



UNION CARBIDE CANADA MINING LTD.

1112 West Pender Street, Suite 601,
Vancouver 1, British Columbia (604) 685-4726



12 August 1975.

Mr. R. Ronaghan,
Minin Recorder,
Mayo Mining District,
Mayo, YUKON.

Dear Mr. Ronaghan,

Re: Geophysical Survey Costs - Mt. Armstrong, Yukon

Salaries of 3 geophysical personnel - July 16-26, 1975	
30 man days @ \$70/day	\$ 2,100.00
Consultant's fees and expenses	500.00
Geophysical instruments rental-10 days @ \$50/day	500.00
Helicopter support - Frontier Helicopters Ltd, estimated 3 hrs. 206B time @ \$315/hour	945.00
Fixed-wing support - B.C.-Yukon Air Services Ltd, Portion only - Watson Lake - Mt. Armstrong and " " Little Salmon Lake - Mt. Armstrong	1000.00
Camp equipment and expenses	400.00
Office expenses - reporting, typing, copying	<u>300.00</u>
Total geophysical costs for whole 48 claims	\$ <u>5745.00</u>

Sufficient to cover 16 claims of Group "C". Most work is actually on Group "C".

Sincerely,

J. E. Rockingham, Manager,
Canadian Exploration

JER:td

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$ 1600 00

[Signature]
 Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

[Signature]
 A.E. BAXTER
 Supervisor - Mining Recorder

[Signature]
 Commissioner of Yukon Territory

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1. Statement of Costs.
2. Report on procedure followed and the interpretation of results by W. Barclay. 4 pages.
3. List of maps included in envelope.
4. Location map.



Introduction

The geophysics crew was called in to the Mount Armstrong prospect to assist Brian Norris in his geological investigation of the area, and to locate possible drill targets.

It was decided, after some preliminary discussion, to direct our efforts with three intentions in mind, i.e.:

- (a) to traverse the south slope of the mountain in hopes of locating geophysical anomalies associated with down-dip extensions of the limestone beds visible on the north face,
- (b) to locate and define on the ground the aeromagnetic anomaly (50γ) situated just south of the east ridge of the mountain, and
- (c) to investigate the favourable intrusive - (meta)sedimentary contact, where accessible, for conducting and/or magnetic expressions of possible scheelite-sulphide horizons.

Geological Notes

Much has been written elsewhere about the Mount Armstrong prospect (see 1974 report). What follows is a brief sketch of the local geology, as it pertains to our geophysical activities.

The prospect is situated near the western edge of the Selwyn Basin, in an embayment along the southeast contact of a large intrusive stock. This intrusive (meta-) sedimentary contact, within the immediate area of interest, strikes in a northerly direction, turns abruptly to the east near the 7000' peak of Mt. Armstrong, then swings again to the north near the east ridge of the mountain. (Fig. 18).

Three distinct bands of recrystallized limestone, or marble, are clearly visible on the north face, at, or close to, the intrusive contact. They are contained within flat-lying sediments dipping about 15° - 20° south, and extend under the ridge to the south slope (Fig. 18a). Most of this slope is covered by extensive talus; hence the bands are seen infrequently there.

A number of significant mineralized showings appear at, or near, the intrusive contact on both the north and west faces of the mountain. These occur mostly as thin bands of sulphide-scheelite skarn. Similar skarn appears on the south slope associated with the "third band" of marble, and contains sulphides (especially pyrrhotite) in quantities relevant to the application of geophysical methods in the area.

Topography

The north and west faces of Mount Armstrong are so precipitous as to be impossible to survey. The south slope, on which the camp was located, is gentler (average grade about 35°), but very rugged in some spots. Talus covers most of the area, in the form of extensive tracts of large boulders, and slides of small rocks.

W. Barclay

Mt. Armstrong Geophysics

28 July 1975.

Some of the work, especially to the east, was facilitated by the use of the helicopter. There are one or two landing spots available near the top of the ridge, but these are accessible only during ideal weather conditions. The crew was flown to the top of the ridge, when feasible, so that traverses could be tied in to the baseline accurately, and surveyed downhill. Work over the aeromagnetic anomaly to the east could not have been undertaken from camp without helicopter support.

Bad winds, rain and mid-July snow squalls plagued the area during much of the project. At one stage, three continuous days of thick fog, localized around the mountain, made work impossible. About five days in total were lost because of bad weather.

Field Procedure

A rather complicated grid network evolved as the survey progressed (see grid sketch, Fig. 18).

Three baselines were established, each to conform with the strike of the local geology in the survey area. Baseline "A" was established beginning at Post #1 Y96086, - 87; it extends 4000' east (90°) along the ridge of the south slope. Baseline "C" extends 4000' south (180°) from the same post, and is roughly parallel to the west intrusive contact. Baseline "B" was established at Post #1 Y97102, - 03, and it extends 3200' southeast (132°) over the aeromagnetic anomaly.

Traverses were surveyed initially at 800' intervals on Grid "A" and Grid "B", although a few intermediate lines were added later on "A" to further define an anomaly in the area. Grid "C" saw 400' traverse spacing, in part because travel over this area was somewhat easier than elsewhere. Extensions were added to a number of lines in the south central part of the grid as the survey progressed, in order to trace a conductor axis striking at a 45° angle to both "A" and "C".

In keeping with our normal procedure, most of the lines were surveyed with the VLF-EM and magnetometer crew acting as one unit. Lines were chained (slope distance) and flagged every 100'. The elevation of each station was recorded by means of an altimeter, in order to correlate the geophysical data more closely with geological mapping.

