TARCOOLA - ALICE SPRINGS RAILWAY - GEOLOGICAL INVESTIGATIONS AT BRIDGE SITES, MARLA BORE, S.A., TO BAYSTONE BORE, N.T.

G.H. McNALLY

Department of Mines
South Australia

DEPARTMENT OF MINES

SOUTH AUSTRALIA

GEOLOGICAL SURVEY

ENGINEERING DIVISION

TARCOOLA - ALICE SPRINGS RAILWAY - GEOLOGICAL INVESTIGATIONS AT BRIDGE SITES, MARLA BORE, S.A., TO BAYSTONE BORE, N.T.

by

G.H. McNALLY
GEOLOGIST
ENGINEERING GEOLOGY SECTION

Rept.Bk.No. 75/133
G.S. No. 5665
D.M. No. 316/75
ENG.GEOL.No. 71-8b

CONTENTS

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Rept.Bk. No. 75/133
G.S. No. 5665
D.M. No. 316/75
Eng.Geol.No. 71-8b

TARCOOLA - ALICE SPRINGS RAILWAY - GEOLOGICAL INVESTIGATIONS AT BRIDGE SITES, MARLA BORE, S.A., TO BAYSTONE BORE, N.T.

SUMMARY AND CONCLUSIONS

Investigations to determine safe bearing capacities and recommended founding depths for 10 bridge sites between Marla Bore, South Australia, and Baystone Bore, Northern Territory, have been carried out. Bearing capacities, in most cases presumed, range from 5 to 20 tons/ft^2 (500-2,000 kPa). Most footings will be located on cemented Pleistocene Alluvium or on weathered granite. Excavation difficulties may be experienced in the granite. Scour depths are believed to be less than 3 m, even on major watercourses.

INTRODUCTION

The Marla Bore-Baystone Bore section forms the third contract stage of the Tarcoola-Alice Springs Railway, between about 410 and 604 km north or Tarcoola (chainage B200 to C40 km). This report presents the results of drilling and trenching carried out to determine foundation conditions at major and minor bridge sites along this section.

Logs from 14 drill holes and 26 trial pits have been included. Bearing capacities have been estimated visually, in accordance with the British Standards Institution's "Code of Practice for Foundations".

METHOD OF INVESTIGATION

This investigation was carried out primarily by diamond drilling, supplemented by backhoe trenches down to the effective reach of the plant (about 3 m). Results were generally satisfactory apart from drill core losses in the top few metres.

Cores recovered have been photographed and stored at the Department of Mines Depot, Thebarton.

SITE GEOLOGY

Details of the geology of this section, along with maps, are given in McNally, 1975. The following descriptions are of geological units likely to be encountered in bridge foundation excavations.

Recent Alluvium (Qra)

Light red-brown loose to very loose sand occurs along the present channels of major watercourses. The maximum thickness is 2 to 3 m, and it overlies dense consolidated older alluvium, thought to be of Pleistocene or Tertiary age.

Engineering Properties

Recent alluvium is of prime importance as a source of fine aggregate. It is a clean and well graded sand, with a small excess of fine gravel. Samples of sand, representing potential aggregate sources, were submitted to AMDEL for mineralogical investigation. The petrologists' report indicates that the sand is of granitic origin, and that potentially-reactive opaline silica is not present (AMDEL, 1975).

This sand may become mobile during flood, but scour

depths exceeding 3 m, even on major streams, are unlikely.

Pleistocene Alluvium (Qpa)

The term Pleistocene Alluvium (Qpa) referes to the thick red-brown cemented older alluvial sands found to overlie bedrock at the major bridge sites, where it varies in thickness between 4 m at Indulkana Creek (DH1) and 23.5 m at Tarcoonyinna Creek (DH9). The age of the (Qpa) may range downwards into the Tertiary.

Thin alluvium, mapped as (Qa) at the minor brdige sites, has similar properties to (Qpa).

Engineering Properties

Pleistocene Alluvium may be regarded either as a dense to very dense sand, or as a weak rock because of its cemented nature. It appears to be very similar in physical properties to the so-called "Doonbara Formation Equivalent" which provided the recommended foundation material at most bridge sites on the Robin Rise-Marla Bore section.

Assumed safe bearing capacities for (Qpa) are in the range 5-10 tons/ft^2 (500-1,000 kPa), though higher values - up to 1,500 kPa - could probably be tolerated. Excavation in this material may require pneumatic tools below 2-3 m.

Upper Proterozoic (Ps)

Grey-green siltstone, with minor schist, underlies cemented alluvium (Qpa) at Tarcoonyinna Creek and at the Alberga, though its depth - up to 24 m - makes it an unlikely founding horizon. Safe bearing capacities in fresh material would be about 20 tons/ft^2 (2,000 kPa).

Drillhole DH3 (B 244.480 km) encountered a somewhat weaker purplish grey arkosic sandstone, also thought to be of Upper Proterozoic age, at 3.50 m. For this material a bearing capacity of 500 kPa may be assumed.

Precambrian Granite (pCg)

The term "granite" as used here includes gneissic and foliated granite, schist and granitic gneiss of Precambrian - possibly Lower Proterozoic - age. These rocks are present at such a depth as to be able to be utilized for foundations in three of the four minor bridge sites.

Engineering Properties

On soil maps (McNally, 1975) two types of granite have been distinguished, bleached and weathered, and fresh rock. Only the first is of importance as a bridge foundation.

The properties of bleached and weathered granite range from those of a very dense, well graded sandy fine gravel, to a weak to moderately strong rock, with safe bearing capacities of 5-20 tons/ft^2 (500-2,000 kPa). The variability in this material could lead to difficulties in excavation of foundations, where weak and strong rock occur in close proximity.

Fresh granite has not been considered as a foundation material, since the overlying weathered rock at bridge sites is considered adequate.

FOUNDATION CONDITIONS AND RECOMMENDATIONS

Indulkana Creek (DH1 and 2)

Drilling records indicate that 4-6 m of medium dense

to very dense Pleistocene Alluvium (Qpa - mostly sand, with sandy gravel at depth) overlies completely weathered granite. Despite the "completely weathered" categorization, this weak rock corresponds to a very dense, well-graded fine gravel, of presumed bearing capacity in the range of 5-10 tons/ft^2 (500-1,000 kPa).

In the overlying Pleistocene alluvial sand and gravel corrected S.P.T. N values in excess of 100 indicate a very dense soil, with safe bearing capacities in the same range. The modern channel is filled with very loose, clean, well-graded sand (Recent Alluvium, Qra) to a depth of 2m, which is the presumed maximum depth of scour.

For design purposes a bearing capacity of 5-10 tons/ft^2, at a founding depth of 3 m (in Pleistocene Alluvium), may be assumed. In the event that footings are located in the loose channel sand it may prove desirable to deepen the foundation to 4 m, but this should be decided during excavation.

B 244.500 km Site (DH3)

At this minor bridge site the results of drilling and excavation (DH3, TP4) indicate that 3,5 m of dense to very dense sand and gravel overlie a weak sandstone. Core losses between 3.0 and 3.5 m may be due to the presence of loose bands in the alluvial sand, and for this reason a founding depth of 4.0 m is recommended. At this depth a safe bearing capacity of 5 tons/ft^2 (500 kPa) may be assumed.

B 249.750 km Site (DH4)

Bedrock was encounted at depth 1.20 m in TP5, beneath a veneer of sandy gravel, and the backhoe was unable to penetrate dense weathered granite below 1.50 m. However drilling core losses suggest that sound rock (bearing capacity 20 tons/ft^2 or 2,000 kPa) is only present below 4.00 m. The weathered granite above this may be assumed to have a bearing capacity of at least 5-10 tons/ft^2 (500-1,000 kPa).

Foundation level will have to be decided during excavation, but should be deeper than 1.50 m.

Tarcoonyinna Creek Bridges

B 259.140 km Site (DH5)

The sequence at this site, as indicated by the drillhole, is:- 0-5.5 m dense to very dense SAND (Qpa), with minor amounts of gravel (top 1 m loose)

ONTO weak to strong, slightly to highly weathered SCHIST and PHYLLITE bedrock (Lower Proterozoic, Ps).

For design purposes, a bearing capacity of 5-10 tons/ft^2 (500-1,000 kPa) at a depth of 3 m may be assumed. Expected scour depth is less than 1 m.

B 260.300 km Site (DH6)

Hence the sand is much thicker, and due to iron cementation has the character of a weak rock, with a presumed bearing capacity of 10 tons/ft^2 (1,000 kPa). Siltstone bedrock is present at a depth of 20 m. A founding depth of 3 m - believed to be well below maximum scour depth at this point -.

Main Crossing (DH 7, 8 & 9)

0 - 1 to 2 m loose, generally clean, well-graded SAND with traces of gravel (Qpa).

2 - 20 to 25 m dense to very dense cemented SAND (or weak sandstone) (Qpa).

ONTO weak to strong SILTSTONE and SHALE (Proterozoic, Ps).

On the basis of 3 trial pits and 3 drillholes, the maximum depth of scour in the main channel does not appear to be greater than 2 m, and in many places may be only 1 m. Below this depth is dense to very dense cemented sandy alluvium (of presumed Tertiary or Pleistocene age), which may be regarded as a weak rock, of bearing capacity 10 tons/ft^2 (1,000 kPa).

A founding depth of 3 m (for pad footings) should be adequate for design purposes. As an alternative, the cemented sandy alluvium would provide a suitable bearing horizon for bored piles, though it would probably be too dense for driven piles.

Alberga River (DH10 & 12)

0 - 2 m very loose to loose, clean to slightly silty, well-graded SAND (Qra).

2 - 5 m loose to dense gravelly and clayey SAND (Qpa)

ONTO weak to strong SILTSTONE (Proterozoic, Ps).

Trial pit logs indicate a maximum depth of scour of 2.10 to 2.30 m, and seismic refraction data suggest a fairly uniform depth of about 3 m to dense sandy alluvium, so that 3 to 4 m would appear to be a suitable depth for pad footings. However, the driller reported caving between 3.00 and 4.80 m in

DH12. This may represent a localised soft spot, as trial pits 50 m either side of the drillhole encountered stiff clay and dense sand at depths of 2.10 and 1.60 m respectively. On account of the variability of this material, a bearing capacity of only 5 tons/ft ^{2} (500 kPa) has been assumed.

Alternatively, strong siltstone, of bearing capacity 20 tons/ft^2 (2,000 kPa) is present at 5 to 6 m depth in both drillholes.

More subsurface details from this site would be desirable if a short-span, shallow-foundation (i.e. 3 m depth) design is adopted. This could be provided by augering along the centreline, down to bedrock (about 5 to 6 m). Drillhole DH11, originally proposed for the centre of the river (around 276.400 km) was cancelled because of anticipated difficulties in locating a heavy, truck-mounted rig on the loose river sands.

Groundwater was struck in two pits, at 1.70 and 1.80 m, but it is believed that this flow represents a perched aquifer rather than the main water table.

Outounya Creek (DH 13, 14, & 15)

0 - 1.5 to 2.5 m	loose to medium dense, partly calcified, silty SAND (Qpa) (also, very loose, clean, well-graded sand in present channel m about 30 m wide).
1.5 - 2.5	dense cemented SAND (or weak sandstone)(Qpa)
16 - 19.5	
ONTO	weak to strong, slightly to

completely weathered GRANITE (pCg).

The cemented sand, at a depth of about 3 m, has a safe bearing capacity of 10 tons/ft^2 (1,000 kPa). No scour problems are anticipated, provided piers are not located in the loose channel sand. A pit at chainage C 2.750 km failed to reach dense sand at depth 2,80 m and at this point a bearing capacity of only 5 tons/ft^2 (500 kPa) at 3 m depth should be assumed.

As regards piling, the remarks made in connection with the Tarcoonyinna Creek main crossing are applicable here.

C 16.100 km Site

A drillhole proposed for this site was cancelled when weak granite bedrock was encountered in a backhoe pit at 0.80 m. The backhoe was unable to penetrate this material below 1.25 m, which is recommended as a foundation depth. A safe bearing capacity of at least 15 tons/ft^2 (1500 kPa) may be assumed.

C 18.000 km Site

Conditions at this minor bridge site were almost identical with those at C 16.100 km, a veneer of Pleistocene sand and gravel overlying weathered granite of bearing capacity 15 tons/ft^2. The foundation depth will depend on conditions revealed during excavation but a depth of 1.50 m is recommended.

REFERENCES

AMDEL (1975). Petrological Report MP29/76 - Opaline Content of Sands from Tarcoonyinna Creek, Alberga River and Outounya Creek, N.T.

BRITISH STANDARDS INSTITUTION (1972). Code of Practice for Foundations (CP2004).

McNALLY, G.H., (1975). Engineering Geology, Marla Bore to Baystone Bore Section, Tarcolla - Alice Springs Railway. SADM Rept. Bk. 75/132.

NELSON, R.G. (1973). Tarcoola - Alice Springs Railway, Seismic Investigations of Bridge Sites, Wintinna Hill to Northern Territory Border.. SADM Rept. Bk. 73/277.

NELSON, R.G. (1973). Tarcoola - Alice Springs Railway, Seismic Investigations of Bridge Sites, Northern Territory Border to Alice Springs. SADM Rept. Bk. 73/278.

TOMLINSON, M.J. (1971). Foundation Design and Construction, Pitman, London.

SUMMARY OF RECOMMENDATIONS

Bridge Site Chainage (km)	Drillhole Nos.	Recommended Footing Depth (m)	Safe Bearing Capacity (tons/ft^2)	Foundation Material
B240.200 (Indulkana Ck.)	1 & 2	3	5-10	Pleistocene Alluvium (Qpa)
B244.500	3	4	5	Proterozoic Sandstone (Ps)
B249.750	4	1.5+	5-10	Granite(pCg)
B259.140 (Tarcoonyinna Ck, South Branch)	5	3	5-10	Proterozoic Schist (Ps)
B260.300 (Tarcoonyinna Ck, Overflow Channel)	6	3	10	Pleistocene Alluvium (Qpa)
B260.900 (Tarcoonyinaa Ck, Main channel)	7,8 & 9	3	10	Alluvium (Qpa)
B276.350 (Alberga River)	10 & 12	3-4	5	Alluvium (Qpa)
C2.680 (Outounya Ck)	13,14 & 15	3	10	Alluvium (Qpa)
C16.100	-	1.25	15	Granite(pCg)
C18.00	-	1.5	15	Granite(pCg)

APPENDIX 1

DRILLHOLE AND TRIAL PIT LOGS

NOTES ON DIAMOND DRILLING PROCEDURES

Equipment

The core sizes are as follows:-

Symbol	Nominal Diameter of Cores cm (inches)
NXC (NX casing)	7.1 (2.8)
NMLC	5.1 (2.0)
BMLC	3.6 (1.4)

The NMLC and BMLC cores were obtained with "M" type stationary inner tube core barrels fitted with bottom discharge bits. The inner tubes were of the split type, ensuring minimum disturbance of the core during removal from the barrel.

Storing and marking of core

Cores are stored in wooden boxes, each compartment of which is designed to contain one metre of core. The boxes are marked with consecutive compartment numbers at one end, and the drilled depths from the surface in metres at the other.

The core was boxed in this manner at the drill site as soon as it was extracted from the core barrel. The bottom of each lift was marked on the side of the box on placing of the core. Depth of the hole in metres from the surface is then marked at the end of each run on metal spacers.

Timber blocks cut to the correct length indicate core not recovered (red blocks), and core removed for testing (white blocks).

The core has been stored at the Department of Mines, Drilling and Mechanical Branch, Dalgleish Street, Thebarton, 5031.

Photography of Core

The core is photographed in daylight colour as soon as possible after drilling. Boxes are usually photographed in pairs with a wide angle lens.

NOTES ON DIAMOND DRILL LOG SHEETS

Logs are usually plotted on a vertical scale of 1:100 or 1:50.

The descriptions given on the log sheet refer only to materials recovered as core. Core is lost by the material being ground or washed away during the drilling process; it may usually be inferred that such material is relatively weak. The weakness may arise from weathering or else from sheared, crushed, or closely jointed rock. It cannot always be assumed that the material not recovered is weak, since even solid rock core may be ground away and lost during drilling operations. Places where core was lost are shown by blank spaces on the log.

