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Braakvann area 1972

Forfatter	Dato	Bedrift
Rantala, L Ottesen, R	1972	Sulfidmalm A/S

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Kautokeino	Finnmark	Troms og Finnmark	19343	Nordreisa

Fagområde	Dokument type	Forekomster
Geologi Geokjemi	Rapport	Braakvann Braakkløfta Bråkvann Bråkkløfta
Råstofftype	**Emneord**	
Malm/metall	Ni Cu	

Sammendrag

Tekstdelen i rapporten viser til interessante basiske og ultrabasiske bergarter og en del av de små intrussivene i Braakkløftkomplekset fremstår som oppfølgingsobjekter.

Følgende bilagene er med :

1) Cu-linjekart
2) Zn-linjekart
3) Ni-linjekart
4) Co-linjekart
5) Geokjemisk anomalikart
6) Kopper (løslig med askobinsyre -H2O2 blanding) i de analyserte bergartsprøver.
7) Bergartsprøvelokaliteter
8) Moreneprøvelokaliteter
9) Antatt overdekkemektighet
10) Strukturgeologisk kart
11) Geologisk kart
12) Strukturgeologisk kart, Braakkløft området, NGU
13) Antatt overdekkemektighet, Braakkløft området, NGU
14) Geologisk kart, Braakkløft området, NGU
15) Braakvann area geological map, Sulfidmalm A/S

FOR FALCONBRIDGE NIKKELVERK A/S

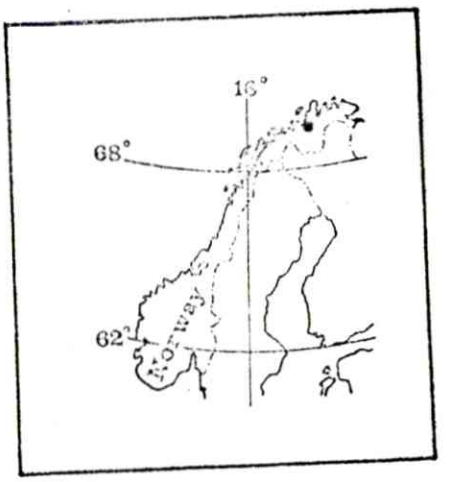
A/S SULFIDMALM

PROJECT 905-17

BRAAKVANN - AREA 1972.

by

L. Rantala and R. T. Ottesen



INTRODUCTION

The investigated area is on mapsheet 1934 III (Bäskadas). The area covers approximately 50 km^2 and consist of the northern part of the area visited by F. Nixon in the summer of 1970.

Nixon found outcrops and boulders of an ultrabasic rock and postulated an ultrabasic complex of possibly 10 km strike extent.

Our assignment was to map the area at the scale of 1:20000, with special attention paid to the relationship between the ultrabasics and surrounding rocks and naturally the sulphide content within the ultrabasics. We were also to collect till samples from profiles over the ultrabasic.

GENERAL CHARACTERISTIC OF THE AREA

The area lies completely to the north of the treeline. Characteristicly all the basic and ultrabasic rocks stand out as topographic highpoints. The vegetation largely consists of mosses and dwarfbirch. Drainage is bad, and the area is not well suited to streamsediment geochemistry. The area is covered by a net of kames and eskers, which can possibly be used as "glacial streamsediments" from a prospecting point of wiev.

GLACIAL GEOLOGY

The area is characterized by two main icemovement directions (determined from glacial striation observations) a) N20W b) N40W. The glacial striae with a compass direction N20W, cut the N40W-direction and are therefore younger. There was also found another glacial direction system, more weakly developed than the two main directions. These weaker directions have varied between N10E to N60W, a very large spread, and has therefore been interpreted as being formed from when the icefront lay within this area.

Boulderrich till of varying thickness form the major overburden-cover within the area. Glacialfluvial material is found in the form of eskers. Organic earth deposit are found in lower laying areas. Attached to this report is a soil thickness map, produced from air photographs with ground control. The map is a subjective picture of soil thickness based on the amount of outcrops visible within different areas. (Map no. 17/72/3).

GEOCHEMISTRY - TILL SAMPLING

A total of 351 till samples were collected within the area. A 250/50 sample grid was used over basic and ultrabasic rocks, ie a grid with linespacing 250 m with sample spacing of 50 m. The baseline direction was N20W. (Profile direction N70E). The samples were collected from the C-horizon at an average depth of 50 m.

GENERAL GEOLOGY

A. Stratigraphy.

The area has three main stratigraphic elements:

Youngest - basic and ultrabasic rocks
sandstone

Oldest - amphibolite and chlorite - hornblende schists
mica schist

The mica schist form the oldest period. The massive amphibolite and banded amphibolite occur only in the mica schist areas. The amphibolites are interpreted as old basic intrusives. The chlorite hornblende schist also possibly represent traces of old basic intrusives, but origin is unclear.

Between the older and the younger "igneous activity", was a period of sedimentation, which has given rise to the sandstones. The youngest stratigraphic element is formed of the basic and ultrabasics intrusives.

The area has similarities to the stratigraphy worked out by the Norwegian Survey for the precambrian elsewhere in West-Finnmark.

B. Petrography.

1. Basic and ultrabasic rocks.

   Within this area there are three large basic/ultrabasic complexes.

Braakkløft complex.

The Braakkløft complex lies in the north of the area. This has an ENE/WSW direction over approx. 4 km, and its width varies from 500 m up to a maximum of 800 m. A large part of the southern contact is hidden by thick till cover. The following rock types were found within the complex:

a. gabbro b. pyroxenite c. foliated basic rocks

../3

The typical rock within the complex is a massive green fine to medium grain gabbro, with hornblende and plagioclase as main minerales. At Braakkløften there is found a dark green fine to medium grained ultrabasic rock. The main mineral here isspyroxene. The pyroxenites extent is approx. 500 m with a width of approx. 200 m. Exact contacts are difficult to map because the terrain slopes steeply down towards the river Storelven.

West of this ultrabasic is found a green medium to coarse grained gabbro. In the area south east and south west of the lake in the middle of the Braakkløft complex is found a foliated basic rock. The main minerals are hornblende and feldspar. We are not sure whether this should be placed within the younger or older "igneous" period.

North of the ultrabasic the contact between the Braakkløft complex and the schist is not clear. There are flame like intrusions of basic material within the schists and schist inclusions within the basic area.

The Buevann ultrabasic.

East and west of the lake Buevann are found two ultrabasic intrusives. The western one has a NS trend and is possibly 2 km long (possibly because of lack of outcrops in the south). Its width is approx. 600 m. The eastern intrusive has a NE/SW trend, and is approx. 1.5 km long with a width of approx. 400 m.

The contacts are approximate on account of thick till cover. The eastern and western intrusives have approximately the same mineralogy with pyroxene as the main mineral. The rock is massive, has a dark green colour and is medium to coarse grained.

At several places along the contact between the pyroxenite and the wall rocks are hornblendite and a blue green soft rock, consisting of amphibole and muscovite. This is possibly a product of uralitasation.

Virdnescokka.

The southernmost basic intrusive is found at Virdnescokka. This intrusive has an axis in a NS direction of approx. 2.8 km and its width varies between 500 to 1.200 m.

In the northern portion it consists of heterogeneous coarse grained hornblende gabbro, in the south is found a more massive medium grained hornblende gabbro. Small parts of this complex consist of ultrabasic material.

Small basic and ultrabasic bodies.

The whole area contains many small basic and ultrabasic bodies. These can be foliated or massive. Both basic and ultrabasic rocks can occur within the same outcrop.

2. Sandstone.

In the southern and central portion of the area sandstone occurs with varied mineralogy. This is normally quite feldspar rich. The colour is different in adjacent layers. Feldspar rich layers have a red colour, quartz rich layers a grey colour and mica rich layers a green colour. Primary layering is well preserved.

3. Schist and amphibolite.

The schist area is characterised by alternations of mineral composition. The main minerals are quartz, fledspar and mica (chlorite and biotite).

Another characteristic is the occurrence of amphibolite and chlorite hornblende schist.

The amphibolite occurs in two forms: A. as a foliated rock with a massive appearance, B. as bands within the schist. The thickness of the bands varies from 1 m to some 10-metres. The main minerals of the amphibolites are hornblende, plagioclase and mica. The rock is medium grained and green in colour. The amphibolites are interpreted as old basic intrusives.

