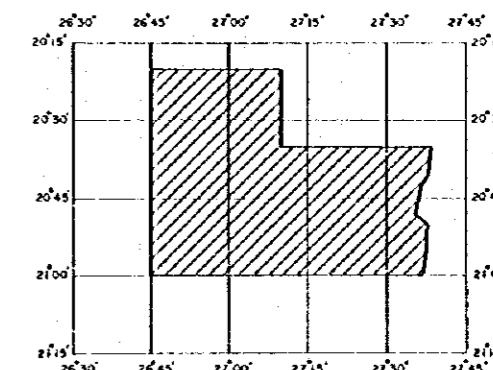
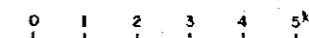


GEOLOGICAL SURVEY
OF
THE NORTHEAST AREA, NORTHEASTERN BOTSWANA
PHASE I

GEOLOGICAL MAP
(REGIONAL SURVEY AREA)

Scale 1:100,000



METAL MINING AGENCY OF JAPAN
JAPAN INTERNATIONAL COOPERATION AGENCY

FEBRUARY 1983

LEGEND

SEBINA - TSHESIBE

METASEDIMETARY AND METAVOLCANIC ROCKS

LITHOLOGY	AGE	STRATIGRAPHIC UNIT	LITHOLOGY
	SUPPER GROUP	FORMATION/ RELATIONSHIP	
laminated limestone, feldspathic and muscovite quartzite, mica schist, minor amphibolite		Upper Vumba Mafic	Amphibolite
laminated feldspathic quartzite and gneiss with schistose, micaceous and muscovite variations, mica schist, minor muscovite, amphibolite, greenschist		Upper Vumba Felsic	Felsic metavolcanics, minor amphibolite Aluminous schists, meta-tuffs, minor felsic metavolcanics and amphibolite Calc-silicate Amphibolite
laminated amphibolite, greenschist, greenstone, limestone, grey phyllite and schist, impure quartzite		Lower Vumba Mafic	Felsic metavolcanics (eggs-on-stone)
			Marble, calc-silicate, ironstone (i) Bematite schist Felsic metavolcanics, minor amphibolite
			Aluminous schist etc. Aluminous quartzite
			Peridotite Ultramafic schist Aluminous quartzite
			Metapyroxenite sill
			Felsic metavolcanics
			Metapyroxenite sill
			Felsic metavolcanics
			Marble
			Main Serpentinite sill Feldspar porphyry
			Aluminous schist
			Felsic metavolcanics Ignimbrite, full-lava (Kopje pyroclastics) Amphibolite
			Mela-Arkose Ultramafic schist and amphibolite
			Mela-Arkose with minor gneiss, quartz schist and amphibolite
			Amphibolite
			Ultramafic schist
			Mela-Arkose

GRANITOID ROCKS

AGE	STRATIGRAPHIC UNIT	LITHOLOGY
EARLY PRECAMBRIAN	VUMBA AND TUTUME GROUPS	G4 (intrusions) Granite (generally adamellite)
		G3 (anatectites, post-F2, pre-F3) Tonalite G3t Granite G3g (adamellite)
		G2 (replacement granitoids, post-F1, pre-F2) Tonalitic gneiss G2t (Ignited Volcanic Group) Granitic gneiss G2g Mafic gneiss K-feldspar porphyroblastic gneiss
Age uncertain		G1 (intrusions, post-F1, pre-G2) Tonalitic orthogneiss Monzonitic orthogneiss

