

85-577-13963

9/86

INTERNATIONAL TILLEX ENTERPRISES LTD.
GEOPHYSICAL REPORT
ON A

VLF-EM & MAGNETOMETER SURVEY
ITALY GROUP CLAIM
GREENWOOD MINING DIVISION

LAT. 49°05'N LONG. 118°10'W NTS 82E/1E
AUTHOR: E.Trent Pezzot, B.Sc., Geophysicist
SURVEY DATE: June 24-26, 1985
REPORT DATE: July 15, 1985

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,963

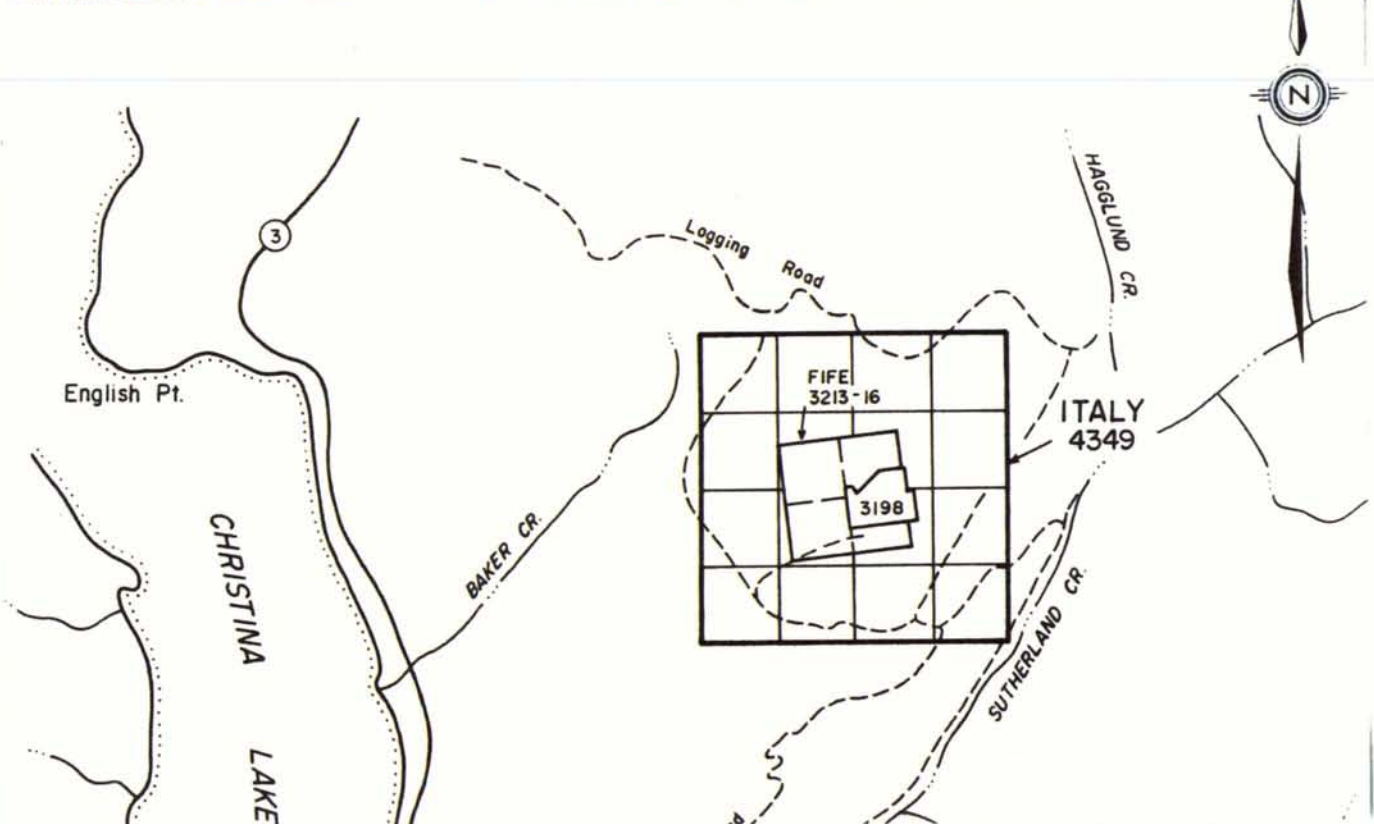
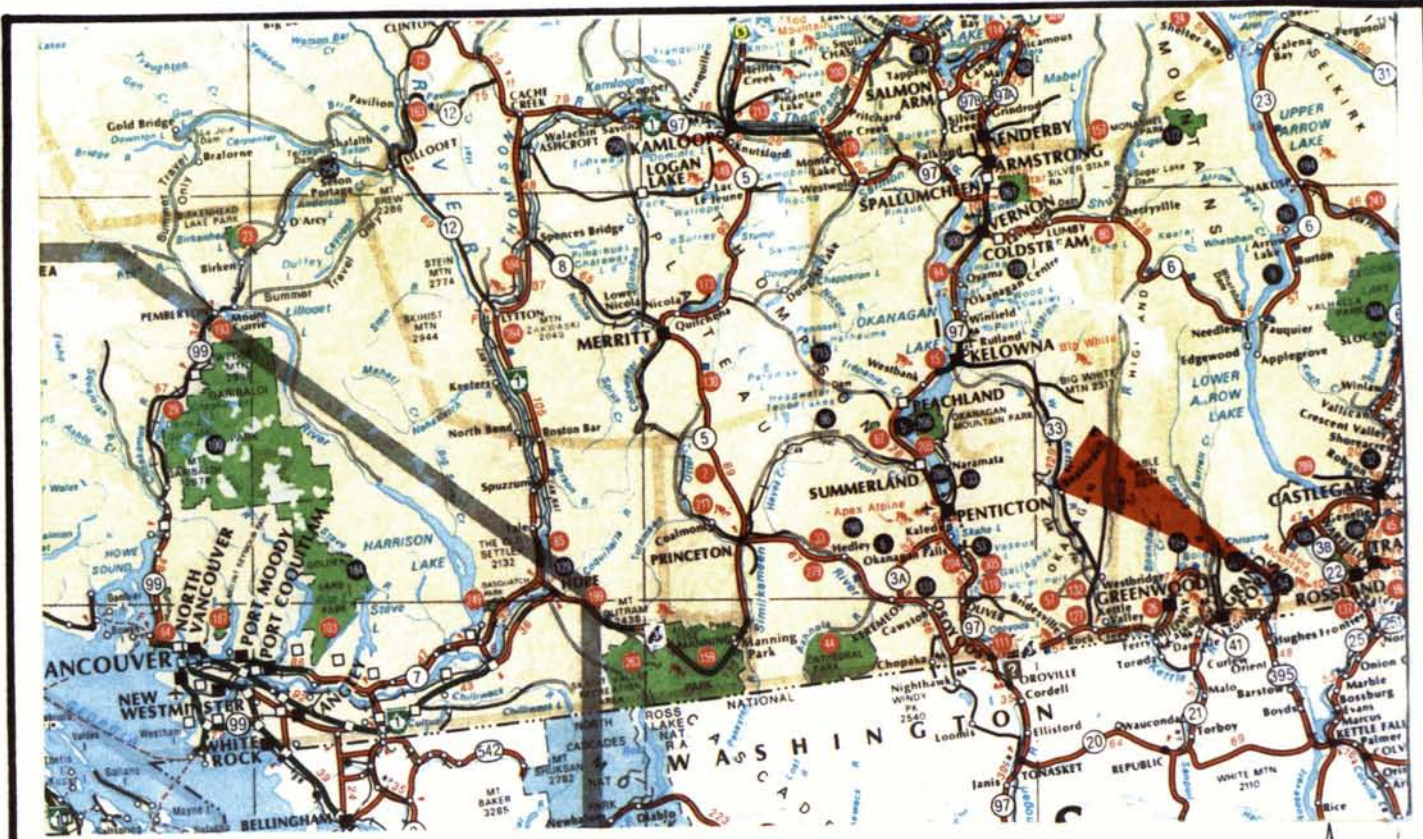
PART 1 OF 2