The chlorite-hornblende schist occur as layers within the ordinary schists. They are very heterogeneous. The relative amounts of chlorite and hornblende vary rapidly. This has been interpreted as possible remnants of old intrusives.

C. Structural geology.

To give a fairly correct picture of the structural geology of the area would require much more work.

1. Layering and foliation.

Within the area the layering and foliation are concordant. Two main directions are apparent

a. ENE (varying between NE and E)

B. NW (varying between NW and NNW)

The dip is usually rather shallow. Within the sandstones primary layering is well preserved.

2. Fold axis.

The schist and sandstones are strongly microfolded. The microfold showed two main directions, which are a) ENE and b) NNE. The plunge is usually shallow.

3. Joints and faultings.

The contact between the basic/ultrabasic rocks and the wall rocks represent weakness zones and possibly also movement zones.

4. Intrusions.

The basic and ultrabasic rocks have intruded concordanly the sandstone and schists. Later deformation has possibly caused original sill like intrusions to occupy basins today (Buevann and Virdnescokka).

SULPHIDE - MINERALIZATION

A. Basic and ultrabasic rocks.

1. The Braakkløft complex.

The geological map (17/72/2) shows where sulphide mineralization was observed, which was mainly of two types:

a. impregnation

b. vein - filling

The vein - filling occurs in connection with jointing in anticlinal SW of the lake central to the Braakkløft complex. The impregnation vary from weak to good. Sulphide minerals are chalcopyrite, pyrite and pyrrhotite.

2. Buevann.

Weak impregnations of pyrrhotite and chalcopyrite. Pyrrhotite occurs also as an accessory mineral within the pyroxenite. Uralitized areas contain in some places pyrite with well formed crystals. Close to the contact magnetite is found occasionally.

3. Virdnescokka.

Poorly investigated, requires more work.

4. Small basic/ultrabasic intrusives.

Some of the intrusives contain impregnations and joint fillings of chalcopyrite, pyrite, pyrrhotite and magnetite. At locality 187 (see map 17/72/1), samples were taken from in-situ boulders.

../6

5. Mineralization in other rock types.

Chlorite hornblende schist.

North of the ultrabasic in the Braakkløft complex, close to the contact between this complex and the schist there is a pyrite impregnation. The area is completely covered by rust staining. Otherwise there are many places within chlorite hornblende schist with weak pyrite impregnation.

CONCLUSION

The basic and ultrabasic rocks in the area are of interest. Particularly the Braakkløft complex and some of the smaller intrusives stand out as possible follow-up areas. Thus further work in the area would have two main objectives:

A. Detailed investigations of the discoveries made during the summer of 1972.

B. Extension of the area, particularly in a westerly direction. Large gabbro massives are found between Braakkløften and Garanasjavre along the river Virdnejavre.

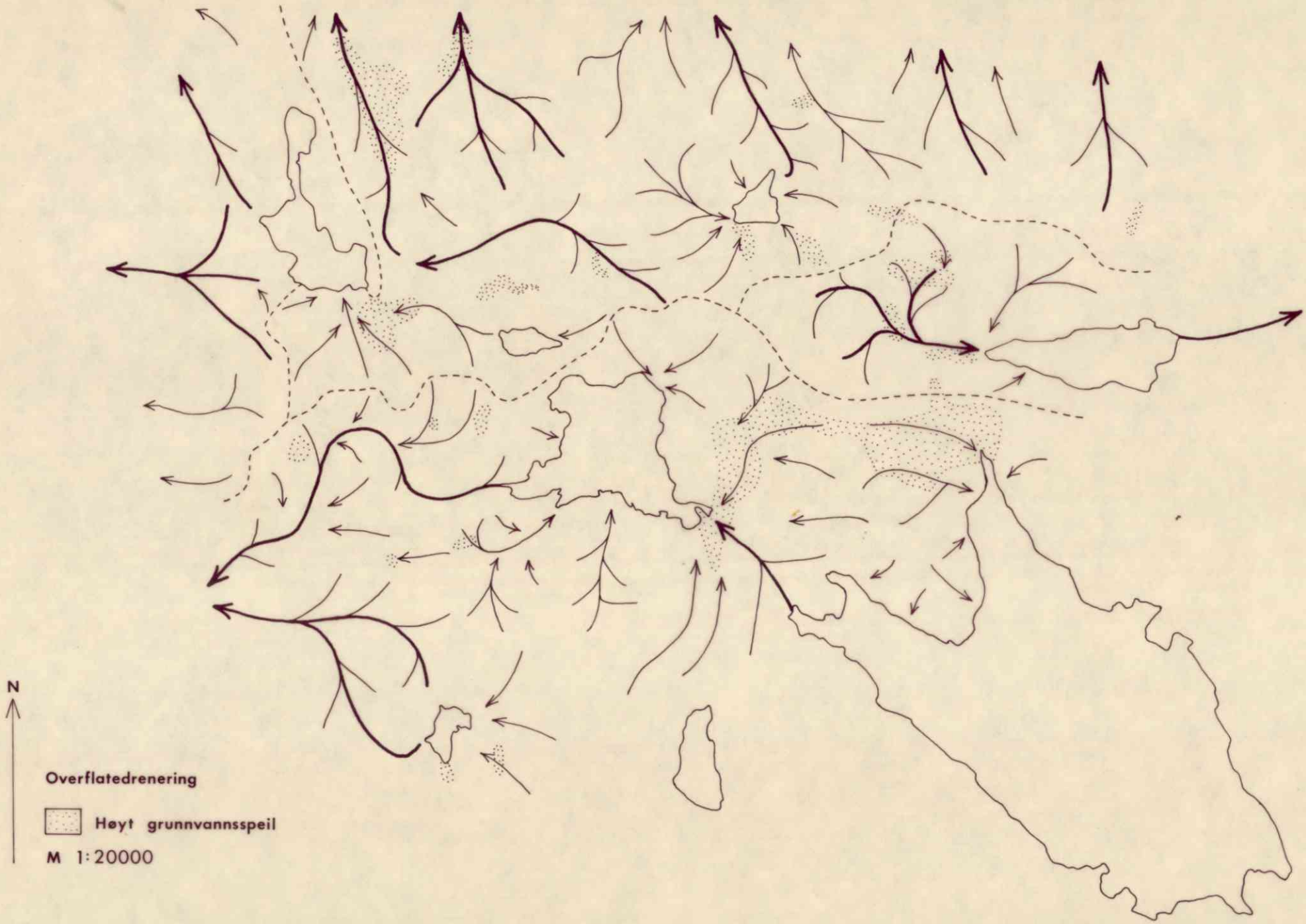
List in order of priority for further work:

A. 1: Detailed map over Braakkløft complex.

2: Tight sampling grid of soil samples within the same area.

