

COMINCO LTD.

EXPLORATION  
N.T.S. 94L/3E

WESTERN DISTRICT

GEOPHYSICAL SURVEYS

on the

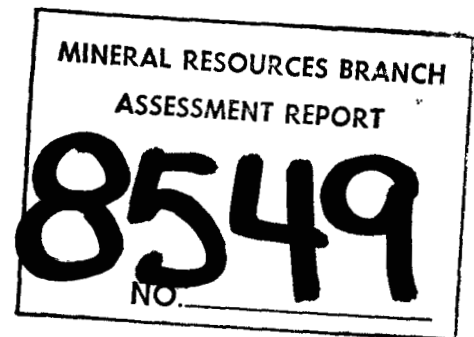
WEST GROUP, FROG RIVER PROPERTY

KECHIKA AREA, LIARD MINING DIVISION, B.C.

LATITUDE: 58° 12' N; LONGITUDE: 127° 10' W

WORK PERFORMED: July 5 - 20, 1980

CLAIMS COVERED: West No. 1



OCTOBER 1980

INGO JACKISCH

TABLE OF CONTENTS

Introduction. . . . . 1  
Location and Access. . . . . 1  
Geophysical Surveys. . . . . 1  
    Gravimetrics. . . . .  
    Magnetics. . . . .  
Discussion of Results. . . . . 2  
Conclusions. . . . . 3  
    Appendix I      Certification

\* \* \* \*

ATTACHMENTS

Plate 179 - 80 - 1	Location Map
Plate 179 - 80 - 2	Claim and Grid Map
Plate 179 - 80 - 3	Relative Station Elevations
Plate 179 - 80 - 4	Magnetic Field Contour Map
Plate 179 - 80 - 5	Bouguer Gravity

## GEOPHYSICAL SURVEY

on the

### WEST GROUP, FROG RIVER PROPERTY

#### INTRODUCTION

During the time period July 5 - 20, 1980, a four-man COMINCO geophysical crew extended the gravity survey begun in 1979, in addition to completing a magnetometer survey over the area. In all, approximately 9.5 kms of levels and gravity were surveyed, and 12 kms of magnetics.

The purpose of the survey was to close off the gravity anomaly found in 1979 and determine if the magnetic anomaly coincided.

This report discusses the procedure used on the survey, presents the data, and comments on the results.

#### LOCATION AND ACCESS

The FROG RIVER property is located 142 km S.E. of Watson Lake and 267 km west of Fort Nelson. Access is by float plane to Pop Lake, which is 19 km to the N.W. of the property. The nearest helicopter is supplied by Frontier Helicopters in Dease Lake.

#### GEOPHYSICAL SURVEYS

Magnetics Survey: A scintrex MP-2 total field proton precession magnetometer was used for the magnetics survey. The diurnal correction was made by tie-ins to the baseline every hour; all baseline readings were taken at a 30 meter interval with the operator always facing N.W. A plan of the magnetics survey is presented on plate 179-80-4.

Gravity Survey: A Texas Instruments Worden Master gravity meter was used for the gravity survey. All readings were taken by Ingo Jackisch at a 30 meter interval, which is equivalent to the 100 ft. spacing used in 1979. Corrections to the readings were calculated by repeating the station at line 8N-baseline at 2 hour intervals.

All the elevation data was compiled by Gail Wetmore, who began his survey at the control station located at the line 4N-baseline (elevation 500 meters). Closures were very accurate, and all elevations listed are within  $\pm .005$  meters error. Wooden pegs were hammered into the ground to mark the location of the survey station elevation.

2.

The data reduction for Bouguer gravity values was calculated as follows:

- the instrument reading was multiplied by a temperature dependant time constant to convert the readings into units of mgals.
- repeats at a base station were made every 2 hours to compensate for instrument drift related to tidal effects, changing temperature and atmospheric conditions. The drift was assumed to be linear between tie-ins.
- the tripod height, upon which the instrument was placed, was recorded at each station from the wooden peg whose elevation was accurately known. A free air correction was applied to compensate for this additional height.
- a computer program solved for "g Bouguer" using the standard Bouguer formula which considers: "g observed", station elevation and latitude, and tripod height.

i.e. for a latitude equal to  $58.21^{\circ}$  and a density of  $2.5 \text{ gm/cm}^3$   
 $\Delta g \text{ (Bouguer)} = \Delta g \text{ (observed)} \pm 7.2736 \times 10^{-4} \frac{\text{mgal}}{\text{m}} \Delta \text{Lat} + (.20385 \frac{\text{mgal}}{\text{m}}) \text{ELEV}$

Relative station elevations and Bouguer gravity values are presented on plates 179-80-3 and 5 respectively.

