



41016SE0019 2.5183 GENOA

010

FALCONBRIDGE LIMITED

GEOLOGICAL SURVEY REPORT

HEENAN, MARION, GENOA TOWNSHIPS

N.T.S. 41-0-16

RECEIVED

NOV 12 1982

MINING LANDS SECTION

October 26, 1982

LOCATION AND ACCESS:

As shown on the enclosed map, the property is located within Heenan, Marion and Genoa Townships. Access to the property is via commercial float aircraft landing on the Woman River either from Ivanhoe Lake some thirty air miles to the north or from Timmins some seventy air miles to the north east.

HOLDERS OF THE PROPERTY:

The 134 claims covered by this survey are held by Falconbridge Limited, which maintains a field office located at 167 Wilson Avenue, Timmins, Ontario. This report is being submitted by an agent of the company from the above address.

DATES OF SURVEY:

The geological survey was completed during May 1980 to October 1982.

PREVIOUS WORK:

Parts of the above claim group have been held at various times by numerous mining companies, the data for which can be viewed at the Regional Office of the Mining Recorder in Timmins, Ontario.

To date, Falconbridge has completed and submitted for assessment:

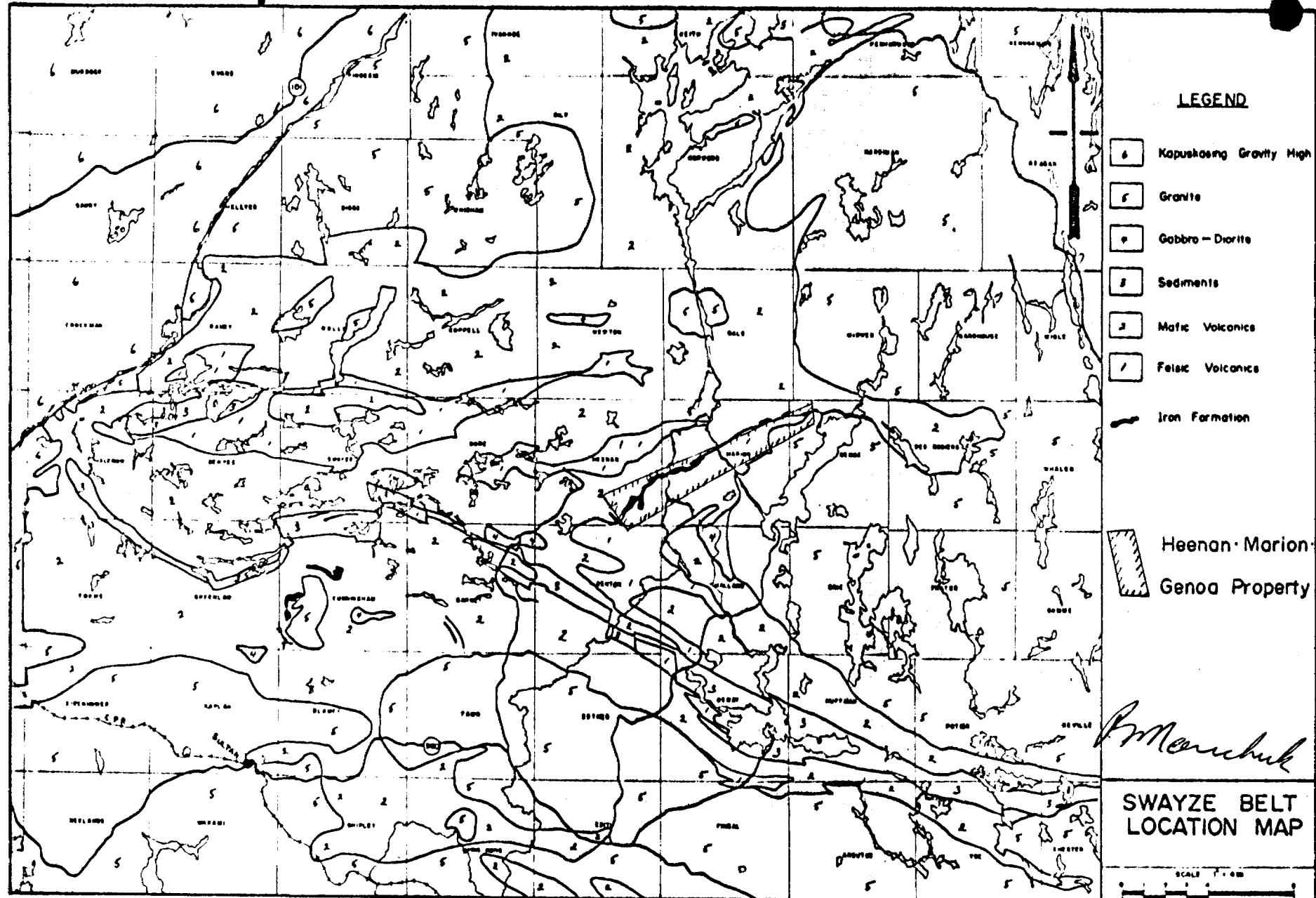
- a) V.L.F. survey
- b) Diamond drilling and assays (3 D.D.H.'s totalling 1512' of drilling)
- c) Manual Labour (involving stripping of outcrops)

