fractures, potassic alt.(med.)

94.20 to 98.60m diabase. Greenish grey, cal.veinlets (w: 0.1cm to 0.5cm)

98.60m to 100.55m med. hb.bear.bi.granite. Pinkish, silic, epi.-chl.(med.) along fractures, potassic alt.(med.)

Mineralization: From 0.00m until 25.20m, due the saprolite, characteristics of gold mineralization were not observed, but the gold average grade between 9.00m and 11.00m was 0.87g/t. Weak py dissemintation and innumerous thin qz. veins were observed between 25.20m and the hole bottom (100.55m). The gold average grade between 30.00m and 33.00m was 0.61g/t. Pyrite, chalcopyrite, hematite, calcocite and covelite were observed between 30.70m and 32.70m.

Alteration: Strong to medium chlorite alteration, epidote alteration and potassic alteration was observed from 20.75m until hole bottom (100.55m). Strong silicification was observed from 30.00m to 100.55m.

(6) Discussion

The cross section of borehole MJBA-1 was presented in Fig II-3-19 and Fig II-3-20 and the cross section of borehole MJBA-2 was presented in Fig II-3-21.

The borehole MJBA-1 confirmed that the gold mineralization in Serrinha do Guaranta garimpo area is related to quartz vein filling sub-vertical shearing zone. It also confirmed that the copper mineralization is confined within black schist, but the primary source of copper anomaly was not clarified. Thin section and polished section could not identify any mineral associated to the copper anomaly. Analytical results from borehole MJBA-1 showed a gold grade of 1.76g/t between 15.00m and 16.00m and an average gold grade of 2.51g/t between 24.00m and 28.00m. The 4m wide gold grade of 2.51g/t were related to strongly brecciated schist, mixed with qz fragments. The borehole MJBA-1 also presented an average gold grade of 1.24g/t between 38.00m and 40.00m and this value was related to pyrite rich quartz. The MJBA-1 showed strongly anomalous copper values. The average copper grade between 0.00m and 8.00m was 0.38% and between 15.00m and 26.00m was 0.24%. The highest copper grade was observed between 35.00m and 45.00m, presenting an average of 1.41% Cu.

The borehole MJBA-2 showed that the gold anomaly in Aluizio is not wide and it is associated to quartz veins filling shearing zone. The gold average grade confirmed by MJBA-2 is low, presenting 0.87g/t between 9.00m and 11.00m and 0.61g/t between 30.00m and 33.00m. Weak py dissemintation and innumerous thin qz. veins were observed between 25.20m and the hole bottom (100.55m). Pyrite, chalcopyrite, hematite, calcocite and covelite were observed between 30.70m and 32.70m.

3-5 Consideration

Archean to Lower Proterozoic Xingu Complex (Px), Dykes and Quaternary sediment compose the geology of F block (Fig II-3-3). Shearing zones along WNW-ESE direction is the main geological structure of F block and inside these shearing structures are observed some primary gold garimpo as

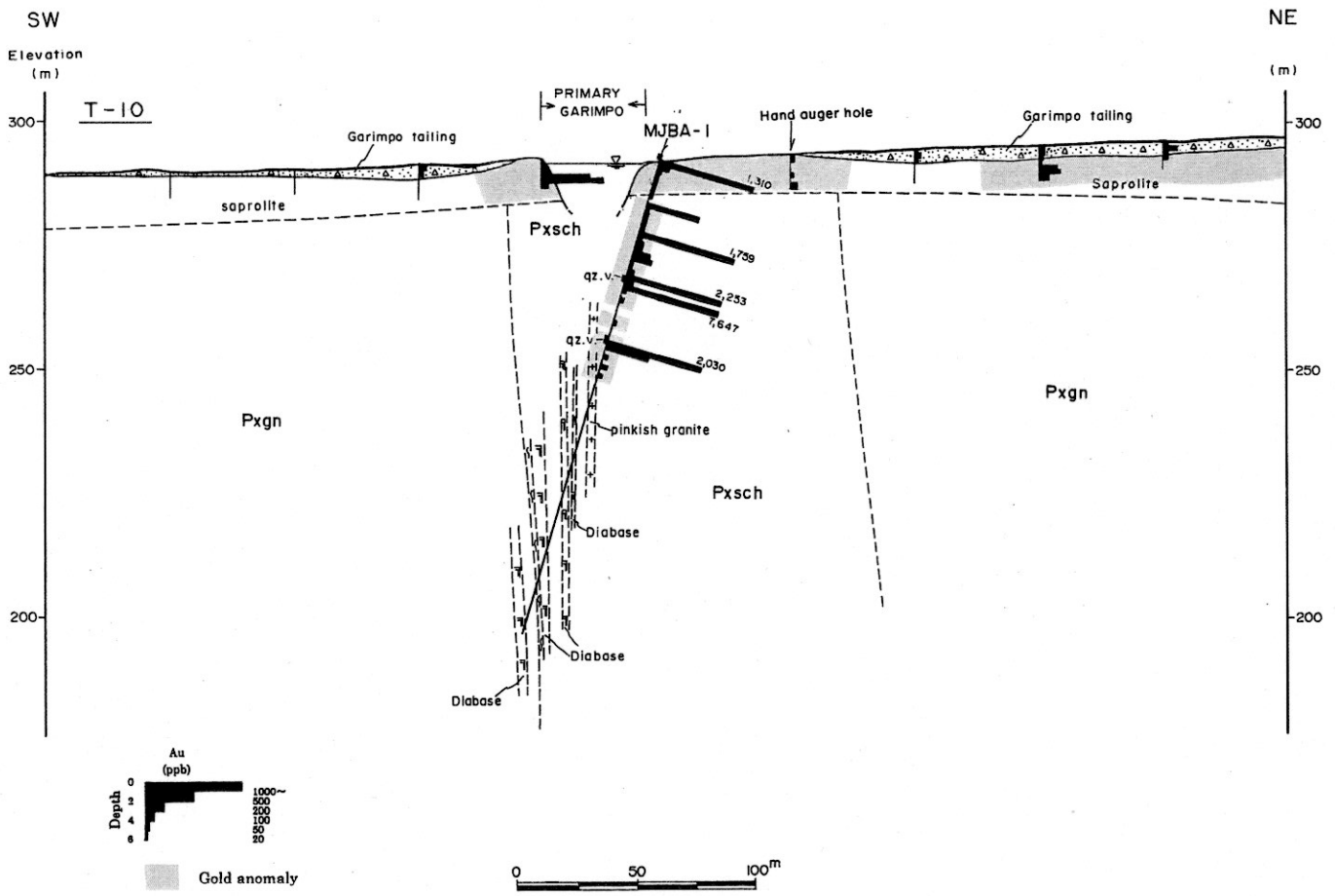


Fig. II-3-19 Cross section of borehole sites in the Serrinha do Guaranta area (Au)

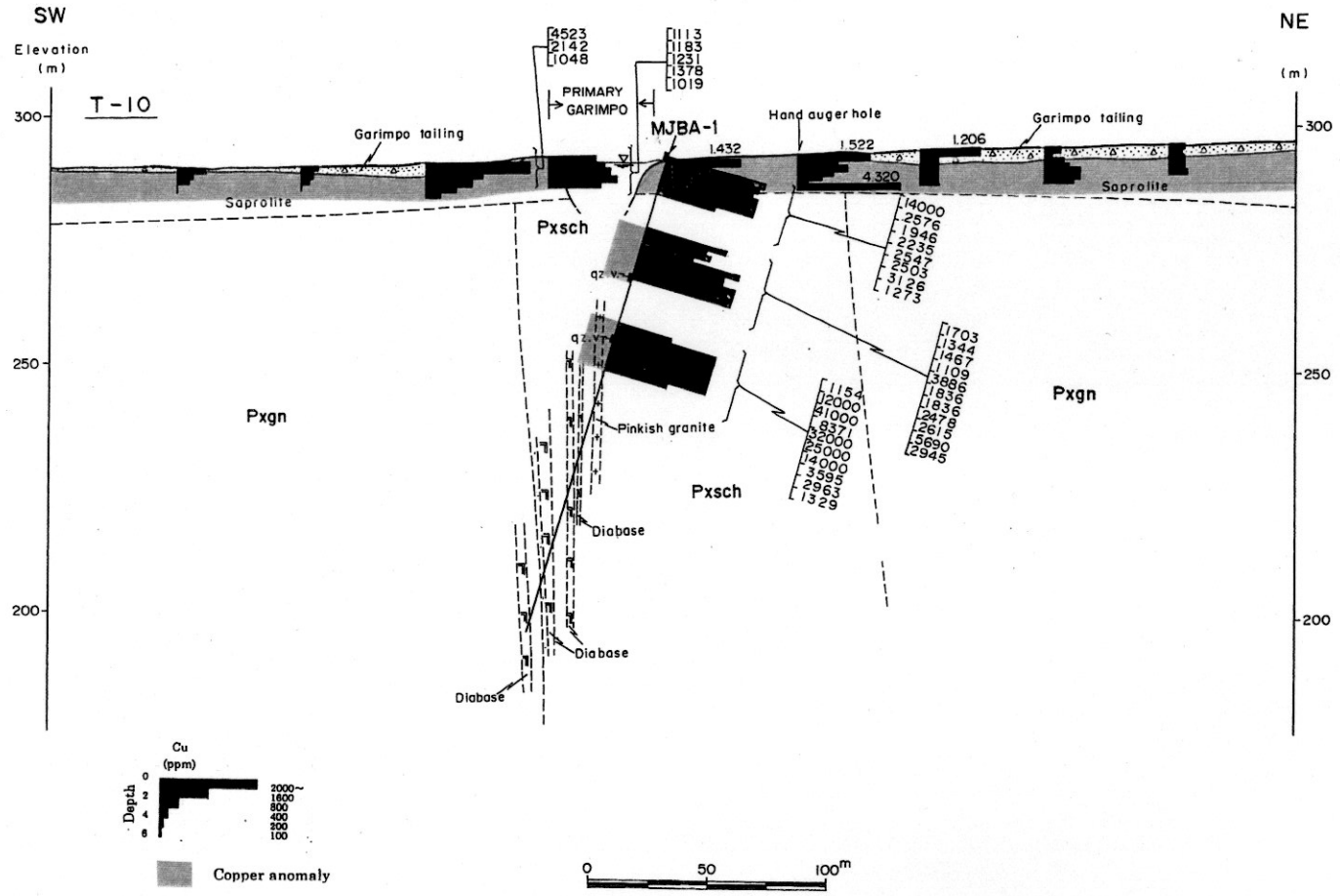


Fig. II-3-20 Cross section of borehole sites in the Serrinha do Guaranta area (Cu)

