

632

<p>Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. <u>632</u> MAP .....</p>
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THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
TRAIL, B.C.

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MAGNETOMETER SURVEY REPORT ON THE B.L. AND TOM CLAIMS  
HIGHLAND VALLEY B.C. - KAMLOOPS M.D.

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S.E. QUADRANT 50° 121<sup>0</sup>

Assessment work in the form of bulldozer stripping and magnetometer surveys has been done. The claims on which assessment credit is requested on behalf of the magnetometer survey are as follows:

Valley Copper Group No. 3

<u>Claim</u>	<u>Record No.</u>
Tom 1-18	41772-41789

Valley Copper Group No. 4

B.L. 34	41824
B.L. 40-45	41830-41835

Valley Copper Group No. 5

B.L. 21-25	41811-41815
B.L. 30-33	41820-41823
B.L. 35	41825

Valley Copper Group No. 6

B.L. 6-9	41796-41799
B.L. 12-15	41802-41805

Magnetometer surveys were carried out during the period between January 28 and March 15, 1965.

REPORT BY

D.W. HEDDLE  
PROFESSIONAL ENGINEER

DWH:gmc

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
TRAIL, B.C.

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MAGNETOMETER SURVEY REPORT ON THE B.L. AND TOM CLAIMS  
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THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
TRAIL, B.C.

MAGNETOMETER SURVEY REPORT ON THE B.L. AND TOM CLAIMS  
HIGHLAND VALLEY B.C. - KAMLOOPS M.D.

SUMMARY

Assessment work in the form of bulldozer trenching and magnetometer surveying has been done. There was a considerable amount of overlapping of the above two types of work on a number of claims but within each claim group trenching has been specifically ascribed to some claims and magnetometer work to others for purposes of assessment credit. The Affidavit on Application for Certificate of Work forms have been filed with the Mining Recorder in Kamloops.

The following table indicates the located claims on which assessment credit is requested and the type of work ascribed to each claim or claim group:

Valley Copper Group No. 3

<u>Claim</u>	<u>Record No.</u>	<u>Type of Work</u>	<u>Credit</u>
Tom 1-18	41772-41789	Magnetometer	18 yrs.
Magnetometer survey assessment credit			\$ 1,800

Valley Copper Group No. 4

Empire	30183	Trenching	1 yr.
B.L. 26-29	41816-41819	Trenching	12 yrs.
B.L. 34	41824	Magnetometer	1 yr. /
B.L. 36-39	41826-29	Trenching	8 yrs.
B.L. 40-43	41830-33	Magnetometer	4 yrs. 16
B.L. 40-45	41834-35	Magnetometer	6 yrs. 2
Magnetometer survey assessment credit			\$ 1,100

Valley Copper Group No. 5

B.L. 16-20	41806-10	Trenching	5 yrs.
B.L. 21-25	41811-15	Magnetometer	5 yrs.
B.L. 30-33	41820-23	Magnetometer	4 yrs.
B.L. 35	41825	Magnetometer	2 yrs.
Magnetometer survey assessment credit			\$ 1,100

Valley Copper Group No. 6

B.L. No. 1 Fr.	41790	Trenching	1 yr.
B.L. 1-5	41791-95	Trenching	5 yrs.
B.L. 6-9	41796-99	Magnetometer	12 yrs. 48
B.L. 10-11	41800-01	Trenching	2 yrs.
B.L. 12-15	41802-05	Magnetometer	4 yrs. 16
B.L. No. 2 Fr.	45370	Trenching	1 yr.
Magnetometer survey assessment credit			\$ 1,600

The total requested assessment credit for the magnetometer survey on the four claim groups is \$5,600. Total expenditures on the survey were \$5,962.

This report, with accompanying maps and statement of expenditures is hereby submitted to record the required assessment work.

## INTRODUCTION

### General

The survey was carried out over the claim group, which is extensively drift covered, with the primary purpose of indicating areas of magnetic lows which in this area are indicative of alteration in the underlying intrusive rocks.

The survey was done during the period from January 28 to March 15 under the supervision of D.W. Heddle (U.B.C. 1949) Cominco Senior Exploration Geologist and registered B.C. Professional Engineer. Field work was carried out by various members of the Cominco Exploration staff under the direct supervision of R.G. Gifford, Geologist, (U.B.C. 1958) and G.R. Rosseau, Geophysicist (U.B.C. 1964).

A.B. Mawer and M.R. Wolfhard, experienced Exploration Technicians, assisted for various periods.

### Location and Access

The Tom and B.L. claims are located in Highland Valley five miles southwest of Divide Lake in the Kamloops Mining Division. The claims lie at an elevation of about 5,000'. The terrain is moderate in relief and thickly forested with jackpine. In local areas windfalls are a great hindrance to systematic traversing as required in our magnetometer survey.

Access to the property is by means of a road leading southwestward from Divide Lake.

## GENERAL GEOLOGY

The property lies within the general intrusive body known as the Guichon Batholith of Jurassic age. Outcrop is generally scarce within the claim area. Our mapping indicates, however, that only the westerly claims of the group are underlain by the normal Guichon quartz diorite, most of the claims being underlain by a distinctive intrusive rock known as the Bethsaida quartz diorite. The Bethsaida quartz diorite, generally considered as being younger than the Guichon, is characterized by large quartz grains and large books of biotite. Although outcrop is scarce, mapping strongly suggests that the Bethsaida quartz diorite is separated from the Guichon by a belt of transitional intrusive which forms a northerly trending band through the central part of the claim group. This inferred transitional intrusive phase has been mapped in other areas of Highland Valley as the Skeena quartz diorite.

Several northerly-trending faults have been observed in the claim area.

Most known occurrences of copper mineralization in the immediate area are associated with sheared and altered zones within the Bethsaida granodiorite. These zones are characterized by a strong development of sericite and have a low magnetic susceptibility, presumably due to a deficiency in magnetite.

## TYPE OF INSTRUMENT AND FIELD PROCEDURE

The survey was made with a Sharpe MF-1 magnetometer. This instrument measures the vertical component of the magnetic field and reads directly in gammas with a resolution of five gammas in the most sensitive range. Maximum sensitivity is 20 gammas per scale division.

