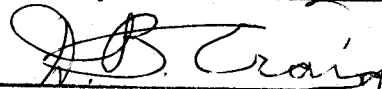


A Geophysical Report
On the
Irene, Copper, Tiger, Vern, Nat, Jan, Bobi, Lucky, Bear,
Otter, Spring, Silver, Isa, and Punch Claim Groups
Mayo M.D. Sheet 106-D-3
Lat. $64^{\circ} 4' N.$, Long. $135^{\circ} 15' W.$
June 19th. to September 23rd. 1972
For Canadian Reserve Oil and Gas Limited
By E.R. Rockel, Supervised by R.W. Stemp, P.Eng.
Project No. 72094

This report has been examined by the
Geological Evaluation Unit and is recom-
mended to the Commissioner to be consider-
ed as representation work in the amount of

\$ 27,155.92



Resident Geologist or
Resident Mining Engineer

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



Commissioner of Yukon Territory

S U M M A R Y

This survey is a continuation and extension of a reconnaissance survey carried out in 1971 by E.J. Wilson over the Silver and Spring claim groups in the Forbes Hill area near Hanson Lakes, Yukon Territory.

In addition to an expansion of the 1971 survey, a separate grid on the Rambler Hill side of Cache Creek was constructed and then combined with the Forbes Hill grid to form a master geophysical grid system. This grid system provided a means to develop an overall picture of the geophysical situation in the Rambler-Forbes area.

It was observed that the western portions of the area contained large amounts of rather continuous graphitic schist conductors. The north-eastern part produced a number of minor conductors which could be structurally controlled. One major magnetic lineation was mapped in detail near the north-eastern corner. Although minor amounts of economic mineralization were found associated with magnetite it was found that most magnetic activity in the area is related to greenstone bodies which occur throughout the schistose country-rock. The south-east part of the area showed two trends which could not be conclusively attributed to schistose conductivity since no detail survey was performed over them.

In order of priority the following conductor systems are deemed most worthy of further investigation:

1. Detail anomaly "EE" on Map 11
2. Detail anomaly "MM" on Map 8
3. Reconnaissance anomaly at station 91+30'W on line 32+00S on Map 10.
4. Reconnaissance anomaly trend A, B, C, D on Map 13.
5. Reconnaissance anomaly trend E, F on Map 13.

Since discontinuous mineralization was observed on the Rambler Hill plateau, induced polarization techniques could prove useful in establishing additional areas of concentrated sulphide mineralization.

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T A B L E O F C O N T E N T S con't

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I. INTRODUCTION

A geophysical survey was conducted on behalf of Canadian Reserve Oil and Gas Limited by Spartan Aero Limited on mineral claim groups in the Rambler Hill area and Forbes Hill area. The claim groups or portions there-of covered by the survey were the Irene, Copper, Tiger, Vern, Nat, Jan, Bobi, Lucky, Bear, Otter, Spring, Silver, Isa, and Punch groups. These claims appear on the McQuesten Lake Claim Map Sheet 106-D-3. The work was carried out in the period from June 19 to September 23, 1972.

Geophysical methods employed were the Very Low Frequency electromagnetic (VLF-EM), magnetic (mag.), Vertical Loop electromagnetic, and Horizontal Loop electromagnetic systems of exploration.

The object of the survey was to outline areas for further geophysical follow-up, thence to delineate areas of conductivity and/or high magnetic intensity in order to help design a drilling programme for the location of base metal mineral deposits.

A total of 134.8 miles of survey was performed on the above-mentioned groups of claims. The work involved reconnaissance surveying, detail surveying, magnetic surveying, and chainage of survey lines. Individual mileage totals for each type of work are as follows:

Reconnaissance Survey	53.7 miles
Detail Survey	34.0 miles
Magnetic Survey	18.8 miles
Line Chainage	28.3 miles.

Personnel associated with the project were as follows:

K. Djukastein	Mayo, Y.T.	Crawler Tractor Operator
R. Smith	Kamloops, B.C.	Line cutter
F. Dupuis	Fort Smith, N.W.T.	Line cutter
R. Wagner	Vancouver, B.C.	Line cutter
H. Tretwold	Port Moody, B.C.	Geophysical assistant
P.G. Morgan	North Vancouver, B.C.	Geophysical assistant
J.C. Barker	Ottawa, Ontario	Geophysicist
E.R. Rockel	Richmond, B.C.	Geophysicist
R.W. Stemp, P.Eng.	Ottawa, Ontario	Chief Geophysicist.

For ease of reference the combined Rambler-Forbes grid system has been divided into five regions, "A" through "E". These regions are bounded by major base lines as shown on Map 1 (Geophysical Survey Grid Plan). Each region has a set of maps which present the amount, location, and type of work done within its boundaries. With the exception of Map 14a, b, and c, (Geophysical Traverse Plan, Region "E") the left and right-hand boundaries of all map sheets are oriented North 10° W. In the case of Map 14a, b, and c these boundaries are oriented North 20° W.

II. GEOLOGY

Geological Survey of Canada Map 1268A shows that the entire survey area is underlain by the Lower Schist division of the Yukon Group. This material is of Jurassic age and is composed of graphitic phyllite, thin-bedded and phyllitic quartzites, and phyllite. Scattered profusely throughout the formation and commonly within the survey area are small intrusions of greenstone (diorite, gabbro, and their altered equivalents). The more competent greenstone intrusions form blocky out-crops and scarps in some parts of the survey area.

The main faults evident here strike generally north-south to northwesterly. These faults are believed to be related to northeasterly striking vein faults in the Keno Hill and Galena Hill areas.

Glacial deposits composed mainly of till, gravel, sand, and silt cover the McQuesten Valley floor. This material is evident as Kame terraces, lateral moraines, and in meltwater channels on the western slopes of both Rambler and Forbes Hill.

III. GEOPHYSICAL INSTRUMENTATION AND METHODS

Six geophysical instruments were employed in the survey. Two Ronka EM 16 units (Serial nos. 111 and 2306) and two Sharpe MF 1 Vertical Fluxgate magnetometers (Serial nos. 30427 and 409109) were used for VLF-EM measurements and magnetic field measurements in the reconnaissance portion of the survey.

For detailed examination of selected areas a Sharpe SE-300 unit was used in the vertical loop fixed transmitter mode and Crone Shootback mode. Also a Sheridan-Kelk Magniphase electromagnetic unit (horizontal loop) was used for some detail work.

The geophysical grid system in the Rambler Hill area was designed primarily to obtain maximum electromagnetic coupling with any conductive base metal deposits occurring in the aforementioned north and northeasterly striking vein fault or fracture systems. At the same time some thought was given to the establishment of an efficient grid and to minimizing the amount of line cutting necessary. Therefore, initially a fundamental tie-line (L-0+00) was situated along the pre-cut location line of Irene no. 1 and no. 2 and Copper no. 1 through 6. This line was then continued by bulldozer on the same heading to a total of 14,500 feet west of Irene claim no. 1, 2, 3 and 4 post no. 1.

From the tie-line four perpendicular lines were bulldozed and partly hand cut to serve as control lines (Base Lines) for the reconnaissance and detail survey grid. These lines ranged from

4700' to 7700' in length and were spaced from 3700' to 5500' apart. Much of Base Line 135+00W was situated along a winter road to reduce line cutting even though the direction was not perpendicular to the tie line L-0+00.

For the reconnaissance survey of the Nat claims (in Region "B") the pre-cut Nat location line was used as base line 46+00W.

Reconnaissance traverses were parallel to line L-0+00 and spaced 800 feet apart. Detail lines were bulldozed and/or hand-cut at 400 foot intervals as determined by the reconnaissance results.

All distance measurements such as chainage of claim posts, traverse lines, and cut lines were corrected to the horizontal by using the direct reading Suunto level incorporated in the EM-16 unit.

All compass bearings were obtained with a Silva "Prospector" Compass using a magnetic declination of 33° east.

One hundred foot stations were marked with flagging and labelled with felt pen on all lines. The flagging colour was bright orange on all traverse lines, and red, orange, blue, yellow and white on picket lines.

The magnetic survey has an arbitrary base level of 310 gammas near the no. 1 posts for Irene claims no 1, 2, 3 and 4 (at 00 on L-0+00). Magnetic closures were made every hour or less on base lines and magnetic detail lines, and approximately every 3 hours

on traverse lines in order to remove diurnal drift.

In the Forbes Hill area (regions "D" and "E") the 1972 grid system was an extension of a geophysical grid used in 1971 by E.J. Wilson. Three base lines (BL-1, 2 and 3) were bulldozed in 1971, two of which (BL-1 and 2) were chained and used as control lines for 1971 reconnaissance traverse lines. In 1972 BL-3 was chained, and both BL-1 and BL-3 were extended to Cache Creek to tie in with the Rambler Hill grid system.

Reconnaissance coverage was carried out east of Base Line 2 using Base Line 3 as a control, and completed north of the 1971 grid to Cache Creek.

Required detail lines in the Forbes Hill area were bulldozed where no previous cut lines existed. Old cut lines were used wherever possible. All detail work in the Forbes Hill area was confined to region "E".

The magnetic survey in the Forbes Hill area is based on the 1971 survey by E.J. Wilson which used an arbitrary base level of 500 gammas situated near the 1971 grid origin. (page 4, para. 1, section III, A Geophysical Report on the Silver and Spring Claim Groups, 1971). Diurnal drift control was accomplished in the same way as in the Rambler Hill area.

IV. DISCUSSION OF RESULTS

EM-16 data and SE-300 Fixed Transmitter mode (Vertical Loop) data for all regions are profiled in such a way that a "normal crossover" has its minimum on the left side and its maximum on the right side of the conductor axis. SE-300 Crone Shootback data are profiled such that negative resultant dip angles are plotted below the line of reference, with such negative perturbances which are consistently negative 5 degrees or more depicting anomalous areas. Magniphase (horizontal loop) results are profiled with phase readings increasing above and amplitude readings increasing below the reference line.

Throughout the reconnaissance survey percent slope measurements were taken along with EM-16 readings for the purpose of interpretation. Although the profiles have not been corrected for topographic effects, slope measurements were used to compensate for topography during the interpretation of the curves.

Reconnaissance results and detail results from each region ("A" through "E") of the combined Rambler - Forbes grid system will be interpreted by region.

For more convenient reference SE-300 Fixed Transmitter conductor axes and transmitter locations have been assigned letters, such as "A-2", or "Δ MM - 3" etc.. In most cases the transmitter location "Δ", will be on the conductor axis.

A) Region "A" - Maps 2, 3, 4, and 5

Reconnaissance EM work here produced only one area of interest. This was on line 24+00S between stations 1E and 7E. Subsequent follow-up using SE-300 equipment in the Crone Shootback mode and Fixed Transmitter (Vertical Loop) mode indicated a flat lying conductor. When coupled with an interpretation of EM-16 work, the results are suggestive of shallow dipping, poorly conductive material, of moderate depth (perhaps 100') between stations 2E and 6E on line 24+00S.

Magnetism associated with mineralization in a trench near the number 1 posts of mineral claims Irene no. 1, 2, 3, and 4 (near the grid origin) plus significant magnetic activity on line 8+00N prompted a detailed magnetic survey over most of the above mentioned claims. Results of the survey indicated an area of magnetic activity trending in roughly the same direction as the mineralization already exposed in the trench. Map 5 shows this major magnetic lineation, and also some minor perturbations to the west of BL-0+00 on line 2+00N.

Electromagnetic detailing was carried out across the trenching and over the magnetically active areas in an effort to delineate a conductive zone. Initially the Magniphase Horizontal Loop equipment was tried without success. Then the SE-300 equipment was used in two modes, Fixed Transmitter (Vertical Loop) and Crone Shootback mode. Coil spacings of 400 feet were used in both cases in order to obtain maximum depth penetration. Also a coil spacing

of 200 feet was tried using the Fixed Transmitter method to test for a short, shallow, steeply dipping conductor. Once again all results indicated no continuously conductive material present.

For the remainder of Region "A" most perturbations of the reconnaissance profiles have been attributed to topographic effects. A notable exception is a large positive quadrature anomaly on line 16+00N between 13W and 17W which illustrates the effect of conductive overburden (in this case a swampy gulch bottom) on the quadrature trace. This type of response (large positive quadrature) is characteristic of near surface, low conductivity material. Other minor variations in the traces are insignificant and are due to local variations in overburden conductivity or depth.

B) Region "B" - Maps 6 (a, b), 7 (a, b), and 8

Reconnaissance work (map 7a and 7b) produced several anomalies worthy of consideration.

Although correlation of anomalous regions from line to line with an 800 foot line spacing is open to question, by keeping the preferred north to north-easterly direction in mind, three anomalous trends are brought to light. The first, partly on Map 7a and partly on 7b occurs between station 54 (+20')W on line 40+00N and station 58 (+40')W on line 32+00N. Secondly, a trend appears from station 37+60'W on line 32+00N through 39+70'W of line 24+00N to 40+70'W on line 16+00N. Finally the third trend occurs on lines 16+00S, 24+00S, and 32+00S at stations 51+80'W, 54+30'W, and 56+90'W respectively.

EM-16 results from the first system suggest a somewhat lower conductivity than would be expected in a massive (continuous) sulphide body.

The second and third trends appear to lie roughly in line suggesting structural control. A detail survey performed across part of the third trend indicated a shallow, weak conductor, shown as "MM-1" "MM-3" and "MM-4" on Map 8.

The relatively weak response given by this conductor does not permit a reliable estimate of its dip, however, a fairly steep dip is indicated.

Two additional anomalies occur on line 8+00S at 53+60'W and 56+60'W. These anomalies along with the systems already discussed exhibit less than appealing conductivity, characteristics, and are not associated with any magnetic activity.

Topographic changes and local discontinuities in conductive overburden account for the remaining EM-16 profile changes in Region "B".

Prominent magnetic features in this region can be attributed to magnetite within greenstone bodies situated throughout the area.

C) Region "C" - Maps 9, 10, and 11

Much of region "C" has been shown to be conductive by the reconnaissance EM-16 surveys. This conductivity, however, for the most part occurs near surface, and is, as indicated by the quadrature trace in many cases of low conductivity. Results from the SE-300 equipment using the Crone Shootback method with both 400 and 200 foot coil spacings indicate significant conductive material down to at least 200 feet below surface.

Using the SE-300 in the Fixed Transmitter (Vertical Loop) mode an extensive detail survey was carried out over some of the more interesting anomalies. Seven major conductor axes were discovered trending roughly north-west. These seven systems, shown as conductors "BB", "CC", "DD", "FF", "GG", "HH" and "JJ" on Map 11, all show marked variations in dip, depth, strength and conductivity along their rather sinuous strike. Conductor "JJ" pinches out or joins conductor "HH" shortly after "JJ-10" on line 28+00N. As conductors "GG" and "HH" swing westward in the north, they appear to plunge northwest, and probably merge beneath McQuesten Lake.

The most interesting response observed in this region was over conductor "EE", located on line 4+00N at station 117W. The response here indicates a conductor of moderate depth (of the order of 100 feet) with a near vertical dip, and whose depth extent is greater than that of all other conductors covered by the detail survey. Profiles on lines 8+00N and 0+00 conclusively indicate

termination of conductivity such that conductor "EE" must be less than 800 feet in length.