ENGINEERING CLASSIFICATION OF ROCK MATERIAL

1. ROCK CONDITION

TERM	ABBRN	DEFINITION
Fresh	(F)	No weathering effects visible to naked eye.
Weathered rock shows visible effects of chemical decomposition caused by air and groundwater. Can be subdivided.		
Slightly weathered	(SW)	- rock slightly discoloured particularly along fissures but no loss in strength.
Moderately weathered	(MW)	- discolouration starting to penetrate inwards from fisures and noticeable loss in strength
Highly weathered	(HW)	- discoloured with weathering penetrating deeply inwards but corestones are still present.
Completely weathered	(CW)	- changed to soil but original rock fabric may be preserved.
Altered	(A)	Shows chemical and physical alteration to rock fabric caused by temperature, pressure or injection of other material.

2. ROCK STRENGTH

Can be correlated with uniaxial compressive strength tested on small intact samples in the laboratory.

TERM	ABBRN	MPa (p.s.i.)	FIELD TEST
Very weak	VW	<5 (730)	Breaks and crumbles easily in the hands.
Weak	W	5-12 (730-1750)	Breaks easily with hammer tap.
Medium strong	MS	12-50 (1750-7300)	Rings and breaks to firm hammer blow (Range of concrete).
Strong	S	50-100 (7300-14600)	(Very difficult to break with (hammer
Very strong	VS	>100 (>14600)	(and requires sledge (

Note that Condition and Strength terms do not necessarily correspond, e.g.

Rock Material	Conditions	Strength
Granite	Fresh	Strong
Schist	Fresh	Weak

DEPARTMENT OF MINES - SOUTH AUSTRALIA

ENGINEERING CLASSIFICATION OF SOILS

The Unified Soil Classification System

COARSE-GRAINED SOILS
More than 50% of material is larger than No. 200 B.S. sieve size

FIELD INVESTIGATION PROCEDURES (Excluding particles larger than 7·5cm and basing fractions on estimated weights)			GROUP SYMBOL	GROUP NAME and typical materials
GRAVELS More than 50% of the coarse fraction is larger than 2mm. (retained on B.S.7 sieve)	**CLEAN GRAVELS** Little or no fines	Wide range in grain sizes, and substantial amounts of all intermediate particle sizes	GW	**GRAVEL, well graded;** gravel sand mixtures, little or no fines
		Predominantly one size or a range of sizes, with some intermediate sizes missing	GP	**GRAVEL, poorly graded;** gravel sand mixtures, little or no fines
	DIRTY GRAVELS Appreciable amount of fines	Non-plastic fines—for indentification see **ML** below	GM	**GRAVEL, excess silty fines;** poorly graded gravel-sand-silt mixtures
		Plastic fines—for identification see **CL** below	GC	**GRAVEL, excess clayey fines;** poorly graded gravel-sand-clay mixtures
SANDS More than 50% of the coarse fraction is smaller than 2mm. (passing B.S.7 sieve)	**CLEAN SANDS** Little or no fines	Wide range in grain sizes, and substantial amounts of all intermediate particle sizes	SW	**SAND, well graded;** well graded sands, gravelly sands, little or no fines
		Predominantly one size or a range of sizes, with some intermediate sizes missing	SP	**SAND, poorly graded;** poorly graded sands, gravelly sands, little or no fines
	DIRTY SANDS Appreciable amount of fines	Non-plastic fines—for indentification see **ML** below	SM	**SAND, excess silty fines;** poorly graded sand-silt mixtures
		Plastic fines—for identification see **CL** below	SC	**SAND, excess clayey fines;** poorly graded sand-clay mixtures

FINE-GRAINED SOILS
More than 50% of material is smaller than No. 200 B.S. sieve size

FIELD INVESTIGATION PROCEDURES (on fraction smaller than 0.4mm. (passing B.S. 36 sieve))							GROUP SYMBOL	GROUP NAME and typical materials
	SOIL CAST (soil wet)	SOIL THREAD	SHINE	DILATANCY	ODOUR	DRY STRENGTH		
SILTS AND CLAYS Liquid limit less than 50	Forms fragile cast Cracks form when kneaded while moist	Thick crumbly thread; easily broken	None to very dull	Distinct	Not significant	None to slight	ML	**SILT SOIL, low plasticity;** inorganic silts and very fine silty or clayey sands, rock flour
	Cast maybe handled freely without breaking Can be kneaded moist without cracking Material adheres to the hand	Thread can be pointed as fine as a lead pencil but is fragile	Moderate	None to slight	Not significant	Moderate	CL	**CLAY SOIL, low plasticity;** inorganic clays of low to medium plasticity, gravelly clay, sand, clays, silty clays, lean clays
	Cast fragile to cohesive material will adhere somewhat to the hand	Soft, weak thread	None to very dull	Slight to distinct	Decayed organic matter	Low	OL	**ORGANIC SOIL, low plasticity;** organic silts and silt clays of low plasticity
SILTS AND CLAYS Liquid limit more than 50	Moderately plastic and cohesive Material adheres somewhat to the hand	Weak to medium thread May be crumbly	Dull	None to slight	Not significant	Moderate Powdered soil feels floury	MH	**SILT SOIL, high plasticity;** inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
	Very plastic and cohesive Material very sticky to the hand Greasy to touch	Very tough thread, can be rolled to a pin point	Very glossy	None	Strong earthy	High to very high Cannot be powdered by finger pressure	CH	**CLAY SOIL, high plasticity;** inorganic clays of high plasticity, fat clays
	Plastic and cohesive Feels slightly spongy Greasy to touch	Weak to medium thread Often soft and fibrous	Moderate to very glossy	None	Decayed organic matter	Moderate to high Powdered soil may be fibrous	OH	**ORGANIC SOIL, high plasticity;** organic clays of medium to high plasticity
	Readily identified by colour, odour, spongy feel and frequently by fibrous texture						Pt	**PEATY SOIL;** Peat and other highly organic soils

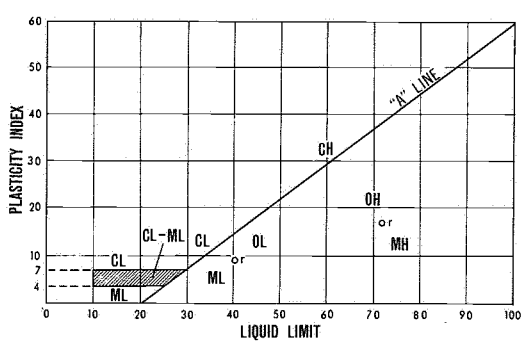
LABORATORY CLASSIFICATION CRITERIA

GRAIN SIZE CURVES to be used to identify soil fractions

Coarse-grained soil classified on basis of percentage of fines, as follows

PERCENT OF FINES	GRAVELS	SANDS
Less than 5	GW GP	SW SP
More than 12	GM GC	SM SC
5 to 12 Borderline cases, use 2 symbols		

$Cu = \frac{D60}{D10}$ Greater than 4 $Cc = \frac{(D30)^2}{D10 \times D60}$ Between 1 and 3		
Not meeting all gradation requirements for **GW**		
Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols	
Atterberg limits below "A" line or PI greater than 7		
$Cu = \frac{D60}{D10}$ Greater than 6 $Cc = \frac{(D30)^2}{D10 \times D60}$ Between 1 and 3		
Not meeting all gradation requirements for **SW**		
Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols	
Atterberg limits below "A" line or PI greater than 7		



PLASTICITY CHART
FOR LABORATORY CLASSIFICATION OF FINE GRAINED SOILS

NOTE: BOUNDARY CLASSIFICATIONS: Soil possessing characteristics of two groups are shown as a combination of two group symbols, eg. GW-GC, well graded gravel with clay binder.

Based on "The Unified Soil Classification System" United States Department of the Interior, Bureau of Reclamation "Earth Manual" First Edition, Denver COLARADO 1960.

70–641

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 1

SERIAL No.

FEATURE MARLA BORE - BAYSTONE BORE

SECTION — HUNDRED —

CO-ORDINATES Ch B 240·200 km

E L Surface 382·9 m

LOCATION INDULKANA CK, SOUTH BANK

ANGLE FROM HORIZ VERT DIRECTION —

E L Collar . . m

Datum . .

DESCRIPTION OF CORE	GROUP SYMBOL (2)	STRENGTH TERM (1)	CORE SIZE	DEPTH E L m	LOG (3) RQD% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	WATER PRESSURE TESTS (4) LUGEONS 0·5 1 5 10 50 100
PLEISTOCENE (Qpa)											
Medium dense red-brown slightly silty fine/medium SAND (SM-SP)		VS S MS W VW SO		1							
Ditto, clayey, dense to very dense (SP-SC) (See trial pit log B240·200km 0-1·8m)				2		S.P.T. 1·00 - 1·45 m, N = 31 S.P.T. 2·00 - 2·24 m, N = 26+ (red-brown gravelly and clayey sand)					V = 316 m/s
Clayey and sandy medium GRAVEL (GC-GP)				3							
PRECAMBRIAN (pCg)				4							
Weak, completely weathered, bleached white, fine to medium grained GRANITE				5		Slightly porous due to internal weathering and erosion of feldspar crystals ; visible pores ~ 5% of rock volume. Lightly iron stained					
				6							
				7		rock fabric preserved - weathered material equivalent to very dense, well graded fine gravel.					V = 2000 m/s
				8							
				9							
				10							

NOT RECORDED

① ROCK SUBSTANCE STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 3-3-75
FINISH 3-3-75

LOGGED G.H. McNALLY
DATE 5-5-75
TRACED AF
CHECKED GHMcN

SHEET 1 OF 2 DRG. No. S11527

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT TARCOOLA-ALICE SPRINGS RAILWAY-BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 1

SERIAL No

FEATURE. MARLA BORE — BAYSTONE BORE

LOCATION INDULKANA CK., SOUTH BANK

SECTION — HUNDRED —

CO-ORDINATES Ch. B 240·200 km

ANGLE FROM HORIZ. VERT DIRECTION —

E L. Surface 382·9 m

E L. Collar . . m

Datum .

DESCRIPTION OF CORE	② GRAPHIC SYMBOL	① STRENGTH TERM	CORE SIZE	DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
PRECAMBRIAN (pCg)												
Weak, completely weathered, bleached white to light brown fine to medium grained GRANITE. Mica, where visible, is very fine.				10 11 12 13 14			Porous in places, becoming moderately iron stained.					V = 2000 m/s
							Pale green altered band					
Strong, fresh, foliated micaceous GRANITE (pCg (Fr))												
							END OF HOLE 14·80 m					

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ 350 Maximum effective pressure kiloposcals reached during test
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE . MAYHEW
DRILLER W.J. BOYD
START. 3-3-75
FINISH 3-3-75

LOGGED G.H. McNALLY
DATE . 5-5-75
TRACED A.F.
CHECKED G.H.McN

SHEET 2. OF 2. DRG. No. S11527a

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 2

SERIAL No

PROJECT: TARCOOLA - ALICE SPRINGS RAILWAY — BRIDGE SITES

FEATURE: MARLA BORE — BAYSTONE BORE

LOCATION: INDULKANA CREEK SOUTH BANK

SECTION / HUNDRED / CO-ORDINATES: Ch B 240·300 km

ANGLE FROM HORIZ: VERT   DIRECTION —

E.L. Surface 383·5 m
E.L. Collar . . m
Datum

DESCRIPTION OF CORE	GRAPHIC SYMBOL	① STRENGTH TERM	CORE SIZE DEPTH m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	WATER PRESSURE TESTS LUGEONS ④ 0.5 1 5 10 50 100
? PLEISTOCENE (Qpa) 0–3 m: Loose, becoming very dense red-brown gravelly and silty SAND, with traces of clay (SM) (See trial pit log B 240·300 km, 0-2·20m)			0–3			augered - bag samples S.P.T., 1·00-1·45 m, N=64 (red-brown gravelly and silty sand) S.P.T. 2·00-2·45m, N=61 (red-brown gravelly and silty sand)	Recovery 1·00 – 4·00 m 10%				V = 346 m/s
—?—?— 3 m: Light brown sandy medium silcrete GRAVEL			3–5			Proportion of sand to gravel unknown due to extensive core losses.					
—?—?— 5 m: Dense, off white micaceous fine SAND, of granitic origin, with silcrete gravel.			5–6.5			S.P.T. 5·00-5·45m, N=29 (fine, off white, micaceous granitic sand)		NOT RECORDED			
PRECAMBRIAN (p€g) Weak, completely weathered white kaolinised fine to medium grained GRANITE.			6.5–10			lightly iron stained, about 5% of volume visible pores due to internal erosion of feldspar crystals following weathering.					V = 1550 m/s

① ROCK SUBSTANCE
STRENGTH TERM: VS Very Strong, S Strong, MS Medium Strong, W Weak, VW Very Weak, SO Soil properties
CONDITION TERM: Fresh, Weathered, Altered, Not Applicable

② Substances with soil properties described and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ 350 Maximum effective pressure (kilopascals) reached during test.
Min — Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 1-3-75
FINISH 1-3-75

LOGGED G.H. McNALLY
DATE 5-5-75
TRACED A.F.
CHECKED G H McN

SHEET 1 OF 2   DRG. No. S11528

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 2

SERIAL No.

PROJECT. TARCOOLA-ALICE SPRINGS RAILWAY BRIDGE SITES

FEATURE. MARLA BORE – BAYSTONE BORE

LOCATION INDULKANA CREEK, SOUTH BANK

SECTION – HUNDRED –

CO-ORDINATES Ch B 240·300 km

ANGLE FROM HORIZ. VERT DIRECTION –

E.L. Surface 383·5 m

E.L. Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE	DEPTH E.L. m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
Weak, completely weathered, white to off white kaolinised fine to medium grained micaceous GRANITE	PRECAMBRIAN (pCg)	VS S MS W VW SO		10 11 12 13			Visible pores about 3%. Lightly iron stained					
							Porcellanite band					
			NO CORE	14 15			Poor recoveries, 12·00 – 16·80 m in completely weathered granite with soil properties.			NOT RECORDED		V = 1550 m/s
Strong to very strong, fresh to slightly weathered foliated, very micaceous fine GRANITE. (pCg (Fr))				16 17 18 19								
							END OF HOLE 19·50 m					V = 5000

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START. 1-3-75
FINISH 1-3-75

LOGGED G.H. McNALLY
DATE 5-5-75
TRACED A.F.
CHECKED G.H. McN

SHEET 2 OF 2

DRG. No. S 11528 a

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 3

SERIAL No

PROJECT. TARCOOLA - ALICE SPRINGS RAILWAY BRIDGE SITES

FEATURE. MARLA BORE - BAYSTONE BORE

LOCATION MINOR BRIDGE SITE

SECTION - HUNDRED -

CO-ORDINATES Ch B 244·480 km

ANGLE FROM HORIZ. VERT DIRECTION -

E.L. Surface 387·4 m

E.L. Collar . m

Datum

Age	Description of core	Depth (m)	Structures (joints, veins, seams, sheared zones, crushed zones)
PLEISTOCENE (Qpa)	Loose red-brown fine/medium SAND, traces of silt (SP)	0–1.0	Augered-bag samples (See trial pit log B 244·480 km, 0-1·6 m)
PLEISTOCENE (Qpa)	Very dense red-brown clayey c.m.f. SAND with traces of fine GRAVEL (SW-SC)	1.0–2.4	S.P.T. 1·00-1·35, N=49+ (red-brown clayey coarse sand); S.P.T. 2·00-2·20, N=26+ (red-brown gravelly sand, traces of clay)
PLEISTOCENE (Qpa)	Dense brown fine gravelly and clayey C.M.f. SAND (SW-SC)	2.4–3.5	
UPPER PROTEROZOIC (Ps)	Very weak to weak moderately weathered purple-grey, heavily orange stained, fine SANDSTONE.	3.5–4.5	
UPPER PROTEROZOIC (Ps)	Weak to moderately strong, slightly weathered to fresh, light purple-grey, fine to coarse arkosic SANDSTONE	4.5–8.0	Lightly iron stained on some joints. Visible pores ~5% of volume. Core nearly intact. Finely conglomeratic band (at ~7.8 m)
		8.0	END OF HOLE 8·00m

Water level: NOT RECORDED

① ROCK SUBSTANCE STRENGTH TERM
VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM: Fresh, Weathered, Altered, Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ 350 Maximum effective pressure kilopascals reached during test.
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START. 28-2-75
FINISH 28-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F.
CHECKED GHMcN

SHEET 1 OF 1 DRG. No. S11529

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT: TARCOOLA - ALICE SPRINGS RAILWAY

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 4

SERIAL No

FEATURE: BRIDGE SITES MARLA BORE - BAYSTONE BORE

SECTION HUNDRED

LOCATION: MINOR BRIDGE SITE

CO-ORDINATES Ch B 249·720 km

ANGLE FROM HORIZ. VERT DIRECTION —

E L Surface 402·2 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE	DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 ④ 100
RECENT: Loose dark red - brown fine gravelly and silty SAND							Augered 0-1·00m, bag samples.					
Loose pink - white sandy SILT							?Completely weathered granite.					
PRECAMBRIAN (pCg): Very weak to weak, completely weathered, kaolinised white GRANITE. Core losses probably indicate completely weathered zones with soil properties.				1 2 3			S.P.T. 1·00-1·23m, N=26+					
Weak to moderately strong, highly weathered, kaolinised white medium grained GRANITE.				4 5 6 7 8			Lightly to moderately iron stained below 7·00m. Visible voids ~3%. Core mostly intact.					
(See trial pit log B 249·700km, 0-1·20m)							END OF HOLE 8·00m					

NOT RECORDED

① ROCK SUBSTANCE
STRENGTH TERM
VS Very Strong
S Strong
MS Medium Strong
W Weak
VW Very Weak
SO Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0-25% Very poor
25-50% Poor
50-75% Fair
75-100% Good to excellent

④ 350 Maximum effective pressure kilopascals reached during test
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 27-2-75
FINISH 27-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F
CHECKED G H McN

SHEET 1 OF 1

DRG No S11530

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 5

SERIAL No

PROJECT. TARCOOLA ALICE SPRINGS RAILWAY BRIDGE SITES

FEATURE. MARLA BORE – BAYSTONE BORE.

