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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

West Coast Mines

Report on the Exploration work completed during 1970/1971 at Melba Flats

by

C.C.J. Burton

October 1970

Report No. 106

MICROFILMED

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Summary

Detailed geological mapping, geochemical soil sampling, electromagnetic surveys and magnetometer surveys were accomplished during 1970/71 within part of the Melba Flats exploration licence. The most significant result was the delineation of a coincident Copper, Nickel and Zinc geochemical anomaly supported by an E.M. anomaly along a strike length of 2000ft. north east of Genets' winze in the northern part of the area. The known copper nickel sulphide mineralization is associated with one and possibly more dolerite intrusives. These intrusives are known to occur in the area defined by the anomalies. It is recommended that this zone and a number of areas of lesser interest be explored by diamond drilling. This should be accompanied by other exploration activities in selected parts of the licence area with the objective of making a final assessment of the ore potential within a period of two years.

Introduction

This report summarizes the exploration work completed during the period July 1st 1970 to July 1st 1971 within the Melba Flats exploration licence. The report is subdivided into two parts. The first provides a geological background, describes the exploratory activity during the period and concludes with recommendations for further work accompanied by cost estimates. The second part comprises a number of appendices which cover selected aspects of the geology in more detail along with plans, sections and synopses of past work. In view of the voluminous amount of reports on the area listed in the bibliography an effort has been made to avoid being merely repetitious.

Geology

The area covered by the Melba grid and the Deveraux grid (Fig. 1) have been mapped on a scale of 1" = 200'. Outcrop is sparse except in the northern part of the grid but in combination with numerous trenches and many drillholes it is adequate enough to compile a general geological map.

The rocks are predominantly red, grey and black argillites, siltstones, sandstones and tuffaceous greywacke of the Lower Cambrian Crimson Creek formation. They dip east at 50°-75° and strike N.N.W. from Genets' winze to Nickel Reward. North of Genets' winze there is an abrupt change of strike to the north east followed by a gradual swing back to a north-south trend on the north edge of the mapped area. A swarm of meta-dolerite intrusives occur within the sedimentary sequence. They are for the most part concordant with the bedding and sill like in habit. They reach a maximum development in terms of combined average width adjacent to the swing in strike of the formations. They pinch and swell in an irregular manner along strike and downdip. East-west faulting has been noted and inferred in several locations and may be more extensive than shown. On the Deveraux grid the Crimson Creek formations and the intrusives abut unconformably against the Silurian Crotty Quartzite. This contact area may be the locus for east-west faulting of some magnitude.

Mineralization

The copper-nickel-iron sulphide mineralization consists of both massive and disseminated pentlandite, millerite, chalcopyrite, pyrrhotite and pyrite. It is associated with the dolerite intrusives and in each location, which has been closely drilled or actually mined, the economic mineralization occurs near or on the footwall of a single member of the swarm. This sill is not chemically or texturally different from the others and the association remains a mystery. However recent work has shown that some copper-nickel mineralization may occur in another member of the swarm.

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The ore occurs in shoots over a strike length of at least 8000 ft. These shoots do not appear to have a strike length of over 300 ft. and so far diamond drilling has not established a depth extension of more than 200 ft. The ore pinches and swells in an erratic manner with a maximum width of 15 ft. and an average width of 7 ft. The best drillhole intersection shows 10.1% Ni and 5.5% Cu over a 3.0 ft. width but an average grade of 3% Ni and 2% Cu over 6-7 ft. is more probable and this width may well be optimistic.

The following ore reserves have been estimated and are summarized from Table 1 and illustrated on Figure 15.

Nickel Reward	1,200 tons	2.0% Cu	- 5.0% Ni
N. Cuni	10,000 tons	1.99% Cu	- 2.91% Ni
Genets Winze	14,000 tons	2.17% Cu	- 3.44% Ni

The probable category is used because the old mining and drillhole records are to say the least sketchy and inadequate for a precise economic assessment.

Lead-Zinc veins also occur within the mapped area and are frequently marked by conspicuous gossan. They are Zeehan type narrow veins and limited shoots which have been extensively trenched and locally explored by costeans and adits.

Geophysical Work

A Turam electromagnetic survey was executed between 1st Dec. 1970 and 17th January 1971 by Seigel Associates (Australasia) Pty. Ltd. Approximately 25 anomalous zones were delineated with the conductive source located at an average depth of 100 ft. A combination of geological mapping and a study of the characteristics of the conductors permit the anomalies to be subdivided into those derived from graphitic black shales, nickel-copper sulphides, lead-zinc sulphides and some of an indeterminate source. The correlation between the known occurrences of nickel-copper sulphides and the E.M. anomalies is generally good.

A magnetometer survey was run over the same grid using a Scintrex M.F. 2 fluxgate instrument. Anomalies of minor amplitude were recorded in an undisturbed quiet magnetic field. These anomalies were ascribed to a number of sources such as ilmenite and magnetite in dolerite intrusives, pyrrhotite in massive sulphide, lead-zinc mineralisation, and of indeterminate origin.

Geochemical Work

Geochemical soil samples were taken at 50 ft. intervals along every line in the Melba Grid. These were analyzed for Cu, Zn, Pb, Ni and Co and a limited number for As.

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The copper values have the least spread and show the best correlation with known sulphides. Both nickel and zinc are anomalous over the same areas as for copper but show a wider dispersion and more erratic values. The lead values show a distinctly different trend which correlates with the Pb, Zn vein systems.

The most prominent and significant anomaly extends north east for 2000 ft. from Genets' winze. It is reflected by generally coincident high values for Cu, Ni and Zn. Other anomalies were recorded but are narrow, impersistent or of a lower order.

Conclusions

The results of the exploration work completed during 1970/71 suggest that there is a good potential for further small, high grade, copper-nickel ore shoots. The most promising targets are outlined by coincident geophysical and geochemical anomalies supported by geological interpretation suggesting the presence of intrusive dolerites. These conditions are best developed north east of Genets' winze where the anomalous zone extends for 2000 ft. along strike. Less prominent areas of limited dimensions occur at Cuni Rise and south of S. Cuni mine. The geological evidence suggests that the ore shoots will be within the 5000 to 20,000 ton range. However a number of small tonnage, good grade, near surface ore shoots may be considered economically viable and the recommendations for further exploration are based on this premise.

These are substantial areas within the Melba exploration licence but outside the 1970/71 Melba grid which have not been thoroughly checked: Foremost amongst these is the Deveraux - Nickel Reward area where further copper-nickel ore shoots may be developed adjacent to an east-west structure. The continuation northwards of the Genets' winze Cu, Ni trend should be examined. Zeehan type Lead, Zinc veins are known to exist to the east and west of the copper nickel prospects. They have a considerably greater strike continuity than that displayed in the Zeehan mines, but no appreciable widths have been noted in the numerous trenches and costeans. The feasability of assisting tributors to develop small scale operations on these veins should be considered. The possibility of significant disseminated nickel sulphides in the serpentinite, metagabbro complex should not be discounted.

Recommendations

The Melba Flat exploration licence has been held by the E.Z. Company since March 1962 and to date a total of $173,554 has been spent on exploration activities within the 10 sq. mile lease area. The following proposals envisage a 2 year program to determine whether or not the known mineralization or further discoveries will have an economic potential.

will need to be big if this much has been spent.

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When the 2 year period has elapsed it is anticipated that a decision to either develop the oreshoots, or relinquish the licence can be made.

The following recommendations are made for the first year of the 2 year program.

1. Systematically diamond drill the anomalous zone north east of Genets' Winze. It is aimed to intersect the mineralized horizon at depths of 50 ft, 100ft. and 150 ft. below surface. Drilling should commence at a site 100ft. north east of M.F.P. 128 and proceed as illustrated on Figure 2 . In practice the precise location of a drillhole will be determined by the results from the previous hole.

2. Drill three short scout holes to test geophysical anomalies correlated with footwall intrusive dolerites.

3. Drill five short holes to raise the confidence limits and attempt to increase the probable reserves estimated for the North Cuni and Genets' winze oreshoots.

4. Drill two or three short holes to test the E.M. anomaly south of the S. Cuni workings. This item will be deleted if the drilling elsewhere is not encouraging.

5. The projected outcrop of the mineralized zone at Cuni Rise, North Cuni and Genets' winze should be trenched by bulldozer. Two short drillholes at Cuni Rise will be justified if mineralized outcrop is exposed.

6. The Deveraux grid should be surveyed by magnetometer and geochemical soil samples taken and analysed for Cu, Ni and Zn.

7. Selected areas of the old North Melba grid should be mapped with the objective of:-

   a. Tracing the extent of the lead-zinc mineralization.
   b. Checking the projected strike continuation of the nickel bearing dolerite intrusives.

8. All available exposures of the serpentine and meta gabbro complex should be examined and sulphide nickel determinations made as required.

Estimated Cost.

1. Diamond Drilling

   24 drillholes averaging 150 ft. each in length = 3600 ft.

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3600 ft. of BQ size hole at $7.00 ft. = $25,200
Transport charges, camping allowances, supervision and geological back up. $ 5,000

Estimated duration of this program using 2 drilling machines on a one shift basis = 5 months.

If the initial drillholes show little mineralization this program will be modified and curtailed. Hopefully the reverse will apply.

