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DIVISION OF PEKO-WALLSEND OPERATIONS LIMITED

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PROGRESS REPORT E.L. 27/76

ELLIOTT BAY, 1979/80 FIELD SEASON

OPEN FILE

R.R. LARGE.
DEVONPORT.

MARCH 1980.

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PLAN NO.

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5320L	Profiles of total magnetic intensity
5160S/B	Contours of filtered in-phase VLF-EM
5297S/B	Profiles of Turam, corrected field strength ratio and phase difference

Voyager 6

5298S/B	Profiles VLF-EM
5301S/B	Profiles of total Magnetic intensity
5299S/B	Contour of filtered in-phase VLF-EM
5300S/B	Contours of total mangnetic intensity

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Voyager 7

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5306S/B	Contours of total magnetic intensity
5307S/B + 5305S/B	Profiles of total magnetic intensity
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Voyager 9

5151S/B	Profiles of total magnetic intensity Sht 1
5152S/B	Profiles of total magnetic intensity Sht 2
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5308S/B	Contours of filtered in-phase VLF-EM
5309S/B	Profile of VLF-EM

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5157	Reconnaisance geophysics profiles total magnetic intensity
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Voyager 21

5155S/B	Contours of total magnetic intensity
5156S/B	Profiles of total magnetic intensity
5312S/B	Contours of in-phase filtered VLF-EM
5313S/B	Profiles of VLF-EM
5304S/B	Profiles of self potential

Voyager 22

5314S/B	Profiles of total magnetic intensity
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PROGRESS REPORT E.L. 27/76 ELLIOTT BAY 1979/80 FIELD SEASON.

1. INTRODUCTION

Exploration Licence 27/76 held by Geopeko occupies an area of 329 square kilometres in South-West Tasmania. The E.L. covers the most southern extension of the middle to late Cambrian belt of acid volcanics, which further north contains the volcanogenic sulphide mineralization at Mt. Lyell, Rosebery and Que River.

Geopeko has been exploring for base metal and tin-tungsten mineralization in the area since 1977. Previous reports covering Geopeko's activities include Strickland (1978) and Strickland (1979).

This report details the results and conclusions from the 1979-80 field season, undertaken from December 1979 through to April 1980. A synthesis of the geology of the area derived from this and previous seasons work is given in some detail.

Operations during the 1979-80 field season were run from two camps, with three to four geologists plus a field crew of ten men. One camp was set up at the mouth of Sassy Creek for the full season, while the other camp had four separate locations on the eastern side of the E.L.

Activities during the season included;

1. Completion of regional mapping in the north-eastern and south-western portions of the E.L.

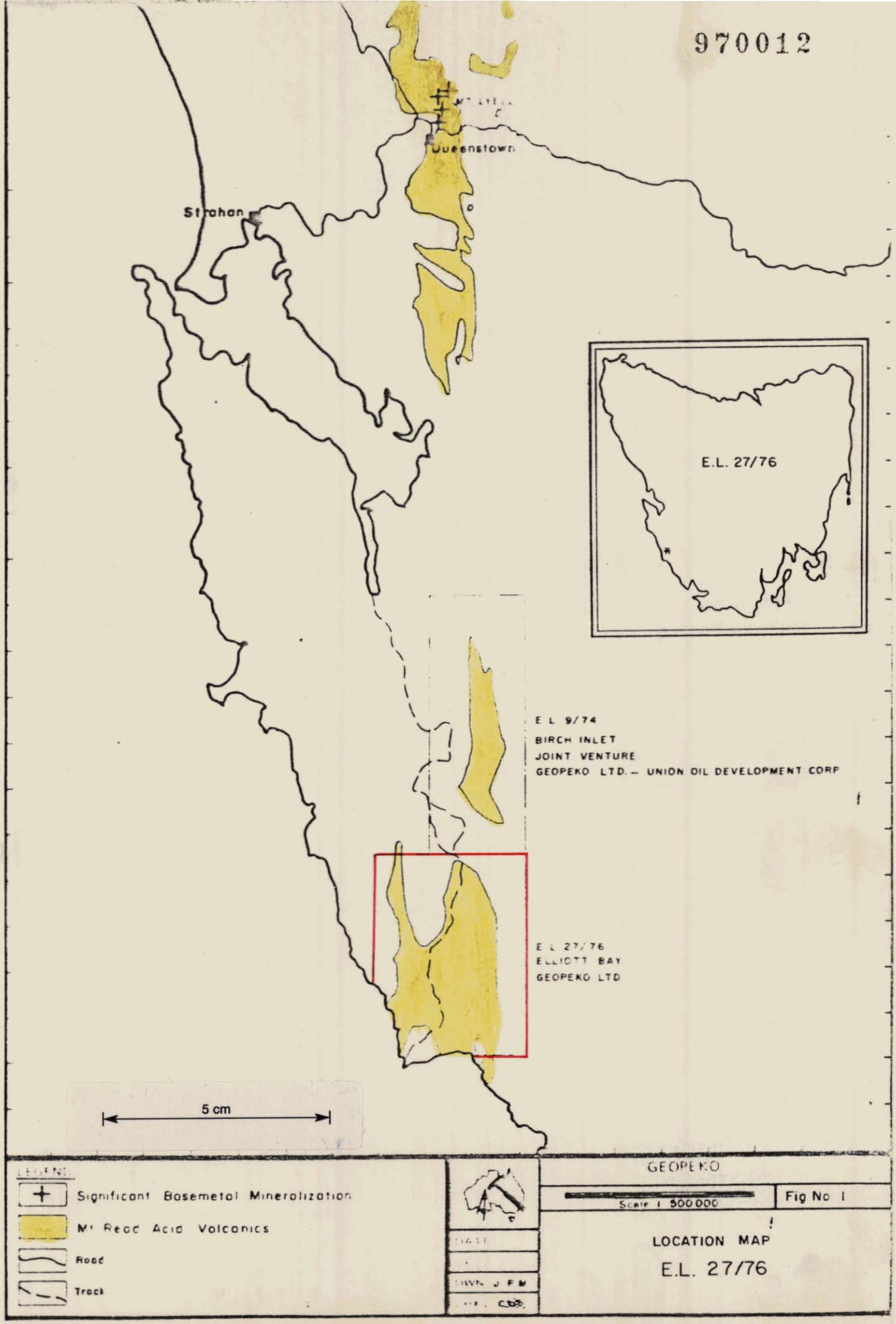
2. Stream sediment sampling over the north-eastern and south-western portions of the E.L.

3. Geological, geochemical and geophysical investigations on grids placed over the following prospects (see Fig 2) - Voyager 1, Voyager 6, Voyager 7, Voyager 9, Voyager 10, Voyager 12, Voyager 14, Voyager 17, Voyager 21 and Voyager 22.

4. Drilling of three diamond holes, one on each of the following prospects - Voyager 2, Voyager 9 and Voyager 12.

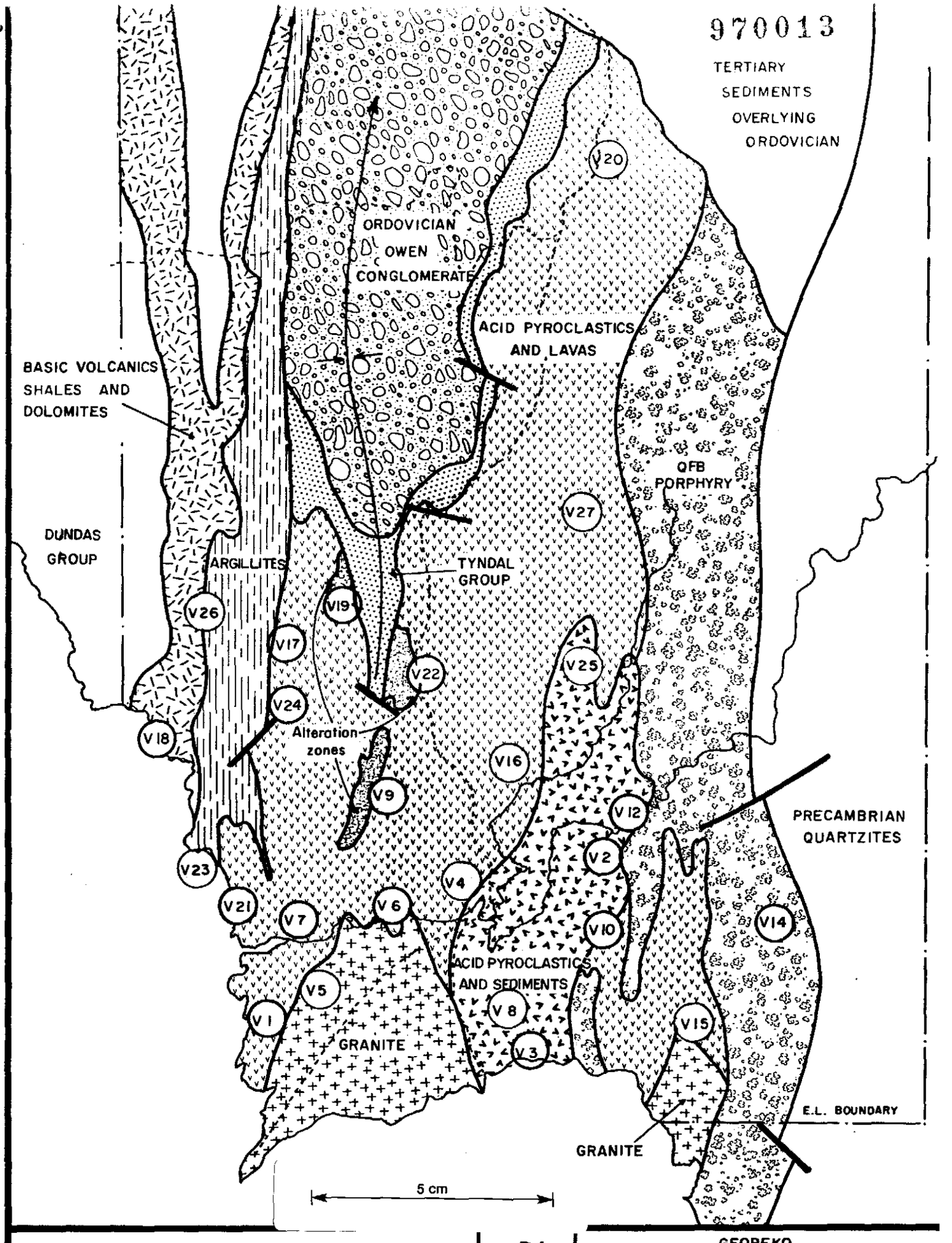
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Queenstown
Strahan
E.L. 27/76
E L 9/74
BIRCH INLET
JOINT VENTURE
GEOPEKO LTD. – UNION OIL DEVELOPMENT CORP
E L 27/76
ELLIOTT BAY
GEOPEKO LTD
5 cm
LEGEND
Significant Basemetal Mineralization
Mt Read Acid Volcanics
Road
Track
GEOPEKO
Scale 1 500 000
Fig No 1
LOCATION MAP
E.L. 27/76

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LEGEND

(V10) Location of Voyager 10 prospect.

GEOPEKO

SCALE : 1:100 000

Fig. 2

DATE : 5-'80
GEOL : C.S.+R.L.
DWN : J.P.M.
CHKD : C.S.

ELLIOTT BAY
E.L. 27/76

PROSPECT LOCATION MAP

2. REGIONAL GEOLOGY

The major rock units within the Exploration Licence are listed below.

			Thickness (approx)
Tertiary	-	Macquarie Beds - unconsolidated gravel and sands.	
	-	unconformity -	
Ordovician	-	Conglomerate and quartzite	~ 900m
Cambrian	-	Tyndal Group Correlates	100-500m
	-	Dundas Group Correlate	)1000m
	-	Mainwaring Group	~2500m
	-	Lewis River Volcanics	~7000m
Precambrian	-	Arthur Group	

Mapping was done on blown-up airphotos at a scale of 1:10,000 and the factual outcrop data is presented on plans (KT 27/76-2A to 8A). Note that there is a change in the rock legend on these maps compared with the maps from previous seasons (Strickland 1978, 1979). A summary map combining ground mapping with airphoto interpretation is given on plan KT 27/76-6I, at the photo scale of 1:42,000. All mapping to date has concentrated on the Cambrian sequences. No detailed ground work has been carried out in the Tertiary, Ordovician or Precambrian sequences.

The time relationships between the Lewis River Volcanics, Mainwaring Group and Dundas Group is not fully understood at this stage. The Tyndal Group Correlates unconformably overlie the Lewis River Volcanics and appear to conformably pass upwards into the Ordovician conglomerates. However the Tyndal Group Correlate is faulted against the Mainwaring Group. Most evidence to date suggests the Mainwaring Group conformably overlies the Lewis River Volcanics and is overlain by the Dundas Group.

LEWIS RIVER VOLCANICS

The Lewis River Volcanics consist predominantly of rhyolitic pyroclastics. The lack of marker horizons prevents the establishment of a detailed stratigraphy however the definition of broad scale units has been possible. Passing west to east across the E.L. the Lewis River Volcanics has been divided into the following four major units.

		Thickness
1.	Wart Hill Pyroclastics - Mixture of rhyolitic pyroclastics and lavas plus minor quartz pebble conglomerates and sandstones.	400m
2.	Wanderer River Tuffs - Pink hematitic rhyolite tuffs.	0 - 1200m
3.	Hudson River Pyroclastics - Predominantly chlorite-rich dacitic to rhyolitic tuffs and minor lavas with horizons of greywackes and siltstones.	800 - 5000m
4.	Elliott Point Porphyry - Massive coarse grained quartz-feldspar-biotite porphyry	1000 - 2000m

Although complexly folded, the Lewis River Volcanics generally dip west or north-west at 50-80^{o} and the sequence is interpreted to young toward the west.

Two granite bodies, the Low Rocky Point pluton and the Little Rocky River pluton intrude the Lewis River Volcanics in the south of the E.L. Potassium-Argon dating by McDougall and Leggo (1965) gave an age of 407 million — Late Silurian years which suggests a late Cambrian age of emplacement. No ⇒ 507 Ma not 407 Ma

A summary of significant features within each unit of the Lewis River Volcanics is given below.

Elliott Point Porphyry: This is a massive unit of foliated and chloritic quartz-feldspar-biotite porphyry which extends in a north-south trending belt from Elliott Point on the coast, 19km north to the Ordovician unconformity. The eastern contact against the Precambrian is faulted while the western contact against the Hudson River Pyroclastics dips at 30 to 80° west.

Typically the porphyry consists of subrounded and embayed quartz phenocrysts (25-30%) and pink plagioclase phenocysts (15%) with lesser potash feldspar crystals (10%) and biotite flakes (10-12%) in a fine crystalline groundmass. The quartz and plagioclase phenocysts average 2-5mm but may reach up to 10mm. The plagioclase is partially altered to sericite and the biotite is virtually completely replaced by chlorite and titaniferous granules. The groundmass is composed of fine quartz, potash feldspar and chlorite. The chlorite, both replacing biotite and within the groundmass, is strongly foliated.

Chemical analyses of a sample from Elliott Point reported by White (1975) shows a rhyolitic composition for the porphyry similar to the overlying volcanics. The unit is interpreted to be a high level sub volcanic intrusive which may in places, have extrusive phases.

Hudson River Pyroclastics: This unit overlies the Elliott Point Porphyry and extends the full length of the Cambrian belt from the coast to the Ordovician unconformity. It is made up of a variety of acid volcanics and sediments which have been broadly grouped together because of the common occurrence of pervasive chlorite in the groundmass.

The most typical rock type is a foliated and chloritic quartz-feldspar crystal tuff. This is interbedded with horizons of rhyolitic chloritic lithic tuffs, fine siliceous vitric tuffs and chloritic agglomerates (fragments greater than 32mm).

Outcrops of porphyritic quartz-feldspar lavas have been mapped within the Hudson River Pyroclastics however their full extent has not been defined. In previous seasons Strickland (1978, 1979) refered to much of this belt as porphyritic lavas based on petrographic descriptions by I.C. Pontifex. Because of the strong cleavage developed, interpretation of original textures is difficult and many of the rocks originally classified as flow banded lavas are interpreted by the writer to be foliated tuffs.

In the southern, thickened portion of the Hudson River Pyroclastics are a number of horizons of fine laminated vitric tuffs, tuffaceous siltstones and tuffaceous greywackes. These are particularly well developed in the areas of the Voyager 3 and Voyager 2 prospects but appear to peter out north of 5252000N. The siltstones are well laminated with pale grey siliceous or sericitic bands and darker chloritic bands. Interbedded tuffaceous greywackes

are a fine sand-size, poorly bedded, and lack pronounced grading. These sediments probably represent submarine deposition of reworked fine volcanic detritus, during periods of relative quiescence within the volcanic cycle.

The best development of sediments has been mapped along the Elliott Bay coast from 382800E to 383400E where laminated greywackes and siltstones are interbedded with quartz crystal tuff, lithic tuffs and agglomerates. This sequence may extend northwards and join up with the tuffaceous sediments and fine pyroclastics mapped in the Voyager 2 area by Strickland and Herrmann (1980), however a thin cover of Tertiary gravels prevents a direct correlation.

The higher Mg and Fe content of the Hudson River Pyroclastics may be attributed to Mg/Fe rich clays deposited with the tuffs, and points to a submarine origin for the sequence. This is supported by the presence of interbedded laminated siltstones and greywackes.

Further details of geology, giving typical variations with the Hudson River Pyroclastics is provided on pages 53-55 where the geology of the Voyager 12 area is discussed in detail.

Wanderer River Tuffs: Overlying the chloritic Hudson River Pyroclastics in the northern portion of the volcanic belt is a sequence of pink hematitic tuffs termed the Wanderer River Tuffs. This unit consists dominantly of quartz-biotite crystal tuffs plus lesser lithic tuffs, sandy ash tuffs and rare pyritic agglomerates. In hand specimen the euhedral biotite crystals are altered to hematite, the quartz anhedra are dark red and the groundmass contains

fine hematitic clasts. Some of the fine hematite in the groundmass may be secondary after pyrite. The unit strikes north east extending from Jakerloo Creek to north of the Wanderer River. Width varies from 300m to 1000m and the irregular nature of its contacts is probably due to faulting.

Wart Hill Pyroclastics: This unit extends from the Low Rocky Point pluton north to Wart Hill and is unconformably overlain by the Tyndal Group Correlates in the Mt. Osmond Syncline structure. A narrow band may extend up the eastern side of the syncline to the Wanderer River.

The dominant rock type is a white, cream or light green strongly cleaved quartz crystal tuff with abundant sericite in the groundmass. Feldspar crystal tuffs are also present however the strongly developed foliation has caused the feldspars to be sheared along cleavage with ubiquitous replacement by sericite. Sericitic foliated lithic-crystal tuffs are also a common lithology, with less common varieties including agglomerates, vitric tuffs and porphyritic flow banded lavas.

Bedding is rare in the sericitic crystal tuffs and lithic tuffs. However some siliceous tuff units, especially the vitric tuffs and vitric-crystal tuffs show a good bedding lamination of 0.5-2cm thickness. (e.g. 5246500, 378800E). Lavas are typically glassy, quartz-feldspar porphyritic types but are always subordinate and comprise less than 10% of the sequence. The agglomerates typically contain angular rhyolitic fragments from 3 to 15cm across set in a quartz feldspar porphyritic matrix. The agglomerate fragments are commonly composed of glassy porphyritic lavas.

Typical exposures of agglomerates occur at 5246 200N, 378,750E
5248 800N, 379,150E
and 5249 800N, 381,000E
They occur in zones rarely more than 100m in strike length and 20-30m wide. Areas of widespread hydrothermal alteration associated with the development of fine grained disseminated pyrite occur in the central part of the Wart Hill pyrolcastics at the Voyager 9, Voyager 19 and Voyager 22 prospects (see plan KT 27/76-6I). The alteration has caused pervasive development of chlorite and sericite with minor zones of silicification, and appears to relate to a period of base metal mineralization. (see the section on Voyager 9 for further details).

Three sedimentary horizons have been mapped within the Wart Hill Pyroclastics and appear to be unrelated to any volcanic activity. An horizon of coarse quartz conglomerate outcrops at 5247000N, 379300E with a strike length of 1800m and width of 50-70m. The horizon is cut by numerous north-west trending faults but broadly strikes north-east dipping at 70 to 85^{o} west parallel to the enclosing volcanics. It consists dominantly of a white pebbly conglomerate, interbedded with coarse quartz breccia and laminated quartzites and is cut by numerous irregular quartz veins.

The pebbly conglomerate contains rounded quartzite pebbles and muscovite phyllite pebbles 2mm to 50mm across close packed in a quartzite matrix. The rock is strongly foliated parallel to the cleavage in the adjacent volcanics, and the quartz pebbles are typically aligned in the foliation. The source of the pebbles is most probably the Precambrian rocks of the Tyennan block to the east.

The interbedded bands of quartzite are well laminated and grade into tuffaceous sandstones at their margins in contact with the rhyolitic tuffs. Cross bedding at one locality in the quartzites indicates a facing to the west. Coarse chaotic quartzite breccias with angular quartzite fragments up to 50cm across occur within the pebbly conglomerate horizon. At two locations along the horizon, fragments of quartz crystal tuff from 2cm to 50cm across occur in the pebbly conglomerate. These are wispy angular fragments showing soft sediment deformation and are identical to the underlying rhyolitic tuffs.

Corbett (1980 pers. comm.) considers this unit may represent a major submarine slide that has moved west over the Cambrian volcanics from an area of uplifted Precambrian to the east. Although the lithologies in this horizon are virtually identical to the quartz conglomerates of Ordovician age in the Mt. Osmond Syncline further north, the stratigraphic setting and presence of angular wispy Cambrian fragments provides strong support that the unit is part of the Cambrian sequence.

The contact between the Wart Hill pyroclastics and Sassy Creek Argillites of the Mainwaring Group is marked by a quartz pebble conglomerate with similar characteristics to the horizon described above. This horizon outcrops in Sassy Creek at 5246550N, 377650E, with a width from 50 to 250m and strike length of at least 3km. In Sassy Creek the horizon consists of a white siliceous foliated quartz pebble conglomerate overlain and underlain by well sorted tuffaceous greywackes. Pebbles in the conglomerate vary from 3mm to 60mm and are probably

of Precambrian provenance. Minor flakes of graphite and very minor green fuschite (?) are present. This horizon probably also represents a major submarine sediment slide which occured toward the end of Cambrian acid volcanism prior to the deposition of the Sassy Creek Argillites.

A third sedimentary horizon composed of grey shales, sandstones and tuffaceous sandstones outcrops at 5249400N, 379300E with a width of 30-50m and interpreted strike length of 2000m. The sandstones are muscovite bearing and probably have a provenance in the Precambrian.

To the south east of the Voyager 9 prospect altered pyroclastics of the Wart Hill formation are intruded by a complex series of narrow chlorite-rich dykes of probable andesitic composition. The zone of dyke intrusion extends for 2kms with a width of 20 to 300m. from 5247000N, 380800E to 5245400N, 380000E. The dykes are dark green, composed of massive chlorite, and vary in thickness from 2cm up to several metres. They typically intrude parallel to cleavage and in some outcrops are seen to cut across the bedding in the tuffs. Other chlorite rich units in the same zone are roughly conformable and may represent andesite lavas.

MAINWARING GROUP

The Mainwaring Group overlies the Lewis River Volcanics and shows virtual continuous outcrop along the Western Coast from just north of Low Rocky Point to Abo Creek.

The Group has been previously described in some detail by Corbett (1968) and the reader is refered to this work for more descriptive details of stratigraphy and petrography.

In brief, mapping in the south western portion of the E.L. has shown three units within the Mainwaring Group.

		Thickness
Top	Veridian Basic Volcanics	500-1000m
	Sassy Creek Argillites	400-1200m
Bottom	Penders Tuffs	800m

This definition of the Mainwaring Group departs from Corbett (1968) in that the sequence of rhyolitic tuffs and sediments (Penders Tuffs) outcropping from Sassy Creek to south of the Lewis River is included in the Mainwaring Group rather than the Lewis River Volcanics.

The reasons for this are:

1. Penders tuffs show an interfingering relationship with the Sassy Creek Argillites to the north.

2. Penders tuffs are more strongly deformed than the Lewis River Volcanics and show a deformation style similar to the rest of the Mainwaring Group.

Overall the Mainwaring Group is strongly deformed with many horizons resembling phyllites and schists.

Penders Tuffs

The dominant rock type is a foliated quartz crystal tuff, which is interbedded with quartz-feldspar crystal tuffs, chloritic shales and an horizon of coarse feldspar-quartz porphyry.

The quartz crystal tuffs are massive foliated and non-bedded with rounded quartz phenocrysts averaging 2-5mm set in a sericite-chlorite-quartz matrix. Horizons of lithic tuffs and siliceous flow banded rhyolites are very rare.

The coarse feldspar quartz porphyry outcrops at 5244800N, 377200E and exhibits aligned white tabular feldspars 5-10mm long and small rounded quartz crystals in a chlorite rich matrix. This maybe a lava or an intrusive sill.

At Penders prospect (Voyager 1) on the coast (5242000N, 377400E) two stratiform mineralizated horizons occur within the tuffs. These are 0.5 - 1.0m wide and composed of chlorite-pyrite-siderite-magnetite with minor chalcopyrite. They are interpreted as exhalative chemical sediments of volcanogenic origin. Gridding magnetics and drilling on the Voyager 1 prospect (see page 34) indicates the Penders magnetite horizon extends 1100m north to just south of the Lewis River. Gridding and magnetics north of the Lewis River at Voyager 21 (see page 76) has detected another magnetite horizon with strike length of 1000m, trending north-south parallel to the coast but west of the Penders horizon.

The Penders tuffs interfinger northwards into the Sassy Creek Argillites. This relationship is exposed in the small creek 300m south of Sassy Creek, where grey and black shales of the Sassy Creek Argillites are seen to overlie and underlie rhyolite crystal tuffs. (Map KT 27/76-5A)

Sassy Creek Argillites

Consist of a thick unit of phyllite grade fine sediments well exposed in the coastal outcrops at the mouth of Sassy Creek and in Copper Creek. The dominant lithologies are grey, brown and black crenulated shales and fine greywackes with lesser horizons of dolomite, dolomitic shale, graphitic shale and fine tuffaceous greywacke. The carbonate bearing horizons outcrop on the coast just south of Sassy Creek. Bands rich in carbonate vary from 2cm to 30cm thick are buff to yellow in colour and typically show abundant boudinage structures. The black shales and graphitic shales are non pyritic and occur in abundance in the middle section of the Sassy Creek drainage system.

Tuffaceous greywackes are exposed in Copper Creek and Sassy Creek immediately overlying the quartz pebble conglomerate unit at the top of the Lewis River Volcanics.

The northern extent of the Sassy Creek Argillites has not been mapped. However previous work by B.H.P. (see Corbett 1968 and McGregor, 1969) suggests the argillites trangress north of 5253000N into acid volcanics with slate bands.

Veridian Basic Volcanics.

This unit consists of green tuffaceous shales, calcareous shales, massive basic tuffs, lavas and breccias, outcropping along the coast from Veridian Point to Abo Creek. The northward strike extent of this unit is inferred from the aeromagnetic map (plan KT 27/76-4I).

The following lithological variation has been mapped along the coastal section.

TOP	Massive basic to andesitic tuffs and lavas with minor shales.	700m+
	andesitic lavas and lava breccias	50-80m
	Chloritic tuffaceous shales, dolomitic shales and dolomite	100-150m
BOTTOM	Chloritic shales and fine basic tuffs	80-100m

The sequence dips consistently west at 60-80° and appears to conformably overlie the Sassy Creek Argillites. The contact exposed about 300m east (west) of Veridian Point is not sharp but is represented by a gradual increase in chlorite within the argillites plus an increase in the detrital basic tuff component, passing westwards.

Dolomitic shales and massive dolomites are interbedded with the basic tuffs from just east of Veridian Point north to Copper Creek. The massive dolomite beds are buff to light brown in colour and vary from 30cm to 2m in width. They are interbedded with dolomitic shales composed of pink dolomite bands 5-40mm thick alternating with green chloritic shale bands. Disseminated pyrite, chalcopyrite and bornite have been observed in the dolomite

beds at various points along the coast (see Voyager 18 and Voyager 23 notes, pages 68 & 81). Many of the dolomite zones are partly or wholly replaced by coarsely crystalline quartz, and cut by complex quartz veining.

At Veridian Point (formerly known as Green Point) massive outcrops of basic volcanic breccias are intermixed with andesitic to basaltic lavas and tuffs. The breccias contain vesicular (?) andesite fragments from 2mm up to 20cm across in a light green epidote rich matrix. The breccia zones are 0.5 - 5m thick and although most zones are parallel to stratification, some show a cross cutting relationship. Poorly developed pillow? structures are evident on some outcrops of the massive andesite lavas.

Corbett (1968) reports massive hornblende - diorites overlying the andesitic to basaltic lavas and breccias between Veridian Point and Copper Creek. These are refered to as basic tuffs in the present work.

Mapping in the north western portion of the E.L. by B.H.P. (see McGregor, 1969) indicates that the Mainwaring Group thickens considerably passing northwards. Along the track passing from the Ordovician contact to Cypress Creek (roughly 5,257,500N) McGregor reports five major units in the Mainwaring Group

top? - siltstone, conglomerate and tuff
- intermediate and basic volcanics
- gabbro-talc schist
- shale, siltstone
- basic siltstone, conglomerate and tuff

bottom? intermediate volcanics.

DUNDAS (?) GROUP

Greywackes and shales outcropping along the coast northwards from Sandy Point are considered to be correlates of the Dundas Group although no positive evidence is available for this correlation. The contact between the Dundas? Group rocks and Mainwaring Group is not exposed and their relationship remains uncertain.

TYNDAL GROUP CORRELATES

A sequence composed dominantly of reworked acid volcanics and overlying shales rests unconformably on the Lewis River Volcanics and appears to pass conformably up into the Ordovician quartz conglomerates of the Mt. Osmund Syncline.

The lithologies and structural-stratigraphic relationships of this sequence suggest that it is probably a correlate of the Tyndal Group described from the Darwin and Queenstown areas.

The basal portion of the succession consists of bedded lithic-crystal tuffs with minor beds of agglomerate and conglomerate. These are particularly well exposed in two localities; 5249500N, 380700E and 5253000N, 379000E, on either side of the syncline. The crystal-lithic tuffs typically consist of angular to rounded rhyolite lava and tuff fragments up to 2cm across, plus quartz and feldspar crystals in a fine sericitised quartzo-feldspathic matrix. They are commonly moderately bedded compared with the poorly bedded tuffs of the Lewis River Volcanics, and show a more clastic fabric. Petrographic descriptions of four samples from the sequence (KR 6375, KR 6397, KR 6853 and KR 6860) are given in Appendix 1. Cowan (1980) reports the fabric of KR 6375 is suggestive of shallow subaqueous deposition.

Agglomerates with a fragment size of greater than 32mm occur as distinct beds within the crystal-lithic tuffs. Sub-rounded to rounded fragments of lava and tuff vary from 1cm to 10cm across in a crystal tuff matrix. Purple hematite-rich fragments are common and occassional well rounded pebbles of quartzite are present. K.D. Corbett (pers. comm.) considers the texture and outcrop pattern of these agglomerates are similar to the Jukes conglomerate at Mt. Darwin.

Overlying the reworked volcanics is a unit of grey siltstones with an average thickness of 50 to 100 metres but with considerable thickening in the syncline axis south of Mount Osmund. The siltstones rarely outcrop and are typically covered by dense forest. The exposures at 5258200N, 382,500E in the B.H.P. track across to Cypress Creek are the only outcrops of the siltstone seen by the writer. Here the unit is a well bedded fine grey siltstone dipping 25^{o} west, conformable with the overlying Ordovician conglomerates.

ORDOVICIAN OWEN CONGLOMERATE

Quartz conglomerates of Owen type occupy the major synclinal structure in the centre of the E.L. These have not been mapped in the present programme and bedding trends shown on the 1:10,000 scale maps are taken from the aerial photographs. In the north-eastern corner of the E.L. Owen type Conglomerates unconformably overlie the Lewis River Volcanics and are overlain in turn by Tertiary Gravels overlapping southwards from the Macquarie Graben.

3. STRUCTURE

The major structural feature of the area is the Mount Osmund syncline, a broad structure of Tabberabberan age which has folded the Ordovician and Tyndal Group Rocks.

Although not clearly defined a major north-south trending anticlinal axis probably lies 4km east of the Mt. Osmund Syncline, followed by another syncline axis cut off to the east and faulted against the Precambrian.

The continuation of the Mt. Osmund syncline into the Cambrian is not clearly evident. Fold trends in the Lewis River volcanics, taken from airphoto interpretation are shown on map KT 27/76-6I where it is apparent that the dominant folds have north-north-west trending axes with wavelengths of about 1.5km. In the area from Voyager 6 through Voyager 9 to Voyager 19 the structure is extremely complicated however west of this line, dips and facings are typically to the north west, swinging due west into the Mainwaring Group.

Cleavage generally shows greater development in the Lewis River Volcanics than further north in the Mount Read Belt. Only one cleavage is developed, commonly parallel to the axes of the folds, varying from a strike of 290° to 020° with a mean of about 330° magnetic.

In the overlying Mainwaring Group the rocks show a considerably greater degree of deformation (probably upper greenshcist facies). Two cleavages are developed, the dominant cleavage strikes at 345 to 010° dipping west at 70-80° while a second poorly developed older cleavage, occurs roughly at right angles to the first. Kink banding, boudinage structures and minor 0.5 to 2m wavelength folding is common within the Sassy Creek Argillites.

4. REGIONAL STREAM GEOCHEMISTRY

During January and February 1980 stream sediment sampling was completed over the favourable volcanic rocks of the Lewis River Group. All sample locations from the 1980 season's activities, plus the previous seasons 1976-1979 sampling are shown on plans KT 27/76-2C to 8C. Elements analysed and the analytical laboratory are shown below:

Season	Elements	Lab
1976/1978	Cu, Pb, Zn, Ag, Mn, Fe, Ba, Sn	A.C.S. (Adelaide)
1978/1979	Cu, Pb, Zn	A.C.S. (Adelaide)
1979/80	Cu, Pb, Zn, Fe, Sn, W, Au	A.L.S. (Brisbane)

Results have been plotted on the following sheets:

Cu, Pb, Zn	Sheets KT 27/76 2B to 8B
Sn, W, Fe	Sheets KT 27/76 2E to 8E
Au (1979/80 season only	Sheets KT 27/76 2H to 8H

Areas ommitted from the drainage sampling programme are;

1. The Ordovician conglomerates and quartzites.

2. The massive quartz-feldspar biotite porphyry on the eastern side of the Lewis River Volcanics, which is considered unfavourable for mineralization.

3. The central and northern parts of the Mainwaring Group which are planned for sampling in the 1980/81 season.

Anomaly thresholds were selected by visual inspection at the following levels;

Copper	5ppm (1976-1979 seasons)
	10ppm (1979-1980 seasons)
Lead	30ppm
Zinc	35ppm
Iron	0.7% (1979-1980 season only)
Tin	20ppm
Tungsten	20ppm
Gold	40ppb

The different copper thresholds are caused by varying sensitivity at the two laboratories. Iron values from the 1976-1979 seasons are not plotted because of obvious inaccuracies in the analytical technique.

Lead - Zinc Results: A number of Pb-Zn anomalous zones are revealed by the drainage sampling. The four major zones are listed below;

1. Voyager 10 - Voyager 2 - Voyager 12 zone (Sheets 6 and 8) A consistent area of Pb-Zn drainage anomalies extends from south of Voyager 10, north through Voyager 2 to Voyager 12 over the Hudson River Pyroclastics and sediments. The highest values are developed at Voyager 12 where peaks of 500ppm Pb, and 280ppm Zn are attained. Anomalous Cu and Au are associated with the Pb-Zn anomalies at Voyger 12. Gridding and prospect development is well advanced in these areas (See section 6.)

2. West of Voyager 12, the Pb-Zn drainage anomalies appear to extend across to Voyager 16 (5247500N, 382500E), in the region of a major aeromagnetic anomaly, also within the Hudson River Pyroclastics.

3. At the intersection of Sheets 5, 6, 7 and 8 drainage Pb-Zn anomalies cover an area of about 2 square kilometres north of the Lewis River and immediately west of the Hudson River. No Cu or Au anomalies are present. An airborne E.M. anomaly denoted Voyager 4 (A.E.M. 18) occurs in this area.

4. In the region of the Wanderer River at Voyager 20 (Sheet 2) moderate Pb-Zn drainage anomalies cover an area of 2.5 x 1km near the contact of the Hudson River Pyroclastics and the Wanderer River Tuffs. Iron is also anomalous while Cu and Au are background. Plans for follow up work are detailed in section 6.

A number of smaller or poorly defined anomalies occur at the following locations.

- 385000E/5253500N (Sheet 4) near airborne E.M. anomaly 66. Refer to notes on Voyager 27.

- 384600E/525300N (Sheet 6) - see notes on tungsten anomalies, Voyager 25.

- 383500E/5251500N (Sheet 4) - broad area with low sampling density. Moderate Pb-Zn anomalies with scattered Cu.

Copper Results: Over the Lewis River Volcanics very few streams display copper values above the threshold value. Experience has shown (see Voyager 9 area for example) that copper mineralization in the bedrock does not necessarily produce stream copper anomalies. Scattered anomalies marginally above threshold are shown on the sheets and are best developed in the areas of Voyager 12, Voyager 16 and Voyager 22.

Streams draining the basic volcanics of the Mainwaring Group show consistantly higher copper values. Abo Creek for example shows 'anomalous' values from 15 to 50ppm Cu for 2km upstream from its'mouth at 5248400N, 375000E. Isolated anomalous values also occur draining the Sassy Creek Argillites. The best anomaly occurs at 5245600N, 376400E in one stream showing 65ppm Cu within an area of scattered Zn anomalies. Petrographic study of a sample (KR 5853) from the coastal outcrops close to this anomaly revealed the presence of 'syngenetic' bornite after chalcopyrite (see appendix 1). This sequence has potential for syngenetic copper ores and follow-up work is planned (see Voyager 26 discussion).

Gold Results

Samples from the 1979/80 survey covering Sheets 2,4,5 and 7 have been analysed for gold using a low level detection method of A.A.S. - carbon rod. Most anomalous values ($>$ 40ppb) occur on Sheet 5. The most significant anomalies are listed below:

1. A tributary of Sassy Creek near 5247500N/378500E where consecutive downstream values of 50ppb, 3000ppb, 220ppb and 1400ppb have been recorded.

2. Boyles Creek near 524800N/378000E where consecutive downstream values of 680ppb, 510ppb and 70ppb have been recorded.

3. A tributary of Copper Creek at 5251000N, 379000E where values of 1000ppb, 700ppb and 120ppb have been recorded.

4. Upper Boyles Creek near 5250000N/379100E.

Anomalies 1 to 4 occur in streams draining the upper part of the Wart Hill pyroclastics below the contact with the Sassy Creek Argillites. These will be followed up in the 1980/81 season.

5. The Voyager 12 area (Sheet 6) where values of 45 to 240ppb occur draining the gold bearing gossans previously mapped and tested (see section 6).

Other single value anomalous samples are present particularly on Sheets 5 and 7 but no follow-up work is planned.

Tin Results

A number of tin stream anomalies were defined and followed up in the 1976-77 season (Sheets 7 and 8) (see Burlinson, 1979 for details). It was concluded that the source of the tin was the thin veneer of Tertiary gravels scattered through the area.

Results from the 1979/80 survey indicate two areas of anomalous tin;

- Streams draining the area within about 1km radius of 5254800N/383700E show weak to moderate rather discontinuous tin anomalies. The highest value 105ppm Sn is coincident with a weak iron anomaly (0.76% Fe) and occurs in a small tributary of the Hudson River, immediately adjacent to the 1980 Upper Hudson campsite. It is possible that the tin is derived from reworking of Tertiary gravels. Several minor remnants of the Tertiary deposits have been mapped near 383000E/5255000N.
  It is recommended that brief follow-up involving panned concentrate sampling and geological reconnaissance, be undertaken in a couple of the strongest anomalous streams to determine the source of the tin.

- Three anomalous values of 30, 45 and 100ppm occur on Sheet 5 in a small stream south of Sassy Creek which drains the northern end of the Voyager 21 grid covering the Sassy Creek Argillites. It is recommended that bedrock sampling be undertaken by power auger along line 14800N from 9100E to 10000E to follow up the stream values.

Tungsten results

Only samples taken in the 1979/80 programme have been analysed for tungsten. Results are consistently low except for samples from two small tributaries at 5250400N/384600E (Sheet 6) in which -80 mesh fractions of sediment were found to contain upto 100ppm W. This area has been designated Voyager 25, further details are presented in section 6.

5. REGIONAL GEOPHYSICAL SURVEYS

In 1975 a helicopter-borne combined magnetic and electromagnetic survey was conducted over the Exploration Licence by Geoex Pty. Ltd. for B.H.P.

The EM system used was the McPhar 400 helicopter system. Haigh (1975), the Geophysicist for Geoex reports that some 100 anomalous zones were recorded and provides a tabulated list of anomaly parameters and priority ratings. Plans KT 27/76-3I and 4I give the positions of EM and magnetic anomalies revealed by the survey.

Some of the EM anomalies have been followed up by Geopeko, results of which are reported by Deakin (1977) and Mudge (1979).

A number of linear conductors are present within the Tyndal Group (e.g. AEM 47, 48, 56, 67 and 96) and probably represent the grey and black shales mapped in the upper parts of the Tyndal Group. The linear anomalies 91 and 97 may also represent graphitic shales in the Tyndal Group adjacent to the Owen Conglomerate.

Based on our present knowledge of the geology, plus the results of the drainage geochemistry, and taking into account the previous priorities by Geoex, a new priority of EM anomalies for follow up is listed below:

Priority 1 (best potential)

AEM 18 - (Voyager 4) - Low amplitude anomaly with moderate conductivity ratio occuring within an area of anomalous Pb and Zn drainage geochemistry, near the contact of the Hudson River Pyroclastics and the Wart Hill Pyroclastics.

AEM Zone 50, 51, 52, 53 - (Voyager 26) -

An area of coincident magnetic and EM anomalies within the Mainwaring Group. North of and along strike from the copper-bearing dolomites at Voyager 18.

PRIORITY 2

AEM's 55, 56 and 57		These anomalies lie over (56 and 57) or adjacent to (55) the pyritic-siliceous alteration zone developed within the acid pyroclastics at Voyager 19 (Wart Hill).
AEM 90	-	Lies within the Pb-Zn drainage anomaly at Voyager 20.
AEM 99	-	Lies adjacent to the Voyager 20 zone.
AEM 98	-	A linear anomaly which occurs within the tuffs of the Tyndal Group, north of the Wanderer River. No drainage anomalies exist in the area.
AEM 28,29	-	A linear anomaly probably relating to black shales in the Sassy Creek Argillites. Isolated gold drainage anomalies occur downstream from the anomaly.
AEM 70	-	North of Voyager 19 in a favourable geological postion at the contact of the Tyndal Group and the Lewis River Volcanics.

PRIORITY 3

AEM 30	-	On the contact of the Lewis River Volcanics and the Mainwaring Group close to the gold drainage anomalies at Voyager 24.
AEM 34	-	At the northern end of the pyritic alteration zone at Voyager 9.
AEM 63	-	In an area of ferruginous quartz veining and weak drainage geochemistry within the Wart Hill Pyroclastics.
AEM 66	-	Within a zone of weak Pb-Zn drainage anomalies in the Hudson River Pyroclastics.

PRIORITY 4

AEM 11	-	On the eastern contact of the Low Rocky Point granite.
AEM 24	-	Toward the top of the Lewis River volcanics.
AEM 45	-	A weak drainage anomaly occurs in the vicinity.
AEM 36	-	Contact of the quartz-feldspar-biotite porphyry north of Voyager 12. May relate the Au-Ag mineralization similar to Voyager 12.

The following anomalies are to be given a priority rating after results of the drainage sampling programme over the Mainwaring Group is completed in 1981:

AEMS's 54, 102, 106, 69, 71, 72, 73, 74, 75, 76, 77, 78, 83, 84, 85 and 86.

It is proposed that the fifteen anomalies of Priority 1, 2 and 3 be followed up with reconnaissance traverses of Moving Coil Turam and soil sampling in the 1980/81 season.

6. STYLES OF MINERALIZATION

A number of styles of mineralization have been recognised within the Cambrian Volcanics of E.L. 27/76. These are listed below, passing east to west across the sequence.

1. Gold-silver base metal mineralization in veinlets aligned parallel to cleavage. This style occurs at Voyager 12 where mineralized veinlets occur within chloritic quartz-feldspar crystal tuffs adjacent to the contact of the Elliott Point Porphyry. High grades of gold and silver occur in patchy gossans exposed at the surface however drilling indicates a ten fold drop in grades to sub-economic values in the primary zone. This mineralization is probably epigenetic and related to emplacement of the Elliott Point Porphyry. (See Voyager 12 notes for further details.)

2. Broad disseminated zones of galena and sphalerite within sediments and rhyolitic tuffs of the Hudson River Pyroclastics. Drilling at Voyager 2 intersected weak syngenetic Pb-Zn-Ag mineralization and indicates potential for a Rosebery type massive sulphide occurrence of Pb-Zn-Ag-Au-Cu mineralization within this enviroment.
   Bedrock Pb-Zn-Cu anomalies at Voyager 3 are of similar type and will require follow up drilling.
   Stream sediment sampling and mapping indicates further potential for this style of mineralization occurs at the following localities:
   - north of Voyager 2
   - north and west of Voyager 2, toward Voyager 16.

- Voyager 4 area; where an airborne EM anomaly occurs in an area of Pb-Zn drainage.

- Voyager 20 where gossanous Pb-Zn-Ag outcrops have been mapped.

- Voyager 25 where tungsten is associated with the Pb-Zn anomalies.

- Voyager 27; Pb-Zn drainage anomaly only.

3. Copper and lesser lead-zinc mineralization is associated with pyritic alteration zones in the Wart Hill Pyroclastics close to the unconformity with the Tyndal Group Correlates. At Voyager 9 a large area of alteration 3km long and 0.2 - 0.6km wide occurs within rhyolitic to dacitic pyroclastics and lavas. The alteration assemblage varies from chlorite-magnetite-pyrite in the south to sericite-pyrite in the north. A significant bedrock copper anomaly occurs at the northern end of the zone. Further geophysics and drilling is required in this area. North of Voyager 9 at Voyager 22 sericite-chlorite ± pyrite alteration with Cu-Zn-Pb bedrock anomalies covers an area of 1.3km x 0.4km within acid pyroclastics adjacent to the Tyndal Group Correlate unconformity. On the western side of the Mt. Osmund Syncline at Wart Hill (Voyager 19) quartz-sericite-pyrite alteration covers an area of 1.2km x 0.2-0.5km adjacent to the unconformity.

The style of alteration and stratigraphic setting in these three areas is similar to that at Mt. Lyell and good potential exists for disseminated Cu-Au mineralization of the Mt. Lyell type in this region.

4. Anomalous gold values recorded in streams at Voyager 24 and west of Voyager 19 at the end of the 1979/80 season reflect a zone of gold mineralization at the top of the Lewis River Volcanics below the Sassy Creek Argillites. Detailed follow-up in this area will commence early next season.

5. Copper mineralization is associated with thin chemical sediment horizons within the Penders tuffs to the north and south of the Lewis River at Voyager 1 and Voyager 21. The chemical sediments are well laminated and composed of magnetite-pyrite-chlorite-siderite with minor chalcopyrite and a trace of scheelite. They appear to be of distal volcanogenic origin and associated with the final phases of acid volcanism.

6. Copper mineralization is associated with dolomite-quartz horizons within the Veridian Point basic volcanics exposed between Sassy Creek and Copper Creek. Chalcopyrite, bornite and malachite with minor pyrite have been recorded (e.g. Voyager 18, and Voyager 23). The mineralization appears to be syngenetic, although remobilization due to later deformation has occured. Potential exists for stratigraphically or structurally controlled bodies of copper mineralization within this sequence in the unexplored north-western portion of the E.L.

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7. VOYAGER PROSPECTS

Twenty six prospects have been defined within E.L. 27/76 in the period from 1976 to 1980. Each has been given a VOYAGER designation. Locations are listed on map KT 27/76-6I and a summary of exploration details is given in Table 1.

Ten of the prospects have been eliminated as having no potential, a further three are of low priority with no work planned for next season. The remaining 13 prospects hold medium to very good potential and require follow-up work. A priority listing is given below:

A. Very Good Potential

- Voyager 24 - Gold
- Voyager 9 - Cu-Au
- Voyager 19 - Cu-Au

B. Good Potential

- Voyager 3 - Pb-Zn-Cu
- Voyager 22 - Cu-Au (Pb-Zn-Ag)
- Voyager 26 - Cu-dolomite association
- Voyager 20 - Pb-Zn-Cu
- Voyager 2 (north) Pb-Zn-Cu
- Voyager 4 - Pb-Zn-Cu
- Voyager 16 - Pb-Zn-Cu

C. Moderate Potential

- Voyager 6 - granite contact skarn
- Voyager 12 - Au-Ag vein type
- Voyager 1 - Cu (-W) chemical sediment

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TABLE: 1 SUMMARY OF PROGRESS ON VOYAGER PROSPECTS E.L. 27/76

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PROSPECT	DEFINITION	STYLE OF MINERALIZATION	WORK COMPLETED	RESULTS	FORWARD PROGRAMME	PRIORITY ORDER
Voyager 1#	Old Cu prospect	Cu Chemical Sediment	·Grid ·Mapping ·Soil geochem ·I.P. ·Turam ·Magnetics ·2 short DDH	·Magnetic anom. ·Turam anom.	·Drill one 150m hole	12
Voyager 2#	Old Cu prospect	Stratiform* Pb-Zn-Cu	·Grid ·Mapping ·Soil geochem ·I.P. ·5 short DDH ·1 200m DDH	·Weak dissem Pb-Zn-Ag in tuffs	·Follow-up anomalies north	11
Voyager 3#	Old prospect	Stratiform, Pb-Zn-Cu	·Grid ·Mapping ·Soil geochem ·I.P. ·VLF-EM ·2 short DDH	Good soil anom Weak I.P. anom	·Drill one 150m Hole	4
Voyager 4	A.E.M. anomaly Drainage Anomalies	Unknown	·Recy line of VLF-EM	Anomaly not located	·Follow-up Stream sed anomalies ·Turam over A.E.M. anom	8
Voyager 5	Aeromag Anomaly	Unknown	·Gridding ·Magnetics ·I.P. ·2 short DDH	No Mineralization	No further work	-
Voyager 6#	Aeromag Anomaly	Granite Contact Skarn?	·Gridding ·Magnetics ·VLF-EM	·Magnetic anom. ·Roch chip Cu,Pb,Au anom.	·Further gridding ·Soil sampling	10
Voyager 7#	Aeromag Anomaly	Unknown	·Gridding ·Magnetics ·Sampling Soil	No significant results	No further work	-
Voyager 8	Tin Stream Anomalies	Unknown	·Mapping ·Pit sampling	Source of Sn is Tertiary gravels	No further work	-
Voyager 9#	Aeromagnetic Anomaly	Dissem Cu-Au	·Gridding ·Mapping ·Magnetics ·VLF-EM ·Sampling Soil	·Large alteration zone ·Magnetic anom. ·VLF-EM anom. ·Cu anom.	·I.P. ·Drill one 200m hole	2
Voyager 10#	Pb-Zn Stream anom.	Stratiform Pb-Zn-Cu	·Gridding ·I.P. ·Sampling Soil	·No I.P. anoms. ·Weak soil anoms.	No further work	-
Voyager 11	Airborne E.M. Anom.	Unknown	·Recy lines of VLF-EM	Anomaly not located	No further work	-

Table 1 continued

PROSPECT	DEFINITION	STYLE OF MINERALIZATION	WORK COMPLETED	RESULTS	FORWARD PROGRAMME	PRIORITY ORDER
Voyager 12#	Au-Ag gossans	Epigenetic Au-Ag veins	· Gridding · Geology · I.P. · S.P. · VLF-EM · 4 short DDH · 1 160m DDH	Weak mineralization located	No further work	-
Voyager 14#	Aeromagnetic Anom.	Unknown	· Recy lines of magnetics	Narrow anomaly located	No further work	-
Voyager 15	Aeromagnetic Anom.	Unknown	No work to date		No work planned	-
Voyager 16#	· Aeromagnetic Anomaly · Drainage Pb-Zn Anomaly	Stratiform Pb-Zn-Cu	· Recon. mapping	Chlorite alteration noted	· Recon Grid · Bedrock Sampling	9
Voyager 17#	Aeromagnetic Anomaly	Unknown	· One grid line · Magnetics · Soil sampling	· Weak mag anom.	No further work	-
Voyager 18#	Copper bearing outcrops	Cu-dolomite in basic volcanics	· Mapping · Rock chip sampling	15m of 0.1% Cu in shales	No further work	-
Voyager 19#	Alteration Zone	Dissem Cu-Au	· Mapping · Rock chip sampling	· Anomalous Cu, Pb, Zn in rock chips · Au in streams	· Gridding · Soil sampling · I.P.	3
Voyager 20#	· Gossanous Zone · Pb-Zn Stream anom	Stratiform Pb-Zn-Cu	· Recon. mapping	· Anomalous Pb-Zn-Ag rock chips	· Gridding · Soil sampling	7
Voyager 21#	A.E.M. Anomaly	Cu chemical Sediment	· Gridding · Magnetics · Turam · Soil sampling	· Linear mag anom. · Weak turam anom.	No further work	-
Voyager 22#	Alteration Zone	Dissem. Cu-Au	· Reconn grid · Soil sampling	· Pb-Zn-Ag Geochem anoms.	· Gridding · Soil sampling · I.P.	5
Voyager 23#	Copper Bearing outcrops	Cu-dolomite in basic tuffs	· Mapping · Rock chip sampling	Weak Cu mineralization	No further work	-
Voyager 24#	Au drainage Anomaly	Unknown	· no work done		· panning to define anom. · gridding · soil sampling	1
Voyager 25#	Pb-Zn-W drainage anomaly	Stratiform Pb-Zn-Cu	· Recon mapping only		No work planned	-

Table 1 continued

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PROSPECT	DEFINITION	STYLE OF MINERALIZATION	WORK COMPLETED	RESULTS	FORWARD PROGRAMME	PRIORITY ORDER
Voyager 26#	Airborne E.M. anomalies	Cu-dolomite type	No work done		· Gridding · Turam · Soil sampling	6
Voyager 27#	Pb-Zn drainage anomaly	Stratiform Pb-Zn-Cu	· No work done		No work planned	-
*NOTE:	Stratiform Pb-Zn-Cu refers to deposits of the Rosebery and Que River type which also carry economic grades of Ag and Au. Average grades at Rosebery are for example 0.7% Cu, 4% Pb, 12% Zn, 140 g/t Ag and 2.8 g/t Au.					
#	Designates prospects refered to in detail in this report. Other prospects are discussed in previous reports on E.L. 27/76.					

A detailed account of prospect development work in the 1979/80 season is given in the following pages with brief summaries of previous seasons work on the remaining prospects.

7.1 VOYAGER 1

Introduction: The Voyager 1 prospect is situated adjacent to the western coastline just south of the mouth of the Lewis River. A detailed account of the geology and 1978-79 seasons work in this area is given by Strickland (1979).

Exploration activity was directed to this area because of the workings on the coast known as Pender's Prospect. Two lenses of pyrite and magnetite bearing chemical sediments were mapped within the chloritic rhyolitic crystal tuffs. One of these lenses contains patches of chalcopyrite. Drilling on a magnetic trend extending north from the Pender's prospect in the 1978/79 season intersected the magnetite-pyrite sediment one kilometre north containing trace amounts of scheelite.

1979/80 Seasons Work

A section of the magnetic anomaly north of Pender's was selected for fill-in gridding followed by magnetics, VLF-EM and turam surveys. The object of this work was to define a thickened portion of the magnetite-sulphide horizon which could be drilled for copper-tungsten mineralization. In-fill gridding with lines at 50m intervals was completed on the western side of the base-line between 1600N and 12400N. In-fill lines were also placed directly north of Pender's Prospect between 11000 and 11250N.

Geophysics

Magnetics and VLF-EM was read over the in-fill grid lines and results are given in plans 5319L, 5320L and 5160S/B. The best development of the magnetic anomaly is between 11950N and 12250N at about 9550E. On line 12200N between 9500E and 9700E the magnetic profile (plan 5320L) suggest three magnetite bearing lenses or maybe one folded lens. The magnetic anomaly over the magnetite lode at Penders was shown to die out 100m north of the prospect.

Results of the VLF-EM survey are inconclusive, as no major anomalies are revealed, however anomalous conducting zones do occur immediately east of the magnetic anomaly on lines 11950N and 12200N. A Turam survey employing a Scintrex SE 77 unit was completed on lines 12000N, 12100N, 12200N and 12300N covering the magnetic anomaly. (See plan 297S/B). Anomalies indicative of narrow weak conductors were recorded at 9600E on line 12000N and 9550N on line 12100N, exactly coincident with the peak of the magnetic anomaly. However no significant Turam anomaly was recorded on line 12200N.

Forward Programme

The magnetic anomalies on line 12200N may represent a folded and thickened portion of the mineralized chemical sediment. A drill hole collared at 9500E, 12200N and drilled with 60^{o} declination due east to a final depth of 200m is required to test the structure for copper and tungsten mineralization. This is a low priority target.

7.2 VOYAGER 2 (Lewis River Prospect)

The Voyager 2 prospect occurs just south of the Lewis River within the Hudson River Pyroclastics in the centre of the E.L. Trenching and pitting has been undertaken by old prospectors along a line of gossan covering a siderite rich horizon carrying minor pyrite, chalcopyrite and galena within siltstones and rhyolitic tuffs.

Geological mapping, geochemical soil sampling and geophysical surveys were carried out in the 1977/78 season and have been reported on by Strickland (1978) and Mudge (1978). A comprehensive report covering the results of five short (30m) diamond drill holes and one long (220m) hole completed in the 1978/79 and 1979/80 seasons is given by Strickland and Herrmann (1980).

In summary, DDH 6 intersected a sequence of rhyolitic crystal tuffs carrying minor disseminated and vein type galena underlying a sequence of tuffaceous shales and greywackes with a trace of galena. From 128 to 181m down the hole the crystal tuffs averaged about 0.3%Pb with the best grade between 135 and 140m of 2.24%Pb and 29g/t Ag.

The presence of these anomalous values of lead and silver within a sequence of pyroclastics and sediments indicate good potential for a distal Pb-Zn-Ag-Au-Cu orebody of the Rosebery type.

Forward Programme

The best mineralization at Voyager 2 is located within the crystal tuff sequence close to the tuff/sediment contact at the northern end of the grid. It is proposed to extend the grid northwards across the Lewis River covering the zone of anomalous Pb, Zn stream

geochemistry. Along the sediment-tuff contact, soil sampling and IP is recommended to define targets.

7.3 VOYAGER 3 (Drake Creek Prospect)

Voyager 3 is located at the southern limit of the Hudson River Pyroclastics adjacent to the Elliott Bay coastline. Geological, geochemical and geophysical surveys were carried out over a grid covering the area in 1978/79 and a comprehensive report of this work is given by Strickland (1980). No field work was carried out in the 1979/80 season.

Summary (See plan KT 27/76-V3)

1. Outcrops along the coast have revealed a north-north-west trending sequence of shales, greywackes and fine tuffs enclosed with coarse rhyolitic pyroclastics.

2. Two major lead-zinc C-horizon soil anomalies have been defined striking north-north-west across the grid, roughly coinciding with the sedimentary sequence.

3. Zones of anomalous VLF-EM coincides with the geochemical anomalies and may indicate a conducting sulphide zone.

4. No significant IP anomalies occur over the central geochemical anomaly. A series of moderate to weak IP anomalies are situated over the eastern Pb-Zn anomaly on lines 9900N, 10,000N and 10,100N at roughly 9150E. These are the best IP anomalies on the grid (R. Duffin pers. comm. 1980).

A series of IP anomalies also occurs on the western edge of the grid but have no coincident geochemistry.

5. Auger core drilling to 30m depth on the central geochemical anomaly revealed anomalous lead, zinc and silver values in siltstones and greywacke horizons within the acid volcanics.

6. The best potential for ore is considered to be at the base of the sedimentary sequence in the area of coincident Pb-Zn geochemistry, IP and VLF-Em anomalies.

Forward Programme

It is proposed to drill a diamond hole to test the coincident anomalies in the north-eastern sector of the grid.

A hole collared at 9075E, 10000N drilling due east to intersect the point 100m below 9175E, 10000N and taken through to a total length of 200m is proposed.

7.4 VOYAGER 6

Voyager 6 designates an airborne magnetic anomaly located on sheet 7 immediately south of the Lewis River at 380,300E, 5243,800N. In March 1980 a small grid of 4.7 line kilometres was placed over the anomaly with follow-up geological mapping, ground magnetics and VLF-EM.

Geology

The magnetic anomaly is located on the contact of the Low Rocky Point Granite and the Wart Hill Pyroclastics. (See plan KT 27/76-7A.)

A tongue of granite about 100m wide extends north for about 600m from the main granite body across the Lewis River. The magnetic anomaly is located on the concave, western side of this granite tongue. Pyroclastics intruded by the granite are dominantly chloritic quartz-feldspar crystal tuffs, with minor lithic tuffs and vitric tuffs.

Mineralization

1. On the eastern contact of the granite tongue, exposures in the Lewis River reveal intense iron staining, limonite development and oxidized pyrite boxworks in narrow zones within the pyroclastics. Two oxidized samples of altered tuff containing boxworks after sulphides (KR6861 and KR6862) returned anomalous values of Cu, Pb, Ag and Au (See following table).

Voyager 6 continued

A further sample of pisolitic orange soil (KR 6863) adjacent to the mineralized outcrops returned 640ppm Cu, 7200ppm Pb and 780ppm Zn. These anomalous samples suggest a potential zone of Cu-Au-Ag mineralization along the eastern contact of the granie tongue.

2. On the western side of the granite tongue at 380,400E, 5244,130N a 2-3m wide zone of quartz breccia carrying patches of hematite, magnetite, pyrite and chlorite outcrops on the southern bank of the Lewis River. An adit, now collapsed, has been driven into the south bank of the River in this vicinity. Three rock chip samples of the quartz breccia (KR 6865, 6866 and 6869) returned no anomalous geochemical values.

SAMPLE NO	ROCK TYPE	Cu ppm	Pb ppm	Zn ppm	Fe %	Ag ppm	Au ppb	Sn ppm	W ppm	Ba ppm
KR 6861	gossanous tuff	0.14%	430	45	40.0	3	740	(5	(10	80
KR 6862	Fe st. quartz	300	95	60	3.20	1	85	(5	(10	360
KR 6863	laterite soil	640	0.72%	780	40.0	3	15	(5	(10	390
KR 6864	granite	5	20	30	2.80	(1	15	(5	(10	350
KR 6865	chl-py breccia	10	10	15	2.80	1	140	(5	(10	60
KR 6866	mag-quartz breccia	10	20	30	44.0	1	10	(5	(10	50
KR 6867	chlorite tuff	20	15	80	4.80	1	10	(5	(10	600
KR 6868	qfxt	5	15	30	1.16	1	10	(5	(10	600
KR 6869	hematite quartz breccia	5	10	20	3.20	1	50	(5	(10	20

Geophysics

1. Ground magnetics was completed on four lines crossing the anomaly, and a traverse was made along the Lewis River to close the anomaly to the north. Profiles and contours are plotted on plans 5301S/B and 5302S/B. The magnetic anomaly has an elipsoidal shape about 300m long and 150m wide with a peak of 1300nT above background. The peak of the anomaly sits approximately over the granite contact. Computer modelling by the Geopeko geophysical section indicates that on line 10100N the anomaly could be caused by a 10m wide zone carrying 10-15% magnetite occuring between 10268E and 10278E at a depth of 7m below surface and dipping 78° to the west. (J. Sumpton pers. comm) The outcrop of magnetite bearing quartz breccia in the Lewis River is most probably the northern end of the causative body.