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INTERNATIONAL TILLEX ENTERPRISES LTD.
 — ITALY CLAIM GROUP —
 LOCATION AND CLAIMS MAP

WHITE GEOPHYSICAL INC.

FIGURE 1

INTRODUCTION

White Geophysical Inc. was subcontracted to supply the geophysical instrumentation and one operator to conduct a small program of VLF - electromagnetometer and proton precession magnetometer surveying across the ITALY claim, near Christina Lake in southeastern B.C. The surveys were conducted under the direct supervision of J.R. Poloni on June 26, 1985. Each survey totalled 8.6 kilometres in length.

It was the intention of these surveys to determine whether a magnetic or conductivity signature could be associated with observed mineralization on the property to test their effectiveness as a prospecting method in this environment.

PROPERTY

The ITALY claim is comprised of 16 units as listed below and illustrated on Figure 1.

<u>CLAIM NAME</u>	<u>RECORD #</u>	<u>UNITS</u>	<u>EXPIRY DATE</u>
ITALY GROUP	4349	16	July 3rd, 1986

This claim overlies the Fife 1-4 two post claims (record #'s 3213-3216) and the Elmore claim (lot 972, record # 3198).

LOCATION & ACCESS

The ITALY claim is located approximately 20 km east-north-east of Grand Forks, B.C., immediately east of Christina Lake and between Baker Creek and Sutherland Creek (see figure 1). It lies within the Greenwood Mining Division and NTS 82E/1E. Approximate geographical co-ordinates are latitude $49^{\circ}05'N$ and longitude $118^{\circ}10'W$.

The claim is readily accessible via old logging roads which leave BC Highway #3 at the town of Christina Lake and follow Sutherland Creek northeast.

LOCAL GEOLOGY

The following geological description has been copied from a report entitled "Report on the Italy Claim, Geochemical and Geological Survey", authored by John R. Poloni and dated November 22, 1984.

"The Italy Claim is underlain by the Nelson Intrusions in contact with the Coryell Intrusions and the Mount Roberts Formation. The oldest unit occurring on the claim is the Mount Roberts Formation of Pennsylvanian or Permian age consisting of greywacke, greenstone, limestone and paragneiss. This unit encloses on the north, west and south the Nelson Rocks of Lower Cretaceous age composed of granodiorite, porphyritic granite, diorite, monzonite and quartz monzonite. Younger Coryell Intrusions are generally reddish to pale buff coloured syenite which locally grade into granite of shonkinite.

Classification of the known economic mineral occurrences of the Greenwood-Grand Forks area has defined four types:

- A) Phoenix - disseminated chalcopyrite with significant gold and silver values occurring in the Brooklyn crystalline limestone, skarns, and calcareous argillites.
- B) Grenoble-Teck - gold, silver, copper, deposits occurring in talc-carbonate alteration zones adjacent to ultramafic plugs, i.e. Old City of Paris Mine.
- C) Dentonia - quartz veins containing gold silver mineralization, occurring at or near the contacts between the Nelson Intrusives and Knob Hill greenstones and sediments.
- D) Kettle River Resources - gold associated with a stratiform lense of massive sulfides containing pyrrhotite, pyrite, and minor chalcopyrite related to laminated cherty argillite, northwest of the Old Ironsides Pit.

The main showing on the Italy Claim consists of an exposure of silicious gossan approximately 25 mm in diameter containing massive to disseminated pyrrhotite, pyrite, and minor chalcopyrite which has been explored by shallow trenches and a shaft 10 feet deep. The mineralized zone is contained in a silicified hard fine grained metamorphosed unit which appears to be related to the Nelson Intrusions.

Other showings are generally gossany and silicious, at times scarny, containing pyrite and pyrrhotite."

PREVIOUS WORK

The following description is also copied from the report by John R. Poloni described above.

"Mineral exploration in the area dates from the significant discovery made in the 1890's in the Greenwood-Grand Forks region of the Boundary District. By 1900 several mines including the large Phoenix operation of Granby Mining Company had achieved production with smelters being established at Grand Forks and Greenwood. The operations at Phoenix terminated in 1919 with dwindling ore supplies.

During the 1930's - 40's a number of deposits were worked sporadically for gold.

