

**CRA EXPLORATION PTY LIMITED**

EL 8149 KARNS 4

First Annual Report for Year Ending 21 September 1994

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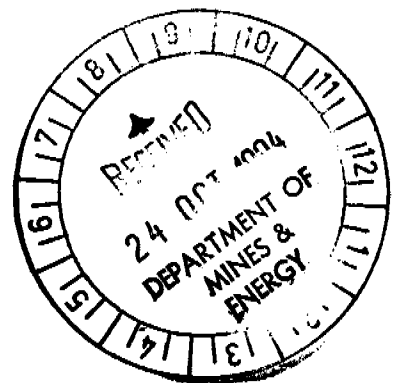
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Map Sheet : Robinson River SE 53-04

CRAE Report Number: 20366

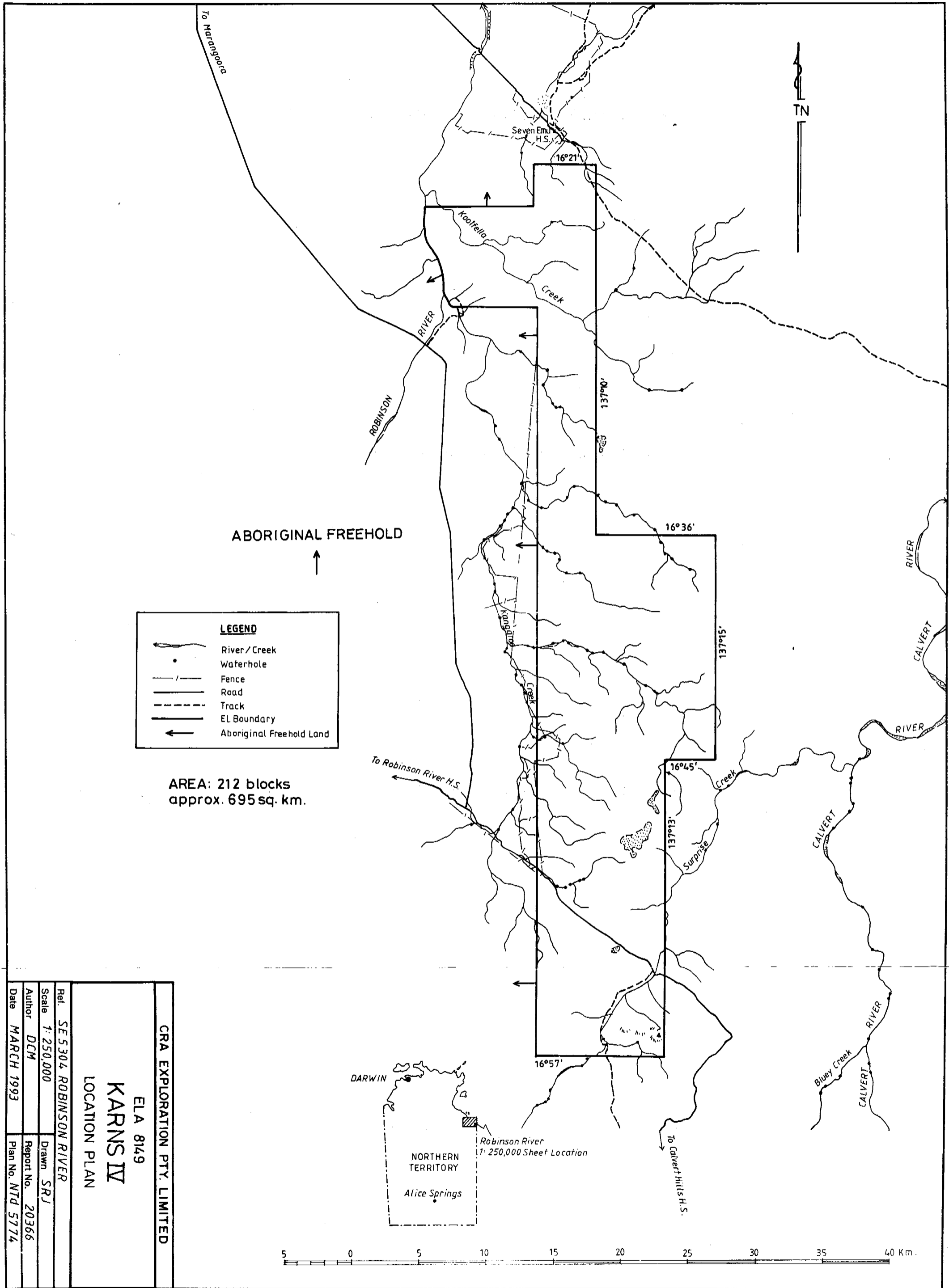


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CR94/752

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ABORIGINAL FREEHOLD

**LEGEND**

- River / Creek
- Waterhole
- Fence
- Road
- Track
- EL Boundary
- Aboriginal Freehold Land

AREA: 212 blocks  
approx. 695 sq. km.