LOCATION TARCOONYINNA CK. SOUTH BRANCH

SECTION . . HUNDRED

CO-ORDINATES Ch B 259·200km

ANGLE FROM HORIZ. VERT. DIRECTION —

E.L Surface 387·4 m

E.L Collar . . m

Datum . .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS S MS W VW SO)	CORE SIZE	DEPTH E.L m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS%	WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100	④
TERTIARY – PLEISTOCENE (Qpa)													
Loose to very dense red-brown, silty and clayey fine/medium SAND (See trial pit logs B259·200km, 0-2·30m B259·110km, 0-1·70m B259·000km, 0-1·30m)				1			augered - bag samples						
							S.P.T. 1·00–1·35m, N = 41+ (red-brown silty and clayey f.m. sand)						
Coarse red-brown slightly silty SAND, with traces of gravel.				2									
Ditto, very light brown, clean.				3									
Ditto, light grey-brown				4	NO CORE		Tricone bit used - sludge samples only recovered.		NOT RECORDED			V = 299 m/s	
Coarse sandy fine GRAVEL				5									
?UPPER PROTEROZOIC (Es)													
Weak, highly weathered PHYLLITE and SCHIST (metasandstone)				6			Foliation in schist almost vertical, very well developed.					V = 1097 m/s	
Weak to moderately strong, slightly weathered SCHIST (metasandstone), with interbedded phyllite.				7			Core mostly fragmented						
				8									
Strong, slightly weathered PHYLLITE and metasiltstone.				9			Core nearly intact.					V = 2880 m/s	
							Schist (metasandstone) (dips about 60°)						
				10			" " "						

① ROCK SUBSTANCE STRENGTH TERM
VS Very Strong
S Strong
MS Medium Strong
W Weak
VW Very Weak
SO Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 25-2-75
FINISH 25-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F.
CHECKED G.H.McN

SHEET 1 OF 2

DRG No S11531

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 5

SERIAL No

PROJECT TARCOOLA-ALICE SPRINGS RAILWAY BRIDGE SITES

FEATURE MARLA BORE - BAYSTONE BORE

SECTION HUNDRED

CO-ORDINATES Ch B259·200km

ANGLE FROM HORIZ VERT DIRECTION -

LOCATION TARCOONYINNA CK., SOUTH BANK.

E L Surface 387·4 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS S MS W VW SO)	CORE SIZE	DEPTH m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
?UPPER PROTEROZOIC Strong, slightly weathered PHYLLITE, with thin bands of coarse grained schist.				10 11 12			Bedding dips ~30°, cleavage ~70°					V = 2880 m/s
END OF HOLE 12·00 m												

① ROCK SUBSTANCE

STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Foir
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 25-2-75
FINISH 25-2-75

LOGGED G.H. Mc NALLY
DATE 6-5-75
TRACED A.F.
CHECKED G.H.McN

SHEET 2 OF 2

DRG. No. $11531a

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 6

SERIAL No

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY

FEATURE BRIDGE SITES, MARLA BORE - BAYSTONE BORE

LOCATION TARCOONYINNA CK. SOUTH BANK

SECTION HUNDRED

CO-ORDINATES Ch B260·300km

ANGLE FROM HORIZ. VERT. DIRECTION —

E.L. Surface 387·6 m

E.L. Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE DEPTH	LOG	③ R.Q.D.%	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS%	WATER LEVEL	CASING	DRILL WATER LOSS%	WATER PRESSURE TESTS LUGEONS ④
		VS S MS W VW SO	E.L. m		75 50 25		10 5 50	DATE		0 100	0·5 1 5 10 50 100

RECENT

Loose dark red-brown fine/medium SAND (SP)

augered - bag samples

(See trial pit log B260·300km, 0-1·90m)

TERTIARY - PLEISTOCENE (Qpa)

Ditto, very dense, clayey with traces of coarse sand (SP-SC)

S.P.T. 1·00-1·45m, N=50

Dense red-brown coarse sandy CLAY (SC)

S.P.T., 2·00-2·19, N=26+

S.P.T., 3·00-3·25m, N=26+

NOTE: boundary between "soil" & "rock" properties is arbitrary.

S.P.T., 5·00-5·25m, N=26+

Weak red-brown/orange/light grey mottled silty fine SANDSTONE with coarse sandy bands (or very dense fine sand)

Weak orange silty fine SANDSTONE, slightly porous.

NOT RECORDED

① ROCK SUBSTANCE

STRENGTH TERM
VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0-25% Very poor
25-50% Poor
50-75% Fair
75-100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.

Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 22-2-75
FINISH 24-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F.
CHECKED G.H.McN

SHEET 1 OF 3

DRG. No. S11532

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 6

SERIAL No

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY BRIDGE SITES

FEATURE MARLA BORE — BAYSTONE BORE

LOCATION TARCOONYINNA CK., SOUTH BANK

SECTION HUNDRED

CO-ORDINATES Ch B 260·300 km

ANGLE FROM HORIZ VERT DIRECTION —

E L Surface 387·6 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM VS S MS W VW SO	CORE SIZE	DEPTH E.L m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	WATER PRESSURE TESTS LUGEONS ④ 0·5 1 5 10 50 100
Weak red-brown/orange/light grey silty f.m. SANDSTONE and sandy SILTSTONE (with about 10% fine/medium gravel, mostly fine).				10								
				11								
				12			S.P.T., 12·00 – 12·45m, N=40					
				13								
				14								
				15								
				16								
				17								
				18								
				19								
Ps Weak grey-green SILTSTONE				20								

TERTIARY - PLEISTOCENE (Qpa)

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 22-2-75
FINISH 25-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F.
CHECKED G.H.McN

SHEET 2 OF 3 DRG. No. S11532a

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT TARCOOLA – ALICE SPRINGS RAILWAY BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

FEATURE MARLA BORE – BAYSTONE BORE

LOCATION TARCOONYINNA CK., SOUTH BANK

SECTION HUNDRED

CO-ORDINATES Ch B 260·300 km

ANGLE FROM HOR Z VERT DIRECTION –

HOLE NO. DH 6

SERIAL No

E L Surface 387·6 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE	DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
UPPER PROTEROZOIC (Ps)												
Weak to moderately strong, moderately weathered grey-green SILTSTONE		VS S MS M W VW SO		20			Core fragmented					
Strong, mostly fresh dark grey SILTSTONE				21			Core intact to broken					
				22								
				23								
				24			END OF HOLE 24·0 m					

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START. 22-2-75
FINISH 25-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F.
CHECKED GHMcN

SHEET 3 OF 3

DRG. No. S11532b

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 7

SERIAL No.

PROJECT: TARCOOLA-ALICE SPRINGS RAILWAY BRIDGE SITES

FEATURE: MARLA BORE - BAYSTONE BORE TARCOONYINNA CK. MAIN CHANNEL

LOCATION: SOUTH BANK

SECTION HUNDRED

CO-ORDINATES Ch B 260·750 km

ANGLE FROM HORIZ. VERT DIRECTION —

E L Surface 388·7 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS, S, MS, W, VW, SO)	CORE SIZE DEPTH E.L. m	LOG	③ R.Q.D. % (75 50 25)	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % (5 50)	WATER LEVEL DATE	CASING	DRILL WATER LOSS % (10 100)	WATER PRESSURE TESTS ④ LUGEONS (0·5 1 5 10 50 100)
Loose to medium dense dark red-brown silty f.m. SAND (SM)						augered bag samples (See trial pit log B260·776 km, 0-1·80m)					
Very dense red-brown silty f.m. SAND (SM)			1			S.P.T., 1·00-1·35m, N=30+					V = 300 m/s
Very weak to weak red-brown/orange/off white silty & fine gravelly SANDSTONE (or very dense sand)			2			S.P.T., 2·00-2·25m, N=26+					
			3			S.P.T., 3·00-3·22m, N=26+					
			4								
			5								
			6								V = 1006 m/s
			7			cemented fine gravel (sandy & silty)					
			8								
			9								
			10								

NOT RECORDED

TERTIARY - PLEISTOCENE (Qpa)

① ROCK SUBSTANCE STRENGTH TERM
VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0—25% Very poor
25—50% Poor
50—75% Fair
75—100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 20-2-75
FINISH 21-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F.
CHECKED G.H.McN.

SHEET 1 OF 3. DRG. No. S 11533

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 7

SERIAL No.

PROJECT. TARCOOLA - ALICE SPRINGS RAILWAY BRIDGE SITES

FEATURE. MARLA BORE - BAYSTONE BORE

LOCATION TARCOONYINNA CK., MAIN CHANNEL SOUTH BANK

SECTION . . . HUNDRED

CO-ORDINATES ch B 260·750km

ANGLE FROM HORIZ. VERT. DIRECTION —

E.L. Surface 388·7 m

E.L. Collar . . . m

Datum . . .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS S MS W VW SO)	CORE SIZE DEPTH E.L. m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100 ④
Very weak/weak red-brown/orange/off white silty & fine gravelly SANDSTONE	TERTIARY - PLEISTOCENE (Qpa)		10								
			11			Coarse, porous sandstone					
			12								
			13								
			14								
			15			S.P.T., 15·00–15·45m, N=39 (fine red-brown sandstone)					
			16			clean fine quartz gravel					
			17								
			18								
Weak, highly weathered grey-green SILTSTONE, with red-brown sandy clay.	UPPER PROTEROZOIC		19								
Moderately strong. ditto, slightly weathered.			20			Core broken					

NOT RECORDED

V = 1006 m/s

V = 4316 m/s

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE . MAYHEW
DRILLER W.J. BOYD
START. 20-2-75
FINISH 21-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED A.F.
CHECKED G.H.McN

SHEET 2 OF 3. DRG. No. S11533a

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 7

SERIAL No.

PROJECT. TARCOOLA - ALICE SPRINGS RAILWAY

FEATURE. BRIDGE SITES MARLA BORE - BAYSTONE BORE TARCOONYINNA CK, MAIN CHANNEL

LOCATION SOUTH BANK

SECTION . . . HUNDRED

CO-ORDINATES ch B 260·750 km

ANGLE FROM HORIZ. vert DIRECTION —

E.L. Surface 388·7 m

E.L. Collar . . . m

Datum . . .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM VS S MS W VW SO	CORE SIZE	DEPTH E.L. m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	WATER PRESSURE TESTS LUGEONS 0.5 1 5 10 50 100	④
UPPER PROTEROZOIC (Ps)													
Moderately strong to strong grey-green SILTSTONE, fresh to moderately weathered. Faint silky lustre on cleavage surfaces due to low grade metamorphism.				20			clay seam Coarse schist (metasandstone)						
				21									
				22			Completely weathered clay seam						
Strong, fresh, dark grey SILTSTONE.				23									
				24			END OF HOLE 24·00m						

V = 4316 m/s

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START. 20-2-75
FINISH 21-2-75

LOGGED G.H. McNALLY
DATE 6-5-75
TRACED AF
CHECKED GHMcN

SHEET 3 OF 3

DRG. No. S11533b

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT. TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 8

SERIAL No.

FEATURE. MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN CHANNEL,

LOCATION CENTRE.

SECTION — . HUNDRED —

CO-ORDINATES Ch. B260·880 km

ANGLE FROM HORIZ VERTICAL DIRECTION

E. L. Surface 386·5 m

E. L. Collar . . . m

Datum . . .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM VS S MS W VW SO	CORE SIZE DEPTH E.L. m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	WATER PRESSURE TESTS LUGEONS ④ 0·5 1 5 10 50 100
RECENT (Qra)											
Loose / Medium dense light red-brown coarse / Medium / fine SAND (SW) see trial pit log B 260·900 km, 0-1·70 m			1			augered bag samples					
						S.P.T., 1·00 - 1·45, N = 17 clean red-brown c.m.f sand, trace fine gravel					
?			2								V = 400 m/s
grades down into weak sandstone below ~ 2 m						Root fragment at 2·80 m					
			3								
Weak mottled off white / orange C.M.F. SANDSTONE (dense sand)			4								
			5			S.P.T., 5·00 - 5·34, N = 48+ (red - brown f.m. sand)					
TERTIARY - PLEISTOCENE (Qpa) Weak mottled off white / orange silty fine / medium SANDSTONE (very dense sand), with traces of coarse sand & fine gravel. Visible voids ~ 1 %			6			Fine gravelly band					
			7								NOT RECORDED
			8								
			9			Fine / medium gravelly band					V = 950 m/s
			10								

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE. MAYHEW
DRILLER W.J. BOYD
START. 19/2/75
FINISH 20/2/75

LOGGED G. H. McN
DATE 12/5/75
TRACED
CHECKED G. H. McN

SHEET 1 OF 3. DRG. No. S 11534

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

PROJECT: TARCOOLA - ALICESPRINGS RAILWAY - BRIDGE SITES

FEATURE: MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN CHANNEL,

LOCATION: CENTRE

SECTION: - HUNDRED: -

CO-ORDINATES: Ch. 8260·880 km

ANGLE FROM HORIZ: Vertical DIRECTION:

HOLE NO. DH 8

SERIAL No.

E L Surface: 386·5 m

E L Collar: m

Datum:

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM VS S MS W VW SO	CORE SIZE	DEPTH E L m	LOG	③ R Q D % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	WATER PRESSURE TESTS ④ LUGEONS 0·5 1 5 10 50 100
Weak mottled off white/ orange silty fine/ medium SANDSTONE, with traces of coarse sand & fine gravel. visible voids ~ 1%				10			S.P.T., 11·00 - 11·45, N = 58 (red - brown silty f.m. sand)					
				11								
				12			few ironstone nodules present					
				13								
				14								
				15			Coarse sandy band. Trace fine gravel					
				16			S.P.T., 16·00 - 16·45, N = 34 (orange silty fine sandstone)					
				17								
				18								
				19								
Very weak, completely weathered brown clayey SHALE				20								

TERTIARY - PLEISTOCENE (Qpa)

UPPER PROTEROZOIC (Ps)

V = 950 m/s

① ROCK SUBSTANCE STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ 350. Maximum effective pressure in pascals reached during test
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 19/2/75
FINISH 20/2/75

LOGGED G.H. McN
DATE 12/5/75
TRACED
CHECKED G.H. McN

SHEET 2 OF 3

DRG No S 11534a

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

PROJECT: TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

FEATURE: MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN CHANNEL,

LOCATION: CENTRE

SECTION – HUNDRED –

CO-ORDINATES: Ch. 8260·880 km

ANGLE FROM HORIZ: VERTICAL DIRECTION

HOLE NO. DH 8

SERIAL No.

E.L. Surface: 386·5 m

E.L. Collar: m

Datum:

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM VS S MS W VW SO	CORE SIZE DEPTH E.L. m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	CORE LOSS %	WATER LEVEL DATE	CASING, DRILL WATER LOSS %	WATER PRESSURE TESTS LUGEONS ④
UPPER PROTEROZOIC (Ps)										
Weak, highly weathered, light brown/grey clayey fragmented SHALE			20							V = 950 m/s
			21							
			22							
			23							V = 3600 m/s
END OF HOLE 23·75 m										

① ROCK SUBSTANCE

STRENGTH TERM

VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM

Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION

0–25% very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.