In 1959 a 700 ton per day copper flotation mill was completed by Granby Mining and several open pit deposits were mined as salvage operations. Former underground operations were re-activated. The mill was expanded to 2,000 tons per day and a large open pit established on the Old Ironsides orebody. Production terminated in 1978.

Numerous deposits in the area have recorded production. A total of 15 deposits produced either disseminated copper ore with gold and silver values, or gold and silver from quartz veins.

During 1983 the area had been re-activated by the discoveries made by Kettle River Resources Limited on ground optioned from Noranda Mines in 1981; by underground development and diamond drilling by Teck Corporation on the joint-ventured Grenoble Resources ground; and by the re-opening of the Dentonia Gold Mine by Dentonia Resources Ltd. near Jewel Lake.

The Italy claim has received only a minimal amount of exploration and development in the past. Several shallow pits and trenches were completed exploring gossan zones containing pyrite, pyrrotite, and chalcopyrite. These workings are shown on the accompanying maps. Generally the showing areas are located in metamorphosed volcanics and sediments which are dense and scarny in nature."

VLF ELECTROMAGNETOMETER SURVEY

This survey was conducted using a Geonics EM-16 V.L.F. Electromagnetometer. This instrument acts as a receiver only. It utilizes the primary electromagnetic fields generated by VLF marine communication stations. These stations operate at a frequency between 15-25 KHZ, and have a vertical antenna-current resulting in a horizontal primary field. Thus, this V.L.F.-E.M. measures the dip-angle of the secondary field induced in a conductor.

For maximum coupling, a transmitter station located in the same direction as the geological strike should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction of the transmitting station.

Readings were taken at 30m intervals and the data filtered in the field by the operator as described by D.C. Fraser, Geophysics Vol. 34, No. 6 (December 1969). The advantage of this method is that it removes the dc and attenuates long spatical wave lengths to increase resolution of local anomalies, and phase shifts the dip-angle data by 90 degrees so that crossovers and inflections will be transformed into peaks to yield contourable quantities.

PROTON PRECESSION MAGNETOMETER SURVEY

The magnetometer survey was carried out utilizing two GSM-8 proton precession magnetometers. One of these was operated in conjunction with a CMG MR-10 base magnetometer recorder to allow diurnal and micropulsation variation removal. Operator precautions of demagnetization and consistency were observed and field clock to base magnetometer timing skew was maintained within one second per day. Corrected, unfiltered data are plotted on each of the base maps.

DISCUSSION OF RESULTS

The geophysical surveys were run across two small portions of a pre-existing grid. The lines are oriented north-south at 100 metre intervals and the stations occupied were 25 metres apart. A total of 8.6 line kilometres (316 stations) of both magnetometer and VLF-EM surveying was completed. It should be noted that line 1400E is missing from the base maps. This is due to an error in the original labelling of the grid and the maps reflect the actual field identifications. Also, the line labelled as 2300E is located at grid position 2250E.

The VLF-EM inphase and quadrature data is presented in profile form as Figure 2, and the Fraser filtered inphase data in contour form as Figure 3. The diurnally corrected total magnetic field intensity data is posted and contoured on Figure 4.

The magnetic contours observed on Figure 4 are dominantly oriented east-west, suggesting similarly oriented geological structures and/or lithologies. Trends observed appear to be comprised of narrow, high intensity features suggesting vein or lense type accumulations of pyrrhotite or magnetite. The strongest response observed occurs on the eastern portion of the grid as part of a narrow, northeasterly trending zone mapped from line 2300E, station 9525N to line 2500E, station 9725N. This magnetic anomaly directly correlates with the main showing on the ITALY claim (line 2300E station 9525E) and infers the observed mineralization extends to the northeast.

The VLF-EM data reflects a similar east-west structural or lithological orientation across the areas surveyed. Although the area of the main showing is located on a weak conductive response, the main conductive trend is located 100 metres to the north. This conductor directly correlates with a strong magnetic low, possibly indicating a geological contact or fault.

SUMMARY AND CONCLUSIONS

A small program of VLF-EM and magnetometer surveying was conducted across two portions of the ITALY claim on June 26, 1985. Both the magnetic and VLF-EM data reflect a dominant east-west orientation to the underlying geological structures and lithologies and indicate the presence of numerous small, narrow anomalies. The main showing on the ITALY claim is a 25 m diameter gossan zone which contains massive to disseminated pyrite, pyrrhotite and minor chalcopyrite. This showing directly correlates with the southwestern end of a strong magnetic anomaly and lies approximately 100 metres south of an interpreted fault or geological contact.

A number of additional magnetic and conductivity lineations are observed which are of similar intensity and dimensions to those which correlate with the main showing. These may be reflecting a similar geological environment.

RECOMMENDATIONS

This small amount of magnetometer and VLF-EM surveying has illustrated the effectiveness of these exploration methods in this environment. It is recommended that these surveys be completed across the remainder of the grid as an adjunct to the prospecting and geological mapping already planned. An accurate evaluation of this property and the most efficient trenching and drilling proposals will require both geological and geophysical input.

Respectfully submitted.



E. Trent Pezzot, B.Sc.,
Geophysicist

EM 16 - VLF ELECTROMAGNETIC UNITSpecifications

Source of primary field	- VLF transmitting stations
Transmitting stations used	- Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two tuning units can be plugged in at one time. A switch selects either station.
Operating frequency range-	15-25 kHz
Parameters measured -	(1)The vertical in-phase component (tangent of the tilt angle of the polarization ellipsoid). (2)The vertical out-of-phase (quadrature) component (the short axis of the polarization ellipsoid compared to the long axis).
Method of reading	- In-phase from a mechanical inclinometer and quadrature from a calibrated dial. Nulling by audio tone.
Scale range	- In-phase \pm 150%; quadrature \pm 40%.
Readability	- \pm 1%.
Reading time	- 10-40 seconds depending on signal strength.
Operating temperature range	- -40 to 50°C.
Operating controls	- ON-OFF switch, battery testing push button, station selector, switch, volume control, quadrature, dial \pm 40%, inclinometer dial \pm 150%.
Power Supply	- 6 size AA (penlight) alkaline cells. Life about 200 hours.
Dimensions	- 42x14x9cm (16x5.5x3.5 in.)
Weight	- 1.6 kg (3.5 lbs.)
Shipping Weight	- 4.5 kg (10 lbs.)

