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Report on a VLF Electromagnetic survey

on the

Cripple Creek Gold Property

Esperanto Resources Ltd/TME Resources Inc.

Denton Township, Ontario

by

2.5962

W. O. Karvinen, Ph.D.

June 3, 1988

Summary

The VLF electromagnetic survey of the Cripple Creek claims near Timmins, Ontario has very effectively outlined two stratabound conductive zones which have potential for the discovery of gold mineralization. Both are in excess of 6000 feet long and have geologic features such as sulfides and cherts which could contain economic gold concentrations. Neither zone has been adequately tested in the past nor has the extent of each been previously known. These results add a new dimension to the potential of the property where to date, only the No. 1 showing and the No. 2 Zone have been known from previous work.

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Introduction

In May 1988, W. O. Karvinen & Associates Ltd. carried out a VLF electromagnetic survey of the Cripple Creek gold property near Timmins Ontario for Esperanto Resources Ltd. and TME Resources Inc. The purpose of the survey was to trace the weakly conductive rocks associated with the No. 2 Zone and to identify any other conductive zones which may be present.

Location and Access

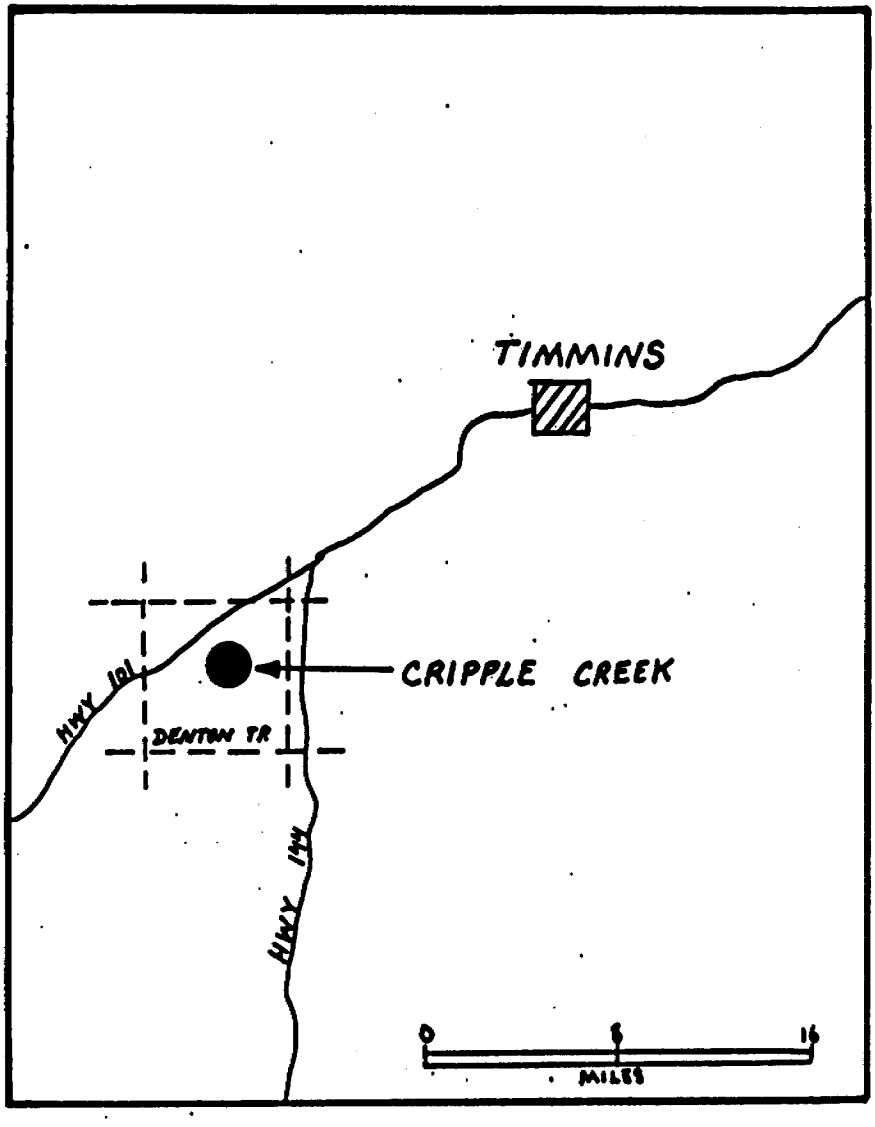
The Cripple Creek property is located in central Denton Township about 20 miles southwest of Timmins, Ontario (Fig. 1). The claim group is accessible via a seasonal logging road which leaves highway 101 at the government landfill site. The west boundary of the property can be reached by this road and beyond this the claims are accessed by a newly-bulldozed road (Fig. 2).

