Professor Frank Volus.

Kjære Frank.

Her følger Hovlands
rapport nr. 267/1973
Vennligst returner til oss
snarest.

Hilsen

(Grein)

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Tittel

Prospecting and diamon drilling in the Gressli area Tydal, S-trøndelag, 1973

Forfatter	Dato År	Bedrift (Oppdragsgiver og/eller oppdragstaker)
Hovland, Roar	1974	Sulfidmalm A/S

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Tydal	Sør-Trøndelag		17213	Trondheim

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Geologi Boring		Gressli Grube
Råstoffgruppe	**Råstofftype**	
Malm/metall	Cu, Zn	

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

Rapporten gir en kort historisk oversikt over tidligere utførte arbeider og peker på det høye innhold av Zn som tidligere var til hinder for utnyttelse av forekomsten.
Geologien beskrives. likeså undersøkelser med EM-TURAM og VLF. det er også gjennomført jordgeokjemi.
To korte borhull med Winkie-maskin og 4 hullmed kjerneboring er gjennomført.
resultatene er oppmuntrene og utfyllende kjerneboringer anbefales.

Rapporten er vedlagt en rekke detaljkart.

FOR FALCONBRIDGE NIKKELVERK A/S

A/S SULFIDMALM

PROJECT 905-20

Prospecting and diamond drilling in the Gressli area Tydal, S-Trøndelag 1973.

by

Roar Hovland

Report no. 267-73-20.

Introduction

The Gressli mine is located in Tydal, on the southern side of the river Nea, 120 km E of Trondheim. The accessibility is good. The main road Trondheim - Tydal passes near by, and a good local road leads directly to the mine.

The deposit was discovered in 1972, but because of the high Zn-content in the ore, the smelting and refinery prossesses caused serious trouble and very little ore was mined.

In 1916, three diamond-drillholes were drilled in the area and two of them intersected Cu-Zn ore.

In 1947, Geofysisk Malmleting (N.G.U.) did ground geophysics in the Gressli area and some geological mapping was also carried out.

In the spring 1973, A/S Sulfidmalm started doing field-work in the mine area, and later in the autumn four diamond-drill-holes were drilled. At the same time, mise a la masse measure-ments were also carried out (own report F. Hansen).

The following maps are attached:

267-73-20	01	Geological map,	Gressli	mine	
"	02	V.L.F.-EM map,	"	"	real comp.
"	03	V.L.F.-EM map	"	"	imag. comp.
"	04	Soil Geochemistry	"	"	Ni
"	05	Soil Geochemistry	"	"	Cu
"	06	Soil Geochemistry	"	"	Zn
"	07	Soil Geochemistry	"	"	Pb

Legal.

A/S Sulfidmalm has muted one point and claimed three others (based on ground geophysics) in this area. A local farmer has, since 1953, had a muted, unmarked point near the mine. No prospecting work has, however, been done by the farmer or by other companies. Option-negotiations are going on with this farmer.

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Geology.

In the Tydal - Gressli area, one has in the northern and eastern parts gabbromassives. (Hyllingen and Gresslivola gabbro).

The western part of the area is dominated by a diabase-porphyritic rock. In the central part of the area, one has a mixture of diabase-porphyrites, Trondhjemites, amphibolites (mica schists), quartzites and graphite schists.

The Trondhjemites and the quartzites have often a well developed schistosity.

Near the Gressli mine, one has a well marked thrust zone which can be followed a long distance in the terrain (strike N70°E). On the south-east side of the fault, the different rocks are brecciated.

The general strike-direction is N-S with a changing dip towards west. In the area around Gressli mine, the strike direction is N-W to E-W and the dip is towards south. The mentioned fault can be the explanation for the change in strike and dip directions.

The map 02 shows the geology in the grid around Gressli mine. Trees, bushes and overburden made the mapping difficult. One has seperated between three rocktypes:

1. Diabase-porphyrite
2. Amphibolite-micaschist
3. Trondhjemite-quartzite

The last group has, as mentioned earlier, often a marked schistosity.

The strike of the foliation is usually NW-SE and the dip 50-70° towards SW. Near the mine-openings, the strike is E-W and the dip 40-50°S.

Near one of the mine openings (vertical shaft), one can see the ore outcropping in a 3-4 m wide zone. The footwall consists of a quartzitic rock, impregnated with sulphides (py, cp, sp, po). The hanging wall consists of 1,5 m wide quartzitic schists, 1,2 m wide diabase-porphyrite with traces of galena and then a 7-8 m wide zone of Trondhjemite.