Under separate cover a geophysical survey is submitted for assessment current with this report.

GENERAL GEOLOGY:

One inch = 400' maps are appended to this report in the map pocket.

The Heenan property straddles the Algoma type "Woman River" iron formation. In decreasing order of importance the dominant facies present are oxide, silicate, sulfide and minor carbonate.



The tholeiitic hanging wall consists dominantly of pillow flows, massive gabbroic-dioritic flows, dykes and/or sills.

The felsic volcanic footwall is observed to consist of a complex suite of rhyolite domes, thick flows/subvolcanics, flow breccias, primary pyroclastics, related epiclastics and laharic debris.

Cutting the above units is a series of mafic feeder dykes, quartz feldspar porphyry dykes, along with minor lamprophyre, syenite and diabase dykes.

A number of small dioritic-gabbroic intrusives are noted within the basal portions of the pile which probably relate to the large intermediate to felsic intrusive complex surrounding Rush Lake.

Regionally, the felsic volcanic complex forms a wedge-shaped structure about ten miles long and up to three miles thick. The whole sequence is dominantly north facing with near vertical dips. On the property, the iron formation forms an integral unit some 900' thick at the west end and is observed to thin to units 10's of feet thick and to be intercalated with tholeiites and felsic volcanics at the east end of our property.

Primary volcanic domes, with proximal and distal basins can be envisaged from the distribution and spatial relationships of lithologic units.

The metamorphic grade is observed to be lower-upper greenschist. Dynamic metamorphic effects are absent to strongly developed and consists of a planar fabric in the 120° direction. Observed faults strike generally 160° - 170° .

LITHOLOGIC UNITS:

FELSIC VOLCANICS:

The felsic volcanic rocks may be subdivided (a) compositionally into recognizable flow units on the basis of presence and abundance of quartz and feldspar phenocrysts and (b) texturally on the basis of character and degree of brecciation.

In general, individual flows appear compositionally homogeneous, although occasionally intraflow inhomogeneities are noted such as non-uniform distribution or size of phenocrysts. A complete gradation in the degree of brecciation is observed within the various flows from massive phases through incipient brecciation, flow breccias to flow top breccias.

Massive flows are not common, the most common phase being flow breccias/pyroclastics. Typically the flow breccias have an overall massive appearance but upon close inspection show indistinct monolithic angular fragments which generally results in a crackled appearance on weathered surfaces. Fragmentation becomes more obvious on fresh saw cut surfaces. Generally monolithic, the occasional exotic fragment do occur.

Flow banding is rare and of limited extent but has been observed.

All of the felsic rocks tend to weather white to slightly buff or pink. Chloritic and sericitic alteration is pervasive and occasionally accessory pyrite becomes significant as fine grained disseminations, patches and veinlets. Milky quartz veins are also common.

The rhyolitic flow units which have been recognised in the map area on the basis of phenocrysts are summarised below in Table 1.