B. 1: Continued mapping at a scale of 1:20000.

2: Regional geochemical investigations
The stream sediment sampling method can be used only with difficulty, till sampling is too time consuming. We would recommend a biogeochemical approach.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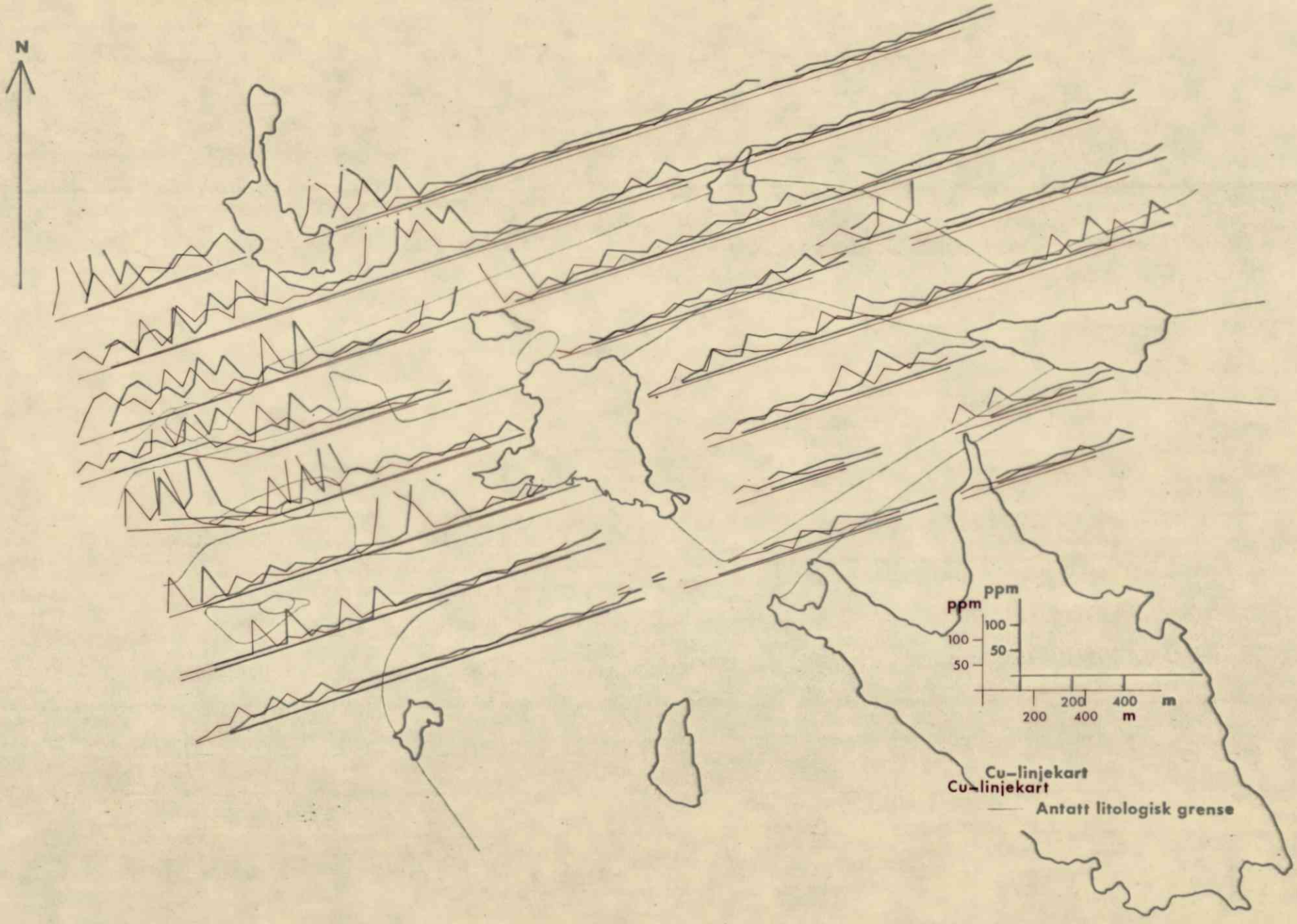
Overflatedrenering
Høyt grunnvannsspeil
M 1:20000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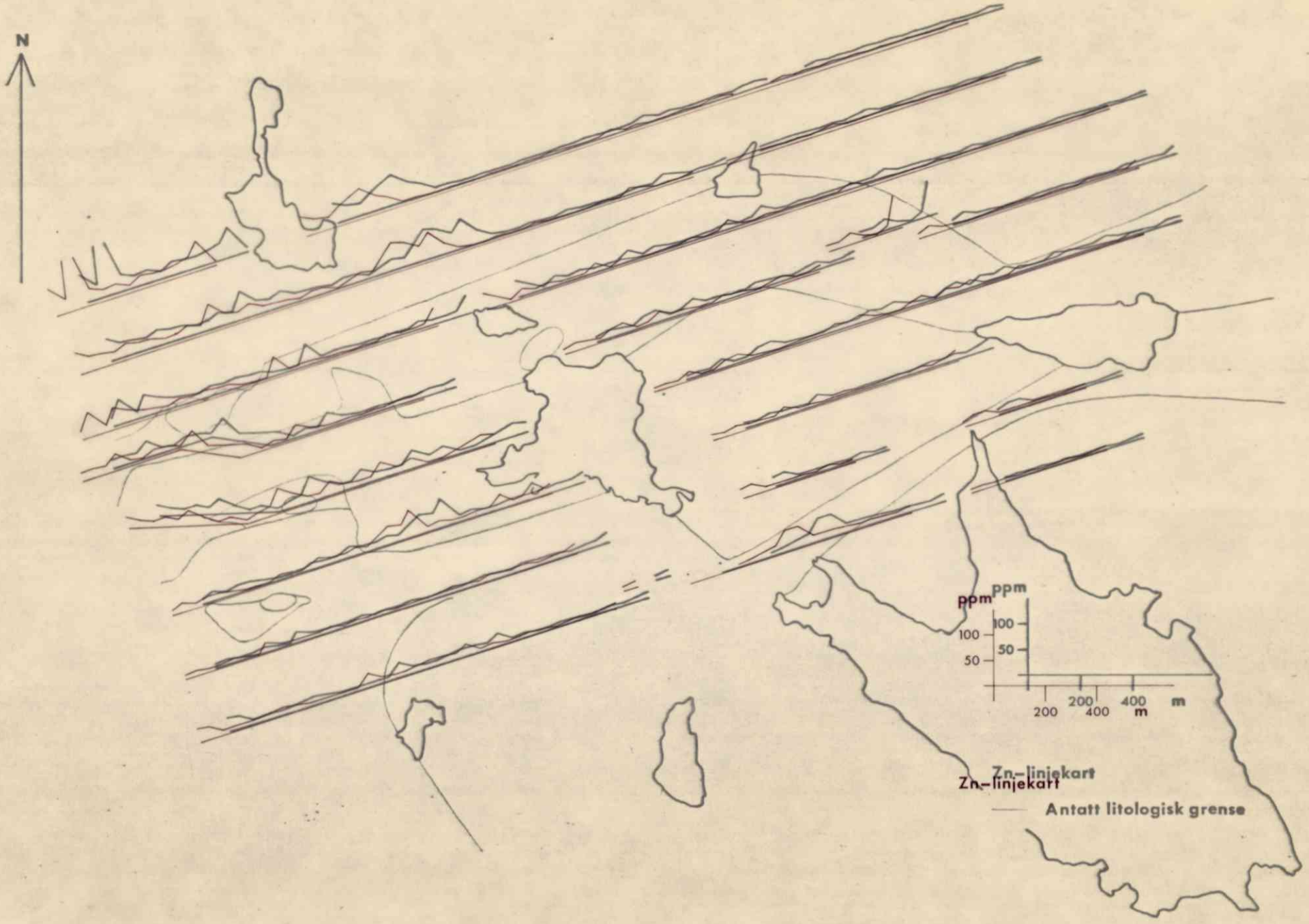