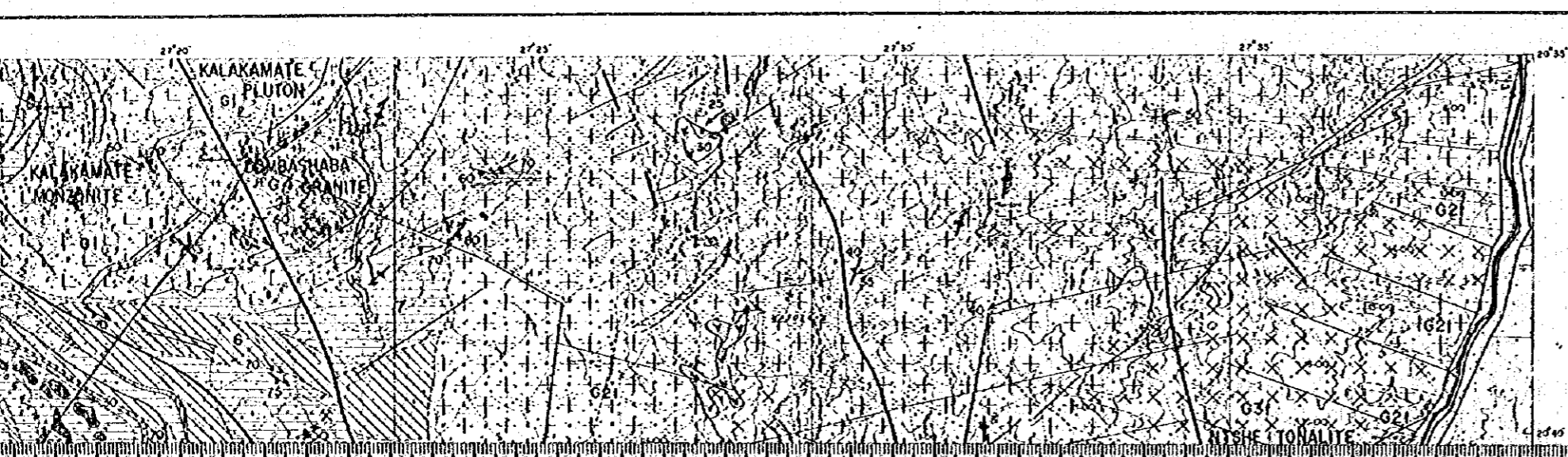
MINOR INTRUSIVE IGNEOUS ROCKS

AGE	STRATIGRAPHIC UNIT	LITHOLOGY
EARLY PRECAMBRIAN		(probably syn-G1) Serpentinite Metapyroxenite, metagabbro
LATE/POST-KARROO		(post-G3, pre-F3) Melodolerite dyke (a) wide (b) narrow Dolerite, gabbro, norite Granite dyke Granodiorite