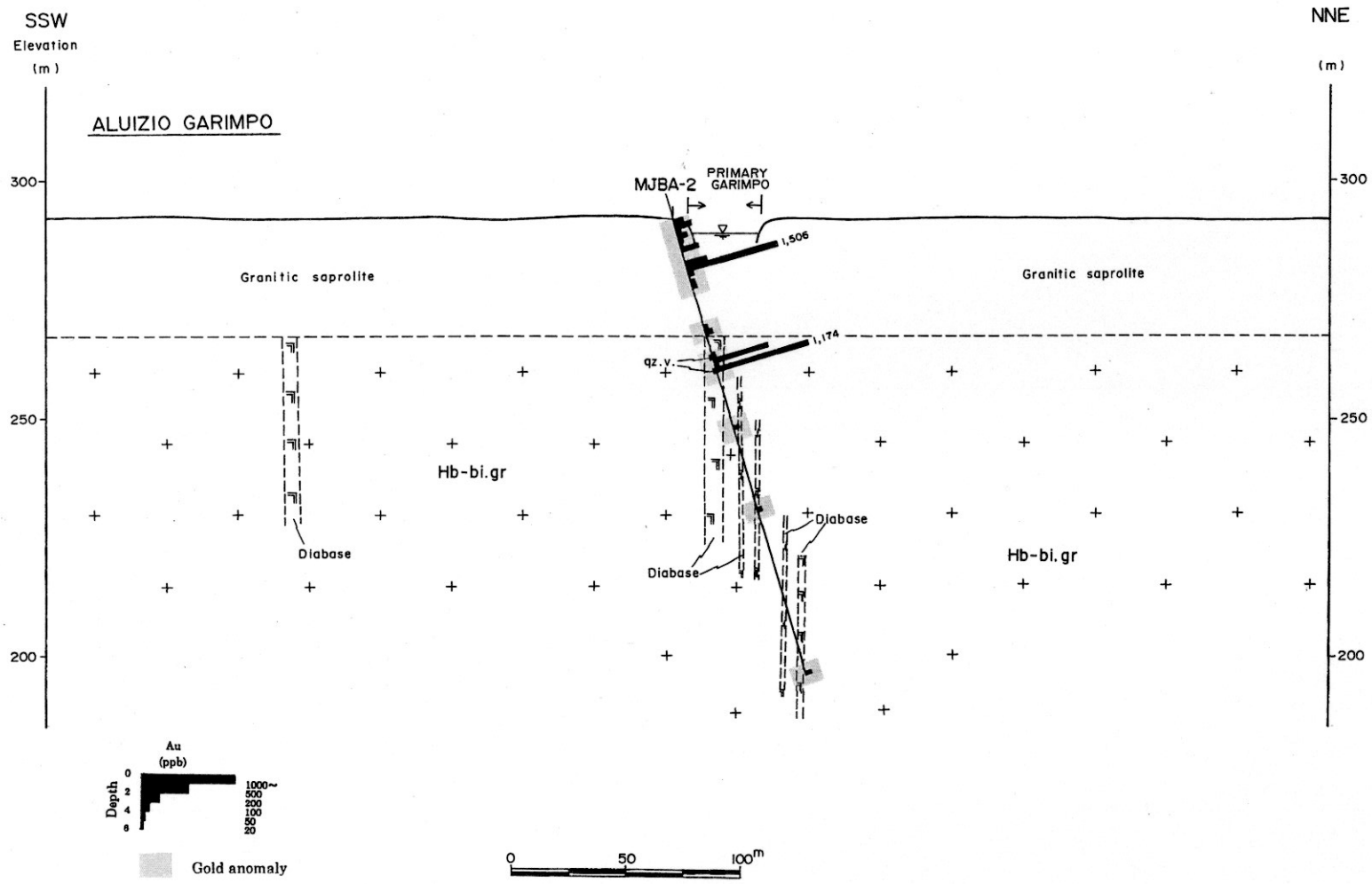


Fig. II-3-21 Cross section of borehole sites in the Garimpo Aluizio area

exemplified by the Aluizio garimpo.

Result of regional soil geochemical survey confirmed the presence of two major trends for the gold anomalies in the F block, as observed in the compiled map on the Fig II-3-8. NW-SE gold anomalies trend was observed in the southwestern part and WNW-ESE trend were observed in the central part and central north part of F block. These gold anomaly trends were interpreted as reflecting gold mineralization strongly controlled by shearing structures. The gold anomaly at the central north part of F block embodies the Aluizio garimpo and it shows the same WNW-ESE shearing direction. The southwest gold soil anomaly that embodies the Serrinha do Guaranta garimpo area was interpreted as controlled by both, shearing structures and lithology. In Serrinha do Guaranta, the direction of the shearing and the outcrop of talc-chlorite-schist has the same NW-SE direction.

The multi element analysis made in regional soil geochemical samples showed a close association between Au and Cu in the southwestern gold soil anomaly and this metal signature possibly is reflecting gold mineralization adjacent to the intrusive center.

The auger survey confirmed that the gold anomaly in soil and in saprolite extends toward north and its results confirmed the wide gold anomaly in soil obtained by the regional geochemical survey. The auger survey also showed that the gold mineralization of Serrinha do Guaranta is not continuous and probably present a form of boudinage structure.

The borehole MJBA-1 (Fig. II-3-19) confirmed that gold bearing sulfide rich quartz vein fills the NW direction subvertical ductile shearing in talc chlorite schist. It also confirmed copper mineralization within schist and a maximum average grade of 1.41 % Cu in 10m coring was obtained.

Gold mineralization in Aluizio Garimpo is related to parallel and sulfide rich quartz veins that fill a N80W direction-shearing zone. The parallel quartz veins are inserted in a shear zone that locally present 8 meters width and a confirmed length of more than 500 meters. The borehole MJBA-2 (Fig. II-3-21) confirmed that gold mineralization is associated to quartz veins and the core analysis results presented an average gold grade of 0.87g/t between 9.00m and 11.00m and 0.61g/t between 30.00m and 33.00m. The drilling results confirmed a low grade and narrow gold mineralization in the Aluizio garimpo.

CHAPTER 4 G BLOCK AREA

4-1 Location of the Survey Area

As shown in Fig. 2, G block is located in the eastern part of the project area and 40 km west from Matupa City.

4-2 Survey methods

During the Phase II, the following surveys were carried out within the G block area.

4-2-1 Geochemical survey

(1) Field survey

The Phase I geologic survey indicated that the G block area presents a high gold potentiality. The soil geochemical survey was performed by the same method adopted in the Phase I survey. Also a concomitant geological survey was carried out in G block during the geochemical survey.

(2) Sample collection and sample preparation

Geochemical sampling lines were arranged in the survey area as shown in Fig. II-4-1. The soil samples were collected along the lines made by keeping an space of 1,200m between lines with a sampling interval of 100m. The sample preparation was similar to the proceeding carried out in B block.

4-3 Geology

A geological survey was carried out along the sampling lines during the soil geochemical survey. Their results are described as follows.

(1) Stratigraphy

The G block region is represented by the following geologic units: Xingu Complex(Px), Teles Pires granite (Gru), Dykes(Di) and Quaternary age Recent alluvium.

The Fig II-4-12 shows the geologic map and gold garimpo sites.

