



CRA Exploration Pty. Limited

Incorporated in New South Wales A.C.N. 000 057 125
18 Km Stuart Highway, Berrimah, N.T. 0828

30th December, 1993

The Secretary
Department of Mines & Energy
GPO Box 2901
DARWIN NT 0801

Dear Sir

**RE : EL7934 - McDERMOTTS CREEK, N.T.
First Annual Report for Year Ending 2 December, 1993**

Please find herewith Annual Report No. 19415 by D.C. Palmer, titled as above.

Sepia copies of plans over A3 size are also included, they are plans numbered NTd 5552, 5886 and 5901

Expenditure to the nearest accounting period was as follows :

| | |
|-------------------------|-----------------|
| Contractors | \$ 6,066 |
| Laboratory | \$ 6,784 |
| Rent & Property | \$ 956 |
| Payroll & Benefits | \$16,556 |
| Field & Transport | \$13,886 |
| Travel & Accommodation | \$ 2,708 |
| Computer Services | \$ 405 |
| Office & Miscellaneous | \$ 2,924 |
| District Administration | \$12,617 |
| Regional Indirect Costs | <u>\$ 6,267</u> |
| Total | <u>\$69,203</u> |

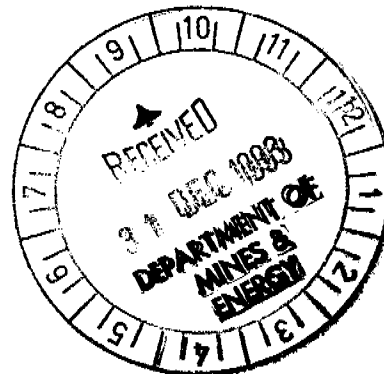
Rehabilitation

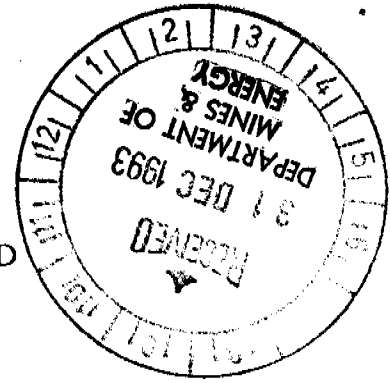
No rehabilitation was required as no significant disturbance was created during the exploration programme.

Yours faithfully

Sandra Johnson (Mrs.)
Superintendent Drafting/Tenements

CR94/028





CRA EXPLORATION PTY. LIMITED

EL 7934 McDERMOTT'S CREEK

FIRST ANNUAL REPORT

YEAR ENDING 2 DECEMBER 1993

SUBMITTED BY : D. C. PALMER

ACCEPTED BY : W. H. JOHNSTON

DATE: : December 1993

COPIES TO : N.T. Department of Mines & Energy, Darwin
CRAE Research & Information Group, Canberra
CRAE, Darwin

MAP REFERENCE : Calvert Hills SE 53-08

REPORT NUMBER : 19415

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1. SUMMARY

Exploration Licence 7934 McDermotts Creek is situated within the Wearyan Shelf tectonic element of the Proterozoic McArthur Basin, adjacent to the N.T./Qld border. The tenement area which covers 240 blocks (747 sq. km) was granted to CRA Exploration Pty. Limited on 3 December, 1992 for a period of six years.

The licence area was considered prospective for diamondiferous kimberlitic diatremes and for basemetal mineralisation within the Proterozoic Tawallah Group sequence.

During the first year of tenure, a helicopter-supported reconnaissance density, heavy mineral trap site and concurrent fine fraction stream sediment sampling programme was completed over the exploration licence area. Gravel samples collected were processed for kimberlitic indicator minerals and the minus 80# stream sediment samples were analysed for a multi-element geochemical suite.

Positive results included clusters of possibly kimberlitic indicator minerals including macro and micro-diamonds, recovered from non-contiguous catchment areas located within the central-eastern portion of EL 7934.

Limited helicopter-supported follow-up heavy mineral trap site and loam sampling was undertaken which confirmed and condensed the indicator mineral dispersion trains.

Low order assay values were returned from the reconnaissance minus 80# stream sediment samples collected across the licence area.

Two rock chip samples collected during the reconnaissance stream sediment sampling programme returned no significant geochemical assay values.

2. ASSESSMENT

The following conclusions are drawn from exploration programmes completed within EL 7934 McDermotts Creek during the first year of tenure;

- (i) Drainage trap site samples report the presence of macro and micro-diamonds and possibly kimberlitic indicator minerals within non-contiguous catchment areas located within the central-eastern portion of the exploration licence.
- (ii) Low order geochemical values report from broad-spaced, -80# stream sediment samples collected across the licence area.

Insufficient follow-up sampling has been undertaken to properly assess the significance of the positive sampling results. The apparent condensing of positive indicator mineral trains in the Nabunga Creek and Queensland Creek catchment areas is considered highly encouraging.

It is recommended that a detailed, low-level, airborne magnetic and radiometric survey of the entire licence area be flown in order to identify target diatreme responses.

3. INTRODUCTION

Exploration Licence 7934 McDermotts Creek is situated within the Wearyan Shelf tectonic element of the Proterozoic McArthur Basin, adjacent to the N.T./Qld border. The tenement area which covers 240 blocks (747 sq. km) was granted to CRA Exploration Pty. Limited on 3 December, 1992 for a period of six years (Plan NTd 5527).

The licence area was considered prospective for diamondiferous kimberlitic diatremes and for basemetal mineralisation within the Proterozoic Tawallah Group sequence.

Work programmes completed within EL 7934 during the first year of tenure included; reconnaissance density trap site gravel and concurrent fine fraction stream sediment sampling, follow-up and infill trap site/loam sampling programmes, kimberlitic indicator mineral observation and micro-diamond detection, multi-element geochemical analysis of reconnaissance stream sediment and rock chip samples.

This report details all exploration activities undertaken by CRA Exploration Pty. Limited within EL 7934 McDermotts Creek during the first year of tenure.

4. GEOLOGY

The geology of the southern McArthur Basin region has been described by Jackson et.al (1987), whilst the metallogeny of the Calvert Hills 1:250 000 mapsheet is reported by Ahmad and Wygralak (1989). The following geological summary of the region encompassed by EL 7934 McDermotts Creek is drawn from these sources. The stratigraphic succession appears in Figure 1.

Exploration Licence 7934 McDermotts Creek covers a sequence of Middle Proterozoic sediments and volcanics (Tawallah Group) which flank the northern margin of the Early-Proterozoic Murphy Metamorphic Inlier.

The Murphy Metamorphics are a sequence of isoclinally folded greenschist facies meta-sediments which are unconformably overlain by a felsic volcanic/pyroclastic sequence (Cliffdale Volcanics), intruded by granite/adamellite of the Nicholson Granite Complex.

The igneous and metamorphic complexes of the Murphy Inlier are overlain with angular unconformity and disconformity by the Tawallah Group. The Tawallah Group is the oldest group of the McArthur Basin sequence.

The Westmoreland Conglomerate is the oldest unit of the Tawallah Group and consists of a thick sequence (up to 1800m) of fluvial arkosic conglomerate and quartz arenite. Permeable lithofacies within the Westmoreland Conglomerate host uranium mineralisation. The unit does not outcrop within the tenement area.