2. VLF-EM was completed over the grid and revealed a weak to moderate conductor striking roughly north-south between 10000E and 10100E, lying 200m west of the magnetic anomaly.

Soil Geochemistry

Hand auger soil samples were collected from depths varying from 20cm to 100cm at 25m intervals along line 10100N. Profiles for Cu, Pb, Zn, Fe W and Sn are plotted on plan TS 27/76 V6-3. Tertiary gravels form a thin veneer over much of the grid and it is doubtful that the soil samples collected are from sufficient depth. No significantly anomalous values were returned.

Conclusion

The magnetic anomaly at Voyager 6 can be explained by a narrow (<10m wide) dyke-like body of 10-15% magnetite along the western contact of a granite tongue intruding the acid pyroclastics. The potential of this zone for base metal mineralization is limited. Anomalous values of Cu, Pb and Au within pyroclastics on the eastern side of the granite tongue are more encouraging and require follow-up work.

Forward Programme

1. Extension of the grid east and south to cover the contact on the eastern side of the granite. Followed by detailed mapping and soil geochemistry-preferably with the Jacro rig.

2. Extension of the grid to cover the airborne EM anomaly number 11, which is located about 1km south-east along the granite contact from the mineralized outcrops at Voyager 6. Moving coil Turam plus Jacro soil sampling is needed over the AEM 11 grid.

7.5 VOYAGER 7

Voyager 7 designates an airborne magnetic anomaly situated on sheet 7, just north of the Lewis River at 378,000E, 5 244,000N. In January 1980, 7.5 line kilometres of grid was placed over the anomaly with lines spaced at 200m intervals. Magnetics and VLF-EM were read over the grid with two lines of bedrock soil sampling. Note that the Voyager 21 grid is a northly and westerly extension of the Voyager 7 grid.

Geology

The anomaly occurs over button grass plain with virtually no outcrop. Outcrops on the north bank of the Lewis River at the southern end of the anomaly suggest the area is underlain by fine to coarse grained quartz-feldspar crystal tuffs of the Wart Hill Pyroclastics.

Geophysics

1. Ground magnetics see plans 5306S/B and 5307S/B has revealed a broad 800nT anomaly extending 500m north of the Lewis River.

2. VLF-EM was read on all grid lines and revealed the presence of two weak north-south trending conductive zones (see plan 5302S/B) which occur on either side of the magnetic anomaly.

Geochemistry

Bedrock (C horizon soil) samples were collected with the Jacro auger drill at intervals of 25m along lines 12800N and 13000N. The samples were analysed for Cu, Pb, Zn, Fe, Sn, W and Au and profiles are presented in plans TS 27/76-V7-3 and TS 27/76-V7-4. No significant geochemical anomalies were recorded.

Conclusion

The broad magnetic anomaly at Voyager 7 may be caused by disseminated magnetite (less than about 5wt%) distributed through the rhyolitic crystal tuffs. No base metal anomalies were revealed at the surface over the magnetic area and the region holds little potential for major mineralization.

Forward Programme

No further work is proposed at Voyager 7.

7.6 VOYAGER 9

Voyager 9 designates a large aeromagnetic anomaly situated within the Wart Hill Pyroclastics on sheet 5 at approximately 380 500E, 5 246 500N. Reconnaissance magnetics and IP was carried out in 1978. In February 1980 a grid covering an area of 1200m x 1000m was placed over the area with lines at 100m and some in-fills at 50m spacings. Detailed geological mapping, ground magnetics and VLF-EM was carried out over the grid.

Geology

1:2,500 scale geological map of the gridded area is shown on plan TS 27/76-V9-9. The grid covers a portion of a large zone of intense chlorite-sericite-pyrite-magnetite alteration within the Wart Hill Pyroclastics. The alteration zone measures 3 kilometres long by 300 to 800m wide.

The dominant rock types within the altered zone are rhyolitic crystal-lithic tuffs which have been altered to a quartz-sericite-chlorite ± pyrite ± magnetite mineralogy. Crystal tuffs, vitric tuffs, agglomerates and possible lavas also occur within the zone. Zones of strongly chloritic quartz porphyry may represent altered tuffs or altered subvolcanic intrusives. Rocks outside the altered zone are dominantly quartz-feldspar crystal tuffs and lavas typical of the Wart Hill Pyroclastics. A series of narrow dark green strongly chloritic dykes of probable andesite to dacite composition intrude the altered pyroclastics along the eastern side of the zone. These carry fine disseminated magnetite in places.

Stratigraphic relationships within the altered zone are very difficult to determine, and inspection of the aerial photographs indicates considerable disruption and contortion within this zone. Cleavage is well developed in the altered zone, striking from 290 and 330° and dipping south west at 50-90°. Quartz veining is very common, with veins from 20cm to over 5m wide commonly striking at 025°.

A major fault strikes NNE along the eastern side of the zone, bending to a strike of NNW north of line 11,250N. The andesites occur adjacent to the fault and their emplacement may be associated with this structure.

Pyrite content throughout the altered zone averages about 2% but reaches up to 10-15% in places. Magnetite is rare at the surface however drilling (DDH V9/1) indicates disseminated and vein type magnetite below the peak of the magnetic anomaly.

Alteration assemblages within the zone show a consistent variation from north to south which may relate to base metal mineralization. Chlorite is concentrated in the south-eastern portion of the grid where the magnetics is strongest suggesting a magnetite-chlorite association. Passing northwards the magnetite-chlorite gives way to a sericite-pyrite association.

Geophysics

Magnetic profiles for all grid lines are given on plans 5151S/B, 5152S/B and 5153S/B with contours shown on plan 5150S/B. The main magnetic anomaly strikes north-south with a width of about 300m and peak of 1000-1500nT above background. The anomaly is located on the eastern side of the alteration zone, adjacent to

the major NNE fault. A second more circular anomaly is situated at 10 000E, 10 850N, 300m west of the main anomaly.

The shape of the main magnetic anomaly suggests a large magnetic body buried at 70-150m depth with superimposed narrow magnetic zones closer to the surface. DDH V9/1 drilled to a depth of 60m on the peak of the anomaly (collar 10 260E, 10 950N) intersected vein magnetite and disseminated pyrite representative of the near surface magnetite zone.

Profiles of VLF-EM are shown on plan 5309S/B and contours of the filtered in-phase data on 5308S/B. Although the contoured data indicates an irregular pattern of conductance, two possibly significant conductors are apparant a) 10750 to 10900N at about 10000E a north-south trending conductor is roughly coincident with a magnetic high.

b) 11650N, 10000E a north-west trending conductor is coincident with a Cu soil anomaly.

Dipole-dipole IP on line 10850N carried out in the 1977/78 season revealed a less resisitive zone from 9500E to 1000E with a weak chargability at 9900 to 10000E. This may relate to the VLF conductor defined on 10850N.

Geochemistry

A series of rock chip samples were collected during mapping of the Voyager 9 area. Results of analyses for Cu, Pb, Zn, Fe, Ag, Au, Sn, W and Ba are given in the table below.

Sample No	Cu	Pb	Zn	Fe%	Ag	Au	Sn	W	Ba
KR 6870	90	15	10	3.60	1	20	5	(10	510
KR 6871	35	20	190	10.8	1	15	10	(10	80
KR 6872	320	20	25	7.20	1	10	5	(10	570
KR 6873	10	920	500	48.0	3	10	(5	(10	0.30%
KR 6874	10	180	145	2.40	1	3	5	(10	420
KR 6875	5	15	105	6.00	1	5	10	(10	460
KR 6883	470	200	160	9.20	1	10	10	(10	500
KR 6884	45	20	270	7.20	1	10	10	(10	420
KR 6885	10	20	40	1.56	1	10	(5	(10	0.12%
KR 6886	40	40	40	4.00	1	15	(5	(10	440
KR 6887	10	20	10	1.08	2	10	5	(10	20
KR 6888	5	20	55	4.00	8	15	10	(10	970
KR 6889	5	10	15	0.44	(1	10	10	(10	960

Positions of the samples are shown on plan TS 27/76-V9-9. Background values for Cu, Pb and Zn in the Lewis River Volcanics are typically about 5-20ppm Cu, 10-50ppm Pb and 10-100ppm Zn. Many of the altered volcanics from Voyager 9 show above background values in all three metals. Sample KR 6873 a limonite-rich breccia from 11 150N, 10 450E may represent redeposited iron-manganese oxides from oxidized sulphides along the major NNE trending fault. This sample returned 920ppm Pb, 500ppm Zn and 3000ppm Ba.

Voyager 9 continued

C-horizon soil samples were collected on lines 10 850N and 9 500N in the 1977/1978 season, however no significantly anomalous results were obtained. In the 1979/80 season northern lines of the grid, 11 450N, 11 550N, 11 650N and 11 750N were sampled with the Jacro auger rig at 25m centres. The samples were analysed for Cu, Pb, Zn, Fe, Au, Sn and W and results for Cu, Pb, Zn and Fe are given on plans KT 27/76 V9-10, 11 and 12 Significant anomalies were defined for Cu and Fe.

The major Cu anomaly has values ranging from 200ppm to a peak of 2400ppm, and strikes WNW across the grid for a length of over 500m. Anomalous values of Fe (greater than 1% Fe) are roughly coincident with the anomalous Cu.

Drilling

An auger core hole DDH V9/1 was drilled to a depth of 60m to test the peak of the magnetic anomaly at 10 950N, 10 300E. The hole intersected strongly sericite altered crystal tuffs carrying zones of disseminated pyrite from 2-15wt% in the first 30m. Blebs of magnetite are evident in the core and also 1-2cm wide magnetite veins. Over the last 5 metres from 55 to 60m the magnetite occurs as bands in the tuffs which are parallel to bedding and strongly suggest syngenetic formation.

Conclusions

The following points indicate a high probability of volcanogenic Cu-Au-(Pb-Zn-Ag) mineralization in the proximity of Voyager 9.

1. The large area of pyrite-sericite and magnetite-chlorite alteration within the rhyolitic volcanics.

2. The high degree of deformation including folding, strong cleavage development, and faulting within the alteration zone are favourable factors.

3. The presence of andesitic to dacitic dykes and flows (?) along the eastern side (footwall?) of the zone.

4. The proximity of the zone to the Tyndal Group unconformity (c.f. Mt. Lyell).

5. The presence of strong magnetic anomalies indicating considerable sub-surface magnetite, possibly peripheral to a major zone of copper mineralization, as at the Prince Lyell orebody.

6. The presence of a significant copper soil anomaly at the north end of the alteration zone.

Forward Programme

1. Complete C-horizon soil geochemistry over the entire grid at 100m line spacing.

2. Conduct IP over the copper soil anomaly at 50m line spacing and the remainder of the grid at 100m line spacing.

3. Define a target and drill the copper soil anomaly.

4. Model the magnetic anomaly and drill a hole to pass through the stratigraphic top of the anomaly.

7.7 VOYAGER 10

Voyager 10 designates an area of anomalous Pb, Zn stream geochemistry within the Hudson River Pyroclastics on sheet 8, centred at 384 500E, 5 244 500N.

A separate report by Strickland (1980) covers all work to date and the reader is referred to this for details.

Summary

1. The area of Pb, Zn stream anomalies at Voyager 10 were covered by a 800 x 1200m grid with follow-up soil sampling and IP, plus selected lines of magnetics and SP.

2. A continuous, north-south trending Pb-Zn soil anomaly with length of 800m and width of 50 to 200m was defined in the centre of the grid. The anomaly occurs over acid pyroclastics and is open to the south (see summary plan No KT 27/76 V10-10).

3. No significant IP anomalies are associated with the geochemical anomaly.

4. No further work is planned for the prospect.

5. Reconnaissance gridding south west from Voyager 10 to Voyager 3 is recommended to trace the sediment-pyroclastic contact and search for anomalous geochemical zones or IP zones.

7.8 VOYAGER 12 By W. Herrmann

Discovery

The Voyager 12 prospect was discovered following the detection of anomalous levels of copper, lead and zinc (up to 105,820 and 80ppm respectively) in the sediments of several small tributaries of the Lewis River near AMG co-ordinates 385 000E, 5 246 000N.

Subsequent geological reconnaissance, in early 1979, succeeded in locating several gossanous outcrops which were found to be highly anomalous in base metals, gold and silver.

Best values (from several different samples) were 0.36% Cu, 0.68% Pb, 0.70% Zn, 440 gm/t Ag and 265 gm/t Au.

These results excited considerable interest in the prospect and systematic soil geochemical and geophysical surveys were initiated.

Geology

A grid, of about 800 x 1000m, was established over the prospect using rough tape and compass methods.

Outcrops on the grid were mapped and a geological plan produced at 1:2500 scale.

The plan was revised and updated during February 1980 and is enclosed under the number KT 27/76-V12-2.

The principal rock types are (foliated, devitrified) rhyolitic crystal tuffs with a narrow unit of quartz-feldspar phyric extrusive and minor interbedded semi-argillaceous tuffaceous siltstones and shales.

The pyroclastics and sediments, which strike north-north-east and dip steeply to the west, are in contact, at the eastern edge of the grid, with a massive body of quartz-feldspar-biotite porphyry. This latter rock type is considered to represent a high level intrusive or possibly semi extrusive related to the rhyolitic pyroclastics.

Though not well exposed, the pyroclastic/porphyry contact appears to be grossly conformable. This is borne out by diamond drill holes 3 and 5. (Refer to plan No KT 27/76 V12-13.)

The chloritic quartz-(feldspar) crystal tuff unit shows local patchy sericite-carbonate (?) alteration in a zone about 100m wide adjacent to the porphyry contact but it is uncertain whether the alteration relates to the emplacement of the porphyry or to some later hydrothermal/ deformational episode.

The rocks typically show strong foliation which is defined by sericite and wispy chlorite formation in the pyroclastics and degradation of biotite to chlorite in the porphyry, and generally parallels the gross layering in orientation, i.e. Strike NNE, dip 60-70^{o}W.

Small gossanous pods, veins and gossanous-quartz breccias outcrop sparsely over at least 600m length in the altered (?) and unaltered chloritic crystal tuff unit in a 150m wide zone adjacent and parallel to the porphyry contact. Gossanous veinlets in outcrop vary from a couple of millimetres in width to brecciated zones of upto 30cm, sometimes discontinous and irregular but are commonly parallel to the rock foliation.

The strongest concentration of gossanous outcrops is within about 100m radius of 200E/200S but the largest individual pod mapped is approximately 4m x 0.5m in areal dimension.

There is no notable increase in intensity of gossanous veining etc. in closer proximity to the porphyry but alternatively, there has been no gossan or sign of mineralization mapped further than about 150-200m from the contact. Mineralized veins are not common in the porphyry but have been observed at one locality (350E/00N) where gossanous veinlets occur parallel to the chlorite foliations.

Oxidized and fresh disseminated pyrite is a common accessory constituent of the porphyry, usually of less than 0.5% per volume. Near the contact on line 100 South, there is a local increase in pyrite concentration, up to 3%, mostly as disseminated cubes or small clusters, sometimes in association with narrow wispy zones (upto 2cm x 15cm) of fine chlorite which are aligned with the foliation.

Geophysical Surveys

The Voyager 12 grid was surveyed by Self-Potential, very low frequency - EM and dipole-dipole Induced Polarization methods during March 1979. The results of those surveys were presented in a separate report by S.T. Mudge, dated May 1979, and are summarized as follows:

Self Potential
- SP results were strongly affected by the local steep topography
- Survey located significant (-170mV) anomaly on line 300S, interpreted to be a source 48m below 138E, and dipping 71° to the east.

VLF-EM
- Three prominent zones were detected
- One zone coincident with SP anomaly on 300S.

- Anomaly along 300E, from 00N to 100S coincident with IP anomalies

Induced Polarization

- Significant IP at 325E on 00N coincident with VLF anomaly
- Weak IP anomalies associated with SP/VLF anomalies on 200S and 300S.

Recommendations were made for testing, by drilling, the coincident SP. IP. VLF anomalies on 300S at 150E.

Prior to testing of this target in 1980, geomagnetic total field intensity was measured at 12.5m intervals along line 300S. No anomalies were detected; the profile was singularly flat, with a slight positive gradient at the eastern end corresponding to the quartz-feldspar-biotite porphyry.

Geochemistry:

Rock Chip Geochemistry

As noted previously chip samples of gossan outcrops were found to be highly anomalous in base metals, gold, silver and aresenic.

Analyses of gossan and rock samples are given on the following page.

Voyager 12 continued

Analyses of gossan samples from Voyager 12

Sample Number	Co-ords E	Co-ords S	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppm
KR 4951	008W	002	0.26%	0.13%	580	4		0.035
4954	200	200	0.26%	0.26%	520	18		8.40
4955	030W	500	0.13%	0.12%	115	10		0.185
4959	210	185	0.36%	0.64%	900	440		2.90
4961	300	100	20	90	0.70%	4		0.030
4963	140	180	520	0.68%	0.12%	166		265
4965	150	200	0.32%	0.22%	720	35		0.640
5001	212	184	0.48%	0.92%	530	80	0.92%	3.9
5002	212	184	0.32%	0.48%	890	290	0.63%	3.1
5003	212	184	0.40%	0.88%	0.17%	370	0.87%	3.9
5004	212	184	0.40%	0.66%	600	340	0.93%	3.4
5005	213.5	182.5	0.19%	0.40%	510	125	0.36%	2.2
5006	213.5	182.5	0.34%	0.82%	510	70	0.72%	1.9
5007	213.5	182.5	0.18%	0.88%	640	195	0.56%	1.6
5008	214	180.5	0.23%	0.40%	230	100	0.50%	24.0
5009	214	180.5	0.38%	0.34%	220	120	0.54%	51.7
5010	125	183	1.33%	0.80%	0.12%	140	1.32%	29.4
5011	125	183	760	0.42%	0.11%	17	0.90%	10.8
5012	125	183	280	300	10	1	0.21%	0.390
5013	125	183	0.13%	0.38%	870	80	0.89%	9.6
5074	175	145	900	360	90	2	0.10%	0.085
5075	175	140	0.13%	520	310	3	0.43%	0.660
5076	195	135	0.32%	0.58%	690	10	0.49%	0.440
5077	210	085	0.30%	0.70%	85	)25	1.17%	2.1ppm
5078	195	205	0.17%	0.74%	990	20	0.93%	5.0ppm

Soil Geochemistry

C-horizon soil samples were collected, by hand auger, at 25m spacings on lines 100m apart, over the entire Voyager 12 grid. The -80 mesh fractions of soils were analysed for copper lead and zinc by the A.A.S. method; the results are portrayed on Plan No's KT 27/76-V12-3 to 5.

Peak values were 290ppm copper, 660ppm Pb and 285ppm Zn compared to background levels around 10, 40 and 20ppm respectively.

The anomalies, peaking at little more than one order of magnitude higher than background levels seem to be very spotty and do not appear to relate to any particular lithology, contact or the zone adjacent to the porphyry in which the gossanous outcrops have been found.

It is considered that analysis for iron may have provided more useful results in this case. In general, the soil geochemical results appear to reflect a low degree of dispersion, both in the geochemical and mineralizing environments, and the low intensity, patchy nature of mineralization.

Drilling Results

In order to rapidly assess the gold potential of the auriferous gossans, three short diamond drill holes were drilled late in the 1979 field season. Drilling was with the Bombardier mounted Jacro rig using AQ wireline gear.

DDH's 1 and 2 were drilled to investigate beneath the gossanous zone centred at 180S, 213E.

DDH 1 was collared at 1775, 210E, inclined at -52° on an azimuth of 110° (grid). The hole intersected quartz crystal tuff containing numerous gossanous fractures up to 2cm in width and a 3cm pyrite vein at 22m depth. Final depth was 30.6m and core recovery was poor throughout averaging about 50%.

DDH 2 was collared at 218E, 181S, inclined at -60° on azimuth of 285° (grid) in an attempt to intersect the gossan at depth assuming an easterly dip. The hole intersected similar iron stained and fractured quartz crystal tuffs and was terminated at 18m. Core recovery was similarly poor at about 50%.

Core from DDH 1 and 2 was analysed for Cu, Pb, Zn, Ag, As, and Au and the results are graphically shown on Plan Nos: KT 27/76-V12-9 and 10. The best interval was 21-23m in DDH 1: 0.62% Cu, 25gm/t Ag and 0.15gm/t Au but core recovery over this interval was only 15%.

It was concluded that the surface gossan was a 'magnified' reflection of the minor veinlet mineralization intersected in the holes and that the gossan had very limited depth extent and offered little potential for development of an oxidized ore resource.

DDH 4 was collared at 102E, 185S inclined at -57° on azimuth 85° (grid) to test beneath the gossan at 130E, 180S which carried the highest gold values. The hole intersected iron-stained chloritic quartz crystal tuff with two zones of intense chloritization and minor pyrite from 19.5-21m and 40-45m. Assay results, (presented with the Core Log in Appendix II) were generally disappointing.

An additional diamond drill hole, DDH 3 was collared at 115E, 300S, inclined at -55° on an azimuth 095° (grid) to test the SP anomaly on 300S. The geophysical interpretation postulated a body with an easterly dip; DDH 3 was designed to intersect this body at a point approximately 25m below 140E. The steep slope to the east prevented drilling perpendicularly to the postulated body.

The hole intersected iron stained and chloritic quartz crystal tuffs with minor vein and disseminated pyrite mineralization and passed into quartz-feldspar-biotite porphyry at 86.9m depth. Final depth was 90.0m, average core recovery: 40%.

Assay results, (included with the Core Log in Appendix II) indicated that the tuffs were geochemically anomalous but did not approach significant grades. Best gold value was 1.6gm/t over the interval 53-55m.

During the 1980 field season, a Mindrill F30 drilling rig was transported to the Elliott Bay area. It was proposed to drill a further hole at Voyager 12 to provide a deeper test of the SP anomaly inadequately accounted for by DDH 3.

Accordingly, DDH 5 was collared at 63.5E, 275S, inclined at -60° on an azimuth of grid east. The hole, of final depth 163.65m, intersected a westerly dipping sequence of chloritic quartz crystal tuffs and minor tuffaceous greywacke-siltstone and entered quartz-feldspar-biotite porphyry at 136.3m.

Detailed core log and assay data are included as Appendix II and the geological data, (projected on to Section 300S) is shown on Plan No KT 27/76-V12-13.

Mineralization is restricted to narrow gossanous and pyritic veinlets (usually in the range 1-5mm wide but rarely upto 10cm and in one case 25cm in width) and small breccia zones which occur with low and irregular frequency throughout the hole but are slightly more abundant in the upper 60 metres. Vein and breccia-fill assemblages usually include pale straw coloured carbonate and pyrite, with or without quartz, chlorite, chalcopyrite, sphalerite. Mineralized veinlets are commonly subparallel to foliation which in turn is semi parallel to small scale layering.

The core was split and assayed to a depth of 122m and results are appended with the detailed core log. In general the results are similar to those achieved in the previous hole; much of the rock appears to be weakly anomalous in copper and lead. Isolated anomalous Au, Ag and Zn values (upto 0.4gm/t, 43gm/t and 0.34%) respectively correlate to logged mineralized veins and breccia zones.

Discussion and Recommendations

The geological mapping and drilling carried out at Voyager 12 suggests that mineralization is restricted to small, very localized structurally controlled fractures and vein systems. The common parallel of veinlets with the regional rock foliation suggests that mineralization occurred during (or perhaps partly following) the deformational event to which the foliation is presumably related (generally regarded as Tabberabberan deformation). Core assay data indicates that the chloritic crystal tuffs at the prospect are weakly anomalous, particularly in copper and lead. It is possible that metals from these slightly anomalous rocks were remobilized and deposited in veins and open fractures by hydrothermal activity related to deformation. The proximal relationship of the known mineralization to the probably intrusive porphyry is of unknown significance at this stage.

DDH's 3 and 5 have provided adequate tests beneath the SP anomaly on line 300S. and it is evident that no large massive sulphide body exists at that location. The weak mineralization intersected does not entirely account for the magnitude or the discreet nature of the anomaly but it is possible that local topography or a local depression in the depth of water table/level of oxidation may be the cause.

Although mineralization within individual veins appears to be of high grade, the lack of substantial concentration or intensity of veinlets offers little prospect for discovery of significant volumes of economic grade.

It is recommended that downhole IP logging be carried out in DDH 5 early in the 1981 season if equipment is available and the hole is found to be open. This technique should indicate the prescence of any polarizable sources within about 40 metres of the hole.

In the event that a polarizable source is indicated by the above exercise, close spaced ground geophysical surveys should be carried out and the results carefully interpreted to provide a very confident target before further drilling is contemplated.

If no further geophysical targets are forthcoming no further work on the prospect is recommended.

7.9 VOYAGER 14

Voyager 14 prospect is an aeromagnetic anomaly centred on approx, AMG co-ords 387 700E/5 244 500N which was identified by the 1975 Geoex airborne magnetic–electromagnetic survey of the Lewis River Area.

On the aeromagnetic total intensity contour plan the anomaly shows up as a narrow ellipse about 1.5km long elongated in a NNE direction and having a magnitude of about 80 gammas above background.

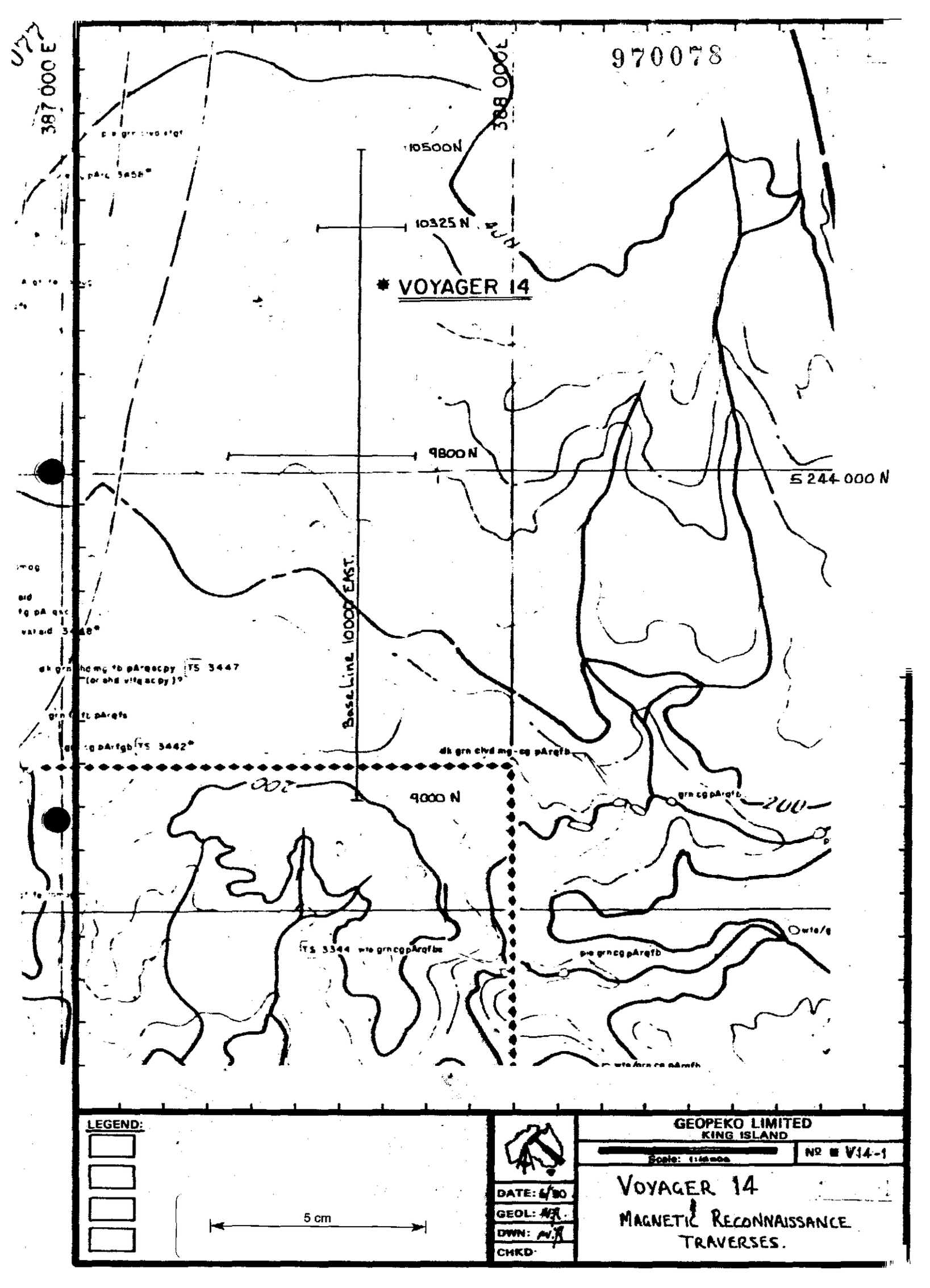
The anomaly is situated in an area of thick vegetation dominated by Bauera and Banksia with belts of manuka and myrtle along major watercourses.

Geophysics

In order to locate the anomaly on the ground it was necessary to cut lines for traversing by magnetometer. A 1500m north-south baseline (347°M) was cut and flagged at 50m intervals, through the approximate centre of the aeromagnetic anomaly and two short cross lines (400m and 200m) were established east-west across major magnetic peaks. The approximate location of the reconnaissance lines is shown on accompanying Figure V14-1 at 1:10 000 scale.

Total magnetic-field intensities were measured at 12.5m intervals along the base line using a Geometrics G-816 proton precession magnetometer, with the sensor elevated 2.5m above ground level.

A narrow 'spiky' anomaly of +600 gammas with a corresponding 'low' on the north side was recorded at 9800N and a slightly broader, +2200 gamma anomaly was found at 10300 - 10375N.


970078
387 000 E
388 000 E
10500N
10325 N
VOYAGER 14
9800 N
5 244 000 N
Baseline 10000 EAST.
9000 N
TS 3447
TS 3442*
TS 3344
5 cm
LEGEND:
GEOPEKO LIMITED
KING ISLAND
Nº ■ V14-1
DATE: 6/80
GEOL:
DWN:
CHKD:
VOYAGER 14
MAGNETIC RECONNAISSANCE
TRAVERSES.

Apart from these peaks, the magnetic profile was relatively 'flat'.

To further investigate these peaks short cross-lines were cut east-west along 9800N and 10325N.

Magnetic profiles are shown on accompanying Plan No. 5157 S/B.

The peak at 10 325N was found to fade to background within 50m either side of the baseline. Profile of line 9 800N shows finds irregular pattern with the peak at 10 000E again accompanied by a sharp negative anomaly.

Geology

Rocks encountered on the reconnaissance lines are varieties of coarse grained quartz-feldspar-biotite porphyry. Rocks from the vicinities of the anomalous magnetic peaks are considerably more chloritic than the typical Elliott Point Porphyry, contain small disseminated grains of magnetite and slight magnetism is detectable using a pencil magnet.

The magnetite could equally be:-

- an accessory phase of primary crystallization
- related to chloritization of the porphyry
- or a 'syngenetic' component in a pyroclastic equivalent of the porphyry.

Geochemistry

Shortage of time did not permit collection of soil samples over the reconnaissance lines.

Conclusions

The form of the aeromagnetic contours bears little relationship to the spiky anomalies encountered on the ground.

It is possible that the large peak, centred on 10325N has strike extension in a NW-SE or NE-SW direction; the latter case would correspond to the orientation of the aeromagnetic anomaly.

The geological setting within the porphyry does not recommend this anomaly. It seems that the peaks observed on the ground reflect shallow magnetic zones of small dimension, apparently related to local patches of disseminated magnetite. It may be that several high magnetic peaks on the ground are 'seen' as a single larger anomaly by the airborne magnetometer.

Forward Programme

No further work is planned on the prospect.

7.10 VOYAGER 16

Voyager 16 designates an airborne magnetic anomaly and area of Pb-Zn drainage geochemistry within Hudson River pyroclastics on sheet 6 at approximately 382500E 5247500N. Old workings have been reported in the area by B.H.P. but their exact location is not known.

Reconnaissance mapping of the area was carried out in March 1980 (see plan KT 27/76-6). Pyroclastics in the region of the anomaly are dominantly chloritic rhyolitic crystal and crystal-lithic tuffs with horizons of feldspar porphyries (lavas?). Epidote alteration of the tuffs was noted in some outcrops.

About 700m upstream from the junction of Waterloo Creek with the Hudson River, outcrops of chloritic rhyolite agglomerates occur on the bank of Waterloo Creek. These agglomerates dip at 80° west and from photo interpretation appear to lie on the western flank of a major anticlinal structure which transgresses the magnetic anomaly. No magnetic rocks were mapped in the vicinity of the anomaly.

Forward Programme

The anomalous stream geochemistry, and report of old workings in the area of the large magnetic anomaly warrants further investigation. The presence of coarse fragmental volcanics is encouraging for volcanogenic mineralization.

It is proposed to place a reconnaissance grid with 200m spaced lines over an area of 1300 x 1200m covering the anomalous stream geochemistry and magnetics. C-horizon soil sampling and magnetics is proposed with follow-up, if required, with IP.

7.11 VOYAGER 17

Designates a weak aeromagnetic anomaly located near the upper contact of the Lewis River volcanics, on sheet 5 at approximately 378000E, 5250000N. A grid line was cut at 5249650N for 800m to cross the anomaly (see sheet TS 27/76-6A).

The area is thickly forested and no outcrop occurs along the grid line. Magnetics and hand auger sampling was completed along the line. Results are given on plan TS27/76 V17-3.

The magnetic anomaly is broad (250m) and weak (200nT above background) and probably relates to a rock unit rather than mineralization. Irregular weakly anomalous values of Cu, Pb, Zn and Fe occur over the anomaly but are too low to be considered significant.

Forward Programme

No further work is proposed at this locality.

7.12 VOYAGER 18

Voyager 18 designates rock outcrops at the mouth of Copper Creek (sheet 3 within the Mainwaring Group) which contain disseminated copper mineralization.

The disseminated copper is present as chalcopyrite and bornite and associated with minor pyrite within buff coloured dolomite beds in the Veridian Point basic volcanic sequence.

A sequence of green basic tuffaceous shales and interbedded dolomites about 20m thick are exposed at the mouth of Copper Creek. The dolomite occurs generally as thin laminations up to 1cm thick. One particular horizon of dolomite 0.5m thick carries patches of poddy quartz with associated pyrite and chalcopyrite. The quartz-dolomite pods are about 1m long and 20cm thick carrying 0.2-0.5% Cu and 2-5% pyrite.

Three chip sampls from the zone are listed below:

Sample No	Cu %	Pb ppm	Zn ppm	Fe %	Au ppb	Sn ppm	W ppm
KR 5892	0.98	30	70	10.8	185	(5	(10
KR 5893	0.11	30	125	9.6	70	(5	(10
KR 5894	0.12	25	65	10.8	15	5	(10

KR 5892 - pyrite-chalcopyrite zone from the dolomite horizon

KR 5893 - dolomite with minor sulphides

KR 5894 - 15m chip sample of shales stratigraphically above the dolomite horizon

Conclusion

The presence of copper within the dolomites of the Mainwaring Group at Copper Creek indicates potential for copper orebodies elsewhere along the dolomite horizon north of Copper Creek. Chip sampling at Voyager 23 indicates the basic shales have a background of about 150ppm Cu and therefore provide a significant source for copper mineralization. The dolomites are an ideal trap rock, and therefore structural positions such as folds or faults along the dolomite horizon would be ideal for the concentration of copper mineralization.

Forward Programme

No further work is proposed at Voyager 18, however follow-up work is proposed at Voyager 26 (see page 86) to search for copper mineralization within the dolomites.

7.13 VOYAGER 19

Voyager 19 designates a strongly altered and pyritic zone within the Wart Hill Pyroclastics situated on Sheets 3 and 5 at 379,700E 5,258,00N.

Geology

Alteration within the volcanics at this locality consists dominantly of silica and sericite with variable fine disseminated pyrite. The volcanics are commonly rhyolitic lithic-crystal tuffs with minor agglomerates and crystal-vitric tuffs. The rocks are strongly deformed with minor isoclinal foldings.

The alteration zone is localised on Wart Hill and extends northwards with a strike length of about 1500m and width varying from 200-500m. The Tyndal Group Correlate unconformity cuts the zone down its eastern side. Pyrite occurs within the altered rocks as thin fracture fillings and fine disseminations adjacent to fractures. Pyrite content varies from 1wt% up to 15wt% locally. The most strongly pyritic pyroclastics occur along the northern end of the zone.

The style of alteration is similar to that at Voyager 9 and Voyager 22 however with more intense silica alteration and less chlorite.

Geochemistry

Rock chip samples collected from the altered zone have returned anomalous values of lead zinc and copper. Results are shown on the following page, with sample locations on map KT 27/76-5A.

Voyager 19 continued

Sample Number	Cu ppm	Pb ppm	Zn ppm	Fe %	Ag ppm	Au ppb	Sn ppm	W ppm	Ba ppm
KR 6398	40	1100	200	2.00	1	15	(5	(10	570
KR 6399	85	560	60	1.92	1	30	(5	10	1600
KR 6400	15	200	150	2.80	(1	10	(5	10	800
KR 6851	10	35	620	4.40	(1	15	(5	(10	540
KR 6852	5	65	300	1.72	1	20	(5	(10	770
KR 6853	15	100	190	10.8	1	15	(5	(10	510

Base metal values in the drainage around Voyager 19 are generally low. One anomalous sample for zinc (60ppm) drains the southern end of the altered zone. Gold however shows anomalous values in streams draining both the southern and western edges of the zone (Map KT 27/76-5H). The best values of 1000ppb and 700ppb were recorded in small tributaries at 379000E, 5251000N.

Geophysics

Three airborne EM anomalies from the Geoex survey occur in the viscinity of Voyager 19. Anomaly 55 occurs to the west of the altered zone, anomaly 56 on the northern end, and anomaly 57 on the southern end (see Map KT 27/76-3I). All three anomalies were given low priority by Geoex.

Conclusions

The altered volcanics at Voyager 19 have the characteristics of a zone of footwall alteration associated with volcanogenic massive sulphide mineralization. The anomalous Pb, Zn values in rock chips and gold values in the streams plus the presence of three airborne EM anomalies in the vicinity place a high priority on the follow-up of this prospect.

Forward Programme

It is proposed to place a grid over the area of altered volcanics with lines at 100m spacings over the central section extending to 200m spacings further south. IP, magnetics and bedrock soil sampling are proposed over the grid.

7.14 VOYAGER 20

The Voyager 20 prospect is located on the Wanderer River in the north-east part of E.L. 27/76 at approximate AMG co-ordinates: 384,500E, 5,259,300N. A sub gossanous zone outcropping in the north bank of the Wanderer River was discovered by John Stockley whilst engaged in geological mapping of the area in January 1980.

Geology

Strongly iron-stained, limonitic, argillaceous (tectonic?) 'schist' and altered tuffs with fine smears of galena outcrop over a zone of about 40m wide at the contact between the chloritic Hudson River Pyroclastics and the hematitic Wanderer River Tuff lithologies which have been mapped as major stratigraphic units in this area.

Geochemistry

Rock chip samples, representative of 2m intervals were collected over the 40m wide sub gossanous zone. Best values were 0.15%Pb, 0.15%Zn, 0.11%Ba and 70ppb Au. Copper and silver were only slightly above background. A complete list of rock chip analyses is shown below.

Results of the regional stream sediment geochemical sampling in the Wanderer River area indicated that sediments, in streams draining a 2sq. km. area north and south of the Wanderer River and centred on Voyager 20, were anomalous in lead, zinc and iron. The stream anomalies are very weak reaching peaks of only 55ppm lead, 80ppm zinc and 1.04% iron which are barely twice the regional background levels of 30, 35ppm and 0.71% respectively.

(Refer to drainage geochem results on Plan No's: KT 27/76 2B, 2E and TS 27/76-V20-2).

Two weak airborne electromagnetic anomalies (AEM 90 and AEM 99) occur respectively within and adjacent to the anomalous drainage area.

Conclusions

The rock chip geochemical results appear to indicate that lead-zinc mineralization occurs at the contact between the hematitic tuff unit and the (underlying) chloritic quartz-feldspar crystal tuffs.

Weak stream geochemical anomalies suggest that this zone of mineralization extends along strike to north and south.

Forward Programme

It is proposed that a reconnaissance grid, with a north-south base line running through the gossanous zone and cross-lines at 400m intervals be established at Voyager 20.

C-horizon soil samples will be taken on the cross-lines in an attempt to determine whether mineralization is restricted to any particular stratigraphic level.

The grid will be designed to cover AEM anomalies 90 and 99 and, if possible, ground EM and reconnaissance gradient array IP surveys will be conducted.

VOYAGER 20 ROCK CHIP SAMPLE RESULTS

Sample Number		Description	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Mn ppm	Au ppb	Ba ppm
KR 5705		Decomp Gossan	10	75	350	1	0.15%	60	590
06	0-2m	Heading dowstream	5	15	20	1	15	30	810
07	2-4m	Fol. chl. qzt.	5	20	55	1	15	3	810
08	4-6m	Chl. qxt	5	20	30	1	30	50	690
09	6-8m	Fe. st. chl. qzt.	10	100	240	2	960	80	520
KR 5710	8-10m	Gossan	15	45	40	1	125	20	640
11	10-12m	Gossan	10	65	85	1	0.11%	5	580
12	12-14m	Limonitic clay	10	60	50	1	25	20	650
13	14-16m	Gossan	10	65	600	1	250	5	490
14	16-18m		10	45	100	1	220	60	800
15	18-20m		15	65	95	1	0.20%	65	0.10%
16	20-22m		5	40	75	1	880	20	0.10%
17	22-24m		5	30	45	1	0.16%	10	0.11%
18	24-26m	Decomp. qxt.	5	50	60	1	0.28%	70	860
19	26-28m		10	215	90	1	920	60	450
KR 5720	28-30m		10	190	640	1	30	35	590
21	30-32m		15	250	0.12%	1	920	10	580
22	32-34m		15	460	0.10%	1	0.15%	5	490
23	34-36m	Fol. argillite c galena	40	0.15%	0.15%	2	0.20%	5	550
KR 5724	36-38m		10	580	620	2	0.36%	25	540

7.15. VOYAGER 21

Voyager 21 designates the area north of the Lewis River centred at about 377000E, 5,245,000N. The region was selected for follow up as it represents the northward strike extent of the Voyager 1 chemical sediments.

A broad grid was placed over the area covering both the Voyager 7 magnetic anomaly and the Voyager 21 zone. A 2.2km north-south base line was established with east-west crosslines of 800-1400m length, spread 200m apart. See Maps KT 27/76-5A and KT 27/76-7A for location of the grid.

Geology

The grid has been placed over the Pender's extending from the contact of the Lewis River Volcanics through to the Sassy Creek Argillites of the Mainwaring Group.

A map showing outcrop geology by C.D. Strickland is designated KT 27/76-V21/2. The dominant rock type is a rhyolitic quartz-feldspar tuff varying from fine grained to coarse grained. On the north-eastern corner of the grid siliceous pebble conglomerates representing the upper most unit of the Wart Hill Pyroclastics are exposed.

Geophysics

The grid was read with magnetics and, VLF-EM.

Initial magnetics on the 200m spaced lines revealed a narrow magnetic anomaly extending north-south

along the western side of the grid (see maps 5306S/B and 5307S/B). Subsequently the grid was filled-in at 100m line spacings over this anomaly and the detailed magnetic profiles and contours are given on maps 5156S/B and 5156S/B. The magnetics resolved into a series of narrow linear poddy anomalies extending from 13200N to 14250N. At 9200E, 13750N a small outcrop of banded magnetic-chlorite sediment (?) was found coincident with the magnetic anomaly.

VLF-EM was read over the entire grid including the in-fill lines. Results are given on maps 5302S/B, 5312S/B and 5313S/B. A weak north-south trending anomaly was defined coincident with the magnetic anomaly, best developed on lines 13650N to 13750N at 9250-9300E.

Geochemistry

Bedrock power auger soil sampling was undertaken on 25m centes along lines 14000N, 139000N, 13800N and 13700N covering the magnetic anomaly. The results are given on map TS 27/76-V21-5.

No significant anomalies were defined by the sampling.

Conclusions

The narrow magnetic anomaly at Voyager 21 is probably caused by a magnetite-bearing chemical sediment similar to that defined at Voyager 1 to the south. The small size of the anomaly and lack of significant soil geochemistry indicate that no further work is warranted in this area.

7.16 VOYAGER 22

Voyager 22 designates an area of sericite and chlorite alteration with minor pyrite within the Wart Hill Pyroclastics centred on 381000E, 5,249,500N (sheet 5).

Geology

The altered zone measures about 1200m x 400-600m and is open to the north. The alteration and pyrite development is very patchy and appears to transgress into the overlying basal portion of the Tyndal Group Correlate. The dominant rock types are sericitic and chloritic crystal tuffs, and lithic tuffs with minor agglomerates. Orange to brown iron staining is patchy and generally fracture controlled. Fine dusty hematite is a common accessary in the matrix of the tuffs-this may be primary or an oxidation product after fine pyrite or siderite.

Overall the alteration is similar to the northern part of the Voyager 9 zone although the two zones do not appear to be continuous.

Equivalents of the Jukes Formation form the basal part of the Tyndal Group unconformably overlying the altered volcanics. Here the Jukes Formation consists of sericitic tuffs and conglomerates which have been altered to give similar pyritic lithologies to the Wart Hill Pyroclastics.

Geophysics

The base line was extended 2km north from Voyager 9 with three reconnaissance cross lines placed at 400m spacing over the Voyager 22 alteration zone. (see map KT 27/76-5A). Magnetics and VLF-EM results on the lines are given in plans 5314S/B and 5317S/B.

The magnetic expression is virtually flat while insufficient data is available to make conclusions on the VLF-EM.

Geochemistry

Twelve rock chip samples were collected for analysis during mapping of the alteration zone. Results are shown below with sample positions on map KT 27/76-5A.

Sample No	Cu ppm	Pb ppm	Zn ppm	Fe %	Ag ppm	Au ppb	Sn ppm	W ppm	Ba ppm
KR 6854	10	30	15	4.00	1	440	-5	10	330
KR 6855	230	190	300	7.20	1	15	-5	-10	260
KR 6856	920	760	370	8.00	19	85	-5	10	120
KR 6857	640	330	270	6.80	12	50	-5	-10	130
KR 6375	140	25	140	3.60	1	25	-5	-10	380
KR 6376	10	30	30	0.56	1	10	-5	10	690
KR 6377	500	190	290	9.60	5	165	-5	-10	410
KR 6378	5	30	90	1.24	1	5	-5	-10	960
KR 6379	2	15	25	2.80	1	3	-5	-10	540
KR 6380	2	40	55	1.04	1	5	-5	-10	990
KR 6381	10	15	15	1.56	1	3	-5	-10	640
KR 6382	15	10	20	0.88	1	10	-5	-10	770

Samples KR 6856 and KR 6857 show anomalous values of Cu, Pb, Zn, Ag and Au and were taken from an horizon of pyrite bearing chloritic shale at 381,150E, 5,249,600E. The outcrop of chloritic shale was 20m long and 5m wide. KR 6856 represents a chip sample across the outcrop, while KR 6857 was a single representative of the outcrop. This horizon may be a chemical sediment and along strike equivalent of stratiform massive mineralization.

Bedrock soil samples were taken with the Jacro auger rig at 25m centres along the reconnaissance grid lines covering the alteration zone. Results for Cu, Pb, Zn and Fe are given in Appendix III. Zinc profiles along the lines are given on plans TS 27/76 V22-3 and TS 27/76 V22-4.

Zinc shows considerable variation especially on lines 13600N, 13200N and 12800N. The best anomaly is developed on the western margin of the Mt. Osmund syncline between 9500E and 9600E. Further in-fill sampling is required to determine the significance of the zinc variation.

Conclusions

The alteration at Voyager 22 probably represents early hydrothermal activity similar to the events at Voyager 9 and Voyager 19. However at Voyager 22, the alteration extends into the Tyndal Group rocks suggesting later remobalization possibly during the Devonian.

Forward Programme

Depending on the results of the Voyager 9 and Voyager 19 prospect development programmes a 1400m x 1200m grid will be placed over the altered volcanics at Voyager 22, followed by geological mapping, gradient array IP and bedrock soil sampling.

7.17 VOYAGER 23

Voyager 23 designates an area of outcropping dolomitic siltstones carrying minor copper mineralization on the coast at 376,120E, 5,245,550N. This sequence is at the same stratigraphic level within the Mainwaring Group as the Voyager 18 mineralization.

A detailed stratigraphic section of the sequence outcropping on the coast at Voyager 23 is given in Figure V 23-1. Very minor syngenetic (?) bornite with associated malachite staining was observed in the dolomitic beds between 20 and 35m along the section. The results of rock chip sampling along the section (normal to strike) is given below.

Sample Number	Metres along section (stratigraphically upwards)	Cu ppm	Pb ppm	Zn ppm	Fe %
KR 6010	1 - 5	110	30	120	6.40
KR 6011	5 - 10	195	30	95	6.40
KR 6012	10 - 15	165	30	95	6.00
KR 6013	15 - 20	110	35	100	5.60
KR 6014	20 - 25	95	30	90	6.40
KR 6015	25 - 30	130	30	110	7.20
KR 6016	30 - 35	0.13%	30	80	6.80
KR 6017	35 - 40	170	35	115	6.00
KR 6018	40 - 45	195	30	95	6.00
KR 6019	45 - 50	195	25	125	6.40
KR 6020	50 - 55	130	25	100	6.40
KR 6021	55 - 60	130	25	85	6.40
KR 6022	60 - 65	130	20	85	6.00
KR 6023	65 - 70	120	20	90	6.40
KR 6024	70 - 75	35	15	105	6.00
KR 6025	75 - 80	105	25	75	6.40
KR 6026	80 - 85	70	20	95	7.20
KR 6027	85 - 90	50	20	105	7.20
KR 6028	90 - 95	35	20	125	7.60
KR 6029	95 - 100	70	20	95	7.20
KR 6030	100 - 105	70	20	105	6.80
KR 6031	105 - 110	75	20	90	5.20
KR 6032	110 - 115	120	15	85	6.80

U96

970097

Cu PPM

Metres along Section

0 100 200 300 400 500

110

Chloritic Shale

Epidote rich tuff.

100

Interbedded green shales and fine basic tuffs.

90

Magnetic green brown shales.

Laminated green-pink dolomitic shales.

80

Massive dolomite and minor chloritic shales.

Chloritic green shales.

70

Chloritic Shales.

60

Laminated green shales carrying fine dissem. magnetic.

50

Laminated green-pink shales
Dolomite content less than 10%

40

Green-brown siltstone - Minor quartz veining.

Laminated contorted green pink Chloritic and dolomitic shales.

1300 PPM.

30

Contorted dolomitic shales.

Massive brown dolomitic and minor shale.

20

Contorted dolomitic shales.

Green-brown iron stained siltstones cut by quartz and FeOx filled fractures.

10

Green chloritic siltstones

Laminated pink-green dolomitic siltstones.

LEGEND:

5 cm

GEOPEKO LIMITED
DEVONPORT TAS

Scale 1 : 500

N

V23 -1

EL 27/76 ELLIOTT BAY
VOYAGER 23
STRATIGRAPHIC SECTION AND ROCK CHIP COPPER VALUES

DATE Nov 90
GEOL C.D.S.
DWN: J.C.
CHKD:

Voyager 23 continued

Background copper values in the chloritic and dolomitic shales in the basal part of the section average about 150ppm and are considerably higher than copper values in the Lewis River Volcanics. The one value of 1300ppm Cu from 30 to 35m suggests copper concentration in particular units. However, the tenor of the copper concentration is not sufficient to warrant further investigations in this area.

7.18 VOYAGER 24

Voyager 24 designates an area of anomalous gold stream geochemistry within the upper part of the Wart Hill Pyroclastics around 378,500E, 5,248,000N.

This has previously been refered to in the Geochemistry section. Eight anomalous samples have been recorded covering an area of about 1sq km (see Figure V24 - 3) with values of 680, 510, 70, 50, 3000, 220, 1400, 350ppb above a background of 40ppb. Only one sample (KD 4332) shows anomalous base metals in support of the gold i.e. 35ppm Cu and 70ppm Zn with 680ppb Au.

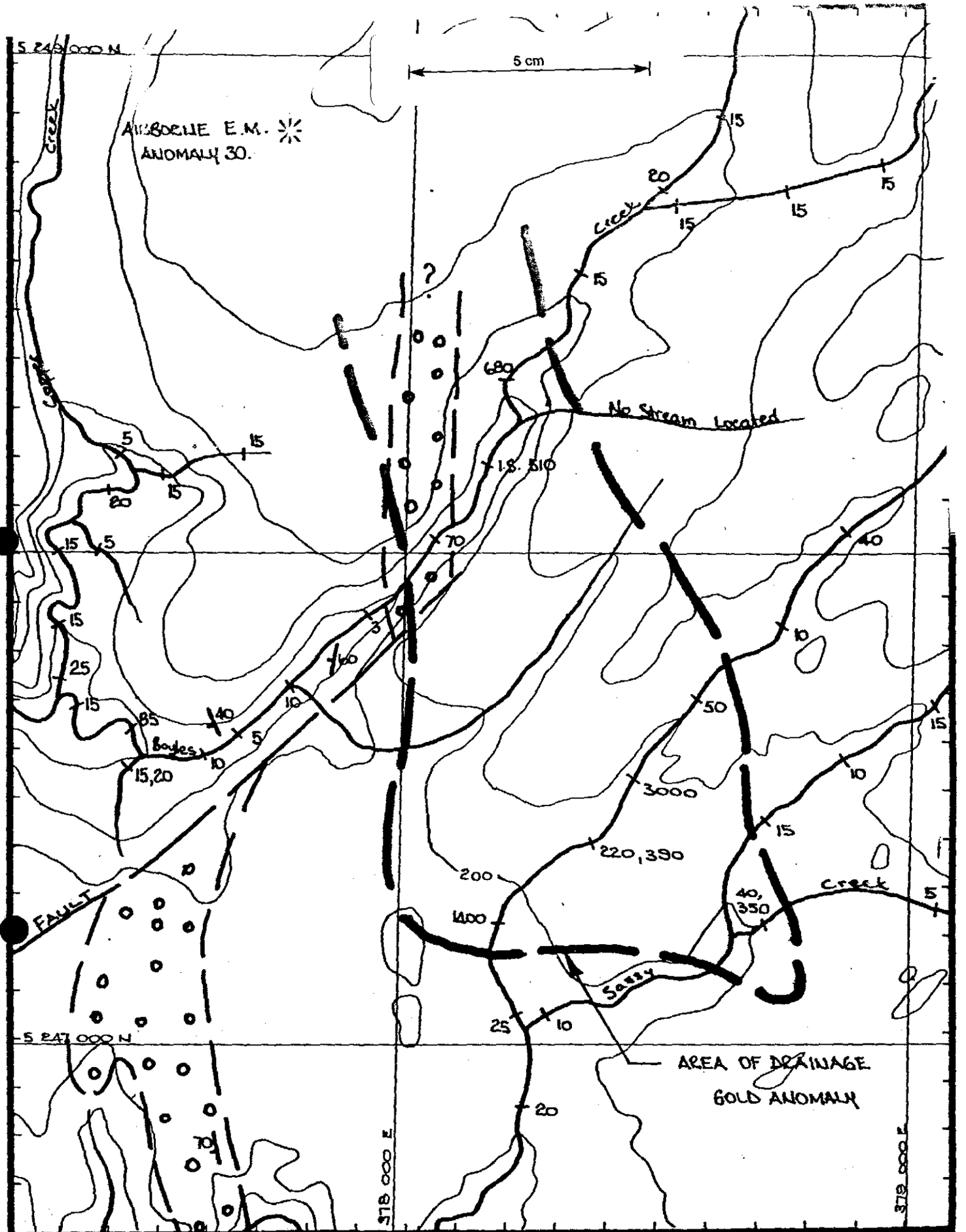
Geological mapping in Boyles Creek suggests the anomalous values are draining foliated quartz crystal tuffs in an area of abundant quartz veining. The NNW extent of the anomalous zone cuts across the NE strike of the volcanics in this area, however it is parallel to the contact with the Mainwaring Group 0.5km further west.

Further Work

Detailed panned concentrate drainage sampling is planned to define the source of the gold anomaly. This will be followed by gridding and appropriate geophysical and geochemical surveys.

The magnitude and extent of the gold in the streams is very encouraging and this prospect is given a high priority for follow-up in the coming season.

099



LEGEND:

- Sassy Creek Argillite (Mainwaring Group)
- Conglomerates, Sandstones, Tuffaceous Greywacke. } Lewis River Volcanics
- Rhyolitic Tuffs } Lewis River Volcanics

970100

DATE: Nov '85
GEOL: E.E.L.
DWN: D.B.
CHKD:

GEOPEKO LIMITED
DEVONPORT

V-24-3

Scale: 1:10 000

No TS 27176

E.L. 27176 – ELLIOTT BAY
VOYAGER 24 SIMPLIFIED
GEOLOGY + GOLD DRAINAGE VALUES.

7.19 VOYAGER 25

Voyager 25 designates a small area of anomalous tungsten stream sediment geochemistry centred on 384600E/5250400N (Sheet 6).

Minus 80 mesh fractions of sediments from two small streams at this locality, were found to contain 70 and 100ppm W associated with moderately anomalous lead and zinc (to 40 and 50ppm respectively).

A brief reconnaissance of the area in March 1980, indicated that the rocks in the vicinity are fine grained, foliated chloritic quartz crystal tuffs typical of the Hudson River Pyroclastics. No signs of mineralization were evident.

Duplicate samples taken during follow-up confirmed the tungsten values but the lead-zinc anomalies were unsubstantiated. Panned concentrates of sediments from the same localities were found to contain 320 and 160ppm W indicating a concentration factor of only two or three and suggesting that the tungsten is present not only in heavy mineral phases. Minus 80 mesh fractions from 100m upstream of the tungsten anomalies contain only 30ppm W, indicating that the source is very close.

Conclusion

The source of the anomalous tungsten is unknown. However, no aeromagnetic anomaly is apparent in this area and the possibility for significant skarn type or Voyager 1 - (chemical sediment) type tungsten mineralization seems small.

Forward Programme

No follow-up work is planned for the 1981 field season.

7.20 VOYAGER 26

Voyager 26 designates an area of airborne EM and magnetic anomalies in the Mainwaring Group centred at 375,500E, 5,251,500N. The anomalies occur along strike to the north of the outcropping copper-dolomite mineralization at Voyager 18.

No work has been carried out to date at Voyager 26.

Forward Programme

It is proposed to place a 1200m x 1200m grid over the central portion of the anomalous zone with E-W grid lines separated by 200m. Geological mapping, soil sampling and ground EM surveys are proposed on the grid.

7.21 VOYAGER 27

Voyager 27 refers to an area centred on 385000E/5253500N in which several small streams have been found to be anomalous in lead and zinc with some associated iron anomalies (Sheet 4).

The streams drain rocks of the Hudson River Pyroclastics close to their eastern contact with the Elliott Point Porphyry. The geochemical anomalies may relate to two well defined NW trending photo-linears presumed to be faults. John Stockley, during geological mapping of this area, could find no outcrops to elucidate the nature of the photo-linears.

A weak airborne electro-magnetic anomaly (AEM 66) straddles the southern most photo-linear adjacent to the anomalous drainage area.

Conclusion

The anomalies have fairly low priority and no follow-up work is planned for 1981 season.

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APPENDIX 1 PETROLOGICAL DESCRIPTIONS

Samples selected for thin section:

SAMPLE NUMBER	FIELD NUMBER	UNIT	FIELD DESCRIPTION	PETROLOGICAL FANDER DESCRIPTION
MAINWARING GROUP				
KR 5851	SY1	Sassy Ck. Arg.	Dolomite	Dolomite-talc rock
KR 5853	SY9	Sassy Ck. Arg.	Black carb. sh/ qwk	Carbonaceous phyllite
KR 5887	SY131C	Veridian Pt. Basics	Dolomite	Carbonate-qtz rock
KR 5889	SY135	Veridian Pt. Basics	Basic volcanic	Porphyritic? Andesite
TYNDAL GROUP				
KR 6375	599	Voyager 22	c.g. lithic tuff	rhy. lithic xtal tuff
KR 6397	1029	W of V19	Banded xlt	rhylithic xtal tuff
KR 6853	1041	Voyager 22	c.g. hem. lt py	rhy.lithic xtal tuff lim after sid.
KR 6860	1064	NW of V19	Breccia-cong.	rhy lithic xstal tuff
LEWIS RIVER VOLCANICS				
KR 5868	SY65	V7 area	fq crystal tuff	tuff-lava
KR 5872	SY78	NE V6	Dacitic vlt (fg)	dacitic lava

Appendix 1 continued

SAMPLE NUMBER	FIELD NUMBER	UNIT	FIELD DESCRIPTION	PETROLOGICAL FANDER DESCRIPTION
KR 6380	583	Eof V22	Banded tuffs	tuff-lava
KR 6383	573	Sassy Creek	qfxt	biotite rhyolit lava
KR 6389	545	V16	epid-lt	lithic-xtal tuf
KR 6394	993	SE of V17	chl-lt	tuff-lava (flow-breccia)
KR 6400	1033	V19	sil/ser lxt	lava or intrusive
KR 6852	1038	V19	sil/ser lxt	porph rhyolite
KR 6855	1048	V22	hem/py xlt	lvxt (py & sid ox) similar to Tyndal Group
KR 6857	1052B	V22	chlpy qxt/sh	dacitic lava
KR 6869	690B	V6	qtz-hem-chl zone	qtz vein
KR 6871	259	N of V9	dacite/andes.	fg. Vxt dacitic
KR 6874	665	V9	chl vxt	biot rhy (chl, cb)
KR 6884	V9-18	V9	chl qp	chl porph rhy
KR 6885	V9-101	V9	unaltered qfxt	biot rhy lava
KR 5671	V12 DDH5/72.65m		chl qxt	biot rhy (lava) (mid greenschist
KR 5672	V12 DDH5/74.35m		fol qxt	porph rhyolite
KR 5673	V12 DDH5/151.4m		qfbp	biotite microgranite
KR 5674	V12 DDH5/106.55m		sp, gal, py, cpy, asp, Ag sul vein	Epigenetic vein mineralization of 'Zeehan type'

Appendix 1 continued

SAMPLE NUMBER	FIELD UNIT NUMBER	FIELD DESCRIPTION	PETROLOGICAL FANDER DESCRIPTION
KR 5675	V2 DDH6/144.75m	tuffaceous sed	porph. rhyolite epigenetic veining
KR 5676	5253600N, 382500E	Cg.lxt (tyndal?)	rhyolitic lithi tuff
KR 5677	5253800N 382900E	fg. ser qxt	Ignimbrite
KR 5678	5256100N 383200E	mg.qfp lava	Biotite micro-adamellite
KR 5679	5255200N, 383800E	hem-qfxt	Biotite rhyolite
KR 5680	5251800N, 384900E	chl fol qxt	porph. rhyolite
KR 5681	5259500N 386100E	fol chl qfxt	Rhyolitic tuff-lava
KR 5682	V14 9820Nm 1000E	chlcg qfp	Biotite micro-granite
KR 5683	5259550, 386000	basic intrusive	Olivine micro-gabbro

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15th August, 1980

REPORT CMS 80/7/30

YOUR REFERENCE:	Purchase Order No. KP 2406
DATE RECEIVED:	15th July, 1980
SAMPLE NOS.:	44 samples
SUBMITTED BY:	R.R. Large
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

REPORT CMS 80/7/30

Notes:

Brief petrological descriptions were prepared, in tabulated form. These incorporate data from petrographic and stereobinocular examination of thin-sections and offcuts, together with results of K-feldspar and carbonate staining tests.