Hardly worth mentioning is conductor "LL" on line 28+00N. Since SE-300 dip angles observed here lie within the margin of error expected in rough terrain, no interpretation can be made from the detail curves. Suffice it to say that the positive quadrature trace on the EM-16 profiles indicates low conductivity from shallow graphitic material or from conductive overburden.

An interesting and noteworthy EM-16 response occurs on line 32+00S between stations 88W and 94W. What appears to be a very good anomaly occurs at station 91+30'W. If taken at face value it would seem that a good conductor lies approximately 100 feet down from the crest of a very steep slope near Cache Creek. It must, however, be remembered that V.L.F. waves tend to follow major topographic irregularities and thus can in mountainous areas produce an irregular trace which may contain spurious anomalies. In this case the analysis of recorded slope measurements revealed that a "topography - produced" anomaly was highly probable. A conclusive decision could not be reached as to the validity of this anomaly because of the rather significant negative quadrature response at the anomalous point. Negative quadrature readings indicate moderate to high conductivity, and since the quadrature trace is unaffected by topography it is suggestive of bedrock conductivity.

Elsewhere in region "C" large low conductivity EM-16 anomalies occur which do not respond to the SE-300 equipment. This can be due to the much higher frequency employed by the EM-16 unit, enabling it to respond to material with a conductivity lower than that discernible with the SE-300 equipment. A distinct possibility in this case are flat lying graphitic beds of low conductivity that contain local thickness on depth variations. These variations would produce the "ropiness" observed on the EM-16 trace but would not affect the SE-300.

Examples of this are profiles "AA", "KK" and the above mentioned conductor "LL" on Map 11.

Magnetically, most of region "C" is quite inactive. Survey lines 16+00S, 24+00S, and 32+00S show some magnetic perturbations apparently increasing in frequency along the more southerly lines. In some cases magnetic activity appears near electromagnetic anomalies, although no definite relationship is obvious.

D) Region "D" - Maps 12 and 13

Results from the EM-16 and magnetic reconnaissance survey show several major disturbances on both the In-phase and Quadrature traces. This activity occurs in the northern half of the region, mainly on the north-facing slopes to Cache Creek.

Although an attempt to match anomalous areas across 800 foot spaced survey lines can often lead to erroneous results, the inescapable similarity between certain EM anomalies on these profiles necessitates some rudimentary correlations. Thus six zones through which similar character persists are indicated on Map 14. They are marked as A through D, and E to F in a separate system.

Throughout the active area a strong quadrature response, in many cases negative, is associated with the In-Phase disturbances. This suggests that the anomalous profiles are produced by conductivity of some sort rather than topography effect. Furthermore topography slope analysis results do not adequately account for most of the anomalies observed here.

The conductor system described as A through D is estimated to occur at a depth of 150 to 200 feet. The system is a double conductor and exhibits relatively large negative quadrature readings along much of its length.

System E - F is also a double conductor and estimated to range from 50 to 100 feet in depth. Positive quadrature readings with these anomalies point to a low conductivity source.

Magnetic activity is seen in various parts of the region, in one instance contiguous to an EM anomaly at station 47+20'E on line 64+00N (part of system E - F). A large magnetic low appears near an EM anomaly at station 56+90'E on line 48+00N (the last anomaly of system A through D). Most of the magnetism seen in region "D" corresponds fairly closely with greenstone bodies shown on Map 1268A of Geological Survey of Canada - Memoir 357.

Other EM-16 anomalies observed (with axes drawn), although not visibly continuous from line to line, show characteristics similar to the major systems discussed above.

E) Region "E" - Maps 14 (a, b, c), 15, and 16 (a, b).

Only two lines of reconnaissance EM-16 and Mag. were surveyed in region "E". These lines were put in to complete the 1971 reconnaissance picture which ended at line 72+00N. Results from the 1972 survey were very similar to those obtained in 1971 and suggest continuation of conductivity from line 72+00N to Cache Creek. This was borne out by detail survey results.

The detail survey of this region covered EM-16 anomalies obtained by E.J. Wilson in 1971. Survey lines for detail work were cut by crawler tractor, and where possible old cut lines were re-used.

The results in this region are in general very similar to those obtained in region "C". The same sinuous conductor axes prevail, with profiles indicating a large variation in depth and dip of the conductive material.

It should be pointed out that in some cases conductor axes in this region "zig-zag" as a result of a difference from line to line between the theoretical position of the origin of line chainage on the detail map and the actual position of this origin on the ground as shown on the traverse plan. Examples are conductor axes S-6 (which should be moved 300 feet east), and M-3 (also P-1) on line 32+00N.

Dual frequency conductivity tests over some conductors indicated a wide range of conductivities as in region "C".

A total of eleven major trends (those with 3 or more recorded conductor axes), as well as four minor conductors were delineated during the survey.

V. CONCLUSIONS AND RECOMMENDATIONS

The majority of conductive material found in this survey, especially in regions "C" and "E", can be explained away as near-surface shallow dipping graphitic schist. This material characteristically produces results which will show lengthy meandering conductors with variations in dip and depth along strike. Variations in the amount of graphite present in the schist account for conductivity changes within conductors or from one conductor to another.

It appears to the writer that target mineralization in this area, although found in what seems to be massive form, occurs in fact as chunks of conductive mineral dissevered by weathering. This material, being electrically discontinuous, would then not create sufficient secondary electromagnetic fields needed to give a response in the EM survey equipment. On the other hand Induced Polarization (I.P.) methods would respond readily since they are dependent on the earth's capacitive reactance rather than its conductance. I.P. should then be a useful method for coverage of "difficult" EM areas and detail follow-up of unexplained EM conductors.

The conclusions and recommendations from the results of the survey will be discussed in more detail by region. This discussion is as follows:

A) Region A

The flat lying, poorly conductive material evident on line 24+00S (between 1E and 7E) is probably graphite schist. Much schistose material was found in this area and a sample of graphite schist taken at station 21W (Rx.S. no. 3) tends to support this conclusion. No further investigation is necessary here.

The detail magnetic survey conducted over Irene claims no. 1, 2, 3, and 4 delineated a magnetically active area to the north of the mineralized trench near the grid origin. It was believed that an association of the economic minerals with magnetite found in the trench might mean continuation of significant mineralization along the magnetic lineation. Subsequent trenching indicated that no near-surface mineralization occurred contiguous to the magnetite. Very high local magnetic gradients were observed in the trenches over weathered and broken greenstone material, thus it seems conclusive that the magnetism here is caused by magnetite in barren greenstone bodies.

Electromagnetic methods were unsuccessful in their attempts to delineate the conductive mineral found by trenching near the grid origin. It seems likely that this is due to its discontinuous nature. For this reason Induced Polarization would prove to be a valuable tool in efforts to outline a mineralized zone. Since it is reasonable to assume that the weathering was widespread and would have dissected any other economic ore material in the area, I.P. would be the correct tool to use on the entire Rambler plateau.

B) Region "B"

Special consideration should be given to detailed structural geology near the anomalies observed here to investigate the possibility that the response has been caused by conductive material in faults or fracture zones. Detail geophysical results seen on Map 8 (lines 16, 20, and 24+00S) are typical of a shallow, steeply dipping, and relatively low conductivity source. This observation coupled with similar indications from the reconnaissance profiles supports the conception that the anomalies here could be caused by structurally controlled mineralized fluids or low conductivity metallic sulphides.

Further to this postulation is the recommendation that detailed geological and geochemical investigations be made in order to explore the mineralogy over the conductors before any drilling programme is considered.

C) Region "C"

Most of the conductivity in region "C" and indeed all of the long conductor systems outlined in the detail survey are believed to be caused by beds of graphitic schist. In support of this conclusion is a trench situated at station 109W on line 0+00 which contains an abundance of this material.

Conductor axis CC-3 falls directly over this trench. Profiles obtained along conductor CC represent the general type of curves seen across all conductors recorded by the detail survey in

region "C" with only one exception.

Conductor EE, the afore-said exception, exhibits many characteristics of a metallic sulphide deposit. Other than profile characteristics the only support for this interpretation is small amounts of disseminated pyrite observed in a greenstone talus slope at approximately 124W on line 4+00S. Although no direct relationship is assumed, this observation proves the presence of sulphide mineralization in the area occurring in or associated with greenstone bodies contiguous to graphitic schist.

Further investigation of this conductor is recommended. A detailed geochemical survey should be undertaken in the locality of the conductor axis to determine if target mineralization exists. Since the conductor depth and probable glacial overburden may severely limit the usefulness of geochemistry, the use of an "overburden drill" should not be over-looked in the investigation of this anomaly.

Reconnaissance results south of line 8+00S indicate a continuation of the same graphitic material observed in the northern sector. The magnetic trace becomes more active towards the south, which is in keeping with the magnetic environment observed in region "E" during the 1971 survey and the 1972 completion. It is believed that greenstone bodies account for this mediocre activity.

One EM-16 response which should not be discarded is the cliff anomaly near Cache Creek on line 32+00S at station 91+30'W. Since this response cannot be definitely attributed to the effect of topography some further investigation is warranted. A detailed geological investigation should be successful in establishing the anomaly's worth, whether caused by a graphitic shear zone or structurally controlled sulphide mineralization. Geochemical samples taken where possible would be a valuable back-up to the geological survey.

D) Region "D"

The ropiness of both the in-phase and quadrature traces seen throughout most of the area is due to a combination of conductive overburden and topography. On the north slope to Cache Creek the ground was quite wet when the survey was conducted. This produced overburden with a higher conductivity than that in the southern part of the region. Higher conductivity is shown by a strong in-phase response accompanied by more negative quadrature. Most quadrature readings in the south are positive or near zero.

Superimposed upon the rather "noisy" profiles are a series of stronger anomalies with suspiciously similar characteristics. These anomalies have been grouped into zones as described in the Discussion of Results.

The gentle curving of both trends seen on Map 13 hints at folded bedding or schist planes. This interpretation is consistent with the variations in conductivity seen, which are characteristic of graphitic schists.

Once again geochemistry should prove useful in checking these zones for the possibility of a metallic sulphide source rather than a graphitic one.

Other anomalies in this area do not warrant further attention unless favourable geochemical results appear to correlate.

E) Region "E"

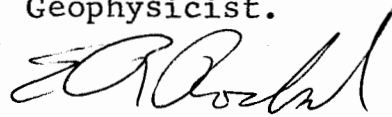
The interpretation of detail results in this region leads to the conclusion that graphitic schist material predominates and continues northward across Cache Creek to join the conductors found in region "C". No particularly interesting phenomena were observed here, and since rock samples RxS. no. 1, RxS. no. 2 and RxS. no. 4 all support the above interpretation, no further conclusions can be drawn.

Any additional exploration of the detailed portions of this region should be based on geochemical or geological encouragement.

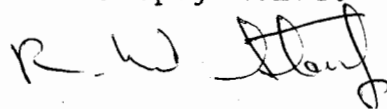
Further geophysical and geochemical examination should be carried out on the remaining unexplored reconnaissance anomalies according to the recommendations in A Geophysical Report on the Silver and Spring Claim Groups, 1971 by E.J. Wilson.

Respectfully submitted,

E.R. Rockel, BSc.,
Geophysicist.



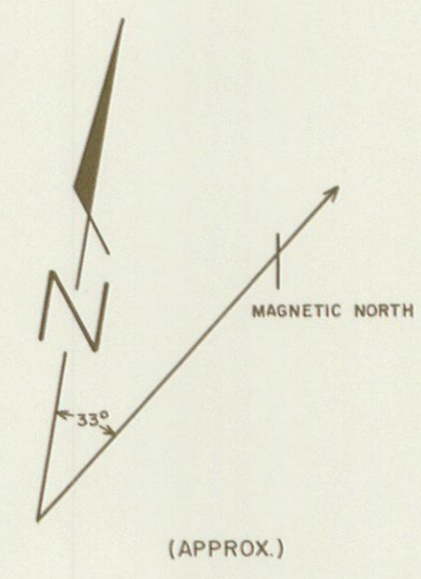
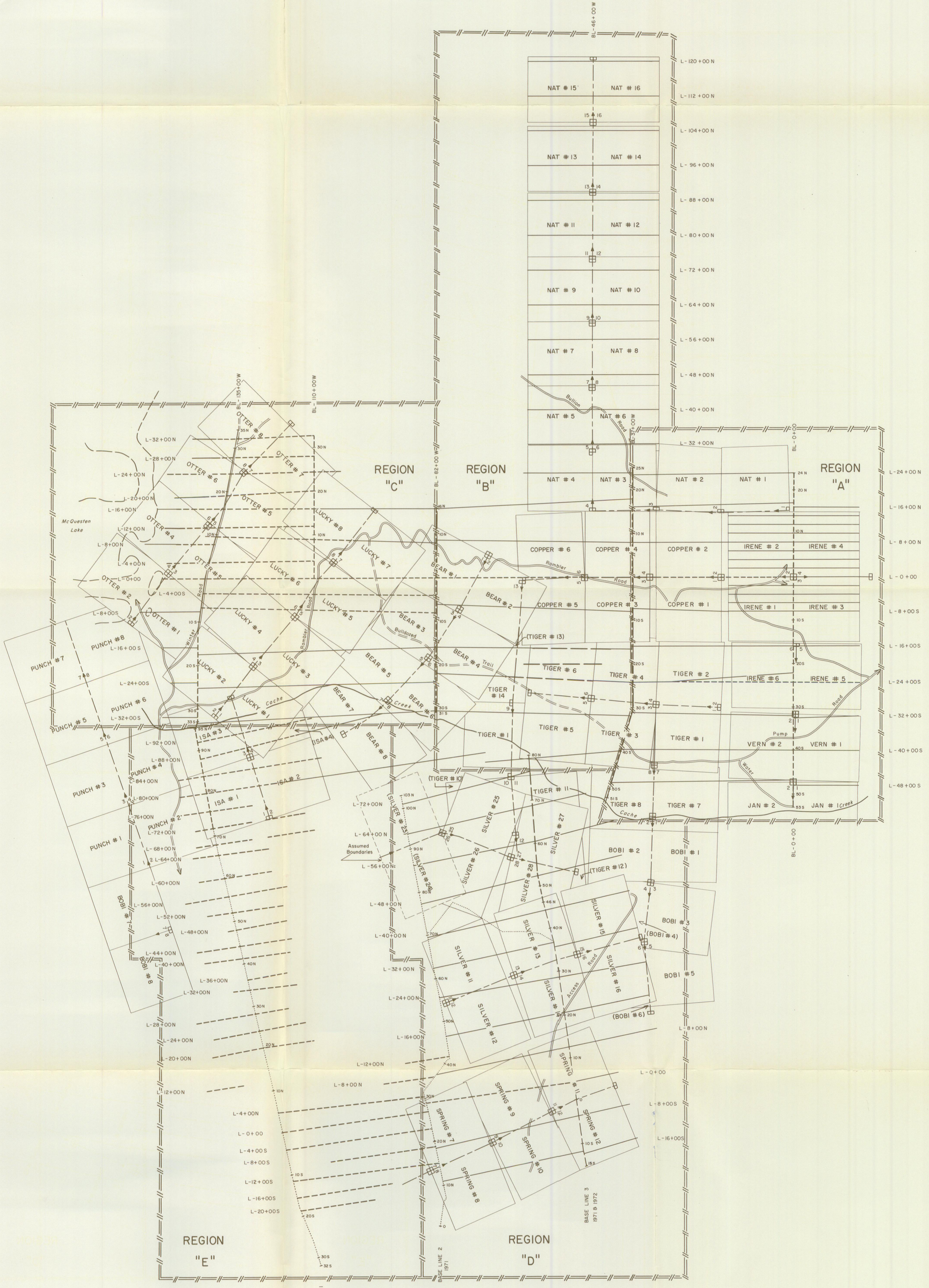
R.W. Stemp, P.Eng.,
Chief Geophysicist.