TABLE 1

Rhyolite:	Phenocrysts:	Remarks:
² S	0	Volcanic; all phases of brecciation recognized; includes coarse pyroclastic units.
² W	1-2 Quartz eyes per sq. in.	Volcanic; flow breccia dominant phase plus minor massive phases, flow top breccia.
² L	5-10 Quartz eyes per sq. in.	Volcanic; flow breccia dominant phase plus flow top breccia.
² B	>15 Quartz eyes per sq. in. plus feldspar phenos.	Volcanic (may be subvolcanic in part) Massive and flow breccia phases dominant.
² G	Feldspar + quartz eyes	Distinctive lithology widely distributed as fragments in debris units but very rare massive phase.

VOLCANIC DEBRIS BRECCIAS:

The volcanic debris breccias are fragmental units which typically show highly angular, lithic volcanic fragments which are generally

unsorted and are fragment supported. Both monolithic and heterolithic varieties occur.

The monolithic varieties are interpreted as autobrecciated flows, pyroclastics, and pyroclastic debris.

The heterolithic debris are interpreted as talus or block avalanche breccias resulting from the brecciation of flow fronts or crumbling of domes. Pyroclastic fragments occur as accessories within this unit in varying proportions.

As opposed to laharic breccias described below, these debris breccias show less evidence of transport, reworking or other epigene processes. These debris units probably did act as source material for the laharic breccias and expectedly, gradation occurs between the volcanic debris breccias and the lahars.

LAHARIC BRECCIAS:

The term has been applied to a chaotic volcanic conglomerate which form large wedges within the felsic pile and generally are observed to become a more significant component in the upper and western portions of the pile. Laharic breccias are formed by water saturated mudflows carrying, dispersing and redepositing coarse and fine grained volcanic fragments which were initially deposited on the flanks of volcanic domes. The debris flows or lahars may be either contemporaneous with and triggered by local volcanic eruptions or are the product of gravity slides. Texturally, it is very difficult to distinguish between these two modes of formation.

On an outcrop scale, the laharic breccias which occur on the property are typically matrix supported, unstratified, crudely sorted and occasionally exhibit crude layering or pebble alignment. Locally, these units may be hundreds of feet thick. Distinguishing between individual debris flows is hampered by lack of outcrop continuity.

Fragments vary in size from single mineral grains up to an average maximum diameter of 12 inches although boulders up to six feet in diameter have been noted. The fragments are subangular to subrounded in shape and usually variable in composition, although monolithic laharic breccias also

occur. Occasionally, exotic fragments are observed but generally most have been derived from the various felsic volcanics underlying the map area.

The unit has a significant fine-grained component which is highly chloritic and it is assumed that the original matrix had a high mud and sand content. In addition to chlorite the fine-grained component is magnetite-rich and in some areas contains significant disseminated pyrite.

The monolithic laharic units are believed to have had local source areas.

On freshly peeled surfaces the lahars weather brown.

WOMAN RIVER IRON FORMATION:

Overlying the felsic volcanics and volcanic breccias is the Woman River Iron Formation. Previously mapped by Goodwin (1965), the unit is a near vertically dipping, banded Algoma-type sequence of iron-rich chemical sediments composed of varying proportions of chert, jasper, magnetite, hematite, iron carbonate and sulphide. The unit extends almost continuously over a strike length of fourteen miles. It averages less than 100' thick to the east but thickens westward, reaching a maximum of 1400' in Heenan Township.

The iron formation generally lies between the underlying felsic volcanics and the upper tholeiites. Mapping has indicated the presence of several discontinuous iron formation horizons parallel to the main unit interlayered with both the felsic and tholeiitic volcanics. These observations indicate that chemical sedimentation was intimately associated with the waning stages of felsic volcanism.

The composition and internal structure of the iron formation on map and outcrop scale is complicated laterally and vertically by rapid facies changes, soft sediment deformation, intraformational folding, slumping and faulting along with brecciation.

A crude vertical zonation of the iron formation is recognized. The basal sections consist of predominantly chert-magnetite-pyrite assemblages. Where pyrite is significant within the underlying felsic volcanics, massive pyrite lenses characterizes the lowermost facies of iron formation. Grading upwards through the section, the assemblage changes to dominantly

chert-magnetite (+ silicate, pyrite, jasper, hematite) and finally terminates with a predominantly cherty cap with up to 10% pyrite occurring as disseminations and veinlets.

