14-6

ANNUAL REPORT FOR

CALVERT RIVER MANGANESE PTY LTD

EXPLORATION LICENCE NO. 5050

EMERALD SPRINGS EAST

PINE CREEK AREA, N.T.

K. FERGUSSON
NOVEMBER 1988

CONTENTS:

FIGURES:

Fig. 7. EL 5050, MINERALISED ZONE B, 1:6,000.

1. SUMMARY:

Exploration in EL 5050 was directed at assessing the potential of the Early Proterozoic Koolpin, Gerowie Tuff, Mt. Bonnie and Burrell Creek Formations for epigenetic gold deposits in quartz vein lodes. Attention was also given to syngenetic, stratigraphically controlled gold bearing sulphide lenses in the Mt. Bonnie Formation similar to known mineralisation in the Iron Blow and Mt. Bonnie mines.

The tenement lies in the northern part of the Pine Creek mineral field on the eastern flank of the Burrundie Dome, close to outcrop of the McMinns Creek Granite and just west of the northern extension of the Pine Creek Shear Zone. Separate gold and tin occurrences are found in the vicinity of the tenement.

Geological mapping and rock chip sampling identified three areas of good potential for epigenetic gold within the Mt Bonnie Formation, associated with anticlinal axes and faulting. Some potential was also recognised in a contact zone of Zamu Dolerite and Gerowie Tuff. Gold assays up to 4ppm were recorded in these zones.

Follow up detailed mapping, costeaning and diamond drilling has been recommended to further define the potential of these areas.

2. INTRODUCTION:

2.1. Location and Access:

The Emerald Springs East tenement (EL 5050) is located in the Pine Creek area about 25km north west of Pine Creek township. It covers 9 blocks, amounting to approximately 30 sq. km. (Fig 1).

The Stuart Highway provides access to the tenement, crossing the south west corner of the block 3km south east of Emerald Springs roadhouse. Within the tenement there are no vehicle tracks. Access by 4-Wheel drive from the highway reached the centre of the block. The more inaccessible eastern part of the area was covered on foot from a track running north from Snadden's Creek tin workings near the eastern margin of the tenement.

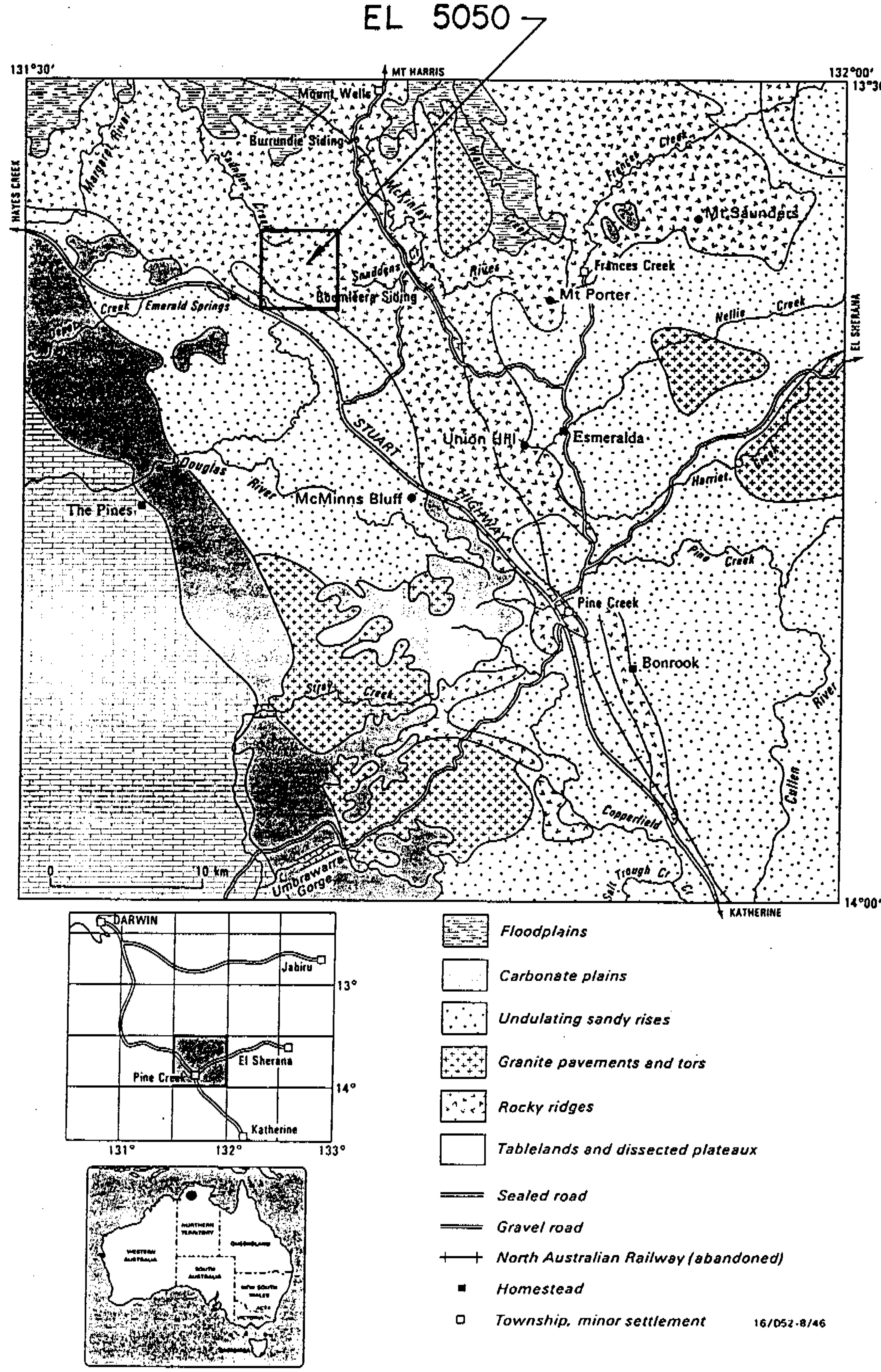

Fig. 1. Location and physiography

2.2 Investigations:

3.5 weeks were spent in the tenement area on a programme of geological mapping and rock chip sampling. Lithologies and structure of the South Alligator Group and Finniss River Group sediments and volcanics were mapped. Quartz vein systems, associated gossans and altered country rock were sampled and assayed for Au (fire assay), As and Ag (AAS), and occasionally Cu, Pb, and Zn (AAS).

2.5 weeks were spent in the Darwin office and in Perth plotting and interpreting the results and compiling a report.

2.3 Aim of investigations:

The mapping and sampling was designed to assess the potential of the sedimentary and volcanic Koolpin Formation, Gerowie Tuff, Mt. Bonnie Formation and Burrell Creek Formation within the tenement area for two target types.

1. Structurally controlled gold mineralisation with quartz veins and quartz vein breccias, similar to that known within the Cullen Mineral Field, (all formations).

2. Presumed syngenetic, stratigraphically controlled, gold-silver-zinc-copper, massive sulphide mineralisation, similar to that encountered in the Mt. Bonnie mine, (Mt. Bonnie Formation only).