../3

The ore-minerals are pyrite, sphalerite, chalcopyrite, pyrrhotite and traces of galena.

It is believed that the ore genetically has a relationship to the Trondhjemite/quartzite in the foot wall.

Geophysics.

The map 01 also shows the EM-Turam anomalies in the Tydal/ Gressli area. It is believed that the strong anomalies are caused by graphite schists and that the weak ones mainly are caused by pyrite/pyrrhotite impregnations or perhaps by a similar pyrite/sphalerite mineralization like in Gressli which only caused a very weak EM-anomaly.

V.L.F. - EM was carried out in a grid around the mine. The known mineralization gave rise to a weak but distinct anomaly. (maps 03, 04). Around 0/50E, one has a break in the anomaly for unknown reasons. One can here see a compact mineralization in the middle of a tractor road.

On the other side of the fault 25W/50N, one has a distinct anomaly zone which one hoped was the western continuation of the known mineralised zone.

In the southern part of the grid, one has two other anomaly zones. In some outcrops in these two areas, one can see rust on the surfaces and traces of sulphides in handspecimen. In the area 50-150E/100-300N, one has another broad anomaly zone. The shape of the real/imaginary curves (map 10) indicates that one here should have a strong and wide conductor (the real and the imaginary components have opposite signs).

Soil Geochemistry.

The dump near the mine has given rise to anomalies for all the analysed elements except for Ni (350 ppm Cu, 156 ppm Zn, 62 ppm Pb). This dump consists mainly of weathered ore. The geophysical anomaly 50-150E/100-300N is accompanied by a distinct geochemical anomaly (58 ppm Ni, 215 ppm Cu, 240 ppm Zn and 71 ppm Pb).

../4

Around 50-100W/50N, one has another anomaly zone (580 ppm Cu, 660 ppm Zn and 740 ppm Pb). This zone corresponds well with the found geophysical anomaly on the other side of the fault.

The Cu and the Zn map indicate that the northwestern part of the soil-anomaly could as well be caused by the geophysical conductor 100-200N as by the geophysical conductor near the fault.

Diamond drilling.

Two short Winkie-holes were drilled in July near the vertical shaft. The first one was drilled by EX-equipment, and the core recovery was very poor, around 50%. The slam was gathered, and in sections where one has no core, the slam was analysed. The whole length of the whole 10,0 m was mineralised. The best assay was 1,14% Cu, 5,7% Zn. An average of the intersected mineralization would be 0,5% Cu and 4,5% Zn.

The other Winkie-drillhole was drilled by Ax-equipment and the core-recovery was almost 100%. The length of the hole was 18.0 m. The intersected rock was quartzitic and was impregnated by pyrite, chalcopyrite, sphalerite and some galena. Over a width of 10 m it carried 0,31% Cu, 1,20% Zn and 13,0% S. The Zn-assays are too low and must be reanalysed (core-sections are checked in another labratory).

Geobor drilled 4 holes, totally 450 drillmeters, in september/ october 1974.

The first hole (45E, 75 S) should test the depth-extension of the ore zone found in the adit at 0,50E and in hole C(1916). Only sulphide impregnations were however found at the depth where ore zone was expected. (0,18% Cu, <0,02% Zn and 0,14% Pb over 4 m).

The second hole (8W, 90S) hits a zone of compact pyrite/ sphalerite ore at a depth of 62 m. The width of the zone was 3,0 m and the average assays were 1,24% Cu, 7,73% Zn and 28,46% S. In addition to this zone, one has 7,0 m of sulphide impregnation assaying 0,15% Cu, 0,07% Pb, 0,66% Zn and 4,92% S.

The third hole (30W, 10N) should test the V.L.F. - and the soil anomalies (25W, 50N) which one hoped were caused by a western continuation of the known mineralization.

The hole shows no traces of zinc or copper mineralizations. Some very fractured parts of the bedrock carried however a weak pyrite impregnation. It is believed that the V.L.F. - anomaly is caused by acid water in the fractured parts of the rock and that the soil anomalies are caused by material coming from the dumps near by.

The broad V.L.F. - anomaly zone 50E-150E/100-300N was tested by drillhole 4 (90E/150N). Here one found zones of graphitic schists, with thin veins or impregnations of pyrrhotite.

Conclusions.

The results of the prospecting work are encouraging and further diamond drilling ought to be carried out in the area south of the mine.

