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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

Mineral Resources Division

EXPLORATION LICENCE NO. 4/78 – ZEEHAN

PROGRESS REPORT ON EXPLORATION ACTIVITY 30TH APRIL, 1986 TO 30TH APRIL, 1987

E.Z. Report No. T229

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S. Taylor,
June, 1987

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1. INTRODUCTION

1.1. Location and Title

E.L. 4/78 (Zeehan) of 208km² was granted to Amoco Minerals on 14th July, 1978. In 1983 E.Z. and Amoco negotiated a joint venture to explore E.L. 4/78, with E.Z. as manager. E.Z. exploration in E.L. 4/78 commenced in October, 1983. In 1985 Amoco's title and interest were transferred to Cyprus Minerals.

E.L 4/78 was reduced to 123km² in July, 1984. The location and boundaries of the reduced E.L. are shown on Fig. 1.

The area covered by the joint venture agreement includes all of E.L. 4/78 with the exception of an exclusion zone around the Oceana Mine Workings.

1.2. Previous Exploration and Mining

Early exploration and mining operations are summarized in E.Z. Report T177 (Jan., 1984). All reports by Amoco Minerals on exploration in E.L. 4/78 are listed. For details see E.Z. Report T177. Further exploration by E.Z. to April, 1986 is detailed in E.Z. Reports T192, T205 and T215.

1.3. Prospect Locations

Fig. 2 shows grid names and prospect locations in E.L. 4/78. There are eleven major blocks of Ordovician Limestone within E.L. 4/78, nine of which, including the Oceana block, are covered by grids.

1.4. Exploration Philosophy

The primary objective of the joint venture has been to explore for large carbonate hosted Pb-Zn deposits within the Ordovician Gordon Limestone. Exploration targets are modelled on the Irish style carbonate hosted deposits. Tin and base metal mineralization within the Cambrian basement shales and carbonates are secondary exploration targets.

2. BADGER RIVER VALLEY (See Fig. 3)

A large irregularly shaped valley in the south western portion of E.L. 4/78 is underlain by Gordon Limestone. This valley is drained by the Badger River. The Myrtle, Grieves, Baura and Rose Valley Grids were established by Amoco over most of the Limestone subcrop. Subsequent grid extensions by E.Z. completed the grid coverage.

Because of the irregular shape of the limestone outcrop, the common baseline of these grids bends sharply in several places to follow the valley. Consequently the nominally north-south base line varies in orientation from north-south to almost east-west. All directions used in the following discussions refer to true north unless prefixed by the word 'grid'. Occasionally grid north is the same as north.

2.1. Previous Exploration

Previous E.Z. exploration in this area (1983-85) included bedrock geochemistry, costeaning, geological mapping, geophysics and some drilling. Major geophysical techniques used were ground magnetics, gravity and UTEM. Costeaning and bedrock geochemistry located mineralized zones within peaty pug overburden and underlying limestone. Costean sampling reported 54m of 2.7% Zn and 1.1% Pb in black pug at Myrtle and 20m of 7.0% Zn and 1.1% Pb in limestone breccia at Grieves. These breccias included clasts of syngenetic sulphides in a matrix which included both sphalerite and zinc carbonates. These early results were very encouraging.

Three drill holes, ZG 1001, ZG 1002 and ZM 1003, were drilled to test beneath the mineralized costeans, but only intersected minor zinc carbonate mineralization.

Subsequent geological, geochemical and geophysical exploration suggested that known mineralization was associated with north westerly trending faults cutting across the limestone sequence. Faults identified include the Professor, Grieves and Firewood Siding Faults. These faults appear to have been active during deposition of the limestone. A similar fault through the costean on L47,100N at Grieves was inferred on the basis of bedrock geochemistry and airphoto interpretation.

Diamond drilling and deep bedrock sampling continued during the 1985-86 field season. Five (5) diamond drill holes totaling 929m and 16 shallow Winkie diamond drill holes were completed. Although eight of the Winkie drill holes intersected lead-zinc mineralization, results of deep diamond drilling were disappointing. The best mineralized intersection was 0.8m @ 17.5% Zn and 1.5% Pb in Winkie hole ZWG 22. The best mineralization intersected by the deep drill holes was 3.7m of 1.34% Zn and 0.3% Pb in ZG 1007.

Up until May, 1986, deep drilling had failed to locate significant zones of potentially economic lead-zinc mineralization. The zinc-rich mineralization exposed by costean 47,100N at Grieves and intersected by several shallow winkie holes had not been tested at depth.

2.2. Work Completed May, 1985 - May, 1986

During 1985-86 attempts were made to attract joint venture partners. A summary of exploration in E.L. 4/78 was prepared and submitted to several companies. This summary is included as Section 3 of this report.

Interest in the area was maintained by the results of the stratigraphic drill hole completed by the Mines Department at Grieve Siding. The 272m deep E.Z. hole ZG 1007, was deepened by the Mines Department until a complete section of the Gordon Limestone had been drilled through to the underlying Moina Sandstone. Core from this drill hole was examined and a mineralized section was grind sampled and analysed for Cu, Pb, Zn, Fe, Mn, Ag (Method A.A.S. 103 by Analabs, Burnie).

A review of the Queensbury Mine area and an evaluation of the precious metal potential of this area is currently in progress. Results of this work will be reported in next year's annual report.

2.3. Results of 1986-87 Exploration

The Mines Department drill hole intersected zinc mineralisation. Grind sampling of a zone of sideritized and brecciated limestone revealed two zones of mineralization in the middle of the limestone sequence. The best intervals were:-

415.5-419.5m	4m @ 0.29% Pb, 4.9% Zn
425.5-431.2m	5.7m @ 0.33% Pb, 5.1% Zn

All results of E.Z. grind sampling are listed in Table 4.

Results of sawn core sampling by the Mines Department were supplied and these are listed in Table 5. On average, zinc results are slightly lower in the sawn core samples than in the grind samples. Nevertheless the results define similar mineralized zones:-

416.25-419.17	2.92m @ 0.24% Pb, 3.8% Zn
424.25-432.19	7.94m @ 0.30% Pb, 3.4% Zn.

Mines Department Zn analyses were by wet chemical techniques.

The low sulphur values reported by the Mines Department analyses indicate that most of the zinc is in carbonate minerals.

ZG 1007 intersected an oolitic unit near the base of the Gordon Limestone. This correlates with the sideritized, mineralized oolites of ZG 1002 near Grieves Mine and the unmineralized oolites of ZB 1004 and 1005. The oolitic limestone in ZG 1007 was also unmineralized.

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3. E.L. 4/78 (ZEEHAN) - SUMMARY OF EXPLORATION

(S. Taylor, January, 1987)

3.1. Location (Figs 1, 2)

The project area covers a portion of the prospective Ordovician Gordon Limestone sequence, lying mainly to the south of the old mining centre of Zeehan in West Coast Tasmania. Unlike other mineralized areas of Western Tasmania which are typically isolated, rugged and thickly vegetated, the project area is easily accessible as the Gordon Limestone forms sparsely vegetated button grass flats, which are transected by several tracks and sealed roads.

3.2. Ground Tenure (Fig. 2)

The original E.L. 4/78 of 208km² was granted to Amoco Minerals Australia (now known as Cyprus Minerals Australia) on 14th July, 1978. On 14th July, 1984 it was reduced to 123km² to meet Tasmanian Mines Department guidelines and now carries a minimum annual expenditure requirement of $62,500. Tasmanian Mines Department regulations require completion of exploration and relinquishment of the whole licence area by 14th July, 1988. There are provisions, however, to retain ground beyond that date in the form of retention leases.

3.3. Geology/Mineralisation

The Zeehan area comprises the large Devonian Heemskirk Granite intrusive to the west and an area of folded, strongly faulted Proterozoic to Devonian sediments to the east. The main structural elements comprise broad NNW to NW folds, major faults of WNW trend and subsidiary faults of WSW and SW trend, all which were produced in the Devonian Tabberabberan Orogeny.

The Zeehan Sn-Pb-Zn-Ag mineral field to the south-east of the Heemskirk Granite has traditionally been regarded as a classic example of magmatic hydrothermal zoning round a major granite intrusion. In general the mineralisation occurs as small lenticular, irregular bodies infilling fissures and other structural features in zones of faulting, shearing and fracturing. Individual lodes are of limited extent, rarely exceeding 100m in dip and strike length, and averaging only 0.3m in thickness, although some lodes are up to 6m thick. Mineralogically the lodes are fairly simple, comprising argentiferous galena and siderite with subordinate sphalerite and pyrite and minor calcite, quartz, bournonite, boulangerite and tetrahedrite.

The pronounced eastwards zonation in Pb-Zn lode mineralogy from tin minerals to pyrite to siderite away from the Heemskirk Granite was first recognized in 1904. Since then detailed chemical, mineralogical and isotope studies have substantiated and refined the original zonation pattern and supported the traditional interpretation that the mineralization in the Zeehan field originated as a west to east flow of hydrothermal emanations from the Heemskirk Granite in Devonian times.

However, as discussed in Section 3.4 below, recent work by the E.Z-Cyprus Joint Venture has demonstrated that at least part of the Pb-Zn-Ag mineralization (Oceana etc.) in the Gordon Limestone is of stratiform, syndiagenetic style and of Ordovician age, indicating that the Zeehan mineral field has had a longer and more complex genetic history than previously accepted.

3.4. History of Mining and Exploration

Early Exploration and Mining 1879-1918

The history of the Zeehan mineral field dates back to the early prospecting days in the 1870's. Initially, in the 1879-1884 period, the area was exploited for its tin content, but after the 1882 discovery of argentiferous galena at Zeehan it enjoyed a rapid and spectacular rise to prominence as a lead-silver producer in the 1890's. By 1910, however, most mines had ceased operations due to the exhaustion of near-surface ore, and following the closure of the local smelter in 1913, significant mining activity ceased in 1918.