(i) Xingu Complex(Px)

The Xingu Complex unit outcrops in the entire G block area and it is composed of biotite gneiss

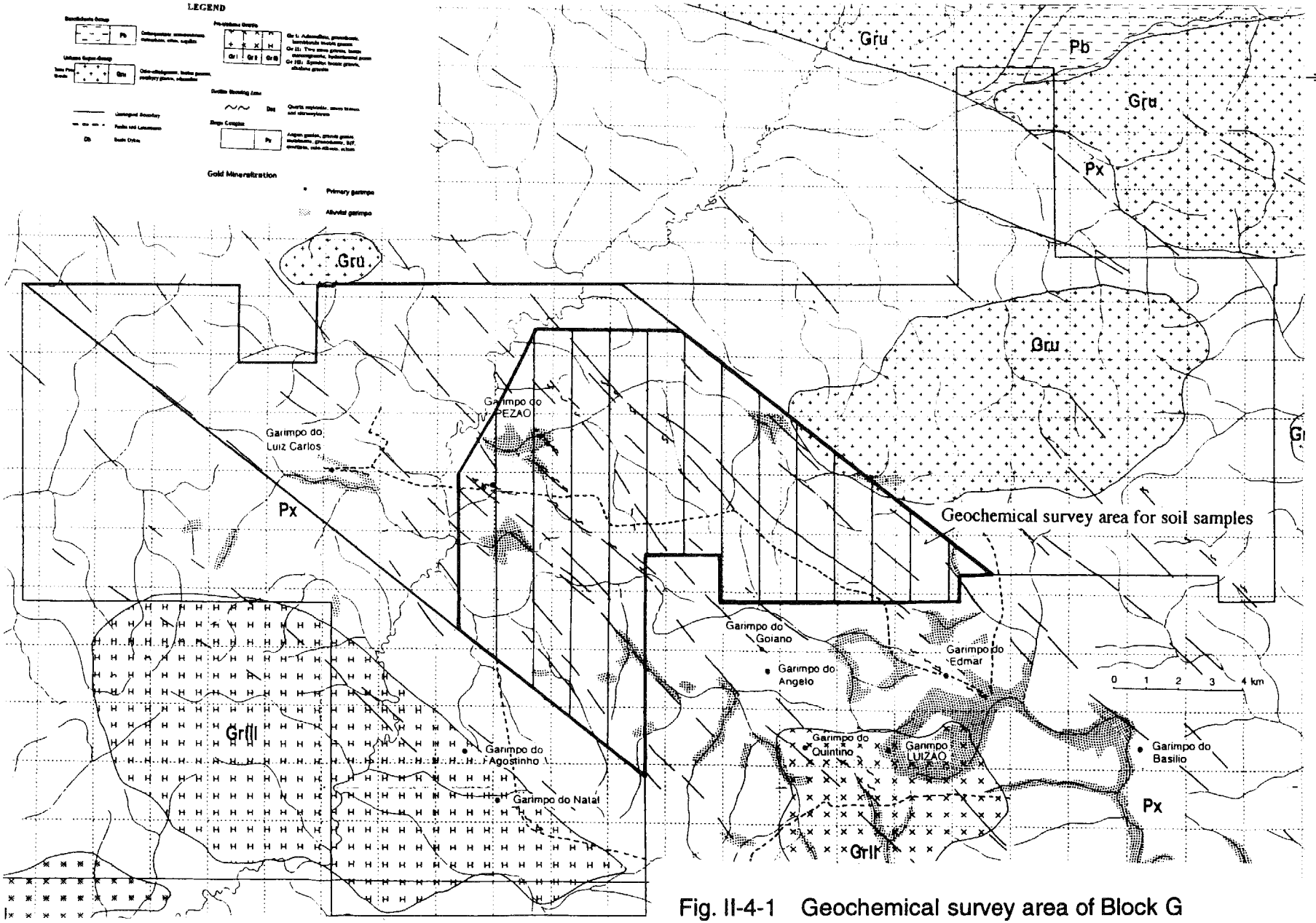


Fig. II-4-1 Geochemical survey area of Block G

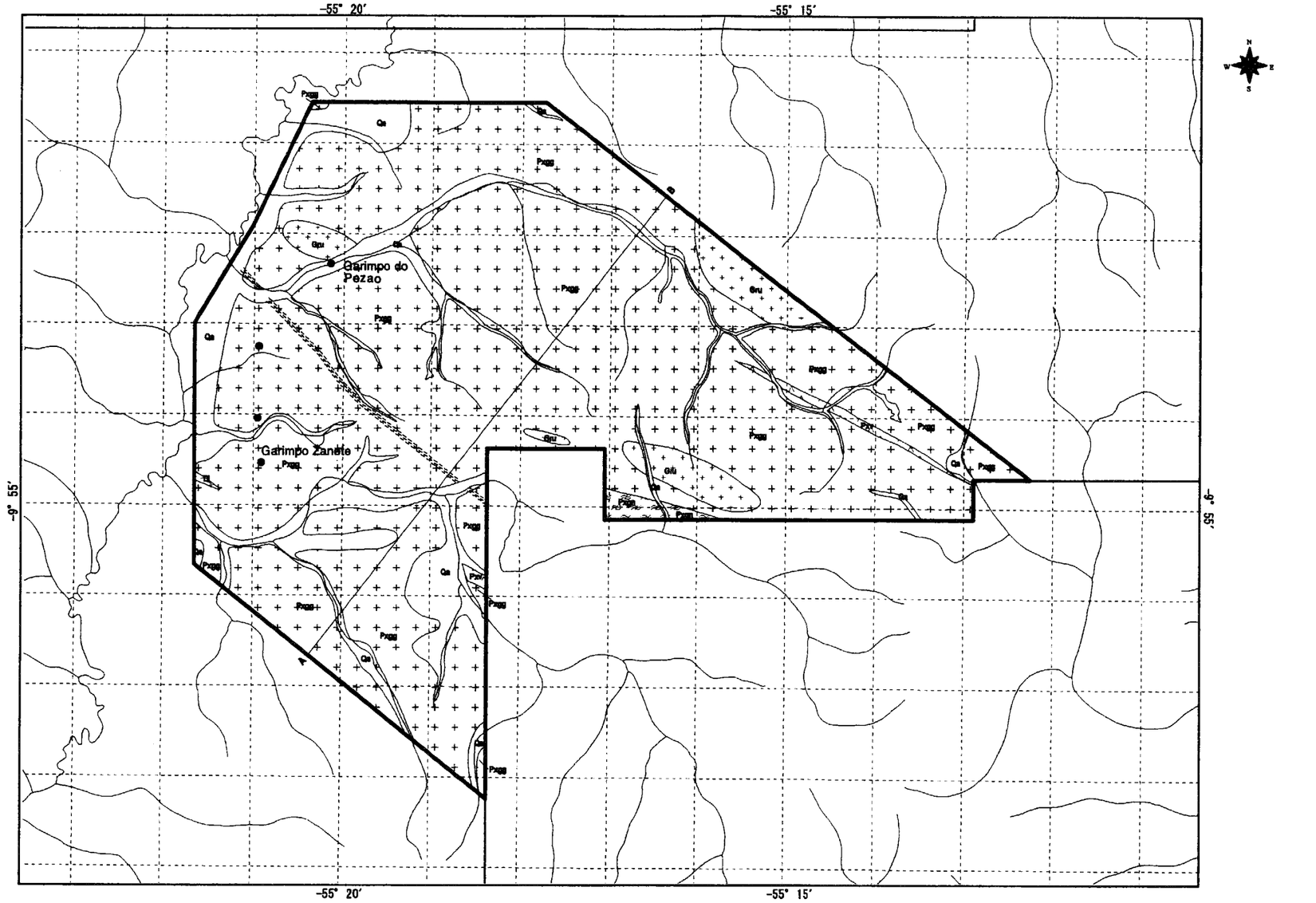


Fig. II-4-2 Geological map and cross section of Block G

(Pxgn), gneissose granite (Pxgg) and volcanic rocks (Pxv). Biotite gneiss (Pxgn) is rarely distributed in the south end of G block and it is coarse to medium grained. Gneissose granite (Pxgg) is distributed in the G block and its composition is a medium to fine grained biotite granite. Microscopic observation on the sample (A2404, appendix 1) showed that the granite present a hypidiomorphic-granular texture and includes alteration mineral as chlorite sericite and epidote.

Volcanic rocks (Pxv) exposition trend to WNW-ESE direction at the northeastern part of G block. The rock is composed of welded tuff. Microscopic observation (A2407, appendix 1), showed that the granite presents hypidiomorphic-granular texture and includes alteration mineral as chlorite and sericite.

(ii) Teles Pires granite(Gru)

Teles Pires granite(Gru) is distributed in the northeastern part, central part and in the western part of the G block. The granite composition is a pinkish biotite granite, porphyritic potassic feldspar. Microscopic observation (samples A2403 and G1014200, appendix 1), showed that the granite presents hypidiomorphic-granular texture and includes alteration mineral as chlorite, sericite and epidote.

(iii) Dykes (Di)

The dykes are essentially of diabase composition and its intrusion is probably controlled by the shearing structure.

(iv) Quaternary (Qa)

The quaternary (Qa) is mainly alluvial deposits that are distributed in the rivers flat.

(2) Geological structure

Shearing zones along WNW-ESE direction is the main geological structure observed in the G block. Milonitic floats detected the shearing zone in the western part of G block.

