APPENDIX IV

FIELD DESCRIPTIONS OF PETROLOGY SAMPLES COLLECTED

MEMORANDUM TO: Steve Milner
FROM: Nick Marshall
SUBJECT: Petrology Samples Collected Sept 1991, field notes.
DATE: Oct 3, 1991

EL 5420

20-002F, at 731350E / 7735800N. (line 1)
Float near crest of hill among quartz and laterite float. Coarse metaquartzite with sericite and goethite.

20-057R (petrology only), at 733985E / 7734240N (previous site 80108).
Ironstone ridge -- massive hematite (specularite) - quartz with 5-8 mm yellow limonitic patches which are gossanous with pyritic boxworks. These may represent sulfide rich breccia clasts. Some coarse, glassy quartz rich phases are present. General strike 80°T with isoclinal folding along 80° axial plane on meter scale, but some areas strike at 130°T. 6-7 kg composite for analysis collected over 50 m.
Polished thin section.

20-061F, at 735600E / 7734000N on line 5.
White quartz float with 1 mm x several cm lamellae -- ghost structures after metamorphic mineral ? Some vaguely vuggy. weakly gossanous phases submitted for analysis.

20-075R (petrology only), at 735550E / 7736420N
Small conical hill of quartz - sericite gneiss, locally folded but general foliation 70° - 80°T, dip 80°S.

20-121F, at 737850E / 7734000N
Float, locally abundant as pebbles and cobbles of white subangular quartz. Has distinctive acicular clusters as imprints after tremolite-actinolite (?). Some phases are vuggy with fine crystalline quartz, some phases contain tourmaline, and some show breccia texture and carbonate (?) cavities. A totally silicified possible skarn breccia.

20-132R, approx. 100 m W of 20-121F, at 737740E / 7733975N.
100 m ridge of suboutcropping quartz, as a variant of 20-121F. More obvious vugs, multiple phase quartz veining with brecciation and carbonate cavities, but no tourmaline. Some phases have infill double sided sparry cockscomb quartz veins 1.5 cm thick and limonitic banding on the chalcedonic quartz margins -- epithermal type texture. Strike 85°T, possible dip 65°N.

20-207R1, at 741800E / 7732450N, near crest of low ridge.
Suboutcrop of "ironstone", strike 145°T, dip 80°NW. Consists of quartz - feldspar - chlorite - massive black hematite, somewhat fissile.

20-207R2, 15 m N of 20-207R1.
Suboutcrop of same ironstone as R1, but with yellow-orange limonitic phases. Strike 115°T, dip 80°N, with possible axial plane drag fold.
Polished thin section.

20-207R3, 12 m from 207R2 at 145°.
Quartz vein with laminations of orange limonite with boxworks. Strike 130°T, dip vertical. Possibly 12 m thick, against south side of 207R1-R2.

A second band of BIF (207R4, for analysis only), with limonitic patches in quartz - hematite - feldspar - chlorite, 3 m thick, strike 130°T, dip subvertical adjoins 207R3 to the northeast.

A second band of vein quartz (207R5, for analysis only) possibly 5 m thick, strike 95°T, dip (characterized by lamellae of fine boxworks) subvertical, adjoins 207R4 to the northeast. This continues at 130°T to the crest of the hill (207R6, for analysis only), but is displaced to the south by a few meters (a third band ?). Laminations of fine boxworks in quartz, with occasional 1 mm thick hematite rich lamellae are present. This unit lenses out further ahead.

20-208R, at 742480E / 7731770N.
Prominent ridge with rockholes. Similar to 20-207R7 but less finely laminated or bedded. Coarse glassy angular quartz - feldspar - ferruginized chlorite, some pyritic boxworks and occasional spongey, gossanous ± 1 cm limonitic patches. Somewhat laminated, strike 130°T, dip subvertical. Previously sampled as 80 series but number destroyed.

20-227R, at 741700E / 7730315N.
80 m wide BIF ridge: massive hematite - quartz - chlorite (?) with thin bands of gossanous patches and ± 1 mm pyritic boxworks. Bedded, (few cm to about 1 cm). Strike 100°T, dip 45°N. At previous site 80147 and 80148.

20 - 228R, at 741735E / 7733250N
Approx. 25 m wide ridge of BIF, strike 140°T, dip 50°SW, with local folding and local dips to subvertical. Massive glassy quartz bands, quartz - chlorite (?) - feldspar bands, and quartz - massive hematite bands with fine gossanous boxworks. 60 m away at 210° its equivalent may be 20-226I (for analysis only) on line 11, as ironstone lag but no outcrop.
Polished thin section.

20-257R, (petrology only) at 744740E / 7735580N.
Westernmost of three small ridges of quartz - feldspar - sericite schist or arkosic gneiss, foliation 150° - 170°, dip 55° - 80°W.

20-270R1, at 747620E / 7732635N.
100 m ridge of khaki - orange, fissile quartz augen - feldspar - chlorite (?) schist, strike 30°T, dip subvertical. Groundmass is pervasively limonitized. After volcanic? A lower, similar ridge occurs approx 200 m east.

20-270R2, same location as 270R1.
1 m x 10 m interbedded lens hosted in 270R1, with massive black hematite replacement and fine gossanous boxworks.
Polished thin section.

20-301R (petrology only), at 750470E / 7735630N.
Quartz augen - sericite - feldspar schist, foliation 110°, dip subvertical. Origin ?

20-425R (petrology only), at 746750E / 7732105N.
Low ridge of quartz - feldspar gneiss, folded, general strike 45°T, dip 80°SE. Origin ?

20-495R, at 751870E / 7731240N.
Small outcrop hill of quartz - opaline silica - feldspar - chlorite (?) gneiss. Possible malachite stains (or lichen?). Some phases have hematite flooded groundmass.

20-368L, at 745690 E / 7723615N
Laterite rubble from airmag low area. Original lithology ?

20-369L, at 745570E / 7724395N.
Laterite rubble from airmag low area. Original lithology ?

20-371L, at 745400E / 7726175N
Laterite rubble from airmag low area. Original lithology ?

20-549F, on line 18 at 2100 m at 040° AMG from 752600E / 7736200N
Hill crest of quartz - hematite laterite rubble. Original lithology ?

20-551R, at 746320E 7733880N, near camp.
Wooded ridge in airmagnetic low region of feldspar - quartz, well bedded every few cm. Quartz slightly elongated (stressed). Some feldspars are hematite permeated and fairly fine. A slightly stressed arkose to arkosic schist, which for some reason contrasts to arkoses ridges with a little sericite which outcrop on some of the airmag anomalies traversed. Some phases have possible minor weathered chlorite. General strike 040° - 050T, dip subvertical. Origin ?

APPENDIX V

PETROLOGY REPORT BY PONTIFEX & ASSOCIATES

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MINERALOGICAL REPORT NO. 5971

by I.R. Pontifex, MSc.

November 6th, 1991

TO:	Mr N.J. Marshall Consultant Regional Exploration Tanami Joint Venture 48 Woods St DARWIN NT 0800
COPY TO :	Mr. Steven Milner Exploration Manager Tanami Joint Venture 48 Woods St DARWIN NT 0800
YOUR REFERENCE:	Letter Fax dated 3/10/91, from Nick Marshall. Order No. DN 50749
MATERIAL:	Rock Samples
IDENTIFICATION:	EL 5420 Series; Sample Nos. 20-002F to 20-551R
WORK REQUESTED:	Thin section preparation and description, with comments as requested.
SAMPLES & SECTIONS:	Returned to you with this report.

PONTIFEX & ASSOCIATES PTY. LTD.

INTRODUCTION

Twenty four samples from EL 5420 were submitted by Nick Marshall, for petrographic assessment. These were accompanied by a memo from Nick Marshall to Steve Milner, dated 3/10/91, listing each sample number, its location, and field descriptions to be considered and commented on, as appropriate as part of the petrography.