The Seigal Volcanics conformably overlie the Westmoreland Conglomerate and occurs as a series of tholeiitic basaltic lavas and minor tuffaceous interbeds along the southern margin of the exploration licence.

The McDermott Formation conformably overlies the Seigal Volcanics along southern margin of EL 7934 and forms a narrow, poorly outcropping unit characterised by alternating beds of shallow-water marine arenites, shale and dolostone.

The carbonate rocks of the McDermott Formation are conformably overlain by the Sly Creek Sandstone sequence which grades upwards into glauconitic sandstones termed the Aquarium Formation. The conformable units encompass the majority of the exploration licence and are characterised by a series of open folds with north-east oriented axes.

The Settlement Creek Volcanics conformably overlie the Aquarium Formation and consist of a series of basaltic lava flows, sills, and siltstone interbeds. Exposure of the volcanics is limited and is obscured by Recent alluvium denoting the Settlement Creek valley along the northwestern boundary of the licence area.

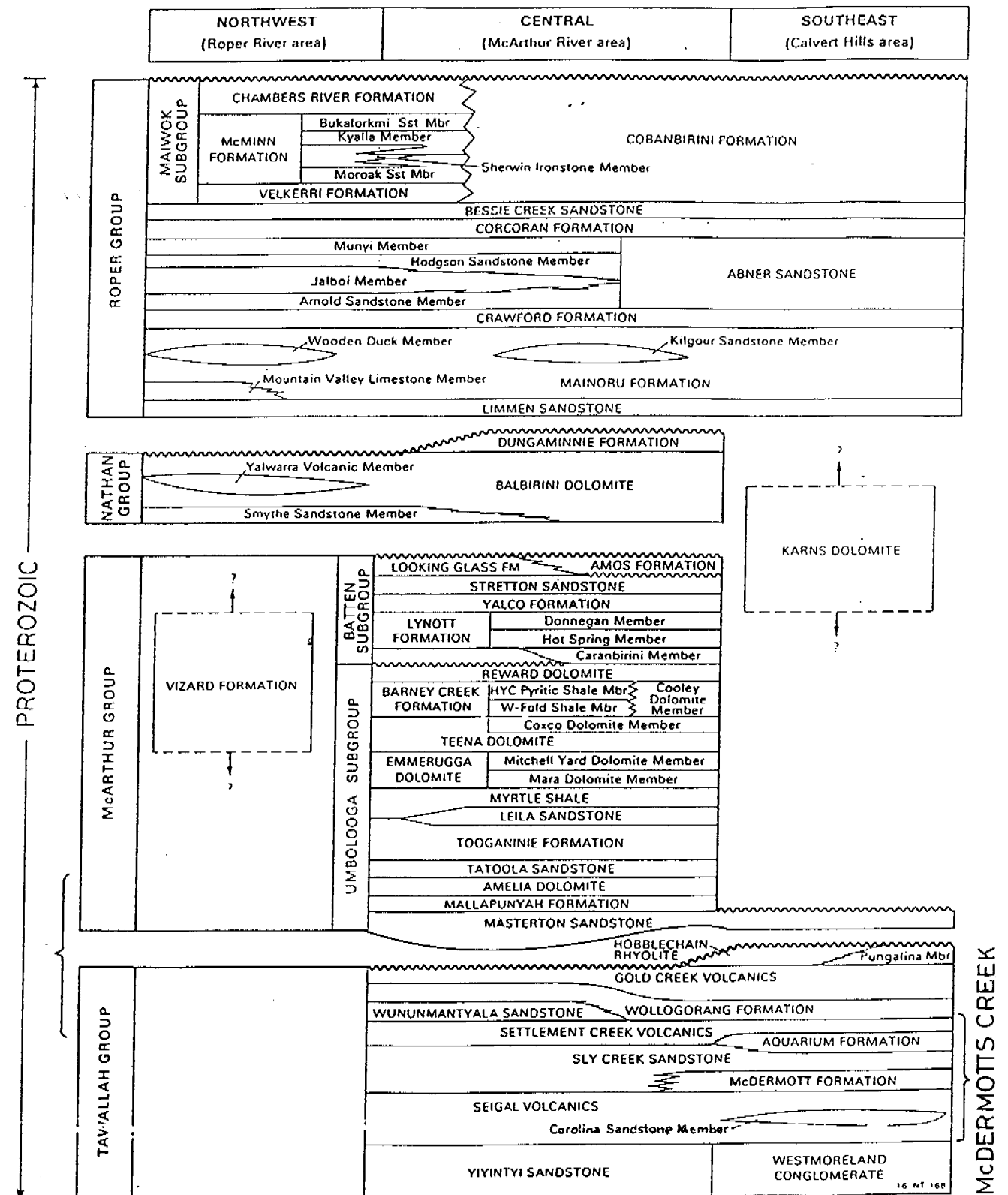


Table 1. STRATIGRAPHIC SUCCESSION WITHIN EL7934 McDermotts Creek
(After M.J.Jackson, M.D.Muir, and K. A.Plumb, 1987)

The Phanerozoic records minor Cretaceous marine transgressions during which thin veneers of sediment were deposited.

Soil, sand and ferruginous detritus of Tertiary and Quaternary Age mask the underlying Tawallah Group in the northern and central portions of the exploration licence.

5. EXPLORATION ACTIVITIES

5.1 Drainage Sampling and Indicator Mineral Results.

Incised dendritic drainage system systems developed across the exploration licence area were subjected to helicopter-supported trap site drainage gravel sampling programmes in an attempt to locate exposed or partially outcropping diamondiferous kimberlitic diatremes via indicator mineral drainage trains.

During tenure year one, collection of drainage gravel samples was undertaken in three passes. All samples were processed by the CRAE Belmont laboratory for kimberlitic indicator mineral observation and selected samples were processed for micro-diamonds.

Sampling data and results for all exploration phases are tabulated in Appendix I and discussed below. Sample locations appear on plan NTd 5886.

The entire licence area was initially subjected to a helicopter-supported reconnaissance density (1: 17 sq. km), minus 2mm fraction drainage sampling programme. A total of forty-two samples were collected from heavy mineral trap sites.

Six selected samples (96 - series numbers) were observed for micro-diamond detection, whilst the remaining thirty-six samples (3206 - series numbers) were observed to plus 0.4mm for kimberlitic indicator minerals. The following samples returned positive indicator mineral results from a series of non-contiguous catchment areas;

- | | |
|---------|--|
| 3206808 | 1 x +0.5mm chromite, with 1 x +0.5mm micro-illmenite (5 - 7% MgO) from the Branch Creek drainage located in the northeastern portion of the licence. |
| 3206820 | 1 x 0.75mm x 0.5mm diamond draining Aquarium Formation arenites within the central-eastern portion of the licence. |
| 3206828 | 1 x 0.8mm x 0.4mm diamond from Nabunga Creek, Aquarium Formation arenites within central EL 7934. |
| 3206826 | 1 x +0.4mm chromite draining Aquarium Formation arenites within the northwestern portion of the licence. |
| 3206838 | 1 x +0.4mm from a tributary of Branch Creek draining Seigal Volcanics along the southern boundary of the licence. |

SEM probe results indicated that chromite grains reporting in reconnaissance samples were distinctly non-kimberlitic.

A second programme of helicopter-supported follow-up drainage sampling was undertaken in order to confirm reported diamond occurrences within non-contiguous catchment areas located within the central portion of the exploration licence.