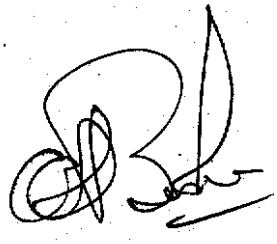
2. Bulldozer hire

5 days at $160.00/day = $ 800
Supervision = $ 200
Sub Total $1000

3. Geochemical and Magnetometer work on the Deveraux grid
$2000

4. Geological Exploration in the Northern area
$2000

Total planned expenditure for the period ending 1st July, 1972
$35,200



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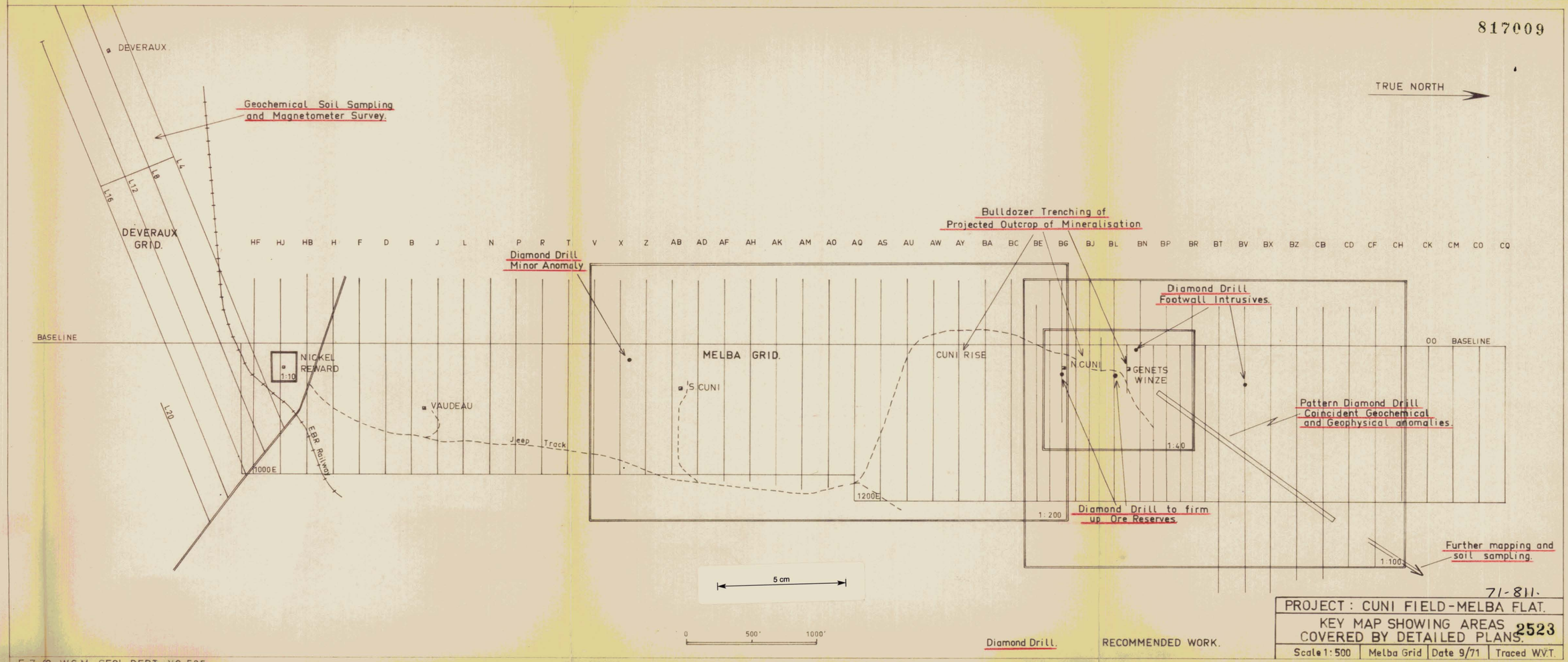

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PROJECT : CUNI FIELD - MELBA FLAT.

KEY MAP SHOWING AREAS COVERED BY DETAILED PLANS. 2523

Scale 1:500	Melba Grid	Date 9/71	Traced W.V.T.

E Z 00 W C M GEOL DEPT YO 595

LINE BF | LINE BG | LINE BH | LINE BJ | LINE BK | LINE BL | LINE BM | LINE BN | LINE BO | LINE BP | LINE BQ | LINE BR | LINE BS | LINE BT | LINE BV | LINE BX | LINE BZ | LINE CB | LINE CD | LINE CF | LINE CH

True North

00 BASELINE

Bulldozer Trenching

NORTH CUNI

GENETS WINZE

Bulldozer Trenching along Footwall of Dolerite

MFP128

Cornucopia Creek

1200E

-45° ±100'
-45° ±150'
-45° +200'
-70° ±200'
-45° ±300'

KEY.

- Probable Conductors (Turam)
- Possible Conductors (Turam)
- Copper geochemical anomaly.
- Copper low order geochemical anomaly.
- Dolerite intrusive.
- Projected surface location of lodes.
- Proposed diamond drillhole.
- Fault.

5 cm

Fig. 2

PROJECT: CUNI FIELD - MELBA FLAT. TASMANIA

NORTH CUNI AND GENETS WINZE AREA.

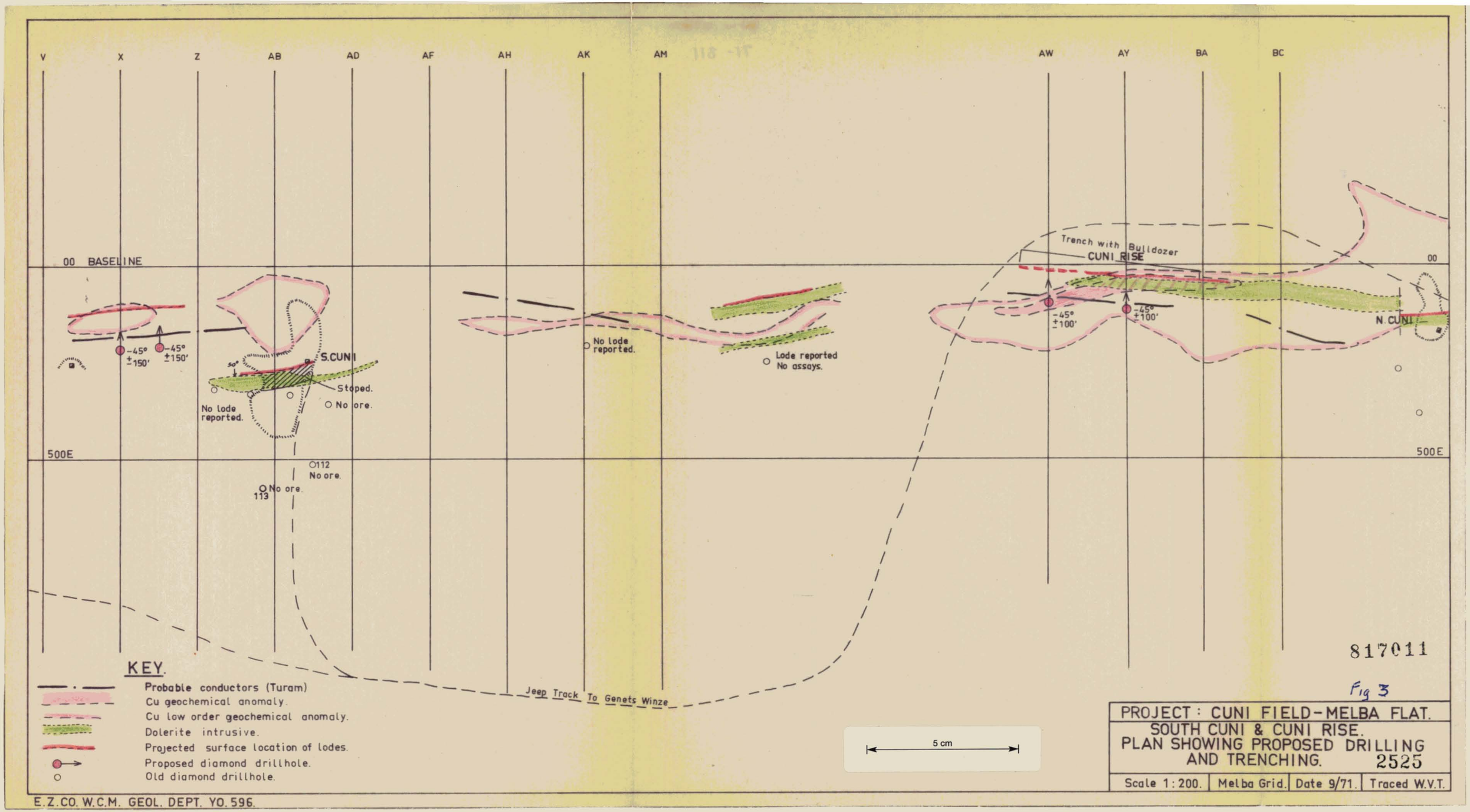
PLAN SHOWING PROPOSED DIAMOND DRILLING AND TRENCHING.

2524

SCALE 1"=100'	Melba Grid	Date 9/71.	Traced W.V.T.

E. Z. CO. W.C.M. GEOL. DEPT. VO.95.

817010 VO.95.


V
X
Z
AB
AD
AF
AH
AK
AM
AW
AY
BA
BC
00 BASELINE
00
500E
500E
-45° ±150'
-45° ±150'
S.CUNI
Stoped.
No ore.
No lode reported.
112
No ore.
113
No ore.
No lode reported.
Lode reported
No assays.
Trench with Bulldozer
CUNI RISE
-45° ±100'
-45° ±100'
N.CUNI
Jeep Track To Genets Winze
KEY.
Probable conductors (Turam)
Cu geochemical anomaly.
Cu low order geochemical anomaly.
Dolerite intrusive.
Projected surface location of lodes.
Proposed diamond drillhole.
Old diamond drillhole.
5 cm
817011
Fig 3
PROJECT : CUNI FIELD-MELBA FLAT.
SOUTH CUNI & CUNI RISE.
PLAN SHOWING PROPOSED DRILLING AND TRENCHING.
2525
Scale 1:200.
Melba Grid.
Date 9/71.
Traced W.V.T.
E.Z.CO. W.C.M. GEOL. DEPT. YO. 596.