Jasper occurs locally within the chert-rich facies of the main iron formation as a discordant feature within the grey chert beds, the transition between grey chert and jasper occurring over several feet.

THOLEIITIC VOLCANICS:

The hanging wall tholeiites are dominantly pillow lavas with both bun and mattress type observed. Hyaloclastites and flow top breccias are rarely observed. Typically these rocks are medium to dark green-grey, fine grained with little alteration. Massive dykes, sills and flows of dioritic-gabbroic compositions are also noted, some phases being porphyritic. In one instance a massive gabbroic phase was traced continuously through a finer grained phase, incipient pillows and finally into well developed pillows.

THOLEIITE DYKES:

Cross-cutting the iron formation and the underlying felsic volcanics and volcanic breccias are a series of mafic dykes which are believed to be feeders to the overlying tholeiitic flows. Generally the dykes trend in a direction parallel to the regional foliation (110° - 120°) and vary in texture from fine grained almost aphanitic to medium and coarse grained massive gabbroic to rarely, feldspar porphyritic. They weather dark green to brown and usually show linear "sutures" or partings parallel to the dyke trend. Being passive intrusives, there is little disruption or alteration of the wallrock. At times the dykes show high carbonate alteration.

INTERMEDIATE TO FELSIC DYKES:

Numerous quartz feldspar porphyry (8a) dykes occur within the map area and appear to post date all volcanic and sedimentary units. Typically these rocks are buff to pinkish weathering and show strong blocky jointing. Occasionally they contain minor pyrite (<2%) and may be saussuritized or

carbonatized. Within the iron formation these dykes are generally concordant and elsewhere show cross cutting relationships.

The quartz porphyry (8b) is a distinctive intrusive rock which features large (average $\frac{1}{4}$ " diameter), abundant, often euhedral greyish quartz phenocrysts constituting up to 20% of the rock.

One small dyke of mafic syenite (8c) was mapped which outcrops on the Woman River. The unit is hornblende porphyritic and has a prominent red alteration colour. The dyke appears to intrude a shear zone.

Lamporphry dykes (8d) occur in several areas, particularly east of the Woman River. The dykes typically weather a golden brown and generally are less than 12" wide.

DIORITE INTRUSIVE:

Satellites of a large diorite/granitic intrusive complex related to the Rush Lake batholith underlies portions of the property. Where mapped, the rock appears as a zoned hornblende-quartz diorite, medium to coarse-grained equigranular, and in places pegmatitic with hornblende crystals up to 1 inch in length. The feldspars are sausseritized and accessory pyrite is present.

STRUCTURE AND METAMORPHISM:

The rocks underlying the claim group at present conform to a near vertical north facing homoclinal sequence. The general strike in the area is 040°-060°. The rocks being very well preserved, are only weakly foliated in the 120° direction in the west portion of the map sheet. Occasionally slight clast stretching in this direction is observed. On the eastern portion of the block the rocks are strongly foliated producing paper or pencil schists.

Faults, where recognized either form conspicuous lineaments or displace stratigraphy with lesser to intensive shearing.

Other than the main deformational event which produce the steeply folded sequence now observed, folding is restricted to minor drag folds within the iron formation. Lineations were observed plunge steeply (approximately 75°E).

The structural data is synthesised on stereo plots on the 1"=400' maps.

The metamorphic grade observed within the volcanic pile in lower to upper greenschist. Regional metamorphic assemblages consists of the development of widespread chlorite, sausserite, and sericite. Epidote and quartz occur as veinlets. Contact metamorphic effects locally observed near the Rush Lake batholith consists of the development of hornfels and garnets.

CONCLUSIONS AND RECOMMENDATIONS:

The dominant geological elements of the claim group are the "Algoma-type" iron formation, the basaltic hangingwall and the felsic footwall. Mapping has demonstrated that the felsic footwall complex consists of clastic domes, primary pyroclastics, subvolcanic intrusives/thick flows, lesser flow banded rhyolites, proximal debris and possible talus deposits. Polymict laharic debris units probably define volcanic paleobasins. All of these features are an intergral part of volcanic complexes which host precious and base metal deposits within Archean terrane. Prospecting for such type occurrences is recommended within the claim group.