A total of eight, minus 2mm fraction drainage samples were collected from heavy mineral trapsites in the immediate vicinity of the diamond occurrences (3746 - series numbers). Samples were observed to +0.25mm for kimberlitic indicators minerals.

A total of 185 chromites (9 x +0.4mm, 176 x +0.25mm) and two micro-diamonds were returned from the follow-up gravel samples (Appendix I).

Four selected reconnaissance phase gravel samples (3746 - series numbers) were subsequently processed to a finer fraction (+0.25mm), revealing an additional 74 chromites and two diamonds.

A third programme of helicopter-supported infill drainage sampling was undertaken in order to condense the positive indicator mineral trains reporting from the non-contiguous Nabunga Creek and Queensland Creek catchment areas. Ten infill, minus 2mm fraction trapsite gravel samples were collected from within the broad catchment areas (3747 - series numbers). Samples were observed to +0.25mm for kimberlitic minerals and a total of 115 chromites (2 x +0.4mm, 113 +0.25mm) were returned.

SEM probe results of chromite grains indicated the presence of both non-kimberlitic and possibly kimberlitic populations.

5.2 Loam Sampling and Indicator Mineral Results

A discrete, circular, photo-vegetation feature located within the headwaters of the Nabunga Creek catchment area was identified from 1:80,000 aerial photography. The 120m diameter feature delineates a vegetated, perennial "spring" developed upon a dip slope of Aquarium Formation arenite. No signs of mafic or intrusive rock types were located. A minus 2mm fraction loam sample collected within the photo-feature was observed to +0.25mm for kimberlitic indicator minerals and the following positive results were returned;

3747200 1 x +0.4mm chromite and 1 x 0.40mm x 0.325 mm micro-diamond.

The sample location appears on plan NTd 5886, whilst sampling data appears in Appendix I.

5.3 -80# Stream Sediment Geochemistry.

During tenure year one, a fine fraction stream sediment sample was collected concurrent with regional density trapsite gravel samples across the entire licence area. A total of 36, -80# fraction samples were collected from active stream sediment. Approximately 100 grams of sample was dry sieved in the field and submitted to Amdel Laboratories, Darwin, for assay by the AAS technique for Ag, As, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb and Zn.

Five, -80# fraction samples were collected within catchment areas common to EL 7934 and adjacent CRAE tenement areas during separate reconnaissance stream sediment sampling investigations. These samples were also submitted for geochemical analysis.

No significant basemetal assay values were returned from the 41 samples..

Sample locations are shown on plan NTd 5552, whilst sample ledgers are presented in Appendix II.

5.4 Rock Sampling

Two grab rock samples from a vuggy, brecciated, silicified horizon occurring within McDermott Formation carbonate rocks were collected during helicopter-borne reconnaissance sampling programmes undertaken across the licence area. The samples were submitted to Amdel Laboratories, Darwin, for assay by the AAS technique for Ag, As, Bi, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn, by the XRF technique for Ba, Th and U, and for low level gold determinations by the Fire Assay/AAS technique.

No significant basemetal or precious metal assay values were returned.

Sample locations are shown on plan NTd 5901, whilst sample ledgers appear in Appendix III.

6. REFERENCES

- Ahmad, M and Wygralak, A S (1989) 1:250 000 Metallogenic Map Series
Explanatory Notes and Mineral Deposit
Data Sheets, Calvert Hills SE 5308.
- Jackson, M J et.al. (1987) Geology of the southern McArthur Basin,
Northern Territory. BMR Bulletin 220

7. KEYWORDS

Diamonds; Gravel Sampling; Kimberlitic Indicator Mineral; Loam Sampling; Micro-diamonds; McArthur Basin; Proterozoic; Rock Geochemistry; Stream Sediment Sampling; Tawallah Group.

8. LOCATION

| | | |
|---------------|----------|--------------------|
| Calvert Hills | SE 53-08 | 1:250,000 mapsheet |
| Wollogorang | 6463 | 1:100,000 mapsheet |

9. LIST OF DPO's

71004, 71104, 71106, 71057, 71126, 71138.

10. LIST OF FIGURES

Figure 1 Stratigraphic Succession within EL 7934 McDermotts Creek

11. LIST OF PLANS

| <u>Plan No.</u> | <u>Title</u> | <u>Scale</u> |
|-----------------|---|--------------|
| NTd 5527 | EL7934 McDermotts Creek Location Plan | 1:250,000 |
| NTd 5886 | EL 7934 McDermotts Creek Sample Location Plan | 1:50,000 |
| NTd 5552 | EL 7934 McDermotts Creek -80# Stream Sediment Sample Location Plan | 1:100,000 |
| NTd 5901 | EL 7934 McDermotts Creek Rock Sample Location Plan | 1:100,000 |

APPENDIX I

EL 7934 McDermotts Creek

Diamond Exploration Sample Ledgers and Indicator Mineral Results

CRA EXPLORATION PTY. LIMITED

INDICATOR MINERAL SUMMARY RESULTS

Tenement: EL 7934 McDermotts Creek

Sample Type: Reconnaissance -2mm Trapsite gravel

DPO Nos. 71057

Observation Undertaken: KI identification to plus 0.4mm and selected samples re-examined to 0.25mm.

| SAMPLE No. | SAMP WEIGHT (KG) | AMG EAST | AMG NORTH | INDICATOR MINERAL RESULTS | |
|------------|---------------------|----------|-----------|---------------------------|----------------|
| | | | | >0.4mm | >0.4mm <0.25mm |
| 3206807 | 19.20 | 813150 | 8092900 | negative | No obs. |
| 3206808 | 18.80 | 817400 | 8093100 | 1x micro-illmenite | No obs. |
| | | | | 1x chromite | No obs. |
| 3206809 | 19.20 | 815700 | 8090100 | negative | No obs. |
| 3206810 | 18.60 | 813200 | 8086450 | negative | No obs. |
| 3206811 | 20.60 | 813650 | 8085500 | negative | No obs. |
| 3206812 | 20.00 | 813300 | 8085250 | negative | No obs. |
| 3206813 | 22.50 | 811100 | 8083900 | negative | No obs. |
| 3206814 | 21.60 | 811600 | 8082400 | negative | No obs. |
| 3206815 | 25.40 | 811500 | 8082400 | negative | No obs. |
| 3206816 | 21.40 | 810800 | 8182850 | negative | No obs. |
| 3206817 | 20.40 | 811800 | 8079450 | negative | No obs. |
| 3206818 | 21.00 | 811400 | 8079400 | negative | No obs. |
| 3206819 | 19.20 | 810700 | 8080450 | negative | No obs. |
| 3206820 | 22.00 | 813900 | 8080650 | 1x diamond 0.75mm x 0.5mm | 29 x chromite |
| 3206821 | 21.60 | 806800 | 8079650 | negative | 6 x chromite |
| 3206822 | 19.66 | 805100 | 8081000 | negative | 6 x chromite |
| 3206823 | 22.40 | 805150 | 8080800 | 1x diamond 0.8mm x 0.4mm | 33 x chromite |
| 3206824 | 20.00 | 806950 | 8183100 | 1 x chromite | No obs. |
| 3206825 | 20.20 | 807650 | 8089150 | negative | No obs. |
| 3206826 | 19.40 | 800500 | 8087700 | 1 x chromite | No obs. |
| 3206827 | 18.00 | 896700 | 8084300 | negative | No obs. |