The bulk of the suite comprises altered and variably sheared volcanics of distinctly acid character. Whilst general features appear more or less typical of Mount Read Volcanics, the rather monotonous predominance of rhyolites is unusual. To what extent this is a regional phenomenon is not clear, although there is a definite domain-type aspect to compositional variations in this volcanic formation. In the "North West" rhyolites are conspicuous by their near-absence in sequences of generally felsic intermediate character (andesite-trachyandesite-trachyte, andesite-dacite).

Specimen KR 5674 reflects an epigenetic, disseminated to semi-massive, but typically vein-style of Zn-Pb(-Cu-Au) mineralisation. This can be categorised as of Zeehan-type affinities and is also reflected, for example, in KR 5675 and KR 6963.

D. Cowan, B. Sc.

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Sample No.	Classification - Composition	Fabric	Accessories	Comments
(R 5851 T.S. 32893)	Dolomite-Talc Rock. Cloudy granular to semi-lustre-mottled dolomite, subordinate, semi-schistose fine talc, intergranular calcite, degraded tremolite. Minor quartz, chlorite.	Weakly schistose, generally fine-grained. Weak relict, fine to coarse sandy clastic fabric.	Sparse degraded ?biotite flakes, rare relict detrital zircon. Oxidised pyrite films.	Thoroughly dolomitised, mildly regionally metamorphosed labile clastic sediment. Probably basic-intermediate tuffaceous, but finer detail obliterated. Talc, chlorite after tremolite.
R 5853	Carbonaceous Quartz-Mica Phyllite. Microcrystalline quartz, muscovite, subordinate degraded biotite. Disseminated to frequent stressed relict clastic quartz, sericitised feldspar, pervasive graphite.	Resheared at low angle to primary concordant cleavage. Relict millimetric-scale bedding.	Minor, partly oxidised pyrite, trace bornite, ?chalcocite. Thinly disseminated relict detrital zircon, apatite.	Low greenschist facies psammopelite. Sand component arkosic, apparently derived from granite, porphyry source. Sulphide is evidently "syngenetic". Bornite after chalcopyrite.
R 5887	Carbonate-Quartz Rock. Microcrystalline to granular and comb-structured dolomite-ankerite; sporadic irregular to semi-continuous quartz veins, minor chlorite films.	Fractured/quartz-veined, re-stressed.	Minor bornite, extensively replaced by chalcocite, locally replaced by oilvenite.	Restressed carbonate vein with minor sulphide blebs (to 3 mm), marginal to crosscutting quartz veins. No metasomatic feat-ures.
R 5889	Porphyritic ?Andesite. Extensively chloritised uralite aggregates, sparse epidotised feldspar phenocrysts in groundmass of tremolitised pyroxene laths, feldspathic mesostasis.	Andesitic. Altered phenocrysts mean 1.5 mm. Weakly sheared.	Leucoxenised primary opaques.	Distinctly andesitic fabric, but finer compositional details obliterated. Chlorite is of retrograde character after ?deuteric uralitic tremolite-actinolite.
R 6015	Dolomitic Phyllite. Microschistose dolomite and quartz alternating with foliae of chlorite, fine muscovite, minor quartz. Conspic os leucoxenic semi-opaques.	Sub- to millimetric-scale, semi-lenticular banding with essentially conformable phyllitic cleavage.	Rare albite, very rare microfilms of carbonaceous matter.	Low-greenschist facies metasediment with distinct chemical character; dolomitic chert, cherty chloritic dolomite. No detectable sulphide.
R 5898	Metaquartzite. Relict framework of single and composite quartz, minor to accessory quartz-mica schist. Recrystallized intergranular and overgrowth quartz cement.	Stressed, quartzitic, with relict, weakly banded gritty sand, clastic fabric.	Thinly disseminated clastic muscovite flakes.	Essentially a recrystallized/stressed orthoquartzite (strictly protoquartzite). Rock fragments quartzose sediment, minor micaceous quartz vein.
R 6384	Metapsammite. Silt- to medium-sand-sized quartz, sparse chert fragments, quartzite, clasts in phyllitic quartz-muscovite matrix. Sparse ?abraded shards, shale fragments.	Weak, sub- to millimetric relict bedding with slightly discordant slaty cleavage.	Frequent detrital opaques, leucox. semi-opaques, subordinate zircon, tourmaline, muscovite.	"Grades" from fine to medium sandy siltstone to argillaceous-silty, poorly sorted sandstone. Weakly carbonaceous, weakly volcanomict.
R 6395	Metapsammite. Recrystallized framework of angular/subangular quartz, subordinate to minor sericitised feldspar. Recrystallized overgrowth-quartz, intergranular sericite cement.	Well-sorted, weakly bedded fine sandstone. Weakly directed quartzite fabric.	Clastic muscovite, zircon, tourmaline, opaques, leucox. semi-opaques. Trace carbonaceous matter.	Sericitic protoquartzite. Carbonaceous matter is clastic (shale fragments in part). Essentially similar to 6384, butdistinctly better sorted.
R 5872 T.S. 32901)	Altered Pitchstone. Sparse microphenocrysts albite, quartz, chloritised ?amphibole in thoroughly sericitised felsitic groundmass with frequent quartz/albite spherulites.	Faintly banded, weakly sheared. Phenocrysts mean 75 μ, spherulites mean 150 μ.	Leucoxenised opaques.	Low-greenschist altered, glassy lava of dacitic affinities. Frequent chlorite clots outline vague relict perlitic structure, impregnate spherulites.

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Sample No.	Classification - Composition	Fabric	Accessories	Comments
KR 5868 (T.S. 32902)	Rhyolitic tuff Lava. Frequent relict phenocrystal quartz, subordinate albite in pervasively sericite-stained, microcrystalline quartzofeldspathic matrix.	Frequent porphyritic clasts (to 5 mm) in similarly-textured matrix.	Very fine magnetite, leucoxenised opaques. Rare, fine to ultrafine pyrite.	Clasts angular to irregular with flow-orientation enhanced by weak tectonic fabric. No definite pyroclastic features (hence tuff lava).
KR 6375	Rhyolitic Lithic-Crystal Tuff. Variably sericitised, felsitic and microcrystalline rhyolite clasts, angular to subangular quartz with sparse sericite-quartz matrix.	Poorly sorted in 100 µ to 3 mm range. Incipiently sheared parallel to faint bedding.	Disseminated oxidised/leucoxenised, extensively leached opaques. Trace oxidised pyrite.	Poorly sorted, sandy clastic fabric suggestive of shallow subaqueous deposition. No non-pyroclastic components. Pyrite largely restricted to
KR 6380	Rhyolitic Tuff Lava. Frequent quartz, sparse sericitic sanidine phenocrysts in sericitised, felsitic quartz-feldspar groundmass with disseminated leucoxenised opaques.	Phenocrysts to 2 mm, weakly clustered. Groundmass flow-banded, weakly flow-brecciated.	Minor trace oxidised pyrite in late crosscutting films.	matrix, precretonic. Weakly clastic flow- and compositionally banded lava. Distinctly potassic in comparison to 5868. Mildly sheared/recrystallized.
KR 6383	Biotite Rhyolite. Frequent phenocrysts sericitic albite, subordinate quartz, chloritised biotite, rare sanidine in sericite-stained, microcrystalline quartzofeldspathic groundmass.	Feldspar phenocrysts mean 750 µ, weakly clustered. Weakly flow-structured.	Leucoxenised opaques. Minor traces ankeritic carbonate.	Sodi-potassic, rhyolitic, porphyritic lava with frequent altered phenocrystal biotite flakes. Weak but pervasive sericitisation; very incipient
KR 6389	Rhyolitic Lithic-Crystal Tuff. Abundant quartz, albite, minor K-feldspar crystals/crystal fragments; subordinate lava clasts with thoroughly epidotised/chloritised quartzofeldspathic	Angular, poorly sorted (<500 µ - 5 mm) clasts, closely-packed, partly moulded. Strongly stressed.	Leucoxenised opaques, rare zircon. Semi-pervasive sericite.	shearing. Finer details obliterated by marked stress, local granulation. Evidently a sintered, subaerial tuff or, conceivably, a flow-marginal breccia.
KR 6394	Rhyolitic Tuff Lava. Sericitic albite- and weakly quartz-porphyritic rhyolite with frequent angular to irregular clasts, chloritised lava and tuff. Semi-pervasive secondary	matrix. Clasts mean 750 µ, flattened by weak cleavage.	Leucoxenised opaques, traces magnetite, zircon.	Clasts include porphyritic lava and "eutaxitic" vitric tuffaceoustypes, strongly preferentially chloritised. Flow-breccia, may grade into lithic tuff
KR 6397	Rhyolitic Lithic-Crystal Tuff. Abundant calcite, quartz; rare silicified feldspar crystals/fragments; subordinate silicified/sericitised rhyolitic lava clasts with sparse quartz-sericite matrix.	Poorly sorted in sand to grit range, sporadic megaclasts. Sheared parallel to faint bedding.	Minor leucoxenised opaques, rare zircons.	Similar to KR 6375, but with more prominent crystal component.
KR 6400	Biotite Rhyolite. Frequent degraded biotite, partly resorbed quartz, sparse degraded/leached feldspar phenocrysts in sericite/microcrystalline quartz-altered groundmass.	Faint relict perlitic structure, weakly flow-banded, weakly clastic (trend tuff lava).	Leucoxenised/oxidised opaques. Limonite after biotite, minor trace chlorite.	Coarsely porphyritic lava or, conceivably, a minor intrusive. More or less pervasively sericitised, mildly sheared.
KR 6852 (T.S. 32910)	Porphyritic Rhyolite. Frequent quartz, rare degraded/leached feldspar phenocrysts in sericite/microcrystalline quartz-altered groundmass.	Phenocrysts mean 250 µ to 300 µ, weakly clustered. Sericite partly on perlitic cracks, mildly sheared.	Oxidised primary magnetite, leucoxenised ?ilmenite.	Conspicuous fine phenocrysts and relict perlitic devitrification structure cause weakly fragmental appearance (hand specimen).

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ample No.	Classification - Composition	Fabric	Accessories	Comments
R 6853 T.S. 32911)	Rhyolitic Lithic-Crystal Tuff. Quartz crystals/ crystal fragments, featureless to felsitic, porphyritic rhyolitic lava clasts, with sparse sericite-quartz/degraded ?siderite matrix.	Extremely poorly-sorted in 750 μ to 1.5 cm range. Sheared parallel to crude bedding.	Oxidised metablastic pyrite. Minor leucoxenised opaques.	Similar to 6375, 6397. Limonite after ?sideritic carbonate is more or less pervasive. Pyrite rare, but coarse (to 3 mm) with quartz pressure shadows.
R 6855	Rhyolitic Lithic-Vitric-Crystal Tuff. Abundant quartz, subordinate alkali feldspar crystals/ fragments with sericitic microcrystalline lava clasts in cherty quartz with faint relict shards.	Weakly bedded, poorly to moderately sorted in < 50-750 μ range. Mildly sheared.	Pervasive oxidised fine pyrite and ?siderite. Sparse clastic opaques.	Includes sporadic clasts of vitric tuff, vitric-crystal tuff, indicating mild re-working. Alteration pattern similar to 6853.
R 6857	Dacitic Pitchstone. Sparse microphenocrysts of quartz, albite in weakly recrystallized microfelsite with pervasive films of chlorite. Frequent oxidised crosscutting chlorite-carbonate veinlets.	Weakly sheared, closely microfractured perlitic texture. Phenocrysts mean 100 μ.	Rare oxidised pyrite films in chlorite-carbonate-healed fractures.	Chlorite after pale biotite reflects mid-greenschist facies. Originally a glassy lava of dacitic-sodic rhyolitic affinities as distinct from the Na-K to K rhyolites.
R 6860	Rhyolitic Lithic-Crystal Tuff. Felsitic to quartz-porphyritic and microcrystalline rhyolite, slightly subordinate quartz crystals/ fragments with sparse orientated sericite matrix.	Poorly sorted angular to subangular, partly moulded framework. 200 μ - 1 cm.	Leucoxenised/oxidised opaques. Sparse oxidised pyrite. Rare devitrified shards, trace zircon.	Similar to 6375, 6397, 6853 and similarly altered with feldspars, glass completely silicified/sericitised. Mildly sheared.
R 6869	Granulated Quartz. Thoroughly stressed vein-type quartz. Patchy films, disseminations of Fe-chlorite, fine magnetite, minor oxidised pyrite.	More or less pervasive granulation, quartz-chlorite-healed fractures.	Minor traces green-brown biotite (extensively chloritised), hematite after magnetite.	Originally coarse-grained siliceous vein with accessory biotite, magnetite, pyrite and carbonate (leached).
R 6871	Vitric-Crystal Tuff. Extremely fine, semi-orientated chlorite and cherty quartz with disseminated to frequent, splintery to euhedral quartz, minor albite.	Pervasive relict microshard textures (mean 20 μ). Faintly bedded, very incipient shearing.	Clastic leucoxenised opaques. Thinly disseminated oxidised pyrite with quartz pressure shadows.	Minor late microfracturing. Pyrite to 2.5 mm, distinctly metablastic. Shards appear weakly abraded, suggestive of mildly reworked subaqueous ash; ?dacitic.
R 6874	Biotite Rhyolite. Chlorite-albite-calcite-sericite-pseudomorphed feldspar, suberdinate quartz, chloritised, carbonated biotite phenocrysts in sericitised microcrystalline groundmass.	Phenocrysts mean 500 μ. Groundmass weakly flow-textured, faintly perlitic.	Leucoxenised opaques, sparse primary apatite.	Quartz phenocrysts with semi-banded distribution, feldspars clustered. Extensively altered, but essentially unsheared.
R 6884	Porphyritic Rhyolite. Frequent embayed quartz phenocrysts in pervasively chlorite-sericite-stained, devitrified groundmass. Patchy quartz-siderite veining, impregnations.	Phenocrysts to 5 mm. Groundmass perlitic, felsitic to weakly spherulitic.	Limonite after siderite. Sparse coarse, marginally oxidised pyrite.	Weaklybanded phenocryst distribution and chloritised perlitic groundmass give weakly fragmental appearance (hand specimen). Only incipiently stressed.
R 6885 T.S. 32919)	Biotite Rhyolite. Embayed quartz, completely sericitised feldspar and extensively chloritised biotite phenocrysts in sericite-stained microcrystalline to felsitic groundmass.	Phenocrysts mean 750 μ, incipientlybanded. Sericite aggregates sheared into lenses.	Leucoxenised opaques.	Essentially similar to 6874, but with more crystalline groundmass (relict feldspar microlites).

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Sample No.	Classification - Composition	Fabric	Accessories	Comments
KR 5671 (T.S. 32920)	Biotite Rhyolite. Sericitised/sheared feldspar, recrystallized biotite, weakly recrystallized quartz phenocrysts in thoroughly sericite-stained felsitic quartzofeldspathic groundmass.	Phenocrysts to 4 mm, evenly disseminated. Faint sheared relict perlitic structure.	Patchy cloudy fine siderític carbonate. Sparse leucox. opaques, rare zircon.	Recrystallization of biotite consistent with mid-greenschist facies in contrast to chloritisation at low-greeenschist in, for example, KR 6885.
KR 5672	Porphyritic Rhyolite. Frequent phenocrysts of quartz, sparse sheared carbonate-stained ?sanidine in thoroughly sericite-stained, microcrystalline quartzofeldspathic groundmass.	Quartz phenocrysts to 5 mm. Groundmass sheared parallel to weak flow-banding.	Fine sideritic carbonate healing fractures and in pressure shadows with rare blebs sphalerite.	Very minor traces prograde metamorphic biotite.
KR 5673	Biotite "Microgranite". Frequent sericite-pseudomorphed plagioclase, subordinate quartz, orthoclase, biotite, phenocrysts in weakly calcite-sericite-stained quartzofeldspathic groundmass.	Coarsely porphyritic, flow-textured, weakly sheared.	Primary apatite, trace magnetite, zircon. Rare sphalerite blebs in calcite veinlets.	Coarse orthoclase phenocrysts (to 1cm+) are late-magmatic with zoned inclusions. Finer compositional detail obscure. Minor intrusive variant of biotite rhyolite.
KR 5676	Rhyolitic Tuff. Quartz and minor quartz-sericite altered feldspar crystals/fragments, frequent rhyolitic lava clasts in sericite/microcrystalline quartz matrix.	Very poorly sorted in 200μ - 7.5 mm range. Sheared matrix shows faint shard-like textures.	Leucoxenised opaques.	Evidently lithic-vitric-crystal tuff with shards largely obliterated by sericitisation, shearing. Otherwise similar to KR 6375,6397, 6853,6860.
KR 5677	?Ignimbrite. Abundant quartz, rare sericitised feldspar crystals/fragments in sericite, microcrystalline quartz matrix, with faint but pervasive relict shard textures.	Crystals 50-750 μ, faintly banded. Matrix sheared, perlitic, devitrified.	Minor sericitised clastic biotite flakes, lava clasts. Sparse leucox. opaques.	Matrix shows faint relict eutaxitic microstructure with some evidence of flow-brecciation. Vitric-crystal tuff with minor lithic component, biotite rhyolitic.
KR 5678	Biotite-Micro-Adamellite. Sericite-stained oligoclase, subordinate quartz, sericitised biotite phenocrysts in sericite-stained quartzofeldspathic groundmass.	Evenly disseminated phenocrysts in weakly sheared, faintly micrographic groundmass.	Sparse K-feldspar phenocrysts. Minor stressed vein quartz, traces degraded ?sphene.	Medium-grained minor intrusive-type fabric; similarities with KR 5673. Veins are late- or early post-magmatic, displaced by sericitic microfractures.
KR 5679	Biotite "Rhyolite". Weakly sericite-stained oligoclase, embayed quartz, frequent sericitised, oxidised biotite phenocrysts in weakly sheared micrographic quartzofeldspathic groundmass.	Stressed phenocrysts, weak slaty cleavage parallels flow-structure, weak banding.	Sparse magnetite, minor traces chlorite.	Strictly rhyodacitic, closely related to KR 5678, slightly more chilled in comparison. Probably a minor or marginal intrusive.
KR 5680	Porphyritic Rhyolite. Frequent stressed, relict quartz, sparse sericitised feldspar, minor chloritised ?biotite phenocrysts in sericite/microcrystalline quartz altered groundmass.	Evenly disseminated to weakly clustered quartz phenocrysts in relatively strongly sheared groundmass.	Fine-grained magnetite.	Evidently a biotite rhyolite, but with primary mica obscured by development of metamorphic biotite (chloritised) in pressure shadows. Possibly a minor intrusive.
KR 5681 T.S. 32928)	Rhyolitic ?Tuff Lava. Sericitic lava, vitric tuff clasts, sericitised feldspar, sparse quartz phenocrysts in sericitic microcrystalline quartzofeldspathic matrix.	Clasts angular to subangular, mean 1.5 mm. Sheared, perlitic matrix.	Oxidised, leucoxenised opaques, sparse degraded fine biotite.	Mid-greenschist facies. Fragmental appearance enhanced by perlitic structure. Lava-like, but conceivably flow-brecciated ignimbrite.

Central Mineralogical Services

Sample No.	Classification - Composition	Fabric	Accessories	Comments
KR 5682 (T.S. 32929)	Biotite "Microgranite". Frequent sericitised plagioclase, chloritised biotite, disseminated quartz, orthoclase phenocrysts in sericite granular quartzofeldspathic groundmass (mean 100 µ).	Generally coarse, evenly disseminated phenocrysts (mean 2.5 mm). Mildly sheared.	Partly oxidised primary magnetite.	Orthoclase phenocrysts with late magmatic overgrowths (sim. 5673). Probably adamellitic, minor intrusive. Sim. KR 5673, 5678, 5679.
KR 6873	Ferruginised Breccia. Limonite with patchy Mn-staining cementing fragments of sericitic "rhyolite", stressed quartz grains, minor thoroughly sericitised feldspar.	Poorly sorted, angular to subangular clasts to 5 mm. Microcolloform to massive limonite.	Degraded, ferruginised mica flakes.	Thoroughly ferruginised ?regolith breccia, with clasts of greenschist metarhyolite. No gossanous features, devoid of boxworks.
KR 5674	Mineralised Rhyolite. Disseminated stressed quartz phenocrysts in thoroughly sericitised microfelsitic groundmass. Frequent carbonate films, veinlets, with muscovite, adularia, albite, sulphide.	Weakly schistose, closely microfractured and mildly resheared.	Minor traces of chlorite (after phlogopite).	Complex pattern of carbonation (ankerite + muscovite, phlogopite, feldspars, sulphide) and remobilisation of carbonate into crosscutting fractures.
KR 5674 Sulphides	Sphalerite with sparse inclusions of pyrrhotite, chalcopyrite. Subordinate galena in intergranular blebs, films. Minor tetrahedrite, chalcopyrite, pyrite.	Sphalerite mean 200 µ, generally polygonal, locally granulated. Disseminated to semi-massive.	Rare Ag-sulphosalts, native Ag, gold (electrum).	Silver as < 10 µ inclusions in galena; tetrahedrite ?Ag-rich with poorly resolved micro-inclusions. Gold extremely rare films (8 5 µ), particles (< 20 µ) in pyrite.
KR 5675	Porphyritic Rhyolite. Frequent phenocrysts, microphenocrysts of quartz, minor carbonated feldspar in sericite/microcrystalline quartz altered groundmass. Sparse, very fine ilmenite.	Phenocrysts 50-750 µ, faintly banded in microschistose, altered groundmass.	Semi-pervasive fine sulphide in pressure shadows, microfilms, carbonate lenses.	Similar to 5674, but more homogeneous. Sulphides are galena, minor sphalerite, chalcopyrite, pyrite. Typically < 50 µ, but blebs to 200 µ (sphalerite).
KR 5683	Olivine Microgabbro. Frequent phenocrysts of olivine, phenocrystal laths of pigeonite in groundmass of labradorite microlaths, subordinate pigeonite, minor felsic mesostasis.	Olivine phenocrysts mean 600 µ, groundmass mean 75 µ. Subophitic.	Sparse fine magnetite, ilmenite.	Completely fresh, unaltered. Presumably Tertiary.
KR 6961	Quartz-Mica-Andalusite Hornfels. Polygonal quartz, random to semi-orientated muscovite in varying proportions, disseminated andalusite, phlogopite-chlorite clots, pyrite opaques.	Broadly folded, weakly schistose, hornfelsic. Millimetric quartz/mica banding.	Relict detrital tourmaline (overgrown), rare zircon. Patchy relict biotite.	Hornfelsed ?greenschist psammopelite. Andalusite restricted to pelitic bands with ?degraded cordierite. Pyrite evidently after pyrrhotite, bedded distribution.
KR 6962	Crenulated Quartz-Mica Schist. Fine polygonal quartz, variably sericitised microschistose muscovite/subordinate pale biotite. Disseminations, clots tourmaline, minor pyrite.	Pervasively crenulated to microfolded, schistosity parallels sub- to millimetric, relict bedding.	Rare degraded, porphyroblastic andalusite. Sparse relict detrital opaques, zircon.	Andalusite, tourmaline in part are poikiloblastic, postdate crenulations, but may be mildly rotated. Polymetamorphic, similar to KR 6961.
KR 6963 (T.S. 32936)	Mineralised Breccia. Angular to irregular, closely packed, pervasively chloritised clasts quartzose siltstone, silty shale, carbonaceous pelite, minor fragmented orthoquartzite. Sparse quartz-chlorite cement.	Random, poorly sorted, semi-brittle breccia, with late intersecting fractures.	Semi-pervasive films, disseminations sphalerite, pyrite. Traces cerussite, ?hemimorphite, natroalunite.	Tectonic breccia with chlorite "retrograde" after ?phlogopite. Sulphides largely restricted to crosscutting microfractures, films. Minor secondary metal "salts".

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970117

APPENDIX II

DRILL CORE LOGS AND ANALYSES

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A DIVISION OF PEKO-WALLSEND OPERATIONS LTD.

LOG OF VOYAGER 9 DDH1 ELLIOTT BAY, E.L. 27/76

Proposed:	R.R. Large, January, 1980
Planned Depth:	
Location:	Voyager 9 grid. E.L. 27/76
Collar Co-ordinates:	10260E/10950N
Collar Indination:	60^{o}
Collar Azimuth:	grid East
Collar Surveyed:	
Purpose of Hole:	To test beneath peak of magnetic anomaly observed at 10300E/10950N.
Final Depth:	60.5m
Core:	AQ
Core Recovery:	Good)95%
Borehole Survey:	None

Voyager 9 DDH 1 Core Log (W. Herrmann)
January, 1981

0 - 0.9m No Core

0.9 - 27.0m Quartz crystal (lithic) tuff.

A very inhomogenous pyroclastic rock varying abrubtly from fine ash tuff to very coarse quartz crystal tuff with sections of coarsely fragmental lithic tuff.

Medium to coarse grained quartz crystal tuff is the dominant lithology, typically consisting of equant quartz granules (1-5mm size) fairly closely crowded in a pale greenish-grey fine sericitic/siliceous matrix. Overall composition is rhyolitic with some sections (notably the coarser crystal tuff) containing a fair amount of fine chlorite in the matrix giving a dark greenish/mottled appearance.

Of lesser occurrence are fine 'silty' tuffs or fine grained crystal tuffs sometimes making sharp contact with the coarse quartz crystal tuff, for example the interval 9.1-9.5m.

Lithic fragments are fairly common amongst the coarser lithologies and are particularly well represented in the interval 22-25.5 metres.

Fragments vary from a few millimetres upto 20mm. and include pale porphyritic 'lava' and fine magnetite bearing sediment lithologies.

The rock generally displays a distinct cleavage or crude foliation (more obvious in the finer lithologies) which cuts the core at a fairly consistent angle of about 60^{o} to core axis.

Pyrite is a common accessory mineral usually occurring as fine disseminated specks but also as small blebs upto about 3mm size; Pyrite averages about 1% by volume over the interval but in local patches probably approaches 10%/vol.

The core is virtually unoxidized, fresh pyrite occurs in the first metre of core.

27.0 - 60.5m Medium grained, sericitic quartz crystal tuff.

A considerably more uniform lithology than the previous one but compositionally not greatly different. The contact between the two is some what indefinite or transitional.

Rock typically consists of equant granules of quartz (upto 3mm dia.) fairly evenly distributed (15 to 20% modal) in a pale greenish grey, strongly sheared (sericitic) ground mass. Cleavage cuts core at relatively consistent angle of about 60° to core axis.
Fine disseminated pyrite is an almost ubiquitous accessory, sometimes occurring in small 'bands' or 'trains' parallel to foliation, and locally reaching upto 5% by volume.
Magnetite is increasingly abundant, principally as small disseminated blebs and in fine irregular veinlets commonly parallel to foliation (or cleavage).

Above about 52.5m depth, ferro-magnesian micas do not seem to be present, the groundmass being dominated by pale creamy sericite (alteration?). Below 52.5m the core becomes distinctly a darker greenish grey colour due to predominance of chlorite in the matrix and gradually increasing magnetite.

From 56.9-57.5m the core is very dark and appears to consist of fine magnetite, pyrite, chlorite and tuffaceous material in a very fine massive silty fabric. This is evidently a fine mixture of iron oxide/sulphide chemical sediment and pyroclastic ash. Below 57.4 the rock fabric is disrupted by early brecciation or sediment slumping.

At 58.0-58.3m irregular deformed fragments and bands of magnetite rich 'sediment' occur in dark crystal-lithic tuff. The magnetite appears to be of syngenetic origin, probably deposited with pyrite in an iron rich sediment which has been partly disrupted by local turbulence and pre-lithification brecciation.

Much of the magnetite further up the hole between about 28 and 50 metres depth occurs in veins (0.5-10mm wide) probably from mobilization during deformation of disseminated primary magnetite.

60.5m E.O.H.

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APPENDIX No. II

ANALYTICAL RESULTS

VOYAGER 9 DDH 1

SAMPLE NO	DEPTH	Cuppm	Pbppm	Znppm	W ppm	Auppb	Snppm	Fe %	Agppm
KR 5914	0.9 - 2.0	40	20	85	0.10%	10	5	1.12	1
15	2 - 3	20	20	30	80	10	20	0.86	1
16	3 - 4	25	35	75	70	30	5	4.80	1
17	4 - 5	10	25	20	50	10	10	0.66	1
18	5 - 6	30	20	25	40	5	-5	9.78	1
19	6 - 7	190	10	30	40	5	10	0.70	1
KR 5920	7 - 8	2	10	40	20	10	15	0.58	1
21	8 - 9	5	10	20	40	10	10	0.48	-1
22	9 - 10	5	15	35	20	10	5	0.76	-1
23	10 - 11	30	15	50	30	15	15	1.00	1
24	11 - 12	2	10	30	10	10	10	0.50	1
25	12 - 13	5	10	45	-10	10	15	0.68	1
26	13 - 14	2	15	60	-10	10	15	0.88	1
27	14 - 15	10	20	65	-10	10	-5	0.40	-1
28	15 - 16	5	20	40	-10	10	-5	0.34	1
29	16 - 17	10	30	50	10	10	15	1.06	1
KR 5930	17 - 18	2	10	25	-10	10	15	0.64	1
31	18 - 19	2	10	20	-10	10	10	0.68	1
32	19 - 20	2	10	20	-10	10	10	0.62	1
33	20 - 21	5	15	30	-10	10	10	0.54	1
34	21 - 22	2	10	10	-10	15	10	0.42	1
35	22 - 23	2	15	25	-10	10	45	4.00	1
36	23 - 24	2	10	20	-10	15	15	0.78	-1
37	24 - 25	2	10	20	-10	20	15	1.18	1
38	25 - 26	2	15	20	-10	15	15	1.22	-1
39	26 - 27	2	10	35				1.44	
KR 5940	27 - 28	5	15	50				3.60	
41	28 - 29	2	20	40				2.80	
42	29 - 30	(2	15	35				2.80	
43	30 - 31	(2	10	40				2.80	
44	31 - 32	(2	10	40				3.20	
45	32 - 33	5	15	40				4.00	
46	33 - 34	2	20	30				3.60	
47	34 - 35	2	10	25				2.80	
48	35 - 36	2	15	25				2.00	
49	36 - 37	2	15	30				1.76	
KR 5950	37 - 38	2	20	40				3.20	
KR 6351	38 - 39	2	20	50				2.04	
52	39 - 40	2	40	70				0.76	
53	40 - 41	5	20	55				3.20	
54	41 - 42	2	15	130				2.24	
55	42 - 43	2	10	45				1.24	
56	43 - 44	2	20	50				1.84	
57	44 - 45	5	20	30				3.60	
58	45 - 46	5	15	30				1.84	
59	46 - 47	5	20	45				3.20	
KR 6360	47 - 48	5	25	30				2.80	

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APPENDIX No. II

ANALYTICAL RESULTS

VOYAGER 9 DDH 1

SAMPLE NO	DEPTH	Cuppm	Pbppm	Znppm	W ppm	Auppb	Sn ppm	Fe %	Agppm
KR 6361	48 - 49	2	10	60				1.32	
62	49 - 50	5	20	50				1.84	
63	50 - 51	2	30	60				6.00	
64	51 - 52	2	30	45				3.20	
65	52 - 53	5	15	45				2.80	
66	53 - 54	5	15	65				2.08	
67	54 - 55	2	10	60				2.80	
68	55 - 56	5	10	30				5.20	
69	56 - 57	5	10	60				4.40	
KR 6370	57 - 58	5	15	50				6.80	
71	58 - 59	5	10	70				5.20	
72	59 - 60	5	15	75				2.80	
73	60 - 60.5	5	10	85				4.00	
KR 6374	0.9 - 2.0	2	20	50				1.44	

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LOG OF VOYAGER 12 DDH 1 ELLIOTT BAY, E.L. 27/76

Proposed:	R.R. Large, April, 1979
Location:	Voyager 12 grid, Elliott, E.L. 27/76
Collar Co-ordinates:	210E, 188S
Collar Inclination:	-52^{o}
Collar Azimuth:	110^{o} (Grid)
Collar Surveyed:	?
Purpose of Hole:	To investigate beneath a gossan outcrop, containing anomalous Cu, Pb, Zn, Ag and Au, centred on 213E, 180S.
Final Depth:	30.6 metres
Core:	AQ, recovery less than 40%
Borehole Survey:	None
Summary Result:	Hole intersected fine grained sericitized quartz crystal tuffs with minor local gossanous veins and a single 4cm pyrite vein which correlate with anomalous metal values.

VOYAGER 12 DDH 1 Core Log (W. Herrmann, January 1981)

0 - 30.6m Fine grained quartz crystal tuff.

Distinctly foliated, pale grey rock typically consisting of small equant granules of quartz and lesser sericitized feldspar grains (all generally less than 2mm in size) sparsely contained in a very fine grained sericitic/siliceous matrix having a fine wispy-streaky fabric defining the foliation. Foliation plane cuts core at about 70-80° to core axis.

Though somewhat finer grained the rock is similar to that encountered in V12, DDH 4 and 5.

Minor pervasive iron staining and limonitic veinlets are partially developed. More substantial gossanous veins and fracture fillings occur at about 5m, 9.5m, 18m and 30m depth, the latter being about 4cm in width. A 4cm partly oxidized pyrite vein occurs at 22m depth.
(The latter correlates with anomalous copper, lead, arsenic and gold values).

30.6m E.O.H.

From: C.D. STRICKLAND

To: R.R. LARGE

cc K. Wright

Voyager 12 Diamond Drilling Programme:

Geochemical Results

DDH 1
Coordinates 210E, 188S
Bearing 110° TN
Dip - 52°

KR No	Interval	Core Recovered	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb
4923	0 - 4m	0 . 4m	190	220	15	(1	190	5
24	4 - 6	0 . 4	580	0.12%	85	5	400	370
25	6 - 8	0 . 5	660	0.19%	70	5	380	45
26	8 - 9	0 . . 9	340	460	20	(1	70	20
27	9 - 10	0 . 8	400	260	40	(1	135	10
28	10 - 11	0 . . 65	100	95	15	(1	35	5
29	11 - 12	0 . . 65	140	95	25	(1	50	5
4930	12 - 13	0 . 4	250	230	30	(1	190	10
31	13 - 15	0 . 43	280	130	15	(1	145	5
32	15 - 17	0 . 45	140	50	10	(1	35	10
33	17 - 18	0 . 7	130	95	30	(1	45	(3
34	18 - 19	0 . 4	165	110	20	(1	35	(3
35	19 - 21	0 . 7	30	20	15	(1	7	10
36	21 - 23	0 . 3	0.62%	940	190	25	760	155
37	23 - 25	0 . 4	60	195	20	(1	75	35
38	25 - 29	1 . . 5	210	165	15	(1	95	40
4939	29 - 30.6	0 . 4	580	210	15	5	75	30

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LOG OF VOYAGER 12 DDH 2 ELLIOTT BAY, E.L. 27/76

Proposed:	R.R. Large, April 1979.
Location:	Voyager 12 grid, Elliott E.L. 27/76
Collar Co-ordinates:	218E, 181S
Collar Inclination:	-60^{o}
Collar Azimuth:	285^{o} (Grid)
Collar Surveyed:	?
Purpose of Hole:	To investigate beneath the gossan centred at 213E, 180S assuming an easterly dip.
Final Depth:	17.3 metres
Core:	AQ, Recovery about 50%
Borehole Survey:	None
Summary Result:	Intersected foliated, altered quartz crystal tuffs with minor gossanous veinlets. No significant mineralization or metal values encountered.

VOYAGER 12 DDH 2 Core Log W. Herrmann, January 1981

0 - 17.3m Fine grained quartz crystal tuff.

Pale grey, weakly foliated rock consisting of small crystals of grey quartz and lesser sericitized feldspar (upto 2-3mm dia.) rather sparsely distributed in a very fine grained creamy or grey sericitic/siliceous groundmass.

The matrix bears the wispy-streaky fabric as described in DDH's 1,4 and 5 and although no ferro-magnesian micas are extant it is likely that they were formerly present but have been altered by sericitization. The plane of foliation is semi-parallel to about 20^{o} to the core axis.

Minor iron staining and limonite veinlets are locally present. The most significant sign of mineralization occurs at about 5.5m depth, where an irregular 6mm wide gossanous vein runs semi-parallel to core axis and foliation.

17.3m E.O.H.

DDH 2

Co-ordinates 218E, 181S,

Bearing 285° TN

Dip -60°

KR Number	Interval	Core Recovered	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb
KR 4941	0 - 2m	0 . 4	230	185	20	(1	260	20
KR 4942	2 - 4	0 . 35	85	75	15	(1	135	(3
KR 4943	4 - 5	0 . 3	195	320	30	(1	185	(3
KR 4944	5 - 6	0 . 47	700	0.14%	75	3	320	30
KR 4945	6 - 7	0 . 65	320	0.11%	20	1	150	(3
KR 4946	7 - 8	0 . 5	240	460	20	(1	80	3
KR 4947	8 - 9	0 . 48	300	700	20	1	30	10
KR 4948	9 - 10	0 . 47	400	200	25	(1	120	3
KR 4949	10 - 11	0 . 35	920	370	70	2	110	30
KR 4950	11 - 12	0 . 4	250	110	20	(1	50	10
KR 5017	12 - 13	0 . 44	150	230	15	(1	45	(3
KR 5018	13 - 14	0 . 4	170	600	15	1	60	(3
KR 5019	14 - 15	0 . 4	260	160	40	(1	60	10
KR 5020	15 - 16	0 . 7	270	125	15	(1	45	15
KR 5021	16 - 17.3	1 . 2	330	160	20	1	115	10

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LOG OF VOYAGER 12 DDH 3 ELLIOTT BAY E.L. 27/76

Proposed:	R.R. Large, April 1979
Location:	Voyager 12 grid, Elliott, E.L. 27/76
Collar Co-ordinates:	115E, 300S
Collar Inclination:	-55°
Collar Azimuth:	095° (Grid)
Collar Surveyed:	?
Purpose of Hole	To test geophysical anomalies, (strong (-170mV) SP and weak, coincident IP anomaly) on line 300S.
Final Depth:	90 metres
Core:	AQ
Borehole Survey:	None
Summary Result:	Hole intersected sequence of foliated chloritic/sericitized quartz crystal tuff with minor fine tuff-siltstone interbedded and passed into quartz-feldspar porphyry at 86.9 metres. Sporadic anomalous gold values, peak at 1.6gm/t. correlating with pyrite vein at 55 metres depth.

VOYAGER 12 DDH 3 Core Log W. Herrmann January, 1981

0 - 55.0m

Medium grained chloritic/altered quartz crystal tuffs.

Pale to dark grey rock consisting of equant quartz grains and lesser sericitized feldspar (upto 4-5mm dia) contained in a fine grained sericitic/siliceous matrix. In places small lenses, wisps of biotite or chlorite are present, giving the rock a darker appearance and defining a wispy-streaky foliation which cuts the core at high angle 70-80° to the core axis.
Move pervasive sericitic alteration has in places destroyed the ferromagnesian micas.
Degree of alteration varies considerably but in general the intervals 15-32m, 64-66m and 74-76m retain a fair amount of original ferromagnesian mica.
Minor iron staining is locally developed, rare fine limonitic veinlets (2mm) or quartz veins (6mm) cut the core, commonly semi-parallel to foliation.

55.0 - 57.5m

Fine grained tuff or tuffaceous siltstone.

Fine grained, pale brownish grey weakly foliated tuffaceous siltstone, sericitized but essentially similar composition to above unit.
Irregular vein (2-4mm) of granular pyrite cuts core, semi-parallel to foliation at about 55m depth.

57.5 - 86.9m	Medium grained chloritic/sericitized quartz crystal tuff. Identical to the lithology described for the interval 0-55m. Towards the lower contact with the porphyry, the crystal tuff in the last several metres is rather finer grained and contains small specks of disseminated pyrite, upto about 2-3% by volume. Otherwise no significant mineralization.
86.9 - 90.0m	Quartz-Feldspar-Biotite Porphyry. Large equant to ragged, fractured phenocrysts of quartz, semi rectangular phenocrysts of pinkish feldspar (3-10mm size) with smaller flakes of biotite set in a fine granular quartzo-feldspathic matrix. Alignment of biotite flakes defines a distinct foliation or 'gneissosity' in the matrix. No mineralization.
90.0m	E.O.H.

GEOPEKO LIMITED
(Incorporated in New South Wales)

Phone: (02) 498-4566

970134

INTER-OFFICE MEMO

Our Ref.:

Your Ref.:

Gordon,.....

From: C.D. STRICKLAND

To: R.R. LARGE 17-5-79

cc. K. Wright

Voyager 12 Diamond Drilling Programme: (Continued)

Geochemical Results

DDH 3

Coordinates 115 E, 300 S

Bearing 095° TN

Dip -55°

Depth 0 - 90m

KR No.	Interval	Core Recovered	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb
5022	0-1m	0.24	340	280	20	1	380	5
23	1-2	0.95	280	260	30	(1	380	3
24	2-3	0.7	210	220	25	(1	300	5
25	3-4	0.3	260	175	50	(1	230	5
26	4-6	0.5	290	320	45	1	720	15
27	6-8	0.25	90	160	35	(1	250	(3
28	8-10	0.2	680	370	40	2	980	15
29	10-11	0.5	350	0.16%	40	3	0.37%	85
5030	11-12	0.5	220	210	45	(1	0.13%	10
31	12-13	0.45	135	380	20	(1	0.19%	10
32	13-14	0.4	175	120	20	1	0.14%	15
33	14-16	0.7	45	20	15	(1	130	3
34	16-18	0.6	70	25	20	(1	125	15
35	18-19	0.55	290	95	30	3	0.13%	30
36	19-20	0.75	100	30	20	(1	135	(3
37	20-21	0.5	80	35	15	(1	170	5
38	21-23	0.5	260	85	25	2	700	230
39	23-24	0.25	150	55	20	1	250	50
5040	24-25	0.87	0.18%	120	105	6	0.12%	100

KR No.	Interval	Core Recovered	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb
5041	25-26	0.5	420	50	50	2	0.15%	35
42	26-27	0.5	135	65	40	1	240	(3
43	27-28	0.5	460	165	45	3	590	65
44	28-29	0.6	75	40	20	1	230	10
45	29-30	0.8	460	120	65	1	200	20
46	30-31	0.8	480	70	60	(1	70	10
47	31-32	0.4	0.11%	40	90	(1	45	20
48	32-33	0.3	270	75	220	1	10	10
49	33-34	0.4	40	45	80	(1	14	15
5050	34-35	0.35	185	320	310	(1	25	20
51	35-37	0.55	10	20	140	(1	12	(3
52	37-38	0.3	560	115	580	1	10	(3
53	38-39	0.6	195	125	240	1	5	25
54	39-41	0.4	260	290	610	2	130	25
55	41-43	0.2	90	120	170	(1	20	10
56	43-45	0.45	105	90	260	1	14	(3
57	45-47	0.6	15	15	100	(1	6	3
58	47-49	0.2	10	10	65	(1	3	25
59	49-51	0.45	10	40	80	(1	55	10
5060	51-53	0.4	420	40	0.15%	1	130	85
61	53-55	0.6	240	210	170	4	130	1.6ppm
62	55-57	0.65	240	120	320	1	50	10
63	57-59	0.3	90	100	260	(1	40	10
64	59-61	0.5	30	310	30	(1	5	10
65	61-63	0.45	140	340	45	1	7	10
66	63-65	0.8	0.10%	80	95	1	14	10
67	65-67	0.5	95	30	35	(1	3	3
68	67-69	0.6	800	90	250	1	10	20
69	69-71	0.35	250	25	35	(1	12	40
5070	71-75	0.7	15	30	45	(1	5	10
71	75-80	0.5	2	85	60	(1	135	10
72	80-85	1.2	(2	45	55	(1	35	20
73	85-90	0.4	(2	45	75	(1	9	15

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LIMITED

LOG OF VOYAGER 12 DDH 4 ELLIOTT BAY E.L. 27/76

Proposed:	R.R. Large, April 1979
Location:	Voyager 12 grid, Elliott, E.L. 27/76
Collar Co-ordinates:	102E, 185S
Collar Inclination:	-57^{o}
Collar Azimuth:	085^{o} (Grid)
Collar Surveyed:	?
Purpose of Hole:	To test beneath gossan outcrop at 130E, 180S which carried the highest gold values at V12.
Final Depth:	47.5 metres.
Core:	AQ: Recovery overall ≈ 38%
Borehole Survey:	None
Summary Result:	Hole intersected westerly dipping quartz crystal tuffs with a thin interbed of fine grained tuff or tuff-siltstone. Very minor limonitic veining was intersected.

VOYAGER 12 DDH 4 Core log W. Herrmann January, 1981

0 - 2.0m No Core

2.0 - 4.30 Rhyolitic quartz-crystal tuff.

A weakly foliated, pale grey rock consisting of small equant crystals of grey quartz (1-2mm), small pale creamy sericitized feldspar grains and dark wisps of degraded chlorite or biotite set in a fine grained pale grey sericitic/siliceous matrix.
Minor iron staining, and fine limonitic veinlets rare.
Oxidized but not strongly weathered.

4.30 - 6.20 Fine grained acid tuff.

A very fine grained, weakly foliated rock of similar composition to the above but without crystal component. May be reworked tuffaceous shale/siltstone or representative of a period fine ash eruption.
Very minor fine limonite veining.

6.20 - 47.5 Quartz crystal tuff.

Foliated, pale grey rhyolitic crystal tuff essentially similar to that of the interval 2-4.3m and also to the medium grained quartz crystal tuff described from Voyager 12-DDH 5.
Quartz crystals are upto 5mm in diameter
Strickland (Period Report 12, 1979) describes two zones of intense chloritization from 19.5 to 21m and 40 to 45m.

I regard these zones as representing biotite/chlorite bearing quartz crystal tuff (some recrystallization of ferromagnesian micas during 'middle greenschist' facies metamorphism) whilst the more pallid rock which dominates, represents hydrothermally altered sections of the same original rock from which the ferro-mag components have been substantially removed in association with strong sericitization of former micas, feldspars and groundmass.

Minor limonitic staining is locally present, mineralized or gossanous veining not significant in this interval.

47.5m E.O.H.

GEOPEKO LIMITED
(Incorporated in New South Wales)
Phone: (02) 498-4566

INTER-OFFICE MEMO

Ref.:

Ref.:

DEVONPORT

C.D. STRICKLAND

R.R. LARGE

cc. K. Wright

13-7-79

VOYAGER 12 DIAMOND DRILLING PROGRAMME: (Continued)

Geochemical Results

D.D.H. 4
Co-ordinates 102E, 185S.
Bearing 085° TN
Dip -57°
Depth 0 - 42.0m

KR	Interval	Core Recov -ered	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb	Sn ppm	W ppm
5152	2.5 - 4	0.5	120	100	45	1	20	10	5	20
53	4 - 6	0.35	210	110	40	1	90	10	(5	30
54	6 - 8	1.2	270	0.44%	40	4	480	65	(5	30
55	8 - 10	0.4	780	600	80	5	590	40	10	30
56	10 - 12	1.0	95	80	25	1	90	(3	(5	30
57	12 - 14	1.1	270	180	40	2	240	30	5	20
58	14 - 16	0.6	100	55	40	1	200	10	(5	20
59	16 - 18	0.5	55	25	15	1	40	(3	(5	20
5160	18 - 20	0.5	60	45	20	2	170	15	(5	20
61	20 - 22	0.8	300	95	60	1	600	20	(5	20
62	22 - 24	0.5	330	70	30	4	0.32%	100	(5	20
63	24 - 26	1.0	20	20	25	1	70	5	5	20
64	26 - 28	0.7	75	40	25	3	930	100	(5	20
65	28 - 30	0.9	240	65	30	1	340	40	(5	20
66	30 - 32	0.6	165	40	35	(1	210	5	(5	20
67	32 - 34	1.7	220	90	25	1	200	45	(5	20
68	34 - 36	0.4	220	85	20	1	60	10	5	20
69	36 - 38	0.6	95	40	20	1	40	(3	(5	20
70	38 - 40	0.7	320	210	20	1	540	(3	(5	30
71	40 - 42	0.4	0.16%	115	90	8	730	120	(5	30
72	42 - 46	0.3	320	10	115	1	270	(3	(5	20
5173	46 - 47.5	0.2	125	25	45	(1	20	(3	(5	20

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LOG OF VOYAGER 12 - D.D.H. 5 ELLIOTT BAY E.L. 27/76.

Proposed:	R.R. Large, February 1980
Depth:	200m
Location:	Voyager 12 grid
Collar co-ordinates:	275 South. 63.5 East
Collar Inclination:	-60°
Collar Azimuth	77.5°M. (Grid East)
Collar Surveyed:	W. Herrmann, March 1980
Purpose of Hole:	To provide a more effective test of the I.P.-S.P. anomalies, observed on 200S and 300S, which were inconclusively tested by D.D.H. 3 the previous season.
Final Depth:	163.65m 0-6.0m No core 6.0-138.7 NQ core 138.7-163.65 BQ core
Bore Hole Survey:	C.D. Strickland 9/4/1980 Eastman Single Shot Depth: 160m Az: 80.5°m Incl. -52°
Summary Result:	The hole penetrated a westerly dipping sequence of slightly chloritic quartz crystal tuffs and minor tuffaceous greywacke siltstone, and was terminated in quartz feldspar biotite porphyry. Minor sphalerite-pyrite, chalcopyrite mineralization occurs in small quartz veinlets and breccia zones. Isolated anomalous Au, Ag values (upto 400 ppb and 43ppm respectively were found to correlate to mineralized veins.

Drilling:

Rig:	Mindrill F30
Driller:	A. Murphy, G. Steel
Commenced:	23/3/80
Terminated:	6/4/80
Drilling Conditions:	Generally fair to poor; rock strongly cleaved and locally very broken. Recovery reasonable using Triple Tube NQ barrel but usually very short runs. Estimated recovery 85% overall.
Water:	Return good Rotrol mud as additive.

V12 D.D.H. 5

Geological Core Log
W. Herrmann 2/4/80

0 - 6.00

No core

6.00 - 14.25

Medium grained chloritic quartz-(feldspar) crystal tuff.

A medium grey coloured, mottled-streaky, distinctly foliated rock consisting of equant quartz crystals (2-5mm) (10-15% modal) and very subordinate creamy feldspar grains (tabular =2mm, (5% modal), ragged flakes and wisps of dark greenish grey chlorite set in a fine grained, pale grey rather felsic and siliceous groundmass.
Chlorite content is rather variable on a small scale, varying from about 5 to 15% modal, usually as ragged blebs, subhedral flakes (after biotite?) or thin elongate wisps which are strongly aligned and define a distinct foliation which may be partly imposed and partly depositional. The subhedral/angular form of some chlorite suggests it may be after biotite of volcanic origin; that is: not formed in situ in the pyroclastic sediment. The foliation cuts the core axis at about 50-60° to L.A.C.

The core is strongly oxidized to about 10 metres depth but from thence the rock is fairly fresh although strong iron-staining indicates local oxidation. Core is locally rather sheared and strongly brecciated, notably from about 7.20-10.0m and 12.80-12.90m. In these zones, pale iron staining is very prominent and irregular gossanous veins upto about 10mm. width occur. Gossanous veins are generally subparallel to foliation.

Core recovery in this lithological interval about 95%.

14.25 - 26.80

Fine grained (tuffaceous) siltstone-greywacke.

A mostly very fine grained, pale grey bedded tuffaceous sediment with grain size variation from fine shale to fine greywacke (sandstone) on a scale of a few centimetres. The general fairly good sorting and distinctly layered, bedded nature suggests a subaqueous, fairly distal, low energy environment of deposition. Some "beds" contain a proportion of fine quartz crystals and may be termed "crystal tuff", this is especially notable in the interval 22.0-23.25m. and suggests an intermittent introduction of pyroclastic material either due to turbidity or intermittent vulcanism.

The following core/bedding angles have been measured:
15.50 - 55°
21.20 - 65°
26.0 - 65°

A weak cleavage, parallel to bedding is present but not prominent.
Core at this depth is still more or less oxidized, the abundant iron staining attesting to former prescence of sulphides. Iron staining is rather patchy and related to small gossanous veins (upto about 10mm wide and usually sub parallel to bedding and cleavage) and minor brecciated zones.
Most prominent veins and breccia zones occur at:
16.5m
17.0m
19.15m
19.70m
20.0m
20.8m
21.0 - 22.0m
23.3m
and are thus fairly evenly distributed but clearly related to structural fractures and not to "stratigraphy".

The upper and lower contacts appear to be quite sharp and non transitional although an iron stained breccia zone at the lower contact (about 15cm wide) causes it to be partly obscured.

Core recovery good, approx 95%.

26.80 - 136.20

Medium Grained Quartz Crystal Tuff

A weakly foliated, texturally homogenous rock unit consisting of equant, (fractured) crystals of grey quartz (2mm-6mm size) (10-15% modal) and small sub angular flakes and wisps of dark chlorite contained in a pale grey, fine grained siliceous/ sericitic matrix.
The rock is somewhat similar to the unit in the interval 6.00-14.25m except that chlorite is less abundant (than in the latter) and feldspar crystals appear to be absent; at least, if present they are altered and un-recognizable.
A distinct foliation is defined by alignment of wispy chlorite particles which appear in part to be alteration products of biotite. Chlorite content overall is probably less than 5%.

The core is more or less oxidized to a depth of 69.0m. and fractures and joint surfaces to that depth are typically stained by pale limonite.
As in the above lithologies, "gossanous" veins and veinlets are erratically developed, and again these are semi parallel to the foliation.
The foliation cuts the core at fairly consistent angles between about 55^{o} to 70^{o} to L.A.C.

Noteworthy gossanous veins occur at the approximate depths:
28.3m (5cm goss/breccia zone)
31.0
34.5 (5cm goss/breccia)
38.45 (10cm goss/breccia)
Intermittent veins, about 5 per metre core, occur between 39.0-45.0m, and with somewhat lower frequency between 45-69m. It is apparent that mineralization in some of the larger veins was associated with quartz and sometimes green chlorite.

Below 69.0m. the core is fresh and fine disseminated pyrite is immediately visible in very minor quantities.

Examination of the fresh core indicates that the rock is locally altered. Specimen from 72.65m represents the fresh rock, with wisps of dark chlorite defining the foliation and pale straw coloured carbonate (?) (similar to that occuring in V2 D.D.H. 6) in fine veinlets, disseminated blebs and "pressure shadows" adjacent to quartz grains. Specimen from 74.25m typifys the "altered" rock; it has identical texture but the wisps of chlorite are replaced by yellowish grey fine grained material-probably a mixture of sericite and carbonate. The groundmass also appears to have suffered some pervasive sericitization and possibly silicification. Pale yellow carbonate (?) is rather more abundant.

The alteration in the fresh core is widespread but intermittent and patchy and appears to be related to the occurrence of mineralized and unmineralized quartz veins and breccia zones.

The following breakdown of altered and mineralized zones in this lithological unit is recorded:

69.0-70.5 Strongly altered with pyritic carbonate breccia zone at 70-70.5m.

70.5-71.25 Essentially fresh chl.qtz. xtal tuff.

71.25-71.65 Altered quartz.

71.65-72.75 Fresh quartz xtal tuff.

72.75-82.05 Strongly to moderately altered, with local breccia around 75.1-75.3m. and mineralized sphalerite-carbonate-(chlorite) quartz vein.

82.05-86.35 Essentially fresh, but with one cpy-py-carb-qtz vein, 10mm, at 84.35m.

86.35-101.70 Pervasive alteration. Very strong pale straw-greenish coloured carbonate-sericite (?) alteration from 87.25-89.5, appears associated with stronger than usual cleavage.

Qtz filled breccia zone at 93.0-93.1m
Numerous small unmineralized breccia zones between 93.4-101.7m. (only minor dissem. pyrite).
101.70-105.85 Mostly altered with local patches of dark chlorite preserved.
Strong, almost continous brecciation and carbonate veining. Very minor cpy-py mineralization in carb. veinlets.

105.85-113.0 Moderately to strongly altered, numerous small carbonate filled breccia zones.

106.1-106.6m Zone of strong mineralized veining.
Assemblages include:

a) 106.15m - Py-chl, sph-carbonate
   106.25m - " " "
b) 106.3m - f.g. pyrite, dark sphalerite?, arsenopyrite or possibly cassiterite.
c) 106.35m - Dominant sphalerite, minor py, cpy, chlorite with carbonate, quartz.

113-120 Locally strongly sheared and altered.

120-126.6 Moderately altered, a little greenish chlorite locally preserved.

The contact between quartz crystal tuf and the underlying quartz-feldspar-biotite porphyry unit is obscured by strong shearing in the interval 133.05-136.4m.

There appears to be a local increase in the intensity of shearing within about 10-15 metres on either side of the contact.

136.2 - 163.65

Quartz-Felspar-Biotite Porphyry.

The fresh rock consists of large equant to ragged, fractured phenocrysts of quartz and semi-rectangular phenocrysts of feldspar (3-10mm in size) with smaller flakes of dark biotite contained in a fine granular matrix presumably consisting of quartz and feldspar with considerable fine greenish chlorite.

The rock usually has a distinct foliation due to parallelism of biotite flakes and wispy "trains" of chlorite which "flow" around phenocrysts giving a resemblance to "augen" gneiss. Foliation is variably developed but where strongest, most of the biotite is altered to a fine aggregate of dark chlorite.
Foliation angle varies between 40^{o}-60^{o} to core axis.

A regressive alteration in which chlorite is replaced by pervasive sericite-carbonate (?) alteration similar to that described in the preceding lithology, is also locally developed.

This occurs in the intervals 146.8-149.10 and 150.8-151 and appears to be partly related to minor shearing.

Minor disseminated pyrite is a common accessory constituent but does not exceed 0.5% modal proportion.

Occasional milky quartz veins with variable amounts of greenish chlorite and pink (potash?) feldspar, cut the porphyry at irregular intervals. They vary from 1mm to several centimetres in width, carry no sulphide mineralization and commonly cross cut the foliation.

