

DEPARTMENT OF MINES

SOUTH AUSTRALIA

Report on

TEST DRILLING OF TERTIARY SAND DEPOSIT

SECTION 366, HD. WILLUNGA CO. ADELAIDE

(J. Albert)

by

J. G. Olliver
Student Geologist

MINERAL RESOURCES SECTION

GEOLOGICAL SURVEY

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Map No.

Title

Scale

59-425

Tertiary Sand Deposit, Hd. Willunga
Section 366 (J. Albert)

1 inch=100 ft.

Rept. No. 49/192

G.S. 1581

D.M. 2102/59

22nd December, 1959

Department of Mines
South Australia

Report on

TEST DRILLING OF TERTIARY SAND DEPOSIT

SECTION 366, HD. WILLUNGA CO. ADELAIDE

(J. Albert)

1. ABSTRACT

The area tested contains sands of Tertiary age overlain by a thin veneer of Recent material. The probable reserves within this area are a quarter million cubic yards; the possible reserves are three-quarter million cubic yards. The sands are finer B.S.S. 382 for concrete fine aggregate but more suitable for brickwork and masonry according to B.S.S. 1200.

2. LOCATION

The deposit occurs in Section 366, Hundred of Willunga, County of Adelaide; about 5 miles W.S.W. of the township of Noarlunga, within half a mile of the coast and east of the Noarlunga Sand Deposit.

3. INTRODUCTION

At the request of J. Albert, 13 machine auger holes were drilled between the 25th and 27th of November, to test an occurrence of sand within Section 366. These holes were logged by L. G. Nixon on the 26th November and the writer on the 1st December, 1959. On the 2nd and 4th December, the holes were surveyed and sufficient data obtained to prepare a sketch map of the area. Five samples of sand were collected and submitted for sieve analysis. Driller's logs of drill-holes sunk in the area as part of the geophysical seismic survey of the Willunga basin are appended to this report.

Previous Reports: -

Miles, K.R. - Noarlunga Sand Deposit

Mining Review 81, pp. 85-89, (1944)

Reynolds, M.A. - The Cainozoic Succession of Haslin and Aldinga Bays. S.A.

4. GEOLOGY

Regional

The deposit forms a low hill, running approximately N-S, which has a maximum height of about 250 feet above sea-level. The entire section is covered by a thin layer of Recent sediments underlain by Tertiary sands. The bedrock in the area includes Marinoan slates found at a depth of 75 feet in the geophysical hole W.D. 14580. Since there is no other indication of bedrock in the area the bottom of the basin is presumed to be uneven causing lensing and uneven bedding in the Tertiary sands.

Tertiary

The Tertiary sands are white and various shades of yellow-brown to a deep red-brown. Grain size and the amount of sorting varies both vertically and laterally with occasional clay lenses as well as more gravelly bands. There appears to be a general coarsening with depth. Due to the proximity of the bedrock the sands are suggested to be basal Tertiary of the North Maslin type.

Recent

The Recent sediments, consisting of brown loam underlain by intermittent kunkar layers, occur on the surface throughout the section to a maximum depth of 8 feet.

Structure

According to K. R. Hiles, the sand beds in the Noarlunga Sand Deposit dip gently ($4-5^{\circ}$) eastwards. M. A. Reynolds estimates the true dip of the sands in the quarry to be $7\frac{1}{2}^{\circ}$ in a direction of 201° , but that this flattens to 2° southwards along the coast. From the Echunga regional map the beds strike approximately N.E. and dip gently S.E.

In the Noarlunga quarry, the North Maslin sands occur on the surface, at sea level; they reappear near the surface,

half a mile to the east, in Section 366, 200 feet above sea level. Since folding is unknown in the Willunga Basin, this may be due to the uneven nature of the bedrock. However if the dip is reasonably constant from the coast to Section 366, then a north-trending fault could be postulated. The only faults found in the area by Reynolds are two series of minor faults on the coast, south of Port Willunga. There is no evidence of faulting near Blanche Point, but Reynolds discovered "prominent fracture lines" with a north-south strike. Since the faults are estimated to be pre-Pleistocene evidence of their existence may be obscured by Recent sediments.