| SAMPLE No. | SAMP WEIGHT (KG) | AMG EAST | AMG NORTH | INDICATOR MINERAL RESULTS | |
|------------|---------------------|----------|-----------|---------------------------|----------------|
| | | | | >0.4mm | >0.4mm <0.25mm |
| 3206828 | 20.00 | 795400 | 8082200 | negative | No obs. |
| 3206829 | 20.20 | 795050 | 8081150 | negative | No obs. |
| 3206830 | 21.80 | 792400 | 8078250 | negative | No obs. |
| 3206831 | 22.00 | 790800 | 8078100 | negative | No obs. |
| 3206832 | 22.00 | 787800 | 8076700 | negative | No obs. |
| 3206833 | 21.00 | 801650 | 8079050 | negative | No obs. |
| 3206834 | 21.40 | 804750 | 8074000 | negative | No obs. |
| 3203835 | 21.20 | 804150 | 8073900 | negative | No obs. |
| 3206836 | 19.60 | 804400 | 8072950 | negative | No obs. |
| 3206837 | 22.20 | 805200 | 8071600 | negative | No obs. |
| 3206838 | 22.00 | 804600 | 8070800 | 1 x chromite | No obs. |
| 3206856 | 20.90 | 789100 | 8070200 | negative | No obs. |
| 3206857 | 22.80 | 789050 | 8070000 | negative | No obs. |
| 3206859 | 16.20 | 785300 | 8075400 | negative | No obs. |
| 3206878 | 23.80 | 818200 | 8069250 | negative | No obs. |

Tenement: EL 7934 McDermotts Creek
Sample Type: Reconnaissance -2mm Trapsite gravel
DPO Nos. 21382,19482
Observation Undertaken: microdiamond identification to plus 0.25mm.

| SAMPLE NO. | SAMP WEIGHT (KG) | AMG EAST | AMG NORTH | INDICATOR MINERAL RESULTS | |
|------------|---------------------|----------|-----------|---------------------------|--|
| | | | | >0.4mm | |
| 966657 | 14.40 | 801500 | 8090800 | negative | |
| 964358 | 21.70 | 807050 | 8088950 | negative | |
| 966694 | 21.00 | 790300 | 8081000 | negative | |
| 966710 | 13.80 | 792900 | 8080400 | negative | |
| 966709 | 17.60 | 799500 | 8087500 | negative | |
| 966789 | 14.20 | 818500 | 8087400 | negative | |

Tenement: EL 7934 McDermotts Creek
 Sample Type: Follow-up Programme, -2mm Trapsite gravel
 DPO Nos. 71126
 Observation Undertaken: KI identification to plus 0.25mm.

| SAMPLE No. | SAMP WEIGHT (KG) | AMG EAST | AMG NORTH | INDICATOR MINERAL RESULTS | |
|------------|---------------------|----------|-----------|---------------------------|---------------------------------|
| | | | | >0.4mm | >0.4mm <0.25mm |
| 3746290 | 34.40 | 813774 | 8080646 | 5 x chromite | 35 x chromite |
| 3746291 | 16.30 | 813500 | 8080650 | 1 x chromite | 23 x chromite |
| 3746292 | 18.00 | 813500 | 8081350 | 2 x chromite | 74 x chromite |
| | | | | | 1 x micro-diamond 0.3mm x 0.3mm |
| 3746293 | 35.30 | 805109 | 8080816 | negative | 31 x chromite |
| 3746294 | 16.00 | 805061 | 8080380 | negative | 5 x chromite |
| 3746295 | 18.50 | 803600 | 8079830 | negative | 7 x chromite |
| | | | | | 1 x micro-diamond 0.3mm x 0.3mm |
| 3746296 | 19.10 | 803050 | 8079950 | negative | negative |
| 3746297 | 20.10 | 801514 | 8079310 | 1 x chromite | 1 x chromite |

Sample Type: -2mm loam sample
 DPO Nos. 71138
 Observation Undertaken: KI identification to plus 0.25mm.

| SAMPLE No. | SAMP WEIGHT (KG) | AMG EAST | AMG NORTH | INDICATOR MINERAL RESULTS | |
|------------|---------------------|----------|-----------|---------------------------|-----------------------------------|
| | | | | >0.4mm | >0.4mm <0.25mm |
| 3747200 | 33.30 | | | 1 x chromite | 1 x micro-diamond 0.4mm x 0.325mm |

Sample Type: Infill Sampling, -2mm Trapsite gravel

DPO Nos. 71138

Observation Undertaken: KI identification to plus 0.25mm.

| SAMPLE NO. | SAMP WEIGHT (KG) | AMG EAST | AMG NORTH | INDICATOR MINERAL RESULTS | |
|------------|---------------------|----------|-----------|---------------------------|----------------|
| | | | | >0.4mm | >0.4mm <0.25mm |
| 3747201 | 18.20 | 813920 | 8081320 | negative | 17 x chromite |
| 3747202 | 15.20 | 806400 | 8077500 | negative | 4 x chromite |
| 3747203 | 16.60 | 803700 | 8079250 | negative | 2 x chromite |
| 3747204 | 16.20 | 804990 | 8079550 | negative | 4 x chromite |
| 3747205 | 15.80 | 813900 | 8079450 | negative | 12 x chromite |
| 3747206 | 17.50 | 814730 | 8079700 | 1 x chromite | 15 x chromite |
| 3747207 | 16.30 | 815000 | 8080470 | negative | 14 x chromite |
| 3747208 | 15.80 | 815100 | 8080150 | negative | 5 x chromite |
| 3747209 | 16.00 | 814750 | 8083400 | 1 x chromite | 26 x chromite |
| 3747210 | 16.80 | 814800 | 8083780 | negative | 14 x chromite |