For the target type 1 folding, cleavage, faulting, shearing and jointing were all assessed as controls on quartz veining and mineralisation. Special attention was paid to zones of faulting and to the axial zones of anticlinal structures, known to be favourable elsewhere in the Cullen Mineral Field.

For target 2 lithological variations within the Mt. Bonnie Formation were of particular interest looking for parallels with the prospective parts of the sequence at the Mt. Bonnie mine, particularly pyritic or carbonaceous units, banded iron formation and lithic crystal tuff.

As a result of these investigations recommendations were to be made on the potential of the area and on further exploration.

3. GEOLOGICAL SETTING:

3.1 Regional:

Systematic mapping of the Pine Creek Geosyncline at 1:100,000 scale by the N.T.G.S. and B.M.R. in the 1970's 80's has greatly enhanced the understanding of the regional setting. The Geosyncline contains a preserved 14km thickness of Early Proterozoic metasediments and some volcanics underlain by an Archean gneissic or granitic basement. A major orogenic event (1870 - 1800my) has extensively folded the sediments and metamorphosed them to greenschist facies, with higher grades in the north-eastern parts.From three to five episodes of folding may be present in the sediments which have also been intruded by a number of syn-to post-orogenic granitoid plutons and pre-and post-tectonic dolerite. These units are unconformably overlain by Middle to Late Proterozoic and Palaeozoic platform sediments and volcanics which are largely undeformed.

3.2. Local:

The Pine Creek area, in the southern part of the Geosyncline is dominated by granitoids of the Cullen Batholith which intrude metasediments of the South Alligator and Finniss River Groups, the two upper units of the Early Proterozoic metasediments in the central and western parts of the geosyncline. The tenement area is located at the northern end of a deep embayment in the Cullen Batholith where these metasedimentary units are folded and faulted in a series of NNE tending, SE plunging isoclinal structures to the west of the Pine Creek Shear Zone. The shear zone is a major structural feature in the area. It is about 2km wide and follows the embayment in the granitoids on a NNW trend.

The metasediments exposed in the tenement area are also on the south eastern flank of the Burrundie Dome. The core of this feature, which may be the result of interference between two regionally developed fold sets, is occupied by the Koolpin Formation. To the south east, away from the core, through the tenement, the sediments progress up sequence from the Koolpin, through the Gerowie Tuff, Mt. Bonnie Formation and finally Burrell Creek Formation.

Regionally the lithologies in these formations are as follows:

KOOLPIN: Shallow water metasediments - ferruginous, carbonaceous matapelite/ chert bands/ banded quartz, haematite ironstone/silicified dolomite.

GEROWIE: Reworked siliceous ash deposits - brown and grey siltstone and argillite/black tuffaceous chert/crystal and vitric tuff.

MT. BONNIE: Shallow to deeper water metasediments-siltstone/ argillite/ phyllite/ feldspathic greywacke/ some tuffaceous cherts/tuffs/rare banded iron formation.

BURRELL CR. : Flysch deposits - greywacke/shale/slate/phyllite and siltstone.

These units are intruded by pre-orogenic sills of Zamu Dolerite, particularly in the Burrundie Dome area and particularly in the Koolpin Formation.

3.3 Economics:

The Pine Creek area has been a gold base metal producer since the 1880's.

The gold is predominatly in quartz reefs and veins associated with pyrite, chalcopyrite, arsenopyrite, sphalerite, tetrahedrite, pyrrhotite, minor gaiena and silver. The quartz veins tend to follow bedding, thicken in fold crests and also follow sheared axial planes.

Mineralisation is commonly found close to the granite contacts and is considered hydrothermal/epigenetic in origin. Many of the gold deposits and occurrences have a close spatial relationship to the Pine Creek Shear Zone where the shears and associated faults have presumably facilitated and localised the movement of ore bearing fluids into structural traps.

The other main type of gold deposit found in the Pine Creek area is the syngenetic, stratiform type found in the Iron Blow and Mt. Bonnie Formation. These are massive sulphide deposits also containing silver, zinc and copper. Both of these deposits occur within the Margaret River Syncline between the Golden Dyke and Burrundie Domes and are located at the same stratigraphic level near the base of the Mt Bonnie between two major greywacke-mudstone horizons and associated with interbedded pyritic shale, siltstone and lithic crystal tuff. The lodes are lens shaped and about 150m by 30m thick.

A number of small tin deposits occur in a belt to the immediate east of the tenement area, with one located within. These are part of the Mt. Wells-Snadden's Creek tin belt. Most of these are located within the Mt Bonnie Formation and are associated with quartz haematite veins in fault zones, directly located within or close to a variety of irregular, small intrusive syenitic or monzonitic bodies.

4. RESULTS:

4.1. Mapping:

A small area in the south western corner of the tenement area on the south side of the Stuart Highway, is underlain by the McMinns Bluff Granite, a phase of Cullen Batholith. This is coarsely porphyritic and contains up to 15% biotite.

The rest of the area is occupied by metasediments of the Koolpin, Gerowie, Mt. Bonnie and Burrell Creek Formation intruded by sills of Zamu Dolerite.

4.1.1 Lithologies (Fig. 3)

Koolpin Formation: In the present mapping the Koolpin could be divided into three dominant lithologies.

1. The most prominent, ridge-forming unit consists of ashstones, tuffs and some tuffaceous chert interbedded with pelitic sediments, carbonaceous siltstones and phyllite. The rocks are dark grey to blue-black and typically show development of white laths scattered through the matrix showing no preferred orientation. In most cases these look like relict devitrified shards, in some they take the appearance of a white, micaceous mineral and may relate to regional metamorphism. The rocks are generally poorly laminated and often hard and cherty grading to black tuffaceous chert.

2. The second unit is charactereised by ferruginous lithologies, ferruginous quartzites, siltstones, shales, and phyllites, many of which are carbonaceous. These are typically exposed as gossan like supergene haematitic and limonitic cappings so that outcrop of fresh rock is rare. In some places the ferruginous unit is represented by a ferruginous, micaceous sandstone.

3. The third unit is similar to unit 1. but with sediments predominating. It consists of pelites, carbonaceous sediments, siltstones, shales slates and phyllites, ranging from buff-green to dark grey and blue-grey in colour.

Gerowie Tuff: This is a mixed sequence of siltstones, quartzites and phyllites, sometimes ferruginous dominated in outcrop by ashstones, tuffs and tuffaceous chert.

The lithologies of volcnaic origin form rounded hills and ridges scattered with slabs and fragments of conchoidally fractured black/tuffaceous chert.In outcrop these are usually massively bedded with some more laminated portions. Commonly associated withthe tuffaceous chert is a light grey, sub-laminated to massive siltstone or ashstone which also forms high ground outcropping in flaggy ridges. often dominated by cleavage rather than bedding. This unit often shows a typical skeletal weathered surface. In some places it is harder and massive and more closely resembles quartzite.

Within this sequence pelitic units which more closely resemble those of the Mt. Bonnie Formation are found. These are mostly siltstones and shales which can range from buff to grey or to red and purple shades where more ferruginous. The siltstones are often hard, massive and quartzitic but are usually interbedded with more laminated argillites.