Given the nature of the samples, and the questions to be resolved, the samples were examined from a combination of 19 thin sections, 4 polished thin sections and 3 polished sections. Most thin sections required extensive impregnation to retain water sensitive clays and relict textures. Three of the polished thin sections are of lateritic fragments, which were initially mounted in an epoxy block.

Each section is given an individual description, which indicates the existing mineralogy and the texture, together with an interpretation on original lithology, also comments on comparisons within the suite as appropriate.

Following is a summary on lithological groups.

NOTE : Sample 19-026R from EL5419 was listed, but not received. Sample 20-207R7 was received (and described), but not listed.

LITHOLOGICAL GROUPS

1. Fine gneisses, gradational to granulose schists, represented by up to 13 samples, as follows:

20-057R	intensely ferruginised
20-075R	only weakly limonite-stained; rather typical of this facies
20-207R1	intensely ferruginised, minor graphite
20-207R2	similar to 20-207R1, except that one quartzose layer has the characteristics of quartz layers in the BIF suite.
20-208R	distinctly fine-gneissic layer in contact with schistose layer, fairly definite metasediment
20-257R	"typical" deeply weathered gneiss
20-270R1	minor graphite, trace pyrrhotite inclusions in quartz
20-270R2	disrupted with extensive limonitic-hematite stringer network.

Rare microcline.

20-301R ?Leucoxenitic or ?bauxite patches after porphyroblasts

20-425R

20-495R genesis questionable, possibly greisen rel[illegible]

20-369L intensely ferruginised

20-551R "typical" deeply weathered gneiss.

This facies is characterised by variably continuous, commonly somewhat poorly [illegible]ned lenticular layers of metamorphic quartz, intercalated with a similar abundance and distribution of supergene 'clay' alteration products, interpreted mostly as after felspar but at least some after micas. These clays are variably weakly iron stained, to intensely permeated and replaced by supergene limonite (± hematite).

Minor components in this facies includes limonitic boxwork after garnet, which in hand specimen, may be considered as gossanous, i.e. after sulphide, (however, there is no convincing evidence of ex-sulphide). Also, minor 'fresh' muscovite occurs in several samples, presumably ex-gneissic.

Rather diffuse patches of extremely fine, turbid alteration material in some ex-gneisses, without limonite staining, may be 'leucoxenitic'. These appear to represent completely w[illegible]hered ex-porphyroblasts, which could have been biotite (?or amphibole). Alternatively, this cloudy material could be 'bauxitic', and the original mineral aluminous (such as andalusite).

Other minor components are graphite in these samples, and trace small grains of zircon, tourmaline, opaque [illegible]es.

Regarding genesis; the presence of graphite in three samples; and the microgneissic layer in apparent meta-sedimentary contact with the relatively schistose layer in 20-2082, are components which indicate that this suite probably represent metasediments, which could have been semipelitic through to arkosic psammitic, with the coarsening of the quartz, due to exaggerated metamorphic grain growth. In this case, the accessory zircon and tourmaline grains are probably ex-detrital.

There is no clear evidence of volcanic precursors to these metamorphic rocks, as questioned in your covering notes. The presence of chlorite, which is commonly

mentioned in your field notes, was not confirmed, but the so-called micas, replaced by clays could have included chlorite (particularly the iron-rich gneisses).

An alternative genesis for these gneisses is meta-granitoids but there is no compelling evidence to indicate this, and that possibility cannot be denied for some samples.

2. Banded Iron Facies

This group includes :

20-207R3	coarse quartz, but with minor somewhat diagnostic inclusions of voids, probably after amphibole; also minute inclusions of fresh Fe-rich hornblende.
20-207R7	distinctively planar-layered rock, inclusions in quartz above.
20-227R	minor layered small oxidised magnetite crystals, boxwork after mica and/or amphibole. Trace pyrrhotite.
20-228R	prominant ferruginous and siliceous layers, includes micropolygonal spongy limonite typical of lateritic gel-limonite.

With the exception of layered magnetite crystal replicas in 20-227R, there is negligible evidence of magnetite-bearing (i.e. typical quartz-oxide facies) banded iron formation in this suite. However, the samples listed in this group include ferruginous layers, (...lated with quartzose layers), in which former amphiboles, presumably Fe-rich, can be interpreted. Also, the quartz, now metamorphic and with some exaggerated grain growth, almost exclusively in these rocks only, carry minute (about 50 micron) inclusion of green, almost certain, Fe-rich hornblende, ± rarer clearer inclusions of carbonate and of possible clinopyroxene or epidote. These green inclusions are extremely difficult to positively identify because of their small size, and may include some tourmaline.

The writer has three of the four listed BIF samples (without distinctively oxidised magnetite), are considered as metamorphosed, iron-silicate facies banded iron formation.

[One problem in using the inclusions in quartz to identify the BIF rocks is that one band of quite coarse quartz with ...ent (graphitic) gneiss (20-207R2, also contains trace amounts of these same green crystals of Fe-rich amphibole.]

The gel-limonite in ferruginous layers in 20-228R, compares with the same material in sample 80153, previously described for Steve Milner.

3. **Laterite** 20-368L, 20-371L, 20-549F

These samples have no relict texture of a coherent, whole-rock, but consist of derived quartz grains and variably developed pisolites, unsorted and randomly disposed through a limonitic cement of migratory exotic origin. Most of the quartz appears to be derived from a gneissic lithology.

4. The remaining samples, not categorised as gneiss, BIF or laterite are :

20-002F coarse massive metamorphic quartz, with limonite along intergranular contacts and microfractures. Possibly relates to 20-207R3.

20-061F layered, white comb-textured microsparry/prismatic quartz, and intervening laminations of cryptocrystalline silica. Possibly exhalative-related.

20-132R coarser, heterogeneous mass of the same quartz as in 20-061F

20-495R similar mineralogy to the gneissic suite, and probably related to it, but dominated by apparent ex-micas; and only minor quartz. May be greisen-related.

INDIVIDUAL DESCRIPTIONS

20-02F
731350E/7735800N

Massive coarse, irregularly granular aggregate of quartz, permeated along intergranular contacts and microfractures by limonite. Genesis unspecified, except to suggest that the quartz is 'metamorphic'.

Field Note : Float amongst quartz and laterite float. Coarse metaquartzite + siderite + goe[illegible].

This sample consists of a massive, coarse (3-10mm) irregular granular aggregate of quartz. Intergranular contacts are locally weakly sutured and all are permeated by limonitic staining. This staining also penetrates adjacent microfracture, locally extensive within the quartz, most of which are short, random, blade-like and in small networks, resembling incorporated flakes of ex-muscovite (as suggested in the field notes). The former presence of micas cannot be confirmed however.

Indeed, there are no specifically diagnostic genetic characteristics, that most grains are stressed, with sparse disseminations and some trails of minute fluid inclusions to suggest a 'vein' origin, which could be primary hydrothermal or metamorphic. It compares with other quartz in sample 20-207R3 and 20-207R7, which carries abundant minute inclusions of Fe-rich hornblende, in rocks which are interpreted as BIF-related.

20-057R
733985E/773420N

Weakly metamorphic-layered rock, with quartzose layers more or less alternating with coarse limonitised clays (?after felspar) and/or mica. Minor local boxwork probably after garnet. Deeply weathered, oxidised/ferruginised probable ex-gneiss.

Field Note : Massive hematite-(specularite)-quartz, 5-8mm limonitic ?gossanous, patches.

The three hand specimens comprising this sample did not offer convincing evidence for hematite variety specularite. They are dominated by various forms of massive cryptocrystalline to colloform/botryoidal, but possibly including minor supergene hematite. This material incorporates quartz. Also there are minor small areas of limonitic-boxwork.