APPENDIX II

EL 7934 McDermotts Creek

-80# Stream Sediment Geochemistry Ledger

**CRA EXPLORATION PTY. LIMITED
GEOCHEMICAL SAMPLE LEDGER**

Tenement: EL 7934 McDermotts Creek

Programme: Reconnaissance Multifraction Stream Sediment Survey

Sample Type : -80# Stream sediment

DPO: 71104, 71106

Collected: D.C. Palmer 1993

Lab: Amdel

| SAMPNO | Ag ppm | Cd ppm | Co ppm | Cr ppm | Cu ppm | Fe ppm | Mn ppm | Ni ppm | Pb ppm | Zn ppm | As ppm | AMGEAST | AMGNORTH |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|
| 3206807 | 0.05 | 0.05 | 3 | 29 | 26 | 19845 | 440 | 12 | 9 | 13 | 10 | 813150 | 8092900 |
| 3206808 | 0.05 | 0.05 | 14 | 71 | 66 | 49770 | 840 | 34 | 13 | 52 | 10 | 817400 | 8093100 |
| 3206809 | 0.05 | 0.05 | 3 | 46 | 24 | 22995 | 270 | 9 | 11 | 14 | 10 | 815700 | 8090100 |
| 3206810 | 0.05 | 0.05 | 13 | 53 | 36 | 30135 | 210 | 23 | 7 | 27 | 10 | 813200 | 8086450 |
| 3206811 | 0.05 | 0.05 | 8 | 53 | 32 | 30450 | 220 | 17 | 6 | 21 | 10 | 813650 | 8085500 |
| 3206812 | 0.05 | 0.05 | 7 | 39 | 21 | 21630 | 170 | 11 | 5 | 15 | 10 | 813300 | 8085250 |
| 3206813 | 0.05 | 0.05 | 11 | 64 | 39 | 46305 | 450 | 29 | 10 | 61 | 10 | 811100 | 8083900 |
| 3206814 | 0.05 | 0.05 | 2 | 33 | 7 | 16275 | 110 | 4 | 2 | 5 | 10 | 811600 | 8082400 |
| 3206815 | 0.05 | 0.05 | 2 | 34 | 8 | 15120 | 120 | 4 | 3 | 5 | 10 | 811500 | 8082400 |
| 3206816 | 0.05 | 0.05 | 2 | 43 | 21 | 15750 | 120 | 14 | 5 | 6 | 10 | 810800 | 8182850 |
| 3206817 | 0.05 | 0.05 | 2 | 35 | 11 | 20895 | 165 | 7 | 6 | 7 | 10 | 811800 | 8079450 |
| 3206818 | 0.05 | 0.05 | 2 | 37 | 12 | 17220 | 150 | 7 | 4 | 9 | 10 | 811400 | 8079400 |
| 3206819 | 0.05 | 0.05 | 6 | 35 | 36 | 22785 | 92 | 18 | 6 | 17 | 10 | 810700 | 8080450 |
| 3206820 | 0.05 | 0.05 | 2 | 24 | 3 | 10290 | 115 | 3 | 2 | 4 | 10 | 813900 | 8080650 |
| 3206821 | 0.05 | 0.05 | 21 | 77 | 57 | 51765 | 52 | 32 | 13 | 53 | 10 | 806800 | 8079650 |
| 3206822 | 0.05 | 0.05 | 2 | 34 | 17 | 12495 | 90 | 11 | 2 | 55 | 10 | 805100 | 8081000 |
| 3206823 | 0.05 | 0.05 | 3 | 22 | 6 | 19320 | 130 | 6 | 4 | 4 | 10 | 805150 | 8080800 |
| 3206824 | 0.05 | 0.05 | 3 | 27 | 8 | 17220 | 94 | 5 | 4 | 6 | 10 | 806950 | 8183100 |
| 3206825 | 0.05 | 0.05 | 2 | 14 | 4 | 10080 | 54 | 1 | 3 | 5 | 10 | 807650 | 8089150 |
| 3206826 | 0.05 | 0.05 | 5 | 22 | 13 | 20790 | 350 | 7 | 8 | 10 | 10 | 800500 | 8087700 |
| 3206827 | 0.05 | 0.05 | 6 | 23 | 13 | 21000 | 350 | 8 | 8 | 12 | 10 | 896700 | 8084300 |
| 3206828 | 0.05 | 0.05 | 2 | 20 | 13 | 14805 | 150 | 4 | 8 | 6 | 10 | 795400 | 8082200 |
| | | | | | | | | | | | | | |
| DET. LIMIT | 0.1ppm | 0.1ppm | 2ppm | 2ppm | 1ppm | 5ppm | 2ppm | 2ppm | 2ppm | 1ppm | 20ppm | | |
| METHOD | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | | |

**CRA EXPLORATION PTY. LIMITED
GEOCHEMICAL SAMPLE LEDGER**

Tenement: EL 7934 McDermotts Creek

Programme: Reconnaissance Multifraction Stream Sediment Survey

Sample Type : -80# Stream sediment

DPO: 71104, 71106

Collected: D.C. Palmer 1993

Lab: Amdel

| SAMPNO | Ag ppm | Cd ppm | Co ppm | Cr ppm | Cu ppm | Fe ppm | Mn ppm | Ni ppm | Pb ppm | Zn ppm | As ppm | AMGEAST | AMGNORTH |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|
| 3206829 | 0.05 | 0.05 | 8 | 35 | 25 | 46515 | 680 | 10 | 11 | 10 | 10 | 795050 | 8081150 |
| 3206830 | 0.05 | 0.05 | 2 | 30 | 32 | 15855 | 250 | 15 | 7 | 8 | 10 | 792400 | 8078250 |
| 3206831 | 0.05 | 0.05 | 3 | 16 | 5 | 10920 | 130 | 2 | 4 | 4 | 10 | 790800 | 8078100 |
| 3206832 | 0.05 | 0.05 | 7 | 23 | 24 | 27090 | 730 | 8 | 9 | 12 | 10 | 787800 | 8076700 |
| 3206833 | 0.05 | 0.05 | 2 | 17 | 13 | 11025 | 50 | 6 | 4 | 5 | 10 | 801650 | 8079050 |
| 3206834 | 0.05 | 0.05 | 4 | 24 | 11 | 14910 | 550 | 5 | 5 | 8 | 10 | 804750 | 8074000 |
| 3206835 | 0.05 | 0.05 | 16 | 58 | 48 | 40005 | 1300 | 24 | 12 | 33 | 10 | 804150 | 8073900 |
| 3206836 | 0.05 | 0.05 | 5 | 30 | 34 | 19320 | 1390 | 14 | 6 | 8 | 10 | 804400 | 8072950 |
| 3206837 | 0.05 | 0.05 | 13 | 60 | 35 | 37800 | 430 | 22 | 9 | 35 | 10 | 805200 | 8071600 |
| 3206838 | 0.05 | 0.05 | 21 | 69 | 76 | 55230 | 530 | 32 | 13 | 44 | 10 | 804600 | 8070800 |
| 3206856 | 0.05 | 0.05 | 10 | 40 | 34 | 24360 | 2970 | 13 | 11 | 13 | 10 | 789100 | 8070200 |
| 3206857 | 0.05 | 0.05 | 9 | 46 | 49 | 27195 | 2820 | 19 | 11 | 16 | 10 | 789050 | 8070000 |
| 3206859 | 0.05 | 0.05 | 5 | 26 | 12 | 23000 | 320 | 6 | 15 | 23 | 10 | 785300 | 8075400 |
| 3206878 | 0.05 | 0.05 | 8 | 58 | 68 | 43785 | 195 | 27 | 10 | 27 | 10 | 818200 | 8069250 |
| 3206931 | 0.05 | 0.05 | 18 | 76 | 47 | 39480 | 410 | 28 | 11 | 29 | 10 | 805400 | 8070200 |
| 3206932 | 0.05 | 0.05 | 13 | 66 | 45 | 32550 | 380 | 20 | 10 | 24 | 10 | 804000 | 8070200 |
| 3206933 | 0.05 | 0.05 | 16 | 92 | 52 | 53865 | 410 | 35 | 13 | 64 | 10 | 804350 | 8069600 |
| 3319801 | 0.05 | 0.05 | 21 | 58 | 18 | 66000 | 600 | 18 | 19 | 93 | 10 | 785800 | 8078900 |
| 3319800 | 0.05 | 0.05 | 18 | 42 | 44 | 35600 | 2010 | 11 | 10 | 69 | 10 | 786000 | 8081250 |
| | | | | | | | | | | | | | |
| DET. LIMIT | 0.1ppm | 0.1ppm | 2ppm | 2ppm | 1ppm | 5ppm | 2ppm | 2ppm | 2ppm | 1ppm | 20ppm | | |
| METHOD | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | AAS | | |