5. DRILLING

(1) Machine auger holes

Thirteen drill-hole sites were selected by J. Albert in the northern portion of the section to test for the presence of sand. The first four holes were drilled to 40 feet. The remainder were stopped at a depth sufficient to establish overburden and the presence of sand. The sites of the holes and the corresponding depths are indicated on the accompanying map. The geological logs of these holes are given in Appendix I.

(11) Geophysical drill-holes

These holes give some indication of the discontinuous nature of the sand layers. Two holes on the northern boundary of section 366 indicate the presence of poorly sorted sand with coarser layers and lenses of clay to a depth of 125 feet.

6. RESERVES

(1) Probable Reserves

Probable reserves within the area outlined are estimated to be about one quarter million cubic yards. This value is based on a nearly level floor from drill hole No. 5 to a maximum depth of 40 feet outlined by drill holes 1, 2 3 and 4.

(ii) Possible Reserves

Within the area outlined allowing for a 60° slope on the faces and a gradient of 1 in 12 from drill-hole No. 5 the possible reserves are expected to be in excess of three-quarters of a million cubic yards.

7. SIEVING RESULTS

Reproduced below are the gradings of the five sand samples taken from the drill holes. The Maslin Beach sands from the Noarlunga Sand Deposit are drawn as a reference.

The samples submitted for analysis were:-

- (1) Drill-hole No. 1 from 8 to 34 feet
- (2) " " No. 2 from 4 to 40 feet
- (3) " " No. 3 from 8 to 40 feet
- (4) " " No. 4 from 8 to 40 feet
- (5) " " Nos 6 to 13 - composite sample.

8. CONCLUSIONS

The sediments within the area tested are sands of Tertiary age overlain by Recent kunkar and loam. The sands are poorly sorted, with coarse layers becoming more common at a depth of 40 feet. Bedrock occurs at 75 feet in the drill-hole W.D. 14580 on the road just east of section 366.

Sieve analysis suggests that the sand is finer than B.S.S. 882 for concrete fine aggregate but more suitable for masonry and brickwork (B.S.S. 1200). However these results refer only to a depth of 40 feet, below this the grading of the sand may change appreciably.

The probable reserves of sand in the area tested are about a quarter million cubic yards and the possible reserves about three-quarters of a million cubic yards.

From the geophysical data and the nature of the surrounding regions there appears to be considerable sand potential in the area.



J. G. OLLIVER
STUDENT GEOLOGIST

LOG OF MACHINE AUGER BORE HOLE NO. 1

F.105/

Project: Sand Deposit J. ALBERT 697036601 D.M. -2102/59

Sec. 366 Hd. Willunga Co. Adelaide Hole Ser. No. -

Collar Co-ords R.L. Grid -

Direction Angle Vertical Depth 40' Plan Ref.

Date Hole Commenced 25.11.59 Completed 25.11.59 Driller J. Garrick

Hole Logged by L.G. Nixon On. 26.11.59 Hirer J. Albert

OBJECT: To test the sand to a depth of 40'

RESULT: Sand from 2 to 40'

LOG Comprises - Geological Log.

Depth		LOG
From	To	
Ft. Ins.	Ft. Ins.	
0	2	Dark brown loam
2	8	Coarse poorly sorted pink-brown calcareous sand.
8	26	Light yellow-brown poorly sorted gravelly sand.
26	40	Orange-brown poorly sorted gravelly sand, slightly coarser with depth.

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LOG OF MACHINE AUGER. BORE HOLE NO. 2.

2102/59

Project: Sand Deposit J. ALBERT D.M. -
Sec. 366 Hd. WILLUNGA Co. ADELAIDE Hole Ser. No. -
Collar Co-ords R.L. Grid -
Direction Angle VERTICAL Depth 40' Plan Ref.
Date Hole Commenced 25.11.59 Completed 25.11.59 Driller J. GARRICK
Hole Logged by L.G. Nixon On 26.11.59 Hirer J. ALBERT

OBJECT: To test the sand to a depth of 40'

RESULT: Sand from 6'

LOG Comprises - Geological Log

Depth		LOG
From	To	
Ft. Ins.	Ft. Ins.	
0	2	Dark brown clayey sandy loam.
2	6	White micaceous and sandy kunkar.
6	8	White calcareous micaceous sand.
8	14	Light yellow-brown poorly sorted sand containing little mica. - becoming lighter in colour with depth.
14	40	Yellow poorly sorted sand with no mica. At 40' drill just entered deep red-brown poorly sorted slightly clayey sand.