Survey control was provided by two north-south chained and picketed base lines run through the claim group. Magnetic values were established for a series of base stations conveniently located along the base lines. Readings were taken at 100-foot intervals along east-west traverse lines spaced 400' apart. Where significant anomalous conditions were encountered, readings were taken at closer intervals and along closer-spaced lines. Base station readings were made at one to one and one-half hour intervals to establish the required diurnal and day to day corrections.

Corrected values of vertical magnetic intensity were plotted on a scale of 1" = 200' as shown on the attached map sheets 1 to 7 inclusive.

Most of the area yielded low, fairly uniform values of magnetic intensity. To simplify interpretation, only areas of fairly uniform and significant relief were detailed by magnetic contours. The general contour interval is 200 gammas.

### RESULTS

The overall survey shows that, in general, the total magnetic relief about 1,000 gammas, confined roughly between -200 and +800 gammas.

From our experience in 1964, of stripping on the Empire claim, where areas of low magnetic intensity showed a good deal of coincidence with bedrock alteration, it is felt that areas of magnetic intensity below +200 gammas could be of possible interest. As this forms about 30% of the surveyed area, only the smaller area, below an intensity of 0 gammas, is being selected for a close appraisal.

The geological picture is very incomplete, owing to the fact that the area is largely drift covered. Outcrop evidence indicates that the map area is underlain entirely by intrusive rocks whose overall compositions are similar (roughly quartz diorite). Variations in magnetic intensity are not considered as being reflections of any primary rock types.

A number of photo lineations have been superimposed on the accompanying magnetic sheets. These in a general way fall into three fairly systematic groups. It is believed that these linear systems, which probably represent faults, are related to the areas of magnetic lows.

One of the strongest linear systems, although not the most prevalent, is a group which strikes northerly to slightly east of north.

A second prominent system strikes N 30 to N 45° W, although at least some lineations in this group may represent glacial features.

A third prominent system strikes about N 45° E.

In a general way magnetic intensities below 0 gammas can be aligned with the northerly -striking lineament system. The most significant known copper deposits in the area, the O.K. and the Empire occurrences, are associated with northeasterly-striking shears parallel to one of our plotted lineament systems. One interesting possibility is that the junction areas of two shear systems might be the loci of alteration and possible copper mineralization. In this area there is some evidence that at least some of the magnetically low areas are associated with junctions of the northerly trending linear system with either of one of the other two systems.

Three areas of magnetic low (below 0 gammas) have been selected as being of interest. These areas are as follows:

- (1) The north to slightly east of north lineament which can be traced from the B.L. 1 claim past the west tip of Calling Lake and southwest to the Tom 14 claim. On the Tom 14 claim it swings southwestward at the junction with a strong northwesterly striking lineament.

Several locations along the above northerly striking lineament are of interest. Weak mineralization was exposed by trenching in 1964 along the lineament (which is actually a fault) on the Empire and B.L. 1 claims. The recent magnetometer coverage, however, indicates that the trenching was not done on significant magnetic lows where interesting structures (manifest by lineations) are most apparent. One apparently favourable locality, where there is a magnetic low of significant size, lies on the B.L. 1 Fr. and B.L. 16 claims. A second favorable locality is the extensive area of magnetic low wedged in by strong lineaments on the Tom 11, 12 and 13 claims near the extreme south boundary of the property.

- (2) A second area of interest is the magnetic low which extends southward from the central part of Calling Lake. The general southerly trend of the magnetic low follows a fairly strong lineament. There is a suggestion that the low area is broadened by the intersection of northeasterly trending lineaments.
- (3) A third area of possible interest lies directly west of Island Lake. The area of magnetic lows trends slightly east of north, although no lineament is apparent along this zone. Several northeasterly-striking lineaments cut the southern part of this zone.

#### CONCLUSIONS

The magnetometer survey does outline a number of areas of low magnetic intensity. Stripping on magnetically low areas, indicated by local survey coverage in 1964, did indicate that these, in most cases, represent bedrock alteration.

The three magnetically low areas outlined above have been selected mainly on the basis of their apparent associations with inferred favorable structural conditions.

It is recommended that, as a second tool, a program of detailed soil sampling be carried out over the magnetically low areas before any physical exploration is undertaken.

#### ATTACHMENTS:

- (1) Plan of Claim Group showing Claim Groupings, Trenches and Areas covered by Magnetometer Survey, 1" = 1,000'.
- (2) Plan showing Magnetometer Survey Results, 1" = 200' (7 sheets).
- (3) Statement of Expenditures.
- (4) Statutory Declaration relating to Expenditures.

Report by: D. W. Heddle  
D.W. Heddle  
Professional Engineer

DWH:gmc

Trail Exploration Office, Western District

April 6, 1965

Distribution: Mining Recorder (Kamloops) (2) ✓  
Western Exploration (Trail)(2)

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
TRAIL, B.C.

1965 MAGNETOMETER SURVEY EXPENDITURES  
B.L. AND TOM CLAIMS, HIGHLAND VALLEY - KAMLOOPS M.D.

SALARIES

D.W. Heddle, P. Eng., Senior Exploration Geologist for 8 days field supervision (February 25 - March 4) and 6 days for report preparation at \$50/day	\$ 700
G.R. Rosseau, Geophysicist for 39 days (January 28 - February 27) and (March 8-15) at \$30/day	1,170
A.B. Mawer, Exploration Technician for 32 days (January 28 - March 4) at \$40/day	1,440
R.G. Gifford, Exploration Geologist for 16 days (February 28 - March 15) at \$40/day	640
M.R. Wolfhard, Exploration Technician for 15 days (March 4 - 18) at \$30/day	<u>450</u>
Total:	\$ 4,400

LINECUTTING

8 line miles at \$95/mile 760

TRANSPORTATION

Jeep rental - 800 miles at 25¢/mile 200

SNOW PLOWING

Bulldozer hire - 20 hours at \$16/hr. 320

MAGNETOMETER CHARGES

Rental - 47 days at \$6/day 282

TOTAL: \$ 5,962

D. W. Heddle  
D.W. Heddle  
Professional Engineer

Endorsed by:

G. Hamson  
G. Hamson  
Branch Accountant

This is Exhibit "A" to the Statutory Declaration of D.W. Heddle, declared before me the ..... day of ..... A.D. 1965.