Min. Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No.	DM 187	LOGGED	G.H.M°N
TYPE	MAYHEW	DATE	12/5/75
DRILLER	W.J. BOYD	TRACED	
START	19/2/75	CHECKED	G.H.M°N
FINISH	20/2/75		

SHEET 3 OF 3

DRG. No. S 11534 b

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

PROJECT: TARCOOLA - ALICE SPRINGS RAILWAY-BRIDGE SITES

FEATURE: MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN CHANNEL,

LOCATION: NORTH BANK

SECTION – HUNDRED –

CO-ORDINATES: ch. 261·030 km

ANGLE FROM HORIZ: VERTICAL DIRECTION

HOLE NO. DH 9

SERIAL No.

E.L. Surface 387·4 m

E.L. Collar . . . m

Datum

DESCRIPTION OF CORE	GROUP SYMBOL ②	STRENGTH TERM ①	CORE SIZE	DEPTH m	LOG	RQD % ③ (75 50 25)	STRUCTURES	LIFT CORE LOSS %	WATER LEVEL	CASING	DRILL WATER LOSS %	WATER PRESSURE TESTS LUGEONS ④
RECENT — Loose dark red-brown slightly silty fine/medium SAND, little coarse (SP)				0–1			augered – bag samples					V = 400 m/s
TERTIARY - PLEISTOCENE (Qpa) — Dense/very dense red-brown gravelly and clayey coarse/medium/fine SAND (GC-SC) (See trial pit log, B 261·010 km, 0-1·70 m)				1			S.P.T., 1·00-1·45, N = 31 (c.m.f. sand)					
				2			S.P.T., 2·00-2·22, N = 26+ (silty + fine gravelly c.m.f sand)					
				3			clean c.m.f sand (fines washed out ?)					
							medium gravelly					
				4					NOT RECORDED			
				5			very compact clayey S.P.T., 5·00-5·21, N = 26+					
NOTE – boundary here between "soil" + "rock" arbitary				6			S.P.T., 6·00-6·32, N = 45+ (silty + fine gravelly c.m.f. sand)					
Weak light orange silty fine SANDSTONE (or very compact sand). Finely porous (visible voids ~1%) Traces of fine gravel.				7			orange/light grey mottled, with a little coarse sand + fine gravel					V = 1040 m/s
				8			orange/grey mottled coarse sandy band					
				9			S.P.T., 9·00-9·45, N = 22 (silty and fine gravelly sand)					
				10								

① ROCK SUBSTANCE

STRENGTH TERM: VS Very Strong; S Strong; MS Medium Strong; W Weak; VW Very Weak; SO Soil properties

CONDITION TERM: Fresh; Weathered; Altered; Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION: 0–25% Very poor; 25–50% Poor; 50–75% Fair; 75–100% Good to excellent

④ 350 Maximum and ... pressure ... reached during test; Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No.	DM 187	LOGGED	G.H. McN
TYPE	MAYHEW	DATE	12/5/75
DRILLER	W.J. BOYD	TRACED	
START	15/2/75	CHECKED	G.H. McN
FINISH	18/2/75		
SHEET 1 of 3		DRG No.	S 11535

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH9

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

FEATURE MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN CHANNEL,

LOCATION NORTH BANK

SECTION - HUNDRED -

CO-ORDINATES ch. 261·030 km

ANGLE FROM HORIZ VERTICAL DIRECTION

E L Surface 387·4 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE	DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, BEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE %	WATER LEVEL DATE	CASING DEPTH	WATER LOSS	WATER PRESSURE TESTS ④ LUGEONS	LOG
Weak light orange silty fine SANDSTONE (very dense sand) with a little fine gravel Visible voids ~ 1%		VS S MS W VW SO		10	NO CORE		loose orange/yellow coarse sand						
				11			ditto, dense						
				12									
				13			S.P.T., 12·60 - 13·05, N = 40 silty f.m. sand, little fine gravel						
							f.m. gravelly band						
				14									
							f.m. gravelly band						
				15									
				16									
				17									
				18									
				19									
							Coarse sandy band						
				20									

TERTIARY - PLEISTOCENE (Qpa)

V = 1040 m/s

① ROCK SUBSTANCE STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No.	D.M 187	LOGGED	G.H.McN
TYPE	MAYHEW	DATE	12/5/75
DRILLER	W.J. BOYD	TRACED	
START	15/2/75	CHECKED	G.H.McN
FINISH	18/2/75		

SHEET 2 OF 3 DRG. No. S11535a

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH9

SERIAL No

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

FEATURE MARLA BORE - BAYSTONE BORE
TARCOONYINNA CREEK, MAIN CHANNEL,

LOCATION NORTH BANK

SECTION - HUNDRED -

CO-ORDINATES ch. 261·030 km

ANGLE FROM HORIZ VERTICAL DIRECTION

E L Surface 387·4 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS, S, MS, W, VW, SO)	CORE SIZE DEPTH (L, m)	LOG	③ RQD % (75 50 25)	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % (10, 50)	WATER LEVEL DATE	CASING	DRILL WATER LOSS % (0, 100)	WATER PRESSURE TESTS LUGEONS ④ (0·1, 1, 10, 100)
TERTIARY - PLEISTOCENE (Qpa)											
Weak light orange/ light grey silty fine/ medium SANDSTONE			20			Core nearly intact					
			21								
			22								
			23	NO CORE							
			24								
Weak, highly weathered grey clayey SHALE			25			Core fragmented to coarse/ med. gravel size.					V = 1040 m/s
			26								
UPPER - PROTEROZOIC (Ps)											
Weak to moderately strong, fresh to moderately weathered dark grey SILTSTONE. Bedding obscure.			27			Weakly metamorphosed (faint silkiness on cleavage surfaces)					
			28								
			29			dark brown stained zone					
			30			END OF HOLE 30·10 m					

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 15/2/75
FINISH 18/2/75

LOGGED G.H. McN
DATE 12/5/75
TRACED
CHECKED G.H. McN

SHEET 3 OF 3

DRG. No. S 11535b

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 10

SERIAL No

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

FEATURE MARLA BORE - BAYSTONE BORE

LOCATION ALBERGA RIVER, SOUTH BANK

SECTION - HUNDRED -

CO-ORDINATES ch. B 276·200 km

ANGLE FROM HORIZ VERTICAL DIRECTION

E L Surface 366·2 m

E L Collar m

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE	DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
TERTIARY - PLEISTOCENE (Qpa)												
Dark red - brown, loose / very dense Fine gravelly fine sandy GRAVEL with clay (GP - GC) (see trial pit logs B 276·200 km, 0 - 1·60 m B 276·290 km, 0 - 1·90 m)				1			Augered - bag samples					
							S.P.T., 1·00 - 1·45, N = 42					
				2			S.P.T., 2·00 - 2·45, N = 48					
Stiff to very stiff fine gravelly & sandy CLAY (GC - SC)				3			S.P.T., 3·00 - 3·45, N = 38 clay cracks slightly on drying					
				4			S.P.T., 4·00 - 4·25, N = 26+					
UPPER PROTEROZOIC (Ps)												
Red - brown / grey medium / fine gravelly and fine sandy CLAY (GC)				5			Gravel consists of angular grey siltstone fragments. Traces of bedding at 45° visible.					
Weak red - brown / grey highly weathered SILTSTONE with shale partings dipping 40°				6			Core broken to rubbly, clayey top 0·3 m. Core fragmented to fine gravel size.					
Moderately strong to strong, fresh, dark grey - green - SILTSTONE, with red - brown shale partings dipping 30°				7			Very faint silkiness on cleavage surfaces. Shale, moderately weathered					
				8			Fragmented, highly weathered shale					
				9								
				10								

NOT RECORDED

V = 269 m/s

V = 2000 m/s

① ROCK SUBSTANCE
STRENGTH TERM
VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0-25% very poor
25-50% Poor
50-75% Fair
75-100% Good to excellent

④ 350 Maximum effective pressure kilopascals reached during test
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No	DM 187	LOGGED	G.H.McN
TYPE	MAYHEW	DATE	12/5/75
DRILLER	W.J. BOYD	TRACED	
START	10/2/75	CHECKED	G.H.McN
FINISH	12/2/75		

SHEET 1 OF 2 DRG No S 11536

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

PROJECT. TARCOOLA - ALICE SPRINGS RAILWAY-BRIDGE SITES

FEATURE. MARLA BORE - BAYSTONE BORE

LOCATION ALBERGA RIVER, SOUTH BANK

SECTION - HUNDRED -

CO-ORDINATES ch. B 276·200 km

ANGLE FROM HORIZ VERTICAL DIRECTION

HOLE NO. DH 10

SERIAL No

E. L. Surface. 366·2 m

E. L. Collar . . m

Datum . . . .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS S MS W VW SO)	CORE SIZE	DEPTH m	LOG	③ R.Q.D.% (75 50 25)	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% (10 5 50)	WATER LEVEL (DATE)	CASING	DRILL WATER LOSS % (0 100)	WATER PRESSURE TESTS LUGEONS (0·5 1 5 10 50 100)
Strong, fresh, dark grey-green cleaved SILTSTONE Bedding defined by 1cm shale partings.	UPPER PROTEROZOIC (Ps)			10 11 12 13 14 15			Numerous 1 - 5mm thick calcite veins, generally concordant with bedding					V = 2000 m/s
							laminated siltstone, brown					
							brown calcified shale					V = 5300 m/s
							END OF HOLE 15·00 m					

① ROCK SUBSTANCE
STRENGTH TERM
VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No.	DM 187	LOGGED	G.H.McN
TYPE	MAYHEW	DATE	12/5/75
DRILLER	W.J. BOYD	TRACED	
START.	10/2/75	CHECKED	G.H.McN
FINISH	12/2/75		

SHEET 2 OF 2 DRG. No. S 11536a

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT: TARCOOLA – ALICE SPRINGS RAILWAY – BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH12

SERIAL No.

FEATURE: MARLA BORE – BAYSTONE BORE

SECTION – HUNDRED –

CO-ORDINATES ch. B 276·550 km

E.L. Surface 364·6 m

E.L. Collar . . . m

LOCATION ALBERGA RIVER – NORTH BANK

ANGLE FROM HORIZ VERTICAL DIRECTION

Datum . . . .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS S MS W VW SO)	CORE SIZE DEPTH E.L. m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
RECENT (Qra)											
Loose / medium dense red-brown fine / medium SAND (SP) (see trial pit logs, B 276·500 km, 0–2·10 m; B 276·600 km, 0–3·00 m)			1			S.P.T., 1·00 – 1·45, N = 17 (f.m. sand)					
TERTIARY – PLEISTOCENE (Qpa)											
Dense dark red-brown clean fine / medium quartz SAND (SP)			2			coarse sandy & clayey, lighter brown; S.P.T., 2·00 – 2·20, N = 26+ (f.m. sand)					V = 327 m/s
Sludge samples indicate dark red-brown fine / medium SAND			3	NO CORE		driller reports caving, 3·00 – 4·80					
? ——— ?			4								
UPPER PROTEROZOIC (Ps)											
Strong, fresh, dark grey-green SILTSTONE, orange & brown stained along joints. Bedding appears to dip at < 10°			5			core mostly fragmented, becoming broken below 9·00 m				NOT RECORDED	V = 2650 m/s
			6								
			7								
			8								
			9								
			10								

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No.	DM 187	LOGGED	G.H. McN
TYPE	MAYHEW	DATE	12/5/75
DRILLER	W.J. BOYD	TRACED	
START	10/2/75	CHECKED	G.H. McN
FINISH	11/2/75		

SHEET 1 OF 2 DRG. No. S 11537

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 12

SERIAL No

FEATURE MARLA BORE - BAYSTONE BORE

SECTION — HUNDRED —

LOCATION ALBERGA RIVER, NORTH BANK

CO-ORDINATES ch. B 276·550 km

ANGLE FROM HORIZ VERTICAL DIRECTION

R L Surface 364·6 m

E L Collar . . m

Datum .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM VS S MS W VW SO	CORE SIZE DEPTH E L m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
Strong, fresh, dark grey-green SILTSTONE. Bedding obscure, but apparently dips < 10°	UPPER PROTEROZOIC (Ps)		10 11 12 13			Core semi intact					V = 2650 m/s
						END OF HOLE 13·40 m					

① ROCK SUBSTANCE STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 10/2/75
FINISH 11/2/75

LOGGED G.H. McN
DATE 12/5/75
TRACED
CHECKED G.H.McN

SHEET 2 OF 2

DRG No. S 11537a

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY-BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 13

SERIAL No

FEATURE. MARLA BORE - BAYSTONE BORE

SECTION - HUNDRED -

CO-ORDINATES ch. C 2·600 km

E L. Surface 461·9 m

E L. Collar m

LOCATION OUTOUNYA CK, N.T., SOUTH BANK

ANGLE FROM HORIZ VERTICAL DIRECTION -

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM VS S MS W VW SO	CORE SIZE DEPTH E.L. m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS% 0 100	WATER PRESSURE TESTS ④ LUGEONS 0·5 1 5 10 50 100
TERTIARY - PLEISTOCENE (Qpa)											
Loose becoming dense red-brown silty medium / fine SAND (see trial pit log, C 2·600 km, 0-1·50 m)			1 2 3			Tricone bit used 0 - 3·00 m sludge samples only					
Dense red-brown / light brown silty & fine gravelly fine / medium SAND, cemented in part to a weak to very weak fine sandstone.			4 5 6 7 8 9 10			S.P.T., 3·00 - 3·45, N = 45 (red-brown micaceous c.m.f. sand with calcrete chips) S.P.T., 4·35 - 4·80, N = 59 (red-brown silty & sandy fine gravel)					V = 416 m/s V = 1500 m/s

① ROCK SUBSTANCE
STRENGTH TERM
VS Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kiloposcals) reached during test.
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No.	DM 187	LOGGED	G.H.McN
TYPE	MAYHEW	DATE	15/5/75
DRILLER	W.J. BOYD	TRACED	
START.	2/12/74	CHECKED	G.H.McN
FINISH	4/12/74		

SHEET 1 OF 2 DRG. No S 11538

DEPARTMENT OF MINES, SOUTH AUSTRALIA

PROJECT: TARCOOLA-ALICE SPRINGS RAILWAY-BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 13

SERIAL No.

FEATURE: MARLA BORE - BAYSTONE BORE

SECTION – HUNDRED –

CO-ORD NATES ch. C 2·600 km

LOCATION: OUTOUNYA CREEK, N.T., SOUTH BANK

ANGLE FROM HORIZ VERTICAL DIRECTION

R.L. Surface 461·9 m

R.L. Collar . . m

Datum . . .

DESCRIPTION OF CORE	② GROUP SYMBOL	① CORE STRENGTH TERM	CORE SIZE DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
TERTIARY - PLEISTOCENE (Qpa)											
Dense red-brown / light brown fine / medium gravelly & silty c.m.f. SAND (or weak sandstone)			10			S.P.T., 10·04 - 10·25, N = 20+ (red-brown fine gravelly c.m.f. sand)					
			11								
			12			S.P.T., 12·16 - 12·38, N = 26+ (red-brown fine gravelly c.m.f. sand)					
			13								
			14								
Subangular medium granite GRAVEL, with coarse sand & clay.			15			Probably mostly alluvial, grading down to weathered bedrock.					
PRECAMBRIAN (pEg)			16		+						
Moderately strong to strong, slightly to moderately weathered highly micaceous gneissic GRANITE (pEg (Fr))			17		+						
			18		+						
			19		+						
			20			END OF HOLE 19·32 m					

V = 1500 m/s

① ROCK SUBSTANCE

STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187	LOGGED G.H. McN
TYPE MAYHEW	DATE 15/5/75
DRILLER W.J. BOYD	TRACED
START 12/12/74	CHECKED G.H. McN
FINISH 4/12/74	

SHEET 2 OF 2 DRG. No. S 11538a

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

FEATURE MARLA BORE - BAYSTONE BORE

LOCATION OUTOUNYA CK., N.T., NORTH BANK

SECTION - HUNDRED -

CO-ORDINATES ch. C 2·700 km

ANGLE FROM HORIZ VERTICAL DIRECTION

HOLE NO. DH 14

SERIAL No.

