DATA SUPPLIED TO A.G.U. UNDER THE D.T.I. MINERAL INCENTIVE SCHEME

COMPANY: CONSOLIDATED GOLD FIELDS MRD 84/2/4

AREA/PROJECT TITLE: ASSYNT MME /AE /

PHASE: II ON MAP: YEAR: 1974

MINERALS SOUGHT: COPPER, NICKEL

GEOPHYSICAL METHODS USED: MAGNETOMETRY, IP

OTHER METHODS USED: GEOCHEMISTRY.

DATA SUPPLIED REPORT ON WORK CARRIED OUT SPRING 1974

TABLE I Rock SAMPLING.

Fig 16 & 14 Magnetometer Survey

Fig 19 IP Survey.

REMARKS:-

ASSYNT D.T.I.

1. INTRODUCTION.

The complex geology of the Assynt area including syenitic intrusions into limestones provides favourable environments for base metal mineralization. A programme of reconnaissance geochemical work with geophysical surveys over the most promising ground was devised to explore these possibilities and undertaken in the spring of 1974.

2. RECONNAISSANCE STAGE.

2.1. GEOLOGY. (Fig 1 - 12)

Although published geological maps were used as the basis for exploration, more specialized notes were made in areas of particular interest. This information is presented with the associated rock sample locations.

2.2 GEOCHEMISTRY.

2.2.1 STREAM SEDIMENT SAMPLING (Figs 13 & 14)

The drainage system in the Assynt area was sampled at a density of approx. 1 sample per sq. km. The material obtained was sent for multi-element spectrographic scan. The only result of any interest was 250 ppm copper from Bad na h'Achlaise near Ledmore. As this occurred in what was hoped to be a skarn development zone, it was followed up by soil sampling at a later stage.

2.2.2 SOIL SAMPLING (Fig 15)

A soil sampling grid over a reputedly mineralized shear 1½ miles north of Canisp was laid out with lines 1000' apart and samples at 300' intervals. Of the 30 samples involved, those to the south and east gave somewhat encouraging nickel values ranging between 270 and 750 ppm so the grid was extended by further sampling.

2.2.3. ROCK SAMPLING (Table 1)

A comprehensive collection of rocks from the area was analysed by multi-element spectrographic scan in order to provide a basis for judging background values. The results are listed in Table.I.

2.3. GEOPHYSICS (Figs 16 & 17)

A magnetometer survey around the Cnoc na Sroine syenite was carried out to check a reported magnetic anomaly in that area. The survey, using a flux gate instrument, followed a grid of lines 1000' apart with stations at 100' intervals. The lines were orientated at 45° to grid north to cross the Durness limestone and its contact with the syenite to the best advantage. The work involved 37 line miles of magnetometry and revealed a strong anomaly over 3000 gammas under Mointeach na Totaig between Lochs Borrolan and Urigill. This anomaly faded rapidly to the east but to the west became disjointed and irregular before disappearing. It was interpreted as related to the magnete-rich ultrabasic rocks such as camaltite and pyroxenite that are known to exist in the area. In itself, the anomalously magnetic ground represented only a northern limit to the anticipated skarn zone so a more closely defined target was designated for follow up at a later date.

3. FOLLOW UP STAGE./

3. FOLLOW UP STAGE.

3.1. GEOCHEMISTRY.

3.1.1. SOIL SAMPLING.(Figs 15,16)

The encouraging results from the grid north of Canisp were checked by the collection of a further 22 samples which extended the grid 900' to the south and 1000' to the east. These results combined with a geological check suggest that the mineralization is nothing more than minor and associated with a sheared Lewisian dyke in the vicinity.

The 250 ppm copper value at Bad na h'Achlaise was followed up by break of slope soil sampling at 100' intervals from the original site to the head of the burn. These samples provided good material whose results reflect the limited extent of the minor sulphide-bearing cromaltite seen in the bank above the original sample site. Neither the extent nor the grade appear worthy of further investigation.