Cu–linjekart
Cu–linjekart
Antatt litologisk grense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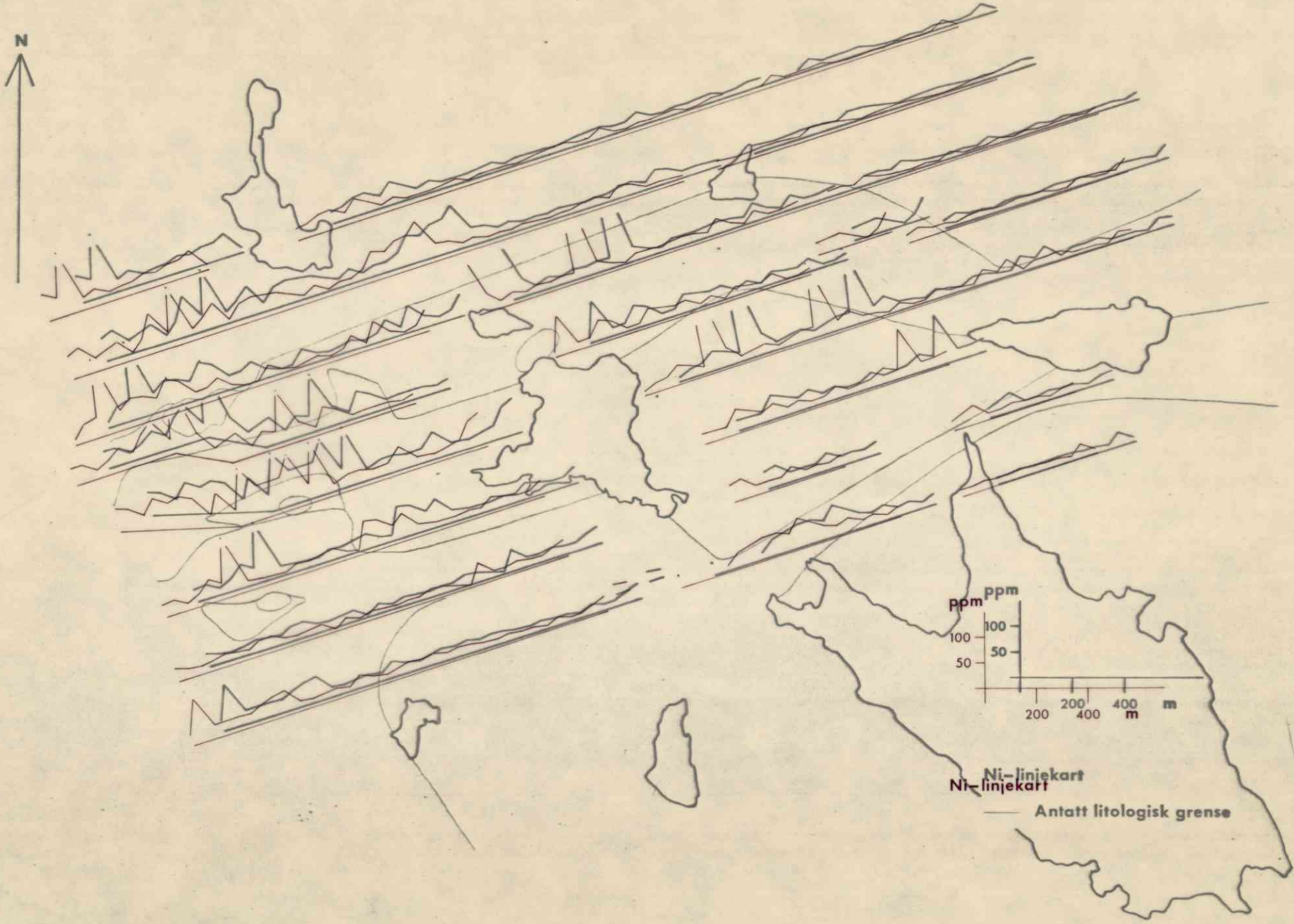
Antatt litologisk grense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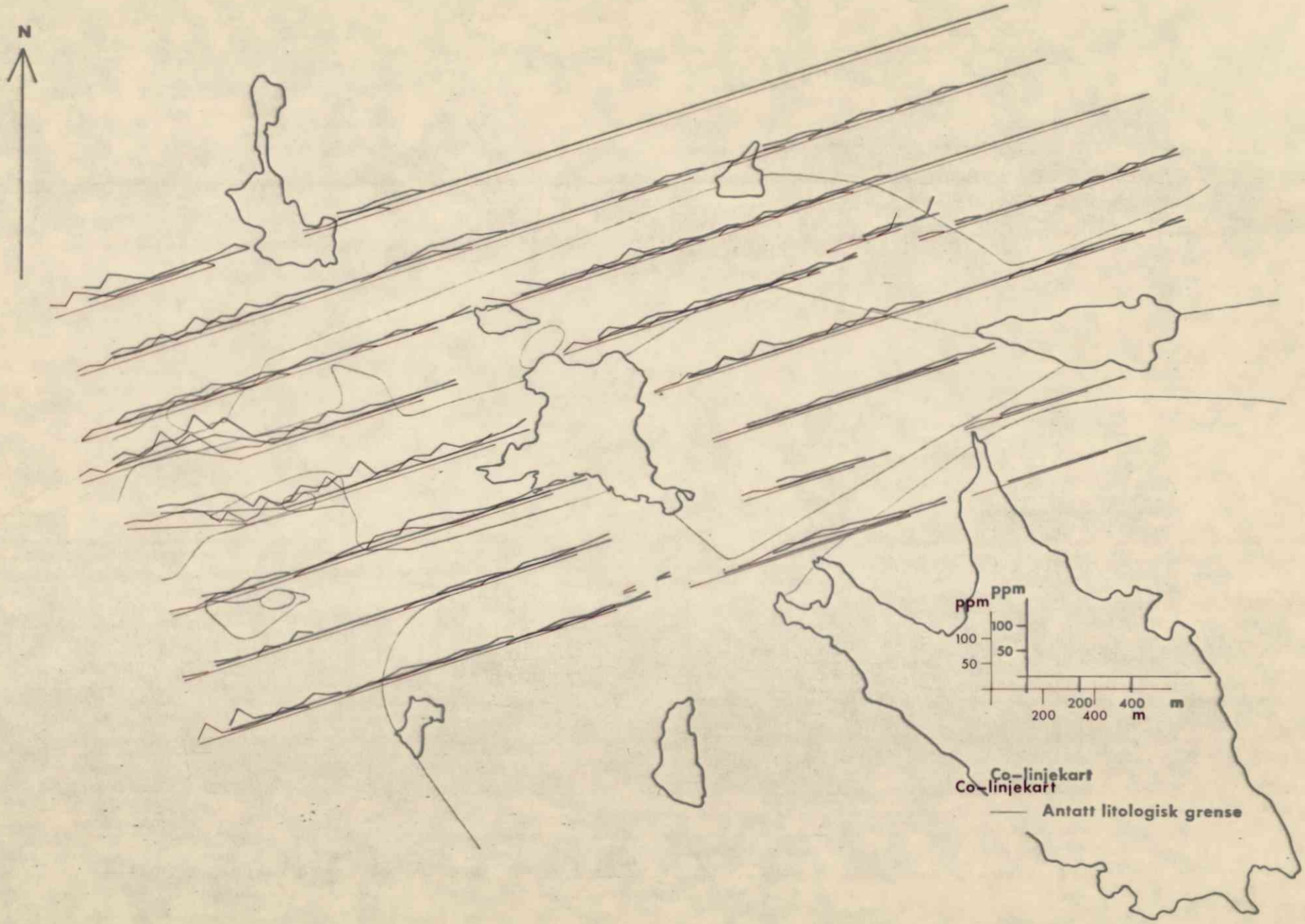
Antatt litologisk grense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Co–linjekart
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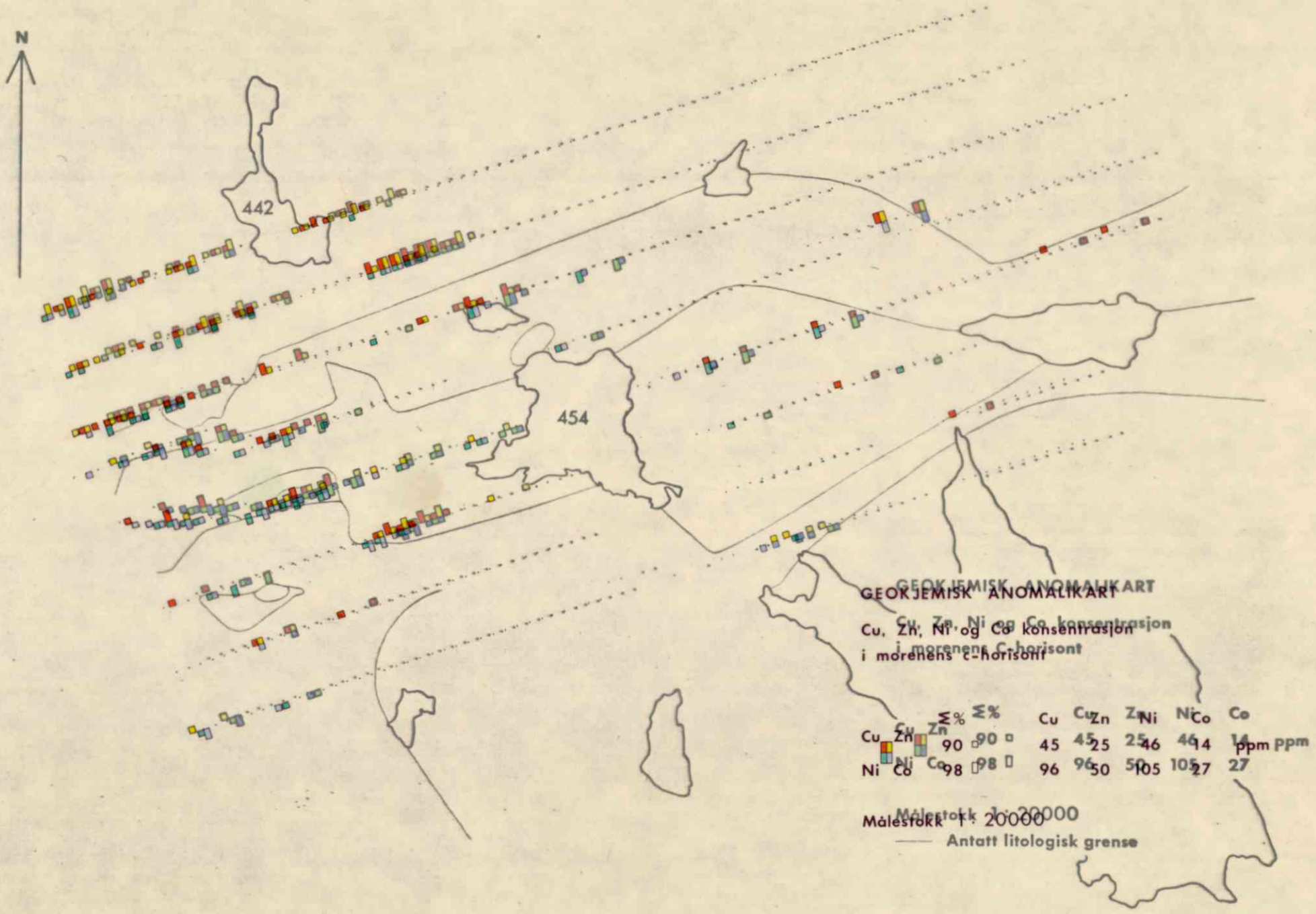
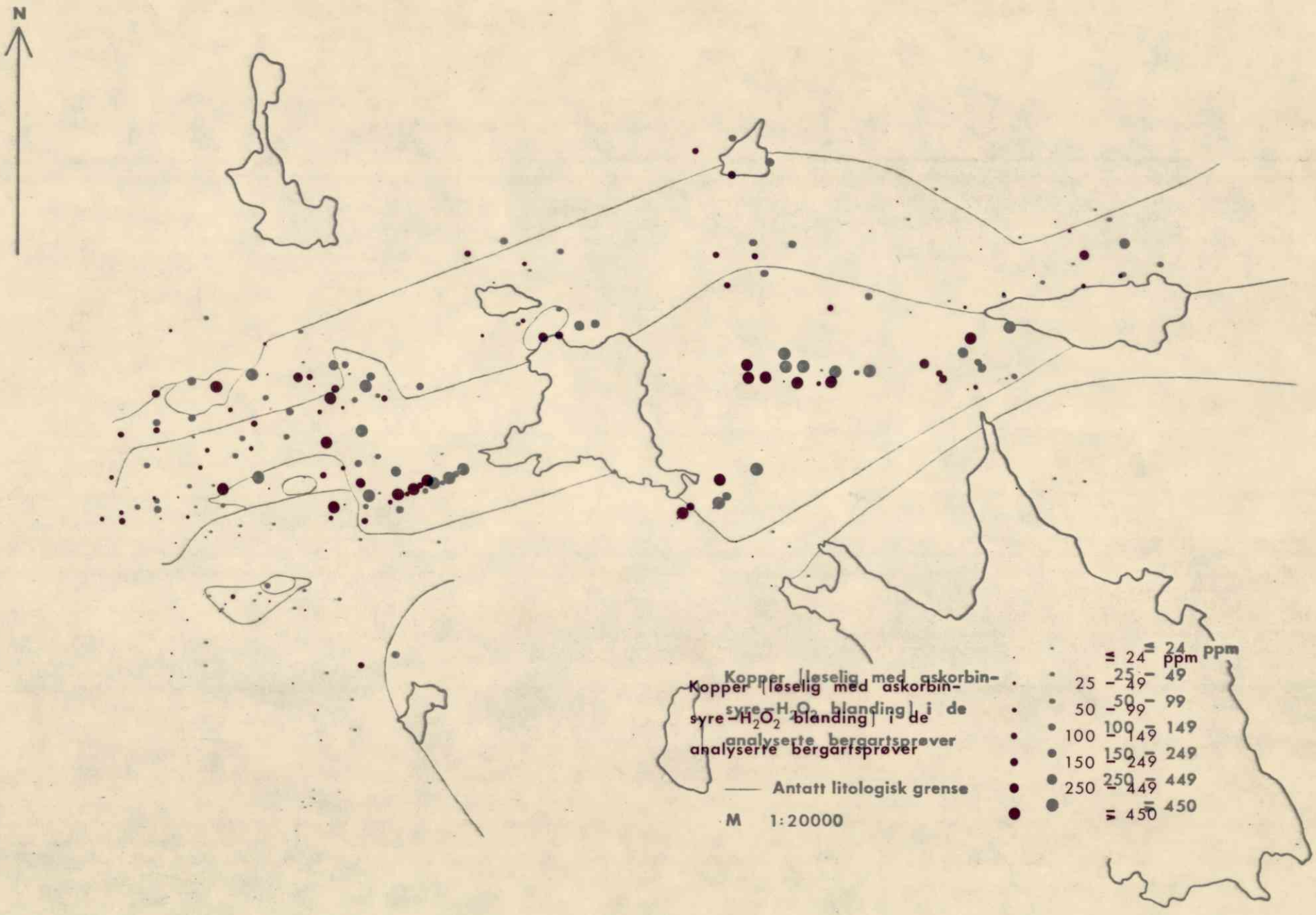