Overall, the total production of silver-lead ore from the Zeehan field in the 1887-1918 period is estimated to be some 274,000 tons of reasonably clean galena ore concentrates. Typically the lodes pinched out or became depleted in grade within 200 feet of surface and only 12 lodes supported workings below 300 feet depth. Production from individual workings was generally of the order of 500 - 3,000 tons of Pb-Ag ore and only four mines attained total production figures in excess of 25,000 tons.

Systematic Exploration 1946-72

In 1946, after a long period of limited mining activity, systematic exploration commenced, when a joint venture of North Broken Hill and Broken Hill South began to reassess the Zeehan field. Following generally unsuccessful gravity, SP, EM and magnetic surveys, the joint venture concentrated their efforts on the drill testing of geological and geophysical targets adjacent to old workings, particularly those within the Gordon Limestone sequence.

Due to promising results in the initial five hole drilling programme at the Oceana Mine (Fig. 2), the decision was taken to dewater the old workings and intensify the drilling. From 1947 to 1953 a new shaft was sunk to 648 feet depth, the mine was rehabilitated and extended, and a further 34 surface holes and 58 underground holes outlined an economic tonnage and grade.

Subsequent production from 1954 to 1960 yielded some 128,177 tons at 11.6% Pb and 4.79 oz/t Ag, at an operating cut-off of 11% Pb, until the mine's closure due to a combination of declining metal prices, depleting reserves and excessive water inflows, which required a daily pumping rate of 2.5 million gallons.

After a dormant period of virtually no mining and exploration activity from the demise of Oceana in 1960 until 1970, Tenneco Australia Inc. investigated the area in 1970-1972. Initially their work involved dewatering, drilling and sampling of the Oonah and Spray Mines and a major Turair airborne electromagnetic survey over most of the limestone area. Subsequently ground electromagnetic (Turam) and self potential surveys, together with geochemical sampling, were undertaken over geophysical anomalies in the Grieve Valley south of Zeehan, but the anomalies proved to be due to conductive overburden, while the geochemical results were not encouraging.

Amoco Exploration 1978-1983

In 1978 Amoco Minerals Australia commenced an exploration programme designed to detect carbonate-hosted Pb-Zn-Ag mineralization within the Gordon Limestone sequence in the Zeehan area. Initially they focussed their attention on the known mineralization in the Austral and Oceana Valleys (Fig. 2), which were investigated by auger sampling, costeaning, various geophysical techniques (gravity, magnetics, IP, EM) and diamond drilling of selected targets. By early 1983 a total of 13 diamond drill holes (Table 1) had outlined a resource of some 4 million tonnes @ 2% Pb, 8% Zn and 80 g/t Ag in extensions of the old Oceana workings, while in the Austral Valley immediately to the north, thin horizons of Pb-Zn-Ag mineralization had been delineated by a programme of 10 holes (Table 2). Further south, limited reconnaissance gridding, auger sampling, magnetics and gravity had outlined several interesting geochemical anomalies in the Pyramid and Myrtle to Rose Valley Grids (Fig. 2).

Although the Oceana resource was subeconomic, the results were highly significant, as they refuted the previous interpretation that the deposit is a typical Zeehan-style fissure lode of limited tonnage potential, and indicated instead that it is a variant of the large tonnage sedimentary exhalative class of ore deposits. The results thus considerably increased the potential for significant Pb-Zn-Ag orebodies in the Zeehan area.

The Oceana drilling programme indicated that two different styles of mineralization occur on either side of the north-trending Mine Fault, neither of which are compatible with the previous genetic model.

To the south of the mine Fault the deposit occurs as two distinct stratiform horizons, which strike NW and dip steeply NE, in conformity with the host sediments. The mineralization comprises semi-massive, weakly banded beds of fine-grained galena, sphalerite and siderite, occupying the top and base of a 30m true thickness of distinctive limestone breccias. The breccias consist of unsorted clasts of limestone, dolomitized limestone and fossils, of a wide range of shapes and sizes, of ragged to subrounded outline, set either in matrix or clast-support fashion in a fine grained muddy carbonate matrix. Of the two mineralized horizons, the eastern stratigraphically higher lens is thicker (max. 6m true) but has limited strike and dip lengths of some 300m and 180m respectively, whereas the lower horizon is only 0.75-3m true thickness but occurs over a 450m strike length. Overall, the gross nature and mineral textures of this portion of the Oceana deposit suggest deposition by syndiagenetic replacement.

In contrast, the northern area of the deposit, between the Mine Fault and the SW-trending Oceana Fault at its northern limit contains an epigenetic style of mineralization. There the mineralization comprises generally coarse galena, sphalerite and siderite with minor quartz and calcite and traces of pyrite and chalcopyrite, either as discordant irregular massive lenses or as open space infillings of veins, cavities and the intraclastic areas of tectonic or hydraulic breccias. The host rock, a massive grey, recrystallized, silicified, dolomitized limestone, attains its maximum thickness adjacent to the Oceana Fault then thins and lenses out to the SE against unaltered limestone. In addition to its discordant epigenetic nature, this northern mineralization contrasts with the southern zone in having a higher Cu content, a higher Pb-Zn ratio and pervasive dolomitization and silification.

In its gross characteristics the Oceana deposit has affinities with the sedimentary exhalative class of ore deposits. The northern discordant epigenetic zone within an area of dolomitization and silification adjacent to the Oceana Fault is interpreted to be the channelway of mineralizing fluids tapped from depth by the Oceana Fault. To the south the stratiform mineralized layers are regarded as syndiagenetic replacements of sub sea floor carbonate muds prior to their lithification. The distinctive limestone breccias, previously interpreted to be tectonic breccias, are thought to have originated as submarine gravitational debris flows triggered by periodic coeval movement on the Oceana Fault during deposition of the Gordon Limestone. Overall, the mineralization, tectonic setting and host lithologies resemble parts of the Irish Carboniferous sedimentary exhalative deposits at Silvermines and Navan.

Supporting this new interpretation of an Ordovician mineralizing episode at Oceana are Pb isotope determinations on galena samples from north and south of the Mine Fault (B. Gulson pers. comm. 1984), which indicate that Oceana leads are less radiogenic than leads from Tasmanian Devonian granite-related mineralization and suggest an Ordovician age for the Oceana mineralization.

The mineralization of the Zeehan field has therefore had a composite origin, involving the early formation of sedimentary exhalative Pb-Ag-Zn mineralization in Ordovician sediments, as at Oceana, and the subsequent addition in Devonian times of structurally controlled Sn-Pb-Ag-Zn vein deposits, due to the west to east flow of hydrothermal solutions emanating from the Heemskirk Granite intrusion at the end of the Tabberabberan Orogeny.

1983 To Date

As the new genetic interpretation for the Oceana mineralization suggested potential for large tonnage Pb-Zn orebodies, E.Z. farmed-in to the project in 1983 and commenced intensive exploration of the Gordon Limestone in the North Austral, Pyramid and Myrtle to Rose Valley areas.

To date this work has involved:

* grid infill and extensions, geological mapping, Jacro auger and Wacker percussion overburden sampling, ground magnetics and costeaning (20, total 2,066m), in the Pyramid, Myrtle, Grieves, Rose Valley and Baura Grids;

* GENIE EM in selected portions of the Myrtle-Rose Valley area;

* UTEM surveys of parts of the Baura, Grieves and Myrtle grids;

* Winkie shallow core drilling in Myrtle, Grieves and Pyramid grids;

* 8 diamond drill holes (total 1,531m) to investigate various geochemical-UTEM-geological targets in Myrtle, Grieves and Baura grids;

* dipole-dipole testing of a gravity anomaly in the North Austral Valley;

* 2 diamond drill holes to test the Montagu workings and an EM 37 anomaly adjacent to the Balstrup Fault, followed by downhole SIROTEM.

The main focus of E.Z. activity has been the Myrtle to Rose Valley portion (Figs 2, 3), an extensive area of poorly exposed Gordon Limestone with only one noteworthy historical mineral occurrence, at Grieves Siding.

Initially, in 1983/84, this area was investigated by jacro auger geochemical sampling on reconnaissance lines at 400m intervals and several infill lines. Several significant Pb-Zn anomalies were detected, many of which were investigated by costeans with encouraging results as listed in Table 3. Several anomalies were discounted as the costeans revealed transported clays, but in Grieves grid a number of costeans exposed significant mineralization in bedrock in three horizons within the Gordon Limestone, as follows:

* mineralized siderite and sideritized oolitic limestone near the base of the limestone sequence in the vicinity of the Grieves Siding workings (costeans 47,800N, 47,900N, 48,000N and 48,400N);

* mineralized dolomite and dolomite breccias near the middle of the limestone succession (costean 47,100N);

* mineralized sideritic limestone near the top of the Gordon Limestone (costean 47,600N).

In addition, extensive mineralisation was revealed in the northern part of Myrtle grid in costeans 50,500N and 50,600N in an area of structural complexity.

In mid 1984 the three diamond drill holes, listed below, tested under the mineralized costean at Grieves 47,100N (ZG 1001), Grieves 47,900N (ZG 1002) and Myrtle 50,500N (ZM 1003) with inconclusive results (Figs. 3, 6).