The sample examined microscopically, chosen because of its fine, weakly layered structure, consists partly of poorly defined layers of fine granular, metamorphic quartz up to 3mm thick. These more or less alternate with equally poorly defined layers of goethite (± sparse hematite?), replicas after quite coarse, almost vermiform 'micas', (?kaolinite). It seems likely that this coarse ex-phyllosilicate represents deeply weathered, altered, felspar (or micas), in an original probable metamorphic rock, essentially the same as the non-ferruginised coarse-clay-rich layers in 20-075R.

There is one area up to 8mm across of limonitic boxwork (alluded to in your field note), formed by brownish (less reddish) goethite; and this appears to represent former garnet.

20-061F
735600E/7734000N

Layered/laminated sequence, with layers alternately of fine comb-textured micro sparry quartz, and cryptocrystalline. (Possibly exhalative-related).

Field Note : Quartz float, laminated, ?ghost structures after metamorphic mineral.

This rock consists entirely of white quartz, laminated on a scale of 0.5mm to 3mm. Most of the thicker layers consist of quartz microprisms, with a comb-like arrangement, arranged at right angles to the layering, growing from a 'base' and a 'top' of each layer, commonly with a minor, central (drusy) porosity. These quartz prisms are fairly densely clouded by fluid inclusions.

The intercalated, thinner laminations (<0.03mm) consist of cryptocrystalline quartz, also some conformable to low angle, possible ex-blade-form crystals, replaced by ?siliceous clays. These features tend to form the 'base' and 'top' for the quartz prisms noted above.

It is possible that these blade-form replicas represent the ex-metamorphic mineral? mentioned in your field notes, but this could not be confirmed petrographically. It is also possible, but certainly not proven, that this sequence represents an exhalative (?sinter related) silicification, and the blade-form replicas may be an ex-sulphate mineral for example.

20-075R
735550E/7736420N

(Interpreted ex-biotite, felspar)-quartz gneiss. Deeply weathered with non-quartzose mineral layers (?felspar ± micas) almost completely altered to supergene clays. [cf. 20-275R]

Field Note : Quartz-sericite gneiss.

The petrology indicates this rock to be an original gneiss. About 50% of it consists of fairly continuous layers of metamorphic, granular to somewhat elongated quartz, up to 3mm thick, remaining as residuals, and intercalated with layers now composed essentially of kaolinite.

This kaolinite has a supergene, random, fine vermiform texture gradational to cryptocrystalline and appears to replace at least two former metamorphic minerals, felspar and mi

Accessory fine muscovite is scattered through the clay-rich layers, but there are no diagnostic accessory minerals; the original (pre-metamorphic) facies could be sedimentary or igneous, (with seemingly far less possibility for a former volcanic).

20-121F
737850E/7734000N

Not examined in thin section; comments on macro characteristics below; as white quartz cf. 20-132R.

Field Note : Float of quartz, incorporates ex-amphibole prisms/needles; local tourmaline, ex-carbonate cavities. Possible skarn breccia.

Binocular microscope examination of the three rocks following this sample, indicated very close similarities with 20-132R (100m to the west), but 20-132R has more prominent vugs. Largely for this reason, this sample (20-121F) was not sectioned, but 20-132R was.

It is noted however, that the prisms/needles of quartz, (some in subradiating clusters), suggested as ex-amphibole in the field note, appear to be primary crystalline, prismatic/sparry quartz (of probable hydrothermal origin). The presence of tourmaline and of ex-carbonate cavities could not be confirmed. Irregular voids do occur within the quartz, but these seem to be leached out domains, from within random blocking networks of silicified fracture networks, rather than to genuinely represent a former mineral aggregate.

20-132R
100m W of 20-121F
737740E/7733975N

Texturally heterogeneous mass of quite coarse prismatic quartz crowded with fluid inclusions, (?replacing or forming a breccia). Permeated by later crypto-crystalli... quartz; minor replicas, some probably after carbonate. "Hydrothermal quartz", as a heterogeneous massive equivalent of 20-057R.

Field Note : Multiple phase quartz veining, brecciation and carbonate cavities. Epithermal?

Most of the quartz forming this rock is the same as forming the laminated quartz sample 20-057R, however it is texturally far more heterogeneous. In thin section, it is seen to consist of generally irregular domains of fine to medium, rarely coarse prismatic/crystalline vein quartz, each with a comb and cockscomb structure, and with the crystals highly charged with abundant, minute, fluid inclusions. These domains appear in a gross sense to be breccia fragments. Sets of crystals growing into each other from opposing directions result in minor central voids.

Relatively even more heterogeneous, and cryptocrystalline quartz, permeates areas between the irregular domains of coarse crystalline, (i.e. filling a breccia matrix), also there are microfracture networks permeated by this same, fine relatively late stage quartz.

Rare, quite coarse, relatively clear 'grains' of quartz occur as apparent breccia residuals of possible (hydrothermal) quartz; which could be even earlier than the fluid-inclusion-clouded prismatic quartz.

Several random patches of extremely fine clays, ± sparse sericite are of non-specific origin. There are however, sparse regularly-shaped rectangular, to blade-form, to ?rhombic ?voids, partly occupied by fine clay-sericite ± late silica. These appear to be ex-crystals of which original carbonate is one possibility. Ex-sulphate is another possibility.

20-207R1
741800E/772450N

Graphitic, mica (?±felspar) quartzose schist, gradational to gneiss. Micas extensively weathered and ferruginised; minor boxwork after garnet. (cf. 20-057R). Trace pyrrhotite.

Field Note : fissile 'ironstone'; with quartz + ex-felspar?, chlorite, hematite.

A vague layered and/or schistose structure is preserved macroscopically in this rock. In thin section, the rock is seen to be largely similar to 20-057R, described above.

At least 40% of the rock consists of vague layers of polycrystalline metamorphic quartz, also more or less single grains of quartz. These occur as original residuals of coarse schist, within layers, lenses and foliae of schistose micas, together with coarse supergene clays (after micas and/or felspars), most of which are intensely ferruginised. Sparse residuals of micaceous remain; also there are several isometric boxworks, 1 to 3mm across, scattered, and almost certainly after garnets.

Minor (3-5%) small black-opaque flakes of (almost certain) graphite occur throughout these ferruginous domains, and rarely in garnet boxwork. (Graphite was not seen in 20-057R).

Minor equant grains to 1.5mm, completely altered to limonitic clays, occur in the metamorphic quartz. These could be ex-staurolite.

An examination of a polished section of this sample (mainly to check the graphite), indicates sparse, extremely small (0.03mm) bleb-like inclusions of pyrite and pyrrhotite in quartz.

20-207R2
Suboutcrop, same ironstone as 20-207R1

Graphitic, ?felspathic and micaceous quartz gneiss; non quartz components extensively weathered and ferruginised (similar to 20-207R1, but no garnet boxwork). Minute inclusions of ?hornblende in quartz.

This sample is similar to 20-207R1, with a planar metamorphic structure slightly more strongly preserved in handspecimen, possibly with a microfold structure as you indicate (although this was not evident in it in thin section).

It is also seen to be more distinctly layered in the thin section, more quartzose than most layers in 20-207R1. The micaceous layers are more intensely weathered, including the development of supergene clays (from micas or felspars), similar to those in 20-057R. The coarser quartz is distinctive in that it contains accessory minute (50 micron) inclusions of dark green Fe-rich hornblende, as in several samples, mostly interpreted as BIF, described below.

Graphite occurs in this sample, however, but is less evident (3%) than in 20-207R1. There are no garnet boxworks, and there are far more crosscutting fractures, filled by limonite, than in 20-207R1.

20-207R3
12m from 20-207R2

Coarse quartz, (of uncertain origin), carrying trace ± rarer carbonate ± rarer ?epidote, pyroxene. Numerous coarser partly limonitic voids, after an unknown mineral probably amphibole, possibly biotite.