CRA EXPLORATION PTY. LIMITED	
ELA 8149	
<b>KARNNS IV</b>	
LOCATION PLAN	
Ref. SE 5304 ROBINSON RIVER	Drawn SRJ
Scale 1:250,000	Report No. 20366
Author DCM	Plan No. NTD 5774
Date MARCH 1993	



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**No. of Pages**

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## **1. SUMMARY**

EL 8149, Karns 4 covers an area of 682 km<sup>2</sup> in the southeastern portion of the McArthur Basin, located approximately 110 km SE of Booraloola and 440 km NE of Tennant Creek. The exploration licence, encompassing Proterozoic Karns Dolomite and Masterton Sandstone, is considered prospective for stratabound base metal mineralisation. During the period of tenure the following exploration programmes were undertaken:

- Comprehensive review of open file literature over the licence environs;
- Heli-supported collection of 141 reconnaissance minus 80 # stream sediment samples at a sample density of 1 sample/1.5 km<sup>2</sup> over target lithologies;
- Minus 80 # stream sediment samples are being analysed for a suite of 25 elements.

## **2. CONCLUSIONS**

- Assay results are awaited.
- Minimal mineralised float was recognised in some drainage.

## **3. INTRODUCTION**

EL 8149 Karns 4, comprising 212 blocks, was granted to CRA Exploration Pty. Limited (CRAE) on 22 September 1993 for six years (Plan NTd 5774). The exploration licence is located approximately 110 km SE of Booraloola and 440 km NE of Tennant Creek within the Robinson River and Pungalina 1:100,000 scale sheets. The road from Booraloola to Burketown passes through the southern portion of EL 8149. Access to the majority of the tenement necessitates helicopter support.

CRAE applied for EL 8419 to explore for stratabound base metal mineralisation hosted within the Proterozoic Karns Dolomite of the southeastern McArthur Basin. The Karns Dolomite is believed to be chronostratigraphically equivalent to the Lawn Hill Formation of the McNamara Group, host to the Century Zn-Pb-Ag deposit.

During the period of tenure a review of open file literature from the area surrounding the exploration licence was completed. Exploration was restricted to helicopter-supported, reconnaissance, minus 80 # stream sediment sampling.

This report documents all exploration activities undertaken across EL 8149 Karns 4 during the first tenure year.

#### 4. REGIONAL GEOLOGY

EL 8149 Karns 4 occurs on the Wearyan Shelf which is the southeastern tectonic element of the Proterozoic McArthur Basin. The Wearyan Shelf is dominated by the NW-trending Calvert Fault which shows sinistral displacement of a couple of kilometres (Plumb, 1994). The Wearyan Shelf abuts the Murphy inlier to the east and the South Nicholson Basin to the south.

Five principal stratigraphic elements have been recognised within the Proterozoic McArthur Basin (Pietsch *et al.*, 1994). All these elements are separated by regional unconformities and from bottom to top are as follows:

- a) The arenites, bimodal volcanics, lutites and carbonates of the Katherine River and Tawallah Groups.
- b) The arenites of the Parsons Range Group.
- c) The evaporite and carbonate-bearing rocks of the McArthur, Balma and Habgood Groups.
- d) The evaporite and carbonate bearing rocks of the Nathan and Mount Riggs Groups.
- e) The arenites and lutites of the Roper Group.

Of these stratigraphic elements only the Parsons Range and Nathan Groups crop out within EL 8419 Karns 4.

The Masterton Sandstone, a member of the Parsons Range Group, is the lower-most stratigraphic unit cropping out within the EL 8419. It comprises a massive quartz sandstone, locally feldspathic, with polymict conglomerate lenses common toward the base. Crossbeds and ripple marks are prevalent. The Masterton Sandstone is unconformably overlain by Karns Dolomite.

The Karns Dolomite comprises an interbedded sequence of dolomite, and dolomitic siltstone and sandstone, which locally exhibit stromatolites and oolites. The stratigraphic relationship between the Karns Dolomite and the McArthur and Nathan Groups is uncertain. However, correlation with the Balbirini Dolomite of the Nathan Group is favoured using lithological, geochemical and metallogenic similarities (Ahmad and Wygralak, 1989; Pietsch *et al.*, 1991; Pietsch *et al.*, 1994).

Unconformably overlying the Karns Dolomite in the SW portion of EL 8149 is the Lower Cambrian Bukalara Sandstone. The Bukalara Sandstone is a massive buff, medium to coarse grained quartzofeldspathic sandstone.

Cainozoic ferricrete and semi-consolidated lateritic soils and calcrete are variably developed over the majority of the EL. Quaternary river sands occur in topographic depressions close to outcrops of Masterton Sandstone.

## 5. OPEN FILE REVIEW

The area covered by EL 8419 Karns 4 was mapped by BMR geologists between 1957 and 1962 as part of their Robinson River 1:250,000 Sheet mapping program. Prior to the BMR's work, limited regional geological mapping and aerial photo interpretation was conducted by MIM on A-P's 511 and 545.

In 1966 Australian Geophysical Pty Limited conducted a helicopter-supported stream sediment sampling program over Calvert Hills Station (A to P 1343). Their work continued from 1967 to 1970 with soil sampling, mapping and IP traversing, defining weak Cu anomalism at the base of the Karns Dolomite and within the Gold Creek Volcanics (max. 0.15% Cu in rockchip).

Amax Exploration conducted exploration within EL 1146 between 1976 and 1977. Work consisted of an aerial reconnaissance pass over areas exhibiting vegetation anomalism. Follow-up air-photo interpretation, regional mapping, rockchip, soil and geobotanical sampling failed to define areas of significant mineralisation (max. stream sediment assay reported: 17 ppm Cu, 30 ppm Pb, 14 ppm Zn, 11 ppm Co) and the tenement was relinquished.