W. Stewart  
A Notary Public in and for the Province of British Columbia.

A Commissioner for taking Affidavits for British Columbia



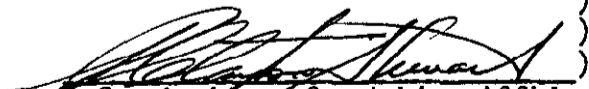
CANADA )  
PROVINCE OF BRITISH COLUMBIA ) STATUTORY DECLARATION RELATING TO EX-  
TO WIT: ) PENDITURES ON A GEOPHYSICAL SURVEY OF  
CERTAIN MINERAL CLAIMS THE PROPERTY OF  
VALLEY COPPER MINES LIMITED

I, DUNCAN W. HEDDLE, Professional Engineer, of the  
City of Trail, in the Province of British Columbia, DO SOLEMNLY DECLARE:

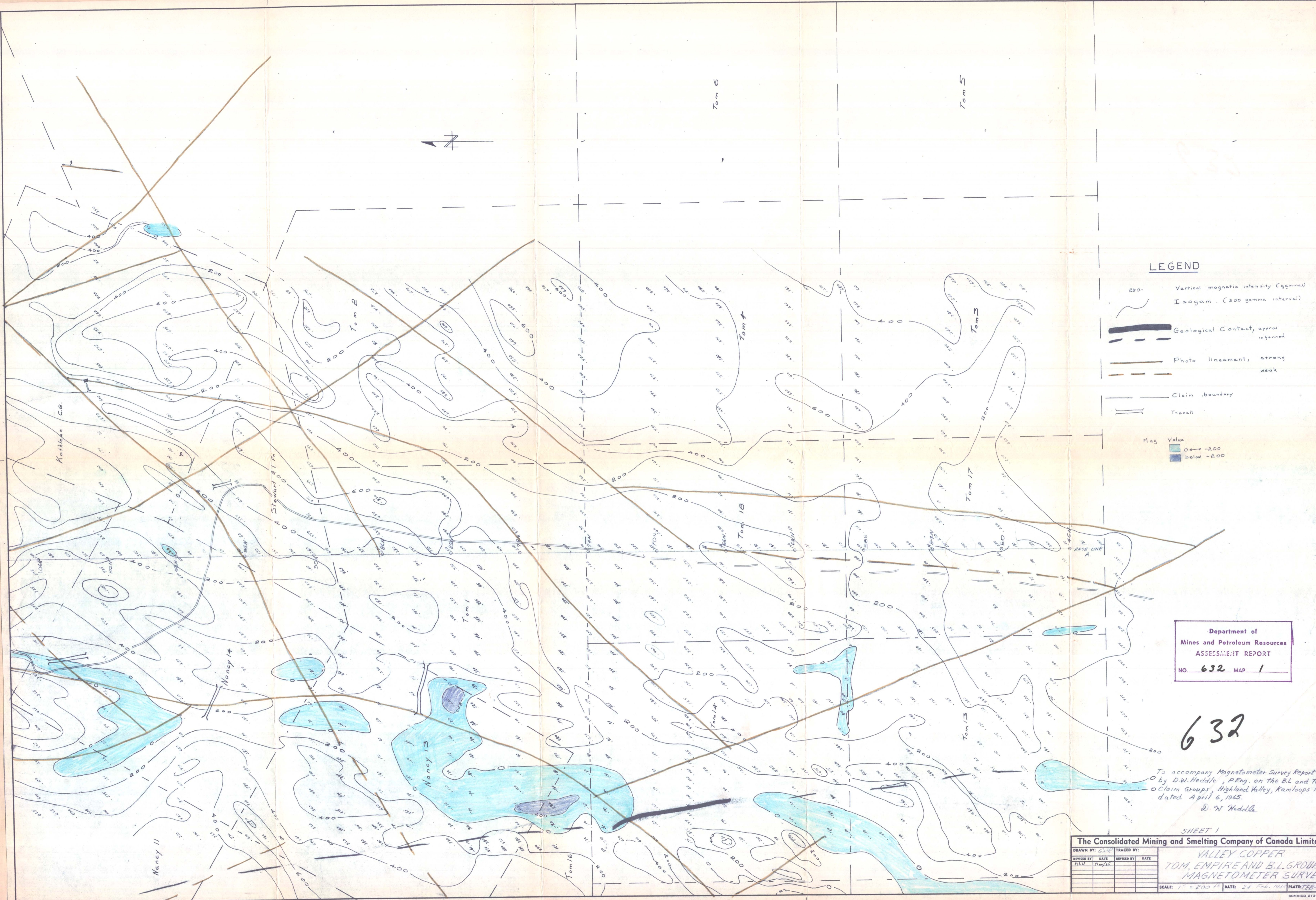
1. That I am the person who prepared a geophysical report as the result of surveys carried out on certain mineral claims, the property of Valley Copper Mines Limited situated in Kamloops Mining Division.
2. That copies of the said report are being filed with the Mining Recorder in Kamloops.
3. That attached hereto and marked with the letter "A", upon which I have signed my name at the time of declaring hereof, is a statement of expenditures incurred in connection with the geophysical survey of the said claims showing in addition the dates during which those making the said survey performed their work.

AND I MAKE this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the Canada Evidence Act.

DECLARED before me at the  
Municipality of Tadanac, in  
the Province of British  
Columbia, this 6<sup>th</sup> day of  
April, A.D. 1965.

