



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

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South Australia ——

## DEPARTMENT OF MINES SOUTH AUSTRALIA

GEOLOGICAL SURVEY
ENGINEERING DIVISION

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bу

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#### 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<sup>2</sup> (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 mineral-ogical 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<sup>2</sup> (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<sup>2</sup> (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<sup>2</sup> (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<sup>2</sup> (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<sup>2</sup>, 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<sup>2</sup> (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<sup>2</sup> 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<sup>2</sup> (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<sup>2</sup> (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<sup>2</sup> (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<sup>2</sup> (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)

- O 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 <sup>2</sup> (500 kPa) has been assumed.

Alternatively, strong siltstone, of bearing capacity 20 tons/ft<sup>2</sup> (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)

o - 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<sup>2</sup> (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<sup>2</sup> (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<sup>2</sup> (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<sup>2</sup>. The foundation depth will depend on conditions revealed during excavation but a depth of 1.50 m is recommended.

#### REFERENCES

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## SUMMARY OF RECOMMENDATIONS

Bridge Site Chainage (km)	Drillhole Nos.	Recommended Footing Depth (m)	Safe Bearing Capacity (tons/ft2)	Foundation Material
B240.200 (Indulkana Ck.)	1 & 2	3	510	Pleistocene Alluvium (Qpa)
B244.500	3	4	5	Proterozoic Sandstone (Ps)
B249.750	4	1.5+	5-10	Granite(pCg)
B259.140	5	3	5-10	Proterozoic
(Tarcoonyinna Ck, South Branch) B260.300	6	3	10	Schist (Ps) Pleistocene
(Tarcoonyinna Ck, Overflow Channel) B260.900	7,8 & 9	3	10	Alluvium (Qpa)
(Tarcoonyinaa Ck, Main channel) B276.350	10 & 12	3-4	5	Alluvium (Qpa)
(Alberga River) C2.680	13,14 & 15	3	10	Alluvium (Qpa)
(Outounya Ck) C16.100	Capa	1.25	15	Granite(pCg)
C18.00	· <b>223</b>	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 and management and a constant	(F)	No weathering effects visible to naked eye.
Weathered rock shows visibl	e effects of c and grou	chemical decomposition caused by air undwater. Can be subdivided.
Slightly weathered	(SW)	<ul> <li>rock slightly discoloured par- ticularly along fissures but no loss in strength.</li> </ul>
Moderately weathered	(MW)	<ul> <li>discolouration starting to penetrate inwards from fisures and noticeable loss in strength</li> </ul>
Highly weathered	(HW)	<ul> <li>discoloured with weathering penetrating deeply inwards but corestones are still present.</li> </ul>
Completely weathered	(CW)	<ul> <li>changed to soil but original rock fabric may be preserved.</li> </ul>
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 hammed 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	<u>Conditions</u>	Strength
Granite	Fresh	Strong
Schist	Fresh	Weak

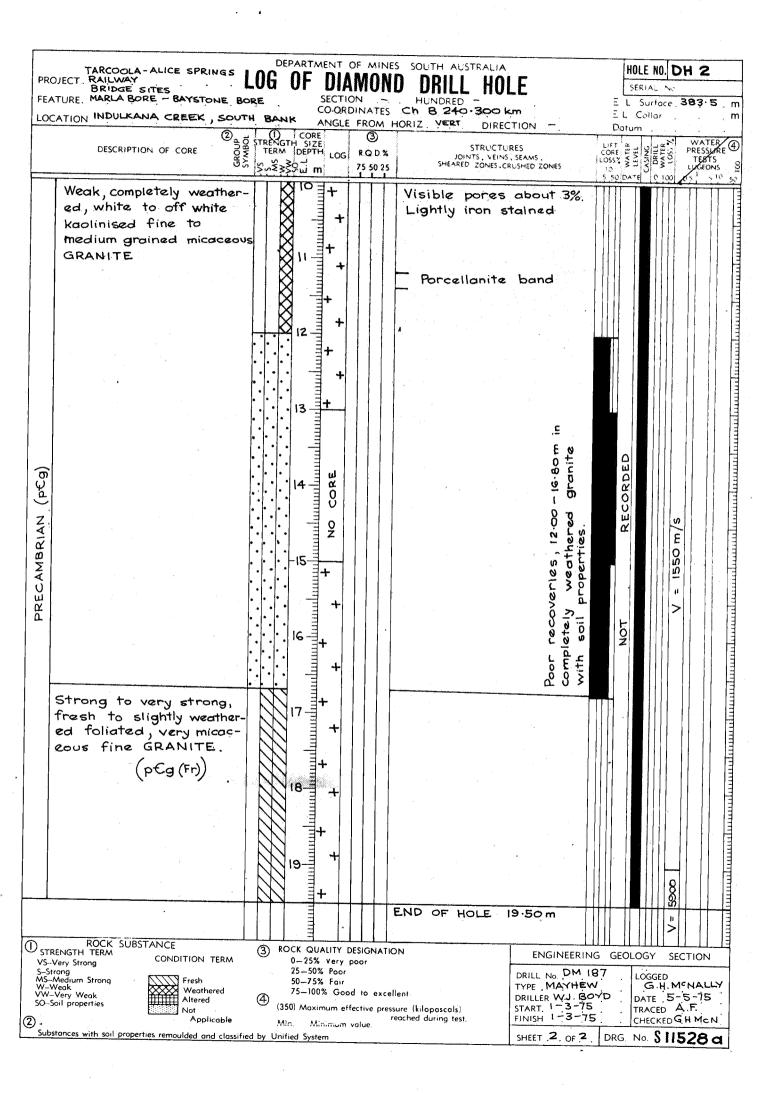
## DEPARTMENT OF MINES - SOUTH AUSTRALIA ENGINEERING CLASSIFICATION OF SOILS The Unified Soil Classification System

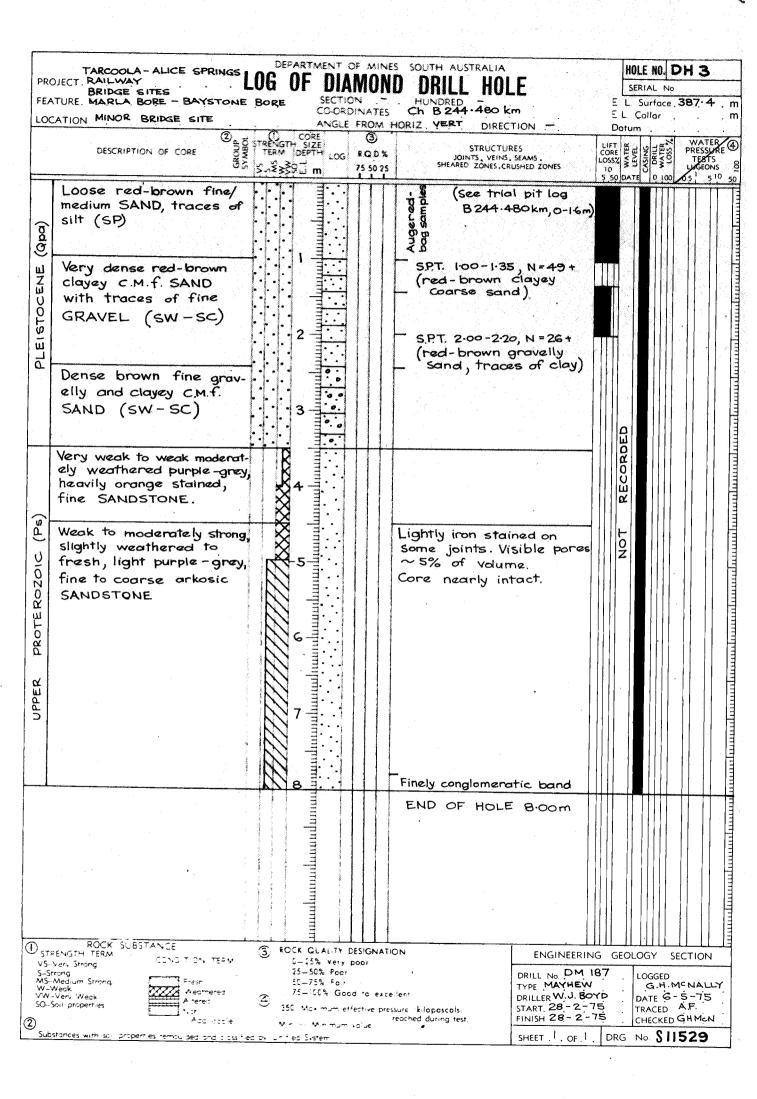
		FIE Excluding particles lar	LD INVESTIGATIO ger than 7.5cm and			ted weights		GROUP SYMBOL	GROUP NAME and typical materials			L	ABORATORY CLASSIFIC	ATION CRITERIA					
_	GRAVELS More than 50% of the coarse fraction is larger than 2mm. (retained on B.S.7 sieve)  SANDS More than 50% of the coarse	CLEAN GRAVELS	Wide range in grain siz	is, and substan	ntial amounts of	f all intermedia	ate particle sizes	GW	GRAVEL, well graded; gravel sand mixtures, little or no fines		J <sub>o</sub>	S & S	Cu= D60 Dio Greater tha	1 4 11 and 3					
rger tha		Little or no fines	Predominantly one size	r a range of s	f sizes, with some intermediate sizes missing		GP	GRAVEL, poorly graded; gravel sand mixtures, little or no fines		bas ows	S & S		requirements for GW						
rial is la ieve size		DIRTY GRAVELS	Non-plastic fines—for in	entification see	ML below		_	GM	GRAVEL, excess silty fines; poorly graded gravel-sand-silt mixtures		ed on la as follo	GRAVELS GW GP GM GC	Atterberg limits below "A" line or PI less than 4	ADOVE A BITC V					
More than 50% of material is larger than No. 200 B.S. sieve size		Appreciable amount of fines	Plastic fines—for identif	cation see CL	below		· 	GC	GRAVEL, excess clayey fines; poorly graded gravel-sand-clay mixtures	]	<u>-e</u> -		line or PI greater than 7	requiring use of					
an 50% No. 20		CLEAN SANDS	Wide range in grain siz	s, and substan	ntial amounts o	f all intermedia	ate particle sizes	SW	SAND, well graded; well graded sands, gravelly sands, little or no fines	fractions	Page 2012 September 1 and 3  Not meeting all gradation requirements for SW  Not meeting all gradation requirements for SW								
More th		Little or no fines	Predominantly one size	r a range of s	izes, with some	es, with some intermediate sizes missing		SP	SAND, poorly graded; poorly graded sands, gravelly sands, little or no fines	soil fr	1 1 2 2 () 2 8		Not meeting all gradation	requirements for SW					
s	fraction is smaller than 2mm. (passing	SANDS	Non-plastic fines—for indentification see ML below  Plastic fines—for identification see CL below		SM	SAND, excess silty fines; poorly graded sand-silt mixtures	entify	F S S S S S S S S S S S S S S S S S S S	Atterberg limits below "A" line or PI less than 4	Above A laie w	Above "A" line with PI between 4 and 7 are borderline cases								
	B.S.7 sieve)	Appreciable amount of fines			SC	SAND, excess clayey fines; poorly graded sand-clay mixtures	8	0		Atterberg limits below "A" line or PI greater than 7	requiring use of								
	FIELD INVESTIGATION PROCEDURES On fraction smaller than 0.4mm. (passing B.S. 36 sieve)					GROUP	GROUP NAME	used											
than		SOIL CAST (soil we	soil threa	SHINE	DILATANCY	ODOUR	DRY STRENGTH	SYMBOL	and typical materials	to be		60							
aller th	SILTS AND CLAYS	Forms fragile cast Cracks form when kneaded whil		ML	SILT SOIL, low plasticity; inorganic silts and very fine silty or clayey sands, rock flour	RVES		50		"R" LIME									
erial is sm sieve size	Liquid limit less than 50	Cast maybe handled freely without Can be kneaded moist without Material adheres to the hand		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	ZE CURVI	SIZE	<u> </u>		240 EE	AND			CH	-
of mat		Cast fragile to cohesive material adhere somewhat to the hand	Soft, weak thread	None to very duli	Slight to distinct	Decayed organic matter	Low	0L	ORGANIC SOIL, low plasticity; organic silts and silt clays of low plasticity			STIGHT	30		OH OH	-			
e than 50% of material is smaller th No. 200 B.S. sieve size	SILTS	Moderately plastic and cohesive Material adheres somewhat to the hand	Weak to medium May be crumbly	hread Dull	Nane 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	GRAIN	J.H	20	CL-ML CL OL	or MH					
AN L	AND CLAYS Liquid limit	Very plastic and cohesive Material very sticky to the hand Greasy to touch	Very tough thread be rolled to a pi		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			7	ML ML or						
	more than 50	Plastic and collesive Feels slightly spongy Greasy to touch	Weak to medium Often soft and fil		f None	Decayed organic matter	Moderate to high Powdered soil may be fibrous	OH	ORGANIC SOIL, high plasticity; organic clays of medium to high plasticity			U	LIQUID	LIMIT	100				
L		Readily identified by colour, odour, spongy feel and frequently by fibrous texture					Pt	PEATY SOIL:	] [	PLASTICITY CHART FOR LABORATORY CLASSIFICATION OF FINE GRAINE									

PRO	TARCOOLA - ALICE SPRINGS	G OF DIAMOND DRILL HOLE		-	RIAL N	DH I
	TURE MARLA BORE - BAYSTONE BO	SECTION - HUNDRED - CO-ORDINATES Ch B 240 200 km	5	EL (	Collar	382.9
.OC	DESCRIPTION OF CORE	ANGLE FROM HORIZ VERT DIRECTION  (C) CORE (3) ENGTH SIZE ERM DEPTH LOG; RQD% JOINTS, VEINS, SEAMS. SHEARED ZONES, CRUSHED ZONES	CORI LOSS	Datun K M TEK W A TEK	CASING DRILL WATER	WATER PRESSURE TESTS LUGEONS
()	Medium dense red-brown Slightly silty fine/medium SAND (SM-SP)		5.50	JOAT	E O LX	705, 510
PLEISTOCENE (Qpa)	Ditto, clayey, dense to verdense (SP-SC) (See trial pit log B240.2001 0-1.8 m)	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)				S/m 316 m/s
	Clayey and sandy medium GRAVEL (GC-GP)	3 00 00 00 00 00 00 00 00 00 00 00 00 00				
	Weak, completely weathers bleached white, fine to medium grained GRANITE	internal weathering and erosion of feldspar cryst jvisible pores ~ 5% of rock volume.  Lightly iron stained	al\$	NOT RECORDED		
PRECAMBRIAN (PEg)		rock fabric preserved - weathered material equivalent to very dense, well graded fine gravel.				V = 2000 m/s
	ROCK SUBSTANCE TRENGTH TERM CONDITION TERM	3) ROCK QUALITY DESIGNATION ENGINEE			DLOGY	SECTION
S-XS SO SO	S-Very Strong S-trong S-Medium Strong I-Weak Weak O-Soil properties  Fresh Weathered Not Applicable ubstances with soil properties remoulded and class	25-50% Poor 50-75% Fair 75-100% Good to excellent (350) Maximum effective pressure (kilopascals) reached during test.  DRILL No. DA TYPE MAYH DRILLER W.J. START. 3-3 FINISH 3-3	EW BOYD -75	•	DATE TRACE CHECK	MENALLY 5-5-75 D AF ED GHMON

PRO.	TARCOOLA-ALICE SPRINGS JECT RAILWAY-BRIDGE SITES	OG OF DIA	F MINES		HOLE		HOLE NO.	· · · · · · · · · · · · · · · · · · ·
	TURE MARLA BORE - BAYSTONE			THO SOUTO	. <b>NULE</b>			<sub>e</sub> 382∙9
oc,	ATION INDULKANA CK., SOUTH	BANK ANGLE	FROM H	Ch. B 240 DRIZ VERT	DIRECTION -		EL Collar Datum	* * * * * * * * * * * * * * * * * * *
	CESCRIPTION OF CORE	CORE STRENGTH SIZE TERM DEPTH LOG	③ R G C % 75 50 25	JO.1	STRUCTURES NTS. VEINS. SEAMS. ZONES. CRUSHED ZONES	LIF COR LOSS	WATER LEVEL CASING DRILL WATER	WATER PRESSURE TESTS LUGEONS
PRECAMBRIAN (PCg)	Weak, completely weathered, bleached white to light brown fine to medium grained GRANITE Mica, where visible, is very fine.  Strong, fresh, foliated	+		Porous ing mod stained	in places, bec	om-	O DATE O C LC	05 510 05 510
_	micaceous GRANITE (pfg (Fr))	<del></del>						
	The state of the s	duminhumulamulamulamulamulamulamun			OLE 14.80 m			
S-Str MS-A W-W VW-S SO-Sc	Medium Strong Fresh	3 ROCK QUALITY D 0-25% Very p 25-50% Poor 50-75% For 75-100% Good 350 Max mum eth	d to excelle	ent	DRILL NO. TYPE .MA DRILLER M START. 3	73.804D -3-75 -3-75	LOGGEE G. H.I DATE	MC NALLY 5-5-75 AF. DGHMcN