Mt. Bonnie Formation: Within the tenement area this formation comprises mainly siltstones, shales, phyllites and quartzites ranging in colour from dark grey, grey-green and buff through to purple-grey and brown where more ferruginous. Although fairly massive in parts most is fairly well laminated, more so than the similar lithologies in the Gerowie Tuff. More distinctive within the sequence are coarsely bedded grey-green greywackes, seen predominantly in the north eastern part of the area. In the southern part of the area greywackes are less common and are restricted to the ferruginous parts of the sequence where they occur as buff to red medium grained beds, sometimes micaceous, which are soft and outcrop poorly. Another distinctive lithology is a banded haematitic quartzite which often shows contorted bedding on a small scale but regionally conforms with the broader bedding trends. This may be the banded iron formation referred to by Goulevich (1980) and Stuart-Smith et al. (1987), and seems to occur in the lower part of the sequence. If the formation boundaries of Stuart-Smith et al. (1987) are accepted in the south western part of the area, between the Gerowie, Mt. Bonnie and Burrell Creek Formations, then the Mt. Bonnie also includes a thick wedge of tuffaceous chert which looks identical to that commonly found in the Gerowie Tuff.

Burrell Creek Formation: Immediately stratigraphically above the abovementioned tuffaceeous cherts, within an openly folded syncline, lie quartzitic siltstones and hornfelsed, ferruginous phyllites assigned, in the 1:100,000 scale B.M.R. mapping, to the Burrell Creek. These also include banded haematitic quartzite indentical to that seen in the Mt. Bonnie, (Fig 3). Some doubt, therefore, remains as to the position of the unit boundaries in this area where contact metamorphic effects suggest a doming of the McMinns Bluff Granite beneath the syncline.

Quartz veins cut all lithologies and are distributed as shown in (Fig 4). Most dip steeply or are vertical.The predominance of veining in the Mt. Bonnie and Gerowie in the southern part of the tenement area suggests that the sill of Zamu Dolerite has some role in restricting their development further north. Their proximity to outcropping McMinns Bluff Granite may also play a part. The relationship of their distribution to structure will be discussed below.

Within the Gerowie Tuff the quartz veins are predominantly "clean" whereas in the Mt. Bonnie sediments they are more often haematitic and mineralised. This may be a reflection of the very siliceous nature of the Gerowie Tuff.

4.1.2 Structure (Figs 2 and 4):

The major folding defined by lithologies and bedding trends in the tenement area is a regional scale NNW tending set of isoclinal anticlines and synclines which plunge to the SSE and which are mostly overturned so that the axes dip steeply to the WSW. These correlate with the F_1 of Stuart-Smith et al. (1987) and the F_3 of Allen (1988). Mapping was not sufficiently detailed to clearly define any smaller scale folding within this regional pattern though the mismatch between bedding measurements airphoto trends in some areas suggests minor complications.

Faulting was defined by a combination of airphoto interpretation, lithological discontinuities and some outcrop evidence. Two main trends can be seen, one sub-parallel to the contact with the McMinns Bluff Granite. Both sets suggest sinistral displacement and probably operated during the latter stages of folding. They may be related to the Pine Creek Shear Zone, located about 5km east of the tenement area.

Cleavage was difficult to separate from bedding on the rounded slopes of the Gerowie Tuff but was easier to observe in the more pelitic rocks. Generally it defines axial planes dipping steeply south west.

Jointing was not strongly developed in the area but where observed followed a common trend running at about 70° and dipping steeply north.

Within the structural framework quartz veining can be seen to most closely follow axial plane cleavage. The only clearly defined saddle reef development was in the anticline occupied by Zamu Dolerite and Koolpin Formation in the north west corner of the tenement.

4.2. Mineralisation:

All signs of sulphide related mineralisation in the tenement area were either within quartz veins or in country rocks associated with quartz veining. In some instances there is an association with faulting.

Nowhere within the area was sulphide mineralisation, or gossan develppment associated with particular lithologies in the Mt. Bonnie Formation suggesting parallels with the syngenetic target type known from the Margaret Syncline.

(Fig 5) shows the distribution of above background gold assay results from rock chip samples, in the tenement area. Within the southern part of the area, where quartz veining is most common, two broad zones of higher gold results can be observed with other minor scattered highs. The two broad zones are examined in more detail in (Figs 6 and 7).

Zone A, (Fig 6), shows gossan development in quartz veins in dark grey quartzitic siltstones and siltstones of the Gerowie Tuff. The veins and gossanous zones follow cleavage and bedding and appear to dip steeply west. The dip of the bedding is not clear. The highest gold results are predominantly in the veins, with only minor enrichment in the country rock. The mineralised zone shows high arsenic but this seems to be more enriched in gossanous country rock. Zinc is also enriched (2000-400 ppm).

The zone is truncated at the northern end by an east west fault. North of this are tuffaceous cherts and siltstones of the Gerowie Tuff. The fault zone is occupied in part by gossan and quartz breccias which is also high in gold. High lead is present in some of these samples (up to 1.23%).

Zone B, (Fig 7), is a broad zone within which at least two separate mineralised systems are located, both of which show indications of previous exploration, in the relatively distant past, (broken Chinese pottery no recent tracks or fresh excavation).

In the western part a relatively continuous zone of gold-enriched, gossanous quartz veins is located in the contact zone between Zamu Dolerite and Gerowie Tuff. Through most of this zone outcrop is poor with only quartz veins, weathered gossan and some ferruginous rubble, which could be weathered sediment or dolerite, occupying the area that has been interpreted as Zamu Dolerite in the BMR/NTGS mapping. Veining and mineralisation is concentrated at the northern and southern margins of this zone both within the dolerite, and to a lesser extent, in the marginal quartzitic sediments. Towards the south eastern end of this zone an old sub-surface working (sample nos. 119 and 120) is located in buff siltstones and quartitic siltstones. The workings seem to follow fractures which are sub-parallel to bedding (145° and vertical) with some alteration in the fracture zone. Some mineralised quartz vein was found in the mullock but not observed in situ. This is indicated as a tin occurrence on the 1:100,000 map but is not described in the note. Although gold levels are modest in the samples taken here (0.13 and 0.21 ppm Au) nearby quartz veining runs up to 2 ppm. Base metals are particularly low in the tin occurrence which may separate it from the rest of the zone to the north west which shows scattered higher copper, (1000 to 5000 ppm). Quartz veining within the Gerowie Tuff, to the south west from the Zamu Dolerite, shows only slight rises in gold (up to 0.15 ppm).

The second area of interest within the broad zone is to the east within ferruginous siltstones and quartzites of the Mt. Bonnie Formation centred on another, smaller, old working, once again, possibly, a tin occurrence (sample nos. 160 and 161). This lies near the axial zone of a south easterly plunging anticline in the Mt. Bonnie. A fault has been interpreted sub-parallel to the axis to account for a sharp change in bedding trends and an apparent mismatch of lithologies on the opposite sides of the axis. The situation of the mineralisation in the old working (partially collapsed, angled shaft) is similar to that in the other tin occurrence. Fracturing, or jointing, is sub-parallel to vertical bedding in quartzitic siltstone and shows ferruginous alteration. Mineralised quartz vein was again found in the mullock. The quartz vein extensions of this zone, and associated quartz veining, are found along strike in samples 238, 239, 241, and 242 and laterally in 236 and 237. Levels of As, Cu, Pb, Zn are relatively low.