Property Description

The Cripple Creek property comprises 11 contiguous unpatented claims numbered P865396 to P865403 inclusive and P930957 to P930959 inclusive. The claims are in the name of W. O. Karvinen and are under option to TME Resources Inc. and Esperanto Resources Ltd. of Vancouver, B. C.

Previous Work

A considerable amount of work has been done by exploration companies in the vicinity of the Cripple Creek claims, however, the only work reported on this ground was by Hollinger Consolidated Gold Mines Ltd. in the early 1960's.



Location Map

Fig. 1: Location Map of Cripple Creek Gold Property.

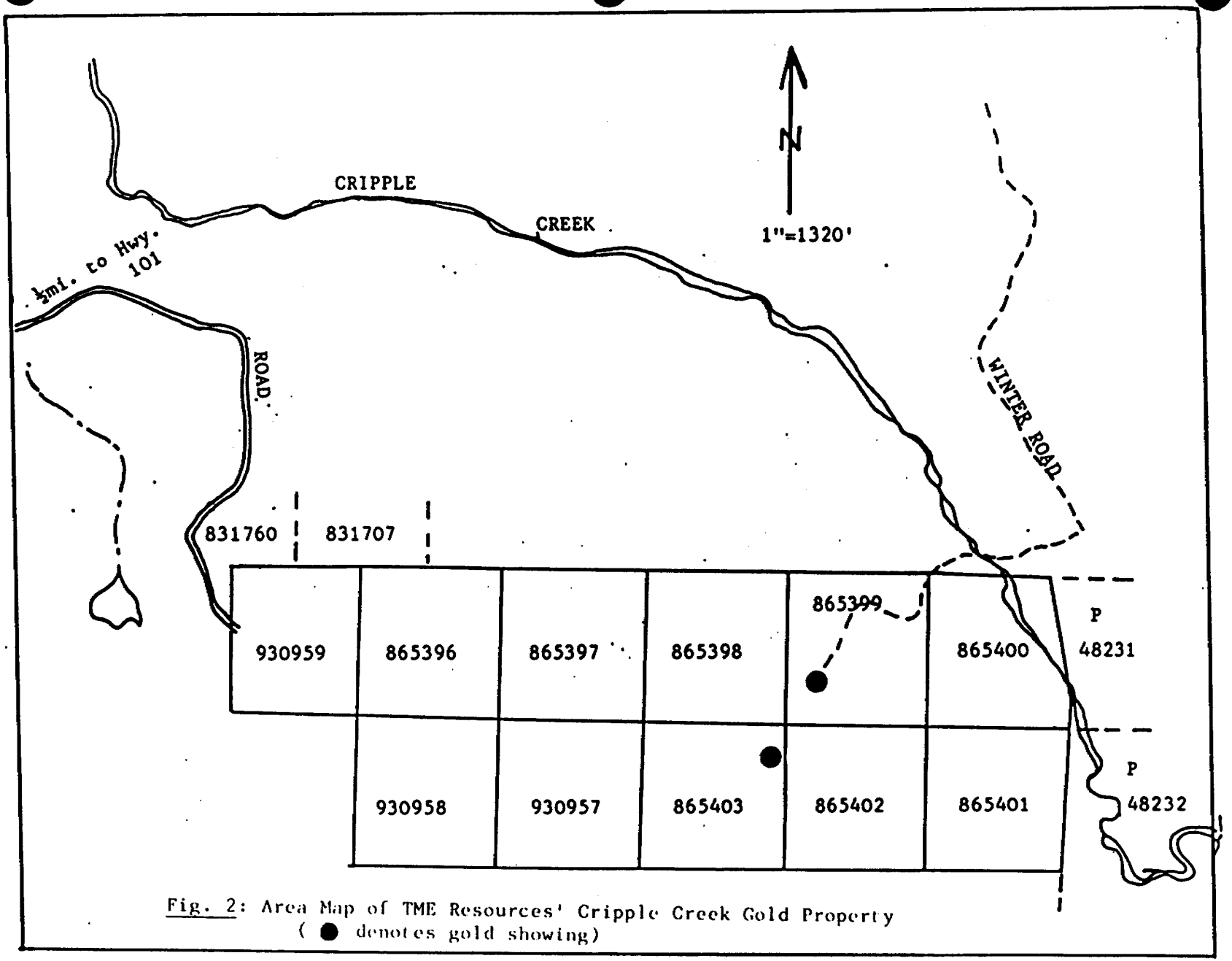


Fig. 2: Area Map of TME Resources' Cripple Creek Gold Property
(● denotes gold showing)

This company conducted a horizontal loop electromagnetic survey, a fluxgate magnetometer survey and mapped the property. Based on this work, four diamond drill holes were completed. Surface prospecting and sampling of old trenches by Hollinger yielded mostly low gold values with the best result reported from a grab sample to be 0.14 oz/t. The old trenches and pits which are common on the property probably date back to the early days of the gold discoveries in the Porcupine and may also have seen some activity in the 1930's.