Some 39 samples were collected concurrently with the I.P. survey along lines where there had been the best geophysical response. Although the peat was thicker than anticipated, a sufficient number of the samples were taken from a soil horizon for the results to be considered representative of the underlying geology. No significant pattern of values appeared and in the light of the completed I.P. work, this was only to be expected.

3.2. GEOPHYSICS.

3.2.1. INDUCED POLARISATION (I.P.) (Figs 19 - 21)

If a skarn type ore deposit were to exist in the Ledmore area, it would be found to the south of the magnetite bearing rocks which had been interpreted as a lower member of the layered syenite or an immediate contact zone development. An I.P. survey was considered to be the best means of detecting a sulphide-rich zone. Using a portable transmitter and an electrode separation of 100' for a dipole - dipole array, the I.P. grid was intended to overlie the original magnetometer lines. In order to ensure the exact relationship of any I.P. response to the magnetic anomaly, a second magnetometer survey was run concurrently with the I.P. These grid lines were pegged at 1000' intervals to give ground truth for later drilling and the pegs proved valuable fixed locations where the strength of the magnetic effect had disturbed the compass bearings used to lay out the lines Pseudosections across the anomalous ground indicated that n = 2 was optimal and the remainder of the work was carried out using this spacing. The finished survey covered 8000' along strike with lines averaging 2700' across the contact zone. This represents a total of 4.7 line miles.

The minor favourable response seen on the first line, 0000, faded almost immediately along strike. The zones of lower apparent resistivity are not accompanied by encouraging chargeabilities and probably represent faults or shears. The outcrop of sulphide-bearing cromaltite in Bad na h' Achlaise did not have an associated I.P. anomaly and combined with the soil sampling data this reduced its significance completely.

3.2.2. MAGNETOMETRY

As well as rerunning the main lines of the grid, infill magnetometer work to cover the 500' intervals between lines, was undertaken in order to define the magnetic anomaly more closely especially its southern edge where the skarn was hoped to lie. This infill data showed the anomaly to be somewhat more restricted and fragmented than when first seen.