OTTAWA, ONTARIO,
December 6, 1972.

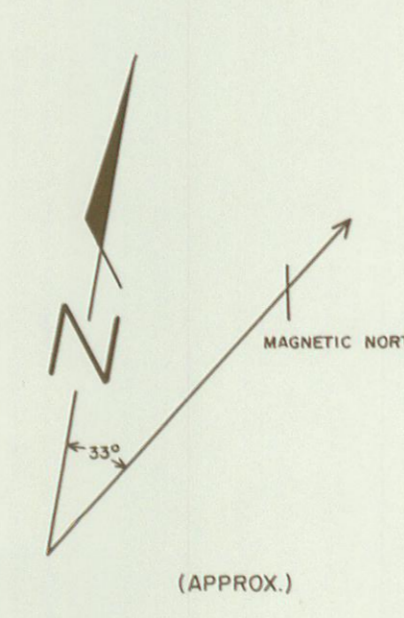
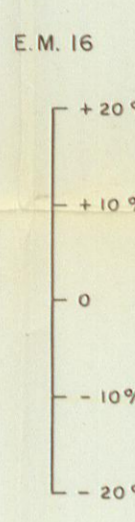
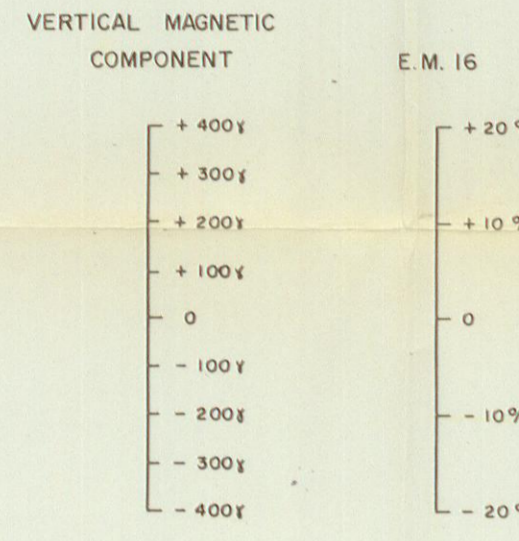
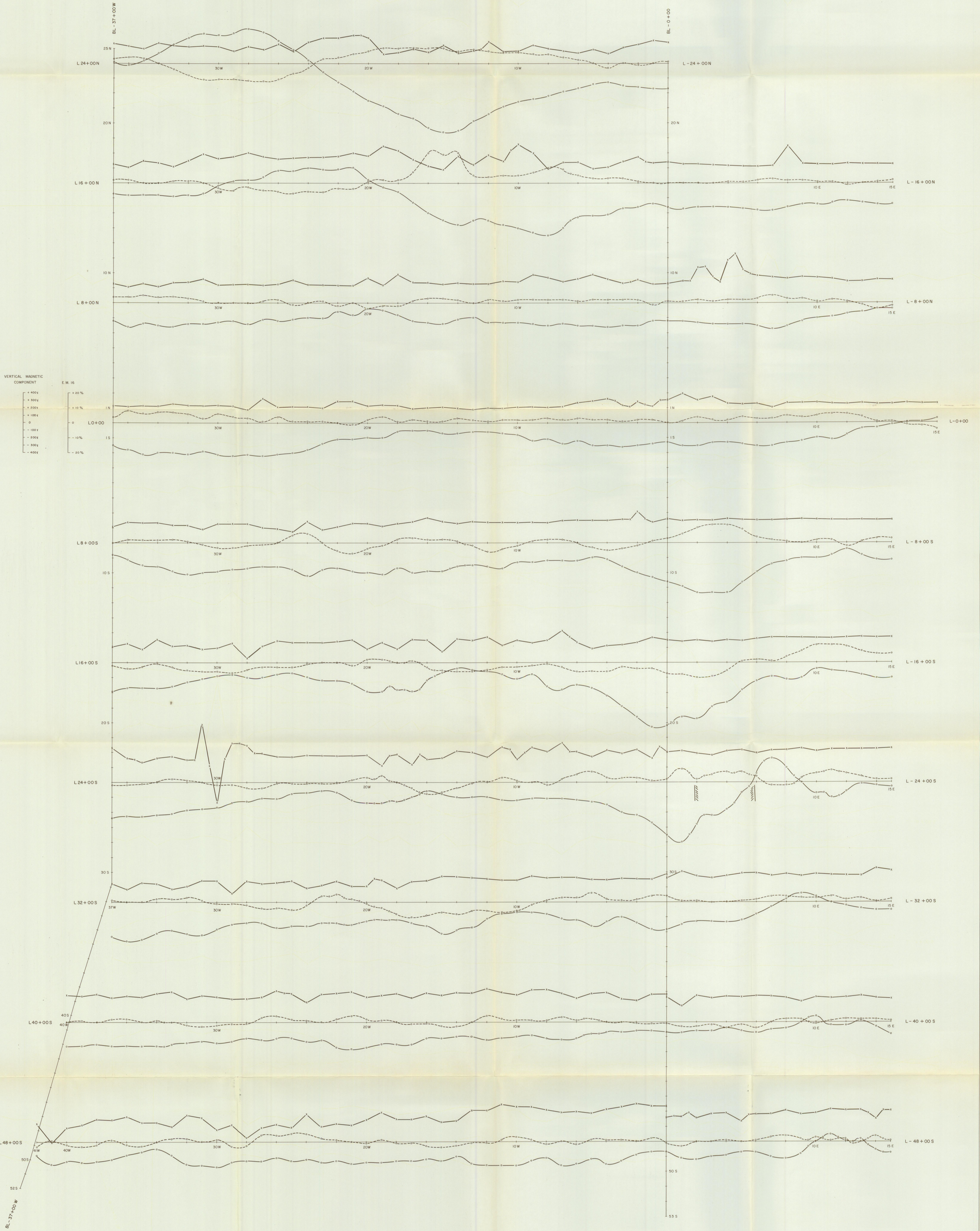
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- Wilson, E.J. 1971: A Geophysical Report on the Silver and Spring Claim Groups, Mayo, M.D. Yukon Territory, Canadian Reserve Oil and Gas Limited (unpub.)
- Wilson, E.J. 1971: A Geophysical Test Report on the Irene Claim Group, Mayo M.D. Yukon Territory, Canadian Reserve Oil and Gas Limited (unpub.)
- Green, L.H. 1971: Geology of Mayo Lake, Scougale Creek and McQuesten Lake Map - Areas Yukon Territory (105M/15, 106D/2, 106D/3) Geological Survey of Canada Memoir 357.



- LEGEND
- BULLDOZED LINE
 - HAND CUT LINE
 - TRAVERSE LINE
 - 1971 SURVEY BASE LINE
 - CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM no. 1 POST TO no. 2
 - CLAIM BOUNDARY
 - ROAD
 - BULLDOZED TRAIL
 - CREEK
 - LAKE
 - REGION BOUNDARY

GEOPHYSICAL SURVEY GRID PLAN
 RAMBLER HILL AND FORBES HILL AREAS
 MAYO M.D. - YUKON TERRITORIES
 FOR
 CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 1000 FEET



LEGEND

E.M. 16 PROFILES

STATION N.P.G., 19.6 K.Hz - JIM CREEK, WASHINGTON

SLP - S.W. PRIMARY FIELD WASHINGTON

READINGS TAKEN FACING WEST

IN-PHASE

QUADRATURE

CONDUCTOR AXIS

SCALE: 1 INCH = 20% STRONG WEAK

MAGNETIC PROFILE

VERTICAL COMPONENT

SCALE: 1 INCH = 400Y

VERTICAL MAGNETIC AND E.M. 16 SURVEY

PROFILE PRESENTATION

REGION "A" (RAMBLER HILL AREA)

MAYO M.D. - YUKON TERRITORIES

FOR

CANADIAN RESERVE OIL AND GAS LIMITED

BY

SPARTAN AERO LIMITED

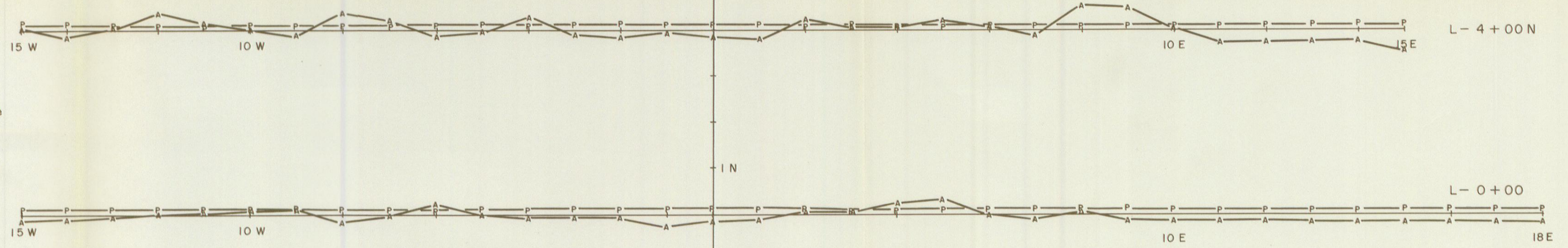
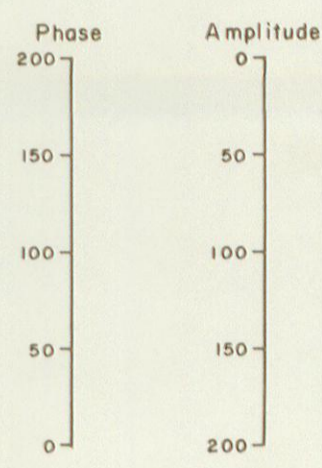
SCALE: 1 INCH = 200 FEET

BL-37+00 W
6 N
4 N
1 N
00
1 S
BL-37+00 W
10 N
1 N
1 S
10 S
20 S
30 S
BL-37+00 W

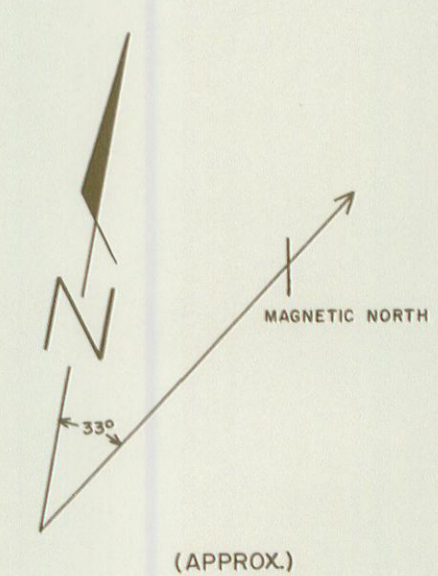
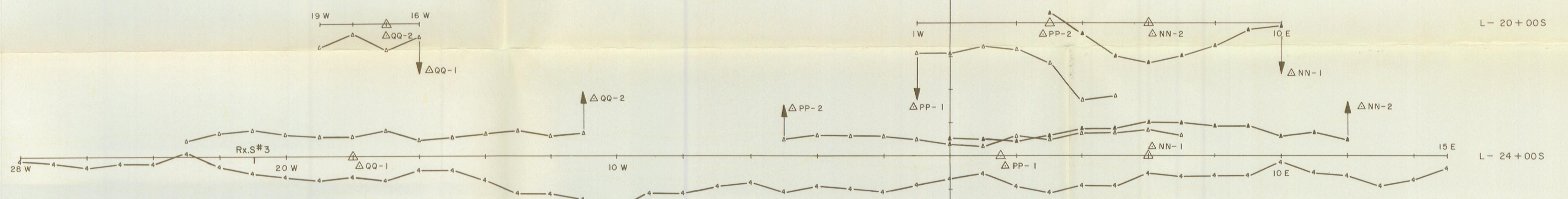
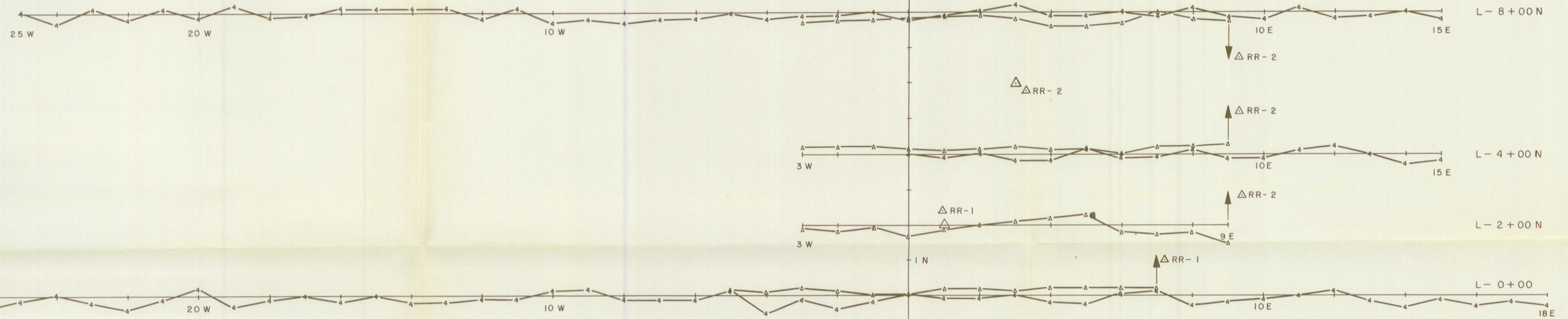
BL-0+00
6 N
1 N
1 S
BL-0+00
10 N
1 N
1 S
10 S
BL-0+00
30 S