A further minor mineralised occurrence of some interest (area c in Fig 3) is centred on samples 170 and 171 (1.49 and 0.13 ppm Au respectively) in quartz veins within ferruginous siltstones of the Mt. Bonnie Formation. This is a zone of much veining which was only sampled on a reconnaissance basis. The veining is close to an anticlinal axis.

4.3. CONTROLS ON MINERALISATION:

The main locus for gold mineralisation in the tenement area is quartz veining. No indications of stratigraphically controlled, syngenetic gold mineralisation were located.

Quartz veining dominantly parallels cleavage (NNW-SSE) and is most concentrated in anticlinal axes in the Gerowie Tuff and Mt. Bonnie Formation in the southern half fo the tenement area. This distribution may reflect proximity of sub-surface granitoids in the southern half. The folded sill of Zamu Dolerite may also have provided a physical barrier to veining and mineralising fluids in the north.

Within the broad system further localisation of mineralisation may relate to faulting. In zone A the mineralised veins are within a faulted anticlinal zone. The major fault runs NNW-SSE sub-parallel to the axis. A secondary fault limits the mineralisation and veining to the north but shows strong evidence of being a conduit for mineralising fluids.

This shows some similarity with the south eastern part of zone B. Here again the mineralisation and veining are in an anticlinal zone in the Mt. Bonnie which shows faulting sub-parallel to the axis very close to the mineralisation. If this is a tin occurrence it may also indicate the sub-surface proximity of a fractionated granitoid apophysis, localised by folding and faulting.

In the north western part of Zone B the sill of Zamu Dolerite seems to have played some part in localising the mineralised quartz veins. The margins of the sill may be faulted but there is no direct evidence for this. The tin occurrence in this area seems to be controlled by fracturing. Again a sub-surface granitoid might be implied. Similarities between the two tin occurrences may suggest that they are parts of the same trend offset by faulting.

5. CONCLUSIONS AND RECOMMENDATIONS:

Exploration in EL 5050 has offered no encouragement for the idea that syngenetic, stratigraphically controlled gold bearing sulphide lenses, similar to those at Mt. Bonnie and Iron Blow mines, might be present in the area.

Three areas, however, show potential for epigenetic gold mineralisation in faulted anticlinal axes in the Mt. Bonnie Formation and in a contact zone of Gerowie Tuff and Zamu Dolerite. Gold assays ranging up to 4 ppm over strike lengths of over 100m have defined target zones with require further, more detailed, assessment. These are zone A. the two parts of zone B and zone C.

All of these areas have been examined at a level only slightly beyond reconnaissance, mapping first at 1:25,000 scale with brief follow-up to provide maps at 1:6,000 which are still virtually sketch maps. The areas are certainly more complex lithologically and structurally in detail than can be indicated thus far.

More detailed lithological and structural mapping should be carried out in prospective areas defined above with costeaning and diamond drilling as an aid to interpretation and to provide more comprehensive sampling at the surface and below the supergene zone.

E X P E N D I T U R E

Geologist	$ 8,750.00
Consultant	$ 1,000.00
Report	$ 6,300.00
Vehicle & Accomodation	$ 6,450.00
Fuel, Servicing & Repairs	$ 450.00
Drafting	$ 800.00
Consumables	$ 210.00
Assyas	$ 2,323.00
Airphotos	$ 110.00
Airfare (Part of)	$ 450.00
Overheads / Administration	$ 4,026.00
TOTAL EXPENDITURE:	$30,869.00

B I B L I O G R A P H Y :

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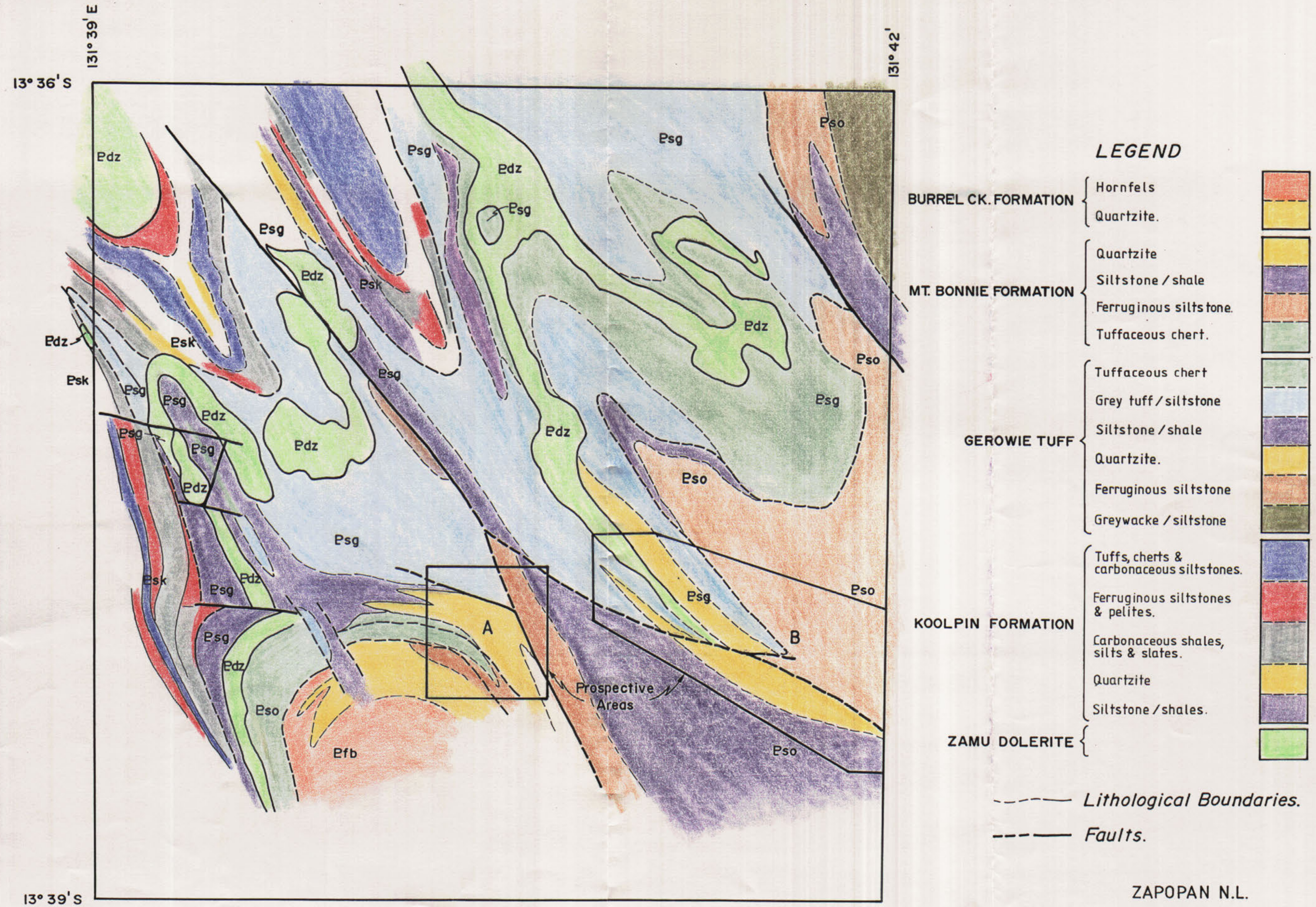
Pine Creek Northern Territory 1:100,000 Geological Series (Shet 5270) and commentary BMR and NTGS Australia

ZAPOPAN N.L.