APPENDIX III

EL 7934 McDermotts Creek

Rock Sample Ledger

**CRA EXPLORATION PTY LIMITED
ROCK SAMPLE LEDGER**

Tenement: EL 7934 McDermotts Creek

Programme: Reconnaissance Investigations

Sample Type: Rock

Map Ref: Calvert Hills SE5308

Collected By: D.C. Palmer 1993

LAB: Amdel

DPO : 71004

| SAMPLE No. | EASTING AMG | NORTHING AMG | SAMPLE TYPE | GEOLOGICAL DESCRIPTION |
|------------|-------------|--------------|-------------|---|
| 3204123 | 804228 | 8074022 | Grab | Red-brown, laminated to brecciated, silicified, vuggy carbonate rock with goethite and manganese lined fractures with drusy 'dog-tooth' quartz. |
| 3204124 | 804228 | 8074022 | Grab | Red-brown, laminated to brecciated, silicified, vuggy carbonate rock with goethite and manganese lined fractures with drusy 'dog-tooth' quartz. |

**CRA EXPLORATION PTY LIMITED
ROCK SAMPLE LEDGER**

Tenement: EL 7934 McDermotts Creek

Programme: Reconnaissance Investigations

Sample Type: Rock

Map Ref: Calvert Hills SE5308

Collected By: D.C. Palmer 1993

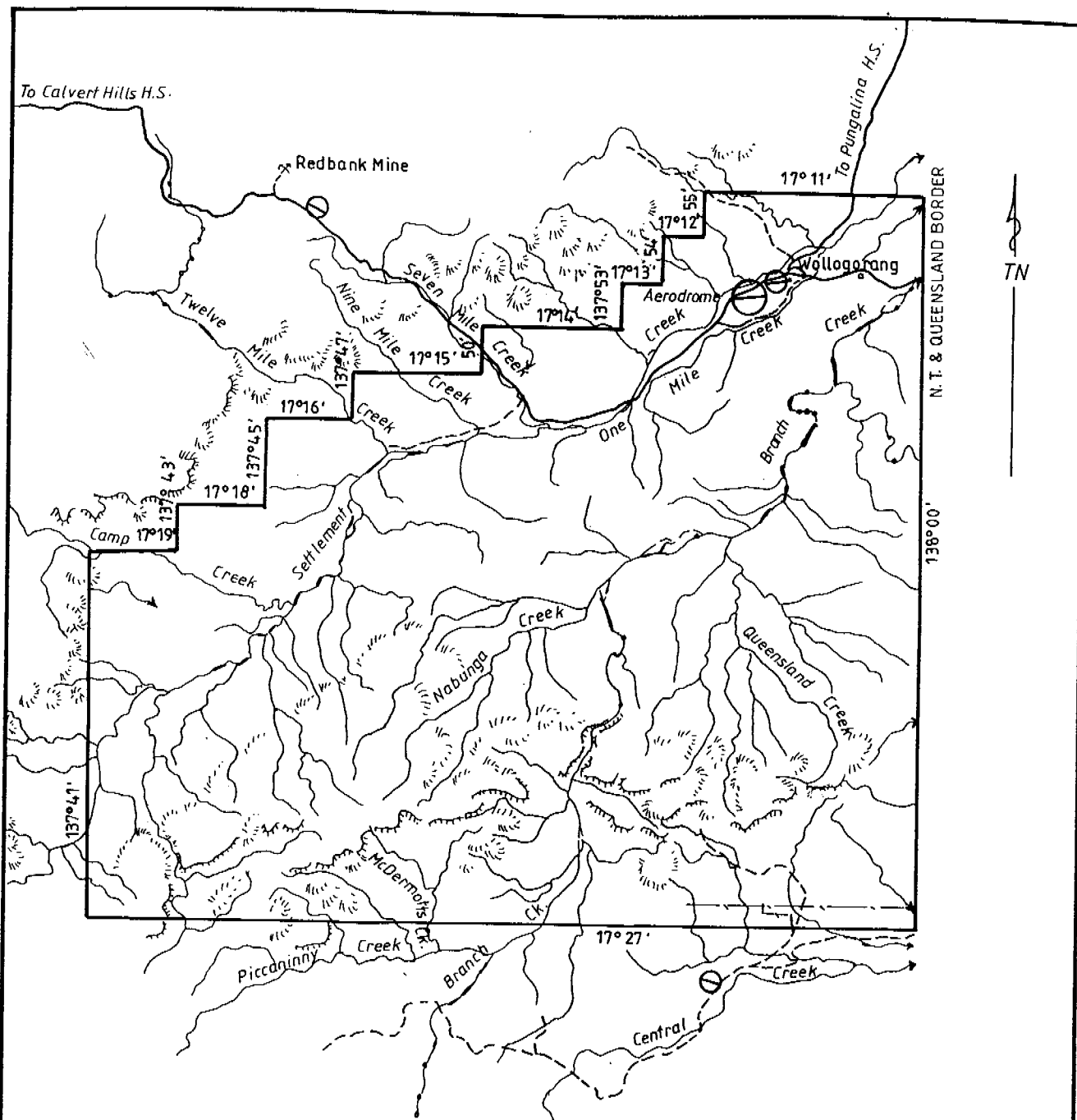
LAB: Amdel

DPO : 71004

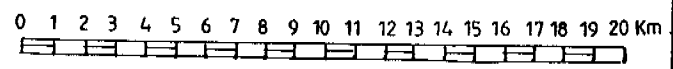
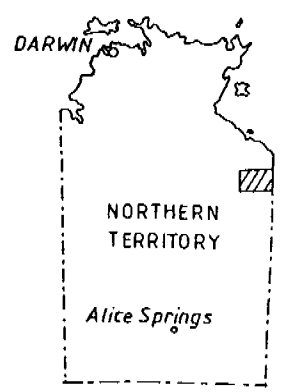
GEOCHEMICAL ASSAYS

All assay values ppm unless stated.