DDH	Angle	Depth (m)
ZG 1001	50°	149
ZG 1002	50°	150
ZG 1003	55°	303

In the ~~basal~~ top part of the limestone sequence hole ZG 1002 (Fig. 5) intersected 3.8m @ 3.7% Zn at 106.4-110.2m, but the overlying 4.4m interval, averaging 1% Zn, had only 10% core recovery, while the underlying 3m section had no recovery. In the other two holes no significant mineralization was intersected, but in both cases it appeared that the target mineralization was faulted out.

In 1984/85 the shallow auger geochemical anomalies were investigated in greater detail by the more reliable Wacker percussion drilling method, which obtained deep bedrock samples at 25m spacing on lines at 100-400m intervals (Fig. 4). Based on the Wacker results, ten bedrock geochemical anomalies were delineated, as shown in Fig. 3.

In 1985 the anomalies in Baura, Grieves and the northern third of Myrtle grids were investigated by a UTEM survey, which produced several co-incident anomalies (Figs. 6, 7). In addition, shallow Winkie core drilling was undertaken in selected portions of the Grieves and Myrtle grids.

In October-December, 1985 four of the co-incident geochemical-UTEM anomalies in favourable geological settings in Myrtle, Grieves (Fig. 6) and Baura grids (Fig. 7) were tested with disappointing results by the diamond drill holes listed below and shown in Fig. 3.

DDH	Angle	Depth (m)	Mineralization
ZB 1004	60°	59	Abandoned
ZB 1005	60°	96	-
ZB 1006	60°	203	-
ZB 1007	70°	272	152-155.7m, 3.7m @ 0.3% Pb, 1.34% Zn
ZM 1008	59°	299	56.5-60.5m 4m @ 1.3% Pb, 2.7% Zn

In these holes the UTEM response proved to be either due to the strong lithological contrast between black shales and limestones or to fault zones.

4. DISCUSSION AND CONCLUSIONS (S. Taylor)

Although the diamond drill results have been disappointing, the E.Z.-Cyprus Joint Venture considers that there is good potential for significant tonnages of economic Pb-Zn mineralization in the Myrtle to Rose Valley area. This is based on the following rationale:

* the geochemical anomalies drill tested to date have each been investigated by only one diamond drill hole. Given the density of drilling required to locate significant Pb-Zn mineralization in carbonate sequences elsewhere (Ireland, North America), the anomalies are inadequately drill tested;

* several geochemical anomalies have yet to be drill tested;

* as shown in Fig. 4, parts of the Baura and Rose Valley grids have yet to be covered by Wacker geochemical sampling, while infill sampling is required in Baura grid, where coverage is on lines at 400m intervals;

* due to the poor outcropping nature of the limestone sequence, its extensive mantle of gravels and conductive clays and the non-conductive nature of the target mineralization, significant Pb-Zn deposits could easily have escaped detection in the geochemical/geophysical coverage to date.

Illustrating the last point are the results of the recent Tasmanian Mines Dept. extension of DDH ZG 1007 in Grieves grid (Fig. 8). Extended as a stratigraphic hole to obtain core through the whole Gordon Limestone sequence, the hole intersected two intervals of zinc carbonate mineralization in the middle of the limestone succession, as follows:

415.5-419.5m	4m @ 0.29% Pb, 4.9% Zn;
425.5-431.2m	5.7m @ 0.33% Pb, 5.1% Zn

It should be noted that the up-dip projection of the mineralization intersected in ZG 1007 has no surface geochemical expression on line 47,600N, where the Wacker results are only of the order of 35-135 ppm Zn.

However, some 400m to the SW, similar mineralization has been intersected in a stratigraphically equivalent horizon in the 47,100N costean (20m @ 1.09% Pb, 7.04% Zn) and shallow Winkie core holes on line 47,200N, as follows:

Hole		Interval (m)	Width (m)	% Pb	% Zn
ZWG 22		11.4 - 12.2	0.8	1.49	17.49
ZWG 26		10.0 - 21.4	11.4	0.75	2.78
	incl	10.0 - 11.9	1.9	0.95	7.25
		20.4 - 21.4	1.0	0.84	6.85

The 400m strike length between the two mineralized occurrences is an obvious target for further work. As the non-sulphide nature of the mineralization is not conducive to detection by geophysical methods, further exploration would involve shallow Winkie core drilling to locate the prospective horizon followed by deeper diamond drilling.

Other targets for further exploration are:

* the various geochemical anomalies in the Myrtle to Rose Valley area which have yet to be tested by diamond drilling;

* the anticlinal nose area in the NW of Baura grid which has yet to be geochemically sampled;

* concealed Gordon Limestone below Silurian strata to the north of the NW-trending Balstrup Fault. In 1983 two E.Z. diamond drill holes intersected minor (1.5% Pb, 2-3% Zn) epigenetic mineralization in the limestone sequence immediately adjacent to the fault on the northern downthrow side. Based on the Oceana model, it is possible that syndiagenetic stratiform mineralization is present within the limestone sequence north of the fault;

* outlying areas of he Gordon Limestone (Sassafrass, Fen Creek, Little Henty - Fig. 2), which have received little or no attention in the exploration to date.

5. RECOMMENDED PROGRAMME 1987-88

Wacker sampling of the anticlinal fold nose at Baura should be completed.

Data from the North Austral area should be reviewed and field checked. Additional diamond drilling beside the Balstrup fault is recommended.

The mineralization in costean 47,100N and ZG 1007 should be followed up by several shallow (approx. 100m) diamond drill holes.

OCEANA PROSPECT - SUMMARY OF DIAMOND DRILLING — FEBRUARY 1984

HOLE	CO-ORD	BEARING	DECLIN	DEPTH (m)	COORDINATES AZIMUTH DEFLECTION (at terminal depth)	RESULTS (* including)
ZT-79-2	3700N 1500E	270°G	-60°	235.90	Unknown (acid)	65-218=153m @ 5.10% Pb + 3.50% Zn + 41.7g/t Ag * 65- 96= 31m @ 0.66% Pb + 3.28% Zn + 1.0g/t Ag 96-122= 26m @ 22.26% Pb +11.69% Zn + 203.4g/t Ag *103-118= 15m @ 33.29% Pb +19.22% Zn + 336.7g/t Ag 122-204= 82m @ 0.68% Pb + 1.01% Zn + 3.0g/t Ag *204-218= 14m @ 8.37% Pb + 2.95% Zn + 56.7g/t Ag
ZT-80-3	3200N 1515E	270°G	-60°	399.70	3075N 1335E	237-238= 1m @ 8.25% Pb + 0.39% Zn + 73.6g/t Ag
ZT-80-4	3420N 1490E	270°G	-66°	360.30	3370N 1350E	247-258= 11m @ 12.00% Pb + 4.0% Zn + 89g/t Ag *250-258= 8m @ 15.00% Pb + 5.40% Zn + 113g/t Ag 302-307= 5m @ 22.30% Pb + 1.99% Zn + 323g/t Ag *304-307= 3m @ 36.0% Pb + 3.2% Zn + 530g/t Ag
ZT-80-5	3600N 1590E	270°G	-65°	475.30	3530N 1350E	No visible mineralization
ZT-80-6	3650N 1350E	90°G	-60°	330	3658N 1506E	69- 72= 3m @ 1.52% Pb + 0.28% Zn + 13.3g/t Ag 112-117= 5m @ 1.76% Pb + 1.20% Zn + 6.6g/t Ag 126-134= 8m @ 1.22% Pb + 0.24% Zn + 5.5g/t Ag 212-220= 8m @ 0.45% Pb + 1.39% Zn + 1.0g/t Ag
ZT-80-7	3420N 1250E	037°G	-50°	250	3383N 1420E	167-169= 2m @ 12.0% Pb + 11.0% Zn + 70g/t Ag
ZT-80-8	3700N 1575E	270°G	-55°	228	3722N 1424E	160-167= 7m @ 0.6% Pb + 3.12% Zn + 13.7g/t Ag *165-167= 2m @ 1.7% Pb + 7.7% Zn + 29.0g/t Ag
ZT-80-9	3600N 1400E	006°G	-50°	200.20	3722N 1424E	1- 24= 23m @ 2.82% Pb + 2.12% Zn + 9.9g/t Ag * 4- 9= 5m @ 7.30% Pb + 1.88% Zn + 16.8g/t Ag 120-186= 66m @ 2.45% Pb + 0.82% Zn + 12.5g/t Ag *148-162= 14m @ 3.25% Pb + 0.4% Zn + 8.7g/t Ag 172-186= 14m @ 5.80% Pb + 1.28% Zn + 21.7g/t Ag *182-186= 4m @ 12.95% Pb + 3.09% Zn + 76.0g/t Ag
ZT-82-10	3415N 1560E	270°G	-67.5°	190.7	3411N 1595E	120.5-121=0.5m @ 0.08% Pb + 2.64% Zn + 4.0g/t Ag
ZT-82-10A	3415N 1562E	270°G	-65°	574.6	3369N 1346E	76- 77 = 1.0m @ 0.09% Pb + 5.8% Zn + 1.0g/t Ag 430-434 = 4.0m @ 3.5% Pb + 0.5% Zn + 41.5g/t Ag 445-447 = 2.0m @ 4.2% Pb + 0.3% Zn + 55.0g/t Ag 398.5-399.5 = 1.0m @ 2.15% Pb + 0.27% Zn + 13.0g/t Ag
ZT-82-11	3602N 1374E	090°G	-45°	87.9	Unknown	6- 11 = 5.0m @ 3.5% Pb + 2.7% Zn + 24.6g/t Ag 22- 26 = 4.0m @ 1.08% Pb + 1.06% Zn + 9.8g/t Ag 54- 70 =16.0m @ 3.0% Pb + 2.1% Zn + 14.0g/t Ag * 57- 59.5 = 2.5m @ 13.0% Pb + 1.3% Zn + 49.2g/t Ag 82- 83 = 1.0m @ 2.2% Pb + 2.3% Zn + 20.0g/t Ag
ZT-82-12	3605N 1230E	090°G	-64°	481.6	3594N 1444E	24-27 = 3.0m @ 0.02% Pb + 1.82% Zn + 1.0g/t Ag *374-377 = 4.0m @ 11.6% Pb + 0.3% Zn + 80.3g/t Ag 374-376 = 2.0m @ 18.6% Pb + 0.3% Zn +131.5g/t Ag 380-384 = 4.0m @ 1.4% Pb + 0.5% Zn + 7.0g/t Ag
ZT-82-13	3685N 1250E	090°G	-60°	346	N/A	146-148 = 2.0m @ 0.28% Pb + 0.3% Zn + 110g/t Ag 264-286 = 22m @ 7.5% Pb + 0.55% Zn + 65.9g/t Ag *272-286 = 14m @ 10.75% Pb + 0.74% Zn + 96.7g/t Ag *278-283 = 5m @ 21.16% Pb + 1.62% Zn + 205g/t Ag 335-336 = 1m @ 0.6% Pb + 2.2% Zn + 3.0g/t Ag 341-343 = 2m @ 1.0% Pb + 1.5% Zn + 34.0g/t Ag
ZT-83-14	3670N 1575E	090°G	-61°	172.2*	N/A	Not at target