The 1980 gravity readings were tied in to the 1979 survey by repeating several stations and finding the average difference in readings between the two grids. This difference was then applied to all 1980 gravity values to make the survey compatible.

A density of  $2.5 \text{ gm/cm}^3$  was found to be least dependant on topography for the 1979 survey. This same density was therefore applied to the 1980 data.

#### DISCUSSION OF RESULTS

Four gravity anomalies occur across the survey area each having been given a letter from A to D on Plate 179-80-5. Anomalies A, B, and D are gravity highs circling a low at C. Anomaly D remains open to the N.E., requiring further work.

Topography corrections have not been calculated, and would, if applied, make the values along the southern and western grid edges larger. Loose rock and rubble, containing large air pockets, also occur along these edges, diminishing the gravity readings. These two factors, however are not believed to be large enough to eliminate the anomalies at A and B.

3.

A north-south regional gradient appears to be superimposed on the gravity anomalies. Additional lines would be helpful in determining the regional direction and thus computing the residual anomalies. Further data to the east would be particularly important, not only to aid in choosing the best regional gradient, but also in finding the extent of the gravity low at C, and the possible existence of additional gravity highs bordering C.

The magnetic relief shown on plate 179-80-4 is relatively flat with the exception of a few sharp highs and lows in the N.E. half of the grid. These anomalies could be the result of short bursts of magnetic noise since they were all surveyed within a few hours of one another and lines 20N, 24N, and 28N should be repeated. The value at station 11W, line 28 N and station 16 W, line 24 N in particular leave doubt as to the accuracy of the data.

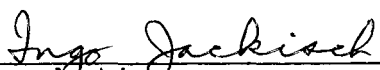
The magnetic survey results correlate with the gravity results as follows; a magnetic high correlates with the gravity low over C, the magnetics are flat over anomaly B, and the magnetics change in a rapid succession of highs and lows over A & D.

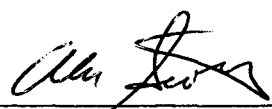
### CONCLUSIONS

A gravity/levels survey and total field magnetics surveys were completed on portions of the Frog River property in the summer of 1980. The gravity work was a continuation of a survey conducted in 1979.

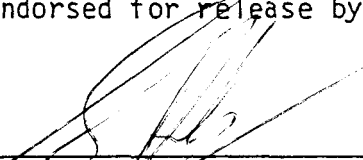
Four anomalies, labelled A, B, C, and D, have been defined on the Bouguer gravity contour plan. Anomalies A, B, and C are gravity highs and C is a gravity low. Terrain corrections, and a regional residual separation are necessary before a detailed interpretation of these anomalies can be performed.

Respectfully submitted:

  
\_\_\_\_\_  
Ingo Jackisch  
Geophysicist

  
\_\_\_\_\_  
Alan R. Scott  
Geophysicist

Endorsed for release by:

  
\_\_\_\_\_  
G. Harden, Manager  
Exploration, Western District

Distribution:  
Mining Recorder (2)  
Western District (1)  
Geophysics File (1)

APPENDIX I  
CERTIFICATION

I, Ingo Jackisch, of 424 Somerset St. in the City of Vancouver, in the Province of British Columbia, do hereby certify that:

1. I graduated from the University of B.C. in 1975 with a B.Sc. in Geophysics;
2. I am registered with the Association of Professional Engineers of B.C. as an engineering pupil, and am a member of the B.C. Geophysical Society;
3. I have been practising my profession for the past nine years.

  
\_\_\_\_\_  
Ingo Jackisch  
Geophysicist

STATEMENT OF EXPENDITURES

ON THE FROG RIVER PROPERTY

SALARIES

I. Jackisch	July 5-20 (16 days @ \$125/day)	\$ 2,000.00
G. Nolan	July 5-20 (16 days @ \$105/day)	1,680.00
G. Wetmore	July 5-20 (16 days @ \$ 83/day)	1,328.00
B. Price	July 5-20 (16 days @ \$ 83/day)	1,328.00