E.L. 5050

BEDDING / STRUCTURE / AIRPHOTO LINEAMENTS / FORMATIONS

FIGURE 2

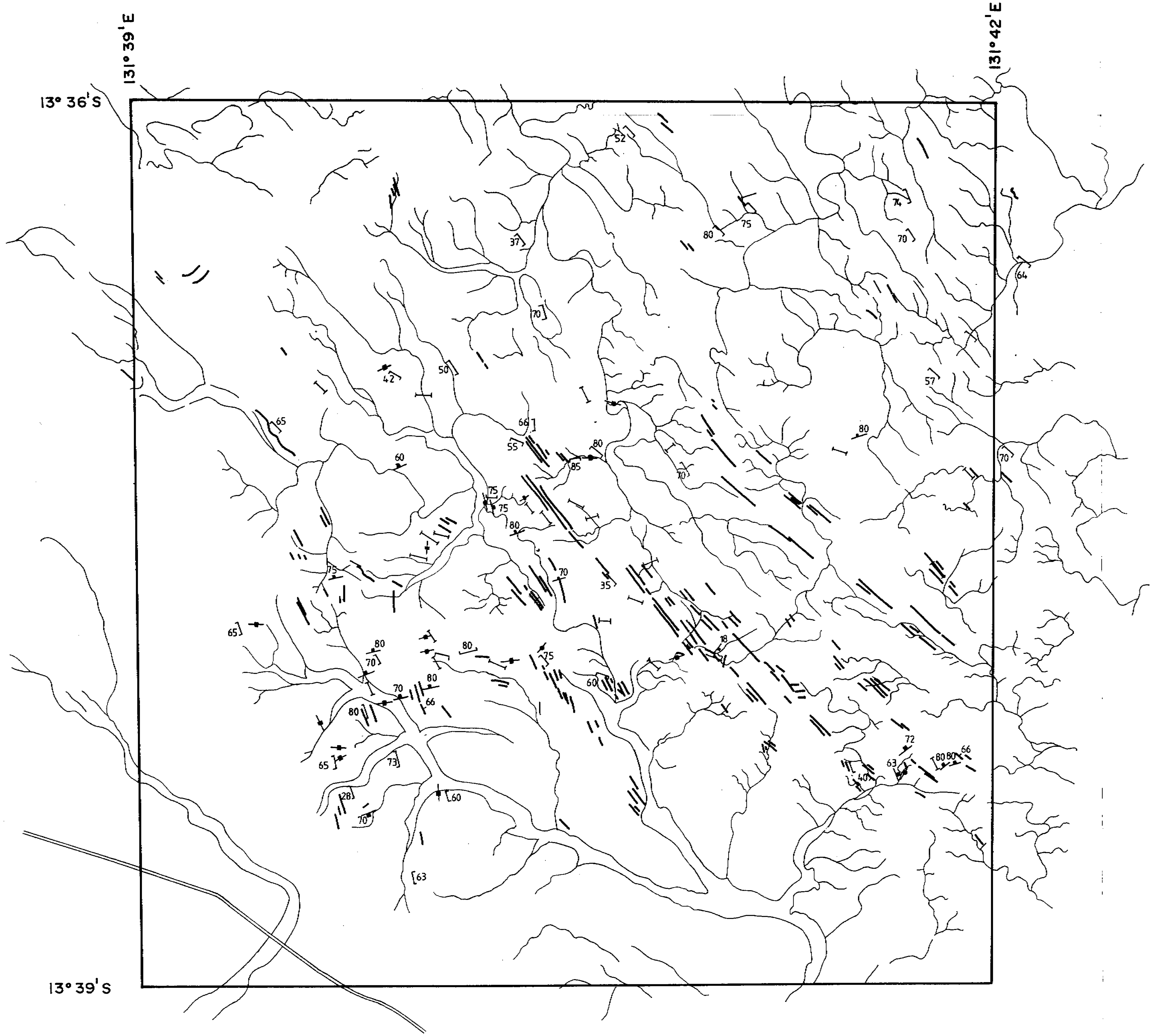


ZAPOPAN N.L.

E.L. 5050

LITHOLOGY

FIGURE 3



LEGEND

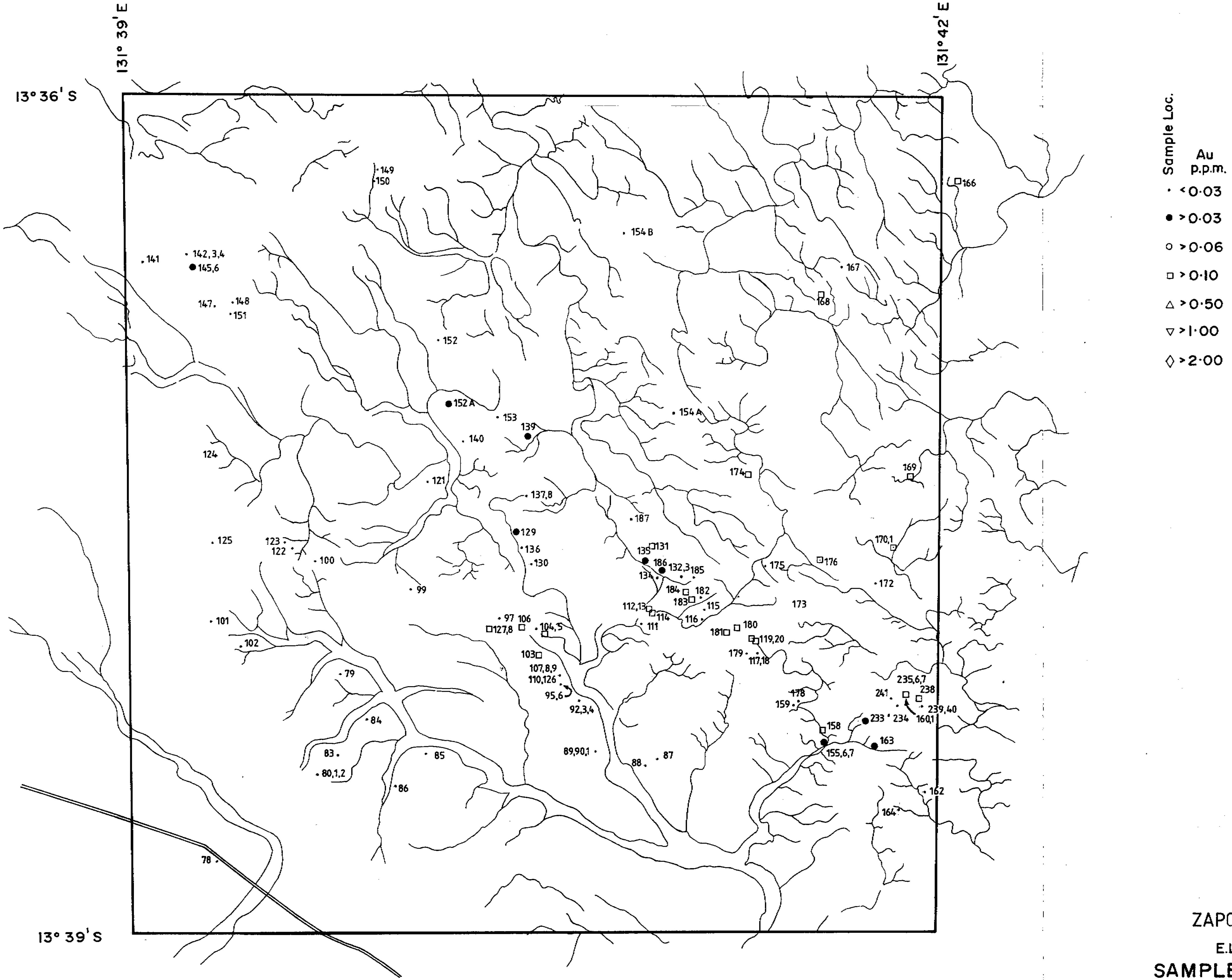
- Strike & Dip of Cleavage.
- Vertical Cleavage.
- Strike & Dip of Joint.
- Vertical Joint
- Quartz Vein