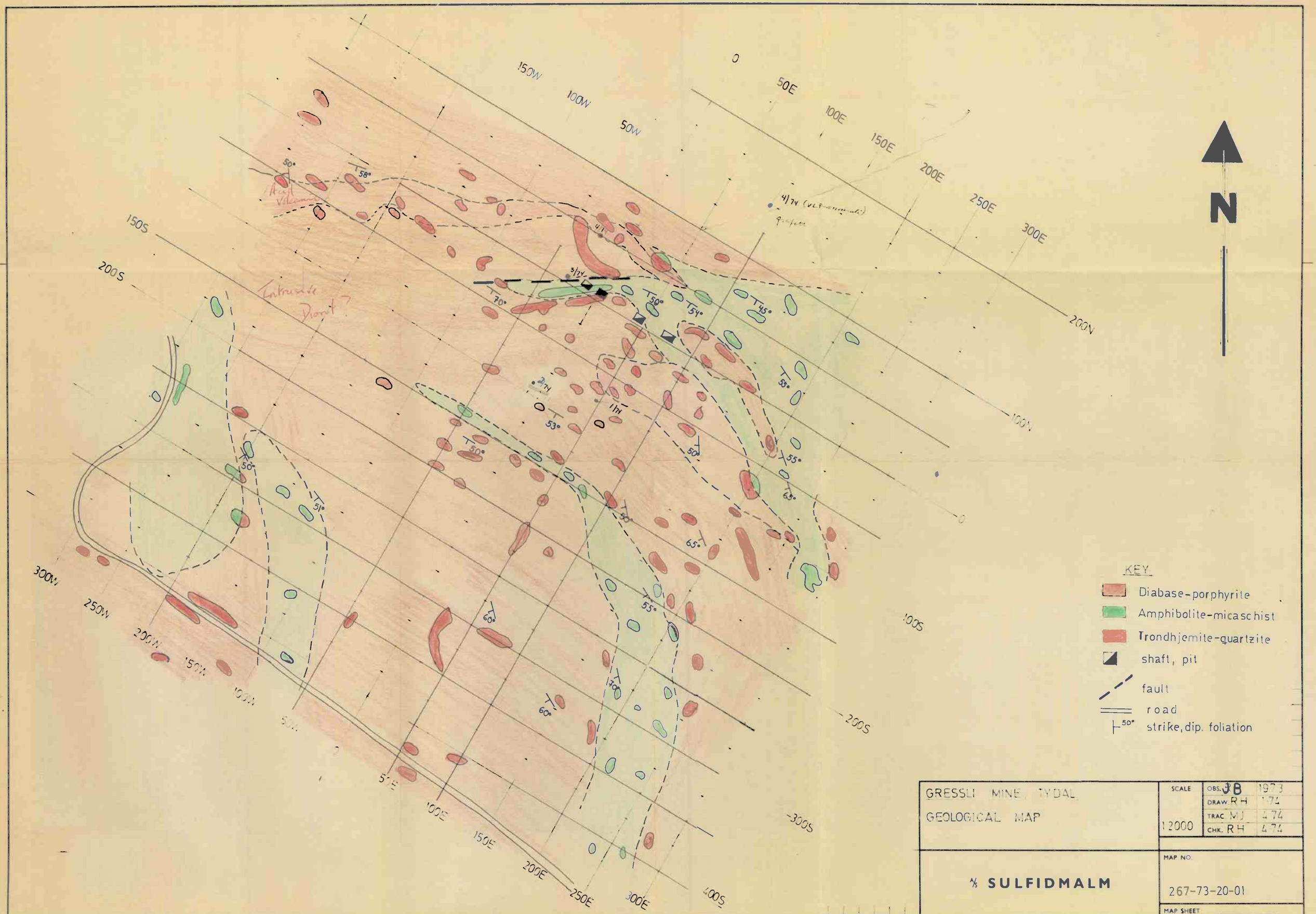
Recommendations.