GSM-8 PROTON PRECESSION MAGNETOMETERSPECIFICATIONS

RESOLUTION: 1 gamma

ACCURACY: ± 1 gamma over operating range

RANGE: 20,000-100,000 gamma in 23 overlapping steps

GRADIENT TOLERANCE: Up to 5000 gamma/metre

OPERATING MODES: MANUAL PUSHBUTTON, new reading every 1.85 sec., display active between readings

CYCLING, pushbutton initiated, 1.85 sec. period

SELFTEST, pushbutton controlled, 7 sec. period

OUTPUT: VISUAL: 5 digit 1 cm (0.4") high Liquid Crystal Display, visible in any ambient light

DIGITAL: Multiplied precession frequency and gating pulse

ANALOG: Optional 0-99 or 0-999 gamma

EXTERNAL TRIGGER: Permits externally triggered operation with periods longer than 1.85 sec. (optional minimum period 0.9 sec.)

POWER REQUIREMENTS: 12V 0.7A peak, 5mA standby

POWER SOURCE: INTERNAL: 12V 0.75Ah NiCd rechargeable battery 3,000 readings per full charge

EXTERNAL: 12-32V

BATTERY CHARGER: Input: 110/220V 50/60Hz; output: 14V 75mA DC

OPERATING TEMP.: -35 to +55C

DIMENSIONS: CONSOLE: 15x8x15cm (6x3 $\frac{1}{4}$ x6")

SENSOR: 14x7cm dia (5 $\frac{1}{2}$ x3" dia)

STAFF: 175cm(70") extended, 53cm (21") collapsed

WEIGHT: 2.7kg (6 lb) per standard complete with batteries

COST BREAKDOWN

<u>PERSONNEL</u>	<u>DATES</u>	<u>PRODUCTION</u>	<u>RATE</u>	<u>TOTAL</u>
M. Seyward	June 25/85	Mobilization	125	125.00
	June 26/85	Survey	250	250.00
	June 27/85	De-mobilization	125	<u>125.00</u>
			SUBTOTAL	\$500.00

SUPPORT CHARGES

Instrument Lease	300.00
Vehicle	240.00
Meals & Accomodations	150.00
Computer Processing	540.00
Drafting	115.00
Interpretation & Report Compilation	750.00
Reproduction	180.00
Materials, Sundry	<u>25.00</u>
	SUBTOTAL 2300.00
	<u>500.00</u>
	TOTAL <u>\$2800.00</u>

See / use statement in pocket.
TK

STATEMENT OF QUALIFICATIONS

NAME: PEZZOT, E. Trent

PROFESSION: Geophysicist - Geologist

EDUCATION: University of British Columbia-
B.Sc. - Honors Geophysics and Geology

PROFESSIONAL
ASSOCIATIONS: Society of Exploration Geophysicists

EXPERIENCE: Three years undergraduate work in
geology - Geological Survey of Canada,
consultants.

Three years Petroleum Geophysicist,
Senior Grade, Amoco Canada Petroleum
Co. Ltd.

Two years consulting geophysicist,
Consulting geologist - B.C., Alberta,
Saskatchewan, N.W.T., Yukon, western
U.S.A.

Six years geophysicist with White
Geophysical Inc.

1512 B 56th Street
Delta, B.C.
V4L 2A8

Invoice No. 85 - 21

International Tillex Enterprises Ltd.
1313 West Pender Street
Vancouver, B.C.
V7Y 2V9

Dear Sir:

Re: Italy Group, Grand Forks Mining Division.

Disbursements

B.C. Telephone	\$ 14.69
J.W. Drafting	25.15
Jeffco Holdings 85 - 10	557.04
Jeffco Holdings 85 - 11	935.20
Fuel	107.65
Prov. of B.C.	5.00
Food	266.19
Motel	267.15
Flagging	32.00
Thread	33.00
Binder & Plastics	15.00
My Secretary	69.00
Prints	39.60
J.W. Drafting	365.54
Jeffco Holdings 85 - 12	375.00
Jeffco Holdings 85 - 13	725.00
Ed Carson	<u>75.00</u>
	\$3907.26

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\$3907.26

Professional Services

J.R. Poloni

May 30/85	Recording Office	2 hrs.
June 3/85	Plans & Mobilization	3 hrs.
June 4/85	Field	1 day
June 5/85	Field	1 day
June 6/85	Field	1 day
June 7/85	Field	1 day
June 8/85	Field & Travel	1 day
June 14/85	Plans - Assay Data	3 hrs.
June 17/85	Plans	2 hrs.
June 18, 19/85	Geophysical Consultants, letter	2 hrs.
June 24/85	Geophysical Consultant	2 hrs.
July 4/85	Report	1 day
July 5/85	Proofing & Assembly	2 hrs.