From time to time, certain areas were tested by quick reconnaissance traverses (paced), using either the spare VLF-EM or the spare magnetometer. Where possible, data from these traverses have been incorporated into the plotted results.

Disappointingly, the horizontal loop EM-17 broke down just as we were about to survey the important VLF-EM anomaly on Grid "A". The problem was traced to a defective "Null" - switch for in-phase readings. Only one line of EM-17 was completed prior to the breakdown, over line 36S of Grid "C". It has been decided to move on to a new area, and to return to Mount Armstrong with the EM-17 later in the season.

Results

1. The anomaly most important at this stage occurs on Grid "A". A conductor appears over a length of 400', striking east-west across lines 20E and 24E at S+00S. (Fig. 19). The reverse quadrature effect seen in the profiles - generally indicative of sulphide mineralization - is particularly well-defined on line 24E. A 200 magnetic anomaly correlates directly with the conductor on line 20E, but rather surprisingly does not appear on line 24E, (Fig. 20).

This anomaly has since been found to correspond closely with a section of a 2' wide band of outcropping skarn associated with the "third band" of marble on the south slope. The skarn contains high-grade scheelite (B.Norris) and sufficient sulphides to predicate a geophysical response. The marble band, as mentioned earlier, has been projected by geology from the north face, where it is similarly associated with scheelite-sulphide mineralization. Thus the situation is very encouraging.

Unfortunately we were unable to test the conductor with the horizontal loop EM-17 at this time, because of the instrument breakdown mentioned above.

2. A second, potentially important, anomaly also appears on Grid "A". Striking about 120°, the conductor passes through the maze of traverses near the base of lines 12E, 16E, and 20E: more specifically from L. 26S/23E to L.10S/9+50'E. Weak responses at L.00/3+50'S and L.5/50'E/6S are on strike, and may represent an extension of the conductor axis. The reverse quadrature effect evident on lines 14S, 18S, and 12E might suggest moderate sulphide mineralization similar to that encountered at the first anomaly. In fact, a slightly scheelitic garnet skarn appears with gossan and disseminated sulphides as outcrop near the conductor on line 10S at 9+50'E. The anomaly exhibits rather erratic magnetic correlation (Fig. 20, 20b), which may be affected by the presence of extensive talus float on the slope.

3. The weak inflexions in the VLF-EM profiles on Grid "C" define a conductor axis with a strike of about 150°: roughly parallel to the projected intrusion contact, and 600' east of it on the down-dip side. The conductor, which extends to the north from line 36S/4+50'E, does not exhibit magnetic correlation. Yet a strong magnetic anomaly occurs on strike at line 6S (500γ) and line 10S (250γ), and possibly may be related to scheelite-sulphide showings on the west cliff face.

It had been hoped to test this conductor axis, and the area of the magnetic anomaly as well, with the EM-17. Only one line was surveyed over the conductor prior to the instrument breakdown. No suggestion of conductivity appears in the EM-17 profiles across line 36S (Fig. 19a).

4. A similarly weak VLF-EM response occurs on lines 30S, 26S, and 22S at about 10E. The axis strikes almost north-south and may be caused by a nearby showing of disseminated pyrite in altered quartzites. No magnetic features are associated with this weak conductor.

W. Barclay.

Mt. Armstrong Geophysics

28 July 1975.

5. The southeast corner of the property is characterized by a zone of intense magnetic activity which extends on to Grid "B". The relief is sharp; individual 'spikes' are often 500 γ in intensity. This would appear to be the only possible source of the aeromagnetic anomaly referred to in the introduction.

Only one attractive conductor is evident, although the zone is marked by a number of weak inflexions in the VLF-EM profiles. This conductor strikes 155° across two lines, from L.34S/32E to L.38S/34E, and exhibits moderate reverse quadrature response.

Extensive phyllites, with frequent but erratic occurrences of pyrrhotite, and unaltered limestones have been mapped in the area recently (B. Norris). Thus this corner of the property differs noticeably from the rest of the grids, both geophysically and geologically. There is a dramatic change in magnetic relief, best illustrated on line 26S at 24+50'E, and on line 30S at 19E (Fig. 20a); this suggests the presence of either a geological contact or a fault. Evidence of a fault has been found north of baseline "A" near 40E. Thus the geophysical response would tend to support Brian Norris' contention that this fault extends through the valley in a northeast-southwest direction.

Conclusions

The anomaly extending across lines 20E and 24E on Grid "A" is obviously important. Both instruments have detected and partially defined sulphides associated with scheelite mineralization in skarn at the third marble band. Later EM-17 tests may yield pertinent information regarding particularly the extent of the conductor, and thereby hopefully of the scheelite.

The second anomaly discussed in the results has to be considered attractive as well, because of its close proximity to a small outcrop of mineralized garnet skarn. The VLF-EM profiles are suggestive of sulphide mineralization, and in character are not unlike the response obtained over the 400' anomaly mentioned above, at L.20E. Unfortunately the conductor axis is covered by extensive talus, which prevents thorough geological scrutiny. It should be tested with the EM-17 later in the season, when the instrument has been repaired.

The magnetics on Grid "C" appear to define the intrusive-(meta)- sedimentary contact quite well on most lines, with magnetically anomalous readings occurring close to the contact as it has been defined by talus covering the slope. A particularly strong magnetic response on lines 6S and 10S possibly may be related to known mineralized showings on the west face. One line of EM-17 across a conductor axis at L.36S failed to elicit a response.