Table 1 - Oceana Prospect - Summary of Drill Holes

HOLE	CO-ORD	BEARING	DECLIN	DEPTH (M)	COORDINATES AZIMUTH DEFLECTION (at terminal depth)	RESULTS (* including)
ZT-79A-1	1800N	270°G	-50°	163	Unknown	76- 82= 6m @ 1.06% Pb + 1.66% Zn + 1.6g/t Ag
	1225E				(acid)	130-143=13m @ 2.61% Pb + 0.62% Zn + 13.6g/t Ag
ZT-80A-2	1850N	270°	-60°	331	1850N	40- 46= 6m @ 0.69% Pb + 1.62% Zn + 5.8g/t Ag
	1300E				1135E	284-299=15m @ 0.80% Pb + 0.86% Zn + 4.6g/t Ag
						*284-290= 6m @ 1.44% Pb + 0.65% Zn + 5.1g/t Ag
						and 294-299= 5m @ 0.29% Pb + 1.40% Zn + 3.6g/t Ag
ZT-80A-3	1610N	270°	-65°	373.50	1535N	294-296= 2m @ 0.42% Pb + 2.05% Zn + 15.5g/t Ag
	1300E				1097E	341-355=14m @ 0.86% Pb + 0.23% Zn + 4.4g/t Ag
						*347-351= 4m @ 2.25% Pb + 0.28% Zn + 9.0g/t Ag
ZT-81A-4	1300N	270°G	-50°	259		No significant mineralization
	1530E					
ZT-81A-5	897.5N	270°G	-50°	340		201-202= 1m @ 0.63% Pb + 1.15% Zn + 5.0g/t Ag
	1373E					278-281= 3m @ 0.57% Pb + 0.59% Zn + 2.3g/t Ag
ZT-81A-6	1695N	090°G	-55°	194.2		42-43 = 1m @ 0.63% Pb + 5.00% Zn + 18.0g/t Ag
	1050E					74-77 = 3m @ 9.50% Pb + 6.60% Zn + 71.3g/t Ag
						153-167=14m @ 2.54% Pb + 0.35% Zn + 40.4g/t Ag
						181-183= 2m @ 4.20% Pb + 0.18% Zn + 40.0g/t Ag
ZT-81A-7	750N	250°g	-50°	254		50.2-52.2= 2m @ 1.40% Pb + 0.16% Zn + 42.5g/t Ag
	1535E					122-125= 3m @ 4.34% Pb + 0.29% Zn + 17.0g/t Ag
						*124-125= 1m @ 10.60% Pb+ 0.27% Zn + 42.0g/t Ag
						*244-245.8= 1.8m @ 0.06% Pb + 1.89% Zn + 1.0g/t Ag
ZT-81A-8	1030.5N	270°G	-45°	150		12-13 = 1m @ 3.30% Pb + 5.30% Zn + 23.0g/t Ag
	1340E					
ZT-81A-9	555N	242°G	-45°	149.5		No significant mineralization
	1500E					
ZT-81A-10	550N	255°	-45°	100		52-58 = 6m @ 1.79% Pb + 0.58% Zn + 14.8g/t Ag
	1598E					* 52-55 = 3m @ 2.57% Pb + 0.67% Zn + 20.0g/t Ag

Table 2 - Austral Valley - Summary of Drill Holes

TABLE 3 - BRIEF COSTEAN SUMMARY

Line	Interval	Best Assays (2 m sample intervals)
PYRAMID GRID		
1800N	1404- 1452E	Zn 3,300 ppm and Pb 375 ppm
1750N	1424- 1506E	6 m @ 7.18% Pb, 2.13% Zn
1700N	1426- 1500E	2 m @ 1.55% Pb, 0.15% Zn
MYRTLE GRID		
50600N	60350-60478E	2 m @ 17.83% Zn, 3.78% Pb, 23 g/t Ag
50500N	60300-60526E	8 m @ 6.93% Zn, 0.78% Pb, and 23 g/t Ag
50300N	60050-60430E	2 m @ 7.1% Zn, Pb <0.5% throughout
50200N	59750-59900E	2 m @ 1.59% Zn, 0.3% Pb
48600N	60300-60376E	Zn 3,650 ppm and Pb 500 ppm
GRIEVES GRID		
48400N	61062-61134E	2 m @ 2.38% Zn, 2.9% Pb
48000N	60300-60334E	Zn @ 0.76% and Pb 0.35%
47900N	61278-61378E	10 m @ 3.67% Zn and 0.53% Pb
47800N	61290-61352E	8 m @ 10.18% Zn and 0.55% Pb
47600N	60550-60686E	12 m @ 3.1% Zn and 0.4% Pb
47100N	61148-61200E	20 m @ 7.04% Zn and 1.09% Pb
BAURA GRID		
46200N	60924-60950E	Zn 6,400 ppm and Pb 5,300 ppm
45300N	60876-60950E	Zn 7,800 ppm and Pb 4,600 ppm
45222N	61000-61028E	Zn 3,000 ppm and Pb 4,000 ppm
45200N	60924-60976E	Zn 3,500 ppm and Pb 1,325 ppm
ROSE VALLEY		
44200N	60700-60900E	Zn 1,750 ppm and Pb 750 ppm
44000N	61016-61122E	Zn 4,550 ppm and Pb <500 ppm

TABLE 4.

ANALYTICAL RESULTS - GRIEVE SIDING DDH :- ZG1007

ANALYTICAL RESULTS - GRIEVE SIDING DDH :- ZG1007
ANALYSES BY MINES DEPARTMENT LABORATORY - LAUNCESTON

ASSAY NUMBER	SAMPLE NUMBER	HOLE INTERVAL	Zn%	Pb%	S%	Mn%	Ag g/t	Ba g/t	As g/t	Cd g/t	Cu g/t	In g/t	Sb g/t	Au g/t
86.1192	100301	415.46 - 416.17	0.49	0.08	0.56	0.03	<5	19	<10	13	4	<5	<4	<0.3
86.1193	100302	416.17 - 417.17	2.60	0.09	0.54	0.19	8	14	<10	27	<4	<5	6	<0.3
86.1194	100303	417.17 - 418.17	6.00	0.25	0.43	0.51	10	<12	17	31	10	10	13	<0.3
86.1195	100304	418.18 - 419.18	2.90	0.33	0.54	0.24	8	12	<10	33	6	6	7	<0.3
86.1196	100305	419.18 - 420.18	0.61	0.14	0.40	0.03	<5	<12	<10	<4	<4	<5	<4	<0.3
86.1197	100306	420.18 - 421.18	0.37	0.06	0.36	0.03	<5	16	<10	5	4	<5	<4	<0.3
86.1198	100307	421.18 - 422.23	0.10	0.02	0.29	0.02	<5	19	<10	4	<4	<5	<4	<0.3
86.1199	100308	422.23 - 423.23	0.06	0.01	0.32	0.02	<5	18	<10	<4	<4	<5	<4	<0.3
86.1200	100309	423.23 - 424.25	0.50	0.07	0.62	0.06	<5	54	<10	7	6	<5	<4	<0.3
86.1201	100310	424.25 - 425.11	1.60	0.27	0.94	0.08	8	180	<10	21	18	<5	4	<0.3
86.1202	100311	425.11 - 426.11	3.70	0.36	0.68	0.31	<5	48	<10	46	10	<5	8	<0.3
86.1203	100312	426.11 - 427.09	3.40	0.36	0.73	0.23	<5	43	11	33	10	<5	9	<0.3
86.1204	100313	427.09 - 428.18	5.30	0.36	0.85	0.40	6	42	<10	47	13	7	8	<0.3
86.1205	100314	428.18 - 429.18	1.70	0.18	0.67	0.13	5	34	11	27	9	5	5	<0.3
86.1206	100315	429.18 - 430.18	4.80	0.37	0.74	0.34	<5	19	<10	48	19	7	12	<0.3
86.1207	100316	430.18 - 431.18	4.50	0.25	0.53	0.38	<5	24	14	47	20	6	8	<0.3
86.1208	100317	431.18 - 432.19	2.00	0.22	0.50	0.17	<5	27	<10	26	9	<5	12	<0.3
86.1209	100318	432.19 - 432.57	0.35	0.09	0.46	0.03	<5	32	<10	4	6	<5	7	<0.3
86.1210	100319	433.94 - 434.18	1.10	0.04	1.11	0.08	5	33	13	15	7	<5	<4	<0.3
86.1211	100320	434.18 - 435.19	1.20	0.03	0.68	0.05	<5	270	<10	4	39	<5	<4	<0.3
86.1212	100321	435.19 - 436.18	0.03	0.01	0.26	0.07	<5	83	<10	<4	8	<5	4	<0.3
86.1213	100322	436.18 - 437.18	0.01	<0.01	0.23	0.03	<5	42	<10	<4	4	<5	5	<0.3
86.1214	100323	437.18 - 438.18	0.02	0.01	0.50	0.03	<5	150	<10	<4	14	<5	<4	<0.3
86.1215	100324	438.18 - 439.18	0.01	0.01	0.45	0.04	<5	135	<10	<4	9	<5	<4	<0.3
86.1216	100325	439.18 - 440.18	0.01	0.01	0.49	0.02	6	90	<10	7	7	6	<4	<0.3

TABLE 5.