Total time 8 days

\$3200.00

Total Invoice

\$7107.20

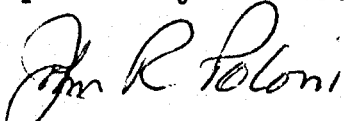
Project Advance May 21/85

\$5000.00

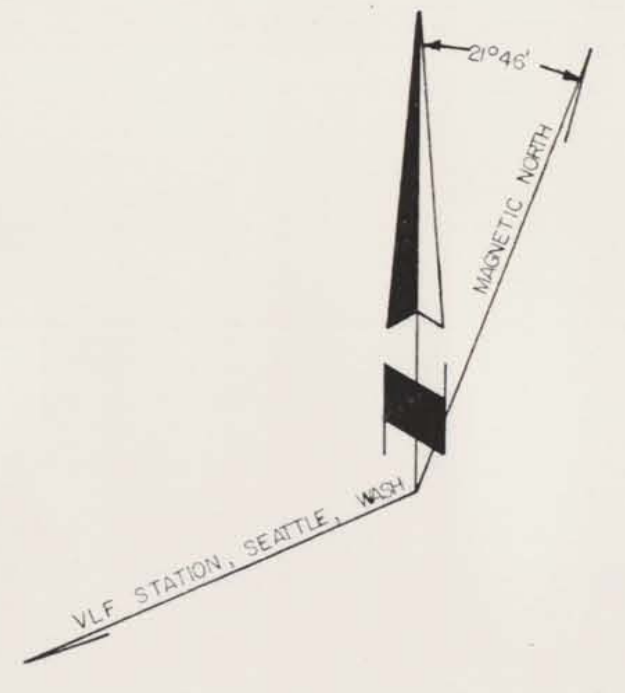
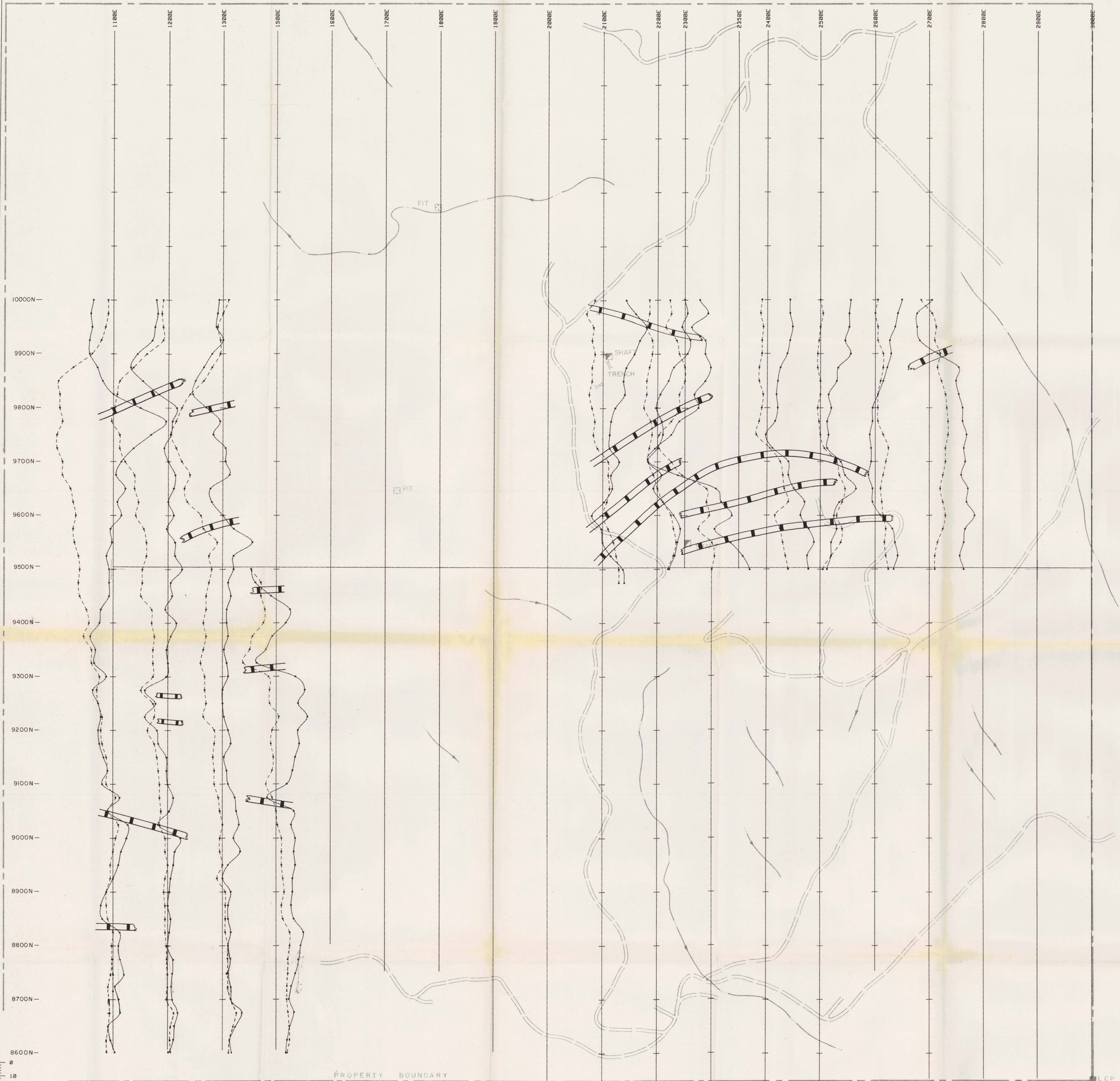
Balance Owing

\$2107.20

Respectfully submitted,



John R. Poloni P. Eng.



KEY:

- Survey Line:
- Inphase (Percent):
- Quadrature (Percent):
- VLF Station: Seattle (NLK), 24.8 kHz
- Facing Direction: South
- Road:
- Claim Post:
- Claim Line:

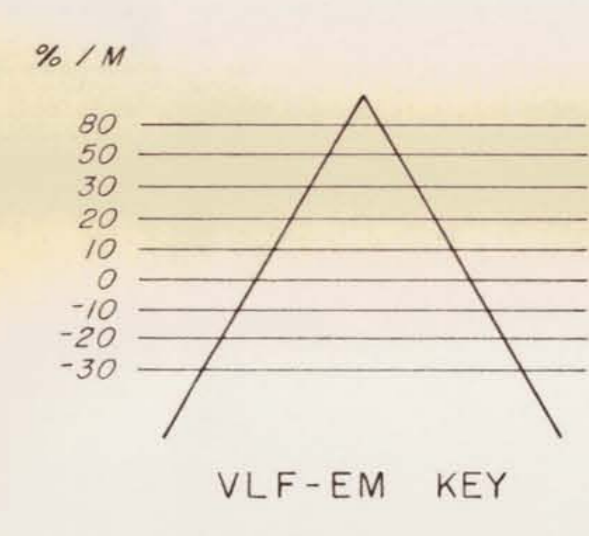
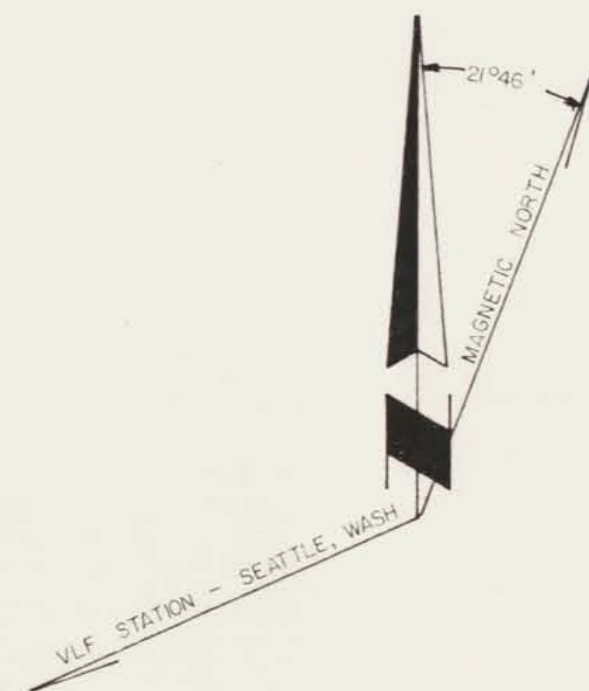
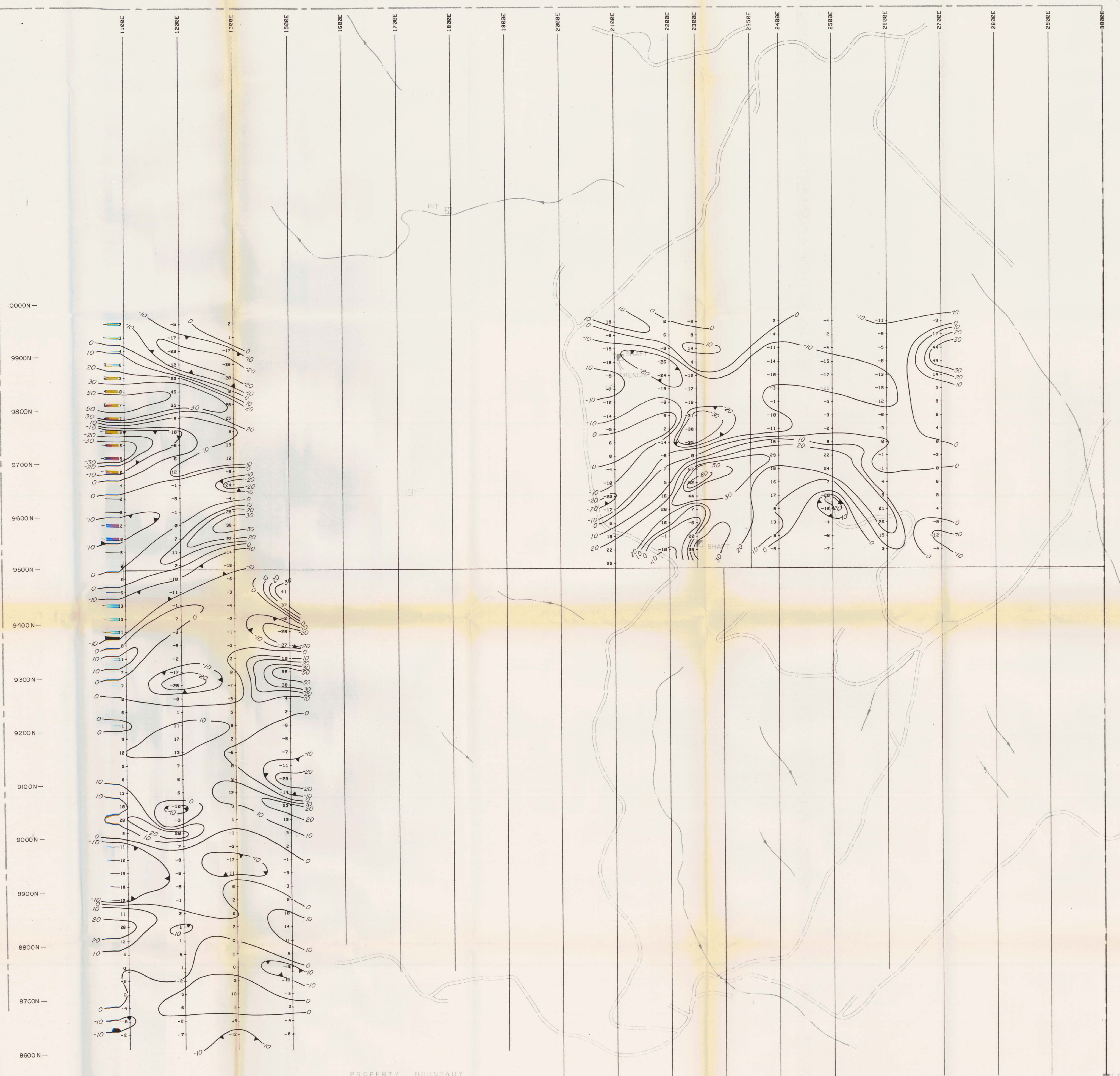
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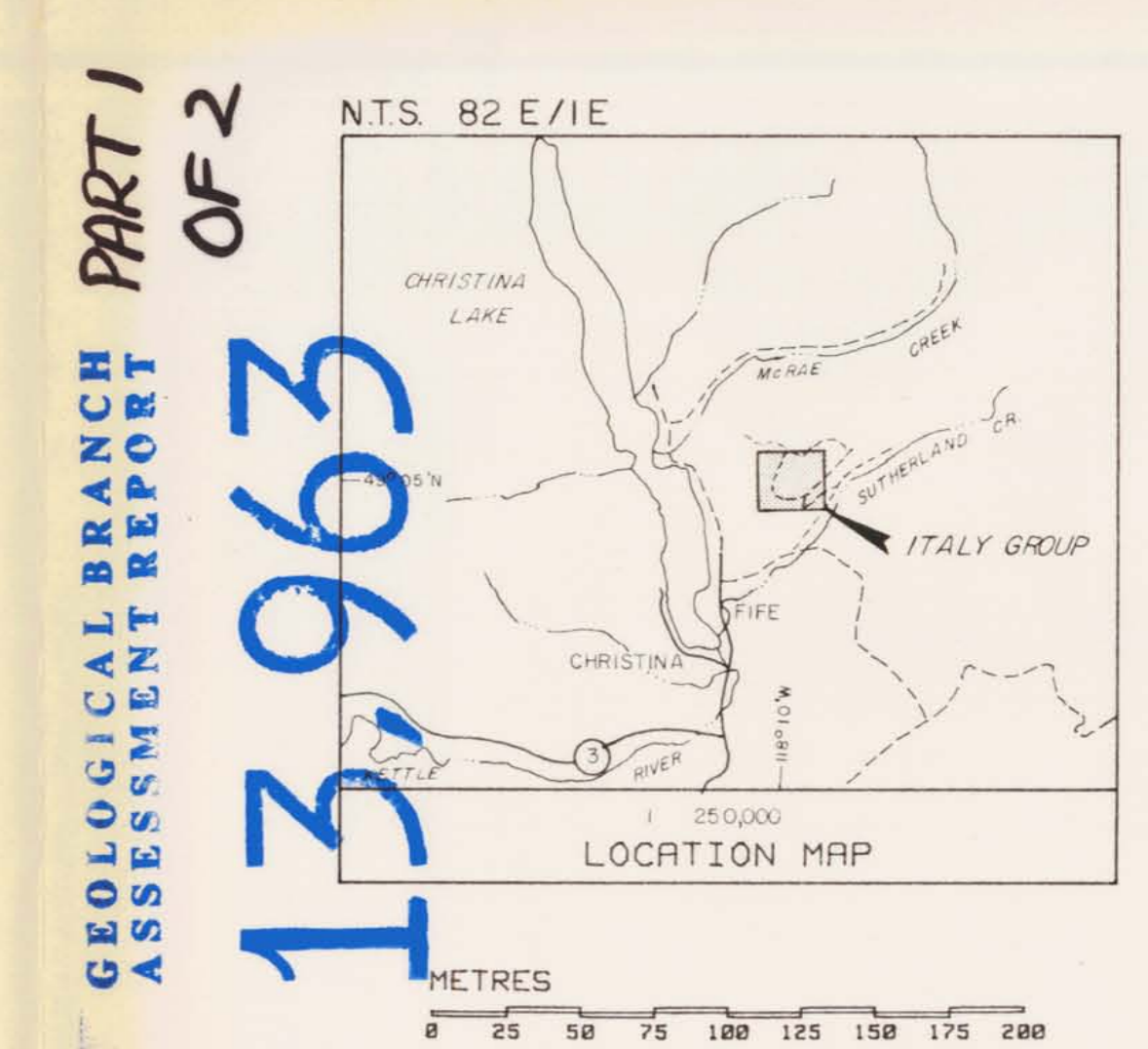