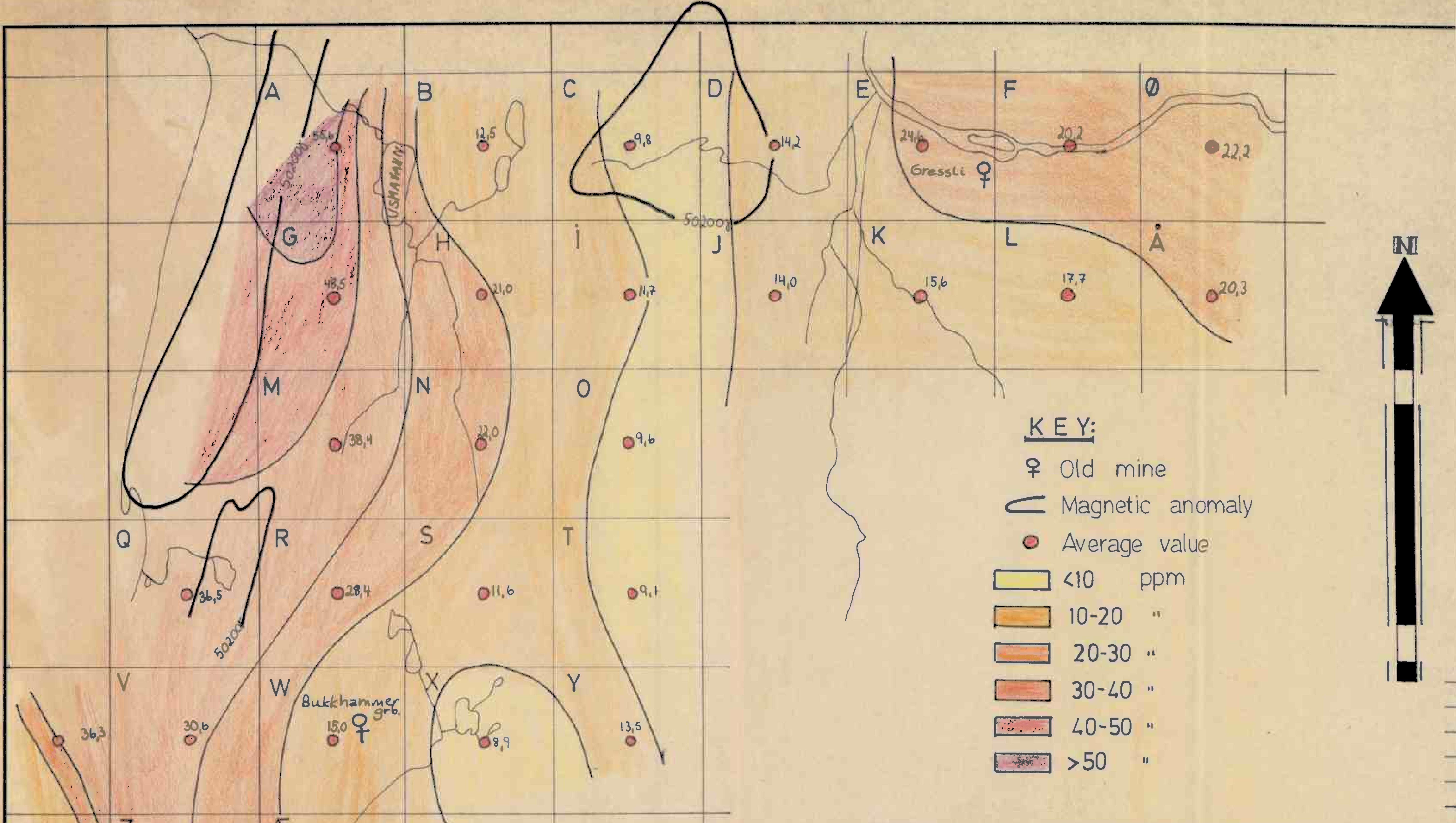
5 short diamond drillholes (20 m each) ought to be drilled along the 150m long strike-length of the known mineralization, to test the width and the grade of the zone near the surface.

4 drillholes, each ca. 130 m long, should be drilled along the 200 m S line to test the depth-continuation of the known zone. The coordinates of the holes could be:

Hole 1. 100W - 200S
" 2. 50W - 200S
" 3. 0 - 200S
" 4. 50E - 200S

Another diamond drillhole could also be drilled on the V.L.F./ soil anomalies (25W, 50N), west of hole 3, to test the soil-anomalies that could not be caused by material from the dumps.