  
A Commissioner for taking Affidavits for British Columbia

D. W. Heddle



**LEGEND**

- 250- Vertical magnetic intensity (gamma)
- Isogam (200 gamma interval)
- Geological Contact, approx inferred
- Photo lineament, strong weak
- Claim boundary
- Trench
- Mag Value
  - 0 to -200
  - below -200

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 632 MAP 1

632

To accompany Magnetometer Survey Report  
by D.W. Heddle, P.Eng. on the B.L. and Tom  
Claim Groups, Highland Valley, Kamloops M.D.  
dated April 6, 1965.  
D. W. Heddle

SHEET 1

The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY: G.M.P.	TRACED BY:
REVISED BY: DATE	REVISED BY: DATE
ALL V. J. H. J. S.	

VALLEY COPPER  
TOM, EMPIRE AND B.L. GROUPS  
MAGNETOMETER SURVEY

SCALE: 1" = 200 FT. DATE: 24 Feb. 1965 PLATE: TSB-M1

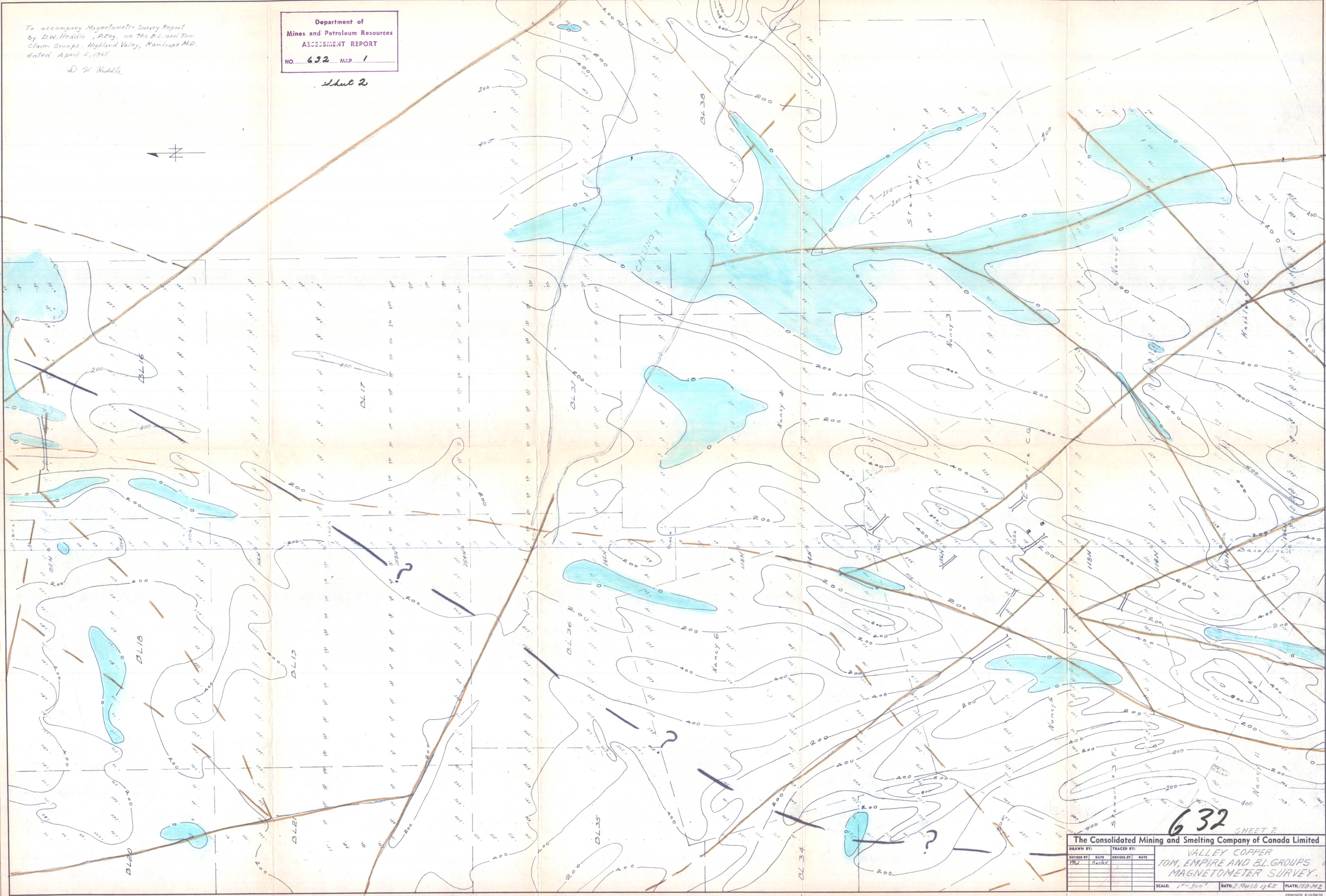
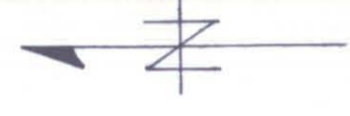
COMINCO 210-0670

To accompany Magnetometer Survey Report  
by D.W. Heddle, R.Eng. on the B.L. and Tom  
Claim Groups, Highland Valley, Kamloops M.D.,  
dated April 6, 1965.