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Project: Sand Deposit J. ALBERT D.N. 2102/59
Sec. 366 Hd. WILLUNGA Co. ADELAIDE Hole Ser. No. -
Collar Co-ords R.L. Grid -
Direction Angle VERTICAL Depth 40' Plan Ref.
Date Hole Commenced 25.11.59 Completed 26.11.59 Driller J. GARRICK
Hole Logged by L.G. NIXON On 26.11.59 Hirer J. ALBERT

OBJECT: To test the sand to a depth of 40'

RESULT: Sand from 8'

LOG Comprises - Geological Log.

Depth				LOG
From		To		
Ft.	Ins.	Ft.	Ins.	
0		2		Dark brown loam.
2		8		White kunkar.
8		16		White - poorly sorted (medium - fine) sand, slightly clayey with minor white rounded quartz pebbles.
16		18		White poorly-sorted gravelly sands.
18		40		White poorly sorted sand - finer towards bottom of hole.

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LOG OF MACHINE AUGER BORE HOLE NO. 4

Project: Sand Deposit - J. ALBERT D.M. 2102/59
Sec. 366 Hd. WILLUNGA Co. ADELAIDE Hole Ser. No. -
Collar Co-ords R.L. Grid -
Direction Angle VERTICAL Depth 40' Plan Ref.
Date Hole Commenced 26.11.59 Completed 26.11.59 Driller J. GARRICK
Hole Logged by J.G. OLLIVER On 1.12.59 Mixer J. ALBERT

OBJECT: To test the sand to a depth of 40'

RESULT: Sand from 8' to 40'

LOG Comprises - Geological Log

Depth		LOG
From	To	
Ft. Ina.	Ft. Ina.	
0	2	Brown loam.
2	4	Brown loam and white kunkar.
4	6	Light brown fine clayey calcareous sand.
6	8	Brown fine clayey sand.
8	20	Grey-white fine sand becoming less sorted with depth
20	24	White poorly sorted gravelly sands containing $\frac{1}{2}$ " quartz grains.
24	40	Orange-brown fine sand - relatively few large grains - more sorted than the above white sand.

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LOG OF MACHINE AUGER BORE HOLE NO. 5

Project: Sand Deposit J. ALBERT 697036605 D.M. 2102/59
Sec. 366 Hq. WILLUNGA Co. ADELAIDE Hole Ser. No. -
Collar Co-ords R.L. Grid -
Direction Angle VERTICAL Depth 8' Plan Ref.
Date Hole Commenced 26.11.59 Completed 26.11.59 Driller J. GARRICK
Hole Logged by J.G. OLLIVER'On 1.12.59 Hirer J. ALBERT

OBJECT: To establish depth of overburden.

RESULT: Sand at 4'

LOG Comprises - Geological Log.

Depth		LOG
From	To	
Ft. Ins.	Ft. Ins.	
0	2	Dark brown loam and white kunkar.
2	4	White kunkar with minor dark brown loam.
4	8	Light grey-brown poorly sorted clayey sand.

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LOG OF MACHINE AUGER BORE HOLE NO. 6

697036606

Project: Sand Deposit J. ALBERT D.M. 2102/59
Sec. 366 Hq. WILLUNGA Co. ADELAIDE Hole Ser. No. -
Collar Co-ords R.L. Grid -
Direction Angle VERTICAL Depth 18' Plan Ref.
Date Hole Commenced 26.11.59 Completed 26.11.59 Driller J. GARRICK
Hole Logged by J.G. OLLIVER On 1.12.59 Hirer J. ALBERT

OBJECT: To establish the presence of sand.

RESULT: Sand from 6-18'

LOG Comprises - Geological Log

Depth		LOG
From	To	
Ft. Ins.	Ft. Ins.	
0	2	Dark brown loam and white kunkar.
2	6	White kunkar.
6	10	Light orange-brown fine sand.
10	18	Yellow-brown poorly sorted gravelly sand.

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LOG OF MACHINE AUGER BORE HOLE NO. 7

697036607

Project: Sand Deposit J. Albert D.M. 2102/59
Ses.366 Hd. Willunga Co. Adelaide Hole Ser. No. -
Collar Co-ords: R.L. Grid -
Direction Angle Vertical Depth 18' Plan Ref. 59-425
Date Hole Commenced: 27/11/59 Completed: 27/11/59 Driller: J. Garrick
Hole Logged by: J. G. Olliver On 1/12/59 Hirer J. Albert

OBJECT: To test the sand to a depth of 18'.