ANALYTICAL RESULTS - GRIEVE SIDING DDH :- ZG1007

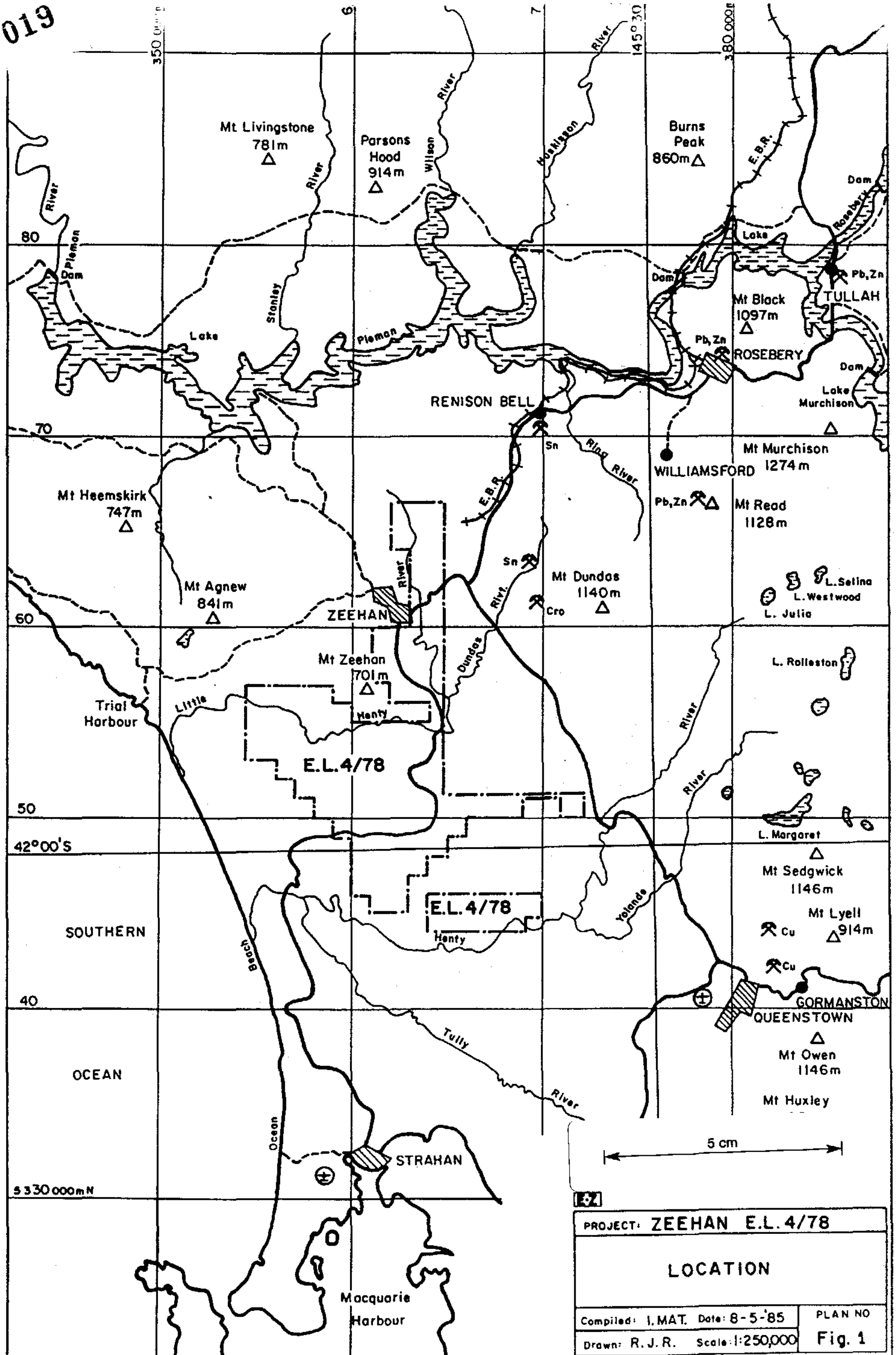
ANALYTICAL RESULTS - GRIEVE SIDING DDH :- ZG1007
EZ SAMPLING - GRIND SAMPLES
ANALYSES BY ANALABS,BURNIE
METHOD AAS103

SAMPLE NUMBER	HOLE INTERVAL	ANALYTICAL RESULTS Cu ppm	Pb ppm	Zn %	Ag g/t	Fe%	Mn ppm
65277	415.50 - 417.50	10	2145	5.59	3.5	7.92	2450
65278	417.50 - 419.50	5	3595	4.19	2.0	3.92	1700
65279	419.50 - 422.50	10	945	0.47	<0.5	0.42	235
65280	422.50 - 425.50	10	1645	1.24	0.5	2.32	570
65281	425.50 - 427.50	10	4545	6.09	2.0	7.42	2400
65282	428.10 - 431.20	10	3195	5.34	1.0	6.02	2100
65283	431.20 - 434.20	25	1695	3.44	1.0	4.77	1550
65284	434.20 - 437.20	35	185	0.45	<0.5	3.42	360
65285	437.20 - 439.50	25	100	0.03	<0.5	2.92	190