Field Note : Quartz veins with laminations, of orange limonite with boxworks.

At least 90% of this rock consists of a massive aggregate of coarse (commony 5mm) quartz grains, with irregular and commonly moderately sutured intergranular contacts. The quartz grains are moderately stressed, and have sparse scattered fluid inclusions.

Rare, fresh inclusions of dark green crystals, <0.1mm size, appear to be Fe-rich hornblende, occur in the quartz ± rare associated carbonate. [See also 20-207R7].

Larger somewhat elongate boxwork voids, partly occupied by orange limonite, up to 1 x 3mm are scattered to form up to 10% of the sample, as mentioned in your field notes. There is no evidence to positively identify the original mineral which formed these voids, but their elongate shape, and the microfibrous to microplaty nature of some limonite infilling, indicates probable amphibole?, or possible biotite [see 20-207R7].

Rarer equally small grains of ?epidote and of possible clinopyroxene are also present.

20-207R7
No field data

Planar layered sequence, of metamorphic quartz incorporating numerous minute inclusions of fresh, Fe-rich amphibole. Intercalated layers of extensively oxidised/weathered, quite coarse Fe-rich amphibole, (and/or mica). Interpreted as a silicate-facies BIF.

This rock consists of well defined planar layers about 5mm thick, alternately dominated by polygonal metamorphic quartz and extensively clay-limonite-altered Fe-rich amphibole and/or biotite. Each layer incorporates minor amounts of the other layer-forming mineral however.

Quartz grains in the quartz-rich layers contain abundant-accessory, very small (<0.1mm) fresh, pleochroic green, Fe-rich hornblende (as in 20-207R3 but far more numerous). Most of these small crystals are more or less euhedral, and may be regarded as metamorphic, and the host quartz as metamorphically reconstituted 'chemical' silica, with (silica facies) BIF affinities. Rarer, equally small grains of ?clinopyroxene or ?epidote are also present.

Intercalated oxidised layers are dominated by clay-limonite ± low temperature, probably supergene silica alteration replicas, after squat, prismatic equant crystals of probable original amphibole (and/or possible biotite), some of which are oriented parallel to the layering, and some at random.

Numerous veins and stringers of low temperature chalcedonic probable supergene silica cut across the layering.

20-208R
742480E/7731770N

Feldspathic ± micaceous, quartz gneiss in contact with mica quartz schist. All micaceous components (probably biotite) weathered to clay ± limonite. Sparse boxwork after garnet.

Field Note : Similar to 20-207R7 but less finely laminated. Coarse glassy angular quartz-felspar-ferruginised chlorite, pyritic boxwork gossanous.

Two conformable textural domains (beds/metamorphic layers) form this rock, both composed of at least 50% of quartz. One is fine granulose gneissic, the other is more micaceous and schistose.

The gneissic layer consists of irregularly granuloblastic quartz grains individually about 0.5mm, weakly layered and aggregate with a subequal amount of clay replicas after equant probable felspar grains, also after rarer, relatively platy micas.

The schistose layer consists of conformable undulating foliae of mica (?biotite), completely altered to clays ± limonite, throughout a quartz mosaic, finer and weakly elongated compared with that in the gneissic layer.

Rare boxwork, (in the gneissic layer) appears to be after garnet rather than pyrite).

20-227R
7417033/72015N

Layered, oxidised-magnetite and quartzose 'BIF'; trace inclusions of garnet and Fe-rich amphibole in quartz; limonite boxwork/replica after micas or amphibole, also after minor possible, iron sulphides.

Field Note : BIF ridge, hematite-quartz-chlorite?; gossanous patchy-bands, bedded.

This rock has a BIF affinity, as indicated by quartz layers on a scale of 1mm to 10mm and intercalated layers of 'bedded' hematite replicas after magnetite grains up to 1mm size, and forming up to 15% of the sequence.

The quartzose layers are dominated by fine to coarse, essentially metamorphic quartz mosaic, with limonite permeation almost ubiquitous along intergranular contacts (which makes the rock look more iron-rich in hand specimen, than it primarily is).

The quartz, particularly the coarser grains, is dusted with fluid inclusions, and there are minor very small inclusions of oxidised magnetite. There is also trace inclusions of fresh garnet; and trace minute inclusions of green ?Fe-rich hornblende, which indicates a possible genetic relationship to 20-20737 (and others).

Limonite replicas apparently after micas and/or amphibole occur locally between quartz, and minor poorly defined by somewhat cellular limonitic replica/boxork may be after iron sulphide, probably pyrrhotite, particularly since trace small inclusions of fresh pyrrhotite occur in quartz.

20-228R
741735E/7733250N

Weathered BIF, with quartzose layers containing accessory minute inclusions of amphibole (?± rarer pyroxene, epidote); intercalated layers of hematite-goethite, with a micropolygonal texture, typical of lateritic, gel-limonite, clay-sericite replicas of unknown genesis, also boxwork after probable garnet.

Field Note : ri[illegible] of BIF, bands of glassy quartz, ?chlorite, ?felspar, hematite with gossanous boxwork.

The part of the sample sections consists of two quartzose layers, at least 10mm thick, separated by a richly ferruginous layer 20mm thick.

The quartz layers consist of medium to coarse, granuloblastic quartz aggregate, with grains moderately stressed, and containing trails and disseminations of minute fluid inclusions. Importantly, these gr[illegible]o contain accessory, scattered, very small (0.3mm) inclusions of the green ?Fe-rich amphibole; as in several other samples, with rarer near-colourless grains of ?epidote and/or possible clinopyroxene.

The ferruginous layer, as seen in polished section consists of a very fine spongy/cellular mass of hematite ë limonite, with an overall, irregularly micropolygonal texture. There is no positive boxwork or replica after magnetite.

This 'polygonal' fabric may be interpreted as :

(1) intergranular to fine quartz aggregate (unlikely according to examination in transmitted light); or intergranular to carbonate mosaic, with carbonate since leached out (also seemingly unlikely).

(2) fine gossanous boxwork, after complete oxidation and leaching of fine aggregate pyrrhotite.

(3) this texture may be entirely a supergene (i.e. not relict), typically formed by gel-limonite which is commonly seen in lateritic profiles (and in fact seen in previous samples 20152 (?BIF or skarn rock), Report 5734 to steve Milner, 16/10/91.

There is also minor scattered boxwork, different to the above, after fairly discrete individual crystals, about 1mm size, and these seem to be most likely after garnet, but where clays are also involved they may be after another metamorphic/porphyroblastic mineral.

20-257R
744740E/7735580N

Muscovite-quartzo-felspathic gneiss; felspar completely weathered to clays; accessory zircon grains probably ex-detrital in an original pelitic ± arkosic psammitic sediment cf. 20-075R.

This rock has a relict gneissic texture. Fine to medium grained metamorphic quartz mosaic is variably continuous to form about 50% of this rock, and this forms a layered/granular gneissic aggregate with micas and clay-alteration replicas, which form approximately the other one half of the rock.

The clays are decussate very fine kaolinite which appear to be completely weathered ex-felspar. The muscovite is probably a primary/metamorphic relict of the former gneiss, (or possibly an alteration product of ex-felspars).

/ sory grains of zircon, rarely to 0.25mm, appear to be detrital grains in an original pelitic and/or arkosic sandy facies, (as the probable precursor to this gneiss).

20-270R1
747620E/7732635N

Sparsely graphitic, [illegible]a felspar quartz gneiss, with all non-quartzose mineral completely weathered to limonitic clays; accessory opaque oxides possibly ex-detrital.

Field Note : Quartz-augen-felspar-schist? Check if derived from a volcanic.

This rock also has a relict gneissic fabric. Abundant foliae, transitional to ('small augen-like') lenses of supergene alteration end-products form up to 65% of the sample. This material incorporates fine to medium grains, small lenses and discontinuous layers of metamorphic quartz, forming the other approximate 35% of the sample.