D W Heddle

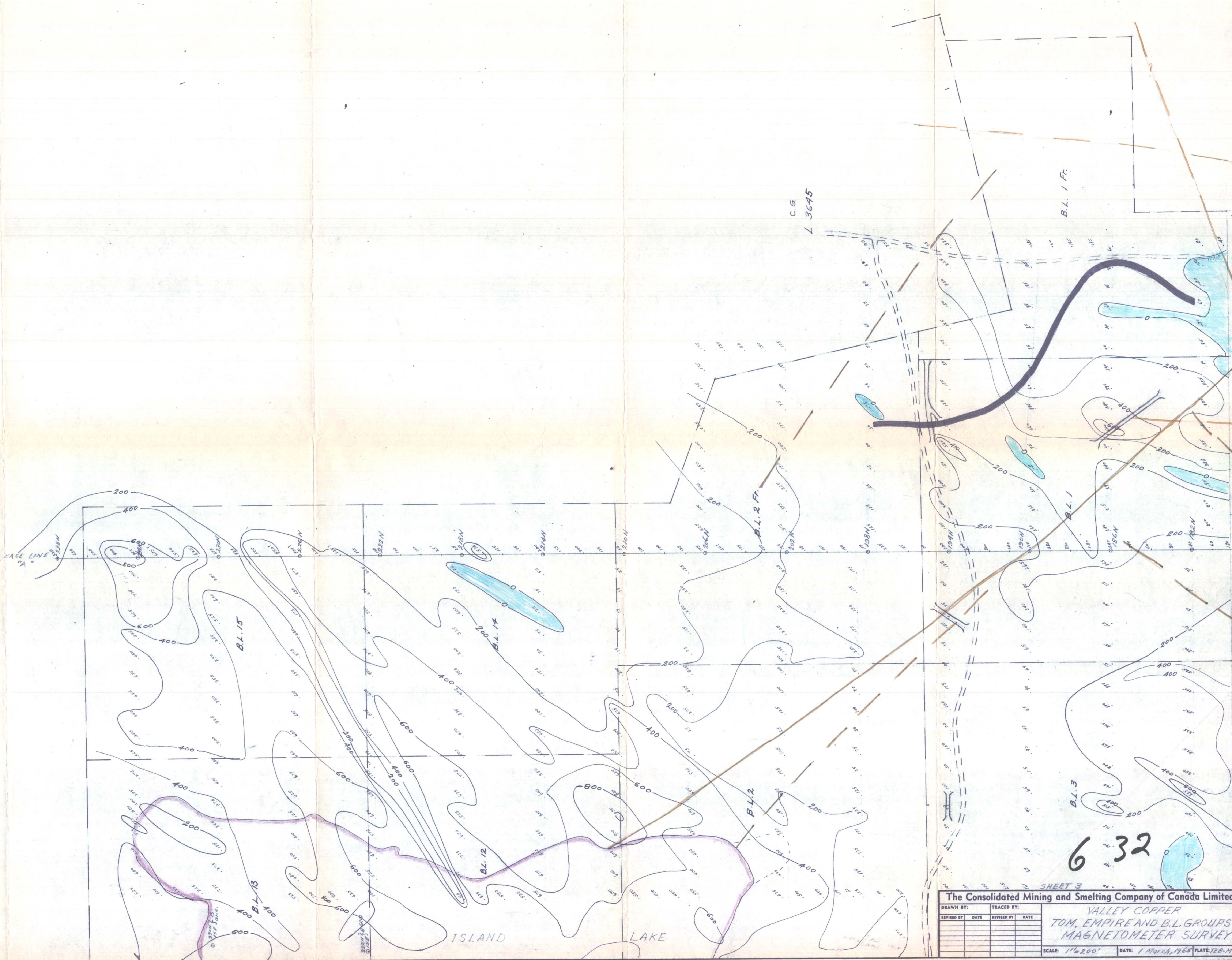
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 632 MAP 1

Sheet 2



632 SHEET 2

The Consolidated Mining and Smelting Company of Canada Limited  
DRAWN BY: TRACED BY:  
REVISED BY: DATE: REVISED BY: DATE:  
SCALE: 1" = 300' DATE: 2 March 1965 PLATE: FEB-ME  
VALLEY COPPER  
TOM, EMPIRE AND B.L. GROUPS  
MAGNETOMETER SURVEY.



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 632 MAP 1

Sheet 3

To accompany Magnetometer Survey Report  
by D.W. Heddle, P.Eng. on the B.L. and Tom  
Claim Groups, Highland Valley, Kamloops M.D.  
dated April 6, 1965

D. W. Heddle

632

SHEET 3

The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY:	TRACED BY:		
REVISED BY:	DATE	REVISED BY:	DATE

VALLEY COPPER  
TOM, EMPIRE AND B.L. GROUPS  
MAGNETOMETER SURVEY

SCALE: 1"=200'      DATE: 1 Nov 65, 1965      PLATE: 778-M3



Base Line B

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 632 MAP 1

Sheet 4

To accompany Magnetometer Survey Report  
by D.W. Heddle, R.Eng. on the B.L. and Tom  
Claim Groups, Highland Valley, Kamloops M.D.  
dated April 6, 1965.