018

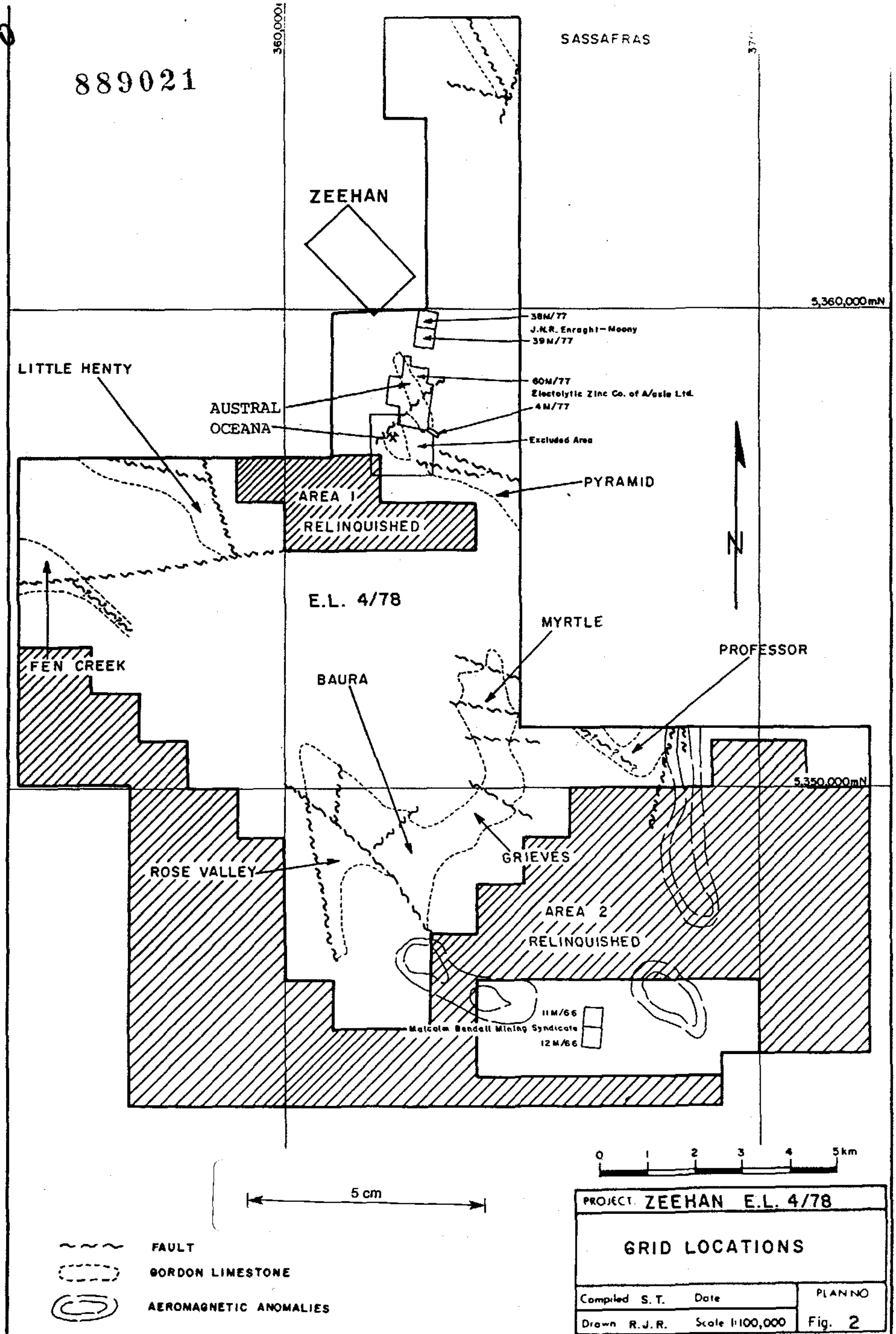
889019

019


350 000mE
6
7
145°30'
380 000mE
Mt Livingstone
781m
Parsons
Hood
914m
Burns
Peak
860m
Wilson
River
Hodgkinson
River
E.B.R.
Dam
Rosebery
Lake
Pb, Zn
TULLAH
Mt Black
1097m
Pieman
River
Dam
Lake
Stanley
River
Pieman
ROSEBERY
Pb, Zn
Dam
Lake
Murchison
RENISON BELL
Sn
Ring River
WILLIAMSFORD
Mt Murchison
1274m
Mt Heemskirk
747m
Pb, Zn
Mt Read
1128m
E.B.R.
Sn
Mt Dundas
1140m
Cro
L. Selina
L. Westwood
L. Julia
Mt Agnew
841m
ZEEHAN
River
Dundas
Rivt.
L. Rolleston
Mt Zeehan
701m
Trial
Harbour
Little
Henty
E.L. 4/78
River
River
L. Margaret
42°00'S
Mt Sedgwick
1146m
E.L. 4/78
Yolande
Mt Lyell
914m
SOUTHERN
Beach
Henty
Cu
Cu
GORMANSTON
QUEENSTOWN
Mt Owen
1146m
OCEAN
Tully
River
Mt Huxley
5 cm
Ocean
STRAHAN
5330 000mN
80
70
60
50
40
Macquarie
Harbour
EZ
PROJECT: ZEEHAN E.L. 4/78
LOCATION
Compiled: I. MAT.
Date: 8-5-'85
PLAN NO
Drawn: R.J.R.
Scale: 1:250,000
Fig. 1

020

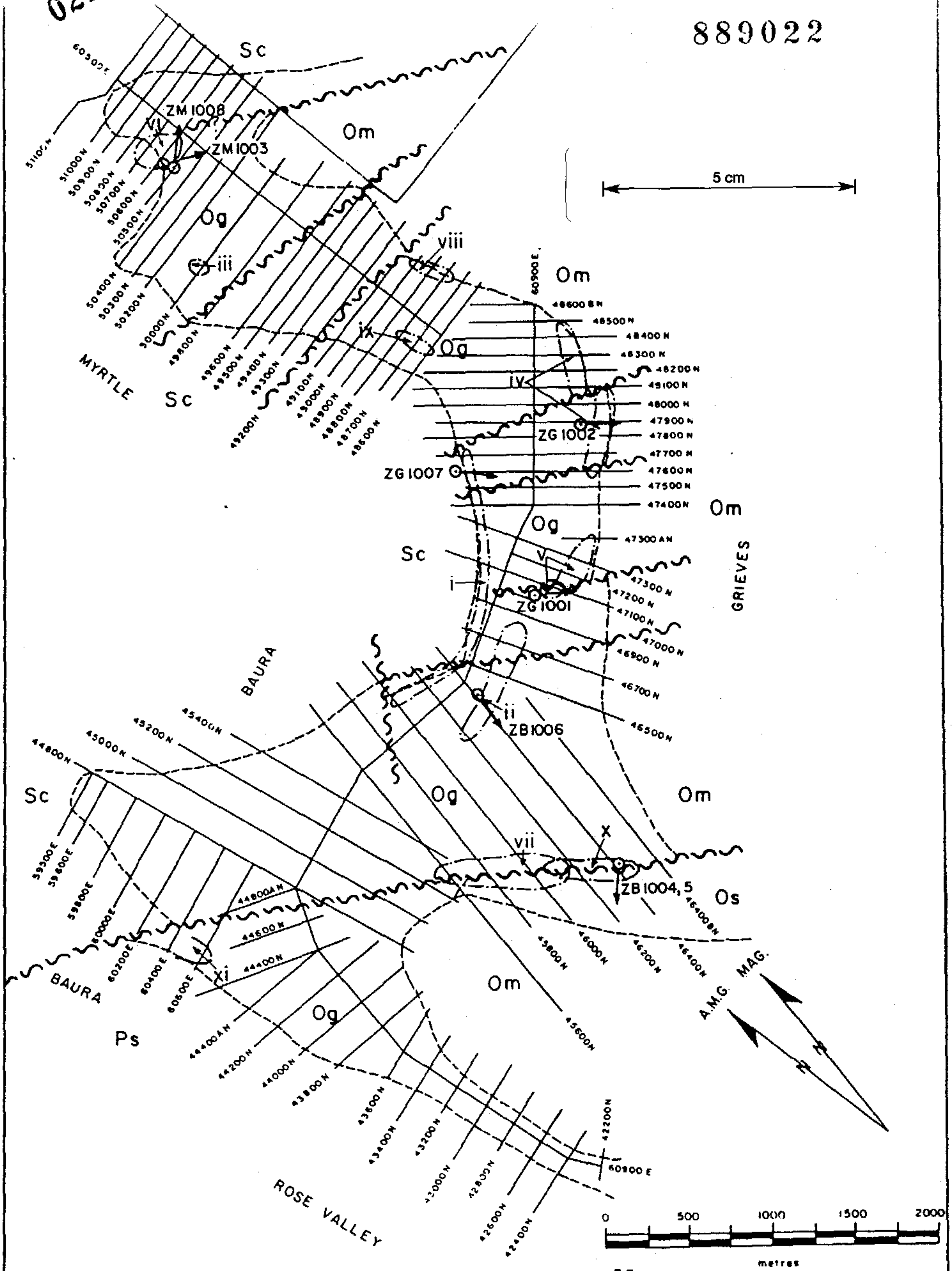
889021



360,000
SASSAFRAS
370
ZEEHAN
5,360,000mN
38M/77
J.N.R. Enraght-Moony
39M/77
60M/77
Electrolytic Zinc Co. of A/asia Ltd.
4M/77
Excluded Area
LITTLE HENTY
AUSTRAL
OCEANA
PYRAMID
AREA 1
RELINQUISHED
N
E.L. 4/78
MYRTLE
FEN CREEK
PROFESSOR
BAURA
5,350,000mN
GRIEVES
ROSE VALLEY
AREA 2
RELINQUISHED
11M/66
Malcolm Bendall Mining Syndicate
12M/66
0
1
2
3
4
5km
5 cm
FAULT
GORDON LIMESTONE
AEROMAGNETIC ANOMALIES
PROJECT ZEEHAN E.L. 4/78
GRID LOCATIONS
Compiled S.T.
Date
PLAN NO
Drawn R.J.R.
Scale 1:100,000
Fig. 2

021

889022



LEGEND

Ps	Permian Sediments
Sc	Crotty Quartzite
Og	Gordon Limestone
Os	"Eden Siltstone"
Om	Moina Sandstone

Fault

Geological Boundary

i Bedrock Geochemistry Anomalies

E.Z

PROJECT: E.L. 4/73 ZEEHAN

BADGER RIVER GRIDS
DIAMOND DRILL HOLES

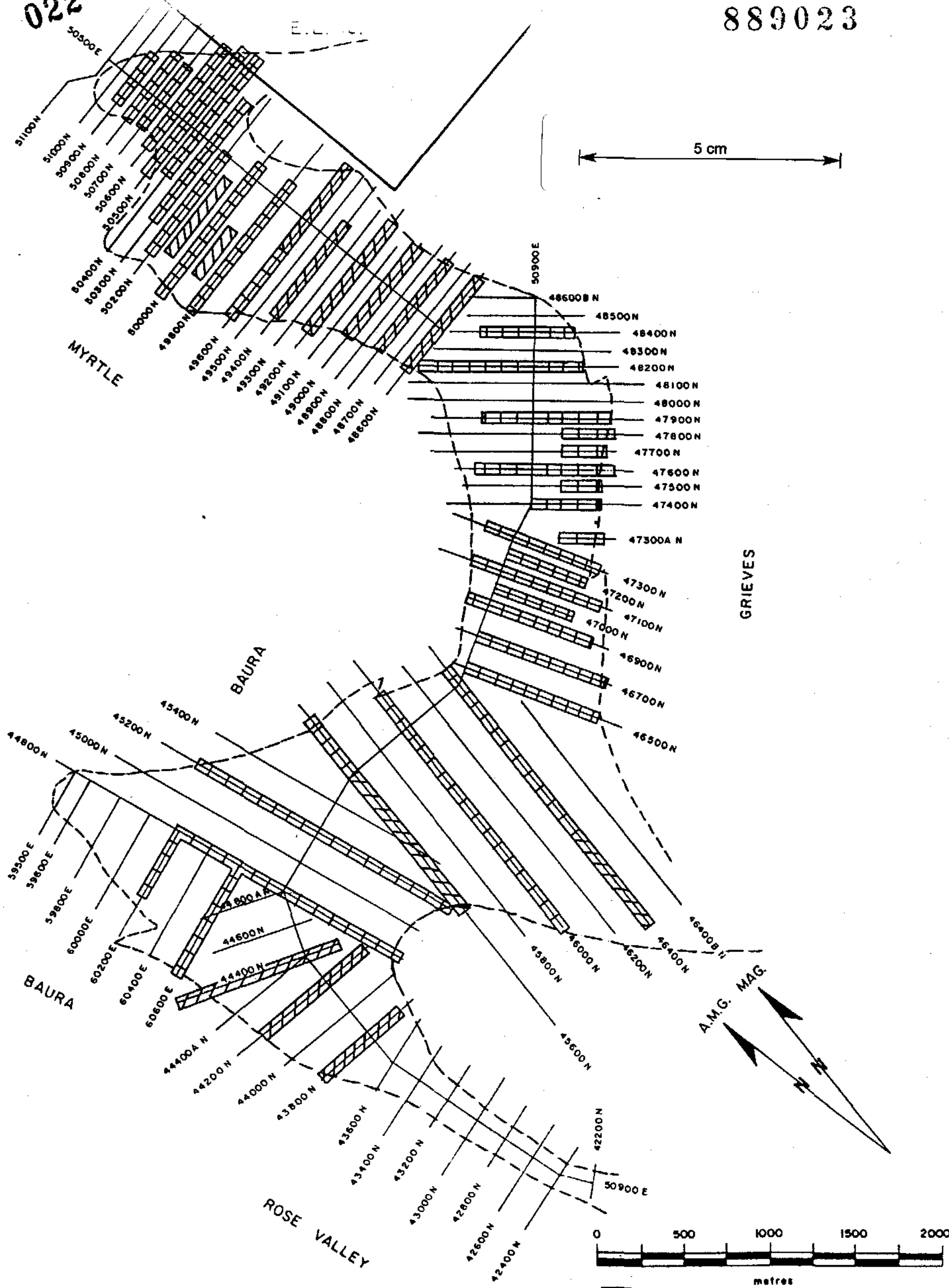
Compiled: I.MAT. Date: 11-4-'86

Drawn: R.J.R. Scale: N.T.S.