167.65 E.O.H.

150

970151

APPENDIX No. 2 VOYAGER 12 DDH 5

ANALYTICAL RESULTS

SAMPLE NO	INTERVAL (m)	CORE RECOVERY	Cuppm	Pbppm	Znppm	Fe%	Snppm	Auppb	Agppm
KR 6501	6-7	0.8	50	60	45	1.20	(5	15	1
02	7-9	1.1	270	200	50	4.00	15	80	1
03	9-10	0.9	170	150	35	2.40	5	75	1
04	10-11	1.0	30	65	20	1.28	(5	20	1
05	11-12	0.9	30	80	20	1.68	5	(3	1
06	12-13	1.0	130	150	30	2.40	10	40	1
07	13-14	0.8	60	110	25	1.72	10	15	1
08	14-15	0.7	180	0.32	%60	2.40	15	40	5
09	15-16	0.6	50	115	50	1.08	(5	5	1
KR 6510	16-17	1.0	200	420	60	2.40	20	(3	1
11	17-18	1.0	95	170	65	1.36	5	(3	2
12	18-19	1.0	320	400	105	3.60	15	(3	)25
13	19-20	1.0	0.16	760	160	6.80	15	105	)25
14	20-21	1.0	215	440	45	3.60	20	(3	3
15	21-22	1.0	310	800	45	4.40	15	(3	1
16	22-23	1.0	100	90	70	1.24	15	(3	1
17	23-24	0.9	270	560	60	2.80	5	35	4
18	24-26	1.1	280	195	50	3.20	10	15	1
19	26-27	0.4	250	440	60	2.40	15	20	1
KR 6520	27-29	1.2	400	680	70	2.80	15	(3	2
21	29-30	0.7	280	200	40	2.00	(5	20	1
22	30-31	0.8	640	240	70	4.00	5	(3	6
23	31-33	0.9	150	380	50	2.00	5	(3	6
24	33-35	1.2	320	420	50	3.20	10	40	16
25	35-37	0.6	640	190	40	3.20	(5	10	4
26	37-38	0.8	290	165	30	2.00	5	20	3
27	38-39	0.7	520	680	85	9.20	5	200	12
28	39-40	1.0	520	70	40	6.80	10	20	5
29	40-41	1.0	680	170	90	8.00	(5	30	10
KR 6530	41-42	1.0	320	75	20	2.40	10	(3	3
31	42-43	0.6	220	100	40	2.00	(5	(3	2
32	43-44	0.7	400	270	135	6.80	(5	20	14
33	44-45	0.6	235	70	20	2.00	5	10	2
34	45-46	0.9	90	55	20	1.08	5	5	2
35	46-47	0.8	105	50	20	1.44	(5	15	1
36	47-48	0.9	140	70	20	1.28	(5	(3	1
37	48-49	1.0	100	90	20	1.04	15	5	1
38	49-50	1.0	80	155	20	1.24	(5	10	1
39	50-51	0.9	120	35	20	1.84	(5	5	1
KR 6540	51-52	0.85	150	45	25	1.60	(5	3	1
41	52-53	0.6	145	35	25	1.80	(5	10	1
42	53-54	0.5	210	105	30	2.40	(5	5	2
43	54-55	0.9	150	200	30	2.00	(5	10	3
44	55-56	0.8	180	40	20	1.68	(5	20	1
45	56-57	0.4	110	35	20	1.00	(5	5	1

970152

APPENDIX No. 2

ANALYTICAL RESULTS

SAMPLE NO	INTERVAL (m)	CORE RECOVERY	Cuppm	Pbppm	Znppm	Fe%	Snppm	Auppb	Agppm
KR 6546	57-58	0.9	200	80	20	1.64	(5	5	1
47	58-59	0.9	105	50	15	1.04	5	10	1
48	59-60	0.8	200	75	20	1.32	(5	85	1
49	60-61	0.7	190	90	20	1.76	(5	10	1
KR 6550	61-62	1.0	110	50	20	1.36	(5	3	1
51	62-63	0.9	130	80	20	1.40	(5	3	1
52	63-64	0.35	275	320	60	3.20	(5	3	1
53	64-65	0.5	780	500	330	4.40	(5	20	5
54	65-66	0.8	520	110	110	0.76	(5	5	1
55	66-67	0.9	440	100	30	1.12	(5	3	1
56	67-68	1.0	0.12	340	170	4.40	(5	20	3
57	68-69	0.9	175	95	30	2.00	(5	3	1
58	69-70	0.4	60	105	65	1.44	(5	3	1
59	70-71	0.5	220	0.12	110	7.20	(5	400	17
KR 6560	71-72	0.8	75	330	80	3.60	(5	20	4
61	72-73	0.8	10	75	55	2.40	(5	5	1
62	73-74	0.9	25	80	160	2.80	(5	(3	1
63	74-75	1.0	20	60	50	2.40	(5	15	1
64	75-76	0.45	60	120	230	3.60	(5	10	1
65	76-77	0.6	30	100	0.34	5.60	(5	250	1
66	77-79	0.5	10	50	80	2.40	(5	15	1
67	79-82	0.8	100	70	80	2.80	(5	(3	1
68	82-84	0.85	35	25	80	3.60	5	(3	1
69	84-86	1.0	220	35	100	2.80	5	15	1
KR 6570	86-87	0.9	190	35	60	2.80	(5	10	1
71	87-88	1.0	10	20	75	2.80	(5	60	1
72	88-89	1.0	75	55	100	3.60	(5	15	1
73	89-90	1.0	110	65	65	3.20	(5	15	1
74	90-91	1.0	70	40	40	3.20	(5	(3	1
75	91-92	0.85	60	30	90	2.80	(5	(3	1
76	92-93	0.7	65	60	60	2.00	(5	3	1
77	93-95	0.9	15	20	75	3.20	10	(3	1
78	95-96	0.5	20	25	50	2.80	(5	(3	(1
79	96-97	1.0	25	20	50	2.80	(5	,(3	(1
KR 6580	97-98	1.0	240	25	60	4.00	5	(3	1
81	98-99	0.7	150	45	130	2.80	(5	3	1
82	99-100	0.8	50	70	125	2.00	(5	3	1
83	100-102	0.6	40	40	75	3.60	(5	3	1
84	102-104	0.5	760	560	0.10	5.60	(5	95	10
85	104-105	0.7	310	35	130	4.80	(5	5	1
86	105-106	1.0	290	170	320	5.60	(5	15	2
87	106-107	0.9	0.14	0.40	0.24	6.40	(5	190	)25
88	107-108	0.8	230	35	105	2.40	(5	20	1
89	108-109	0.95	160	30	70	2.80	5	3	1

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APPENDIX No. 2

ANALYTICAL RESULTS

SAMPLE NO	INTERVAL (m)	CORE RECOVERY	Cuppm	Pbppm	Znppm	Fe%	Snppm	Auppb	Agppm
KR6590	109-110	1.0	70	25	60	2.40	5	3	1
91	110-111	0.9	75	220	0.32	3.20	(5	5	1
92	111-112	0.75	60	160	140	4.80	(5	5	1
93	112-114	0.7	80	65	100	2.00	(5	10	1
94	114-116	0.8	290	55	75	2.80	(5	(3	1
95	116-118	1.5	185	90	70	4.40	(5	3	1
96	118-120	2.0	10	85	65	2 40	(5	5	1
97	120-122	2.0	20	60	35	1.88	(5	(3	1

APPENDIX III

ROCK CHIP AND SOIL SAMPLE ANALYSES

970155

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ELLIOTT BAY : 1980 SEASON : ROCK CHIP ANALYSES

SAMPLE No	GEO.	DESCRIPTION	LOCALITY	Cu	Pb	Zn	Ag	Fe	Mn	Sn	W	Au	Ba
				ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppb	ppm
KR 5396	CDS	(Sassafras Creek)	25m downstream KD 4621										
KR 5397	CDS	Red ooze from bank	70m downstream Sassfrass Creek										
KR 5651	WH			5	35	5	1		10			10	120
KR 5652	WH			2	20	5	1		20			10	770
KR 5653	WH												
KR 5654	WH	Voyager 12 O/C chip samp.		1.06%	0.24%	320	86					500	
KR 5655	WH			145	600	220	4					10	
KR 5656	WH			0.19%	0.28%	250	23					720	
KR 5657	WH			(2	125	80	4					70	
KR 5658	WH			(2	30	20	1					15	
KR 5659	WH			0.19%	0.20%	450	72					680	
KR 5851	RRL	Dolomite	SY 1	75	245	225		8.4		(5	(10	10	
KR 5852	RRL	Pyritic grey shale	SY 7	150	110	70		5.2		5	(10	10	
KR 5853	RRL	Black shale	SY 9	45	90	45		2.08		10	(10	5	
KR 5854	RRL	Sil. qxvt	SY 9A	20	115	20		1.36		(5	(10	15	
KR 5855	RRL	Black shale	SY 4	50	75	85		2.64		(5	(10	5	
KR 5856	RRL	Cren. bl. shale	SY 6	40	520	135		2.36		10	(10	(3	
KR 5857	RRL	Alt. Fe st. py. qzt	SY 11	10	40	10		1.04		5	(10	15	
KR 5858	RRL	" " " " "	SY 11A	60	240	150		1.88		(5	(10	5	
KR 5859	RRL	C.g. chl. qfxt.	SY 14	5	30	720		6.40		5	(10	10	
KR 5861	RRL	F.g. fxt	SY 25	10	30	55		2.80		10	(10	5	
KR 5862	RRL	Py. ser. qxt.	SY 30	10	25	10		1.40		25	(10	10	
KR 5863	RRL	Py. qfxt.	SY 32	2	30	15		5.20		5	(10	10	
KR 5865	RRL	Granitized tuff?	SY 55	5	20	15		4.40		20	(10	105	

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ELLIOTT BAY : 1980 SEASON : ROCK CHIP ANALYSES

SAMPLE No	GEO.	DESCRIPTION	LOCALITY	Cu	Pb	Zn	Ag	Fe	Mn	Sn	W	Au	Ba
				ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppb	ppm
KR 5866	RRL	Qtz. pebble congl.	SY 61	(2	10	5		2.00		5	(10	95	
KR 5870	RRL	Alt. qxt.	SY 68A	5	25	15		2.36		5	(10	10	
KR 5874	RRL	Qtzite.	SY 94	(2	10	5		0.20		5	(10	10	
KR 5875	RRL	Blk-grey shale.	SY 95	10	50	35		1.16		5	(10	20	
KR 5876	RRL	Grey shale.	SY 98	50	25	90		6.80		(5	(10	3	
KR 5877	RRL	Blk. shale	SY 102	15	40	55		2.12		(5	(10	15	
KR 5878	RRL	Cren. grey/wt. shale.	SY 112	20	30	110		2.40		5	(10	10	
KR 5879	RRL	Tf. - sl	SY 113	5	20	225		1.52		5	(10	10	
KR 5880	RRL	Qtz. pebble congl.	SY 114	2	10	5		2.40		5	(10	10	
KR 5882	RRL	Geothite-limonite	SY 121	45	60	100		40.0		5	(10	10	
KR 5883	RRL	Grn-brn sh.	SY 125	45	20	60		6.0		5	(10	10	
KR 5884	RRL	Py-ser-qtz (50%py	SY 127	280	560	35		18.0		(5	(10	10	
KR 5885	RRL	Basic tuff	SY 129	15	25	80		6.4		5	(10	15	
KR 5886	RRL	Dolomite	SY 131A	0.29%	25	600		7.60		(5	(10	15	
KR 5887	RRL	Dolomite	SY 131C	400	50	150		10.40		5	(10	20	
KR 5888	RRL	Fe-st. shale.	SY 131B	0.13%	40	270		10.80		5	(10	10	
KR 5889	RRL	Basic lava-bx.	SY 135	60	15	50		6.40		(5	(10	5	
KR 5891	RRL	Dol/sh.	SY 156	150	10	90		8.80		(5	(10	10	
KR 5892	RRL	Py.dol.-minor cpy.	159A	0.98%	30	70		10.80		(5	(10	185	
KR 5893	RRL	Dolomite	159B	0.11%	30	125		9.60		(5	(10	70	
KR 5894	RRL	Fe st. brn. sh. (15m)	159C	0.12%	25	65		10.80		5	(10	15	
KR 5896	RRL	Ser., chl. qxt.	188	5	10	45		1.56		(5	(10	15	
KR 5897	RRL	Fe. st. py fxt.	191	10	30	10		1.40		(5	(10	15	
KR 5900	RRL	Chl. qp. č hem.v.	SY 225	105	20	45		9.20		5	(10	3	
KR 5901	RRL	Py. chl. qp.	225B	10	15	10		5.20		10	(10	5	
KR 5902	RRL	Chl-qp.	225C	5	20	100		5.20		5	(10	5	
KR 5903	RRL	W py qp.	SY 226	10	15	15		2.40		(5	(10	85	

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ELLIOTT BAY : 1980 SEASON : ROCK CHIP ANALYSES

SAMPLE NO	GEO.	DESCRIPTION	LOCALITY	Cu	Pb	Zn	Ag	Fe	Mn	Sn	W	Au	Ba
				ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppb	ppm
KR 5905	RRL	F.g. and dykes.	SY 227	15	15	60		7.20		(5	(10	5	
KR 5906	RRL	And dyke.	231	5	30	140		7.20		5	(10	10	
KR 5907	RRL	Qf xt.	234	20	50	65		1.24		(5	(10	10	
KR 5908	RRL	Chl. xlt.	248	5	10	20		2.24		5	(10	5	
KR 5910	RRL	Py-qp.	250	15	15	5		5.20		10	(10	15	
KR 5911	RRL	Py-qp c̄ goss	250	20	20	20		10.40		15	(10	10	
KR 5912	RRL	Ser. xlt.	256	2	10	10		0.60		(5	(10	15	
KR 6001	CDS	Cg. qfxt. c̄ py. cubes	Voy.21 (sample No.1	35	70	50		0.96		10	(10		
KR 6002	CDS	Magnetite horizon	Voy.21	5	35	520		28.0		(5	(10		
KR 6003	CDS	Wps No.1	Voy.21	340	25	20		0.96		(5	(10		
KR 6004	CDS	Wps No.2	Voy.21	30	20	25		1.40		(5	(10		
KR 6005	CDS	Wps No.3	Voy.21	10	20	25		1.76		(5	(10		
KR 6006	CDS	Wps No.4	Voy.21	15	20	25		2.24		(5	(10		
KR 6007	CDS	Wps No.5	Voy.21	20	20	35		5.20		(5	(10		
KR 6008	CDS	Wps No.6	Voy.21	5	15	35		4.00		(5	(10		
KR 6009	CDS	Wps No.7	Voy.21	5	25	15		1.08		(5	(10		
KR 6010	RRL	0-5 m.	Voy.23	110	30	120		6.40					
KR 6011	RRL	5-10 m.	Voy.23	195	30	95		6.40					
KR 6012	RRL	10-15 m.	Voy.23	165	30	95		6.00					
KR 6013	RRL	15-20 m.	Voy.23	110	35	100		5.60					
KR 6014	RRL	20-25 m.	Voy.23	95	30	90		6.40					
KR 6015	RRL	25-30 m	Voy.23	130	30	110		7.20					
KR 6016	RRL	30-35 m.	Voy.23	0.13%	30	80		6.80					
KR 6017	RRL	35-40 m.	Voy.23	170	35	115		6.00					
KR 6018	RRL	40-45 m.	Voy.23	195	30	95		6.00					

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ELLIOTT BAY : 1980 SEASON : ROCK CHIP ANALYSES

SAMPLE No	GEO.	DESCRIPTION	LOCALITY	Cu	Pb	Zn	Ag	Fe	Mn	Sn	W	Au	Ba
				ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppb	ppm
KR 6019	RRL	45-50 m.	Voy.23	195	30	95		6.00					
KR 6020	RRL	50-55 m.	Voy.23	130	25	100		6.40					
KR 6021	RRL	55-60 m.	Voy.23	130	25	85		6.40					
KR 6022	RRL	60-65 m.	Voy.23	130	20	85		6.00					
KR 6023	RRL	65-70 m.	Voy.23	120	20	90		6.40					
KR 6024	RRL	70-75 m.	Voy.23	35	15	105		6.00					
KR 6025	RRL	75-80 m.	Voy.23	105	25	75		6.40					
KR 6026	RRL	80-85 m.	Voy.23	70	20	95		7.20					
KR 6027	RRL	85-90 m.	Voy.23	50	20	105		7.20					
KR 6028	RRL	90-95 m.	Voy.23	35	20	125		7.60					
KR 6029	RRL	95-100 m.	Voy.23	70	20	95		7.20					
KR 6030	RRL	100-105 m.	Voy.23	70	20	105		6.80					
KR 6031	RRL	105-110 m.	Voy.23	75	20	90		5.20					
KR 6032	RRL	110-115 m.	Voy.23	120	15	85		6.80					
KR 6375	RRL		599	140	25	140	1	3.60		(5	(10	25	380
KR 6376	RRL		598	10	30	30	1	0.56		(5	10	10	690
KR 6377	RRL		590	500	190	290	5	9.60		(5	(10	165	410
KR 6378	RRL		587	5	30	90	1	1.24		(5	(10	5	960
KR 6379	RRL		586A	2	15	25	1	2.80		(5	(10	3	540
KR 6380	RRL		583	2	40	55	1	1.04		(5	10	5	990
KR 6381	RRL		582	10	15	15	1	1.56		(5	(10	3	640
KR 6382	RRL		579	15	10	20	1	0.88		(5	(10	10	770
KR 6383	RRL		573	(2	20	40	1	2.20		45	(10	15	0.12%
KR 6384	RRL		572	(2	10	5	1	0.20		(5	20	20	240
KR 6385	RRL		558	(2	10	20	(1	1.48		(5	(10	15	0.11%
KR 6386	RRL		557	2	10	100	1	2.40		(5	(10	15	0.12%

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ELLIOTT BAY : 1980 SEASON : ROCK CHIP ANALYSES

SAMPLE No	GEO.	DESCRIPTION	LOCALITY	Cu	Pb	Zn	Ag	Fe	Mn	Sn	W	Au	Ba
				ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppb	ppm
KR 6387	RRL		554	(2	10	75	(1	1.68		(5	(10	15	770
KR 6388	RRL		553	5	15	150	1	6.40		(5	(10	10	0.11%
KR 6389	RRL		545	(2	20	290	1	2.80		(5	(10	20	410
KR 6390	RRL		544	(2	40	110	1	2.20		(5	(10	20	920
KR 6391	RRL		529	(2	95	90	1	1.28		(5	(10	15	770
KR 6392	RRL		523	(2	10	15	(1	0.52		(5	20	20	0.15%
KR 6393	RRL		586B	2	20	15	(1	3.60		(5	10	90	300
KR 6394	RRL		993	10	20	50	(1	2.80		5	(10	15	740
KR 6395	RRL		1011	5	10	5	1	2.40		(5	(10	3	190
KR 6396	RRL		1012	5	10	10	(1	0.20		(5	10	(3	680
KR 6397	RRL		1029	5	20	10	(1	0.36		(5	(10	15	330
KR 6398	RRL		1031 Wart Hill	40	0.11%	200	1	2.00		(5	(10	15	570
KR 6399	RRL		1032 Wart Hill	85	560	60	1	1.92		(5	10	30	0.16%
KR 6400	RRL		1033 Wart Hill	15	200	150	(1	2.80		(5	10	10	800
KR 6851	RRL		1034 Wart Hill	10	35	620	(1	4.40		(5	(10	15	540
KR 6852	RRL		1038 Wart Hill	5	65	300	1	1.72		(5	(10	20	770
KR 6853	RRL		Voy.22 1041	15	100	190	1	10.8		(5	(10	15	510
KR 6854	RRL		1044	10	30	15	1	4.00		(5	10	440	330
KR 6855	RRL		1048	230	190	300	1	7.20		(5	(10	15	260
KR 6856	RRL		1052A	920	760	370	19	8.00		(5	10	85	120
KR 6857	RRL		1052B	640	330	270	12	6.80		(5	(10	50	130
KR 6858	RRL		1062	N.R.	N.R.	N.R.	N.R.	N.R.		N.R.	N.R.	N.R.	N.R.
KR 6859	RRL		1063	N.R.	N.R.	N.R.	N.R.	N.R.		N.R.	N.R.	N.R.	N.R.
KR 6860	RRL		1064	N.R.	N.R.	N.R.	N.R.	N.R.		N.R.	N.R.	N.R.	N.R.
KR 6861	RRL		680A Voy.6	0.14%	430	45	3	40.0		(5	(10	740	80
KR 6862	RRL		680B Voy.6	300	95	60	1	3.20		(5	(10	85	360
KR 6863	RRL		681 Voy.6	640	0.72%	780	3	40.0		(5	(10	15	390

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ELLIOTT BAY : 1980 SEASON : ROCK CHIP ANALYSES

SAMPLE NO	GEO.	DESCRIPTION	LOCALITY	Cu	Pb	Zn	Ag	Fe	Mn	Sn	W	Au	Ba
				ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppb	ppm
KR 6864	RRL		689 Voy.6	5	20	30	(1	2.80		(5	(10	15	350
KR 6865	RRL		690C Voy.6	10	10	15	1	2.80		(5	(10	140	60
KR 6866	RRL		690A Voy.6	10	20	30	1	44.0		(5	(10	10	50
KR 6867	RRL		691	20	15	80	1	4.80		(5	(10	10	600
KR 6868	RRL		Voy.6 971	5	15	30	1	1.16		(5	(10	10	600
KR 6869	RRL		Voy.6 690B	5	10	20	1	3.20		(5	(10	50	20
KR 6870	RRL		Voy.9 519	90	15	10	1	3.60		5	(10	20	510
KR 6871	RRL		Voy.9 259	35	20	190	1	10.8		10	(10	15	80
KR 6872	RRL		Voy.9 501	320	20	25	1	7.20		5	(10	10	570
KR 6873	RRL		Voy.9 632	10	920	500	3	48.0		(5	(10	10	0.30%
KR 6874	RRL		Voy.9 665	10	180	145	1	2.40		5	(10	3	420
KR 6875	RRL		Voy.9 667	5	15	105	1	6.00		10	(10	5	460
KR 6876	RRL		Copper ck. 350	5	15	10	(1	1.40		5	(10	15	(10
KR 6877	RRL		Copper ck. 700	10	20	150	1	7.60		5	(10	10	0.10%
KR 6878	RRL		Copper ck. 1810	30	30	110	1	4.00		5	(10	(3	350
KR 6879	RRL		Copper ck. 112	55	60	95	1	4.00		(5	(10	5	130
KR 6880	RRL		Copper ck. 1950	10	50	110	(1	1.80		5	(10	5	780
KR 6881	RRL		Copper ck. 2100	50	840	165	1	2.80		(5	(10	10	670
KR 6882	RRL	Carbonate	Voy.3	15	20	30	(1	0.52		5	(10	3	770
KR 6883	RRL		Voy.9 V9-19	470	200	160	1	9.20		10	(10	1	500
KR 6884	RRL		Voy.9 V9-18	45	20	270	1	7.20		10	(10	10	420
KR 6885	RRL		Voy.9 V9-101	10	20	40	1	1.56		(5	(10	10	0.12%
KR 6886	RRL		Voy.9 V9-64	40	40	40	1	4.00		(5	(10	15	440
KR 6887	RRL		Voy.9 V9-81	10	20	10	2	1.08		5	(10	10	20
KR 6888	RRL		Voy.9 V9-33	5	20	55	8	4.00		10	(10	15	970
KR 6889	RRL		Voy.9 V9-11	5	10	15	(1	0.44		10	(10	10	960
KR 6890	WH		Voy.14 9960E/ 10325N	N.R.	N.R.	N.R.	N.R.	N.R.		N.R.	N.R.	N.R.	N.R.
KR 6891	RRL	Black shale	Head of supply ck.	10	10	10	1	0.40		5	(10	15	690
KR 6893	RRL	Carbonate with Bornite	1st carb. S of Ver.Pt.	)1.0%	55	560	)25	10.0		10	(10	45	30

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Case 7

AUSTRALIAN LABORATORY SERVICES PTY. LTD.
CONSULTING CHEMISTS & ANALYSTS

OFFICE & LABORATORY
44 Baleclava Street
WOOLLOONGABBA Q. 4102
Tel. (07) 391 6799
A/H 355 8776
TELEX AA42344

LABORATORY REPORT

Batch No.: C071 — Client: GEOPEKO LIMITED, P.O. BOX 212, GORDON, N.S.W.

Area Contact: DR. ROSS LARGE, Address: P.O. BOX 598, DEVONPORT, TAS. 7310.

Date Received: 13/03/80

Date Completed: 30/04/80

Order No.: KP 2360 — Sample Type: SOIL — No. of Samples: 300

SAMPLE NO.	Cu ppm	Pb ppm	Zn ppm	Fe %	
	1	1	1	1	
TS 6037	10	10	20	0.24	
TS 6038	5	20	15	0.24	
TS 6039	2	5	15	0.18	
TS 6040	2	5	20	0.36	
TS 6041	2	10	15	0.22	
TS 6042	10	20	20	0.48	
TS 6043	2	10	20	0.52	
TS 6044	10	30	110	3.20	
TS 6045	5	15	20	0.40	
TS 6046	2	10	20	0.24	
TS 6047	2	10	15	0.28	
TS 6048	10	10	25	0.32	
TS 6049	2	5	10	0.24	
TS 6050	2	10	50	1.44	↑ VOYAGER 21
TS 6051	2	20	20	0.40	
TS 6052	15	80	40	0.96	
TS 6053	5	20	25	0.72	
TS 5543	2	10	20	0.32	10500E
TS 5544	5	15	20	0.40	↓ VOYAGER 22 LINE 1400N.
TS 5545	5	10	20	0.24	
TS 5546	2	10	15	0.12	
TS 5547	2	10	20	0.20	10400E
TS 5548	2	10	20	0.24	
TS 5549	2	10	30	0.32	
TS 5550	10	35	30	0.48	} Duplicate
TS 5551	10	40	40	0.44	} Elliot
TS 5552	2	15	30	0.40	10300E
TS 5553	5	40	35	0.80	
TS 5554	5	10	40	1.20	
TS 5555	2	10	20	1.28	

UNITS LEGEND ----- p = Parts per million b = Parts per billion % = percent
g = Grams a = Absorbance

Signature: G. Lamb

[N] ... Approved by ... Association of Testing ... The tests ... have been performed ... Reproduction of ... this report ... except in full.

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AUSTRALIAN LABORATORY SERVICES PTY. LTD.
CONSULTING CHEMISTS & ANALYSTS

OFFICE & LABORATORY
44 Balaclava Street
WOOLLOONGABBA Q 4102
Ph (07) 391 6799
A/H 355 0776
TELEX ALSEV 42344

LABORATORY REPORT

Batch No.: C071
Date Received 13/03/80
Date Completed 30/04/80

Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON.
N.S.W.

Area Contact: DR. ROSS LARGE.
Address: P.O. BOX 598,
DEVONPORT. TAS. 7310.

Order No.: KP 2360 Sample Type: SOIL No. of Samples: 300

SAMPLE NO.	Cu m 1	Pb m 1	Zn m 1	Fe % 1	
TS 5556	2	10	20	0.40	10200E LINE 14000N.
TS 5557	2	10	20	0.36	
TS 5558	5	15	20	0.32	
TS 5559	15	20	25	0.28	
TS 5560	40	40	120	0.36	} Dup 10100E
TS 5561	40	150	100	0.40	
TS 5562	10	20	260	1.88	
TS 5563	5	10	20	0.24	
TS 5564	2	15	10	0.10	
TS 5565	5	30	15	0.10	10,000E
TS 5566	2	10	20	0.20	
TS 5567	2	10	20	0.28	
TS 5568	30	50	195	0.48	
TS 5569	2	10	40	0.34	9,900E
TS 5570	25	35	25	0.24	} Dup
TS 5571	20	30	20	0.20	
TS 5572	5	15	25	0.28	
TS 5573	2	20	40	0.40	9825E
TS 5574	2	10	20	0.12	9750E
TS 5575	2	10	20	0.10	
TS 5576	2	10	20	0.12	*9700E
TS 5577	5	10	25	0.28	
TS 5578	5	10	20	0.10	
TS 5579	5	10	35	0.32	
TS 5580	I.S.	I.S.	I.S.	I.S.	} Dup. 9600E
TS 5581	10	10	25	0.28	
TS 5582	10	10	20	0.40	
TS 5583	5	10	20	0.22	
TS 5584	2	10	20	0.16	
TS 5585	5	10	20	0.12	9500E

UNITS LEGEND ----- m - Parts per million b - Parts per billion % - percent
g - Grams a - Absorbance

Signature: G. Dunn



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AUSTRALIAN LABORATORY SERVICES PTY. LTD.

CONSULTING CHEMISTS & ANALYSTS

OFFICE & LABORATORY
44 Balaclava Street
WOOLLOONGABBA Q. 4102
Ph (07) 391 6299
A/H 355 0776
TELEX ALSEV 42344

LABORATORY REPORT

Batch No.: C071
Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON,
N.S.W.

Date Received 13/03/80
Date Completed 30/04/80

Attn: Contact: DR. ROSS LARGE,
Address: P.O. BOX 598,
DEVONPORT TAS, 7310,

Order No.: KP 2360
Sample Type: SOIL
No. of Samples: 300

SAMPLE NO.	Cu	Pb	Zn	Fe	
	ppm	ppm	ppm	%	LINE 13600N.
	1	1	1	1	
TS 5586	5	230	700	2.22	9500E
TS 5587	5	45	230	0.68	
TS 5588	70	40	840	0.44	
TS 5589	10	85	170	1.16	
TS 5590	20	30	105	1.12	} Dup 9600E
TS 5591	30	30	70	1.28	
TS 5592	20	15	40	0.92	
TS 5593	20	20	75	2.04	
TS 5594	20	20	65	2.56	
TS 5595	5	10	20	0.32	9700E
TS 5596	45	30	90	3.20	
TS 5597	30	30	90	1.64	
TS 5598	60	30	40	0.56	
TS 5599	10	45	100	0.20	9800E
TS 5600	10	110	170	0.72	} Dup
TS 5601	10	120	220	0.72	
TS 5602	2	20	120	0.16	
TS 5603	2	15	110	0.36	
TS 5604	2	20	85	0.24	9900E
TS 5605	2	25	100	0.18	
TS 5606	2	15	90	0.16	
TS 5607	2	10	70	0.16	
TS 5608	2	10	45	0.10	10000E
TS 5609	2	10	60	0.28	
TS 5610	5	10	50	0.16	} Dup
TS 5611	2	10	50	0.20	
TS 5612	75	0.11 %	0.11 %	0.28	
TS 5613	5	25	240	2.80	10100E
TS 5614	5	10	80	0.44	
TS 5615	5	15	70	0.36	

UNITS LEGEND ----- p - Parts per million b - Parts per billion % - percent
g - Grams a - Absorbance

Signature: G. Anne

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44 Balaclava Street
WOOLLOONGABBA Q 4102
Ph (07) 391 6799
A/H 355 0776
TELEX ALSEV 42344

LABORATORY REPORT

Batch No.: C071
Date Received 13/03/80
Date Completed 30/04/80

Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON,
N.S.W.

Area Contact: DR. ROSS LARGE.
Address: P.O. BOX 598,
DEVONPORT, TAS. 7310.

Order No.: KP 2360 Sample Type: SOIL No. of Samples: 300

SAMPLE NO.	Cu ppm	Pb ppm	Zn ppm	Fe %	
	1	1	1	1	
					LINE 13600N
TS 5616	5	10	60	0.28	
TS 5617	10	25	95	0.32	10200E
TS 5618	5	10	60	0.60	
TS 5619	5	10	95	0.76	
TS 5620	5	10	55	0.50	} Dup
TS 5621	5	10	60	0.56	
TS 5622	2	85	45	0.48	10300E
TS 5623	2	20	70	0.48	
TS 5624	5	15	60	0.54	
TS 5625	2	20	50	0.32	
TS 5626	5	15	50	0.28	10400E
TS 5627	5	10	60	0.32	
TS 5628	2	10	55	0.56	
TS 5629	5	20	70	0.48	
TS 5630	2	10	55	0.32	} Dup 10500E
TS 5631	2	10	40	0.36	
TS 5632	95	0.12 %	0.13 %	1.28	9500E
					LINE 13200N
TS 5633	10	210	260	0.20	
TS 5634	10	90	110	0.40	
TS 5635	50	340	680	0.32	
TS 5636	30	20	85	0.12	9600E
TS 5637	5	40	130	0.10	
TS 5638	10	50	270	1.36	
TS 5639	2	30	30	0.28	
TS 5640	2	10	30	0.12	} Dup 9700E
TS 5641	5	5	35	0.12	
TS 5642	25	10	100	2.80	
TS 5643	10	250	720	1.12	
TS 5644	5	50	110	0.32	
TS 5645	2	20	40	0.18	9800E

UNITS LEGEND ----- m - Parts per million b - Parts per billion % - percent
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Ph. (07) 391 6799
A/H 355 0776
TELEX ALSEV 42344

LABORATORY REPORT

Batch No.: C071
Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON,
N.S.W.

Area Contact: DR. ROSS LARGE.
Address: P.O. BOX 598,
DEVONPORT, TAS, 7310.

Date Received 13/03/80
Date Completed 30/04/80

Order No.: KP 2360
Sample Type: SOIL
No. of Samples: 300

LINE 13200 N

SAMPLE NO.	Cu ppm	Pb ppm	Zn ppm	Fe %	
TS 5646	5	10	40	0.14	
TS 5647	15	20	50	0.20	
TS 5648	5	20	60	0.20	
TS 5649	10	15	50	0.28	9900E
TS 5650	2	20	40	0.24	Dup
TS 5651	2	20	40	0.22	
TS 5652	2	40	100	0.30	
TS 5653	2	20	300	0.28	
TS 5654	20	30	280	0.40	10,000E
TS 5655	10	100	390	0.96	
TS 5656	10	20	40	0.12	
TS 5657	5	15	40	0.24	
TS 5658	2	10	40	0.28	10100E
TS 5659	2	30	55	0.40	
TS 5660	2	10	40	0.24	Dup
TS 5661	2	20	60	0.80	
TS 5662	2	5	60	0.76	10200E
TS 5663	5	5	65	0.44	
TS 5664	2	25	160	0.52	
TS 5665	2	40	110	0.36	
TS 5666	5	240	390	3.60	10300E
TS 5667	2	60	330	2.80	
TS 5668	10	20	190	3.60	
TS 5669	20	260	880	2.80	
TS 5670	5	30	90	0.38	Dup.
TS 5671	2	30	90	0.44	
TS 5672	5	15	100	1.48	10400E
TS 5673	2	20	80	0.56	
TS 5674	2	15	70	0.52	
TS 5675	10	20	70	0.40	

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A/H 355 0776
TELEX ALSEV 42344.

LABORATORY REPORT

Batch No.: C071
Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON,
N.S.W.

Area Contact: DR. ROSS LARGE.
Address: P.O. BOX 598,
DEVONPORT, TAS. 7310.

Date Received 13/03/80
Date Completed 30/04/80

Order No.: KP 2360. Sample Type: SOIL No. of Samples: 300

SAMPLE NO.	Cu m. i	Pb m i	Zn m i	Fe % i	
TS 5676	10	20	80	0.44	10500E LINE 13200N
TS 5677	0.13 %	100	70	0.92	9500E LINE 12800N
TS 5678	10	40	110	0.28	
TS 5679	5	30	90	1.56	
TS 5680	5	30	80	1.16	Dup
TS 5681	5	30	80	1.28	9600E
TS 5682	5	95	260	0.60	
TS 5683	20	290	520	0.80	
TS 5684	5	20	170	2.36	
TS 5685	5	30	160	1.56	
TS 5686	15	30	110	1.24	9700E
TS 5687	40	30	90	1.56	
TS 5688	10	15	80	1.64	
TS 5689	75	20	120	2.36	
TS 5690	30	10	65	0.28	Dup
TS 5691	20	10	60	0.24	9800E
TS 5692	10	15	70	0.48	
TS 5693	10	15	90	1.84	
TS 5694	10	10	70	0.40	9875
TS 5695	5	20	60	0.60	9950E
TS 5696	40	20	220	1.80	
TS 5697	5	60	90	0.22	10000E
TS 5698	20	45	60	0.12	
TS 5699	5	30	60	0.16	
TS 5700	2	10	60	0.22	Dup
TS 5701	2	10	60	0.28	
TS 5702	20	20	130	1.80	10100E
TS 5703	20	20	80	0.68	
TS 5704	10	80	60	0.28	
TS 5705	15	15	60	0.16	

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LABORATORY REPORT

Batch No.: C071
Date Received 13/03/80
Date Completed 30/04/80

Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON.
N.S.W.

Area Contact: DR. ROSS LARGE.
Address: P.O. BOX 598,
DEVONPORT. TAS. 7310.

Order No.: KP 2360
Sample Type: SOIL
No. of Samples: 300

SAMPLE NO.	Cu ppm 1	Pb ppm 1	Zn ppm 1	Fe % 1	
					LINE 12800N
TS 5706	5	10	70	0.24	10200E
TS 5707	10	10	60	0.12	
TS 5708	80	100	170	0.52	
TS 5709	80	130	55	0.12	
TS 5710	10	60	200	2.80	Dup 10300E
TS 5711	10	50	200	2.80	
TS 5712	20	40	80	0.88	
TS 5713	10	30	230	3.20	
TS 5714	10	15	110	1.72	
TS 5715	10	70	250	3.00	10400E
TS 5716	10	25	260	3.00	
TS 5717	2	15	70	0.36	
TS 5718	10	20	70	0.48	
TS 5719	10	15	90	1.28	10500E
TS 5720	5	20	70	0.32	Dup 9500E
TS 5721	5	20	70	0.32	LINE 12400N
TS 5722	2	10	65	0.32	
TS 5723	2	10	120	0.28	
TS 5724	5	15	80	0.40	
TS 5725	10	30	70	0.32	9600E
TS 5726	20	40	80	0.56	
TS 5727	10	25	90	0.28	
TS 5728	20	25	90	0.32	
TS 5729	20	20	80	0.48	9700E
TS 5730	15	30	80	0.36	
TS 5731	20	45	90	0.48	Dup
TS 5732	15	20	70	0.32	
TS 5733	10	10	70	0.20	
TS 5734	35	180	60	0.16	9800E
TS 5735	10	35	80	0.20	

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g - Grams a - Absorbance

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Ph (07) 391 6799
A/H 355 0776
TELEX ALSEV 42344

LABORATORY REPORT

Batch No.: C071 Client: GEOPEKO LIMITED, Area Contact: DR. ROSS LARGE,
Address: P.O. BOX 212, Address: P.O. BOX 598,
Date Received 13/03/80 GORDON, DEVONPORT, TAS. 7310.
Date Completed 30/04/80 N.S.W.

Order No.: KP 2360 Sample Type: SOIL No. of Samples: 300

LINE 12400 N.

SAMPLE NO.	Cu ppm	Pb ppm	Zn ppm	Fe %	
	1	1	1	1	
TS 5736	2	10	60	0.16	
TS 5737	2	10	60	0.18	
TS 5738	10	120	450	0.24	9900 E
TS 5739	2	35	160	2.40	
TS 5740	10	50	100	0.92	} Dup.
TS 5741	5	25	80	0.44	
TS 5742	10	20	60	0.20	
TS 5743	5	20	150	0.28	10000 E
TS 5744	10	20	60	0.12	
TS 5745	2	20	100	0.20	
TS 5746	10	45	100	0.64	
TS 5747	2	10	60	0.24	10100 E
TS 5748	10	110	270	2.80	
TS 5749	2	20	70	0.24	
TS 5750	20	150	220	0.12	} Dup.
TS 5751	10	120	210	0.10	
TS 5752	5	50	220	0.24	10200 E
TS 5753	10	70	110	0.12	
TS 5754	5	70	115	0.32	
TS 5755	5	80	95	0.64	
TS 5756	2	20	100	1.20	10300 E
TS 5757	5	20	110	1.28	
TS 5758	5	20	140	2.08	
TS 5759	5	55	150	1.84	
TS 5760	10	30	100	2.00	} Dup. 10400 E
TS 5761	5	40	100	2.16	
TS 5762	5	45	90	1.56	
TS 5763	5	30	85	0.96	
TS 5764	5	35	70	0.60	
TS 5765	2	30	75	0.72	10500 E

UNITS LEGEND ----- m = Parts per million b = Parts per billion % = percent
g = Grams a = Absorbance

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A/H. 355 0776
TELEX ALSEV 42344

LABORATORY REPORT

Batch No.: C071
Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON.
N.S.W.

Area Contact: DR. ROSS LARGE.
Address: P.O. BOX 598,
DEVONPORT. TAS. 7310.

Date Received 13/03/80
Date Completed 30/04/80

Order No.: KP 2360
Sample Type: SOIL
No. of Samples: 300

LINE 12000N.

SAMPLE NO.	Cu ppm	Pb ppm	Zn ppm	Fe %	
	1	1	1	1	
TS 5766	2	15	70	0.40	10500E
TS 5767	2	20	70	0.36	
TS 5768	5	15	80	0.32	
TS 5769	5	20	65	0.44	
TS 5770	2	20	65	0.32	} Dup. 10400E
TS 5771	5	15	60	0.28	
TS 5772	2	15	70	0.24	
TS 5773	2	20	70	0.40	
TS 5774	5	15	65	0.24	
TS 5775	5	10	70	0.20	10300E
TS 5776	N.R.	N.R.	N.R.	N.R.	
TS 5777	2	15	80	0.48	
TS 5778	2	20	170	4.00	
TS 5779	5	15	110	0.24	10200E
TS 5780	10	10	60	0.10	} Dup
TS 5781	10	10	50	0.10	
TS 5782	10	10	80	0.20	
TS 5783	2	10	60	0.10	10125E
TS 5784	110	20	75	0.10	10050E
TS 5785	10	10	60	0.10	
TS 5786	155	10	90	0.24	10000E
TS 5787	55	20	145	2.28	
TS 5788	5	30	110	1.56	
TS 5789	10	15	60	0.20	
TS 5790	5	20	110	0.16	} Dup. 9900E
TS 5791	10	15	60	0.10	
TS 5792	20	30	110	0.40	
TS 5793	20	25	150	0.88	
TS 5794	20	20	240	2.16	
TS 5795	25	20	70	0.28	9800E

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TELEX ALSEV #2344

LABORATORY REPORT

Batch No.: C071
Date Received 13/03/80
Date Completed 30/04/80

Client: GEOPEKO LIMITED,
Address: P.O. BOX 217,
GORDON.
N.S.W.

Area Contact: DR. ROSS LARGE,
Address: P.O. BOX 598,
DEVONPORT. TAS. 7310.

Order No.: KP 2360
Sample Type: SOIL
No. of Samples: 300.

SAMPLE NO.	Cu ppm	Pb ppm	Zn ppm	Fe %	
					LINE 2000N
TS 5796	5	20	170	0.16	
TS 5797	10	80	180	0.18	
TS 5798	10	25	60	0.20	
TS 5799	60	65	70	0.16	} Dup 9700E
TS 5800	15	165	160	0.20	
TS 5801	20	200	160	0.24	
TS 5802	10	50	135	0.12	
TS 5803	5	35	60	0.10	
TS 5804	10	50	110	0.12	9600E
TS 5805	150	40	170	0.32	
TS 5806	40	170	430	0.16	
TS 5807	10	200	90	0.18	
TS 5808	20	45	100	0.24	9500E
TS 5809	5	15	60	0.32	
TS 5810	5	10	60	0.20	} Dup.
TS 5811	5	15	90	0.96	
TS 5812	5	15	90	1.04	
TS 5813	5	40	60	0.16	
TS 5814	2	10	80	0.24	
TS 5815	2	10	50	0.16	
TS 5816	2	10	25	0.24	
TS 5817	20	15	35	1.12	
TS 5818	10	10	65	3.20	
TS 5819	2	10	20	0.20	} Dup.
TS 5820	2	10	10	0.16	
TS 5821	5	20	15	0.12	
TS 5822	5	20	30	0.24	
TS 5823	10	20	30	0.40	
TS 5824	5	20	10	0.10	
TS 5825	5	80	110	0.44	

UNITS LEGEND ----- m - Parts per million b - Parts per billion % - percent
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Signature: G. Lamm

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Duplicate Samples are not included in this table

Plan 2 b,e,h

ASSAY Stream Sediment Samples

		CU	PB	ZN	FE	SN	W	AU ppm
74994	KD3575	2	20	15	3200		10	0
74995	KD3938	5	15	20	2400			0.01
74996	KD3937	5	10	30	2800	15		0.01
74997	KD3936	5	10	10	2800			0.01
74998	KD3935	5	10	15	3200			0.01
74999	KD3934	5	10	20	2400			0.01
75000	KD3933	5	15	20	2400			0.01
75001	KD3929	5	10	10	1600	5		0.01
75002	KD3928	5	15	10	3200	5		0.005
75003	KD3930	5	10	20	2000			0.005
75004	KD3932	5	10	20	2400			0.01
75005	KD3814	5	10	10	2000			0.015
75006	KD3815	5	10	10	3200			0.02
75007	KD3816	5	20	20	3600		10	0.015
75008	KD3817	5	10	15	1600			0.015
75009	KD3818	5	5	20	3600			0.01
75010	KD3570	2	10	5	2800			0.003
75011	KD3569	2	10	2	2400	5		0.005
75012	KD3572	5	10	5	4000			0.01
75013	KD3574	5	10	5	4400			0.165
75014	KD3573	2	10	5	3200			0.01
75015	KD3811	5	10	20	3600			0.005
75016	KD3812	2	30	30	3600	5		0.005
75017	KD3950	10	20	15	5600			0.01
75018	KD3949	5	10	10	2400			0.01
75019	KD3948	5	10	10	2400			0.005
75020	KD3946	5	15	20	4400			0.005
75021	KD3945	5	10	10	2800			0.003
75022	KD3947	5	20	20	2800			0.01
75023	KD3813	2	40	30	3200	5		0.015
75024	KD3939	5	15	10	3600			0.02
75025	KD3940	10	10	15	3600			0.005
75026	KD3942	5	15	15	3200			0.01
75027	KD3943	5	10	20	2200			0
75028	KD3944	10	15	30	4800			0.01
75029	KD3916	5	15	15	3600			0.02
75030	KD3917	5	10	10	2800	10		0.015
75031	KD3918	5	10	15	3600	5		0.01
75032	KD3919	5	10	15	2000			0.005
75033	KD3920	5	10	10	2800			0.01
75034	KD3922	10	10	20	4400			0.015
75035	KD3923	5	10	20	3200			0.01
75036	KD3924	10	10	30	4400			0.01
75037	KD3926	5	10	20	4000			0.005
75038	KD3925	5	10	20	3600	15		0.01
75039	KD3927	5	10	10	2400			0.01
75040	KD3915	5	20	20	4400			0.01
75041	KD3914	10	20	40	6000			0.01
75042	KD3913	10	10	20	4800			0.015
75043	KD3912	10	15	25	4800			0.01
75044	KD3910	10	10	10	5600			0.01
75045	KD3824	5	10	20	1600			0.015
75046	KD3825	2	10	10	2800	5		0.01

CU PB ZN Fe SN W Au ppm

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75047	KD3822	5	10	10	2400			0.01
75048	KD3820	10	10	10	6400			0.01
75049	KD3823	5	10	15	2800			0.015
75050	KD3819	10	10	20	3600		10	0.005
75051	KD3951	10	20	10	3200	10		0.01
75052	KD3952	10	10	15	4800			0.01
75053	KD3953	5	15	10	3600	15		0.01
75054	KD3968	5	10	10	2400			0.003
75055	KD3969	5	20	35	5200			0.01
75056	KD3954	5	10	10	4400			0.01
75057	KD3955	5	10	10	2000			0.005
75058	KD3956	5	10	15	4800			0.01
75059	KD3957	5	5	10	2000			0.003
75060	KD3958	5	10	10	3600	10		0.005
75061	KD3959	5	10	10	2000			0.003
75062	KD3960	5	10	20	4400			0.003
75063	KD3962	10	10	10	5200			0.005
75064	KD3963	5	10	10	3600			0.003
75065	KD3964	5	10	10	3200			0.005
75066	KD3965	5	10	20	4400	20		0.005
75067	KD3966	5	10	20	4800			0.005
75068	KD3967	10	10	15	3600			0.003
75069	KD3539	10	15	10	3600			0.01
75070	KD3542	5	20	15	4800	5		0.01
75071	KD3538	10	10	10	4400		20	0
75072	KD3540	10	15	10	4800			0.01
75073	KD3543	5	20	20	5200			0.005
75074	KD3544	5	20	20	5200	5		0.02
75075	KD3545	5	20	20	6000			0
75076	KD3508	5	30	10	4800			-0.003
75077	KD3507	10	20	10	4000		20	0.01
75078	KD3509	5	20	10	3400			-0.003
75079	KD3510	10	25	10	4800			0.015
75080	KD3512	5	30	10	3200			-0.003
75081	KD3513	10	20	10	3200			0.005
75082	KD3514	5	20	15	3200			-0.003
75083	KD3874	5	55	45	9200	5	10	0.005
75084	KD3875	5	15	10	1600			0.003
75085	KD3877	5	40	30	4800			0.003
75086	KD3876	5	45	50	6800			0.003
75087	KD3878	5	55	45	4400			0.005
75088	KD3879	2	55	5	6400			0.003
75089	KD3880	5	55	40	8000		10	0.01
75090	KD3882	5	22	15	5200	5		-0.003
75091	KD3883	10	20	45	3200			0.003
75092	KD3898	10	30	35	6800			0.015
75093	KD3896	10	30	55	6800			0.015
75094	KD3897	5	20	45	5200			0.003
75095	KD3895	10	15	30	5200	10		0.01
75096	KD3894	10	30	50	7200			0.01
75097	KD3893	5	20	45	4000			0.005
75098	KD3890	15	20	40	4400			0.01
75099	KD3892	2	10	25	3200			0.01

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75100	KD3889	10	20	50	8000	5		0.02
75101	KD3888	2	10	10	1600			0.003
75102	KD3887	5	25	20	4800			0.005
75103	KD3885	10	35	50	7600		10	0.02
75104	KD3886	5	40	50	4800	5		0.01
75105	KD3906	10	40	50	6400			0.02
75106	KD3907	5	20	30	3200			0.01
75107	KD3908	10	30	45	6400			0.01
75108	KD3909	5	20	30	3200			0.005
75109	KD3830	5	25	10	5200			0.005
75110	KD3829	5	30	50	3600			0.005
75111	KD3828	10	15	15	6400	10		0.005
75112	KD3827	10	20	35	4400	10	10	0.015
75113	KD3826	5	20	25	2000	40		0.005
75114	KD3832	5	20	40	4000		10	0.005
75115	KD3834	10	10	10	2800	5		0.01
75116	KD3833	5	10	10	5600			0.005
75117	KD4052	5	5	20	3200			0.005
75118	KD3850	2	10	10	3600			0.006
75119	KD3848	5	10	10	2800			0.01
75120	KD3849	5	15	20	5600		10	0.02
75121	KD3847	5	10	10	3600			0.005
75122	KD3984	2	15	15	3200			0.005
75123	KD3983	2	15	20	2400			0.005
75124	KD3982	2	10	10	2000			0.01
75125	KD3986	2	10	15	2800			0.01
75126	KD3987	5	15	60	4800	20		0.015
75127	KD3988	5	10	20	4400	5		0.015
75128	KD3985	2	10	15	1600			0.01
75129	KD3836	10	10	10	3600			0.01
75130	KD3835	5	10	5	2000	5		0.003
75131	KD3837	5	10	10	4400			0.005
75132	KD3838	5	10	10	2800			0.005
75133	KD3839	10	10	5	2000			0.005
75134	KD3842	5	10	5	2400			0.005
75135	KD3840	10	10	10	3200			0.005
75136	KD3843	10	20	40	3200			0.005
75137	KD3846	10	20	20	2800			0.005
75138	KD3845	10	10	10	2800			0.005
75139	KD3844	10	10	10	2400			0.003
75140	KD3698	2	10	15	1200			0
75141	KD3697	2	10	10	1200	80		0
75142	KD3695	5	10	10	1200			0
75143	KD3696	2	10	5	2000			0
75144	KD3873	5	15	10	2000			-0.003
75145	KD3872	5	15	10	3600			-0.003
75146	KD3870	5	10	5	3200			0.005
75147	KD3862	2	15	5	1200		5	0
75148	KD3860	2	15	15	1200			0
75149	KD3863	2	15	5	800			0
75150	KD3857	10	10	10	1600			0
75151	KD3859	5	10	10	1200			0
75152	KD3869	5	30	40	5200	5		0

75153	KD3868	5	60	80	5600			0
75154	KD3884	5	45	50	10100	5	10	0.003
75155	KD3856	5	20	5	1200			0
75156	KD3855	5	15	10	3200			0
75157	KD3854	5	15	10	1200			0
75158	KD3905	5	10	30	4000	30		0.015
75159	KD3867	5	50	70	4000		10	0
75160	KD3904	10	15	20	5200			0.01
75161	KD3902	5	30	55	6800	5		0.015
75162	KD3903	5	15	30	3600	15		0.01
75163	KD3900	5	20	30	3600			0.02
75164	KD3899	10	45	60	6800			0.025
75165	KD3866	5	20	25	2800	5		0.005
75166	KD3865	2	15	10	2000	5		0.005
75167	KD3864	2	10	5	1200			0.005
75168	KD3749	5	15	15	2400			0.015
75169	KD3750	5	15	10	3200			0.005
75170	KD3853	10	30	55	11200			0
75171	KD3852	10	10	20	3200		10	0.005
75172	KD3804	10	15	45	2800			0.01
75173	KD3970	5	20	30	10800			0.005
75174	KD3805	10	35	30	13600	5		0.05
75175	KD3806	5	10	20	4400	5		0.005
75176	KD3807	10	10	20	1200	10		0.01
75177	KD3808	10	10	20	6400			0.005
75178	KD3972	5	40	45	9600			0.005
75179	KD3973	5	40	50	8400			0.01
75180	KD3974	5	30	30	4000			0.01
75181	KD3975	5	30	30	4000			0.01
75182	KD3976	2	10	10	2000			0.01
75183	KD3977	2	10	10	2000			0.005
75184	KD3979	2	20	45	3200			0.01
75185	KD3978	5	30	45	6800			0.005
75186	KD3993	5	10	10	3600			0.003
75187	KD3992	10	10	10	7200			0.02
75188	KD3990	5	10	20	8000			0.005
75189	KD3989	5	10	20	7200			0.01
75190	KD3980	2	15	20	3600			0.005
75191	KD3858	5	15	20	2000			0
75192	KD3809	10	20	30	14800			0.005
Plan 3 b,e,h ↓ **75193**	KD4517	5	15	15	3200	-5	-10	0.003
75194	KD4518	5	5	10	1200	-5	-10	0.01
75195	KD4524	5	10	5	2000	-5	20	0
75196	KD4525	5	5	5	2400	-5	-10	0
75197	KD4527	5	-5	5	1200	-5	-10	0
75198	KD4526	2	5	5	800	-5	-10	0
75199	KD4533	5	5	15	3200	-5	-10	0
75200	KD4534	2	5	20	1200	-5	-10	0
75201	KD4528	5	5	5	2400	-5	-10	0
75202	KD4530	2	5	10	1600	-5	-10	0
75203	KD4529	2	5	15	2400	-5	-10	0
75204	KD4532	2	5	25	2000	-5	-10	0
Plan 4 b,e,h **75205**	KD3747	5	20	25	1600			0.005

75206	KD3678	2	30	35	5600	5	10	0.01
75207	KD3679	2	20	15	6400	5		0.005
75208	KD3677	5	25	20	6400	10		0
75209	KD3676	2	30	20	4400	10		0.035
75210	KD3675	5	20	10	5200			0.015
75211	KD3674	5	30	60	4800	5		0.015
75212	KD3673	2	15	10	3600			-0.003
75213	KD3672	2	15	15	3600	10	10	0.003
75214	KD3670	5	10	15	2400			0.01
75215	KD3669	5	10	20	2400			0.003
75216	KD3668	5	15	20	5600	5		0.003
75217	KD3667	2	15	20	4800			0.005
75218	KD3666	2	25	15	12400			0.01
75219	KD3665	5	15	20	6000			0.005
75220	KD3664	2	10	15	2800			0.01
75221	KD3746	5	15	10	3600			0
75222	KD3745	5	20	10	1200	5		0.02
75223	KD3744	5	10	5	1200			0.01
75224	KD3743	5	10	5	2000			0.005
75225	KD3742	5	20	120	2800			0.02
75226	KD3740	5	25	20	3600	5		0.01
75227	KD3739	5	25	20	3000			0.01
75228	KD3738	5	15	10	3600	15		0.015
75229	KD3737	5	15	15	4400			0.005
75230	KD3734	2	15	10	2800			0.015
75231	KD3736	5	10	10	1600			0.015
75232	KD3735	10	30	25	6400	5		0.01
75233	KD3730	5	40	20	4000	5		0.003
75234	KD3733	2	25	20	4000			0.03
75235	KD3732	5	30	20	3200			0.025
75236	KD3725	5	20	20	4400	20		0
75237	KD3726	5	15	10	1600			0.01
75238	KD2727	5	20	20	5200	5		0.01
75239	KD3729	5	20	10	5200	10	10	0
75240	KD3728	2	15	10	2000		10	0.04
75241	KD3724	5	20	2	2000			0
75242	KD3751	5	15	5	1200			0.003
75243	KD3759	10	20	20	4800			0.015
75244	KD3752	10	30	15	5600	5		0.16
75245	KD3753	5	15	15	1200			0.02
75246	KD3754	10	30	20	5600			0.005
75247	KD3758	5	15	5	2000	10		0.01
75248	KD3756	5	10	5	2000			0.005
75249	KD3757	10	30	20	2400			0.01
75250	KD3755	5	20	5	1600			0.005
75251	KD3779	5	20	10	4000		10	0.005
75252	KD3778	5	15	10	3200			0.04
75253	KD3780	5	15	10	4000	5		0.01
75254	KD3782	5	15	10	6000	10		0.005
75255	KD3783	10	20	40	6800		10	0.01
75256	KD3793	5	40	40	4800			0.003
75257	KD3792	5	30	30	4400	5		0.015
75258	KD3789	5	30	20	5200			0.003

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75259	KD3790	5	20	20	3600		10	0.005
75260	KD3784	5	35	40	8000			0.005
75261	KD3788	5	15	20	1200			0.005
75262	KD3787	5	20	20	4800		20	0.005
75263	KD3786	5	20	20	3200			0.003
75264	KD3785	5	15	15	2400			0.005
75265	KD3795	5	30	35	2800			0.005
75266	KD3794	5	35	40	2400	10		0.005
75267	KD3796	5	20	20	1600	5		0.01
75268	KD3797	10	45	40	6000			0.03
75269	KD3773	10	140	50	9200			0.015
75270	KD3774	5	30	15	5200	5		0.005
75271	KD3775	5	55	15	3600			0.005
75272	KD3776	5	20	15	3100			0.01
75273	KD3777	5	25	20	4800			0.03
75274	KD3772	2	25	15	5600			-0.003
75275	KD3770	5	35	15	15200			0.003
75276	KD3769	5	25	15	6400	15		0.003
75277	KD3768	5	25	30	2800			0.005
75278	KD3767	5	15	15	2200		20	0.003
75279	KD3766	2	15	40	2800			0.005
75280	KD3650	-2	20	10	2400			0.015
75281	KD3761	10	30	25	6000		10	0.01
75282	KD3762	5	15	15	2800			0.003
75283	KD3765	2	20	20	2800			0.005
75284	KD3764	5	20	25	1600	5		0.005
75285	KD3763	5	15	10	4800		10	0.005
75286	KD3649	2	20	20	5600			0.03
75287	KD3648	2	15	15	2400	5		0.02
75288	KD3716	5	15	15	2800		10	0
75289	KD3715	5	20	10	2000	5		0.003
75290	KD3714	5	20	35	7600	15	10	0.005
75291	KD3712	2	20	15	2400	10		-0.003
75292	KD3713	2	15	15	1600	5		0.22
75293	KD3710	5	20	15	2800	5		0.005
75294	KD3708	10	10	15	3200	10		0.003
75295	KD3709	2	25	15	1600	15		0
75296	KD3706	5	15	25	2400			-0.003
75297	KD3707	5	10	10	1600	5		-0.003
75298	KD3717	2	15	5	1600	5		0.03
75299	KD3593	2	15	10	2800	25	20	0.01
75300	KD3594	5	15	10	2000	20		0.015
75301	KD3701	5	15	40	2400			0
75302	KD3702	5	15	15	4400		10	0
75303	KD3703	5	15	20	2000	20		0
75304	KD3704	5	10	20	2800	5		0.005
75305	KD3705	5	15	20	1600			0.005
75306	KD3642	5	15	20	3600	3		0.01
75307	KD3643	2	15	5	1200			0.005
75308	KD3640	2	10	5	2000	15		0.005
75309	KD3639	2	15	10	2000		10	0.005
75310	KD3638	-2	15	10	1200	15		0.005
75311	KD3644	5	10	10	2400	10		0.01

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75312	KD3645	2	15	5	2400	10		0.05
75313	KD3662	2	30	5	800			0.003
75314	KD3663	2	20	5	1600			0.003
75315	KD3660	-2	20	10	1200		20	0.005
75316	KD3659	2	15	10	1600			0
75317	KD3658	-2	10	10	2400			-0.003
75318	KD3657	5	30	15	6400	5		0.015
75319	KD3656	2	10	10	1600		10	0.003
75320	KD3646	2	10	5	1200	15		0.01
75321	KD3647	5	10	10	2000			0.005
75322	KD3654	2	15	5	1600	15		0.01
75323	KD3655	-2	10	10	1600	10		0.003
75324	KD3600	2	15	10	4800	25	10	0.04
75325	KD3653	10	20	35	5600			0
75326	KD3652	-2	35	90	2400			0.01
75327	KD3599	2	15	15	1600	10		0.01
75328	KD3598	-2	20	20	2000	5		0.01
75329	KD3597	5	20	25	5200	20	10	0.01
75330	KD3596	2	20	20	3600	30		0.035
75331	KD3595	5	15	15	3600	30	10	0.01
75332	KD3718	5	15	10	5200			0.005
75333	KD3632	2	10	5	8200	25		0.025
75334	KD3630	2	20	50	9200	25		0.015
75335	KD3719	2	15	5	1600			0.003
75336	KD3629	-2	35	30	9600	20		0.015
75337	KD3720	2	15	10	2600			0.01
75338	KD3722	5	15	10	2800		10	0.01
75339	KD3628	2	15	15	3600	55		0.035
75340	KD3723	5	15	5	2800			0.01
75341	KD3633	2	25	20	7600	105		0.02
75342	KD3627	2	20	20	4800	10	20	0.02
75343	KD3552	5	10	5	3200			0.003
75344	KD3551	10	20	10	5200			0
75345	KD3401	10	10	10	6000			0
75346	KD3402	10	10	10	6800			0.02
75347	KD3403	5	10	5	2600			0.01
75348	KD3405	10	45	20	20400	5		-0.003
75349	KD3406	5	20	10	5600			0.01
75350	KD3407	10	20	10	6800			0.015
75351	KD3404	5	15	10	4800			0.02
75352	KD3428	5	10	15	4400		10	0.18
75353	KD3409	10	20	30	6000	10	10	0.015
75354	KD3408	10	20	10	6400			0.03
75355	KD3410	5	20	15	4000			0.01
75356	KD3429	5	20	10	3600	5		0.01
75357	KD3430	5	20	10	4000			0.005
75358	KD3432	10	25	20	10800	5	10	0
75359	KD3433	5	20	10	6800		20	0.045
75360	KD3412	10	10	10	5200			0.02
75361	KD3413	10	20	20	6400			0.02
75362	KD3414	5	10	10	2800	5		0.01
75363	KD3415	5	10	10	4000			0.01
75364	KD3417	5	10	10	2800			0.01

75365	KD3515	10	10	5	4000		10	0.005
75366	KD3516	5	10	5	2400		10	-0.003
75367	KD3416	2	10	10	2000	25	10	0
75368	KD3546	5	10	5	2000			0.003
75369	KD3647	10	10	10	5600			0
75370	KD3549	5	10	10	2400			0.003
75371	KD3548	5	15	15	3600			0.005
75372	KD3604	5	10	10	2800			-0.003
75373	KD3605	5	10	5	2800		10	-0.003
75374	KD3607	2	15	20	3200			0.003
75375	KD3606	2	10	10	3200			-0.003
75376	KD3550	5	15	10	3600	5	10	0
75377	KD3602	2	10	10	3600			0.003
75378	KD3603	2	10	10	2000			0.003
75379	KD3418	2	15	20	2800			0.02
75380	KD3419	5	10	10	2400	5	10	0.005
75381	KD3420	5	15	10	2800		10	0.015
75382	KD3423	2	10	5	1600	35		0.003
75383	KD3425	5	10	10	2400			0.003
75384	KD3426	5	10	10	1600			-0.003
75385	KD3422	5	10	5	1800	10	10	0.01
75386	KD3424	5	10	15	2000			0.003
75387	KD3637	2	15	20	4400	15		0.01
75388	KD3634	2	10	10	3600	60	20	0.005
75389	KD3636	2	10	5	2000	5		0
75390	KD3635	2	10	5	1600	5	10	0.005
75391	KD3626	5	5	15	2400			0.015
75392	KD3625	10	5	20	4800		10	0.015
75393	KD3624	2	-5	10	1600		10	0.025
75394	KD3623	5	10	30	4000			0.025
75395	KD3622	5	5	10	2000			-0.003
75396	KD3620	5	5	10	2800		10	0.025
75397	KD3619	5	5	10	2000		20	0.003
75398	KD3618	10	5	10	3600			0.003
75399	KD3617	5	-5	10	2400			0.04
75400	KD3616	10	5	10	4400		10	0.015
75401	KD3614	5	5	10	2400			0
75402	KD3615	2	10	10	3200		20	0.006
75403	KD3613	5	5	10	2800		10	0.02
75404	KD3592	5	10	5	4800			0.01
75405	KD3590	5	15	10	6400			0.01
75406	KD3589	5	20	10	4000		10	0.005
75407	KD3580	5	20	20	0			0.015
75408	KD3588	5	20	20	3200		10	0.005
75409	KD3578	5	30	20	4400		10	0.01
75410	KD3579	5	20	20	2800		10	0.003
75411	KD3577	2	20	10	2800		20	0.005
75412	KD3576	2	20	10	3200		10	0.005
75413	KD3582	5	10	5	4800		10	0
75414	KD3583	5	10	5	5200		10	0
75415	KD3584	5	10	5	4000			0.015
75416	KD3585	5	10	5	3800		10	0.01
75417	KD3586	2	10	10	2000			0.003

75418	KD3587	5	10	2	4000			0.015
75419	KD3612	10	5	5	4000			0.003
75420	KD3610	10	10	10	4800			0.01
75421	KD3609	2	10	5	2400			0.003
75422	KD3563	10	10	-2	3200			0.01
75423	KD3565	2	10	10	4800			0
75424	KD3564	5	15	5	6000			0.01
75425	KD3566	2	10	-2	2800			0.005
75426	KD3568	2	10	2	2800			0.45
75427	KD3567	2	10	2	2800			0.01
75428	KD3608	5	10	10	2800		10	0.005
75429	KD3530	10	10	10	3200		10	0.01
75430	KD3527	10	15	10	4000			0.02
75431	KD3528	10	20	15	4800		20	0
75432	KD3529	5	20	15	4600			0.01
75433	KD3532	5	20	10	4800			0.003
75434	KD3533	10	15	10	5600			0
75435	KD3534	5	10	10	5200		10	0.025
75436	KD3535	10	15	10	5600			0
75437	KD3536	10	15	10	5600		10	0.02
75438	KD3537	10	15	10	4800			0.015
75439	KD3526	5	10	10	3200			0.003
75440	KD3524	10	30	30	6400		20	0.015
75441	KD3525	10	20	15	4800			0.025
75442	KD3523	10	10	15	3200			0.003
75443	KD3522	5	10	5	3200			0
75444	KD3520	2	10	10	3000			0.003
75445	KD3519	5	15	10	5200			0
75446	KD3518	10	15	10	4400	10		0
75447	KD3517	10	15	10	4400	5		0
75448	KD3434	2	15	5	2400			0.005
75449	KD3435	5	15	10	4000			0.01
75450	KD3436	2	20	5	2800			0.003
75451	KD3438	5	20	10	4000			0.01
75452	KD3437	5	30	5	3200			0.01
75453	KD3443	5	20	10	3200			0.005
75454	KD3440	5	25	10	5600			0.015
75455	KD3439	2	20	25	2200			0.003
75456	KD3442	5	20	2	3600			0.01
75457	KD3444	5	25	10	4000	5		0.01
75458	KD3445	5	20	10	4000			0.005
75459	KD3446	2	30	10	5200			0.075
75460	KD3447	5	20	5	3200			0.003
75461	KD3448	5	20	10	3600			0.003
75462	KD3449	2	20	10	3600			0.01
75463	KD3502	5	20	10	2800			0.003
75464	KD3503	5	20	10	3200			-0.003
75465	KD3450	10	15	10	5200			0.02
75466	KD3506	10	25	10	5200			0.015
75467	KD3505	5	15	2	2200		10	0.003
75468	KD3504	5	20	10	3800			-0.003
[redacted] **75469**	KD3699	5	15	10	1200			0
75470	KD3700	2	10	5	1600			0.003