ZAPOPAN N.L.

E.L. 5050

CLEAVAGE / JOINTING / QUARTZ VEINING

FIGURE 4

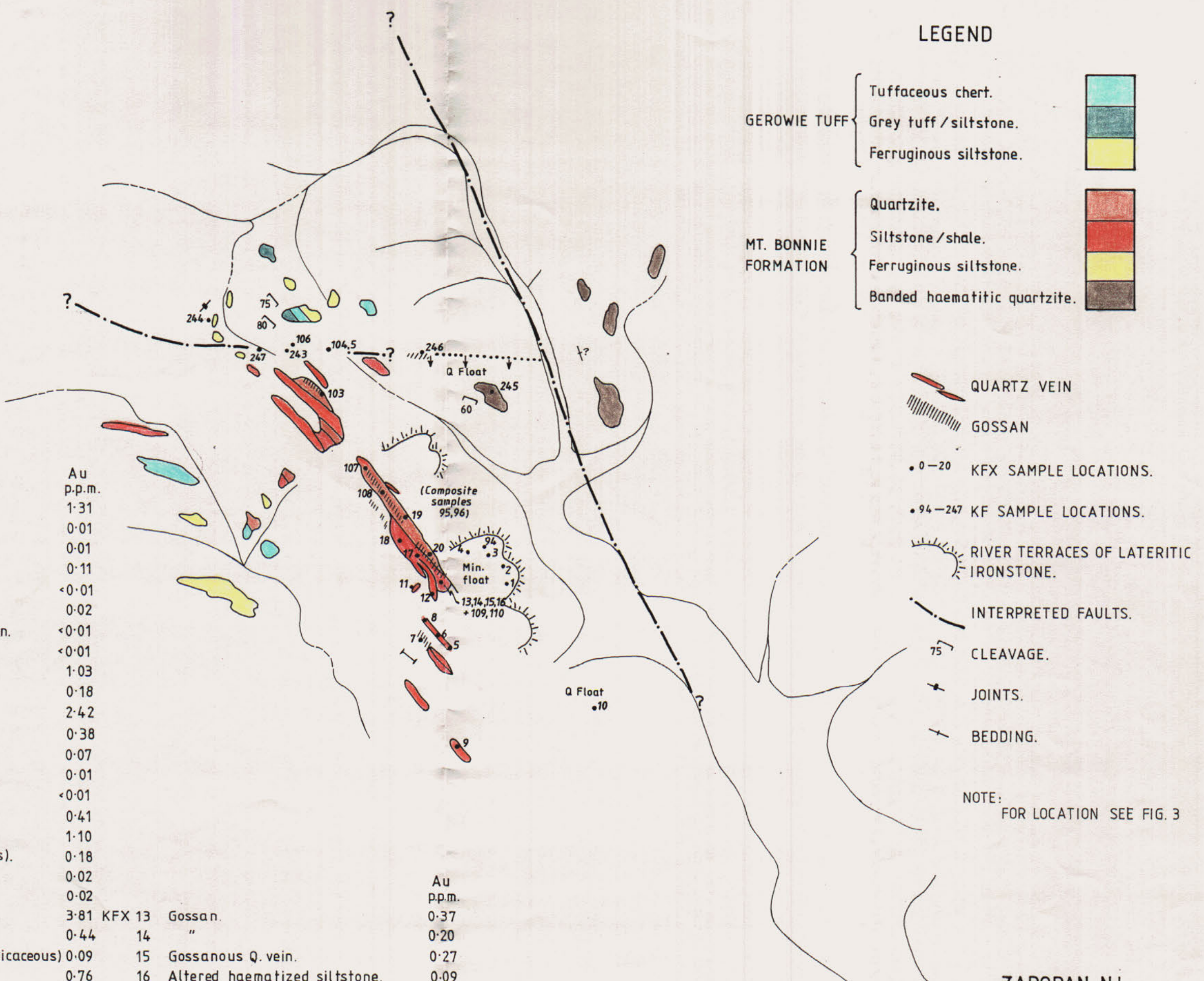


ZAPOPAN N.L.

E.L. 5050

SAMPLE LOCATION & Au ASSAYS

FIGURE 5



			Au p.p.m.
KF	94	Gossanous Q. vein float.	1·31
	95	Gossan in Quartzite.	0·01
	96	" " "	0·01
	103	Gossan in black siltstone.	0·11
	104	Gossan.	<0·01
	105	Gossan in Quartz breccia.	0·02
	106	Composite of gossanous quartz vein.	<0·01
	107	Gossan in Quartzite.	<0·01
	108	" " "	1·03
	109	Gossan in siltstone.	0·18
	110	" " "	2·42
	243	Gossanous Q. vein.	0·38
	244	Ferruginous Quartzite.	0·07
	245	Banded Ferruginous Quartzite	0·01
	246	Gossan & Quartz vein breccia.	<0·01
	247	Quartz Vein.	0·41
KFX	1	Haematite Gossan float.	1·10
	2	" " " (micaceous).	0·18
	3	Weathered Gossan float.	0·02
	4	Gossanous Q. vein float.	0·02
	5	Gossan in Q. vein (green staining).	3·81
	6	Q. vein - looks fairly clean.	0·44
	7	Haematitic / limonitic siltstone (micaceous)	0·09
	8	Q. vein - looks fairly clean.	0·76
	9	Clean Q. vein	0·03
	10	Slightly haematized Q. vein.	0·02
	11	Gossanous Q. vein.	0·83
	12	" " "	0·49