The source of the aeromagnetic anomaly appears to lie within a zone of iron-bearing phyllites. Ground geophysics consists, for the most part, of a response to pyrrhotite and ferruginous sediments mapped in the area. The existence of a fault extending through the valley is apparently confirmed and partly defined by the magnetic relief. One conductor axis is seen in this section of the property but does not seem worthy of further attention because of the unfavourable geological environment.

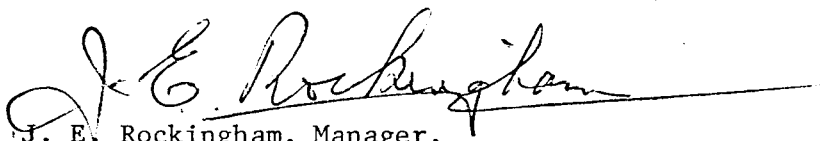
List of Figures

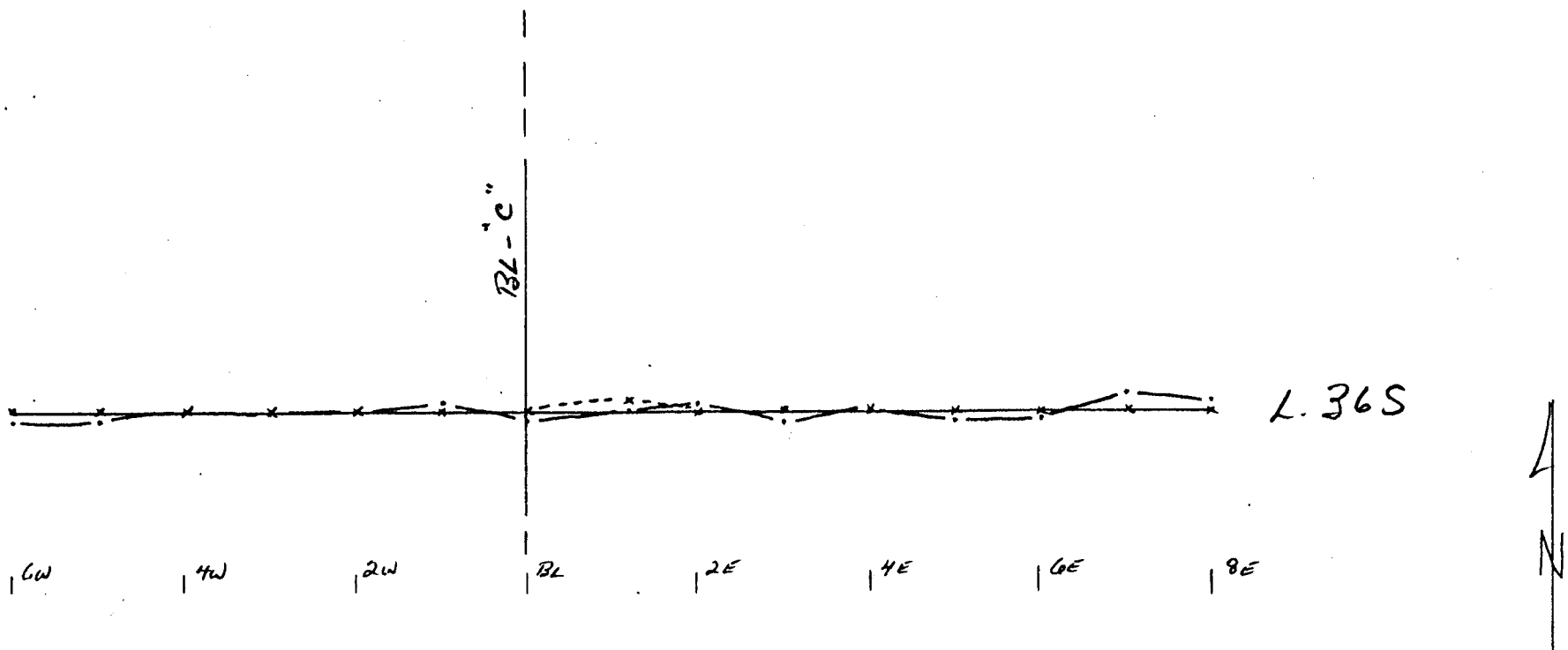
Mount Armstrong Prospect

- Fig. 18 Mount Armstrong, grid location map; 1"=400'.
- Fig. 18a Mount Armstrong, cross-sectional view; sketch only.
- Fig. 19 Mount Armstrong, "A" and "C", VLF-EM survey; 1"=200'.
- Fig. 19a Mount Armstrong, "C", EM-17 survey, line 36S; 1"=200'.
- Fig. 20 Mount Armstrong, "A" and "C", magnetometer survey (total field); 1"=200'.
- Fig. 20a Mount Armstrong, "C", magnetometer survey (vertical field), lines 26S, 30S, 34S, 38S, 42S; 1" = 200'.
- Fig. 20b Mount Armstrong, "A", magnetometer survey (vertical field), lines 14S, and 18S; 1" = 200'.
- Fig. 21 Mount Armstrong, "B", VLF-EM survey; 1" = 200'.
- Fig. 22 Mount Armstrong, "B", magnetometer survey (total field); 1" = 200'.

W. Barclay

Note: This work was done under my supervision.