Between 1977 and 1982 Carpentaria Exploration Company Pty Limited (CEC) conducted a detailed -80# stream sediment sampling program (1231 samples assayed for Cu, Pb, Zn) within EL 1671, which encompassed areas previously worked on by Australian Geophysical Pty Limited. An area of anomalous Pb-Zn was discovered approximately 30 km's N of Calvert Hills Homestead. Follow-up soil and rockchip sampling, and IP traversing defined the Thor and Thor West Prospects. From 1979 to 1982 CEC drilled 13 percussion and 4 diamond holes into the Thor prospect, intersecting sub-economic Pb-Zn mineralisation within the basal Karns Dolomite and to a lesser extent in the underlying sandstone. Mineralisation could not be up-graded and the tenement was subsequently relinquished.

Between 1984 and 1987 CRAE flew a combined airborne radiometric/magnetic survey over EL 4166 exploring for kimberlitic diatremes. Gravel, loam and stream sediment sampling programs were undertaken with no kimberlitic indicator minerals reported. Tenement was subsequently relinquished due to unfavourable results.

CRAE conducted a small stream sediment survey on EL 7320 in 1991, exploring for stratabound basemetal mineralisation within the Karns Dolomite. Areas of geochemical anomalism were assessed as being due to iron-scavenging and the tenement was relinquished.

In 1992 BHP Pty Limited conducted a combined airborne TEM-magnetics survey over EL's 7199, 7200, 7125. A broad area of anomalism was defined and thought to be produced by surficial sources. A stream sediment sampling program following up CEC anomalies (-80# & +20# -2mm fractions assayed for Cu, Pb, Zn, Ag, As, Mn, Fe, Tl) reported max. assays of 1289 ppm Pb, 489 ppm Zn, and 3.21% Mn in the coarse fraction. A positive correlation between Pb-Zn and Mn concentrations indicated Mn scavenging was the source of the anomaly. Follow-up ground TEM traversing of airborne TEM

anomalies, and soil and rockchip sampling over anomalous Pb-Zn drainage indicated little potential for shale-hosted basemetal mineralisation. As a result tenement was relinquished in 1994.

## **6. TENURE YEAR ONE EXPLORATION EL 8149 KARNs IV**

### **6.1 Reconnaissance -80# Stream Sediment Sampling**

A helicopter-supported stream sediment sampling program was undertaken across EL 8149 Karns 4 to assess the Karns Dolomite for basemetal mineralisation. A total of 141 minus 80# stream sediment samples were collected at a density of one per 1.5 km<sup>2</sup> across selected areas of the tenement.

Stream sediment from an active part of the drainage channel was dry sieved to -80#, and approximately 100 grams of sample was collected. Samples were submitted to Amdel Laboratories Limited Darwin and assayed for: Au by fire assay AAS; Ag, As, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb Ti, Th, U and Zn by ICP-OES and ICP-MS; and Ba by XRF.

Sample locations are shown on plan NTd 6056. Assay results have not been received. Stream sediment sample ledgers are presented in Appendix II.

## **7. REHABILITATION**

No rehabilitation was undertaken as there was no surface disturbance associated with the prospecting conducted across the tenement area. All fieldwork during the first year of tenure was helicopter-supported.



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## 9. LOCATION

Robinson River	1:250,000 Mapsheet	SE 53-04
Robinson	1:100,000 Mapsheet	6365
Pungalina	1:100,000 Mapsheet	6364

## 10. KEYWORDS

Copper, Lead, Zinc, Geochem-drainage, Karns Dolomite, Masterton Sandstone, McArthur Basin, Proterozoic, Wearyan Shelf.

## 11. LIST OF DPO's

82031

## 12. LIST OF PLANS

Plan No.	Title	Scale
NTd 5774	EL 8149 Karns IV Location Plan	1:250 000
NTd 6056	EL 8149 Karns IV -80# Stream sediment sample location plan.	1:100 000

**APPENDIX I**

**EL 8149 Karns IV  
Project Area Summary Codes**

## NORTHERN TERRITORY

### AREAS OF INVESTIGATION COMPUTER CODES

<b>CODE</b>	<b>AREA OF INVESTIGATION</b>
A	Amadeus Basin
B	Nanambu Complex
C	Tennant Creek Inlier
D	Davenport Province
E	Eromanga Basin
F	
G	Georgina Basin
H	Lawn Hill Platform
I	Ngalia Basin
J	Rum Jungle Basin
K	
L	Litchfield Block
M	McArthur Basin
N	Nicholson Basin
O	
P	Pine Greek Inlier
Q	
R	Dunmarra Basin
S	Musgrave Block
T	Granites - Tanami Block
U	Murphy Inlier
V	Victoria River Basin
W	Ord - Wiso - Daly Basin
X	Arunta Block
Y	
Z	Birrindudu Basin