N
442
454
GEOKJEMISK ANOMALIKART
Cu, Zn, Ni og Co konsentrasjon
i morenens C-horisont
Cu Zn Ni Co
Cu Zn 90 90
Ni Co 98 98
Cu Cu Zn Zn Ni Ni Co Co
45 45 25 25 46 46 14 14 ppm ppm
96 96 50 50 105 105 27 27
Målestokk 1: 20000
Antatt litologisk grense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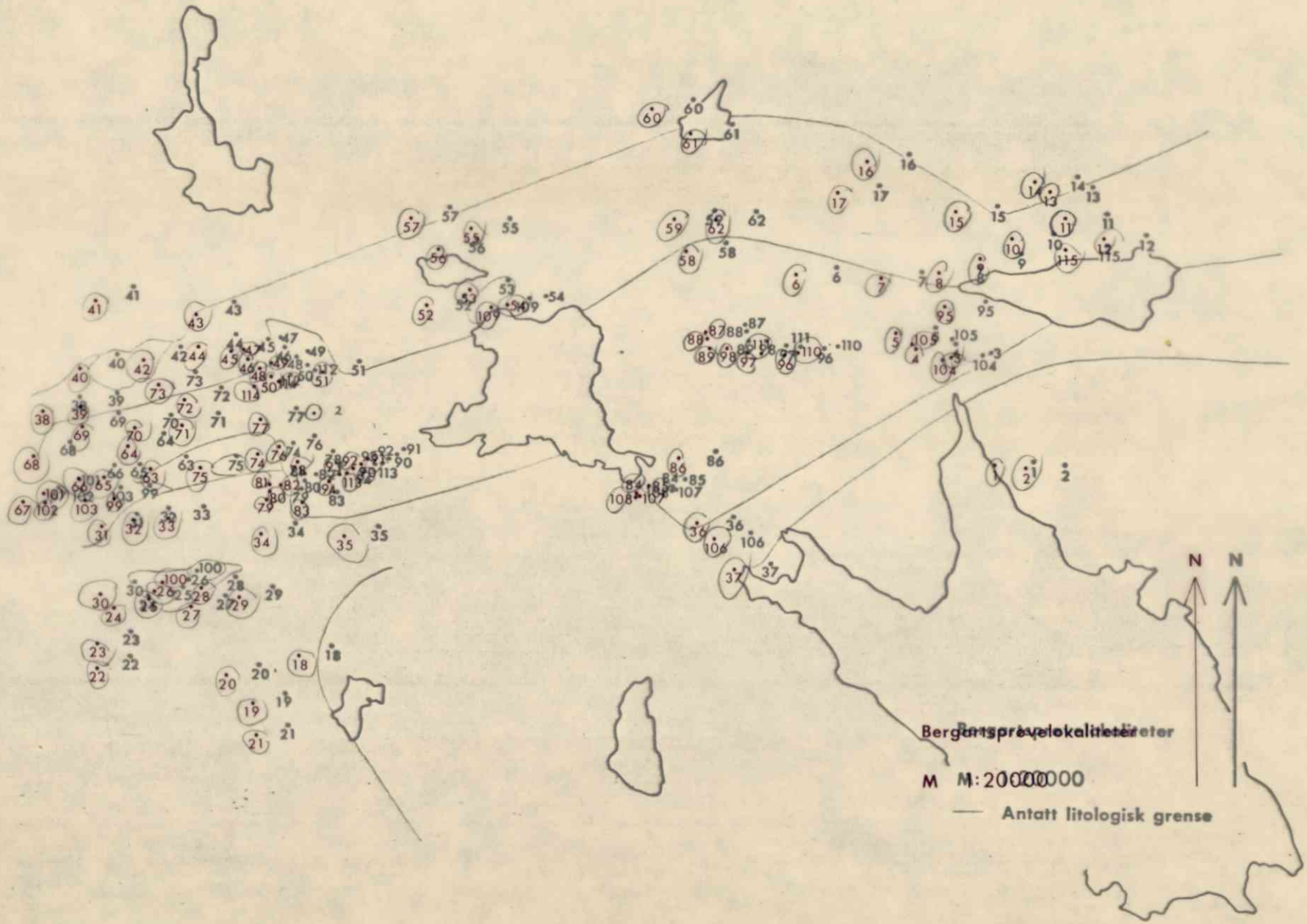
Kopper [løselig med askorbin-syre-H_2O_2 blanding] i de analyserte bergartsprøver
Antatt litologisk grense
M 1:20000
≤ 24 ppm
25 – 49
50 – 99
100 – 149
150 – 249
250 – 449
≥ 450