The Hollinger electromagnetic survey revealed a weak conductor in the vicinity of the No. 2 Zone . Two of the diamond drill holes spaced about 1000 feet apart cut this conductor (see geology report by Karvinen, 1987) The logs indicate the conductive zone to consist of about 200 feet of alternating beds of sulfidic cherts and tuff/sediments cut by quartz-carbonate veins and stringers. Only four narrow sections of quartz vein material were assayed for gold. The results were all negative. Wide sections of disseminated sulfides ranging from less than 1% to over 10% encountered in the drilling were not assayed by Hollinger.

The property was staked in 1986 by W. O. Karvinen and grab samples taken at the time from some of the trenches returned values in the range of .01 to .05 oz/t. During the option to TME Resources Inc., the property was geologically mapped (Karvinen, 1987), and a detailed magnetometer survey was completed (Karvinen, 1987). More recently with financing from Esperanto Resources Ltd., an induced polarization survey was carried out and part of the property was covered by a till geochemistry survey. In addition, an access road was bulldozed during the winter and areas planned for stripping were removed of trees.

VLF Survey

The present electromagnetic survey was carried out using a Radem unit manufactured by Crone Geophysics. The technical specifications and survey methodology are described in more detail in the appendix.

Dip angle measurements of the distortion of the primary field were taken at 100 ft. intervals along cross lines 400 feet apart. The transmission station used was Cutler, Maine. The values of the dip angles as well as the profiles are plotted on the enclosed map.

To clear the data of 'geologic noise' and to better define the anomalies, the dip angle values were arithmetically treated with the Fraser Filter Method (Fraser, 1969).

Results

The profiles of the dip angle values show the presence of some anomalies cutting across the property, however, these anomalies are clearer and better defined by the contoured values of the Fraser filter data (see map).

The strongest and most obvious anomaly cuts in a east-northeasterly direction across the property and is over 6000 feet long. The strongest portion of this linear anomaly located between lines 52E and 64E coincides with Hollinger's HEM anomaly.

About 1000 feet to the north is another linear anomaly which parallel the main anomaly but is weaker. It runs the length of the property from 12E to 72E. Another weak anomaly occurs in the southeast part of the claims near the southern boundary.

Interpretation

The main linear anomaly delineates the strike and extent of the sulfide-bearing cherts and tuff/sediments encountered in the Hollinger drill holes. These rocks occur immediately to the south of the sulfidic rocks which contain the No. 2 zone; both have similar amounts of sulfides and yet the No. 2 zone does not produce a VLF anomaly. This may be due to the way the sulfides are distributed or it is quite probably that the cherts and sediments contain some graphite.

No bedrock exposures of the main VLF anomaly are known, however, overburden along it in the central part of the property is in the order of only a few feet. All the previous trenching and sampling has been on the adjacent No. 2 Zone which was exposed in outcrop in a few places.

The weaker linear anomaly to the north is not exposed anywhere and therefore little is known about it. Because it is parallel to the strike of lithologies on the property, it probably represents another sedimentary or tuffaceous unit which may contain either sulfides and/or graphite. It is interesting to note that a strong part of the anomaly occurs just south of the No. 1 showing.

The dispersion of the anomalies towards the eastern boundary of the property suggests the presence of northwest-trending faults in the vicinity of Cripple Creek. This agrees with the magnetic data, however, a north-northeast trending fault which was interpreted from magnetic patterns to exist near line 36E is not as obvious on the VLF map. The very much weaker VLF response in this region may, however, be due to this fault.

Conclusions

The VLF survey delineated very effectively the position and extent of a potential gold-bearing zone adjacent to the No. 2 Zone which had not been fully realized before. Also, another linear anomaly just south of the No. 1 Showing appears to represent a zone of conductivity that also parallels stratigraphy and may have some exploration potential. Both of these zones add new targets for detailed exploration and testing for gold. Also, since the No. 2 Zone parallels the main linear anomaly, its exact position can be easily delineated with the use of the VLF results.