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75471	KD3800	5	40	20	2800			0.003
75472	KD3801	5	20	10	1200			0.003
75473	KD3802	5	20	20	3600	10		0.005
75474	KD3803	5	30	25	2400			0.005
75475	KD3560	10	20	5	3800			0
75476	KD3562	10	10	-2	2800	5		0.01
75477	KD3559	5	20	-2	1600			0.003
75478	KD3558	10	50	2	3600			0
75479	KD3557	5	10	-2	1600			0.003
75480	KD3556	5	10	5	3600	5		0.01
75481	KD3555	5	20	10	4000			0.02
75482	KD3554	10	15	10	4400			0
75483	KD3553	5	20	5	4000			0.015
Plan 5 b,e,h ↓ **75484**	KD4254	15	15	60	6000	5	-10	0.01
75485	KD4255	50	20	85	16800	-5	-10	0.035
75486	KD4256	30	20	100	17600	5	-10	0.015
75487	KD4262	25	10	35	18800	-5	-10	0.01
75488	KD4263	40	15	65	40000	-5	-10	0.08
75489	KD4265	20	10	20	17600	-5	-10	-0.003
75490	KD4266	15	10	25	13200	-5	-10	-0.003
75491	KD4267	15	10	20	10400	-5	-10	0.003
75492	KD4268	20	10	25	15200	-5	-10	0.01
75493	KD4269	15	5	20	12800	-5	-10	0.003
75494	KD4270	20	15	20	12800	-5	-10	0.025
75495	KD4272	10	10	20	11600	-5	-10	0.005
75496	KD4273	15	10	30	13200	-5	-10	0.01
75497	KD4275	10	15	20	15600	5	-10	0.005
75498	KD4274	15	10	25	13600	-5	-10	0.003
75499	KD4276	10	15	20	16800	-5	-10	0.02
75500	KD4277	10	15	25	18800	-5	-10	0.035
75501	KD4278	20	15	40	28000	-5	-10	0.015
75502	KD4226	10	15	25	6400	45	10	0.015
75503	KD4227	10	10	10	3200	-5	-10	0.01
75504	KD4195	10	30	50	8000	30	10	0.025
75505	KD4194	5	15	20	4200	20	-10	0.01
75506	KD4193	5	10	10	2000	5	-10	0.005
75507	KD4192	10	10	40	3800	100	-10	0.01
75508	KD4173	10	20	40	20800	10	-10	0.025
75509	KD4174	10	10	20	7200	-5	10	0.025
75510	KD4175	5	10	5	3600	-5	10	0.01
75511	KD4176	10	10	25	11600	-5	-10	0
75512	KD4177	5	15	10	3200	-5	-10	0.01
75513	KD4178	2	10	5	3200	-5	-10	0.015
75514	KD4180	5	10	20	8400	10	-10	0.01
75515	KD4179	5	10	10	3400	-5	-10	0.6
75516	KD4183	5	20	20	10400	-5	-10	0.015
75517	KD4182	5	10	15	3200	-5	-10	0.01
75518	KD4184	10	10	15	6400	-5	10	0.025
75519	KD4185	5	10	10	3600	5	-10	0.01
75520	KD4186	5	5	10	4000	-5	-10	0.01
75521	KD4187	2	5	5	2400	-5	-10	0.025
75522	KD4188	5	15	30	10000	10	-10	0.025
75523	KD4189	2	10	10	2800	5	10	0.003

75524	KD4190	2	40	10	2400	-5	-10	0.005
75525	KD4243	65	15	70	6000	10	10	0.075
75526	KD4244	10	10	15	5200	5	-10	0.025
75527	KD4245	10	10	60	4400	5	-10	0.07
75528	KD4246	5	10	10	3600	-5	-10	0.025
75529	KD4247	10	10	30	4800	10	-10	0.025
75530	KD4248	10	10	30	4400	5	-10	0.015
75531	KD4249	10	25	30	3600	-5	-10	0.03
75532	KD4250	10	10	10	4400	35	-10	0.03
75533	KD4252	10	5	15	4400	5	-10	0.015
75534	KD4301	10	5	35	2000	-5	-10	0.025
75535	KD4302	10	10	20	5600	5	10	0.025
75536	KD4303	5	10	25	6800	10	-10	0.02
75537	KD4304	10	10	15	7200			0
75538	KD4305	10	10	25	5200	15	-10	0.055
75539	KD4306	20	20	40	25200	10	10	0.03
75540	KD4307	10	10	30	5600	5	10	0.03
75541	KD4308	5	10	20	4000	-5	-10	0.02
75542	KD4309	30	15	60	28000	5	-10	0.015
75543	KD4310	40	20	60	28000	10	-10	0.015
75544	KD4312	5	10	10	3200	5	-10	0.025
75545	KD4313	5	10	15	2800	10	-10	0.025
75546	KD4314	5	20	35	19600	20	10	0.003
75547	KD4315	10	10	30	0			0.015
75548	KD4316	5	15	15	3200	10	-10	0.015
75549	KD4317	10	20	15	3600	5	-10	0.025
75550	KD4323	5	15	20	2800	15	-10	0.015
75551	KD4324	10	25	30	8000	10	-10	0.015
75552	KD4325	10	20	45	6400	-5	-10	0.02
75553	KD4326	5	15	10	2800	10	-10	0.005
75554	KD4327	15	15	30	5600	15	10	0.015
75555	KD4328	5	10	15	2400	5	-10	0.015
75556	KD4329	10	10	20	4000	5	-10	0.005
75557	KD4318	2	10	10	2800	10	10	0.015
75558	KD4319	5	10	15	2000	5	10	0.085
75559	KD4320	5	15	20	6000	15	-10	0.015
75560	KD4322	5	10	10	3200	5	-10	0.01
75561	KD4336	5	15	10	5200	5	-10	0.005
75562	KD4335	5	10	10	5200	-5	-10	0.01
75563	KD4334	10	15	15	5600	15	-10	0.003
75564	KD4196	10	10	10	2400	15	-10	0.02
75565	KD4197	5	10	10	2800	10	10	0.01
75566	KD4210	2	10	10	2000	20	-10	0.04
75567	KD4212	5	10	5	2200	15	-10	0.005
75568	KD4213	2	10	10	1400	5	-10	0.005
75569	KD4214	25	10	10	3600	-5	10	0.025
75570	KD4215	5	10	10	2000	10	-10	0.01
75571	KD4216	5	10	10	2400	-5	-10	0.035
75572	KD4345	2	10	10	1600	10	10	0.015
75573	KD4344	5	10	5	1600	5	-10	0.015
75574	KD4346	5	10	10	2800	15	20	0.02
75575	KD4347	2	10	5	2800	15	20	0.03
75576	KD4348	10	15	15	7200	10	10	0.07

75577	KD4352	5	10	5	3200	5	-10	0.015
75578	KD4353	5	10	10	1600	15	-10	0.005
75579	KD4354	2	10	10	1200	10	-10	0.01
75580	KD4355	5	10	10	3200	5	-10	0.005
75581	KD4349	5	15	15	2400	10	-10	0.02
75582	KD4350	5	10	10	3200	10	-10	0.02
75583	KD4343	5	10	5	2400	5	-10	0.02
75584	KD4342	5	10	15	4000	5	-10	0.015
75585	KD4217	10	10	15	3600	-5	-10	0.02
75586	KD4337	5	10	10	2000	5	10	0.005
75587	KD4338	5	5	10	1200	5	-10	0.01
75588	KD4339	5	5	10	3200	30	10	0.005
75589	KD4209	5	10	10	4000	-5	-10	0.015
75590	KD4208	5	10	15	2000	-5	-10	0.01
75591	KD4207	5	10	10	2400	5	-10	0.015
75592	KD4206	5	10	10	2000	10	-10	0.01
75593	KD4340	2	10	5	1200	-5	10	0.015
75594	KD4198	5	10	10	2000	5	-10	0.025
75595	KD4199	10	10	20	3400	5	10	1.4
75596	KD4200	5	10	10	1600	-5	-10	0.22
75597	KD4202	5	10	10	2000	5	-10	3
75598	KD4203	5	10	5	800	-5	-10	0.05
75599	KD4204	2	10	5	1000	10	-10	0.01
75600	KD4205	2	10	10	1000	5	-10	0.04
75601	KD4333	10	10	10	4800	5	-10	0.07
75602	KD4330	5	10	10	3600	15	-10	0
75603	KD4332	35	15	70	8000	10	-10	0.68
75604	KD4541	5	15	10	3200	5	-10	0.015
75605	KD4539	2	20	10	3200	5	-10	0.015
75606	KD4538	5	15	10	4400	5	-10	0.015
75607	KD4537	5	20	10	4200	5	-10	0.015
75608	KD4535	5	20	25	3600	5	-10	0.01
75609	KD4508	5	10	30	1200	-5	10	0.005
75610	KD4506	10	10	20	6800	-5	10	0
75611	KD4505	2	15	30	1600	-5	-10	0.025
75612	KD4507	5	15	15	2800	-5	-10	0.01
75613	KD4536	2	20	10	0			0.015
75614	KD4616	5	20	10	0			0.015
75615	KD4298	2	5	10	1200	-5	10	0.01
75616	KD4299	2	15	25	3600	-5	10	0.005
75617	KD4300	5	10	10	1200	-5	-10	0.015
75618	KD4502	2	10	15	2000	-5	10	0.005
75619	KD4503	2	10	10	1200	-5	10	0.01
75620	KD4504	2	5	15	800	-5	10	0.01
75621	KD4297	5	10	10	1600	-5	-10	0.015
75622	KD4296	2	10	10	2400	-5	20	0.015
75623	KD4295	2	10	40	2000	5	20	0.003
75624	KD4294	5	10	15	5200	-5	-10	0.015
75625	KD4293	5	10	20	2400	-5	10	0.005
75626	KD4292	2	10	15	1200	-5	10	0.003
75627	KD4290	2	15	10	1600	-5	20	-0.003
75628	KD4540	2	15	10	3600	5	-10	0.02
75629	KD4622	5	10	10	4000	-5	-10	0.015

75630	KD4620	5	20	10	4000	5	-10	0.01
75631	KD4619	2	15	10	2000	5	-10	0.015
75632	KD4618	10	15	10	3600	-5	-10	0.02
75633	KD4617	2	15	10	3200	-5	-10	0.015
75634	KD4279	5	10	15	2000	-5	-10	0.025
75635	KD4280	5	10	40	2800	-5	10	0.065
75636	KD4282	5	15	20	4000	-5	10	0.05
75637	KD4283	5	5	20	3600	-5	10	0.035
75638	KD4284	5	10	20	3600	-5	10	0.025
75639	KD4285	10	10	25	4800	5	-10	0.035
75640	KD4286	5	5	20	1200	-5	-10	0.01
75641	KD4287	5	10	15	4400	-5	-10	0.075
75642	KD4288	5	10	30	3200	5	10	0.05
75643	KD4289	5	20	60	3600	-5	20	0.005
75644	KD4509	2	10	5	800	-5	-10	0.005
75645	KD4510	5	10	15	2400	-10	10	0.01
75646	KD4512	5	20	5	3600	-5	10	-0.003
75647	KD4513	2	15	15	2000	-5	10	-0.003
75648	KD4523	5	15	10	2800	5	10	-0.003
75649	KD4522	2	15	10	0			0.01
75650	KD4520	5	15	25	1200	-5	-10	0.003
75651	KD4519	5	20	20	3600	-5	-10	0.015
75652	KD4514	5	10	10	2800	-5	-10	0.7
75653	KD4515	5	15	15	3200	-5	10	1
75654	KD4516	2	10	10	1200	-5	-10	0.12
75655	KD4517				3200	-5	-10	0.003
75656	KD4614	5	15	10	1200	-5	-10	0.015
75657	KD4615	2	10	5	1200	-5	-10	0.01
75658	KD4613	5	10	5	2400	-5	-10	0.01
75659	KD4612	5	10	10	1600	5	-10	0.015
75660	KD4610	5	10	20	1600	-5	10	0.01
75661	KD4609	5	10	15	3200	-5	10	0.02
75662	KD4608	5	10	5	2400	-5	-10	0.025
75663	KD4607	5	10	5	2400	5	-10	0.01
75664	KD4606	5	15	10	4400	15	10	0.045
75665	KD4605	5	10	10	2000	-5	10	0.01
75666	KD4604	10	10	10	10000	15	20	0
75667	KD4603	10	10	5	4800	-5	10	0
75668	KD4602	15	15	15	5200	-5	-10	0.15
75669	KD4601	10	15	25	5600	20	10	0
Plan 6 b,e,h ↓ **75670**	KD3684	5	15	20	6600			0
75671	KD3682	2	20	25	3600	5	40	0.005
75672	KD3680	2	25	20	8000	-5	20	0
75673	KD3683	5	20	20	4400	10	20	0.035
75674	KD4071				0			0.055
75675	KD3685	2	35	55	6400	-5	70	0
75676	KD3689	5	40	55	6000	-5	100	0
75677	KD4067				0			0.03
75678	KD4068				0			0.01
75679	KD4069				0			0.06
75680	KD4070				0			0.01
75681	KD3687	2	25	15	5600			0
75682	KD3688	10	25	20	10000	-5	10	0

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75683	KD3686	2	20	15	4400	10	40	0
75684	KD3690	2	20	45	4000	-5	10	0
75685	KD3692	5	15	20	2400	-5	-10	0
75686	KD3693	5	20	40	6800	5	-10	0
75687	KD3694	5	20	35	6000	5	10	0
75688	KD4065	5	45	30	24000	15	-10	0.03
75689	KD4066	2	230	25	18400	-5	-10	0.025
75690	KD4063	10	115	20	14000	5	-10	0.02
75691	KD4064	10	25	25	6800	5	-10	0.24
75692	KD4062	110	360	280	72000	10	-10	0.11
75693	KD4060	5	55	25	16800	5	-10	0.085
75694	KD4059	10	140	25	18400	10	-10	0.025
75695	KD4058	115	210	40	40000	10	-10	0.03
75696	KD4057	70	230	45	40000	-5	-10	0.035
75697	KD4054	25	400	45	60000	20	-10	0.125
75698	KD4055	15	500	40	0			0.045
75699	KD4056	10	30	20	60000	10	-10	0.03
Plant b,e,h ↓ **75700**	KD4219	10	10	25	4800	5	10	0.015
75701	KD4218	10	30	20	4800	-5	10	0.015
75702	KD4220	10	10	10	3200	5	-10	0.015
75703	KD4222	10	15	40	6000	10	10	0.01
75704	KD4223	10	15	20	5200	5	10	0.02
75705	KD4224	10	10	10	3600	-5	-10	0.01
75706	KD4225	10	10	15	5200	5	-10	0.04
75707	KD4229	10	10	20	4800	5	30	0.025
75708	KD4228	10	10	20	6800	-5	10	0.025
75709	KD4228	10	10	20	6800	-5	10	0.025
75710	KD4230	50	5	10	2800	5	-10	0.01
75711	KD4232	10	10	10	2400	-5	-10	0.01
75712	KD4233	10	10	15	3200	-5	10	0.005
75713	KD4234	5	10	15	2400	10	10	0.005
75714	KD4235	40	15	25	5600	-5	20	0.015
75715	KD4236	10	10	20	6800	5	-10	0.01
75716	KD4238	10	20	40	9600	-5	-10	0.03
75717	KD4237	10	10	35	4800	50	-10	0.55
75718	KD4239	5	20	30	4800	-5	-10	0.02
75719	KD4240	10	10	10	4400	-5	10	0.01
75720	KD4242	10	10	55	6800	50	-10	0.055
75721	KD4167	5	-5	10	3600	-5	-10	0.01
75722	KD4168	5	-5	5	6000	-5	-10	0.01
75723	KD4169	10	5	15	8000	-5	-10	0.05
75724	KD4170	5	5	10	9600	10	-10	0.025
75725	KD4172	2	-5	10	12800	5	-10	0.015
75726	KD4151	5	5	20	5200	-5	-10	0.02
75727	KD4152	115	15	15	3200	-5	-10	0.105
75728	KD4153	10	10	10	8000	-5	-10	0.03
75729	KD4154	-2	-5	-5	2000	-5	-10	0.01
75730	KD4155	2	5	5	2400	-5	-10	0.04
75731	KD4157	2	-5	-5	1600	5	-10	0.01
75732	KD4156	2	20	10	22000	-5	10	0.085
75733	KD4158	2	-5	5	2400	10	-10	0.03
75734	KD4159	2	-5	-5	3600	15	-10	0.005
75735	KD4261	5	5	10	2400	5	-10	0.01

75736	KD4260	5	5	20	3200	-5	-10	0.005
75737	KD4259	5	10	30	3600	-5	-10	-0.003
75738	KD4258	10	15	30	5200	-5	-10	-0.003
75739	KD4257	5	15	30	4400	-5	-10	0.03

SHEET 1

SHEET 2

SHEET 3

SHEET 4

SHEET 5

SHEET 6

SHEET 7

SHEET 8

V20 Pb-Zn-Fe Drainage Anomaly

V27 W-Pb-Zn Drainage Anomaly

Broad Cu-Pb-Zn Drainage Anomaly

V25 W-Pb-Zn Drainage Anomaly

V26 Area of airborne EM anomalies. Maybe associated with Cu-dolomite mineralisation.

V19 Silica-sericite alteration zone.

Gold Drainage Anomaly

V22 Sericite-pyrite alteration zone with Cu-Pb-Zn Bedrock Anomalies

Cu-Zn Drainage Anomalies

V24 Gold Drainage Anomaly

Cu Bedrock Anomaly

V16 Magnetic Anomaly

Old Workings

Pb-Zn Drainage Anomaly

V18, V23 Cu-dolomite Association

V9 Chlorite-sericite-pyrite alteration zone.

V12 Au-Ag-Cu-Zn gossans / veins

Zn-Cu Drainage Anomaly

V9 Magnetic Anomaly

Lewis River Prospect

V2 Pb-Zn-Cu Bedrock Anomalies

V10

V21 Magnetite-pyrite Chemical Sediment

V14 Magnetic Anomaly

Gold adit

V6 Magnetic Anomaly

V7 Magnetic Anomaly

Pb-Zn Drainage Anomaly

V5 Magnetic Anomaly

V1 Pyrite-magnetite -Cu-(W) Chemical Sediment

V5 Magnetic Anomaly

Penders Prospect

Drake Ck Prospect

V3 Pb-Zn-Cu Bedrock Anomalies

magnetic horizon

intermediate volcanics and sediments

intermediate and basic volcanics

greywacke shales, Dundas

siltstone conglomerate and tuff

shale siltstone

Ordovician quartzites and conglomerates

argillites and black shales

sericitic acid pyroclastics and lavas

pink hematitic tuffs

coarse grained quartz-feldspar-biotite porphyry

greywackes shales and tuffs

chloritic acid pyroclastics and sediments

Cambrian granite

PRECAMBRIAN

Wanderer River

Hudson

Table Top

Moores Lookout

Frederick Hill

Brown Hill

North Broken Hills

South Broken Hills

Pass Hill

Rayview Hill

Lawson Range

Elliott Bay

Low Rocky Pt

LEGEND:

Qa QUATERNARY alluvium

T TERTIARY sediments

O ORDOVICIAN conglomerate and quartzite

CAMBRIAN

- Tyndal Group Correlates
- Dundas Group? greywackes, shales

MAINWARING GROUP

- Voridian Basic Volcanics
- Sassy Creek Argillites
- Penders Tuffs
- Undifferentiated

LEWIS RIVER VOLCANICS

- Wort Hill Pyroclastics quartz pebble conglomerate horizons
- Wanderer River Tuffs
- Hudson River Pyroclastics
- Elliott Point Porphyry

Cambrian granite

PRECAMBRIAN

Undifferentiated quartzite and meta sediments

AREA COVERED BY MAJOR DRAINAGE ANOMALIES:

- Gold
- Cu-Zn-(Pb)
- Pb-Zn
- Zn-Cu

BEDROCK (C-HORIZON SOIL) ANOMALIES:

- Pb-Zn-Cu
- Cu

GEOLOGICAL ANOMALIES:

- Pyrite bearing seiricite ± chlorite ± silica altered zones.
- Magnetite-pyrite chemical sediments ± Cu, ± W
- Dolomites with minor chalcopyrite
- Old Workings

5 cm

DATE: OCT' 1980
GEOLOGIST: R.R.L.
DRAWN: J. P. M.
CHECKED: RRL

GEOPEKO 970136
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

1000 750 500 250 0 1000 2000 3000
SCALE: 1:42 000

TS 27/76-2 I

E.L. 27/76 ELLIOTT BAY, TASMANIA

SUMMARY MAP OF E.L. 27/76:
MINERALIZATION and MAJOR ANOMALIES

001

81-1555 1/3

SOUTHERN OCEAN

ELLIOT BAY

REFERENCE

LOCALITY MAP

TAS

5 cm

970187

81-1555 1/3

GEOPEKO

SCALE 1 : 42 000

No. TS27/76-3 I

E.L. 27/76 ELLIOTT BAY, TASMANIA

AIRBORNE ELECTROMAGNETIC ANOMALIES

Surveyed by Geoex for B H P. April 1975

System — McPhar H 400

002

DATE

GEOLOGIST

DRAWN

CHECKED

SOUTHERN OCEAN

ELLIOT BAY

N

REFERENCE

SURVEY SPECIFICATIONS :-

HELICOPTER	Bell Jetranger 206B VH-BLR
E.M. SYSTEM	McPhar M 400 dual frequency sequential transmission 340 Hz and 4170 Hz
MAGNETOMETER	Geometrics G803 proton precession (reading accurate to ± 1 gamma)
DIURNAL RECORDER	Geometrics G806 proton precession magnetometer with Rustrak recorder and crystal clock
ALTIMETER	Bonzer radar
ANCILLARY EQUIPMENT	Geoex intervalometer Century 444 analogue right beam recorder Geoex fiducial recorder Vinten 16 mm ground tracking camera
READING INTERVAL	.025 seconds
NOMINAL AIRCRAFT SPEED	90 knots (Mean reading spacing 47 metres)
NOMINAL AIRCRAFT SURVEY ALTITUDE	140 metres (E.M. bird 50 metres) Mag. bird 120 metres)

5 cm

Magnetic Low

Traverse Line

Line Number (At start of line)

CONTOUR INTERVAL : 20 GAMMAS

LOCALITY MAP

T A S

Survey Area

970188

A2-1328

TS 27/76-41

GEOEX PTY LTD

THE BROKEN HILL PROPRIETARY COMPANY LIMITED

LEWIS RIVER AREA – TAS

AEROMAGNETIC TOTAL INTENSITY CONTOURS

1: 50 000

SCALE 500 0 500 1000 METRES

SURVEYED APRIL 1975		APPROVED J.E. HAIGH
DRAWN BY I.B.A.B.	PROJECT 7504	DWG Nº 2

81-1555 1/3 003

SHEET 2

382,000 E

391,000 E

5257,000 N.

SHEET 3

SHEET 4

E.L. BOUNDARY MARCH 1980

5251, 000 N.

SHEET 5

SHEET 6

5245,000 N.

SHEET 7

SHEET 8

COLOUR CODING:

19-6	10-20	ppm
19-10	20-30	"
19-21	30-40	"
19-32	40 +	"

5 cm

NO.

MEAN

S.D.

LEGEND

81-1555 1/3

GEOPEKO 004

ELLIOT BAY, TASMANIA

STREAM SEDIMENT GEOCHEMISTRY

ZINC, MEAN FOR 1 Km²

SCALE 1:42,000

0 500 1000 1500 2000 2500 3000m

TS 27/76-51

OCT. 1980

SHT NO. SK-55-7

970189

GEOLOGICAL INTERPRETATION

Pencil No.

- Qa QUATERNARY alluvium
- 19-70 Tg TERTIARY gravels and unconsolidated sediments
- 19-17 O ORDOVICIAN conglomerate and quartzite

CAMBRIAN

1. Tyndall Group Correlates
- 19-4 Grey shales and black shales
- 19-43 Reworked rhyolitic lithic tuffs and agglomerates

2 Dundas Group ?
- 19-26 Greywackes and shales

3. Mainwaring Group

a. Veridian Basic Volcanics
- 19-47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales
- 19-46 Dolomites and dolomitic shales

b. Sassy Creek Argillites
- 19-57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales

c. Penders Tuffs
- 19-30 Rhyolitic crystal tuffs and minor chloritic sediments

d. Undifferentiated
- 19-51 Undifferentiated lithologies in the N.W. of the E.L. include, intermediate to basic volcanics, siltstones, conglomerates and tuffs.

4 Lewis River Volcanics

a. Wort Hill Pyroclastics
- 19-29 Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and vitric tuffs
- 19-63 Quartz-pebble conglomerates quartzites and minor shales
- 19-67 Basic dykes and flows? intruding rhyolitic tuffs
- 19-10 Chlorite and/or sericite alteration of acid pyroclastics with 2-5% pyrite

b. Wanderer River Tuff
- 19-23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas

c. Hudson River Pyroclastics
- 19-40 Chloritic quartz-feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)
- 19-58 Shales, greywackes and fine tuffaceous sediments

d. Elliott Point Porphyry
- 19-22 Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive

e. Cambrian Granites
- 19-19 Undifferentiated granite and granite porphyry

PRECAMBRIAN
- 19-65 Undifferentiated quartzites and meta sediments
- 19-12 Quartz feldspar porphyry lava

5 cm

DATE: OCT' 1980
GEOLOGIST: R.R.L.
DRAWN: J. P. M.
CHECKED:

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
970100

1000 750 500 250 0 1000 2000 3000
SCALE: 1:25 000

TS 27/76-6I

E.L. 27/76 ELLIOTT BAY, TASMANIA
INTERPRETATION GEOLOGY
COMBINATION OF FACT GEOLOGY AND PHOTO INTERPRETATION

81-1555 1/3 005

GEOPEKO LIMITED
KING ISLAND GROUP

SCALE: 1:10,000

No. KT27/76-2A

E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP 006

DATE: OCT 1980
GEOLOGIST: J.S.
DRAWN: D.B., J.P.M.
CHECKED: R.R.L.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 1/3

970191

E.L. 27/76 BOUNDARY

AIRFIELD

BOMBARDIER

383 000E 384 000E 385 000E 386 000E 387 000E 388 000E 389 000E 390 000E 391 000E

5 262 000N 5 261 000N 5 260 000N 5 259 000N 5 258 000N 5 257 000N

LEGEND:

VOLCANIC ROCKS
lt lithic tuff
xt crystal tuff
vt vitric tuff
rdd rhyodacitic tuff
rdp porphyritic rhyodacite rounded clasts 32 mm
fr fragmental angular clasts 32 mm
xf undifferentiated tuffs
t tuff
qp quartz porphyry
qfp quartz feldspar porphyry
qfpp quartz feldspar biotite porphyry
l as a suffix denotes lava
bap basalt

PREFIXES (no prefix indicates bold composition)
c acid
i intermediate
rhy rhyolite or rhyolitic
dac dacite or dacitic
and andesite or andesitic
b basalt or basaltic
ba basic

SEDIMENTARY ROCKS
sh shale
sl siltstone
blsh blackshale
snd sandstone
qtz quartzite
gwk greywacke
ch chert
lmst limestone
dol dolomite
bx breccia
congl conglomerate
volcaniclastic sediment

METAMORPHIC ROCKS
phy phyllite
sch schist
gne gneiss
hfs hornsfels
mb marble

INTRUSIVE ROCKS
gr granite
gd granodiorite
ad adamellite
di diorite
lp/lamp lamprophyre
bd basic dyke
sp spilite
pg pegmatite
qv quartz veins

STRUCTURAL AND TEXTURAL
p porphyritic
clvd strongly cleaved
shd sheared
ox oxidized
ves vesicular
lam laminated
brec brecciated
sch schistose
vug vuggular (vughy, vug)
cran cranulated

MINERAL(OGICAL PREFIXES
sil silicified
chl chloritic
ser sericitic
cst cristobalite
fe ferruginous
py pyritic
ham,hm hematitic
gmn gamnetiferous
carb carbonate
arg argillic
fold foldspathic
ep epidote

GRAIN SIZE
fg fine grained 0 — 3 mm fragments
mg medium grained 3 — 10 mm fragments
cg coarse grained 10 — 32 mm fragments
agg agglomerate or vein breccia >32

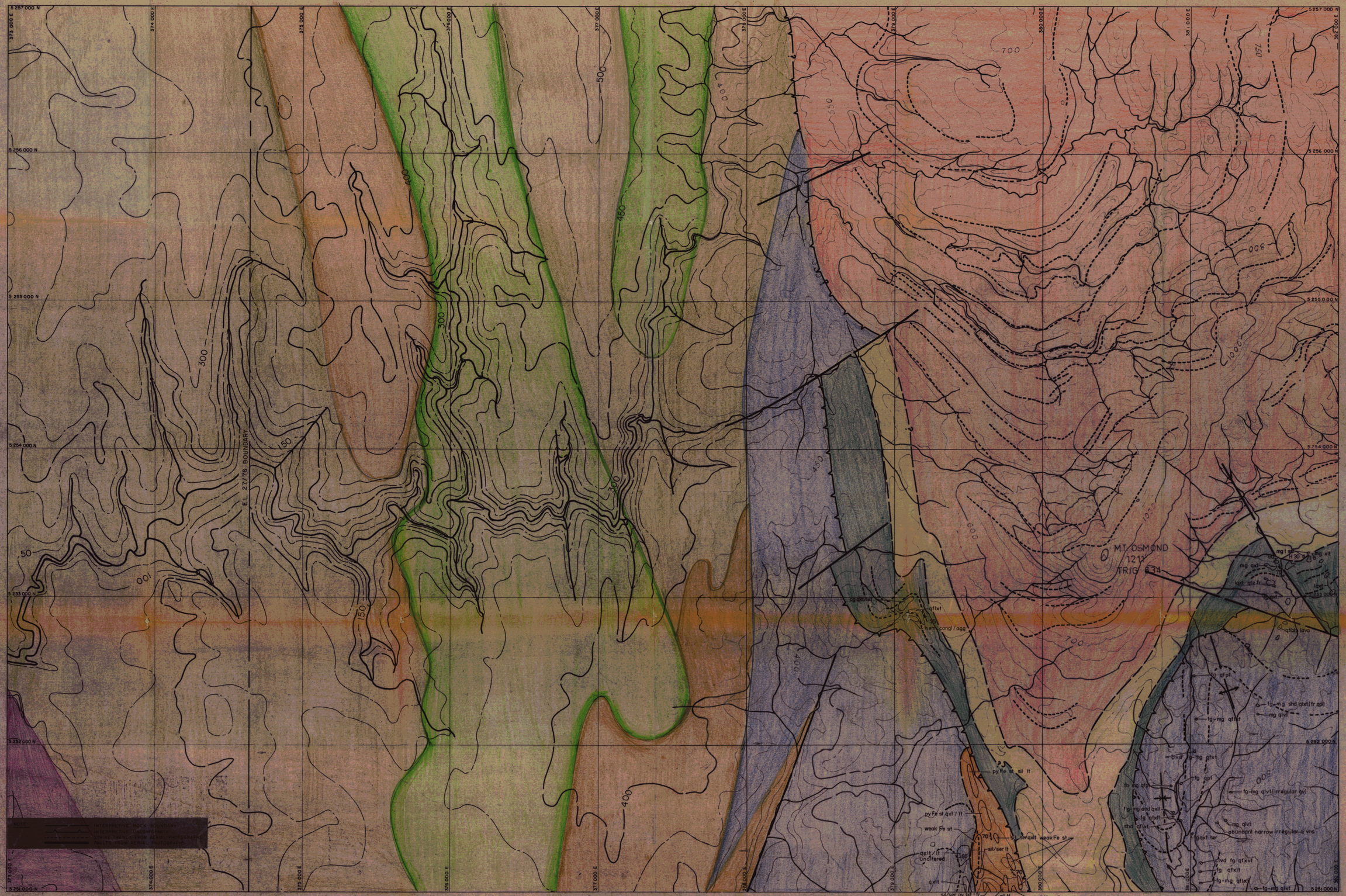
AGE DESIGNATION PREFIXES
Q Quaternary
T Tertiary
J Jurassic
TR Triassic
P Permian
S Silurian
O Ordovician
C Cambrian
PreC Precambrian

STRUCTURAL
contact
fault
bedding
strike/dip of film layering in volcanic rocks (schistosity (metamorphic foliation))
interpretive contact
jointing
cleavage
fold axis
vertical cleavage

STRATIGRAPHIC LEGEND
Qa QUATERNARY alluvium
Tg TERTIARY gravels and unconsolidated sediments
O GROOVICIAN conglomerate and quartzite
CAMBRIAN
1. Tyndall Group Correlates
19-4 Grey shales and black shales
19-43 Reworked rhyolitic lithic tuffs and agglomerates
2. Dundas Group ?
19-26 Greywackes and shales
3. Mainwaring Group
a. Veridian Basic Volcanics
19-47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales
19-48 Dolomites and dolomitic shales
b. Sassy Creek Argillites
19-57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales
c. Penders Tuffs
19-30 Rhyolitic crystal tuffs and minor chloritic sediments
d. Undifferentiated
19-51 Undifferentiated lithologies in the N.W. of the E.L. including basic to acid volcanics, siltstones, conglomerates and tuffs.
4. Lewis River Volcanics
a. Burt Hill Pyroclastics
19-29 Rhyolitic quartz-rich lithic and crystal tuffs, conglomerates, lavas and vitric tuffs
19-53 Quartz-pebble conglomerates quartzites and minor shales
19-67 Basic dykes and flows? intruding rhyolitic tuffs
19-10 Chlorite and/or sericite alteration of acid pyroclastics with 2 — 5 % pyrite
b. Wanderer River Tuff
19-23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas
c. Hudson River Pyroclastics
19-40 Chloritic quartz - feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)
19-58 Shales, greywackes and fine tuffaceous sediments
d. Elliott Point Porphyry
19-22 Coarse grained quartz-feldspar-biotite porphyry probably a subvolcanic intrusive
e. Cambrian Granites
19-19 Undifferentiated granite and granite porphyry
PRECAMBRIAN
19-65 Undifferentiated quartzites and meta sediments

NOTE:
INTERPRETIVE ROCK BOUNDARY
INTERPRETIVE UNCONFORMITY
STRIKE TRENDS FROM AERIAL PHOTOGRAPHS
FAULTS FROM AERIAL PHOTOGRAPHS

5 cm



[redacted]

LEGEND:

VOLCANIC ROCKS

xt	lithic tuff
vt	crystal tuff
vlt	vitric tuff
xlt	crystal lithic tuff
mbx	agglomerate rounded clasts 32 mm
fr	fragmental angular clasts 32 mm
ut	undifferentiated tuffs
lt	tuff
qp	quartz porphyry
qfp	quartz feldspar porphyry
qfpp	quartz feldspar biotite porphyry
l	as a suffix denotes lava
lap	lapilli

PREFIXES (no prefix indicates acid composition)

a	acid
i	intermediate
rhy	rhyolite or rhyolitic
dac	dacite or dacitic
and	andesite or andesitic
b	basalt or basaltic
ba	basic

SEDIMENTARY ROCKS

sh	shale
si	siltstone
blsh	blackshale
snd	sandstone
grt	greywacke
con	conglomerate
lmst	limestone
dol	dolomite
bx	breccia
congl	conglomerate
ve	volcaniclastic sediment

METAMORPHIC ROCKS

phy	phyllite
sch	schist
gne	gneiss
hfs	hornfels
mb	marble

INTRUSIVE ROCKS

gr	granite
gd	granodiorite
ad	adamellite
di	diorite
sy/sye	tonorphyre
bd	basic dyke
sp	spilite
PG	pegmatite
QT	quartz veins

STRUCTURAL AND TEXTURAL

p	porphyritic
clvd	strongly cleaved
shd	sheared
ot	oxidized
ens	veined
ten	tectonized
bx	brecciated
vug	vuggy
vvg	vuggier (vugly,vug)
cren	crenulated

MINERALOGICAL PREFIXES
(only use if diagnostic)

sil	siliceous
cbt	carbonate
chl	chloritic
vol	volcaniclastic
fe	ferruginous
py	pyritic
hem,hm	hematitic
gyps	gypsiferous
ep	epidotic
arg	argillic
fsp	feldspathic
spl	spilitic

GRAIN SIZE

fg	fine grained	0 – 3 mm fragments
mg	medium grained	3 – 10 mm fragments
cg	coarse grained	10 – 32 mm fragments
agg	agglomerate or volc breccia	> 32

AGE DESIGNATION PREFIXES

Q	Quaternary
T	Tertiary
J	Jurassic
TR	Triassic
P	Permian
D	Devonian
S	Silurian
O	Ordovician
C	Cambrian
PreC	Precambrian

STRUCTURAL

	outcrop
	bedding
	trending
	strike/dip of flow layering in volcanic rocks
	" " schistosity (metamorphic foliation)
	fault
	interpretive contact
	jointing
	cleavage
	fold axis
	vertical cleavage

STRATIGRAPHIC KEY TO GEOLOGICAL MAP

Qa QUATERNARY alluvium

TQ TERTIARY gravels and unconsolidated sediments

O ORDOVICIAN conglomerate and quartzite

CAMBRIAN:

1. Lower Sloop Correlates

19-4 Grey shales and black shales

19-43 Reworked rhyolitic lithic tuffs and agglomerates

2. Dundas Group ?

19-28 Greywackes and shales

3. Mainwaring Group

a. Verdun Basic Volcanics

19-47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales

19-46 Dolomites and dolomitic shales

b. Sassy Creek Argillites

19-57 Phyllitic, brown, grey shales, argillites, greywackes, and minor black shales

19-30 Rhyolitic crystal tuffs and minor clastic sediments

4. Undifferentiated

Undifferentiated lithologies in the N.W. of the E.L. including, intermediate to basic volcanics, siltstones, conglomerates, and tuffs.

19-51

4. Lewis River Volcanics

a. Mart Hill Pyroclastics

19-29 Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and vitric tuffs

19-63 Quartz-pebble conglomerates quartzites and minor shales

19-67 Basic dykes and flows? intruding rhyolitic tuffs

19-60 Chlorite and/or sericite alteration of acid pyroclastics with 2-5% pyrite

b. Wanderer River Tuff

19-23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas

5. Hudson River Pyroclastics

19-40 Chloritic quartz- feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)

19-59 Shales, greywackes and fine tuffaceous sediments

6. Elliott Point Porphyry

19-22 Coarse grained quartz- feldspar- biotite porphyry probably a sub-volcanic intrusive

7. Cambrian Granites

19-19 Undifferentiated granite and granite porphyry

PRECAMBRIAN

19-65 Undifferentiated, quartzites and meta sediments

5 cm

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

970192

SCALE: 1:10 000

No. KT27/76-3A

E.L. 27/76
ELLIOTT BAY, TASMANIA

GEOLOGICAL MAP 007

81-1555

DATE: Oct 80
GEOLOGIST: R.E.L. W.H.
DRAWN: D.G.
CHECKED: R.E.L.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

13

970193

LEGEND:

VOLCANIC ROCKS

lt	lithic tuff
vt	vitreous tuff
xt	crystal tuff
vlt	vitric-lithic tuff
vgt	agglomeratic tuff
fr	fragmental angular clasts 32 mm
ut	undifferentiated tuffs
l	lava
qp	quartz porphyry
qfp	quartz feldspar porphyry
pfp	quartz feldspar plotite porphyry
/	as in suffix denotes lava
lap	lapilli

PREFIXES (in prefix indicates acid composition)

r	rhyolite
rhy	rhyolitic or rhyolite
dac	dacite or dacitic
and	andesite or andesitic
b	basalt or basaltic
ba	basic

SEDIMENTARY ROCKS

sh	shale
sl	siltstone
bksh	blackshale
ss	sandstone
qtz	quartzite
grt	greywacke
cg	conglomerate
ls	limestone
cgl	calcareous
bx	breccia
congl	conglomerate
vs	volcaniclastic sediment

METAMORPHIC ROCKS

phy	phyllite
s	schist
gne	gneiss
hfs	hornfels
mb	marble

INTRUSIVE ROCKS

gr	granite
gd	granodiorite
ad	adamellite
di	diorite
lp/lamp	lamprophyre
bd	basic dyke
sp	spilite
pg	pegmatite
qv	quartz veins

STRUCTURAL AND TEXTURAL

p	porphyritic
strd	strongly sheared
shd	sheared
ox	oxidized
rekd	reknded
lam	laminated
brc	brecciated
schi	schistose
wrg	regular (rugby, wg)
crse	crenulated

MINERALOGICAL PREFIXES (only use if diagnostic)

sil	siliceous
chl	chloritic
ser	sericitic
carb	carbonaceous
fe	ferruginous
py	pyritic
hem,hm	hematitic
gran	granamous
lim	limonitic
org	organic
feld	feldspathic
ep	epidote

GRAIN SIZE

fg	fine grained	0 – 3 mm fragments
mg	medium grained	3 – 10 mm fragments
cg	coarse grained	10 – 32 mm fragments
agg	agglomerate or vole breccia	> 32

AGE DESIGNATION PREFIXES

Q	Quaternary
T	Tertiary
J	Jurassic
TR	Triassic
P	Permian
D	Devonian
S	Silurian
O	Ordovician
C	Cambrian
PreC	Precambrian

STRUCTURAL

	anticline
	fault
	bedding
	strike/dip of flow (covering to volcanic rocks
	foliation/dip (metamorphic foliation)
	interpretative contact
	jointing
	cleavage
	fold axis
	vertical cleavage

GEOLOGICAL SUMMARY

Recent

Qa QUATERNARY alluvium

TERTIARY gravels and unconsolidated sediments

Tg ORDOVICIAN conglomerate and quartzite

CAMBRIAN

1. Tyndall Group Correlates

- Grey shales and black shales
- Reworked rhyolitic lithic tuffs and agglomerates

2. Dundas Group ?

- Greywackes and shales

3. Mulcowany Group

a. Variolian Basic Volcanics

- Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales
- Dolomites and dolomitic shales

b. Stony Creek Argillites

- Phyllitic brown, grey shales, argillites, greywackes and minor black shales

c. Penders Tuffs

- Rhyolitic crystal tuffs and minor chloritic sediments

d. Undifferentiated

- Undifferentiated lithologies in the N.W. of the E.L. include, intermediate to basic volcanics, siltstones, conglomerates and tuffs.

4. Lewis River Volcanics

a. Hurl Hill Pyroclastics

- Rhyolitic quartz-rich lithic and crystal tuffs, agglomerates, lavas and minor tuffs
- Quartz-pebble conglomerates quartzites and minor shales
- Basic dykes and flows? intruding rhyolitic tuffs
- Chloritic and/or sericitic alteration of acid pyroclastics with 0 – 5 % pyrite

b. Wanderer River Tuff

- Rich hematitic rhyolitic crystal and lithic tuffs, minor lavas

c. Hadson River Pyroclastics

- Chloritic quartz- feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)
- Shales, greywackes and fine tuffaceous sediments

d. Elliott Point Porphyry

- Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive

e. Cambrian Granites

- Undifferentiated granite and granite porphyry

PRECAMBRIAN

- Undifferentiated quartzites and meta sediments

NOTE:
- INTERPRETIVE ROCK BOUNDARY
- INTERPRETIVE UNCONFORMITY
- STRIKE TRENDS FROM AERIAL PHOTOGRAPHS
- FAULTS FROM AERIAL PHOTOGRAPHS

5 cm

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

SCALE: 1:10,000

No. KT27/76-4A

E.L. 27/76
ELLIOTT BAY, TASMANIA

003

GEOLOGICAL MAP

DATE: OCT '80
GEOLOGIST: J.S. W.H.
DRAWN: J.P.M.
CHECKED: R.R.L.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 1/3

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

970194

SCALE: 1:10,000

No. KT27/76-5A

E.L. 27/76

ELLIOTT BAY, TASMANIA

GEOLOGICAL MAP

81-1555 16

KT27/76-1	KT27/76-2		
KT27/76-3	KT27/76-4		
KT27/76-5	KT27/76-6		
KT27/76-7	KT27/76-8		

DATE: Oct 1980

GEOLOGIST: R.E.L.

DRAWN: D. E.

CHECKED: R.E.L.

5 cm

E.L. 27/76 BOUNDARY

VOYAGER 22

pyritic hulf horizon 25m wide. fracture controlled, acid pyrite and disseminated pyrite KR 6375

VOYAGER 21

VOYAGER 9

AEM 30 approx

V17 GRID LINE 10 000 mN

CAMP

Boundaries

Joints

Faults

sequence 20m wide of Fe st sh and dolomite. One dol bed is 0·5m thick and contains pods of qtz-dol Σ sulphides. One pod 1m long x 20cm wide contains 10% py and 0·2-0·5% Cu. KR 5892, KR 5893 - KR 5894

del-qtz horizon 5m wide Σ interbedded shale. Minor dissem. py and malachite staining. KR 5886, KR 5887 - KR 5888

NOTE: INTERPRETIVE ROCK BOUNDARY; INTERPRETIVE UNCONFORMITY; STRIKE TRENDS FROM AERIAL PHOTOGRAPHS PLOTTED FROM AERIAL PHOTOGRAPHS

LEGEND:

VOLCANIC ROCKS

lt	lithic tuff
ct	crystal tuff
vt	vitric tuff
xlt	crystal lithic tuff
agg	agglomerate rounded clasts 32mm
fr	fragmental angular clasts 32mm
ut	undifferentiated tuffs
t	tuff
qp	quartz porphyry
afp	quartz feldspar porphyry
qfbp	quartz feldspar biotite porphyry
l	aa or suffix denotes lava
lap	lapilli

PREFIXES (no prefix indicates acid composition)

i	intermediate
rhy	rhyolite or rhyolitic
doc	dacite or dacitic
and	andesite or andesitic
b	basalt or basaltic
bs	basic

SEDIMENTARY ROCKS

sh	shale
sl	siltstone
bksh	blackshale
sst	sandstone
qtz	quartzite
gwk	greywacke
cgl	conglomerate
lmst	limestone
dol	dolomite
bx	breccia
congl	conglomerate
vs	volcaniclastic sediment

METAMORPHIC ROCKS

phy	phyllite
sch	schist
gne	gneiss
hfs	hornfels
mb	marble

INTRUSIVE ROCKS

gr	granite
gd	granodiorite
ad	adamellite
dl	dolerite
lp/lamp	lamprophyre
bd	basic dyke
op	opalite
pg	pegmatite
qv	quartz veins

STRUCTURAL AND TEXTURAL

p	porphyritic
clvd	strongly cleaved
shd	sheared
ox	oxidized
vns	veined
lam	laminated
bx	brecciated
sch	schistose
vug	vuggular (rarely, vug)
cren	crenulated

MINERALOGICAL PREFIXES (only use if diagnostic)

sil	siliceous
chl	chloritic
ser	sericitic
cb	carbonaceous
fe	ferruginous
py	pyritic
hem, hm	hematitic
goss	gossanous
ilm	ilmenitic
org	organic
fsd	feldspathic
ep	epidote

GRAIN SIZE

fg	fine grained	0 — 3 mm fragments
mg	medium grained	3 — 10 mm fragments
cg	coarse grained	10 — 32 mm fragments
agg	agglomerate or vole breccia	> 32

AGE DESIGNATION PREFIXES

Q	Quaternary
T	Tertiary
J	Jurassic
TR	Triassic
P	Permian
D	Devonian
S	Silurian
O	Ordovician
C	Cambrian
PreC	Precambrian

STRUCTURAL

	outcrop
	float
	bedding
	strike/dip of flow layering in volcanic rocks *schistosity (metamorphic foliation)
	fault
	interpretive contact
	jointing
	cleavage
	fold axis
	vertical cleavage

Qa QUATERNARY alluvium

19-70 Tg TERTIARY gravels and unconsolidated sediments

19-17 O ORDOVICIAN conglomerate and quartzite

CAMBRIAN

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19-4 Grey shales and black shales

19-43 Reworked rhyolitic lithic tuffs and ogglomerates

2 Dundas Group ?

19-26 Greywackes and shales

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a. Veridian Basic Volcanics

19-47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales

19-46 Dolomites and dolomitic shales

b. Sassy Creek Argillites

19-57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales

c. Penders Tuffs

19-30 Rhyolitic crystal tuffs and minor chloritic sediments

d. Undifferentiated

19-51 Undifferentiated lithologies in the N.W. of the E.L. include, intermediate to basic volcanics, siltstones, conglomerates and tuffs

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19-67 Basic dykes and flows? intruding rhyolitic tuffs

19-10 Chlorite and/or sericite alteration of acid pyroclastics with 2-5% pyrite

b. Wanderer River Tuff

19-23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas

c. Hudson River Pyroclastics

19-40 Chloritic quartz-feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (lavas?)

19-58 Shales, greywackes and fine tuffaceous sediments

d. Elliott Point Porphyry

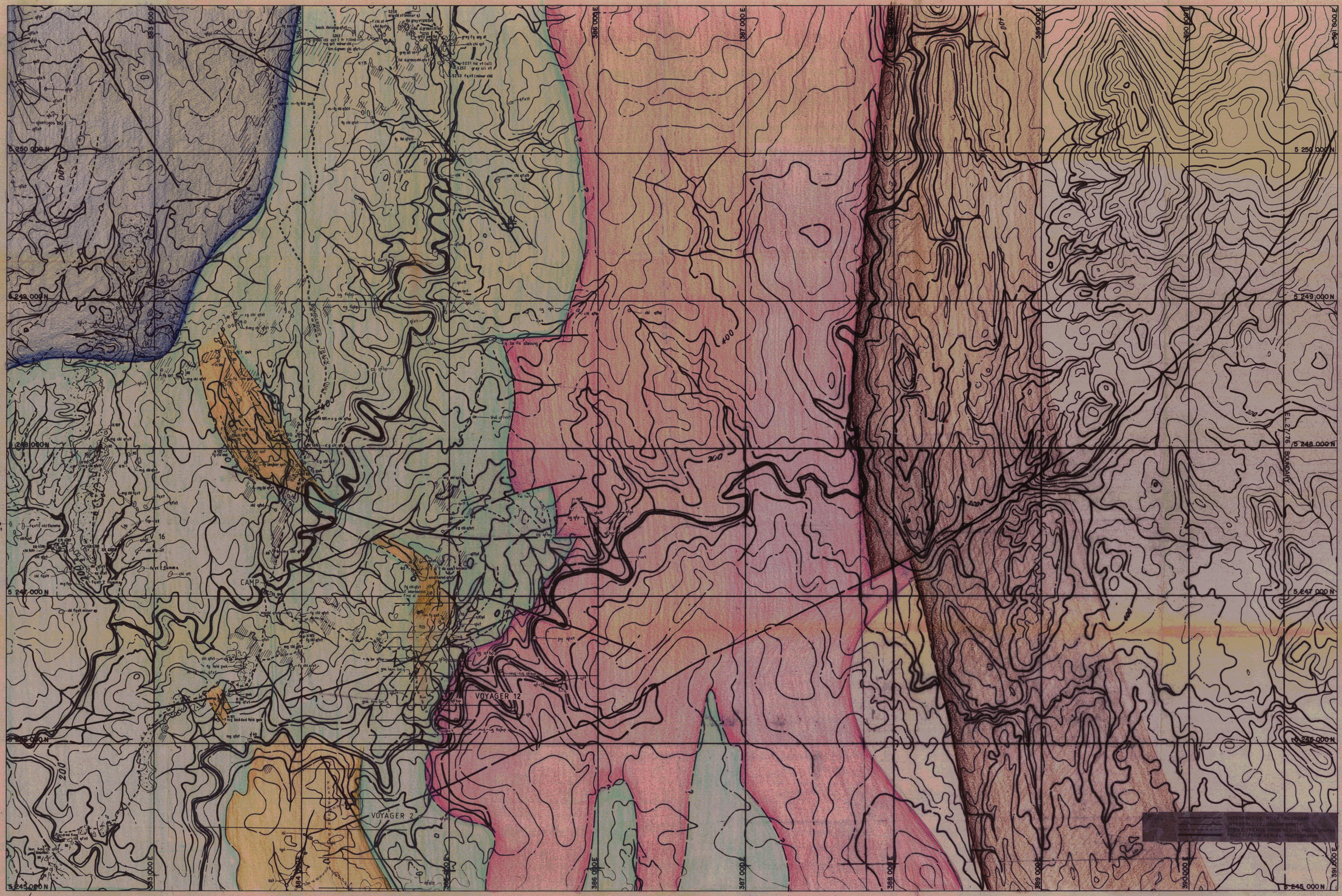
19-22 Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive

e. Cambrian Granites

19-19 Undifferentiated granite and granite porphyry

PRECAMBRIAN

19-65 Undifferentiated quartzites and meta sediments



81-15551 1/3

LEGEND:

VOLCANIC ROCKS

it	lithic tuff
st	crystal tuff
vt	vitric tuff
xtt	crystal lithic tuff
agg	agglomerate rounded clasts 32 mm.
fr	fragmental angular clasts 32 mm.
ut	undifferentiated tuffs
t	tuff
qp	quartz porphyry
qfp	quartz feldspar porphyry
qfbp	quartz feldspar biotite porphyry
l	as a suffix denotes lava
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PREFIXES (no prefix indicates acid composition)

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rhy	rhyolite or rhyolitic
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bx	breccia
cong	conglomerate
vs	volcaniclastic sediment

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phy	phyllite
sch	schist
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hfs	hornfels
mb	marble

INTRUSIVE ROCKS

gr	granite
ad	monzodiorite
ad	adamellite
di	diorite
lp/lamp	lamprophyre
bd	basic dyke
ep	epidote
pg	pegmatite
qv	quartz veins

STRUCTURAL AND TEXTURAL

p	porphyritic
clvd	strongly sheared
shd	sheared
ox	oxidized
vns	veined
ism	intensively silicified
sh	silicified
vug	vuggular (vughy, vug)
cren	crenulated

MINERALOGICAL PREFIXES
(only use if diagnostic)

si	siliceous
chl	chloritic
ser	sericitic
ca	calcareous
fe	ferruginous
py	pyritic
ep	epidotic
gen	genetic
lim	limonitic
org	orgitic
feld	feldspathic
ep	epidote

GRAIN SIZE

fg	fine grained	0 – 3 mm fragments
mg	medium grained	3 – 10 mm fragments
cg	coarse grained	10 – 32 mm fragments
agg	agglomerate or vole breccia	>32

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T	Tertiary
J	Jurassic
TR	Triassic
P	Permian
D	Devonian
S	Silurian
O	Ordovician
C	Cambrian
PreC	Precambrian

STRUCTURAL

- bedding
- strike/dip of flow layering in volcanic rocks *schistosity (metamorphic foliation)
- fault
- interpretive contact
- jointing
- cleavage
- fold axis
- vertical cleavage

GEOLOGICAL INTERPRETATION:

Recent

Qa QUATERNARY alluvium

19–70 Tg TERTIARY gravels and unconsolidated sediments

19–17 O ORDOVICIAN conglomerate and quartzite

CAMBRIAN

Tyndall Group Correlates

19–4 Grey shales and black shales

19–43 Reworked rhyolitic lithic tuffs and conglomerates

2. Dundas Group ?

19–24 Greywackes and shales

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a. Veridian Basic Volcanics

19–47 Andesitic to basaltic tuffs, lavas, lava breccias and tuffaceous shales

19–46 Dolomites and dolomitic shales

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19–57 Phyllitic brown, grey shales, argillites, greywackes and minor black shales

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19–30 Rhyolitic crystal tuffs and minor chloritic sediments

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19–51 Undifferentiated lithologies in the N.W. of the E.L. include, intermediate to basic volcanics, siltstones, conglomerates and tuffs.

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a. Wurt Hill Pyroclastics

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19–53 Quartzrutile conglomerates quartzites and minor shales

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19–10 Chlorite and/or sericite alteration of acid pyroclastics with 2–5% pyrite

b. Wanderer River Tuff

19–23 Pink hematitic rhyolitic crystal and lithic tuffs, minor lavas

c. Hudson River Pyroclastics

19–40 Chloritic quartz-feldspar crystal and lithic tuffs plus biotite bearing rhyolite porphyries (flows?)

19–58 Shales, greywacken and fine tuffaceous sediments

d. Elliott Point Porphyry

19–22 Coarse grained quartz-feldspar-biotite porphyry probably a sub-volcanic intrusive.

e. Cambrian Granites

19–19 Undifferentiated granite and granite porphyry

PRECAMBRIAN

19–65 Undifferentiated quartzites and meta sediments

5 cm

DATE: Oct 1976
GEOLOGIST: A.H.
DRAWN: D.G.
CHECKED: R.L.

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
970195

SCALE: 1:10,000

No. KT27/76-6A

E.L. 27/76
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP
010

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

GEOLOGICAL MAP

E.L. 27/76
ELLIOTT BAY, TASMANIA

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No. KT27/76-7A

011

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

SCALE: 1:10,000

5 cm

DATE: Oct 1980.
GEOLOGIST: GDS
DRAWN: DS
CHECKED:

81-1555

LEGEND:

VOLCANIC ROCKS

lt lithic tuff
xt crystal tuff
vt vitric tuff
xlt crystal lithic tuff
agg agglomerate rounded clasts 32 mm
br fragmental angular clasts 32 mm
t undifferentiated tuffs
v tuff
qp quartz porphyry
qfp quartz feldspar porphyry
qfbp quartz feldspar biotite porphyry
a as a suffix denotes lava
lap lapilli

PREFIXES (no prefix indicates acid composition)
a acid
i intermediate
rhy rhyolite or rhyolitic
dac dacite or dacitic
and andesite or andesitic
b basalt or basaltic
ba basic

SEDIMENTARY ROCKS

sh shale
ms siltstone
blksh blackshale
sst sandstone
qtz quartzite
gwk greywacke
ch chert
lmst limestone
dol dolomite
cgl conglomerate
bxgl bxglomerate
vs volcaniclastic sediment

METAMORPHIC ROCKS

phy phyllite
sch schist
gns gneiss
hfs hornfels
mb marble

INTRUSIVE ROCKS

gr granite
gd granodiorite
ad adamellite
dol dolerite
lp/lamp lamprophyre
bd basic dyke
op opalite
pg pegmatite
qv quartz veins

STRUCTURAL AND TEXTURAL

p porphyritic
clvd strongly cleaved
shd sheared
vns veined
vnl veined
com laminated
bx brecciated
sch schistose
vug vugular (rugby, vug)
cren crenulated

MINERALOGICAL PREFIXES
(only use if diagnostic)

sil siliceous
chl chloritic
ser sericitic
cal calcareous
fe ferruginous
py pyritic
hem,hm hematitic
gnts gametous
lim limonitic
arg argillic
feld feldspathic
ep epidote

GRAIN SIZE

fg	fine grained	0 – 3mm fragments
mg	medium grained	3 – 10mm fragments
cg	coarse grained	10 – 32mm fragments
agg	agglomerate or vole breccia	> 32

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Q Quaternary
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J Jurassic
TR Triassic
P Permian
D Devonian
S Silurian
O Ordovician
E Cambrian
Pre E Precambrian

STRUCTURAL

volcanic float
bedding
strike/dip of flow layering in volcanic rocks
" " schistosity (metamorphic foliation)
fault
intergrative contact
jointing
cleavage
fold axis
vertical cleavage

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Qa QUATERNARY alluvium

19-70 Tg TERTIARY gravels and unconsolidated sediments

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NOTE:
INTERPRETIVE ROCK BOUNDARY
INTERPRETIVE UNCONFORMITY
STRIKE TRENDS FROM AERIAL PHOTOGRAPHS
FAULTS FROM AERIAL PHOTOGRAPHS

VOYAGER 2

VOYAGER 10

VOYAGER 14

VOYAGER 15

VOYAGER 3

CAMP

OLD WORKINGS

BOMBAREE

E.L. 27/76 BOUNDARY

383 000 E | 384 000 E | 385 000 E | 386 000 E | 387 000 E | 388 000 E | 389 000 E | 390 000 E | 391 000 E

5 244 000 N | 5 243 000 N | 5 242 000 N | 5 241 000 N | 5 240 000 N | 5 239 000 N

NOTE:
- INTERPRETIVE ROCK BOUNDARY
- INTERPRETIVE UNCONFORMITY
- STRIKE TRENDS FROM AERIAL PHOTOGRAPHS
- FAULTS FROM AERIAL PHOTOGRAPHS

NOTE:
1. DATA TRANSFERRED FROM C.D. STRICKLAND (1979) - REQUIRES REMAPPING IN 1980-81 SEASON.
2. ROCKS MAPPED AS QUARTZ FELDSPAR PORPHYRY LAVAS (qfpl or qpl) MAY BE FOLIATED QUARTZOFELDSPAR CRYSTAL TUFFS OR ASH FLOW TUFFS. THIS WAS MAPPED BY C.D. STRICKLAND WHO INTERPRETED THIS SUITE TO BE DOMINANTLY LAVAS RATHER THAN PYROCLASTICS. (REFER SHEET 6)

THICK TERTIARY GRAVELS

THIN TERTIARY GRAVELS

LEGEND:

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	fault
	bedding
	strike/dip of flow layering in volcanic rocks "schistosity (metamorphic foliation)
	fault
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Report No.

