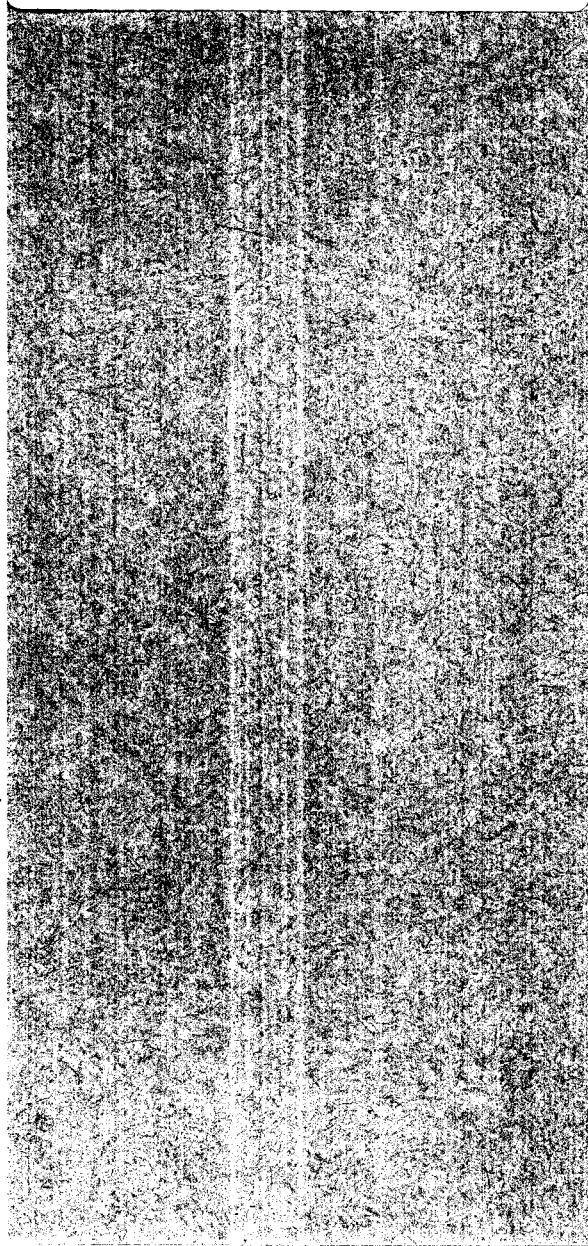


**E**

**AE 11  
GLASS**



FINANCIAL ASSISTANCE FOR MINERAL EXPLORATION (M.E.I.G.A.)

COMPANY: EXPLORATION VENTURES LTD

REF: AE 11

MRD 84/5/6

PROJECT: GLASS

MRD 144/5/6

The following Open File material is held by B.G.S. in London, Keyworth and Edinburgh. Available for public inspection from 16.10.80.

- Extract from application 6.8.71 "outline of proposed project .... geological considerations .... work programme ...." with accompanying plan 4 miles : 1"
- Geological report 9.8.71 to 31.12.71 with 4 enclosures:
  1. Geological map - float and outcrop. NJ44SE
  2. Geochemical soil values for Cu and Ni. NJ44SW & SE Sept.'71
  3. Chargeability. NJ44SW & SE
  4. Resistivity. NJ44SW & SE, Sept./Oct.'71

Map showing vertical force magnetic field values December 1971. 1 : 10,560. NJ44SW & SE (enclosed with letter 27.11.73).  
Daugh of Cairnborrow
- \* Table 16C, sulphur, metal ratio checks
- Technical report 1.1.72 to 31.12.72 with 7 enclosures:
  1. Geochemical soil values in ppm for Cu, Ni, Aberdeenshire XXV NW
  2. Geochemical soil values in ppm for Cu, Ni, NJ44NE
  3. Geochemical soil values for Cu, Ni in ppm, NJ44SW and SE
  4. Chargeability, NJ44SE
  5. Resistivity, NJ44SE
  6. Chargeability, Aberdeenshire XXVSE, XXXIII NE
  7. Resistivity " " " " "
- Technical report 1.1.73 to 31.12.73 (this mentions Ruthven)

---

\* Not at Keyworth

MINERAL EXPLORATION INCENTIVE SCHEME

APPLICATION

for assistance

1. Applicant Exploration Ventures Limited  
Address 49 Moorgate, London EC2R 6BQ.  
Telephone No. 01-606-1020  
Contact Mr. R.B. Riley or Mr. M.J. Lynch

2. Project title Glass

3. Applicants' organisation & financial structure  
 Please see this Company's letter dated 6th August, 1971.

4. Outline of proposed project, including geological considerations (see plan attached)

This is a region of north-east trending ultrabasics. Amphibolites and serpentinites form the main exploration targets in this distinct unit and Cu, Ni and related metals are sought. To the west of the ultrabasic are Dalradian metasediments.

5. Work programme and costs of project

A detailed soil survey will be undertaken in this area in an attempt to relate soil and bedrock values. A reconnaissance soil survey has already been completed. Reconnaissance induced polarisation and complementary ground magnetics will help to locate the more interesting localities together with thorough geological investigation.

Application for contributions under the Mineral  
Exploration and Investment Grants Act 1972

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Geological Report : Glass AE11

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During the period 9th August to 31st December 1971,  
geological, geochemical and geophysical investigations  
were undertaken.

(i) Geology

Geological mapping to assess outcrops and float  
distribution patterns were carried out over Dalradian  
metasediments and Older Basic rocks west of Huntly.  
The presence of any sulphides was particularly noted.

(ii) Geochemistry

Systematic soil sampling of an area of Older Basic  
rocks was carried out in the Daugh of Cairnborrow area.  
Samples were analysed for hot extractable Cu and Ni  
content.

(iii) Geophysics

a) Induced Polarization

Reconnaissance surveys employing Scintrex 25 watt time  
domain equipment with dipole-dipole arrays were used  
to assess areas of Older Basic rocks. Several  
anomalous chargeability and resistivity zones were  
defined.

b) Ground Magnetometry

Vertical force magnetic readings were taken along the  
I.P. survey lines using a Sharpe M.F.1. Fluxgate  
magnetometer. Areas of high magnetic intensity, in  
part coincident with areas of high apparent  
chargeability were outlined.

Enclosures

- ✓ 1. Geological map - float and outcrop (NJ44SE)
- ✓ 2. Geochemical soil values for Cu and Ni in p.p.m. (NJ44SW & SE)
- ✓ 3. Apparent chargeability values in milliseconds (NJ44SW & SE)
- ✓ 4. Apparent resistivity values in ohm metres (NJ44SW & SE)

## GLASS DISTRICT - AE11

Technical Report for Period 1st January - 31st December, 1972

During the period, geochemical and geophysical surveys were undertaken in this district. No targets of economic significance were outlined and detailed follow-up by the methods previously mentioned in the Application proved unnecessary.

### 1. Geochemistry

#### 1.1. Soil Sampling (Figs. 1-3)

Systematic soil sampling was carried out over an area of Older Basic rocks at Hill of Dumeth. Samples were taken from the 'B' soil horizon on a 1000' x 200' grid pattern, and analysed for total Cu & Ni content by atomic absorption methods. No anomalies of economic importance were revealed.

Soil sampling using similar procedures investigated an area at Hill of Shenwell, which is characterized by a strong east-west trending magnetic anomaly. Analyses for total Cu & Ni showed only background metal values.

### 2. Geophysics

#### 2.1. Induced Polarization (Figs. 4-7)

Induced Polarization surveys utilizing Scintrex 25 watt time domain equipment with dipole-dipole arrays were used to investigate basic and ultrabasic rocks in the Brown Hill - Artloch area. The region was surveyed on a 1000' x 200' grid. Several zones of high chargeability and low resistivity were encountered, but geological information indicates that these relate to heavily serpentinized horizons within the ultrabasic sequence.

#### 2.2. Ground Magnetometry

The availability of high resolution aero-magnetic data early in 1972 rendered the proposed ground magnetic surveys unnecessary.

### 3. Special Projects

#### 3.1. Soil Research Project

Statistical studies were carried out on data previously collected, prior to the preparation of a final report. (These results may be found in the final report submitted in October 1973, which applies to most EVL areas and time periods, including Glass District in 1972).

cont...

4. Enclosures

- Fig. 1. Geochemical Soil Values in p.p.m. for Copper and Nickel (Hill of Dumeath) 'Aberdeenshire XXV NW'
- Fig. 2. Geochemical Soil Values in p.p.m. for Copper and Nickel (Hill of Shenwell-NJ44NE)
- Fig. 3. Geochemical Soil Values for Copper and Nickel in p.p.m. (Hill of Shenwell-NJ44SW & SE)
- Fig. 4. Apparent Chargeability Values in Milliseconds (Artloch-NJ44SE)
- Fig. 5. Apparent resistivity Values in Ohm metres (Artloch-NJ44SE)
- Fig. 6. Apparent Chargeability Values in Milliseconds (Brown Hill - Aberdeenshire XXV SE, XXXIII NE)
- Fig. 7. Apparent Resistivity Values in Ohm metres (Brown Hill - Aberdeenshire XXV SE, XXXIII NE).