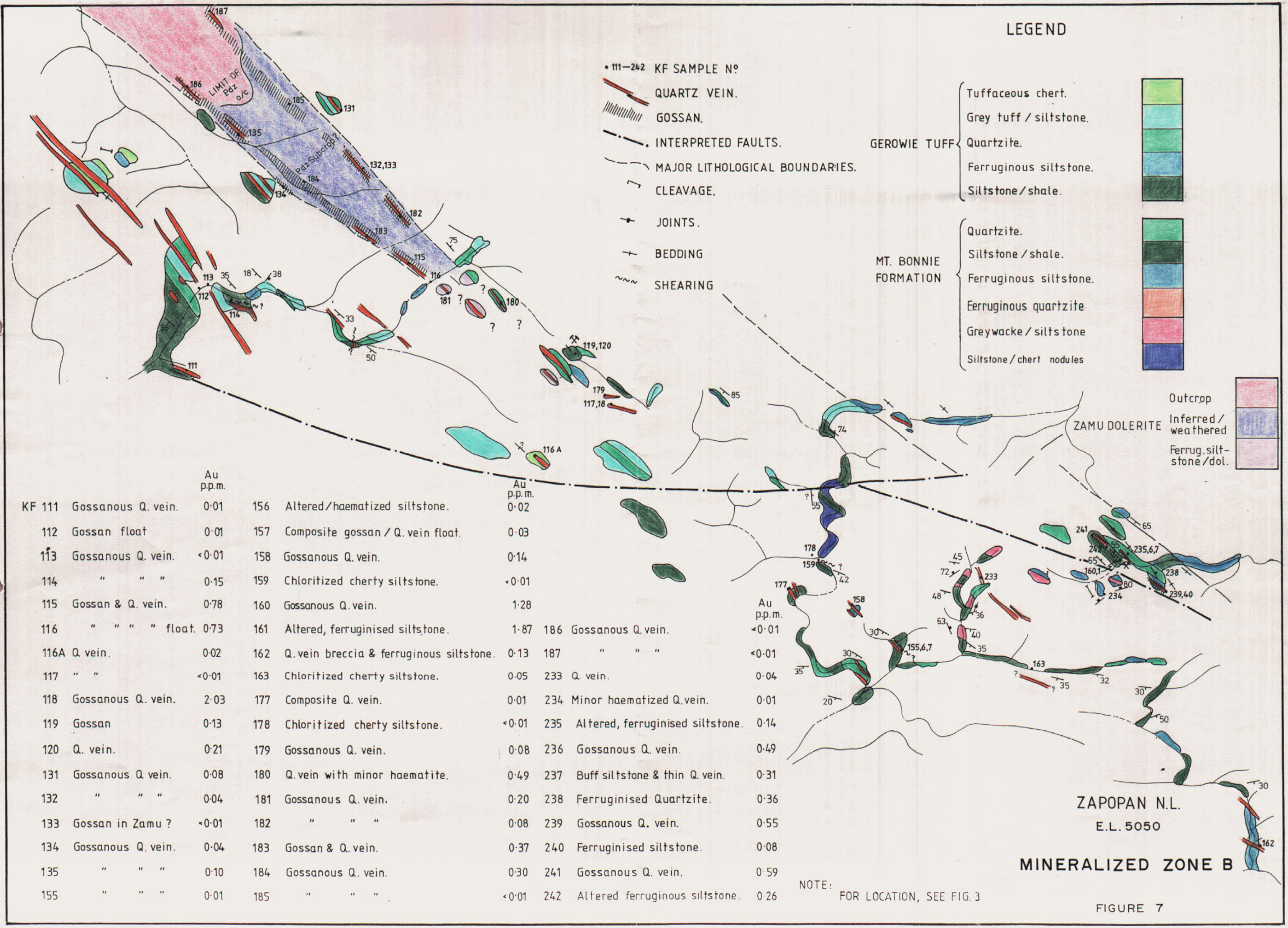
			Au p.p.m.
KFX	13	Gossan.	0·37
	14	"	0·20
	15	Gossanous Q. vein.	0·27
	16	Altered haematized siltstone.	0·09
	17	Ferruginised micaceous sandstone.	0·39
	18	Gossanous Q. vein.	0·06
	19	Haematized Quartzite & Q. vein.	0·02
	20	Gossanous grey siltstone.	<0·01

APPROX. SCALE
1 : 6000
0 100 200 300 m

ZAPOPAN N.L.
E.L. 5050

MINERALIZED ZONE A

FIGURE 6



KF		Au p.p.m.			Au p.p.m.			Au p.p.m.
111	Gossanous Q. vein.	0·01	156	Altered/haematized siltstone.	0·02			
112	Gossan float	0·01	157	Composite gossan / Q. vein float.	0·03			
113	Gossanous Q. vein.	<0·01	158	Gossanous Q. vein.	0·14			
114	" " "	0·15	159	Chloritized cherty siltstone.	<0·01			
115	Gossan & Q. vein.	0·78	160	Gossanous Q. vein.	1·28			
116	" " " " float.	0·73	161	Altered, ferruginised siltstone.	1·87	186	Gossanous Q. vein.	<0·01
116A	Q. vein.	0·02	162	Q. vein breccia & ferruginous siltstone.	0·13	187	" " "	<0·01
117	" "	<0·01	163	Chloritized cherty siltstone.	0·05	233	Q. vein.	0·04
118	Gossanous Q. vein.	2·03	177	Composite Q. vein.	0·01	234	Minor haematized Q. vein.	0·01
119	Gossan	0·13	178	Chloritized cherty siltstone.	<0·01	235	Altered, ferruginised siltstone.	0·14
120	Q. vein.	0·21	179	Gossanous Q. vein.	0·08	236	Gossanous Q. vein.	0·49
131	Gossanous Q vein.	0·08	180	Q. vein with minor haematite.	0·49	237	Buff siltstone & thin Q. vein.	0·31
132	" " "	0·04	181	Gossanous Q. vein.	0·20	238	Ferruginised Quartzite.	0·36
133	Gossan in Zamu ?	<0·01	182	" " "	0·08	239	Gossanous Q. vein.	0·55
134	Gossanous Q. vein.	0·04	183	Gossan & Q. vein.	0·37	240	Ferruginised siltstone.	0·08
135	" " "	0·10	184	Gossanous Q. vein.	0·30	241	Gossanous Q. vein.	0·59
155	" " "	0·01	185	" " "	<0·01	242	Altered ferruginous siltstone.	0·26

MINERALIZED ZONE B

FIGURE 7

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT: PC 13568

Sample	Au	Au(R)	As	Ag	Cu	Pb	Zn
KFX 1	1.10	1.15	3900	4	--	--	--
KFX 2	0.18		2260	5	--	--	--
KFX 3	0.02	0.05	1240	1	--	--	--
KFX 4	0.02	0.05	1330	<1	--	--	--
KFX 5	3.81	3.84	1480	4	--	--	--
KFX 6	0.44	0.40	320	<1	--	--	--
KFX 7	0.09		370	<1	--	--	--
KFX 8	0.76	0.74	420	2	--	--	--
KFX 9	0.03		220	<1	--	--	--
KFX 10	0.02		180	<1	--	--	--
KFX 11	0.83	0.99	390	<1	--	--	--
KFX 12	0.49	0.47	360	1	--	--	--
KFX 13	0.37	0.36	2040	5	341	930	4000
KFX 14	0.20		1190	2	150	244	1950
KFX 15	0.27		3490	3	337	241	3040
KFX 16	0.09		3680	2	328	133	2210
KFX 17	0.39	0.43	810	17	--	--	--
KFX 18	0.06		1300	2	--	--	--
KFX 19	0.02		670	<1	--	--	--
KFX 20	<0.01		2360	1	--	--	--