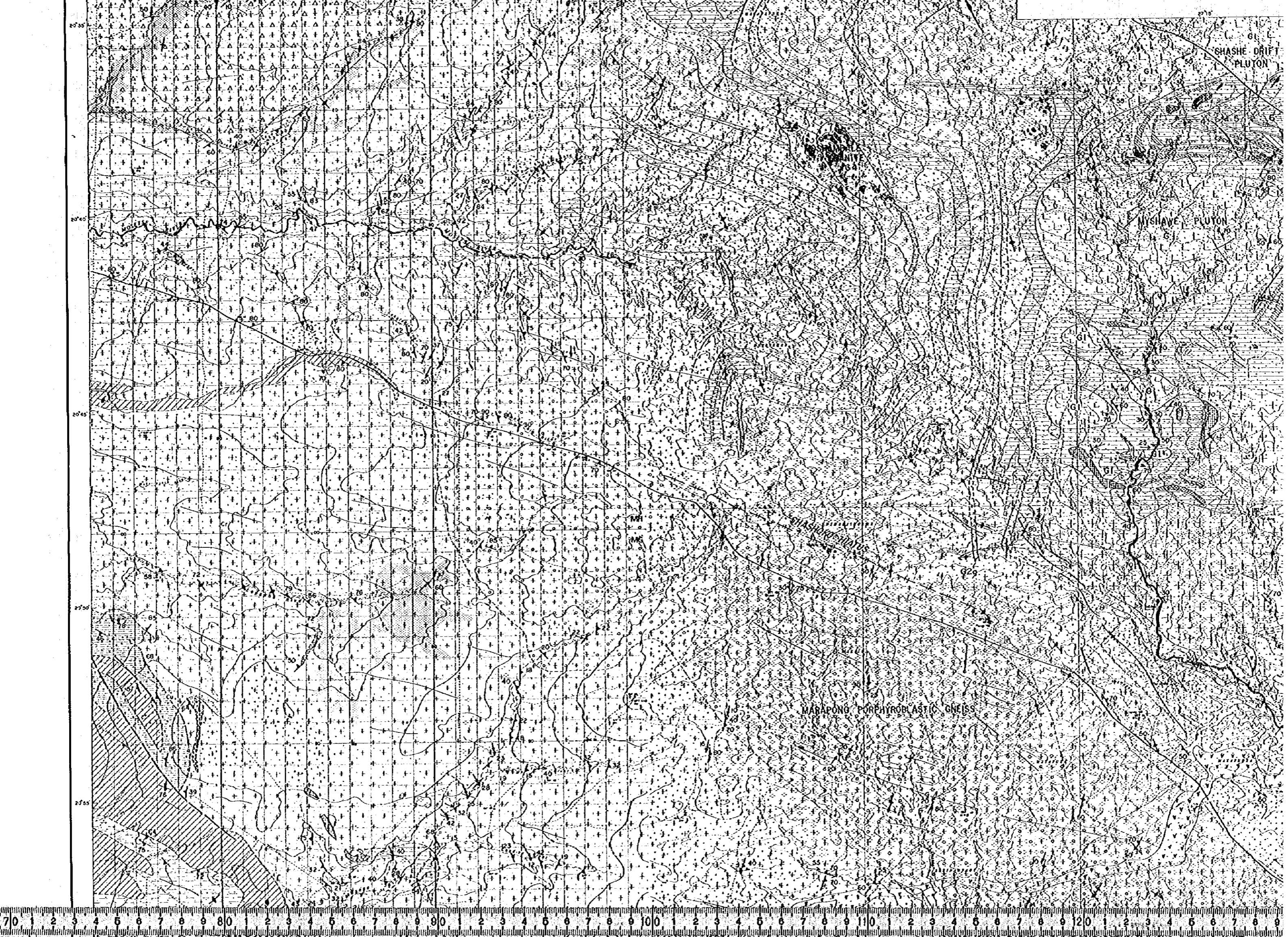
STRUCTURE

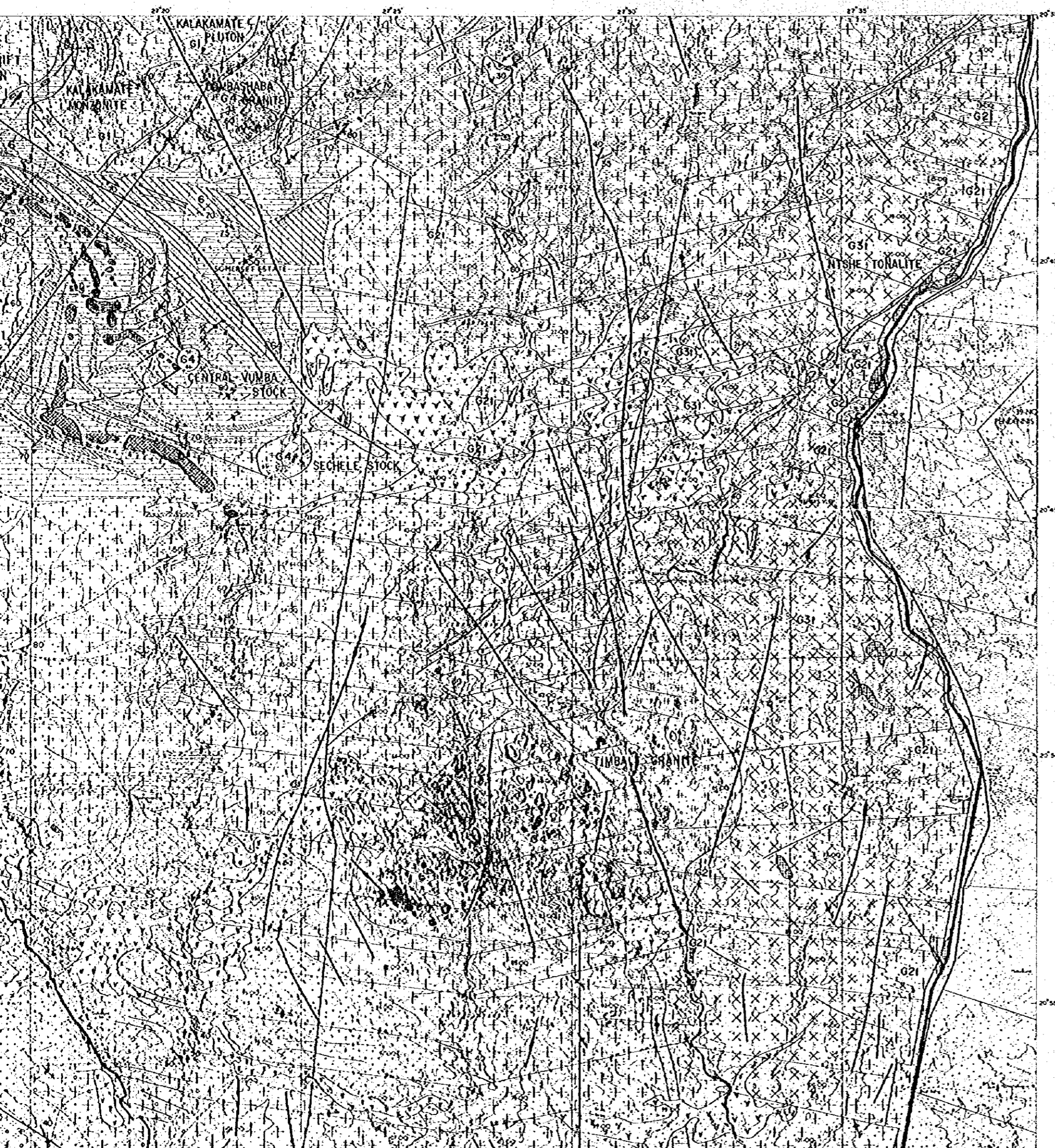
AGE	STRATIGRAPHIC UNIT	STRUCTURE
EARLY PRECAMBRIAN		(subvertical) Strike and dip the "bedding schistosity" (S ₀ /S ₁) Strike and dip of S ₂ Strike and dip of S ₂ (a) Strike and dip of S ₃ Strike and dip of:
		(i) Foliation in Outer Domboshaba Granite (ii) Main pegmatite/granite sheeting in the Vumba aureole
		Plunge of lineation (L1, L2, L2(a) and L3)
LATE/POST-KARROO		F2(a) shear Fault, shear Fault, shear