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PRECAMBRIAN

19-65 Undifferentiated quartzites and meta sediments

5 cm

SCALE: 1:10,000

DATE: OCT 1980

GEOLOGIST: CDS

DRAWN: DB

CHECKED: KM

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970197

No. KT27/76-8 A

E.L. 27/76 012
ELLIOTT BAY, TASMANIA
GEOLOGICAL MAP

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555-13

970198

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PROGRESS REPORT EL 27 / 76

ELLIOTT BAY 1979 / 80 FIELD SEASON

VOLUME II : Geochemical & Geological maps

R R LARGE
DEVONPORT

VOL II of 3 MARCH 1981

003

LIST OF PLANS IN VOLUME 2

970199 P.1

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		Scale
KT 27/26 - 2B	Drainage Geochemical Results Cu, Pb, Zn	1:10000
KT 27/26 - 3B	Drainage Geochemical Results Cu, Pb, Zn	1:10000
KT 27/26 - 4B	Drainage Geochemical Results Cu, Pb, Zn	1:10000
KT 27/26 - 5B	Drainage Geochemical Results Cu, Pb, Zn	1:10000
KT 27/26 - 6B	Drainage Geochemical Results Cu, Pb, Zn	1:10000
KT 27/26 - 7B	Drainage Geochemical Results Cu, Pb, Zn	1:10000

TS 27/26 - 2E	Drainage Geochemical Results Fe, Sn, W	1:10000
KT 27/26 - 3E	Drainage Geochemical Results Fe, Sn, W	1:10000
KT 27/26 - 4E	Drainage Geochemical Results Fe, Sn, W	1:10000
KT 27/26 - 5E	Drainage Geochemical Results Fe, Sn, W	1:10000
KT 27/26 - 6E	Drainage Geochemical Results Fe, Sn, W	:10000
KT 27/26 - 7E	Drainage Geochemical Results Fe, Sn, W	:10000
TS 27/26 - 2H	Stream Sediment Geochemistry - Au	1:10000
TS 27/26 - 3H	Stream Sediment Geochemistry - Au	1:10000
TS 27/26 - 4H	Stream Sediment Geochemistry - Au	1:10000
TS 27/26 - 5H	Stream Sediment Geochemistry - Au	1:10000
TS 27/26 - 6H	Stream Sediment Geochemistry - Au	1:10000
TS 27/26 - 7H	Stream Sediment Geochemistry - Au	1:10000
TS 27/26 - 2C	Drainage Sample Location Map	1:10000
KT 27/26 - 3C	Drainage Sample Location Map	1:10000
KT 27/26 - 4C	Drainage Sample Location Map	1:10000
KT 27/26 - 5C	Drainage Sample Location Map	1:10000
KT 27/26 - 6C	Drainage Sample Location Map	1:10000
KT 27/26 - 7C	Drainage Sample Location Map	1:10000
TS 27/26 - V3 - 12	Summary Map - Pb Soil Contours, Polarisable Zones, E.M. Zones.	
TS 27/26 - V6 - 3	C - Horizon Geochemical Results Cu, Pb, Zn, W, Sn, Fe, and Total Magnetic Intensity Profiles	

005

970201 P3

TS 27/26 - V7 - 3 C - Horizon Geochem Profiles Cu, Pb, Zn, Fe, Sn, W, Au, Line 12800N

TS 27/26 - V7 - 4 C - Horizon Geochem Profiles Cu, Pb, Zn, Fe, Sn, W, Au, Line 13000N

TS 27/26 - V9 - 9 Geology Map 1:2500

TS 27/26 - V9 - 10 C - Horizon Geochemical Results Cu Contours

TS 27/26 - V9 - 11 C - Horizon Geochemical Results Pb, Zn Contours

TS 27/26 - V9 - 12 C - Horizon Geochemical Results Fe Contours

TS 27/26 - V10 -10 Summary Map : Pb Soil Geochemistry

TS 27/26 - V12 - 2 Geology Map 1:2500

TS 27/26 - V12 - 3 C - Horizon Geochemical Result - Copper Contours

TS 27/26 - V12 - 4 C - Horizon Geochemical Result - Lead Contours

TS 27/26 - V12 - 5 C - Horizon Geochemical Result - Zn Contours

TS 27/26 - V12 -13 Geological Cross Section 300S D.D.H. 5 & 3

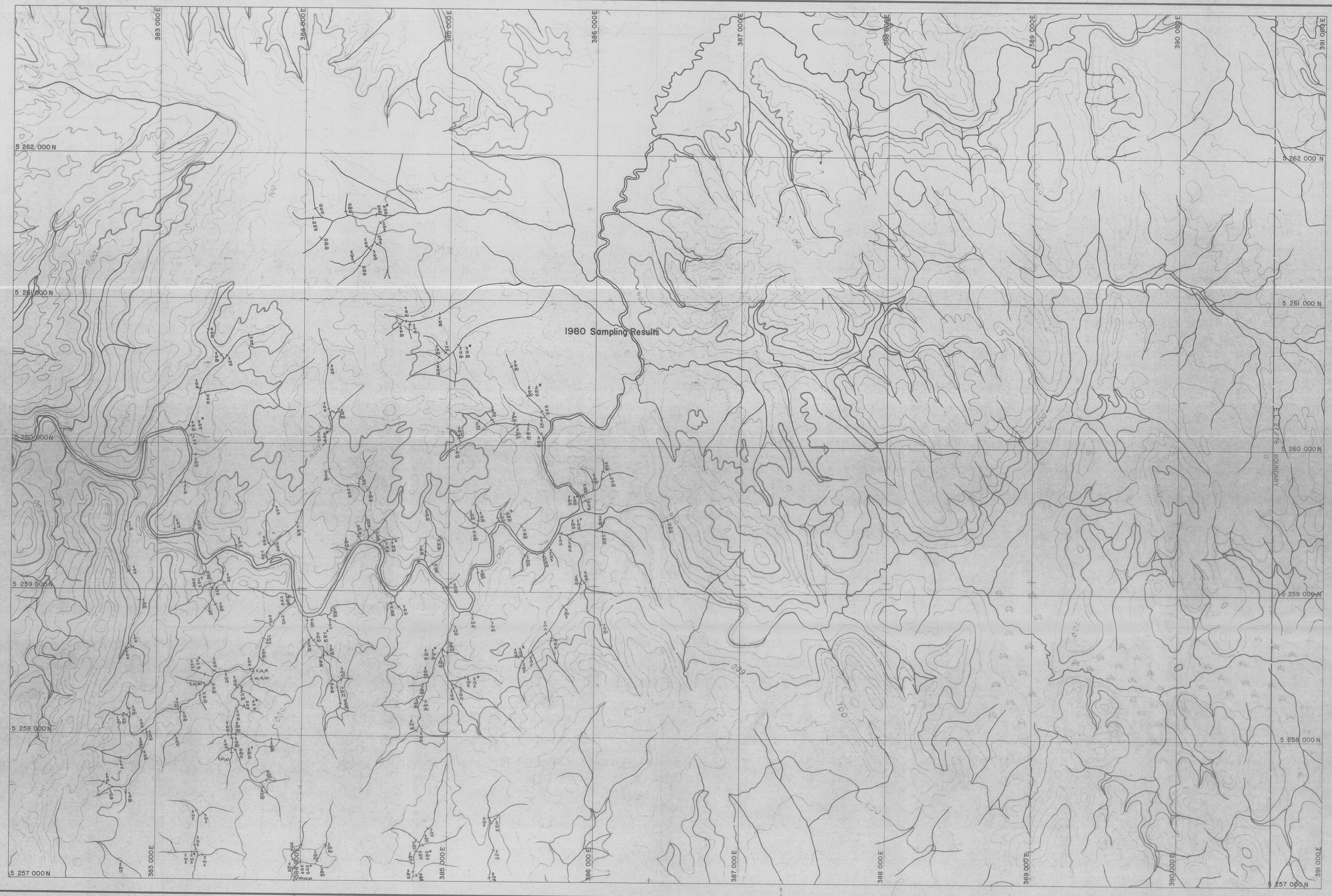
TS 27/26 - V12 - 9 Geochemical Results on Profile D.D.H-1

TS 27/26 - V12 -10 Geochemical Results on Profile D.D.H-2

V14 - 1 Voyager 14 Magnetic Reconnaissance Traverses (in text)

TS 27/26 - V17 - 3 C - Horizon Geochemical Profiles Cu, Pb, Zn, Fe and Magnetic Profile

TS 27/26 - V20 - 2 Summary Map - Geology & Geochemical Results 1:10000



LEGEND:

1980 Sampling

5 — Cu ppm
10 — Pb ppm
10 — Zn ppm

ANOMALOUS VALUES

Copper > 10 ppm (1980 Sampling)
Lead > 30 ppm
Zinc > 35 ppm

5 cm

DATE: July 1977
GEOLOGIST:
DRAWN: L.G.
CHECKED: M.C.R.

GEOPEKO LIMITED
KING ISLAND GROUP

970202

SCALE: 1:10,000

No. KT27/76-2B

E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD, ZINC

013

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 2/3

1977 – 1979
Sampling Results

1980 Sampling Results

MT. OSMOND
1211
TRIG 634

E.L. 27/76 BOUNDARY

LEGEND: 1977–1979 Sampling

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc HCL leach and HCL/HNO_3 leach in latter stages for 1 hour of 0·25g sample.

A.C.S. Laboratories Pty LTD.

1980 Sampling

A.A.S. Analyses at A.L.S. Laboratories, Brisbane.

Anomalous Values – Drainage Samples:
(colour marked from sample location upstream to next location)

Copper ≥ 6 ppm (1977-79 Sampling)
≥ 10 ppm (1980 Sampling)
Lead ≥ 30 ppm (All Sampling)
Zinc ≥ 35 ppm (" ")

5 cm

DATE: AUG. 1979
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: CDS

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
970203

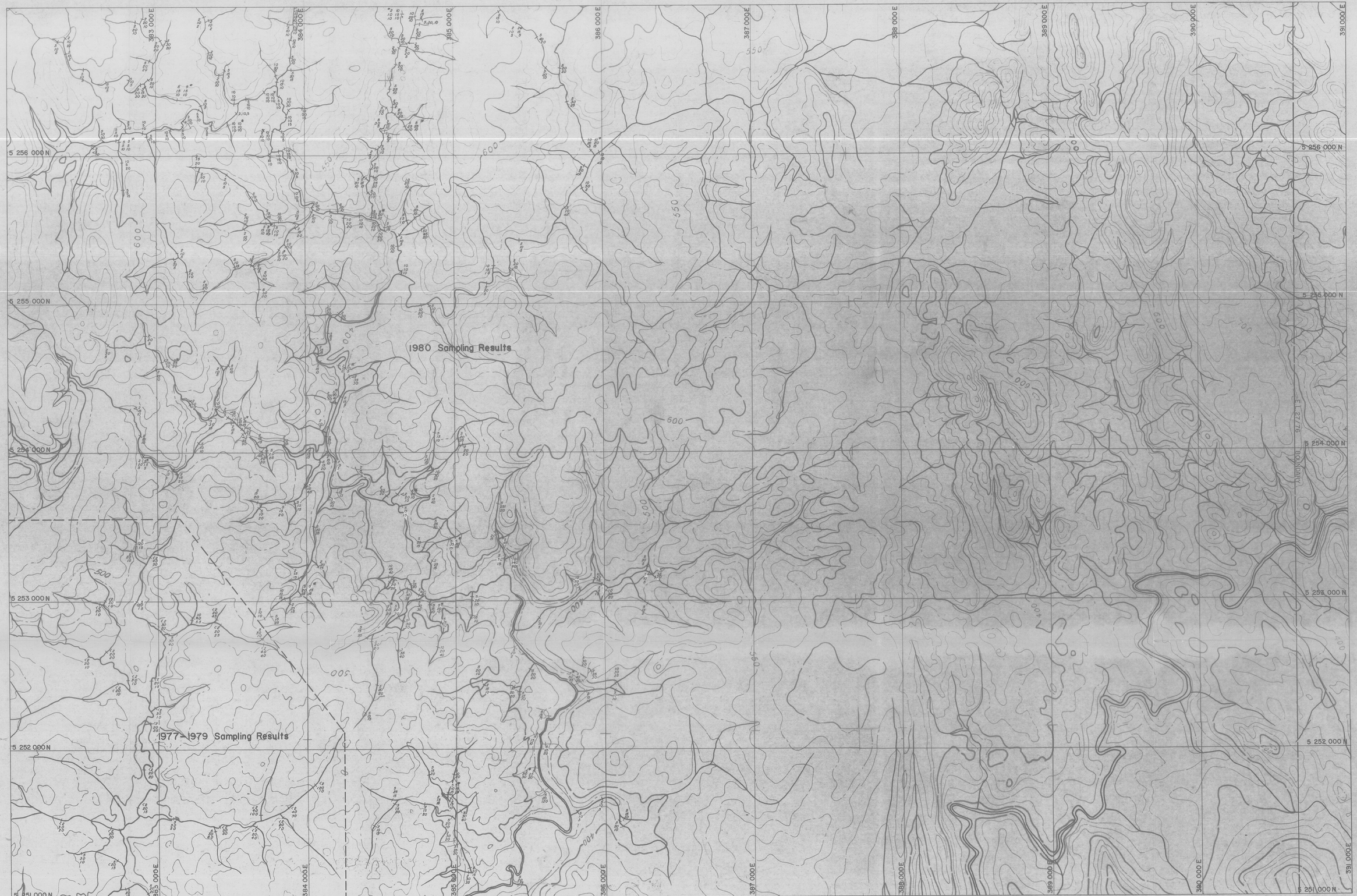
SCALE: 1:10 000

No. KT27/76-38

E.L. 27/76 014
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

01-1554 2/3
8-1-1554



LEGEND: 1977-79 Sampling

2 Cu ppm
50 Pb ppm
55 Zn ppm

1980 Sampling

10 Cu ppm
45 Pb ppm
40 Zn ppm

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc HCL leach and HCL / HNO3 each in latter stages for 1 hour of 0·25g sample.

A.C.S. Laboratories Pty. LTD.

A.A.S. Analyses at A.L.S. Laboratories, Brisbane.

Anomalous Values – Drainage Samples
(colour marked from sample location upstream to next location)

Copper > 5 ppm (1977-79 Sampling)
10 ppm (1980 Sampling)
Lead > 30 ppm (All Sampling)
Zinc > 35 ppm (" ")

5 cm

DATE: Aug 1979
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED:

GEOPEKO 970204

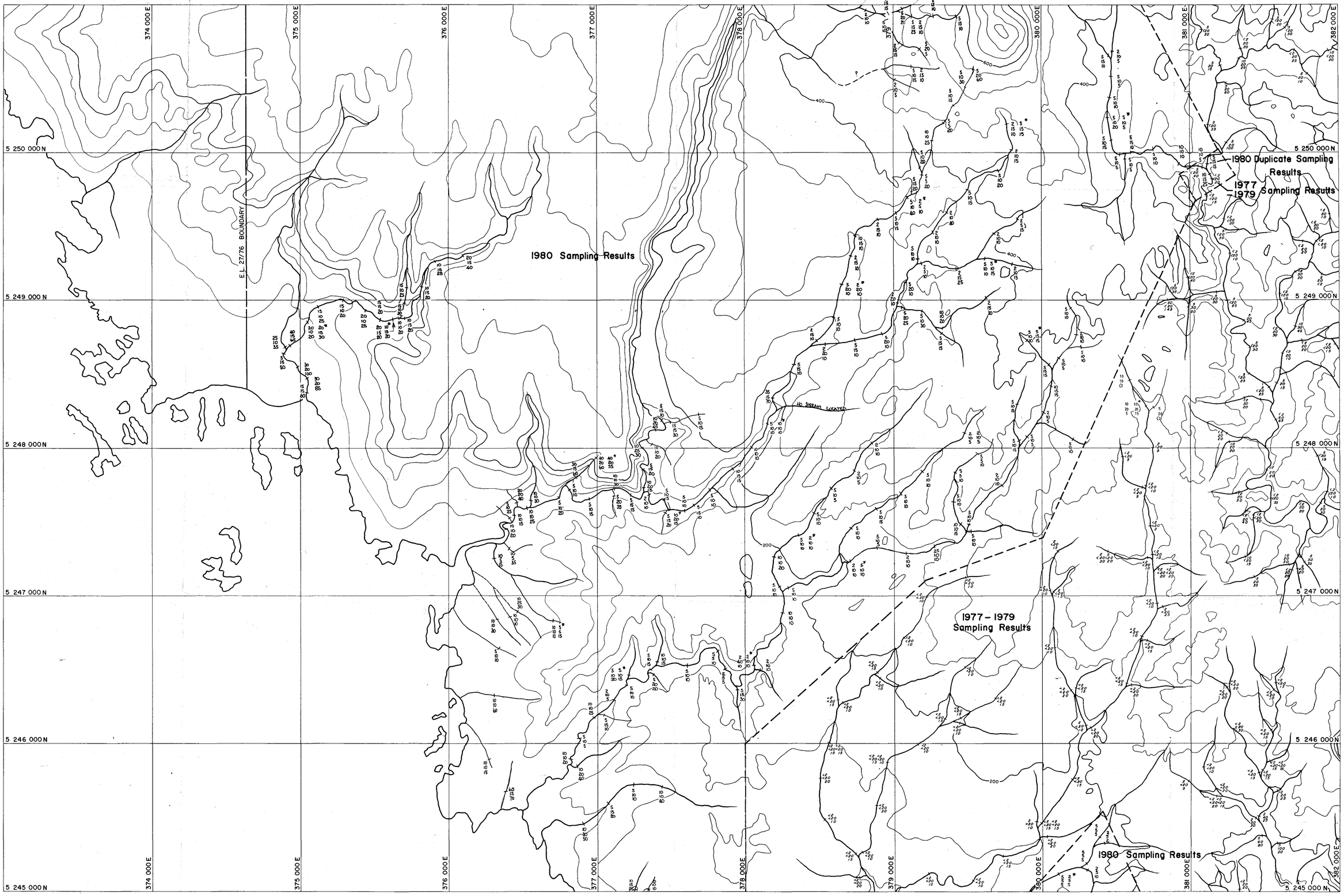
SCALE: 1:10,000

No. KT27/76-4B

E.L. 27/76 015
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 2/3



LEGEND: 1977 - 1979 Sampling

5 Cu ppm
60 Pb ppm
80 Zn ppm

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc. HCL leach and HCL / HNO3 leach in latter stages for 1 hour of 0·25g sample.
A.C.S. Laboratories Pty. LTD.

1980 Sampling

10 Cu ppm
10 Pb ppm
60 Zn ppm
A.A.S. Analyses at A.L.S. Brisbane.

Anomalous Values - Drainage Samples:
(colour marked from sample location upstream to next location)

Copper > 5 ppm (1977-79 Sampling)
> 10 ppm (1980 Sampling)
Lead > 30 ppm (all Sampling)
Zinc > 35 ppm (all Sampling)

5 cm

DATE July 1978 Aug 1979
GEOLOGIST CDS
DRAWN JPM
CHECKED CDS

GEOPEKO 970205

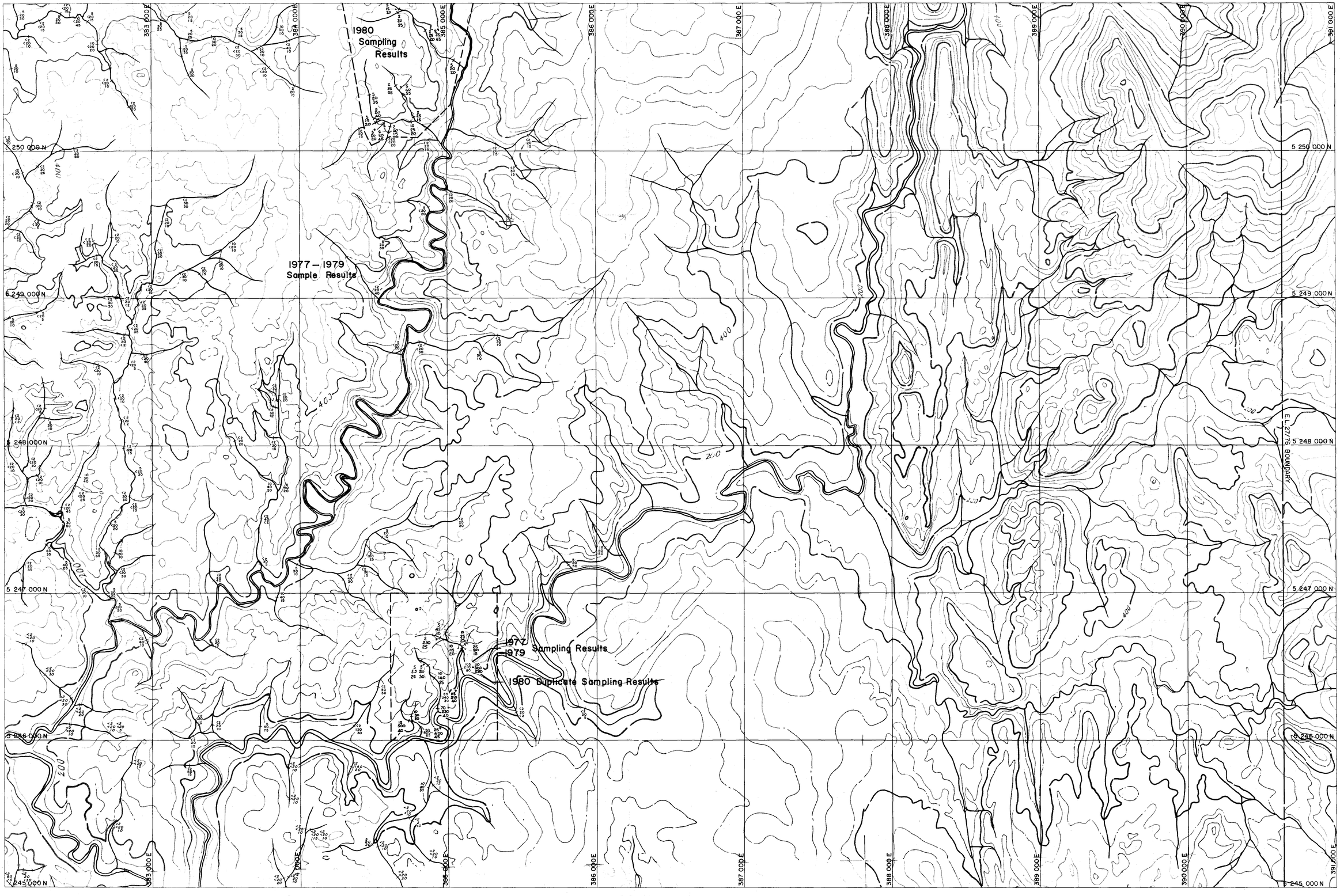
SCALE 1:25,000

No. KT27/76-5 B

E.L. 27/76 016
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
COPPER, LEAD and ZINC

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 213



LEGEND: 1977-79 Sampling

5 Cu ppm
60 Pb ppm
80 Zn ppm

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc. HCL leach and HCL/HNO3 leach in latter stages for 1 hour of 0.25g sample.
A.C.S. Laboratories Pty. LTD.

1980 Sampling

10 Cu ppm
30 Pb ppm
20 Zn ppm

A.A.S. Analyses at A.L.S. Laboratories, Brisbane.

Anomalous Values - Drainage Samples:
(colour marked from sample location upstream to next location)

Copper > 5 ppm (1977-79 Sampling)
10 ppm (1980 Sampling)

Lead > 30 ppm (All Sampling)

Zinc > 35 ppm (" ")

5 cm

GEOPEKO

970206

SCALE: 1:10,000

No. KT27/76-6B

E.L. 27/76 017

ELLIOTT BAY, TASMANIA

DRAINAGE GEOCHEMICAL RESULTS

COPPER, LEAD and ZINC

DATE: Jan. 1978 AUG. 1979

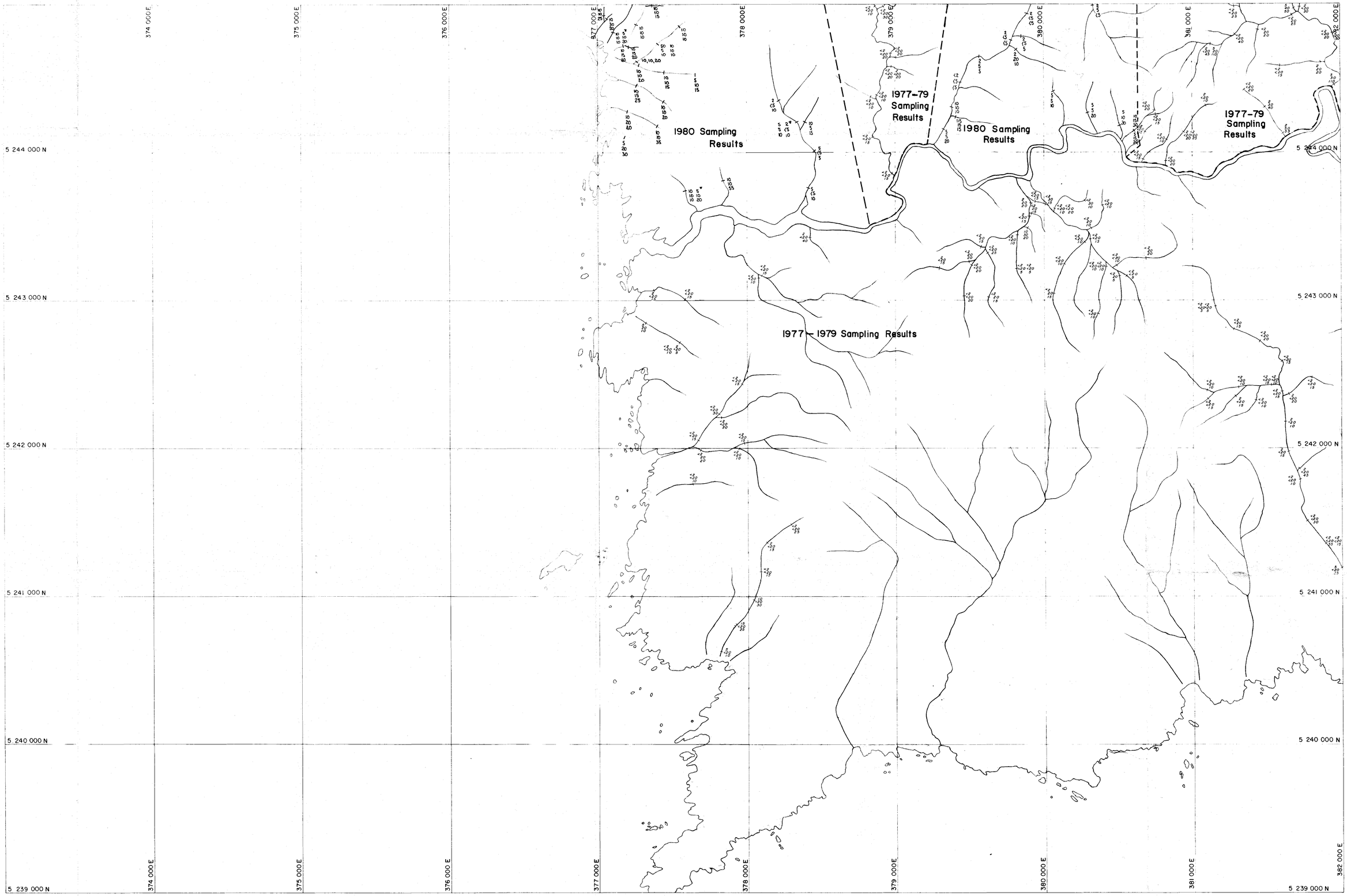
GEOLOGIST: C.D.S

DRAWN: J.P.M.

CHECKED: C.D.S.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 2/3



81-1555-2/3

LEGEND: 1977–1979 Sampling

5 Cu ppm
60 Pb ppm
80 Zn ppm

ANALYTICAL METHODS: Cu, Pb and Zn by AAS following conc. HCL leach and HCL/HNO3 leach in latter stages for 1 hour of 0.25g sample.

A.C.S. Laboratories Pty. LTD.

1980 Sampling

10 Cu ppm
20 Pb " A.A.S. Analyses at A.L.S. Laboratories, Brisbane.
40 Zn "

Anomalous Values - Drainage Samples
(colour marked from sample location upstream to next location)

Copper > 5 ppm (1977-79 Sampling)
10 ppm (1980 Sampling)
Lead > 30 ppm (All Sampling)
Zinc > 35 ppm (" ")

NOTE
This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots.

5 cm

DATE: Jan 1978
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: C.D.S.

GEOPEKO LIMITED
KING ISLAND GROUP
970207

SCALE 1:10,000

No. KT27/76-7 B

E.L. 27/76 018

ELLIOTT BAY, TASMANIA

DRAINAGE GEOCHEMICAL RESULTS COPPER, LEAD and ZINC

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

1980 Sampling Results

383 000E | 384 000E | 385 000E | 386 000E | 387 000E | 388 000E | 389 000E | 390 000E | 391 000E

5 262 000N | 5 261 000N | 5 260 000N | 5 259 000N | 5 258 000N | 5 257 000N

E.L. 27/76 BOUNDARY

81-1555 2/3

LEGEND: 1980 Sampling

0.44 Fe % A.A.S.
10 Sn ppm X.R.F.
10 W ppm X.R.F.
} Analyses at A.L.S. Lab, Brisbane.

— Indicates TIN and/or TUNGSTEN below limit of detection i.e. <5 and <10 respectively.

ANOMALOUS VALUES
Sn ≥ 20 ppm
W ≥ 20 ppm
Fe ≥ 0·7 %

5 cm

GEOPEKO LIMITED
KING ISLAND GROUP
970208

SCALE: 1:10,000

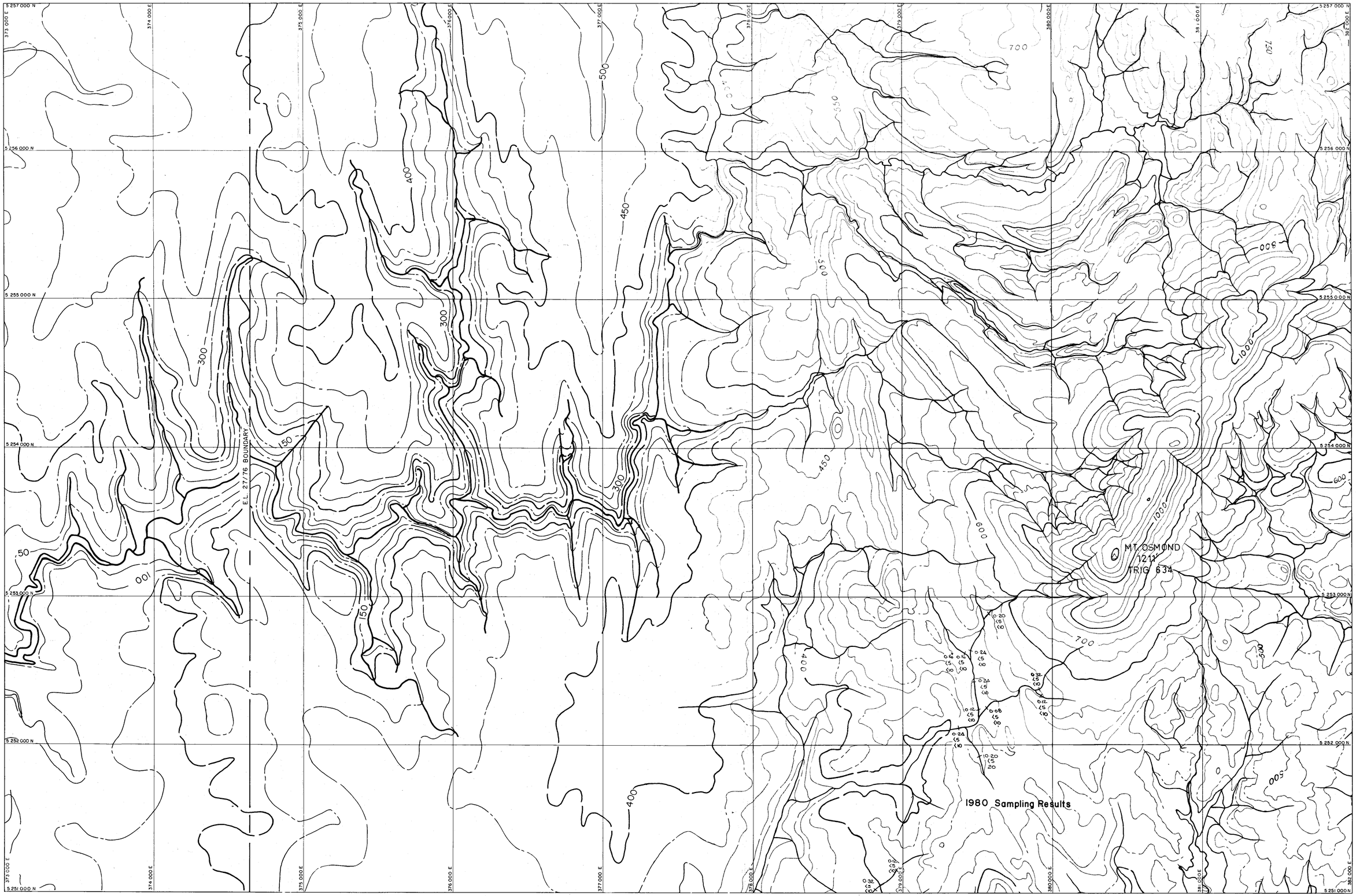
No. KT27/76-2E

019

E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
IRON, TIN, TUNGSTEN

DAT: July 1977
GEOLOGIST:
DRAWN: L.G.
CHECKED: M.C.R.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



81-1555 213

LEGEND: 1980 Sampling

0·20 Fe % A.A.S.
<5 Sn ppm X.R.F
20 W X.R.F
Analyses at A.L.S. Laboratories, Brisbane.

ANOMALOUS VALUES

Sn > 20 ppm
W > 20 ppm
Fe > 0·7 %

5 cm

DATE: OCT 1980
GEOLOGIST: W.H.
DRAWN: D. BROWN
CHECKED:

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
970209

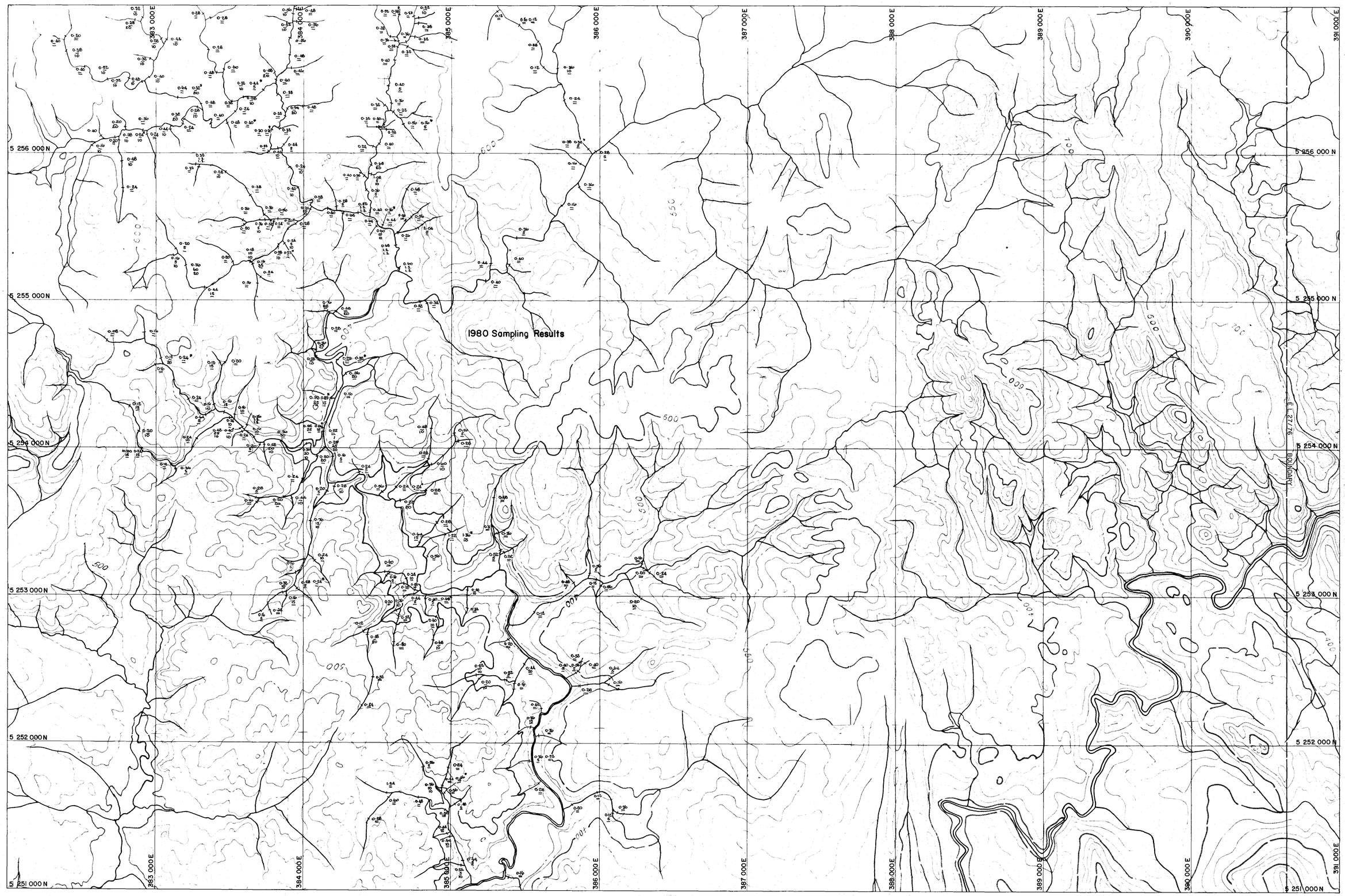
SCALE: 1:10 000

No. KT27/76-3E

E.L. 27/76 020
ELLIOTT BAY, TASMANIA

IRON, TIN, TUNGSTEN

KT27/76-1	KT27/76-2
	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



LEGEND:

1980 Sampling

0.28 — Fe. % — A.A.S.
25 — Sn ppm — X.R.F.
20 — W ppm — X.R.F.
} A.L.S. Lab. Brisbane

ANOMALOUS VALUES

Sn ≥ 20 ppm

W ≥ 20 ppm

Fe ≥ 0.7 %

5 cm

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

970210

SCALE: 1:10,000

No. KT27/76-4E.

DATE:
GEOLOGIST:
DRAWN:
CHECKED:

E.L. 27/76 021

ELLIOTT BAY, TASMANIA

DRAINAGE GEOCHEMICAL RESULTS

IRON, TIN, TUNGSTEN

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 2/3

1980 Sampling Results

1977-1979 Sampling Results

E.L. 27/76 BOUNDARY

NO STREAM LOCATED

Sample not submitted

374 000 E | 375 000 E | 376 000 E | 377 000 E | 378 000 E | 379 000 E | 380 000 E | 381 000 E | 382 000 E

5 250 000 N | 5 249 000 N | 5 248 000 N | 5 247 000 N | 5 246 000 N | 5 245 000 N

81-1555 2/3

LEGEND: 1977-79 Sampling

300 / 1000 / 690* — 300 ppm Sn Emission Spectrography, original. 1000 ppm Sn Emission Spectrography, duplicate. 690* ppm Sn XRF analysis of original.

1980 Sampling

1.00 Fe A.A.S. / IC Sn X.R.F. / (10 W X.R.F. } A.L.S. Laboratories, Brisbane.

ANALYTICAL METHODS:

Sn determined by Emission Spectrography Scheme ES2.
Sn* determined by XRF

A.C.S. Laboratories Pty LTD.

ANOMALOUS VALUES

Sn > 20 ppm
W > 20 ppm
Fe > 0.7 %

NOTE: This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots.

5 cm

GEOPEKO LIMITED
KING ISLAND GROUP

970211

SCALE: 1:10,000

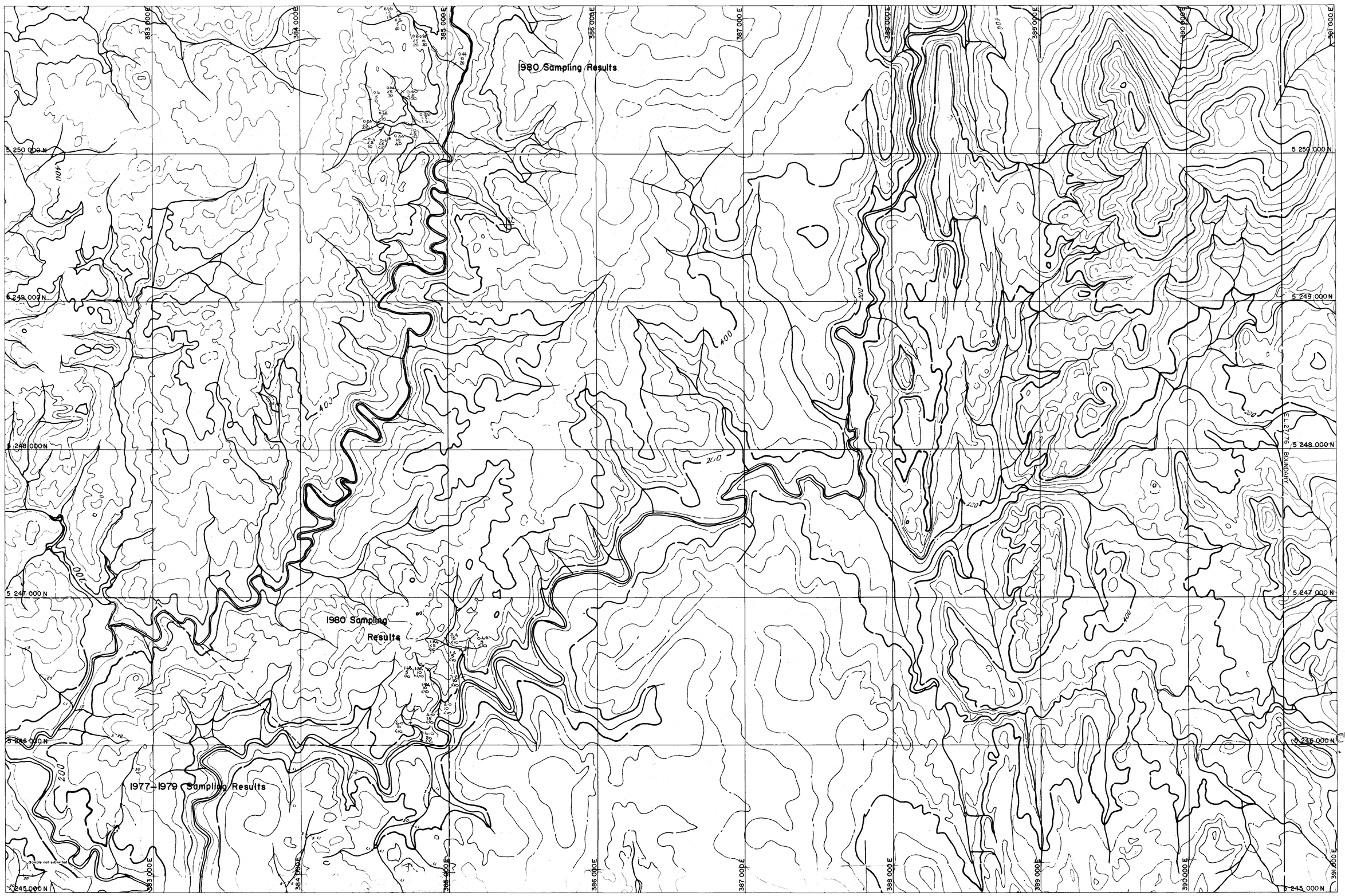
No. KT27/76-5E

DATE: June 1978
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: C.M.S.

022

E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
IRON, TIN, TUNGSTEN

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



LEGEND: 1977-1979 Sampling

300 / 690* 300 ppm Sn Emission Spectrography ; original.
1000 ppm Sn Emission Spectrography ; duplicate.
690* ppm Sn XRF analysis of original.

1980 Sampling

2.4 — Fe %
15 — Sn ppm
<10 — W ppm
A.A.S. / X.R.F / X.R.F } A.L.S Lab. Brisbane

ANALYTICAL METHODS:

Sn determined by Emission Spectrography Scheme ES2.
Sn* determined by XRF.

A. C. S. Laboratories Pty LTD

ANOMALOUS VALUES

Sn > 20 ppm
W > 20 ppm
Fe > 0·7 %

NOTE:
This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots

5 cm

DATE: June 1978
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: C.D.S.

GEOPEKO LIMITED
KING ISLAND GROUP

970212

SCALE: 1:10,000

No. KT27/76-6 E

E.L. 27/76 023
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
IRON, TIN, TUNGSTEN

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

C-1551 213

1980 Sampling Results

1977-79 Sampling Results

1980 Sampling Results

1977-79 Sampling Results

1977-1979 Sampling Results

Insufficient sample for XRF analysis.

Insufficient sample in duplicate sample for Emission Spectrography or XRF analysis.

Original sample damaged. Insufficient duplicate sample for Emission Spectrography or XRF analysis

374 000 E | 375 000 E | 376 000 E | 377 000 E | 378 000 E | 379 000 E | 380 000 E | 381 000 E | 382 000 E

5 244 000 N | 5 243 000 N | 5 242 000 N | 5 241 000 N | 5 240 000 N | 5 239 000 N

LEGEND: 1977-1979 Sampling

300, 1000, 690* — 300 ppm Sn Emission Spectrography, original. 1000 ppm Sn Emission Spectrography, duplicate. 690* ppm Sn XRF analysis of original.

1980 Sampling

0·44 — Fe % A.A.S.
<5 — Sn ppm X.R.F.
10 — W ppm X.R.F.
} A.L.S. Lab. Brisbane

ANALYTICAL METHODS:

Sn determined by Emission Spectrography Scheme ES2
Sn* determined by XRF

A.C.S. Laboratories Pty LTD.

ANOMALOUS VALUES

Sn ≥ 20 ppm
W ≥ 20 ppm
Fe ≥ 0·7 %

NOTE:

This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots.

5 cm

DATE: June 1978
GEOLOGIST: C.D.S.
DRAWN: J.P.M.
CHECKED: CAP.

GEOPEKO LIMITED
KING ISLAND GROUP

970213

SCALE: 1:10,000

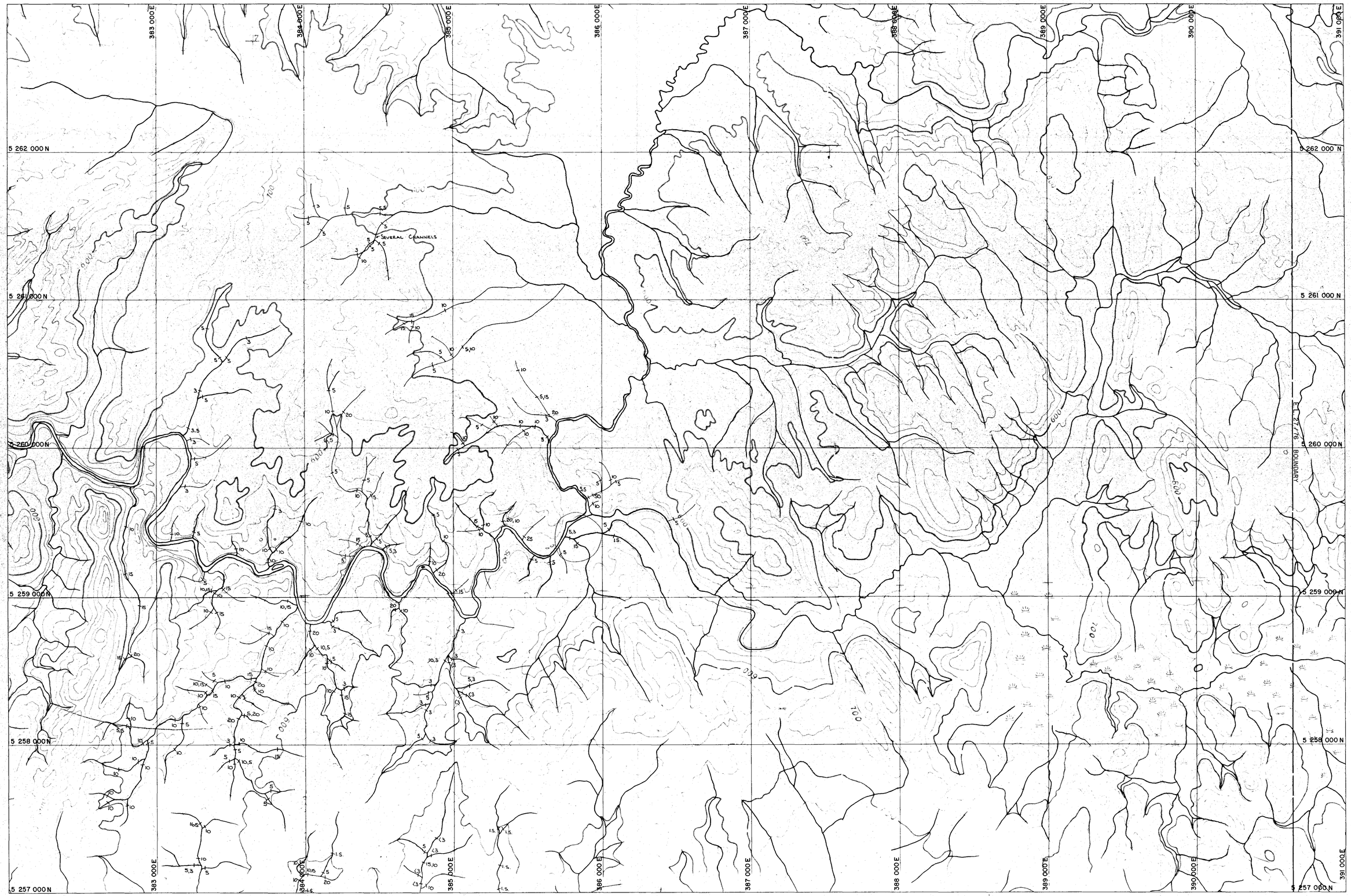
No. KT27/76-7 E

024

E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE GEOCHEMICAL RESULTS
IRON , TIN , TUNGSTEN

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

C.R. 1555 213



81-1555 2/3

LEGEND:

20/10 DRAINAGE SAMPLE RESULT IN PPB
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 PPB

5 cm

DATE: OCTOBER '80
GEOLOGIST: W.M.
DRAWN: D. BREEN
CHECKED: RDL

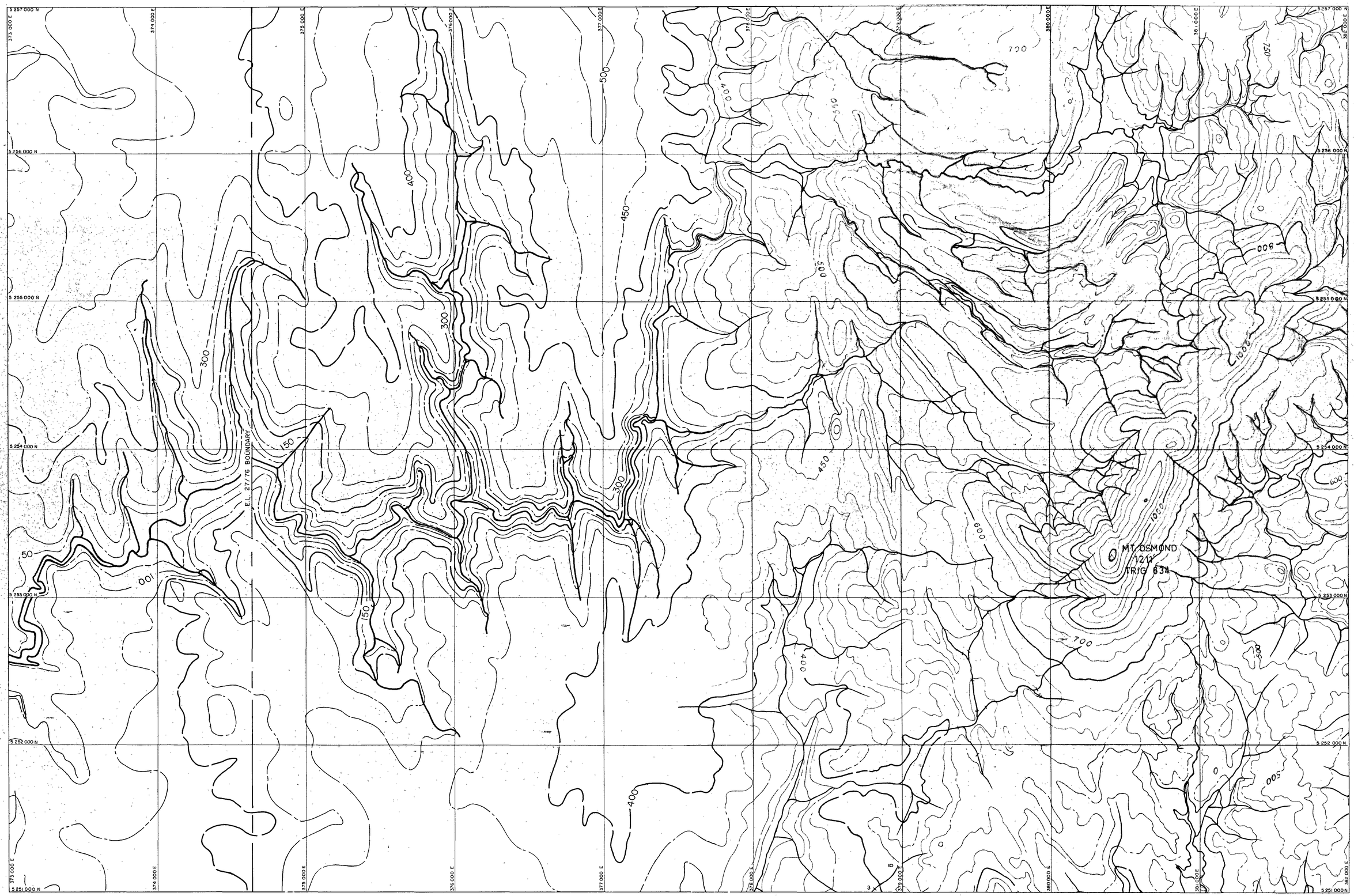
GEOPEKO LIMITED
KING ISLAND GROUP
970214

SCALE 1:10,000

No. KT27/76-2 H

E.L. 27/76 025
ELLIOTT BAY, TASMANIA
STREAM SEDIMENT GEOCHEMISTRY
Au — GOLD RESULTS
MINUS 80 MESH SAMPLING

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



LEGEND:

DRAINAGE SAMPLE RESULT IN PPB
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 PPB

5 cm

DATE: OCT. 1980
GEOLOGIST: W.H.
DRAWN: D.BREEN
CHECKED:

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

970215

SCALE: 1:10 000

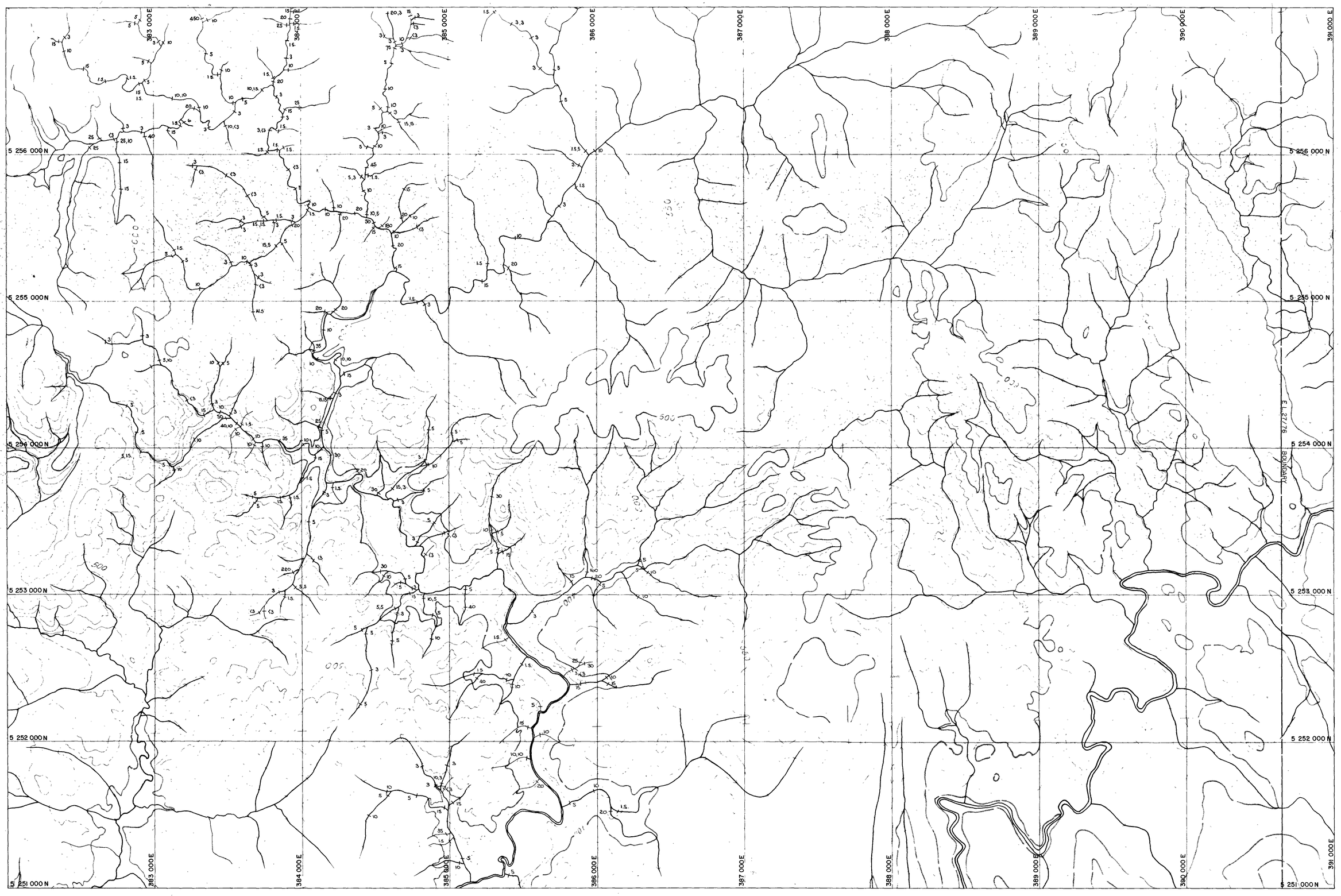
No. KT27/76-3 H

E.L. 27/76 026
ELLIOTT BAY, TASMANIA

STREAM SEDIMENT GEOCHEMISTRY
Au ___ GOLD RESULTS
MINUS 80 MESH SAMPLE

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 213



81-1555 2/3

LEGEND:

40/10 DRAINAGE SAMPLE RESULT IN PPB.
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 ppb

5 cm

DATE Oct 1980
GEOLOGIST W.H.
DRAWN D. BREEN
CHECKED R.L.L.