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT: PC 13520

Sample	Au	Au(R)	As	Ag	Cu	Pb	Zn	Au(R)2
KF 098	<0.01		230	<1	--	--	--	
KF 099	<0.01		760	1	--	--	--	
KF 100	<0.01		1200	1	--	--	--	
KF 101	<0.01	<0.01	690	<1	--	--	--	
KF 102	<0.01		790	1	146	185	840	
KF 103	<0.01		670	<1	58	94	102	
KF 104	1.03	1.01	4100	10	560	9300	780	
KF 105	0.18	0.22	750	3	78	1330	59	0.18
KF 106	2.42	2.63	3400	27	950	1.23%	354	
KF 107	0.11	0.09	380	1	91	386	250	
KF 108	<0.01		310	1	--	--	--	
KF 109	0.02		350	<1	--	--	--	
KF 110	<0.01		180	<1	--	--	--	
KF 111	0.01		1310	<1	--	--	--	
KF 112	0.11		490	1	--	--	--	
KF 113	<0.01	0.04	400	1	60	271	11	
KF 114	0.15		3300	<1	173	72	31	
KF 115	0.78	0.82	4800	<1	850	300	73	
KF 116	0.73	0.81	1650	1	--	--	--	
KF 116A	0.02	<0.01	340	<1	--	--	--	
KF 117	<0.01		170	<1	--	--	--	
KF 118	2.03	2.10	300	<1	--	--	--	
KF 119	0.13		690	<1	26	68	8	
KF 120	0.21		380	<1	53	64	10	
KF 121	<0.01		900	<1	36	79	32	

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT: PC 13608

Sample	Au	Au(R)	Ag	As	Cu	Pb	Zn
KF 131	0.08		1	3650	383	65	98
KF 132	0.04		<1	500	319	56	13
KF 133	<0.01		<1	760	209	54	16
KF 134	0.04		1	3610	150	69	14
KF 135	0.10		<1	4100	1530	297	49
KF 136	0.01		<1	190	54	58	96
KF 137	0.02		<1	860	68	59	10
KF 138	0.06	0.06	<1	1590	73	60	15
KF 139	0.04		<1	3100	450	168	16
KF 140	<0.01		<1	240	45	45	11
KF 141	<0.01		<1	250	41	37	71
KF 142	<0.01		<1	700	296	730	810
KF 143	<0.01		<1	720	247	580	800
KF 144	<0.01		<1	520	121	285	480
KF 145	0.04	0.03	1	210	60	56	16
KF 146	<0.01		<1	320	404	41	173
KF 147	0.02		<1	200	51	59	9
KF 148	<0.01		<1	270	160	60	272
KF 149	<0.01		1	730	252	65	41
KF 150	0.01		1	1020	390	50	99
KF 151	<0.01	0.01	<1	440	268	60	177

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT: PC 13659

Sample	Au	Au(R)	As	Ag	Cu	Pb	Zn
KF 152	0.03		3500	<1	560	106	28
KF 153	0.02		570	<1	320	32	8
KF 154	0.01		210	<1	48	22	5
KF 154B	0.01		2220	<1	590	420	59
KF 155	0.01		120	<1	212	21	14
KF 156	0.02		130	<1	53	10	14
KF 157	0.03		130	<1	172	14	17
KF 158	0.14	0.11	520	<1	130	16	9
KF 159	<0.01	<0.01	110	<1	40	19	7
KF 160	1.28	1.19	1020	<1	113	26	14
KF 161	1.87	1.94	830	<1	90	21	23
KF 162	0.13		240	<1	560	22	4
KF 163	0.05	0.06	160	<1	61	19	7
KF 164	<0.01		300	<1	93	22	77

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT: PC 13713

Sample	Au	Au(R)	As	Ag	Cu	Pb	Zn
KF 166	0.10		150	<1	--	--	--
KF 167	<0.01		160	<1	--	--	--
KF 168	0.35		750	1	--	--	--
KF 169	0.12		230	<1	--	--	--
KF 170	1.49	1.52	2300	<1	--	--	--
KF 171	0.13		530	<1	690	135	146
KF 172	<0.01		1860	<1	--	--	--
KF 173	<0.01		470	<1	--	--	--
KF 174	0.18		5400	<1	--	--	--
KF 175	0.09		1480	<1	--	--	--
KF 176	0.17		5800	<1	--	--	--
KF 177	0.01		670	<1	--	--	--
KF 178	<0.01		150	<1	39	30	6
KF 179	0.08		520	<1	132	31	41
KF 180	0.49		1350	<1	--	--	--
KF 181	0.20	0.20	280	<1	--	--	--
KF 182	0.08		3620	<1	--	--	--
KF 183	0.37		2700	<1	--	--	--
KF 184	0.30		710	<1	--	--	--
KF 185	<0.01		4300	<1	--	--	--
KF 186	<0.01	<0.01	2970	<1	--	--	--
KF 187	<0.01		5400	<1	--	--	--

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT : PC 013823

Sample	Au	Au(R)	As	Ag	Cu	Pb	Zn
KF 222	<0.01		100	<1	—	—	—
KF 223	0.01		110	<1	—	—	—
KF 224	<0.01		<100	<1	—	—	—
KF 225	0.06		480	<1	24	58	2
KF 226	0.03	0.07	310	<1	10	56	<2
KF 227	<0.01		<100	<1	45	32	<2
KF 228	<0.01		100	<1	<2	41	<2
KF 229	<0.01		110	<1	9	26	<2
KF 230	0.01		<100	<1	—	—	—
KF 231	<0.01	<0.01	<100	<1	—	—	—
KF 232	<0.01		<100	<1	—	—	—
KF 233	0.04		450	<1	—	—	—
KF 234	0.01		900	<1	198	65	28
KF 235	0.14		1160	<1	55	58	15
KF 236	0.49	0.56	1810	<1	—	—	—
KF 237	0.31		1640	<1	—	—	—
KF 238	0.36		830	<1	—	—	—
KF 239	0.55	0.54	910	1	144	80	16
KF 240	0.08		580	<1	—	—	—
KF 241	0.59	0.62	1760	<1	—	—	—
KF 242	0.26		790	1	—	—	—
KF 243	0.38		2280	3	323	383	183
KF 244	0.07		570	<1	—	—	—
KF 245	0.01		510	1	76	108	108
KF 246	<0.01	0.04	870	1	—	—	—

Data in ppm unless otherwise stated.

ANALYSIS REPORT

Australian Assay Laboratories Group

REPORT : PC 013823

Sample	Au	Au(R)	As	Ag	Cu	Pb	Zn
KF 247	0.41	0.37	1960	2	—	—	—

Data in ppm unless otherwise stated.