Barry Manchuk

CERTIFICATION

I, Barry Manchuk, residing at 1349 Chenier Avenue, Timmins, Ontario, an agent of Falconbridge, submitting this geophysical report dated October 26, 1982, do hereby affirm that:

- 1) I am a graduate of the University of Manitoba having received an M.Sc. (Geological Sciences) in 1971
- 2) I have been professionally practicing since 1971
- 3) I did personally set forth the facts in this report and did monitor the work contained herein
- 4) I do not have any interest in this claim group

Barry Manchuk



Report of Work #314
(Geophysical, Geological,
Geochemical and Expenditures)



41016SE0019 2.5183 GENOA

900

536791

The Mining Act

Do not use shaded areas below.

Type of Survey(s)

MAGNETOMETER & GEOLOGICAL

Township or Area

HEELAN, MARIAN, GENOA, TWP.

Claim Holder(s)

Falconbridge Ltd.

Prospector's Licence No.

A-21647

Address

167 Wilson Ave TIMMINS ONT

2.5183

Survey Company

Falconbridge Ltd

Date of Survey (from & to)

20 Day Mo. Yr. 6 Day

Total Miles of line Cut

Wk

Mo.

Yr.

Name and Address of Author (of Geo-Technical report)

SCOTT BRUCE 167 Wilson Ave TIMMINS

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim	Mining Claim		Expend. Days Cr.	Mining Claim	Expend. Days Cr.
			Prefix	Number			
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic						
	- Magnetometer	20					
	- Radiometric						
	- Other						
For each additional survey: using the same grid: Enter 20 days (for each)	Geological	20					
	Geochemical						
Man Days	Geophysical	Days per Claim					
Complete reverse side and enter total(s) here	- Electromagnetic						
	- Magnetometer						
	- Radiometric						
	- 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)	PORCUPINE MINING DIVISION	
	R E C E I V E D	
	SEP 10 1982	
Calculation of Expenditure Days Credits	Total Expenditures AM	Total Days Credits
\$ 7,890.10	11.12	12.34
	+ 15	0.00

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.

Date Recorded Holder or Agent (Signature)
Aug 31 / 82 Scott Bruce

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

Scott Bruce 167 Wilson Ave

Timmins. ONT

P4N 2J2

Date Certified Aug 31 1982

Certified by (Signature) R

RECEIVED	SEP 27 1982	MINING LANDS SECTION
SEE ATTACHED SCHEDULE		
RECORDED	SEP 10 1982	
Receipt No.		
Total number of mining claims covered by this report of work. 134		
For Office Use Only		
Total Days Cr. Date Recorded	5360 10/10/82	Minfile Recorder
Recorded	Approved by Recorded	Minfile Director
5360	83.05.27	Minfile Director

Name	Number
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"	P553233
"	P553234
"	P553235
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"	P555037
"	P555038
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"	P549240
"	P549241
"	P549242
"	P536791 ↓
"	P536792
"	P536793 ↑
"	P536851 ↓
"	P536852 ↑
"	P536782 ↓

Name	Number
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Marion	P536917
Marion	P536918
Marion	P536919
Marion	P536920
Marion	P536921
Marion	P536922 ↑
Marion	P54500 ↓
Marion	P554501
Marion	P554502
Marion	P554503
Marion	P554504
Marion	P554505
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Marion	P554514
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Marion	P554516
Marion	P554517
Marion	P554518
Marion	P554519 ↑
Marion	P554011 ↓
Marion	P554012
Marion	P554013
Marion	P554014
Marion	P554015
Marion	P554016 ↑
Heenan	P554685 ↓
Heenan	P554686
Heenan	P554687
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"	P549615 ↑
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SCHEDULE "A"

Name	Number
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Marion	P568518

Genoa

Name	Number
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"	583881
"	583882
"	583883
"	583884
"	583885
"	583886



**Ministry of
Natural
Resources**

Geotechnical Report Approval

File

2-5183

Jan 27/83

Mining Lands Comments

To: Geophysics

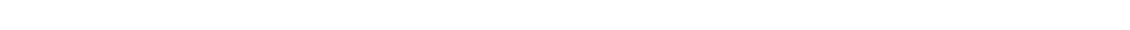
Comments	
<input type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections
Date	Signature

To: Geology - Expenditures

the kinstre

Comments			
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<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date	Signature
		March 21 / 83	Kustra

To: Geochemistry

Comments	<p>L.D.</p> 		
<input type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date	Signature

To: Min

To: Mining Lands Section, Room 6462, Whitney Block

(Tel: 5-1380)

Falconbridge Ltd
167 Wilson Ave
Timmins, Ont.