The alteration products include decussate to micro-vermiform clays, extensively iron-stained, and possibly after felspars; also relatively schistose clays which appear to pseudomorphically replace former metamorphic micas. Also, there are irregular lenses to 5mm across, of deeply iron-stained ultrafine? leucoxenitic material, which may be replicas after ?biotite ?amphibole and these tend to distinguish this rock from other weathered gneisses described above. [This material may be bauxitic].

Accessory fine graphite residuals occur in several weathered foliae, and there are accessory small individual opaque oxide grains, which are supergene-oxidised, and these appear to be ex-detrital (like the rare zircons in other gneisses).

20-270R2 Same location 20-270R1 interbedded lens hosted in 20-270R1, hematite and gossanous	Irregular, disrupted (?ex-gneissic) aggregate of metamorphic quartz, incorporating scattered quite coarse supergene clays which are intensely ferruginised, also extensive hematite/limonite stringers along fracture networks. No apparent genuine gossanous characteristics. Single recognisable microcline grain.

This rock has an overall disrupted gneissic fabric. The irregular fine to medium quartz mosaic which forms about 40% of it is similar to the quartz in the host gneiss 20-270R1. The other approximately 60% consists of irregular patches and networks of reddish, hematitic supergene, iron oxides enclosing highly irregular porosity (partly occupied by yellowish ultrafine clays). A single stressed grain of partly fresh microcline occurs in this thin section.

Most of this ferruginous material replaces, with diagnostic relict textures, the same clay-alteration-endproducts (?after felspar) as in 20-270R1, but more randomly disposed.

The remainder of the iron-oxide basically forms extensive, chaotic networks, along fractures and intergranular contact within quartz, locally microcollorom and botryoidal, and without any evidence diagnostic of specific pre-existing recognisable minerals.

20-301R
750470E/7735630N

?Micacous, felspathic and quartzose gneiss; weakly disrupted; non-quartz minerals completely weathered to supergene clays and to ?leucoxenitic patches.

Field Note : Quartz-augen-felspar schist.

This rock has a dominantly gneissic fabric. Locally disrupted lenses and layers of fine to medium metamorphic quartz mosaic (35-40% of the whole rock) are variably continuous within, and more or less alternate with, 'layers' of supergene components, which also incorporate small inclusions of quartz.

These weathering end products are mostly micro-vermiform clays, iron-stained and in decussate patches, but with a subordinate amount of patches, 1 to 5mm across, largely of clouded, cryptocrystalline 'leucoxenitic' or possibly bauxitic material. The precursor minerals were probably felspars, biotite (± muscovite).

Trace minute grains of zircon occur as inclusions in quartz.

20-425R
746750E/7732105N

Muscovite-quartzo-felspathic gneiss; felspar completely weathered; trace grains of zircon, tourmaline.

Field Note : quartz-felspar gneiss. Origin?

This sample consists essentially of a massive to weakly layered, inequigranular, gneissic/metamorphic aggregate of quartz and supergene clays. The clays have formed by the almost complete in-situ weathering, apparently mainly of felspar, but also of minor micas, and indeed sparse relicts of quite coarse metamorphic muscovite remain in the clays.

These clays are variably micro-vermiform/decussate, variably to massive, relatively structureless, cryptocrystalline. A single grain of zircon and one of tourmaline was seen, enclosed in clays.

Objectively, the relatively massive nature of this rock could be interpreted as a meta, (muscovite) granitoid. Most other gneisses described alone however, seem to be metasediments, and there is no compelling reason to interpret this rock differently.

20-495R
751870E/7731240N

Massive aggregate of fine quartz, abundant random quite coarse clay ?after micas, also apparently sericitised felspars. No distinctive texture, apparently different from all other rocks in the suite, possible ex-greisen affinities.

Field Note : (Opaline silica), quartz-felspar-chlorite? gneiss. Possible malachite stains, locally hematite flooded.

One sample included in the bag with this number is a rel[illegible]ely m[illegible]ve medium granular aggregate of quartz and compact-clay-altered-felspar rock; possibly a metagranitoid. The other sample is relatively very weakly layered 'gneissic' and this rock was examined petrographically.

About 60% of the rock consists of random flakes and small books of clay, almost certainly kaolinite, up to 1.5mm in size, commonly curved or bent, and randomly disposed throughout. These appear to be the weathering-alteration-end products of pre-existing micas.

These occur within a matrix of finer clays, which tend to be selectively ferruginised, (20%), fine (<0.3mm) scattered quartz grains, (10%), also a fine alteration material, apparently 'sericite', (with possibly saussuritic affinities?) probably after felspar.

The components of the original rock therefore appear to have been micas > felspar > quartz. These proportions of the interpreted minerals are different from all other rocks described in this report; also there is lack of a distinctive texture; either primary or supergene (apart from it being heterogeneously massive).

Interpretations of the original lithology is uncertain; could it be a quartz-poor ex-greisenised rock?

20-368L 745690E/7723615N	Unsorted quartz grains, apparently as 'residuals', possibly some transported, cemented by lateritic limonite. Accessory minerals suggests derivation from gneiss, rarer contribution from BIF.

Field Note : Laterite rubble, form air-mag low area. Original lithology?

Eight lateritic chips were examined in the one composite polished thin section; these show completely supergene/surficial textures.

At least 50% of each chip consists of quartz grains, mostly angular, unsorted and ranging in size from 0.03mm to 2mm, variably of single crystal and composite and all randomly disposed through a limonitic (lateritic) cement of exotic/migratory genesis, which forms most of the other 50% of the rock.

There are no relict textures of a pre-existing in-situ whole rock, and it is assumed that this quartzose material has been transported and/or has concentrated locally as residuals from underlying deeply weathered rock.

One the whole, the quartz is rather non-diagnostic of any particular rock-type, even though it may be regarded broadly as metamorphic. Accessory minerals offer some scope for interpretation, such as :

* rare (weathered) single crystal grains/fragments of microcline, which may correlate with the rare microcline in the weathered gneiss sample 20-270R2.

* trace very small grains of tourmaline, flakes of muscovite and rarer zircon, may correlate with minor to trace amounts of these minerals in some of the gneisses.

20-369L
745570E/7724395N

Deeply weathered/ferruginised, fine layered 'mica'-quartz schist (or gneiss), accessory titaniferous opaque oxides.

Field Note : Laterite rubble, from air mag low area. Original lithology?

As distinct from the exotic/derived material in laterite samples 20-368L, 20-371L, with surficial structures; this thin section displays a coherent preserved texture of a fine metmorphic whole-rock albeit intensely ferruginised.

Fine grains of muscovite and somewhat fragmented quartz mosaic have a weakly layered distribution through a matrix of intensely limonite impregnated clays. This latter material is seen to pseudomorphically replace schistose foliae of former micas, which formed approximately one half of the pre-existing rock. Quite coarse kaolinitic clays flakes are fairly abundant in one of the three chips examined petrographically.

Accessory grains of ilmenite opaque oxide are scattered along the metamorphic layering.

20-371L
745400E/7726175N

Unsorted quartz grains, probably derived from deeply weathered and disintegrated gneissic facies; within lateritic limonite amount of probably more than one generation.

Field Note : Laterite rubble, from air mag low area. Original lithology?

These lateritic chips are essentially the same as 20-368L; unsorted fine to quite coarse quartz grains within lateritic-limonite cement. The proportion of cement is greater in this sample however, and texturally more complex, including earlier micro nodules or incipient pisolites of limonite, incorporated within later envelopes of irregularly colloform limonite.

The quartz grains are of non-diagnostic genesis. Accessory minerals include muscovite and coarse clays, as seen to occur in weathered gneisses described above. Rare grains of weathered microcline are present.

20-549R

Weakly layered laterite, with quartz grains and small 'nodules' of clay; within a matrix/cement of limonite of exotic/migratory origin.