(3) Mineralization

Primaries gold garimpo are present in the western part of G block and they are described as follows:

(i) Zanete garimpo

Primary gold garimpo named Zanete is located at the southwestern part of G block, as shown in Fig II-4-2. The sketch of the Zanete garimpo is shown in Fig II-4-3. The Zanete pit is approximately 7 m in length along east-west direction and 3 m depth. The gold mineralization is related to a quartz vein trending to E-W and filling granitic saprolite. Microscopic observation indicated that the quartz vein includes goethite, hematite and limonite. The ores samples presented the following results: four quartz

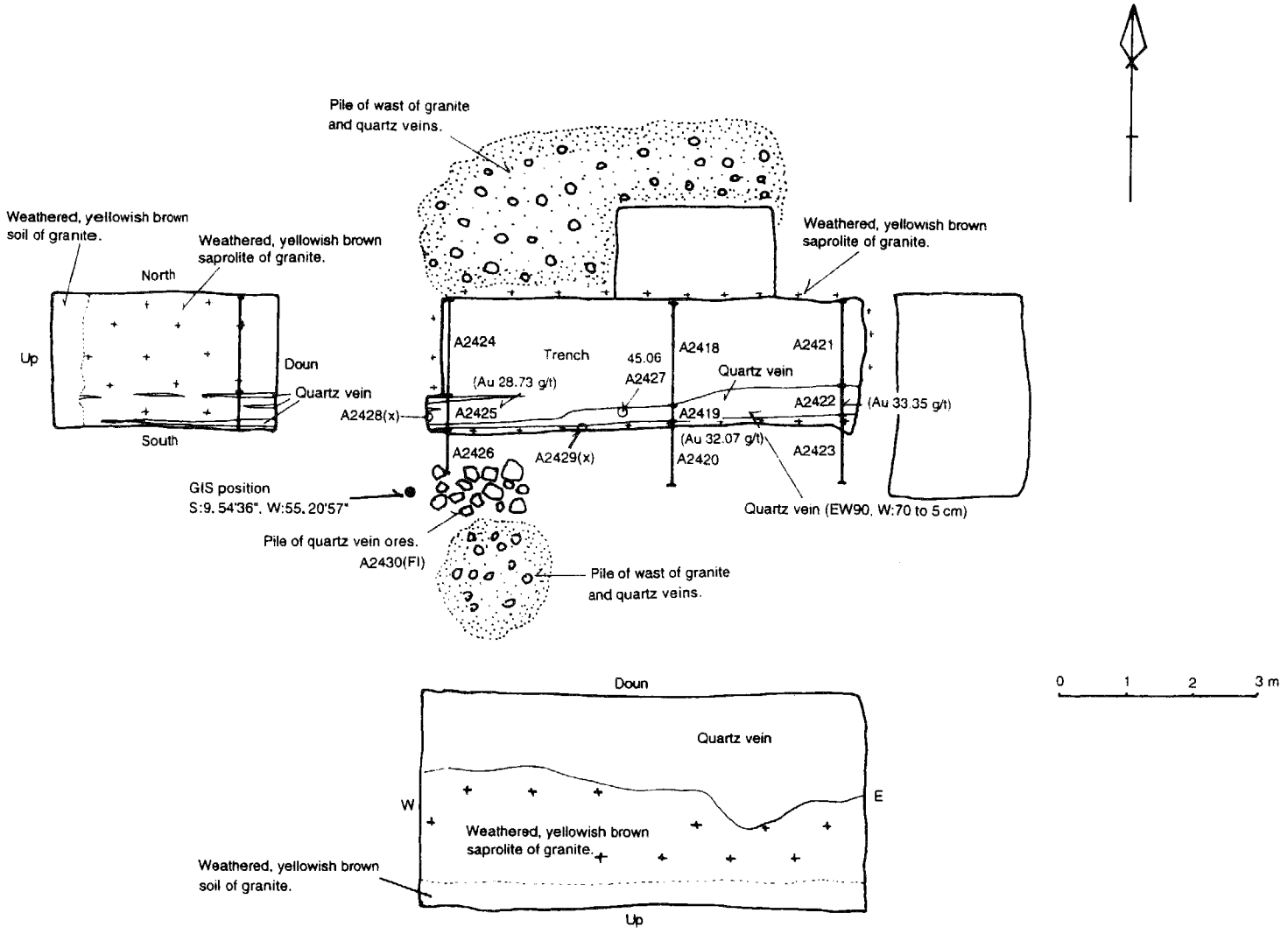


Fig. II-4-3 Sketch of mineral showing in Zanete garimpo

Table II-4-1 Ore assay of mineral showing of Zanete in Block G

Ser. No.	Sample No.	Description	Assay Results								
			Au (ppm)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Fe (%)	As (ppm)	Bi (ppm)	Mn (ppm)
1	A2418	brown soiled granitic rock (channel sample: 1.5m)	0.42	<0.2	111	33	11	2.75	1.2	0.7	513
2	A2419	Quartz vein with Hm and Goethite (W: 30 cm)	32.07	4.3	220	15	14	3.25	4.3	13.1	72
3	A2420	brown soiled granitic rock (channel sample: 1.5m)	0.55	<0.2	150	13	19	6.30	1.8	1.3	240
4	A2421	brown soiled granitic rock (channel sample: 1.5m)	0.27	<0.2	67	13	13	3.13	<1	0.5	115
5	A2422	Quartz vein with Hm and Goethite (W: 50 cm)	33.35	3.2	93	19	9	2.49	1.5	7.7	114
6	A2423	brown soiled granitic rock (channel sample: 1.5m)	6.62	0.2	130	15	15	4.76	1.7	3.7	276
7	A2424	brown soiled granitic rock (channel sample: 1.5m)	0.14	<0.2	72	11	11	2.83	<1	<0.2	129
8	A2425	Quartz veins (10 cm & 3 cm) with Hm and Goethite (W: 50 cm)	28.73	5.2	302	27	15	4.93	3.9	15.7	665
9	A2426	brown soiled granitic rock (channel sample: 1.5m)	1.04	<0.2	83	12	15	5.01	1.6	1.6	569
10	A2427	Spot sample of quartz vein with Hm & goethite (Py holes) (20 cm x 20 cm x 20 cm)	45.06	4.1	116	11	13	1.78	2.1	8.6	33

veins samples showed gold values between 28.73 g/t and 45.06g/t. Fluid inclusion tests in the sample A2430 showed a salinity of 7.5% NaCl and homogenization temperatures averaging 234.8℃.

(ii) Garimpo Pezao

The primary garimpo named Pezao is located in the northwestern end of G block, as shown in Fig II-4-2. The sketch of Pezao garimpo is shown in Fig II-4-4. Pezao garimpo is an open pit excavated along the river and the ores are piled up surrounding the open pit. The host rock is a silicified granite presenting shearing structure and alteration minerals as epidote, chlorite and dissemination of pyrite. The ore is mainly composed by pyrite, goethite and hematite and rarely by chalcopyrite. Microscopic observation indicated that the ores include also, pyrite, goethite, chalcopyrite, bornite and covellite.

The ores samples analysis presented the following results: six samples from A2448 to A2453 showed gold values between 0.65 g/t and 35.71g/t and Cu between 0.34 % and 0.86%. High gold values present also high bismuth values. Fluid inclusion tests in the samples A2450 and A2452 showed a salinity of 2.9% and 9.5% NaCl and homogenization temperatures averaging 259.1 and 226.2℃.

(iii) Garimpo Edmar

The primary garimpo named Edmar is located at the southeastern part and outside of G block. The sketch of Edmar garimpo is shown in Fig II-4-5. Edmar garimpo has an open pit, approximately 200m in length with east-west direction and 50 m wide. The ores are disseminated type with pyrite in silicified granite. The host rock alteration is composed of epidote and chlorite. Results of X-ray analysis detected mostly quartz and sericite. The collected samples presented the following results: gold values between 0.01 g/t and 60.45 g/t and maximum silver values of 74.5g/t. High gold values also showed high bismuth values. Fluid inclusion tests in the sample A2491 showed a salinity of 1.9% NaCl and homogenization temperatures averaging 258.8℃.

(4) Discussion

Geological survey results indicate that a NW-SE trending shearing zone is present in the G block area and some gold garimpos are embodied within the shearing zone.

The Zanete garimpo is a single gold vein trending E-W direction in granitic rock and gold analysis of four quartz veins presented excellent gold values, between 28.73 g/t and 45.06g/t.

The gold mineralization of garimpo Pezao is pyrite-disseminated ore type filling sheared granite and the ore analysis presented gold values between 0.65 g/t and 35.71g/t and Cu between 0.34 % and 0.86%.

Garimpo Edmar has also disseminated pyrite in silicified granite and gold values of ore samples showed values between 0.01 g/t and 60.45g/t.