MAGNIPHASE PROFILES

SCALE: 1" = 100 UNITS

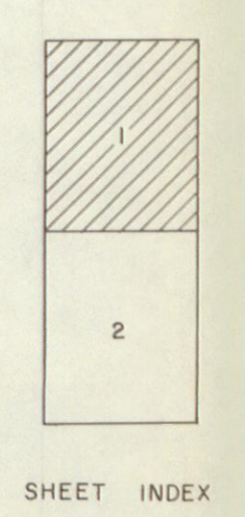
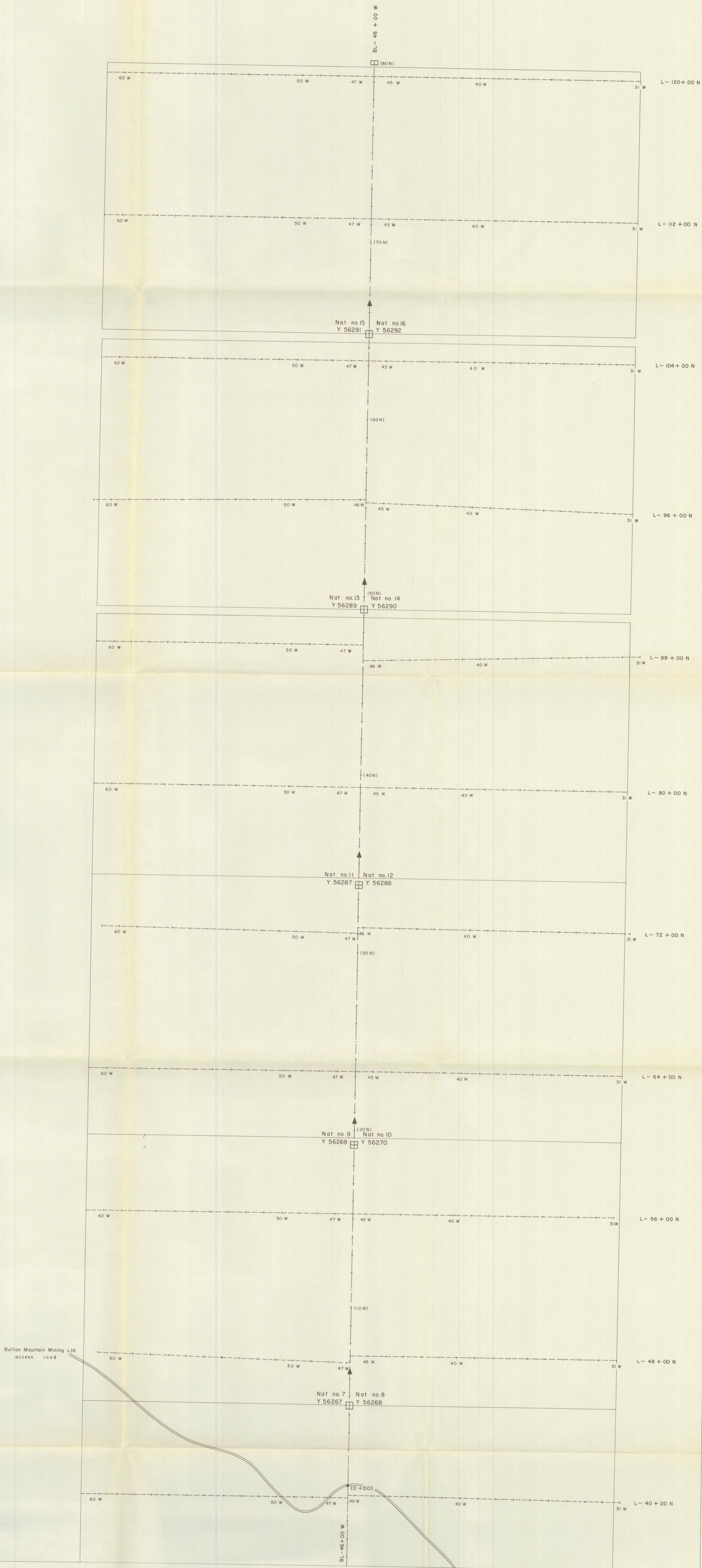


S.E.-300 PROFILES

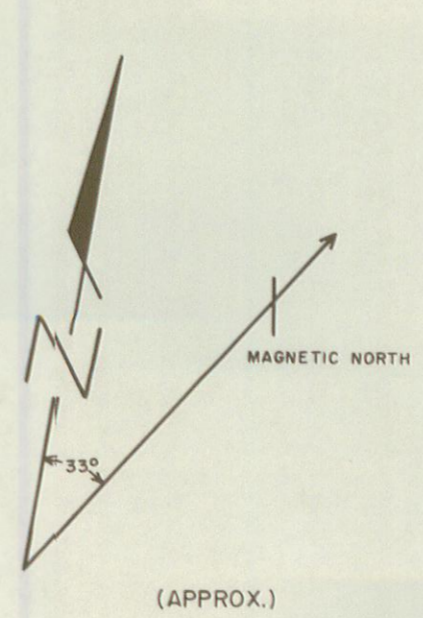


LEGEND
S.E. 300 PROFILES
FIXED TRANSMITTER MODE (VERTICAL LOOP)
1600 Hz
TRANSMITTER LOCATION
TRANSMITTER LOCATION FROM WHICH CURVE WAS DERIVED
CRONE SHOOT-BACK MODE
1600 Hz - 400 FT. COIL SEPARATION
SCALE: 1 INCH = 20°
MAGNIPHASE PROFILES (200 FT. CABLE)
AMPLITUDE
PHASE
SCALE: AS SHOWN
ROCK SAMPLE Rx.S#3

GEOPHYSICALLY DETAILED AREAS
PROFILE PRESENTATION
REGION "A" (RAMBLER HILL AREA)
MAYO M.D. - YUKON TERRITORIES
FOR
CANADIAN RESERVE OIL AND GAS LIMITED
BY
SPARTAN AERO LIMITED
SCALE: 1 INCH = 200 FEET



SHEET INDEX



(APPROX.)

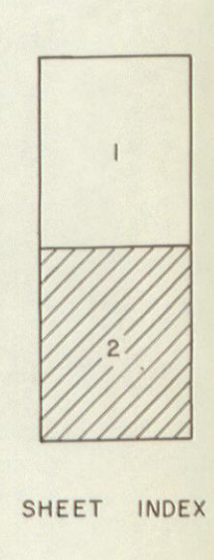
LEGEND

- BULLDOZED, CHAINED AND PICKETED LINE
- HAND CUT, CHAINED AND PICKETED LINE
- CHAINED, COMPASS AND FLAGGED TRVERSE LINE
- CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NO. 1 POST TO NO. 2
- CLAIM BOUNDARY
- ROAD
- BULLDOZED TRAIL
- CREEK
- CHAINAGE ON NAT CLAIM LINE DOES NOT CONFORM TO MASTER GRID SYSTEM (40N) etc.

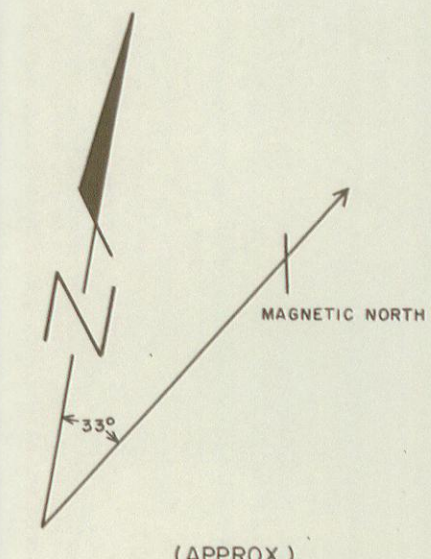
GEOPHYSICAL TRAVERSE PLAN
 REGION "B" (RAMBLER HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
 CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET



BASE LINE - 3 (Forbes Hill Area)



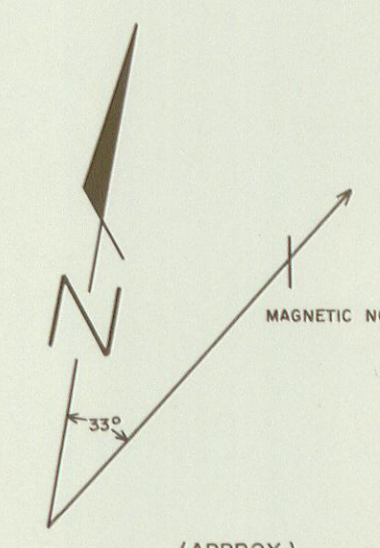
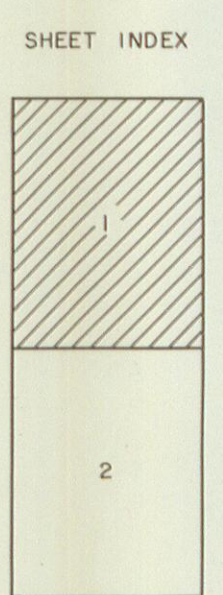
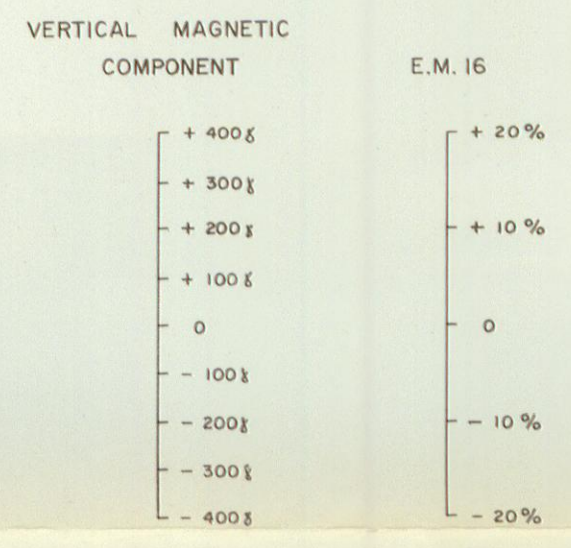
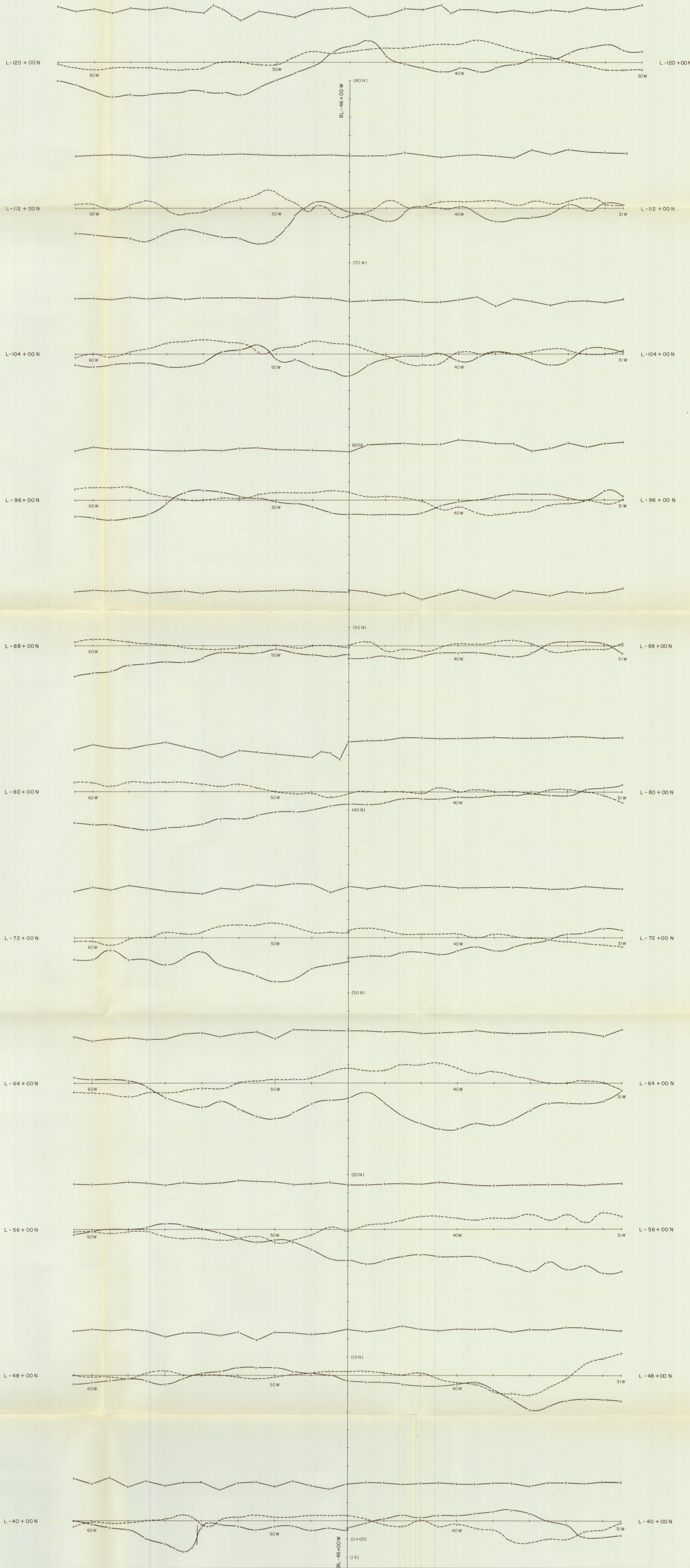
SHEET INDEX



(APPROX.)

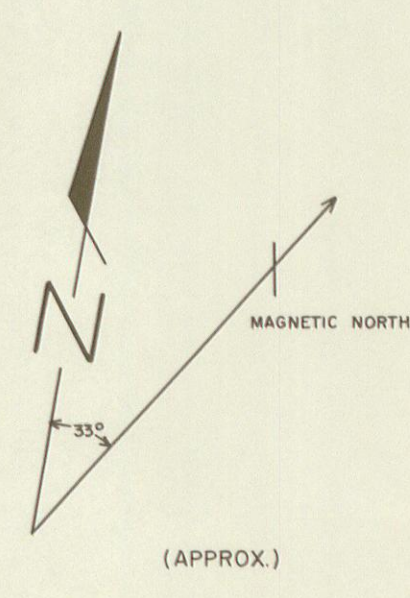
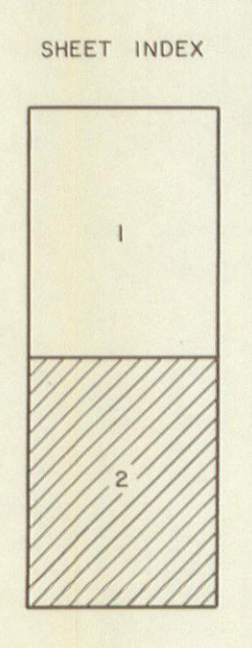
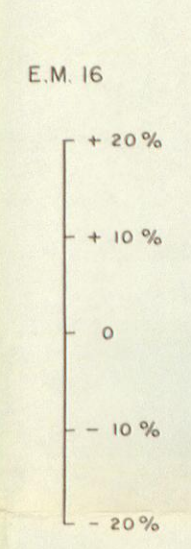
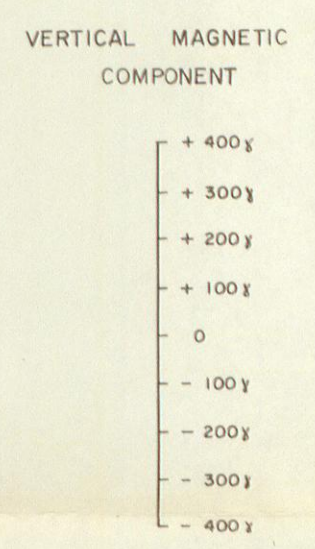
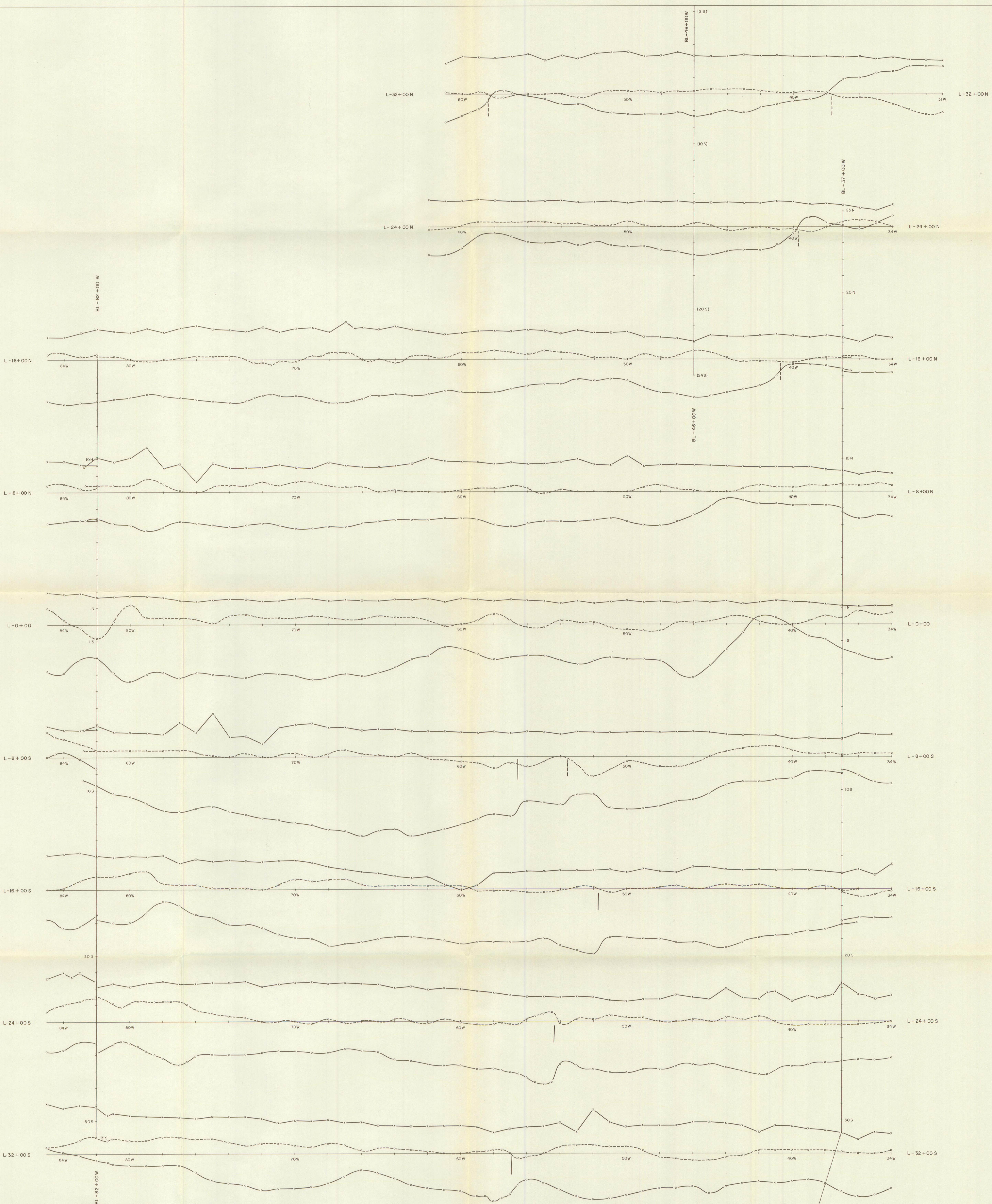
- LEGEND
- BULLDOZED, CHAINED AND PICKETED LINE
 - HAND CUT, CHAINED AND PICKETED LINE
 - CHAINED, COMPASS AND FLAGGED TRAVERSE LINE
 - CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NO. 1 POST TO NO. 2
 - CLAIM BOUNDARY
 - ROAD
 - BULLDOZED TRAIL
 - CREEK
 - CHANGE ON NO. 1 CLAIM LINE DOES NOT CONFORM TO MASTER GRID SYSTEM (40') etc.