Old gold workings (Vumba area)



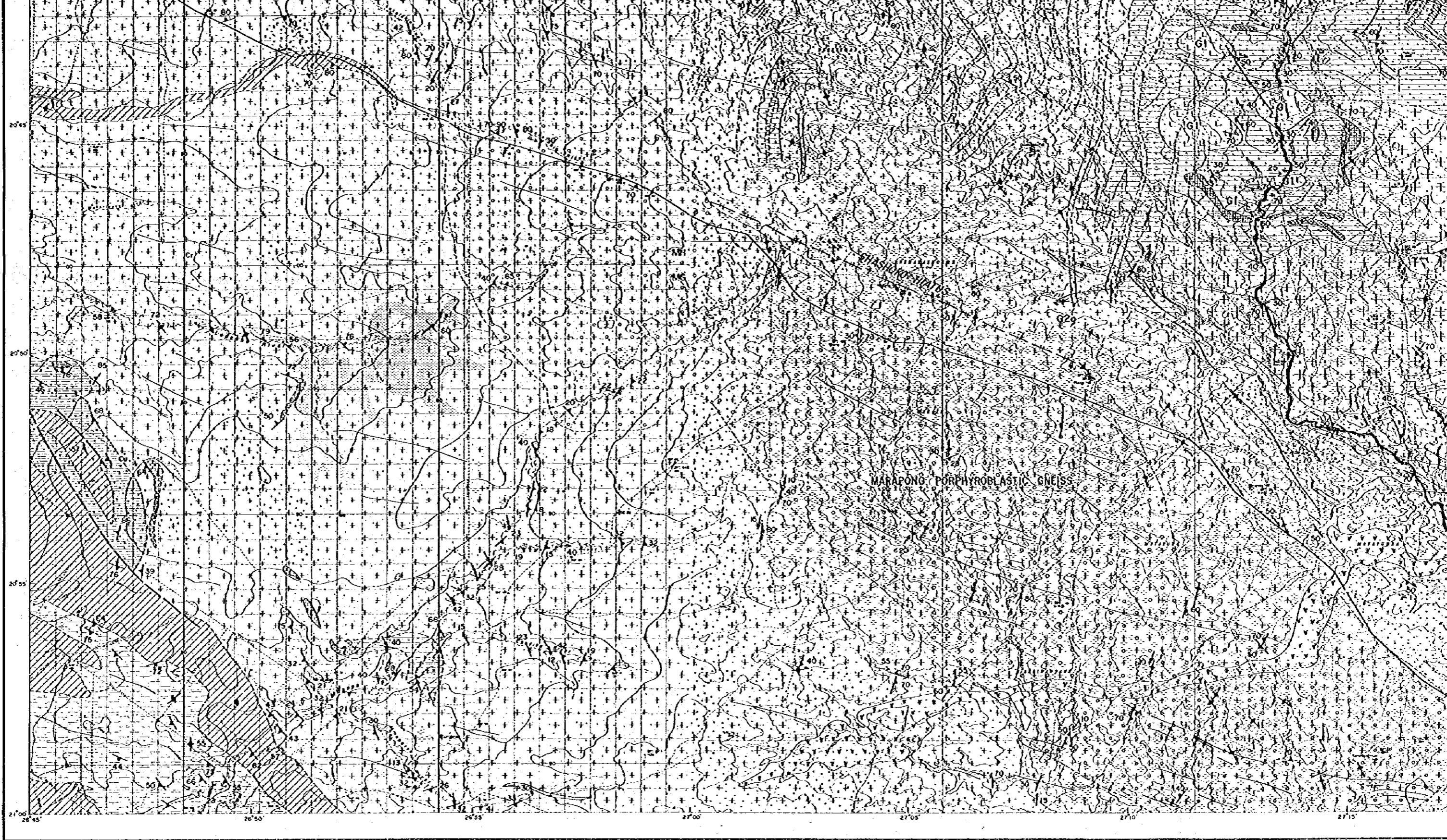
Map based on that of Bennett (1970) and Litherland (1975), slightly modified