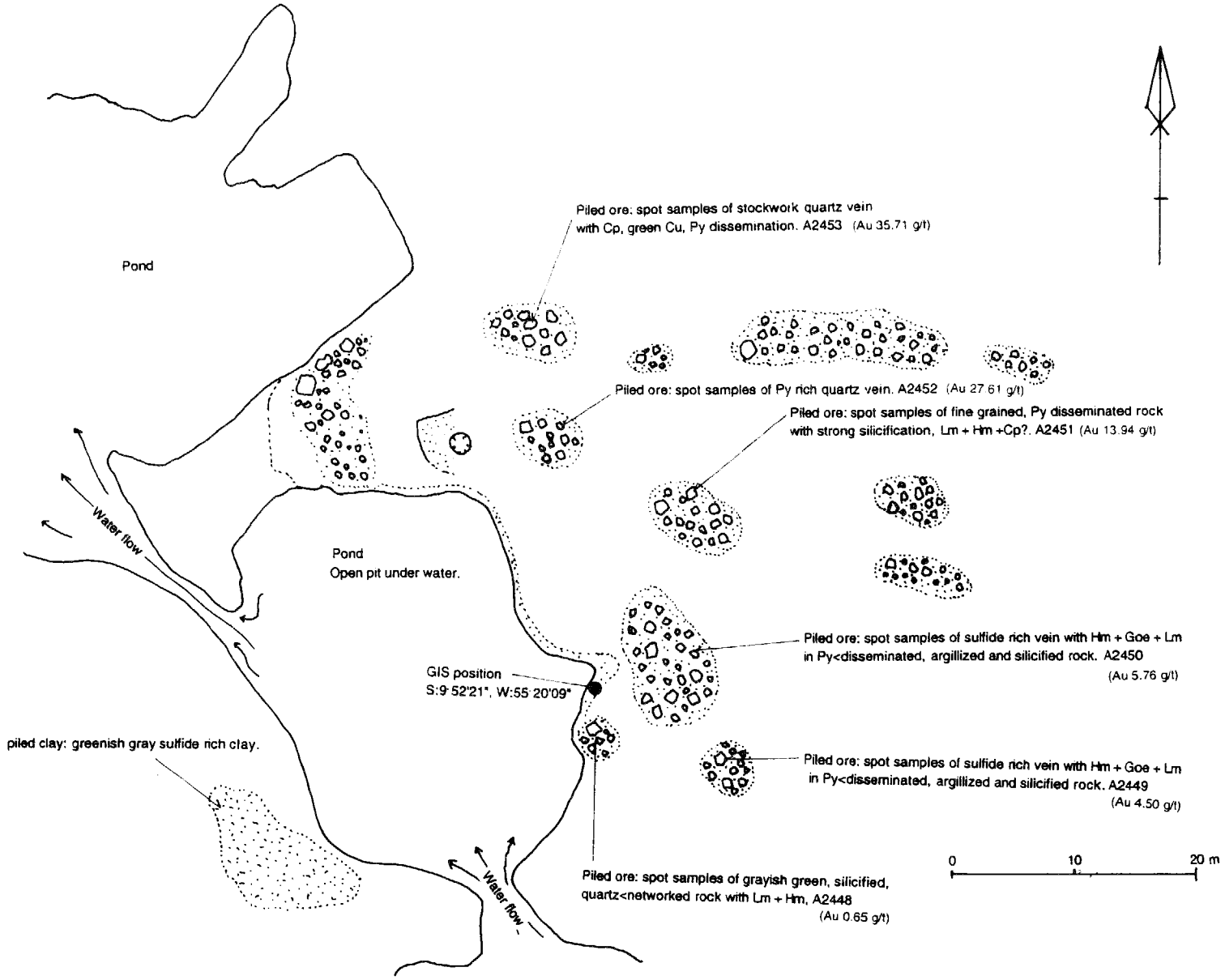


Fig. II-4-4 Sketch of mineral showing in garimpo Pezon

Table II-4-2 Ore assay of Garimpo do Pezao in Block G

Ser. No.	Sample No.	Description	Assay Results								
			Au (ppm)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Fe (%)	As (ppm)	Hg (ppm)	Bi (ppm)
1	A2448	Spot samples of greyish green, silicified, quartz<networked rock with Lm + Hm (	0.65	2.2	950	6	6	1.66	1.1	0.02	4.8
2	A2449	Spot samples of sulfide rich vein with Hm + Goe + Lm in Py<disseminated, argillized and silicified rock	4.50	16.5	141	8	9	6.20	6.6	0.04	13.5
3	A2450	Spot samples of sulfide rich vein with Hm + Goe + Lm in Py<disseminated, argillized and silicified rock.	5.76	6.9	104	5	5	1.60	1.7	0.03	7.8
4	A2451	Spot samples of fine grained, Py disseminated rock with strong silicification, Lm + Hm +Cp?.	13.94	14.2	3429	16	18	9.44	10.1	0.10	12.3
5	A2452	Spot samples of Py rich quartz vein.	27.61	19.1	3737	45	33	10.00	29.4	0.17	37.7
6	A2453	Spot samples of stockwork quartz vein with Cp, green Cu, Py dissemination	35.71	11.1	8625	3	17	1.77	1.9	0.25	10.4