W O Karvinen

William O. Karvinen, Ph.D. June 3, 1988

References

Fraser, D. C. 1969: Contouring of VLF Data Geophysics, Vol. 34, No. 6 pp. 958 - 967

Karvinen, W. O. 1987: Report on Bedrock Geology of the Cripple Creek Property, Denton Twp., Ont. Unpub. Report. 7 p.

Karvinen, W. O. 1987: Report on Magnetic Survey, Cripple Creek Gold Property. Unpub. Rept. 5 p.

C E R T I F I C A T E

I, William O. Karvinen, Geologist and president of W .O. Karvinen & Associates Ltd. of 32 Lakeland Pt. Dr., Kingston, Ontario, do hereby certify that:

the information contained in this report is based on personal observations and field work and on reliable published and unpublished reports;

through an option agreement with TME Resources Inc., I have a 2.5% net smelter return interest in the Cripple Creek property and I own shares of TME;

I hold a Doctorate of Philosophy and an Honours Bachelor of Science from Queen's University in Kingston (1974 and 1968 repectively) and a Master of Science from the University of British Columbia (1970);

I am a fellow of the Geological Association of Canada;

I have been actively engaged in my profession for over 20 years and have been carrying out mineral exploration and consulting since 1978.

Kingston, Ontario
June 3, 1988

Dr. William O. Karvinen

A P P E N D I X

CRONE GEOPHYSICS LIMITED
3607 WOLFEDALE ROAD, MISSISSAUGA, ONTARIO, CANADA L5C 1V8
TELEPHONE: (416) 270-0096 CABLE: CRONGEO, TORONTO TELEX: 06-961260.

INSTRUCTIONS FOR OPERATION OF THE RADEM VLF-EM RECEIVER

(1) Transmitter Stations

The VLF Communication Broadcast stations are positioned throughout the world. Numerous VLF stations transmit steadily except for maintenance periods usually of 1/2 to 1/3 days per week. The RADEM receives any of 7 of these stations with selection by means of a switch. The useable range of these stations varies widely with power and transmission conditions but is usually between 1000 and 5000 miles.

A station should be selected that is located in the same direction as the regional strike. For example, if the geological strike is east-west then a station located east or west of the operator should be used. If in doubt of the geological strike two orthogonal stations should be read.

(2) Field Measurments

(a) Dip Angle of Resultant Field

This is the angle of inclination, measured from the horizontal in degrees, of the direction of the resultant VLF field. The VLF field is normally horizontal (0 degrees dip). The dip angle measurement is independant of the strength of the field and the gain setting of the RADEM receiver. When plotted on a profile the dip angles usually form a cross-over pattern above the conductor as with the standard vertical loop EM method.

To measure the dip angle the RADEM is first held with instrument face horizontal and rotated until a null is obtained (visual minimum on the field strength meter and audio null). This aligns the base of the Radem in the direction of the VLF field. The Radem is then held vertically and tilted from right to left until another null is obtained. The instrument is held steady in this null position and the dip angle read from the inclinometer. Note that the arrow in CRONE points towards the conductor, if the arrow points north the dip angle is recorded as say 10 degrees north.

November 1986

(b) **Horizontal Component of the Field Strength**

This is simply the strength of the field in the horizontal plane. It is the maximum reading obtained from the Field Strength meter when the instrument is rotated in the horizontal plane. It is therefore at right angles to the null position. It is usually read after the dip angle measurment simply by holding the RADEM horizontal, and adjusting position for maximum reading in the horizontal plane.

The field strength of the VLF stations drifts with time. This drift is particularly severe during sunrise and sunset periods. A base station should be established in a normal area and the RADEM adjusted to a Horizontal Field Strength of "200" on the "0 - 300" scale by means of the Gain control pot. The drift correction is then applied to all stations as in a magnetometer survey.

(c) **Out-Of-Phase Measurment**
(usually not measured)

The secondary field from a ground conductor often is not in the same phase as the primary field, therefore the resultant field will have an out-of-phase component.

To measure the out-of-phase component as a percent of the normal primary field the volume control of the amplifier must be set up as a standard. This is acheived at a base station in a normal area. The Field Strength range switch is placed in the "0 - 300" position. The RADEM held with the face horizontal and the body rotated until a maximum field strength reading is obtained. In this position the Gain control is adjusted until the meter reads "200". The Gain control is left at this setting until the base station is read again usually one to several hours later. The out-of-phase reading is the minimum position of the field strength meter when the dip angle of the resultant field is being measured. It is read at the same time as the dip angle is being read with the RADEM in the vertical null position.

The out-of-phase measurement is sensitive to a lower order of conductivity than the dip angle measurement. For this reason it is often not recorded unless poor conductors are being sought.