J. E. Rockingham, Manager,
Canadian Exploration.



HORIZONTAL LOOP E.T. SURVEY

MOUNT ARMSTRONG - "C"

1" = 200'

- IN PHASE
- x---x QUADRATURE
- + PLOTTING CONFIGURATION

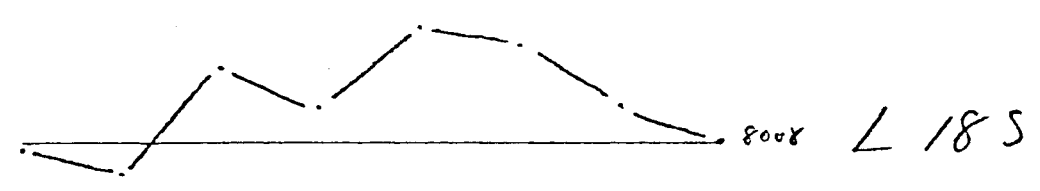
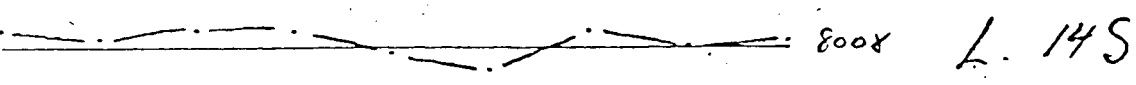
VERTICAL SCALE: 1" = 200'

INSTRUMENT: GEONICS EM-17

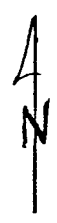
FREQUENCY: 1600 Hz

COIL SEPARATION: 200'

FIG. 19 a



VERTICAL FIELD MAGNETICS
 MOUNT ARDSTRONG - "A"
 1" = 200'
 VERTICAL SCALE 1" = 250Y
 BASE VALUE 8008
 INSTRUMENT SCINTREX MF-1



* is a test of conductor on lines 145, 185, etc.

lines entirely covered with talus, some of it iron-stained

JULY, 1975

FIG. 206

FRONTIER HELICOPTERS LTD.



CHARTER FLYING

PHONE 536-7305
BOX 10, WATSON LAKE, Y.T.

CHARTER AND CONTRACT TICKET

DATE JULY 23 1975 A/C TYPE 206B CF FHK

PILOT RAIRD BASE WATSON

CHARGE TO U.C.E.X

ADDRESS

JOURNEY WATSON - LITTLE SILVER - MT. DEMERS
WATSON

CREWS SET OUT & PICK UP - 4:00

CREWS SET OUT & PICK UP - 9:00

PURPOSE MOVE PERSONNEL

FUEL & OIL	
SUPPLIED BY	
FHL	CHARTERER
4:00	8:55

Rate 315.00/hr = 4068.75

Fuel charge 15.00/hr = 60.00

\$ 4128.75

TOTAL HOURS 12:55

This ticket is expressly subject to the conditions printed on the reverse side of ticket and which are hereby accepted.

PILOTS SIGNATURE [Signature]

AUTHORIZED BY [Signature] No 07635

194

FRONTIER HELICOPTERS LTD.



CHARTER FLYING

PHONE 536-7305
BOX 10, WATSON LAKE, Y.T.

CHARTER AND CONTRACT TICKET

DATE JULY 24 1975 A/C TYPE 206B CF TNA

PILOT T.N.T.A BASE

CHARGE TO U.C.C. CARRIAGE

ADDRESS

JOURNEY MOVE PERSONNEL FOR PROPERTY
INSPECTION

PURPOSE AS PER TRAN NORTH TICKET # 5975

FUEL & OIL	
SUPPLIED BY	
FHL	CHARTERER
1:00	

Rate 315.00/hr = 603.75

Fuel charge = 15.00

\$ 618.75

TOTAL HOURS 1:55

This ticket is expressly subject to the conditions printed on the reverse side of ticket and which are hereby accepted.