D. W. Heddle

SHEET 4

632

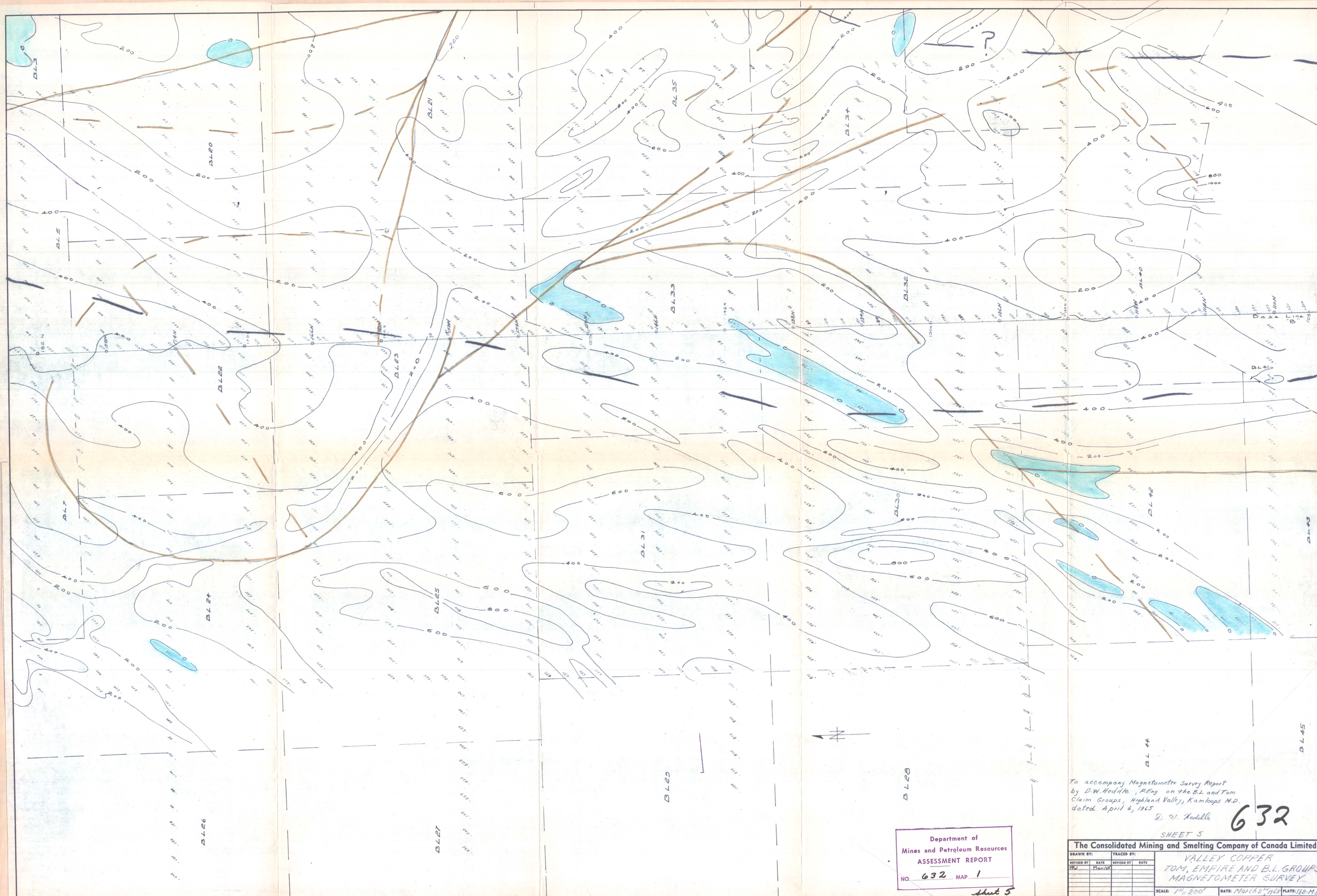
The Consolidated Mining and Smelting Company of Canada Limited			
DRAWN BY: <i>DLH</i>		TRACED BY:	
REVISED BY:	DATE:	REVISED BY:	DATE:

VALLEY COPPER  
TOM, EMPIRE AND B.L. GROUPS  
MAGNETOMETER SURVEY.

SCALE: 1" = 200 ft. DATE: 24 Feb. 1965 PLATE: 7EB-14A

B.L. 45

B.L. 43



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 632 MAP 1  
*Sheet 5*

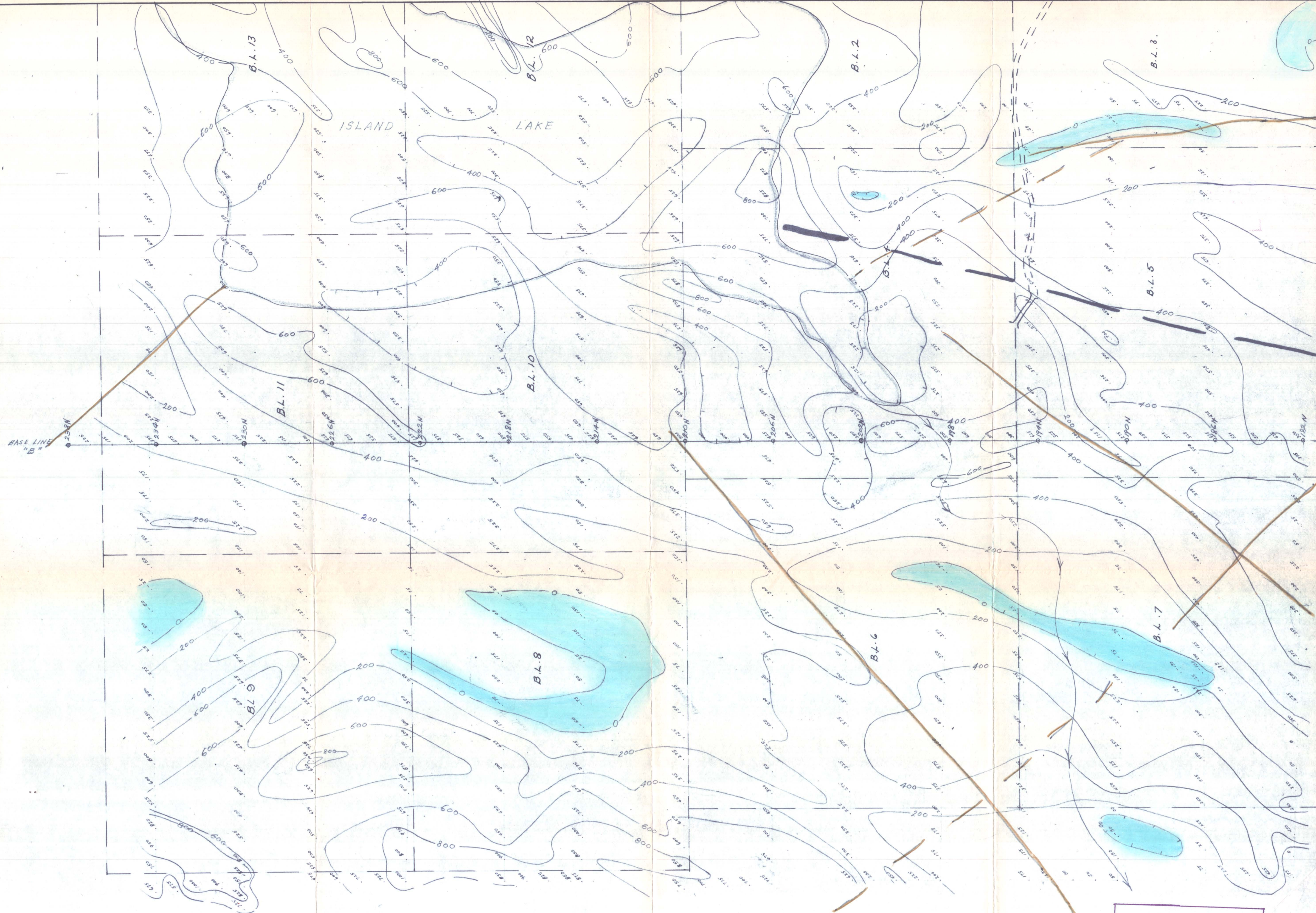
To accompany Magnetometer Survey Report  
by D.W. Heddle, P.Eng. on the B.L. and Tom  
Claim Groups, Highland Valley, Kamloops M.D.  
dated April 6, 1965  
D. W. Heddle