(3) <u>Fraser Filtering</u>

Reference: Geophysics, Volume 34, No. 6, December 1969.
"Contouring of VLF-EM Data"

This is a simple operation on the dip angle readings that more clearly defines anomalous areas. It requires a consistent reading interval (i.e. readings every 50', 100', 25m, 50m etc.). It produces data which is then contoured with the highs representing the conductor axis, much the same as a Horizontal Field Strength survey although lacking the detail possible with the field strength measurement.

(4) Recording of Field Data

When recording field data it is essential, as in any other geophysical survey to record as much information as possible. When conducting a RADEM survey it is very important to record topographical features that you encounter along the survey line.

Below is an example of a typical field sheet from a RADEM survey.

CLIENT : Crone LINE: 5+00E
PROJECT: Test DATE: 11/05/86

Station	Out-of-Phase %	Dip Angle Degrees	Field Strength Reading	Time	Drift	Corr.	Remarks
10N Base	2	0	100	9:00	0	100	
10+50N	2	0	100	9:02	0	100	Lake
11+00N	0	2N	99	9:04	-1	98	Lake
11+50N	0	6N	101	9:06	-1	100	
12+00N	0	12N	102	9:08	-2	100	Road
12+50N	4	22N	118	9:10	-2	116	
13+00N	6	20N	185	9:12	-2	183	
13+50N	6	8N	263	9:14	-3	260	x-over
14+00N	0	1S	247	9:17	-3	244	
14+50N	0	12S	164	9:20	-4	160	
10N Base			114	10:10	-14	100	

(5) Temperature Effect

Temperature drift may cause the field strength meter to null well below the zero mark. This should be corrected by the screw adjustment below the "Normal" switch on the front panel. Adjust with the volume pot at "0".

(6) Power Supply

Two of #216 Eveready 9 Volt Batteries - Life: 20 hours continuous.

List of Available Stations on the RADEM unit

Code Letter	Station and Location	Frequency	Call Sign
CM	Cutler,Maine	17.8 KHZ	NAA
		24.0 KHZ	
SW	Seattle, Washington	24.8 KHZ	NLK
AM	Annapolis, Maryland	21.4 KHZ	NSS
H	Laulualei, Hawaii	23.4 KHZ	NPM
PR	Puerto Rico	28.5 KHZ	NAU
E	Rugby, England	16.0 KHZ	GBR
NC	Exmouth, Australia	22.3 KHZ	NWC
BOF	Bordeaux, France	15.1 KHZ	NWU
MS	Moscow, Russia	17.1 KHZ	UMS
OD	Odessa (Black Sea)	15.6 KHZ	EWB
HN	Helgelaend, Norway	17.6 KHZ	JXZ
YJ	Yosami, Japan	17.4 KHZ	NDT
TJ	Tokyo, Japan	20.0 KHZ	JG2AR
BA	Buenos Aires, Argentina	23.6 KHZ	-

VLF WEEKLY MAINTENANCE SCHEDULE (August 1986, Subject to Change)

CM 2300 to 0900 UT First Thursday-Friday of Month
2300 to 0700 UT All other Thursday-Fridays

SW 1600 to 2400 UT each Thursday
During Daylight Saving Time 1500 to 2300 UT each Thursday

AM 1200 to 2000 UT, Testing 2000 to 2200 each Tuesday

H 1800 to 0400 UT last Wednesday-Thursday of month
1800 to 0200 UT all other Wednesday-Thursdays

PR 1200 to 2000 UT each Wednesday
Testing 2000 to 2200 each Monday

E 1000 to 1400 UT each Tuesday

NC 0000 to 0800 UT each Monday
May be off 0000 to 0400 UT on Tuesdays

YJ 2300 to 0900 UT First Thursday-Friday of Month
2300 to 0700 UT all other Thursday-Fridays

#50065

Ministry of Northern Development and Mines

Ontario

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

DOCUMENT W8806

Mining Act

42A05SE0119 2.11590 DENTON

900

Do not use shaded areas below.

Type of Survey(s)
Geophysical (VLF - EM)

Township or Area
Denton Township

Claim Holder(s)
Willaim O. Karvinen

Prospector's Licence No.
C32433

Address
32 Lakeland Pt. Dr., Kingston, Ont. K7M 4E7

Survey Company
W. O. Karvinen & Associates Ltd.

Date of Survey (from & to)
20 Day | 05 Mo. | 88 Yr. | 25 Day | 05 Mo. | 88 Yr.