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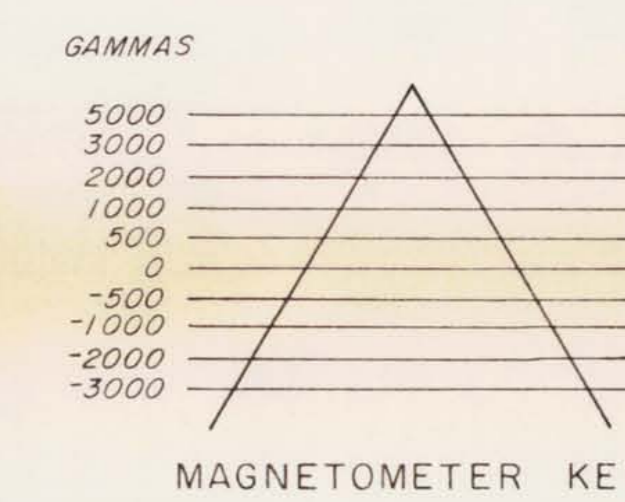
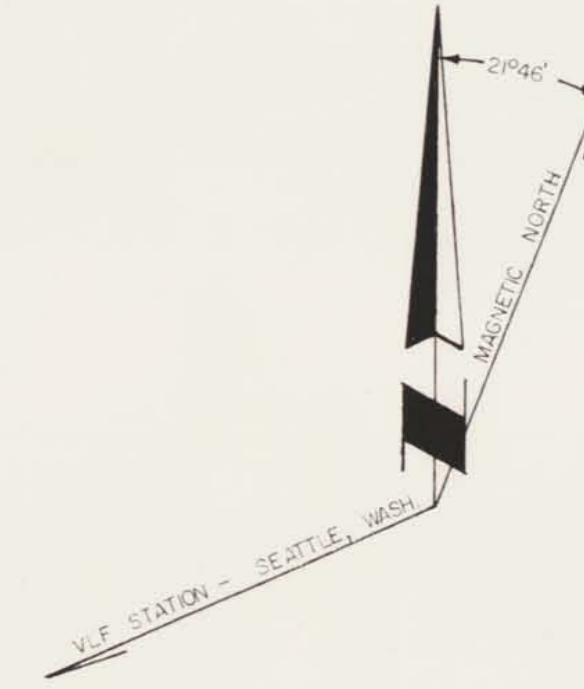
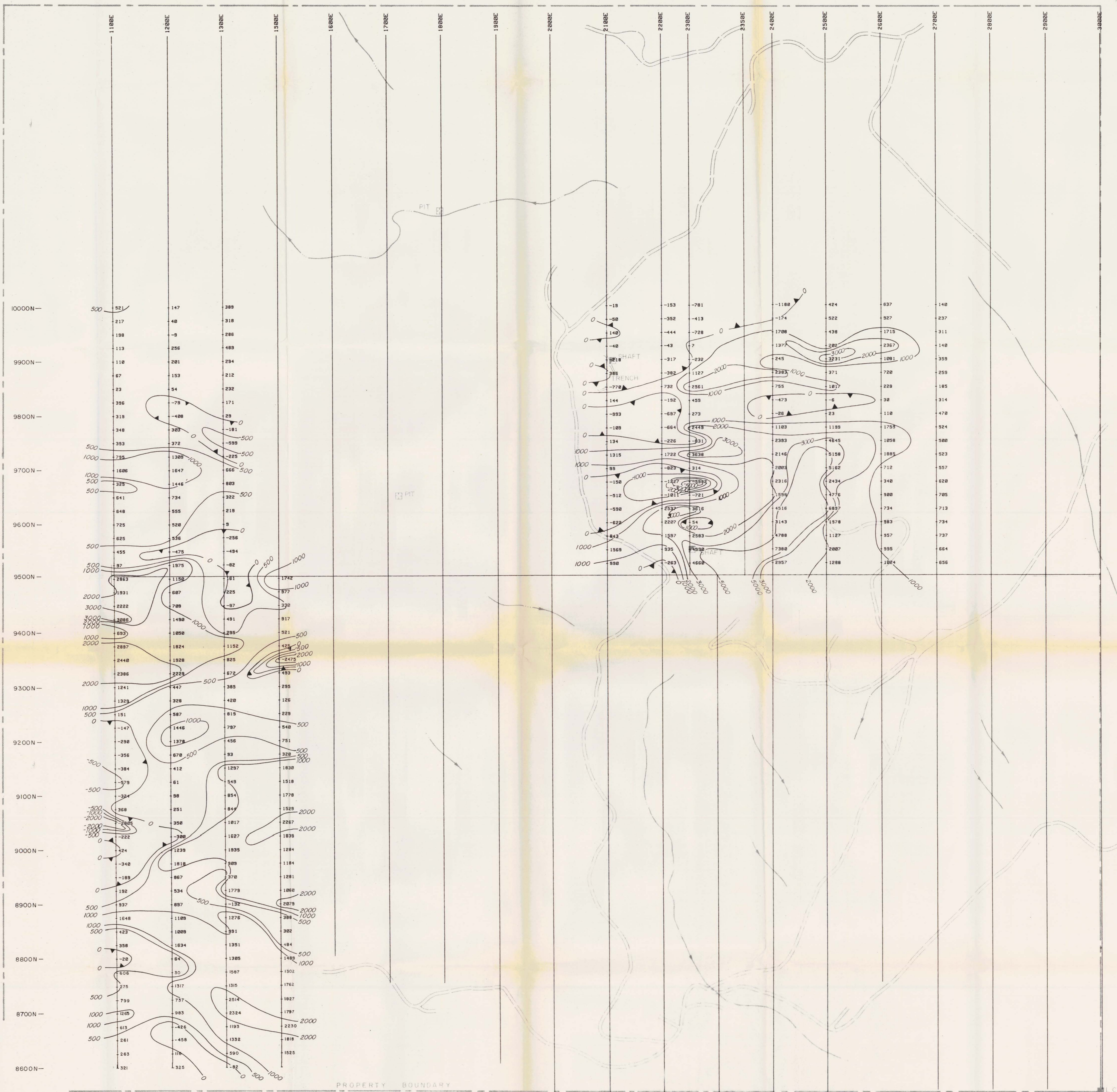
N.T.S. 82 E/1 E