	TARCOOLA - ALICE SPRINGS 10	DEFARTMENT OF MINE	SOUTH AUSTRALIA	<u> </u>	HOLE NO.	DH 2
	ECT RAILWAY-BRIDGE SITES LO	Green CN	D DRILL HOLE		SERIAL N	√o e 383-5 . i
	TON INDULKANA CREEK SOUTH E	CO-CRD NATES  ANGLE FROM H	Ch 8 240 300km	and the second of the second of the second	L Collar Patum	
		0 come	STRUCTURES JOINT: VEINS, SE SHEARED ZONES, CRUS	LIFT COR LOSS +ED ZONES 5.5	CASING WATER	WATER PRESSURE TESTS UGGEONS 00 05 1 5 10
Management designation of the first tens (construction of the first construction) of the first construction of the first c	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)  ?  Light brown sandy medium silcrete GRAVEL	intimuluminifuminimuniminiminiminiminiminiminiminimin	S.P.T., 1-00-1-45: (red-brown grown silty sand)  S.P.T. 200-2-45: (red-brown grown silty sand silty	Recovery 1 001 Kraycosa	ORDED	V* 346 m/s
	Dense, off white micac- eous fine SAND, of granitic origin, with silcrete gravel.  Weak, completely weather- ed white kaolinised	XXX	S.P.T. 5-00-5:45 (fine, off white eous granitic  lightly iron stain 5% of volume	ed, about	NOT REC	50 m/s
	fine to medium grained GRANITE	**************************************	pores due to i erosion of felo crystals followi weathering.	dspar		391 " >
	ROCH BUBITANDE TRENGTH TERM Swen Bring Sreng Swed um Brishd We um Brishd West West Wester West List or Stroken by	3 FOCK GLALTY DESIGNA C=15% very poor 25=50% Poor 5C=75% Foir 75=100% Good to er 250 Maximum effective p	xcellent	ENGINEERING  DRILL No DM 18  TYPE MAYHEW  DRILLER W.J. BOY  START. 1-3-75  FINISH 1-3-75	7 LOG	Y SECTION  GED  I MC NALLY  E 5-5-75  CED AF  CKED GH MAN





FURE MARLA BORE - BAYSTONE BO	LOG OF DIAMON SECTION CO-ORDINATES	D DRILL HOLL HUNDRED Ch B 249.720 km	E	HOLE NO. DH 4  SERIAL No  L Surface 402.2 . n  Collar n
DESCRIPTION OF CORE	CORE 3	STRUCTURES		
gravelly and silty SAND Loose pink-white sandy SILT Very weak to weak, comp letely weathered, kaolinise white GRANITE. Core losses probably indicate completely weathered zones with soil properties.  Weak to moderately strong, highly weathered, kaolinised white medium grained GRANITE.	2 minumumumumumumumumumumumumumumumumumumu	?Completely w granite.  S.P.T. 1:00-1:23m  Lightly to moder iron stained belovisble voids ~ 3; Core mostly into	rately ow 7.00m. %. act.	
ROCK SUBSTANCE ENGTH TERM ery Strong ong Addium Strong eok Very Week Very Week Altered Altered	0-25% Very poor 25-50% Poor 50-75% Foir 75-100% Good to exc	ION C	ENGINEERING GEO	DLOGY SECTION  LOGGED G.H. MCNALLY DATE G-5-75 TRACED AF
	BRIDGE SITES  URE. MARLA BORE - BAYSTONE BO  ATION MINOR BRIDGE SITE  DESCRIPTION OF CORE  DE	ECT RAILWAY  BRIDGE SITES  URE. MARLA BORE - BAYGTONE BORE  SECTION  COORDINATES  ANGLE FROM  DESCRIPTION OF CORE  DESCRIPTION OF CORE	Weak to moderately weathered and Solid properties.  Weak to moderately weathered and GRANITE.  See trial pit log  4. J.	Weak to mederately strong, highly weathered, koolinised white granites.  Weak to mederately strong, highly weathered, koolinised white granites.  Weak to mederately strong, highly weathered, koolinised white granites.  Weak to mederately strong, highly weathered, koolinised white medium grained GRANITE.  Weak to mederately strong, highly weathered, koolinised white medium grained GRANITE.  Weak to mederately strong, highly weathered, koolinised white medium grained GRANITE.  Weak to mederately strong, highly weathered, koolinised white medium grained GRANITE.  Weak to mederately strong, highly weathered, koolinised white medium grained GRANITE.  Set triol pit log  4. The medium grained GRANITE is a strong to the properties of the properties

<del></del>	TARCON A ALICE CORNECT O	DEPARTMENT OF MINES SOUTH AUSTRALIA		OLE N		)H 5	
FEAT	BRIDGE SITES URE MARLA BORE - BAYSTONE BO	G OF DIAMOND DRILL HOLE  SECTION CO-ORDINATES Ch B 259-200km	E L	Colla	ace.	387.4	m m
LOCA	DESCRIPTION OF CORE 05	CORE RENGTH SIZE  TERM DEPTH LOG RQD.%  SHEARED ZONES, CRUSHED ZONES	Date UPT AS ORE F OSSX S 10 5 50 D/	CASING	WATER (055 %	WATER PRESSURE TESTS LUGEONS 65   510	(4) So
TERTIARY - PLEISTOCENE (apa)	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)  Coarse red-brown slightly silty SAND, with traces of gravel.  Ditto, very light brown, clean.  Ditto, light grey-brown	Tricone bit used - sludge Scamples only recovered.  Samples only recovered.  1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		RECORDED		/6.	And the second s
TEROZOIC (Ps)	Weak, highly weathered PHYLLITE and SCHIST (metasandstone)  Weak to moderately strong, slightly weathered SCHIST. (metasandstone), with interbedded phyllite.	Foliation in schist almost vertical, very well developed.  Core mostly fragmented		LON	And the second sec	9/w 1601 = N	
PUPPER PROT	Strong, slightly weathered PHYLLITE and metasilt-stone.	Core nearly intact.  Schist (metasandstone) (dips about 60°)  """  ROCK QUALITY DESIGNATION  ENGINEERI	NG.	GEOL	OGY	s/EUTION	7
2	STRENGTH TERM (5) Very Strong (5) Strong (5) Strong (5) Strong (5) Medium Strong (7) Weak (8) Wedium Strong (8) Wedium Strong (9) Weathered (9) Altered (9) Not (10) Applicable (9) Substances with soil properties remoulded and classifications.	0-25% Very poor 25-50% Poor 50-75% Fair 75-100% Good to excellent  4350, Maximum effective pressure (kiloposcals reached during test)  Min Minimum value  DRILL No. DM TYPE MAYHE DRILLER W.J. START. 25-7 FINISH 25-7	187 W Boyl 2-75 2-75		LOGG G.H DATE TRAC CHEC		۲ 5

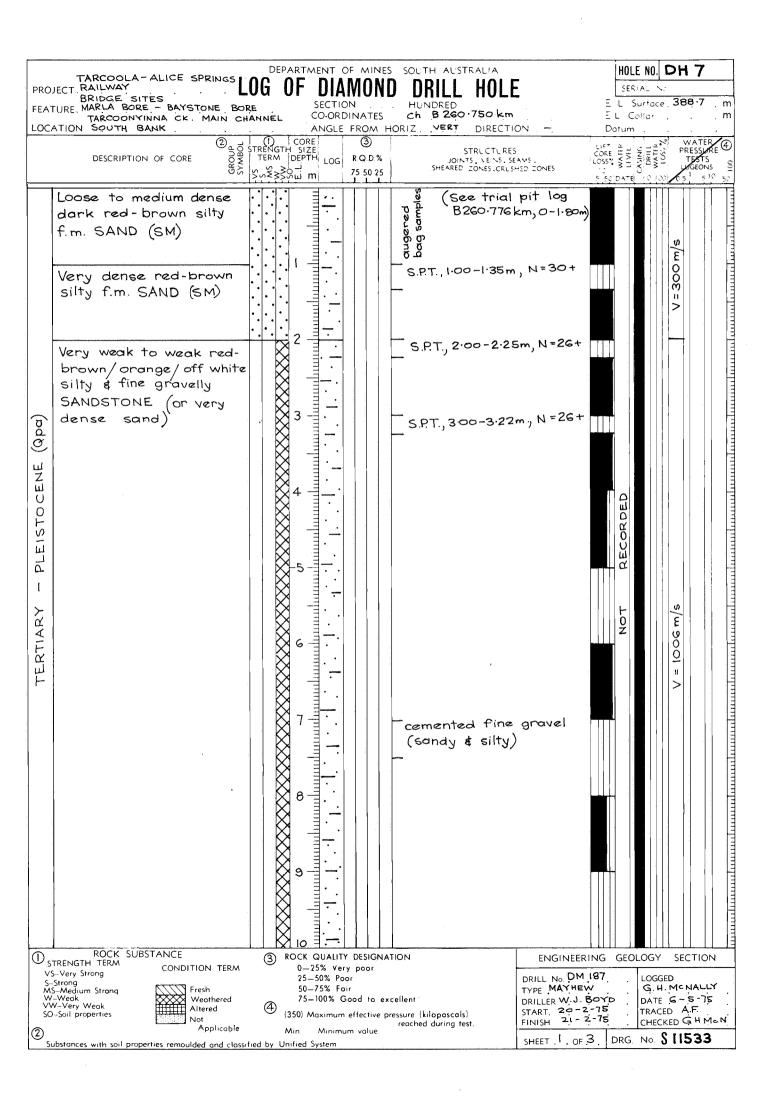
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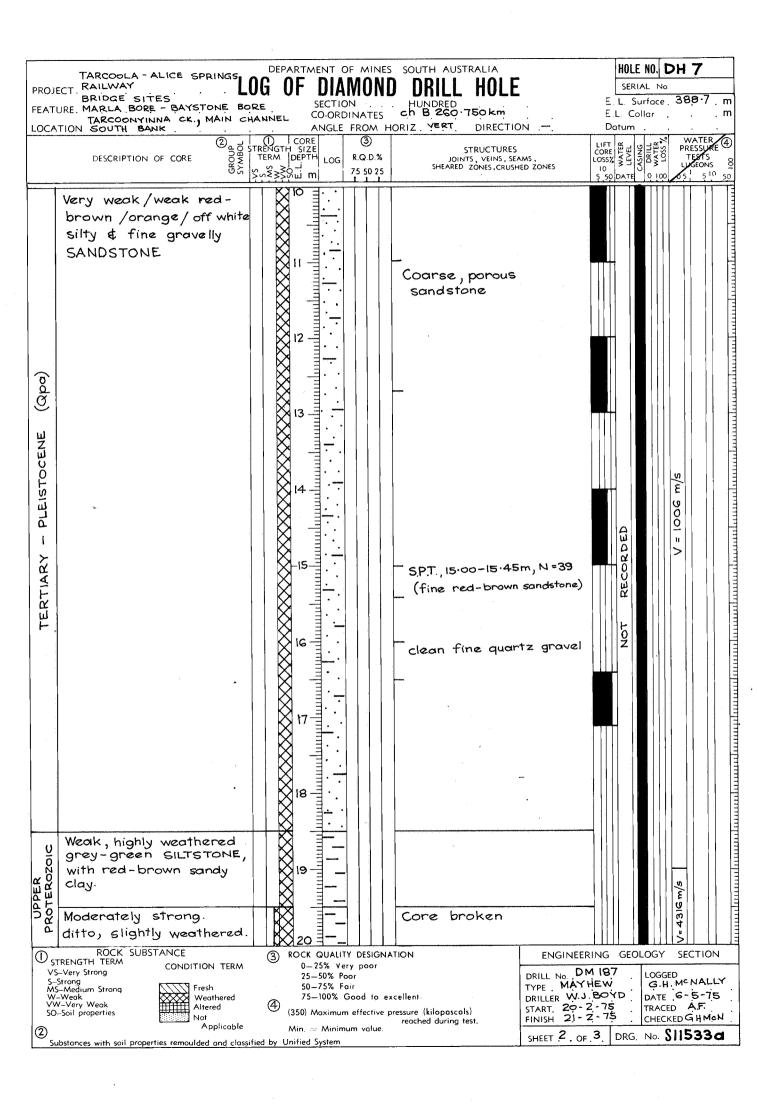
	TARCOOLA-ALICE SPRING OJECT RAILWAY BRIDGE SITES	<sup>s</sup> LOG	OF DIA	MONE	HUNDRED			387·4 m
	ATURE MARLA BORE - BAYSTONE CATION TARCOONYINNA CK., SO		CO-ORD		Ch B259 200 km		L Collar atum	. m
LO	DESCRIPTION OF CORE	STRENG TERM	CORE STH SIZE A DEPTH LOG	③ RQD% 75 50 25	STRUCTURES JOINTS, VEINS, SEAN SHEARED ZONES, CRUSHEI	AS LIFT CORE LOSS: D ZONES 10 5 50	CASING O DRILL WATER O DRILL O DRILL O DRILL	WATER (4) PRESSURE TESTS LIGEONS 8 05 5 10 50
PUPPER PROTEROZOIC		ered			Bedding dips ~ cleavage ~ 70°			V = 2880 m/s
			յ առակառումաստակառումարակառումարակառումարակառումարակառումարակառումարակարում		END OF HOLE	2.00 m		
(	ROCK SUBSTANCE  STRENGTH TERM  VS-Very Strong  CONDITION		3) ROCK QUALI 0-25% V 25-50% F	ery poor	ATION	ENGINEERING	87 LOG	Y SECTION
	S-Strong MS-Medium Strong W-Weak VW-Very Weak SO-Soil properties Fresh Weat Altere Not	hered ed (e	50-75% 1 75-100% (350) Maximu Min. Minir	Foir Good to a im effective mum value.	excellent* pressure (kilopascals) reached during test.	TYPE . MAY HEV DRILLER W.J. BO START. 25-2- FINISH 25-2- SHEET 2. OF 2.	YD DAT 15 TRA 75 CHE	H. M. NALLY TE S-5-75 CED A F CCKED GHMON S11531A

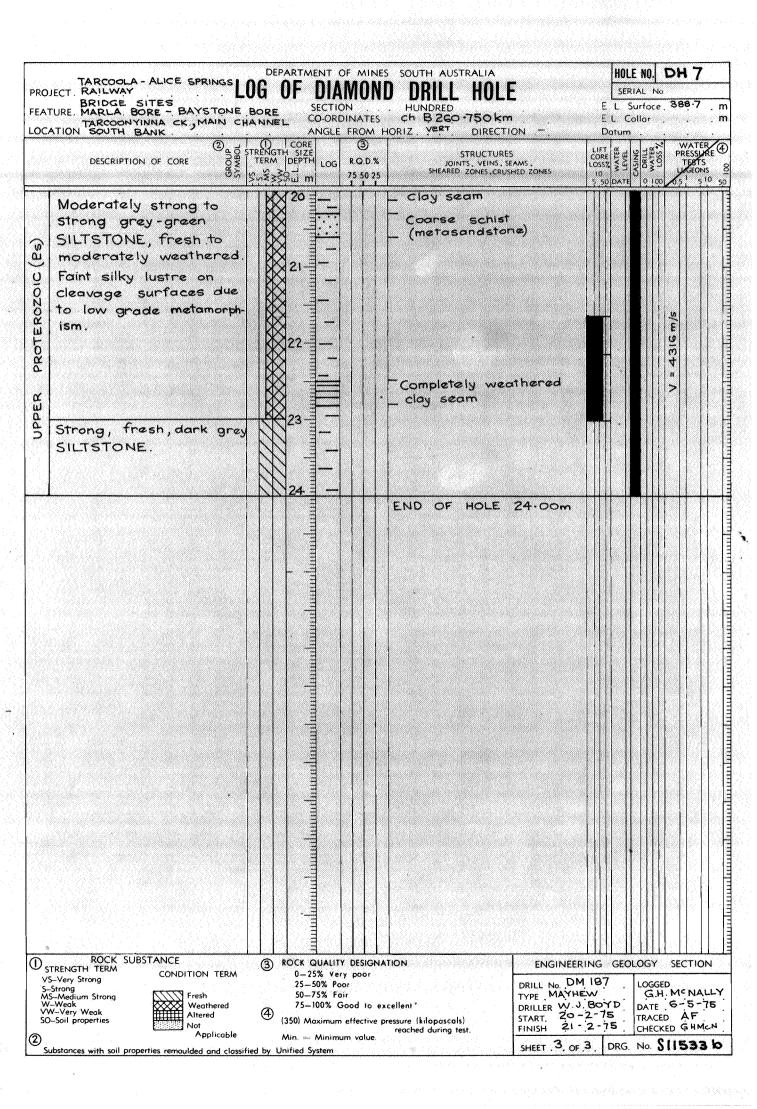
	¥4,000, 1 Allen 200	DEPARTMENT C		SOUTH AUST			НОІ	E NO.	DH 6	
	TARCOOLA - ALICE SPRINGS LO CT RAILWAY BRIDGE SITES, JRE MARLA BORE - BAYSTONE BORE	SECTIO	N	DRILL HUNDRED	HOLE				lo e 387·€	ō m
	TION TARCOONYINNA CK. SOUTH BA	ANK ANGLE	FROM HO	RIZ VERT	DIRECTION		Datun	) 	WATI	FR/G
	DESCRIPTION OF CORE DESCRIPTION OF CORE	O CORE RENGTH SIZE TERM DEPTH LOG S > S I I	③ RQD% 75 50 25	JOIN	STRUCTURES TS, VEINS, SEAMS ZONES, CRUSHED	ONES	CORE FY TO		PRESSI TEST UNGEO	KRE T
	Loose dark red-brown fine/medium SAND (SP)			ougered bag samp	e trial pi 260:300 kr -1:45 m , N	n' (O-(.∂O™)				
	Ditto, very dense, clayey with traces of coarse sand (SP-SC)  Dense red-brown coarse sandy CLAY (SC)	2			o-2:19 , N					
		3		_ S.P.T., 3-04 _	o -3 25m,	N=26+				
() とか) コトロ	NOTE: boundary between "soil"  \$ "rock" properties is arbitrary.	4				N=2C+	RECORDED	11 11		
	Weak red-brown/orange/ light grey mottled silty fine SANDSTONE with coarse sandy bands (or very dense fine sand)	9 6		S.P.T., 5.4	oo-5·25m,		F 0			
77.77		9 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-							
	Weak orange silty fine SANDSTONE, slightly parous.	e Immunitumunitum	-							
			-							
Ď.	ROCK SUBSTANCE	3 ROCK QUAL	TY DESIGNA	ITION		ENGINEER	IIII RING G	EOLOG	GY SECT	LION
> SM	STRENGTH TERM S-Very Strong -Strong S-Strong S-Medium Stronq V-Weok W-Very Weak D-Soil properties  CONDITION TERM Fresh Weathered Altered Not	0-25% v 25-50% 50-75% 75-100%	ery poor Poor Fair Good to ex		als)	ORILL No. DA TYPE MAYHE ORILLER W.J. START. 22-2	1 187 EW BOYD 2-75	. LO G.	OGGED H. M. NAL TE G - S ACED AI HECKED G	-75 F.