K.C.B

7.12.1973

E.M. Jones

## GLASS DISTRICT - AELL

### Technical Report for Period 1st January - 31st December 1973

During the period two geochemical surveys were carried out in this district and results finalized and written up for the Soils Research Project.

#### 1. Geochemistry

##### 1.1 Multi-elements Analyses [REDACTED]

Samples of stream sediment material were selected on the basis of of approximately one per square kilometre. Samples were prepared to -80 mesh and analysed spectrographically for fifteen elements:- Bi, Co, Cu, Cr, Pb, Mo, Ag, Sn, W, V, Ti, Zn, Zr, Mn. In addition samples were analysed for arsenic by atomic absorption methods. The work formed part of a regional investigation carried out through much of western E.V.L.: its object being to check for concentrations of unusual elements or to estimate the presence of possible pathfinder elements. Unfortunately, none of obvious economic importance were revealed in the district. The relevant plans and assay data sheets are included with the [REDACTED] submission.

##### 1.2 Metal: Sulphur Ratios [REDACTED]

A number of sulphide-bearing samples of basic and ultra-basic rocks were collected and analysed for total copper, nickel and sulphur. The work formed part of a regional survey of copper: sulphur and nickel: sulphur ratios, throughout the Aberdeenshire/Baffshire basic complex. The results obtained gave no encouragement for further work in the Glass District. The data for this area are included under the submission enclosures for [REDACTED] district.

#### 2. Soils Research Project

Statistical studies were carried out on material previously collected. Data were collated and results then written up. The conclusions can be found in the final report submitted October 1973, which applies to most E.V.L. areas and time periods, including Glass, 1973.

## GLASS DISTRICT - AE11

Technical Report for Period 1st January - 31st December, 1972

During the period, geochemical and geophysical surveys were undertaken in this district. No targets of economic significance were outlined and detailed follow-up by the methods previously mentioned in the Application proved unnecessary.

### 1. Geochemistry

#### 1.1. Soil Sampling (Figs. 1-3)

Systematic soil sampling was carried out over an area of Older Basic rocks at Hill of Dumeth. Samples were taken from the 'B' soil horizon on a 1000' x 200' grid pattern, and analysed for total Cu & Ni content by atomic absorption methods. No anomalies of economic importance were revealed.

Soil sampling using similar procedures investigated an area at Hill of Shenwell, which is characterized by a strong east-west trending magnetic anomaly. Analyses for total Cu & Ni showed only background metal values.

### 2. Geophysics

#### 2.1. Induced Polarization (Figs. 4-7)

Induced Polarization surveys utilizing Scintrex 25 watt time domain equipment with dipole-dipole arrays were used to investigate basic and ultrabasic rocks in the Brown Hill - Artloch area. The region was surveyed on a 1000' x 200' grid. Several zones of high chargeability and low resistivity were encountered, but geological information indicates that these relate to heavily serpentinized horizons within the ultrabasic sequence.

#### 2.2. Ground Magnetometry

The availability of high resolution aero-magnetic data early in 1972 rendered the proposed ground magnetic surveys unnecessary.

### 3. Special Projects

#### 3.1. Soil Research Project

Statistical studies were carried out on data previously collected, prior to the preparation of a final report. (These results may be found in the final report submitted in October 1973, which applies to most EVL areas and time periods, including Glass District in 1972).

cont...



4

Enclosures

- Fig. 1. Geochemical Soil Values in p.p.m. for Copper and Nickel (Hill of Dumeath) 'Aberdeenshire XXV NW'
- Fig. 2. Geochemical Soil Values in p.p.m. for Copper and Nickel (Hill of Shenwell-NJ44IE)
- Fig. 3. Geochemical Soil Values for Copper and Nickel in p.p.m. (Hill of Shenwell-NJ44SW & SE)
- Fig. 4. Apparent Chargeability Values in Milliseconds (Artloch-NJ44SE)
- Fig. 5. Apparent resistivity Values in Ohm metres (Artloch-NJ44SE)
- Fig. 6. Apparent Chargeability Values in Milliseconds (Brown Hill - Aberdeenshire XXV SE, XXXIII NE)
- Fig. 7. Apparent Resistivity Values in Ohm metres (Brown Hill - Aberdeenshire XXV SE, XXXIII NE).

*K.C.B.*

7.12.1973

E.M. Jones

Institute of Geological  
Sciences

28 JUN 1973

Application for contributions under the Mineral  
Exploration Grants Act 1972

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Geological Report : Alford AE16

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During the period 9th August to 31st December, 1971,  
geological and geophysical surveys were carried out.

(i) Geology

A photo-geological study followed by float and  
outcrop mapping further investigated an area of  
anomalous molybdenum values in stream sediments and  
soils at Cushnie.

(ii) Geophysics

a) Induced Polarization

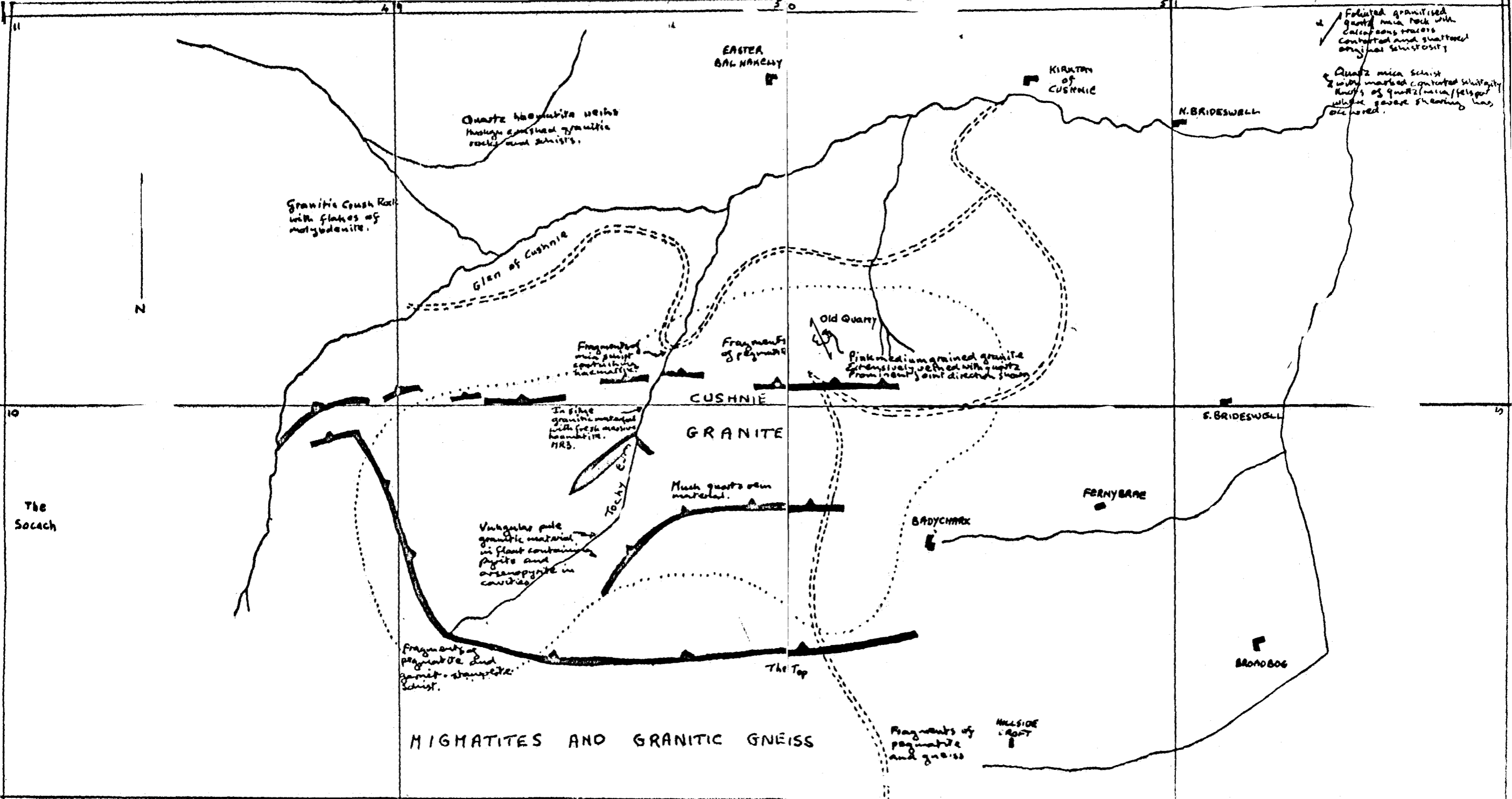
A reconnaissance survey over the area of anomalous  
molybdenum soil values at Cushnie was carried out  
with Scintrex 25 watt time domain equipment using  
dipole-dipole arrays. Generally, low chargeability  
and high resistivity patterns were defined over the  
area of interest and no meaningful correlation with  
the soil anomalies was possible.

b) Ground Magnetometry

A vertical force magnetic survey was read coincident  
with the I.P. coverage. This met with little  
success in defining areas of direct economic potential,  
but outlined points of structural interest.