DATA REDUCTION AND REPORT 1,750.00

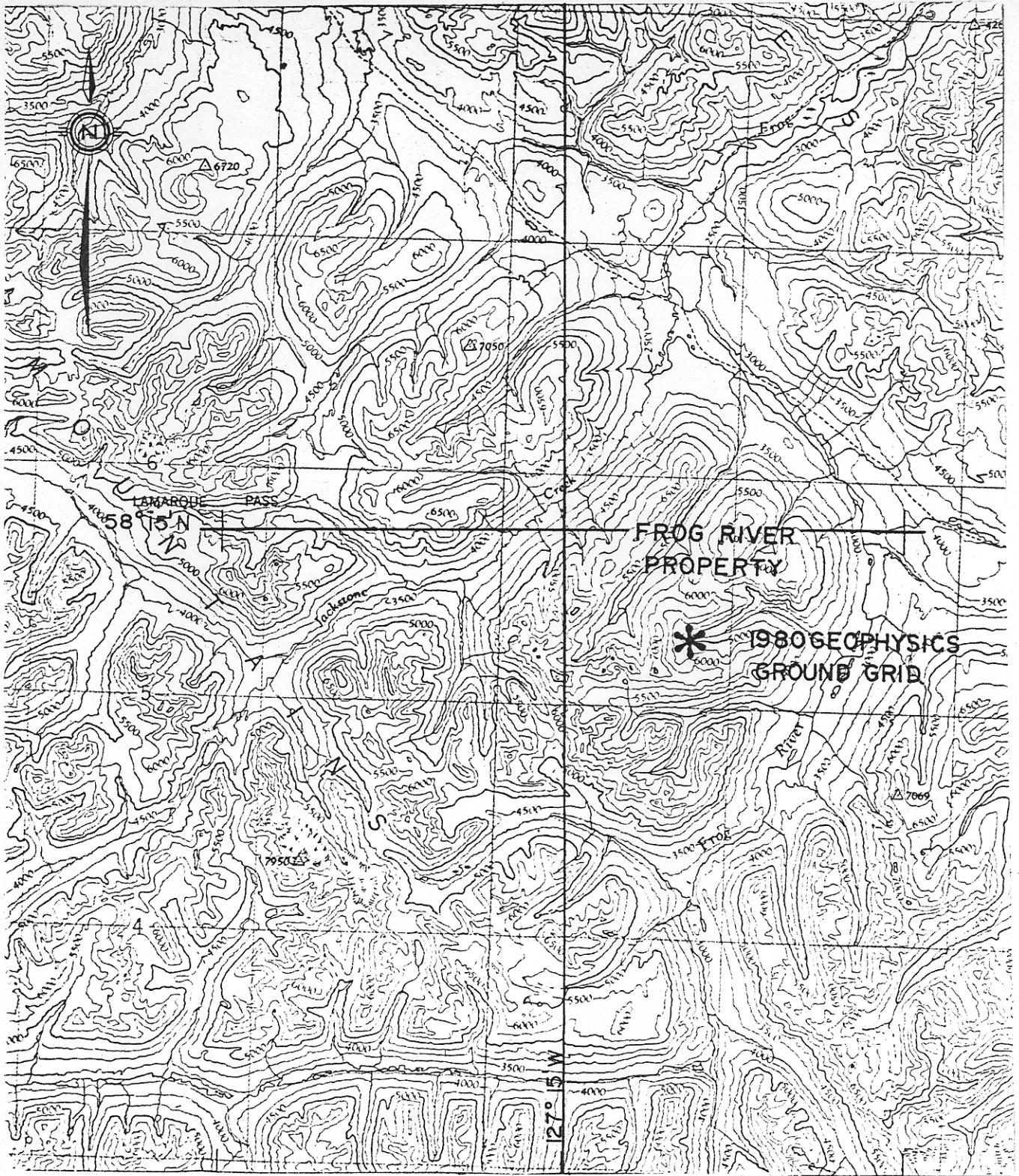
GEOPHYSICAL EQUIPMENT RENTALS 350.00

EXPENSE ACCOUNTS 678.34

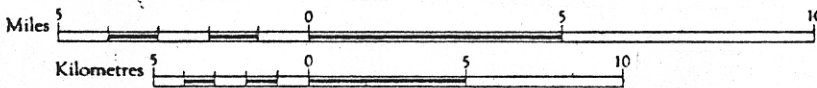
TRANSPORTATION

DC-3	Whitehorse to Watson Lk. July 5 - 440 miles @ \$3.40 + fuel	1,882.00
Otter & Beaver	Watson Lk. to Pop Lk. July 6	1,050.00
Fuel for helicopter stored at Pop Lk.	April 30 - Otter to Pop Lk. 6 bbls JP4 @ \$1.53/gal + drums	532.00 686.10
Helicopter	Pop Lk. to Frog River July 6 - 3.4 hrs.	1,361.75
	Frog River to Pop Lk. July 20 - 3.5 hrs.	1,396.46
Otter	Pop Lk. to Watson Lk. July 20	<u>604.80</u>