FEATURE MARIA BORE — BAYETONE BORE  LOCATION TARCOONYINNA CK., SOUTH BANK  ANGLE FROM HORIZ. VERT. DIRECTION —  DESCRIPTION OF CORE  DE		TARCOOLA -ALIG	. , L	OG OF DIA	AMONE	SOUTH AUSTRALIA		HOLE NO.	
DESCRIPTION OF CORE  STATEMENT OF THE STATE		URE MARLA BORE -	BAYSTONE B				·	L Collar .	
SANDSTONE and sandy SAUSTONE (with about) 1026, fine / medium gravel, mostly fine).    SPT, 12:00 - 12:45m, N=40	LOCA		GROUP SYMBOL	() CORE STRENGTH SIZE TERM DEPTH LOG	③ RQD%	STRUCTURES JOINTS, NEINS, SEA	LIFT CORP LOSS ED ZONES 10	WATER LEVEL CASING DRILL WATER LOSS %	LUGEONS O
STRENGTH TERM VS-Very Strong S-Strong MS-Medium Strong W-Weak VW-Very Weak SO-Soil properties  CONDITION TERM  0-25% Very poor 25-50% Poor 75-100% Good to excellent Type MAYHEW DRILLER W.J. BOYD START. 22-2-75 TRACED A.F. (350) Maximum effective pressure (kilopascals) reached during test.  CONDITION TERM  0-25% Very poor 25-50% Poor Type MAYHEW DRILLER W.J. BOYD START. 22-2-75 TRACED A.F. CHECKED G.H.M.C.N	TERTIARY - PLEISTOCENE	light grey silt SANDSTONE of SILTSTONE (w. 10% fine/medimostly fine).	ty f.m.  and sandy  ith about  ium gravel,			S.P.T., 12:00 -12:45	im , N=40		
VS-Very Strong S-Strong MS-Medium Strong W-Weak VW-Very Weak SO-Soil properties  CONDITION TERM  0-25% Very poor 25-50% Poor 50-75% Foir 75-100% Good to excellent  Not 10-25% Very poor 25-50% Poor 50-75% Foir 75-100% Good to excellent 75-100% Good to excellent Not 10-25% Very poor 25-50% Poor 75-100% Good to excellent 10-25% Very poor 25-50% Poor 10-25% Very poor 1	0	ROCK SUBSTAN	CE			TION	ENGINEERING	GEOLOGY	SECTION
	S- M W VX	S–Very Strong -Strong S–Medium Strong /-Weak //-Very Weak	Fresh Weathered Altered Not	0-25% v 25-50% f 50-75% f 75-100%	Poor Fair Good to ex im effective p	ressure (kilopascals)	DRILLER W.J. BOY	CD DATE	Mª NALLY 6-5-75

	TARCOOLA	- ALICE SPRINGS LI	DEPARTMENT	OF MINES	0 00 5 30. <sup>+</sup> →	ALSTRAÇIA	-			) H 6
	BRIDGE SI URE MARLA BO	TES RE - BAYSTONE BO	JU UF DIA RE . SECTION COLORI	NIVIUINI ON DINATES	U UN Ch Bi	ILL TULC SED 260:300 km	-	Ξ L S		387·6 m
LOCA	TION TARCOON	YINNA CK., SOUTH !	BANK ANGLE			VERT DIRECTIO		Datum		
	DESCRIPTIO	ON OF CORE Ō ₹	C CORE TRENGTH SYZE TERM DEPTH LOG SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS		ξ ξ 1	STRUCTURES 30 NTS, VEINS, SE HEARED ZONES, CRUSH	AMS. ILO HED ZONES	FT BE	CASING DRILL WATER 10SS	PRESSURE 4 TESTS LUGEONS 8
(68)	ered grey SILTSTON Strong, m	derately weath-	20			fragment				
PROTEROZOIC	dark grey	5121310142	22							
UPPER			23 -							
					END	OF HOLE 24	.∙∪ m			
			runnihannahannahannahan							
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		••	muniliminuluminuluminuluminulumin							
	, ROCK SI	JBSTANCE		TV DESCRI	ATION		ENGINEERIN		I OGY	SECTION
S- M W V\ SO	TRENGTH TERM S-Very Strong S-Strong S-Medium Strong /-Weak W-Very Weak )-Soil properties	CONDITION TERM  Fresh Weathered Altered Not Applicable Operties remoulded and classi	(350) Maximui Min. Minin	ery poor oor air Good to e	xcellent * pressure (kilo	opascals) during test.	DRILL No. DM II TYPE MAYHEW DRILLER W.J. BO START. 22-2-7 FINISH 25-2- SHEET 3. OF 3	97 YD 5 7\$	LOGGE G.H DATE TRACE CHECK	







FEATURE MARIA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN	DEPARTMENT OF MINES SOUTH AUSTRALIA  OG OF DIAMOND DRILL HOL SECTION - HUNDRED CHANNEL CO-ORDINATES Ch. 8260 880 km	. <b>E</b> [	HOLE NO. DH 8  SERIAL No.  L. Surface 386.5 . m  Collar m
DESCRIPTION OF CORE	ANGLE FROM HORIZ VERTICAL DIRECT	ES LIFT CORE LOSSX	
Loose/Medium dense light red brown coarse/Medium/fine SAND (SW)  see trial pit log  B 260 900 km, 0-1 70 m	S.P.T., I-00 -1-45, clean red-brown c.m.	f sand, trace	V = 400 m/s
grades down into weak sandstone below ~ 2 m  Weak mottled off white/orange C.M.F. SANDSTONE (dense sand)	Root fragmant at 2	80 m	
Weak mottled off white / orange silty fine / medium SANDSTONE (very danse sand) with traces of coarse sand + fine gravel. Visible voids ~ 1%	S.P.T., 5.00-5.34, N. (red - brown f.m. s	= 48 + and)	V = 950 m/s
	9 fine/medium gravel	ly band.	
ROCK SUBSTANCE  STRENGTH TERM  VS-Very Strong S-Strong MS-Medium Strong W-Weak VW-Very Weak SO-Soil properties  Presh Weathered Altered Not Applicable Substances with soil properties remoulded and classi	3 ROCK QUALITY DESIGNATION  0-25% Very poor 25-50% Poor 50-75% Fair 75-100% Good to excellent  (350) Maximum effective pressure (kilopascals) reached during test.	DRILL No. DM 187 TYPE MAYHEW DRILLER W.J. BOYD START. 19/2/75 FINISH 20/2/75	EOLOGY SECTION  LOGGED G. H. M°N DATE 12/5/75 TRACED CHECKED G. H. M°N G. No. \$ 11534

	TARCOOLA - ALICESPRINGS	DEPARTMENT OF MINES SOUTH AUSTRALIA	HOLE NO. DH8
FEAT	TURE MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN C	ANGLE FROM HORIZ . Vertical DIRECTION	E L Surtace . 386 · 5 m E L Collar m Datum
	DESCRIPTION OF CORE	CORE STRUCTURES  RENGTH SIZE  STRUCTURES  STRUCTURES  JOINTS, VEINS, SEAMS.  SHEARED ZONES, CRUSHED ZONES	LIFT HE HAVE PRESSURE LOSSY & HAVE PRESSURE LOSSY & HAVE PRESSURE LOSSY & HAVE PRESSURE TESTS & HAVE PRESSURE TO THE PRESSURE TESTS & HAVE PRESSURE TEST
UPPER (PS) TERTIARY - PLEISTOCENE (Qpa)	Weak mottled off white/ orange silty fine/ medium SANDSTONE, with traces of coarse sand + fine gravel. visible voids ~ 1%	S.P.T., II 00 - II 45, N = 58 (red - brown silty f.m. sand few ironstone nodules pres  12  13  14  15  16  S.P.T., I6 00 - I6 45, N = 34 (orange silty fine sandsto	Fine
	brown clayey SHALE	20 20	
VS S-5 MS W- VM SO-	ROCK SUBSTANCE  RENGTH TERM  -Very Strong  Strong -Medium Strong -Medium Strong -Weak -Soil properties  -Soil properties  -Soil properties  -Soil properties  -Soil properties remoulded and classif	0-25% Very poor 25-50% Poor 50-75% Foir 75-100% Good to excellent (350) Maximum effective pressure ill oposcols reached during test Min Minimum value	DM 187 MAYHEW W.J. BOYD 19/2/75 20/2/75 DRG No \$ 11534a

200	TARCOOLA - ALICE SPRINGS	1 nn	DEPARTMENT C	MANES	SOUTH AUSTRAL A		HOLE N	خينت بديد بيسيند بنياب
FEA	TURE MARLA BORE - BAYSTONE BOR TARCOONYINNA CREEK, MAIN ATION CENTRE	E .	SECTION CO-ORD	INATES C	DRILL HOL HUNDRED - H. 8260-880 km		್ತ್ ಟ್ರ∵0ಂಗಡ	oce <b>386·5</b> r
		SAW TEI	OCORE NGTH SIZE RM DEPTH LOG	® RQD% 75 50 25	STRUCTUR JOINTS, MENS, SHEARED ZONES, CRI	ES SPANS	Dotum Cossession Cossession Date	WATER PRESSUBE TESTS LUCEONS
UPPER PROTEROZOIC (Ps)	Weak, highly weathered, light brown/grey clayey fragmented SHALE		20 21 22 22 23 23 23	75 50 25				V = 950 m/s
			himmulionadionistantionadionadionadionadionadionadionadionad		IND OF HOLE 23 75			V* 3600 m/s
S-St MS- W-V VW SO-5	ROCK SUBSTANCE  RENGTH TERM  Very Strong Trong Medium Strong Medium Strong Medoum Stro	3	0-25% Very 25-50% Poor 50-75% Fair 75-100% Goo (350) Maximum ef	poor  d to excellen fective pressure		DRILL No. DM 18 TYPE . MAYHEV DRILLER W.J. BOY START. 19/2/75 FINISH 20/2/75 SHEET 3. OF 3.	J LOGO G G D DATE TRAC	SECTION  GED  .H.M°N  E 12/5/75

		DEPARTMENT OF MINES SOUTH AUSTRA  OG OF DIAMOND DRILL I	OLE SERIAL NO.
	TURE MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN CH ATION NORTH BANK	SECTION - HINDRED -	E L Surface <b>387;4</b> n
	DESCRIPTION OF CORE 5	The state of the s	SECTION Dotum  WATER PRESSURE  CORE # 1 N S S S S S S S S S S S S S S S S S S
אברבואו	Loose dark red-brown slightly silty fine/medium SAND, little coarse (SP)	augarad - bag samplas	s/w
-	Dansa/vary dansa red-brown gravelly and clayey coarse/ medium/fine SAND (GC-SC) (See trial pit log, 8261-010 km, 0-1-70 m)	5.P.T., 1.00-1 (c.m.f. sand) - S.P.T., 2.00-2 (silty to fine grave)	22 . N = 26 +
		clash c.m.f sa (fines washed  medium grave	out?)
			21, N = 26+
	NOTE-boundary here between "soil" 6 "rock" arbitary	- 5.P.T., 6.00 - (sulty + fine gra	
	Weak light orange silty fine SANDSTONE (or very compact sand).	orange / light g  with a little of grave!	ney mottled,  parse sand trine  pottled  pottled  pand
,,,,,,	Finally porous (visible voids ~1%) Traces of fine gravel	8 orange/grey n	pottled band
		9-11 S.P.T., 9:00 - 9  (sulty and func	45, N = 22 gravelly sand)
Si Si Si	ROCK SUBSTANCE  ENGTH TERM  Very Strong rong  Medium Strong Veak Very Weak oil properties  ROCK SUBSTANCE  CONDITION TERM  Weathered  Altered  Not  Approable	ROCK GUAUTY DESIGNATION  9-15% Foor 50-75% Foor 75-100% Good not excellent  350 Maximum ento the Dressure in opposed surring year.  Min of Minimum at 25 at 25.	ENGINEER NG GEOLOGY SECTION  THE LOW DM 187  THE MAYHEW  THELER W.J. BOYD  TART 15/2/75  THACED  THACE

DEPARTMENT OF MINES HOLE NO. DH9 TARCOOLA - ALICE SPRINGS
PROJECT RAILWAY-BRIDGE SITES LOG OF DIAMOND ER A. Suit a e 387.4 SECTION Ξ ( FEATURE MARLA BORE - BAYSTONE BORE HUNDRED -ch. 261-030 km CO-ORDINATES FE CHED TARCOONYINNA CREEK, MAIN CHANNEL, LOCATION NORTH BANK ANGLE FROM HORIZ VERTICAL DIRECTION Datum STRENGTH SIZE TERM DEPTH LOG GROUP SYMBOL 3 WATER PRESSUB Cott want STRUCTS FES JOINTS, VEINS, SEAMS, SHEARED ZONES CONSINES DESCRIPTION OF CORE ROD% స్ట్రక్షిక్కింద్ర w 75 50 25 CORE Weak light orange silty fine SANDSTONE (very dense sand) 2 with a little fine gravel Visible voids ~ 1% loose orange/yellow coarse sand \_ ditto, dense S.P.T., 12:60 - 13:05, N = 40 silty f.m. sand, little fine gravel f.m. gravelly band TERTIARY - PLEISTOCENE (Qpa) f.m. gravelly band ε 1040 . . • Coarse sandy band O STRENGTH TERM SUBSTANCE 3 ROCK QUALITY DESIGNATION ENGINEERING GEOLOGY SECTION CONDITION TERM 0-25% Very poor 25-50% Poor VS-Very Strong DRILL No D.M 187 LOGGED G.H.M.N DATE 12/5/75 S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties MAYHEW 50-75% Fair Fresh TYPE . W.J. 80YD 15/2/75 18/2/75 75-100% Good to excellent Weathered DRILLER Altered TRACED START. (350) Moximum effective pressure (kiloposcals) Not CHECKED G.H.MCN FINISH reoched during test. Applicable Min. Minimum value. DRG. No. \$11535 a SHEET .2 . OF .3 Substances with soil properties remoulded and classified by Unified System

		G OF DIAMOND	DRILL HOLE	·s	SERIAL No L Surface.	
	JRE MARLA BORE - BAYSTONE BORE TARCOONYINNA CREEK, MAIN CHA TION NORTH BANK	SECTION . T  CO-ORDINATES  ANGLE FROM HO	HUNDRED - ch. 261-030 km RIZ VERTICAL DIRECTION		L Collar ,	. m
-^	DESCRIPTION OF CORE	CORE SENGTH SIZE TERM DEPTH LOG RQD%	STRUCTURES JOINTS, VEINS, SEAMS SHEARED ZONES, CRUSHED ZON	LIFT CORE LOSS% NES 10	1 1 3	WATER PRESSUPE TESTS LUSIONS
	Weak light orange/light grey silty fine/medium SANDSTONE	20	Core nearly intact			_
	•					
		22				
		NO CORE				
	Weak, highly weathered grey clayey SHALE	25	Core fragmented to coars med gravel size.	a/		m/s
		26				V = 1040
( a a ) > ( o a )	Weak to moderately strong, fresh to moderately weathered dark grey SILTSTONE. Bedding obscure.	27 -	Weakly metamorphosed (faint silkiness on cleavage surfaces)	ge		
		28				
,		29	_ dark brown stauned zon	næ		
) ,.	ROCK SUBSTANCE	3 ROCK QUALITY DESIGNAT	END OF HOLE 30-10 m	ENGINEERING	GEOLOGY	SECTION
VS S	Strong Strong S-Medium Strong -Weak -Soil properties  CONDITION TERM Fresh Weathered Altered Applicable	0-25% Very poor 25-50% Poor 50-75% Foir 75-100% Good to exc (350) Maximum effective pre	ellent TYP DRII sessure (kiloposcals) reached during test. FINI	ISH 18/2/75	D DATE TRAC	H. M <sup>e</sup> n   12/5/75 <sup>ED</sup>   KED <b>G.H.M<sup>e</sup>n</b>
)	Established INOL		reactive during real			8 11535b