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
970216

SCALE 1:10,000

No. KT27/76-4 H

E.L. 27/76 027
ELLIOTT BAY, TASMANIA
STREAM SEDIMENT GEOCHEMISTRY
Au — GOLD RESULTS
MINUS 80 MESH SAMPLE

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

374 000 E | 375 000 E | 376 000 E | 377 000 E | 378 000 E | 379 000 E | 380 000 E | 381 000 E | 382 000 E

5 250 000 N
5 249 000 N
5 248 000 N
5 247 000 N
5 246 000 N
5 245 000 N

E.L. 27/76 BOUNDARY

81-1555 213

LEGEND:

220 / 390 DRAINAGE SAMPLE RESULT IN PPB
BUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 ppb

5 cm

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD 970217

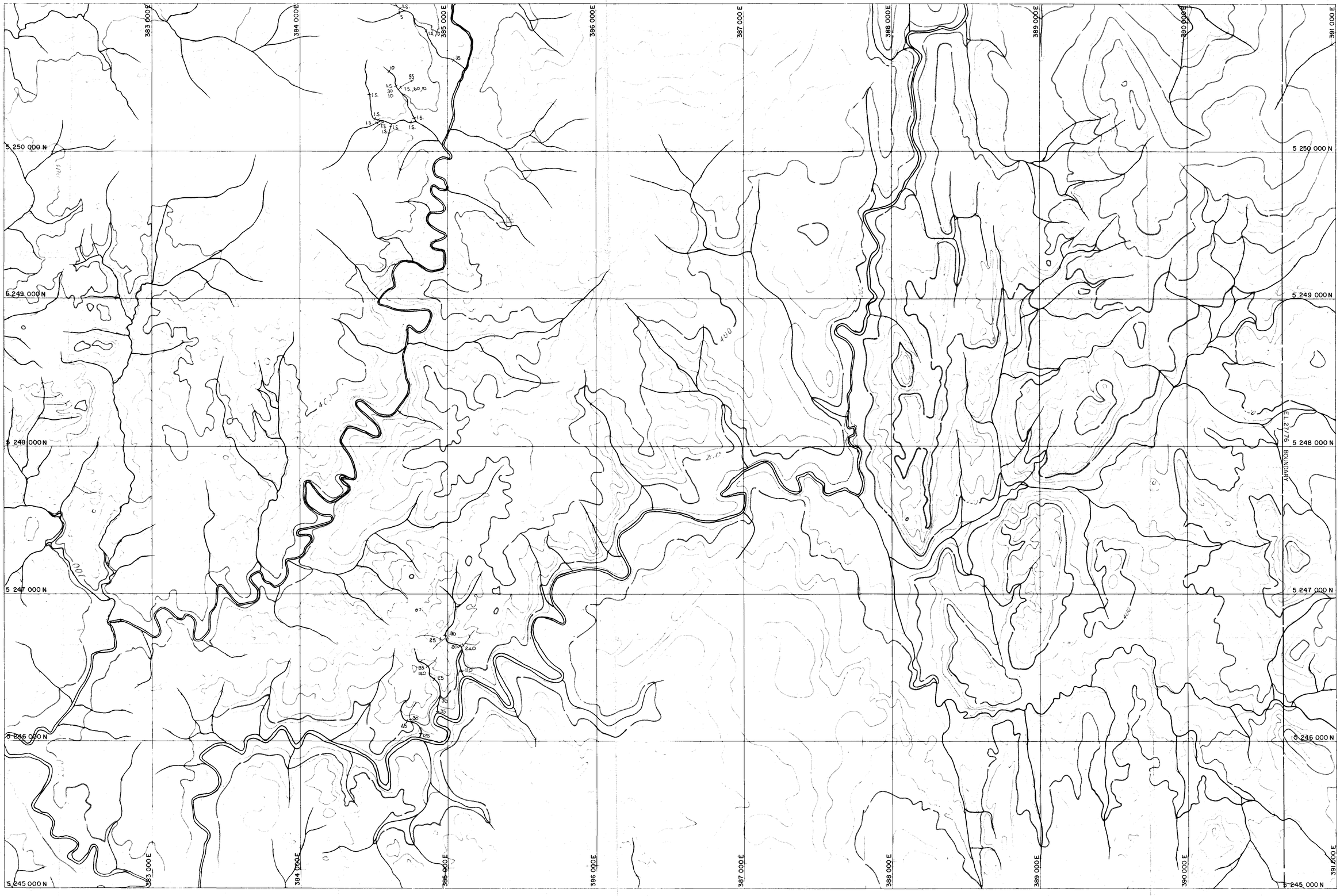
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No. KT27/76-5H

DATE OCT. 1980
GEOLOGIST W.H.
DRAWN D. BERRY
CHECKED

E.L. 27/76 028
ELLIOTT BAY, TASMANIA
STREAM SEDIMENT GEOCHEMISTRY
Au — GOLD RESULTS
MINUS 80 MESH SAMPLING

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



81-1555 2/3

LEGEND:

85/140 DRAINAGE SAMPLE RESULT IN PPB
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 PPb

5 cm

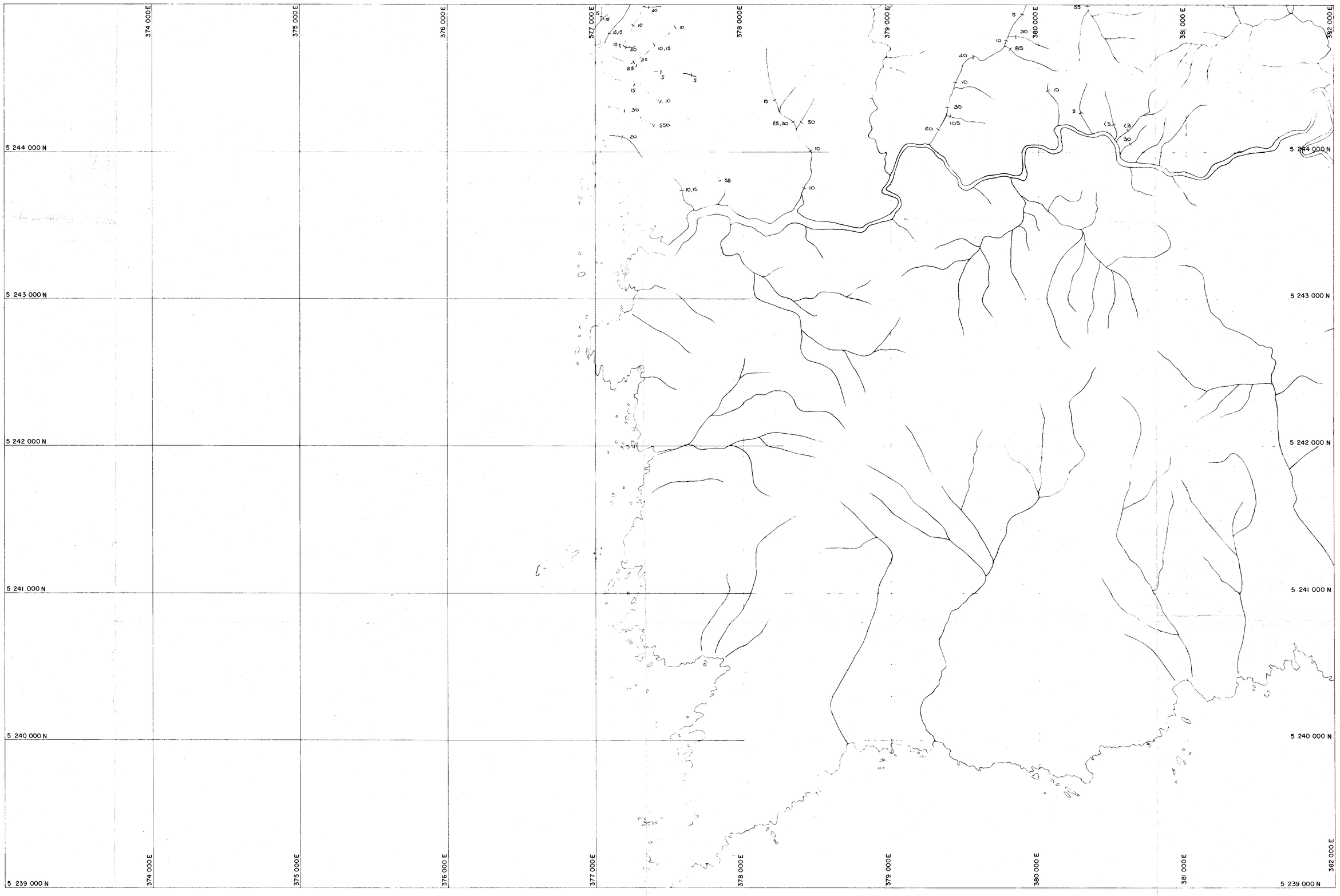
DATE OCT 1980
GEOLOGIST K.W.
DRAWN D. BEEDEL
CHECKED

GEOPEKO 970218
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
SCALE 1:10,000
No. KT27/76-6 H

E.L. 27/76
ELLIOTT BAY, TASMANIA

STREAM SEDIMENT GEOCHEMISTRY
Au ___ GOLD RESULTS
MINUS 80 MESH SAMPLING

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8



LEGEND:

25/30 DRAINAGE SAMPLE RESULT IN PPB.
DUPLICATE DRAINAGE SAMPLE RESULT

ANOMALOUS VALUE > 40 ppb

5 cm

DATE Oct. 1980
GEOLOGIST W.H.
DRAWN D. Breen
CHECKED

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

970219

SCALE 1:10,000

No. KT27/76-7 H

E.L. 27/76 030
ELLIOTT BAY, TASMANIA

STREAM SEDIMENT GEOCHEMISTRY
Au —— GOLD RESULTS
MINUS 80 MESH SAMPLING

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

81-1555 2/3

1980 Sample Locations

383 000E | 384 000E | 385 000E | 386 000E | 387 000E | 388 000E | 389 000E | 390 000E | 391 000E

5 262 000N | 5 261 000N | 5 260 000N | 5 259 000N | 5 258 000N | 5 257 000N

E.L. 27/76 BOUNDARY

LEGEND: 1980 Sampling

— 3817 Drainage Sample No. KD 3817

— 3960 Drainage Sample No. KD 3960
3961 Duplicate Drainage Sample No. KD 3961

5 cm

GEOPEKO LIMITED 970220
KING ISLAND GROUP

SCALE 1:10,000

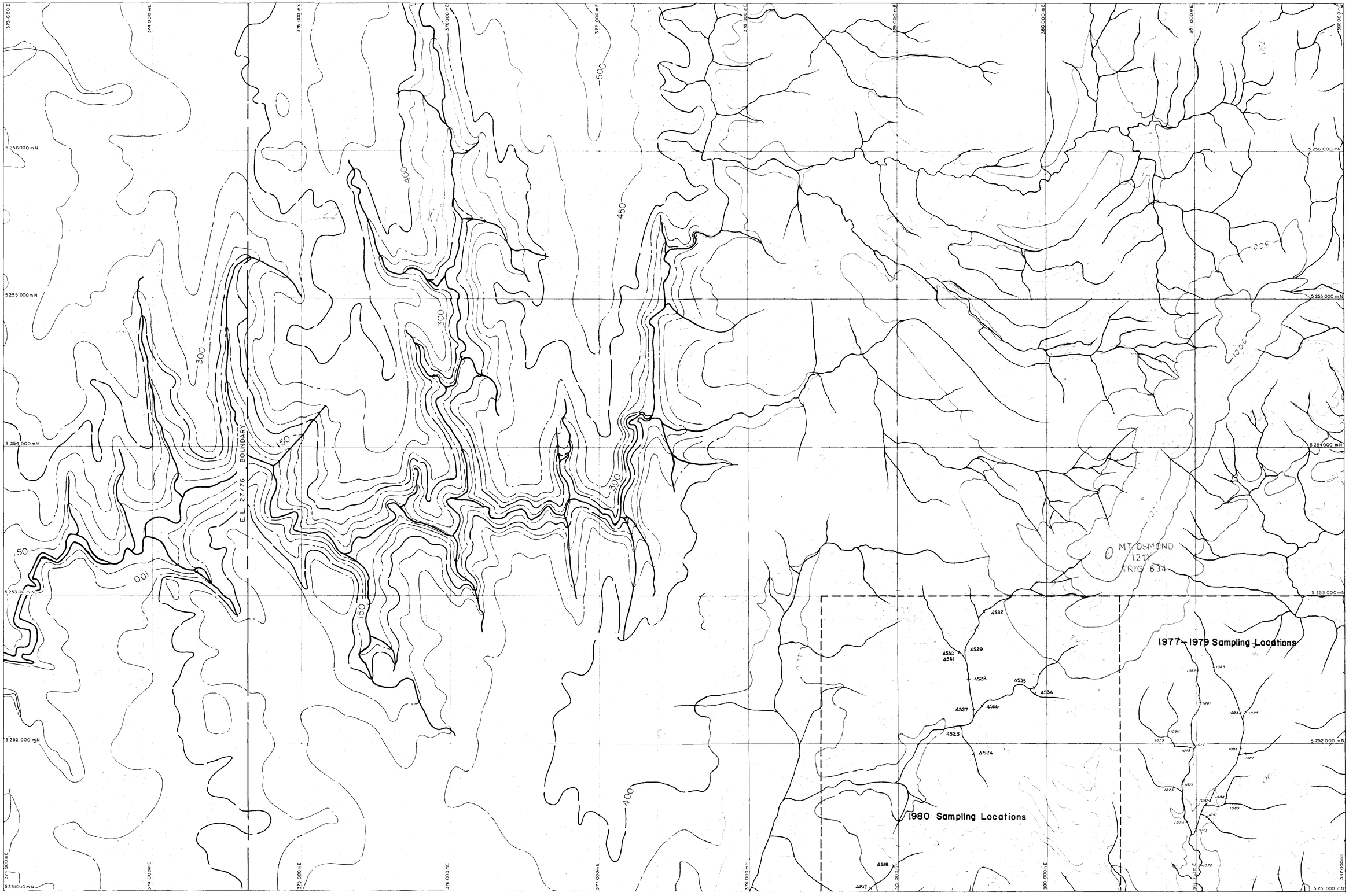
No. KT27/76-2C

DAT July 1977
GEOLOGIST
DRAWN L.G
CHECKED M.C.R

E.L. 27/76 031
ELLIOTT BAY, TASMANIA
DRAINAGE SAMPLE LOCATION MAP

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/75-7	KT27/76-8

81-1555 24



81-1555 213

LEGEND: 1977 – 1979 Sampling

–1075 Drainage sample No. KD1075

1980 Sampling

4527 — Drainage sample No. KD 4527

4530 — Drainage sample No. KD 4530

4531 — Duplicate Drainage sample No. KD 4531

5 cm

DATE AUG 1979

GEOLOGIST C. D. S.

DRAWN: J. P. M.

CHECKED: CMS

GEOPEKO 970221

SCALE 1:10000

No. KT27/76-3C

E.L. 27/76 032

ELLIOTT BAY, TASMANIA

DRAINAGE SAMPLE LOCATION MAP

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

1980 Sample Locations

1977-79 Sample Locations

E.L. 27/76 BOUNDARY

383 000 E | 384 000 E | 385 000 E | 386 000 E | 387 000 E | 388 000 E | 389 000 E | 390 000 E | 391 000 E

5 256 000 N | 5 255 000 N | 5 254 000 N | 5 253 000 N | 5 252 000 N | 5 251 000 N

LEGEND: 1977-79 Sampling

- 1282 Drainage sample No KD 1282
- 1281, 1281 Drainage sample No KD 1280, Duplicate drainage sample No 1281

1980 Sampling

- 3707 Drainage sample No KD 3707
- 3670 Drainage sample No KD 3670
- 3671 Drainage sample No KD 3671

5 cm

GEOPEKO 970222

SCALE

No. KT27/76-4C

E.L. 27/76 033

ELLIOTT BAY, TASMANIA

DRAINAGE SAMPLE LOCATION MAP

DATE AUG 1979

GEOLOGIST C.D.S.

DRAWN J.P.M.

CHECKED C.D.S.

81-1555 213

374 000 E | 375 000 E | 376 000 E | 377 000 E | 378 000 E | 379 000 E | 380 000 E | 381 000 E | 382 000 E

5 250 000 N | 5 249 000 N | 5 248 000 N | 5 247 000 N | 5 246 000 N | 5 245 000 N

E.L. 27/76 BOUNDARY

1980 Sampling Locations

NO STREAM LOCATED

1980 Duplicate Sampling Locations

1977-79 Sampling Locations

1977-79 Sampling Locations

1980 Sampling Locations

81-1555 2/3

LEGEND:

1977-1979 Sampling

- 4019 Drainage sample No KD 4019
- 4020 / 4021 Drainage sample No. KD 4020 / Duplicate drainage sample No KD 4021

1980 Sampling

- 4329 DRAINAGE SAMPLE NO KD 4329
- 4270 / 4271 DRAINAGE SAMPLE NO KD 4270 / DUPLICATE DRAINAGE SAMPLE NO KD 4271

5 cm

GEOPEKO 970223

SCALE: 10,000

No. KT27/76-5C

034

E.L. 27/76
ELLIOTT BAY, TASMANIA
DRAINAGE SAMPLE LOCATION MAP

DATE: Feb 1978 / AUG 1979
GEOLOGIST: C.D.S.
DRAWN: C.B.J.P.M.
CHECKED: C.D.S.

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

1980 Sample Locations

1979 Sample Locations

1977–79 Sample Locations

1980 Duplicate Sample Locations

383 000 E | 384 000 E | 385 000 E | 386 000 E | 387 000 E | 388 000 E | 389 000 E | 390 000 E | 391 000 E

5 250 000 N | 5 249 000 N | 5 248 000 N | 5 247 000 N | 5 246 000 N | 5 245 000 N

EL 27/76 BOUNDARY

LEGEND: 1977–1979 Sampling

— 3463 Drainage sample No KD 3453
— 3250 Drainage sample No KD 3250
— 3451 Duplicate drainage sample No 3451

1980 Sampling

— 4072 DRAINAGE SAMPLE Nº KD 4072
— 3690 DRAINAGE SAMPLE Nº KD 3690
— 3691 DUPLICATE DRAINAGE SAMPLE Nº KD 3691

5 cm

GEOPEKO

970224

SCALE: 1:10,000

No. KT27/76-6C

E.L. 27/76 035

ELLIOTT BAY, TASMANIA

DRAINAGE SAMPLE LOCATION MAP

DATE: AUG 1979

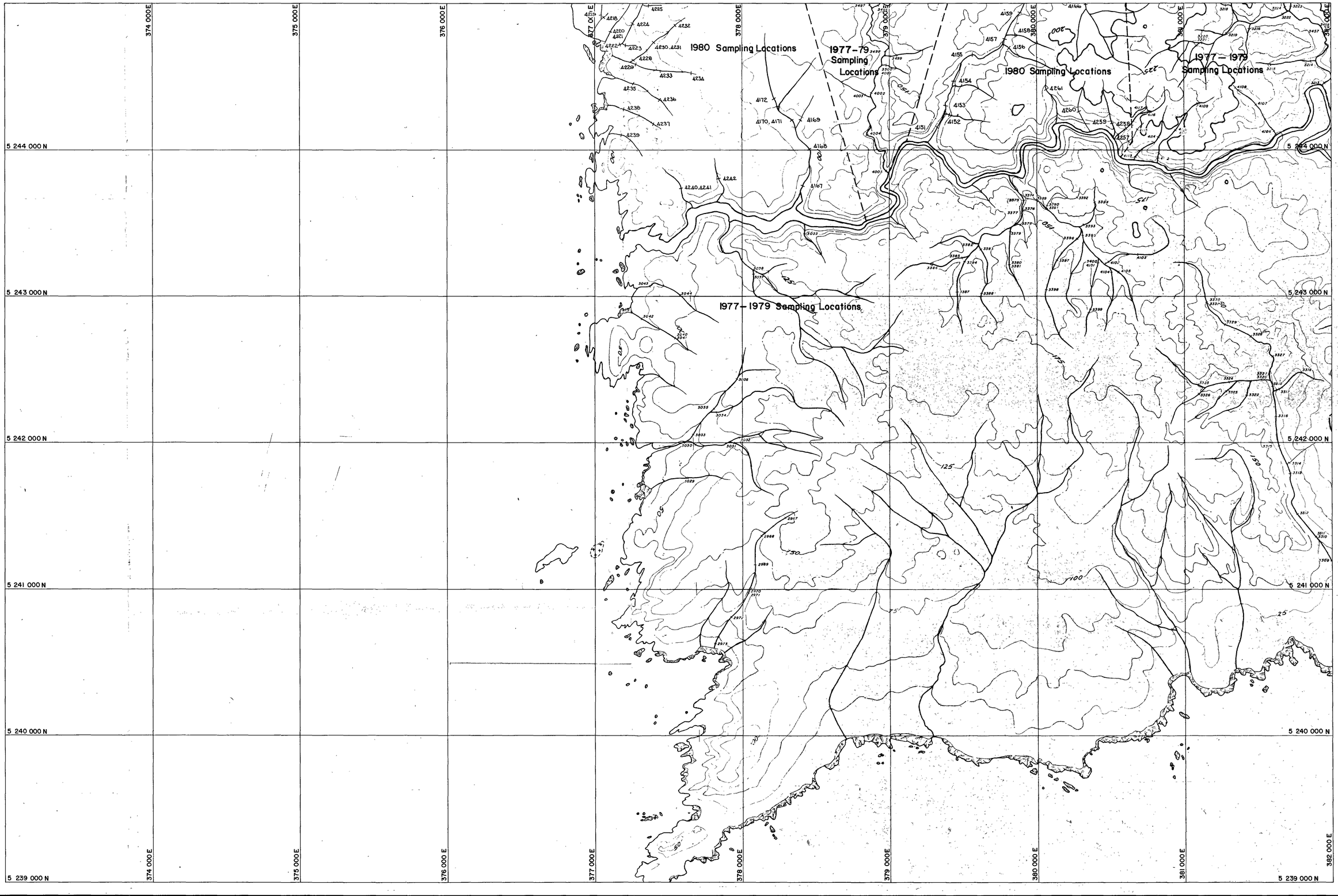
GEOLOGIST: C.O.S.

DRAWN: J.P.M.

CHECKED:

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

01-1555 2/3



81-1555 (2)

LEGEND: 1977 - 1979 Sampling

-2972 Drainage sample No KD2972
-2970 Drainage sample No KD2970
-2971 Duplicate drainage sample No 2971

1980 Sampling

÷ 4229 DRAINAGE SAMPLE Nº KD 4229
— 4230 DRAINAGE SAMPLE Nº KD 4230
4231 DUPLICATE DRAINAGE SAMPLE Nº KD 4231

NOTE:
This map has been compiled from enlargements of the Tasmanian Lands Department's 1:15840 scale topographic machine plots.

5 cm

DATE: Feb 1978
GEOLOGIST: C D S
DRAWN: J P M
CHECKED: CRS

GEOPEKO LIMITED
KING ISLAND GROUP

970225

SCALE: 1:10,000

No. KT27/76-7C

E.L. 27/76 036
ELLIOTT BAY, TASMANIA
DRAINAGE SAMPLE LOCATION MAP

KT27/76-1	KT27/76-2
KT27/76-3	KT27/76-4
KT27/76-5	KT27/76-6
KT27/76-7	KT27/76-8

8600 E
8800 E
9000 E
383 000m E
AMG
9200 E
9400 E
9600 E

10 800 N
10 600 N
10 400 N
10 200 N
5 242 000 N
AMG
10 000 N
9800 N
9600 N
9400 N
9200 N
5 241 000m N
9000 N

VLF-EM
ANOMALY ZONE

DDH 1

VLF-EM
ANOMALY ZONE

DDH 2

LEGEND:

- Sample point and values of C-Horizon Pb
- Pb Contours
- Zone of VLF-EM Anomalies
- Weak to moderate I.P. Anomalies
- 5 cm
- Power auger hole
- Hand auger hole
- Grid position

970226

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
1 : 2500
No TS27/76-V3-12
E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 3
037
SUMMARY MAP - Pb soil contours
- Polarisable zones
- E.M. Zones.

DATE: OCT 1980
GEOLOGIST: R.R.L.
DRAWN: D.REEDMAN
CHECKED: M.L.

LEGEND:

Cu —— + —— + ——

Pb - - - - - - - - - -

Zn ....

W ——··—··——

Sn ——·——·——

Fe ————————

Mag. Intensity ——·——·——

63 700

63 600

63 500

63 400

63 300

63 200

63 100

TOTAL MAGNETIC INTENSITY 63000

MAGNETIC INTENSITY

7.0%

6.0%

5.0%

4.0%

3.0%

2.0%

1.0%

0% Fe

100 ppm

75

50

25

0 Sn

10

<10

0 W

40 ppm

30

20

10

0

10 000 E

10 100 E

10 200 E

10 300 E

10 215 E

5 cm

DEVONPORT

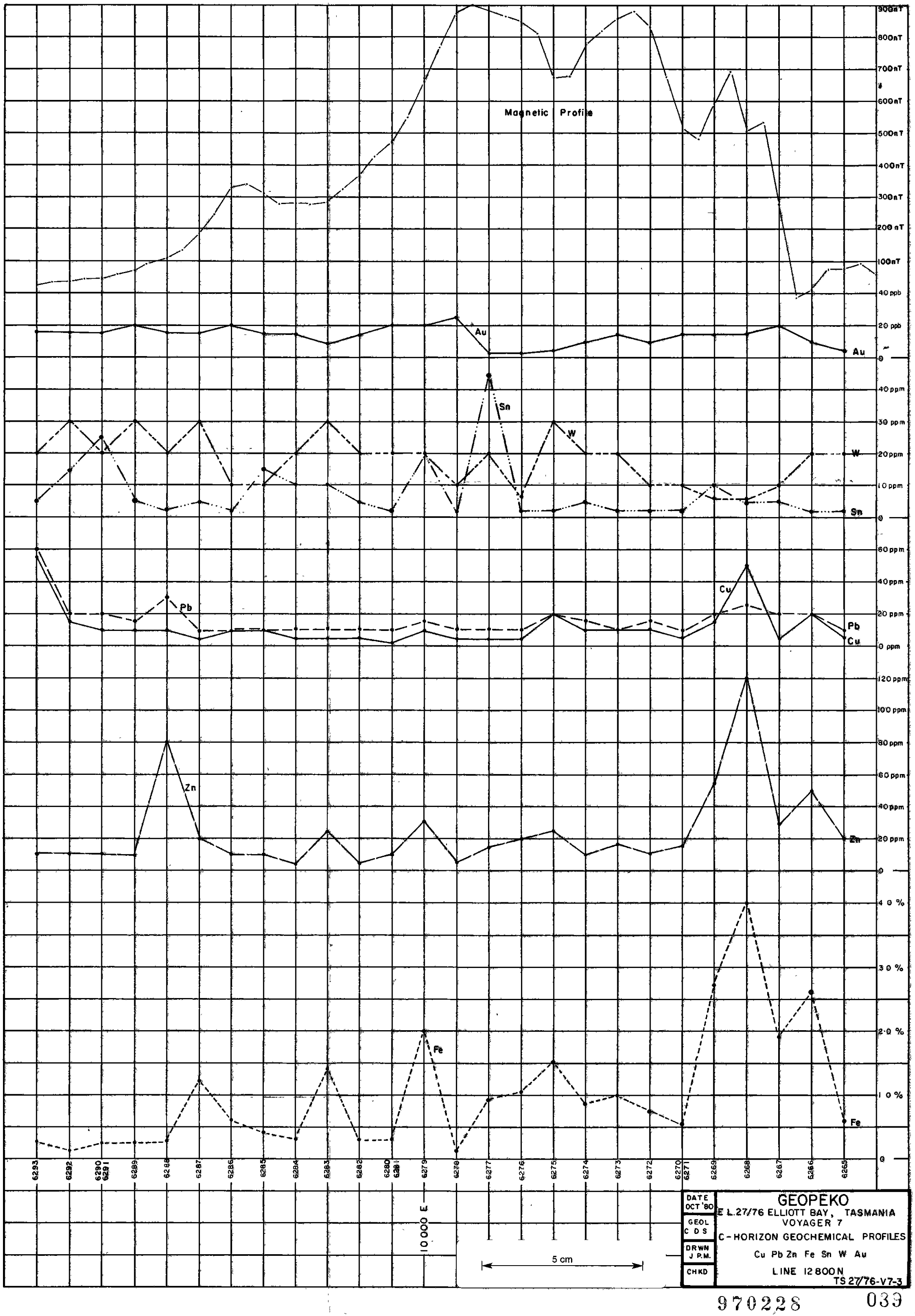
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No 85-27176

VOLCANIC C-HORIZON GEOCHEMICAL RESULTS Cu, Pb, Zn, W, Sn, Fe and TOTAL MAGNETIC INTENSITY CONTOURS

970227

038


Magnetic Profile
900nT
800nT
700nT
600nT
500nT
400nT
300nT
200 nT
100nT
40 ppb
20 ppb
0
Au
Au
Sn
W
W
Sn
40 ppm
30 ppm
20 ppm
10 ppm
0
60 ppm
40 ppm
20 ppm
0 ppm
Pb
Cu
Pb
Cu
120 ppm
100 ppm
80 ppm
60 ppm
40 ppm
20 ppm
0
Zn
Zn
40 %
30 %
20 %
10 %
0
Fe
Fe
6293
6292
6290
6291
6289
6288
6287
6286
6285
6284
6283
6282
6280
6281
6279
6278
6277
6276
6275
6274
6273
6272
6270
6271
6269
6268
6267
6266
6265
10000 E
5 cm
DATE OCT '80
GEOL C D S
DRWN J P.M.
CHKD
GEOPEKO
E L.27/76 ELLIOTT BAY, TASMANIA
VOYAGER 7
C-HORIZON GEOCHEMICAL PROFILES
Cu Pb Zn Fe Sn W Au
LINE 12800N
TS 27/76-V7-3

970228 039


Magnetic Profile
800nT
700nT
600nT
500nT
400nT
300nT
200nT
100nT
100ppm
80 ppm
60 ppm
40 ppm
20ppm
0
Sn
W
Cu
Pb
Zn
Au
Fe
8·0 %
6·0 %
4·0 %
2·0 %
6323
6322
6320
6321
6319
6318
6317
6316
6315
6314
6313
6312
6310
6311
6309
6308
6307
6306
6305
6304
6303
6302
6300
6301
6299
6298
6297
6296
6295
6294
10 000 E
5 cm
DATE OCT. '80
GEOL C.D.S.
DRWN J.P.M.
CHKD
GEOPEKO
E.L.27/76 ELLIOTT BAY, TASMANIA
VOYAGER 7
C-HORIZON GEOCHEMICAL PROFILES
Cu Pb Zn Fe Sn W Au
LINE 13 000 N
TS27/76-V7-4

970229

LEGEND:

See master legend regional geology maps for details of abbreviations.

chlorite-sericite alteration 19-10
sericite only 19-13
ALTERED AND PYRITIC (0-2% pyrite) IRON STAINED PYROCLASTICS (crystal tuffs, lithic tuffs, minor vitric tuffs, minor agglomerates)

19-4 CHLORITIC QUARTZ PORPHYRY strongly chloritic altered coarse quartz crystal tuff, crystal lithic tuffs and porphyritic lavas.

19-46 CHLORITIC QUARTZ PORPHYRY cut by narrow andesite dykes

19-47 MASSIVE ANDESITE INTRUSIVE DYKES

19-23 UNALTERED RHYOLITIC PYROCLASTICS

19-29 QUARTZ VEINS

19-12 2-5% pyrite as disseminations and veins

5 cm

DATE: OCTOBER 1980
GEOLOGIST: R.R.L.
DRAWN: J.P.M.
CHECKED: RLL

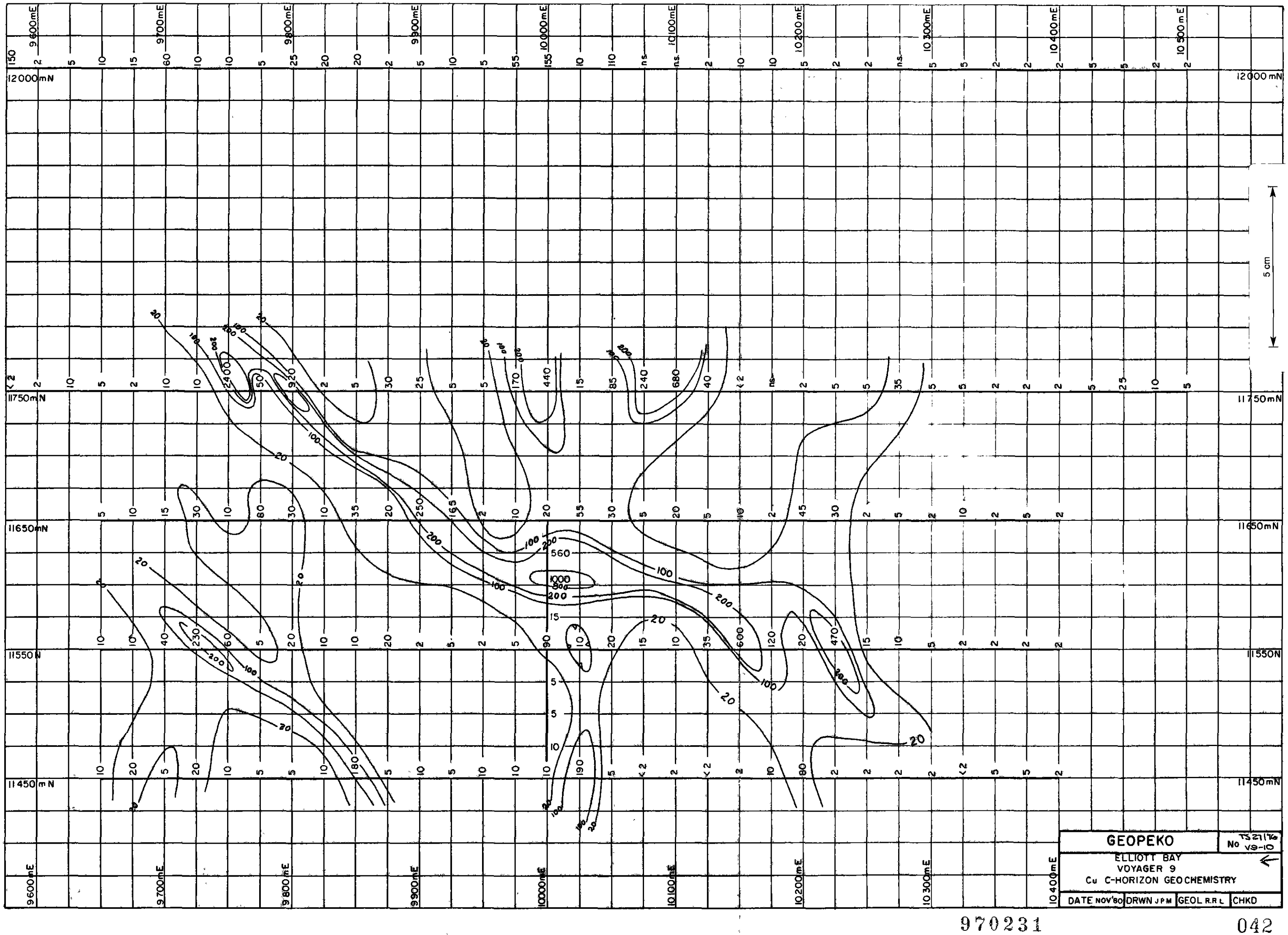
GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
970230

SCALE: 1:2500

No. TS 27/76-V9-9

E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 9 041

GEOLOGICAL MAP 81-1555 2/3


9600mE
9700mE
9800mE
9900mE
10000mE
10100mE
10200mE
10300mE
10400mE
10500mE
12000mN
11750mN
11650mN
11550N
11450mN
5 cm
GEOPEKO
No TS21176 VS-10
ELLIOTT BAY
VOYAGER 9
Cu C-HORIZON GEOCHEMISTRY
DATE NOV'80 DRWN J P M GEOL R.R.L CHKD

970231

042

9600mE 9700mE 9800mE 9900mE 10000mE 10100mE 10200mE 10300mE 10400mE 10500mE

12000mN

11750mN

11650mN

11550mN

11450mN

5 cm

GEOPEKO

TS 21176
No VS-11

ELLIOTT BAY
VOYAGER 9
Pb, Zn C-HORIZON GEOCHEMISTRY

DATE: NOV '80 | DRWN J.P.M | GEOL R.R.L | CHKD

Note: 185 Pb ppm
4302n ppm

970232

043

9600mE 9700mE 9800mE 9900mE 10000mE 10100mE 10200mE 10300mE 10400mE 10500mE

11750mN 11650mN 11550mN 11450mN

5 cm

GEOPEKO

TS 27176
No. V9-12

VOYAGER 9

Fe C-HORIZON GEOCHEMISTRY

DATE NOV'80 | DRWN JPM | GEOL R R L | CHKD

970233 044

9200 N Voyager 2 Grid

LOW RESISTIVITIES EAST OF THIS LINE

LOW RESISTIVITIES

I.P. ANOMALY METAL FACTOR

MAGNETIC PROFILE 850m

ACID PYROCLASTICS

PYROCLASTICS

BOUNDARY OF THICK FOREST

PROBABLE AREA OF QUARTZ-FELDSPAR-PORPHYRY

9800 E · 10000 E · 10200 E · 10400 E · 10600 E · 10800 E · 11000 E · 11200 E · 11400 E · 11600 E

9200 N · 9000 N · 8800 N · 8600 N · 8400 N · 8200 N · 8000 N

5244000 m N AMG

LEGEND

20 ppm Pb original sample

20 ppm Pb repeat and check original sample.

20 ppm Pb duplicate sample.

ANALYTICAL METHOD

Pb by AAS

A.C.S. Laboratories. ADELAIDE.

CONTOUR INTERVAL:

0 – 100

100 – 200

200 – 500

500 – 1000

5 cm

Power auger hole

Hand auger hole

Grid position

970234

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD.

TS 27/76-V10-10

E.L. 27/76 ELLIOTT BAY, TASMANIA

VOYAGER 10

SUMMARY MAP: Pb SOIL GEOCHEMISTRY

045

DATE: NOV. 1980

GEOLOGIST: P.R.L.

DRAWN: D. BREEL

CHECKED:

81-1555

81-1222

600 W 400 W 200 W 00 E 200 E 385 000 m E AMG 400 E 600 E 800 E 1000 E 1200 E

400 N 200 N 00 N 5 246 500 mN AMG 200 S 400 S 600 S

chl qfxt
12-1
chl qfxt (minor dissem py)
pale grey fg tuff sl-
12-2
clvd qfp lava
12-4
fg lam ser qxt
12-6
12-5
fg tuff- sl/sh
12-7
mottled/streaky chloritic qxt
m-fg pale grey ser q(f)xt
12-8
fg pale grey 1-sl ξ dk corb? lenses
mg ser qxt
earthy cavernous lim gossans
minor gossanous vein qtz
qfp lava
fg qxt
gossanous qtz bx
12-13
bk fe-stained qxt, patchy qtz vein/py gossan
KR5654
12-9
12-10
12-11
12-12
weathered qxt minor dissem ox py
pale grey q(f)xt
12-14
fg qxt ξ dk veins
(qtz tourmaline?)
12-18
fg tuff- sl
chl qfxt
mg qxt
chl qxt (weathered)
m-fg locally chl q(f)xt,
extensive fe-staining
heavy fe-blu precipitate in creek
fg qxt
12-17
qfp lava
12-16
surface concentration
of semi consolidated
ferruginous grit related
to small spring outflow.
ser qxt
12-15
chl cg qfbp ξ minor gos veins
parallel to foliation
qtz-tourmaline float
Hydrographer Landing Mark
qfp lava
'streaky' chl qxt
goss float
ser qxt locally fe stain
12-23
12-22
12-19
mg q(f)xt
12-20
m-cg qfb(hb) porphyry
m-fg ser qxt
cg qfbp ξ irregular
wispy lenses of
fine chl// to foliation
1-3% dissem
ser qxt locally pt
fe stained ξ gos vlets
gossan
qtz
slight chl qxt/
Fe stain, minor gos vlets
qtz reef
strong cleaved
fe qxt
DDH 4
Fe stain qxt
excavated
pod qtz-gos-bx
DDH 2
DDH 1
12-24
12-26 cg qfbp
(b altered to chl but not shd)
earthy lim gos
float
12-25
ser qxt
slightly chl qfxt
local Fe stain
12-21
chl foliated qfbp
<0-5% dissem
30 cm gos qtz bx
minor gos vlets
dominantly // to fol.
heavy Fe lim precipitate
in creek
qtz tourmaline float
minor Fe stain
strongly shd
fe qxt
qtz
DDH 5
12-29
strong Fe stain
nervous Fe stain
strong patchy Fe stain
zone of gos qtz bx
DDH 3
12-28
trench
Mn-Fe precipitate
Fe stained qfxt
chl, shd, cg qfb p
12-32
12-27
gos veinlets
orient- 310/70 NE
00/80 E
250/70 N
350/80 W
15/70 W
Fe stained chl qfxt
minor gossqtz bx zone
gos qtz bx
chl qfxt strong Fe stain
dk qtz-tourmaline?
vein chips as float
discontinuous qtz reef
Fe stained
partly chl mg ser qxt
12-33
12-35
12-34
Fe stained chl qfxt
ξ fine gos vlets
traces of cpy, hem
KR 5656
Fe stain
minor gos
vlets // to
foliation
gos qtz bx zone
shd qfb p
Fe stained qfxt
local chl, fine lim/gos vlets
mostly // to foliation
12-37
12-38
LEWIS RIVER
LEWIS RIVER

LEGEND:

19-22 chloritized, cg quartz feldspar biotite porphyry (qfbp)
19-35 foliated, chloritic qtz-feldspar crystal tuff (qfxt)
19-26 sericitized equivalent of chloritic quartz feldspar crystal tuff (qxt)
19-19 quartz (feldspar) porphyry (extrusive) (qfp lava)
19-28 sericitic fg laminated quartz crystal tuff (fg qxt)
19-58 fg semi argillaceous, tuffaceous siltstone and shale (st)
19-14 gossan after sulphides

●..... Power auger hole
o..... Hand auger hole
..... Grid position

5 cm

Date: JUNE '80
GEOL: W. H.
DRWN: J. P. M.
CHKD: K.W.

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD
1" = 1 : 2500
No TS 27/76 V12-2

E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 12
GEOLOGICAL MAP 046

970235

81-1555 J13

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

Scale 1:2500 | No. TS 27/76-VI2-3

E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 12
C - HORIZON GEOCHEMICAL RESULTS
COPPER CONTOURS

047

DATE: SEPT '79
GEOLOGIST: C.D.S
DRAWN: J.P.M.
CHECKED:

o Power auger hole
o Hand auger hole
Grid position

5 cm

92636

1200 E 1000 E 800 E 600 E 400 E 385 000 mE AMG 200 E 00 E 200 W 400 W 600 W

600 S
400 S
200 S
00 N
200 N
400 N

5 246 500 mN AMG
5 245 500 mN

81-1555 (13)

970237

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD.

No TS2776-V12-4

E.L. 2776 ELLIOTT BAY, TASMANIA
VOYAGER 12
C- HORIZON GEOCHEMICAL RESULTS
LEAD CONTOURS

048

DATE: April '79
GEOLOGIST: C.D.S.
DRAWN: J. P.W.
CHECKED:

o Power auger hole
o Hand auger hole
Grid position

5 cm

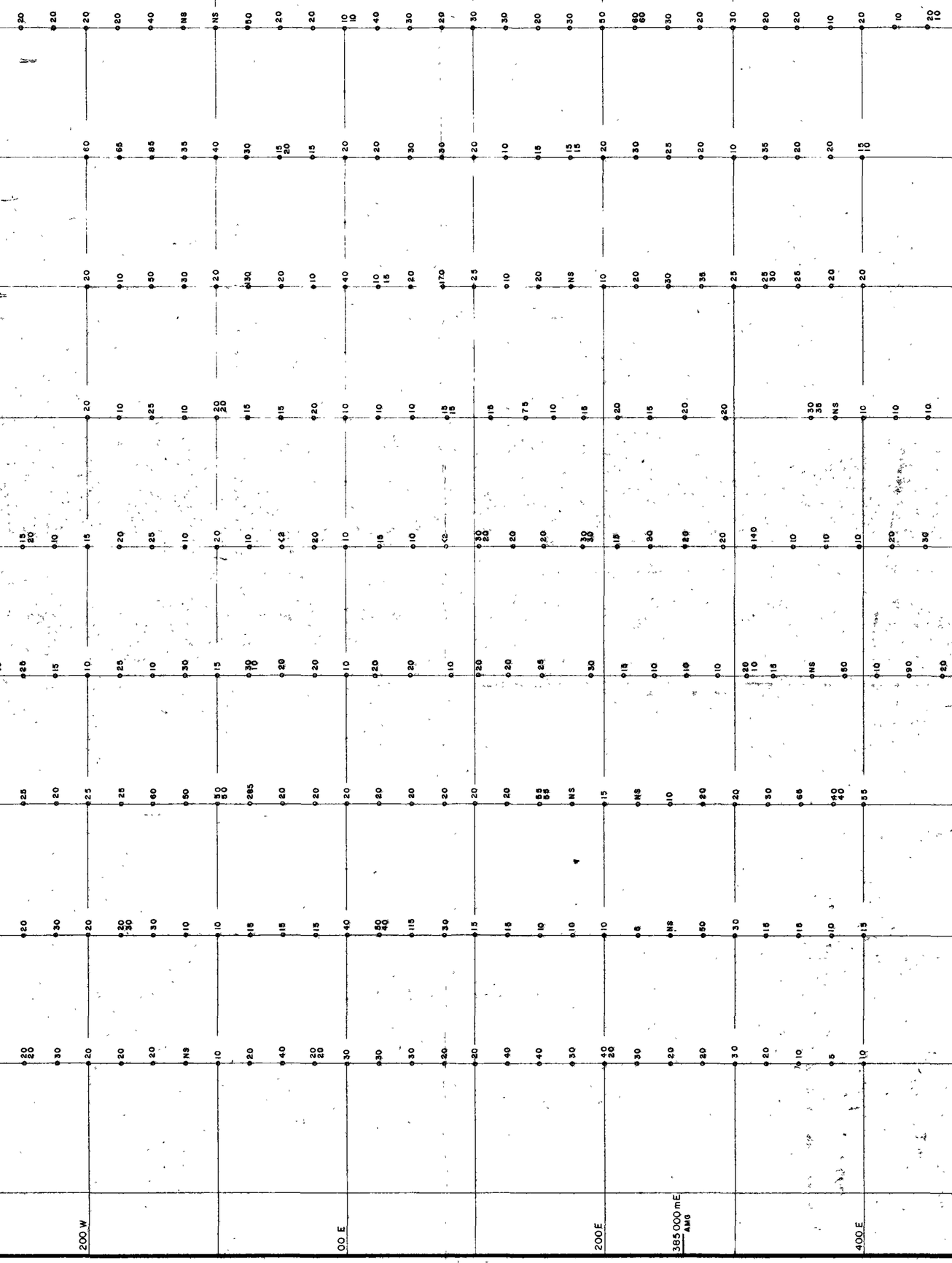
1200 E
1000 E
800 E
600 E
400 E
385 000 mE AMG
200 E
00 E
200 W
400 W
600 W

600 S
400 S
200 S
00 N
200 N
400 N

5 246 500 mN AMG

600 W | 400 W | 200 W | 00 E | 200 E | 385 000 mE AMG | 400 E | 600 E | 800 E | 1000 E | 1200 E

400 N
200 N
00 N
5 246 500mN
200 S
400 S
600 S



5 cm

o. Power auger hole
o. Hand auger hole
. Grid position

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

Scale 1:2500

No TS 27/76-VI2-5

E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 12
C - HORIZON GEOCHEMICAL RESULTS
ZINC CONTOURS

DATE April 79
GEOLOGIST C D S
DRAWN J P M
CHECKED

970928

049

81-1555

DDH 5.

PROJECTED FROM 275° SOUTH

NO CORE

100 E

150 E

200 E

250 E

80

70

60

50

40

30

20

10

00 m R.L.

OVERBURDEN - BEDROCK INTERFACE

SURFACE PROFILE

DDH 3.

300 SOUTH

TRENCHES

Fe - STAINED BRECCIA ZONES

BEDDING TRACES

50

SMALL BRECCIA ZONES

SPORADIC QUARTZ VEINLETS, DECREASING FREQUENCY BELOW 45 m.

60

LEVEL OF OXIDATION

Py - CARBONATE BRECCIA

SPHALERITE-CHALCOPYRITE VEIN

10mm Cpy-py-carb-qtz VEIN

SHEARED

HOLE NOT LOGGED IN DETAIL

PORPHYRY CONTACT PROJECTED

Fe STAINED & ALTERED GRANITIC CRYSTAL TUFF

EOH 80

FAULT INFERRED

STRONG BRECCIATION, CARBONATE VEINING & MINOR Cpy-Py VEINING

Py-Sph-Gn-Carb VEIN

MODERATE PHYLLIC ALTERATION

LOCALLY SHEARED

120

LOCALLY UNALTERED

STRONG SHEARING

MINOR DISSEMINATED PYRITE

SERICITE-CARBONATE (?) ALTERATION

EOH 162.5

LEGEND

BEDDING ORIENTATION

ZONE OF ANOMALOUS GOLD >25 ppb Au

GOSSANOUS VEIN

BRECCIA ZONE

SHEAR ZONE

14 FINE GRAINED (TUFFACEOUS) SILTSTONE - GREYWACKE

38 CHLORITIC QUARTZ (FELDSPAR) CRYSTAL TUFF (OXIDIZED ABOVE 69.0 M)

27 ALTERED QUARTZ (FELDSPAR) CRYSTAL TUFF

21 QUARTZ - FELDSPAR - BIOTITE - PORPHYRY (CHLORITIZED IN PART)

970239

V 12 DDH5

COLLAR CO-ORDS: 275 S, 635 E

COLLAR INC.: -60°

COLLAR AZ.: 077·5° M

DEPTH	AZ.	INC.
0-30	77·5	-60
30-60	78·5	-58
60-120	79·5	-56
120-180	80·5	-52

DDH 3 COLLAR CO-ORDS: 300 S, 115 E

5 cm

GEOPEKO LIMITED
KING ISLAND GROUP

SCALE 1:250

No KT 27/76-V12-13

ELLIOTT BAY — E.L 27/76

VOYAGER 12.

GEOL. CROSS SECTION 300 S.

DDH 3 AND DDH 5. (PROJECTED)

050

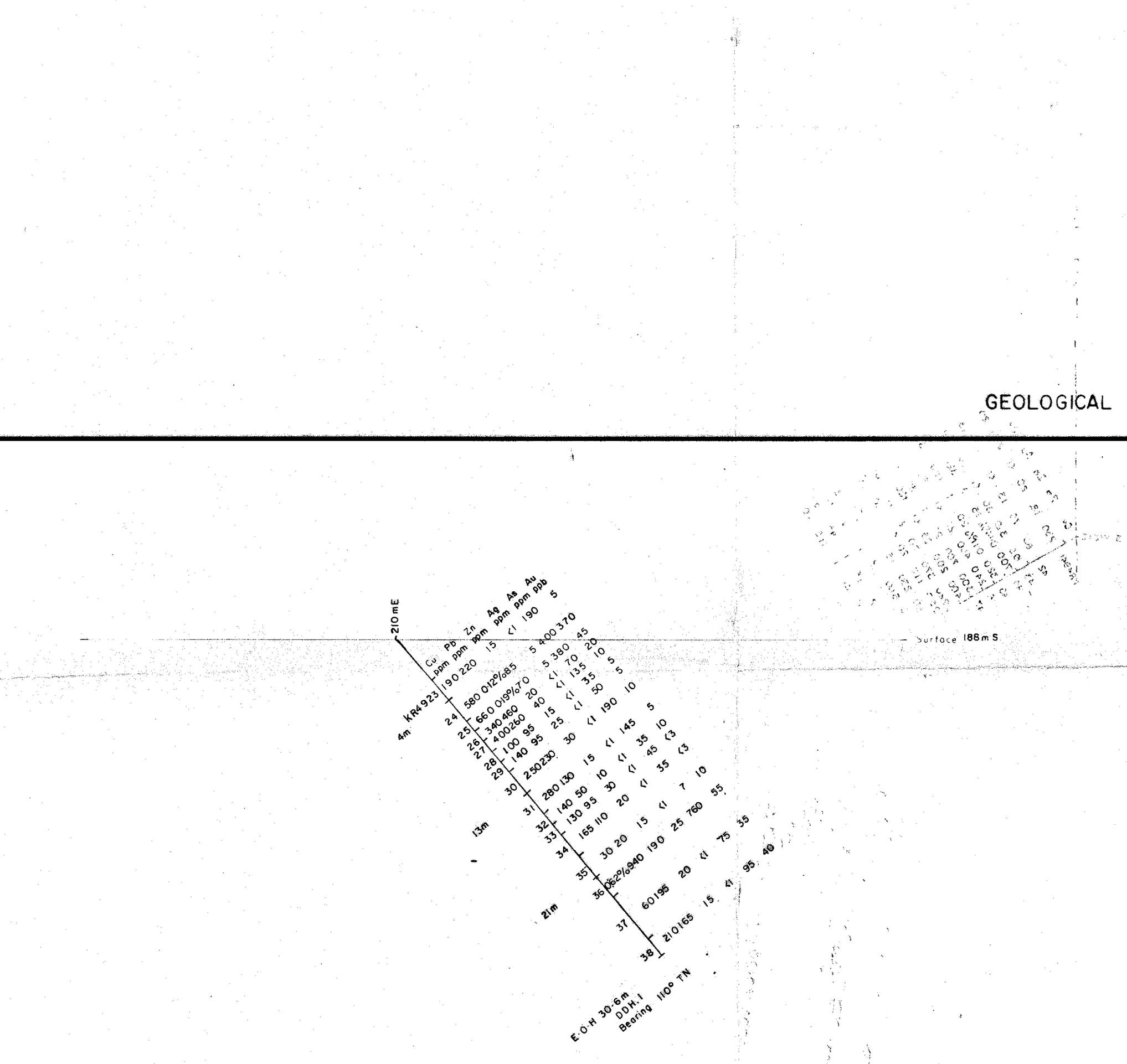
DATE July '80

GEOLOGIST W.H.

DRAWN B.B.

81-1555 43

GEOLOGICAL LOG



GEOCHEMICAL RESULTS

970240

LEGEND

ANALYTICAL METHODS

Cu, Pb, Zn, Ag – AAS (method 1)
Ba* XRF (method 9a)
Au* AAS - CARBON ROD (method 12Oa)
Sn*, W* XRF (method 9a)

* where applicable

Australian Laboratory Services – Brisbane QLD

UNITS

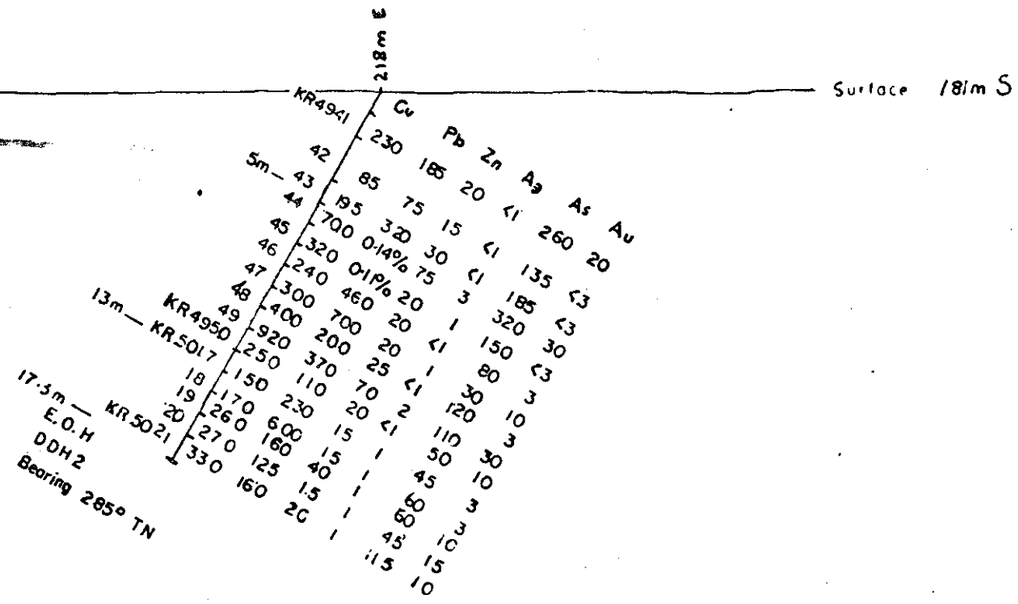
Cu, Pb, Zn, Ag, Ba, Sn, W — ppm
Au — ppb
(unless otherwise stated)

5 cm

DATE Nov '80
GEOLOGIST C. D. S.
DRAWN J. P. M.
CHECKED

GEOPEKO
DEVONPORT BASE, TASMANIA
SCALE 1:250
No TS v12-9
E.L. 27/76 ELLIOTT BAY, TASMANIA
VOYAGER 12 DDH 1
051
GEOLOGICAL / GEOCHEMICAL SUMMARY

81-1555



GEOCHEMICAL RESULTS

970241

LEGEND

ANALYTICAL METHODS

Cu, Pb, Zn, Ag – AAS (method 1
Ba* XRF (method 9a)
Au* AAS – CARBON ROD (method 120a)
Sn*, W* XRF (method 9a)

* where applicable

Australian Laboratory Services – Brisbane QLD.

UNITS

Cu, Pb, Zn, Ag, Ba, Sn, W — ppm
Au — ppb
(unless otherwise stated)

5 cm

DATE Nov '80
GEOLOGIST C D S
DRAWN RT
CHECKED

GEOPEKO
DEVONPORT BASE, TASMANIA
SCALE 1 250
No. TS 27/76 V12-10

E.L. 27/76 ELLIOTT BAY, TASMANIA

VOYAGER 12 DDH 2

81-1555

GEOLOGICAL/GEOCHEMICAL SUMMARY.

052

(840 ppm Zn)

(Dup 260ppm Zn)

MAGNETIC PROFILE

400 nT
300 nT
200 nT
100 nT
0

Zn

Fe

(Dup 90 ppm Pb)

Pb

Cu

300ppm
250 ppm
200 ppm
150 ppm
100 ppm
50 ppm
0 ppm Zn
40 ppm
30 ppm
20 ppm
10 ppm
0 ppm Cu

3.0 %
2.0 %
1.0 %
0% Fe

175 ppm
150 ppm
125 ppm
100 ppm
75 ppm
50 ppm
25 ppm
0 ppm Pb

6001 6002 6003 6004 6005 6006 6007 6008 6009 6010 6011 6012 6013 6014 6015 6016 6017 6018 6019 6020 6021 6022 6023 6024 6025 6026 6027 6028 6029 6030 6031 6032 6033 6034 6035 6036

9000E 9100E 9200E 9300E 9400E 9500E 9600E 9700E 9800E

Magnetic Response = Centre of Anomaly

5 cm

DATE AUG 80	GEOPEKO
GEOL C D S	E L 27/76 ELLIOTT BAY, TASMANIA
	VOYAGER 17
DRWN J P M	C-HORIZON GEOCHEMICAL PROFILES
	Cu Pb Zn Fe
CHKD	Line 10 000 N
	1 2500 Ts 27/76 V17-3

970242 053

BOMBARDIER TRACK

AEM 99

mineralised limnetic chloritic tuffs
ER 5118 - 5124

AEM 90

Boundary enclosing anomalous Pb, Zn drainage

384 000 E

385 000 E

386 000 E

GEOPEKO LIMITED
DEVONPORT BASE, TASMANIA

0 200 400 600 800 1000
SCALE 1:14 285

E.L. 27/76 ELLIOTT BAY
VOYAGER 20
SUMMARY MAP 054

Date: NOV. 1980
Geologist: R.R.L.
Drawn: D. BREEN.
Checked:

DRG. NO. TS 27/76 - V20 - 2

LEGEND:

ANOMALOUS VALUES:
Cu > 10 ppm
Pb > 30 ppm
Zn > 35 ppm

19-13 ORDOVICIAN CONGLOMERATES + QUARTZITE

CAMBRIAN VOLCANICS
19-25 HEMATITIC QUARTZ-CRYSTAL TUFF
19-40 CHLORITIC RHYOLITIC TUFFS
19-47 QUARTZ-BIOTITE PORPHYRY LAVAS
19-22 QUARTZ-FELDSPAR-BIOTITE + PORPHYRY INTRUSIVE.

ALL 1980 SAMPLING RESULTS.

5 cm

0. 1555 243 970243

970244

GEOPEKO

A DIVISION OF PEKO - WALLSEND OPERATIONS LTD

PROGRESS REPORT EL 27 / 76

ELLIOTT BAY 1979 / 80 FIELD SEASON

VOLUME III : Geophysical Maps

R R LARGE
DEVONPORT

VOL III of 3 MARCH 1981

LIST OF PLANS IN VOLUME 3

970245

TS 27/26-V21/7-2 Geological Map

TS 27/26 - V21 - 5 Voyager 21 C - Horizon Geochemical Profiles Cu, Pb, Zn, Fe Lines 13700N, 13800N, 13900N, 14000N

TS 27/26 - V22 - 3 Zn Geochemical Profiles Lines 12000N, 12400N, 12800N

TS 27/26 - V22 - 4 Zn Geochemical Profies Lines 13200N, 13600N, 14000N

TS 27/26 - V23 - 1 Stratigraphic Section and Rock Chip (IN TEXT) Copper Values

TS 27/26 - V24 - 3 Simplified Geology & Gold Drainage (IN TEXT) Values

GEOPHYSICS PLANS FOR VOYAGER PROSPECTS

PLAN NO.

Voyager 1

5319L - MISSING	Contours of total magnetic intensity (NOT ON MICROFICHE)
5320L	Profiles of total magnetic intensity
5160S/B	Contours of filtered in-phase VLF-EM
5297S/B	Profiles of Turam, corrected field strength ratio and phase difference

Voyager 6

5298S/B	Profiles VLF-EM
5301S/B	Profiles of total Magnetic intensity
5299S/B	Contour of filtered in-phase VLF-EM
5300S/B	Contours of total mangnetic intensity

Voyager 7

5302S/B	Contours of filtered in-phase VLF-EM
5306S/B	Contours of total magnetic intensity
5307S/B + 5305 S/B	Profiles of total magnetic intensity
5303S/B	Profiles of VLF-EM

Voyager 9

5151S/B	Profiles of total magnetic intensity Sht 1
5152S/B	Profiles of total magnetic intensity Sht 2
5152S/B	Profiles of total magnetic intensity Sht 3
5150S/B	Contours of total magnetic intensity
5308S/B	Contours of filtered in-phase VLF-EM
5309S/B	Profile of VLF-EM

Voyager 14

5157	Reconnaisance geophysics profiles total magnetic intensity
Figure V14 - 1 - MISSING	Magnetic reconnaisance traverse (NOT ON MICROFICHE)

Voyager 21

5155S/B	Contours of total magnetic intensity
5156S/B	Profiles of total magnetic intensity
5312S/B	Contours of in-phase filtered VLF-EM
5313S/B	Profiles of VLF-EM
5304S/B	Profiles of self potential

Voyager 22

5314S/B	Profiles of total magnetic intensity
5317S/B	Profiles of VLF-EM
5318S/B	Profiles of total magnetic intensity Voyager 9 - 22 Base line 10000E

AXIS OF NARROW MAGNETIC ANOMALY

V 21

AXIS OF BROAD MAGNETIC ANOMALY (800 nT Peak)

VOYAGER 7

approximate outline of coastline

Lewis River

Sassy Ck

NOTE

10 Cu ppm
10 Pb ppm
35 Zn ppm
48 Fe %
50 Sn ppm
10 W ppm
(550) Au ppb

LEGEND

VOLCANIC ROCKS

lt	lithic tuff
xt	crystal tuff
vt	vitric tuff
xlt	crystal lithic tuff
ogg	agglomerate rounded clasts 32 mm
fr	fragmental angular clasts 32 mm
ut	undifferentiated tuffs
t	tuff
qp	quartz porphyry
qfp	quartz feldspar porphyry
qfbp	quartz feldspar biotite porphyry
l	as a suffix denotes lava
lap	lapilli

PREFIXES (no prefix indicates acid composition)

a	acid
i	intermediate
rhy	rhyolite or rhyolitic
dac	dacite or dacitic
and	andesite or andesitic
b	basalt or basaltic
bs	basic

SEDIMENTARY ROCKS

sh	shale
si	siltstone
blksh	blackshale
sst	sandstone
qtz	quartzite
gwk	greywacke
ct	chert
lmst	limestone
dol	dolomite
bx	breccia
congl	conglomerate
vs	volcaniclastic sediment

METAMORPHIC ROCKS-

phy	phyllite
sch	schist
gns	gneiss
hfs	hornsfels
mb	marble

INTRUSIVE ROCKS

gr	granite
gd	granodiorite
ad	adamellite
di	dolerite
lp/lamp	lamprophyre
bd	basic dyke
ap	aplite
pg	pegmatite
qv	quartz veins

STRUCTURAL AND TEXTURAL

p	porphyritic
clvd	strongly cleaved
shd	sheared
ox	oxidized
vns	veined
lam	laminated
bx	brecciated
sch	schistose
vug	vugular (vughy, vug)
cren	crenulated

MINERALOGICAL PREFIXES (only use if diagnostic)

sil	siliceous
chl	chloritic
ser	sericitic
cal	calcareous
fe	ferruginous
py	pyritic
hem,hm	hematitic
goss	gossanous
lim	limonitic
arg	argillic
feld	feldspathic
ep	epidote

GRAIN SIZE

fg	fine grained	0 — 3mm fragments
mg	medium grained	3 — 10mm fragments
cg	coarse grained	10 — 32mm fragments
ogg	agglomerate or vole breccia	> 32

AGE DESIGNATION PREFIXES

Q	Quaternary
T	Tertiary
J	Jurassic
TR	Triassic
P	Permian
D	Devonian
S	Silurian
O	Ordovician
C	Cambrian
PreC	Precambrian

STRUCTURAL

	outcrop
	float
	bedding
	strike/dip of flow layering in volcanic rocks
	" " schistosity (metamorphic foliation)
	fault
	interpretive contact
	jointing
	cleavage
	fold axis
	vertical cleavage

5 cm

DATE: 3-12-80
GEOLOGIST: C.D.S
DRAWN: J.M.
CHECKED: R.R.L

GEOPEKO LIMITED
A DIVISION OF PEKO WALLSEND OPERATIONS LIMITED

970247

SCALE: 1:2500

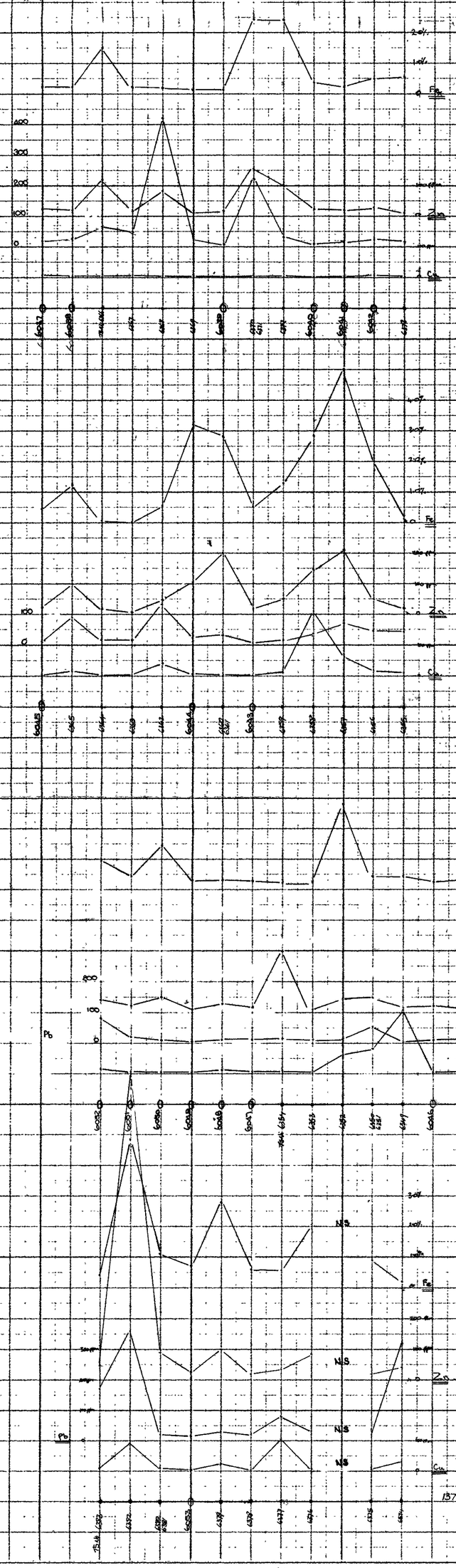
No. TS 27/76-V21/7-2

E.L. 27/76 ELLIOTT BAY

VOYAGER 7+ VOYAGER 21 GEOLOGY

055

31-1555 2/3



• — POWER AUGER HOLE
0 — HAND AUGER HOLE
N.S — NO SAMPLE TAKEN

5 cm

GEOPEKO

970248

SCALE:

No. TS 27/76-V21-5

ELLIOTT BAY — E L 27 / 76

VOYAGER 21 C- HORIZON GEOCHEMICAL PROFILES

Cu , Pb , Zn , Fe

LINE 13 700 N, 13800 N, 13900 N, 14 000 N

056

DATE: 1 SEPT 1980

GEOLOGIST: C D S

DRAWN:

CHECKED: R.L.

+BRITISH MADE

81-1555 23

9500 E 9600 E 9700 E 9800 E 9900 E 10000 E 10100 E 10200 E 10 300 E 10 400 E 10 500 E

Zn ppm

12 800 N

500 400 300 200 100 0

SAMPLE WITH 1300 ppm Cu.

NS NS

Zn ppm. 12 400 N

400 300 200 100 0

NS

Zn ppm

12 000 N

400 300 200 100 0

NS NS NS

NS — NO SAMPLE

5 cm

GEOPEKO LIMITED

Scale 1:2500

Ts 27/76 V28-3

DATE: Oct. 1976

GEOL: R.L.L.

DWN: D.G.

CHKD:

Voyageur 28

Zn GEOCHEMICAL PROFILES

970249

0 057

9500 E

9600 E

9700 E

9800 E

9900 E

10000 E

10100 E

10200 E

10300 E

10400 E

10500 E

0 60 200 300 400 600 800 1000 1200

132.00 N

Zn ppm

0 100 200 300 400 500 600 700

136.00 N

Zn ppm

0 100 200 300

140.00 N

Zn ppm

?

?

?

?