REGIONAL- TREND-Ni
TYDAL- HALTDAL

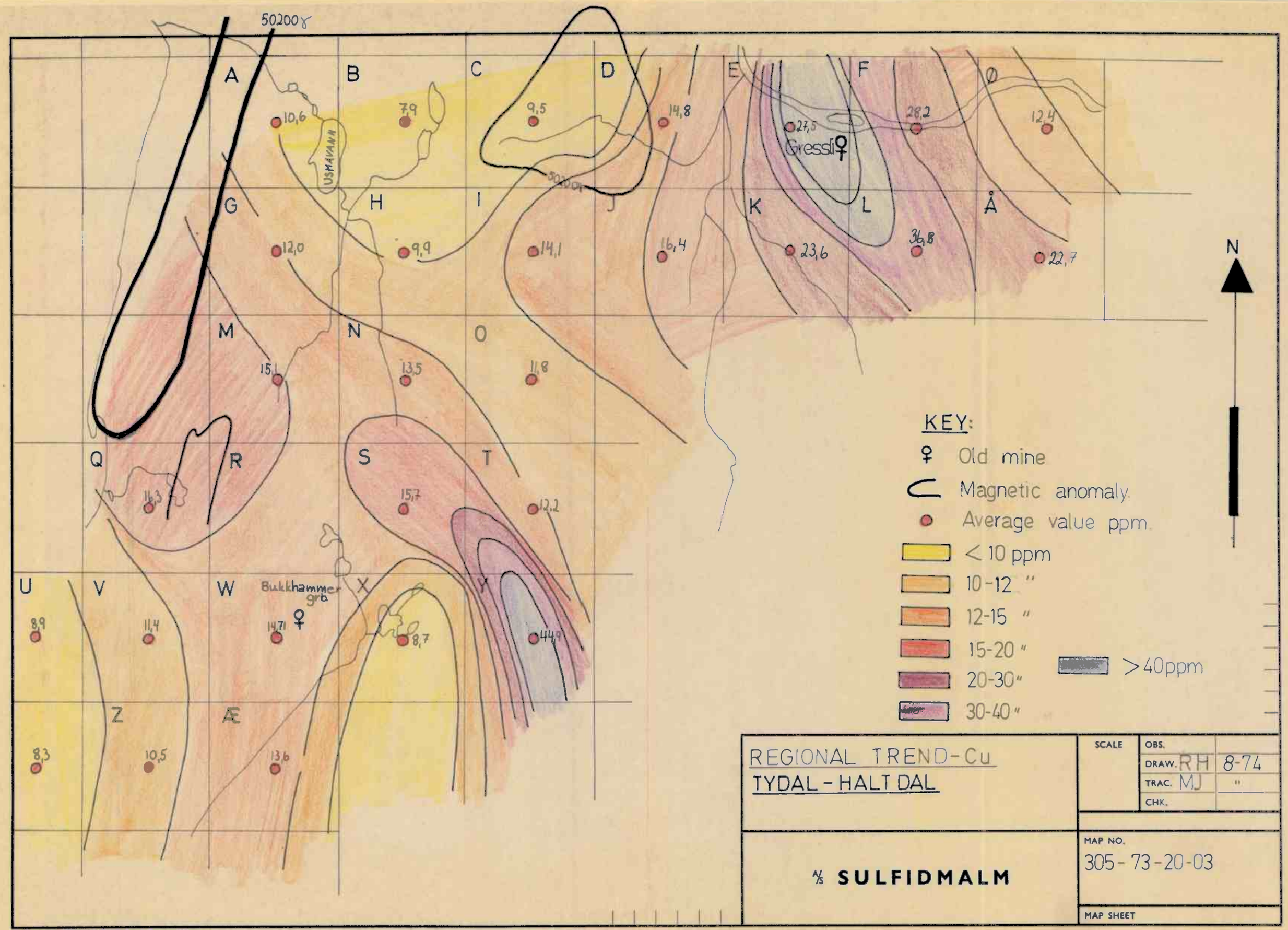
SCALE	OBS.	
1:50000	DRAW. RH	8-74
	TRAC. MJ	"
	CHK.	

A/S SULFIDMALM

MAP NO.
305-73-20-02

MAP SHEET

A.s Terrkopi. 1008. A 3. E 9 gl. 10-71. Sentrum Trykkeri.



REGIONAL TREND-Cu

TYDAL - HALT DAL

SCALE

OBS.