HOLE NO. DH 10 DEPARTMENT OF MINES SOUTH AUSTRALIA TARCOOLA - ALICE SPRINGS LOG OF DIAMOND DRILL HOLE PROJECT RAILWAY-BRIDGE SITES SERIAL No E L Surface 366.2 . HUNDRED - ch. B 276-200 km SECTION FEATURE, MARLA BORE - BAYSTONE BORE E L Collar . CO-ORDINATES ANGLE FROM HORIZ VERTICAL DIRECTION LOCATION ALBERGA RIVER, SOUTH BANK Datum 3 CORE WATER WATER CASING CASING WATER LOSS % H SIZE DEPTH STRUCTURES
JOINTS, VEINS, SEAMS.
SHEARED ZONES.CRUSHED ZONES RQD% DESCRIPTION OF CORE LOG 5 50 DATE ≲∾‱‱∏ m 75 50 25 0.100 samplas ۰ ، Dark red - brown, loose / very Augarad dansa o fine gravelly STOCENE (Qpa) fine sandy GRAVEL with clay (GP-GC) S.P.T., 1.00 - 1.45, N = 42 ٠. see trial pit logs B 276 · 200 km , 0 - 1 · 60 m ٥ È 8276 · 290 km, 0 - 1-90 m) ٠. 269 PLEI ٠. S.P.T., 2.00 - 2.45, N = 48 ERTIARY -٥. • • 5.P.T., 3.00 - 3.45, N = 3B Stiff to very stiff fine clay cracks slightly on drying gravelly & sandy CLAY (GC-SC) S.P.T., 4-00-4-25, N= 26+ Gravel consists of angular grey Red - brown / grey medium / RECORDED siltstone fragments. Traces of fine gravelly and fine sandy bedding at 45° visible. CLAY (GC) Core broken to rubbly, clayey top Weak red-brown / grey highly 0.3 m 101 weathered SILTSTONE with Core fragmented to fine gravel size. shale partings dipping 40° PROTEROZOIC ( PS) Very faint silkiness on cleavage E surfaces 2000 Shale, moderately weathered Moderately strong to strong, fresh, dark grey - green -SILTSTONE, with red-brown shale partings dipping 30° Fragmented, highly weathered shale ROCK SUBSTANCE SECTION ROCK QUALITY DESIGNATION ENGINEERING GEOLOGY STRENGTH TERM CONDITION TERM 0-25% Very poor DM 187 VS-Very Strong LOGGED G.H.M.N 25-50% Poor DRILL No . S-Very Strong S-Strong MS-Medium Strong W-Weak VW-Very Weak SO-Soil properties MAYHEW 50-75% Fair TYPE . Fresh W.J. BOYD 10/2/75 12/2/75 DATE 12/5/75 Weathered 75-100% Good to excellent DRILLER TRACED Altered START. 350. Maximum effective pressure kilopascals. réached during test CHECKED G.H.MCN FINISH Applicable Min. DRG No \$ 11536 SHEET . I . OF . 2 Substances with soil properties remoulded and classified by Unified System

				•	*				
	TARCOO	LA - ALICE SPRINGS		PARTMENT (				HOLE NO.	DHIO
		Y-BRIDGE SITES	LOG	OF DIA		DRILL HOLI		SERIAL N	。 2. <b>366·2</b> . m
		BORE-BAYSTONE B RGA RIVER, SOUTH		CO-ORE	DINATES	ch. B 276 200 km	ION	E.L. Collar Datum	, m
	· · · · · · · · · · · · · · · · · · ·		S STRENG	CORE TH SIZE DEPTH LOG	③ R.Q.D.% 75 50 25	STRUCTURE JOINTS, VEINS, S SHEARED ZONES, CRUS	EAMS , LOS	WATER LEVEL CASING DRILL WATER	WATER PRESSURE TESTS LUCIONS 8 0 05 1 5 10 50
UPPER PROTEROZOIC (Ps)	cleaved S	sh, dark grey-green		10   1   12   13   14   1   14   1   14   1   16   16		Numerous I - 5mm th vains, ganerally conce bedding  laminated siltston  brown calcified sh	ick calcite ordant with	50 DATE 0 10	5300 m/s V = 2000 m/s
		e de la composição de l		15 -		END OF HOLE 15 00	m		<b>"</b>
				mandamahamakanahamahamaha					
①,	ROCK TRENGTH TERM	SUBSTANCE	3	ROCK QUALITY		IION	ENGINEERING	GEOLOGY	SECTION
\$\frac{1}{2}	S-Very Strong -Strong -Strong S-Medium Strong /-Weak W-Very Weak D-Soil properties	CONDITION TER Fresh Weathered Altered Not Applical properties remoulded and of	d (4)	Min. Minimu	or ir iood to exc	cellent essure (kilopascals) reached during test.	DRILL No. DM 18 TYPE . MAY HE DRILLER W.J. BC START. 10/2/7: FINISH 12/2/7 SHEET .2 OF 2	LOGG W DATE TRACI	ED G.H.M°N 12/5/75

13 •	で 表記 Amaging and an analysis and an			
	TARCOOLA - ALICE SPRINGS LO ECT. RAILWAY-BRIDGE SITES LO URE. MARLA BORE - BAYSTONE BORE TION ALBERGA RIVER - NORTH BANK	DEPARTMENT OF MINES  OF DIAMOND  SECTION TO CO-ORDINATES  ANGLE FROM HO	SOUTH AUSTRALIA  DRILL HOLE  HUNDRED  Ch. B 276: 550 km  DRIZ VERTICAL DIRECTION	HOLE NO. DH 12  SERIAL No.  E. L. Surface . 364.6 . m E. L. Collar m Datum
	DESCRIPTION OF CORE	TRENGTH SIZE TERM DEPTH LOG R.Q.D.%  SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS	STRUCTURES JOINTS, VEINS, SÉAMS, SHEARED ZONES, CRUSHED ZONES	LIFT CORE IN THE PRESSURE TO THE STORY OF THE PRESSURE TO THE
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)		S.P.T., I·00 - I·45 , N = 17 (f.m. sand)	\$()
PLEISTOCENE (Qpa)	Dansa dark red-brown claan Fine / medium quartz SAND(SP)		coarse sandy t clayey, lighter brown  5.P.T., 2.00 - 2.20, N = 26+(f.m.sand	327
TERTIARY - PLEIST	Sludge samples indicate dark red-brown fine/medium SAND	NO CORE	driller reports caving ,3.00-4.80	
	Strong, fresh, dark grey-green SILTSTONE, orange to brown stained along joints.  Bedding appears to dip at < 10°	5 minimuminininininininininininininininini	core mostly fragmented, becoming broken below 9.00 m	NOT RECOR
PROTEROZOIC (Ps)		**************************************		V= 2650 m/s
UPPER		9		V= 2650 m/s
VS S-1 MS W. VW SO	ROCK SUBSTANCE RENGTH TERM -Very Strong -Medium Strong -Weak -Soil properties remoulded and classif	3 ROCK QUALITY DESIGNATI 0-25% Very poor 25-50% Poor 50-75% Foir 75-100% Good to exce (350) Maximum effective pre	DRILL No. D TYPE . MA DRILLER . W. START 10.	M 187 LOGGED G.H.M°N J.BOYD DATE 12/5/75 TRACED CHECKED G.H.M°N 2 DRG. No. \$ 11537

EAT	TAR ECT RAI TURE, MA	RLA B	BRIDO DRE -	BAYST	res One b	LU ORE	1G	0F	SECT CO-OF	AN ION RDIN	NON	ID	DRI DRI HUNDR ch. B	LL 276	HO	LE				Ē	SE L	Surf	. No	,	)H (	•
	D	ESCRIPTI	ON OF	CORE	0	SYMBÖ SYMBÖ	REASE SE	COF GTH SIZ M DEPT	RE ZE TH	, ,	③ ?QD% 5 50 25			SI	TRUCTUS, VEINS	RES	s.			ORE OSS%	WATER LEVEL	CASING	water 6 Loss %	L	WATI RESSI TEST USEO	Š
UPPER PROTEROZOIC (Ps)	Strong SILTS but ap	g , fræsi TONE . parent	Bedd	ling o	bscure								Core	<b>521</b>		tact								V= 2650 m/s		
L	*	· . <del></del>	<del></del> .	<del></del>			7	}	<b>-</b>		-	EN	ID OF	HOI	.E 13	·40 r	n	•			$\dashv$		+			
	200							and the state of t	1						ì											
S-Vei Stror S-Me -Wee	ry Strong ng edium Stron			IDITION	I TERM	(3)		25 50 50 75	UALITY % Very 1% Poor 1% Fair 0% Go	poc	or		-			DRIL TYPE	L No.	DM MAY	187 HEV	v .	L	ogg G.	ED H. N	N c N		
-Soil	properties				plicable		- 13 N	350) Max Nin. N	imum e Ninimum	ffect	ive pre	ssure (l	olopasca d during	ls) test.		DRIL STAR FINIS	Н.	W.J. 10/2 11/2 <sub>OF</sub> 2	/ 75	<u> </u>	CI	HEC	KED	G.H	75 I.M° 3 <b>7</b> (	

ROJE	TARCOOLA - ALICE SPRING	93			SOUTH AUSTRALIA	-	HOLE NO.	DH 13
	RE MARLA BORE - BAYSTON	E BORE	SECTION CO-ORE	ON	HUNDRED - ch. C 2.600 km	·	E.L. Surface E.L. Collar	461.9
DCAT	DESCRIPTION OF CORE	2 STRENG	ANGLE CORE STH SIZE DEPTH LOG	FROM HO 3 R.Q.D.% 75 50 25	ORIZ <b>VERTICAL</b> DIRECTI STRUCTURES JOINTS, VEINS, SE SHEARED ZONES.CRUS	EAMS . LOS	MATER WATER CASING OF WATER WA	WATER PRESSURE TESTS LUCEONS
TERTIARY - PLEISTOCENE (Qpa)	Loose becoming dense red-brown silty medium SAND (see trial pit log, C 2.600 km, 0-1.50 m)  Dense red-brown / light! silty & fine gravelly fine/medium SAND, cemented in part to a we very weak fine sandstone	brown	numuhummhummhummhummhummhummhummhummhumm		S.P.T., 3·00 - 3·45,  (red-brown micac)  sand with calcre  S.P.T., 4·35 - 4·80, (red-brown silty + see gravel)	teous c.m.f.  the chips)		V= 1500 m/s
	ROCK SUBSTANCE	TERM 3	ROCK QUALIT		ION	ENGINEERING		SECTION
S-Sti MS-1 W-W VW-	Very Strong rong Medium Strong Veak Very Weak Very Weak Altered	nered	25-50% Po 50-75% Fo 75-100% C	oor aur Good to exc	essure (kiloposcols)	TYPE MAYHE DRILLER W.J. BO START. 2/12/7	W DATE	5, H. M <sup>e</sup> N 15/5/75
	I Not	licable		um value	reached during test.	FINISH 4/12/7	DRG No.	KED G.H.M

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ROJE( EATU DCAT	TARCOOLA-ALICE SPRINGS LOG RE MARLA BORE - BAYSTONE BORE	OF DIAMOND SECTION CO-ORD NATES BANK ANGLE FROM HOR	DRILL HOLE  HUNDRED -  CH. C 2-600 km  Z VERTICAL DIRECTION	HOLE NO.  SERIAL N.  L. Surface  L. Collar  Datum	461.9
	DESCRIPTION OF CORE	CORE (3)  CGTH 5:ZE  M DEPTH COG F C C %  S > C T T T T T T T T T T T T T T T T T T	STRUCTURES JOINTE, VENS, SEAMS : SHEARED ZONES, CAUSHED ZON	LOSS SOLDATER	
TERTIARY - PLEISTOCENE (Apa)	Danse red-brown/light brown fine/medium gravelly + silty c.m.f. SAND (or weak sandstone)  Subangular medium granite GRAVEL, with coarse sand +	12 12 13 14 14 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	S.P.T., 12·16 - 12·38, N = 26 (red-brown Fine gravelly	m.f. and) i+ c.m.f. and)	00 m/s
PRECAMBRIAN (PEg)	Moderately strong to strong, slightly to moderately weathered highly micaceous gnaissic GRANITE (peg (Fr))	19 + + + + + + + + + + + + + + + + + + +			V = 15
VS S:	ROCK SUBSTANCE RENGTH TERM CONDITION TERM -Very Strong StrongMedium StrongMedium StrongWeathered	3 ROCK QUALITY DESIGNATION 25% Very poor 25–50% Poor 50–75% Fair 75–100% Good to exce	DRIL	MAVHEW	Y SECTION GGED G.H.M.N re 15/5/75

TARCOOLA - ALICE SPRINGS	DG OF	MENT OF MINES	SOUTH AUSTRALIA	**************************************	-	LE NO.	DH 14	
CT RAILWAY-BRIDGE SITES  RE MARLA BORE - BAYSTONE BORE	VU UF	DIAMIUNL SECTION			· •		462-1	. г
TION OUTOUNYA CK.,N.T., NORTH BA	NK	CO-ORD NATES	ch. C 2-700 km		E.L. ( Datur	Collar		t
G. 5.		<u>E</u> <u> </u>	STRUCTURES		LIST &	۶ یا	WATER	£
DESCRIPTION OF CORE OF	TERV DEF	TH LOG RGE%	JOINTS, VEINS, SEA SHEARED ZONES, CRUSH	MS . ED ZONES	CORE F	ASA VOI	TESTS LUBEONS	•
	≶ -≷≱}>∟	m 75 50 25			5 50 DAT	<u>ຢັ່ວ 100</u>	05 510	1 .
Medium dense to dense light	•	<b>=</b> :		8				
red - brown coarse / medium /	• .	<b>∄</b> ;∙;		2000				
fine SAND with medium/fine	•	₫		온돈				
gravel				, 0-3-00 m, no yino esidmes			0	
(see trial pit logs, C 2.650 km, 0-2.80 m		∄∷:		3 O. P.			ε.	
C 2.750 km, 0-2.80 m)		≘≎∵.		o se			316	
		∄:		5 gd			>	
	• • • •			it usad, sludge				
• .		minumpounum		٥			4	
				Trucona				
		≣;•.		77.6			And the second second	
	• • • • •	<b>:</b> :	S.P.T., 3-00 - 3-45, N=					
		<u> </u>	(red-brown fine gra- - cmf sand)	verily created				
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			•		Special Conference			
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		<b>電</b> ::		- 27	ECORDED	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	•	≣∵:	S.P.T., 5-20-5-65, N (red-brown clayey c.)		Š			
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		<b>i</b> i.	•		NOT			
	. 6	<b></b>			:			
							9	
	1.		- S.P.T., 6 65-6 88, N	l = 26+	• • • •		Ē	
[	·   -		(red-brown fine gra clayey c.m.f. sand.)	veily and	<del>1111</del>		<del>4</del> <del>6</del>	
Weak light red-brown porous	X '						7	
coarse arkosic SANDSTONE							>	
(or very dense sand with little		<b>=</b> :::	*					
fines)	8	<b>∄∷</b>	a A	**				i s
Visible voids ~ 3% of volume	X °				111			
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1 × 1		<b>1</b> ::						
		<u></u>	•			100		1
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			The state of the s					
·*	🛭 10							
ROCK SUBSTANCE		QUALITY DESIGNA	TION	ENG NEER	NG GE	OLOGY	SECTION	1
Very Strong CONDITION TERM	0 – 25	-25% Very poor i-50% Poor	•	DR 14: DM		-090		_
Medium Strong Fresh Weak Weathered	_ 75	1—75% Fair 5—100% Good to ex	cellent :	HYAM PERF			.H. M°N 15/5/7!	5
-Very Weak Altered	(4)	Maximum effective pr	, ,	6/12/		TEACE		-

TARCOOLA - ALICE SPRINGS LOG OF DIAMOND DRILL HOLE  PROJECT RAILWAY-BRIDGE SITES LOG OF DIAMOND DRILL HOLE  SERIAL NO											
	URE. MARLA BORE - BAYSTONE BOR	CO-ORDINA	TES Ch. C 2.700 km	 Ει	L Surface. Collar .	462·1 `m					
LOCA	NTION OUTOUNYA CK., N.T., NORTH B	NK ANGLE FRO	DM HORIZ VERTICAL DIRECTI		tum	WATER &					
	DESCRIPTION OF CORE	(0 >1 1	STRUCTURE JOINTS, VEINS, S 50 25 SHEARED ZONES CRUS	CORE LOSSY	U	PRESSURE TESTS LUMEONS & 05, 510 50					
:	Weak off-white silty fine SANDSTONE (or very dense silty fine sand. Visible voids < 1%		Patchily iron stained	+ camentact							
PLEISTOCENE (apa)		15 15 15 15 15 15 15 15 15 15 15 15 15 1									
TERTIARY - PLE		13-									
	Wesk light red-brown/off white coarse arkosic SANDSTONE (or very dense sand)	-15-1111111111111111111111111111111111				V= 1440 m/s					
(53)	Weak completely weathered grey-green micaceous GRANITE	16-111111	Core fragmented								
PRECAMBRIAN ( P.Cg)	Moderately strong slightly to moderately weathered foliated vary micaceous gneissic GRANITE (pEg (Fr))	18 + + + + + + + + + + + + + + + + + + +	faw joints, clasn								
		+									
		ппппппппппппппппппппппппппппппппппппппп	END OF HOLE 19 00	m							
VS- S-S MS- W- VW SO-	ROCK SUBSTANCE RENGTH TERM CONDITION TERM trong -Medium Strong Weak Very Weak Soil properties  Responsible Fresh Weathered Altered Not Applicable Destances with soil properties remoulded and classif	Min. == Minimum vol	or to excellent tive pressure (kiloposcals) reached during test,	ENGINEERING CONTINUE OF THE CO	LOGGED G.H. DATE !!	M°N 5/5/75 > <b>G.H.M°N</b>					