RESULT: Sand from 4 to 18'.

LOG comprises: - Geological Log.

Depth		LOG
From	To	
Ft. Ins.	Ft. Ins.	
0'	4'	Dark brown loam with kunkar. More kunkar at 4' then soil.
4'	6'	Pale brown poorly sorted gravelly sands containing some dark loam and minor white kunkar.
6'	12'	Pale brown poorly sorted sand with white kunkar.
12'	18'	Yellow sand less sorted with depth, containing only minor kunkar.

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F.1051-

LOG OF MACHINE AUGER BORE HOLE NO. EIGHT.

Project: Sand Deposit J. ALBERT 697036608 D.M.
Sec. 366 Hd. WILLUNGA Co. ADELAIDE Hole Ser. No.
Collar Co-ords R.L. Grid
Direction Angle VERTICAL Depth: 24' Plan Ref.
Date Hole Commenced: 27/11/59 Completed: 27/11/59 Driller: J. GARI
Hole Logged by: J.G. OLLIVER On 1/12/59 Hirer: J. ALBERT

OBJECT: To test the sand to a depth of 18'.

RESULT: Sand from 8' to 24'.

LOG: Comprises - Geological Log.

Depth		LOG
From	To	
Ft. Ins.	Ft. Ins.	
0	2	Dark brown loam with minor white kunkar.
2	8	White sandy kunkar.
8	14	Light orange-brown fine (relatively well sorted) sand.
14	18	Light yellow brown poorly sorted sand.
18	24	White fine clayey sand - the clay content increasing with depth.

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F.105

LOG OF MACHINE AUGER BORE HOLE NUMBER 9.

697036609

Project: Sand Deposit J. AlbertD.M.Sec. 366 Hd. WillungaCo. AdelaideHole Serial No.Collar Co-ords:R.L.GridDirection: Angle: VerticalDepth: 12'Plan Ref.Date Hole Commenced: 27/11/59Completed: 27/11/59Driller: J. GarrickHole Logged by: J.G. OLLIVEROn 1/12/59Hirer: J. Albert.OBJECT: To test the overburden.RESULT: Sand from 6' to 12'.LOG comprises:- Geological Log.

Depth		LOG
From	To	
0'	2'	Dark brown loam with white kunkar.
2'	6'	White kunkar.
6'	10'	Light yellow poorly sorted sand with kunkar and dark brown clay.
10'	12'	Light yellow poorly sorted gravelly sand.

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F.105

LOG OF MACHINE AUGER BORE HOLE NUMBER 10.

697036610

Project: Sand Deposit J. ALBERT D.M. 2102/59
Sec. 366 Hd. Willunga Co. Adelaide Hole Serial No.
Collar Co-ords R.L. Grid
Direction Angle: Vertical Depth: 34' Plan Ref. 59-425.
Date Hole Commenced: 27/11/59 Completed: 27/11/59 Driller J. Garrick
Hole Logged by: J.G. Olliver On: 1/12/59 Hirer: J. Albert

OBJECT: To test the sand to a depth of 34'.

RESULT: Sand from 4' to 34'.

LOG Comprises - Geological Log.

Depth		LOG
Ft. From	Ft. To	
0	2	Dark brown loam and white kunkar.
2	4	White kunkar.
4	6	Fine yellow sand with minor kunkar.
6	8	Yellow-brown coarser poorly-sorted sand.
8	14	Fine yellow clayey sand containing white kunkar, poorly sorted - gravelly at 12 to 14'.
14	18	Orange-brown poorly sorted gravelly sand with minor white kunkar.
18	34	Light yellow poorly sorted sand becoming more gravelly with depth. No kunkar below 22'.

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LOG OF MACHINE AUGER BORE HOLE NO. 11

697036611

Project: Sand Deposit J. ALBERT D.M. 2102/59
Sec. 366 Hd. Willunga Co. Adelaide Hole Ser. No.
Collar Co-ords R.L. Grid
Direction: Angle: Vertical Depth: 18' Plan Ref. 59-425
Date Hole Commenced: 27/11/59 Completed: 27/11/59 Driller: J. Garrick
Hole Logged by: J.C. Olliver On: 1/12/59 Hirer: J. Albert

OBJECT: To test the overburden and the sand.

