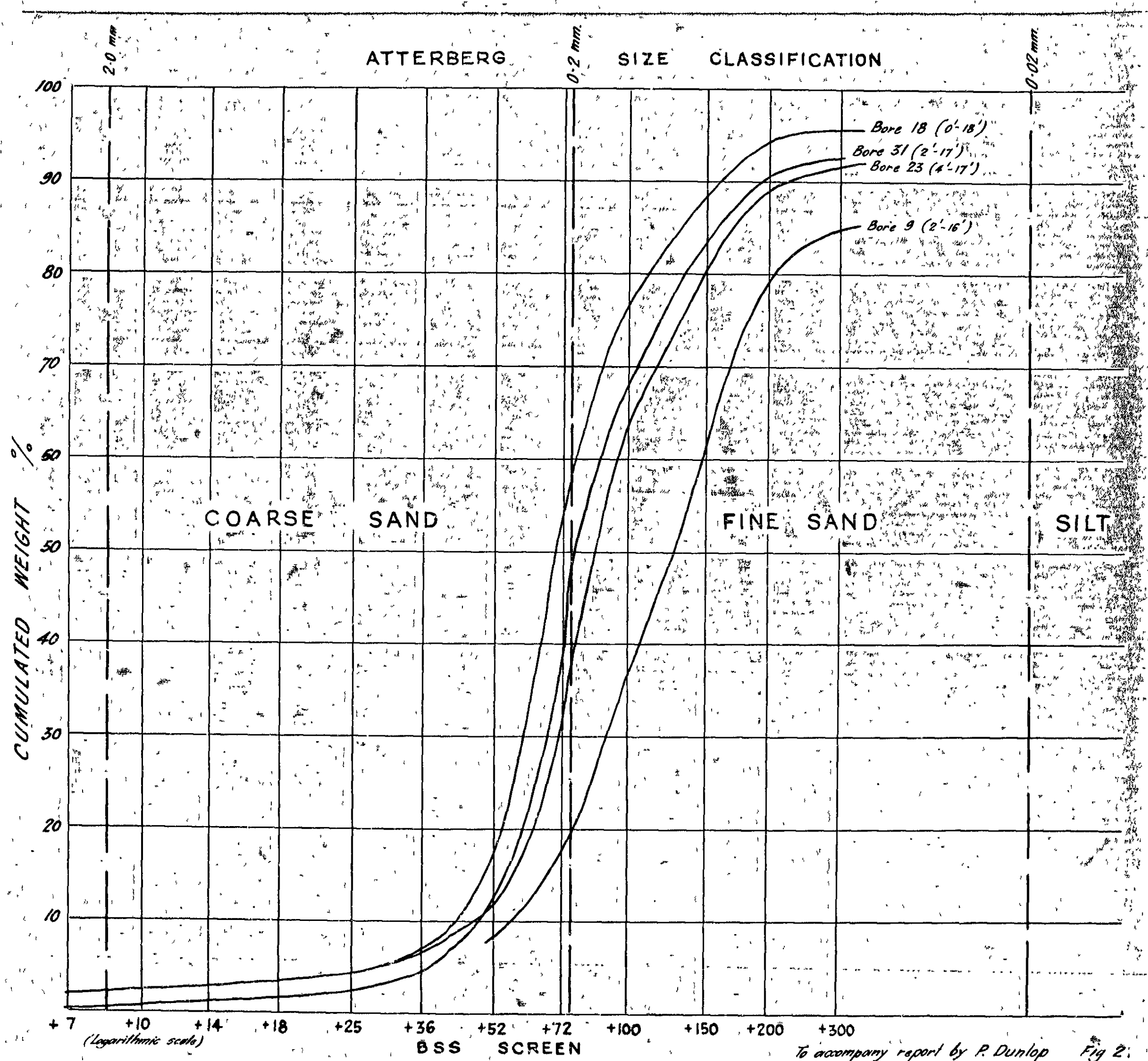
Mesh B.S.S.	Nominal Opening Inches.	Weight Percent.	Cumulative Weight Percent.
	+1/2		
	+3/8		
	+1/4		
	+3/16		
+5	0.1320		
+7	0.0949		
+10	0.0660		
+14	0.0474		
+18	0.0336		
+25	0.0236		
+36	0.0166		
+52	0.0116	8.3	8.3
+72	0.0083	9.9	18.2
+100	0.0060	18.4	36.6
+150	0.0041	24.2	60.8
+200	0.0030	18.4	79.2
+300		5.1	84.3
-300		15.7	100.0

+52 mesh fractions;- mainly fine shell fragments and organic matter. Approximately 1% shell fragments larger than $\frac{1}{4}$ ".

Other fractions sand particles but containing organic matter.

-300 mesh Dark grey material - silty nature.

D. W. Read,
CHIEF METALLURGIST.



To accompany report by P. Dunlop Fig 2.

S.A. DEPARTMENT OF MINES

S. A. HARBOURS BOARD
UPPER PORT REACH - SOIL INVESTIGATION
CUMULATIVE CURVES
SANDS OF BORES 9, 18, 23 & 31.

Approved

Passed

Scale :

Drn.

Tcd.

Ckd.

Exd.

60-548

Date 27 9 60 Ha 1

Director

Amendment

Exd.

Date

No.