E.Z.CO. W.C.M GEOL. DEPT. XO 236.

345000y E

LINE 6N

LINE 4N

LINE 00

LINE 4S

LINE 8S

LINE 12S

8 50 000 y N

LINE 16S

45N

30N

900S

1800S

Mining Leases held by Eagle Metal Pty Ltd.

BOUNDARY EL2/62.

RENISON BELL

Emu Bay Railway

Murchison Highway

Serpentine Hill.

CQ Pb

LEAD BLOCKS Pb

Pb Zn

N. CUNI

Pb AY Zn

MELBA GRID.

S. CUNI AB

Duke of York Pb

Mc Kimmie Pb

VAUDEAU

BASE LINE

NICKEL REWARD

DEVERAUX LB L16

ZEEHAN

TRUE NORTH

MAG. NORTH

12°

5 cm

KEY.

Silurian	Crotty Quartzite.
Cambrian	Dundas Group.
Cambrian	Crimson Creek Formation.
Precambrian	Oonah Quartzite – Slate.
Road.	Melba Metadolerites.
Track.	Gabbros.
Fault.	Serpentine.

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PROJECT: CUNI FIELD - MELBA FLAT.

EL2/62. SHOWING GEOLOGY AND AREA COVERED BY GRIDS. 2526

Scale 1 : 15,840	Date 9/71	Traced W.V.T.

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Part II

Appendices, Plans and Sections

A. Appendices

1. Tabulation of ore reserve calculations for N. Cuni and Genets winze.
2. Tabulation of diamond drilling data compiled from various sources.
3. Cost estimate for dewatering N. Cuni shaft and workings.
4. Grab sample assays from Lead-Zinc prospects.
5. Notes on the Geochemical Soil Sampling at Melba Flats.
6. Some reflections on ore controls.
7. Past production records.
8. Detailed list of references.

B. Plans and Sections

Fig. 5. Plan of North Cuni and Genets Winze.
Vol II 6. Plan of Nickel Reward Prospect.
7. Type section at Genets' winze.
8. Turam Electromagnetic Survey showing Conductor axes.
9. Interpretation of Magnetometer Survey data.
Vol III 10. Geochemical Sampling - Element Nickel.
11. " " - Element Copper.
12. " " - Element Zinc.
13. " " - Element Lead.
14. Surface Geology of Melba and Deveraux grids.

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Appendix 1

Tabulation of Ore Reserve Calculations for North Cuni and Genet's Winze

PROSPECT	Block	Width	Dip	Strike	Volume	Tons	Grade		Source	Category	Notes
		ft.	Length		Cu ft.		Cu	Ni			
North Cuni	A	3.0	100	50	15000	1500	1.56	0.37	E.M. 4	Probable	
	B	3.0	50	50	7500	750	1.56	0.37	E.M. 4 & M.F.P.109	Possible	
	C	10.0	100	150	150000	15000	0.44	0.40	M.F.P. 109	Probable	
	D	12.0	80	80	76800	7680	1.50	1.50	E.M. 3	Probable	
	E	4.0	100	125	50000	5000	2.73	5.08	Mine Workings	Probable	Estimated width and grade.
	F	4.0	80	100	32000	3200	2.73	5.08	" "	Possible	Inferred depth continuation
	G	12.0	100	110	132000	13200	0.56	0.41	M.F.P. 132	Probable	
Genet's Winze	H	10.0	80	100	80000	8000	2.7	4.3	M.F.P. 110	Possible	Sludge assays
	I	10.0	120	80	96000	9600	0.7	0.7	E.M. 2	Possible	Poor core recovery
	J	9.0	120	80	86400	8640	0.1	1.72	E.M. 1	Probable	
	K	4.0	110	70	30800	3080	0.88	0.62	M.F.P. 126	Probable	
	L	5.0	65	70	22750	2275	1.81	3.23	D.H. 2	Probable	
	M	16.0	60	70	67200	6720	1.58	2.40	M. 6	Probable	
	N	4.0	135	80	43200	4320	3.08	4.81	M. 8, D.H. 4	Probable	
	O	3.0	60	60	10800	1080	3.08	4.81	Surface and N.	Possible	
	P	11.0	90	100	99000	9900	0.46	1.00	M.F.P. 128	Probable	

N. Cuni Blocks D and E combined = 12,680 tons 1.99%Cu. 2.91%Ni.

Genet's Blocks L,M,N and O combined = 14,395 tons 2.17%Cu. 3.44%Ni.

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Appendix 2

Tabulation of diamond drilling data.

Area	Drillhole Number	Dip	Length	Intersection						Notes
				True Width	Grade %Cu	Grade %Ni	Core or Sludge	%Rec	Depth	
North Cuni and Genet's Winze	E.M. 1	-45°	120	9.0	0.1	1.72	Core	80%	50ft.	
	E.M. 2	-50°	120	6-21	0.7	0.7	Core	?		Poor record
	E.M. 3	-45°	120	14.0	1.5	1.5	Core	70	55	
	E.M. 4	-45°	140	3.0	1.56	0.37	Core	100	95	
	D.H. 2	-45°	100	5.0	1.81	3.23	Core	?	50	
	D.H. 3	-45°	107							No ore. Also called I.G.E.S. No. 1
	D.H. 4	-45°	156	3.0	5.5	10.1	Core	?	100	Also called I.G.E.S. No. 2
	D.H. 9	-65°	346							No economic mineralization
	D.H. 10	90°	180							No " "
	M 6	-45°	161	15.0	1.58	2.40	Core	Good	95	
	M 7	90°	315							No economic mineralization
	M 8	-50°	118	5.0	1.38	1.11	Core	90	70	
	M 9	-55°	285							No economic mineralization
	M.F.P. 109	-65°	441	12.0	0.44	0.40	Core	100	210	
	M.F.P. 110	-45°	259	10.0	2.7	4.3	Sludge	-	70	
	M.F.P. 111	-45°	465	6.0	0.64	0.34	Core	70	100	
	M.F.P. 126	-40°	131	4.0	0.88	0.62	Core	100	70	
	M.F.P. 127	-50°	400							No economic mineralization
	M.F.P. 128	-30°	167	11.0	0.46	1.00	Core	95	70	
	M.F.P. 129	-60°	211							No economic mineralization
	M.F.P. 130	-48°	324							No " "
	M.F.P. 131	-30°	289							No " "
	M.F.P. 132	-60°	228	13.0	0.56	0.41	Core	100	140	
Between S. Cuni and N. Cuni	D.H. 5	90°	149							Lode reported, No assays
	D.H. 6	90°	144							No economic mineralization

Appendix 2 (cont.)

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Area	Drillhole Number	Dip	Length	Intersection True Width	Grade %Cu	%Ni	Core or Sludge	%Rec	Depth	Notes
South Cuni	D.H. 1	90°	102							No economic mineralization
	D.H. 7	90°	156							No " "
	D.H. 8	90°	176							No " "
	M.F.P. 112	-45°	268							No " "
	M.F.P. 113	-45°	306							No economic mineralization
Vaudeau	Five holes	were	drilled	circa	1914	with	no	records	extant	
Mosquito										
Blowfly	11	-70°	430							No economic mineralization
	12	90°	314							No " "
	13	-70°	430							No " "
	14	-48°	460							No " "
	15	-47°	544							No " "
	16	-45°	383							No " "
	17	-45°	152							No " "
Nickel	M. 13	-45°	142	12.0	5.0	7.9	Core	Poor	25	Core case reported damaged
Reward	M. 14	-45°	132							No economic mineralization
	M. 15	-45°	132	17.0	2.28	6.97	Core	55	30	Strike of ore unknown
	M. 16	-55°	65							No economic mineralization
	M. 17	-45°	105	8.0	0.28	0.36	Sludge		45	Not reliable
	M. 18	-45°	87	9.0	1.96	1.65	Core	56	40	Strike and dip of ore uncertain
	M. 19	-65°	85	10.0	3.14	2.25	Core	62	48	
	M. 20	-45°	105	6.0	0.42	0.49	Core	25	10	
	M.F.P. 114	-36°	132	5.0	3.5	4.5	Core	25	70	
	M.F.P. 116		Records	not	avail-	able				
	M.F.P. 118	-40°	108							No economic mineralization
	M.F.P. 120	-40°	119							No economic mineralization
	M.F.P. 122	-50°	136							No " "
Deveraux	M. 10	-50°	132	3.0	0.27	0.91	Core	Poor	70	
	M. 11	-45°	143	4.0	0.37	2.45	Core	25	50	
	M. 12	-45°	118	1.0	1.15	2.02	Core	Poor	35	

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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

West Coast Mines

Appendix 3

MEMORANDUM

TO:— The Chief Geologist

DATE:— 20th September, 1971

FROM:— The U/G Manager, Special Projects

SUBJECT:— Dewatering Pump(s) for Prospect Shaft

The shaft, 120 ft. deep, which is flooded and reputed to be making 30,000 g.p.h. when last worked, can be dewatered in one of two ways:

a. by means of 3 compressed air operated pumps, compressed air supplied by portable compressor;

b. electric pump, power supplied by diesel generator.