57

KORBERG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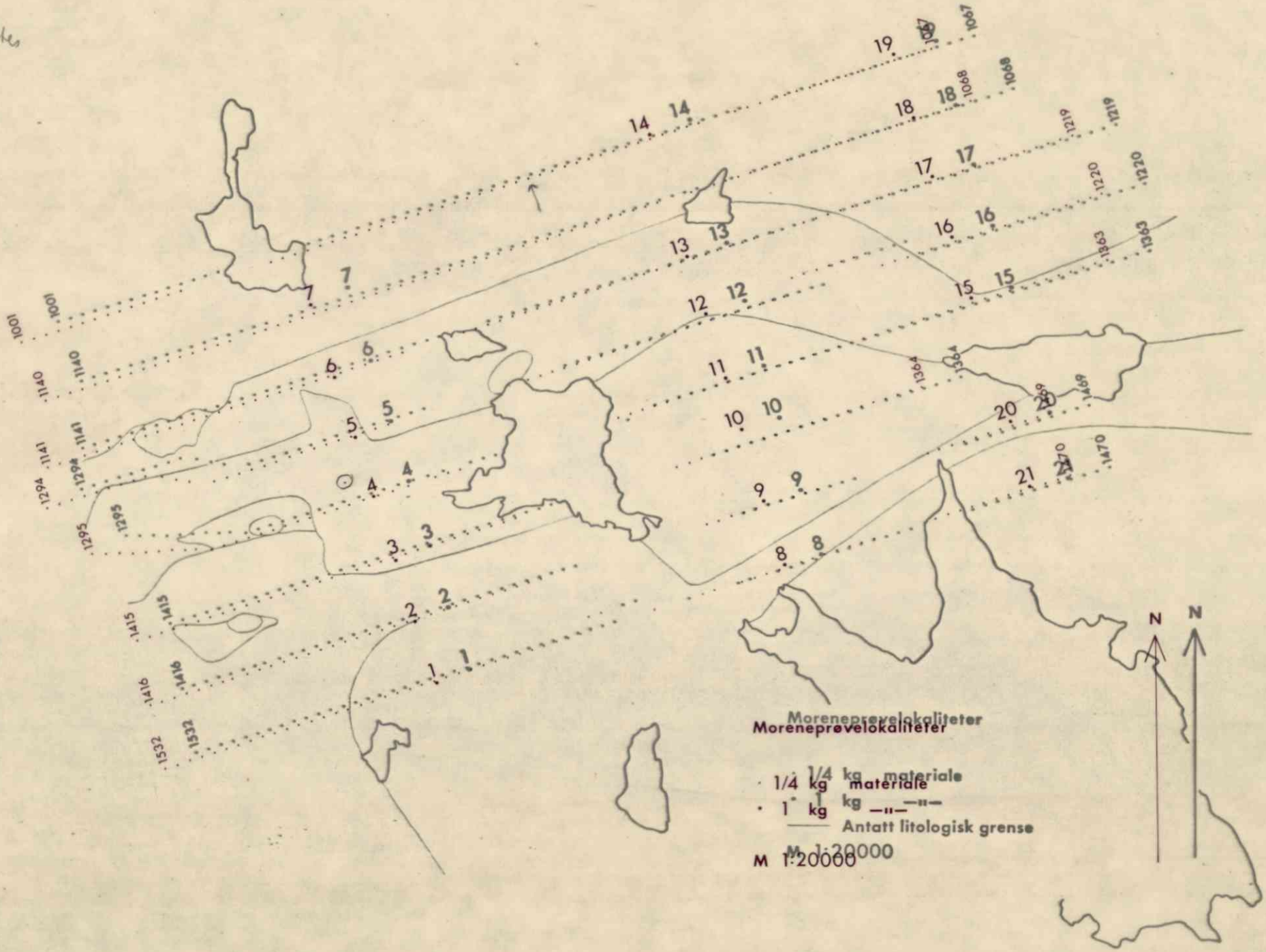
Bergartsprøvelokaliteter
M M:2000000
Antatt litologisk grense