Enclosures

1. Geology and airphotographic features, Cushnie area  
(Aberdeenshire LXISE, LXXNE, LXIISW, LXXINW)
2. Apparent chargeability values (milliseconds) Cushnie area.  
(Aberdeenshire LXISE, LXXNE, LXIISW, LXXINW)
3. Apparent resistivity values (ohm metres) Cushnie area.  
(Aberdeenshire LXISE, LXXNE, LXIISW, LXXINW)
4. Vertical magnetic intensity (gammas) Cushnie area.  
(Aberdeenshire, LXISE, LXXNE, LXIISW, LXXINW)

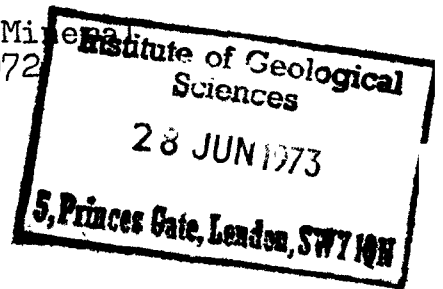


- KEY:
- Tracks
  - Prominent features on air photographs
  - Geological boundary - based on I.O.S. geological sheet

<b>EXPLORATION VENTURES LIMITED</b>	
ALFORD AREA Area: (CUSHNIE FOREST)	Drg. No 1
Title: GEOLOGY AND AIR PHOTOGRAPH FEATURES	
O.S. Map No. ABERDEENSHIRE (County Series) Quarter Sheets AXI SE; AXK NE; AXJ SW; AXI NW	
Scale: 6 inches to 1 mile	Date: DECEMBER 1972
Prepared by: G.P.R.	Drawn by: G.P.R.

Application for contributions under the Mineral  
Exploration and Investment Grants Act 1972

Geological Report : Glass AE11



During the period 9th August to 31st December 1971,  
geological, geochemical and geophysical investigations  
were undertaken.

(i) Geology

Geological mapping to assess outcrops and float  
distribution patterns were carried out over Dalradian  
metasediments and Older Basic rocks west of Huntly.  
The presence of any sulphides was particularly noted.

(ii) Geochemistry

Systematic soil sampling of an area of Older Basic  
rocks was carried out in the Daugh of Cairnborrow area.  
Samples were analysed for hot extractable Cu and Ni  
content.

(iii) Geophysics

a) Induced Polarization

Reconnaissance surveys employing Scintrex 25 watt time  
domain equipment with dipole-dipole arrays were used  
to assess areas of Older Basic rocks. Several  
anomalous chargeability and resistivity zones were  
defined.

b) Ground Magnetometry

Vertical force magnetic readings were taken along the  
I.P. survey lines using a Sharpe M.F.1. Fluxgate  
magnetometer. Areas of high magnetic intensity, in  
part coincident with areas of high apparent  
chargeability were outlined.

Enclosures

- ✓ 1. Geological map - float and outcrop (NJ44SE)
- ✓ 2. Geochemical soil values for Cu and Ni in p.p.m. (NJ44SW & SE)
- ✓ 3. Apparent chargeability values in milliseconds (NJ44SW & SE)
- ✓ 4. Apparent resistivity values in ohm metres (NJ44SW & SE)

Technical Report for Period 1st January - 31st December 1973

During the period two geochemical surveys were carried out in this district and results finalized and written up for the Soils Research Project.

1. Geochemistry

1.1 Multi-elements Analyses (Figs. 13-17 Ruthven)

Samples of stream sediment material were selected on the basis of approximately one per square kilometre. Samples were prepared to -80 mesh and analysed spectrographically for fifteen elements:- Bi, Co, Cu, Cr, Pb, Mo, Ag, Sn, W, V, Ti, Zn, Zr, Mn. In addition samples were analysed for arsenic by atomic absorption methods. The work formed part of a regional investigation carried out through much of western E.V.L.: its object being to check for concentrations of unusual elements or to estimate the presence of possible pathfinder elements. Unfortunately, none of obvious economic importance were revealed in the district. The relevant plans and assay data sheets are included with the Ruthven submission.

1.2 Metal: Sulphur Ratios (Fig. 18 Ruthven)

A number of sulphide-bearing samples of basic and ultra-basic rocks were collected and analysed for total copper, nickel and sulphur. The work formed part of a regional survey of copper: sulphur and nickel: sulphur ratios, throughout the Aberdeenshire/Baffshire basic complex. The results obtained gave no encouragement for further work in the Glass District. The data for this area are included under the submission enclosures for Ruthven district.

2. Soils Research Project

Statistical studies were carried out on material previously collected. Data were collated and results then written up. The conclusions can be found in the final report submitted October 1973, which applies to most E.V.L. areas and time periods, including Glass, 1973.

3. Enclosures

None: (Figs. 13-18 Ruthven refer)

Sulphur: Metal Ratio Checks - Bogancloagh, Craigs of Succoth

and Marnoch

TABLE 16 C

SAMPLE NO.	AREA	ROCK TYPE	% Cu	% Ni	% S	%Ni IN SULPHIDES	DIFFERENTIAL Ni ANALYSIS		PREVIOUS SAMPLE REF. NO.
							% TOTAL Ni	% SULPHIDE Ni	
FS 71	Bogancloagh: Old Merdrum	Serpentinized Peridotite	0.002	0.21	0.37	26.6	0.29	0.168	DR 43
FS 72	Bogancloagh: 3 Burns Head	Serpentinite	0.001	0.26	0.06	146.6	0.35	0.0135	DR 44
FS 73	Bogancloagh: 3 Burns Head	"	0.001	0.23	0.02	437.0	0.42	0.0169	DR 6
FS 74	Bogancloagh: Newseat	"	0.0032	0.21	0.04	199.5	0.42	0.0087	DR 7
FS 75	Bogancloagh: Scurdargue	"	0.0017	0.20	0.04	190.0	0.38	0.0097	DR 8
FS 76	Bogancloagh: 3 Burns Howe	"	0.0003	0.20	0.03	253.0	0.40	0.0073	DR 11
FS 77	Bogancloagh: 3 Burns Head	"	0.0012	0.21	0.01	798.0	0.42	0.0078	DR 12a
FS 78	Bogancloagh: 3 Burns Head	"	0.0019	0.22	0.03	278.0	0.44	0.0125	DR 125
FS 79	Craigs of Succoth	Serpentinized Ol Gabbro or Troctolite	0.0003	0.093	0.03	105.0	0.11	0.0017	CR 30/2R118
FS 80	"	Serpentinized Pyroxenite	0.0002	0.060	0.04	57.0	0.087	0.0022	CR 34/2R122
FS 81	"	"	0.0131	0.031	0.02	58.9	0.049	0.0082	CR 38/2R 126
FS 82	"	Serpentinite	0.0040	0.26	0.02	494.0	0.38	0.0178	CR 41/2R129
FS 83	"	"	0.0004	0.22	0.03	278.0	0.31	0.0111	CR 43/2R131
FS 84	Marnoch: S. of Bellmans Wood	"	0.0144	0.11	0.11	38.0			AR 74
FS 85	" " " "	"	0.0108	0.13	0.18	27.4			AR 75
FS 86	Marnoch: N. of Bellmans Wood	"	0.0028	0.11	0.037	112.9			AR 76
FS 87	" " " "	Amphibolite	0.0036	0.004	0.027	5.6			AR 77

G.A.S.