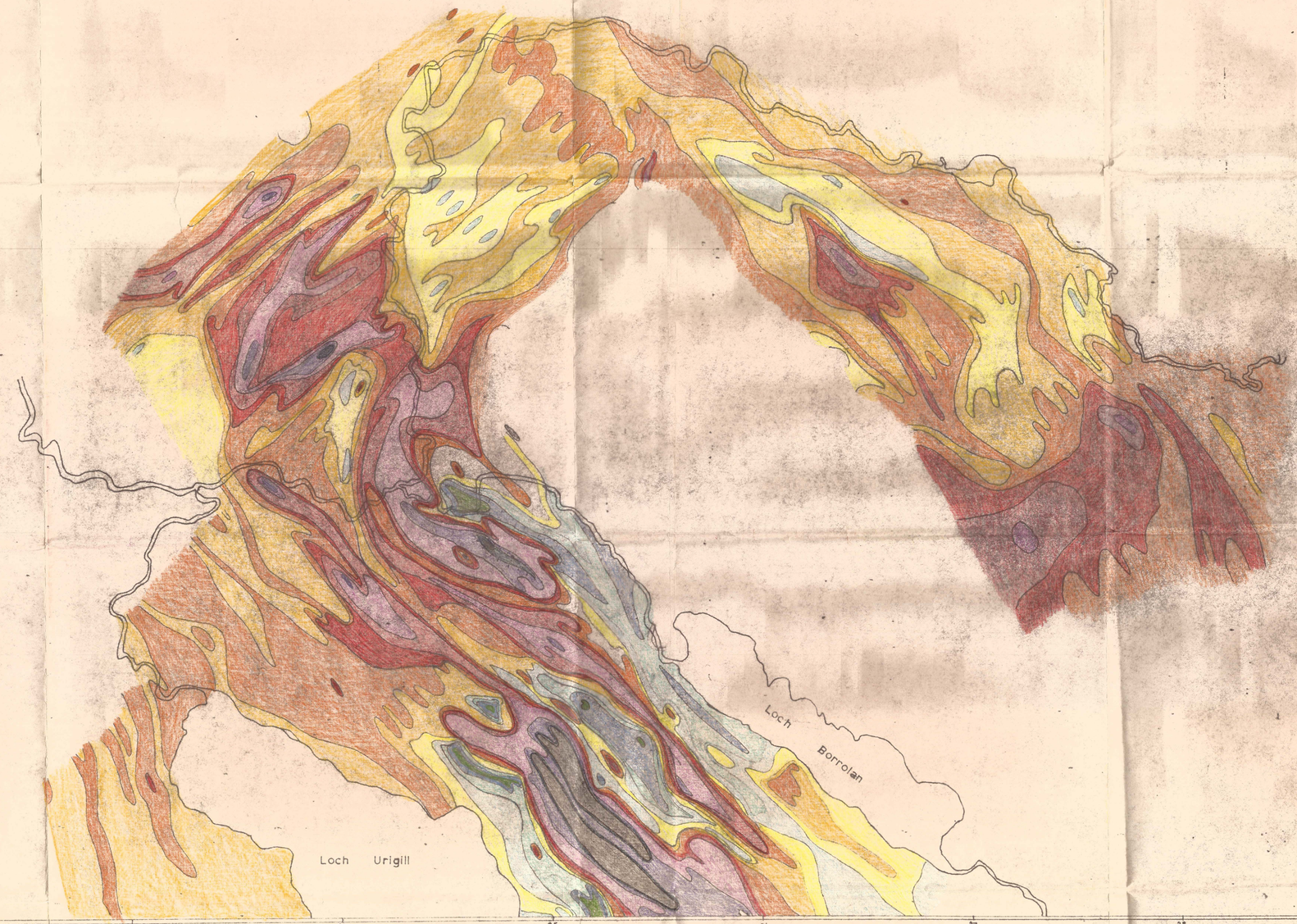
4. CONCLUSION/

4. CONCLUSION.

The reconniassance stream sediment sampling did not reveal a interesting pattern of values for any of the metals required. The results of the I.P. survey suggests that even if a skarn assemblage has developed at the limestone-syenite contact, it is not likely to contain economic amounts of sulphides. The magnetite-rich ultrabasic rocks were considered worthy of further investigation but this does not come within the scope of this application.