DRAW. RH 8-74

TRAC. MJ "

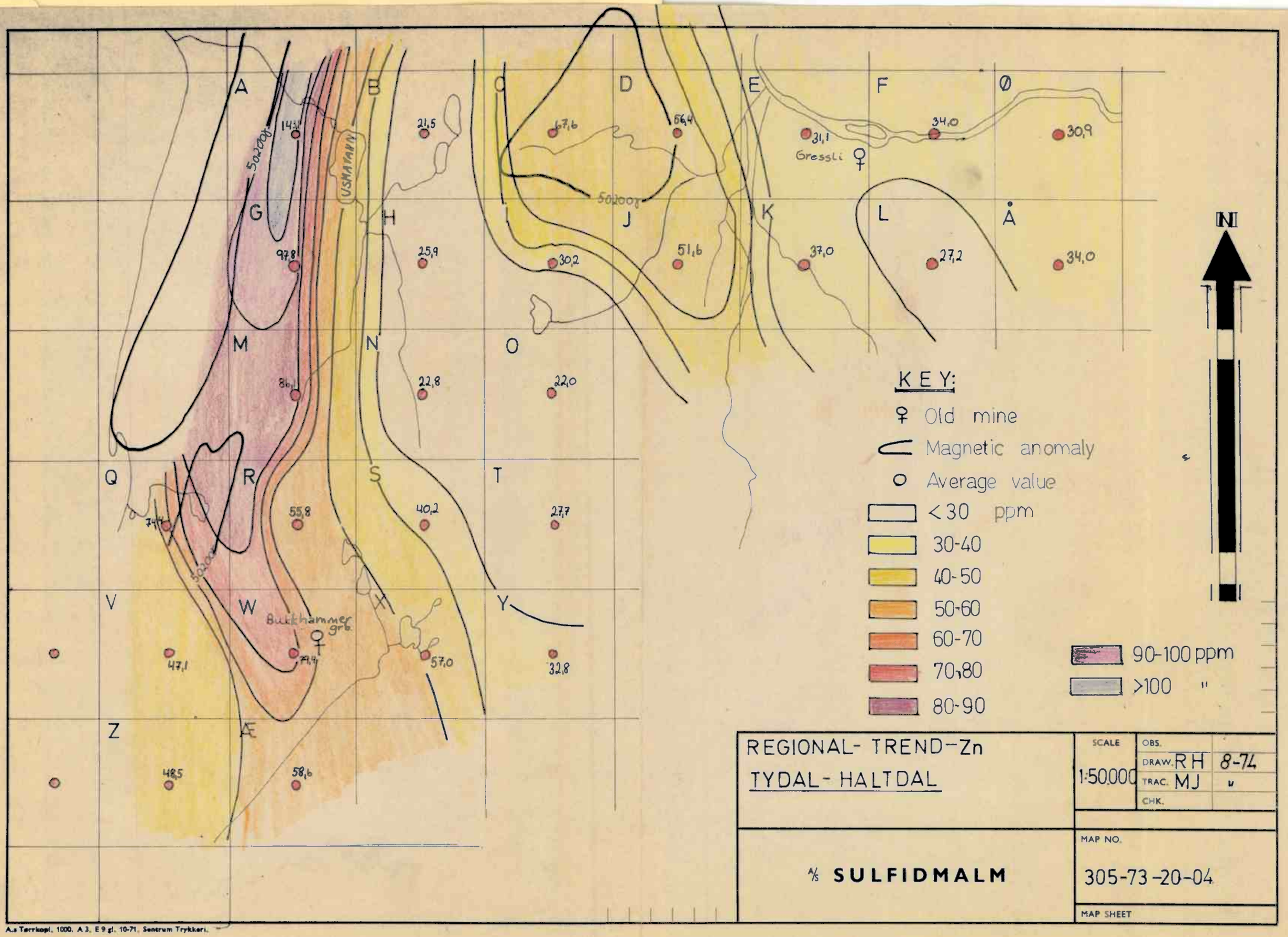
CHK.

MAP NO.
305 - 73 - 20 - 03

MAP SHEET

⅛ SULFIDMALM

A.s Tørrkopi. 1000. A 3. E 9 gl. 10-71. Sentrum Trykkeri.