Field Note : Quartz-hematite-lateritic rubble. Original lithology?

In the thin section of this 'lateritic rock', there is no evidence of a texture or strucure indicative of a pre-existing coherent whole rock, although the hand specimen has a weakly layered, even fissile structure.

About 60% of the rock consists of very loose-packed (and weakly layered), angular to subrounded quartz grains, ranging in size from 0.03 to 1mm, also numerous grains or 'nodules' or 'pisolites' of isotropic clays of similar size. These components occur within a matrix/cement of lateritic limonite, of exotic/migratory origin, (without any evidence of relict replacement texture).

The quartz grains do not have any features diagnostic of a specific source rock.

20-551R
746320E/7733880N

(Micaceous) felspathic-quartzose fine gneiss (or granulose schist).

Field Note : stressed arkosic schist, felspars hematite-permeated.

Petrographically, this rock is seen to have a well preserved, homogeneous fine gneissic structure. Quartz, which forms about 50% of the rock, occurs as somewhat elongated grains (as you have observed), mostly composite and arranged in evenly spaced, but discontinuous metamorphic layers throughout.

Weathering-alteration-end products, of variably iron-stained clays, ± possible ultrafine leucoxene, all have an even distribution in irregular lenses, and discontinuous layers, between and together with the quartz; replicating pre-existing gneissic minerals. These original minerals appear to have been mostly felspar, but with minor micas, since minor 'fresh' muscovite is locally intergrown with the clays.

734000 736000 738000 131°17'30" 740000 742000 744000 746000 748000

BOUNDARY OF APPROVED WORK PROGRAM AREA FOR 1991

LINE 2 LINE 3 LINE 4 LINE 5 LINE 6 LINE 7 LINE 8 LINE 9 LINE 10 LINE 11 LINE 12 LINE 13 LINE 14 LINE 15 LINE 24 LINE 40 LINE 41

△Mt Solitaire

578 182× >35%Ce 0·3%Ce >35%Ce ×586 ×554 ×553 13ppb Au 207 P 559× ×557 ×560 ×208 ×552 ×561 ×562 ×425 ×567 ×565 ×564 ×563 ×588 ×371 ×370 ×369 ×368 ×367 ×366 ×365 ×55 ×2704 ×257 >45%Ba 0·4%Ba (Goodenous) 0·46%Ba, 42W, 293Zn

LEGEND

Traverse Line
Traversed, but no sample available within 100m of site.
Sampled

×57 Sites off Line
Sample and/or Site Number
(All prefixed by 20-)

L and P Anomalies (line width indicates strength)

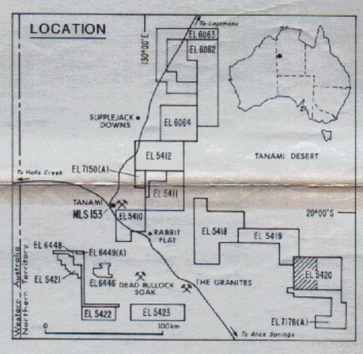
On left or upper part of line	On right or lower part of line
W	Cu
As	Pb
Sb	Zn
Cr	Ni
Ba	

Colours as above for F, R & I samples with sample type indicated by letter.

Ce, La } Only for P samples on Lines 4 - 11

Colour bars are extended ± 100m (i.e. halfway to adjacent sites) each side of location site to indicate potential followup region.

LOCATION



GN MN

SCALE 1:25,000

0 500 1000 1500 2000
Metres

BASE MAP : RESIDUAL AEROMAGNETIC CONTOURS AND AMG CO-ORDINATES FROM 1:50,000 GEOTERREX PTY. LTD. SURVEY, MT. SOLITAIRE, SHEET 9.

CR92/344

ZAPOPAN N.L.

Exploration Licence 5420
Tanami Desert
(West Sheet)

RECONNAISSANCE GEOCHEMICAL TRAVERSES AND ANOMALY SUMMARY

Compiled by : N. J. MARSHALL	FEB. 1992
Drafted by : GEODRAFTING	**MAP No. 1A**

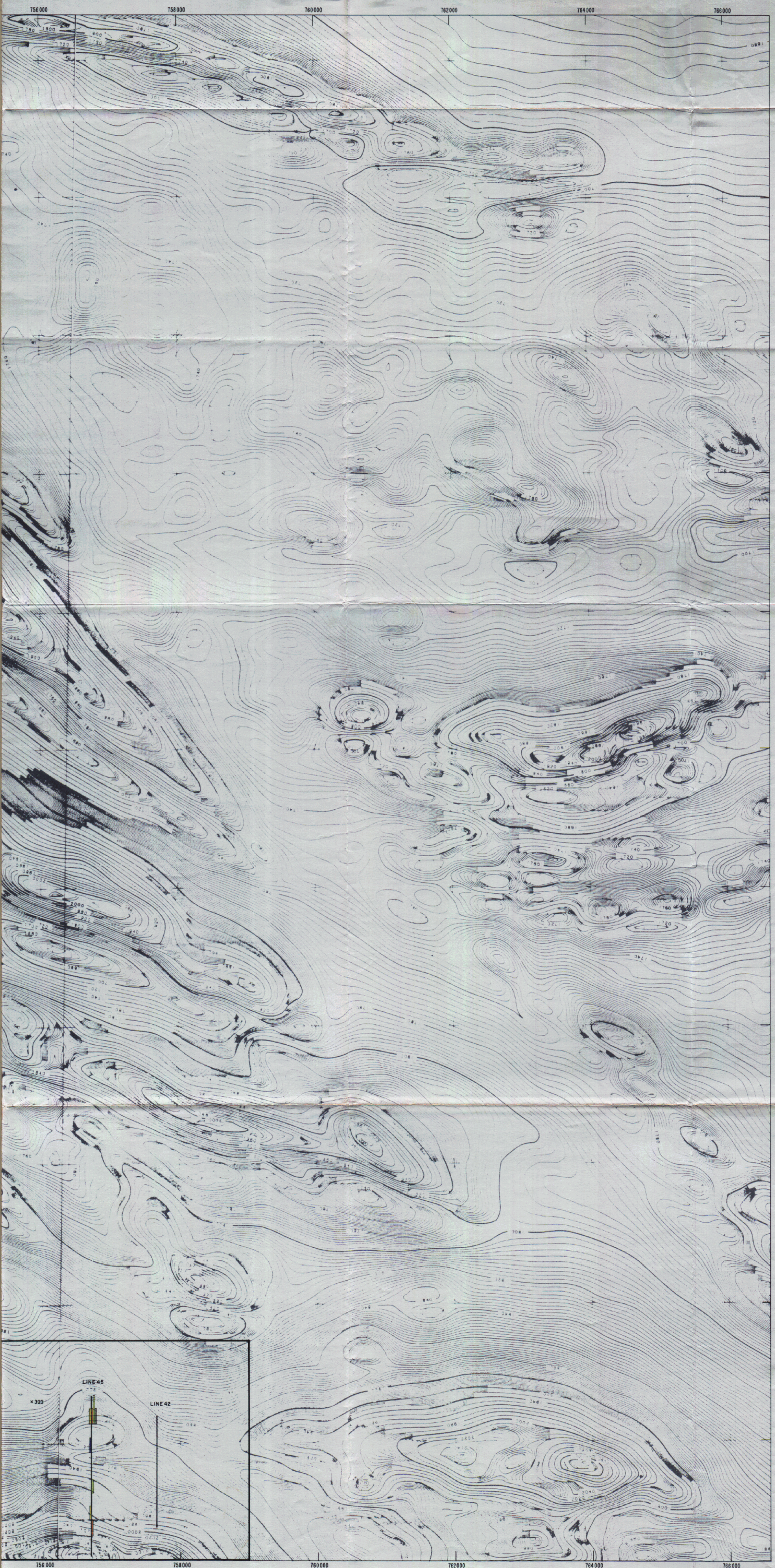
748 000 750 000 752 000 754 000 756 000 758 000 760 000