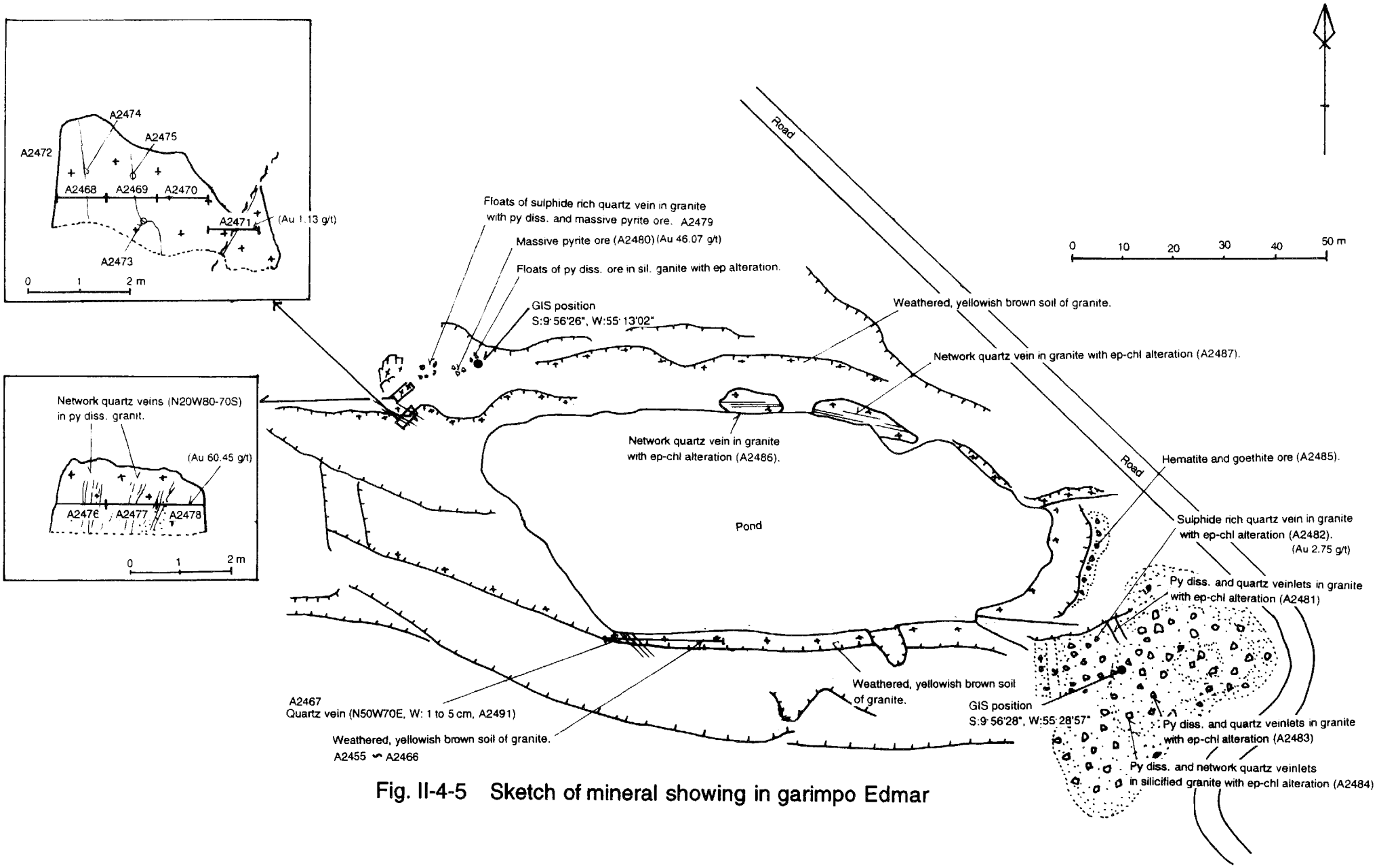


Fig. II-4-5 Sketch of mineral showing in garimpo Edmar

Table II-4-3 Ore assay of Garimpo do Edmar in Block G

Ser. No.	Sample No.	Description	Assay Results								
			Au (ppm)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Fe (%)	As (ppm)	Bi (ppm)	Mn (ppm)
1	A2455	Brown weathered granite (channel sample : 2 m)	0.07	<0.2	26	27	26	3.88	1.6	0.2	256
2	A2456	Brown weathered granite (channel sample : 2 m)	0.03	<0.2	21	21	35	4.61	1.4	0.4	227
3	A2457	Brown weathered granite (channel sample : 2 m)	0.03	<0.2	23	22	35	4.67	1.6	1.5	286
4	A2458	Brown weathered granite (channel sample : 2 m)	0.03	<0.2	21	24	36	5.47	1.6	<0.2	336
5	A2459	Brown weathered granite (channel sample : 2 m)	0.02	<0.2	12	19	37	5.93	1.4	0.9	299
6	A2460	Brown weathered granite (channel sample : 2 m)	0.02	<0.2	11	16	35	5.56	1.9	0.3	389
7	A2461	Brown weathered granite (channel sample : 2 m)	0.02	<0.2	18	16	23	4.22	1.5	<0.2	239
8	A2462	Brown weathered granite (channel sample : 2 m)	0.03	<0.2	37	144	50	5.30	3	1.4	1967
9	A2463	Brown weathered granite (channel sample : 2 m)	0.01	<0.2	49	149	105	9.08	2.3	0.6	2001
10	A2464	Brown weathered granite (channel sample : 2 m)	0.05	<0.2	46	55	66	7.18	2.2	0.6	628
11	A2465	Brown weathered granite (channel sample : 2 m)	0.02	<0.2	14	32	32	5.61	1.8	0.5	465
12	A2466	Brown weathered granite (channel sample : 2 m)	0.02	<0.2	11	17	24	4.49	1.6	0.3	261
13	A2468	Brown weathered granite (channel sample : 2 m)	0.01	<0.2	36	90	19	2.83	1.6	<0.2	708
14	A2469	Brown weathered granite (channel sample : 2 m)	0.02	<0.2	59	29	14	2.88	6.5	0.7	143
15	A2470	Brown weathered granite (channel sample : 2 m)	0.03	<0.2	43	17	18	3.60	2.2	0.6	56
16	A2471	Brown weathered granite (channel sample : 2 m)	1.13	<0.2	81	64	26	5.11	72	43.2	219
17	A2472	Spot sample of quartz vein with Goe. (W: 4 to 5 cm)	0.02	<0.2	67	454	22	1.29	1.7	0.2	3206
18	A2473	Spot sample of quartz vein with Goe. (W: 5 to 10 cm)	0.03	<0.2	36	13	6	1.36	6.1	0.7	53
19	A2476	Stockwork quartz vein in weathered granite Py dissemination and Hm (Py holes) (channel sample : 1 m)	0.95	<0.2	17	43	10	1.85	28.4	24.6	125
20	A2477	Stockwork quartz vein in weathered granite Py dissemination and Hm (Py holes) (channel sample : 1 m)	0.34	<0.2	42	72	15	2.31	35.1	5.6	373
21	A2478	Stockwork quartz vein in weathered granite Py dissemination and Hm (Py holes) (channel sample : 1 m)	60.45	21.1	76	59	17	2.89	52	4.7	412
22	A2479	Floats of Py disseminated ores in sil epi granite (40 cm x 30 cm x 40 cm).	0.46	<0.2	21	15	8	2.74	59	4.5	20
23	A2480	Floats of sulphide rich ore (massive Py ore) (30 cm x 30 cm x 40 cm)	46.07	74.5	982	87	46	10.00	276	987	57
24	A2481	Piled ores of green Py disseminated ore in chl<epi<sil granite with quartz network. (50 cm x 40 cm)	0.64	3.8	121	10	8	3.00	56	26	25
25	A2482	Piled ores of green Py disseminated ore with quartz veins including Py in argillized, silicified, chl<epi granite. (50 cm x 60 cm)	2.75	4.1	197	29	25	6.45	56	49.5	17
26	A2483	Piled ores of pale green Py disseminated ore in chl<epi<sil granite with quartz network. (30 cm x 40 cm)	0.15	0.5	142	8	5	2.60	45.6	4.8	11
27	A2484	Piled ores of pale green Py disseminated ore in chl<epi<sil granite with quartz network. (50 cm x 40 cm)	0.06	1.1	22	17	9	1.91	56	3.9	25
28	A2485	Black Hm<Goe<nch quartz vein. (50 cm x 30 cm)	0.42	23.5	42	25	42	10.00	29.9	3	100
29	A2486	Network quartz vein in sil<epi granite with Py holes (1 m)	0.72	<0.2	18	11	8	1.74	36.9	3.7	44
30	A2487	Network quartz vein in sil<epi granite with Py holes (1 m)	0.52	<0.2	86	45	19	3.32	56	21.2	872
31	A2488	White sheared quartz vein with Hm (10 cm)	0.01	<0.2	2	<2	1	0.15	<1	0.7	8
32	A2489	White sheared quartz vein with Hm (10 cm)	0.01	<0.2	4	4	1	0.30	<1	0.3	32
33	A2490	White sheared quartz vein with Hm (10 cm)	<0.01	<0.2	2	4	<1	0.15	<1	2.2	15
34	A2491	Spot sample of quartz vein with Hm. (1 to 5 cm)	0.29	<0.2	10	48	9	1.22	1.2	0.5	511

4-4 Survey results

4-4-1 Soil Geochemical survey

(1) Background and Objectives

Results of Phase I survey indicated a high potentiality for gold mineralizations in the G block. The soil geochemical survey was carried out in order to clarify the relationship between soil gold geochemical anomalies, geology and mineralization.

(2) Survey area and Amounts

The area for soil geochemical survey is shown in Fig. II-4-1.

The total amount of soil samples was 1,047 samples. The location of the soil samples is shown in Fig. II-4-6 and its description are shown in Appendix 36.

(3) Results of statistical data treatment

The analytical data of collected soil samples are shown on Appendix 37 for which statistical data treatment was performed. The results of statistical data treatment are shown in Appendix 38.

Four elements (Ag, Sb, Cd and W) indicated values less than the detection limit for most of the samples.

Correlation coefficients were calculated in order to clarify the relation among elements. The elements showing high correlation coefficient (more than 0,500) are as follows:

Pb-Fe, Pb-Bi, Pb-V, Zn-Ni, Zn-Mn,
Fe-V, Fe-Mn, Bi-Mn, Bi-Mo, V-Mn

The only element showing correlation coefficient with Au was Cu.

(4) Single element analysis

Based on the results of statistical data treatment, the threshold values were determined by cumulative frequencies, EDA methods and cumulative frequencies as shown in Appendix 38. The threshold values so calculated are as follows.

Au :	20 ppb,	Ag :	0.2 ppm,	Cu :	50 ppm,	Pb :	53 ppm,
Zn :	41 ppm,	Fe :	7 %,	As :	20 ppm,	Sb :	2 ppm,
Hg :	61 ppb,	Bi :	9 ppm,	Cd :	none	Co :	10 ppm,
Ni :	70 ppm,	V :	170 ppm,	Mn :	440 ppm,	Mo :	9 ppm,
K :	1.00 %,	W :	10 ppm				

Anomaly for Au, Ag, Cu, Pb, Zn and V are compiled on Fig. II-4-8.

(5) Multi element analysis

Factor analysis were examined by multi element analysis in G block. The results of factor analysis are given in Appendix 38. The following relationships between elements and factors were extracted by the factor analysis:

Factor 1 : Fe-V-Pb-Mn-(Zn)

Factor 2 : Co-Zn-Ni-(Mn)

Factor 3 : Sb-W

Factor 4 : Cu-(Au)

Factor 5 : Mo

Factor 6 : K

Among these factors, three factors: Factors 1, 2 and 4 were selected and a distribution map of factor score was prepared by allocating three different colors for each factor (Fig. II-4-9). Following colors shows the three factors:

Factor 1 : blue Factor 2 : yellow Factor 4 :red

The distribution tendency of these factors can be summarized as follows:

Factor 1: This factor shows strong connection of Fe, V, Pb, Mn and Zn. High factor scores are widely distributed in north part and southwestern part of block G.

Factor 2: This factor shows strong connection of Co, Zn, Ni and Mn. High factor scores are widely distributed in western part and northeastern part of block G. The factor scores are distributed along the rivers.

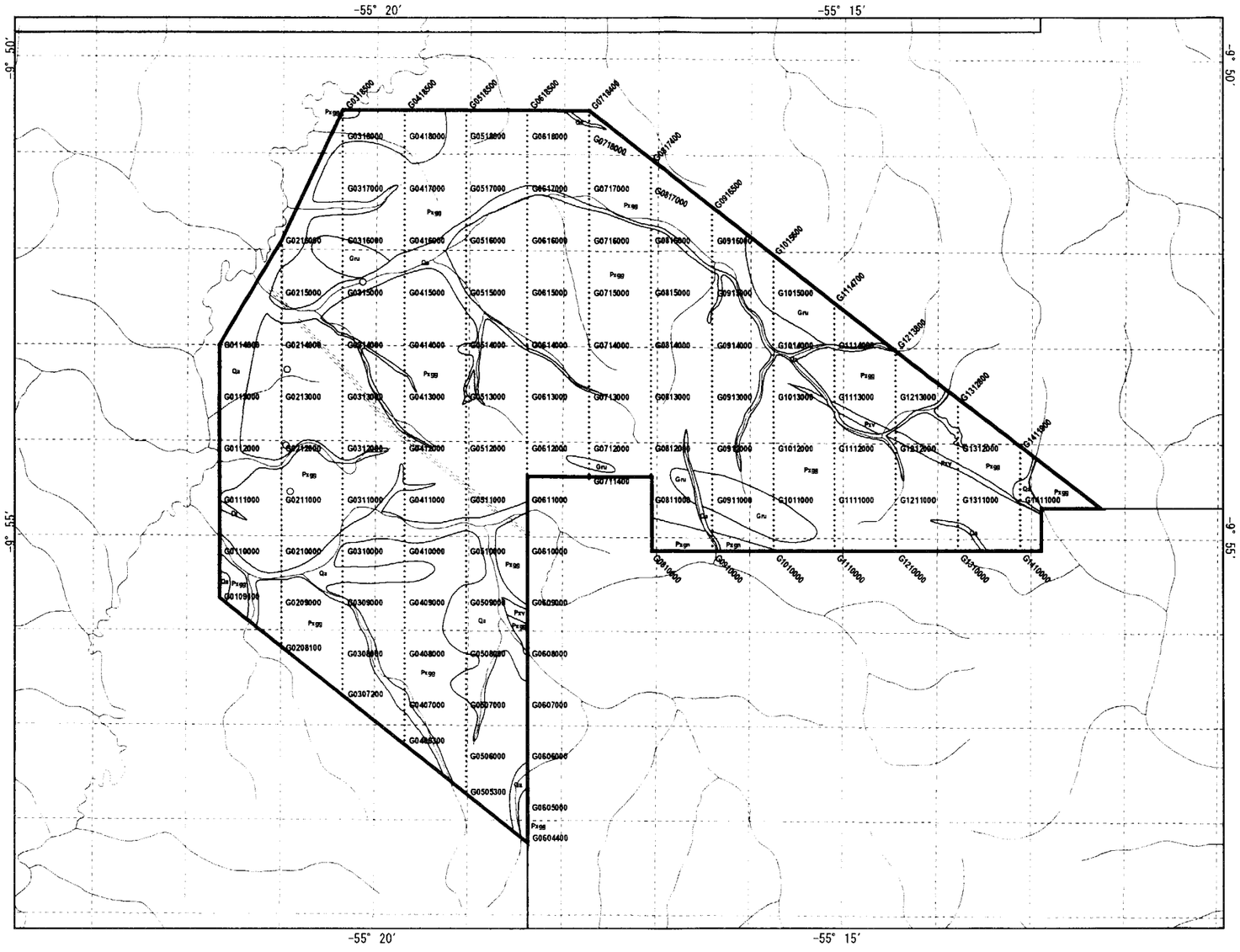
Factor 3: This factor shows connection of Cu and Au. High factor scores are widely distributed in western part, southwestern part and eastern end of block G. The western part and southwestern part are related to Au and eastern end is related to Cu.