RESULT: Sand from 8'

LOG Comprises - Geological Log.

Depth		LOG
From Ft.	To Ft.	
0	2	Dark brown loam.
2	4	White kunkar and dark brown loam.
4	8	White to pale yellow kunkar with minor brown loam.
8	18	Yellow brown poorly sorted sand.

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F.105

LOG OF MACHINE AUGER BORE HOLE

NO. 12

697036612

Project: Sand Deposit J. Albert D.H. 2102/59
Seq. 366 Hq. Willunga Co. Adelaide Hole Ser.No.
Collar Co-ords R.L. Grid
Direction Angle Vertical Depth 16' Plan Ref.
Date Hole Commenced 27/11/59 Completed 27/11/59 Driller J. GARRICK
Hole Logged by J.G. Olliver On 1.12.59 Hirer J. Albert.

OBJECT: To test overburden and sand.

RESULT: Sand from 8'

LOG Comprises - Geological log.

Depth		LOG
From	To	
Pt. ins.	Pt. ins.	
0	2	Dark grey brown loam
2	8	Light brown sandy soil
8	10	Pale brown fine sand containing minor dark brown loam and white kunkar.
10	14	Light brown poorly sorted sand with minor clay
14	16	Yellow brown poorly sorted sand.

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697036613

LOG OF MACHINE AUGER BORE HOLE NO.13

Project: Sand Deposit J. Albert D.M. 2102/59
Sec. 356 Hd. Willunga Co. Adelaide Hole Serial No.
Collar Co-ords E.L. Grid
Direction Angle: Vertical Depth: 22' Plan Ref. 59-425
Date Hole Commenced: Completed: 27/11/59 Driller: J. Garrick
Hole Logged by: J.G. Olliver On: 1/12/59 Hirer: J. Albert.

OBJECT: To test sand to a depth of 22'.

RESULT: Sand from 4'

LOG Comprises - Geological Log

Depth		LOG
From Ft.	To Ft.	
0	2	Dark brown loam.
2	4	Light brown loam.
4	6	Light yellow-brown fine sand.
6	10	Light brown-yellow sand less sorted than 4' to 6'.
10	22	Yellow brown poorly sorted sand.

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LOG OF HAYHEM ROTARY DRILL HOLE NO. WD 13900W

Project: Seismic Survey of Willunga Basin D.M. 2102/59
Sec. 367 Hd. Willunga Co. Adelaide Hole Ser. No.
ollar Co-ords W.D. 13900W R.L. Grid
Direction Angle Vertical Depth 20' Plan Ref.
Date Hole Commenced 16/11/59 Completed 16/11/59 Driller R.J. Febey
Hole Logged by R.J. Febey ON 16/11/59 Hirer Geophysical Section

OBJECT: \ Seismic Survey

RESULT: Sand to 20'

LOG Comprises - Geological Log

Depth		LOG	
From	To		
Ft.	ins.	Ft.	ins.
0	20	Sand	

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LOG OF MAYHEW ROTARY DRILL HOLE NO. ED 14160W

Project: Seismic Survey of Willunga Basin D.M. 2102/59
Sec. 367 Hd. Willunga Co. Adelaide Hole Ser.No.
Collar Co-ords W.D. 14160W R.L. 240' Grid
Direction Angle Vertical Depth 110' Plan Ref.
Date Hole Commenced 16/11/59 Completed 16/11/59 Driller R.J. Febey
Hole Logged by R.J. Febey On 16/11/59 Hirer Geophysical Survey

OBJECT: Seismic Survey

RESULT: Sand to 110'

LOG Comprises - Geological log.

Depth		LOG
From	To	
Ft. Ins.	Ft. Ins.	
0	20	Sand
20	35	Coarse sand
35	65	Sand with traces of clay
65	110	Sand.

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LOG OF LAYNEE ROTARY DRILL HOLE NO. LD 14 580 W

Project: SEISMIC SURVEY OF WILLUNGA BASIN

D.M. 2102/59

Sec. 367 Ha. Willunga Co. Adelaide

Hole Scr. No.