## ROCK UNITS

### SURFICIAL

Q	undiff. transported cover
Qa	alluvium
Qs	sand
Qc	clay
Qg	gravel/talus
Qh	soil/loam
Qm	colluvium
Ql	reworked laterite/laterite gravel, pisolite
Czl	undiff. insitu laterite
Czp	pisolitic laterite
Czu	vermiform laterite
Czg	gossan
Czr	siliceous cap rock - lithology specific
Czs	silcrete
Czc	clay (insitu. no texture)
Czo	deeply weathered bedrock/saprolite (with texture)
Czt	mottled clay
Cze	evaporite
Czm	magnesite
Cza	calcrete
Css	sandstone, argillite (Cainozoic age, deep lead etc.)
Csm	massive Mn oxides
Csf	Ferruginous cap rock - lithology specific
Czf	ironstone
Czb	black soil

### MESOZOIC    JURASSIC-to-EARLY CRETACEOUS

Kl	undiff. sandstone of the Mullaman Beds.
----	---

### PALAEOZOIC - CAMBRIAN

Cb	undiff. sandstone of the Bukalara Sandstone
----	---

## WEARYAN SHELF SEQUENCE

### McARTHUR GROUP

#### KARNS DOLOMITE

PMK undiff. Karns Dolomite  
PMKs undiff. Karns Dolomite siltstone  
PMKd undiff. Karns Dolomite dolomite (+/- stromatolites)  
PMKa undiff. Karns Dolomite dolarenite

#### MASTERTON SANDSTONE

PMs undiff. Masterton Sandstone  
PMSa undiff. Masterton Sandstone arenite  
PMSs Masterton Sandstone, siltstone  
PMSc Masterton Sandstone, conglomerate

## TEXTURE

/an	Anhedral	/pi	Pillowed
/ah	Aphanitic	/ps	Pisolitic/
/ap	Aplitic	/pr	Porphyritic
/ag	Agglomeratic	/pb	Porphyroblastic
/bd	Banded	/ra	Radiating
/be	Bedded	/rl	Roundness - very angular
/bd	Bladed	/r2	Roundness - angular
/bk	Blocky	/r3	Roundness - sub angular
/bo	Botryoidal	/r4	Roundness - sub rounded
/bx	Brecciated	/r5	Roundness - rounded
/cl	Cataclastic	/r6	Roundness - very rounded
/cs	Clast Supported	/sc	Schistose
/ct	Clastic	/sh	Sheared
/cm	Compact	/sb	Slabby
/cn	Conchoidal	/sl	Slaty
/cr	Crenulated/Folded	/sk	Slickensides
/xl	Cross Bedded	/st	Stomatic
/co	Conglomeratic	/sr	Stromatolitic
/el	Elongated	/sy	Stylolitic
/eg	Equigranular	/sl	Sorting - very well
/eu	Euhedral	/s2	Sorting - well
/fr	Fractured	/s3	Sorting - moderate
/fs	Fissile	/s4	Sorting - poor
/fy	Flaggy	/s5	Sorting - very poor
/fu	Fluidal	/su	Subhedral
/fi	Fraible	/tb	Tabular
/ge	Gneissic	/ef	Uniform Texture
/gd	Graded Bedded	/va	Variolitic
/go	Gossanous (Box Works)	/vv	Varved
/gt	Granitic	/vn	Veined
/gb	Granoblastic	/we	Weathered
/gy	Greasy	/vu	Vuggy
/ht	Heterogeneous	/sa	Sandy
/ho	Homogeneous	/fg	Fine Grained
/iq	Inequigranular	/mg	Medium Grained
/ib	Interbedded/Interstitial	/cg	Coarse Grained
/la	Lapilli	/am	Amygdaloidal
/lm	Laminated	/ve	Vesicular
/ln	Lenticular	/gl	Glassy
/ll	Lit-par-lit	/oo	Oolitic
/lt	Lithic	/ds	Dessicated
/ma	Massive	/in	Intraclastic
/ms	Matrix Supported	/ri	Ripple-marked

/mm	Migmatitic	/cy	Cryptocrystalline
/my	Mylonitic	/tu	Tuffaceous
/nb	Nebulitic	/sp	Spherulitic
/np	Not Preserved	/ev	Evaporitic
/nd	Nodular	/cu	Cauliflower 'Chert'
/ov	Ovoid	/di	Disseminated
/pp	Partially Preserved	/Ps	Pseudomorphs
/pe	Pegmatitic	/pt	Pepperite

## MINERALS

## Alteration/Diagnostic Minerals

Ac	Actinolite	Hs	Hematite, Specular
Am	Amphibole, undiff.	Hb	Hornblende
Aa	Andalusite		
Ak	Ankerite	Ka	Kasolite
Al	Aluminous, undiff.	Kf	K-spar
Ay	Anthophyllite	Ko	Kaolinite
An	Anhydrite	Ky	Kyanite
At	Apatite		
As	Arsenopyrite	Li	Limonite
Ab	Asbestos	Ln	Linnaeite
Az	Azurite		
An	Anhydrite	Mf	Mafic Minerals
		Ml	Malachite
Ba	Barite	Mt	Magnetite
Bt	Biotite	Mn	Manganese Minerals
Bi	Bismuth/Bismuthinite	Mi	Mica, undiff.
Bm	Black Mineral	Mo	Molybdenite
Br	Bornite	Mu	Muscovite
Cz	Calcite	Ph	Phosphate
Ca	Carbonate	Pi	Pitchblende
Cc	Chalcocite	Py	Pyrite
Ce	Celadonite	Px	Pyroxene
Cp	Chalcopyrite	Po	Pyrrhotite
Ch	Chert		
Cl	Chlorite	Qz	Quartz
Cy	Clay/Mud	Qc	Quartz Carbonate
Cf	Coffinite	Qt	Quartz Tourmaline
Co	Covellite	Qf	Quartzofeldspathic
		Qv	Quartz Vein
Di	Diopside		