Typical compressed air arrangement

3 Atlas Copco DIP 30S pump combinations (virtually 6 pumps) at $90.00 per week per pump combination.

1 X 700 c.f.m. compressor at 100 p.p.s.i. at $270.00 per week.

TOTAL HIRE CHARGE $540.00 per week.

Typical electric pump arrangement

2 BIBO 5 electric submersible pump	@	$84 per week each.
2 50KVA Diesel Generator ex Dillingham's (Launceston)	@	$200 per week each.
TOTAL HIRE CHARGE		$568 per week.

The electric pump arrangement is the more reliable and more economic to operate.

Allowing 12 weeks to dewater, re-equip where necessary and enter workings to complete geological inspection, and making allowance for satisfactory ventilation (small compressor) a total hire charge of $658 per week will amount to $7896. This amount does not include labour.

It may be possible to hire a larger Flygt B 2200 pump and one larger diesel generator at something less than $568, say $426 per week, making a 12 week charge of 12 X $426 = $5112
and 12 X $ 90 = $1080

$6192

c.c. Chief Mining Engineer.

U/G MANAGER, SPECIAL PROJECTS

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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

West Coast Mines

Appendix 3 (cont.)

MEMORANDUM

TO:— The Manager

DATE:— 20th September, 1971

FROM:— Chief Mining Engineer

SUBJECT:— Costs for Hire of Compressor and Pumps

The information supplied in the telex by Messrs. Atlas Copco, was to supplement a feasibility study currently being done by the Geology Department.

There is an area within our Melba Flats Prospect called North Cuni which the Geology Department is considering sampling for copper and nickel.

An old abandoned vertical shaft exists in this area, 120 ft. deep, which is flooded to within 10ft. of the collar. At a depth of 100 ft. horizontal tunnel development exists 200 ft. in one direction and 100 ft. in the opposite direction.

The feasibility study will essentially be the comparison of economics between (i) Diamond drilling the area for information and (ii) Dewatering the shaft and sampling and investigating the tunnel development.

CHIEF MINING ENGINEER

RHS.FS

cc: Chief Geologist
U/G Manager - Special Projects

Appendix-4

Grab Sample Assays from Lead-Zinc prospects discovered during the geological mapping of the Melba grid.

Location Line No.	Footage	%Pb	%Zn	%Cu	Ag ozs	Type
BA	550W	43.1	10.6	0.13	25.2	Dump
		36.3	14.2	0.13	17.4	"
		50.4	15.6	0.17	24.6	"
		42.0	19.0	0.16	18.2	"
		35.0	28.8	0.16	16.0	"
		40.2	22.4	0.17	19.2	"
BR	450W	51.8	15.0	0.72	54.3	Dump
		4.2	57.4	0.26	13.1	"
		41.1	26.8	0.12	23.1	"
		20.1	29.8	0.22	16.8	"
		15.4	30.8	0.22	11.9	"
BT	450W	2.4	60.4	0.16	7.0	6" Vein

Appendix 5

Notes on the Geochemical Soil Sampling at Melba Flats.

An orientation study was performed by Dr. P.R. Donovan regarding geochemical soil sampling at Melba in July 1967. He made the following recommendations:

1. The C horizon or weathered bedrock should be sampled.

2. Cu, Ni, Co, As, Pb, Zn and Ag should be analyzed with the last four omitted from initial analysis but used as discriminating follow up tools.

Some pertinent observations of the geochemical soil sampling techniques are:

1. The sampler must record whether the C horizon was in fact sampled. A large part of the southern area from Vaudeau to Nickel Reward is covered by fluvial glacial overburden and the auger holes did not in most cases reach the C horizon. Parts of the ground near N. Cuni are covered by upwards of 6 feet of clay which connot be penetrated by the auger used. Untrained operators should not be used for this work.

2. Modern computer techniques especially when coupled to a plotter will enable much laborious calculating and plotting to be avoided.

3. If samples are at least dried and if possible sieved before they are despatched for analysis this will save from 10 to 15 cents per sample.

Some results of the soil sampling at Melba are:

1. The copper anomalies correlate closely with known copper mineralization and show the least dispersion.

2. Zinc follows copper closely but has a wider dispersion.

3. The nickel anomaly again follows copper but is somewhat broader. Nickel also appears to be associated with the black shales.

4. The lead anomaly follows a distinctly different trend to the copper nickel. It can be correlated with the north to north west trending lead-zinc veins at Lead Blocks and with gossan outcrops.

Appendix 6

Some reflections on ore controls at Melba

The copper-nickel mineralisation at Melba is dominantly associated with dolerite intrusives. The sole exception is at Nickel Reward where copper-nickel sulphides have locally replaced a graywacke. The mineralised dolerite is highly altered with a large proportion of the mafic constituents changed to chlorite and the felspars heavily corroded or changed to sericite and clay minerals. Some of the unmineralized dolerites are similarly highly altered and in others amphiboles and pyroxenes appear relatively fresh. Chlorite is now the dominant mineral and the assemblage is representative of the greenschist facies of metamorphism.

The sulphides occur preferentially on or adjacent to the footwall contact of what appears to be one member of a swarm of dolerite intrusives but further exploration may show that the other members are locally mineralized. The dolerite is from 15' to 40' wide. It pinches and swells and is sill like in habit. The chief sulphides are chalcopyrite, millerite, pentlandite, pyrrohotite, pyrite, sphalerite and violarite. The narrow width of the dyke and the varied mineral assemblage renders gravity segregration as highly unlikely. It is suggested that the mineralization is of hydrothermal origin and pene-contemporaneous with the emplacement of the sills. The sills penetrated interformational weaknesses which served as channelways for the ore solutions. The concentration of the sulphides into lodes is a function of stratigraphical and structural control. The ore commonly has a shale footwall and locations where the sill overlies an impermeable shale may be regarded as favourable for ore deposition. The ore shoots are localized adjacent to east-west faults and to folds. It is suggested that at any rate some faulting and folding was associated with the emplacement of the sills and the large ultramafic Argent hill serpentine body. These areas of structural weakness were foci for hydrothermal solutions. A later period of faulting Devonian in age and associated with Zeehan type lead zinc mineralization plainly transects the Copper nickel. The limited vertical range of the mineralization may be the result of the interaction of meteoric groundwaters and hydrothermal sulphide bearing solutions. Sulphides were precipitated in rapid cooling of the solutions.

Appendix 7

Production records from old prospects in the Melba Copper Nickel Field.

Prospect	Tonnage	%Cu	%Ni	Notes
Vaudeau	3,900	4.5	10.0	
Mosquito	50	12.0	9.0	
Blowfly	300	12.0	9.0	
South Cuni	1,189	4.5	8.65	
North Cuni	960	5.46	10.15	

No production records are available for Nickel Reward, Deveraux or Genet's winze.

018

817023

Appendix 8

List of References

1. Geological Survey Bulletin No. 36 - A. McIntosh Reid (1925).

2. The Five Mile Copper-Nickel Deposits - B.L. Taylor and D. Burger (1952).

3. The results of diamond drilling of the Copper-Nickel deposits at North Dundas - J. Horvath.
B.M.R. Records No. 98 1957.

4. Montana Copper Nickel Deposit, North Dundas Field Rio-Tinto Australian Exploration Pty. Ltd. 1957.- H.E. Jensen.

5. Petrographic Notes on Drill Core Samples from Cuni Mafic Sills. Company Memorandum - R.L. Brathwaite 1970.

6. Report on Programme of Diamond Drilling, Genet's winze area, North Cuni. G.H. Griffiths(1968), E.Z. Company Report. 99