GEOPHYSICAL TRAVERSE PLAN
 REGION "B" (RAMBLER HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
 CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET



LEGEND
 E.M. 16 PROFILES
 STATION N.P.G. 18.6 K.H. - JIM CREEK, WASHINGTON
 V.L.F. - E.M. PRIMARY FIELD
 READINGS TAKEN FACING WEST
 IN-PHASE
 QUADRATURE
 CONDUCTOR AXIS
 MAGNETIC PROFILE
 VERTICAL COMPONENT
 SCALE: 1 INCH = 20%
 SCALE: 1 INCH = 400'

VERTICAL MAGNETIC AND E.M. 16 SURVEY
 PROFILE PRESENTATION
 REGION "B" (RAMBLER HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET



LEGEND

E.M. 16 PROFILES

STATION N.P.S., 18.6 K.Hz. - JIM CREEK, WASHINGTON

V.L.F. - E.M. PRIMARY FIELD WASHINGTON

READINGS TAKEN FACING WEST

IN-PHASE

QUADRATURE

CONDUCTOR AXIS

MAGNETIC PROFILE

VERTICAL COMPONENT

SCALE: 1 INCH = 20%

SCALE: 1 INCH = 400'

VERTICAL MAGNETIC AND E.M. 16 SURVEY

PROFILE PRESENTATION

REGION "B" (RAMBLER HILL AREA)

MAYO M.D. - YUKON TERRITORIES

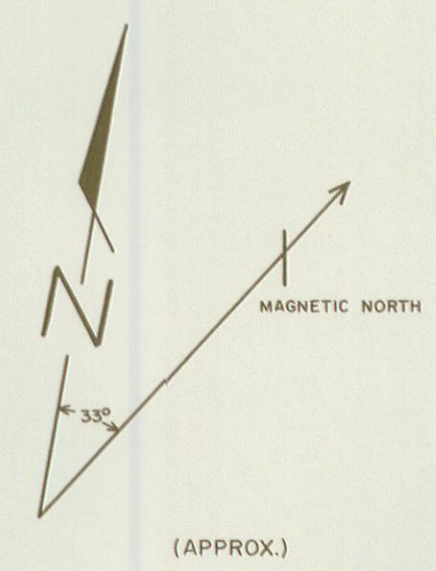
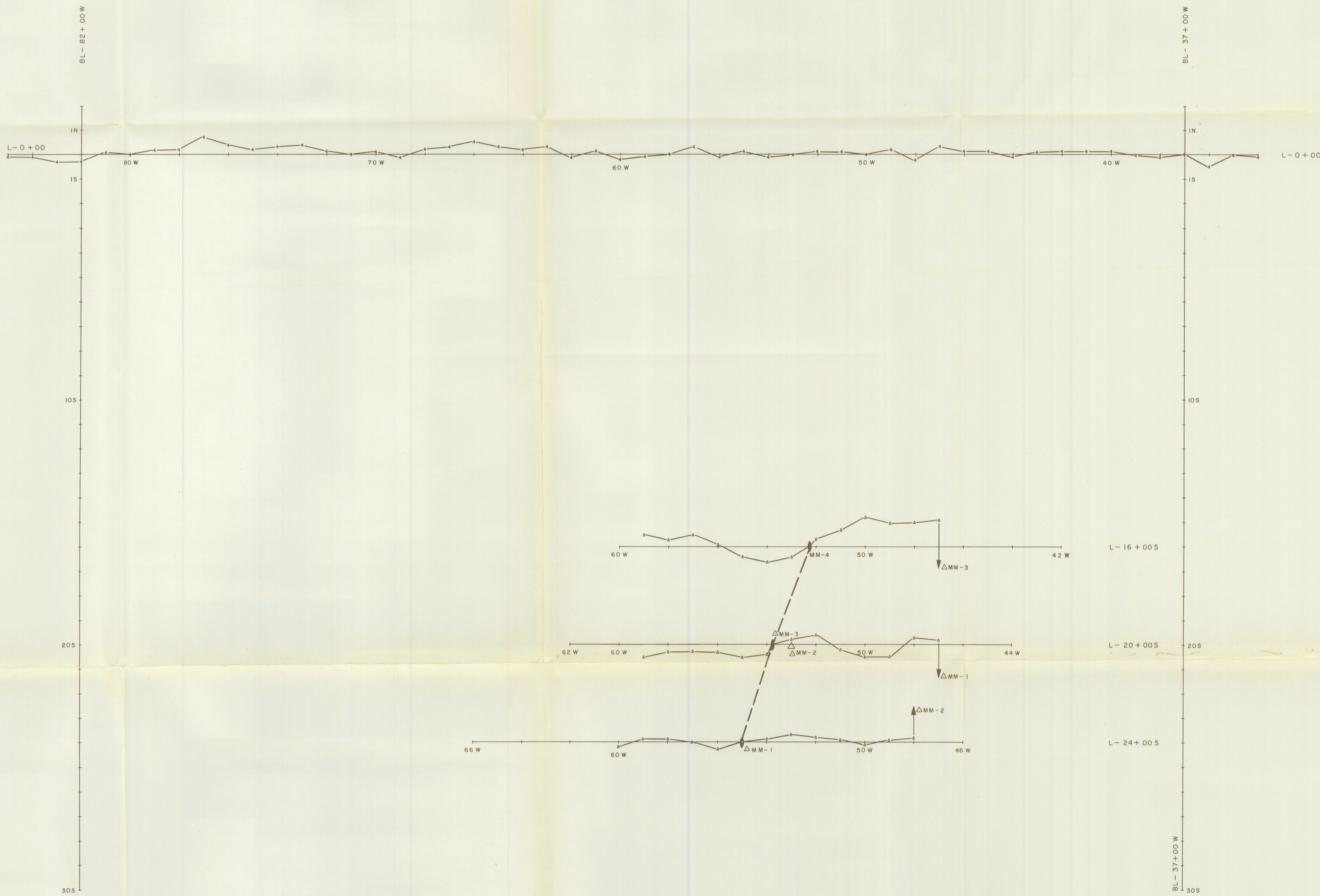
FOR

CANADIAN RESERVE OIL AND GAS LIMITED

BY

SPARTAN AERO LIMITED

SCALE: 1 INCH = 200 FEET



LEGEND

S.E. 300 PROFILES

FIXED TRANSMITTER MODE (VERTICAL LOOP)

1600 Hz.

TRANSMITTER LOCATION

TRANSMITTER LOCATION FROM WHICH
CURVE WAS DERIVED

CONDUCTOR AXIS MARKED BY X.O. PICKET

CONDUCTOR AXIS

CRANE SHOOT-BACK MODE

1600 Hz - 400 Ft. COIL SEPARATION

SCALE: 1 INCH = 20'

GEOPHYSICALLY DETAILED AREAS

PROFILE PRESENTATION

REGION "B" (RAMBLER HILL AREA)

MAYO M.D. - YUKON TERRITORIES

FOR

CANADIAN RESERVE OIL AND GAS LIMITED

BY

SPARTAN AERO LIMITED

SCALE: 1 INCH = 200 FEET



McQuesten Lake

approximate shoreline of McQuesten Lake

To McQuesten Lake

L-8+00 S

Offer no. 2
Y 33058

Offer no. 1
Y 33057

L-24+00 S

(Punch no. 5)

L-32+00 S

(Punch no. 4)

To Elsa and Keno City

L-92+00 N
(Forbes Hill Area)

BL-1 (Forbes Hill Area)

Lucky no. 4
Y 31398

Lucky no. 3
Y 31395

Lucky no. 2
Y 31394

Lucky no. 1
Y 31392

L-88+00 N
(Forbes Hill Area)

(Iso no. 4)

Lucky no. 1
Y 31398

Lucky no. 5
Y 31397

Lucky no. 6
Y 31400

Lucky no. 7
Y 31399

Offer no. 6
Y 33052

Offer no. 5
Y 33050

Offer no. 8
Y 33054

Offer no. 7
Y 33053

- LEGEND**
- BULLDOZED, CHAINED AND PICKETED LINE
 - HAND CUT, CHAINED AND PICKETED LINE
 - CHAINED, COMPASS AND FLAGGED TRAVERSE LINE
 - PRICED AND FLAGGED LINE
 - CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NO. 1 POST TO NO. 2
 - CLAIM BOUNDARY
 - ROAD
 - BULLDOZED TRAIL
 - CREEK
 - LAKE

GEOPHYSICAL TRAVERSE PLAN
REGION "C" (RAMBLER HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1" = 200 FEET

E.M. 16 PROFILES

STATION N.P.G., 18.6 K.Hz. Jim Creek, Washington

ALF-E.M. PRIMARY FIELD WASHINGTON

READINGS TAKEN FACING WEST

IN-PHASE

QUADRATURE

CONDUCTOR AXIS

SCALE: 1 INCH = 20 %

MAGNETIC PROFILE

VERTICAL COMPONENT

SCALE: 1 INCH = 400γ

VERTICAL MAGNETIC COMPONENT

E.M. 16

400γ

300γ

200γ

100γ

0

-100γ

-200γ

-300γ

-400γ

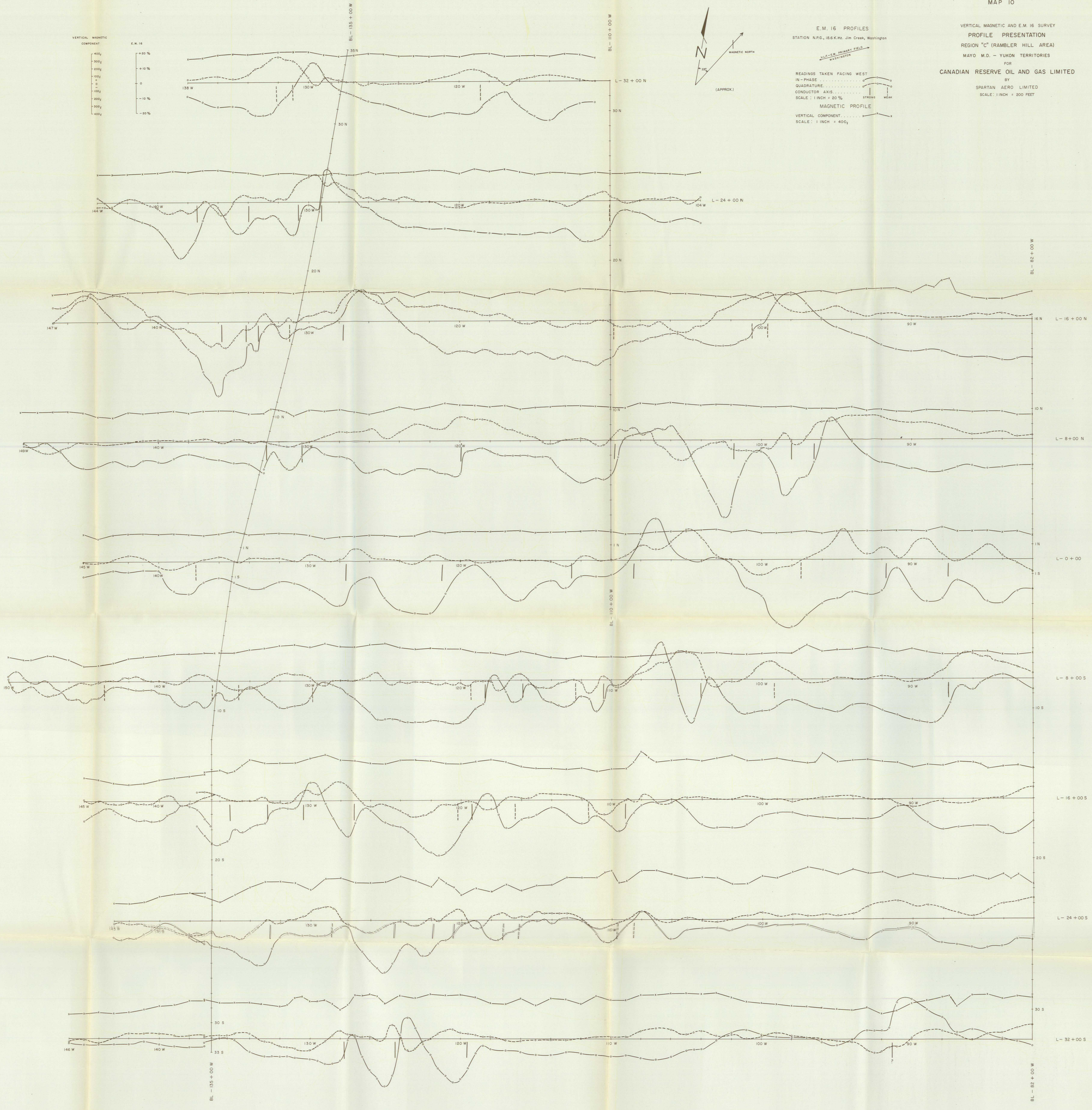
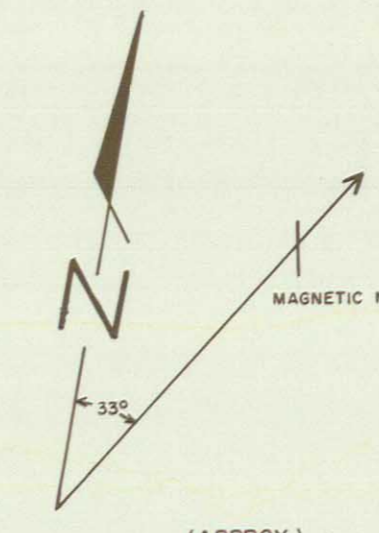
+20 %