Do	Dolomite	Rh	Rhodochrosite
Dv	Dravite		
		Sa	Saussurite
Ep	Epidote	Se	Sericite
		Sp	Sphalerite
Fe	Feldspar	Sl	Siliceous
Fu	Fuchsite	Si	Sillimanite
		Sd	Siderite
Ga	Garnet	St	Serpentine
Gl	Galena	Su	Sulphides, undiff.
Go	Goethite	Sg	Seigenite
Gy	Gypsum		
Au	Gold	Ta	Talc
Gf	Graphite	To	Tourmaline
Gu	Grunerite	Tr	Tremolite
Gt	Glauconite	Tb	Torbenite
Ha	Halite	Up	Uranophane
Hm	Heavy Minerals	Ur	Uraninite
He	Hematite	Us	Uranium
	Minerals)		(Secondary

### SAMPLE TYPE

PD	Percussion Chips
RK	Rockchip
AU	Auger
RAB	RAB
RC	RC Percussion Chips
DD	Diamond Core
-20# +40# SL	-20# +40# Soil
-40# +60# SL	-40# +60# Soil
-60# +80# SL	-60# +80# Soil
-80# SL	-80# Soil
-20# +40# SS	-20# +40# Stream Sediment
-40# +60# SS	-40# +60# Stream Sediment
-60# +80# SS	-60# +80# Stream Sediment
-80# SS	-80# Stream Sediment
-40# GC	-40# HMC Gravel Sample

-4mm +2mm LG	-4mm +2mm Lag (geochem)
LM	Loam Sample (heavy Min. Indicators)
TS	Thin Section
PS	Polished Section
CN	CN Leach

### **COLOUR**

A	Banded variable
N	Black
B	Brown
U	Buff
D	Dark
V	Green
G	Grey
L	Light
M	Mottled
O	Orange
K	Pink
P	Purple
R	Red
W	White
Y	Yellow
E	Blue

**APPENDIX II**

**EL 8149 Karns IV  
Stream Sediment Sample Ledger**

# CRA EXPLORATION PTY LIMITED

19-Oct-94

## Stream sediment sample ledger

SAMPLE	EAST	NORTH	WIDTH	OUTCROP	FLOAT 1	FLOAT 2	FLOAT 3	FLOAT 4	COMMENTS
4130188	732900	8129100	15	MPMSa	MPMSa	Czl	MPMKd		Alluv. banks to 2.5m; outcrop on W bank.
4130189	733150	8128950	2.5	None	MPMSa	MPMKd	Czl		Alluv. banks to 1m; sandy creek.
4130190	732230	8127777	3		MPMK	MPMs	Czp		
4130191	730650	8127570	2		MPMKd	MPMs	Czp		minor chert
4130192	735000	8127350	1	Ql	MPMSa	MPMKd	MPMSs		Small, sandy creek.
4130193	732230	8127777	2	MPMSa	MPMK				
4130194	731800	8127750	2	None	MPMSs	Ql			Alluv. banks to 1.5m.
4130195	731850	8127550	10	None	MPMKa	MPMKd	Czl		Sandy creek; rel. high Fe content in silt/sand.
4130196	730650	8127570	2	Czl	MPMKa	MPMs	Czp		
4130197	731350	8126000	2	None	MPMKa	MPMKd			Alluv. banks to 1.5m; sandy, cobbles, boulders.
4130198	731600	8125500	75		MPMK	MPMs			major drainage
4130199	731800	8125650	5		MPMK	MPMs			silty drainage
4130200	732800	8125500	2.5	Czl	MPMKa	MPMKd			Alluv. banks to 1.5m; sandy/pebbly
4130201	734250	8124900	2		MPMs	MPMk	Czp		
4130202	734450	8125000	10	Qm					cemented river gravels
4130203	734450	8125450	1.5	None	MPMKd	Czl	MPMKs	MPMKa	Sloping banks; sml low energy creek; pebbly.
4130204	730400	8138200	15			MPMk			Abundant manganiferous strom. dolomite
4130205	730550	8138050	2	Ql	MPMKd	MPMKa	Czl		Cobble-choked; rel. high energy.
4130206	730500	8139200	4	Czb		MPMk			silty creek
4130207	730650	8139200	25					Qh	ill-defined creek
4130208	729700	8137900	2	None	MPMKd	MPMKa	Czl		Sandy, pebbly creek; low, sloping banks.