TOTAL: \$16,627.45



Scale 1 : 250,000  
1 Inch to 4 Miles Approximately



FROG RIVER  
PROPERTY



NTS-  
94-L-3E

Drawn by: <i>gg.</i>		Traced by:	
Revised by	Date	Revised by	Date

LOCATION MAP

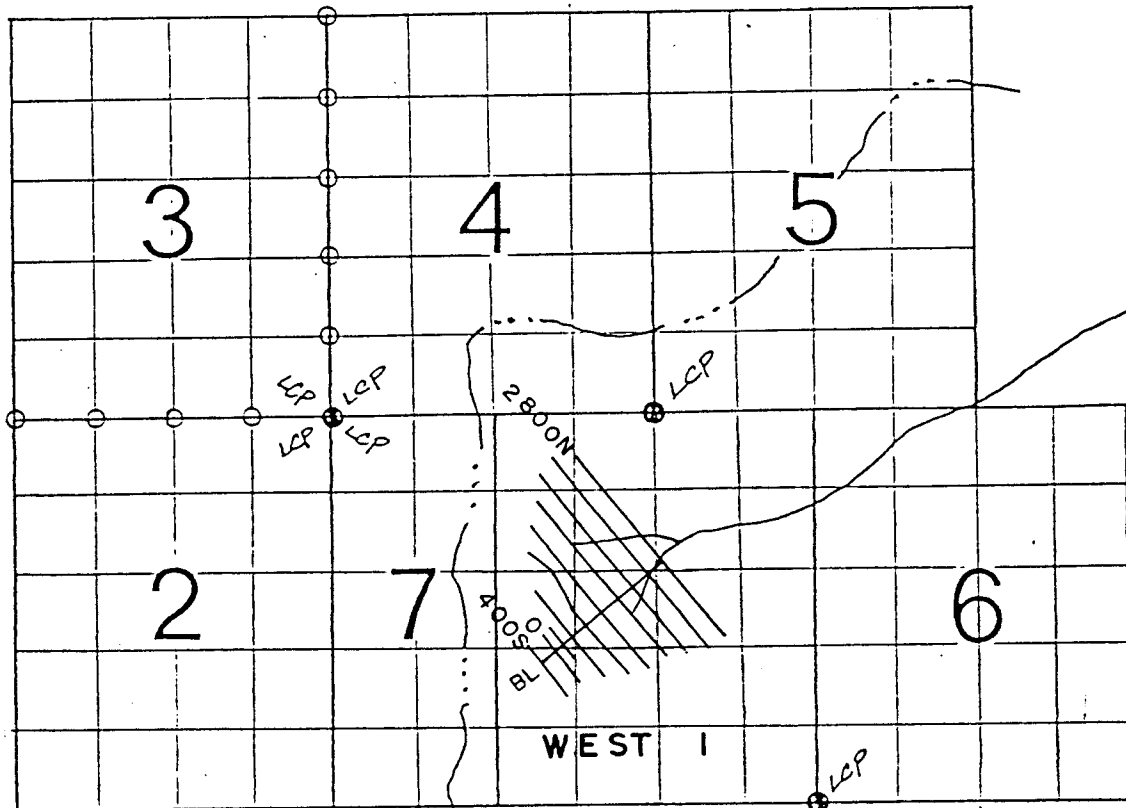
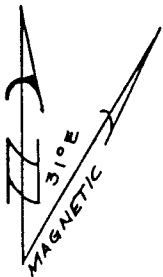
LIARD M. D., B. C.