PILOTS SIGNATURE T.N.T.A - Pilot

AUTHORIZED BY [Signature] No 07610

191

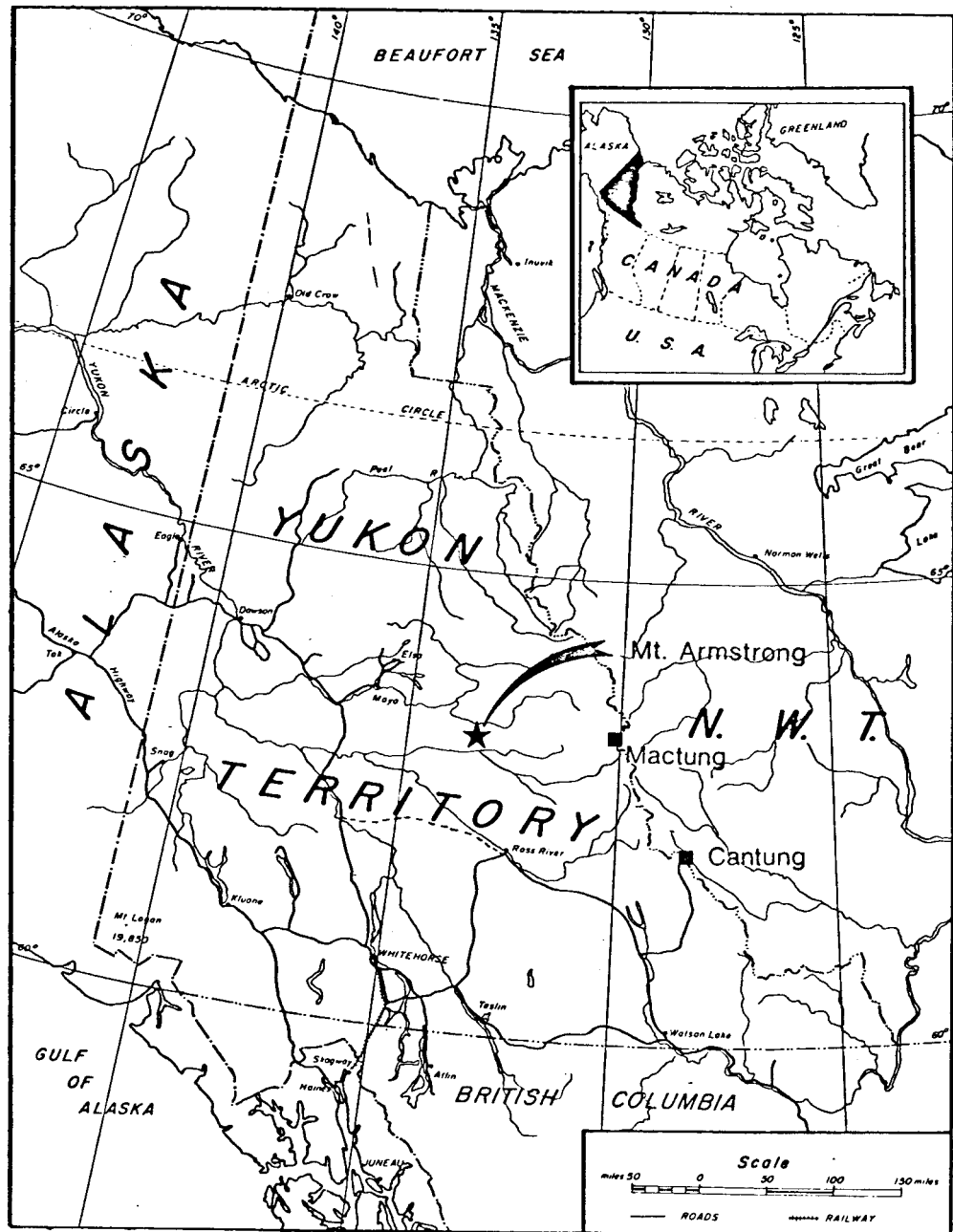


FIGURE 1
GENERAL LOCATION OF MOUNT ARMSTRONG
COPPER-TUNGSTEN SHOWING

FIG 1