PLAN NO. Fig 3

022

889023



LEGEND

Sampling 1985-1986

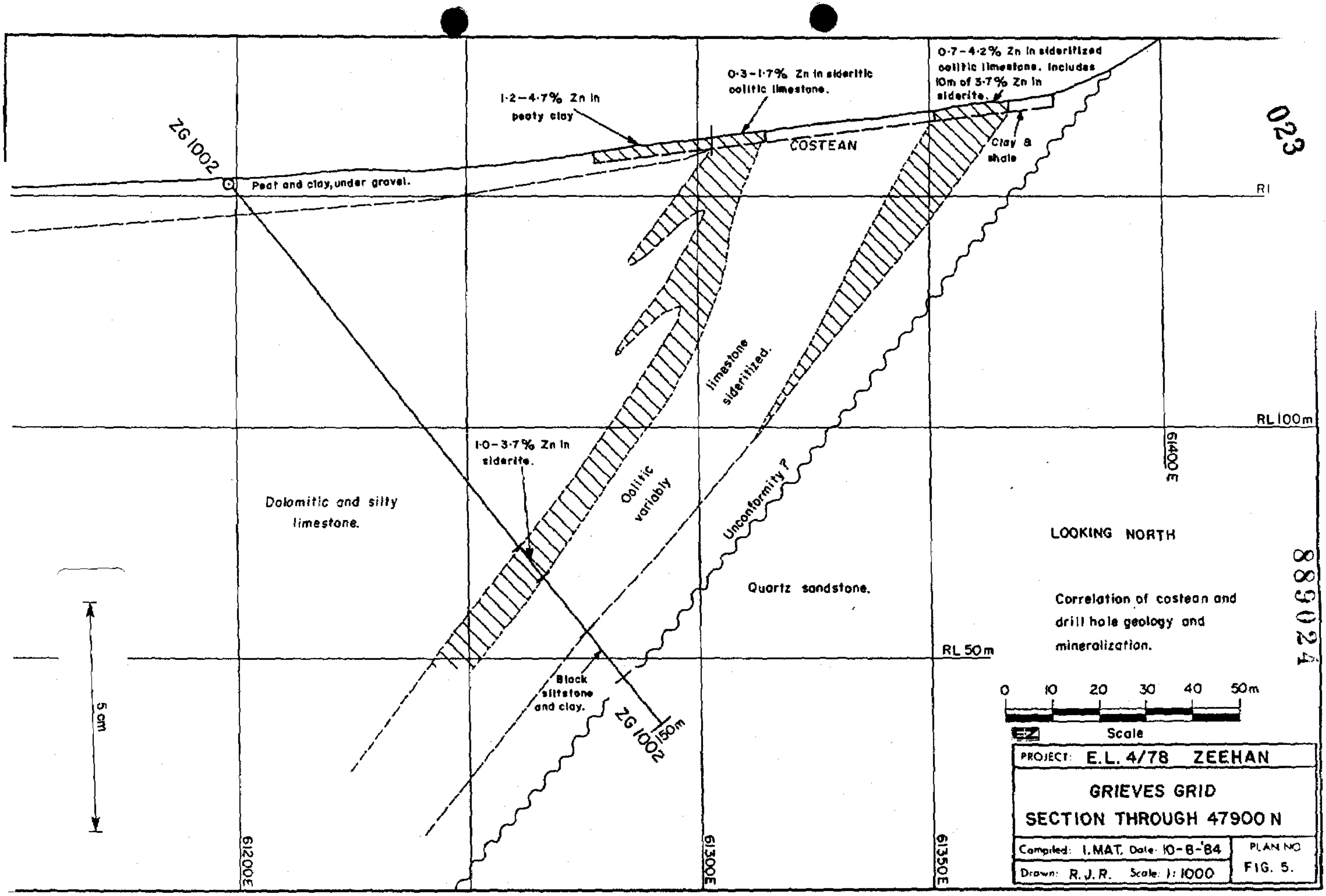
Total sampling - to April 1986

E-Z

PROJECT: E.L. 4/73 ZEEHAN

BADGER RIVER GRIDS
WACKER SAMPLING

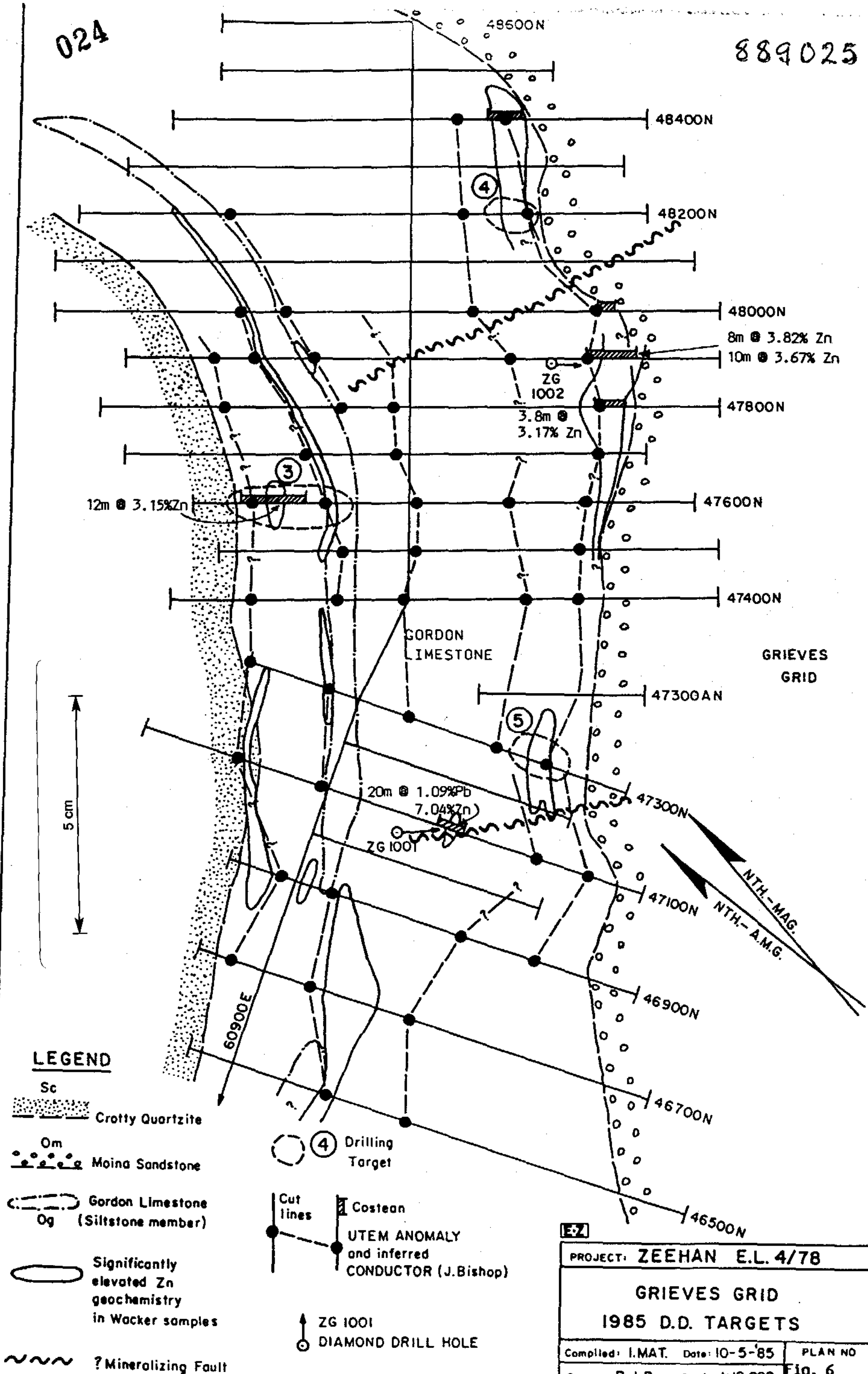
Compiled: I. MAT.	Date: 2-7-'85	PLAN NO
Drawn: R.J.R.	Scale	Fig. 4



PROJECT: E.L. 4/78 ZEEHAN	
GRIEVES GRID SECTION THROUGH 47900 N	
Compiled: I. MAT. Date: 10-8-'84	PLAN NO
Drawn: R.J.R. Scale: 1:1000	FIG. 5.