Scale: 1:250,000

Date: OCTOBER 1979

Plate: 179-80-1





○ Identification Posts  
 ⊕ Legal Corner Posts



LOCATION MAP FOR:  
 WEST 2 to 7  
 LIARD MINING DIVISION  
 Claim Sheet 94 L/3  
 Scale 1:50,000  
 March 15, 1980

FROG RIVER PROPERTY



NTS  
 94-L-3

Drawn by: J.G.		Traced by:	
Revised by	Date	Revised by	Date

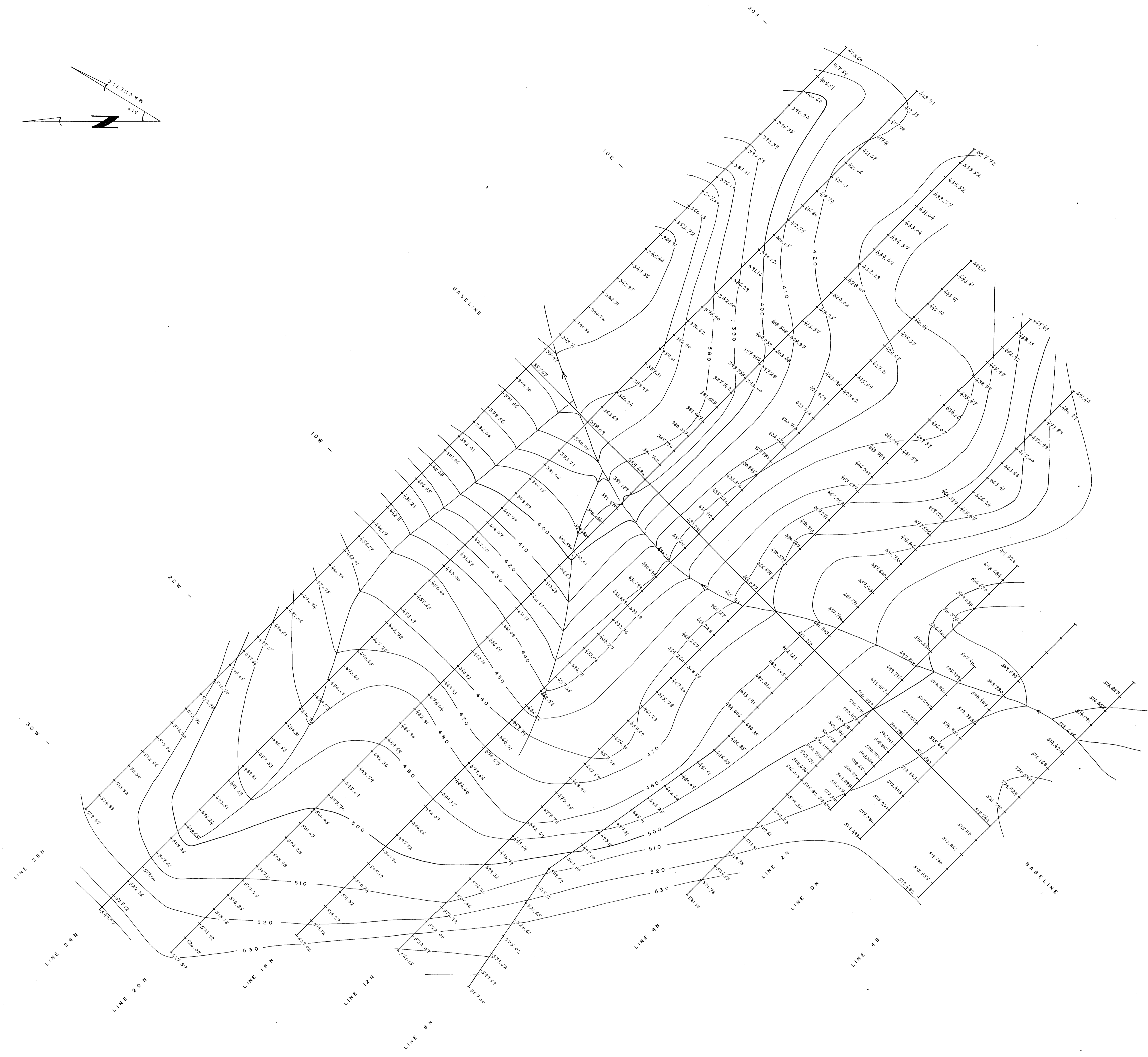
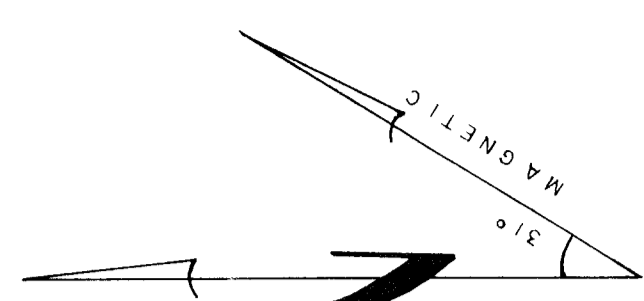
CLAIM MAP

LIARD M. D., B. C.