7740000 7738000 7736 000 7734 000 7732 000 7730 000 7728 000 7726 000 7724 000 7722 000 7720 000

BOUNDARY OF APPROVED WORK PROGRAM AREA FOR 1991

LINE 17 LINE 18 LINE 19 LINE 16 LINE 23 LINE 25 LINE 26 LINE 27 LINE 29 LINE 30 LINE 43 LINE 44 LINE 45 LINE 42

×571 ×301 ×513 ×529 ×512 ×495 ×424 ×427 ×570 ×569 ×423 ×339 ×338 ×323



LEGEND

Traverse Line
Traversed but no sample available within 100m of site.
Sampled

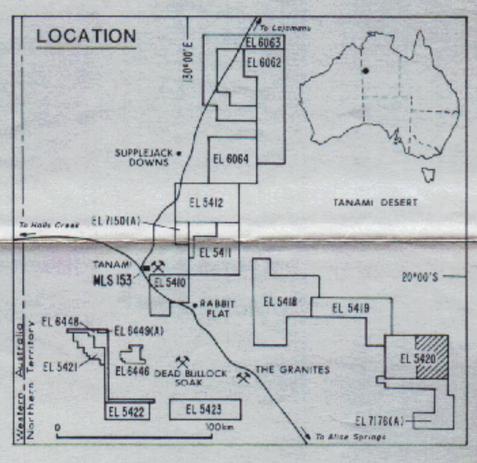
×57 Sites off Line
Sample and/or Site Number
(All prefixed by 20-)

L and P Anomalies (line width indicates strength)

On left or upper part of line	On right or lower part of line
W	Cu
As	Pb
Sb	Zn
Cr	Ni
Ba	

Colours as above for F, R & I samples with sample type indicated by letter.

Colour bars are extended ± 100m (i.e. halfway to adjacent sites) each side of location site to indicate potential followup region.



GN MN

5°

SCALE 1:25,000

0 500 1000 1500 2000

Metres

BASE MAP : RESIDUAL AEROMAGNETIC CONTOURS AND AMG CO-ORDINATES FROM 1:50,000 GEOTERREX PTY. LTD. SURVEY, MT. SOLITAIRE, SHEET 9.

CR92/344

ZAPOPAN N.L.

Exploration Licence 5420
Tanami Desert
(East Sheet)

RECONNAISSANCE GEOCHEMICAL TRAVERSES AND ANOMALY SUMMARY

Compiled by : N. J. MARSHALL	FEB. 1992
Drafted by : GEODRAFTING	**MAP No. 1B**

730 000 732 000 734 000 736 000 738 000 131° 17'30" 740 000 742 000

7 740 000

BOUNDARY OF APPROVED WORK PROGRAM AREA FOR 1991

7 738 000

7 736 000

7 734 000

7 732 000

7 730 000

7 728 000

7 726 000

7 724 000

7 722 000

7 720 000

LINE 1

COARSE METAMORPHIC QTZ & LATERITE FLOAT

COARSE QTZITE LAG

LINE 2

COARSE QTZITE IN LAG

VEIN QTZ FLOAT & RARE FeSTONE (GOSSANEOUS ?)

RARE PISOLITES THROUGHOUT

LINE 3

VARIABLE QTZ + QTZITE LAG LOW PISOLITES THROUGHOUT

LINE 4

QTZ FLOAT

QTZ - SERICITE SCHIST

WEATHERED FERRUGINIZED GNEISS RIDGE

FeSTONE + QTZ FLOAT

FeSTONE FLOAT (GOSSANEOUS ?)

LINE 5

75R QTZ - FELDSPAR GNEISS 60

QTZ + QTZITE FLOAT

HEAVY LATERITE FLOAT

QTZ + QTZITE FLOAT

LAMINATED QTZ FLOAT - POSSIBLY EXHALATIVE

LINE 6

QTZ FLOAT

QTZ - FELDSPAR GNEISS RIDGE 75

LATERITE + QTZ FLOAT

LINE 7

MICACEOUS ARKOSE FLOAT

ARKOSE RIDGES 75

SUB O/C GRANITE GNEISS

LATERITIZED QTZITE RIDGE

QTZ + QTZ - SERICITE - Fe FLOAT

QTZ FLOAT

RARE PISOLITE & LAG THROUGHOUT

QTZ FLOAT

LINE 8

PISOLITE THROUGHOUT

65

132

O/C OF HYDROTHERMAL QTZ BRECCIA

QTZ FLOAT

RARE TO ABSENT LAG &

QTZ FLOAT

×557

×556

LINE 9

QTZ - FELDSPAR SCHIST 55

RIDGE OF FOLDED ARKOSE

PISOLITE THROUGHOUT - PROBABLY DEEP COVER OVER ARKOSE & GNEISS

QTZ FLOAT

×554

RARE QTZ FLOAT

RARE TO ABSENT LAG & PISOLITE

LINE 10

LINE 11

×553 LATERITE FLOAT

228R RIDGE OF WE BIF 50

207R1 - R7 BANDED GRAPH GNEISS & SILI FACIES BIF

QTZ + GOSSANEOUS (?) FeSTONE FLOAT

QTZ + FeSTONE FLOAT

RARE TO ABSENT LAG & PISOLITE THROUGHOUT

QTZ FLOAT

45 QTZ FLOAT 227R

RIDGE OF PYRRHOTITE BEARING OXIDE FACIES BIF

LINE 12

559×

LATERIT QTZ FL

O/C COAR METAQTZI QTZ FLOA

LAT F

738 000 | 131° 17' 30" | 740 000 | 742 000 | 744 000 | 746 000 | 748 000

K PROGRAM AREA FOR 1991

LINE 8

LINE 9

LINE 10

LINE 12

LINE 13

LINE 14

LINE 15

LINE 11

LINE 24

LINE 40

LINE 41

× 557

× 556

65 / 132 ×

QTZ FLOAT

RARE TO ABSENT LAG & PISOLITE THROUGHOUT

QTZ FLOAT

RARE TO ABSENT LAG & PISOLITE THROUGHOUT — PROBABLY DEEP COVER OVER ARKOSE & GNEISS

× 554

RARE QTZ FLOAT

QTZ - FELDSPAR SCHIST

55

RIDGE OF FOLDED ARKOSE

RARE TO ABSENT LAG & PISOLITE THROUGHOUT

QTZ + FeSTONE FLOAT

559 ×

LATERITE & QTZ FLOAT

O/C COARSE METAQTZITE + QTZ FLOAT

× 560

QTZ + LATERITE FLOAT

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

FeSTONE FLOAT

LATERITIZED QTZITE LAG

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

× 257R

70

O/C MUSCOVITE - QTZ - FELDSPAR GNEISS AFTER ARKOSE

QTZ FLOAT

QTZ + QTZITE + SCHIST FLOAT

QTZ FLOAT

QTZITE + HEMATITE - QTZ FLOAT

QTZ O/C

TRACE FeSTONE (GOSSANEOUS ?)