2" = 1 mi



123° 30' W

TONGUE CLAIMS -
ANNIVERSARY AUGUST 15

CHEEK CLAIMS -
ANNIVERSARY SEPTEMBER 27

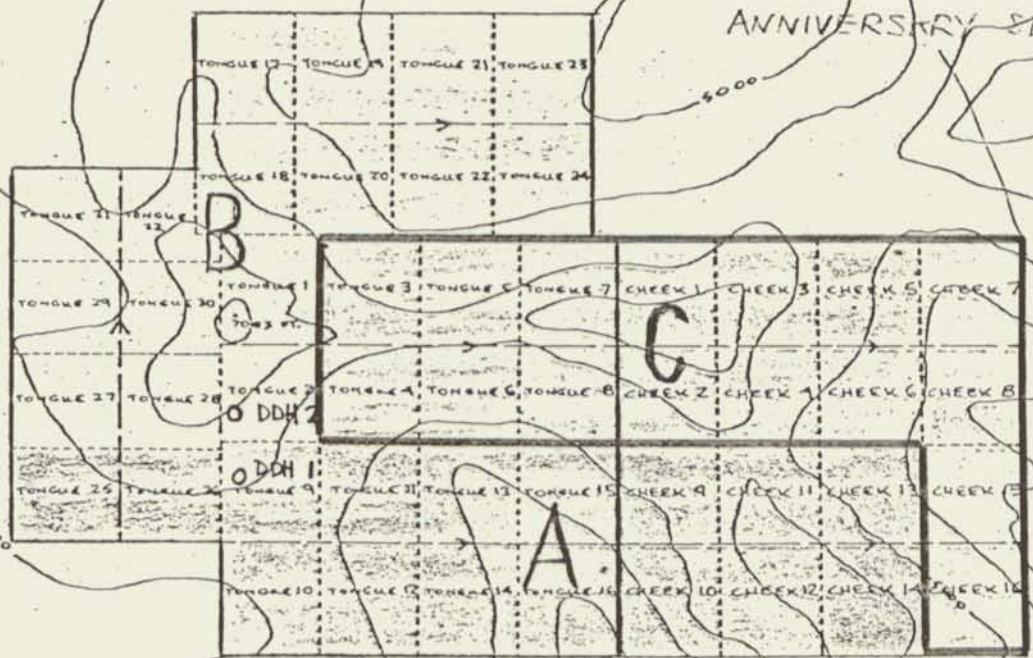
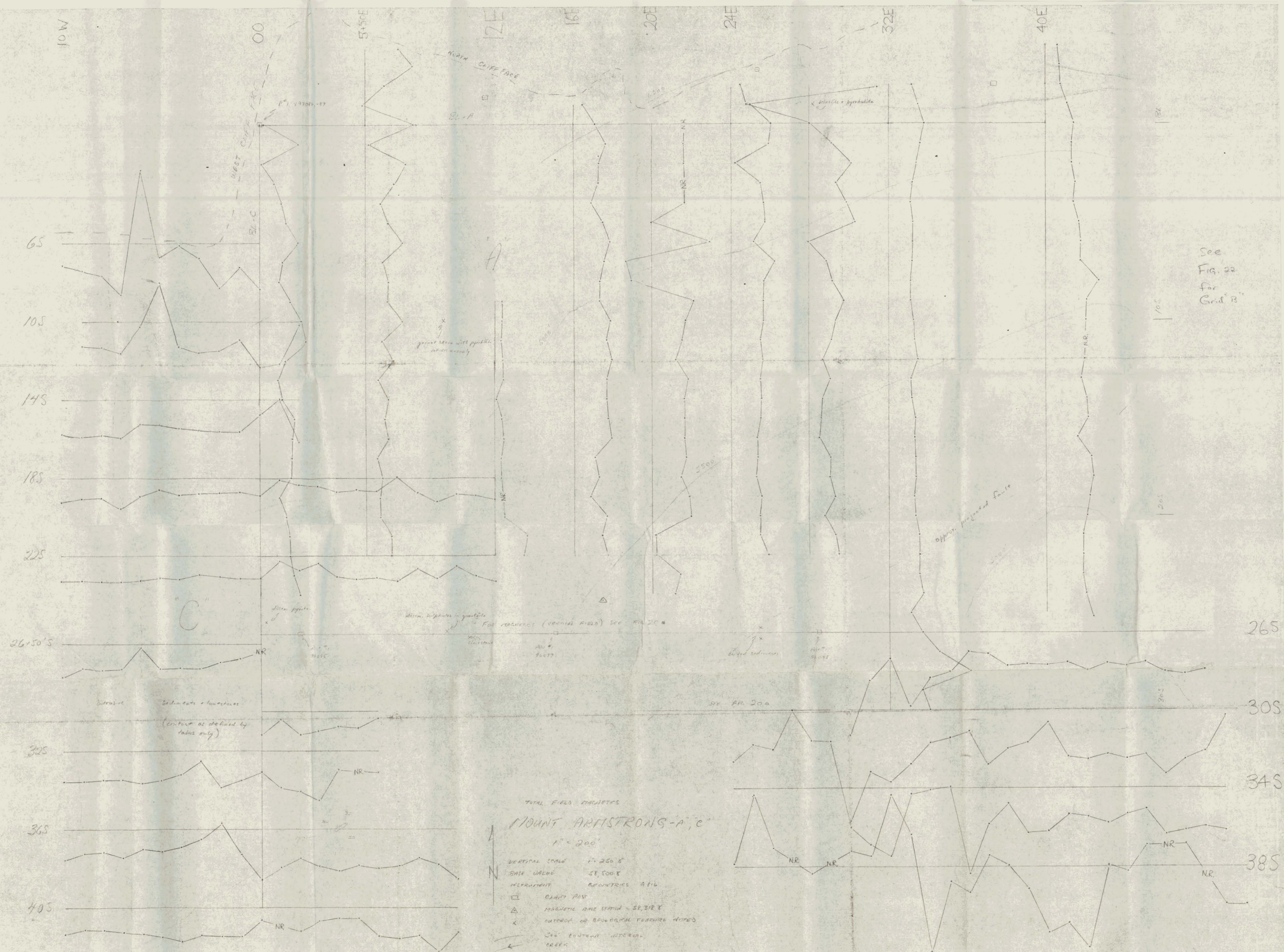