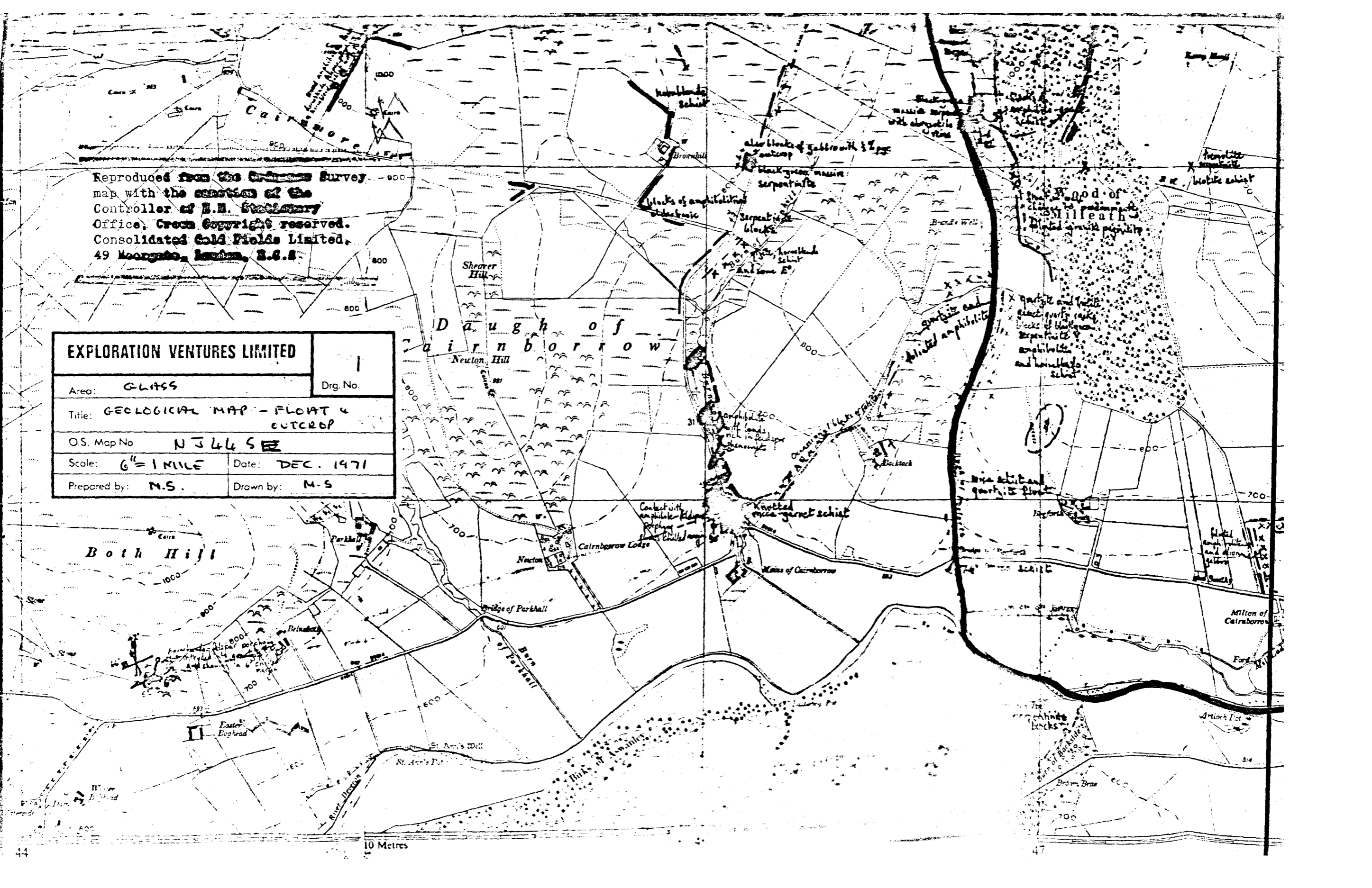
See samples FS 79-83  
(Blank project)  
Prof. E. Wilks (C.R.F.)

**FINANCIAL ASSISTANCE FOR MINERAL EXPLORATION****COMPANY:** Exploration Ventures Limited**PROJECT:** Glass (AE11)**Material moved to open file No: MRD 144/ 5/6 from MRD 84/5/6**

- Extract from application 6.8.71 "outline of proposed project ... geological considerations ... work programme ..." with accompanying plan 4 miles : 1 inch.
- Geological report 9.8.71 to 31.12.71 with 4 enclosures:
  1. Geological map - float and outcrop.
  2. Geochemical soil valves for CU and Ni in ppm.
  3. Chargeability.
  4. Resistivity.
- Map showing results of magnetic survey December 1971 enclosed with letter 27.11.73.
- Table 16C, sulphur, metal ratio checks.
- Technical report 1.1.72 to 31.12.72 with 7 enclosures:
  1. Geochemical soil valves in ppm for Cu, Ni, Aberdeenshire XXV NW.
  2. Geochemical soil valves in ppm for Cu, Ni, NJ44NE.
  3. Geochemical soil valves for Cu, Ni in ppm, NJ44SW and SE.
  4. Chargeability, NJ44SE.
  5. Resistivity, NJ44SE.
  6. Chargeability, Aberdeenshire XXVSE, XXXIII NE.
  7. Resistivity " " " " " "
- Technical report 1.1.73 to 31.12.73.

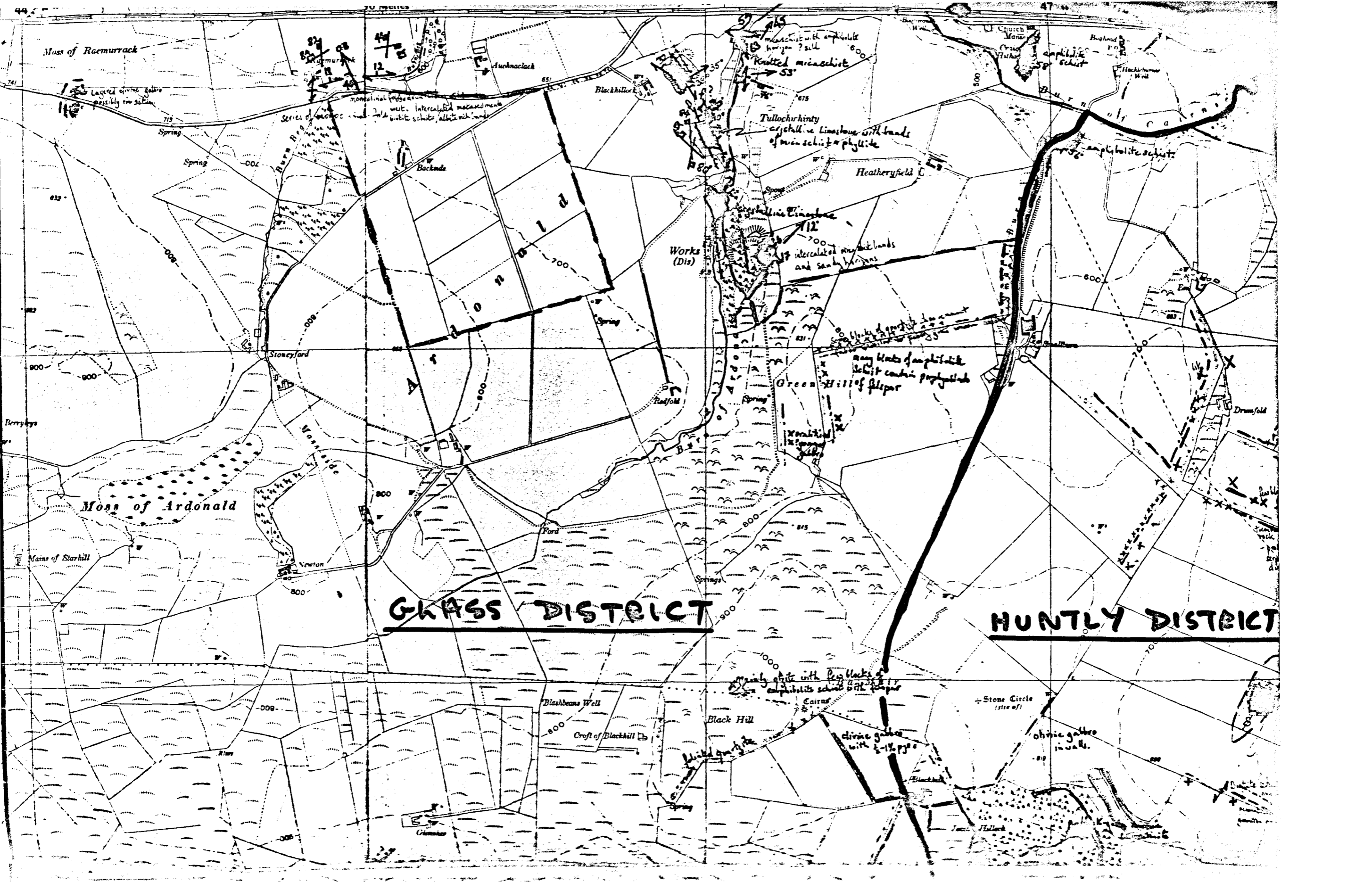
Reproduced from the Ordnance Survey map with the sanction of the Controller of H.M. Stationery Office. Crown Copyright reserved. Consolidated Gold Fields Limited, 49 Moorgate, London, E.C.2.