E L Surface 462·1 m

E L Collar m

Datum

DESCRIPTION OF CORE	① GROUP SYMBOL	② STRENGTH TERM	CORE SIZE	DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
Medium dense to dense light red-brown coarse / medium / fine SAND with medium / fine gravel (see trial pit logs, C 2·650 km, 0-2·80 m C 2·750 km, 0-2·80 m)				1 2 3 4 5 6 7			Tricone bit used, 0-3·00 m, no core sludge samples only					V = 316 m/s
							S.P.T., 3·00 - 3·45, N = 19 (red-brown fine gravelly clayey c.m.f sand)					
							S.P.T., 5·20 - 5·65, N = 27 (red-brown clayey c.m.f. sand)					
							S.P.T., 6·65 - 6·88, N = 26+ (red-brown fine gravelly and clayey c.m.f. sand.)					
Weak light red-brown porous coarse arkosic SANDSTONE (or very dense sand with little fines) Visible voids ~ 3% of volume				8 9 10					NOT RECORDED			V = 1440 m/s

TERTIARY - PLEISTOCENE (Qpa)

① ROCK SUBSTANCE

STRENGTH TERM
VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0—25% Very poor
25—50% Poor
50—75% Fair
75—100% Good to excellent

④ 350. Maximum effective pressure kilopascals reached during test
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILLING DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 6/12/74
FINISH 7/12/74

LOGGED G.H. McN
DATE 15/5/75
TRACED
CHECKED G.H. McN

SHEET 1 OF 2

DRG No. S 11539

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY-BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 14

SERIAL No.

FEATURE MARLA BORE - BAYSTONE BORE

SECTION - HUNDRED -

CO-ORDINATES ch. C 2·700 km

E L Surface 462·1 m

E L Collar m

LOCATION OUTOUNYA CK., N.T., NORTH BANK

ANGLE FROM HORIZ VERTICAL DIRECTION

Datum

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS S MS W VW SO)	CORE SIZE DEPTH E.L. m	LOG	③ RQD % (75 50 25)	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS % (0 5 50)	WATER LEVEL DATE	CASING	DRILL WATER LOSS % (0 100)	④ WATER PRESSURE TESTS LUGEONS (0·5 1 5 10 50 100)
TERTIARY - PLEISTOCENE (Qpa)											
Weak off-white silty fine SANDSTONE (or very dense silty fine sand. Visible voids < 1%			10			Patchily iron stained & cemented					
			11								
			12								
			13								
Weak light red-brown / off white coarse arkosic SANDSTONE (or very dense sand)			14								
			15								
PRECAMBRIAN (pEg)											
Weak completely weathered grey-green micaceous GRANITE			16			Core fragmented					
Moderately strong slightly to moderately weathered foliated very micaceous gneissic GRANITE (pEg (Fr))			17			few joints, clean					
			18								
			19								
						END OF HOLE 19·00 m					

V = 1440 m/s

① ROCK SUBSTANCE
STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. D.M 187
TYPE MAYHEW
DRILLER W.J. BOYD
START 6/12/74
FINISH 7/12/74

LOGGED G.H.McN
DATE 15/5/75
TRACED
CHECKED G.H.McN

SHEET 2 OF 2

DRG. No. S 11539a

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

PROJECT: TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

FEATURE: MARLA BORE - BAYSTONE BORE

LOCATION: OUTOUNYA CK, N.T., NORTH BANK

SECTION - HUNDRED -

CO-ORDINATES: Ch. C 2·800 km

ANGLE FROM HORIZ: VERTICAL DIRECTION

HOLE NO. DH 15

SER A... No.

E.L. Surface: 462·5 m

E.L. Collar: m

Datum:

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE	DEPTH m	LOG	③ RQD % 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	CORE LOSS %	WATER LEVEL DATE	CASING	DRILL WATER LOSS %	④ WATER PRESSURE TESTS LUGEONS
Loose / dense red-brown becoming light brown c.m.f. SAND, gravelly & clayey in places (see trial pit log C 2·800 km, 0-2·80 m)				1 2 3			Tricone bit used, 0 - 3·00 m - sludge samples only					V = 292 m/s
Weak very coarse light brown arkosic SANDSTONE (or dense sandy Fine gravel), with numerous bands of loose sand.				4 5			S.P.T., 3·00 - 3·33, N = 40+ (red-brown micaceous silty c.m.f. sand)					
Ditto, loose sand bands less common. Visible voids ~ 5% of volume				6 7 8 9 10			S.P.T., 5·33 - 5·53					V = 1500 m/s

TERTIARY - PLEISTOCENE (Qpa)

① ROCK SUBSTANCE
STRENGTH TERM
VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0-25% Very poor
25-50% Poor
50-75% Fair
75-100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. = Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No.	DM 187	LOGGED	G.H. McN
TYPE	MAYHEW	DATE	15/5/75
DRILLER	W.J. BOYD	TRACED	
START.	5/12/74	CHECKED	G.H. McN
FINISH	6/12/74		

SHEET 1 OF 3. DRG. No. S 11540

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 15

SERIAL No.

PROJECT. TARCOOLA - ALICE SPRINGS RAILWAY-BRIDGE SITES

FEATURE. MARLA BORE - BAYSTONE BORE

LOCATION OUTOUNYA CK, N.T., NORTH BANK

SECTION - . HUNDRED -

CO-ORDINATES ch. C 2·800 km

ANGLE FROM HORIZ VERTICAL DIRECTION

R.L. Surface 462·5 m

R.L. Collar . m

Datum .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM	CORE SIZE DEPTH	LOG	③ RQD%	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS%	WATER LEVEL DATE	CASING	DRILL WATER LOSS%	WATER PRESSURE TESTS LUGEONS ④
		VS S MS W VW SO	E L m		75 50 25		10 5 50			0 100	0·5 1 5 10 50 100

TERTIARY - PLEISTOCENE (Qpa)

Weak light brown very coarse arkosic SANDSTONE (or fine conglomerate, or dense sandy fine gravel)

Gravel subrounded

10 11 12 13 14 15 16

V = 1500 m/s

Ditto, unconsolidated clean coarse SAND

17 18

PRECAMBRIAN (pEg)

Dense dark grey very micaceous medium gravelly c.m.f. SAND

Water worn gravel (well rounded)

S.P.T., 18·85 - 19·07, N=26+

19

Very weak to weak dark grey very micaceous completely weathered GRANITE

Weathered bedrock

20

① ROCK SUBSTANCE

STRENGTH TERM
VS Very Strong
S Strong
MS Medium Strong
W Weak
VW Very Weak
SO Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Fair
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test
Min Minimum value

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE . MAYHEW
DRILLER W.J. BOYD
START. 5/12/74
FINISH 6/12/74

LOGGED G.H. McN
DATE 15/5/75
TRACED
CHECKED G.H.McN

SHEET 2. OF 3. DRG No S 11540a

DEPARTMENT OF MINES SOUTH AUSTRALIA

PROJECT TARCOOLA - ALICE SPRINGS RAILWAY - BRIDGE SITES

LOG OF DIAMOND DRILL HOLE

HOLE NO. DH 15

SERIAL No.

FEATURE MARLA BORE - BAYSTONE BORE

SECTION - HUNDRED -

CO-ORDINATES ch. 2·800 km

LOCATION OUTOUNYA CK., N.T., NORTH BANK

ANGLE FROM HORIZ VERTICAL DIRECTION

E L Surface 462·5 m

E L Collar . . m

Datum .

DESCRIPTION OF CORE	② GROUP SYMBOL	① STRENGTH TERM (VS S MS W VW SO)	CORE SIZE DEPTH E L m	LOG	③ R.Q.D.% 75 50 25	STRUCTURES JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE LOSS% 10 5 50	WATER LEVEL DATE	CASING	DRILL WATER LOSS % 0 100	④ WATER PRESSURE TESTS LUGEONS 0·5 1 5 10 50 100
PRECAMBRIAN (pEg)											
Completely weathered GRANITE (as above)			20	+		Core fragmented					
Moderately strong, moderately to highly weathered very micaceous gneissic GRANITE			21	+		Core largely fragmented					
			22	+		becoming slightly weathered					
			23	+							
			24	+							
						END OF HOLE 24·47 m					

V = 1500 m/s

① ROCK SUBSTANCE STRENGTH TERM
VS–Very Strong
S–Strong
MS–Medium Strong
W–Weak
VW–Very Weak
SO–Soil properties

CONDITION TERM
Fresh
Weathered
Altered
Not Applicable

② Substances with soil properties remoulded and classified by Unified System

③ ROCK QUALITY DESIGNATION
0–25% Very poor
25–50% Poor
50–75% Foir
75–100% Good to excellent

④ (350) Maximum effective pressure (kilopascals) reached during test.
Min. Minimum value.

ENGINEERING GEOLOGY SECTION

DRILL No. DM 187
TYPE MAYHEW
DRILLER W.J. BOYD
START. 5/12/74
FINISH 6/12/74

LOGGED G.H.McN
DATE 15/5/75
TRACED
CHECKED G.H.McN

SHEET 3 OF 3

DRG No. S 11540b

CH.B240.200 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 1

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION INDULKANA CK. BRIDGE SITE SECTION . — HUNDRED . —

LANDFORM .

RELIEF . Direction of fall .

MICRORELIEF .

DRAINAGE External . Internal . Surface Absorption .

SURFACE VEGETATION Type .

SAMPLE NUMBER	SOIL/ROCK HORIZON	RL (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT Consistency, Compactness, Relative Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
		1		SM	Red-brown silty fine SAND	PLEISTOCENE ALLUVIUM (Qpa)	Medium dense		DRY	
					Ditto, with a little C.M. gravel		dense			
				GP	Red-brown sandy fm. silcrete gravel		dense			
		2			END OF PIT, 1·80 m	Backhoe unable to penetrate below 1·80 m				
		3								
		4								
		5								
		6								

REMARKS Adjacent to D.H1, about 25 m north of the south bank of Indulkana Ck

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group .	Water level (date) 7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT BACKHOE TYPE J. DEERE
Subgroup .		S — Soft	MC — Moderately Compact	L — Loose	D — Damp	DRILLER .
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	START .
DM .	WC ▶	St — Stiff	VC — Very Compact	D — Dense	W — Wet	FINISH .
Map .	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	LOGGED G.H.McN
Photo .		H — Hard			LL — Liquid Limit	DATE Dec. 74
					PL — Plastic Limit	TRACED J.W.
						CHECKED G.H.McN
						SHEET . OF . DRG No S11543

PF N° S 6109 MB

CH. B240·250 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 2

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE – BAYSTONE BORE (BRIDGES)

LOCATION INDULKANA CREEK BRIDGE SITE SECTION – HUNDRED –

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	RL (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed. Rev. 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT Consistency, Compactness, Rel. Density	"SOILTEST" PENETROMETER *
		1		SW	Light red-brown, clean, well-graded coarse/medium/fine SAND	RECENT ALLUVIUM Qra	Very loose caved badly		Dry	
		2			END OF PIT, 1·80m	Onto stiff (?) orange/grey mottled sandy and gravelly clay (GC.) Backhoe unable to advance due to caving (?Qpa)				

REMARKS Centre of present stream channel. Sampled as source of fine aggregate.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. DEERE
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER
DM	WC	St — Stiff	VC — Very Compact	D — Dense	W — Wet	START
Map	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH
Photo		H — Hard			LL — Liquid Limit	SHEET OF
					PL — Plastic Limit	

LOGGED G.H.McN

DATE DEC 74

TRACED J.W

CHECKED G.H.McN

DRG No S11544

PF Nº S 6109 MB

CH B240·300 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 3

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE BAYSTONE BORE (BRIDGES)

LOCATION INDULKANA CREEK BRIDGE SITE SECTION . – . HUNDRED . – .

LANDFORM .

RELIEF . Direction of fall .

MICRORELIEF .

DRAINAGE External . Internal . Surface Absorption .

SURFACE VEGETATION Type .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL } DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT Consistency Compactness Rel. Density	"SOILTEST" PENETROMETER UNITS * 1 2 3 4
		1		SW-SM	Red-brown, silty c.m.f. SAND.	PLEISTOCENE ALLUVIUM (Qpa.)	Medium dense		Dry	
		2		SW-SM	Red-brown silty & gravelly c.m.f. sand (or semi-consilidated sandstone)		Dense (or very weak rock)			
					END OF PIT, 2·20m					

REMARKS Northern edge of present channel, adjacent to DH2

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION

Great Soil Group .

Subgroup .

REFERENCE

DM .

Map .

Photo .

Water level (date) 7 May 67

WC

Water cut

CONSISTENCY (CLAY)

VS — Very Soft
S — Soft
F — Firm
St — Stiff
V St — Very Stiff
H — Hard

COMPACTNESS (SILT)

Ls — Loose
MC — Moderately Compact
C — Compact
VC — Very Compact

RELATIVE DENSITY (SAND)

VL — Very Loose
L — Loose
MD — Medium Dense
D — Dense
VD — Very Dense

MOISTURE CONTENT

H — Humid
D — Damp
M — Moist
W — Wet
S — Saturated
LL — Liquid Limit
PL — Plastic Limit

ENGINEERING GEOLOGY SECTION

PLANT Backhoe
TYPE J. Deere
DRILLER .
START .
FINISH .

LOGGED G.H. McN
DATE Dec. 74
TRACED J.W
CHECKED G.H.McN

SHEET . OF .

DRG No S11545

PF Nº S 6109 MB

Ch. B244.460km.

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 4

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGE)

LOCATION . MINOR BRIDGE SITE . . . SECTION . —. HUNDRED . —. . . . . .

LANDFORM . . . . . .

RELIEF . . . . . Direction of fall . . . . . .

MICRORELIEF . . . . . .

DRAINAGE External . . . . . Internal . . . . . Surface Absorption . . . . . .

SURFACE VEGETATION Type . . . . . .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness Rel Density	"SOILTEST" PENETROMETER UNITS * 1 2 3 4
		1		SW-SM	Red-brown silty C.M.F. SAND	PLEISTOCENE ALLUVIUM (Qpa) With nodular calcrete horizon (Qca)	Medium dense /dense		Dry		
	Qca			GP	Sandy fine GRAVEL		Loose				
					White/grey green calcareous GRAVEL		dense				
		2			END OF PIT, 1·60m						

REMARKS Adjacent to DH3 and present stream channel (filled with loose, clean, well graded sand).

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	Water level (date) 7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe
Subgroup	WC ➤	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere
REFERENCE	Water cut	F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER
DM		St — Stiff	VC — Very Compact	D — Dense	W — Wet	START
Map		V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH
Photo		H — Hard			LL — Liquid Limit	LOGGED G.H. McN.
					PL — Plastic Limit	DATE Dec'74
						TRACED JW
						CHECKED G.H.McN
						SHEET OF DRG No S11546

PF Nº S 6109 MB

Ch. B249·700 km.

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 5

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION MINOR BRIDGE SITE SECTION - HUNDRED -

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL / ROCK HORIZON	R.L (m) / DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME (Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev. 1963)	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Rel. Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
				GP-GM	Light brown silty & sandy fine GRAVEL	PLEISTOCENE ALLUVIUM (Qpa)	Medium dense / dense		Dry		
1				GP	Red-brown sandy fine GRAVEL						
			+ + +		Weathered & silicified fragmented GRANITE	PRECAMBRIAN (Ptg)	dense / very dense				
2					END OF PIT, 1·50 m	Backhoe unable to penetrate silicified granite gravel below 1·5 m.					

REMARKS Adjacent to DH4

* These values refer to cloy soils only and provide an indication of their consistency.

CLASSIFICATION
Great Soil Group
Subgroup
REFERENCE
DM
Map
Photo

Water level (date)
WC
Water cut

CONSISTENCY (CLAY)
VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

COMPACTNESS (SILT)
L Loose
MC Moderately Compact
C Compact
VC Very Compact

RELATIVE DENSITY (SAND)
VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

MOISTURE CONTENT
H — Humid
D — Damp
M — Moist
W — Wet
S — Saturated
LL Liquid Limit
PL Plastic Limit

ENGINEERING GEOLOGY SECTION

PLANT Backhoe
TYPE J.Deere
DRILLER
START
FINISH

LOGGED G·H. McN
DATE Dec'74
TRACED J.W
CHECKED G.H.McN

SHEET OF
DRG No S 11547

PF N° S 6109 MB

Ch. B259·000 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 6

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION TARCOONYINNA CK. STH BRANCH SECTION . — HUNDRED —

LANDFORM .

RELIEF . Direction of fall .

MICRORELIEF .

DRAINAGE External . Internal . Surface Absorption .