Elizabeth Lee

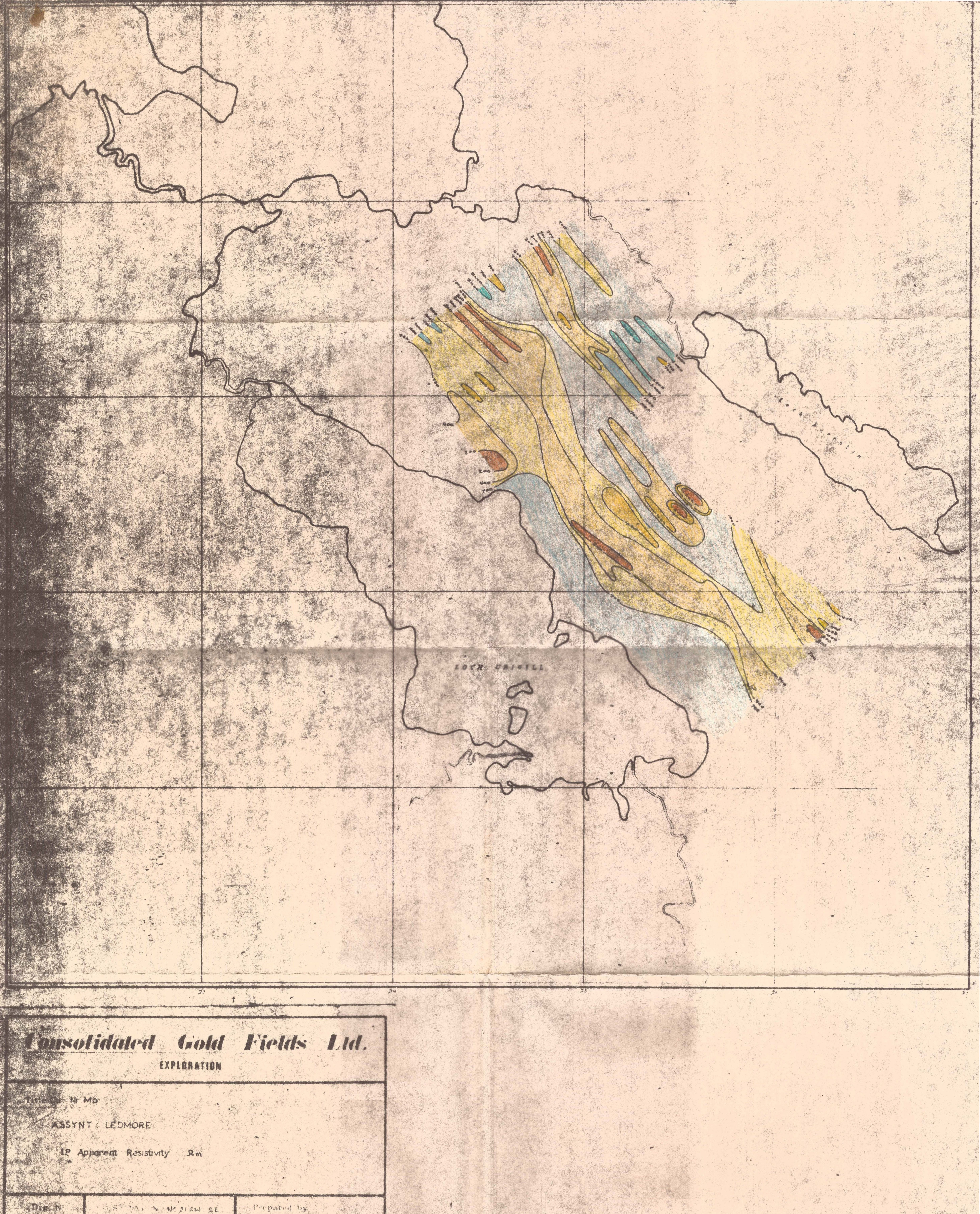
LIST OF FIGURES.



Consolidated Gold Fields Ltd.
EXPLORATION

Project: CuNiMo Recce
Area: ASSYNT
Type: Magnetometer Survey

Drawing No. 17	O.S. Map No.
	Scale: 1:10,560
	Date: May 1974
	Revisions
	Prepared by
	Drawn by



Consolidated Gold Fields Ltd.

EXPLORATION

Title: Cu Ni Mo ASSYNT : LEDMORE IP Apparent Resistivity Ωm		
Dig. No. 19	O.S. Map No. NC 21 SW SE	Prepared by
	Geological Map No.	S.A.M
	Scale 6" = 1 mile	Date

Consolidated Gold Fields Ltd.