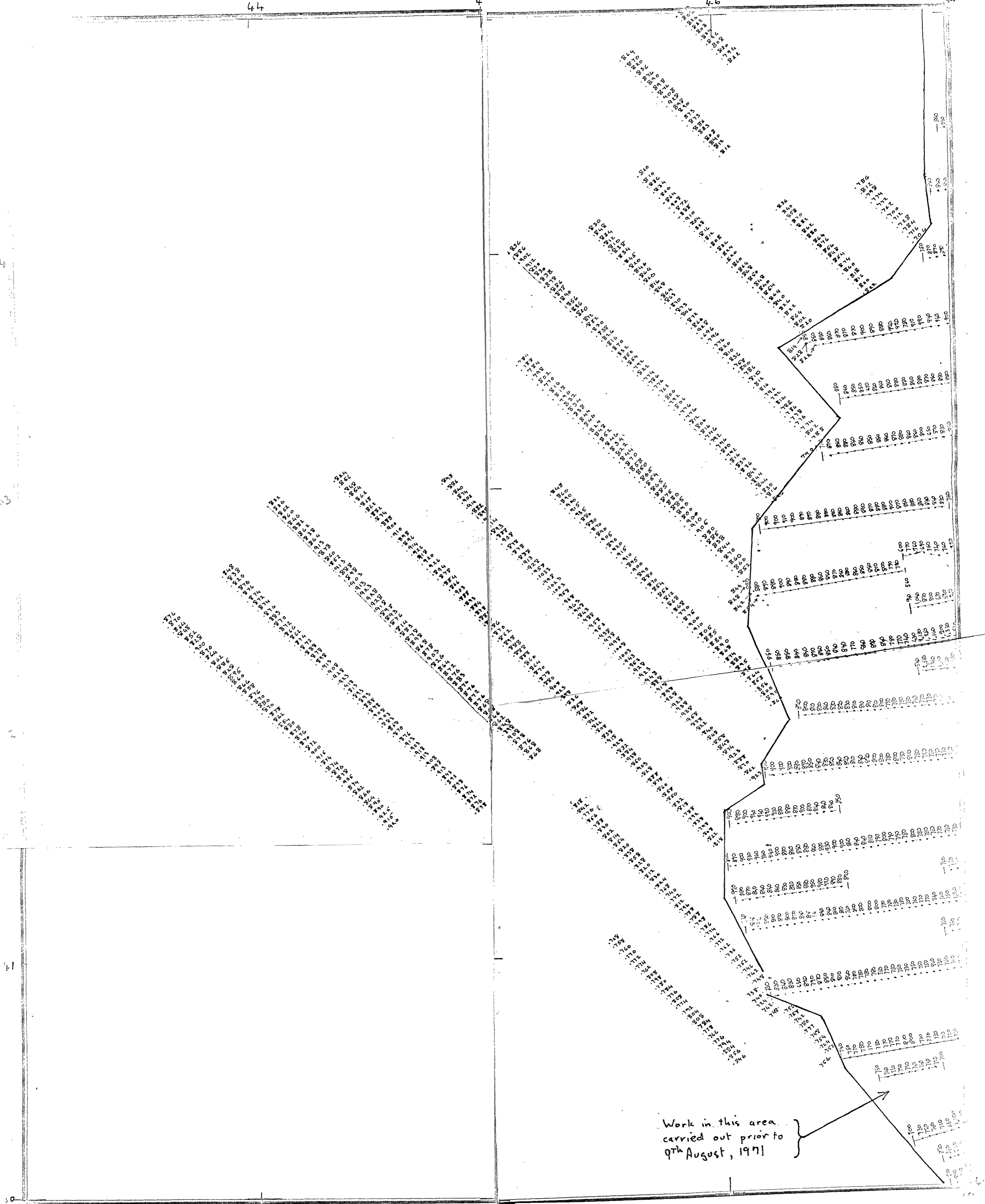
<b>EXPLORATION VENTURES LIMITED</b>		Drg. No. 1
Area: GLASS		
Title: GEOLOGICAL MAP - FLOAT & OUTCROP		
O.S. Map No. NJ 44 SE		
Scale: 6" = 1 MILE	Date: DEC. 1971	
Prepared by: M.S.	Drawn by: M.S.	



10 Metres







<b>EXPLORATION VENTURES LIMITED</b>		Drg. No.
Area: <b>GLASS</b>		
Title: <b>VERTICAL FORCE MAGNETIC FIELD VALUES - DAUGH OF CAIRNBORROW</b> (Readings in Gammas)		
OS. Map No. <b>NJ 44 SW &amp; SE</b>		
Scale: <b>1:10,560</b>	Date: <b>Dec. 1971</b>	
Prepared by: <b>E.F./L.C.</b>	Drawn by: <b>E.F./L.C.</b>	

NORTH



51 24

EXPLORATION VENTURES LIMITED	7
GLASS - Brown Hill	
Apparent Resistivity Values in Ohm Metres	
Aberdeen XXV SE XXXIII NE	
1:10560	1972
D.Q.	D.Q.



NORTH

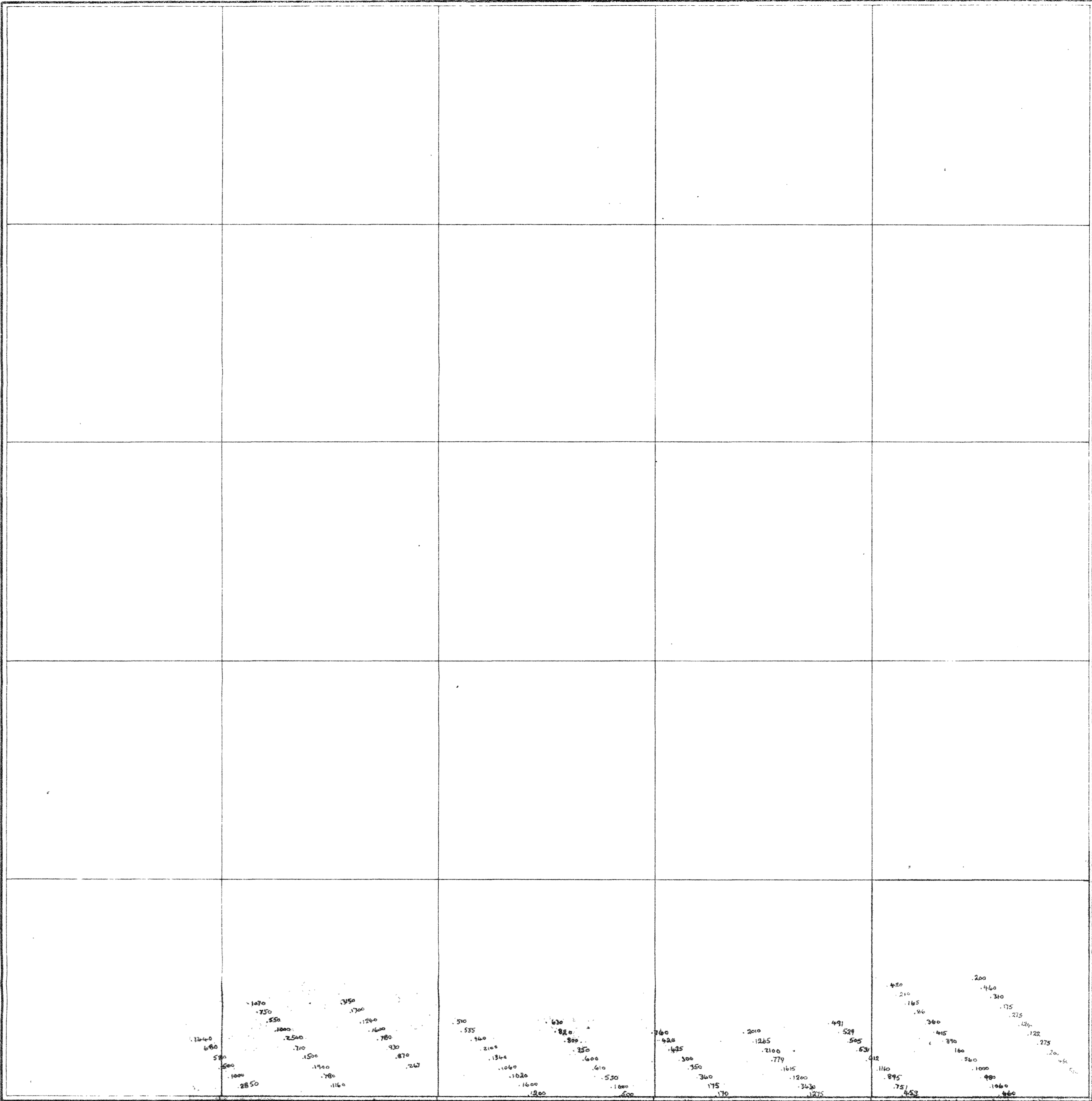


57° 25'

57° 24'

EXPLORATION VENTURES LIMITED		Dir. No.
		6
GLASS - Brown Hill		
Apparent Chargeability Values in Milliseconds		
ABERDEEN XXV SE XXXIII NE		
1:10560	1972	
D.Q.	D.Q.	