Scale: 1:50,000

Date: OCT, 1980

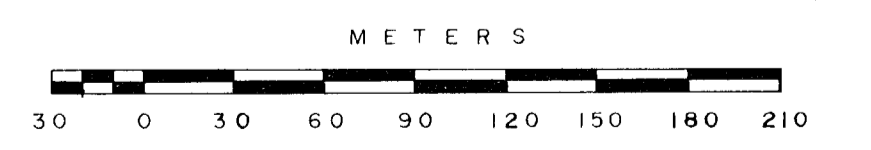
Plate: 179-80-2



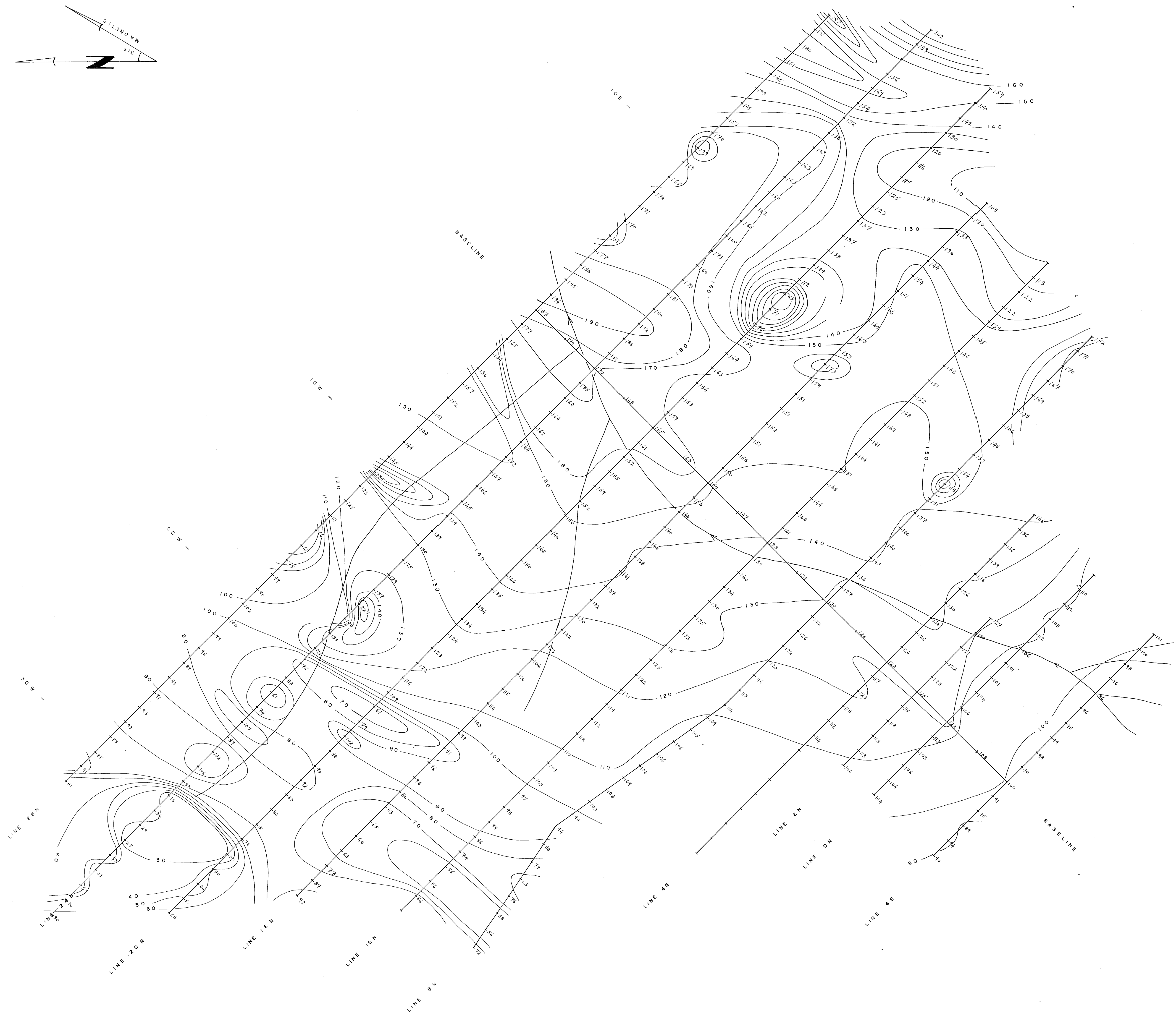
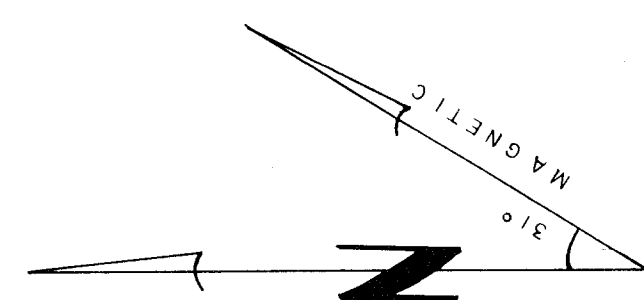
 CREEK  
 1979 - 80 GEOPHYSICS GROUND GRID