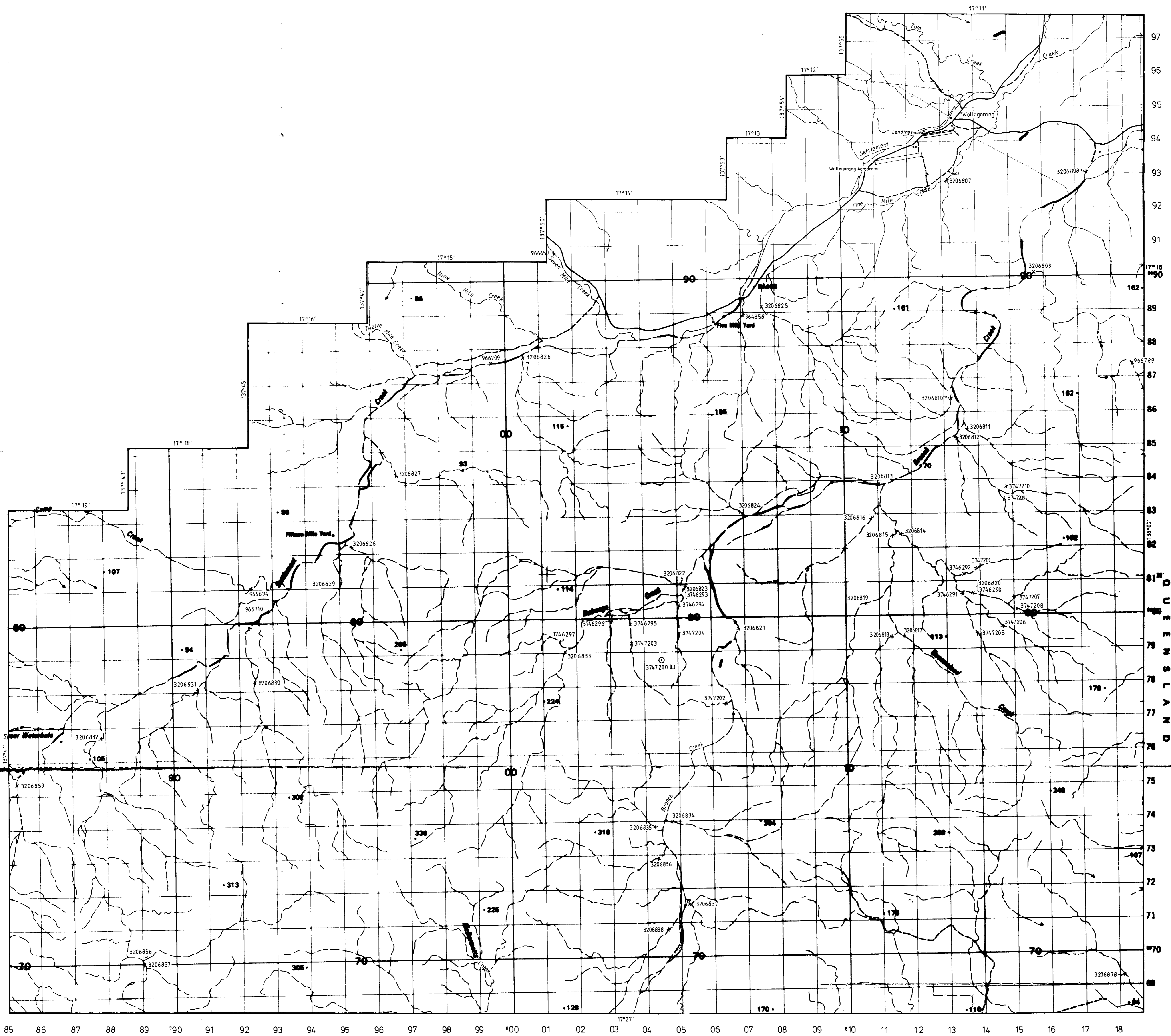
| SAMPLE No. | Cu | Pb | Zn | Ag | As | Ni | Co | Au | U | Th | Ba | Cr | Fe% | Mn | Bi |
|--------------------------|-----|-----|-----|-----|-----|-------|-----|-------|------|------|------|-----|------|-----|-----|
| 3204123 | 17 | 13 | 4 | <1 | 60 | <4 | <4 | 0.002 | 10 | 4 | 820 | 195 | 3.3 | 350 | <10 |
| 3204124 | 33 | 13 | 4 | <1 | <50 | <4 | <4 | 0.001 | 6 | 5 | 1400 | 140 | 2.26 | 170 | 10 |
| ANALYSIS METHOD : | AAS | AAS | AAS | AAS | AAS | AAS | AAS | FIRE | XRF1 | XRF1 | XRF1 | AAS | AAS | AAS | AAS |
| DETECTION LIMIT : | 2 | 4 | 2 | 1 | 50 | 4.000 | 4 | 0.001 | 4 | 4 | 10 | 4 | 5 | 4 | 2 |
| | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | PPM |



AREA: 240 blocks
approx. 784 sq. km.

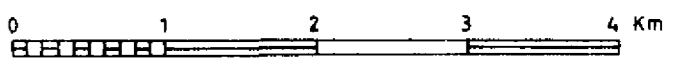


| | |
|---------------------------------|---------------------|
| CRA EXPLORATION PTY LIMITED | |
| EL 7934 | |
| McDERMOTT'S CREEK | |
| LOCATION PLAN | |
| REFERENCE SE 5308 CALVERT HILLS | |
| SCALE 1:250,000 | DATE SEPTEMBER 1992 |
| AUTHOR DCP | REPORT 19415 |
| DRAWN SRJ | PLAN No NTd 5527 |



LEGEND

- Stream (intermittent) / waterhole / lake or stream (perennial)
- Track
- Road
- Fence
- Aerodrome or Landing ground
- Buildings
- GRAVEL SAMPLE
- LOAM SAMPLE



CRA EXPLORATION PTY LIMITED
 EL 7934 McDERMOTT'S CREEK
 SAMPLE LOCATION PLAN

| | |
|--------------------------------|-------------------|
| Reference SE5308 CALVERT HILLS | Drawn SRJ |
| Scale 1:50,000 | Report No. 19415 |
| Author DCP | Plan No. NTd 5886 |
| Date NOVEMBER 1993 | |

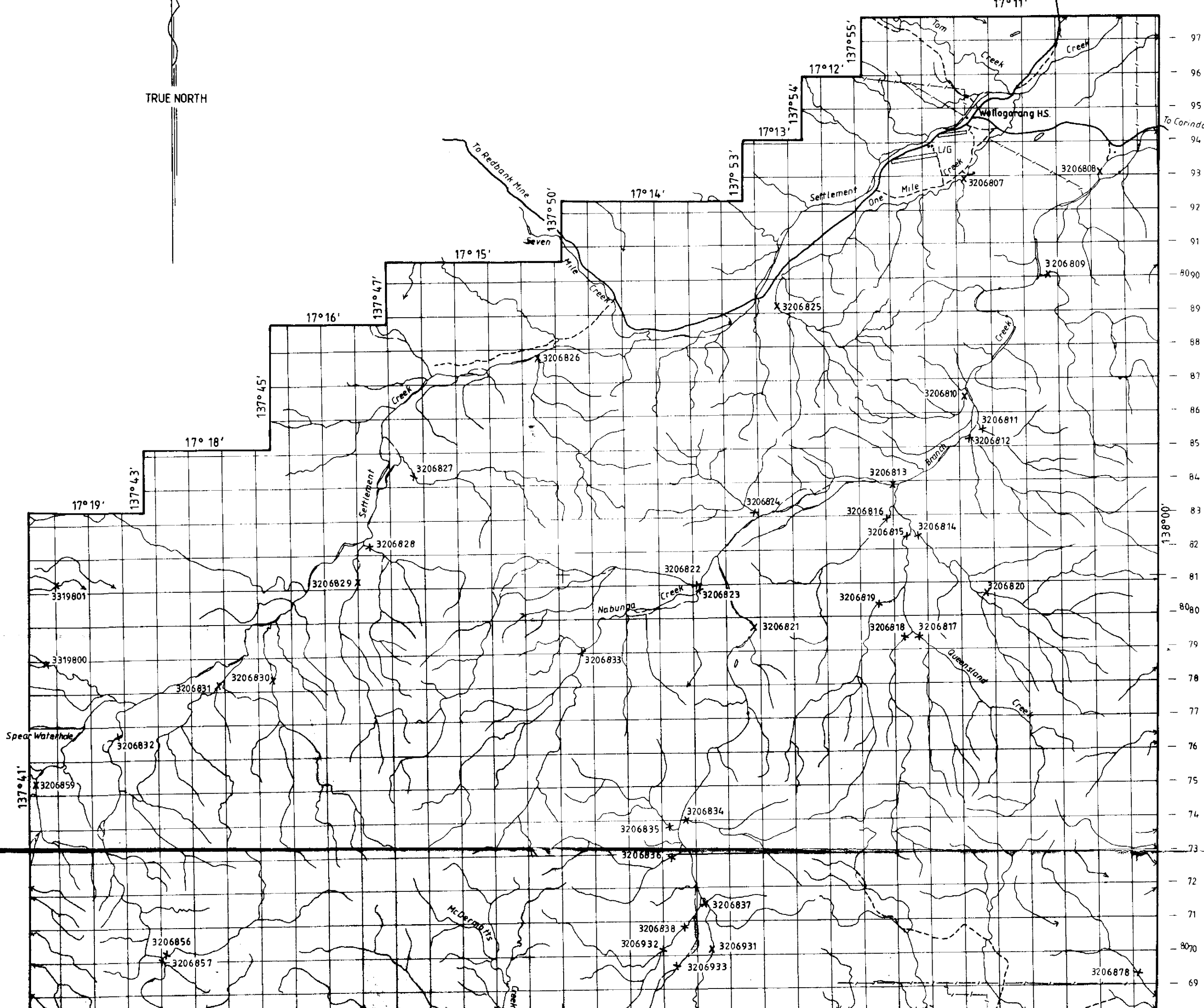
137° 40'