SAMPLE	EAST	NORTH	WIDTH	OUTCROP	FLOAT 1	FLOAT 2	FLOAT 3	FLOAT 4	COMMENTS
4130209	729800	8137750	4	Ql	MPMKd	MPMKa	Czl		Cobble-choked; minor sand/silt.
4130210	729210	8137450	3		MPMKa	MPMk	Czp		
4130211	728150	8137300	10	Ql	MPMKd	MPMKa	Czl		Cobbly; sandy/silty bars.
4130212	729400	8136250	20		MPMK	Czp			lateritic river gravels
4130213	727350	8134250	2.5	None	MPMKd				Cobble/pebble-choked; minor sand bars.
4130214	727500	8134400	2.5	None	MPMKd				Silty; gravel banks to 2m.
4130215	729000	8140250	4	Qg	MPMKa	MPMk	MPMs		
4130216	728950	8140370	3			MPMk			silicified stromatolitic dolomite
4130217	727250	8139600	2	MPMKd	MPMKd	MPMKa			Pebble/cobble-choked; sloping banks.
4130218	730250	8140750	25	Czd	MPMK				silty vegetated creek
4130219	728450	8141350	1.5	None	MPMKd	MPMKa	Czl		Pebbly, sandy; sloping banks.
4130220	728400	8141150	5	None	MPMKd	MPMKa	Czl		Pebble/cobble-choked; sand bars.
4130221	728100	8142350	5			MPMKd			Abundant manganiferous strom. dolomite
4130222	728200	8142500	10			MPMk	Czp		common black silt
4130223	728850	8142700	2	None	MPMKd	MPMKa	Czl		Cobble-choked; minor sand/silt; 1m gravel banks.
4130224	728900	8142550	2	None	MPMKa	MPMKd	Czl		Sandy, silty; minor pebbles; alluv. banks to 0.5m.
4130225	727800	8142450	15			MPMk			Abundant manganiferous strom. dolomite
4130226	727550	8143350	5	MPMKa		MPMs			ripple laminated arenite
4130227	727400	8143850	2	MPMKa	MPMKa	MPMKd	Czl		Cobble-choked; minor sand/silt; sloping banks.
4130228	728800	8143900	25		MPMK				ripple laminated arenite
4130229	726800	8145100	2	None	MPMKd	MPMKa	Czl		Pebbly-choked, sandy; sloping banks.
4130230	727500	8146450	5		MPMKa	MPMKd	Czp		
4130231	728800	8148000	5	MPMSa	MPMSa	MPMKd	Czl		Sloping banks; laterite on N bank.
4130232	728650	8147850	8	MPMSa	MPMSa	MPMKd	Czl		Cobble/boulder-choked; outcrop common.

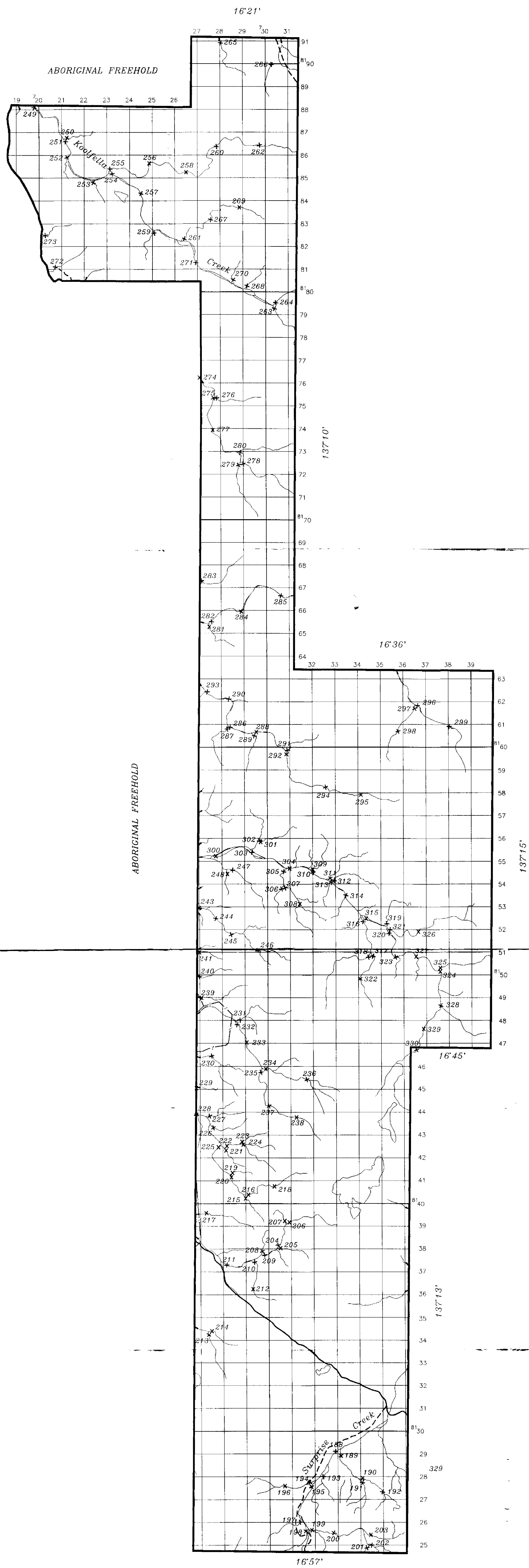
SAMPLE	EAST	NORTH	WIDTH	OUTCROP	FLOAT 1	FLOAT 2	FLOAT 3	FLOAT 4	COMMENTS
4130233	729050	8147000	4		MPMs	MPMk			
4130234	729900	8145850	1		MPMs	MPMs			
4130235	729650	8145700	3	MPMs			Czp		
4130236	731700	8145400	2	None	MPMKa	MPMKd			Silty sample in pebbly/cobbly float.
4130237	730050	8144300	2	None	MPMKd	MPMKa	Czl		Silty, low energy creek; sloping banks.
4130238	731200	8143800	7		MPMs	MPMk			ferruginous cemented gravels
4130239	727100	8149000	3	None	MPMKd	MPMKa	Czl		Sandy, cobbles. Fe pisolitic laterite.
4130240	726450	8149960	1	Qm	MPMK	MPMs	Czp		arenaceous float
4130241	727000	8151000	7	None	MPMKd	Czl			Silty, low energy creek; few pebbles.
4130243	726828	8153090	7	MPMKd	MPMK	MPMs	Czp		siliceous stromatolitic dolomite
4130244	727700	8152500	5	None	MPMKd	MPMKa			Cobbly, minor sand; extensive dolomite scree.
4130245	728400	8151800	7	MPMKd	MPMKd	MPMK			siliceous stromatolitic dolomite
4130246	729550	8151100	2.5	None	MPMKd	MPMKa	Czl		Pebbly/cobbly; much dol'm scree on banks.
4130247	728450	8154600	7	MPMKs	MPMKd	MPMK	Cza		siliceous stromatolitic dolomite
4130248	728200	8154450	5		MPMK		CZp	Csf	lateritised river gravels
4130249	719800	8188200	7		MPMs	Cza			
4130250	721250	8186750	2.5	MPMSa	MPMSa				Cobble, boulder-choked; alluv. banks to 2m.
4130251	721200	8186600	15	MPMSa	MPMSa				Boulders common; pools; banks to 2.5m.
4130252	721200	8185900	1	Czo	Czp	MPMs	MPMK	Csm	manganiferous laterite
4130253	722400	8184800	3	MPMSa	MPMSa				Boulder-choked; outcrop common.
4130254	723250	8185250	8	MPMS	MPMS			Cza	Sandy, cobbly; alluv. banks to 1m.
4130255	723150	8185400	50		MPMS				major drainage
4130256	724850	8185650	8	None	MPMSa	MPMKd	Ql		major drainage
4130257	724500	8184400	60	MPMS	MPMS				major drainage