1 : 250,000
LOCATION MAP

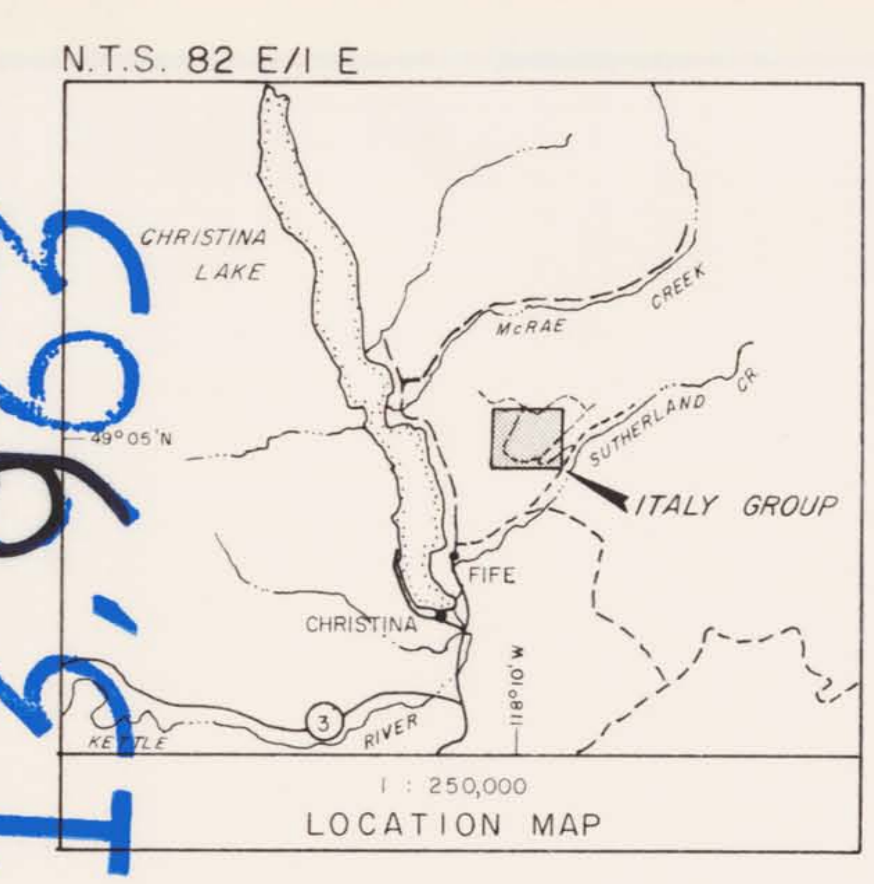


KEY
 Fraser Filtered Inphase (Percent/m):
 Filter Window: 75 m
 VLF Station: Seattle (NLK), 24.8 kHz
 Facing Direction: South
 Road: ————
 Claim Post: ■
 Claim Line: - - - -





KEY
 Total Field Intensity (Gammas)
 Corrected for Diurnal Variations
 Plotting Base: 57000 Gammas
 Road: ————
 Claim Post: ■
 Claim Line: ————



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WHITE GEOPHYSICAL INC.

INSTRUMENT: CSM 8 PROTON PRECESSION MAGNETOMETER

To accompany Geophysical Report on the ITALY GROUP PROJECT

INTERNATIONAL TILLEX
 ENTERPRISES INC.
 ITALY GROUP PROJECT
 MAGNETIC INTENSITY MAP
 TOTAL MAGNETIC FIELD INTENSITY (GAMMAS)
 DATE: JUNE/85
 FIG.: 4