REGIONAL- TREND – Zn

TYDAL - HALTDAL

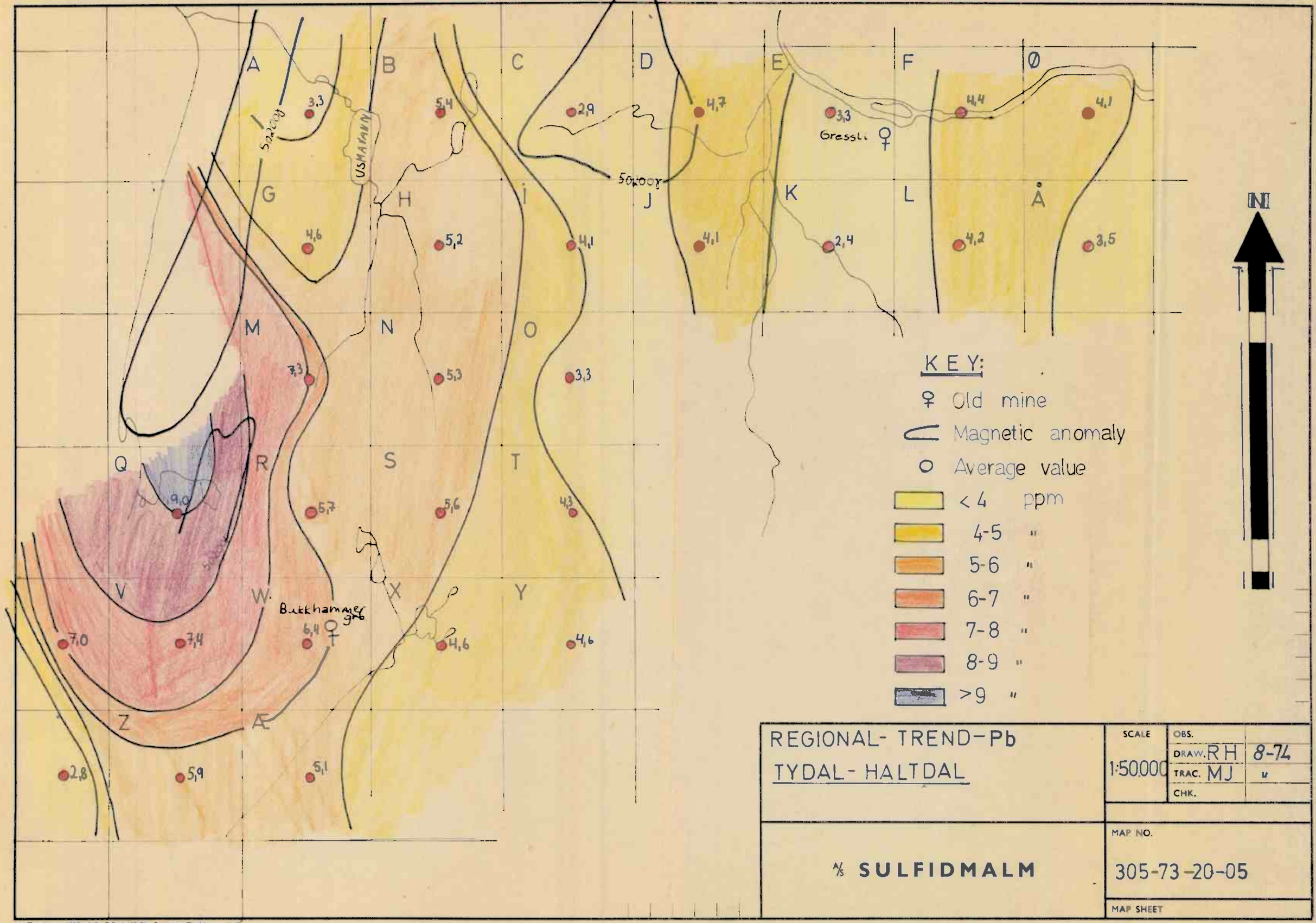
SCALE	OBS.	
1:50.000	DRAW. RH	8-74
	TRAC. MJ	"
	CHK.	

A/S **SULFIDMALM**

MAP NO. 305-73-20-04

MAP SHEET

A.s Tørrkopi, 1000. A 3, E 9 gl. 10-71, Sentrum Trykkeri.



REGIONAL- TREND–Pb

TYDAL- HALTDAL

SCALE 1:50000

OBS.

DRAW. RH 8-74

TRAC. MJ "