1979 ELEVATIONS PLOTTED TO LEFT OF STATIONS,  
 1980 ELEVATIONS PLOTTED TO RIGHT OF STATIONS

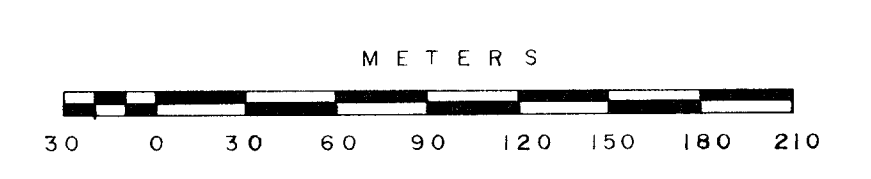
MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**8549**



FROG RIVER PROPERTY			
Drawn by: J.G.	Traced by:	NTS 94-L3E	
Revised by:	Date:	Revised by:	Date:
WEST GROUP		RELATIVE ELEVATIONS (METERS)	
LIARD M.D., B.C.		Scale: 1:2500 Date: OCT. 1980 Plate: 179-80-3	



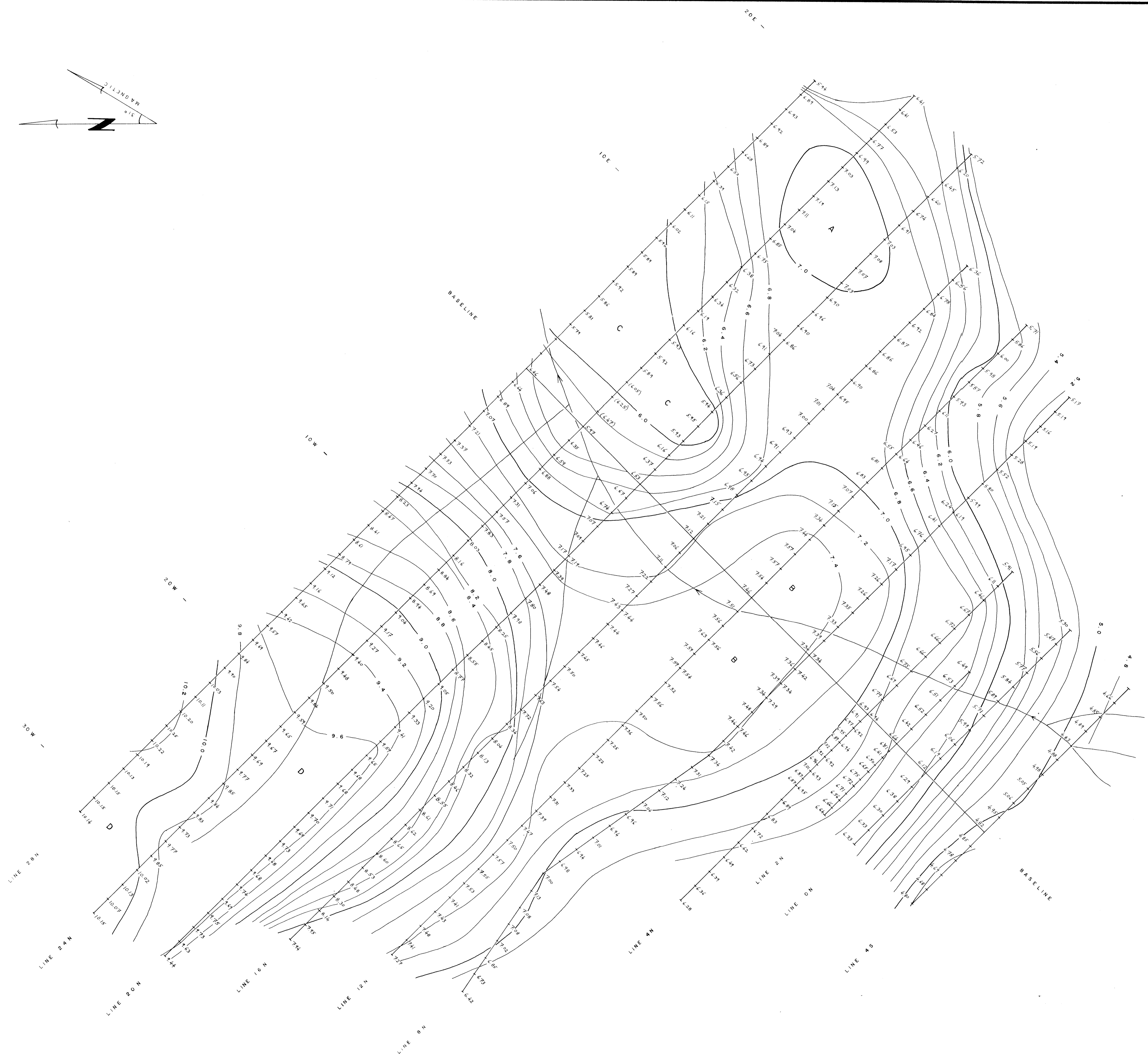
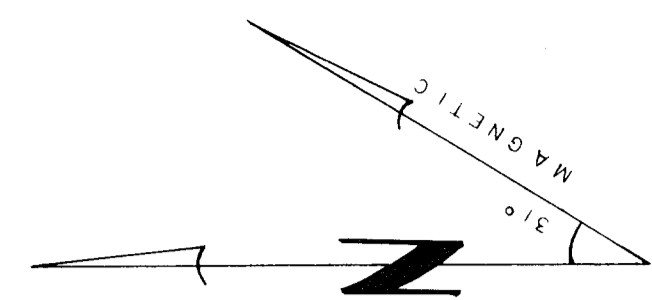
CREEK  
 1979-80 GEOPHYSICS GRID  
 10 GAMMA CONTOUR INTERVAL  
 56,700 GAMMAS SUBTRACTED FROM ALL READINGS  
 SCINTREX MP-2 PROTON PRECISION MAGNETOMETER USED FOR SURVEY  
 OPERATOR FACED NW FOR ALL READINGS