Collar Co-ords W.D. 14 580 W R.L. 222'

Grid

Direction Angle Vertical Depth 125'

Plan Ref. 59-425

Date Hole Commenced 16/11/59 Completed 16/11/59 Driller L. Norstrom

Hole Logged by L. Norstrom On 16/11/59 Hirer Geophysical Section

OBJECT: Seismic Survey

RESULT: Sand to 75'

LOG Comprises - Geological Log

Depth				LOG
From		To		
Ft.	Ins.	Ft.	Ins.	
0	0	4	0	Clay
4	0	75	0	Sand with some clay
75	0	125	0	Slate with stringers of quartz.

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LOG OF MAYHEW ROTARY DRILL HOLE NO. HD 15 180W

Project: SEISMIC SURVEY OF WILLUNGA BASIN D.M. 2102/59

Sec. 367 Hd. Willunga Co. Adelaide Hole Ser. No.

Collar Co-ords U.D. 15 180 W R.L. 209' Grid

Direction Angle Vertical Depth 20' Plan Ref. 59-425

Date Hole Commenced 16/11/59 Completed 16/11/59 Driller L. Norstrom

Hole Logged by L. Norstrom On 16/11/59 Hired Geophysical Section

OBJECT: Seismic Survey

RESULT: Sand and clay to 20'

LOG Comprises - Geological Log

Depth				LOG
From Ft.	Ins.	To Ft.	Ins.	
0	0	15	0	Clay
15	0	18	0	Sandy clay
18	0	20	0	Clay

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LOG OF MAYHEW ROTARY DRILL HOLE NO. WD 15780 W

Project: SEISMIC SURVEY OF WILLUNGA BASIN D.H. 2102/59
Sec. 366 Hd. Willunga Co. Adelaide Hole Ser. No.
Collar Co-ords W.D. 15 780 W R.L. 219' Grid
Direction Angle Vertical Depth 20' Plan Ref. 59-425
Date Hole Commenced 16/11/59 Completed 16/11/59 Driller R.J. Febey
Hole Logged by R.J. Febey On 16/11/59 Hirer Geophysical Section

OBJECT: Seismic Survey

RESULT: Sand to 20'

LOG Comprises - Geological Log

From		Depth		To		LOG
Ft.	Ins.	Ft.	Ins.	Ft.	Ins.	
0	0	20	0			Sand.

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LOG OF MAYHEW ROTARY DRILL HOLE NO. WD 16380W

Project: Seismic Survey of Willunga Basin

D.M. 2102/59

Sec. 366 Hd. Willunga Co. Adelaide

Hole Seri. No.

Collar Co-ords WD 16380W

R.L. 226'

Grid

Direction Angle Vertical

Depth 20'

Plan Ref.

Date Hole Commenced 16/11/59

Completed 16/11/59

Driller R.J. Febey

Hole Logged by R.J. Febey

On 16/11/59

Hirer Geophysical Section.

OBJECT: Seismic Survey

RESULT: Sand to 20'

LOG Comprises - Geological log.

Depth

From To

Ft. Ins. Ft. Ins.

LOG

0 20'

Sand.

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LOG OF MAYHEW ROTARY DRILL HOLE NO. WD 16560W

Project: Seismic Survey of Willunga Basin D.H. 2102/59
Sec. 366 Hd. Willunga Co. Adelaide Hole Ser. No.
Collar Co-ords W D 16560W R.L. 224' Grid
Direction Angle Vertical Depth 125' Plan Ref.
Date Hole Commenced 16/11/59 Completed 16/11/59 Driller L. Horstrom
Hole Logged by L. Horstrom On 16/11/59 Hirer Geophysical Section

OBJECT: Seismic Survey.

RESULT: Sand with clay to 125'

LOG Comprises - Geological Log.

DEPTH				LOG
Ft.	FROM Ins.	TO Pt.	Ins.	
0'		8'		Overburden
8'		45		Sand
45		62		Sand with some white clay
62		64		Boulders
64		125		Bands of hard and soft clay and sand and soft sandstone.