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DH 15 HOLE NO. DEPARTMENT OF MINES SOUTH ALSTRAL A TARCOOLA - ALICE SPRINGS DRILL HOLE LOG OF DIAMOND SER AL PROJECT RAILWAY - BRIDGE SITES E L Surtace . 462.5 SECTION Ch. C 2.800 km FEATURE MARLA BORE - BAYSTONE BORE CO-ORDINATES El CoPar ANGLE FROM HORIZ VERTICAL DIRECTION LOCATION OUTOUNYA CK, N.T., NORTH BANK Datum ② STRENGTH SIZE

STRENGTH SIZE

TERM DEPTH LOG RQD%

SSE SECTION

75 50 25 Cost . Sand STRUCTURES JOINTS, VEINS , SEAMS . SHEARED ZONES, CRUSHED ZONES DESCRIPTION OF CORE გა‱გა}ბ<u>ო</u> w 75 50 25 SCIDATE ٠. . Loose / danse red-brown becoming light brown c.m.f. ۰. 1 SAND, gravelly & clayey in places Tricone bit used, 0 - 3.00 m samples only (see trial pit log C 2.800 km, 0-2.80 m) Ē ٠ ٥ S.P.T., 3:00 - 3:33 , N = 40+ (red - brown micaceous silty c.m.f. Weak very coarse light brown sand.) arkosic SANDSTONE (or dense sandy fine gravel), with numerous bands of loose sand. PLEISTOCENE (Qpa) S.P.T., 5-33-5-53 FERTIARY -Ditto, loose sand bands less common. Visible voids ~ 5% of volume È 1500 ON STRENGTH TERM 3 ROCK QUALITY DESIGNATION ENGINEERING GEOLOGY **SECTION** CONDITION TERM 0-25% Very poor VS-Very Strong
S-Strong
MS-Medium Strong
W-Weak
VW-Very Weak
SO-Soil properties DM 187 LOGGED
G.H.M°N
DATE 15/5/75 DRILL No . 25-50% Poor MAYHEW 50-75% Fair TYPE . W.J. BOYD 5/12/74 6/12/74 75-100% Good to excellent DRILLER Weathered TRACED Altered START. (350) Maximum effective pressure (kilopascals) CHECKED G.H.MEN Not Applicable FINISH reached during test. Min. - Minimum value. SHEET . 1 . OF .3 . DRG. No. \$ 11540 Substances with soil properties remoulded and clossified by Unified System

		OG OF DIAMONI	D DRILL HOLE	HOLE NO. DH 15  SERIAL No.  E. L. Surface , 462.5 , m
	<sub>JRE.</sub> MARLA BORE - BAYSTONE BORE <sub>TION</sub> OUTOUNYA CK, N.T., NORTH BA	CO-OKDINA I ES	HUNDRED - ch. C 2-800 km HORIZ VERTICAL DIRECTION	E.L. Collar
LOCA	DESCRIPTION OF CORE	ANGLE FROM F  O CORE STRENGTH SIZE TERM DEPTH LOG R Q D %  S S S S M m 75 50 25	STRUCTURES  JOINTS, VEINS, SEAMS, SHEARED ZONES, CRUSHED ZONES	LIFT A D S D S S PRESSURE PRES
TERTIA'RY - PLEISTOCENE (Qpa)	Weak light brown very coarse arkosic SANDSTONE (or fine conglomerate, or dense sandy fine gravel)	13 13 14 11 11 11 11 11 11 11 11 11 11 11 11	Gravel subrounded	V = 1500 m/s
RECAMBRIAN	Ditto, unconsolidated clean coarse SAND  Dense dark grey very micaceous medium gravelly c.m.f. SAND	17	Water worn gravel (well rour S.P.T., 18.85 - 19.07, N=26+	
PRECAM (peg)	Very weak to weak dark grey very micaceous completely weathered GRANITE ROCK SUBSTANCE	20 +	Weathered bedrock	
(1) ST VS S S S S W VW	ROCK SUBSTANCE RENGTH TERM CONDITION TERM Very Strong Medium Strong Weak Very Weak Soll properties Westerd Weathered Altered	3 ROCK QUALITY DESIGNA 0-25% Very poor 25-50% Poor 50-75% Fair 75-100% Good to es	DRILL I TYPE .  xcellent DRILLET  pressure (kilopascals : START.	5/12/74 TRACED
2	Not Applicable bstances with soil properties remoulded and class	Min Minimum value	reached during test. FINISH	6/12/74 CHECKED G.H.MCN 2. OF 3 DRG NO \$ 11540a

	TARCOOLA - ALICE SPRINGS JECT RAILWAY - BRIDGE SITES TURE MARLA BORE - BAYSTONE BO	LOG	OF DIA	MON	DRILL HOL HUNDRED - ch. 2.800 km	.E	SE	LE NO. ERIAL N	DH 15 • <b>462·5</b> . m
	ATION OUTOUNYA CK, N.T., NORTH	BANK	CO-ORD ANGLE	FROM H	ch. 2.800 km ORIZ VERTICAL DIRECT	TION		Collar	m
	DESCRIPTION OF CORE OF	STREN	CORE NGTH SIZE RM DEPTH LOG	R Q D % 75 50 25	STRUCTUR JÓINTS, VEINS, SHEARED ZONES.CRI	SEAMS	CORE E S	CASING DRILL	PRESSURE TESTS LUSEONS
	Completely weathered GRANITE (as above)		20 +		Core fragmented				
	Moderately strong, moderately to highly weathered very micaceous gnaissic GRANITE		21 +		Core largely fragmen	ntect			
PRECAMBRIAN (PEg)			21 + + 22 + + + 23 + + + + + + + + + + + +		becoming slightly w	veethered			V = 1500 m/s
			<del>^</del>		END OF HOLE 24-47	m			
	ROCK SUBSTANCE		ummhummhummhummhummhummhummhummhummh						
VS1	ROCK SUBSTANCE RENGTH TERM Very Strong rong Médium Strong Weck Veak  ROCK SUBSTANCE CONDITION TERM Fresh Weathered Weathered	3	ROCK QUALITY [ 0-25% Very 25-50% Poor 50-75% Foir	DESIGNATIO poor	NO	ENGINEERING  DRILL No. DM 18	ı,	LOGGED	SECTION
\$0-s 2	Very Weak Soil properties Altered Not Applicable	4	75-100% Goo (350) Maximum ef Min. Minimum	fective pres		TYPE MAYHEN DRILLER W.J. BO START. 5/12/7. FINISH 6/12/7.	4 4	DATE TRACED CHECKE	D G.H.MCN
Subs	stances with soil properties remoulded and classi	fied by	Unified System	···	······································	SHEET .3 . OF 3	DRG	No. <b>\$</b>	11540Ь

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C	СН.1	B2.	40.	. 20	) Kı	DEPA	RTMENT OF MINES		\LIA	11 /	PIT	N	0	1	
_				200		A 1 (A) 10 0 0 0	LOG O		<u> </u>		0	<b>/</b> 15	<b>-</b>		~ \
L	ROJEC" OCATIO ANDFO	II. NC	NDU	)LK,	LA ANA	- ALICE SP CK BRIDO	RINGS R/W, LE SITE	MARLABOR	HUNDRED	TONE B	ORE	(B	RIL	GE	S)
R	ELIEF		•					Di	rection of fall						
	NCROR RAINA		احمدمدا										•		
				ION T	ype .		ternal	Su	irface Absorp	tion		•	•		
	× 2							<u> </u>	<u> </u>	•	·	5	, g <u>e</u>	*SOIL	rest
SAMPLE VUMBER	OIL / ROCH	R L (m) DEPTH (m)	1	арніс .og	GROUP SYMBOL		CRIPTION PINAME	OTHER GEOLOGICAL	1	SOIL / ROCE	1	URE	apactne Dens	PENET	
\$ ₹	SOIL.	R L DEPT			GR SY		Classification nual 1st Ed Rev 1963	PEDOLOGICAL	DESCRIPTION	STRUCTURE	WATE	MOISTURE CONTENT	Con	UNI1	
		-	·-··	· · ·	sm	Red-brow fine SAN	vn silty D			Mediu	m				-
			. ÷.	•				PLEISTO	CENE	dense	<b>&gt;</b>				
			··	·				ALLUVI	UM			>			-
		1 -	= .	•	ı		tha little	(Qpa	1)	dens		DRY			1
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C	LASSIFI	CATIO	4		v 67	CONSISTENCY (CLAY)	COMPACTNESS	RELATIVE DENSITY (SAND)	MOISTURE CONTI	NT	ENGIN				
Great	Soil G	Group	]		7 May	VS Very Soft S Soft	Ls — Loose MC — Moderately	VL Very Loose L Loose	H Humid D Damp		CKHOE	T		ij	
Subg	roup .			Water le	- 1	F Firm	Compact	MD Medium Dense	M Moist	PLANT BA		G	н.	Me	N
Di	REFER	ENCE				St Stiff V St Very Stife	C — Compact VC — Very	D — Dense VD — Very Dense	W — Wet S — Saturated	DRILLER START .		TRA	ED .	J.W	/ :
DM Map	-			W Water	C <b>≯</b> cut	,H · Hard	Compact		LL Liquid Li PL Plastic L	<del></del>	· ·	L	KED.	3HM	-11/1

CH.B240-250 km	•		PIT NO	2
PROJECT TARÇOOLA-AL	LOG OF ICE SPRINGS R/W, MARLA E	BORE - BAYSTONE BORE (	BRIDGES)	
LANDFORM.  RELIEF	CREEK BRIDGE SITE S	ECTION — HUNDRED — Direction of fall		•
MICRORELIEF  DRAINAGE External  SURFACE VEGETATION Type	Internal	Surface Absorption .		
SOUL/ ROCK HORIZON R L (m) DEPTH (m) ON DEPTH (m) SOUP SYMBOL	SOIL DESCRIPTION GROUP NAME Unified Soil Classification USBR Earth Manual 1st Ed Rev 1963	OTHER SOIL / GEOLOGICAL DESCRIPTION STRUCT	1 15 5 18 0 1	SOILTEST PENETRO- METER
sw	Light red-brown, clean, well-graded coarse/medium/fine SAND	, , ,	oose	
	12			
2-	END OF PIT, 1-80m	onto stiff (?) orange/grey mottled sandy and gravelly clay (GC.) Backhoe unable to advance due to caving (?Qpa)	d da sou	
	ggregate	m channel. Sample		
			es refer to clay soils indication of their co	
CLASSIFICATION  Great Soil Group	VS Very Soft Ls Loose	RELATIVE DENSITY	ENGINEERING GEOLOGY SECTION	
Subgroup	F — Firm Compact A St — Stiff C — Compact		DATE TRACED	GHMcN

	CH	182	40 30	0 k	~				PIT	NO	3
"	OCA II	ON I	RCOOLA NDULKA	-ALI	LOG ( CE SPRINGS R/W , MARI CREEK BRIDGE SITE	F PIT LA BORE BAYSTO SECTION - HUND	ONE B	ORE (E	3RID	JES)	
R N DI	ELIEF ICROI RAINA	RELIEF		•	t	Direction		n			•
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  DESCR	IPTION	SOIL / ROCK STRUCTURE		MD of take CONTENT onswerd Compartness Ref Density	SOILTES PENETRO METE
				SW-	Red-brown, silty c.m.f. SAND.	PLEISTOCEN	d	edium lense			
		2		SW- SM	Red-brown silty & gravelly c.m.f. sand (or semi-consilidated sandstone)		(<	ense or ver weak rock)	<u> </u>	Dry	American control of the control of t
					END OF PIT, 2:20m			· · · · · · · · · · · · · · · · · · ·			
REM	ARKS	Ņ	lonthe	∍rr	edge of preser	t channel,	adje	ıcen+	- <del>     </del>	DH2	<u> </u>
	•		•				· * These	volues refe	r to clay	v sails a	only and
Subgrou RE DM . Map .	P • EFEREN •	oup.	· Water leve	<b>&gt;</b>	VS — Very Soft	VL — Very Loose L — Loose	provid RE CONTENT mid mp ist	e on indicat	NGINEER LOGY S Khoe LO TR CH	heir cons RING ECTION	McN C.74 W. H.McN

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(	Ch.	B24	44.4	460	)k	m.	DEPART			SOUTH AUSTRAL	JA			PIT	NO		L
P.F	ROJECT	<b>TAF</b>	RCOC	LA-	ALI RID	CE SPI GE SI	RINGS TE	LOG BR/W, M	AR	LA BORE-	BAYSTO	ONE	BOR	<u>e</u> (	BRIC	GE)	,
L/	NDFO														•		
M	ICROR			*		• •					ection of fal		Ť	•	• *	•	
			ternal ETATIOI	N Тур	e .	. ,	Inte	rnal .		Sur	face Absorp	otion .	•		•		
SAMPLE	SOIL / ROCK HORIZON	R L (m) DEPTH (m)	GRAPH	HIC S	SYMBOL	Un			953	OTHER  GEOLOGICAL  PEDOLOGICAL	DESCRIPTION		IL / ROCI RUCTURE		MOISTURE CONTENT	Rel Dens	METER NITS *
		-	-		SW-	Red- C.M.F		wn ailt; ND	y	PLEISTOC ALLUVIUI (Qpa)	М	der	dium nse lens		Dry		
	1 :0.00.00 GP Sandy fine GRAVEL With nodular Loos calcrete											ose		امًا			
	Qca		0.000			White calca	:/gre ireou	y greer us GRAVE	า <u>ะ</u> น	horizon		de	ense	>			
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(	CLASSIF	ICATIO	Ň		1 67	CONSI	STENCY XY)	COMPACTN	ESS	RELATIVE DENSITY (SAND)	MOISTURE CON	ITENT	(	ENG GEOLOG	NEERI		
Grec	at Soil	Group			7 May	VS Very	<b>S</b> oft	Ls Loose MC - Moderate		VL Very Loose L Loose	H Humid D Damp		PLANT <b>B</b>	ackh	e roc	GED	
Sub	group			ater les Idate		F Firm Sr - Stiff		Comi	pact	MD - Medium Dense D - Dense	.W Wet	:	TYPE J.1	eer.	DAT	∃.H.N EDec	c. 74.
DM		· ·		W	c <b>&gt;</b>	V St V H Hard		VC Very Compar	ct	√Ď Very Dense	S Saturate LL Liquid		START . FINISH .		CHEC	.,,	H,McN
Мар	-		.	Water o	out I				ļ		PL Plastic	Limit	CHEET	ÒE	DRG C	1154	16

(	Ch.	B 2	49.70	0 kr	n. DEPA	RTMENT OF MINES		ıLIĄ		Р	IT NO	5
L F A	OCATI ANDFO RELIEF MICROFO RAINA	ORM, RELIEF AGE E	RCOOL, IINOR E	BRIDC	GE SITE	LOG OF	RLA BORE -	,	. <del>-</del>	SORE.	(BRID	oges)
SAMPLE	SOU / ROCK HOKIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP	GROU Unitient Soil	SCRIPTION P NAME : ! Classit satura inual : 1st Ed Ros (1963)	OTHER GEOLOGICAL PEDOLOGICAL	DESCRIPTION		/ ROCK CTURE	WATER LEVEL MOISTURE CONTENT	SOILTEST SOILTEST PENETRO- METER UNITS #
		-		GP- GM		wn silty & ne GRAVEL	PLEISTOC		Medi dens			
		1	0000	GP	Red-bro fine GRA	own sandy VEL	(Qpa)	)M	d	ense	Dny	1.000
		-	+ +		Weathered fragment	& silicified ed GRANITE	PRECAMBRIA	N (PEg)	dens	se/ dense		
		2			END OF PI		Backhoe to penet silicifieo granite below 1:5	rate   grave	•			
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Gre	or Sa gradia	CATIO Gradi	Woter	evel date)	SONSISTENCY  AS VER Soft  A S V.  From  Str. Statt  A Str. Very Stat.	COMPACTNESS  LIST Using  MC Milderatels  C mpact  C Cimpact  VC Nets	RELATIVE DENSITY (SAND)  VL Very Loose L Loose L Loose D Medium Dense D Dense  VD Very Dense	MOISTURE CONT H — Humid D — Domp	ENT PLA	n indication	GINEERIN DGY SEC LOGG LOGG DATE TRACE	TION  ED  H. McN  Dec?74  ED JW
DM Ma	-		. Wate	WC <b>≯</b> er guit	H Hard	Compart		LL Liquid L PL Plastic	.113101	EET OF	DRG C	11547