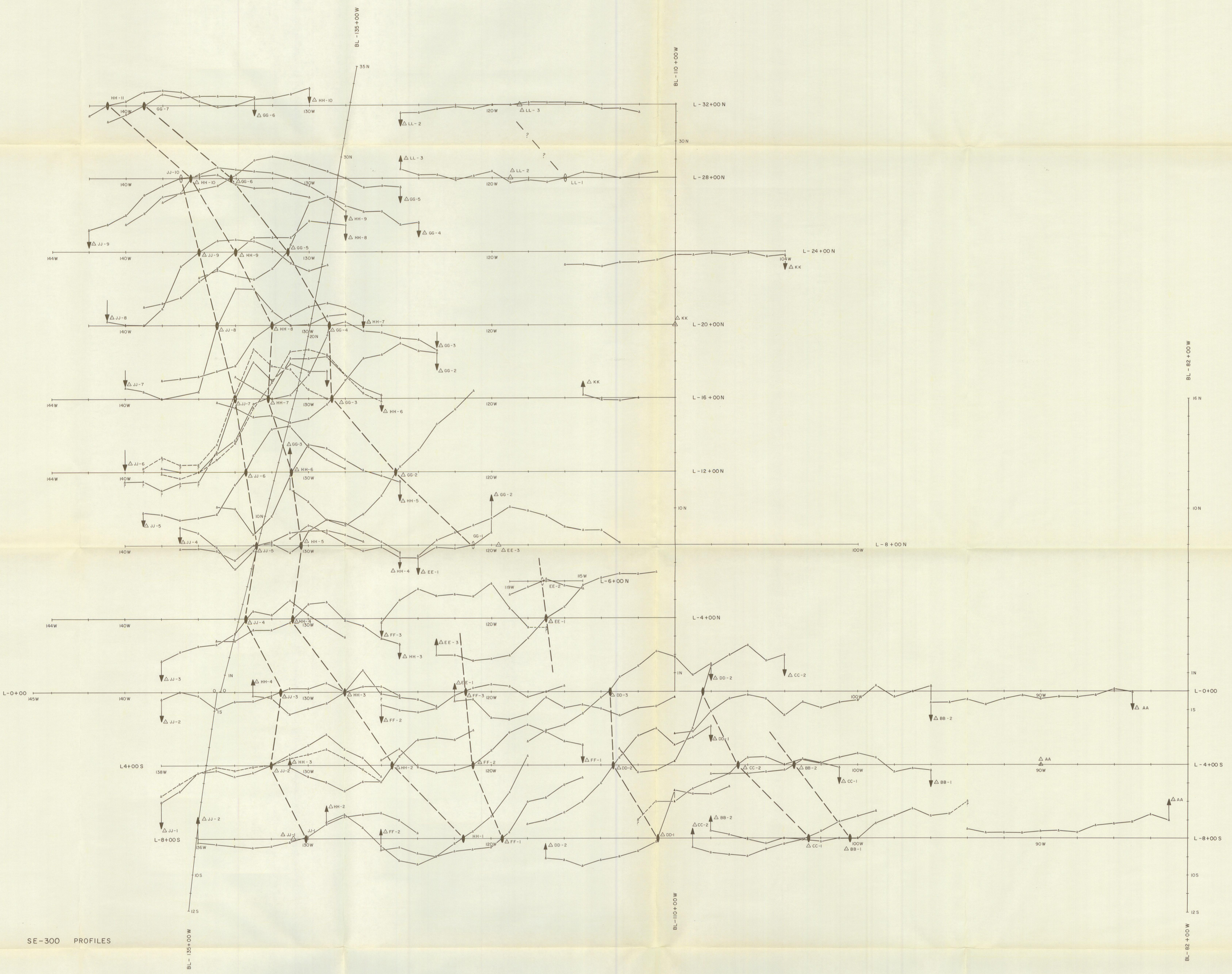
+10 %

0

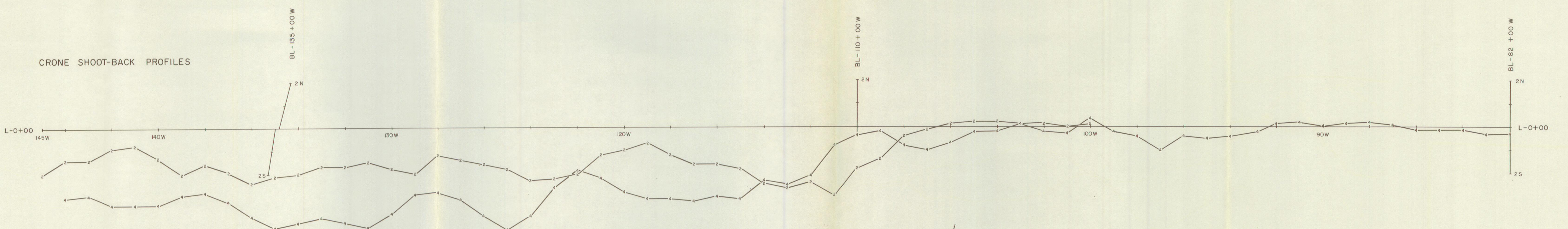
-10 %

-20 %

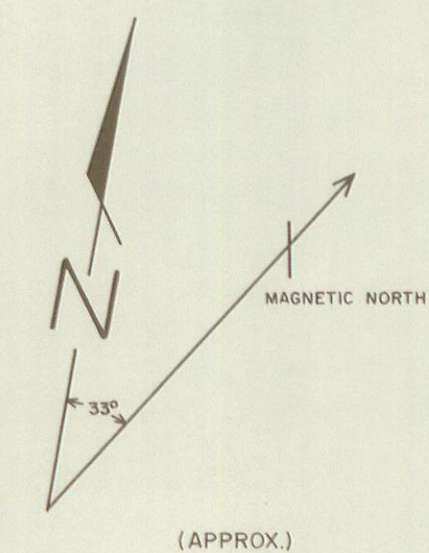




SE-300 PROFILES

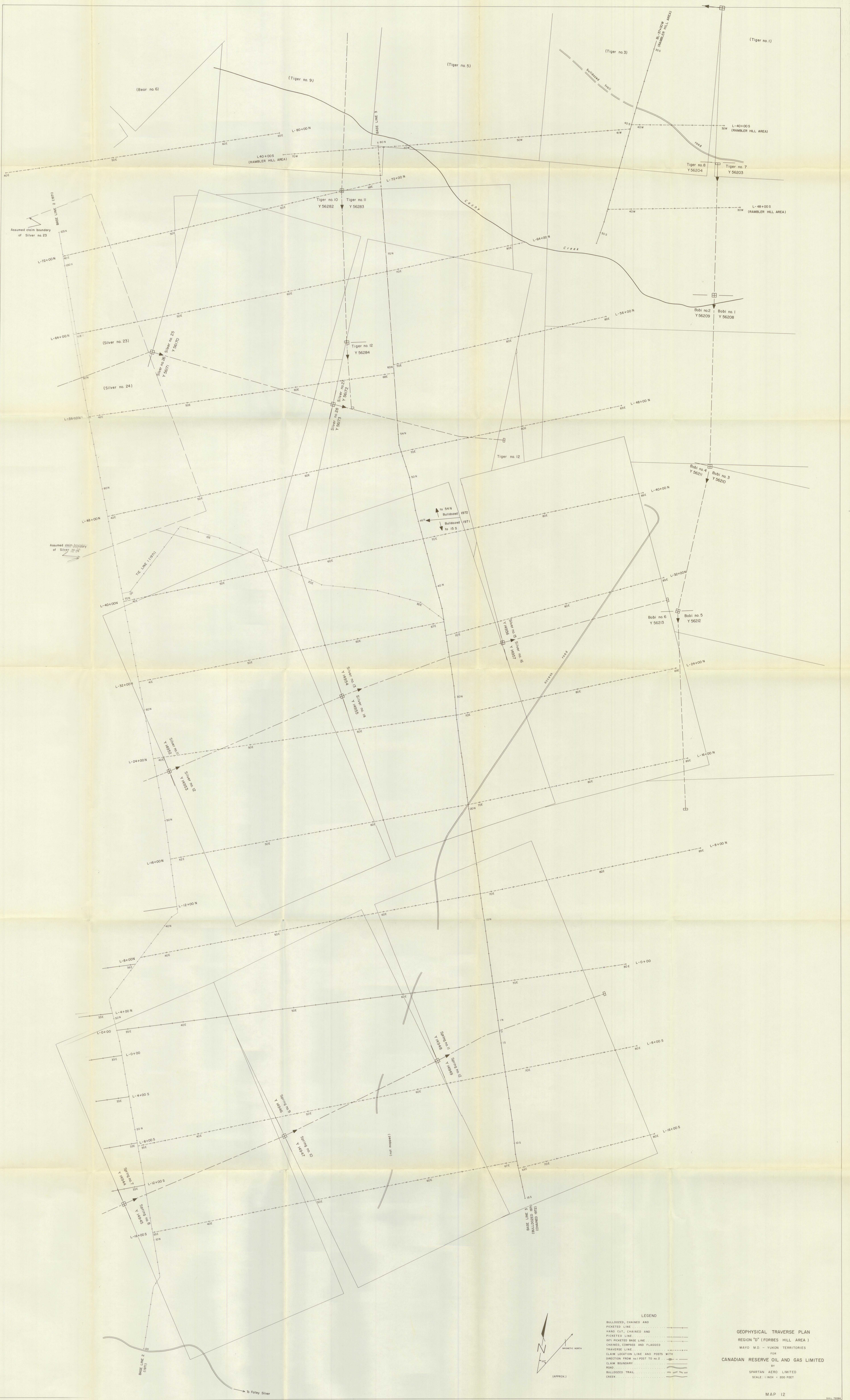


CRONE SHOOT-BACK PROFILES



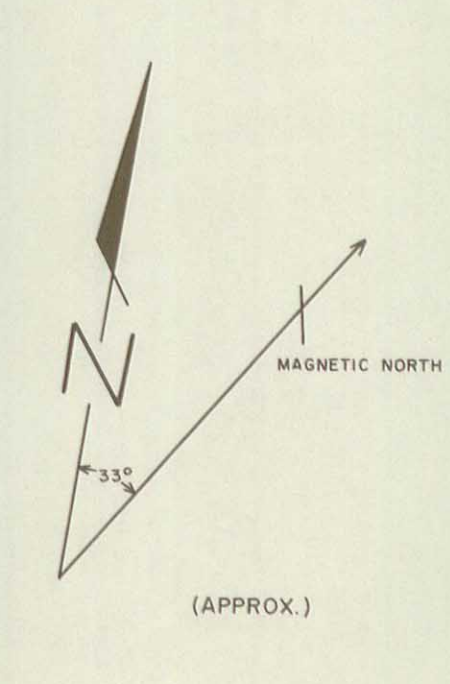
- LEGEND
- SE-300 PROFILES
 - FIXED TRANSMITTER MODE (VERTICAL LOOP)
 - 1600 Hz
 - 400 Ft
 - TRANSMITTER LOCATION
 - TRANSMITTER LOCATION FROM WHICH CURVE WAS DERIVED
 - CONDUCTOR AXIS MARKED BY X.O. PICKET
 - CONDUCTOR AXIS
 - CRONE SHOOT-BACK MODE
 - 1600 Hz - 400 Ft COL. SEP. RATION
 - 1600 Hz - 200 Ft COL. SEP. RATION
 - SCALE: 1 INCH = 20'

GEOPHYSICALLY DETAILED AREAS
 PROFILE PRESENTATION
 REGION "C" (RAMBLER HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
 CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET