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

50

RIDGE OF QTZ - MUSCOVITE - FELDSPAR SCHIST

RIDGE OF FELDSPAR - QTZ GNEISS

× 551

× 553

LATERITE FLOAT

228R

RIDGE OF WEATHERED BIF

50

RARE TO ABSENT LAG & PISOLITE THROUGHOUT

QTZ + GOSSANEOUS (?) FeSTONE FLOAT

207 R1 - R7

FOLDED GRAPHITIC GNEISS & SILICATE FACIES BIF

× 552

LATERITE + QTZ FLOAT

270

RIDGE OF PARTLY FERRUGINIZED MICA - FELDSPAR - QTZ GNEISS

80

425

RIDGE OF MUSCOVITE - QTZ - FELDSPAR GNEISS (METASEDIMENT)

METASEDIMENTARY SCHIST - GNEISS RIDGE

× 208

× 561

× 562

LATERITE + QTZ FLOAT

RARE TO ABSENT LAG & PISOLITE THROUGHOUT

QTZ FLOAT

45

227R

RIDGE OF PYRRHOTITE BEARING OXIDE FACIES BIF

QTZ FLOAT

× 563

FeSTONE FLOAT

× 565

QTZ + LATERITE FLOAT

× 566

QTZ FLOAT

× 567

QTZ FLOAT

QTZ FLOAT

× 568

QTZ FLOAT WITH PYRITE CAVITIES + LATERITIZED MICACEOUS SANDSTONE FRAGMENTS

× 371

QTZ FLOAT + LATERITE RUBBLE AFTER GNEISS

× 370

× 369

QTZ FLOAT + LATERITE RUBBLE AFTER MICA - QTZ SCHIST

× 368

LATERITE RUBBLE AFTER GNEISS

× 367

× 366

× 365

HIGH TO MODERATE PISOLITES THROUGHOUT

HIGH TO MODERATE PISOLITES THROUGHOUT

LEGEND

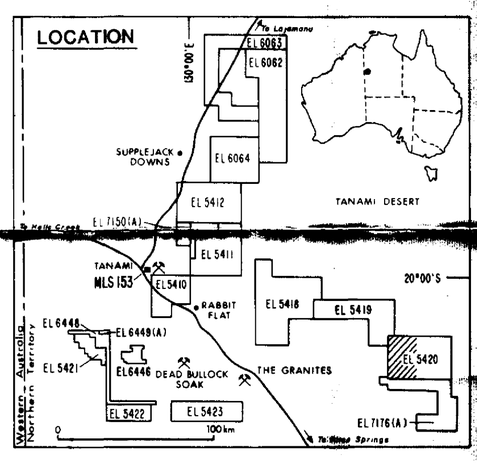
Traverse Line

Traversed but no sample available within 100m of site.

Sampled

×57 Sites off Line
Sample and/or Site Number
(All prefixed by -)

LOCATION



GN MN

5°

SCALE 1:25,000

0 500 1000 1500 2000

Metres

BASE MAP : AMG CO-ORDINATES FROM 1 : 50,000
GEOTERREX PTY. LTD. SURVEY,
MT. SOLITAIRE, SHEET 9

ZAPOPAN N. L.

Exploration Licence 5420
Tanami Desert
(West Sheet)

GEOLOGICAL OBSERVATIONS

Compiled by : N. J. MARSHALL	FEB. 1992
Drafted by : GEODRAFTING	MAP No. 2A

CP: 27344

738 000 | 131° 17' 30" | 740 000 | 742 000 | 744 000 | 746 000 | 748 000

748 000 750 000 752 000 754 000 756000 758000 760000

7 740 000

7 738 000

BOUNDARY OF APPROVED WORK PROGRAM AREA FOR 1991

LINE 17

LINE 18

LINE 19

LINE 20

7 736 000

ARKOSIC LAG IN ANT NESTS
×571

×301 R
QUARTZOSE GNEISS

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

QTZ-SERICITE-FELDSPAR SCHIST FLOAT

QTZ-HEMATITE FLOAT COBBLE, WITH FINE PYRITIC BOXWORKS

ABSENT LAG & PISOLITES THROUGHOUT

LATERITE RUBBLE ON RISE

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

GENERALLY RARE TO ABSENT LAG & PISOLITES THROUGHOUT

GRANITE GNEISS FRAGMENTS

70
×529
QTZ-MUSCOVITE-FELDSPAR SCHIST RIDGE

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

VARIABLE LAG & PISOLITE AVAILABILITY

×513

LATERITIZED HEMATITE-QTZ FLOAT

7 734 000

LINE 16

RARE TO ABSENT LAG & PISOLITE THROUGHOUT

O/C QTZ-BIOTITE GNEISS

×512

QTZ + BIOTITE GNEISS FLOAT

7 732 000

LINE 23

FINE RED SAND ONLY

×495 R
POSSIBLE GREISEN

LINE 25

×424
MICACEOUS SANDSTONE FLOAT

GRANITE GNEISS O/C

PISOLITES

GRANITE GNEISS LAG IN ANT NESTS

LINE 26

×427

GRANITE GNEISS

ARKOSIC GNEISS

×570
QTZ-FELDSPAR-BIOTITE GNEISS O/C

426×

GRANITE GNEISS FRAGMENTS IN ANT NESTS

LINE 27

GRANITE GNEISS LAG IN ANTHILLS

7 730 000

GENERALLY FAIR LAG OR PISOLITE AVAILABILITY

RARE TO ABSENT

×569
GRANITE GNEISS FRAGMENTS

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

RARE TO ABSENT LAG & PISOLITES THROUGHOUT

TRACE LATERITIZED MICACEOUS SILTSTONE LAG

TRACE LATERITE FLOAT

×423
FeSTONE & QTZ FLOAT
LATERITIZED SANDSTONE PISOLITES

7 728 000

LINE 29

LINE 30

QTZ FRAGMENTS

GENERALLY FAIR LAG & PISOLITE AVAILABILITY

GENERALLY FAIR LAG PISOLITE AVAILABILITY

QTZ FLOAT

7 726 000

7 724 000

7 722 000

LINE 43

GENERALLY ABUNDANT PISOLITE LAG

×339

GENERALLY ABUNDANT PISOLITIC LAG

×338

LINE 44

GENERALLY ABUNDANT PISOLITE LAG

GENERALLY ABUNDANT PISOLITIC LAG

×323

LINE 45

GENERALLY GOOD PISOLITE AVAILABILITY

QTZ FLOAT

QTZ + SILTSTONE FRAGMENTS

PHYLLITE + QTZ FRAGMENTS

LINE 42

GENERALLY ABUNDANT PISOLITE LAG

7 720 000

748 000 750 000 752 000 754 000 756 000 758000 760000

LEGEND

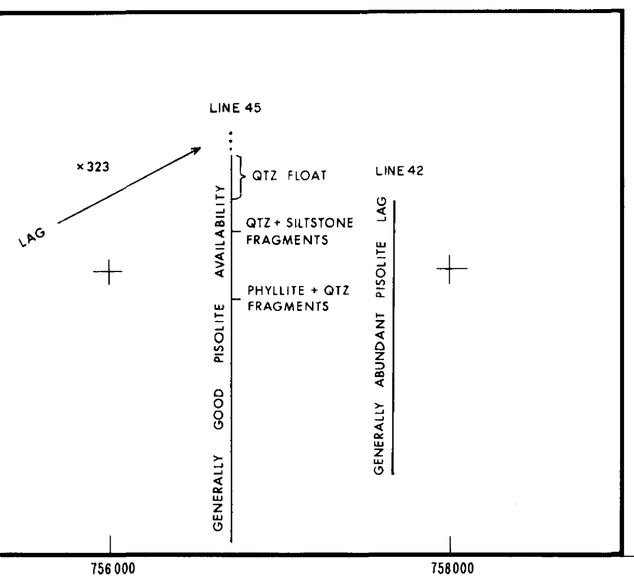
Traverse Line
Traversed but no sample available within 100m of site
Sampled

×57 Sites off Line
Sample and/or Site Number
(All prefixed by 20-)

SCALE 1:25,000

0 500 1000 1500 2000
Metres

BASE MAP : AMG CO-ORDINATES FROM 1 : 50,000
GEOTERREX PTY. LTD. SURVEY,
MT. SOLITAIRE, SHEET 9



ZAPOPAN N. L.

Exploration Licence 5420
Tanami Desert
(East Sheet)

GEOLOGICAL OBSERVATIONS

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Drafted by : GEODRAFTING	**MAP No. 2B**

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