7. Interim Report on Exploration at Melba Flats, - D.O.N. Hackett. E.Z. Company Report 98(1968).

8. Recent drilling of the Cuni deposits, Zeehan R.G. Robinson, Technical Report, Dept. of Mines, Tasmania No. 3 1959.

9. Nickel Mineralization in Western Tasmania. F.L. Stillwell Anniversary Volume by K.L. Williams, 1958.

10. Geological Survey, Explanatory Report on one mile Geological Map Series K55-5-50. Zeehan. by A.H. Blissett 1962.

11. Summary of exploration on the Cuni (Copper-Nickel) Field, Melba Flats by R.L. Brathwaite 1969.

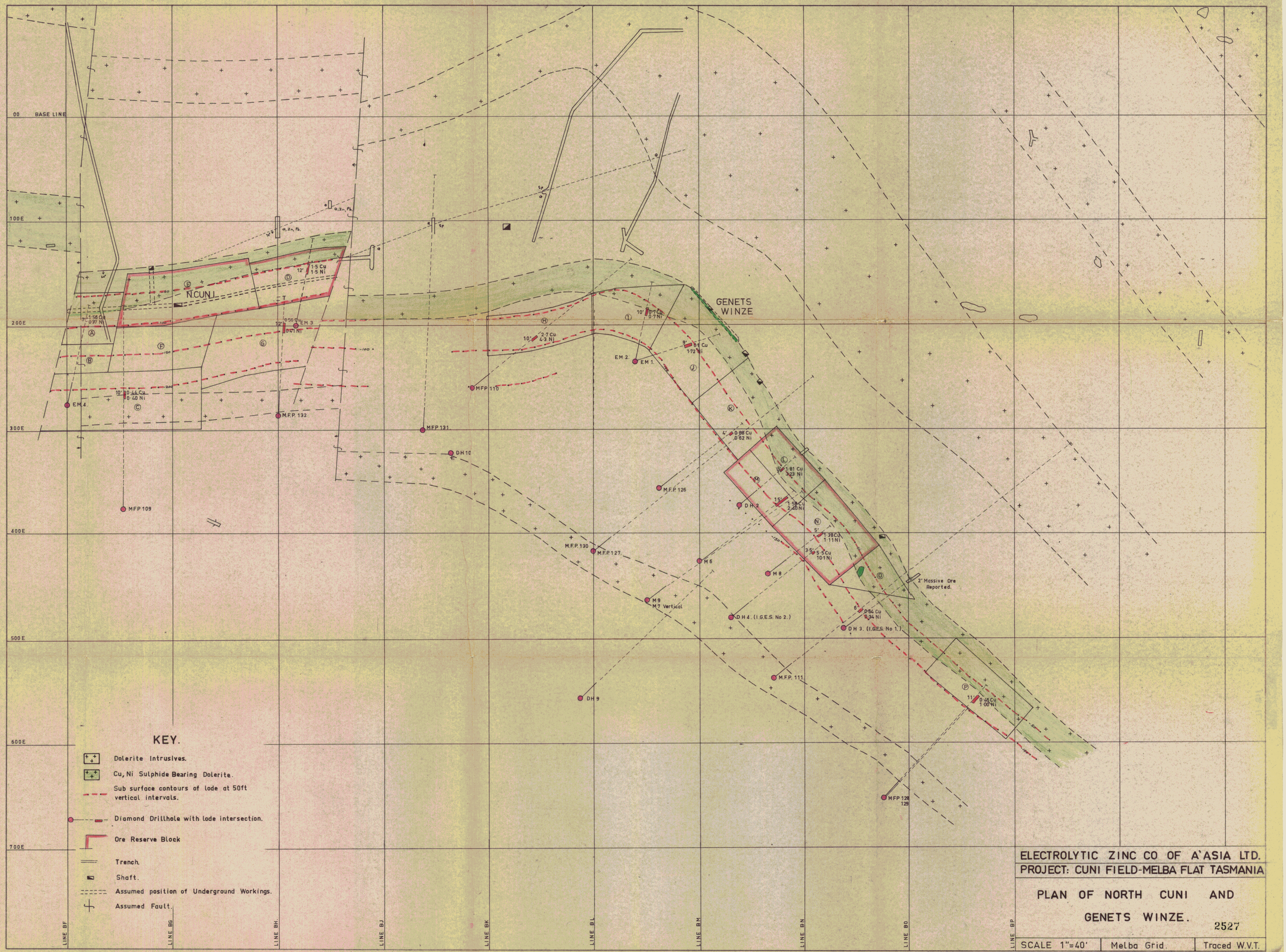
12. Geophysical Investigation (1956-1957) Copper Nickel Deposits - North Dundas Field.
J. Horvath and M.J. O'Connor
B.M.R. Records 1958 No. 15.

13. Report on Magnetometer Survey at Melba Flat by S.S. Webster. 1967.

14. Copper-Nickel Ore from North Cuni Drill hole, C.S.I.R.O. Report No. 644. 1956.

15. Report on a Turam electromagnetic Survey at Cuni performed by Seigel Associates (Australasia) Pty. Ltd.
A.W. Howland-Rose 1971.

16. Report on the Induced Polarization and Resistivity Survey at Melba Flat performed by McPhar Geophysics Pty. Ltd. M.A. Goudie 1970.



ELECTROLYTIC ZINC CO OF A'ASIA LTD.

PROJECT: CUNI FIELD-MELBA FLAT TASMANIA

PLAN OF NORTH CUNI AND GENETS WINZE.

2527

SCALE 1"=40'	Melba Grid.	Traced W.V.T.

E. Z. CO. W.C.M. GEOL. DEPT. VO. 94.

5 cm

817024 VO.94.

100E 100E 150E 150E 200E 200E 250E 250E

LINE HC

HC

M.F.P. 118.

M.F.P. 114
M.F.P. 116

M14
Nil

Edge of Bulldozed Area.

M13

CHIP SAMPLE

2·55 Cu
14·4 Ni

1·8 Cu
9·3 Ni
5·2'

1·55 Cu
9·2 Ni

3·98 Cu
2·60 Ni

M20 50°
2·5' 0·64 Cu
0·84 Ni
-50'

12·0' 5·0 Cu
7·9 Ni
-25'

No ore or dyke.

No ore or dyke.

LINE HDI

HDA

17·0' 2·28 Cu
6·97 Ni
-30'

Trench Average 5·26 Cu 7·23 Ni reported.

5·0' 3·5 Cu
4·5 Ni
-70'

9·0' 1·96 Cu
1·65 Ni
-40'

M16
Nil

M15

M.F.P. 120.

No reliable assay
-45'

0·42 Cu
6·0' 0·49 Ni
-10'

M20.

100' 3·14 Cu
2·25 Ni
-40'

LINE HD

M19. M18 M17.

Diversion Channel.

TRUE NORTH

34½' to collar of M.F.P. 122.

5 cm

KEY

E.Z. Grid.

B.M.R. Grid.

Diamond Drillhole. Intersection of Cu and Ni, core width.

Dolerite Intrusive.

817025

PROJECT: CUNI FIELD - MELBA FLAT

PLAN OF

NICKEL REWARD PROSPECT. 2523

Scale 1"=10'	Date 9/71	Traced W.V.T.

E.Z.CO. W.C.M. GEOL. DEPT. XO. 235.

BO

BN

BM

BL

BK

BJ

RL. 700

RL. 600

RL. 500

RL. 400

RL. 300

DH.2.

M.6.

M.5.

M.7.

5 cm

LEGEND.

MELBA FLAT AREA.

GENET'S WINZE SECTION.

CROSS SECTION "CC."

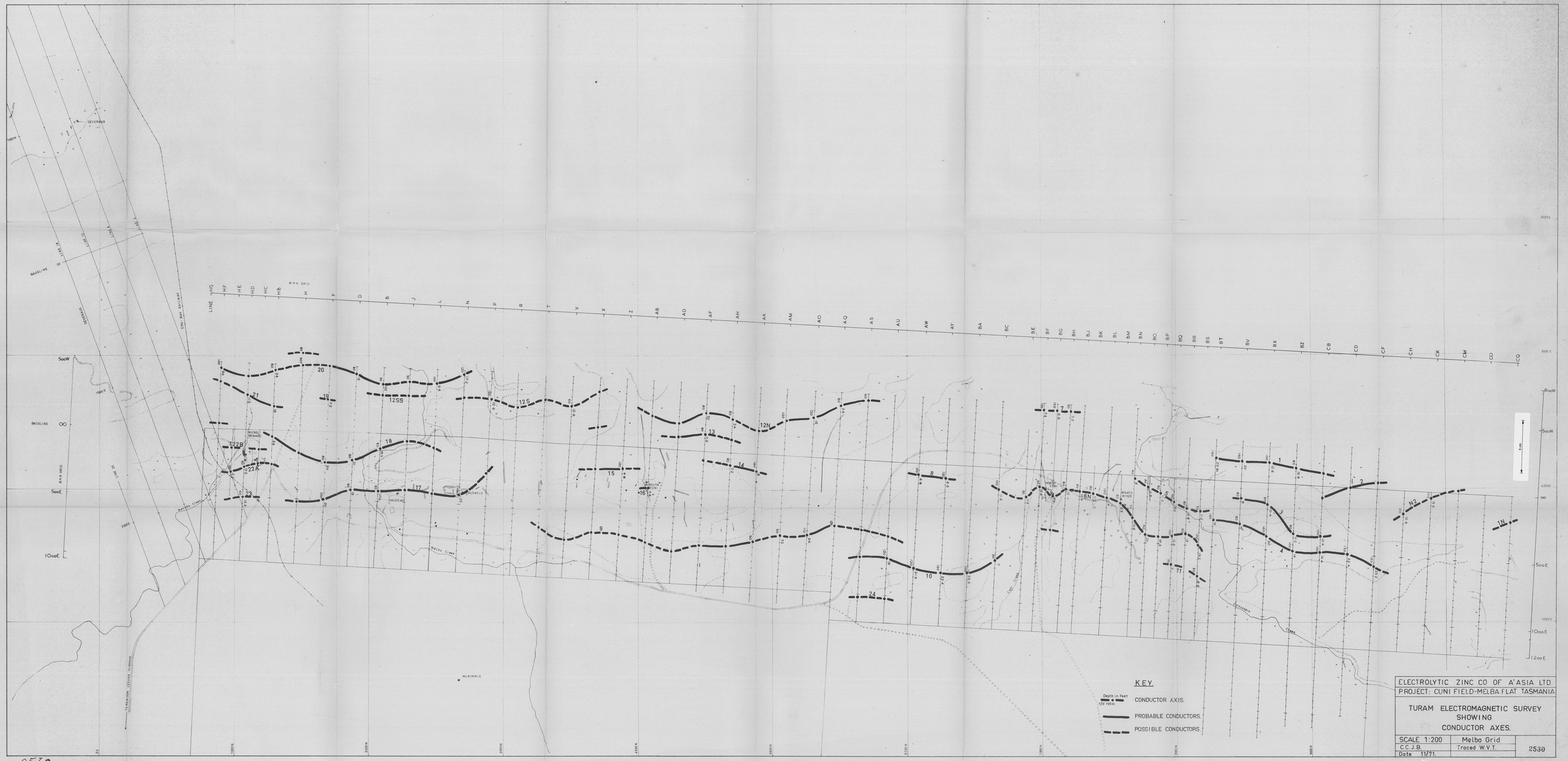
Scale: 1" 50'. R. L's Approximate.

Date: 2|68.