EXPLORATION VENTURES LIMITED

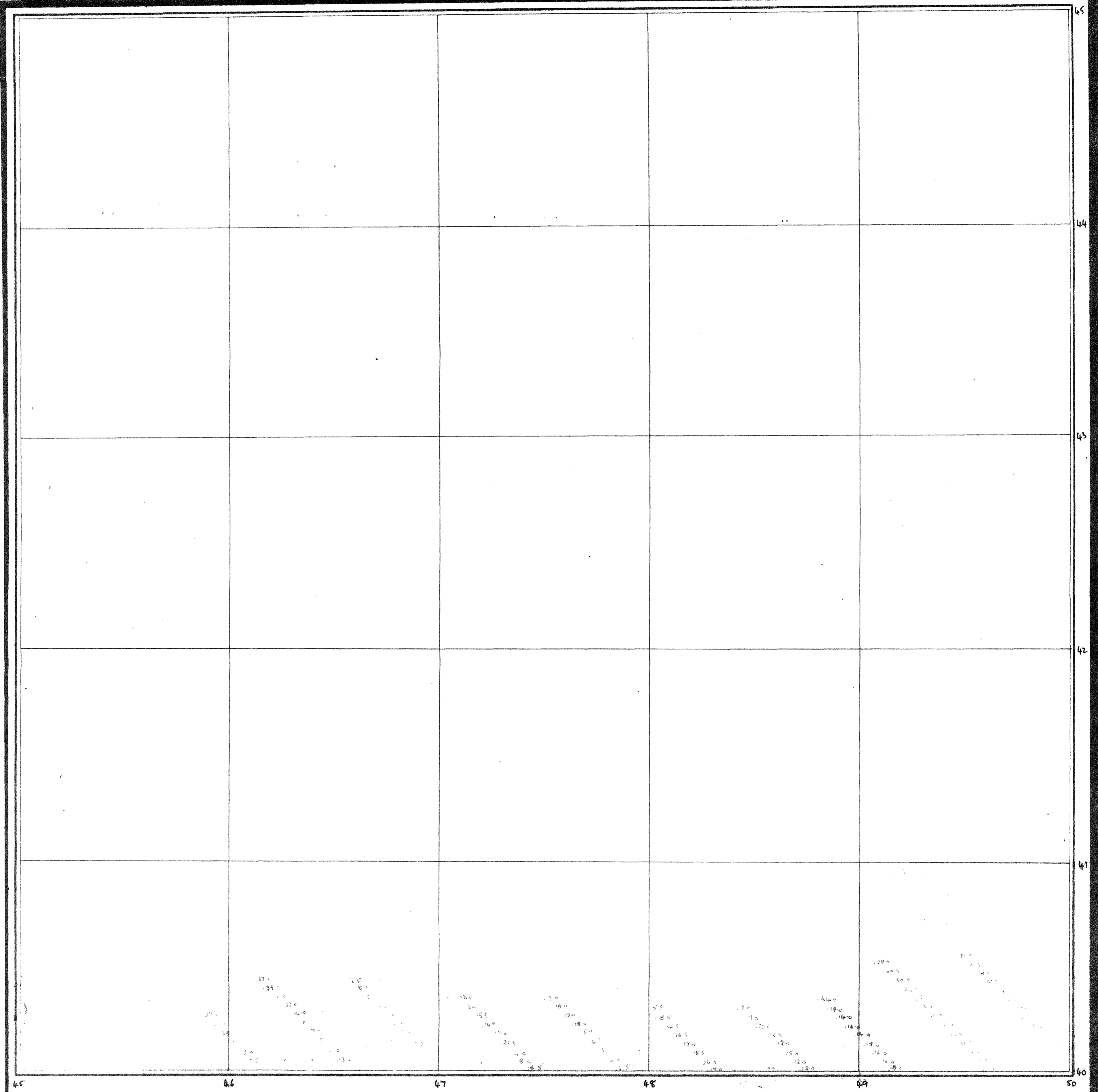
GLASS - Arlock

Apparent Resistivity Values in  
Ohm metres

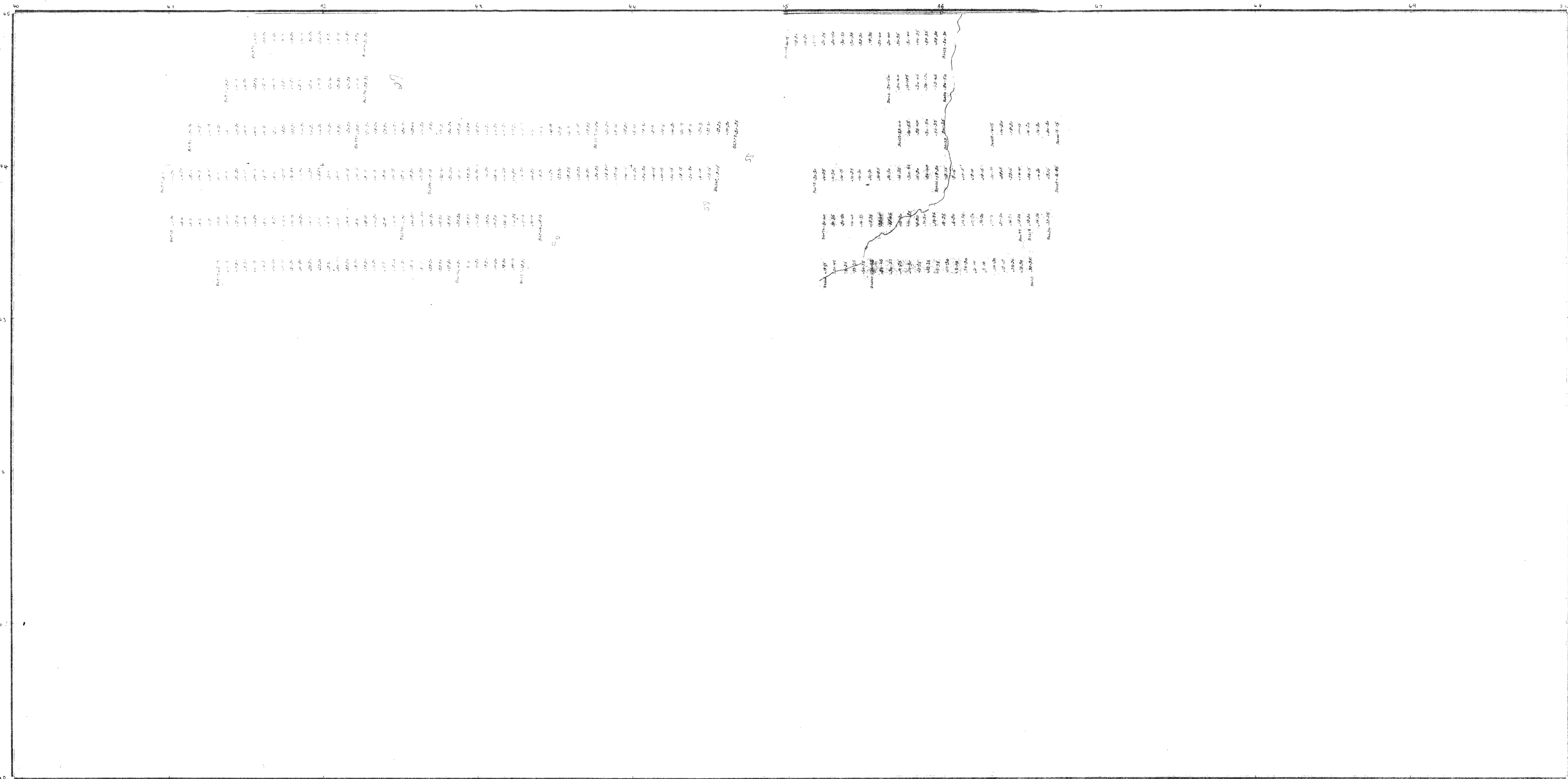
NJ 44 SE

1:10500                      1972

DQ                              DQ

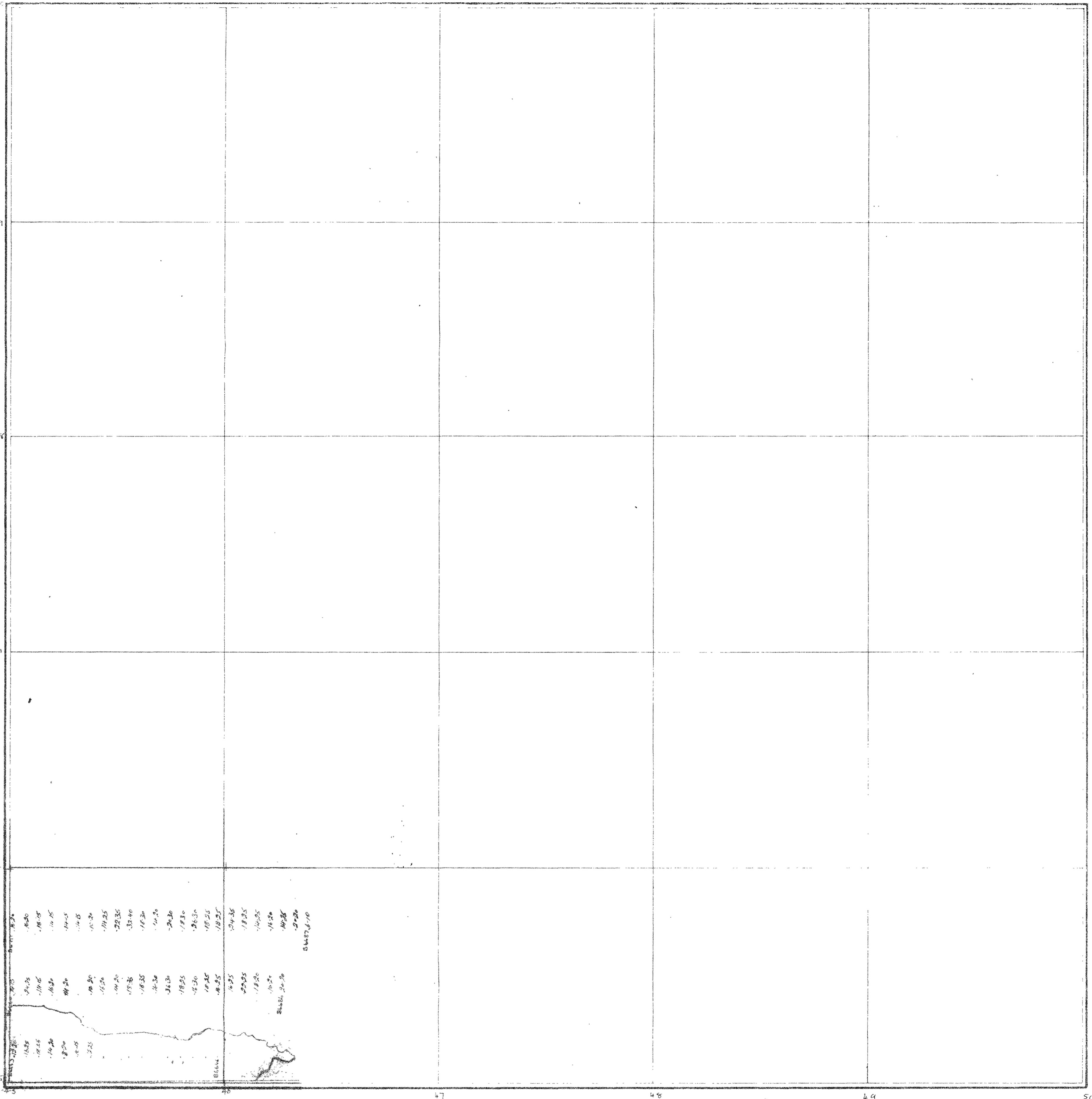


EXPLORATION VENTURES LIMITED	4