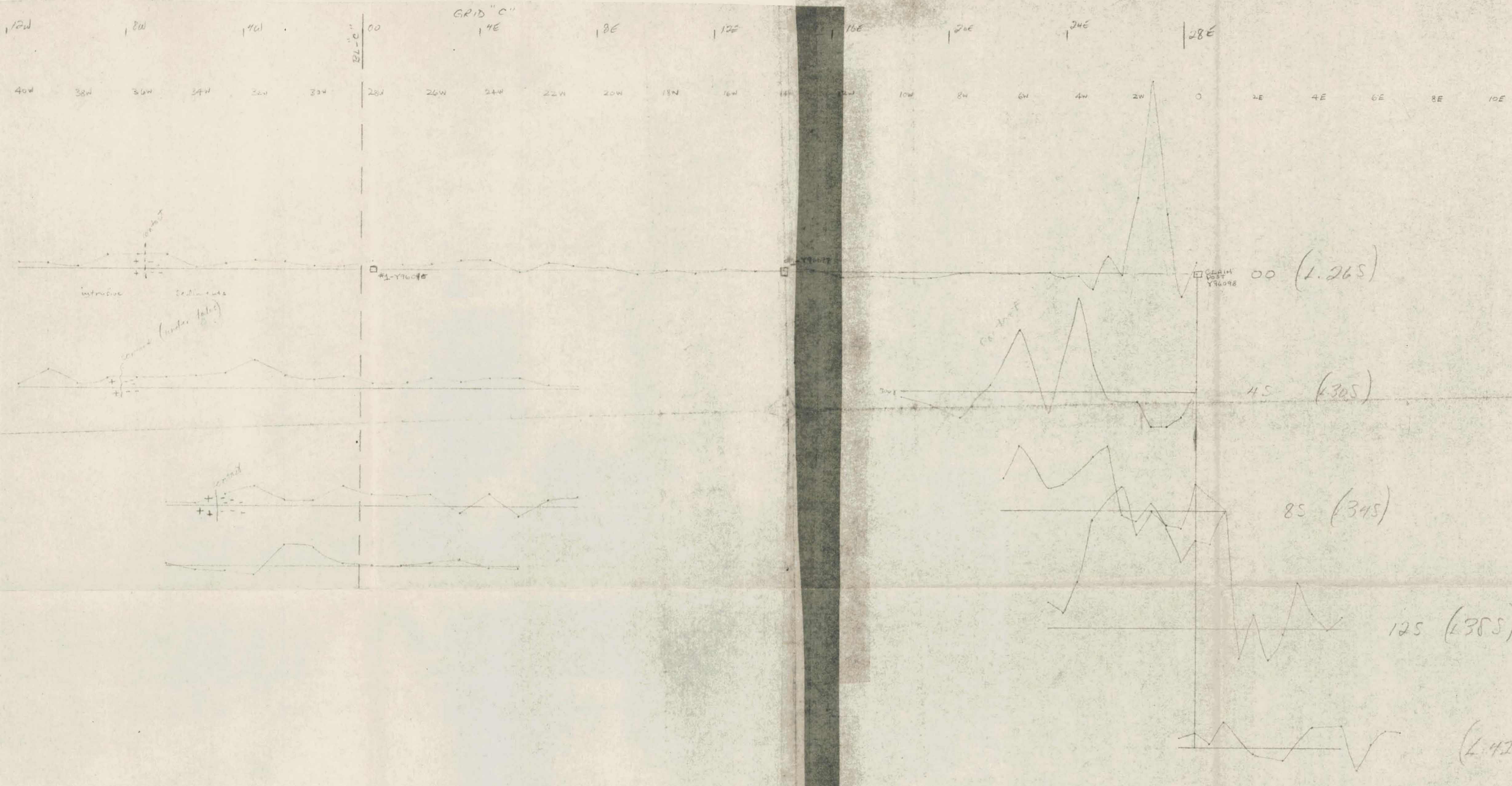
FIG. 19



See
Fig. 22
for
Grid 'B'

TOTAL FIELD MAGNETICS
MOUNT ARTISTRONGS-A, C
1" = 200'
VERTICAL SCALE 1" = 250'
DATA VALUE 50,000 G
INSTRUMENT GEOMETRICS 816
□ CLIFF PASS
△ MAGNETIC DATA STATION - SE, SW, X
X OUTCROP OR GEOLOGICAL FEATURE NOTES
← 500' EASTERN INTERIOR CREEK
JULY, 1975

FIG 20



VERTICAL FIELD DATA
 MOUNT ARASTROW'S - C

RECONNAISSANCE SURVEY

K = 200

ORIGINAL SCALE K = 500

CLAY POST



July, 1975

PROCEDURE

Pace & Compass Lines

Readings taken facing west with a magnetic compass. Some metal objects, shoe eyelets, etc. in pants and ring belt is possible to remove assumed absent and held in the same position.