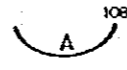
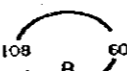


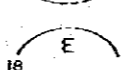
Map based on that of Bennett (1970) and Lüherland (1975), slightly modified

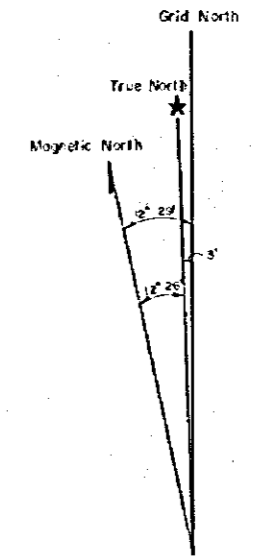







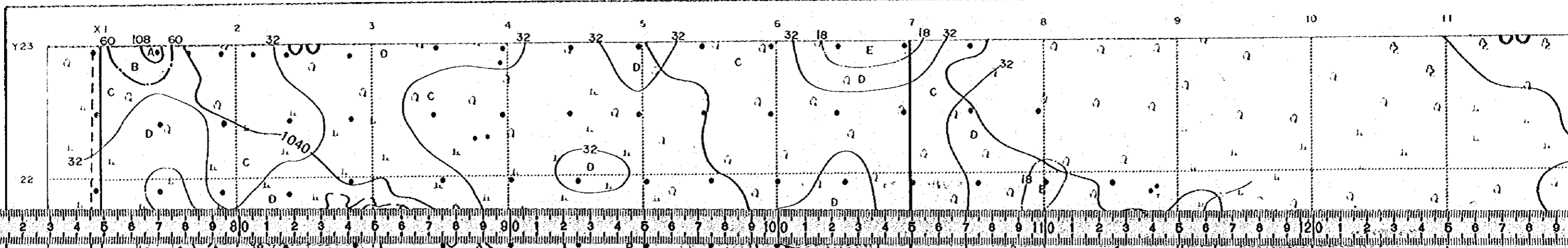


Legend

Class	Symbol	Range (ppm)
Anomaly	A 	$108 \leq \text{Cu}$
	B 	$60 \leq \text{Cu} < 108$
Background	C 	$32 \leq \text{Cu} < 60$
	D 	$18 \leq \text{Cu} < 32$
	E 	$\text{Cu} < 18$



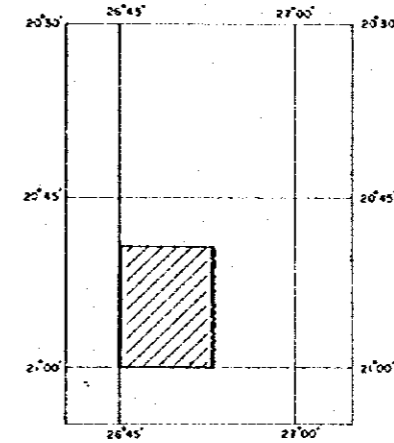
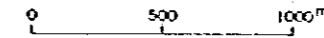
-  Geochemical survey area (phase II)
-  Geological survey area (phase II)
-  Geochemical survey area (phase IV)



GEOLOGICAL SURVEY
OF
THE NORTHEAST AREA, NORTHEASTERN BOTSWANA
PHASE III

Cu CONTENT DISTRIBUTION MAP

Scale 1:20,000

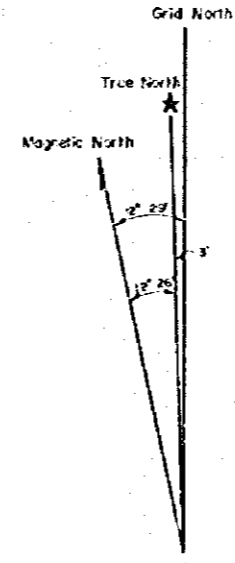


METAL MINING AGENCY OF JAPAN
JAPAN INTERNATIONAL COOPERATION AGENCY

FEBRUARY 1983

Legend

Class	Symbol	Range (ppm)
Anomaly	A	108 ≧ Cu
	B	60 ≧ Cu < 108
Background	C	32 ≧ Cu < 60
	D	18 ≧ Cu < 32
	E	Cu < 18



- Geochemical survey area (phase III)
- Geological survey area (phase III)
- Geochemical survey area (phase IV)