SHALES

BANDED LITHIC TUFFS + AGGLOMERATES

TUNDAL GROUP

NS NS

5 cm

GEOPEKO LIMITED

Scale. 1" 2500

T127/76 V22-4

Voyager 22

Zn Geochemistry Results

DATE OCT. 1976

GEOL R.R.L.

DWN. B.A.

CHKD:

970250

058

9 300E | 9 400E | 9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E

62 800 nT — Line 12 400N

62 800 nT — Line 12 350N

62 800 nT — Line 12 300N

62 800 nT — Line 12 250N

62 800 nT — Line 12 200N

62 800 nT — Line 12 150N

62 800 nT — Line 12 100N

62 800 nT — Line 12 050N

62 800 nT — Line 12 000N

62 800 nT — Line 11 950N

62 800 nT — Line 11 900N

62 800 nT — Line 11 850N

62 800 nT — Line 11 800N

62 800 nT — Line 11 750N

62 800 nT — Line 11 700N

62 800 nT — Line 11 650N

62 800 nT — Line 11 250N

62 800 nT — Line 11 200N

62 800 nT — Line 11 150N

62 800 nT — Line 11 100N

62 800 nT — Line 11 050N

62 800 nT — Line 11 000N

62 800 nT — Line 10 950N

Line 10 900N

9 300E | 9 400E | 9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E

GEOPEKO LTD. Geophysical Surveys	5 cm	Instrument	Chemtron G6 Geometrics 816	Datum	62 800 nT	Hor. Scale	1cm = 25m
Plan No. 5320 L		Observer		Base Reg		Vert. Scale	1cm = 100nT
		Scale Fact.		Date	Jan., Feb 1980	Cont. Int.	

AREA: Elliott Bay Tasmania

PROSPECT: VOYAGER I

PLAN SHOWS: Profiles of Total Magnetic Intensity

81-1555 3/3

970251 059 5320 L

LEWIS RIVER

9300E 9400E 9500E 9600E 9700E 9800E 9900E 10000E 10100E

12400N 12350N 12300N 12250N 12200N 12150N 12100N 12050N 12000N 11950N 11900N 11850N 11800N 11750N 11700N 11650N 11600N 11550N 11500N 11450N 11400N 11350N 11300N 11250N 11200N 11150N 11100N 11050N 11000N 10950N 10900N

NOTE. Transmitter used North West Cape

NWC

52°

direction of readings

GEOPEKO LTD
Geophysical Surveys
Plan No 5160 S/B

5 cm

Geonics EM16

Jan-Feb 1980

1:2500

5%

Elliott Bay Tasmania
VOYAGER I
Contours of Filtered n-phase VLF-EM

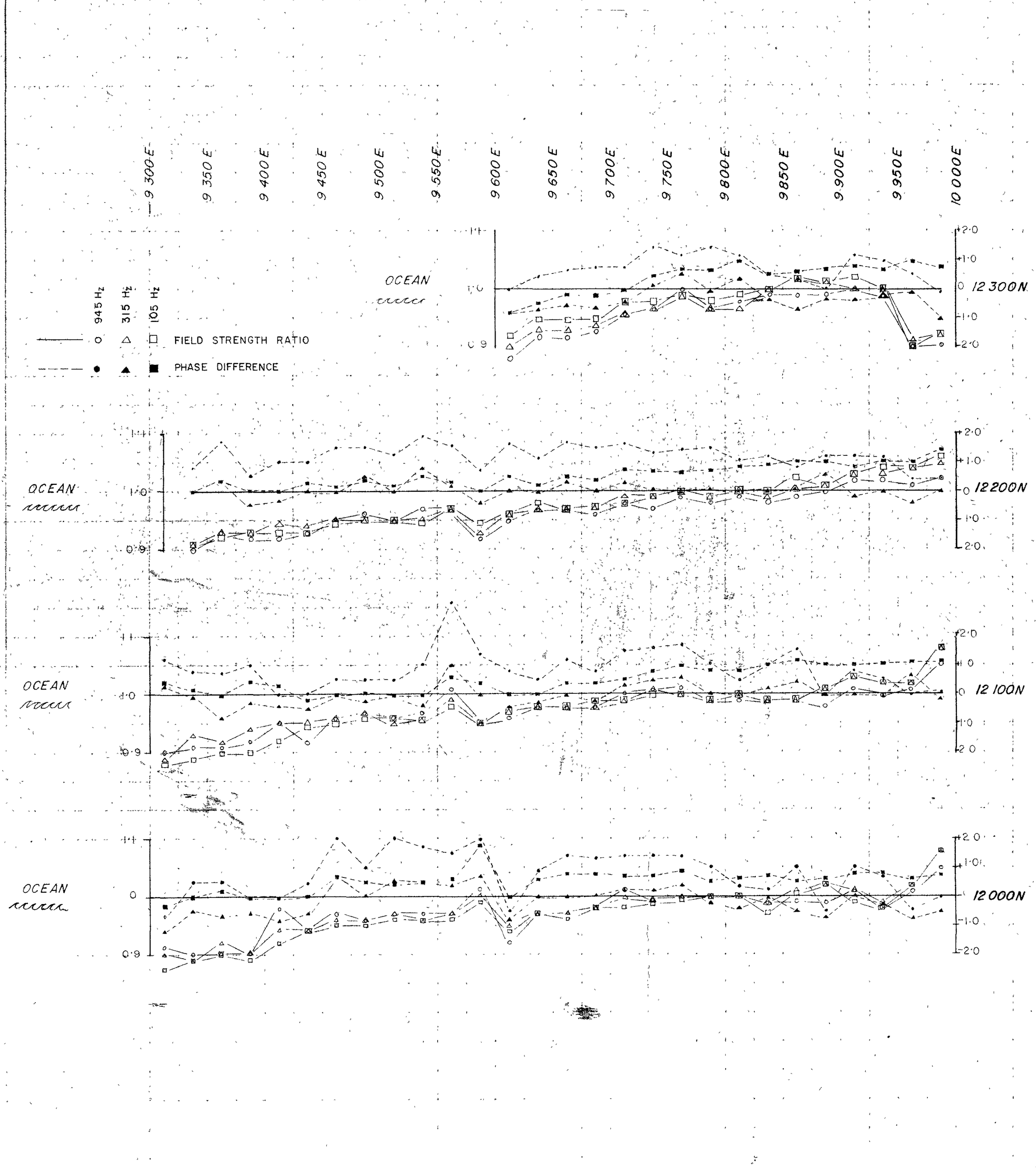
970252

81 1555

3/3

5160SB

060



81-1555 3/3

	Scintrex SE 77		1 2 500		Elliott Bay Tasmania
	10				VOYAGER 1 970253
5297 S/B		March 1980			Profiles of Turam, Corrected Field Strength Ratio and Phase Difference. 5297 S/B

061

9800E 9900E 10000E 10100E 10200E 10300E 10400E 10500E

+30 +25 +20 +15 +10 +5 0 -5

LINE 10100N

+30 +25 +20 +15 +10 +5 0 -5 -10 -15

LINE 10000N

+15 +10 +5 0 -5 -10

LINE 9900N

+15 +10 +5 0 -5 -10 -15

LINE 9800N

+15 +10 +5 0 -5 -10

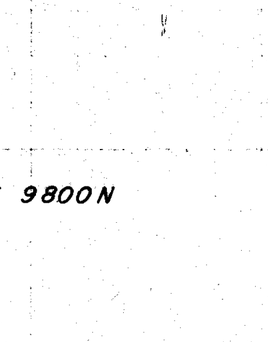
LINE 9700N

9500N 9600N 9700N 9800N 9900N 10000N 10100N

+30 +25 +20 +15 +10 +5 0 -5 -10 -15 -20

BASE LINE
10000E

KEY INCLINATION ——·——·——
QUADRATURE ---×---×---



NOTE: Transmitter used North West Cape.

5 cm

970254

GEOPEKO LTD.	Instrument	Geonics EM16	Datum	0%	Hor. Scale	1:2500	AREA	Elliott Bay Tasmania 062
Geophysical Surveys	Observer		Base Peg		Vert. Scale	1cm to 5%	PROSPECT	VOYAGER 6 81-1555
Plan No. 5298 S/B	Scale Fact		Date	Jan-Feb 1980	Cont. Int.		PLAN SHOWS	Profiles of VLF-EM 3/3

5298 S/B

GEOPEKO LTD. Geophysical Surveys Plan No. 5301 S/B		Instrument: Geometrics 816 Chemtron G6	Datum: 63 000 nT	Hor. Scale: 1cm = 25m	AREA: Elliott Bay Tasmania 063		
		Observer:	Base Reg:	Vert. Scale: 1cm = 100 nT	PROSPECT: VOYAGER 6 970255		
		Scale Fact:	Date: Jan., Feb. 1980	Cont. Int:	PLAN SHOWS: Profiles of Total Magnetic Intensity		

5 cm

5301 S/B

5551

313

9 900E
10 000E
10 100E
10 200E
10 300E
10 400E

10100N
10000N
9900N
9800N
9700N



N
MN
NWC
12°
52°
direction of readings

NOTE: Transmitter used North West Cape

5 cm

1555 3/3

970256

GEOPEKO LTD. Geophysical Surveys	Geonics EM16		1:2500	AREA	Elliott Bay Tasmania
Plan No 5299 S/B		Jan-Feb '80	5%	PROSPECT	VOYAGER 6 064
					Contours of Filtered In-phase VLF-EM

5299 S/B

9 800E
9 900E
10000E
10100E
10200E
10300E
10400E
10500E

LEWIS RIVER

10 100N
10 000N
9 900N
9 800N

62700
62800
62900
63000
63100
63200
63300
63400
64100
64000
63900
63800
63700
63600
63500
63400
63300
63200
63100
62600

5 cm

970257

81-1555 3/3

GEOPEKO LTD Geophysical Surveys Plan No 5 300 S/B	Instrument Chemtron G6 Observer Scale Fact	Datum Base Peg Date Jan, Feb 1980	Hor Scale 1 2500 Vert Scale Cont Int 100nT	AREA PROSPECT PLAN SHOWS	Elliott Bay Tasmania VOYAGER 6 065 Contours of Total Magnetic Intensity.

5300 S/B

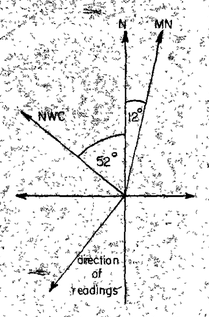
9000E 9100E 9200E 9300E 9400E 9500E 9600E 9700E 9800E 9900E

14800N — 14800N
14600N — 14600N
14400N — 14400N
14200N — 14200N
14000N — 14000N
13800N — 13800N
13600N — 13600N
13400N — 13400N
13200N — 13200N
13000N — 13000N
12800N — 12800N
12700N — 12700N

10000E 10100E 10200E 10300E 10400E 10500E

VOYAGER 21 AREA

VOYAGER 7 AREA



NOTE Transmitter used North West Cape.

LEWIS RIVER

81-1555 3/3 970258

GEOPEKO LTD	Instrument: Geonics EM16	Datum		Hor Scale 1:2500	AREA	Elliott Bay Tasman	066
Geophysical Surveys	Observer I. Ogilvie	Base Peg		Vert Scale	PROSPECT	VOYAGER 7 and VOYAGER 21	
Plan No. 5302 S/B	Scale Factor	Date	January 1980	Cont Int 5%	PLAN SHOWS	Contours of Filtered In-phase VLF-EM	

5 cm

5302 S/B

9 000E 9 100E 9 200E 9 300E 9 400E 9 500E 9 600E 9 700E 9 800E 9 900E 10000E 10 100E 10200E 10300E 10400E

14600N — 14 600N

14400N — 14 400N

14 200N — 14 200N

14 000N — 14 000N

13 800N — 13 800N

13 600N — 13 600N

13 400N — 13 400N

13 200N — 13 200N

13 000N — 13 000N

12 800N — 12 800N

12 700N — 12 700N

63000 62900 62900 62800 63200 63100 63000 62900 62800 62700 62600 62800 63100 62800 63000 62900 63100 62900 62900 63000 63100 63200 63300 63400 63500 63600 63700 63500 63800 62800 63900 62900

VOYAGER 21 ANOMALIES

VOYAGER 7 ANOMALY

LEWIS RIVER

9 000E 9 100E 9 200E 9 300E 9 400E 9 500E 9 600E 9 700E 9 800E 9 900E 10000E 10 100E 10200E 10300E 10400E

81-1555

GEOPEKO LTD
Geophysical Surveys
Plan No. 5306 S/B

5 cm

Instrument	Chemtron G6	Datum		Hor Scale	1:2 500	AREA	Elliott Bay Tasmania 067
Observer		Base Peg		Vert Scale		PROSPECT	VOYAGER 7 and VOYAGER 21
Scale Factor		Date	Jan., Feb. 1980	Cont Int	100 nT	PLAN SHOWS	Contours of Total Magnetic Intensity 080259

5306 S/B

9 000E | 9 100E | 9 200E | 9 300E | 9 400E | 9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E

62800 n.T.

64869

Line 14 600N

62800 n.T.

Line 14 400N

62800 n.T.

65200

Line 14 200N

62800 n.T.

Line 14 000N

62800 n.T.

Line 13 800N

62800 n.T.

Line 13 600N

62800 n.T.

Line 13 400N

62800 n.T.

Line 13 200N

62800 n.T.

Line 13 000N

62800 n.T.

Line 12 800N

62800 n.T.

Line 12 700N

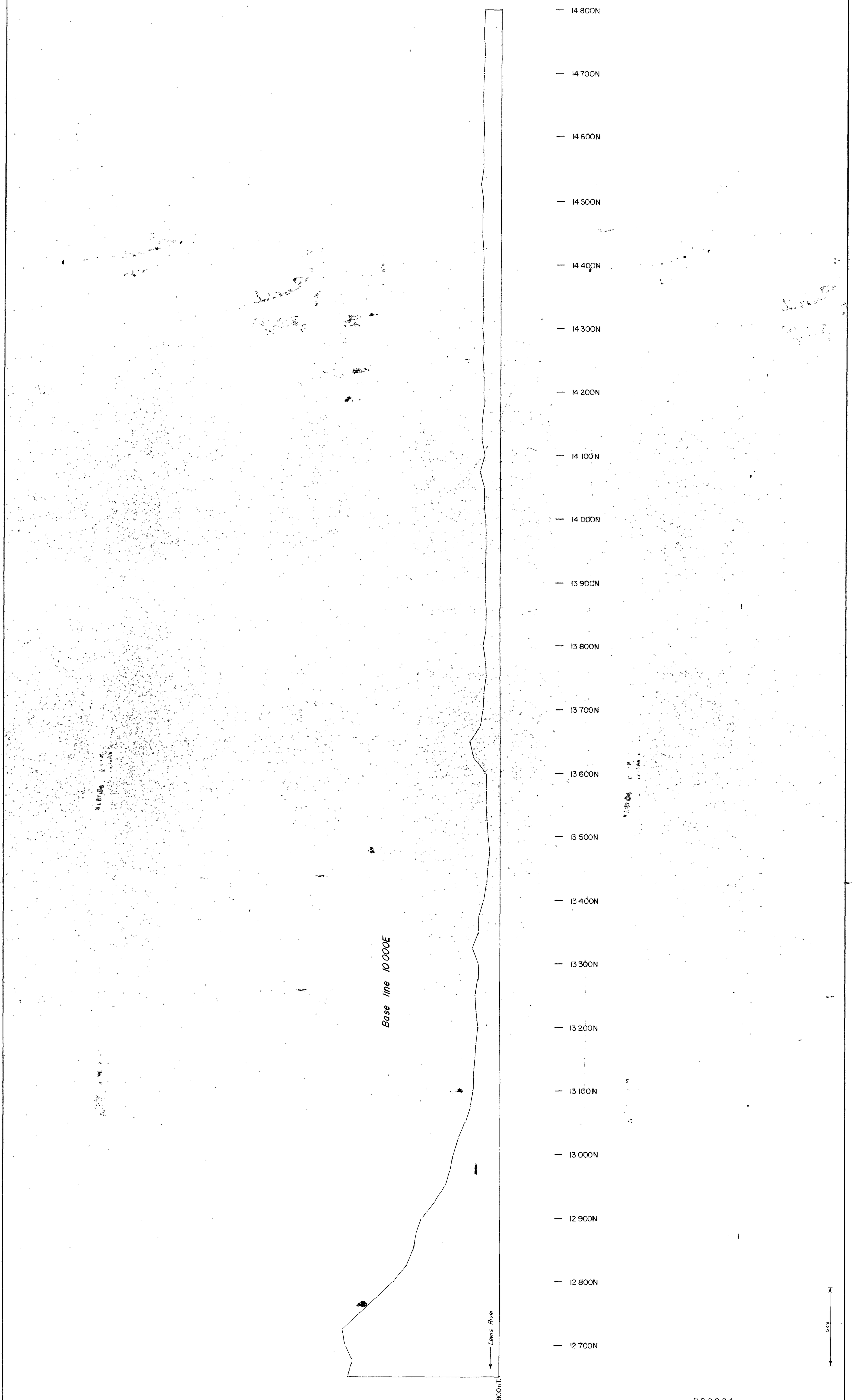
9 000E | 9 100E | 9 200E | 9 300E | 9 400E | 9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E

GEOPEKO LTD.
Geophysical Surveys.
Plan No. 5307 S/B

5 cm

Instrument	Geometrics 816 Chemtron G6	Datum	62800nT	Hor Scale	1cm = 25m	AREA	Elliott Bay Tasmania 970260 068
Observer		Base Pag		Vert Scale	1cm = 100 nT	PROSPECT.	VOYAGER 7 and VOYAGER 21
Scale Fact		Date	Jan., Feb. 1980	Cont Int.		PLAN SHOWS	Profiles of Total Magnetic Intensity

81 - 1555 3/3
5307 S/B



970261

GEOPEKO LTD.	Instrument	Chemtron G6	Datum	62 800 nT	Hor Scale	1cm = 25m	AREA	Elliott Bay Tasmania 069
Geophysical Surveys	Observer		Base Peg		Vert Scale	1cm = 100nT	PROSPECT	VOYAGER 7 + VOYAGER 2
Plan No. 5305 S/B	Scale Fact		Date	Jan., Feb 1980	Cont Int		PLAN SHOWS	Profiles of Total Magnetic Intensity

81-1555 3/3 5305-S/B

14 800N

14 600N

14 400N

14 200N

14 000N

13 800N

13 600N

13 400N

13 200N

13 000N

12 800N

12 700N

LEWIS RIVER

NOTE : Transmitter used
North West Cape

N
MN
NWC
12°
52°
direction of readings

8 900E
9 000E
9 100E
9 200E
9 300E
9 400E
9 500E
9 600E
9 700E
9 800E
9 900E
10 000E
10 100E
10 200E
10 300E
10 400E

GEOPEKO LTD.
Geophysical Surveys.
Plan No. 5303 S/B

5 cm

KEY- INCLINATION ——x——x——
QUADRATURE ----------

Instrument	Geonics EM16	Datum	0 %	Hor. Scale	1 : 2 500	AREA	Elliott Bay Tasmania 970262 070
Observer		Base Reg.		Vert. Scale	1cm to 5%	PROSPECT	VOYAGER 7 and VOYAGER 21
Scale Fact.		Date	Jan-Feb 1980	Cont. Int.		PLAN SHOWS	Profiles of VLF-EM

81-1555 3/3 5303.S/B

9 300E — 9 400E — 9 500E — 9 600E — 9 700E — 9 800E — 9 900E — 10000E — 10 100E — 10 200E — 10 300E — 10400E — 10 500E — 10600E — 10 700E — 10 800E

63000nT

Line 11 700N

63000nT

Line 11 650N

63000nT

Line 11 550N

63000nT

Line 11 450N

63000 nT

Line 11 350N

63000 nT

Line 11 250N

63000 nT

Line 11 150N

63000nT

Line 11 050N

Sheet 1
Sheet 2
Sheet 3

9 300E — 9 400E — 9 500E — 9 600E — 9 700E — 9 800E — 9 900E — 10000E — 10 100E — 10 200E — 10 300E — 10400E — 10 500E — 10600E — 10 700E — 10 800E

GEOPEKO LTD.
Geophysical Surveys
Plan No. 5151 S/B

5 cm

Instrument	Geometrics G 816 Chemtron GB	Datum	63000 nT	Hor Scale	1cm = 25 m	AREA	Elliott Bay Tasmania 970203 071
Observer		Base Reg		Vert Scale	1cm = 100 nT	PROSPECT	VOYAGER 9 5151 S/B
Scale Fact		Date	February 1980	Cont Int		PLAN SHOWS	Profiles of Total Magnetic Intensity Sheet 1

81-1555 313

9 300E — 9 400E — 9 500E — 9 600E — 9 700E — 9 800E — 9 900E — 10 000E — 10 100E — 10 200E — 10 300E — 10 400E — 10 500E — 10 600E — 10 700E — 10 800E

63000 nT

Line 11000N

63000 nT

Line 10900N

63000 nT

Line 10900N

63000 nT

Line 10850N

Sheet 1
Sheet 2
Sheet 3

9 300E — 9 400E — 9 500E — 9 600E — 9 700E — 9 800E — 9 900E — 10 000E — 10 100E — 10 200E — 10 300E — 10 400E — 10 500E — 10 600E — 10 700E — 10 800E

GEOPEKO LTD.
Geophysical Surveys
Plan No. 5152 S/B

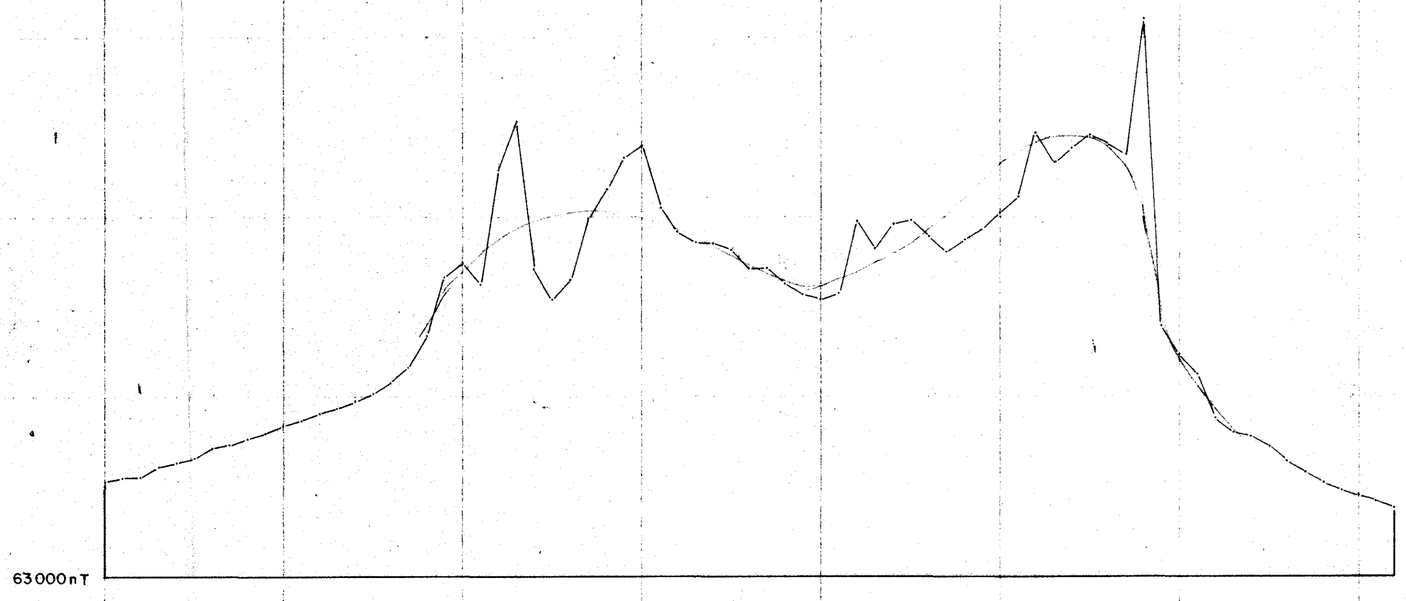
5 cm

Instrument	Geometrics G816 Chemtron G3	Datum	63000 nT	Hor. Scale	1cm = 25m	AREA	Elliott Bay Tasmania
Observer		Base Reg		Vert. Scale	1cm = 100 nT	PROSPECT	VOYAGER 9
Scale Fact.		Date	February 1980	Cont. Int.		PLAN SHOWS	Profiles of Total Magnetic Intensity Sheet 2

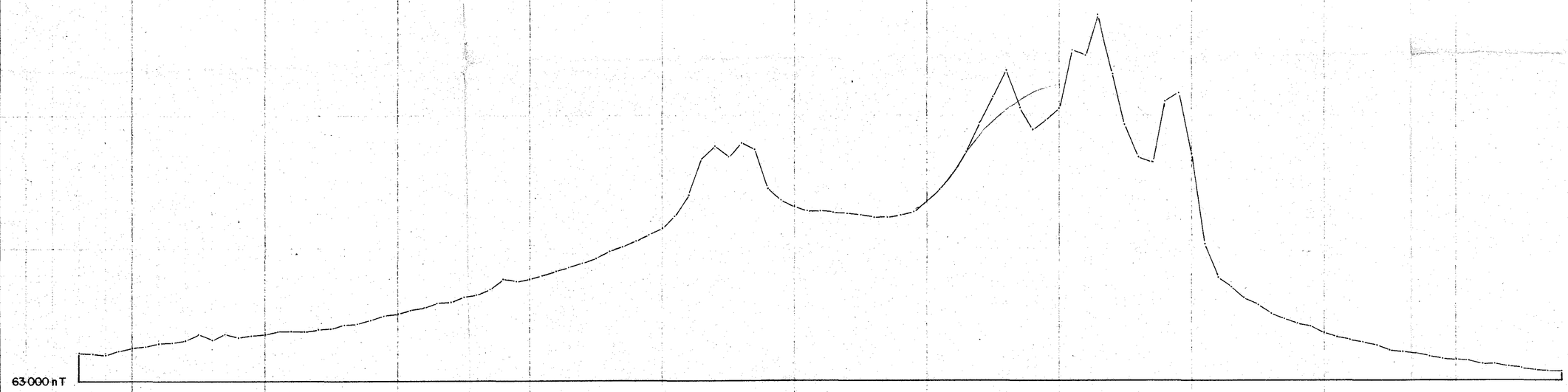
81 - 1555 3/3
072
5152 S/B

970264

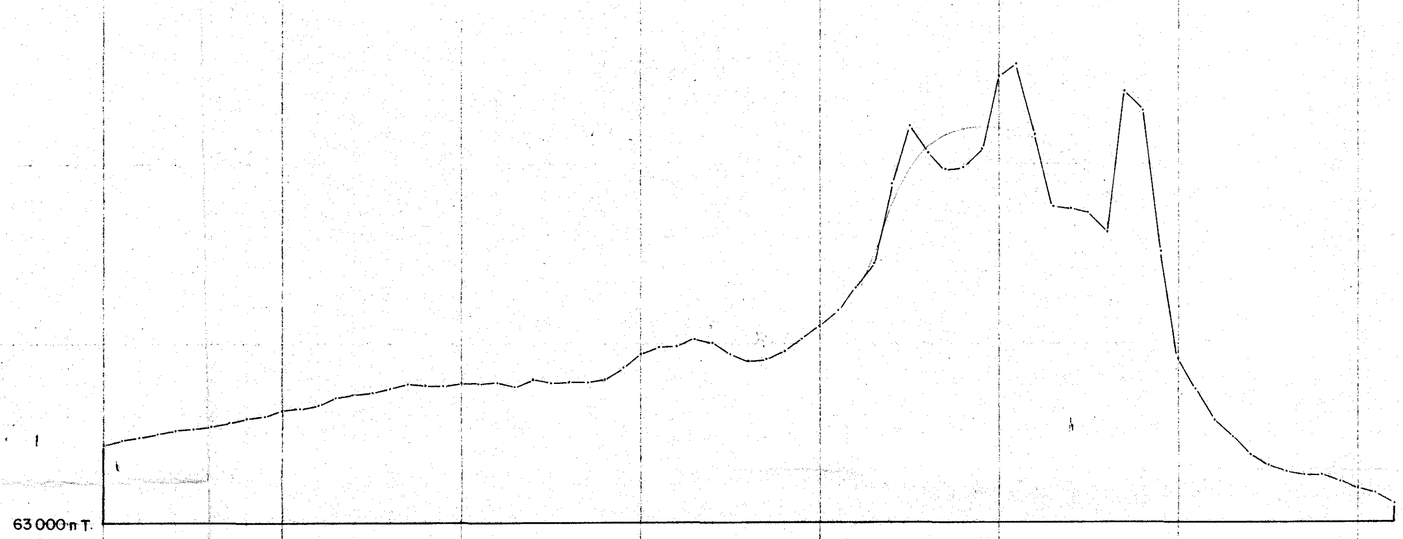
9 300E — 9 400E — 9 500E — 9 600E — 9 700E — 9 800E — 9 900E — 10 000E — 10 100E — 10 200E — 10 300E — 10 400E — 10 500E — 10 600E — 10 700E — 10 800E



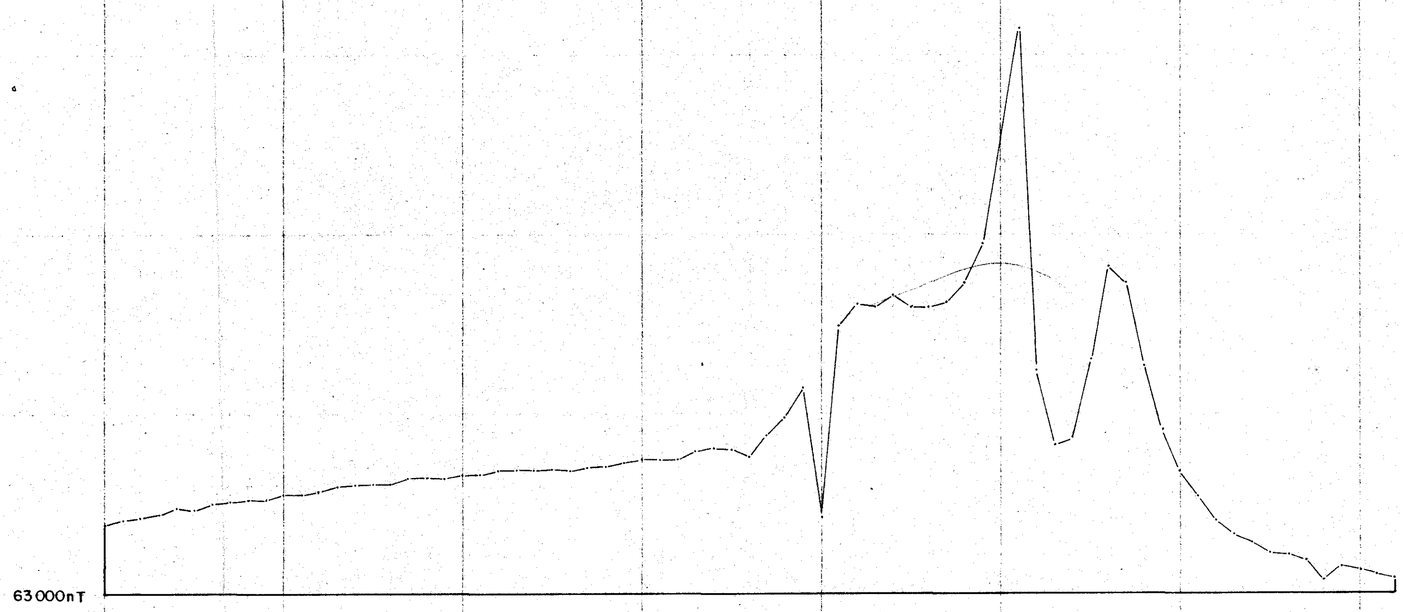
Line 10800N



Line 10750N



Line 10650N



Line 10550N

9 300E — 9 400E — 9 500E — 9 600E — 9 700E — 9 800E — 9 900E — 10 000E — 10 100E — 10 200E — 10 300E — 10 400E — 10 500E — 10 600E — 10 700E — 10 800E

Sheet 1
Sheet 2
Sheet 3

GEOPEKO LTD.
Geophysical Surveys.
Plan No. 5153 S/B

5 cm

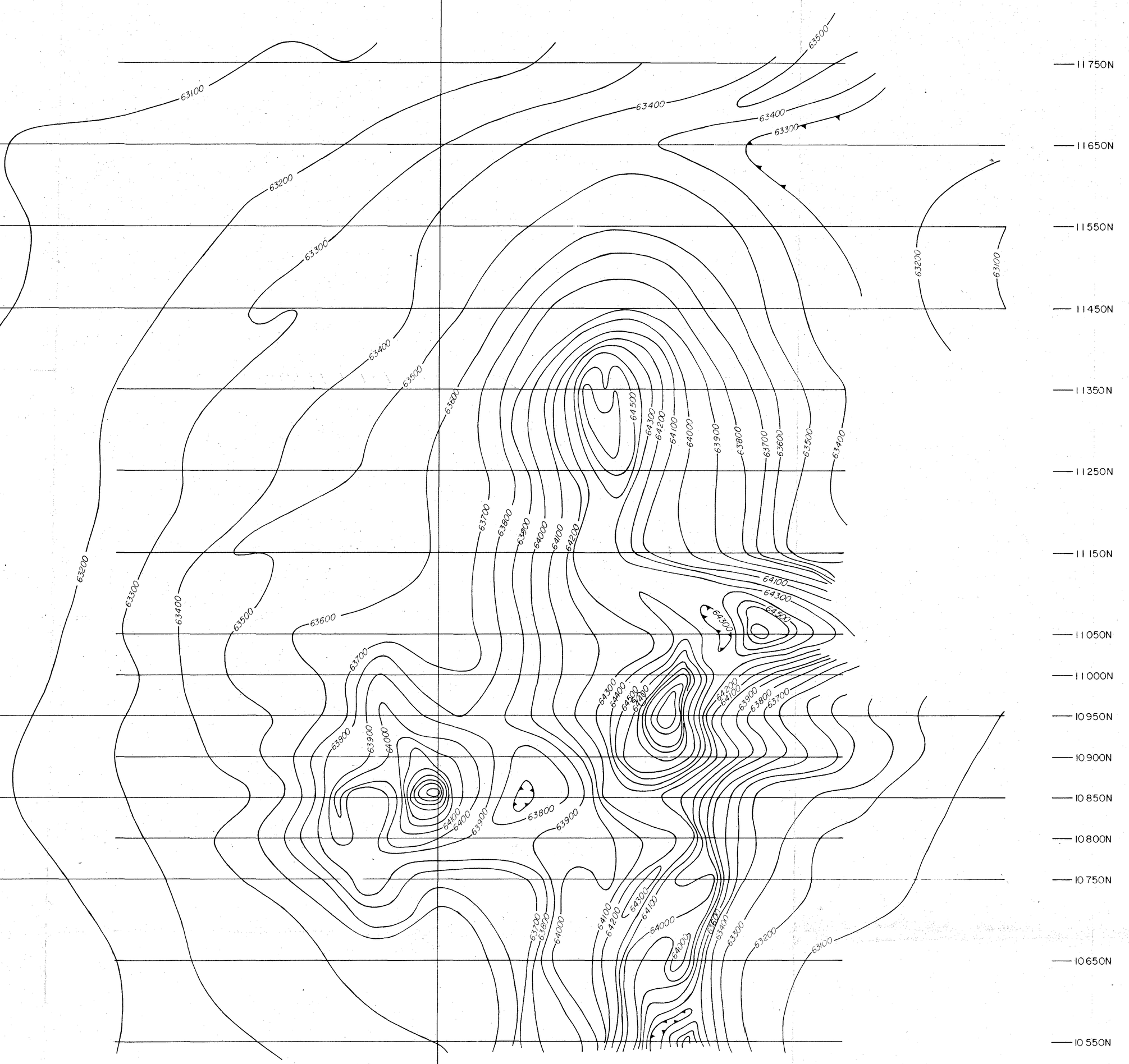
Instrument	Geometrics G816 Chemtron G3	Datum	63000nT	Hor. Scale	1cm = 25m	AREA	Elliott Bay Tasmania
Observer		Base Reg		Vert. Scale	1cm = 100nT	PROSPECT	VOYAGER 9 81-1555 3/3
Scale Fact		Date	February 1980	Cont. Int		PLAN SHOWS	Profiles of Total Magnetic Intensity Sheet 3

073 5153 98

570265

9 300E | 9 400E | 9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E | 10 500E | 10 600E | 10 700E

11750N
11650N
11550N
11450N
11350N
11250N
11150N
11050N
11000N
10950N
10900N
10850N
10800N
10750N
10650N
10550N



9 300E | 9 400E | 9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E | 10 500E | 10 600E | 10 700E

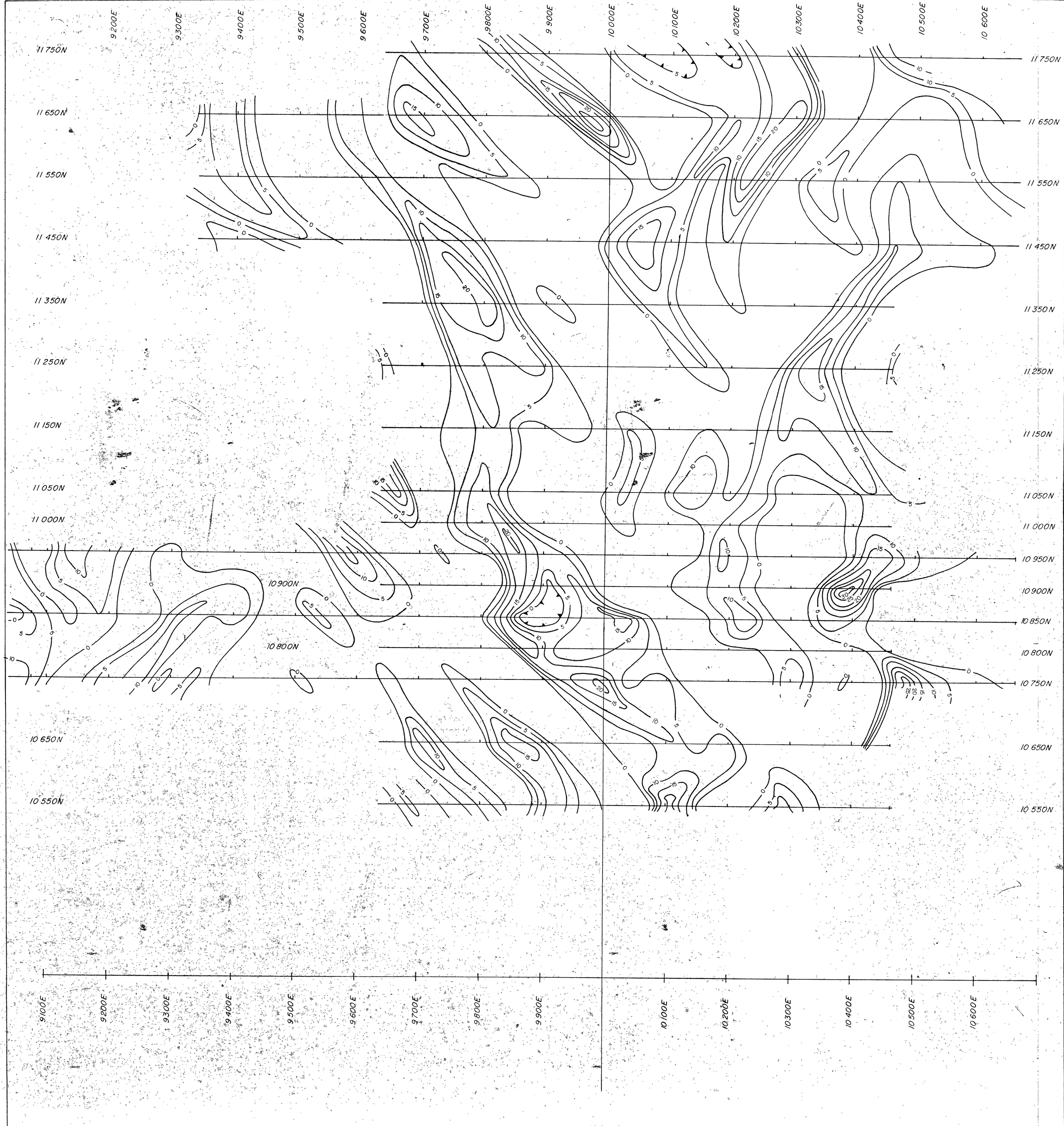
970266

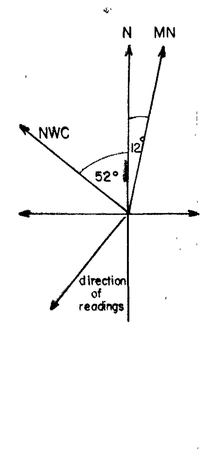
GEOPEKO LTD
Geophysical Surveys
Plan No 5150 S/B

5 cm

Equipment	Geometrics G816 Chemtron G6	Datum		Scale	1:2500	AREA	Elliott Bay Tasmania 074
Compiled		Base Plan		Date		PROSPECT	VOYAGER 9 5150 S/B
Drafted		Date	February 1980	Contour Int.	100 nT	PLAN No. AS	Contours of Total Magnetic Intensity

81-1555 3/3





NOTE Transmitter used
North West Cape

GEOPEKO LTD Geophysical Surveys Plan No. 5308 S/B		instrument	Geonics EM16			1:2500	AREA	Elliott Bay Tasmania 970267 075
							PROSPECT	VOYAGER 9 5308 S/B
	5 cm			Jan-Feb 1980		5%	PLAN NOS	Contours of Filtered In-phase VLF-EM

81-1555 3/3

9 200E 9 300E 9 400E 9 500E 9 600E 9 700E 9 800E 9 900E 10 000E 10 100E 10 200E 10 300E 10 400E 10 500E 10 600E 10 700E

11 750N

11 650N

11 550N

11 450N

11 350N

11 250N

11 150N

11 050N

11 000N

10 950N

10 900N

10 850N

10 800N

10 750N

10 650N

10 550N

9 500N

9 100E 9 200E 9 300E 9 400E 9 500E 9 600E 9 700E 9 800E 9 900E 10 000E 10 100E 10 200E 10 300E 10 400E 10 500E 10 600E 10 700E

N MN

NWC

12°

52°

direction of readings

NOTE: Transmitter used North West Cape.

KEY: INCLINATION ——×——×——

QUADRATURE - - - - - - - -

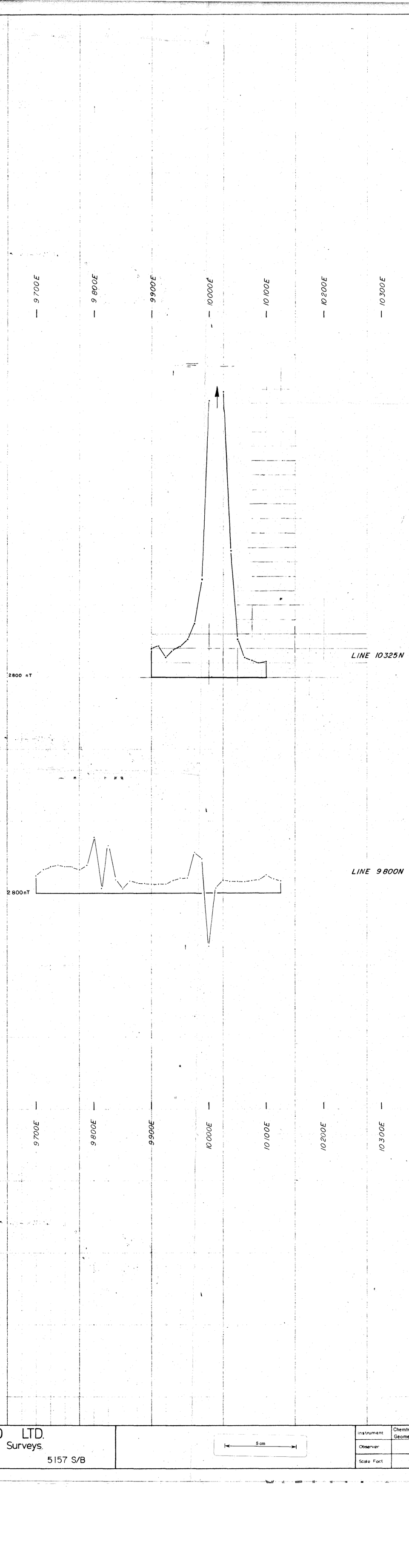
5 cm

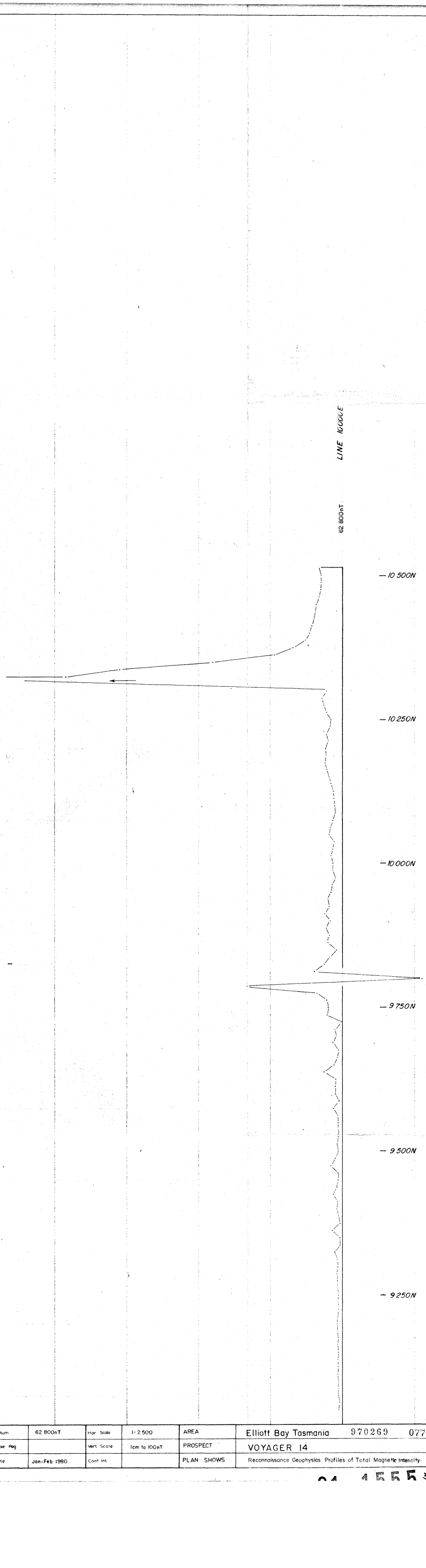
GEOPEKO LTD.
Geophysical Surveys
Plan No. 5309 S/B

Instrument	Geonics EM16	Filter	0%	Vert. Scale	1: 2500	AREA	Elliott Bay Tasmania 970268 076
Observer		Base Reg		Horiz. Scale	5% to 1cm	PROSPECT	VOYAGER 9
Date Plotted		Date	Jan-Feb 1980	Contour		PLAN SHOWS	Profiles of VLF - EM

81 - 1555 3/3

5309 S/B

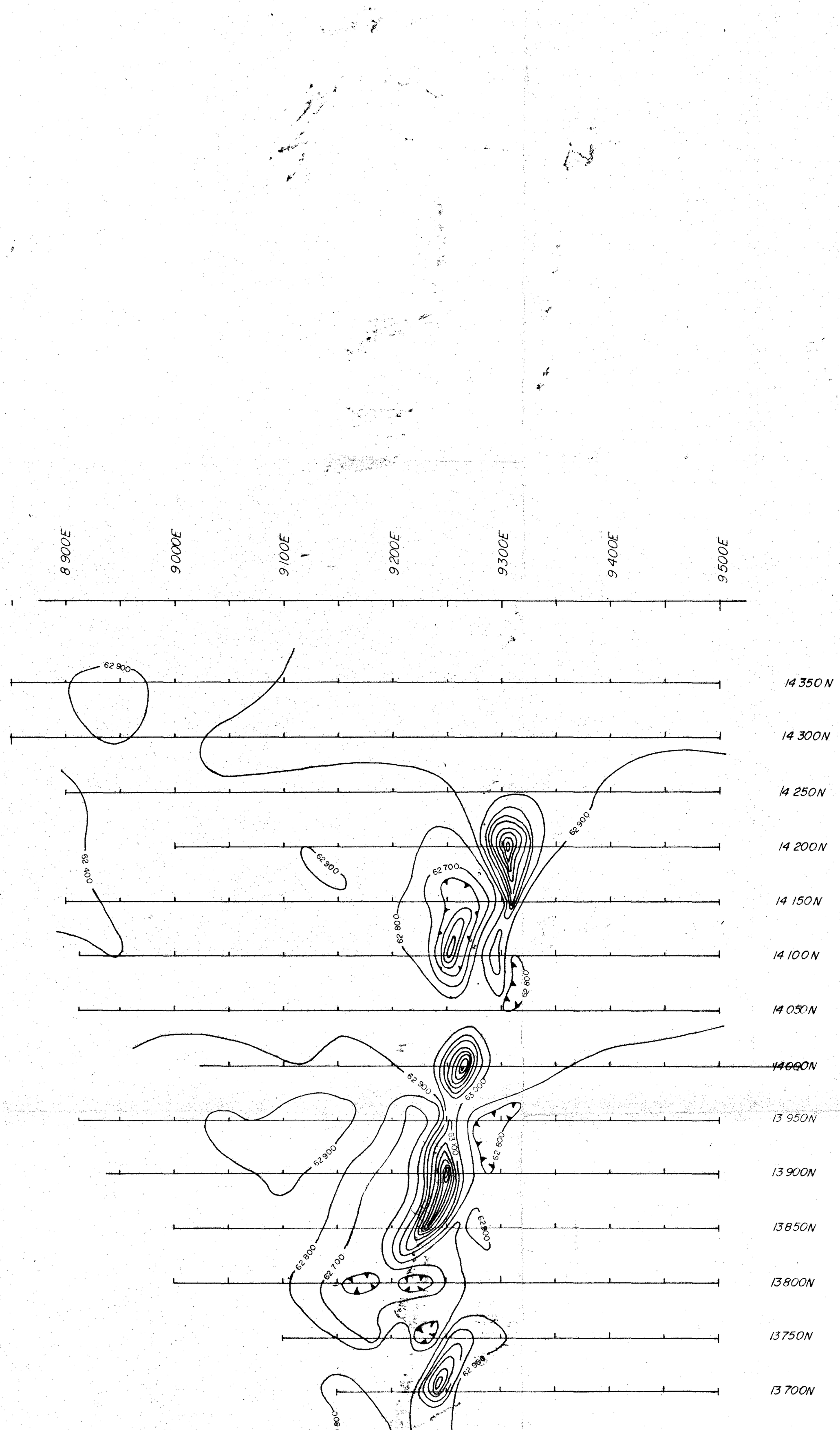




GEOPEKO LTD. Geophysical Surveys. Plan No. 5157 S/B	5 cm	Instrument	Chemtron G6 Geometrics 816	Datum	62 800nT	Hor Scale	1:2500
		Observer		Base Reg		Vert Scale	1cm to 100nT
		Scale Fact		Date	Jan-Feb 1980	Cont Int	

AREA	Elliott Bay Tasmania 970269 077
PROSPECT	VOYAGER 14
PLAN SHOWS	Reconnaissance Geophysics Profiles of Total Magnetic Intensity. 5157 S/B

04 1555 3/3



970270 **81 - 1555** 3/3

GEOPEKO LTD.	Instrument: Chemtron G6 Geometrics 816	Datum:	1:2500	AREA:	Elliott Bay Tasmania
Geophysical Surveys	Observer:	Base Flev:		PROSPECT:	VOYAGER 21 078
Plan No. 5155 S/B	Scale Fact:	Date: Jan/Feb '80		PLAN SHOWS:	Contours of Total Magnetic Intensity

5155 S/B

8800E | 8900E | 9000E | 9100E | 9200E | 9300E | 9400E | 9500E

62 800 — LINE 14350N

62 800 — LINE 14300N

62 800 — LINE 14250N

62 800 — LINE 14200N

62 800 — LINE 14150N

62 800 — LINE 14100N

62 800 — LINE 14050N

62 800 — LINE 14000N

62 800 — LINE 13950N

62 800 — LINE 13900N

9000E | 9100E | 9200E | 9300E | 9400E | 9500E

62 800 — LINE 13850N

62 800 — LINE 13800N

62 800 — LINE 13750N

62 800 — LINE 13700N

62 800 — LINE 13650N

62 800 — LINE 13600N

8800E | 8900E | 9000E | 9100E | 9200E | 9300E | 9400E | 9500E

GEOPEKO LTD.
Geophysical Surveys.
Plan No. 5156 S/B

5 cm

Instrument	Chemtron G6 Geometrics 816	Datum	62 800nT	Hor Scale	1 2500	AREA	Elliott Bay Tasmania
Observer		Base Peg		Vert Scale	1cm to 100nT	PROSPECT	VOYAGER 21
Scale Fact		Date	Jan-Feb 1980	Cont Int		PLAN SHOWS	Profiles of Total Magnetic Intensi

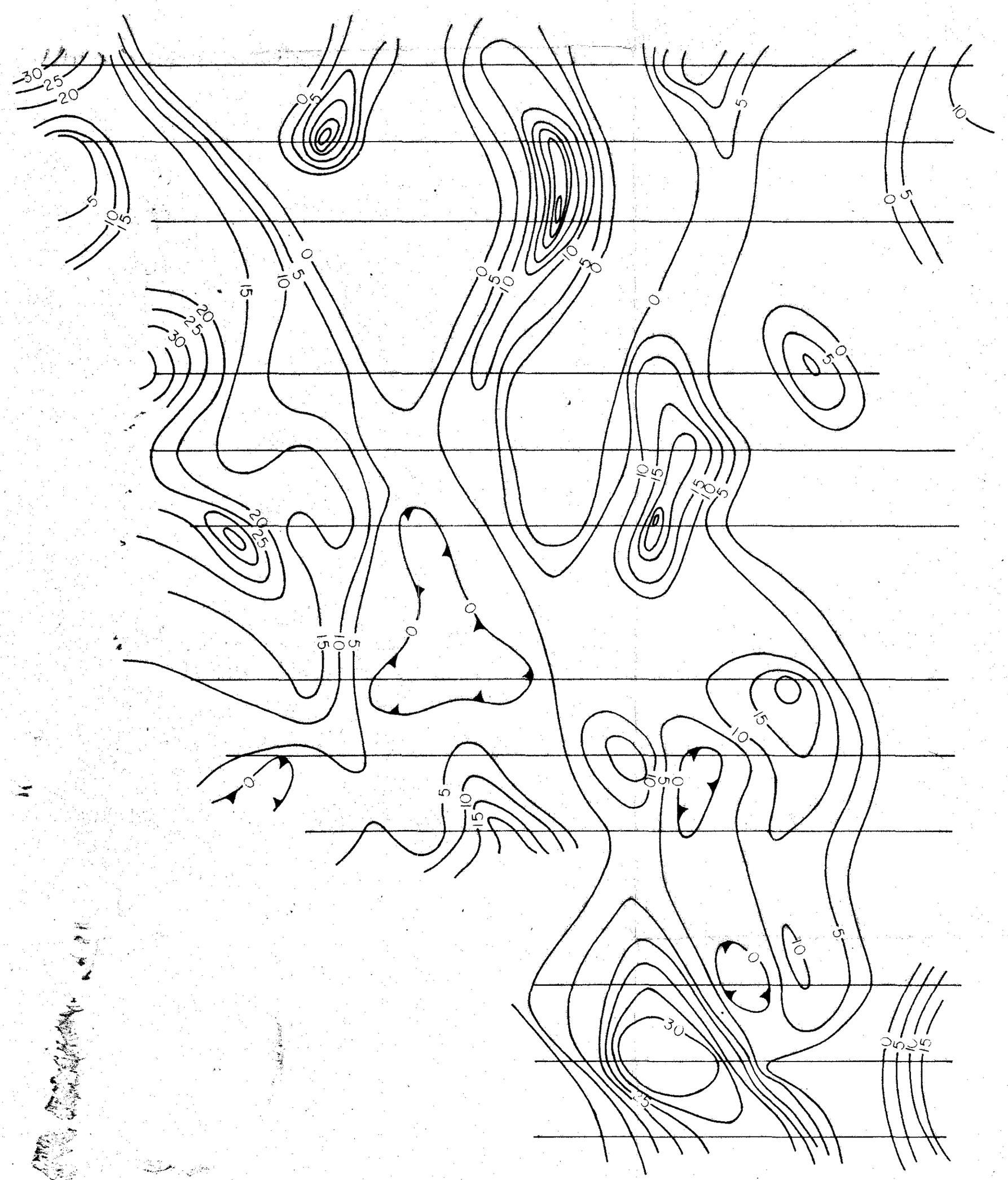
970271 079

81-1555 3/3

5156 S/B

8 800E | 8 900E | 9 000E | 9 100E | 9 200E | 9 300E | 9 400E | 9 500E

14 350N | 14 300N | 14 250N | 14 150N | 14 100N | 14 050N | 13 950N | 13 900N | 13 850N | 13 750N | 13 700N | 13 650N



Note: Transmitter used
North West Cape

5 cm

81-1555 3/3

970272

GEOPEKO LTD. Geophysical Surveys	Geonics CM16		1:2500	AREA Elliott Bay Tasmania
Plan No 5312 S/B		Jan., Feb. 1980	5nT	PROSPECT VOYAGER 21 080
				PLAN SHOWS Contours of In-Phase Filtered VLF-EM 5312 S/B

8 800E | 8 900E | 9 000E | 9 100E | 9 200E | 9 300E | 9 400E | 9 500E

14 350N

14 300N

14 250N

14 200N

14 150N

14 100N

14 050N

14 000N

13 950N

13 900N

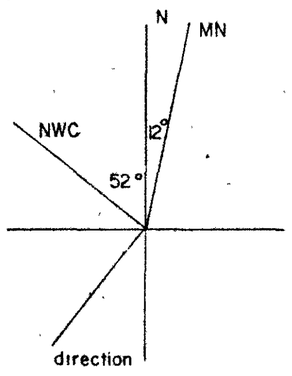
13 850N

13 800N

13 750N

13 700N

13 650N



Note: Transmitter used
North West Cape

INPHASE ——x——x——
QUADRATURE - - - - - -

81-1555 3/3

GEOPEKO LTD.	Instrument	Geonics EM16	Datum	0 %	Hor Scale	1cm = 25m	AREA	Elliott Bay Tasmania	81-1555
Geophysical Surveys	Observer		Base Peg		Vert Scale	1cm = 5%	PROSPECT	VOYAGER 21	
Plan No. 5313 S/B	Scale Fact		Date	Jan., Feb. 1980	Cont Int		PLAN SHOWS	Profiles of VLF-EM	5313 S/B

5 cm

9 100E
9 200E
9 300E
9 400E
9 500E
9 600E
9 700E
9 800E
9 900E
10 000E
10 100E
10 200E
10 300E

14 400N
14 200N
14 000N
13 800N
13 600N
13 400N
13 200N
13 000N
12 800N

81-1555 3/3

GEOPEKO LTD.	Instrument	Fluke	Datum	0.0mV	Hor Scale	1:2500	AREA	Elliott Bay Tasmania 082
Geophysical Surveys	Transmitter		Base Peg		Vert Scale	1cm to 10mV	PROSPECT	VOYAGER 7 + VOYASER 21
Plan No. 5304 S/B	Scale Fact		Date	Jan Feb 1980	Cont. Int.		PLAN SHOWS	Profiles of Self Potential 970274 5304 S/B

5 cm

9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E | 10 500E

63 000 nT.

Line 14 000N

63 000 nT.

Line 13 600N

63 000 nT.

Line 13 200N

63 000 nT.

Line 12 800N

63 000 nT.

Line 12 000N

9 500E | 9 600E | 9 700E | 9 800E | 9 900E | 10 000E | 10 100E | 10 200E | 10 300E | 10 400E | 10 500E

81-1555

GEOPEKO LTD.	Geometrics G816 Chemtron G3	Datum	63000nT	Hor. Scale	1cm = 25m	AREA	Elliott Bay Tasmania 970275 083
Geophysical Surveys		Base Peg		Vert. Scale	1cm = 100nT	PROSPECT	VOYAGER 22
Plan No. 5314 S/B	Scale Fact	Date	January 1980	Cont. Int.		PLAN SHOWS	Profiles of Total Magnetic Intensity

5 cm

5314 S/B

9500E 9600E 9700E 9800E 9900E 10000E 10100E 10200E 10300E 10400E 10500E 10600E 10700E

14000N

13600N

13200N

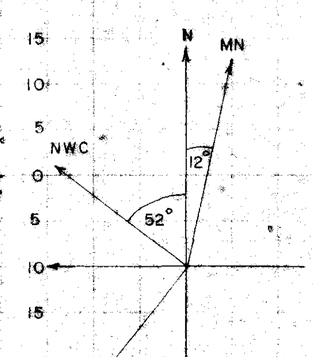
12800N

12400N

12000N

+15 +10 +5 0 -5 -10 -15

15 10 5 0 5 10 15



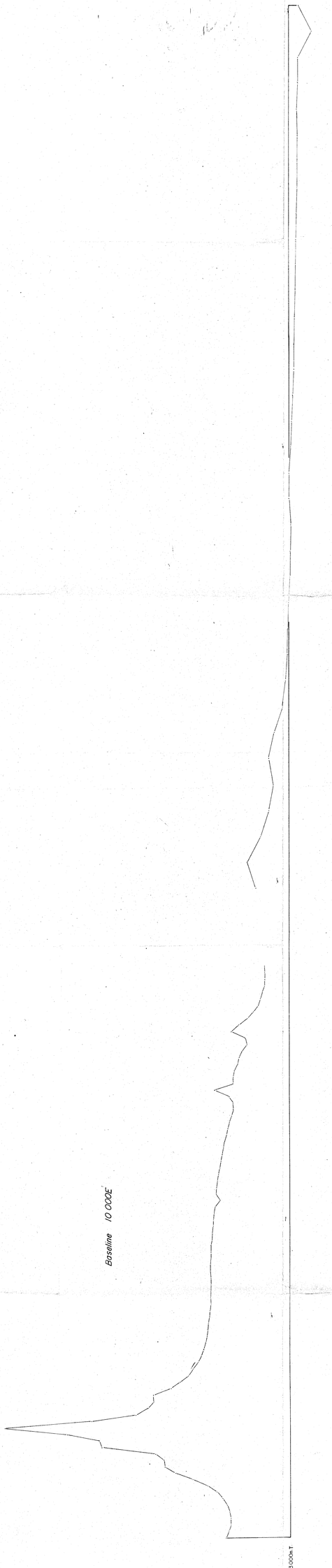
NOTE Transmitter used North West Cape

KEY INCLINATION
QUADRATURE

GEOPEKO LTD.	Geonics EM16	Datum	0%	Hor Scale	1:2500	AREA	Elliott Bay Tasmania 970276 084
Geophysical Surveys		Base Peg		Vert Scale	5% to 1cm	PROSPECT	VOYAGER 22 5317 S/B
Plan No. 5317 S/B	Scale Fact	Date	Jan-Feb 1980	Cont. Int.		PLAN SHOWS	Profiles of VLF-EM 81-1555 3/3

5 cm

085



GEOPEKO LTD.	5cm	Unent	Geometrics G 816 Chemtron G 3	Datum	63 000 nT	Hor Scale	1cm = 25m	AREA	Elliott Bay Tasmania 085
Geophysical Surveys		Anyer		Base Reg		Vert Scale	1cm = 100nT	PROSPECT	VOYAGER 9 and 22 970277
Plan No. 5318 S/B		Scale Fact		Date	Jan, Feb. 1980	Cont. int		PLAN SHOWS	Profiles of Total Magnetic Intensity. 5318 S/B

81-1555 315