(6) Discussion

The compiled map of block G (Fig. II-4-10) shows the results of the geological and geochemical surveys. The results of soil geochemical analysis are though to be as follows.

The elements showing high correlation coefficient for Au were not detected and Cu shows low correlation coefficient for Au.

Gold anomalous zones detected by soil geochemical survey are distributed in the southwestern part of block G. Other two small gold anomalous zones also were detected.



Location of Phase II survey area

Fig. II-4-6 Location map of soil samples in Block G

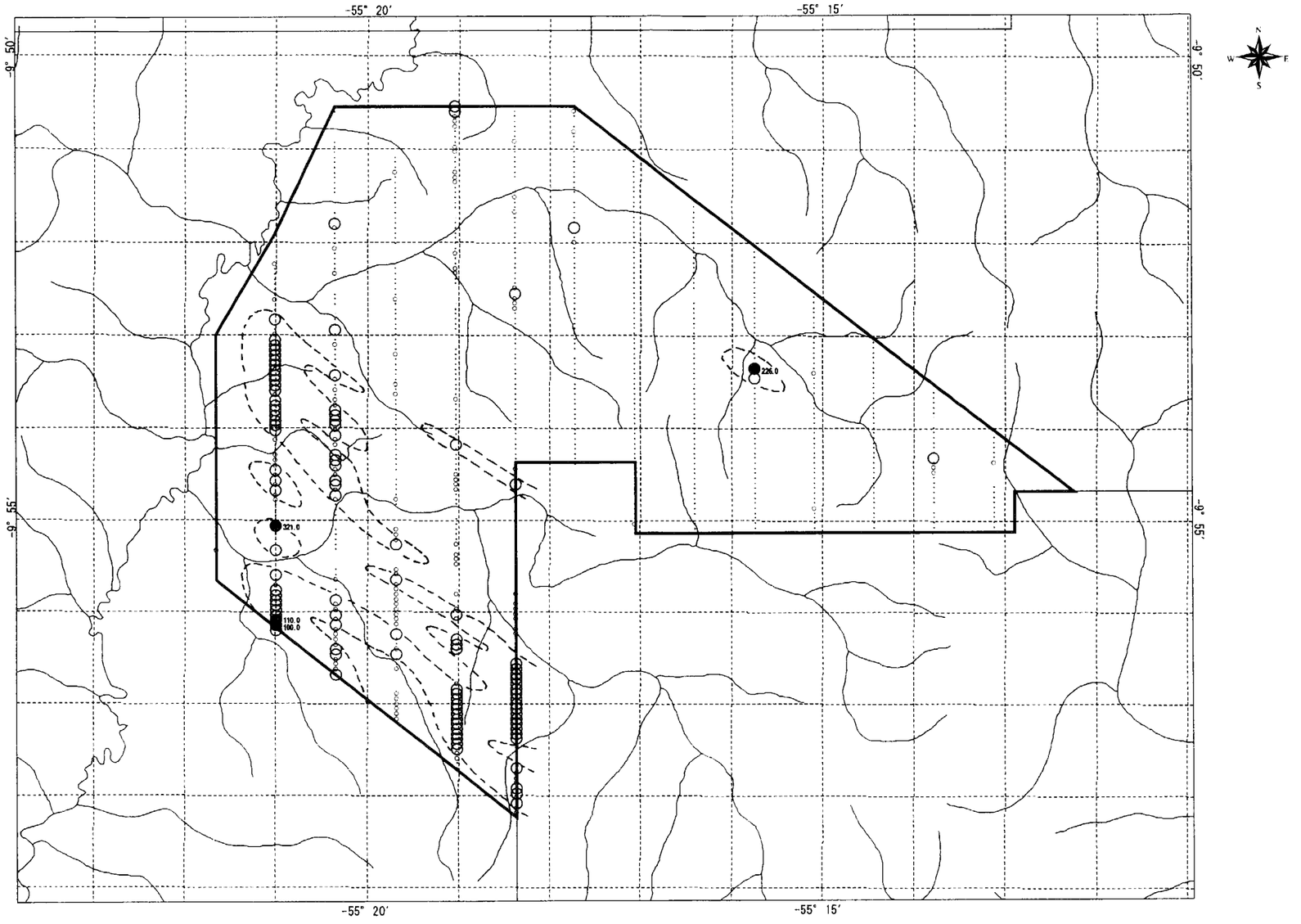
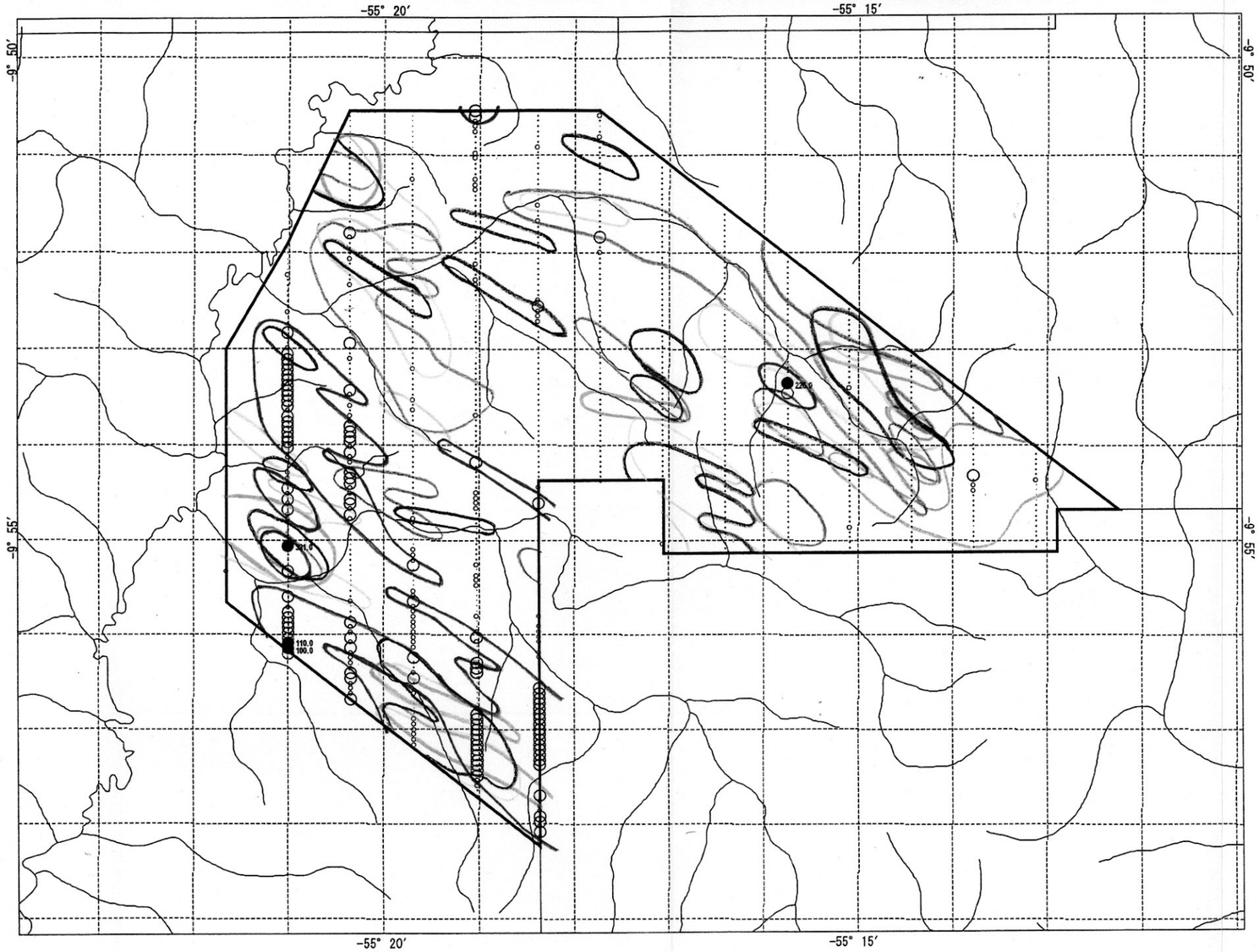
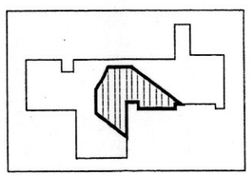