817026

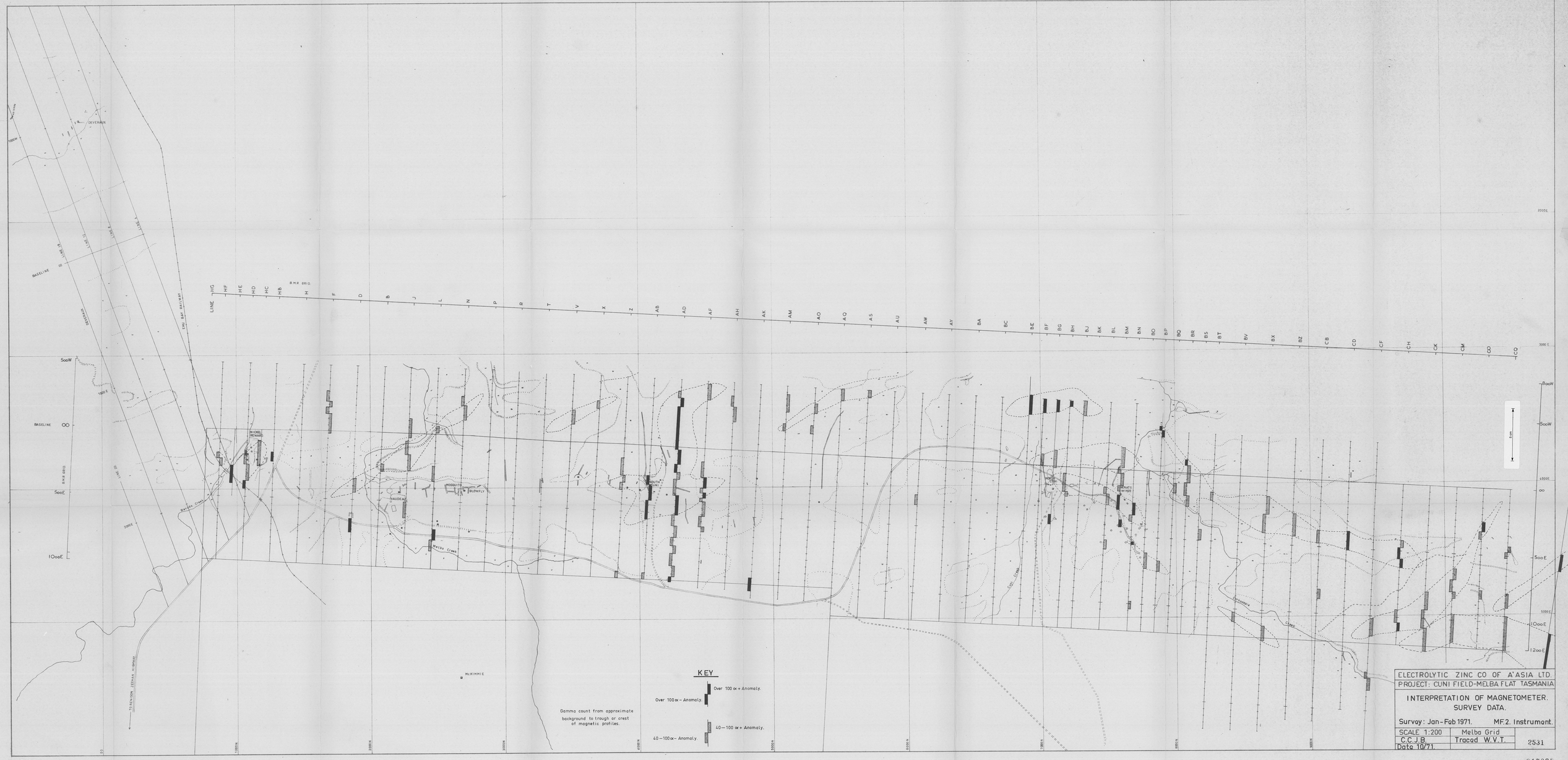
2529

E.Z. CO. W.C.D. GEOL. DEPT. XO. 212.


KEY.
Depth in Feet
r/d ratio
CONDUCTOR AXIS.
PROBABLE CONDUCTORS.
POSSIBLE CONDUCTORS.
ELECTROLYTIC ZINC CO OF A'ASIA LTD.
PROJECT: CUNI FIELD-MELBA FLAT TASMANIA
TURAM ELECTROMAGNETIC SURVEY
SHOWING
CONDUCTOR AXES.
SCALE 1:200
Melba Grid
C.C.J.B.
Traced W.V.T.
Date 11/71.
2530
BASELINE
DEVERAUX
McKIMMIE
Melba Creek
Cuni Creek
Dorrodeepa Creek
5 cm

2530

817027



ELECTROLYTIC ZINC CO OF A'ASIA LTD.
PROJECT: CUNI FIELD-MELBA FLAT TASMANIA

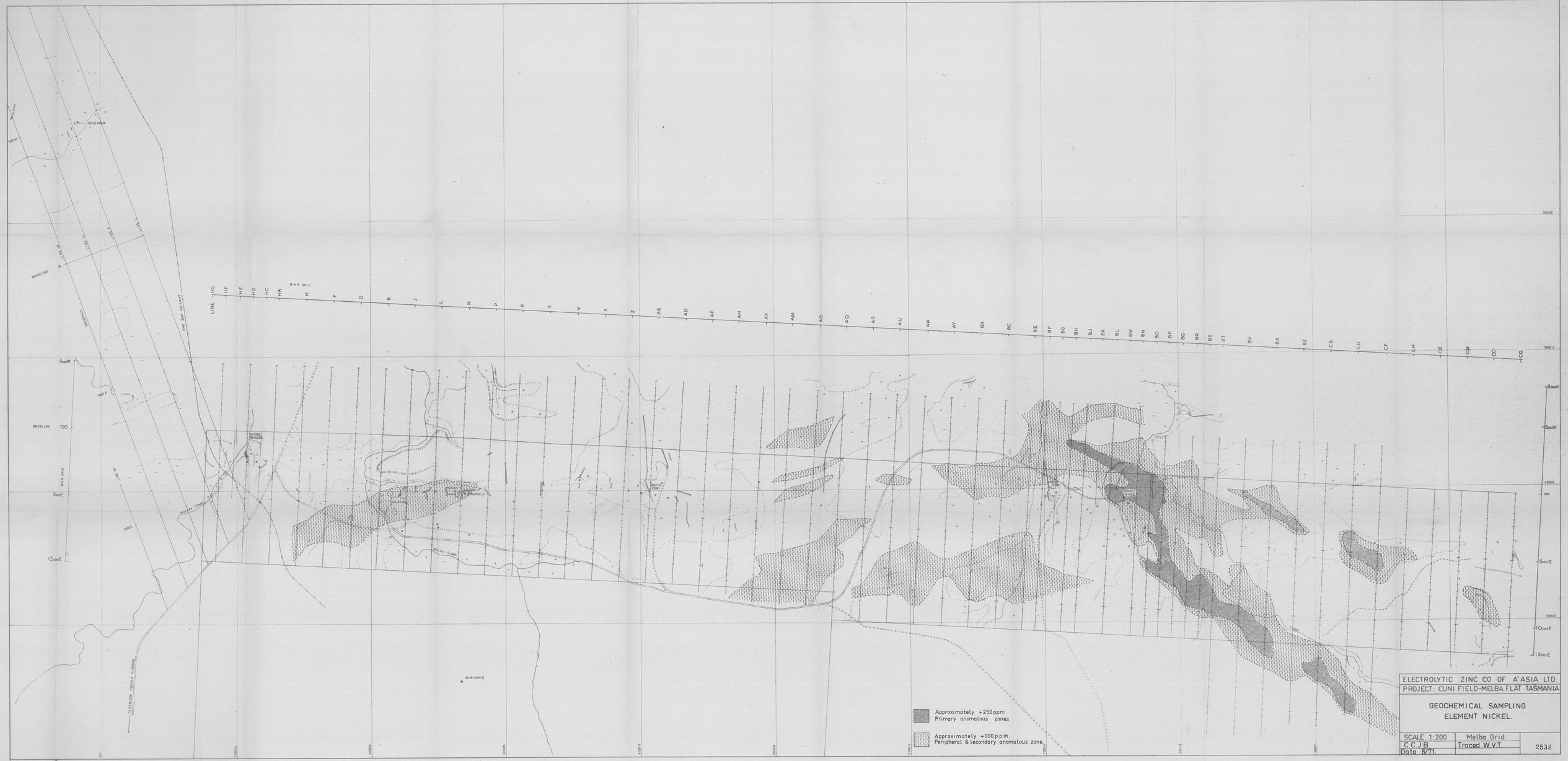
INTERPRETATION OF MAGNETOMETER. SURVEY DATA.

Survey: Jan-Feb 1971. MF.2. Instrument.

SCALE 1:200	Melba Grid	2531
C.C.J.B.	Traced W.V.T.	
Data 10/71.		