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~		RELIEF									D	urection of	toll				•	
		AGE E		II .	уре .		Inte	rnal			. S <sub>t</sub>	urface Ab	sorption	•				
SAMPLE	SOIL / ROCK HORIZON	R.L.(m) DEPTH(m)		LOG	GROUP SYMBOL	i, ni,	OR DESC GROUP tied Son Carth Mone	NAME Classiticat			OTHER SEOLOGICAL SEDOLOGICAL	DESCRIPT	· • • • • • • • • • • • • • • • • • • •	SOIL / ROC STRUCTUR		MOSTURE CONTEXT	Consistence Compactness Fel Densch	SOILTEST PENETRO- METER
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Great	Soil C	Froup			7 May	VS Very S	oft	Ls Lo	ose	VL	Very Loose	H Humi	d		EOLOGY	T		4
Subgr	REFER	ENCE	•	Water le (date		S - Soft F - Firm St - Staff V St - Very H - Hard		C Com VC Ve		D D	Nedium Dense	W Wet S Satura		PLANTBO TYPE J.D DRILLER START . FINISH .		G. DAT	CED J	AcN. c.'74 W HMcN
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SAMPLE	SOIL / ROCK HORIZON	R L (m) DEPTH (m)	1 1	APHIC ·	GROUP SYMBOL	U.S.I	GR	DESCRIF OUP NA Soil Clas Manual	AME ssification	, Rev 1963		OTHER GEOLOGICAL PEDOLOGICAL	-DESCR	IPTION		OIL / ROC RUCTUR		WATER LEVEL	CONTENT	Compactness Rei Density	SOILT ENETF ME UNIT 1 2 3	RO- TER
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Gr	CLASSI eat Soil	FICATIO Group	 N	-	May 67		ONSISTENC (CLAY) Very Soft		COMPA (SIL	CTNESS TNESS	RELA	TIVE DENSITY (SAND) Very Loose	ļ	STURE CONT Humid	TENT		GEOLO	GINE DGY			N	,
	bgroup .  REFE	RENCE			r-	F - St V S	Soft Firm Stiff it Vers S Hard	c	Comp Comp		1	Lagsc Medium Dense Dense Viver, Dense	₩ - S -	Jämp Muist Wet Saturated Eigu d		PLANT <b>E</b> TYPE <b>J.</b> DPILLEF START L FIN 3H .	Dee		G DAT	E De	- <b>М</b> с ЭС. Т Ј. W ЭН М	74
Mo	ip .			Water	-								PL .	Picstic		SHEET	OE.	DS	6 <b>C</b>	115	4.9	1

	CL.	B2	59	.20	Ok	m	DEPAR	TMENT	OF MINES	SOU	TH AUSTRALI	Α	· · · · · · · · · · · · · · · · · · ·		PIT	NO	8	
PF	ROJEĆT	TA	RCC	OL	A-A	LICE	SPRING	GS, F	OG OF	LA.	BORE- B	OTEYA	NE E	SORE	= (e	RID	GES	)
LC	CATIC ANDFO	T. M	ARC	00N.	YINN	A.CI	<b>К, STH.</b>	BRA	NCH s	ECTIC		undred 		•	· ·			
	ELIEF ICRORI	FLIFE				,			•		Dire	ction of fal	1,			**	٠	
DI	RAINA	GE Ex			vne		Inte	ernal		•	Surf	ace Absorp	otion .	.•		•	•	
	T . T			Time T	· ·	·	SOIL DES	CRIPTION	٧		OTHER		· · · · · · · · · · · · · · · · · · ·	il / ROCK	EVEL	TEN See	SOIL PENET	TEST
SAMPLE	SOIL/ROCK HORIZON	R.L.(m) DEPTH (m)		PHIC OG	GROUP SYMBOL	U.S.B.I	GROUP Unified Soil R Earth Man	Classific		F	GEOLOGICAL TO EDOLOGICAL	DESCRIPTION		RUCTURE		MOISTURE CONTENT Consistence	13 13 N	METER ITS #
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-	CLASSI	FICATI	0N	· ·		· c	ONSISTENCY (CLAY)	·	MPACTNESS	RELA	TIVE DENSITY (SAND)	MOISTURE COI	NTENT	<u> </u>	ENG	INEERIN	٧G	
Gre	eat Soil	Group	·		7 May	vs	Very Soft	Ls MC	Loose Moderately	1	Very Loose Loose	H - Humid D Damp		PLANT <b>B</b>	ackh	e rocc	SEDG .H	l.McN
Su	bgroup ·		· ·	Water (d	level late)	F St	Firm Stiff	1	.Compact .Compact	1	Medium Dense Dense	W Wet		DRILLER START .	eer	. DAT	DEC ED J.V	
DI	И.	RENCE		1	wc »		t' Very Stiti Hard ,	VC	Very Compact	VD	Very Dense	S — Saturat LL — Liquid PL — Plostic	Limit	FINISH	•	. CHEC	кер.G <i>H</i>	McN
Mo	ip.			I Wate	er cut	l I i		- 1		1		1		SHEET	OF .	L NIS N	1100	$\sim$

(	Ch.	B2	60·	300	) kr	n	t	DEPART					TH AUSTRAL	IA	•	<del></del>		PI	T	NO	9
	OJECT CATIC NDFO		RCOOI	_A-/	ALIC 'INN	Ä,	SPRII CK, S	NGS BOUT	R/V TH	LOG ( V, MAF BRANC	OF RLA H <sub>SEO</sub>	P B CTIC	ORE-BA	NYS.	TON!	E BC	RE	(BF	RID	GE\$	3)
MI DR		GE Ex	ternal . ETATIOI	ч Тур	e			Inter	mal		·	•			of fall	٠	•		•	·	
SAMPLE	SOIL/ROCK HORIZON	R.L.(м) DEPTH (м)	GRAPH LOG	IIC GU	SYMBOL	U S.	Unitie	L DESC GROUP d Soil C h Manu	NAME Hossitic		.3	P	OTHER SEOLOGICAL ] FEDOLOGICAL ]	DESCR	IPTION		IL / ROC RUCTUR		WATER LEVEL	MOCTURE CONTENT Consistent	SOILTEST PENETRO- METER METER
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				•								•	•		*						oils only and consistency.
<b></b>		ICATIO	)N		1 67	Ì	CONSISTE (CLAY	NCY	·	OMPACTNES (SILT)	ss R	RELAT	TIVE DENSITY (SAND)			TENT		EN GEOL		EERIN SEC	
		Group RENCE		(ater lev (date W( Water c	)   	VS Sr Sr V H	Soft Firm Stiff St Very Hard		Ls MC C VC	Loose  Moderately Compact  Very Compact	act A	ΛD D	Very Loose Loose Medium Dense Dense Very Dense	H ,0 M W S tt	Humid Damp Moist Wet Saturate Legard Plasta	Limit		Back Dee	•	G. DATE TRACE CHECK	H.M.C.N. Dec? 74. D.J.W. D.G.H.M.C.N.

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L( RI M DI	OCATION AND FOR ELIEF ICRORE	DN .T. DRM . .ELIEF GE Ex	ARC		NYIN  	ALICE SPRI NNA CK, SOL	JTH BRANCHS	MARLA BOI ECTION	RE - BA HUNDRED ection of fall	· • • • • • • • • • • • • • • • • • • •	NE BOF	RE (BF	(IDGES)
SAMPLE	SOIL / ROCK HORIZON	R.L.(m) DEPTH (m)		APHIC .OG	GROUP SYMBOL	SOIL DESC GROUP Unified Soil ( U.S.B.R Earth Many	NAME Classification	OTHER GEOLOGICAL PEDOLOGICAL	DESCRIPTION		/ROCK	MOUSTURE CONTENT Consistence Comportness	SOILTEST PENETRO- METER 15NR PS **
•			-		SM	Red-bro fine/med	dium SAND	PLEISTOC RECENT ALLUVIUI (Qra/Q	M	Loc	ose	HUMID	
		-			sw	Red-brown SAND White/brown	n cemented			Dense	z i weak	DRY	
<del>,</del>		2-		• •	SP	C.M. Sand. END OF PI	inani, moranganya, pagangangan				props.		
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Grec	group .	Group	NO		ote) WC ▶	CONSISTENCY (CLAY)  VS — Very Soft  S — Soft  F — Firm  St — Stiff  V St — Very Stitt  H — Hard	COMPACTNESS  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	MCISTURE CON H Humid D Damp M Moist W Wet S Saturatec LL Liquid PL Plastic	PL TY DR ST Limit		DATE	ON H.McN Dec '74 J.W. G.H.McN

	Ch	B20	60 776	kr	DEPAR	TMENT OF MINES	SOUTH AUSTRA	LIA		P	IT	NO	11
						LOG OI	PIT	AVSTON	F BOI	RF (B	RID	CF.S	`
LC	CATIO	T, NC	ARCOOLA	YINN	CE SPRINGS IA CK, MAIN (	CHANNEL	SECTION . T.	HUNDRED				<u> </u>	,
R	ANDFO ELIEF ICROR			•			Dii	rection of fal					
DI	RAINA	GE E	kternal .		Inte	ernal		rface Absorp	ition ,		*	•	
-	T 💆 _	T	SETATION T	T	SOIL DESC	RIPTION	OTHER				LEVEL	ENI mess mesty	SOILTEST
SAMPLE	SOIL / ROCK HORIZON	R L ( <b>m)</b> DEPTH ( <b>m)</b>	GRAPHIC LOG	GROUP	GROUP Unified Soil U.S.B.R. Earth Man		GEOLOGICAL PEDOLOGICAL	DESCRIPTION		/ROCK	WATER U	CONT Compact Compact Feel Der	PENETRO- METER
	:	-	0 0	SC- SW	Dark red-b cm.f. SAND, tr	rown clayey aces gravel		A	Loc	se			
	:				Red-brov	vn silty D, cemente	PLEISTO			dense :nse	1 11		
		1 -			and por	ous.	(Qpa)	JM.		weak akrock		yry Y	
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	LASSIF		N .	May 67	CONSISTENCY (CLAY)	COMPACTNESS	RELATIVE DENSITY	MOISTURE CONT	TENT			ERING SECTIO	)N
	roup .		. Water	~	VS — Very Soft S — Soft F — Firm St — Stiff	Ls — Loose  MC — Moderately  Compact  C — Compact	VL — Very Loose L — Loosc .MD — Medium Dense D — Dense	W Wet	Ďŧ	ANT BOCK	~~	G.H.	McN.
DM Map	REFER	ENCE	. Water	WC. <b>≯</b>	'V Stor-Very State Hor-Hard	VC Very Compact	VD — Very Dense	S:— Saturated LL — Liquid PL — Plastic	Limit F1	ART .	,		GH,McN
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SAMPLE	SOIL/ROCK HORIZON	R.L.(m.) DEPTH (m.)	GRAPHIC LOG	GROUP SYMBOL	GROUP Unified Soil	CRIPTION NAME Classification uol lst Ed Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL	DESCRIPTION	SO ST	IL / ROCK RUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Rel Density	SOILTES SOILTES METE WHITS WHITS METE MITS MITS MITS MITS MITS MITS MITS MITS	)∸ ER *
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	ASSIFI	CATION	4	May 67	CONSISTENCY (CLAY)	(SILŤ)	RELATIVE DENSITY	MOISTURE CONT	ENT		NGIN LOGY			4	
Subgr		:•	* Water le	evel _	VS Very Soft S Soft F Firm St Stiff V St Very Stift	C — Compact VC — Very	VL Very Loose L Loose MD Medium Dense D Dense VD Very Dense	W — Wet S — Saturated	. † D S	PLANTBACI YPE J. DOO PRILLER TART		DAT TRAC	.H.I E De CED .~	MeN C'74 IW HMcN	
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Р	ROJEC <sup>*</sup>	r <b>'TA</b> !	RCO	OLA-	- <b>AL</b> I	ICE.	SPF	RING	SR	Ll ./w.	OG O	r A E	MI ORE-B	AYST	ONE	. BC	RE	(BF	<b>RID</b>	)GE	ES.	)	
L	OCATIO	T. NC	ARC	00N	NIV	INA	СК	, MA	in c	CHA	NNEL	SECT	ORE - B	HUND	RED -	•	•			•	•		
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	VICROR RAINA						•		nternal	i .				Surface	Absorp	tion							
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SAMPLE NUMBER	SOIL / ROCK HORIZON	E E	GRA	(PHIC	GROUP SYMBOL			SOIL D	ESCRIP P NAI				OTHER			S	OIL / RC	сĸ	TENET	NTEN	Denvity 1	SOILTE	0-
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Grea	t Soil C	Proup	. ,	Water le	vel	S	Very Soft	Soft		Loc	derately	L	Very Loose	D	Humid Damp		PLANT .	Baçk	hoe	LOGG	JED.		
Subg	REFER	ENCE		(dat		St	- Firm Stiff St Ve	ery Stiti	1 '	Comp		MD D ···	Medium Den Dense Very Dense	W,			TYPE J. DRILLER START	Dee	re	DATI		M.c.N :C!7- IW.	-
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SAMPLE NUMBER	SOIL / ROCK HORIZON	R L (m) DEPTH (m)		APHIC LOG	GROUP	USB	GROU Unitied So	ESCRIPTION IP NAME Il Classificat anual Ist E	ion.	GE PE	OTHER OLOGICAL DOLOGICAL	DESCRIPTION		SOIL/ROC STRUCTUR	H X WATER LEVEL	MOISTURE CONTENT	Compociness Ret Density	SOILTEST NETRO- METER UNITS #
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SAMPLE	X z	<del></del>	l	APHIC LOG	GROUP SYMBOL ad						OTHER DLOGICAL DOLOGICAL	DESCR	IPTION		OIL / RI		WATER LEVEL	MOISTURE CONTENT	Consistency Compactness Ref Density	UNIT	RO-
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	group .  REFER			Water le Idai W Water	te)	S - Soft 5 - Firm Sr - Stat	ery Sto	MC Mid C Compo v C vstv	erpte s Compact cot	L Loos	ic alum Dense se	D ; M/ W SS-	Damp		TYPE DRILLER START KINSSH		re	G. DAT TRAC	H M E DC ED . KED G	C , JW HN	74

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SAMPLE NUMBER	OIL/ROCK HORIZON	R.L.(m) DEPTH (m)	1	.OG	GROUP	Uniti		NAME Classification	ALC: 15 No. 1	DESCRIPTION		OIL / ROCK TRUCTURE	WATER LE	MOISTURE CONTEN	Ser Det	METER
νz	SOIL/ HOR	A H	<u> </u>	<del></del>				ual 1st Ed. Rev 1963	PEDOLOGICAL	-J			×	Ŏ X	Š	1 2 3 4
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		ICATIO	Ν		May 67	CONSISTE (CLAY)		COMPACTNESS	RELATIVE DENSITY (SAND)	T :	TENT	EN GEOL		ieeri Seo		7
Greo	t Soil (	oroup.		\A/=+== 1	r	VS — Very S S — Soft	oft .	Ls — Loose  MC — Moderately	VL — Very Loose L — Loose	H — Humid D — Damp		PLANT Back	hoe	LOG	GED	
Subg	roup .			Woter I		F — Firm St — Stiff		Compoct C — Compoct	MD — Medium Dens D — Dense	e M — Moist W — Wet	4	TYPE J.Dec		Ģ	.н.	McN.
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Photo	•				, A	1		L		1		SHEET . OF		No. 🔰	110	<u> </u>

,	Chi	ر در د	ıc	500	) ]	DEPAR	RTMENT OF MINES	SOUTH AUSTRA	ALIA		DIT	N/O	Ι ,_
	Crit	رعد	0.	500	Kri		LOG O			_	PIT	NO	17
L L F A	OCATI ANDFO RELIEF MICROFO DRAINA	ORM ORM RELIEF	ALB	ERG	AR	ICE SPRING IVER CROS	S R/W, MAI	RLA BORE.  SECTION: Di	HUNDRED irection of fall urface Absorption		(BR	RIDGE	<b>ES)</b>
SAMPLE	SOIL/ROCK HORIZON	R.L.(m) DEPTH (m)	GF	APHIC LOG	GROUP SYMBOL	GROUP Unified Soil	CRIPTION NAME Classification and 1st Ed. Rev. 1963	OTHER GEOLOGICAL PEDOLOGICAL	DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT Controller	SOILTEST PENETRO- METER
					sw	Light red clean c.m		BECEN		ery loos	е	DRY	1 1 1 1
•		1 -	Δ	Δ Δ 	SP	grey-gre	SAND, with en silt - agments	(Qra)	UM L	oose. resh vater truck a 80 m.	+	SAT. MOIST	
						END OF	PIT, 2-10n	Onto gr brown mottled g * sandy (GC - SC					
			•	a+ ·		at cent	re of no	rthern	₩ The prov	se values refeide an indicat	lo c	lay sail:	s only and
Gred		Group		Water le (dat W Water	(e) (C <b>)</b>	CONSISTENCY (CLAY)  VS — Very Soft  S — Soft  F — Firm  St — Stiff  V. St — Very Stitt  H — Hard	COMPACTNESS  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	PLANT BOC TYPE J. DEC DRILLER START . FINISH .	khoe re	G.H.I DATE DO TRACED	Mon Ec?74 JW GHMcN