SAMPLE	EAST	NORTH	WIDTH	OUTCROP	FLOAT 1	FLOAT 2	FLOAT 3	FLOAT 4	COMMENTS
4130258	726500	8185250	8	None	MPMSa	MPMKd	Ql		Cobble-choked; pools common.
4130259	725100	8182550	2		MPMS		Ql		Ferruginous river gravels
4130260	727850	8186350	10	None	MPMSa	MPMKd			Sandy, pebble/cobble bars; alluv. banks to 1m.
4130261	726400	8182400	4		MPMS		Czp	Cza	
4130262	729700	8186400	3	Ql	MPMSa	MPMKd	Ql		Sandy/silty; lateritic congl. on creek bed.
4130263	730400	8179400	40	MPMS	MPMS				cross-bedded arenite bedrock
4130264	730500	8179500	8	MPMS	MPMS				silty sample
4130265	728050	8190900	3	Czl	MPMSa	Ql			Fe laterite bedrock; sandy.
4130266	730300	8189950	3	MPMSa	MPMSa	Ql			Sandy/silty; outcrop on W bank.
4130267	727600	8183200	8	Czl	MPMSa	MPMKd	Ql		Laterite on W bank; cobble, boulder-choked.
4130268	729250	8180250	15	MPMS	MPMS				
4130269	728850	8183750	2	None	MPMSa	MPMKd	Ql		Cobbly, sandy; narrow; banks to 0.5m.
4130270	728550	8180600	1	MPMS	MPMS		Czp		
4130271	726900	8181250	15	MPMSa	MPMSa	MPMKd			Cobble, boulder-choked; pools common.
4130272	720750	8181150	3	MPMSa	MPMSa	Ql			Sst cobbles, boulders; sandy; alluv. banks to 2m.
4130273	720250	8182500	2	MPMS	MPMS				manganiferous laterite
4130274	727100	8176200	7	None	MPMSa	MPMKd			
4130275	727600	8175400	5		MPMS		Cza		abundant aeolian sand /silt
4130276	727700	8175500	1		MPMS			Czp	abundant aeolian sand /silt
4130277	727600	8173950	12	MPMSa	MPMSa				
4130278	729000	8172500	3		MPMS	Ql			ferruginous-cemented arenite
4130279	728800	8172400	6	Czl	MPMS	Ql			ferruginous-cemented arenite
4130280	728840	8172980	4	Ql	MPMSa	Ql	MPMKd		
4130281	727450	8165300	5	Czl	MPMS	Ql			ferricrete