⊙ 1


Morenepr
1/4 kg materiale
1 kg —"—
Antatt litologisk grense
M 1:20000
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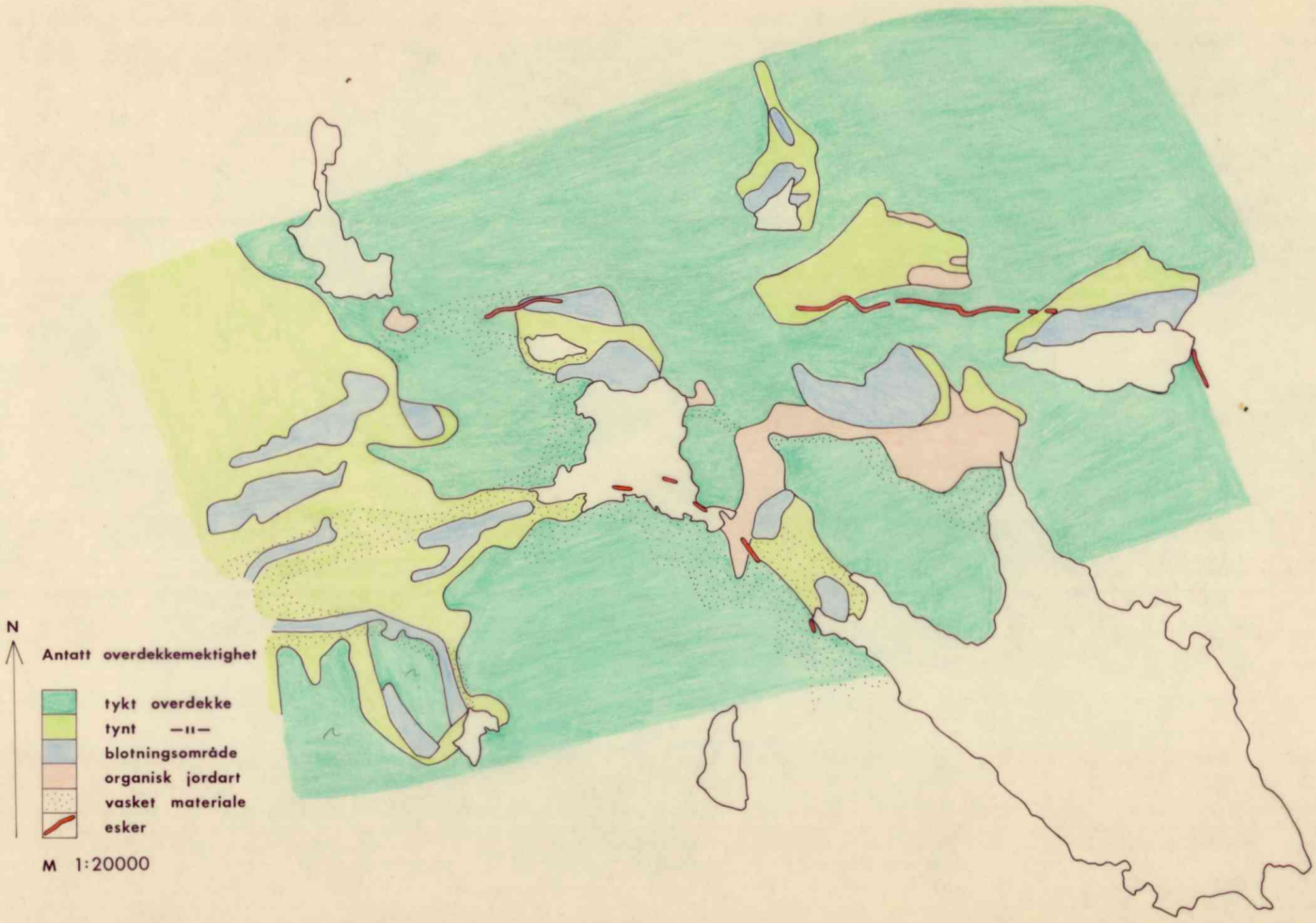
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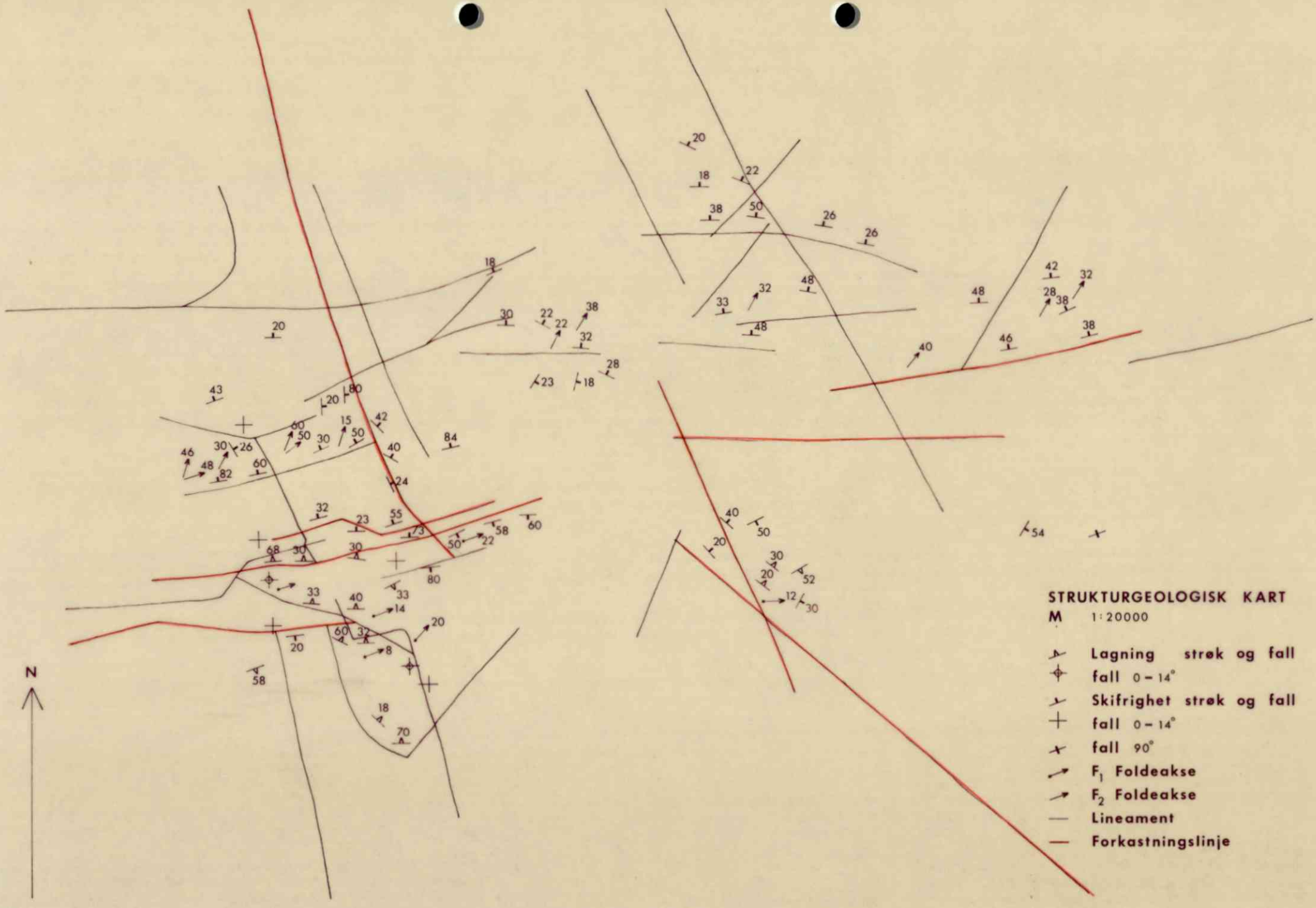
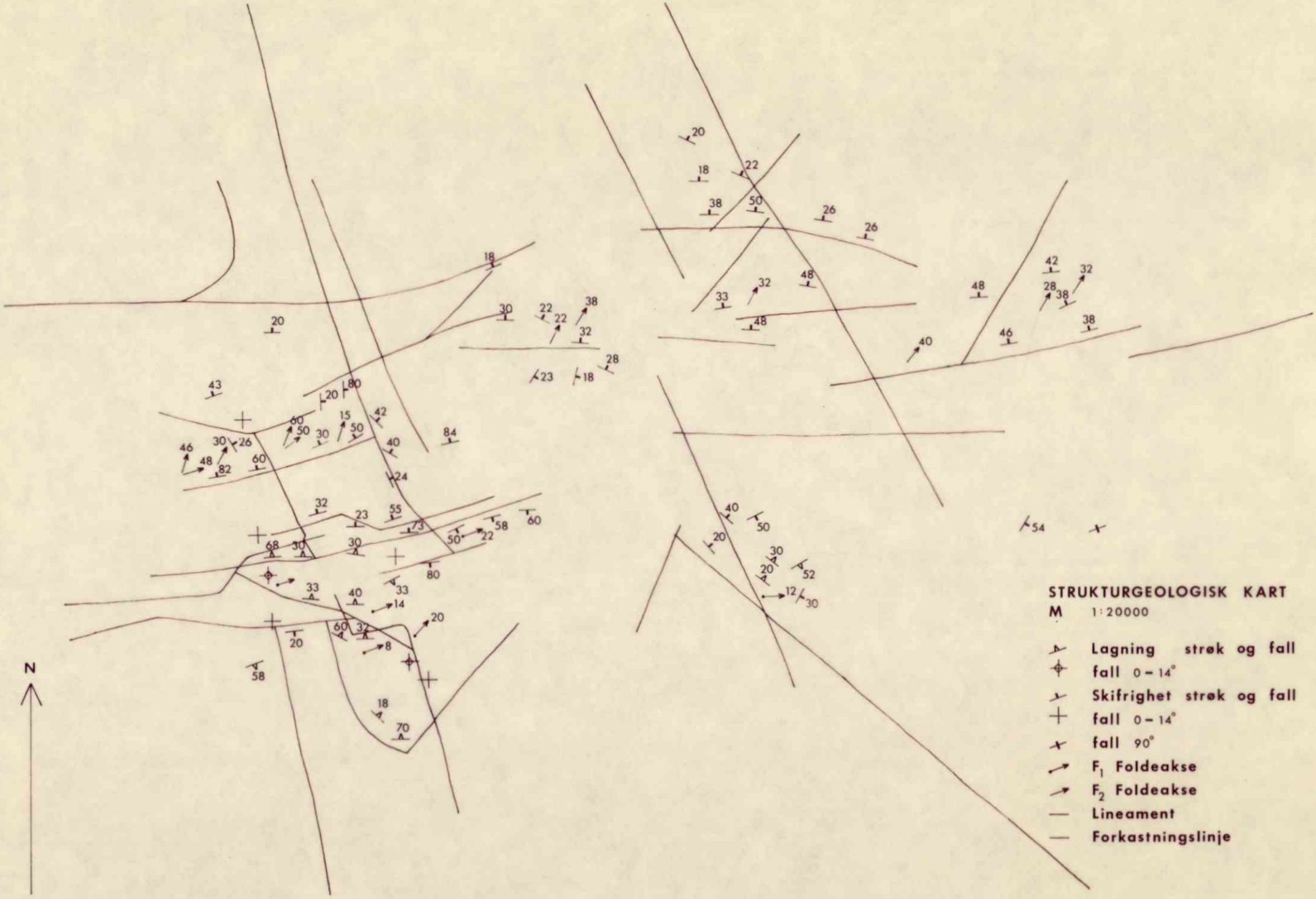
Antatt overdekkemektighet
tykt overdekke
tynt —"—
blotningsområde
organisk jordart
vasket materiale
esker
M 1:20000