Fig. II-4-7 Distribution map of Au anomalies in Block G





Location of Phase II survey area

LEGEND

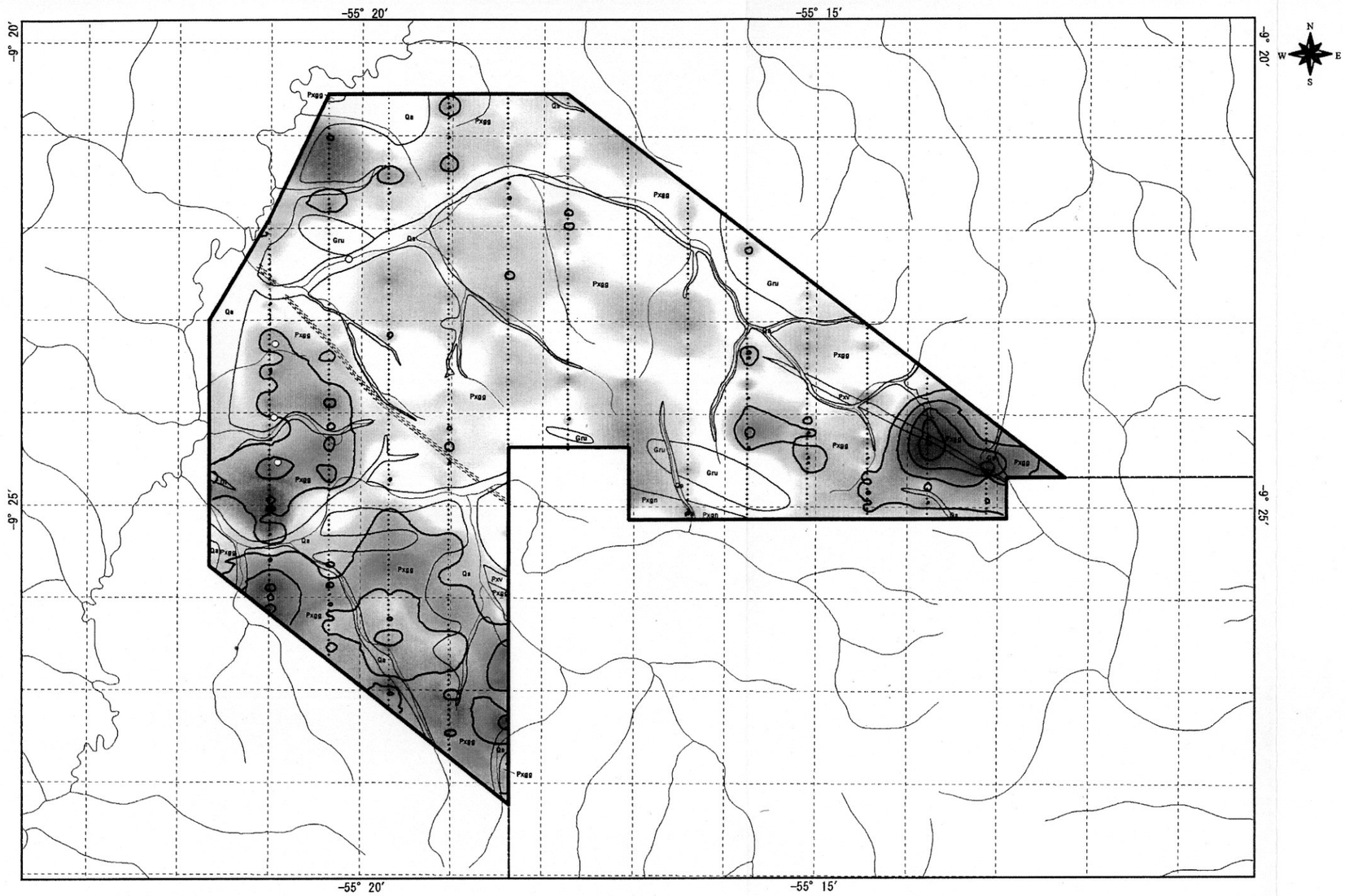
Sampling Point
Au(ppb)
20.0 -
10.0 - 20.0
0.5 - 10.0
alluvium zone

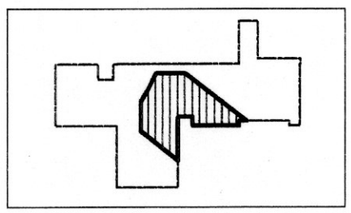
Geochemical anomalous zone
Au ≧ 20.0 ppb

Claim boundary
Phase II survey area
River

Geochemical anomalous zones
Au ≧ 20 ppb
Ag ≧ 0.2 ppm
Cu ≧ 50 ppm
Pb ≧ 53 ppm
Zn ≧ 41 ppm
V ≧ 170 ppm

Fig. II-4-8 Distribution map of soil anomalies in Block G





Location of Phase II survey area

LEGEND

Factor Score

Factor 1 Score (Fe, V, Pb, Mn, (Zn), (Cu))

Low High

Factor 2 Score (Co, Zn, Ni, (Mn))

Low High

Factor 4 Score (Cu, (Au), (Ni))

Low High

Factor 4 Score isoline(interval = 0.5)

Sampling Point

- sample point used to analysis
- alluvium zone

Geology

Pxgg Geological boundary and Geoligical unit

Shear zone

Primary garimpo

Claim boundary

Phase II survey area

River

Fig. II-4-9 Distribution map of factor scores in Block G

4-5 Consideration

The geology of G block is represented by Archean to lower Proterozoic Xingu Complex, middle Proterozoic Teles Pires Granite and Basic dykes (Fig II-4-2).

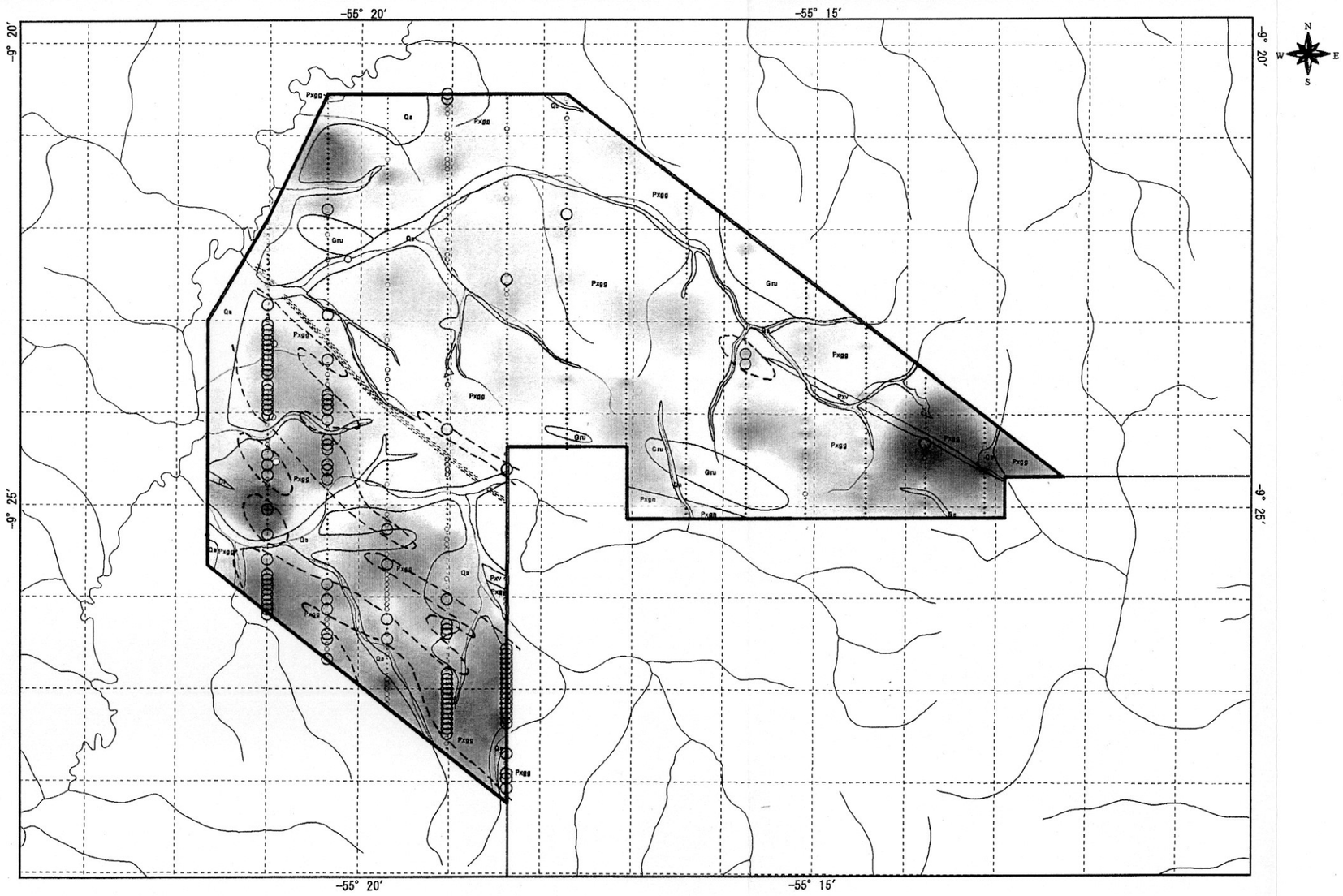
The WNW-ESE direction shearing zones are widespread in the survey area, being some of the primary gold garimpo located inside these zones as are Zanete garimpo and Pezao garimpo.

Edmar garimpo and Luizao garimpo are others two big garimpos located outside at the vicinities of the G block.

Evaluation survey made in these 4 garimpo, presented the following results. In the Zanete garimpo, gold results from 28.73g/t to 45.06g/t were obtained from quartz veins. The sulfide rich silicified rock of the Pezao garimpo presented gold values between 0.65g/t and 35.71g/t. The Edmar garimpo presented gold results between 0.01g/t and 60.45g/t in py rich altered granite. The sulfide rich altered granite from Luizao garimpo presented 6.49g/t Au.

The above sampling results are a strong indication that G block hold high-grade gold mineralization and open a good perspective of finding a major gold deposit in the area.

The single element analysis of soil geochemical data indicated a large gold anomaly zone in the southwestern portion of G Block (Fig II-4-7). The multi element analysis showed that Au is associated to Cu within gold anomaly zone. The distribution form of soil gold anomalies is broadly concordant with the direction of regional shearing and that suggests a shearing structure control for the gold mineralization of G block.



Location of Phase II survey area

Fig. II-4-10 Compiled map of geology and geochemical anomalies in Block G