SURFACE VEGETATION Type .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME (Unified Soil Classification / I.S.B.R. Earth Manual of Eng. Practice)	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Rel. Density	*SOILTEST PENETROMETER
				SC	Red-brown fine sandy CLAY, with traces of gravel	Pleistocene Alluvium (Qpa)	?. Stiff		Dry		
		1			Highly weathered clayey SCHIST	? UPPER (PS) PROTEROZOIC	Very weak				
					Grey-green SCHIST		weak				
		2			END OF PIT, 1·30 m						

REMARKS On low swampy ground with dense mulga scrub cover

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group .	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe
Subgroup .	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER .
DM .	WC	St — Stiff	VC — Very Compact	D — Dense	W — Wet	START .
Map .	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH .
Photo .		H — Hard			LL — Liquid Limit	LOGGED G.H.McN.
					PL — Plastic Limit	DATE Dec. '74
						TRACED JW.
						CHECKED GHMcN.
						SHEET . OF . DRG No S11548

PF N° S 6109 MB

Ch. B259·110 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 7

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION TARCOONYINNA CK, SOUTH BRANCH SECTION . - . HUNDRED -

LANDFORM .

RELIEF . Direction of fall .

MICRORELIEF .

DRAINAGE External . Internal . Surface Absorption .

SURFACE VEGETATION Type .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L.(m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Rel Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
		1		SW	Red-brown slightly silty c.m.f. SAND (becoming consil-idated with depth)	PLEISTOCENE ALLUVIUM (Qpa)	Loose Medium dense Dense, weak rock properties			DRY	
		2			END OF PIT, 1·70 m						

REMARKS On low divide between two minor sandy channels

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION
Great Soil Group .
Subgroup .
REFERENCE
DM .
Map .
Photo .

Water level (date) May 67
WC
Water cut

CONSISTENCY (CLAY)
VS Very Soft
S Soft
F Firm
St Stiff
V St Very Stiff
H Hard

COMPACTNESS (SILT)
Ls Loose
MC Moderately Compact
C Compact
VC Very Compact

RELATIVE DENSITY (SAND)
VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

MOISTURE CONTENT
H Humid
D Damp
M Moist
W Wet
S Saturated
LL Liquid Limit
PL Plastic Limit

ENGINEERING GEOLOGY SECTION

PLANT Backhoe
TYPE J. Deere
DRILLER .
START .
FINISH .

LOGGED G·H·McN
DATE Dec.74
TRACED J.W
CHECKED G.H.McN

SHEET . OF .
DRG No S11549

PF Nº S 6109 MB

CL B259·200 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 8

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE-BAYSTONE BORE (BRIDGES)

LOCATION TARCOONYINNA CK, STH BRANCH SECTION . . HUNDRED . . .

LANDFORM . . .

RELIEF . . . Direction of fall . . .

MICRORELIEF . . .

DRAINAGE External . . . Internal . . . Surface Absorption . . .

SURFACE VEGETATION Type . . .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME. Unified Soil Classification USBR Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency; Compactness; Relative Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
		1		SW	Red-brown c.m.f SAND, with silt traces.	PLEISTOCENE ALLUVIUM (Qpa).	Loose.		Dry		
				SC	Red-brown weakly calcified sandy clay.		Medium dense.				
		2		SW SM	Silty c.m.f. SAND (or weak sandstone)		Dense (weak rock properties)				
				GP	Red-brown sandy coarse GRAVEL, few cobbles.		Medium dense.				
		3			END OF PIT, 2·30m.						

REMARKS Adjacent to DH5

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS – Very Soft	Ls – Loose	VL – Very Loose	H – Humid	PLANT Backhoe
Subgroup	Water level (date)	S – Soft	MC – Moderately Compact	L – Loose	D – Damp	TYPE J. Deere
REFERENCE		F – Firm	C – Compact	MD – Medium Dense	M – Moist	DRILLER
DM	WC ▶	St – Stiff	VC – Very Compact	D – Dense	W – Wet	START
Map	Water cut	V St – Very Stiff		VD – Very Dense	S – Saturated	FINISH
Photo		H – Hard			LL – Liquid Limit	LOGGED G.H.McN
					PL – Plastic Limit	DATE Dec '74
						TRACED J.W
						CHECKED G.H McN
						SHEET . OF . DRG No S11550

PF Nº S 6109 MB

Ch. B260·300 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 9

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE-BAYSTONE BORE (BRIDGES)

LOCATION TARCOONYINNA CK, SOUTH BRANCH SECTION - HUNDRED -

LANDFORM.

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev. 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Density	SOIL TEST PENETROMETER * (UNITS) 1 2 3 4
				SP SM	Red-brown medium/fine SAND, with a little silt.	PLEISTOCENE RECENT ALLUVIUM (Qra/Qpa)	Loose		Humid		
				SP	Orange coarse SAND						
		1		SP	White/brown cemented coarse/medium sand (or weak sandstone)		Dense (Weak rock properties) slightly Porous		Dry		
		2			END OF PIT, 1·90 m						

REMARKS Located in broad sandy channel adjacent to DH6.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS Very Soft	Ls Loose	VL Very Loose	H Humid	PLANT Backhoe
Subgroup	Water level (date)	S Soft	MC Moderately Compact	L Loose	D Damp	TYPE J. Deere
REFERENCE		F Firm	C Compact	MD Medium Dense	M Moist	DRILLER
DM	WC ▶	St Stiff	VC Very Compact	D Dense	W Wet	START
Map	Water cut	V St Very Stiff		VD Very Dense	S Saturated	FINISH
Photo		H Hard			LL Liquid Limit	LOGGED G.H.McN
					PL Plastic Limit	DATE Dec '74
						TRACED JW
						CHECKED G.H.McN
						SHEET OF DRG No S11551

PF N° S 6109 MB

Ch. B260·360 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 10

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION TARCOONYINNA CK, SOUTH BRANCH SECTION . ~. HUNDRED . ~.

LANDFORM .

RELIEF . Direction of fall .

MICRORELIEF .

DRAINAGE External . Internal . Surface Absorption .

SURFACE VEGETATION Type .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L.(m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency: Compactness Rel. Density	SOILTEST PENETROMETER * UNITS 1 2 3 4
		1		SM	Red-brown silty fine/medium SAND	PLEISTOCENE - RECENT ALLUVIUM (Qra/Qpa)	Loose		HUMID		
				SW	Red-brown c.m.f. SAND.						
				SP	White/brown cemented C.M. Sand.		Dense; weak rock props.		DRY		
		2			END OF PIT, 1·90 m						

REMARKS

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION

Great Soil Group .

Subgroup .

REFERENCE

DM .

Map .

Photo .

Water level (date) 7 May 67

WC

Water cut

CONSISTENCY (CLAY)

VS — Very Soft
S — Soft
F — Firm
St — Stiff
V St — Very Stiff
H — Hard

COMPACTNESS (SILT)

Ls — Loose
MC — Moderately Compact
C — Compact
VC — Very Compact

RELATIVE DENSITY (SAND)

VL — Very Loose
L — Loose
MD — Medium Dense
D — Dense
VD — Very Dense

MOISTURE CONTENT

H — Humid
D — Damp
M — Moist
W — Wet
S — Saturated
LL — Liquid Limit
PL — Plastic Limit

ENGINEERING GEOLOGY SECTION

PLANT Backhoe
TYPE J. Deere
DRILLER .
START .
FINISH .

LOGGED G.H.McN
DATE Dec '74
TRACED J.W.
CHECKED G.H.McN

SHEET . OF .

DRG No S 11552

PF Nº S 6109 MB

Ch.B260·776 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF PIT

PIT NO 11

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)
LOCATION TARCOONYINNA CK, MAIN CHANNEL SECTION – HUNDRED –
LANDFORM
RELIEF Direction of fall
MICRORELIEF
DRAINAGE External Internal Surface Absorption
SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	RL (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed Rev 1963	OTHER GEOLOGICAL/PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Rel Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
				SC-SW	Dark red-brown clayey c.m.f. SAND, traces gravel		Loose				
		1			Red-brown silty c.m.f. SAND, cemented and porous.	PLEISTOCENE ALLUVIUM (Qpa)	Med. dense / dense (Very weak / weak rock)		Dry		
		2			END OF PIT, 1·80m						

REMARKS Pit located below southern bank, at edge of channel sand

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION	Water level (date)	CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT TYPE Backhoe J.Deere
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	DRILLER
REFERENCE	WC	F — Firm	C — Compact	MD — Medium Dense	M — Moist	START
DM	Water cut	St — Stiff	VC — Very Compact	D — Dense	W — Wet	FINISH
Map		V St — Very Stiff		VD — Very Dense	S — Saturated	LOGGED G.H.McN. DATE Dec.'74
Photo		H — Hard			LL — Liquid Limit	TRACED JW. CHECKED G.H.McN
					PL — Plastic Limit	SHEET OF DRG No S 11553

PF Nº S 6109 MB

Ch.B260·900km

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF PIT

PIT NO 12

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION TARCOONYINNA CK, MAIN CHANNEL SECTION . — . HUNDRED —

LANDFORM .

RELIEF Direction of fall.

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Rel. Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
				SW	Red-brown clean c.m.f. SAND, becoming f.m. gravelly with depth.	RECENT (Qra) ALLUVIUM	Loose		DRY		
		1		SW	White/brown cemented c.m.f. SAND (or weak sandstone.)	?PLEISTOCENE (Qpa)	Medium dense / ~~dense~~				
		2			END OF PIT, 1·70m						

REMARKS Pit located in Recent alluvial sands at centre of main channel Adjacent to DH8

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER
DM	WC	St — Stiff	VC — Very Compact	D — Dense	W — Wet	START
Map	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH
Photo		H — Hard			LL — Liquid Limit	LOGGED G.H.McN.
					PL — Plastic Limit	DATE Dec.'74
						TRACED JW
						CHECKED GHMcN
						SHEET . OF . DRG No. S11554

PF Nº S 6109 MB

Ch. B261·010

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 13

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION TARCOONYINNA CK, MAIN CHANNEL SECTION - HUNDRED -

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev. 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT Consistency, Compactness, Rel. Density	SOILTEST PENETROMETER *
		1		SC	Red-brown sandy CLAY	TOPSOIL				
				SM	Red-brown calcified silty m.f. SAND	PLEISTOCENE ALLUVIUM (Qpa)	Medium dense			
				SW	Red-brown cemented & porous c.m.f SAND (weak sandstone.)		Dense (Weak rock properties).		Dry	
				SW-SC	Ditto, grey/brown, more clayey					
		2			END OF PIT, 1·70 m					

REMARKS Located below North bank of main channel, adjacent to DH9

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	Water level (date) 7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe LOGGED G.H.McN
Subgroup	WC ▶ Water cut	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere DATE Dec'74
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER TRACED JW.
DM		St — Stiff	VC — Very Compact	D — Dense	W — Wet	START CHECKED GHMcN
Map		V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH
Photo		H — Hard			LL — Liquid Limit	SHEET OF DRG No S11555
					PL — Plastic Limit	

PF N° S 6109 MB

Ch B 276·200 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 14

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION ALBERGA RIVER CROSSING. SECTION . — HUNDRED —

LANDFORM .

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	RL (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev. 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Rel. Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
	Qca			GM	Red-brown/white silty & sandy medium nodular calcrete GRAVEL.	PLEISTOCENE ALLUVIUM (Qpa, with calcified Qca horizon).	Loose		DRY		
		1		GM	Ditto with silcrete fragments more numerous & calcrete nodules less so		Medium dense.				
				GM	Ditto, v. little calcrete		Dense.				
		2			END OF PIT, 1·60m						

REMARKS Pit located on south bank of Alberga.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67 Water level (date)	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe TYPE J. Deere
Subgroup	WC Water cut	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	DRILLER
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	START
DM		St — Stiff	VC — Very Compact	D — Dense	W — Wet	FINISH
Map		V St — Very Stiff		VD — Very Dense	S — Saturated	LOGGED G.H.McN
Photo		H — Hard			LL — Liquid Limit	DATE Dec '74.
					PL — Plastic Limit	TRACED JW
						CHECKED GHMcN
						SHEET . OF . DRG No S11556

PF Nº S 6109 MB

ChB 276 · 290 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 15

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION ALBERGA RIVER CROSSING. SECTION -. HUNDRED -

LANDFORM.

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L.(m) DEPTH(m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Density Rel.	SOILTEST PENETROMETER UNITS * 1 2 3 4
	Qca	1			Red-brown/white silty & sandy coarse/medium/fine nodular calcrete GRAVEL	Calcified Qca horizon of PLEISTOCENE ALLUVIUM (Qpa)	Medium dense		Dry		
		2			END OF PIT, 1·90 m						

REMARKS Pit located below south bank, at margin of present channel 90 m north of DH10. Few fragments of fresh Upper Proterozoic siltstone on surface.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	Water level (date) 7 May 67	VS - Very Soft	L - Loose	VL - Very Loose	H - Humid	PLANT Backhoe LOGGED
Subgroup		S - Soft	MC - Moderately Compact	L - Loose	D - Damp	TYPE J. Deere G.H. McN
REFERENCE		F - Firm	C - Compact	MD - Medium Dense	M - Moist	DRILLER DATE Dec '74
DM	WC ▶	St - Stiff	VC - Very Compact	D - Dense	W - Wet	START TRACED JW
Map	Water cut	VSt - Very Stiff		VD - Very Dense	S - Saturated	FINISH CHECKED G.H.McN
Photo		H - Hard			LL - Liquid Limit	SHEET OF DRG. No S11557
					PL - Plastic Limit	

PF Nº S 6109 MB

Ch. B276·400 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 16

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARIA BORE - BAYSTONE BORE (BRIDGES)

LOCATION ALBERGA RIVER CROSSING SECTION - HUNDRED -

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L.(m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT Consistency, Compactness Rel. Density	SOILTEST PENETROMETER * UNITS 1 2 3 4
		1		SW	Red-brown clean coarse/medium /fine SAND	RECENT ALLUVIUM (Qra)	Very loose sides of pit caved in after water struck at 1·70 m (fresh)		Dry	
		2							SATURATED	
					END OF PIT, 2·30 m	Onto red-brown /grey mottled gravelly & sandy CLAY (GC-SC), with grey-green siltstone fragments (U. Proterozoic)				

REMARKS Located on low sandy island between two main channels vicinity of cancelled DH11

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER
DM	WC	St — Stiff	VC — Very Compact	D — Dense	W — Wet	START
Map	Water cut	V. St — Very Stiff		VD — Very Dense	S — Saturated	FINISH
Photo		H — Hard			LL — Liquid Limit	LOGGED G.H. McN.
					PL — Plastic Limit	DATE Dec '74
						TRACED JW
						CHECKED GHMcN
						SHEET OF DRG. No. $11558

PF N° S 6109 MB

ChB276 · 500 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 17

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION ALBERGA RIVER CROSSING . . SECTION . . HUNDRED . . .

LANDFORM . . .

RELIEF . . . Direction of fall . . .

MICRORELIEF . . .

DRAINAGE External . . . Internal . . . Surface Absorption . . .

SURFACE VEGETATION Type . . .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	SOILTEST PENETROMETER *
				SW	Light red - brown clean c.m.f. SAND.		Very loose		DRY	
		1		SP	Dark brown slightly silty m.f. SAND, with grey-green silt - stone fragments (U. Proterozoic).	RECENT ALLUVIUM (Qra)	Loose. Fresh water struck at 1.80 m.		MOIST / SAT.	
		2			END OF PIT, 2.10m	Onto grey / brown mottled gravelly & sandy CLAY (GC – SC).				

REMARKS Located at centre of northern branch of channel.

* These values refer to cloy soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group . . .	Water level (date) 7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe / LOGGED
Subgroup . . .		S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere / G.H.McN
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER . . / DATE Dec '74.
DM . . .	WC ▶	St — Stiff	VC — Very Compact	D — Dense	W — Wet	START . . . / TRACED JW
Map . . .	Water cut	V. St — Very Stiff		VD — Very Dense	S — Saturated	FINISH . . . / CHECKED GH.McN
Photo . . .		H — Hard			LL — Liquid Limit	SHEET . OF . / DRG No. S11559
					PL — Plastic Limit	

PF Nº SG109 MB

Ch B276 · 600 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 18

LOG OF PIT

PROJECT TARCOOLA ALICE SPRINGS R/W, MARLABORE - BAYSTONE BORE (BRIDGES)

LOCATION ALBERGA RIVER CROSSING . SECTION - HUNDRED -

LANDFORM .