	Ch	B2 <sup>*</sup>	76 6C	00 K	rn DEPAR	TMENT OF MINES		LIA		PIT	NO	18
LO Lo R	OCATI ANDFO ELIEF	<b>A</b> . NO			CE SPRINGS /ER CROSS	R/W, MARI	_ABORE-B		7 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	(BRII	DGE	5)
			ternal . ETATION	туре .	Int	ernal	. , , Sui	rface Absorp	ition			19
SAMPLE	SOIL / ROCK HORIZON	R.L.(m) DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL			OTHER GEOLOGICAL PEDOLOGICAL	-DESCRIPTION	SOIL / ROC STRUCTUR	m A water level	MOISTURE CONTENT Consistency Compactness Ret Density	SOILTEST PENETRO- METER UNITS **
		1 -			Red-brow m.f. SANI	Burner of the first of the property of the first of the f			Loose			-
		-					PLEISTO					
		2-		SP -SM	silty m.f.	vn slightly cemented weak ne)			Dense weak rock proper		کیم	
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		-			END OF F	PIT ,3.00m						
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	•				•				These values			
-	LASSI	ICATIO		67	CONSISTENCY	COMPACTNESS	RELATIVE DENSITY	MOISTURE	provide on ind	ication of ENGIN		onsistency.
	t Soil			7 May 6	VS Very Soft	COMPACTNESS Ls Loose	VL Very Loose	H — Humid		GEOLOGY	SECTIO	i di malayana
Subs		RENCE	Water		S Soft F Firm St Stiff V St Very Stiti H Hard	MC Moderately Compact  C — Compact  VC — Very Compact	L Loose  MD Medium Dense  D Dense  VD Very Dense	D Damp M Moist W Wet S Saturated LL Liquid	DRILLER START	ackhoe Deere	G.H DATE D TRACED	McN ec. 74
Мар	•		· Wate	er cut				PL Plastic		OF DI	11 2 25	560

				14 19 X								
Ch	B2	76	-80	0 h	DEPAR	TMENT OF MINES	SOUTH AUSTRA	LIA		PIT	NO	19
	ORM. RELIEF	LBE kternal	.RG	A R	ICE SPRINGS		LA BORE - E	BAYSTON HUNDRED  ection of fal		(BRI	DGE	<b>s)</b>
SOIL / ROCK	-RL(m) DEPTH(m)	1	PHIC DG	GROUP	SOIL DESC GROUP Unified Soil USBR Earth Man	NAME Classification	OTHER GEOLOGICAL PEDOLOGICAL	-DESCRIPTION	SOIL / ROCH	WATER LEVEL	MOISTURE CONTENT Consistent; Compactness Rei Density	SOILTEST PENETRO- METER UNITS *
	2 - 3 -	 		SP	Yellow, clewell grade with a few of indura-	on c.m.f. ed SAND v cobbles	? RECE! ALLUVIL (Qra)	ML	Loose Very Loc		Dry	
					END OF P	IT, 3.60m	Onto gr at 3:60 of reach backho	,end h for				
REMAR	KS 1	nc	»ve	rf	low chan	nel, non	th side o	• *	These values r			
Great Soil	FICATIO Group RENCE		Water ! (da	te) VC ▶	CONSISTENCY (CLAY)  V5 Very Soft  S Soft  E Firm  St Stiff V St Very Stift H Hard	COMPACTNESS  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 CONT H Humid D Damp	PLANT BOTTYPE J.D  DRILLER START . FINISH .	ENGINI BEOLOGY Cackhoe Ceere	LOGGED G.H. DATE DI TRACED	Mc N ec?74

<u> </u>	Ch	Ba	277-10	00k	m DEI	PARTMENT OF MIN	NES SOUTH AUSTR	RALIA	· · · · · · · · · · · · · · · · · · ·	PIT	NO	20
P					1 × ×	LOG	OF PIT	BAYSTON	IF BORF	(B)	RIDGE	
Lç	OCATI ANDFO	A. NO	LBER	RGA 1	RIVER CRO	SSING.	SECTION .	HUNDRED				
.R	ELIEF			. •				Direction of fall				
DI	RAINA	GE E	cternal . SETATION	Tuna		Internal		Surface Absorpt	jon ,			
	¥ _	T	<del>y</del>	<del>-                                    </del>		CCCCOTO.			·	· .	5 sè	SOILTEST
SAMPLE	SOIL/ROCK HORIZON	R.L.(m) DEPTH (m)	GRAPHII LOG	GROUP	GRC Unified S	DESCRIPTION DUP NAME Soil Classification Manual 1st Ed Rev 196	OTHER  GEOLOGICAL PEDOLOGICAL	L-DESCRIPTION	SOIL / ROCK STRUCTURE		MOISTURE CONTEI Consistency Compactine Ref Dens	PENETRO- METER UNITS #
		-		SP		own clea	n DUNE S	AND(Qrd)	Very loos			
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	•						• .		nese values refe ovide an indica			
	ASSIFIC	ATION		May 67	CONSISTENCY	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTEN	41 I	ENGINE DLOGY	ERING SECTION	4
Subgro			Water	level	VS Very Soft S Soft F Firm	Ls Loose MC Moderately Compact	VL Very Loose L Loose MD Medium Dense	H — Humid D — Damp M — Moist	PLANTBAC	khoe	LOGGED G.M.1	
	REFERE	NCE		date)	St Stiff V St Very Stift	C Compact VC Very	D — Dense VD — Very Dense	W Wet S Saturated	DRILLER START		DATE DE	c)74
Map . Photo	,	<u>.</u>		WC >	H — Hard	Compact		LL — Liquid Lim PL — Plastic Lim			\$115	
PF	No S	610	9 MB					1	· · · · · · · · · · · · · · · · · · ·			

	Ch	C 2 ·	50	00ki	m	<del>* , * , * .</del>	DE	PARTME	NT OF MIN	IES	SOUTH AUST	TRALIA	<del></del>		PIT	N	0	21
						ICE	600 IV	ice i	LOG	0F	PIT	<b>5.40</b>		_ 	·····	<del></del>		· · · · · · · · · · · · · · · · · · ·
L R	OCATI ANDFO ELIEF NICROF RAINA	ON O ORM RELIEF	cterno	ońи,	<b>YA</b> (	CREI	EK,N	T.	₹/W , M/	•	A BORE		D •		(B)	RID	GE.	<b>.s)</b>
SAMPLE NUMBER	SOIL / ROCK HORIZON	R L (m) DEPTH (m)	•	RAPHIC LOG	GROUP	USB	GR Unified	DESCRIPT OUP NAW Soil Classi Manual 1s	ιE	3	OTHER GEOLOGICA PEDOLOGIC	L AL DESCRIPT	100	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT	Consistents Compactness Rel Density	SOILTEST PENETRO- METER UNITS **
						wit	≥diur	m/fi ace:	n coars ine SAN s of sil-	1D, +	PLEISTO ALLUVIL (Qpa)	M	h	oose/ red. ense		کیم	7	
		2	•	<u></u>		sligh	+ly P	orous	3. 2.00m	+			D	ense			_	
ĶΕΛ	<b>AARKS</b>	,	O	J+h	100	ank		* <b>●</b>	•				•	•		,	. •	,
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	Soil Gro				May 67		SISTENCY LAY) ery Soft		APACTNESS SILT)	1	TIVE DENSITY (SAND)  Very Loose	MOISTURE CC	NTENT		IGINE .OGY			
Subground R  DM .  Map . Photo .	Up . EFEREN	NCE .		Water lev (date W( Water c	rel )	S Soft F Firm St Stir	n ff Very Stitu	MC	Moderately Compact ompact	L	Loose - Medium Dens - Dense - Very Dense	D Damp	ted 1 Limît	PLANT Back TYPE J. Dee DRILLER . START FINISH	re	DATE TRACEI CHECKI	l.M Dec	?74

	С	hC:	2.6001	ĸm	DEPAR	TMENT OF MI	NES SOUTH AL	JSTRALIA		PIT	NO	22
	PROJE	ст 77	ARCOOL	_A -	ALICESPRIN	igs R/W,	OF PIT	DRE - BAY	STONE BO	) DF	- /eb	10050
	LANDE RELIEF MICRO DRAIN,	ORM. RELIEF AGE E	×ternal		CK,N.T.		SECTION	. HUNDRED  Direction of for Surface Absor	u.			
SAMPLE	1.00		GRAPHIC LOG	GROUP SYMBOL	SOIL DESC GROUP Unified Soil ( U.S.B.R. Earth Manu	NAME	OTHER GEOLOGIC PEDOLOGI	AL CAL DESCRIPTION	SOIL / ROCK * STRUCTURE	WATER LEVEL	MOISTURE CONTENT Consistency Competences Rei Density	SOILTEST PENETRO- METER UNITS *
				SM	Darkbrow becoming m.f. SAND	y-tlie r	PLEIST ALLUV (Ppa		Loose/ Med.dens		§ β	23 -
-					Red-browr cemented	iditto,	<del>- 1</del>		Dense	4	•	
		1			END OF PI							+++-
		11111111										
REM	ARKS	Sc	outh	bai	nk adjac	ent to	рнв.			Щ_	4-1-1	
	•		•						•		•	
ČL 61	SSIFICAT	1001		· 	•		·	∦ The prov	se values refer to ide an indication	clay of the	soils onl	y and
<del></del>	oil Group		May 67	-		191-11	ELATIVE DENSITY (SAND) /L Very Loose	MOISTURE CONTENT	51.6	NEERI	NG	
RE M . lap . noto .	FERENC •		Water level (date)  WC >	S F St	Soft MC Firm Stiff C	Moderately Compact M	Very Loose Loose D Medium Dense D Dense D Very Dense	H — Humid D — Damp M — Moist W — Wet S — Saturated LL — Liquid Limit PL — Plastic Limit	PLANT BOCK NOT TYPE J. DECK NOT DRILLER START.	DAT TRAC	GED. Me. E Dec. 1	74. McN

PROJECTION OF THE PROJECT OF THE PRO	CT TA		A-A YA	LOG OF LICE SPRINGS R/W, MAF CREEK, N.T.	PIT RLA BORE - BAYST		PIT E (B		23 ES)
SOIL / ROCK	R (m)	GRAPHIC.	GROUP	SOIL DESCRIPTION GROUP NAME United Soil Classification US BR Earth Manual Let Ed Rev. 1961	OTHER  GEOLOGICAL PEDOLOGICAL DESCRIPTION	SOIL / ROCK STRUCTURE	WATER LEVEL	MOISTURE CONTENT CONTENT CONDUCTORS CONDUCTORS CONDUCTORS	SOILTEST PENETRO- METER UNITS **
	2			Red-brown silty m.f. SAND.	PLEISTOCENE ALLUVIUM (Qpa)	Loose, medium dense.		20	
				END OF PIT, 2-80m					
at Soil · ·	FICATIO	Water le	(C)	CSLAY   (SILT)	*	These values reforated an indicate the second of the secon	er to continue of the continue	LOGGED G.H. DATE DE TRACED 1	only and onsistency.  ON  MeN  ec'74

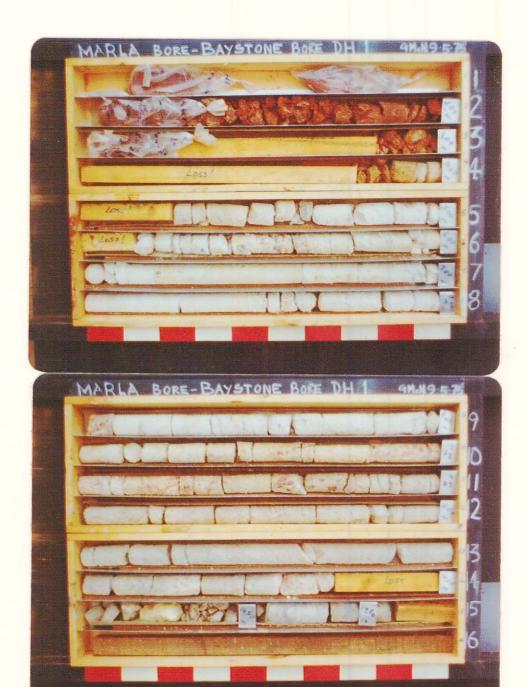
(	Ch.	C2	. 75	50 k	m		DEP	ARTMENT O	F MINES	SOUTH A	AUSTRA	ALIA			PI	r N	0	24		
		,						LO	G OF	PIT					<del>!</del>			****		
									₹/₩,	MARLA	A BC	RE-BA	YST	ONE	BORE	(E	RIC	GES		
	OCATI ANDFO		JUT	OUN	IYA.	CRE	EK N	LT.	S	ECTION .		HUNDRED								
	ELIEF	,										irection of fa	ii.		•	•	•			
	ICROR		•	•										•						
	RAINA IRFACI			il. TION T	vne			nternal .			. Su	urface Absor	otion							
×	T	1	T		T .	1				r	<u> </u>	<u> </u>	i.	•		. 1 -	اد ا	<b>4</b>		
SAMPLE	ROC IZON	£ £	GF	RAPHIC	GROUP			ESCRIPTION UP NAME		οτι				SOIL / ROC		RE L	C) Densit	"SOILTES" PENETRO		
S. S.	SOIL / ROCK HORIZON	R.L.(m) DEPTH (m)		LOG	SY GR			oil Classification Nanual 1st Ed 1		GEOLO PEDOL	IGICAL OGICAL	-DESCRIPTION		TRUCTUR	E S	MOISTURE	Rei Graff	METEI WHITS *		
	Ι		1	<del></del>	CW	<u> </u>				LГ			1.6-			.   <u>&gt;</u> .  >	<u>1</u> 1	1 2 3 1		
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					SC.			clayey m.					Med	d.der	nse					
	Qcl	1 -		. ė		Red-	brow	m grav	elly	The second of the first of		CENE	Med	d. der	nse					
		,	-	• •			<del></del>	own/w		ALL						>				
			." ,	,		m.f.	san	dy nod	ular	رب	ba)		Mec	d.der	98	Pro				
	Qca		٠,	• • •		calc	ret	dy nod e GRA	VEL.											
		2-		0												.				
		, ,		• • •		Yellov	v-br	own cla	yey	s		•	Mar	d.der		:				
		-		<u> </u>	ļ	faintly	calc	areous	SAND.		·		inc	J.UEF	126					
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	LASSIFIC		7		av 67		STENCY AY)	COMPAC (SILT	3 23	ELATIVE D (SAND	ENSITY	MOISTURE CONT	ENT	G	ENGII EOLOG			4		
Great	Soil G	roup •			7 W	S Soft	y Soft	MC Mode		VL Very l L Loose	.oose	H Humid D Damp		PLANT B	<del></del>	<del></del>	GED	***************************************		
Subgr				Water le		F Firm St Stiff			ompact A	ND Mediur D Dense	n Dense		:	TYPE J. D		G,	H.M	IcN c'74		
DM	REFERE	NCE			′C <b>&gt;</b>	V St V		VC Very		D Very D	ense	S - Saturated		START .		TRA	CED 🔍			
Map				Water		Hora		Compact				LL Liquid L PL Plastic 1				DRG C LLEGG				

	Ch	C 16	5.080	kr	n DEPA	RTMENT OF MINE		ALIA	- <del>1                                   </del>	PIT	NO	25
L( L/ RI M	OCATI ANDFO ELIEF ICROR	ON <b>M</b> DRM. RELIEF	RCODI IINOR E	_A ~;	GE SITE (1	LOG O	MARLA BOR			ORE (I	BRID	GES)
	IRFAC	E VEC	ETATION	Type .			-	uridce Apsorption				
SAMPLE NUMBER	SOIL / ROCK HORIZON	R L (m) DEPTH (m)	GRAPHIC LOG	GROUP	GROU Unified Soi	SCRIPTION P NAME I Classification inual 1st Ed Rev 1963	OTHER GEOLOGICAL PEDOLOGICAL	DESCRIPTION	SOIL / ROCH	1 7	WE THE ZONTENT CONTENT COMPACTNESS FREE DENSITY	SOILTEST PENETRO- METER NOTS #
			11	SW-	Red-bro c.m.f. S	AND .	PLEISTO ALLUVII (Qpa	UM /	ed.de dense		Dry	
		1 -	+++		Completel fine graine	y weathere d GRANITE	PRECAME	BRIAN(PEg) w	ry wed	ak/ ock		
					END OF P	IT, I·25m	Backhod unable pene+r below I	e to ate 25m				
RE/	MARK	S La Pi	oose ope:	cle sec	ean sand I drillhol	l in adjac e cancel	ent stre led at th	is site.	values rele on indic	fer to cla	ay soils	only and
		CATION		May 67	CONSISTENCY (CLAY)	COMPACTNESS (SILT)	RELATIVE DENSITY (SAND)	MOISTURE CONTENT	GE	ENGINEI OLOGY		i
Subgro DM Map Photo	REFERE	•	Water	evel te)	VS Very Soft S Soft F Firm St Stiff V St Very Stift H Hard	Ls Loose MC Moderately	VL Very Loose L Loose MD Medium Dense D Dense VD Very Dense	H Humid D Damp M Moist W Wet S Saturated LL Liquid Limit PL Plostic Limit	PLANT BOL TYPE J. D DRILLER START . FINISH .	ckhoe	LOGGED G.H DATE DE	MeN c'74. IW i.H.McN