Total Miles of line Cut
11 miles

Name and Address of Author (of Geo-Technical report)
William O. Karvinen, 32 Lakeland Pt. Dr., Kingston, Ont. K7M 4E7

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical - Electromagnetic	20
	Geophysical - Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical - Electromagnetic	
	Geophysical - Magnetometer	
	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Sept. 6, 1988

Recorded Holder or Agent (Signature)
W Karvinen

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
P	865396	
	865397	
	865398	
	865399	
	865400	
	865401	
	865402	
	865403	
	930957	
	930958	
	930959	

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.

RECEIVED
SEP 8 1988
@ 10:30 a.m.
PORCUPINE MINING DIVISION

RECORDED
SEP 08 1988

ONTARIO GEOLOGICAL SURVEY
ASSESSMENT FILES OFFICE
NOV 7 1988
RECEIVED

RECEIVED
OCT 24 1988
MINING LANDS SECTION

Total number of mining claims covered by this report of work. 11

For Office Use Only

Total Days Cr. Recorded: 220

Date Recorded: Sept 8/88

Date Approved as Recorded: 27 Oct 88

Mining Recorder: D. White

Branch Director: [signature]

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
William O. Karvinen, 32 Lakeland Pt. Dr., kingston, Ont. K7M 4E7

Date Certified: Sept. 6, 1988

Certified by (Signature): W Karvinen

0385/12)

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

	Description	Order No.	Date	Disposition	File
R1	SEC. 43/70			M. + S.	171508
R2	DANA AND ~~JEWSEN~~ Jowsey PARK RESERVE SEC. 36/80 W. 64/83			S.R.O. M.R.O.	
R3	~~[illegible]~~			(	~~[illegible]~~
R4	RESERVED FOR PUBLIC USE			S.R.O.	
R5		M.R.W. 94/84		S.R.O.	

APPLICATION FOR CROWN LAND.

SAND AND GRAVEL

G1	M.T.C.	PIT 1417	FILE 126351
G2	M.T.C.	PIT 1236	FILE 126351
G3	M.T.C.	PIT 1470	
G4	M.T.C.	PIT 1531	

NOTES

THIS TOWNSHIP LIES WITHIN THE MUNICIPALITY OF THE CITY OF TIMMINS.

IMPORTANT NOTICE

THIS TOWNSHIP FORMS PART OF THE WAFERBOARD FOREST MANAGEMENT AGREEMENT.

THE 1985/86 ANNUAL PLAN, ON FILE IN THE MINING RECORDER'S OFFICE, SHOWS THE AREAS TO BE AFFECTED IN THE NEXT YEAR.
IF THIS PLAN AFFECTS YOU, FURTHER INFORMATION MAY BE OBTAINED FROM:

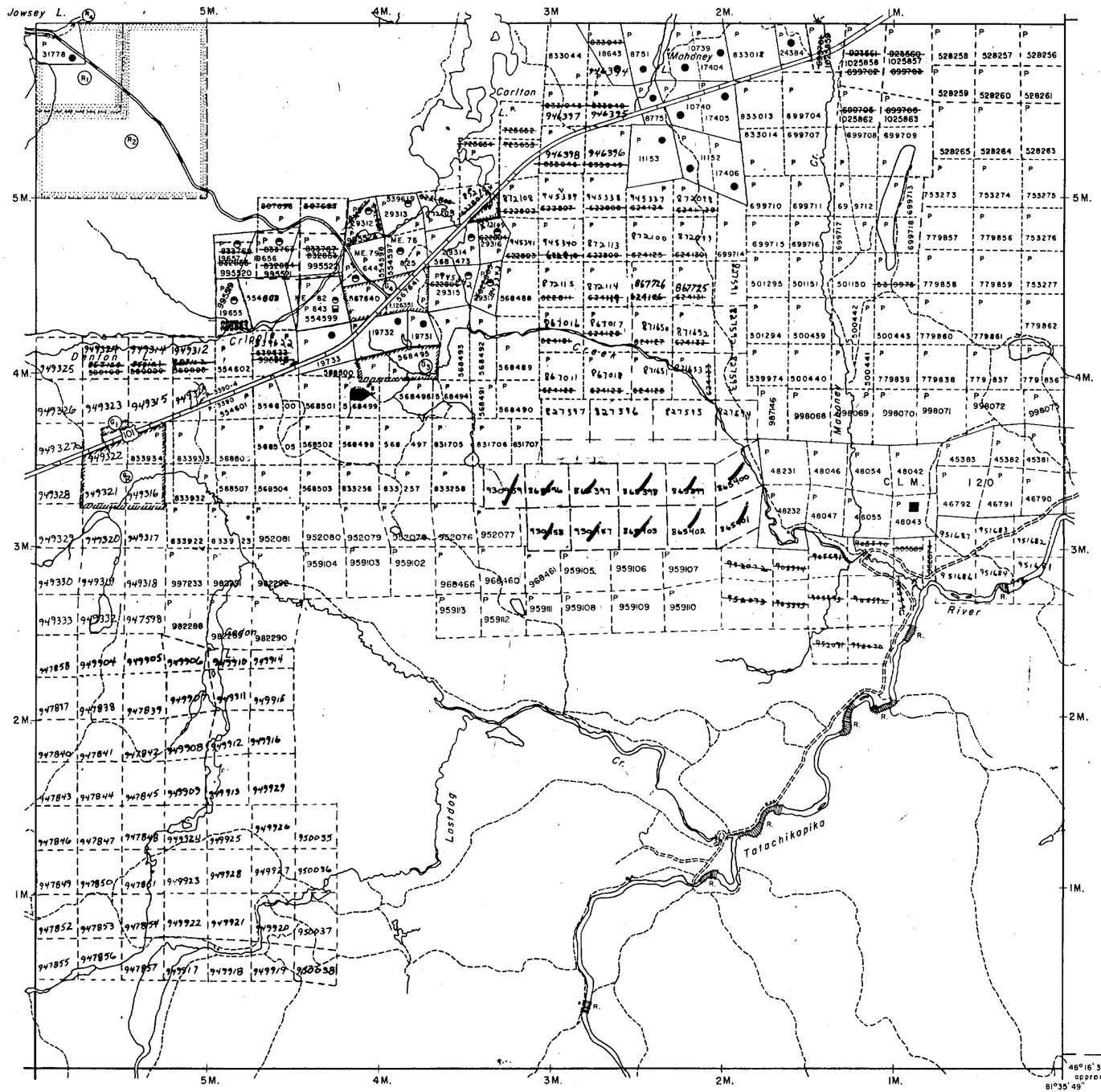
MR. MALCOM KILGOUR,
UNIT FORESTER,
MINISTRY OF NATURAL RESOURCES,
896 Riverside Drive,
Timmins ,ontario

Tel: 705-267-7951

or

Mr. Pierre Corbeil,
Waferboard Group
Tel: 705-268-1462

CARSCALLEN TWP.



KEEFER TWP.

THORNELOE TWP.

REYNOLDS TWP.

McKEOWN TWP.

48°16'39" approx.
81°35'49"

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◓
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◨
" , MINING RIGHTS ONLY	◧
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	Ⓡ
CANCELLED	⊗
SAND & GRAVEL	Ⓖ

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC 1.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 (1 KM) 2000 (2 KM)