RELIEF . Direction of fall .

MICRORELIEF .

DRAINAGE External . Internal . Surface Absorption .

SURFACE VEGETATION Type .

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Rel. Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
		1		SP	Red-brown clean m.f. SAND	PLEISTOCENE ALLUVIUM (Qpa)	Loose		Dry		
		2		SP-SM	Red-brown slightly silty m.f. cemented SAND (or weak sandstone).		Dense - weak rock properties				
		3			END OF PIT, 3.00m						

REMARKS Halfway up north bank, 50m north of DH 12

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group .	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe TYPE J.Deere DRILLER . START . FINISH .
Subgroup .	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	LOGGED G.H.McN DATE Dec.'74 TRACED JW CHECKED G.H McN
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	
DM .	WC ▶	St — Stiff	VC — Very Compact	D — Dense	W — Wet	
Map .	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	
Photo .		H — Hard			LL — Liquid Limit	SHEET . OF . DRG No S 11560
					PL — Plastic Limit	

PF N° S 6109 MB

Ch B276·800km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 19

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION ALBERGA RIVER CROSSING SECTION – HUNDRED –

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	RL (m) / DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME (Unified Soil Classification U.S.B.R. Earth Manual 1st Ed Rev 1963)	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Density Rel.	"SOILTEST" PENETROMETER UNITS * 1 2 3 4
		1		SP	Red-brown clean m.f. SAND, with traces of silt.	? RECENT ALLUVIUM (Qra)	Loose		Dry		
		2									
		3		SW	Yellow, clean c.m.f. well graded SAND with a few cobbles of indurated shale		Very Loose				
					END OF PIT, 3·60m	Onto gravel at 3·60, end of reach for backhoe.					

REMARKS In overflow channel, north side of Alberga

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe TYPE J.Deere LOGGED G.H.McN
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	DRILLER DATE Dec.'74
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	START TRACED JW
DM	WC ▶	St — Stiff	VC — Very Compact	D — Dense	W — Wet	FINISH CHECKED GHMcN
Map	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	SHEET OF DRG No S 11561
Photo		H — Hard			LL — Liquid Limit	
					PL — Plastic Limit	

PF Nº S 6109 MB

Ch B277·100km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 20

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION ALBERGA RIVER CROSSING. SECTION . HUNDRED

LANDFORM.

RELIEF Direction of fall.

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L.(m) DEPTH(m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Rel Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
		1		SP	Red-brown clean m.f. SAND.	DUNE SAND (Qrd)	Very loose		Dry		
		2									
		3			END OF PIT 3·00m	Pit caved in at depth 3·00m					

REMARKS Dune crest, north side of Alberga.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67 Water level (date)	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe TYPE J. Deere
Subgroup	WC Water cut	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	DRILLER
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	START
DM		St — Stiff	VC — Very Compact	D — Dense	W — Wet	FINISH
Map		V St — Very Stiff		VD — Very Dense	S — Saturated	LOGGED G.M.McN.
Photo		H — Hard			LL — Liquid Limit	DATE Dec '74
					PL — Plastic Limit	TRACED JW
						CHECKED G.H.McN
						SHEET . OF . DRG No. S 11562

PF Nº S 6109 MB

Ch C 2·500 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 21

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION OUTOUNYA CREEK, N.T. SECTION - HUNDRED -

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Rel Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
		1			Red-brown coarse/ medium / fine SAND, with traces of silt.	PLEISTOCENE ALLUVIUM (Qpa)	Loose/ med. dense		Dry		
		2			Ditto cemented & slightly porous.		Dense				
					END OF PIT, 2·00m						

REMARKS South bank

* These values refer to cloy soils only and provide on indicotion of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe TYPE J. Deere LOGGED G.H.McN.
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	DRILLER DATE Dec '74
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	START TRACED JW
DM	WC	St — Stiff	VC — Very Compact	D — Dense	W — Wet	FINISH CHECKED G.H.McN
Map	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	SHEET OF DRG No. S 11563
Photo		H — Hard			LL — Liquid Limit	
					PL — Plastic Limit	

PF Nº S 6109 MB

ChC2·600km

DEPARTMENT OF MINES SOUTH AUSTRALIA

LOG OF PIT

PIT NO 22

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION OUTOUNYA Ck, N.T. SECTION — HUNDRED —

LANDFORM.

RELIEF

MICRORELIEF Direction of fall

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification. U S B R Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness Rel Density	SOILTEST PENETRO-METER UNITS * 1 2 3 4
		1		SM	Dark brown becoming silty m.f. SAND.	PLEISTOCENE ALLUVIUM (Qpa)	Loose/ Med. dense		Dry		
					Red-brown ditto, cemented & porous		Dense				
					END OF PIT, 1·50M.						

REMARKS South bank adjacent to DH 13.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	Water level (date) 7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe
Subgroup	WC ▶	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere
REFERENCE	Water cut	F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER
DM		St — Stiff	VC — Very Compact	D — Dense	W — Wet	START
Map		V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH
Photo		H — Hard			LL — Liquid Limit	LOGGED G.H.McN
					PL — Plastic Limit	DATE Dec. '74
						TRACED JW
						CHECKED GHMcN
						SHEET OF
						DRG No S11564

PF N° S 6109 MB

Ch.C2·650 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 23

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION OUTOUNYA CREEK, N.T. SECTION — HUNDRED —

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL / ROCK HORIZON	RL (m)	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME (United Soil Classification U.S.B.R. Earth Manual 1st Ed Rev 1963)	OTHER GEOLOGICAL PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Rel Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
			1			Red-brown silty m.f. SAND.	PLEISTOCENE ALLUVIUM (Qpa)	Loose / medium dense.		Dry		
			2			Lt. brown silty & clayey m.f. SAND.		Dense, (weak rock)				
						END OF PIT, 2·80m						

REMARKS South bank, adjacent to present channel (filled with clean coarse/medium sand) and 50m south of DH14, 50m north of DH13.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe LOGGED
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere G.H.McN.
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER DATE Dec'74.
DM	WC	St — Stiff	VC — Very Compact	D — Dense	W — Wet	START TRACED JW.
Map	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH CHECKED G.H.McN
Photo		H — Hard			LL — Liquid Limit	SHEET OF DRG No. S 11565
					PL — Plastic Limit	

PF Nº S 6109 MB

Ch. C2·750 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 24

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION OUTOUNYA CREEK N.T. SECTION - HUNDRED -

LANDFORM.

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L.(m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification U.S.B.R. Earth Manual 1st Ed. Rev 1963	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Rel. Density	SOILTEST PENETROMETER UNITS * 1 2 3 4
				SW	Red-brown c.m.f SAND.		Very loose				
				SM-SC	Dark brown silty, becoming clayey m.f. SAND		Med. dense				
	Qcl	1			Red-brown gravelly calcified m.f. SAND.	PLEISTOCENE ALLUVIUM (Qpa)	Med. dense				
	Qca	2			Light brown/white m.f. sandy nodular calcrete GRAVEL.		Med. dense		dry		
					Yellow-brown clayey faintly calcareous SAND.		Med. dense				
					END OF PIT, 2·80 m						

REMARKS North bank, 50m north of DH14 and 50m south of D.H.15.

* These values refer to clay soils only and provide on indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe LOGGED G.H.McN
Subgroup	Water level (date)	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	TYPE J. Deere DATE Dec '74.
REFERENCE		F — Firm	C — Compact	MD — Medium Dense	M — Moist	DRILLER TRACED JW
DM	WC ▶	St — Stiff	VC — Very Compact	D — Dense	W — Wet	START CHECKED G.H.McN
Map	Water cut	V St — Very Stiff		VD — Very Dense	S — Saturated	FINISH
Photo		H — Hard			LL — Liquid Limit	SHEET OF DRG No S11566
					PL — Plastic Limit	

PF Nº S 6109 MB

Ch.C16·080 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 25

LOG OF PIT

PROJECT TARCOOLA-ALICE SPRINGS R/W, MARLA BORE-BAYSTONE BORE (BRIDGES)

LOCATION MINOR BRIDGE SITE (N.T.) SECTION -, HUNDRED -

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R.L (m) / DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME (Unified Soil Classification USBR Earth Manual 1st Ed. Rev 1963)	OTHER GEOLOGICAL / PEDOLOGICAL DESCRIPTION	SOIL/ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency, Compactness, Rel. Density	SOILTEST PENETROMETER (UNITS *)
				SW-SM	Red-brown silty c.m.f. SAND.	PLEISTOCENE ALLUVIUM (Qpa)	Med. dense / dense		Dry		
		1	+ + +		Completely weathered fine grained GRANITE	PRECAMBRIAN (Pcg)	Very weak/ weak rock				
					END OF PIT, 1·25m	Backhoe unable to penetrate below 1·25m.					

REMARKS Loose clean sand in adjacent stream channel 2m wide. Propesed drillhole cancelled at this site.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION

Great Soil Group

Subgroup

REFERENCE

DM

Map

Photo

Water level (date) 7 May 67

WC

Water cut

CONSISTENCY (CLAY)

VS — Very Soft
S — Soft
F — Firm
St — Stiff
V St — Very Stiff
H — Hard

COMPACTNESS (SILT)

Ls — Loose
MC — Moderately Compact
C — Compact
VC — Very Compact

RELATIVE DENSITY (SAND)

VL — Very Loose
L — Loose
MD — Medium Dense
D — Dense
VD — Very Dense

MOISTURE CONTENT

H — Humid
D — Damp
M — Moist
W — Wet
S — Saturated
LL — Liquid Limit
PL — Plastic Limit

ENGINEERING GEOLOGY SECTION

PLANT Backhoe
TYPE J. Deere
DRILLER
START
FINISH

LOGGED G.H. McN
DATE Dec '74.
TRACED JW
CHECKED G.H.McN

SHEET OF

DRG No S11567

PF Nº S 6109 MB

Ch. C18·000 km

DEPARTMENT OF MINES SOUTH AUSTRALIA

PIT NO 26

LOG OF PIT

PROJECT TARCOOLA - ALICE SPRINGS R/W, MARLA BORE - BAYSTONE BORE (BRIDGES)

LOCATION MINOR BRIDGE SITE, N.T. SECTION - HUNDRED -

LANDFORM

RELIEF Direction of fall

MICRORELIEF

DRAINAGE External Internal Surface Absorption

SURFACE VEGETATION Type

SAMPLE NUMBER	SOIL/ROCK HORIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT Consistency Compactness Rel Density	SOILTEST PENETROMETER *
		1		SW-SM	Loose, red-brown silty c.m.f SAND, with a little fine gravel	PLEISTOCENE ALLUVIUM (Qpa)	Loose / Med. Dense		Dry	
					Completely weathered GRANITE.	PRECAMBRIAN (PEg)	Very Weak rock.			
					END OF PIT, 1·20m	Backhoe unable to penetrate weathered granite below 1·20m.				

REMARKS Loose red-brown, clean, well graded sand (Qra) in adjacent stream channel. Proposed drillhole cancelled at this site.

* These values refer to clay soils only and provide an indication of their consistency.

CLASSIFICATION		CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	ENGINEERING GEOLOGY SECTION
Great Soil Group	Water level (date) 7 May 67	VS — Very Soft	Ls — Loose	VL — Very Loose	H — Humid	PLANT Backhoe TYPE J. Deere
Subgroup	WC	S — Soft	MC — Moderately Compact	L — Loose	D — Damp	DRILLER
REFERENCE	Water cut	F — Firm	C — Compact	MD — Medium Dense	M — Moist	START
DM		St — Stiff	VC — Very Compact	D — Dense	W — Wet	FINISH
Map		V St — Very Stiff		VD — Very Dense	S — Saturated	LOGGED G.H.McN.
Photo		H — Hard			LL — Liquid Limit	DATE Dec' 74
					PL — Plastic Limit	TRACED JW
						CHECKED GHMcN
						SHEET OF DRG No S11568

PF Nº S 6109 MB

APPENDIX 2

CORE PHOTOGRAPHS


MARLA BORE-BAYSTONE BORE DH 1
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 1
9
10
11
12
13
14
15
16


MARLA BORE-BAYSTONE BORE DH2 GM.N 9-5-75
Loss!
Loss!
Loss!
Loss!
Loss!
Loss!
Loss!
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH2 GM.N 9-5-75
Loss!
Loss!
Loss!
Loss!
9
10
11
12
13
14
15
16


MARLA BORE-BAYSTONE BORE DH2 GM.N 9-5-75
Loss!
19.50 m
END OF HOLE
17
18
19
20


MARLA BORE-BAYSTONE BORE DH 3 9M.N9·5·7
Loss
Loss
Loss
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 4 9M.N9·5·7
Loss
Loss
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 5 GMcN 9-5-75
LOSS
LOSS
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 5 GMcN 9-5-75
10-20
9
10
11
12


MARLA BORE-BAYSTONE BORE DH 6 GM.N 9-5-75
Loss!
Loss!
Loss!
Loss!
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 6 GM.N 9-5-75
Loss!
Loss!
9
10
11
12
3
4
5
6


MARLA BORE-BAYSTONE BORE DH 6 GM.N 9-5-75
17
18
19
20
21
22
23
24


MARLA BORE-BAYSTONE BORE DH 7 9M.N9·5·75
1
2
3
4
5
6
7
8
MARLA BORE-BAYSTONE BORE DH 7 9M.N9·5·75
9
10
11
12
13
14
15
16
MARLA BORE-BAYSTONE BORE DH 7 9M.N9·5·75
17
18
19
20
21
22
23
24


MARLA BORE-BAYSTONE BORE DH 8
GMcN 9.5.75
NO SAMPLE!
LOSS
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 8
GMcN 9.5.75
9
10
11
12
13
14
15
16


MARLA BORE-BAYSTONE BORE DH 8
GMcN 9.5.75
17
18
19
20
21
22
23
24


MARLA BORE-BAYSTONE BORE DH 9 GM.N9-5-7
1
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 9 GM.N9-5-7
17
18
19
20
21
22
23
24


MARLA BORE-BAYSTONE BORE DH 9 GM.N9-5-7
9
10
11
12
13
14
15
16


MARLA BORE-BAYSTONE BORE DH 9 GM.N9-5-7
25
26
27
28
29
30
31


MARLA BORE-BAYSTONE BORE DH 10 4M.N9.5.75
2
3
4
5
6
7
8


MARLA BORE-BAYSTONE BORE DH 10 4M.N9.5.75
END OF DH 10
10
11
12
13
14
15
16
17


MARLA BORE-BAYSTONE BORE DH 12 9M.N9-5-75
1
2
3
4
5
6
7
8
MARLA BORE-BAYSTONE BORE DH 12 9M.N9-5-75
9
10
11
12
13
14
15
16