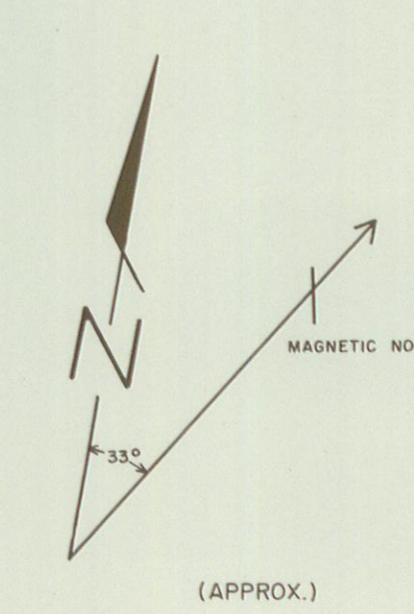
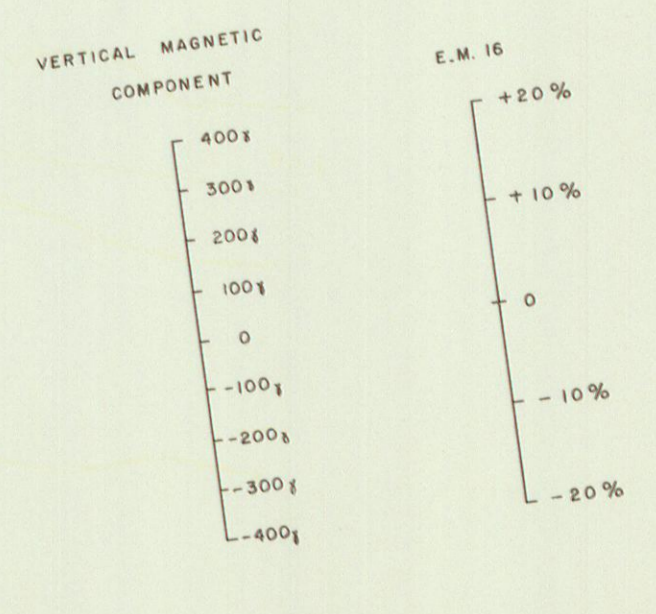
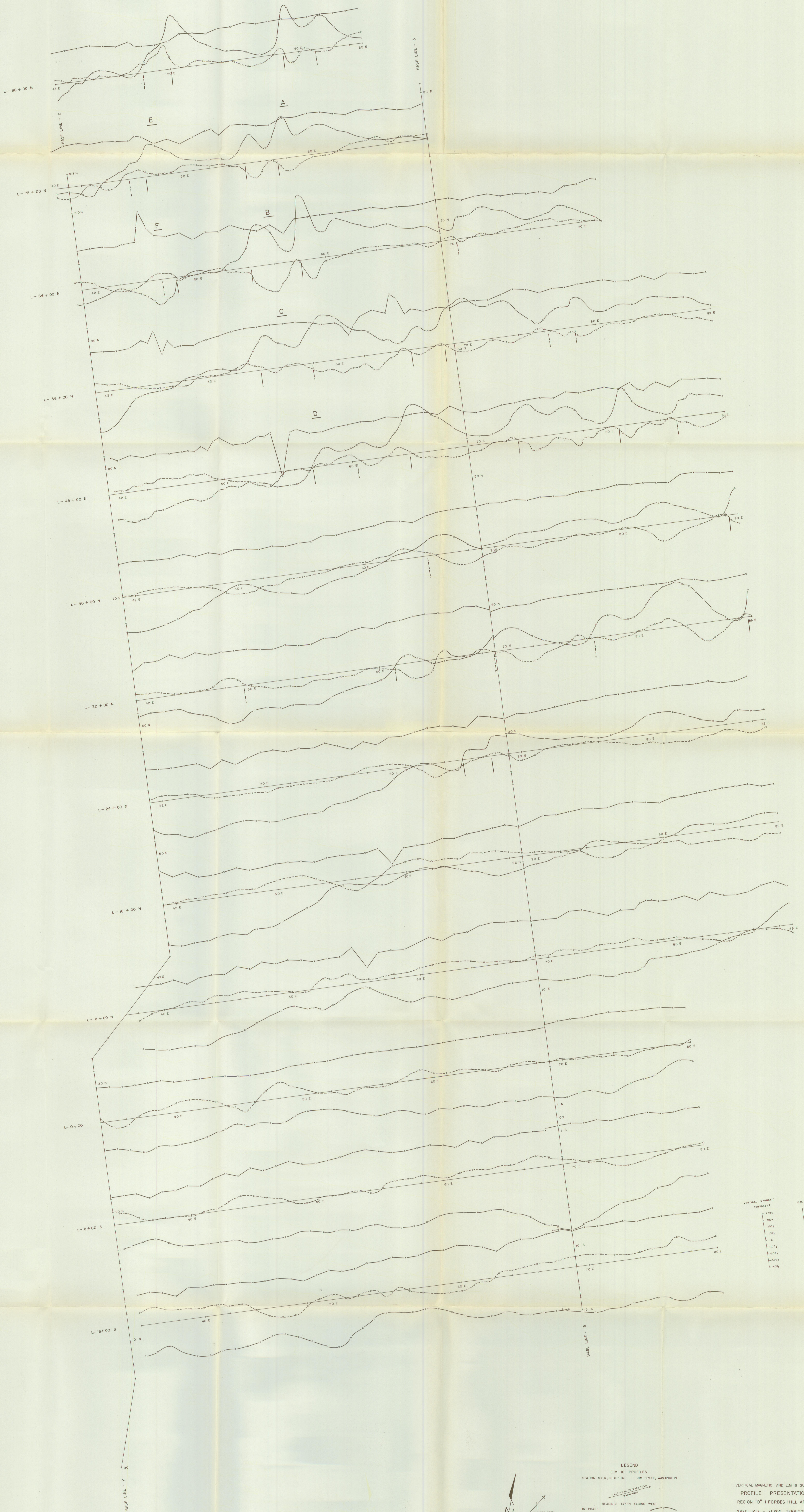


LEGEND

- BULLDOZED, CHAINED AND PICKETED LINE
- HAND CUT, CHAINED AND PICKETED LINE
- 1971 PICKETED BASE LINE
- CHAINED, COMPASS AND FLAGGED TRAVERSE LINE
- CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NEI POST TO NO. 2
- ROAD
- BULLDOZED TRAIL
- CRACK

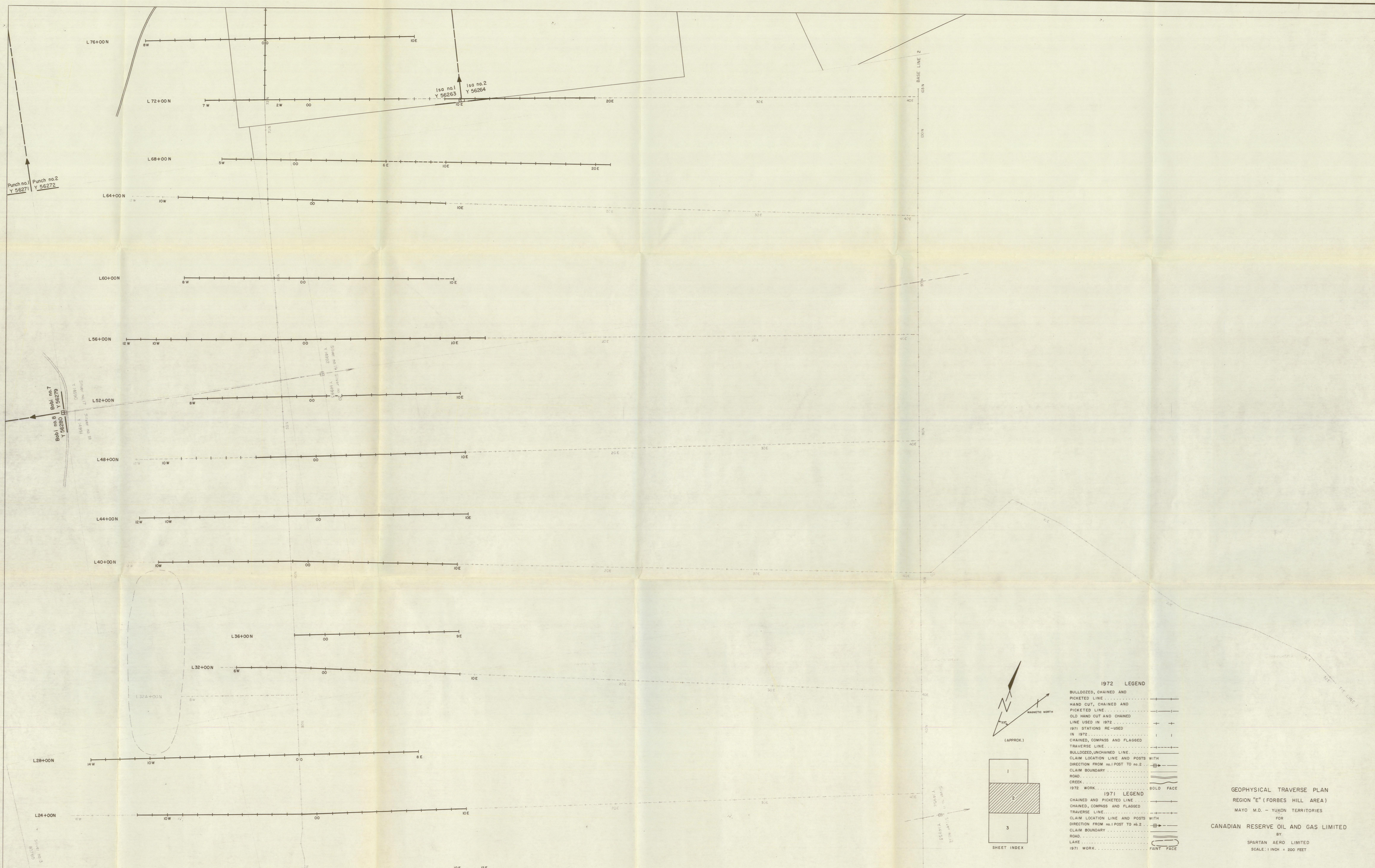


GEOPHYSICAL TRAVERSE PLAN
 REGION "D" (FORBES HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET



LEGEND
E.M. 16 PROFILES
STATION N.P.G., H.S.K.H. - JIM CREEK, WASHINGTON
ALL 1/4 SECTION FACING WEST
IN-PHASE READINGS TAKEN FACING WEST
QUADRATURE
CONDUCTOR AXIS
SCALE: 1 INCH = 200 FEET
MAGNETIC PROFILE
VERTICAL COMPONENT
SCALE: 1 INCH = 400 FEET

VERTICAL MAGNETIC AND E.M. 16 SURVEY
PROFILE PRESENTATION
REGION "D" (FORBES HILL AREA)
MAYO M.D. - YUKON TERRITORIES
FOR
CANADIAN RESERVE OIL AND GAS LIMITED
BY
SPARTAN AERO LIMITED
SCALE: 1 INCH = 200 FEET



Punch no. 1
Y 56271

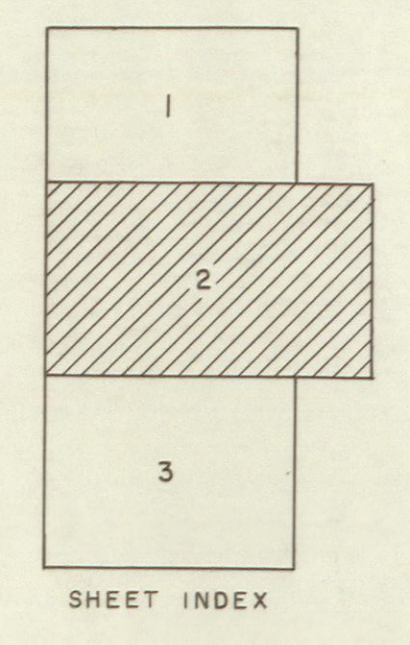
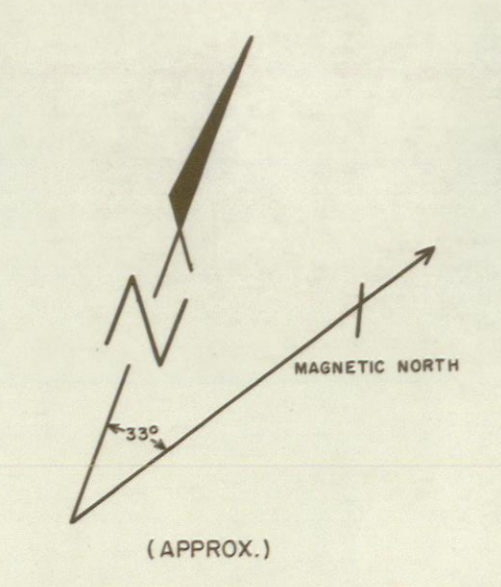
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Y 56263

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Y 56264

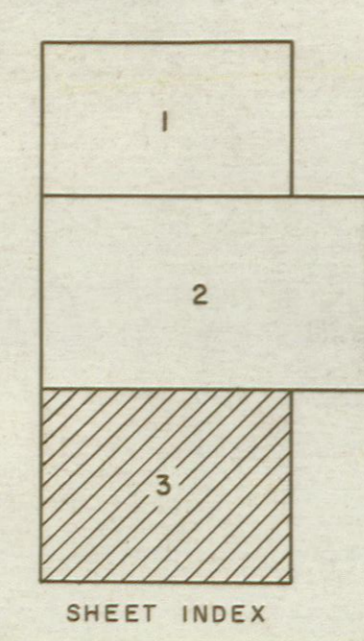
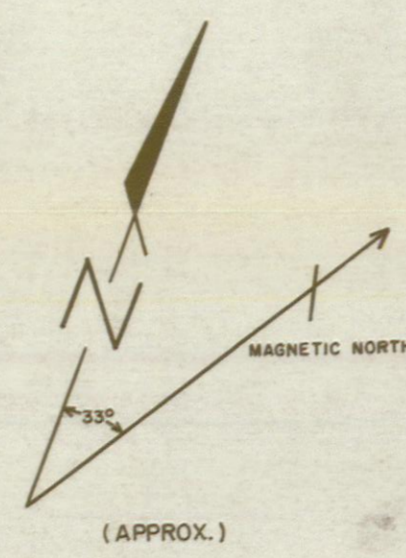
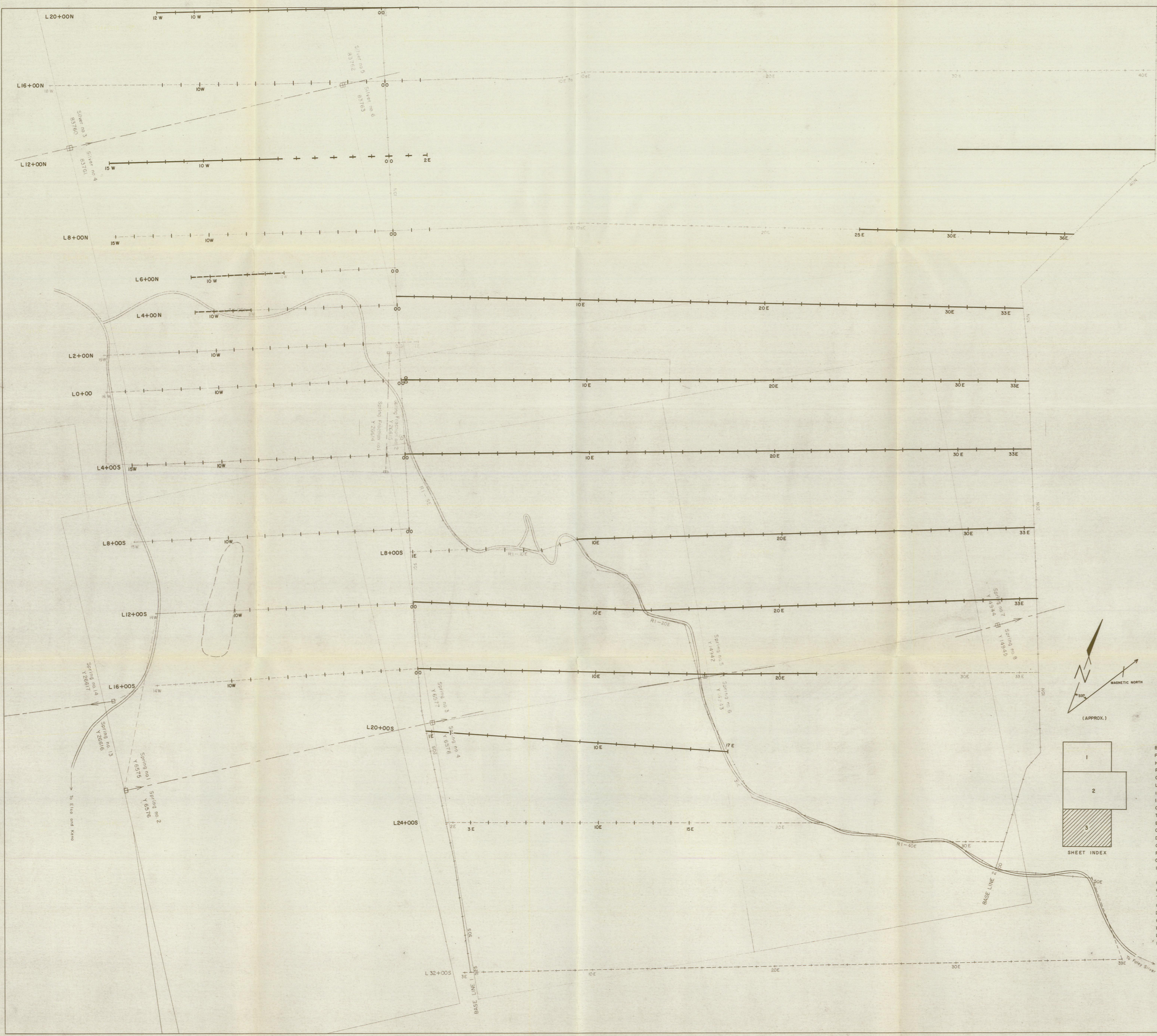
Booth no. 7
Y 56279