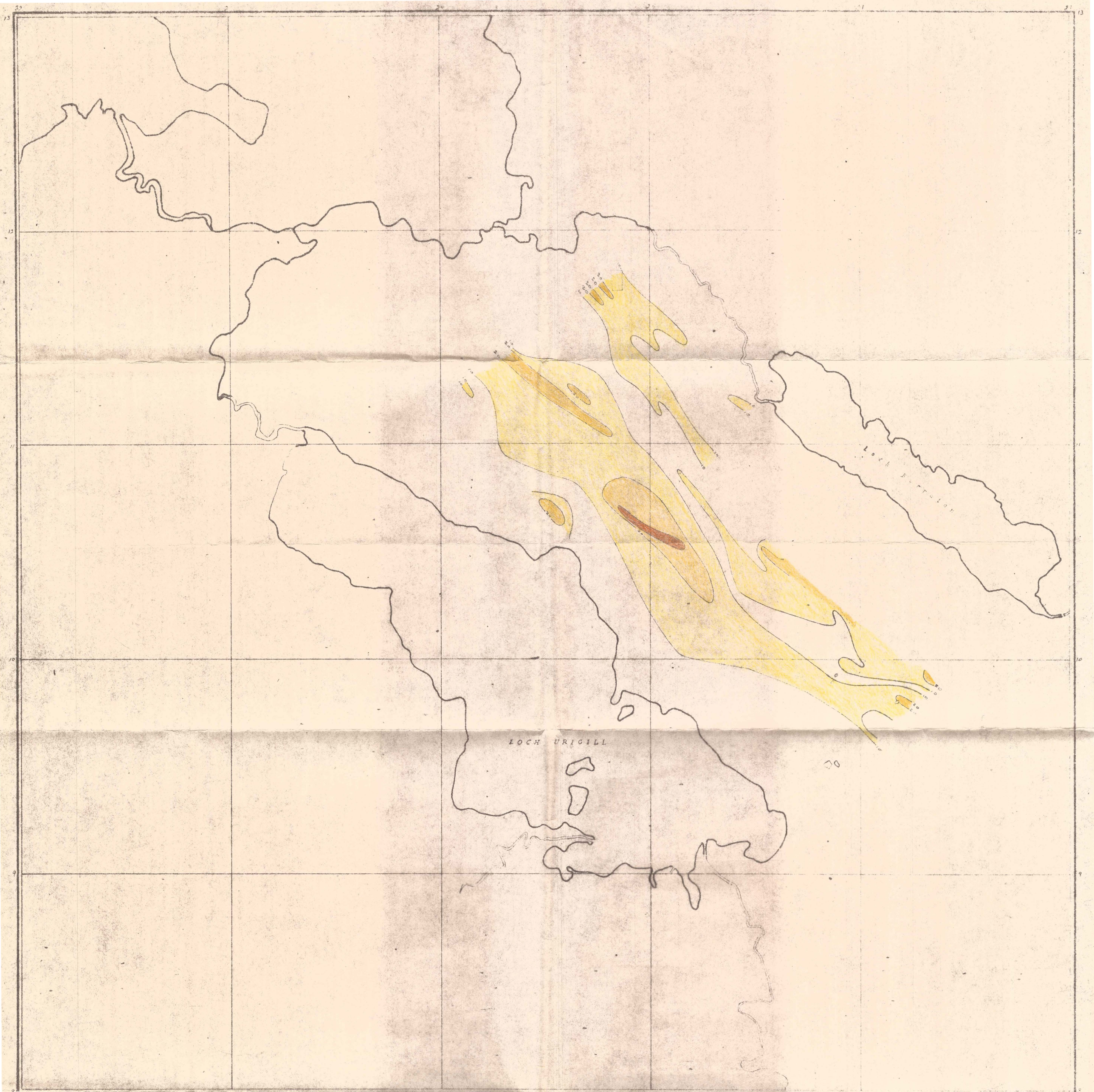
EXPLORATION

Title Cu Ni Mo

ASSYNT : LEDMORE

I.P. Chargeability mseecs

Drg. N°	O.S. MAP N° NC 21 SW SE	Prepared by
	Geological Map N°	by S.A.M
20	Scale 6" = 1 mile	Date 15 s – 1975
	Rev	



Consolidated Gold Fields Ltd.