TOWNSHIP

DENTON

M.N.R. ADMINISTRATIVE DISTRICT

TIMMINS

MINING DIVISION

PORCUPINE

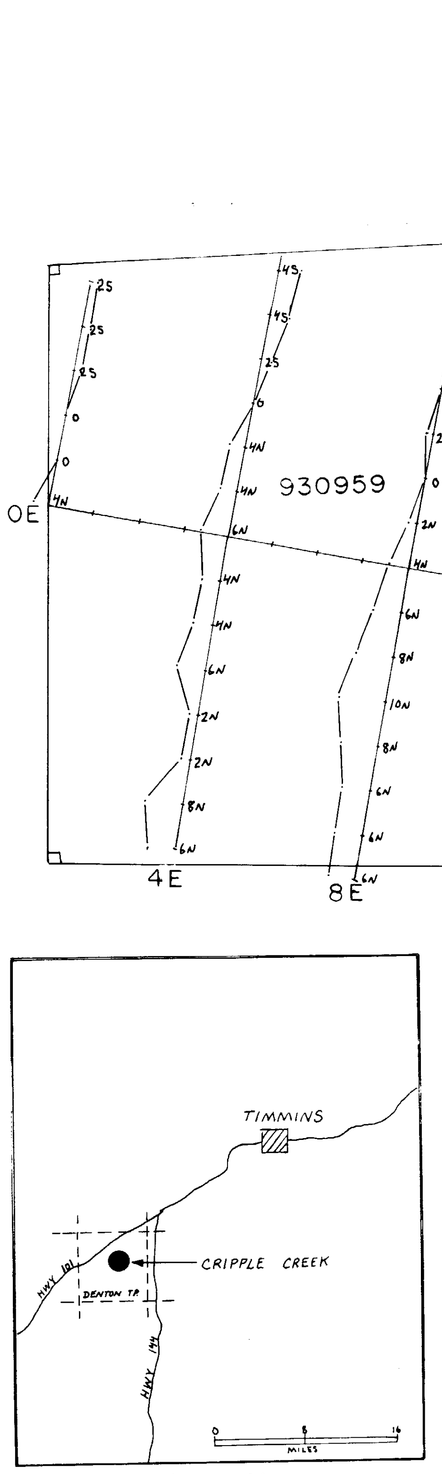
LAND TITLES / REGISTRY DIVISION

COCHRANE

Ontario Ministry of Natural Resources — Land Management Branch

Date MARCH, 1985

Number G-3224



Location Map

930959 865396 865397 865398 865399 865400

930958 930957 865403 865402 865401

CRIPPLE CR. TRAIL

0E 4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E 52E 56E 60E 64E 68E 72E 76E

10 S

10 N

0 0 E

CUTLER MAINE

30 20 10 0 -10 -20 -30
degrees

VLF DIP ANGLE READINGS

2.11590

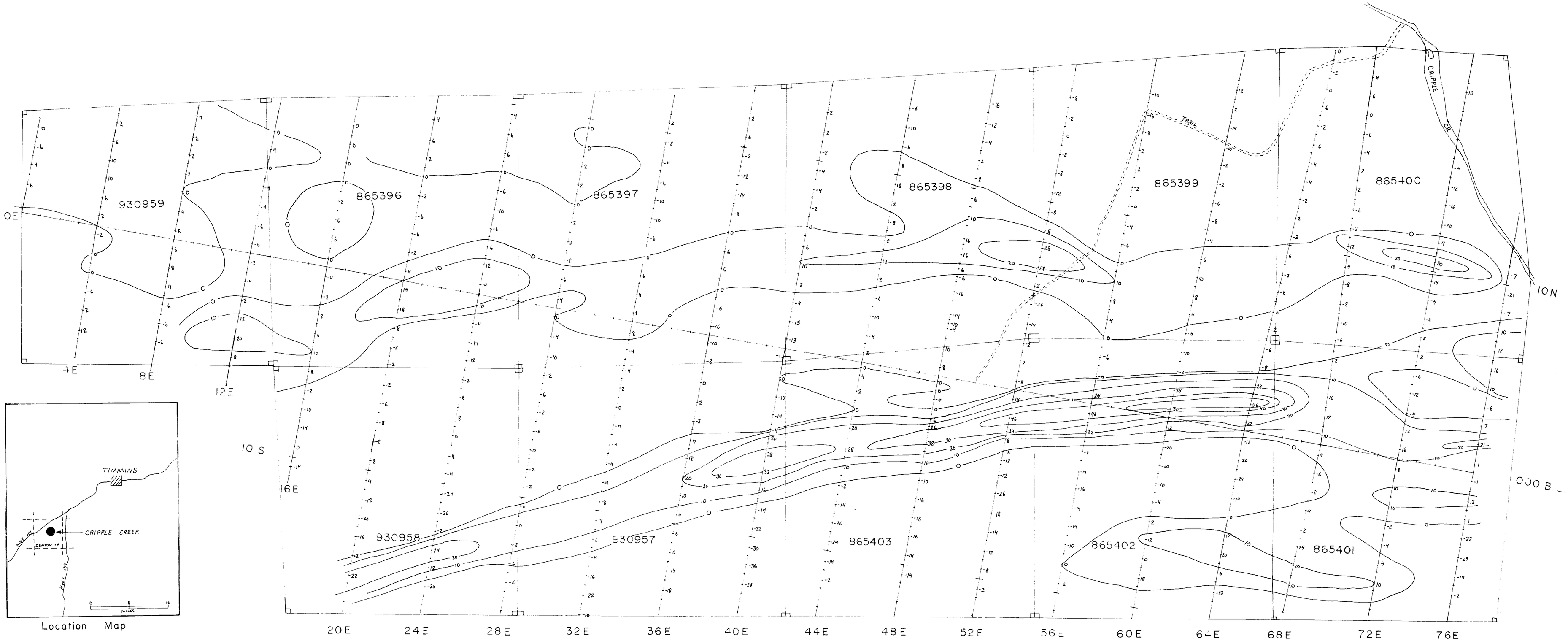
CRIPPLE CREEK GOLD PROPERTY

TME RESOURCES INC.

Survey By:
W. O. Karvinen & Associates Ltd.

MAY 1988

Scale 1 in = 200 ft



Location Map

FRASER FILTERED VLF DATA

2.11590

CRIPPLE CREEK GOLD PROPERTY

TME RESOURCES INC.

Survey By:

W. O. Karvinen & Associates Ltd.

MAY 1988

Scale: 1 in. = 200 ft.

May/88

220