Booth no. 8
Y 56280



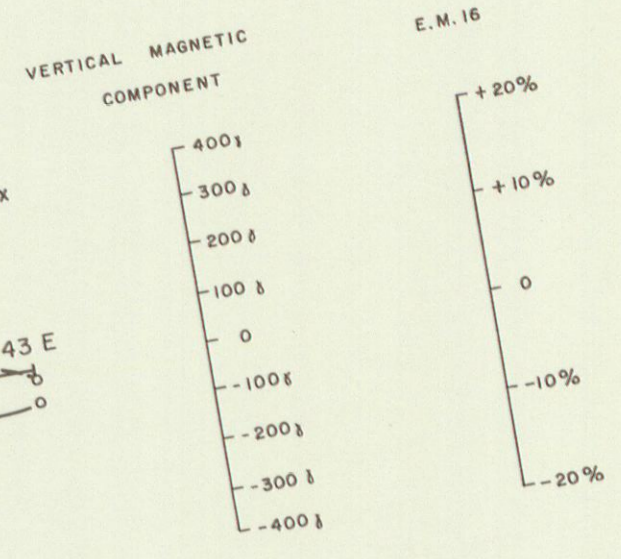
- 1972 LEGEND**
- BULLDOZED, CHAINED AND PICKETED LINE
 - HAND CUT, CHAINED AND PICKETED LINE
 - OLD HAND CUT AND CHAINED LINE USED IN 1972
 - 1971 STATIONS RE-USED IN 1972
 - CHAINED, COMPASS AND FLAGGED TRAVERSE LINE
 - BULLDOZED, UNCHAINED LINE
 - CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NO. 1 POST TO NO. 2
 - CLAIM BOUNDARY
 - ROAD
 - CREEK
 - 1972 WORK
- 1971 LEGEND**
- CHAINED AND PICKETED LINE
 - CHAINED, COMPASS AND FLAGGED TRAVERSE LINE
 - CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NO. 1 POST TO NO. 2
 - CLAIM BOUNDARY
 - ROAD
 - LAKE
 - 1971 WORK
- 1972 WORK** BOLD FACE
- 1971 WORK** FAINT FACE

GEOPHYSICAL TRAVERSE PLAN
REGION "E" (FORBES HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET



- 1972 LEGEND**
- BULLDOZED, CHAINED AND PICKETED LINE
 - HAND CUT, CHAINED AND PICKETED LINE
 - OLD HAND CUT AND CHAINED
 - LINE USED IN 1972
 - 1971 STATIONS RE-USED
 - CHAINED, COMPASS AND FLAGGED TRAVERSE LINE
 - BULLDOZED, UNCHAINED LINE
 - CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NO. 1 POST TO NO. 2
 - CLAIM BOUNDARY
 - ROAD
 - CREEK
 - 1972 WORK
- 1971 LEGEND**
- CHAINED AND PICKETED LINE
 - CHAINED, COMPASS AND FLAGGED TRAVERSE LINE
 - CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM NO. 1 POST TO NO. 2
 - CLAIM BOUNDARY
 - ROAD
 - LAKE
 - 1971 WORK

GEOPHYSICAL TRAVERSE PLAN
REGION "E" (FORBES HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET



LEGEND

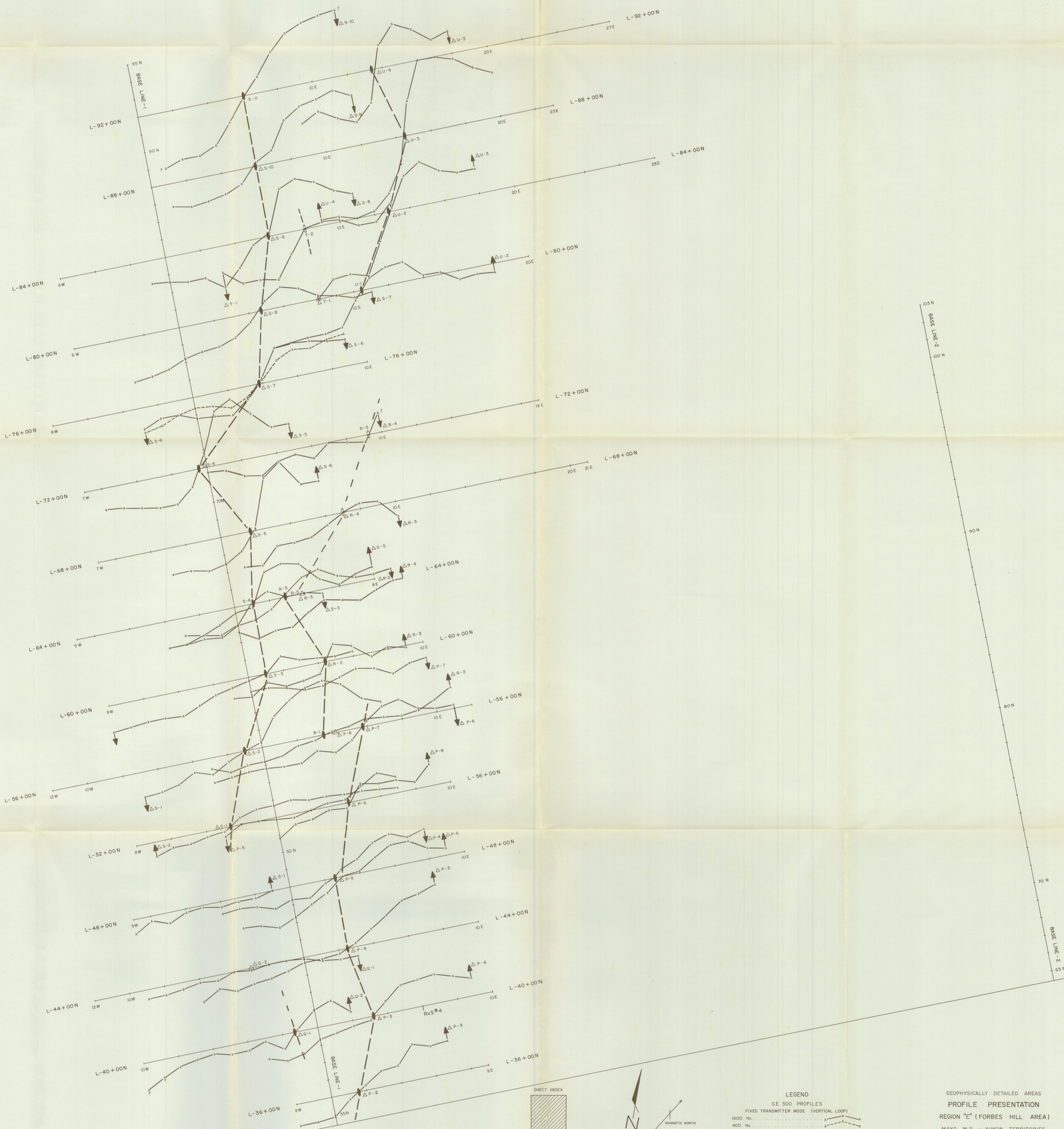
E.M. 16 PROFILES
 STATION N.P.G., 18.6 K.Hz. - JIM CREEK, WASHINGTON

V.L.F. - E.M. PRIMARY FIELD WASHINGTON

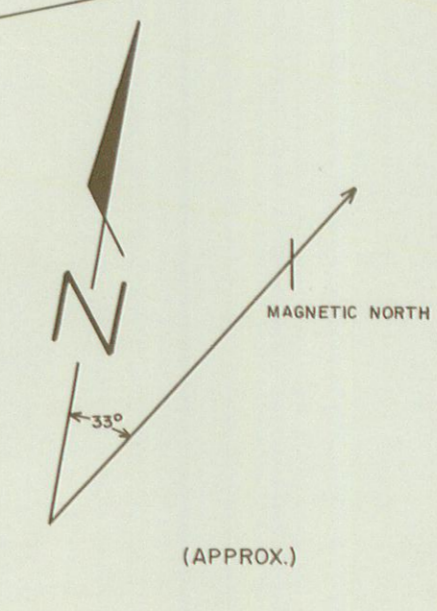
READINGS TAKEN FACING WEST

IN-PHASE o
 QUADRATURE o
 CONDUCTOR AXIS o
 SCALE: 1 INCH = 20%
 MAGNETIC PROFILE
 VERTICAL COMPONENT x
 SCALE: 1 INCH = 400'

VERTICAL MAGNETIC AND E.M. 16 SURVEY
 PROFILE PRESENTATION
 REGION "E" (FORBES HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET

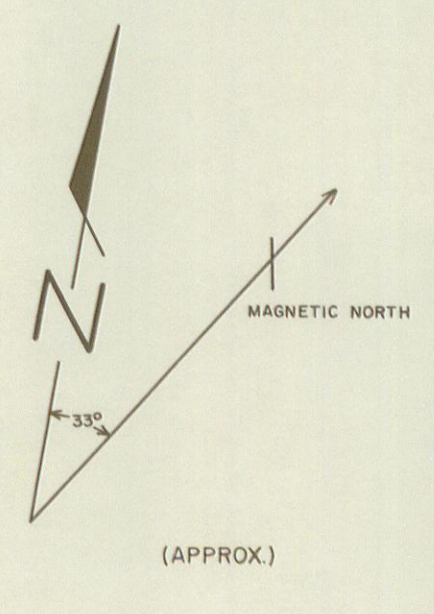
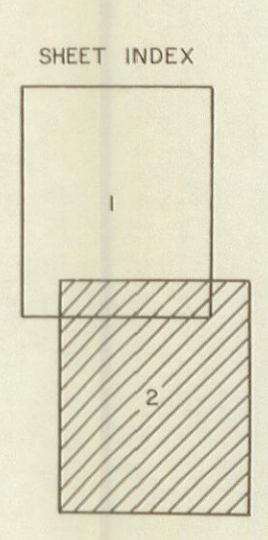
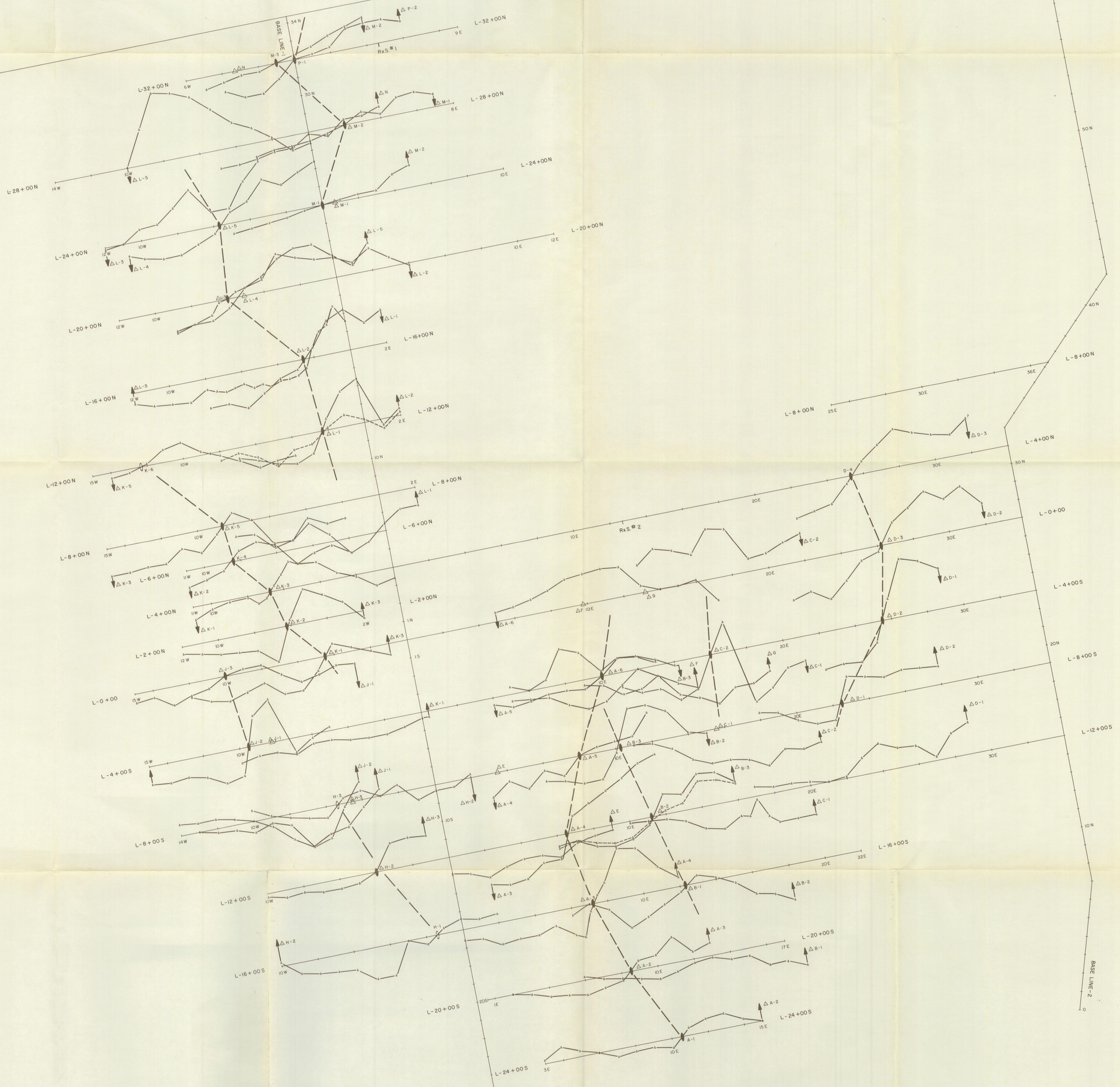


SHEET INDEX
2



LEGEND
 S.E. 300 PROFILES
 FIXED TRANSMITTER MODE (VERTICAL LOOP)
 1600 Hz
 400 Hz
 TRANSMITTER LOCATION
 TRANSMITTER LOCATION FROM WHICH CURVE WAS DERIVED
 CONDUCTOR AXIS MARKED BY XD PICKET
 CONDUCTOR AXIS
 ROCK SAMPLE
 SCALE: 1 INCH = 200 FEET

GEOPHYSICALLY DETAILED AREAS
 PROFILE PRESENTATION
 REGION "E" (FORBES HILL AREA)
 MAYO M.D. - YUKON TERRITORIES
 FOR
 CANADIAN RESERVE OIL AND GAS LIMITED
 BY
 SPARTAN AERO LIMITED
 SCALE: 1 INCH = 200 FEET
 MAP 16a



LEGEND
 S.E. 300 PROFILES
 FIXED TRANSMITTER MODE (VERTICAL LOOP)
 1600 Hz
 400 Hz
 TRANSMITTER LOCATION
 TRANSMITTER LOCATION FROM WHICH
 CURVE WAS DERIVED
 CONDUCTOR AXIS MARKED BY 'X' PICKET
 ROCK SAMPLE
 SCALE: 1 INCH = 200'

GEOPHYSICALLY DETAILED AREAS
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