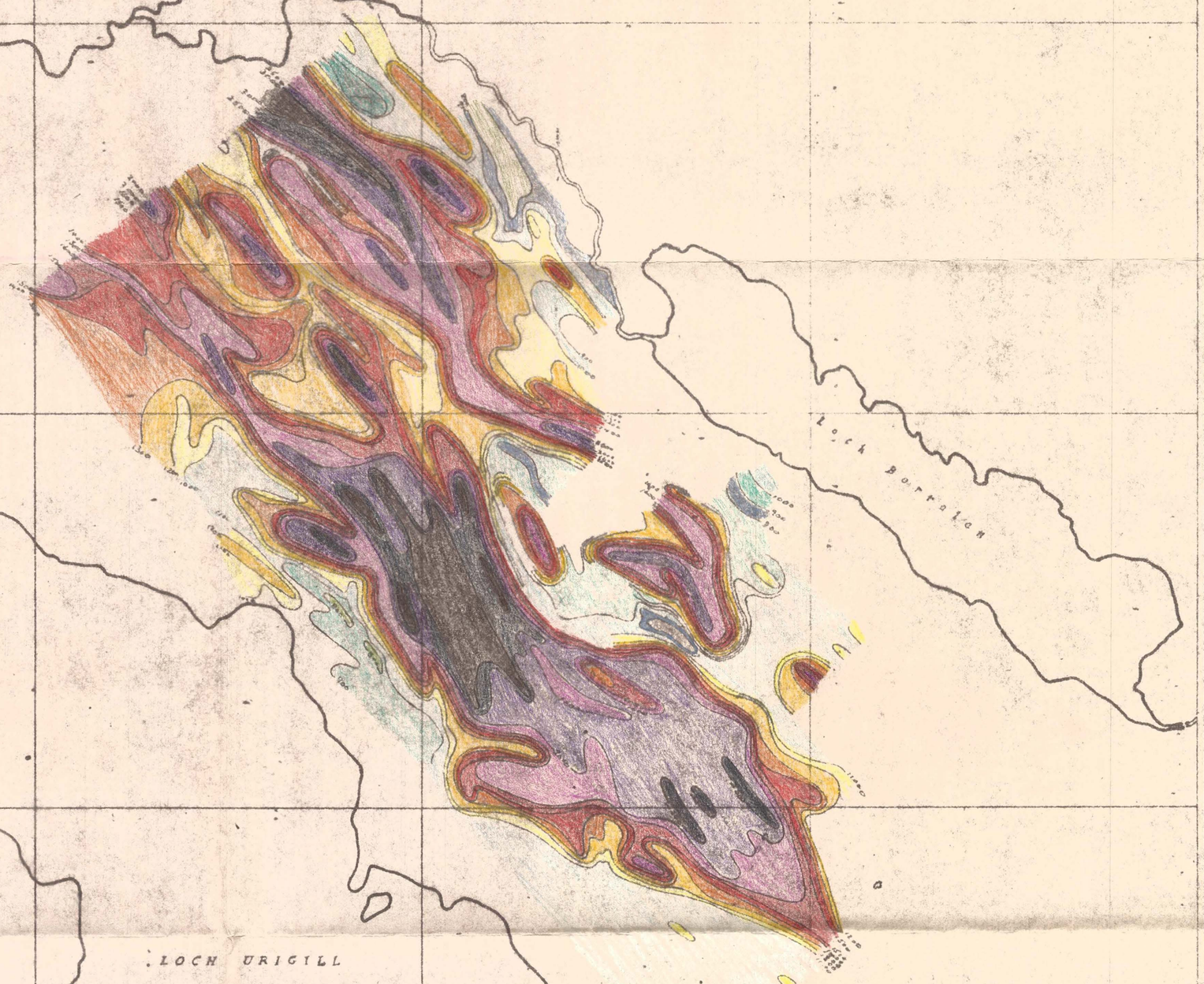
EXPLORATION

Cu Ni Mo

ASSYNT LEDMORE

I.P. Metal Factor Contours

Dig. No.	NC 21 SW SE	
		S.A.M
21	6" = 1 mile	15 5 1975



Consolidated Gold Fields Ltd.

EXPLORATION

Title Cu Ni Mo

ASSYNT : LEDMORE

DETAIL MAG

KEY

Drg. No.	NC21 SW SE
	Geological Map No.
22	6" = 1 mile

Prepared by

S. A. M

Date 19 - 5 - 1975