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LOG OF MAXHEW ROTARY DRILL HOLE NO. WD 16 920 W

Project: SEISMIC SURVEY OF WILLUNGA BASIN D.M. 2102/59
Sec. 366 Hd. Willunga Co. Adelaide Hole Ser.No.
Collar Co-ords W.D. 16 920 W R.L. 208' Grid
Direction Angle Vertical Depth 125' Plan Ref. 59-425
Date Hole Commenced 16/11/59 Completed 16/11/59 Driller L. Norstrom
Hole Logged by L. Norstrom On 16/11/59 Hired Geophysical Section

OBJECT: Seismic Survey
RESULT: Sand to 125 feet
LOG Comprises - Geological Log

Depth				LOG
From Ft.	Ins.	To Ft.	Ins.	
0	0	40	0	Sand
40	0	48	0	Sand and some white clay
48	0	125	0	Sand with some traces of clay.

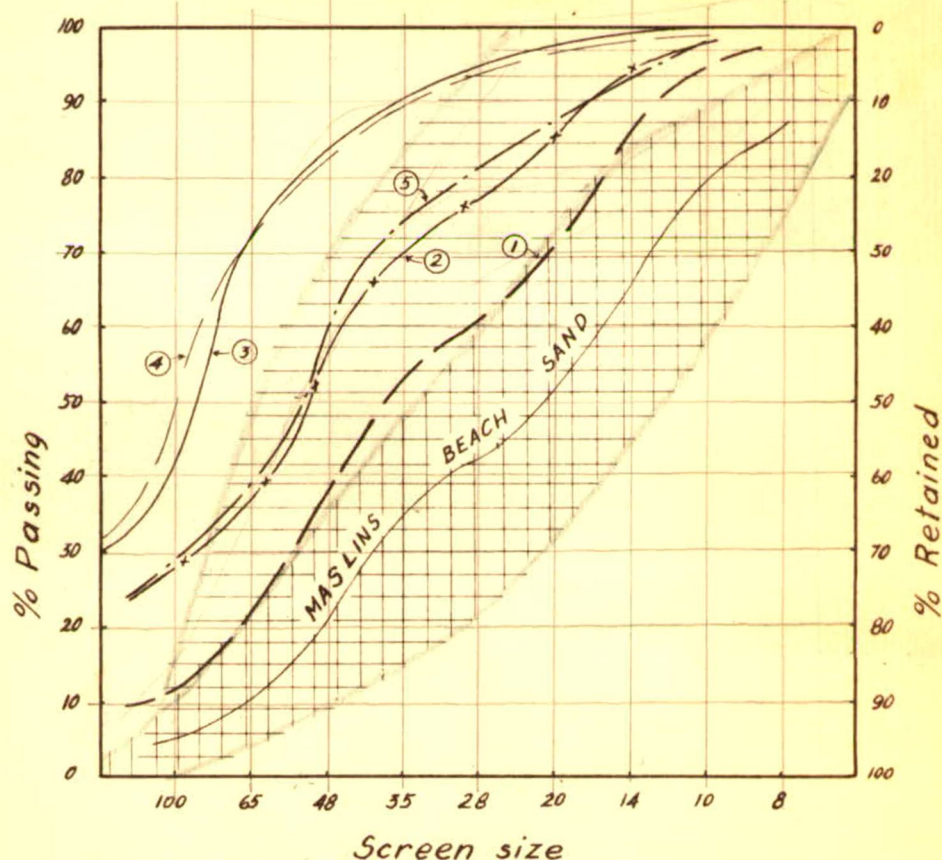
APPENDIX 3.

SIEVE ANALYSIS - B.S.S.

Mesh Size	No. 1	No. 2	No. 3	No. 4	No. 5
+ 10	5.5	2.2	0.7	1.7	3.1
- 10 + 14	9.1	5.3	0.5	0.3	4.2
- 14 + 18	9.1	5.2	0.6	0.7	3.5
- 18 + 25	12.0	7.3	3.0	2.7	5.9
- 25 + 36	12.4	10.9	5.5	5.3	9.9
- 36 + 52	19.7	21.1	9.5	10.6	23.5
- 52 + 72	13.4	13.8	13.8	10.6	13.1
- 72 + 100	7.0	6.8	23.9	19.7	8.1
- 100 + 150	1.9	3.2	12.9	17.3	4.2
- 150 + 200	1.4	10.0	12.6	12.9	6.4
- 200	8.5	14.2	17.0	18.2	18.1
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

(No. 5 is a composite sample from bores 6 to 13)

British Sieve Specification 882 for concrete fine aggregate



Concrete fine aggregate



Sand for brick & masonry mortar