GLASS - Axtlock	
Apparent Chargeability Values in Milliseconds	
NJ 44 SE	
1:10560	1972
DQ	DQ



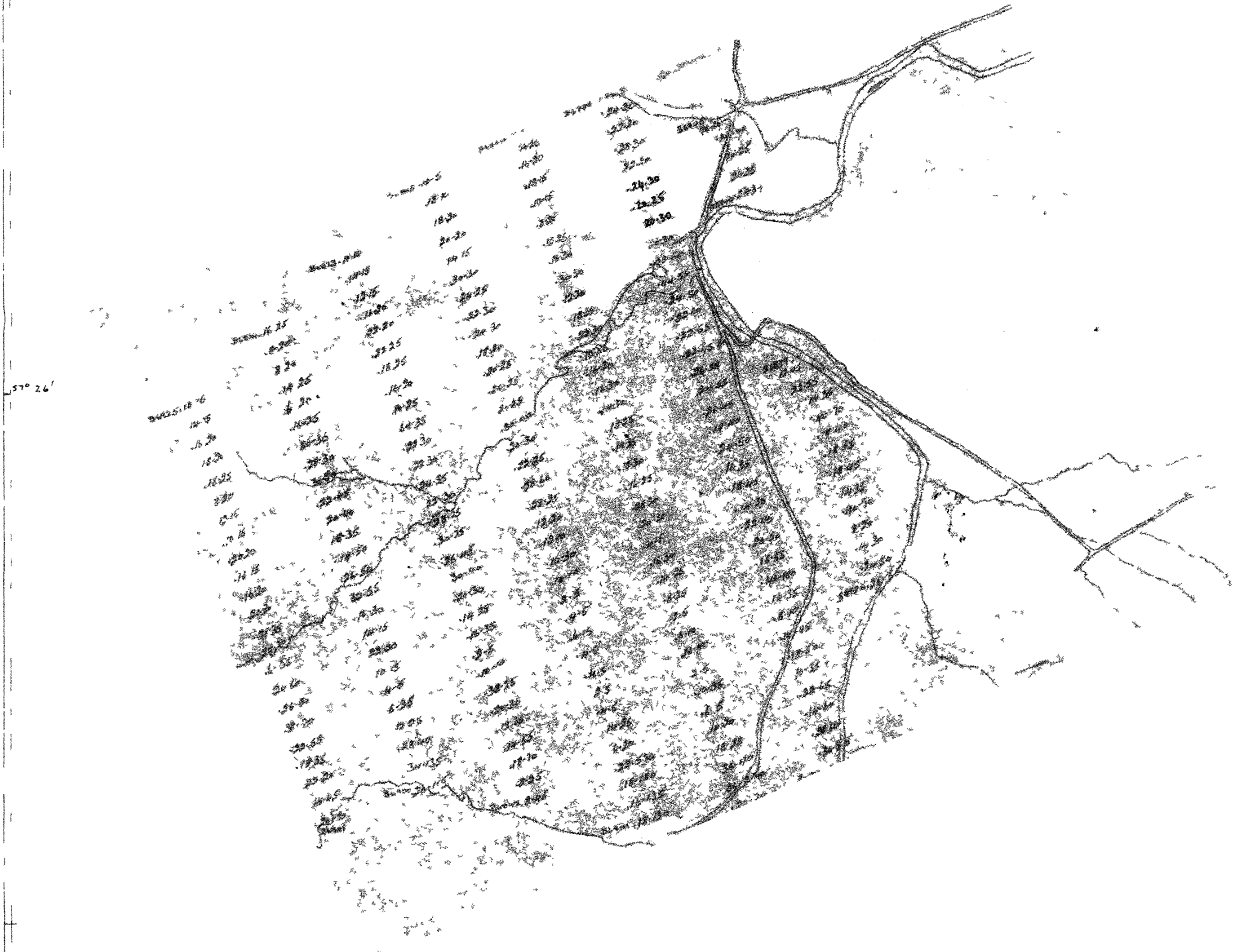
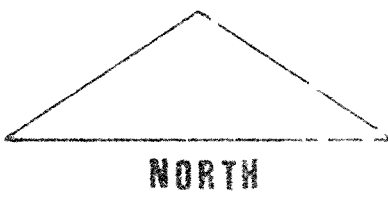
Blair 3

EXPLORATION VENTURES LIMITED	3
GLASS - Hill at Shemwell	
Geochemical Soil Values in ppm	
for Ca, Ni.	
N344SW + SE	
1:10560	1972
SM	SM