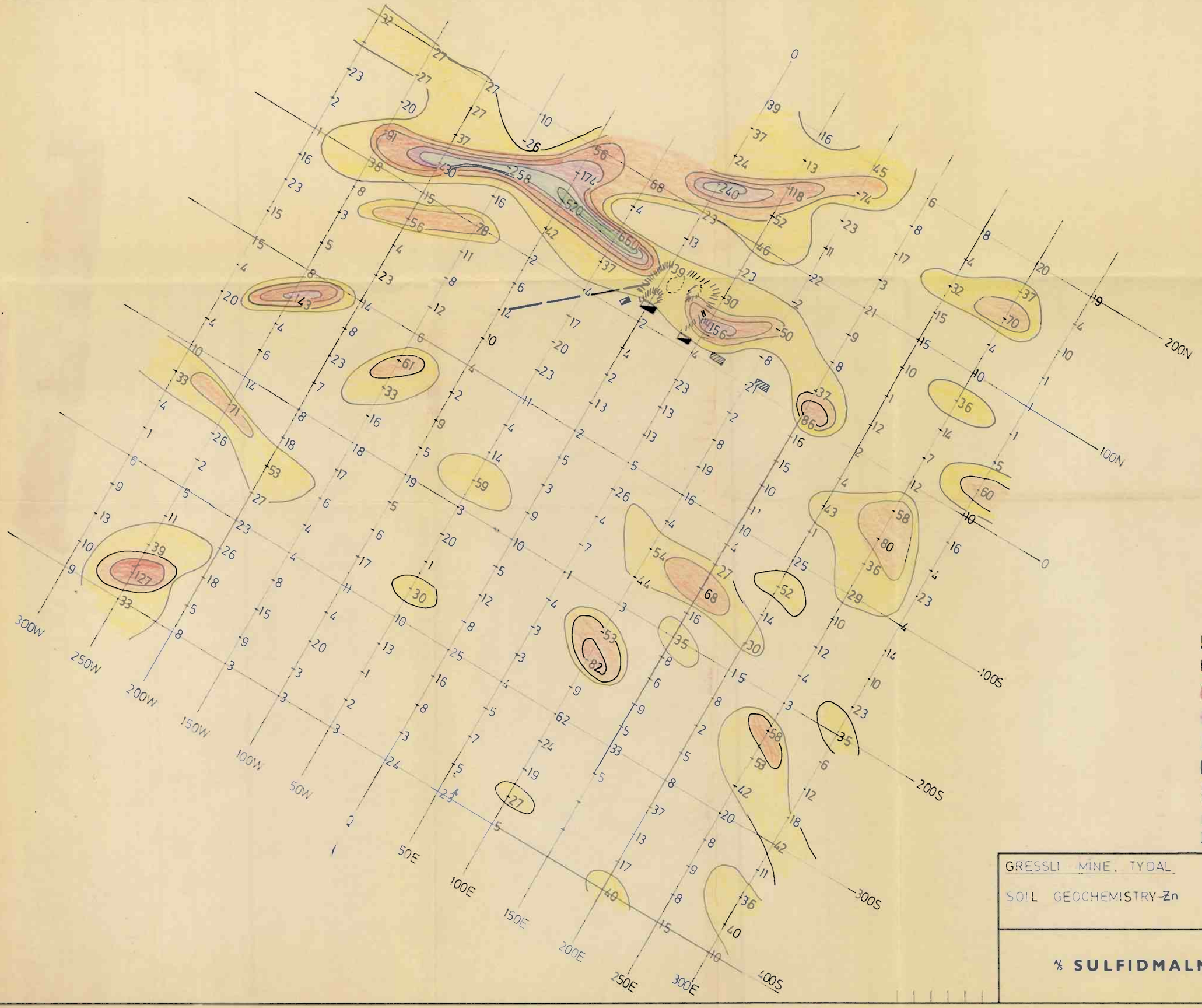
CHK.

⅛ SULFIDMALM

MAP NO. 305-73-20-05

MAP SHEET

A.s Tørrkopi, 1000, A 3, E 9 gl. 10-71. Sentrum Trykkeri.



GRESSLI MINE, TYDAL

SOIL GEOCHEMISTRY-Zn

SCALE 1:2000

OBS. RH	1973
DRAW. RH	1-74
TRAC. MJ	4-74
CHK. RH	4-74

% SULFIDMALM

MAP NO. 267-73-20-06

MAP SHEET

A.s Terrkopi. 2000 A 2. E 9 gl. 10-71 Sentrum Trykkeri.

N

KEY

10-20 ppm
20-30 "
30-50 "
50-100 "
100-500 "
>500 "
DUMP
SHAFT, PIT
SHOWING

GRESSLI MINE, TYDAL	SCALE	OBS. RH	1973
SOIL GEOCHEMISTRY - Pb		DRAW RH	1-74
	1:2000	TRAC. MJ	4-74
		CHK. RH	4-74
⅛ SULFIDMALM	MAP NO. 267-73 20-07		
	MAP SHEET		

A-S Tarrkopi 2000 A 2 E 9 gl. 10-71 Senitrum Trykkeri