2531

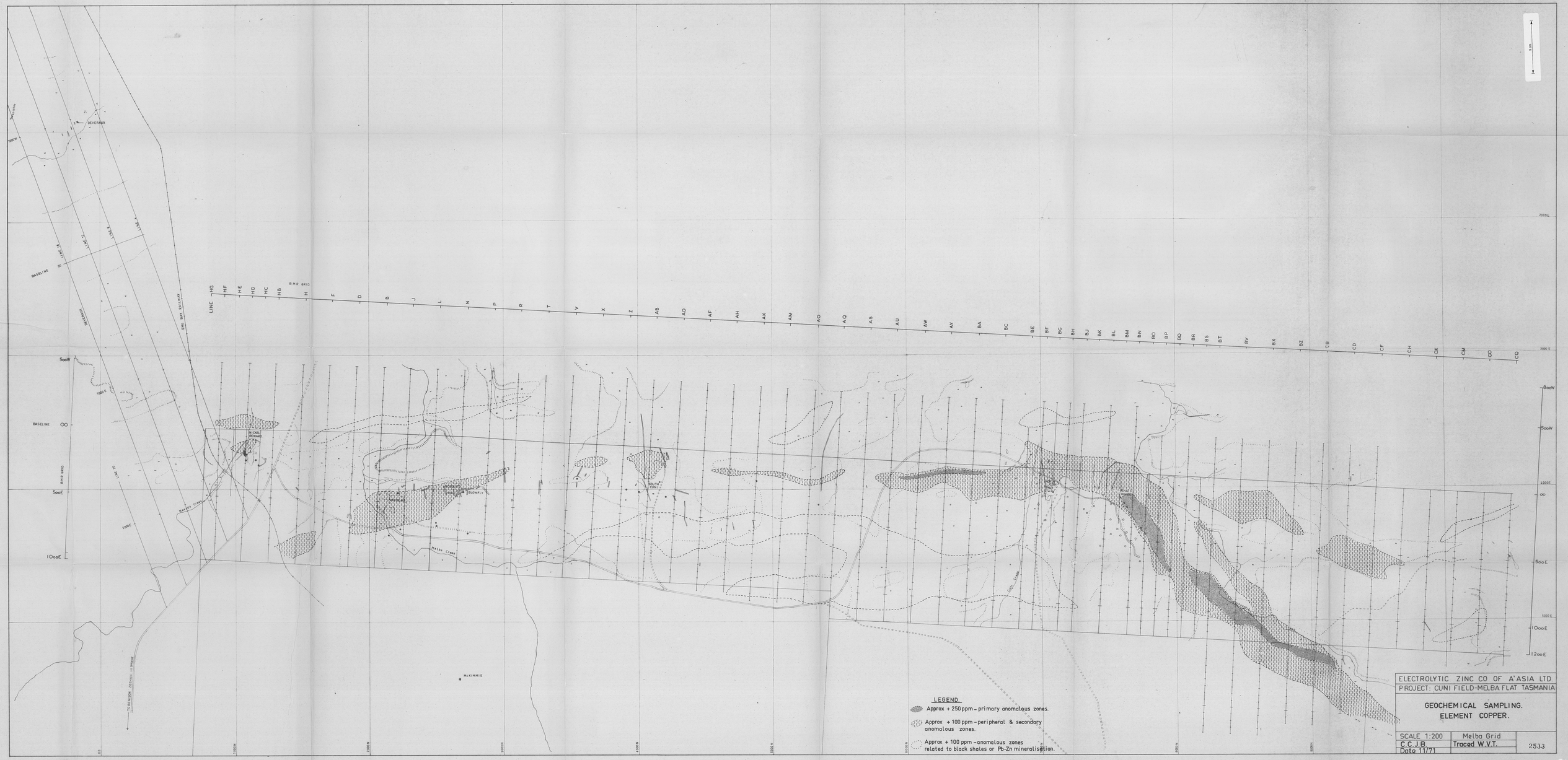
817028



LINE HG HF HE HD HC HB H F D B J L N P R T V X Z AB AD AF AH AK AM AO AQ AS AU AW AY BA BC BE BF BG BH BJ BK BL BM BN BO BP BQ BR BS BT BV BX BZ CB CD CF CH CK CM CO CQ
BASELINE
DEVERAUX
EMU BAY RAILWAY
B.M.R. GRID
SOUTH CONT
McKIMMIE
TO RENISON ZEEHAN HIGHWAY
Approximately +250 ppm.
Primary anomalous zones.
Approximately +100 p.p.m.
Peripheral & secondary anomalous zone.
ELECTROLYTIC ZINC CO OF A'ASIA LTD.
PROJECT: CUNI FIELD-MELBA FLAT TASMANIA
GEOCHEMICAL SAMPLING
ELEMENT NICKEL.
SCALE 1:200
Melba Grid
C.C.J.B.
Traced W.V.T.
Date 6/71.
2532

2532

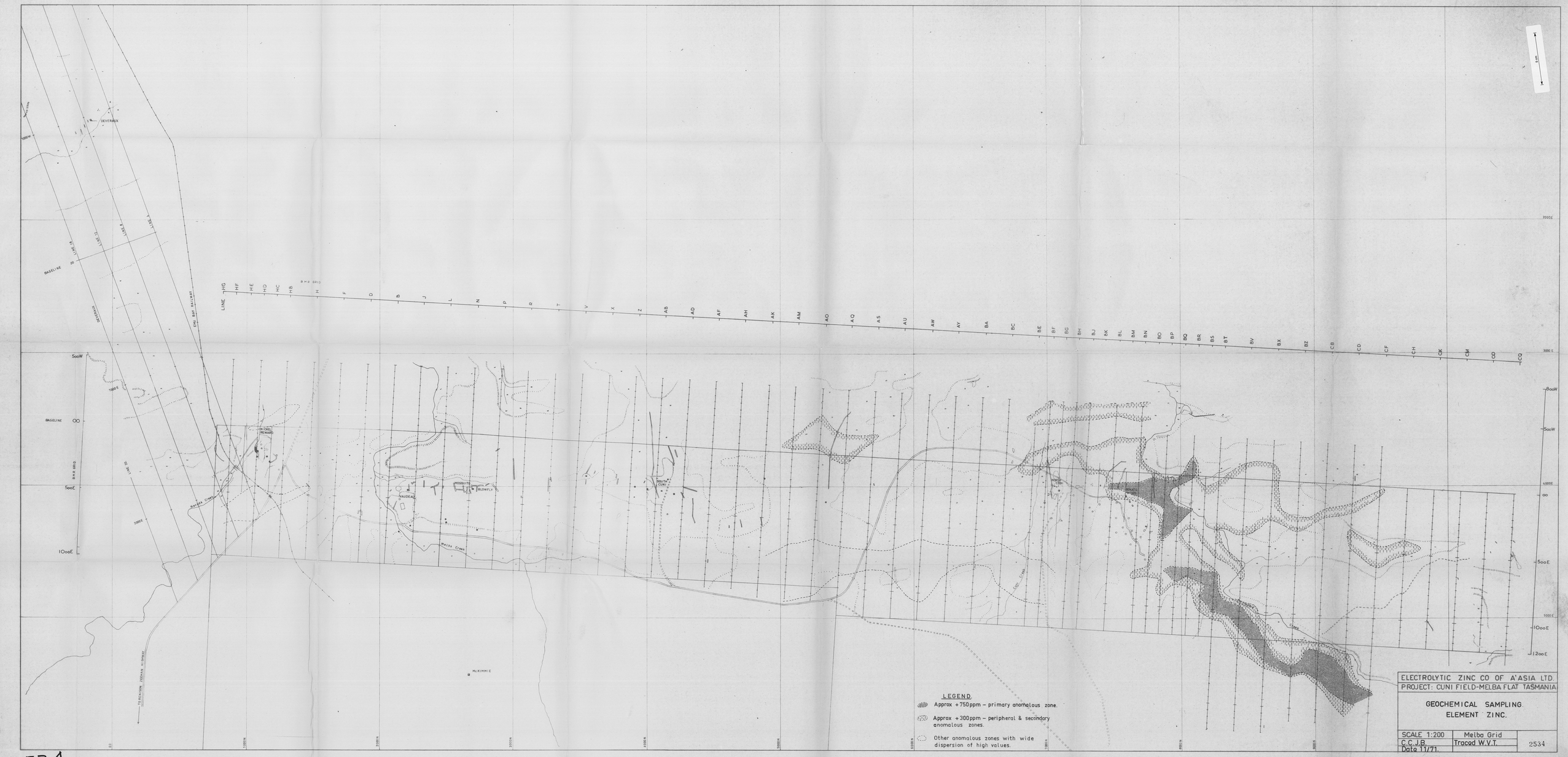
817029



LINE HG HF HE HD HC HB H F D B J L N P R T V X Z AB AD AF AH AK AM AO AQ AS AU AW AY BA BC BE BF BG BH BJ BK BL BM BN BO BP BQ BR BS BT BV BX BZ CB CD CF CH CK CM CO CQ
B.M.R. GRID
BASELINE
DEVERAUX
EMU BAY RAILWAY
BLOWFLY
SOUTH CUNI
Melba Creek
McKIMMIE
TO RENISON ZEEHAN HIGHWAY
LEGEND.
Approx + 250 ppm - primary anomalous zones.
Approx + 100 ppm - peripheral & secondary anomalous zones.
Approx + 100 ppm - anomalous zones related to black shales or Pb-Zn mineralisation.
ELECTROLYTIC ZINC CO OF A'ASIA LTD.
PROJECT: CUNI FIELD-MELBA FLAT TASMANIA
GEOCHEMICAL SAMPLING.
ELEMENT COPPER.
SCALE 1:200
Melba Grid
C.C.J.B.
Traced W.V.T.
Date 11/71
2533