(	Ch.	CIE	3.00	00 k	m	*	DEPA			S SOUTH AUSTR	ALIA			PIT	N	0	26	_
ſ	PROJEC	т <b>ТА</b>	RC	00 L	A - A	ALICE	SPR			F PIT , MARLA BO	NRF - BA	YS.	TONE	RODE	- (P		DGES'	`
1	OCAT	ION M	IINC	ORE	RID	GE S	ITE,	N.T.		SECTION -	HUNDRED	, ,		30,72	- ( -		- GEV)	,
	ANDF RELIEF	ORM.								D	 Pirection of fo					٠.		
		RELIEF AGE Ex	xterna	I .			Ir	nternal		ς	urface Absor	ntion					*	
				ION 7	ype						. Absor							
SAMPLE	OIL ROCK HORIZON	£ £	GR	APHIC	a G			SCRIPTIO		OTHER			SOIL / RÖCK	rever	ZTENT	tness Jensity	SOILTEST	
SAN NUN	SOIL	R L (m) DEPTH (m)	1	LOG	GROUP	USBR	initied Soi	Classifica	ation Ed Rev 1963	, GEOLOGICAL PEDOLOGICAL	DESCRIPTION		STRUCTURE		MOSTURE CONT	Compa	METER	
	1		· · ·		Sw-	Loos	e,re	d-br	own				ose .		1	<u> </u>	111	_
					SM	silty with	c.m	.FSA	ND,	PLEISTO			. DOSE		57			
			. 0	0		.a.a.				(Qpa)		1	l.Dens		Dry			
<del></del>			*	+	-	Comple GRANI	tely TE.	weatl	nered	PRECAMBR	<u>ned</u>	Ver	y Wed	ık				1 1
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·····	·	ICATION	1		10 ev	CONSIS (CLA		COW	PACTNESS	RELATIVE DENSITY	MOISTURE CONT	ENT	GF	ENGINE OLOGY				
Grea	t Soil (	aroup .	.	Water le	ow ∠ evel	VS — Very S — Soft F — Firm	Soft	MC ·· A	Loose Moderately Compact	VL Very Loose L Loose	H Humid D Domp	:	PLANT <b>Ba</b>	ckhoe	LOGG	ED		
Subg	REFER	ENCE		(dat		St Stiff  V St V	ery Stiti	C Co	mpact	MD Medium Dense D — Dense VD — Very Dense	M Moist W Wet S Soturated		TYPE J. D. DRILLER START	cere	DATE		McN. c?74 IW	
DM Map				W Water	C ≯	H Hord	,		Compact	. D . Fery Dense	LL Liquid L PL Plastic		FINISH.	Inc	CHEC	KED.G	HMCN	
Photo					<b>100</b>	1		1			,		INHEET	OF I			~ <b>~</b> ~	1

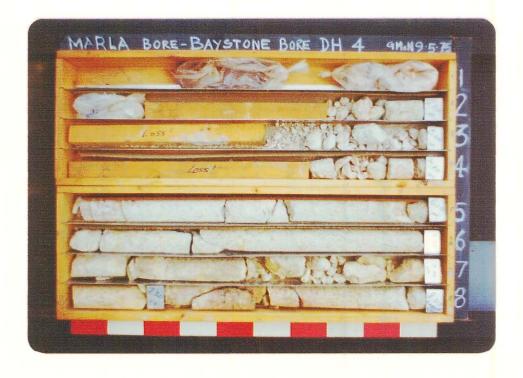
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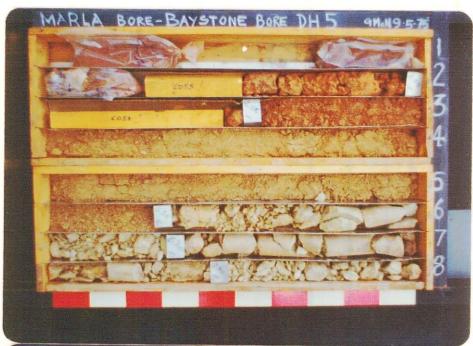
## APPENDIX 2 CORE PHOTOGRAPHS



































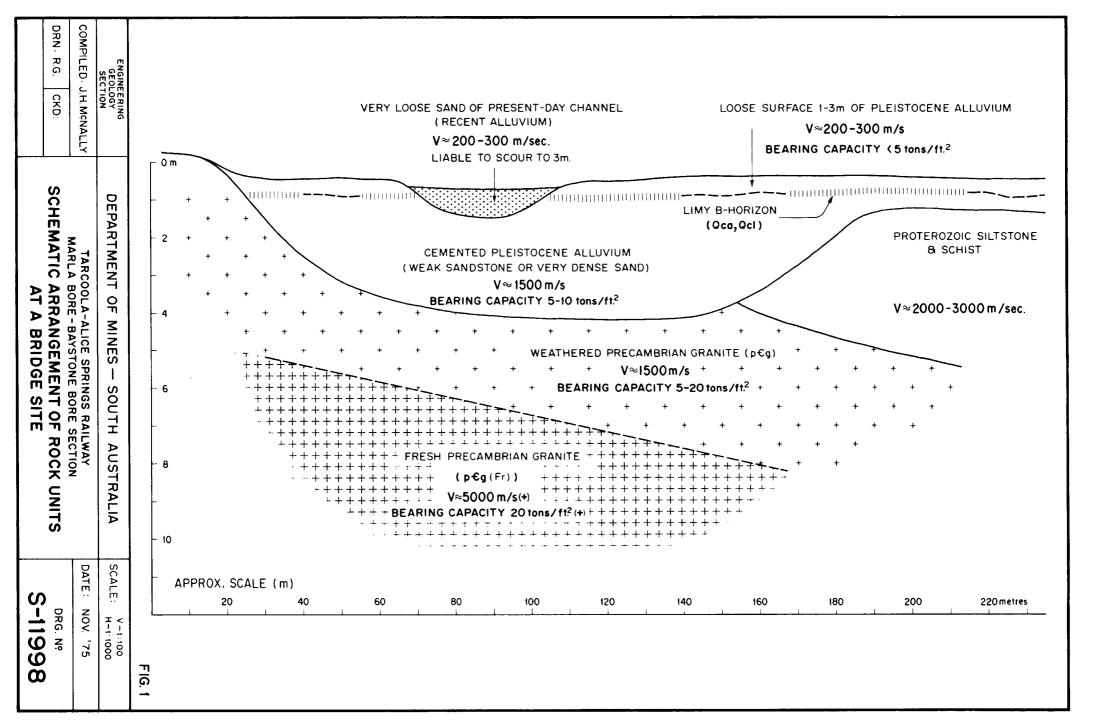


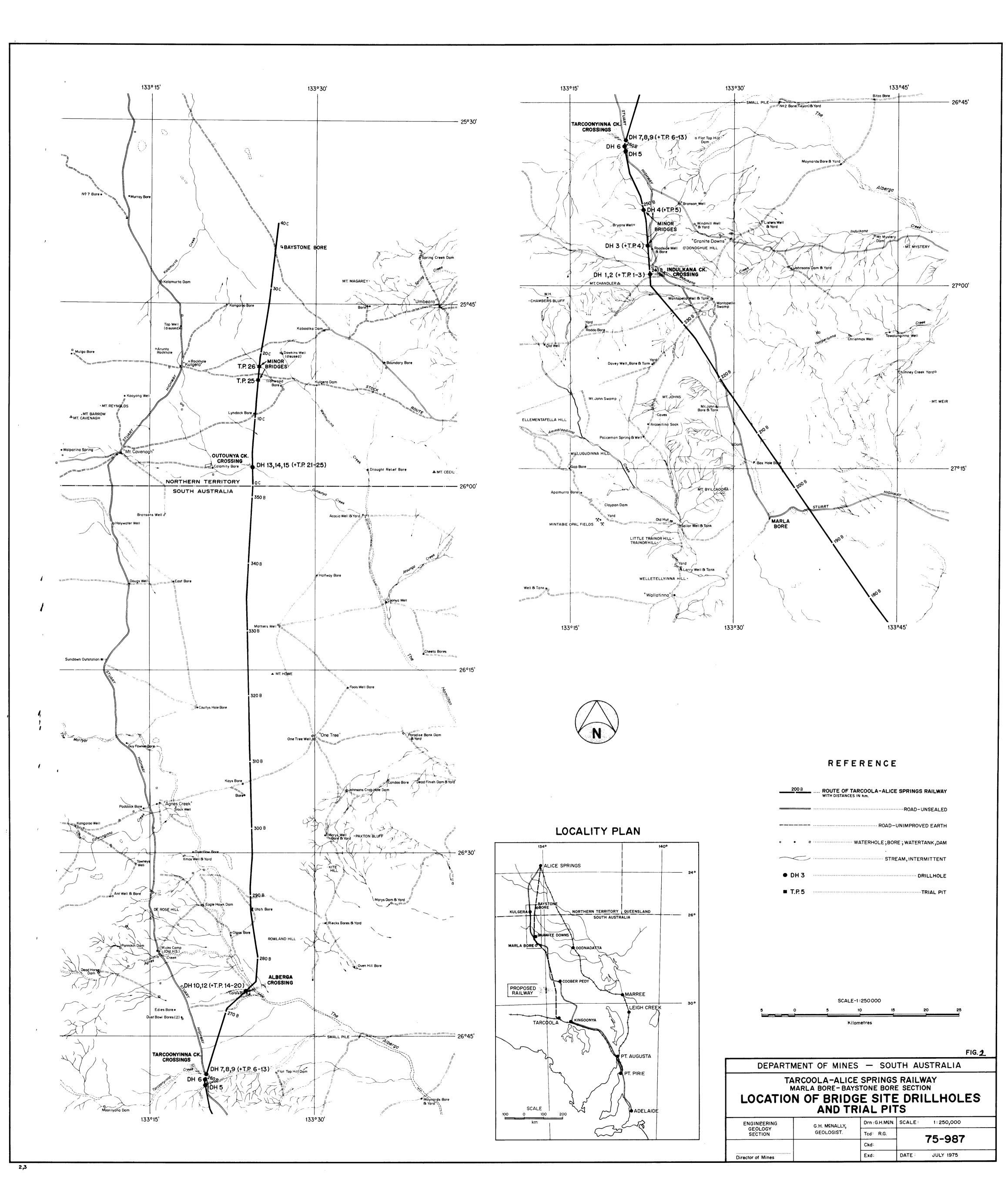


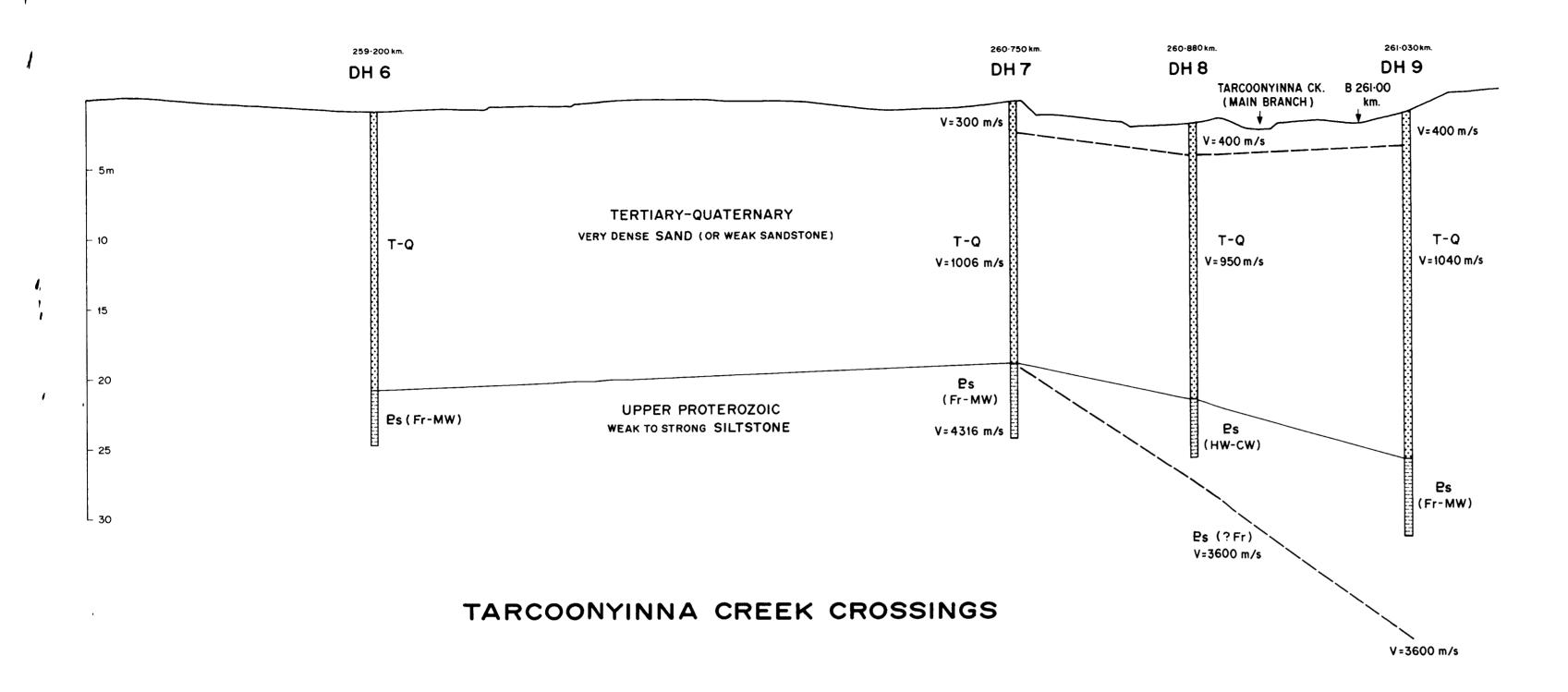


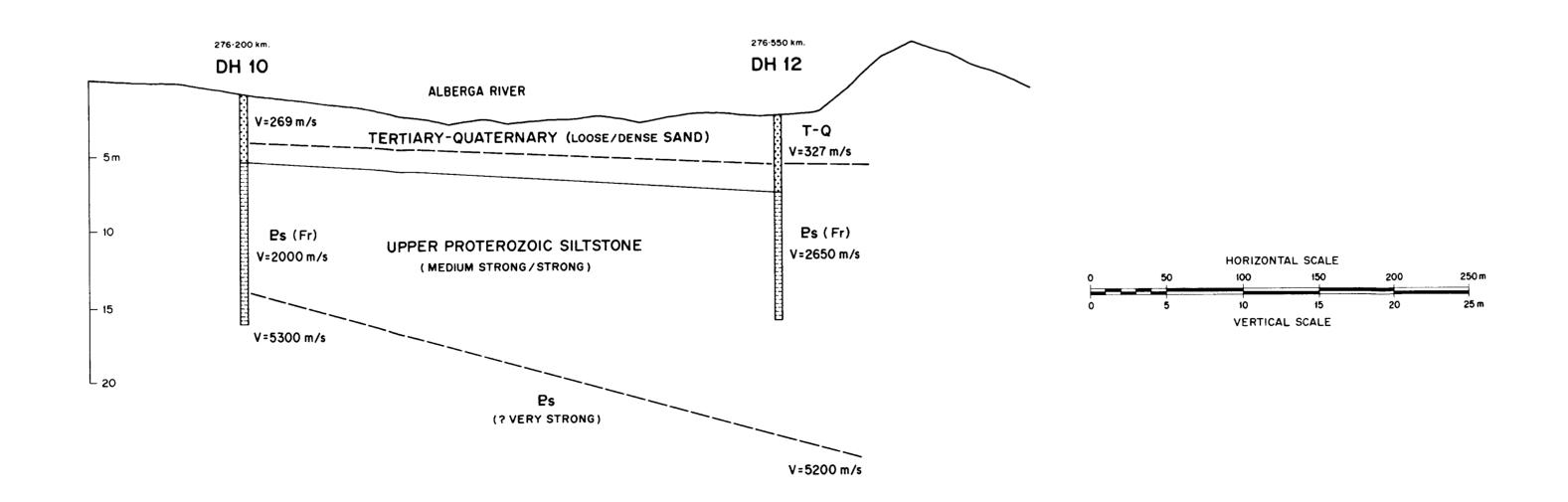




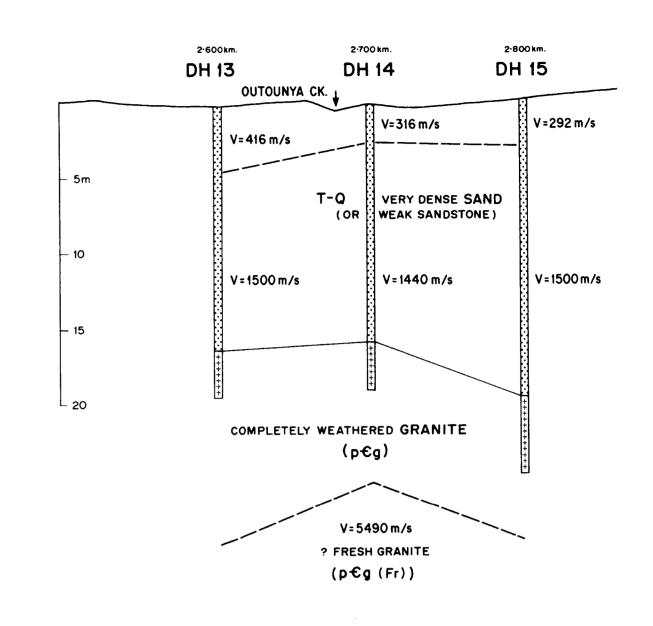








ALBERGA RIVER CROSSING



## OUTOUNYA CREEK CROSSING

T-Q Ps	GEOLOGICAL BOUNDARY (ESTABLISHED BY DRILLING)
V= 1000 m/s V= 3000 m/s	SEISMIC LAYER BOUNDARY

DEPARTMENT OF MINES-SOUTH AUSTRALIA

TARCOOLA-ALICE SPRINGS RAILWAY
MARLA BORE-BAYSTONE BORE SECTION
PRINCIPAL BRIDGE SITES
GEOLOGICAL SECTIONS

ERING
DOY

COMPILED: J.H.M.C.N. DRN: R.G. SCALE: V-1:250 VE=10-0 PLAN NUMBER

ENGINEERING
GEOLOGY
SECTION

COMPILED: J.H.M.CN.

DRN:
R.G.

SCALE: V-1:250
VE=10-0

PLAN NUMBER

T5-1010