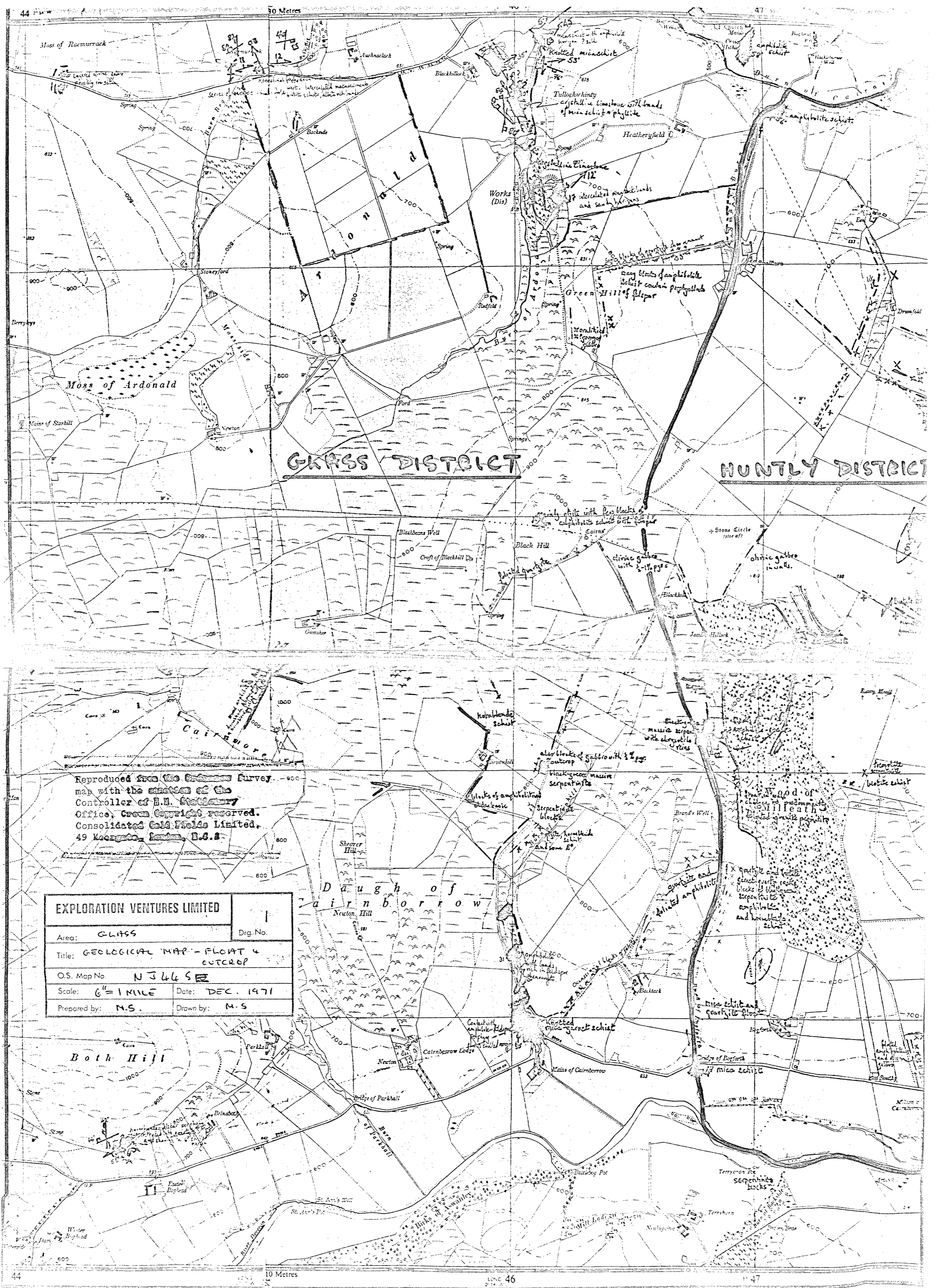


2  
 GLASS - Hill of Shenwell  
 Geochemical Soil Values in p.p.m  
 for : Cu, Ni.  
 NJ 44 NE  
 1:10560                      1972  
 SM                              SM



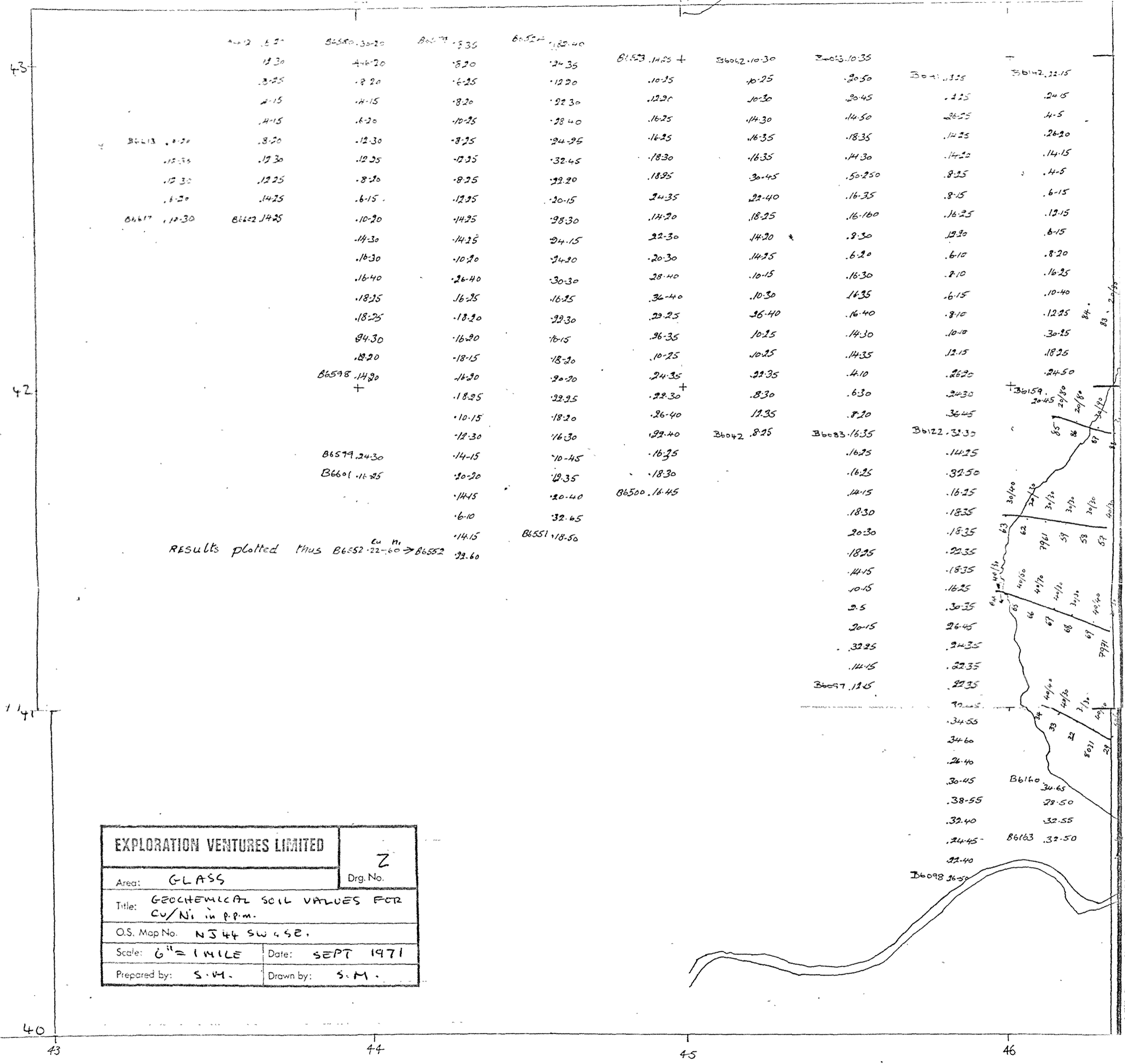


<b>EXPLORATION VENTURES LIMITED</b>		Dwg No	1
Area	GLASS - Hill of Dumeth		
Title	Geochemical Soil Values in ppm for Cu. Ni.		
OS Map No	ARCADEENSHIRE XXV NW		
Scale	1:10560	Date	1972
Prepared by	S.M.	Drawn by	S.M.



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<b>EXPLORATION VENTURES LIMITED</b>	
Area: GLASS	Drg. No. 1
Title: GEOLOGICAL MAP - FLOAT & OUTCROP	
O.S. Map No. N 346 SE	
Scale: 6" = 1 MILE	Date: DEC. 1971
Prepared by: M.S.	Drawn by: M.S.



<b>EXPLORATION VENTURES LIMITED</b>		Z Drg. No.
Area:	GLASS	
Title: GEOCHEMICAL SOIL VALUES FOR Cu/Ni in p.p.m.		
O.S. Map No. NJ 44 SW 4 SE.		
Scale: 6" = 1 MILE	Date: SEPT 1971	
Prepared by: S.M.	Drawn by: S.M.	

RESULTS PLOTTED Thus  $\frac{Cu}{Ni}$  B6552-22-60  $\rightarrow$  B6552 22.60