**632**

SHEET 5

The Consolidated Mining and Smelting Company of Canada Limited			
DRAWN BY:		TRACED BY:	
TRJ	Mar/65		
REVISED BY:	DATE	REVISED BY:	DATE
SCALE: 1" = 200'		DATE: Nov 22, 1965	PLATE: TB-M.5

VALLEY COPPER  
TOM, EMPIRE AND B.L. GROUPS  
MAGNETOMETER SURVEY



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 632 MAP 1

Sheet 6

To accompany Magnetometer Survey Report  
by D.W. Heddle, P.Eng. on the B.L. and Tom  
Claim Groups, Highland Valley, Kamloops N.D.  
dated April 6, 1965.

D.W. Heddle **632**

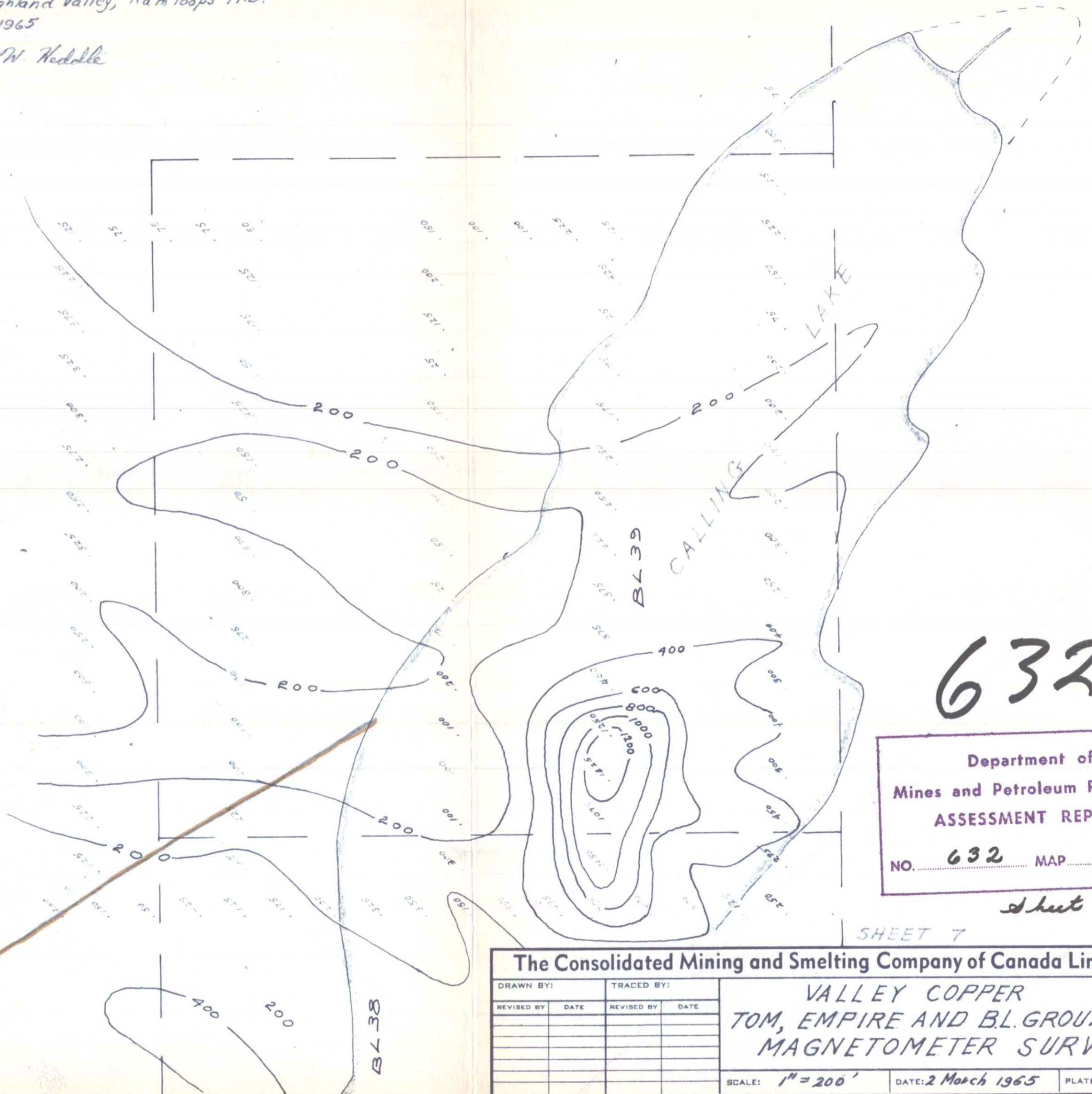
SHEET 6

The Consolidated Mining and Smelting Company of Canada Limited

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REVISED BY:	REVISED BY:	TOM, EMPIRE AND B.L. GROUPS
		MAGNETOMETER SURVEY
		SCALE: 1"=200'
		DATE: March 2, 1965
		PLATE: TEBM6

To accompany Magnetometer Survey Report  
 by D.W. Heddle, P.Eng. on the B.L. and Tom  
 Claim Groups, Highland Valley, Kamloops M.D.  
 dated April 6, 1965