MARLA BORE - BAYSTONE BORE DH 13 GM.N 9/7


MARLA BORE - BAYSTONE BORE DH 13 GM.N 9/7


MARLA BORE - BAYSTONE BORE DH 14 GM.N 9/7
1
2
3
4
5
6
7
8
9
10


MARLA BORE - BAYSTONE BORE DH 14 GM.N 9/7
11
12
13
14
15
16
17
18
19
20


MARLA BORE - BAYSTONE BORE DH 14 GM.N 9/7
18
19
20


MARLA BORE - BAYSTONE BORE DH 15 GM&N 9/7


MARLA BORE - BAYSTONE BORE DH 15 GM&N 9/7


MARLA BORE - BAYSTONE BORE DH 15 GM&N 9/7

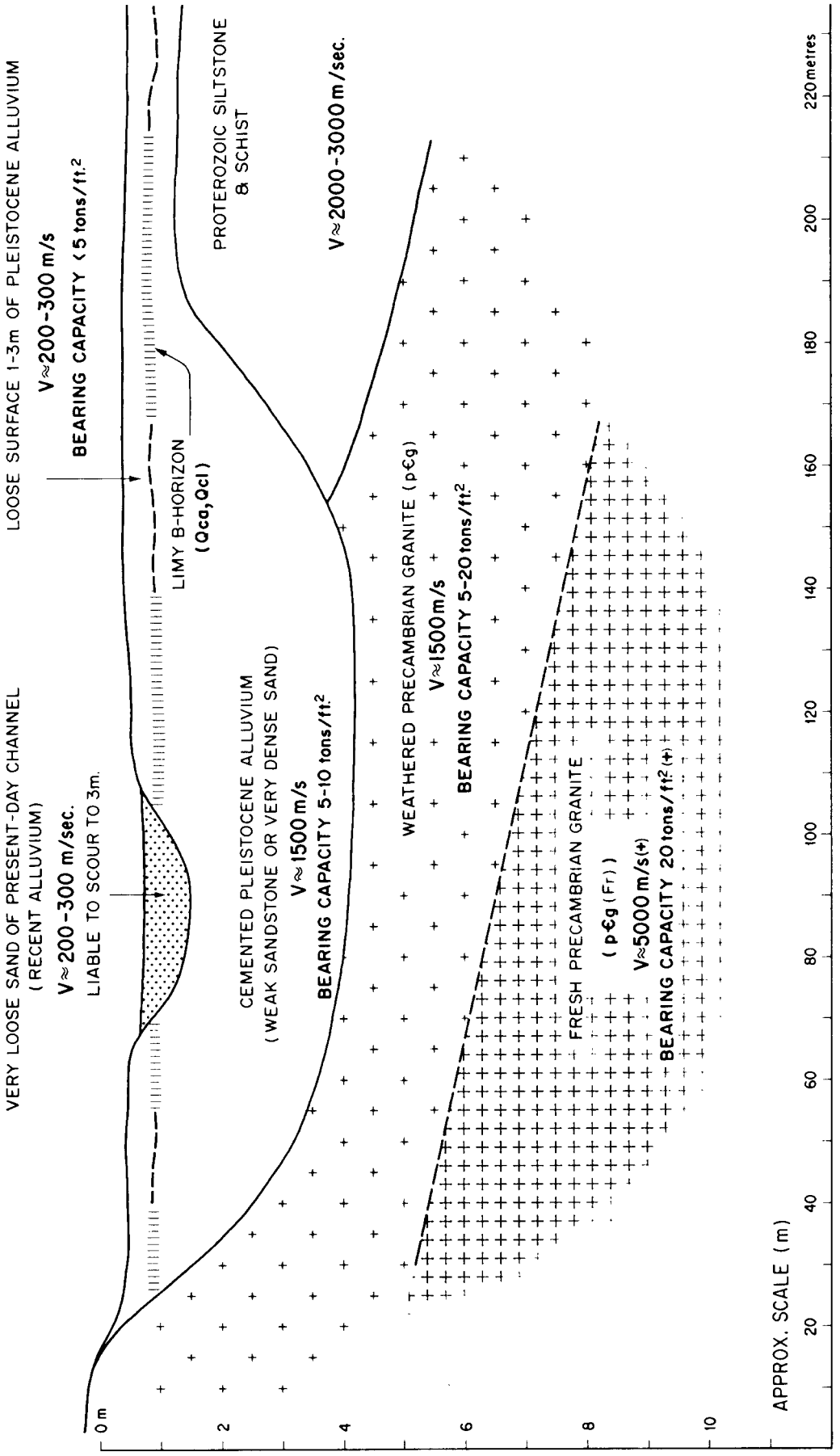
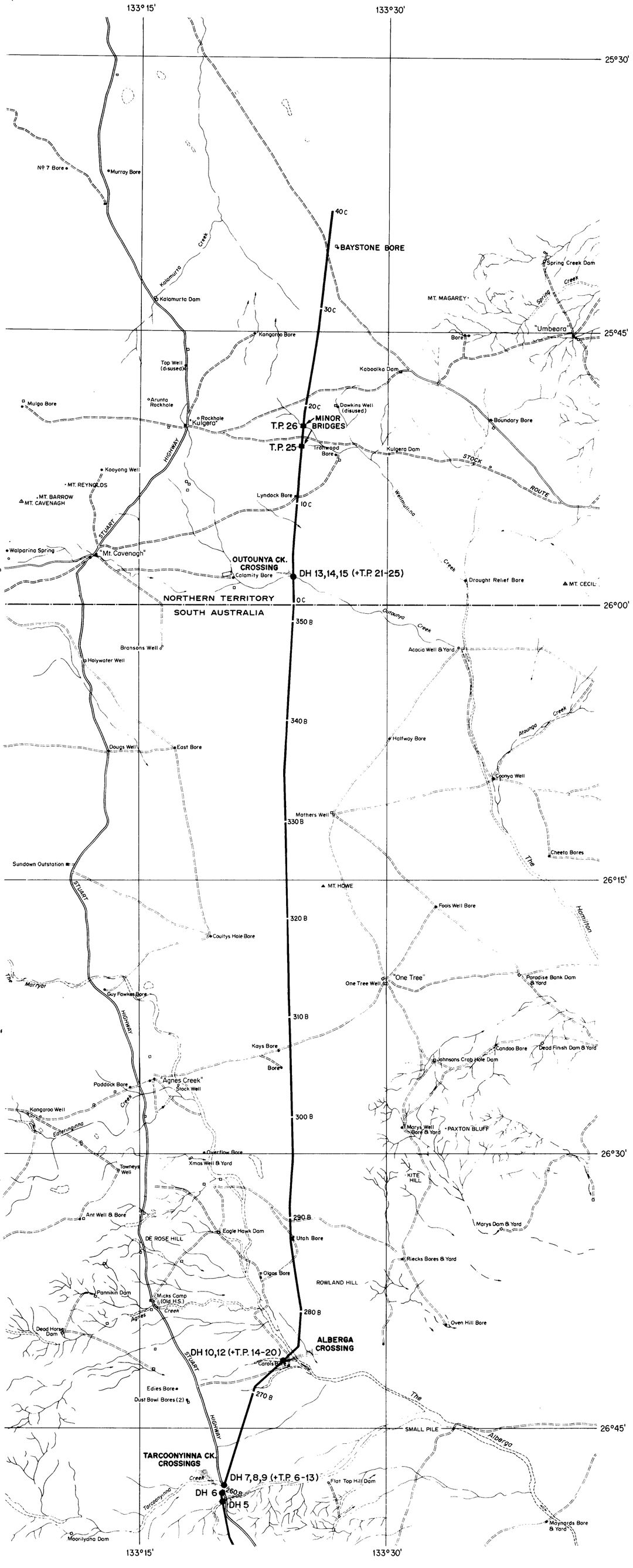
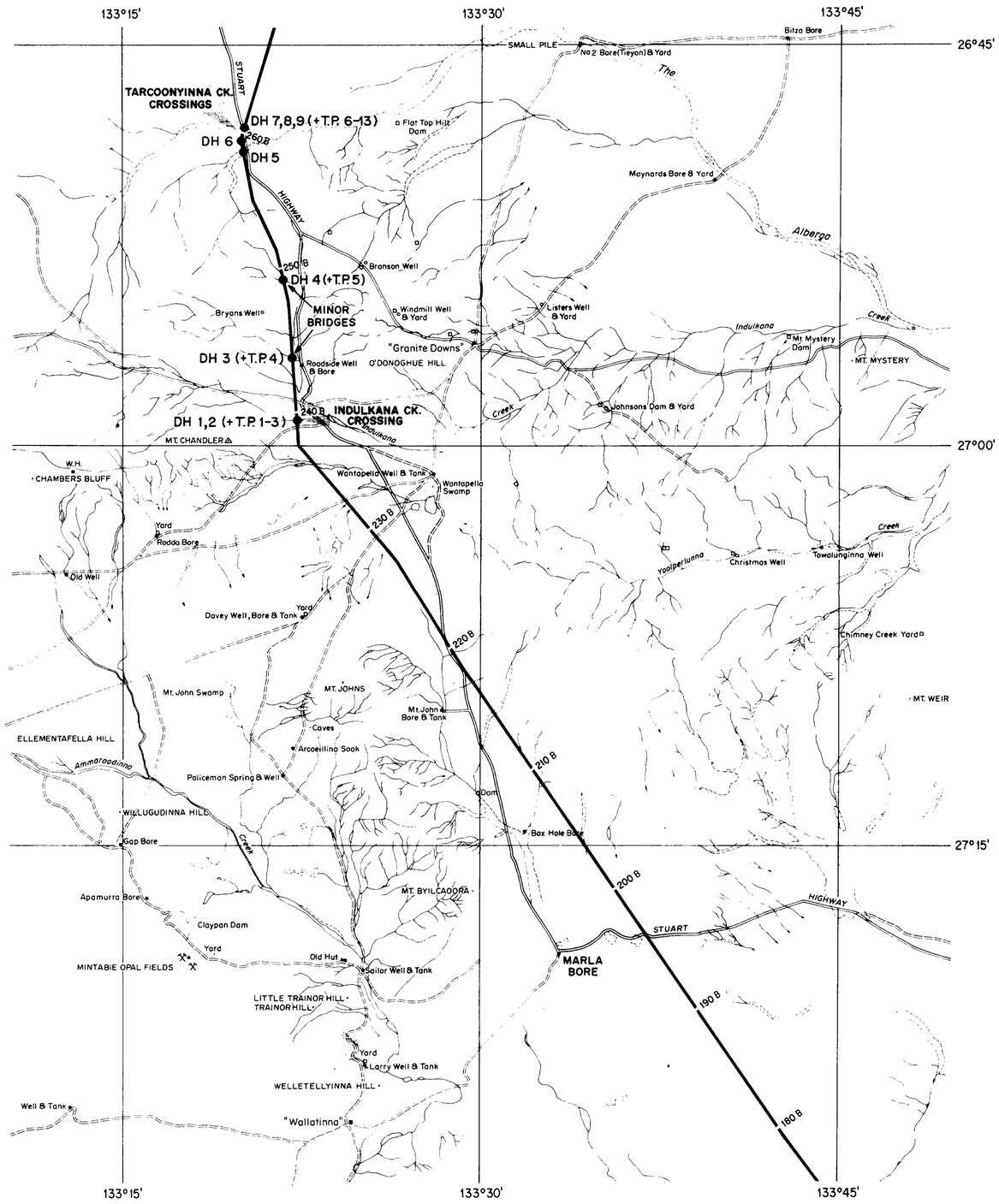


FIG. 1

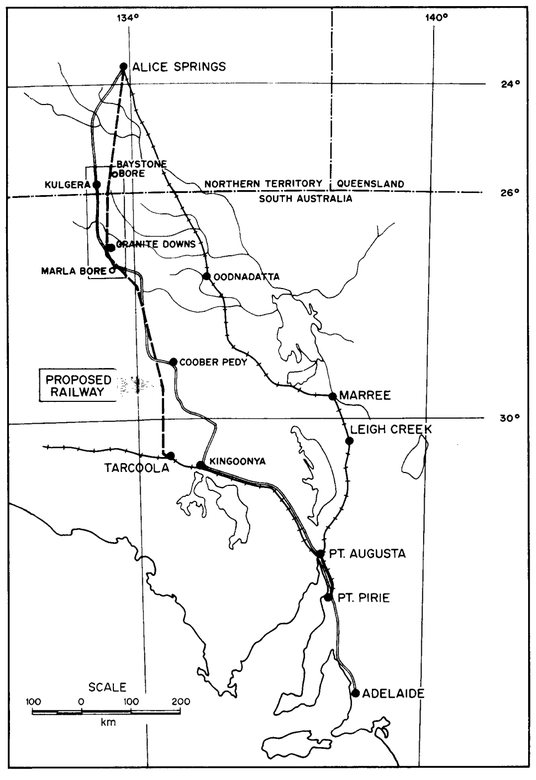
ENGINEERING GEOLOGY SECTION	DEPARTMENT OF MINES — SOUTH AUSTRALIA	SCALE: V-1:100 H-1:1000
COMPILED: J.H. McNALLY	TARCOOLA-ALICE SPRINGS RAILWAY MARLA BORE-BAYSTONE BORE SECTION	DATE: NOV. '75
DRN: R.G. CKD:	**SCHEMATIC ARRANGEMENT OF ROCK UNITS AT A BRIDGE SITE**	DRG. Nº **S-11998**

TARCOONYINNA





LOCALITY PLAN



REFERENCE

- 200 B .... ROUTE OF TARCOOLA-ALICE SPRINGS RAILWAY WITH DISTANCES IN Km.
- ROAD-UNSEALED
- ROAD-UNIMPROVED EARTH
- WATERHOLE; BORE; WATERTANK, DAM
- STREAM, INTERMITTENT
- ● DH 3 ..... DRILLHOLE
- ■ T.P.5 ..... TRIAL PIT

SCALE-1:250000

5 0 5 10 15 20 25

Kilometres

FIG. 2

DEPARTMENT OF MINES — SOUTH AUSTRALIA

TARCOOLA-ALICE SPRINGS RAILWAY
MARLA BORE-BAYSTONE BORE SECTION

LOCATION OF BRIDGE SITE DRILLHOLES AND TRIAL PITS

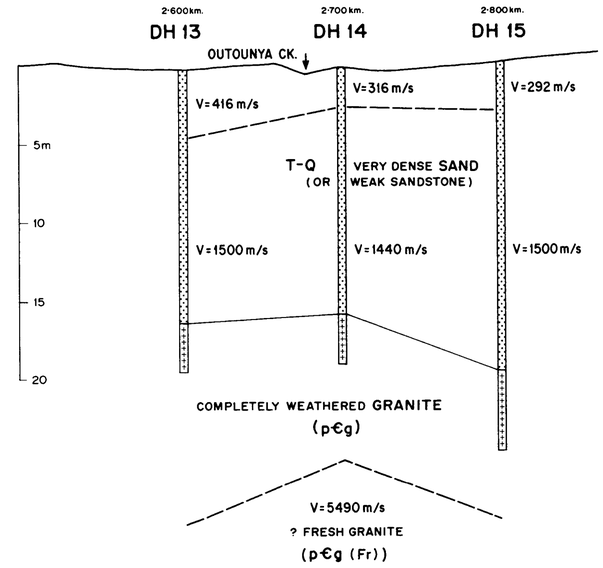
ENGINEERING GEOLOGY SECTION	G.H. McNALLY, GEOLOGIST.	Drn: G.H.McN.	SCALE: 1:250,000
		Tcd: R.G.	75-987
Director of Mines		Ckd:	
		Exd:	DATE: JULY 1975

2,3

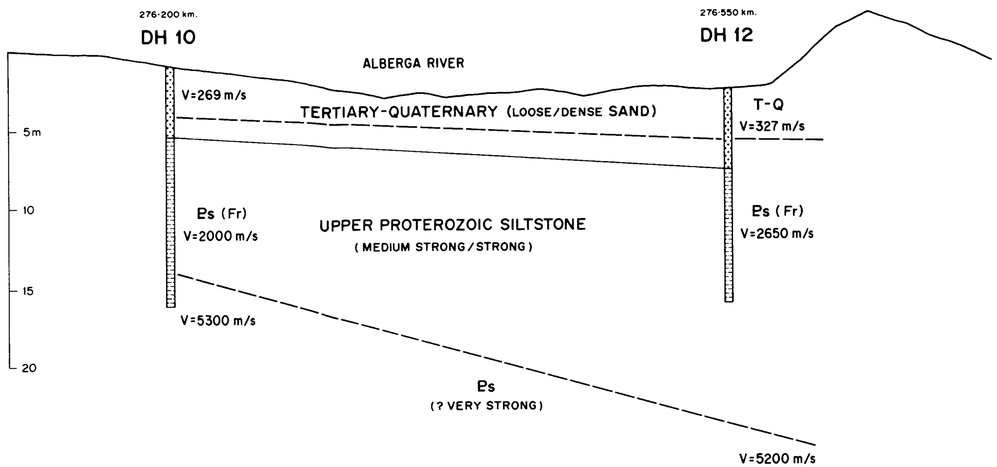
2.3

75-987

TARCOONYINNA CREEK CROSSINGS



OUTOUNYA CREEK CROSSING



ALBERGA RIVER CROSSING

HORIZONTAL SCALE

0 50 100 150 200 250 m

0 5 10 15 20 25 m

VERTICAL SCALE

T-Q / Ps ..... GEOLOGICAL BOUNDARY (ESTABLISHED BY DRILLING)

V=1000 m/s / V=3000 m/s ..... SEISMIC LAYER BOUNDARY

FIG. 3

DEPARTMENT OF MINES-SOUTH AUSTRALIA

TARCOOLA-ALICE SPRINGS RAILWAY
MARLA BORE-BAYSTONE BORE SECTION

PRINCIPAL BRIDGE SITES
GEOLOGICAL SECTIONS

ENGINEERING GEOLOGY SECTION	COMPILED: J.H.McN.	DRN: R.G.	SCALE: V-1:250 H-1:2500 VE=10·0	PLAN NUMBER 75-1010
DIRECTOR OF MINES		CKD:	DATE: NOV. '75	