2533

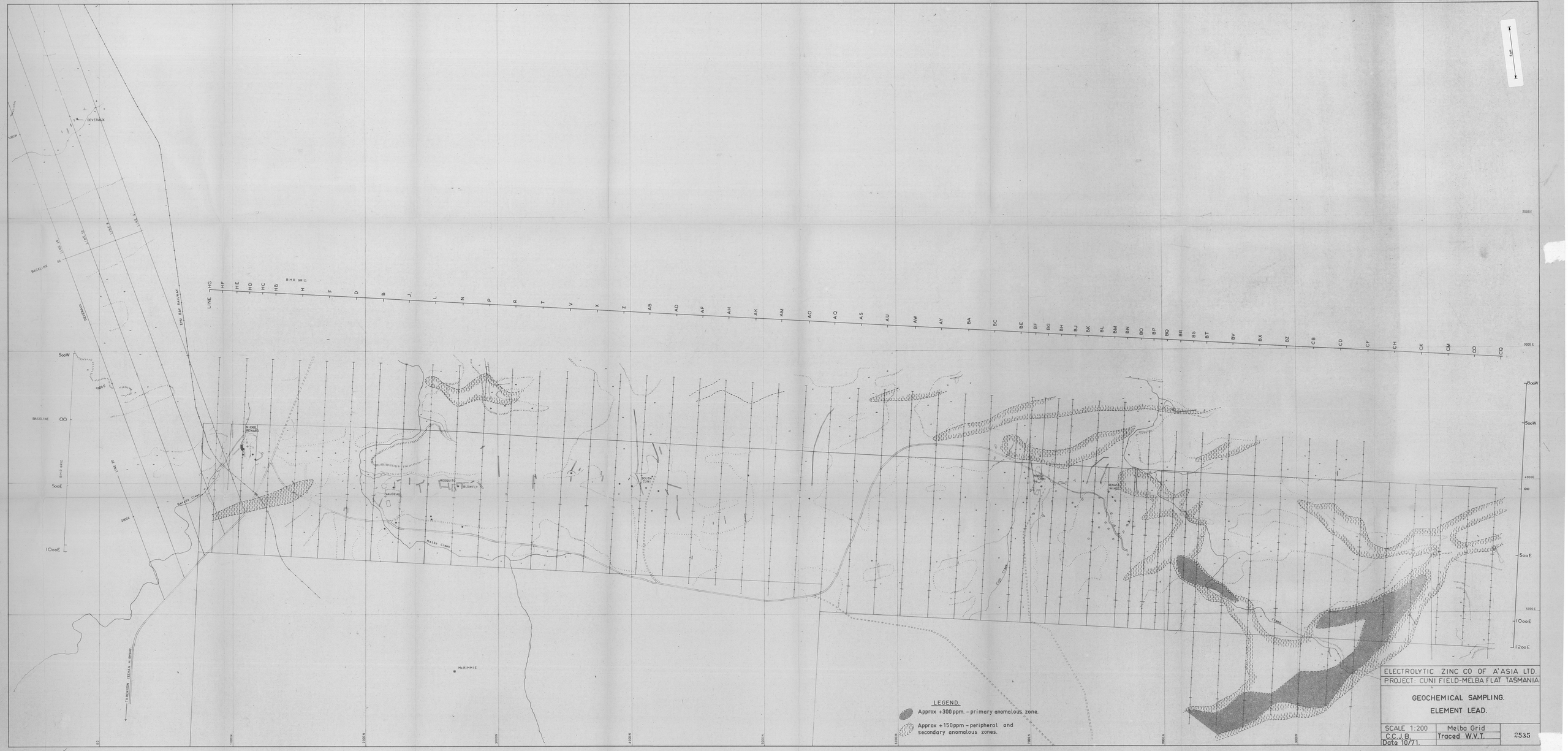
817030



LEGEND.
Approx +750ppm – primary anomalous zone.
Approx +300ppm – peripheral & secondary anomalous zones.
Other anomalous zones with wide dispersion of high values.
ELECTROLYTIC ZINC CO OF A'ASIA LTD.
PROJECT: CUNI FIELD-MELBA FLAT TASMANIA
GEOCHEMICAL SAMPLING.
ELEMENT ZINC.
SCALE 1:200
Melba Grid
C.C.J.B.
Traced W.V.T.
Date 11/71.
2534

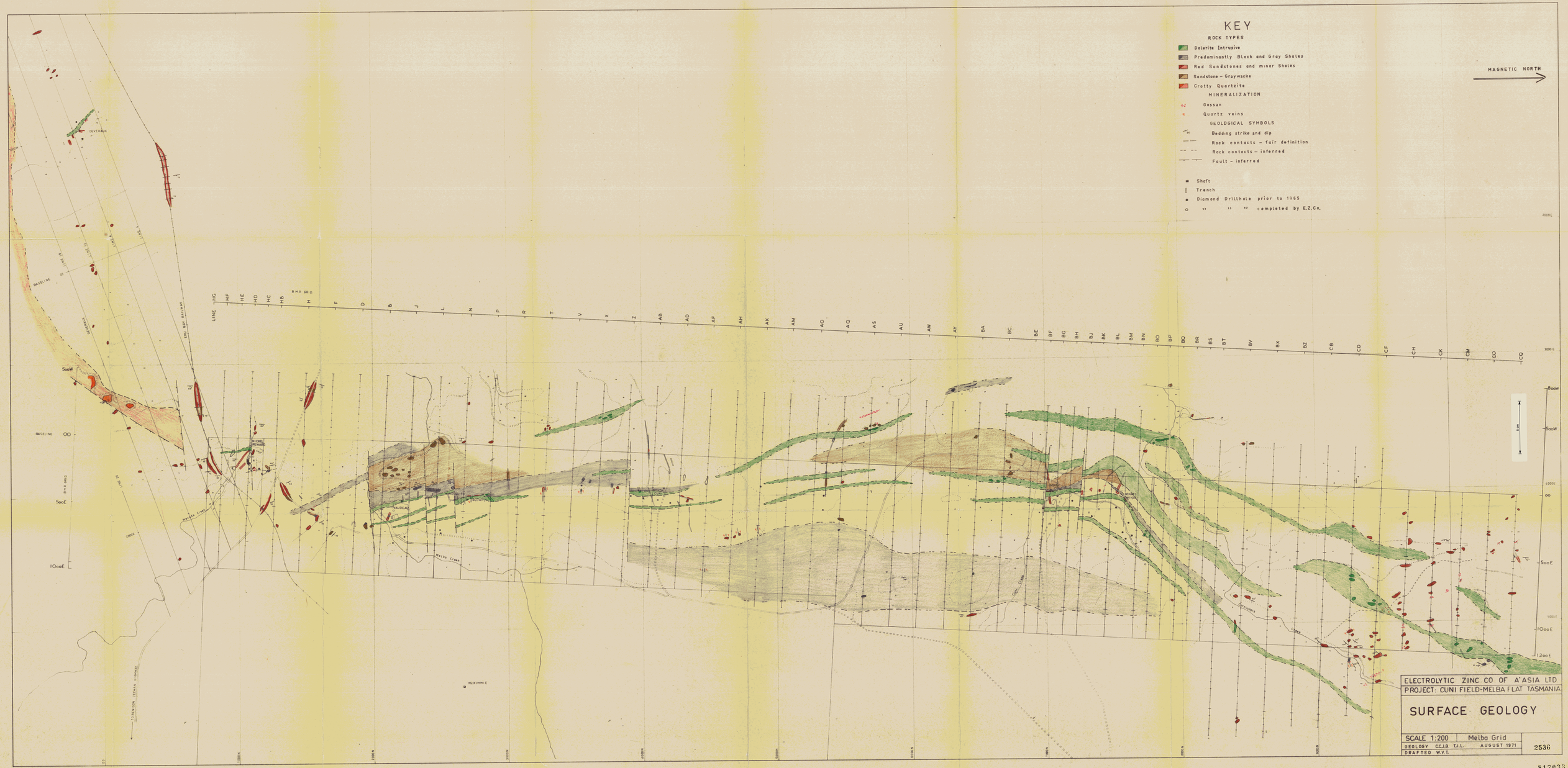
2534

817031


LEGEND.
Approx +300 ppm. - primary anomalous zone.
Approx +150 ppm - peripheral and secondary anomalous zones.
ELECTROLYTIC ZINC CO OF A'ASIA LTD.
PROJECT: CUNI FIELD-MELBA FLAT TASMANIA
GEOCHEMICAL SAMPLING.
ELEMENT LEAD.
SCALE 1:200
Melba Grid
C.C.J.B.
Traced W.V.T.
Date 10/71.
2535
BASELINE
DEVERAUX
BMR GRID
LINE HG HF HE HD HC HB H F D B J L N P R T V X Z AB AD AF AH AK AM AO AQ AS AU AW AY BA BC BE BF BG BH BJ BK BL BM BN BO BP BQ BR BS BT BV BX BZ CB CD CF CH CK CM CO CQ
500W
500E
1000E
800W
500W
500E
1000E
1200E
2000E
3000E
4000E
5000E
6000E
7000E
8000E
9000E
TO RENISON ZEEHAN HIGHWAY
McKIMMIE
Melba Creek
Cuni Creek
Navada Creek
NICKEL NEWARD
VAUDEAU
MOSQUITO
BLOWFLY
SOUTH CUNI
SENATA WINDER

2535

817032


KEY
ROCK TYPES
Dolerite Intrusive
Predominantly Black and Gray Shales
Red Sandstones and minor Shales
Sandstone – Graywacke
Crotty Quartzite
MINERALIZATION
Gossan
Quartz veins
GEOLOGICAL SYMBOLS
Bedding strike and dip
Rock contacts – fair definition
Rock contacts – inferred
Fault – inferred
Shaft
Trench
Diamond Drillhole prior to 1965
" " " completed by E.Z.Co.
MAGNETIC NORTH
ELECTROLYTIC ZINC CO OF A'ASIA LTD
PROJECT: CUNI FIELD-MELBA FLAT TASMANIA
SURFACE GEOLOGY
SCALE 1:200
Melba Grid
GEOLOGY C.C.J.B. T.J.L.
AUGUST 1971
DRAFTED W.V.T.
2536

2536

817033