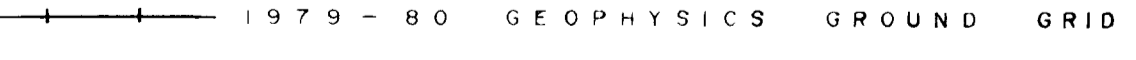


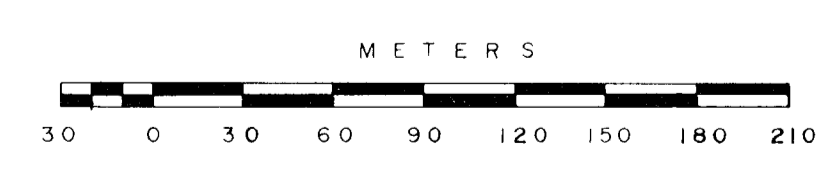
MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**8549**  
 NO.

DRAWN BY: <i>JD</i>		TRACED BY:	
REVIEWED BY:	DATE:	REVIEWED BY:	DATE:
Scale: 1:2500		Date: OCT. 1980	Plate: 175-80-4

FROG RIVER PROPERTY  
 WEST GROUP  
 MAGNETOMETER SURVEY  
 LIARD M.D., B.C.



 CREEK  
 1979 - 80 GEOPHYSICS GROUND GRID  
 1979 READINGS PLOTTED LEFT OF STATION;  
 1980 READINGS PLOTTED RIGHT OF STATION  
 INSTRUMENT - WORDEN MASTER GRAVIMETER  
 UNITS - MGALS  
 CONTOUR INTERVAL 0.2 MGALS



MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**8549**  
 No.

DRAWN BY: <i>JJ</i>		TRACED BY:		FROG RIVER PROPERTY		NTS
REVISED BY: <i>JJ</i>	DATE:	REVISED BY: <i>JJ</i>	DATE:	WEST GROUP		94-L3E
				BOUGUER GRAVITY		
				LIARD M.D., B.C.		
Scale: 1:2500		Date: OCT. 1980		Plate: 178-80-5		FORM 216-965