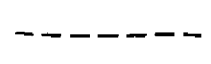



SAMPLE	EAST	NORTH	WIDTH	OUTCROP	FLOAT 1	FLOAT 2	FLOAT 3	FLOAT 4	COMMENTS
4130282	727550	8165500	20		MPMS	Czl			quartz arenite float
4130283	727150	8167250	5	MPMKd	MPMKa	MPMKd			
4130284	728800	8165950	40		MPMS				quartz arenite float
4130285	730600	8166650	6	MPMSa	MPMSa				
4130286	728350	8160900	5	MPMS	MPMS				quartz arenite float
4130287	728200	8160700	5	MPMS	MPMS				quartz arenite float
4130288	729520	8160660	3	MPMSa	MPMSa				
4130289	729400	8160500	3	MPMSa	MPMSa	MPMKd			
4130290	728300	8162150	20		MPMS				silty site
4130291	730690	8160100	3	MPMSa	MPMSa	Czl	Ql		
4130292	730900	8159700	5	MPMSa	MPMSa				
4130293	727300	8162500	10		MPMS				
4130294	732600	8158200	5	MPMS	MPMS				flaggy arenite subcrop
4130295	734100	8157900	3	None	MPMSa	Ql			
4130296	736600	8161750	4	MPMSa	MPMSa	Ql	Czl		Sloping banks; cobble + boulder-choked.
4130297	736480	8161750	4	MPMSa	MPMSa	Ql	Czl		Alluv. banks to 1m; very sandy sample
4130298	735750	8160700	1		MPMSa				narrow sandy drainage
4130299	738050	8160950	5		MPMSa	MPMKa		Czp	silty pond
4130300	727700	8155300	40		MPMSa	MPMK			major drainage, FE-cemented gravels
4130301	729650	8155850	4	None	MPMSa	MPMKd	Ql		Sloping banks; sandy, cobbly.
4130302	729620	8155900	4	None	MPMSa	MPMKd	Ql		Sloping banks; sandy, cobbly.
4130303	729300	8155400	10		MPMS	MPMK		Cza	braided creek
4130304	731000	8154700	25	MPMSc	MPMS	MPMK			major drainage, FE-cemented gravels
4130305	730700	8154600	4	Qg	MPMKd	MPMS	MPMKs		silicified stromatolitic dolomite



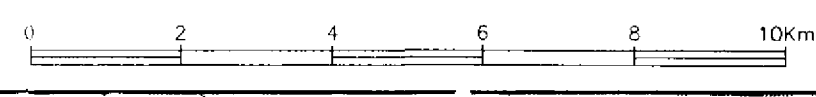
SAMPLE	EAST	NORTH	WIDTH	OUTCROP	FLOAT 1	FLOAT 2	FLOAT 3	FLOAT 4	COMMENTS
4130306	730650	8153850	3	MPMKd	MPMKd	MPMKs	Czl		Sloping banks; sandy/silty; pebbles common.
4130307	730740	8153830	5	MPMKd, Ql	MPMKd	MPMKs	Czl		Sampled upstream of dry pool; cobble-choked.
4130308	731400	8153100	10		MPMKd	MPMKa	MPMKs	Czp	silicified stromatolitic dolomite, dololomite
4130309	731950	8154620	4	None	MPMSa	MPMKd	Czl		Banks to 1.5m; sandy, cobbles.
4130310	731930	8154560	15	MPMSa, Ql	MPMSa				Sandy, silty; minor float; outcrop on S bank.
4130311	732750	8154300	3			MPMS			arenite float
4130312	732900	8154200	50			MPMS			major drainage, arenite float
4130313	732850	8154100	5		MPMKd	MPMS	MPMKa	Czp	narrow creek, arenite float
4130314	733450	8153500	10	MPMSa	MPMSa	MPMKd			Downstream of pool; boulders, rocks common.
4130315	734315	8152470	25	MPMSa	MPMSa	MPMKd			Main creek - braided; boulders, rocks common.
4130316	734210	8152350	5	MPMKa	PMK/Ma				Sand/silt-choked; outcrop on north bank.
4130317	734600	8150800	1			MPMS	MPMK		rare arenite
4130318	734400	8150750	2			MPMS	Czp	Cza	minor sandstone, dolomite
4130319	735250	8152300	6	MPMSa	MPMSa		MPMK		Steep banks; 5 to 7m incision into sandstone.
4130320	735330	8151890	15	MPMKa	MPMKa	MPMSa	MPMKd		Vughy ?calcarenite on S bank; water pools.
4130321	735390	8151990	4	None	MPMKa	MPMKd	MPMSa		Sandy with cobbles; no nearby outcrop.
4130322	734150	8149800	5			MPMKd		MPMKa	common arenite, lutite, lesser dolomite
4130323	735600	8150800	30			MPMKd			arenite outcrop
4130324	737580	8150200	7	MPMSa	MPMSa				Boulder and cobble-choked; minor silt.
4130325	737565	8150320	4	MPMSa	MPMSa				Boulder, rock-choked; outcrop N bank.
4130326	736700	8151900	10					MPMKa	abundant black silt
4130327	736600	8150800	10						arenite bedrock
4130328	737615	8150685	15	MPMSa	MPMSa	Czl	Ql		Boulders, rocks; minor silt; sloping banks.
4130329	736600	8147600	10			CZp			silty wash, adjacent to road.



**LEGEND**

-  Creek
-  Road
-  Track
-  Fence
-  EL Boundary
-  Sample location

Sample numbers prefixed by 4130...



CRA EXPLORATION PTY LIMITED	
EL 8149 KARNS 4	
-80# STREAM SEDIMENT	
SAMPLE LOCATION PLAN	
REF	SE 53 - 04 ROBINSON RIVER
SCALE	1:100,000
DATE	OCT 1994
AUTHOR	DCM
REPORT	20366
DRAWN	TTN
PLAN No.	NTd 6056