137° 50'

138° 00'

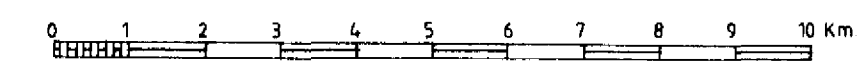
17° 10'

TRUE NORTH



LEGEND

- Creek
- Landing Ground
- Road / Track
- Buildings
- Fence
- 80m STREAM SEDIMENT SAMPLE LOCATION



| | |
|---------------------------------|-----------------|
| CRA EXPLORATION PTY LIMITED | |
| EL 7934 McDERMOTT'S CREEK | |
| -80m STREAM SEDIMENT | |
| SAMPLE LOCATION PLAN | |
| REFERENCE SE 5308 CALVERT HILLS | |
| SCALE 1:100,000 | DATE NOV. 1992 |
| AUTHOR DCP | REPORT 19415 |
| DRAWN SRJ | PLAN No NTd5552 |

786 87 88 89 90 91 92 93 94 95 96 97 98 99 800 01 02 03 04 05 06 07 08 09 810 11 12 13 14 15 16 17 18

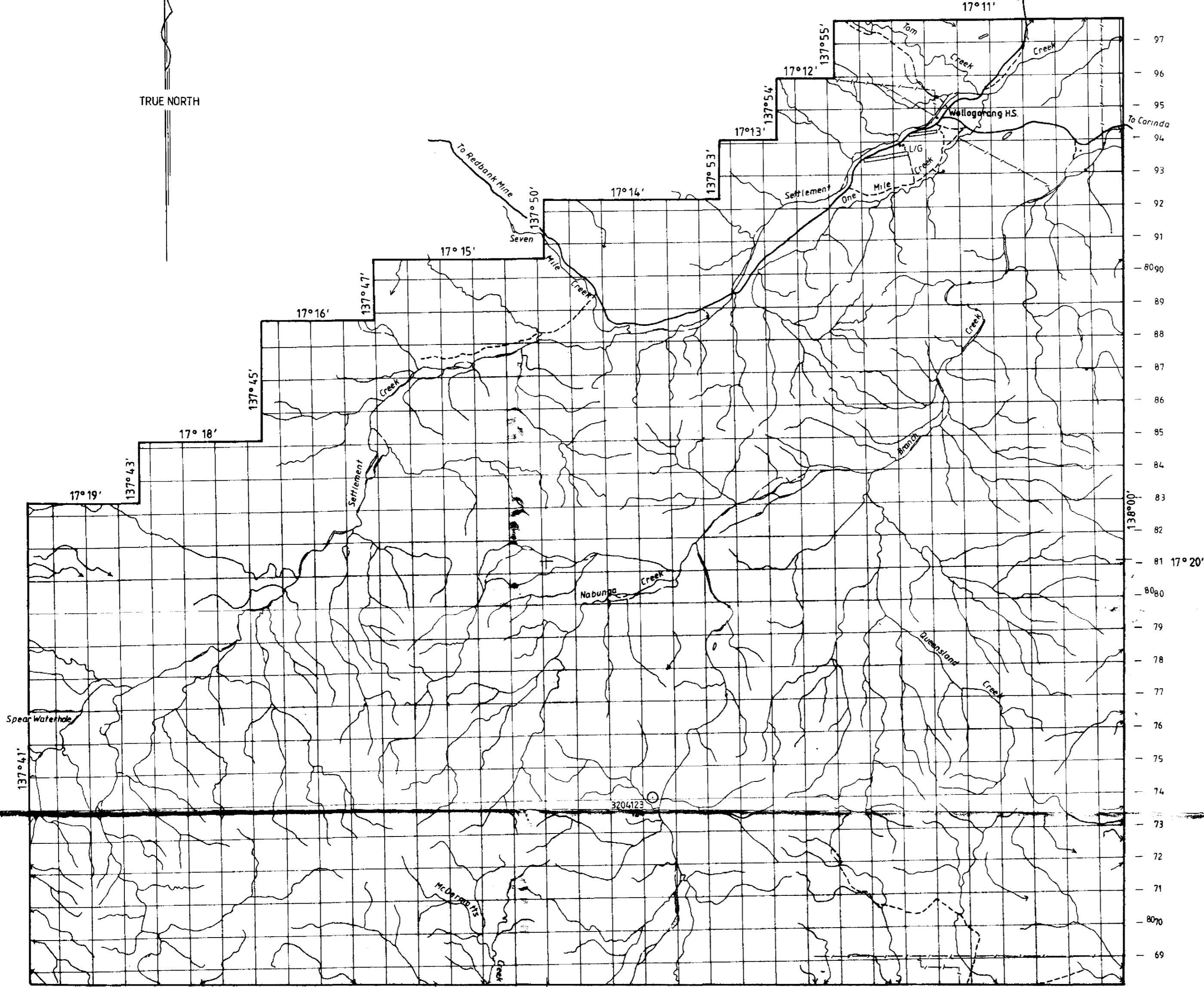
137°40'

137°50'



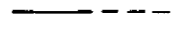

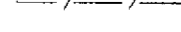

138°00'

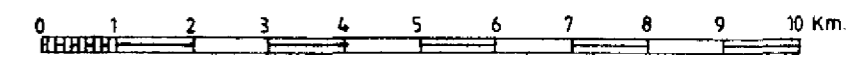
17°10'

TRUE NORTH



LEGEND

-  Creek
-  Landing Ground
-  Road / Track
-  Buildings
-  Fence
-  Sample Location



| | |
|----------------------------------|------------------|
| CRA EXPLORATION PTY LIMITED | |
| EL 7934 McDERMOTT'S CREEK | |
| ROCK SAMPLE LOCATION PLAN | |
| REFERENCE SE 5308 CALVERT HILLS | |
| SCALE 1:100,000 | DATE NOV. 1992 |
| AUTHOR DCP | REPORT 19415 |
| DRAWN SRJ | PLAN No NTd 5901 |

76 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18

138°00'

17°20'

17°27'

137°41'

17°19'

17°18'

17°16'

17°15'

17°14'

17°13'

17°12'

17°11'

Spears Waterhole

To Redbank Mine

Seven Mile Creek

Settlement

Nabunga Creek

One Mile

Settlement

Tom Creek

To Pungalinga H.S.

Willagong HS

To Carinda

3206123

McDermotts Creek