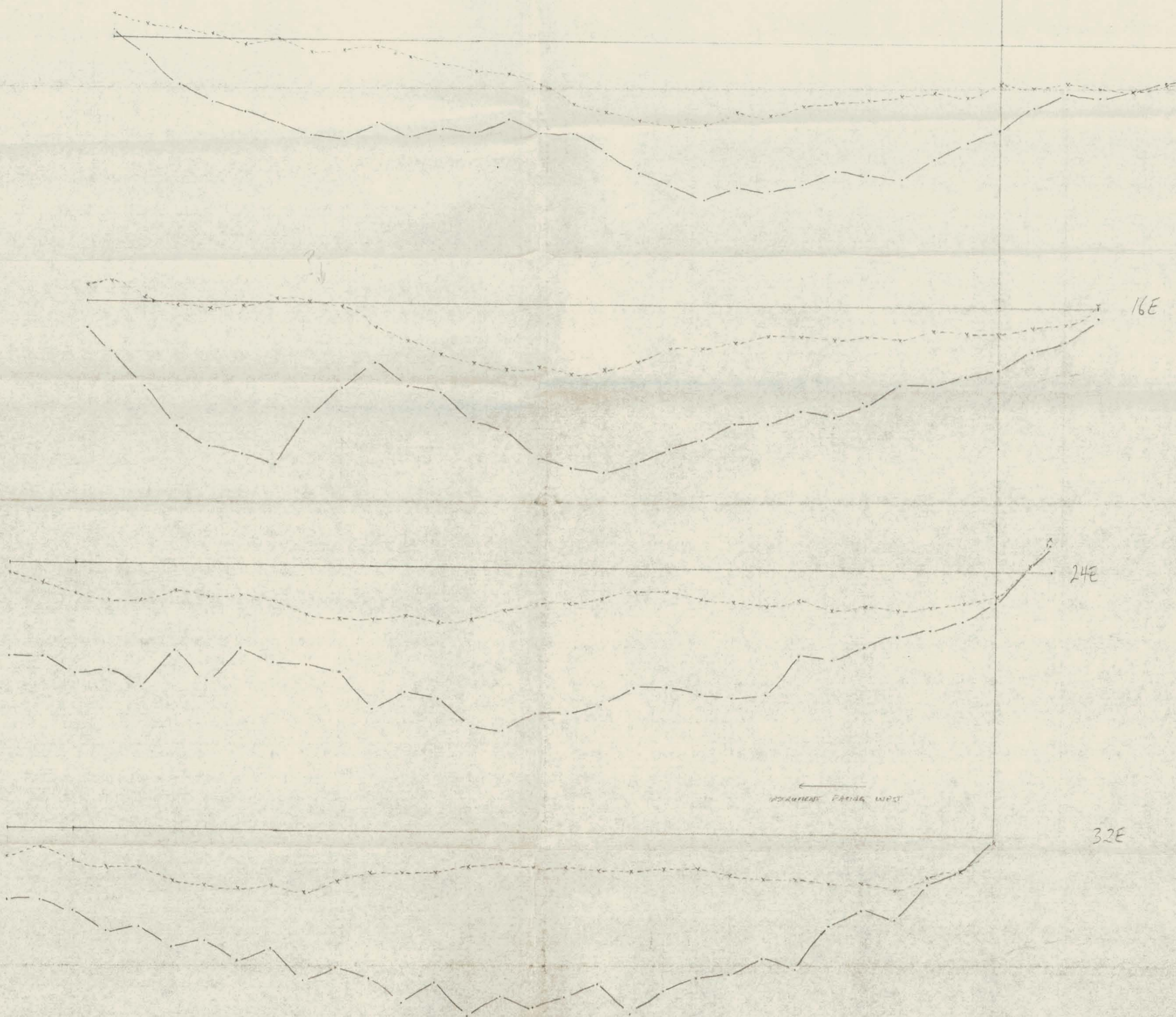
Instrument - Scintrex MF-1

R. I. MOORE

FIG. 200

205

105



←
INSTRUMENT FACING WEST

VLF-EM SURVEY
 MOUNT ARMSTRONG - "B"
 1" = 200'

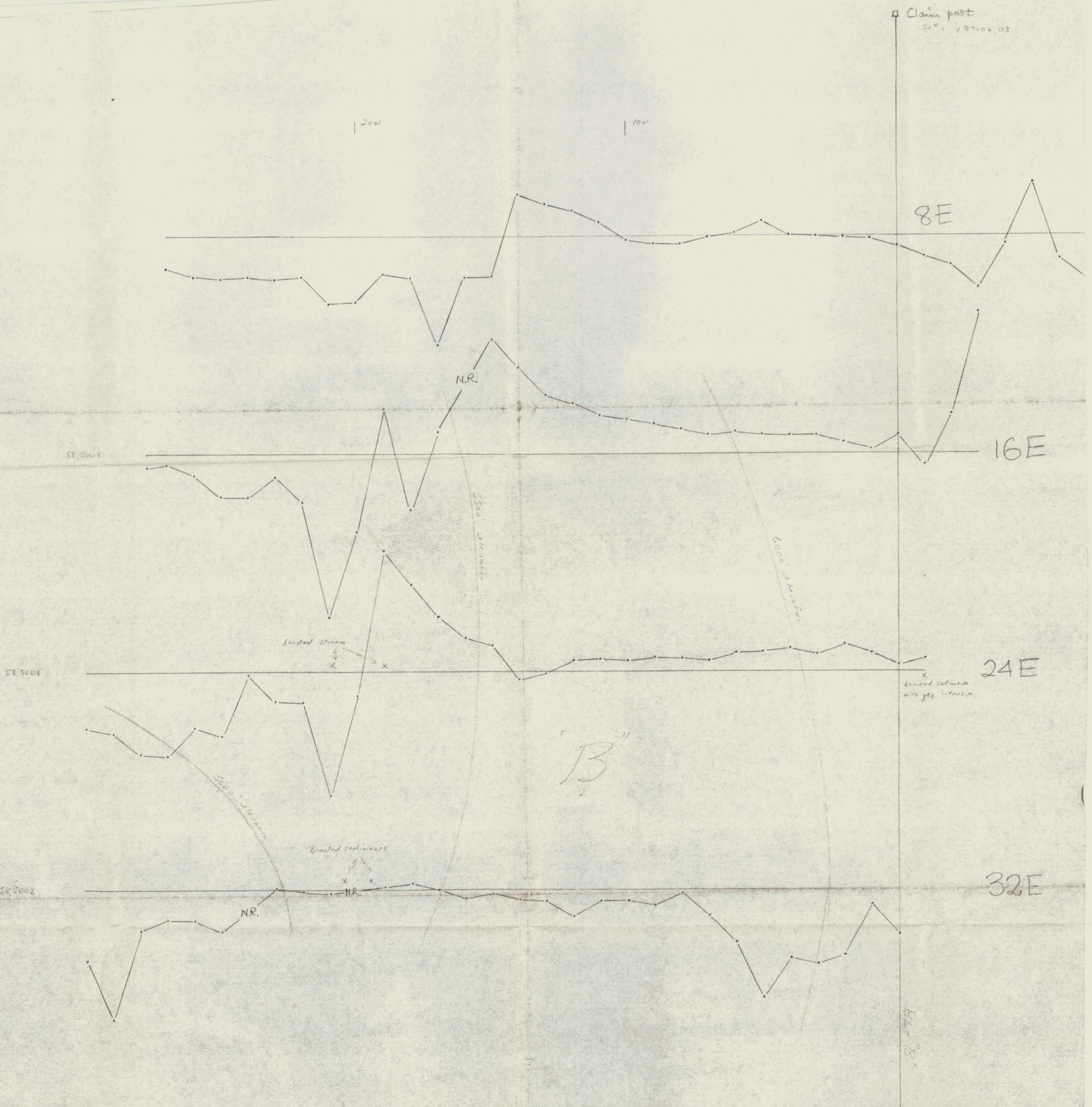
—•— IN PHASE VERTICAL SCALE 1" = 20'
 - - - x QUADRATURE INSTRUMENT FACING WEST
 + PLOTTING
 - CONFIGURATION

INSTRUMENT GEONICS EM-16
 STATION WPS, SEATTLE, WASHINGTON
 FREQUENCY 18.6 KHz



JULY, 1975

FIG. 21



TOTAL FIELD MAGNETICS
MOUNT ARMSTRONG - "B"
1" = 200'

VERTICAL SCALE 1" = 250 γ
BASE VALUE 58,500 γ
INSTRUMENT GEOMETRICKS 9816
WATSON MAGNETOMETER

- CLAIM POST
- X OUTCROP OR GEOMORPHIC FEATURE NOTED



FIG. 22

JULY, 1975

Baseline 132°