STRUKTURGEOLOGISK KART
M 1:20000
Lagning strøk og fall
fall 0 – 14°
Skifrighet strøk og fall
fall 0 – 14°
fall 90°
F_1 Foldeakse
F_2 Foldeakse
Lineament
Forkastningslinje
N


N
STRUKTURGEOLOGISK KART
M 1:20000
Lagning strøk og fall
fall 0 – 14°
Skifrighet strøk og fall
fall 0 – 14°
fall 90°
F1 Foldeakse
F2 Foldeakse
Lineament
Forkastningslinje

STRUKTURGEOLOGISK KART
BRAAKKLØFT OMRÅDET
M 1:15000

0.5 1 KM

N

S_1 foliasjon
fall 0-14°
F_2 foldeakser
S_2 foliasjon
fall 0-14°
F_3 foldeakser
Skjærsoner
Akseplantrase til F_2 synform
Litologisk grense
Antatt litologisk grense

N

0.5 1 KM

ANTATT OVERDEKKEMEKTIGHET
BRAAKKLÖFT OMRÅDET
M 1:15000

- Tykt morenemateriale
- Tynt morenemateriale
- Bart fjell eller flekkvis morenemateriale
- Vasket morenemateriale
- Esker
- Organisk materiale
- Talus
- Lokalt vannskille

Bilag 14

GEOLOGISK KART
BRAAKKLÖFT OMRÅDET
M 1 : 15000

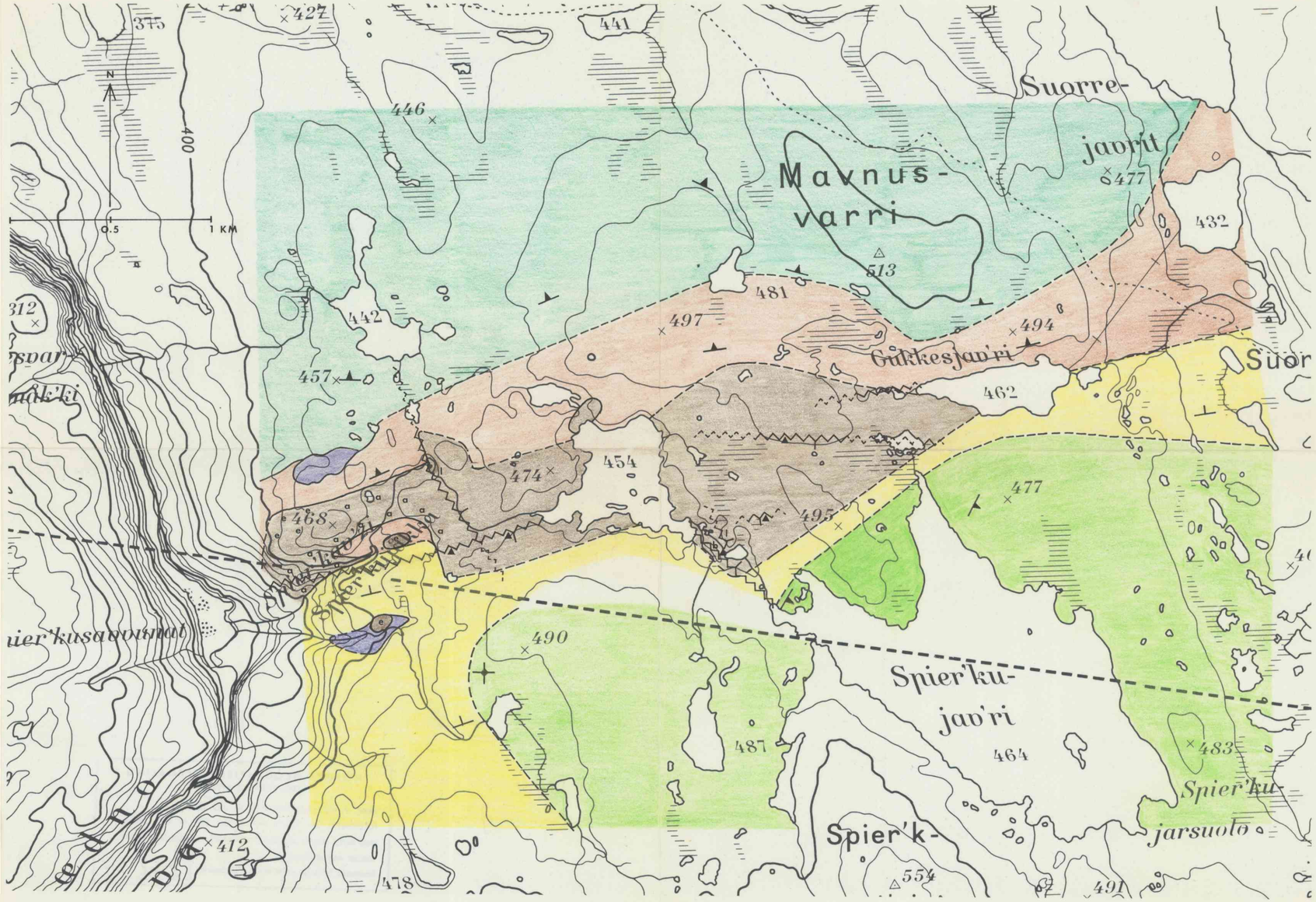
Caskias gruppen

- Epidot-karbonat-kvarts-biotitt-skifer
- a — Amfibol-metadoleritt
- Amfibol-albitt-metadoleritt
- e — Amfibol-epidot-albitt-metadoleritt } Metadoleritt
- b — Amfibol-biotitt-albitt-metadoleritt
- l — Albitt-metadoleritt
- Epidot-amfibolitt
- Talk-skifer

Caskias gruppen eller lavere kvartsitt gruppen

- Kvartsitt
- Biotitt-kvarts-muskovitt-skifer

- Litologisk grense
- Antatt litologisk grense
- S_1 foliasjon
- S_2 foliasjon
- Skjärsoner
- Sulfidmineralisering



Sulphide impregnation
py pyrite
po pyrrhotite
cp chalcopyrite
mt magnetite

ULTRABASIC
GABBRO
AMPHIBOLITE
CHLORITE-HORNBLENDE SCHIST IN MICASCHIST
MICASCHIST
AMPHIBOLITE BAND IN MICASCHIST
SANDSTONE
STRIKE/DIP OF LAYERING
STRIKE/DIP OF FOLIATION

N

BRAAKVANN AREA
GEOLOGICAL MAP

SCALE 1:20 000

OBS.	8/72	LR og RO
DRAW.	9/72	LR og RO
TRAC.		
CHK.		

MAP NO. 17-72-2

MAP SHEET 1943 III 1934 III

⅛ SULFIDMALM

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

Bilag 15