D. W. Heddle



632

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 632 MAP 1

Sheet 7

SHEET 7

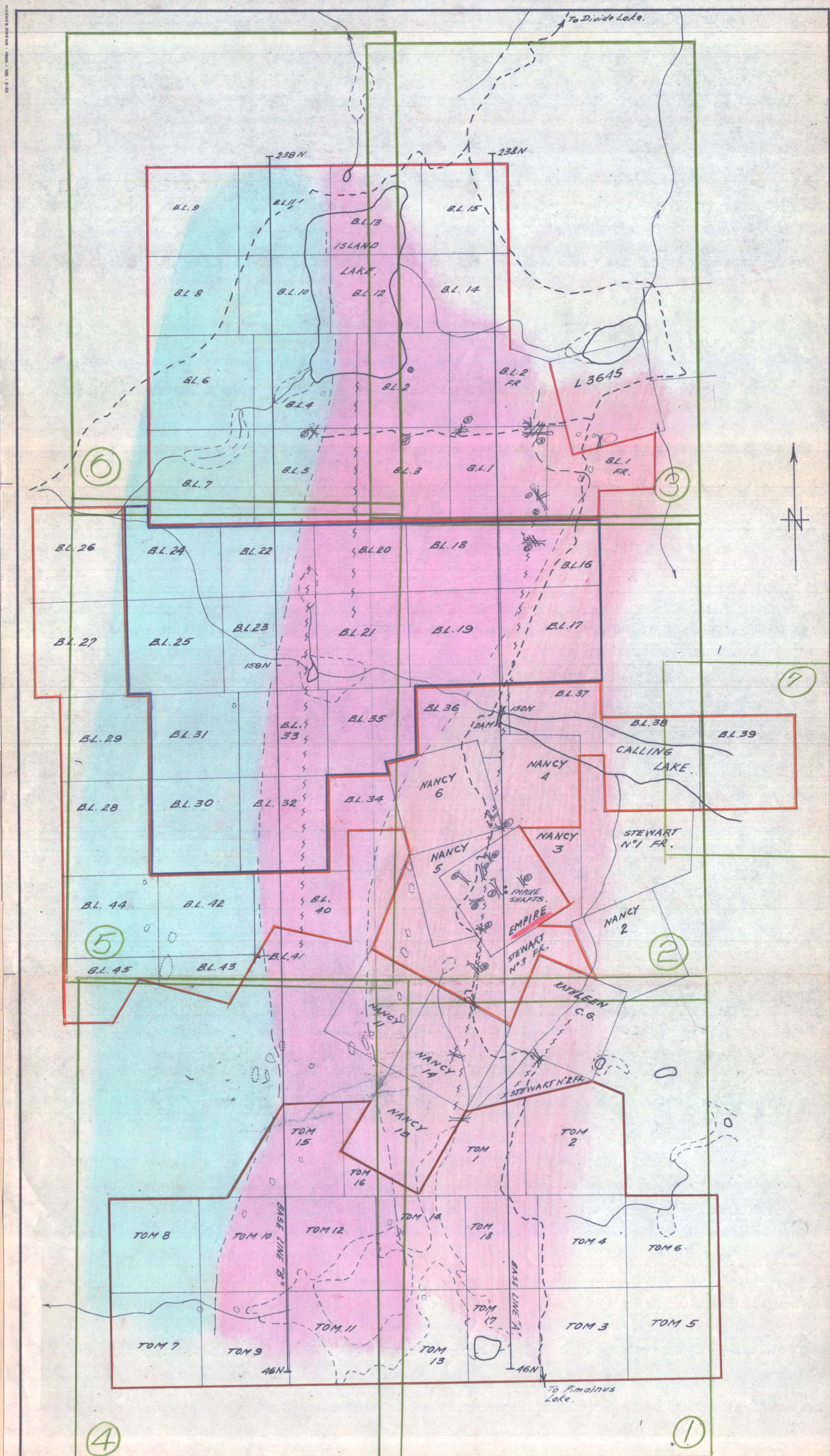
The Consolidated Mining and Smelting Company of Canada Limited

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VALLEY COPPER  
 TOM, EMPIRE AND B.L. GROUPS  
 MAGNETOMETER SURVEY

SCALE: 1" = 200'      DATE: 2 March 1965      PLATE:





DRAWN BY: G.R.R. TRACED BY: G.R.R.  
 REVISED BY: DATE: REVISED BY: DATE:  
 SCALE: 1" = 1000' DATE: 16-IX-1964 PLATE:  
**VALLEY COPPER.**  
**B.L., EMPIRE AND TOM GROUPS.**  
**GEOLOGY AND CLAIM COVERAGE.**

- ### LEGEND
- BETHSAIDA QUARTZ DIORITE.
  - SKEENA QUARTZ DIORITE.
  - GUICHON QUARTZ DIORITE.
  - FAULT. Located, inferred.
  - CONTACT. Approximate, inferred.
  - Reconnaissance Geochem. high.
  - Trench.
  - Road.
  - Claim Group N° 3
  - Claim Group N° 4
  - Claim Group N° 5
  - Claim Group N° 6
  - Sheet of Magnetometer coverage.

### TRENCHING GROUP N° 4, EMPIRE.

TRENCH	Width, Ft.	Length, Ft.	Depth, Ft.	Cubic yds.
1	14	300	4	620
2	14	150	5	390
3	14	300	4	620
4	14	150	3	230
5	14	200	8	830
6	14	200	3	310
7	14	250	10	1300
8	14	230	13	1550
9	14	250	3	390
<b>TOTAL</b>				<b>6,240</b> <sup>3</sup> <b>6,240 yds.</b>

### GROUP N° 6, B.L.

TRENCH	Width, Ft.	Length, Ft.	Depth, Ft.	Cubic yds.
1	14	400	5	1,040
2	14	200	5	520
3	14	420	5	1,090
4	14	110	8	460
5	14	130	6	400
<b>TOTAL</b>				<b>3,510</b> <sup>3</sup> <b>3,510 yds.</b>

### GROUP N° 5, B.L.

TRENCH	Width, Ft.	Length, Ft.	Depth, Ft.	Cubic yds.
6	14	300	10	1,560
<b>TOTAL</b>				<b>1,560</b> <sup>3</sup> <b>1,560 yds.</b>

# 632

Department of  
 Mines and Petroleum Resources  
**ASSESSMENT REPORT**  
 NO. **632** MAP **2**