024

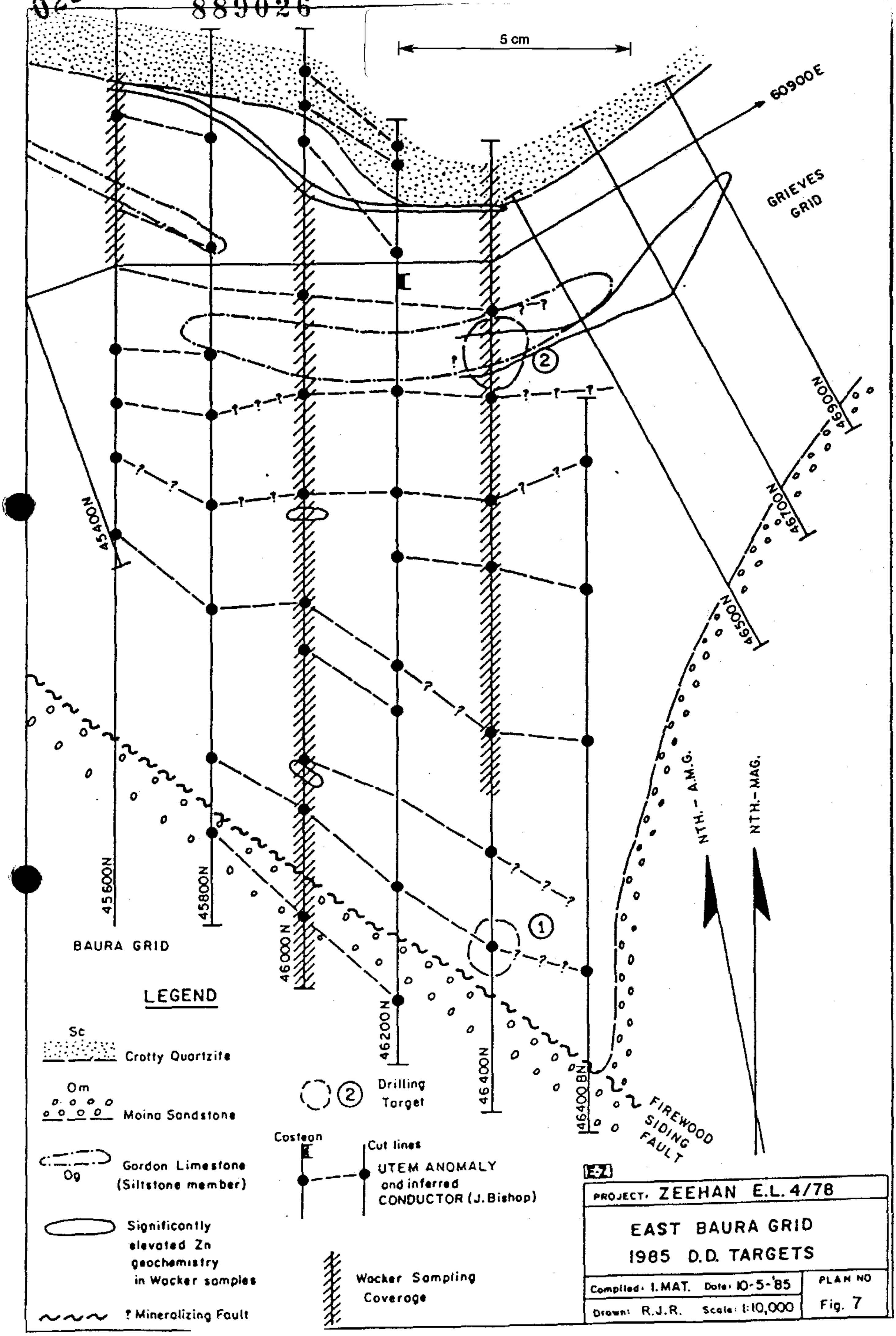
889025

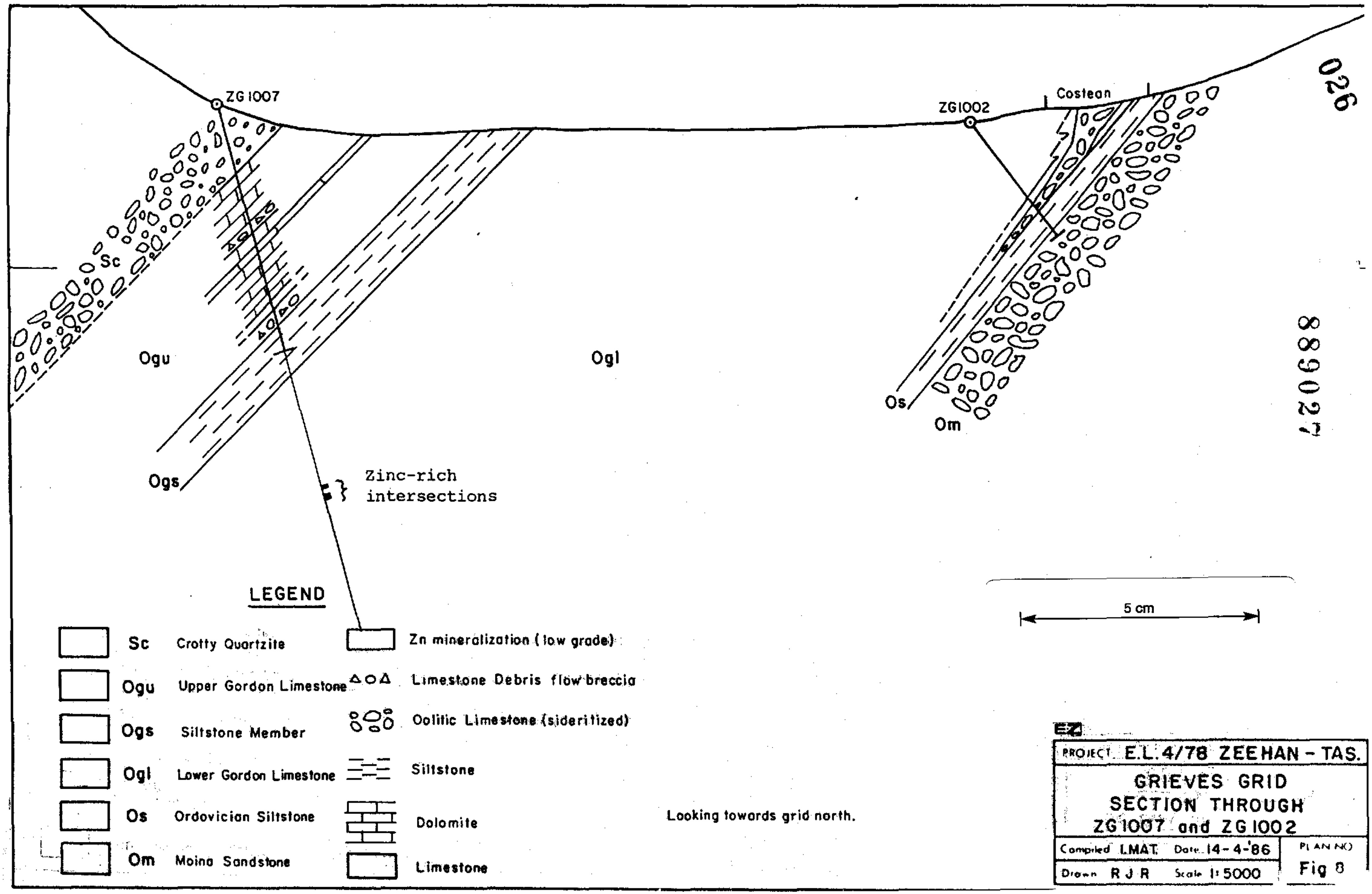


E-Z

PROJECT: ZEEHAN E.L. 4/78	
GRIEVES GRID 1985 D.D. TARGETS	
Compiled: I.MAT. Date: 10-5-'85	PLAN NO
Drawn: R.J.R. Scale: 1:10,000	Fig. 6

025 889026


5 cm
60900E
GRIEVES GRID
45400N
45600N
45800N
46000N
46200N
46400N
46400BN
46500N
46700N
46900N
BAURA GRID
NTH. - A.M.G.
NTH. - MAG.
FIREWOOD SIDING FAULT
LEGEND
Sc
Crotty Quartzite
Om
Moina Sandstone
Og
Gordon Limestone (Siltstone member)
Significantly elevated Zn geochemistry in Wacker samples
? Mineralizing Fault
Drilling Target
Costean
Cut lines
UTEM ANOMALY and inferred CONDUCTOR (J. Bishop)
Wacker Sampling Coverage
E-Z
PROJECT: ZEEHAN E.L. 4/78
EAST BAURA GRID
1985 D.D. TARGETS
Compiled: I. MAT.
Date: 10-5-'85
PLAN NO
Fig. 7
Drawn: R.J.R.
Scale: 1:10,000



ZG1007
ZG1002
Costean
Sc
Ogu
Ogl
Ogs
Os
Om
Zinc-rich intersections
026
889027
5 cm
LEGEND
Sc Crotty Quartzite
Ogu Upper Gordon Limestone
Ogs Siltstone Member
Ogl Lower Gordon Limestone
Os Ordovician Siltstone
Om Moina Sandstone
Zn mineralization (low grade)
Limestone Debris flow breccia
Oolitic Limestone (sideritized)
Siltstone
Dolomite
Limestone
Looking towards grid north.
EZ
PROJECT E.L. 4/78 ZEEHAN - TAS.
GRIEVES GRID
SECTION THROUGH
ZG1007 and ZG1002
Compiled LMAT Date 14-4-'86
Drawn RJR Scale 1:5000
PLAN NO
Fig 8