RECEIVED

NOV 25 1982

MINING LANDS SECTION

To: Mr. Bauer / Anderson.

Dear Sirs.

Recently Falconbridge, from Timmins have filed assessment geological & geophysical on claims in Steenvoor, Marin & Berow Targets; your file nos 5 2.5182 and 2.5183. Could you please send any correspondence regarding these claims to the below.

① Mr. R. Trays
Falconbridge Ltd
P.O. Box 40
Commerce Court West
Toronto, Ont
M5L 1B4
Thank you.

② Mr. J. Boissonault
Falconbridge Ltd.
979 Ave de Bourgogne
St. Foy Quebec
G1W 2C4

③ Mr. B. MacEachern
Falconbridge Ltd.
167 Wilson Ave
Timmins, Ont.
~~7117272~~
P4N 2T2

Berry MacEachern

314

1982 11 22

2.5183

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmis, Ontario
P4N 2S7

Dear Sir:

We have received reports and maps for a Geological Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims P 553231 et al in the Townships of Heenan, Marion and Genoa.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1316

DW:sc

cc: Falconbridge Limited
Toronto, Ontario

cc: Barry Manchuk
167 Wilson Avenue
Timmis, Ontario



Ministry of Natural Resources

File _____

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geological

Township or Area Heenan, Marion, Genoa Townships

Claim Holder(s) Falconbridge Limited

Survey Company Falconbridge Limited

Author of Report Barry Manchuk

Address of Author 167 Wilson Aven., Timmins, Ontario

Covering Dates of Survey May (1980) - Oct. 1982
(linecutting to office)

Total Miles of Line Cut 122.14

SPECIAL PROVISIONS
CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
-Electromagnetic	
-Magnetometer	
-Radiometric	
-Other	
Geological	20
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Oct 26/82 SIGNATURE: Barry Manchuk
Author of Report or Agent

Res. Geol. _____ Qualifications J. 1363

Previous Surveys

File No.	Type	Date	Claim Holder
.....
.....
.....
.....
.....

MINING CLAIMS TRAVESED
List numerically

See Schedule A and B
(prefix) (number)

If space insufficient, attach list

TOTAL CLAIMS 134

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS — If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____
Station interval _____ Line spacing _____
Profile scale _____
Contour interval _____

MAGNETIC
Instrument _____
Accuracy – Scale constant _____
Diurnal correction method _____
Base Station check-in interval (hours) _____
Base Station location and value _____

ELECTROMAGNETIC
Instrument _____
Coil configuration _____
Coil separation _____
Accuracy _____
Method: Fixed transmitter Shoot back In line Parallel line
Frequency _____
(specify V.L.F. station)
Parameters measured _____

GRAVITY
Instrument _____
Scale constant _____
Corrections made _____

Base station value and location _____

Elevation accuracy _____

INDUCED POLARIZATION
Instrument _____
RESISTIVITY
Method Time Domain Frequency Domain
Parameters – On time _____ Frequency _____
– Off time _____ Range _____
– Delay time _____
– Integration time _____
Power _____

Electrode array _____
Electrode spacing _____
Type of electrode _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

Corrections made _____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth - include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

Additional information (for understanding results) _____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____
(specify for each type of survey)Accuracy _____
(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

SCHEDULE B:

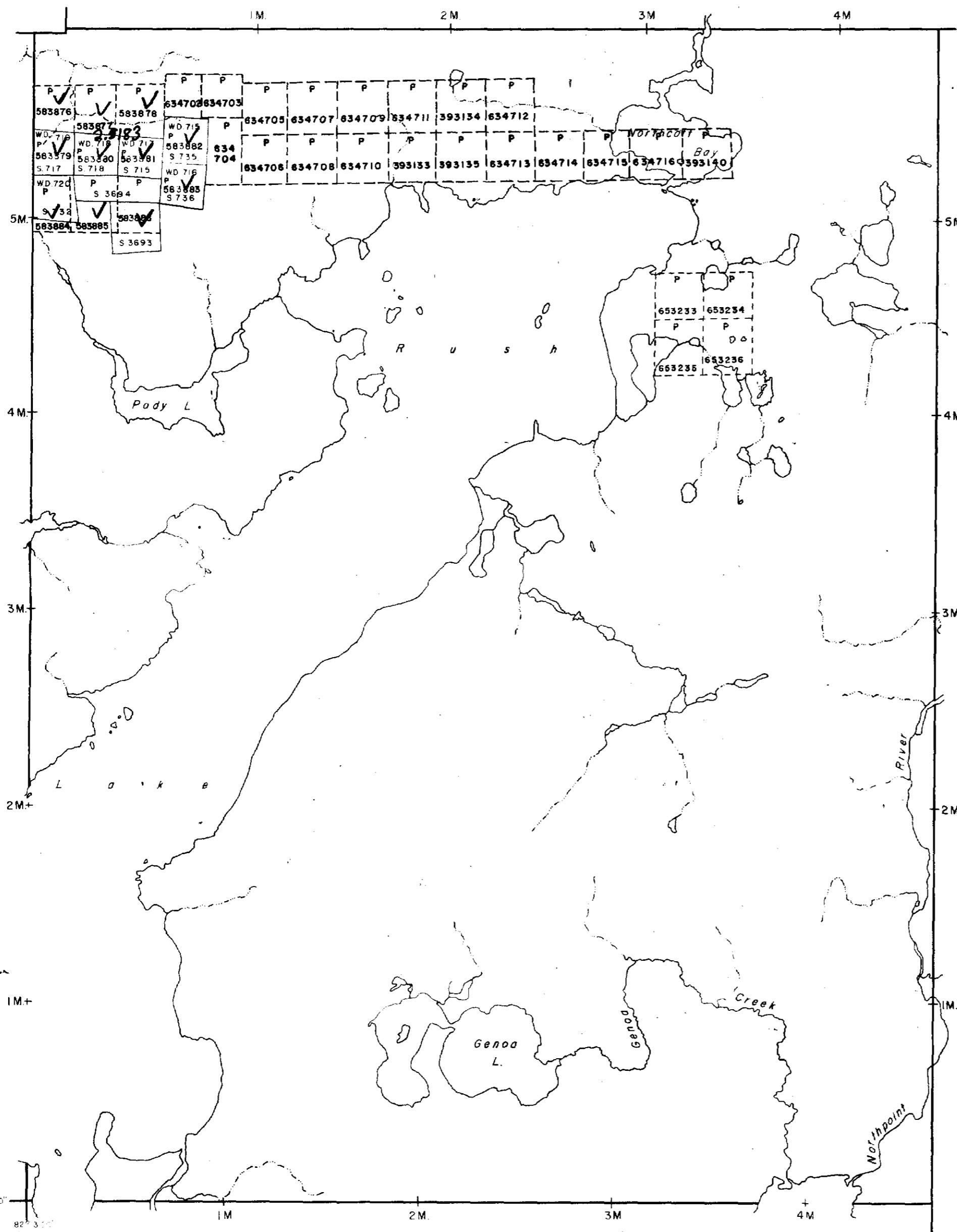
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P583876
P583877
P583878
P583879
P583880
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P583883
P583884
P583885
P583886

MARION TWP. (M.853)

McOWEN TWP.



ERIC TWP. (M.789)



41016SE0019 2.5183 GENOA

200

THE TOWNSHIP
OF

GENOA

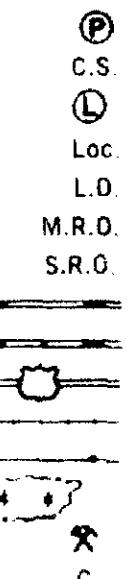
DISTRICT OF
SUDBURY

PORCUPINE
MINING DIVISION

SCALE: 1-INCH 40 CHAINS

LEGEND

- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES
- CANCELLED



DESROSIERS TWP. (M.759)

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

DATE OF ISSUE

APR 29 1983

Ministry of Natural Resources
TORONTO

PLAN NO.

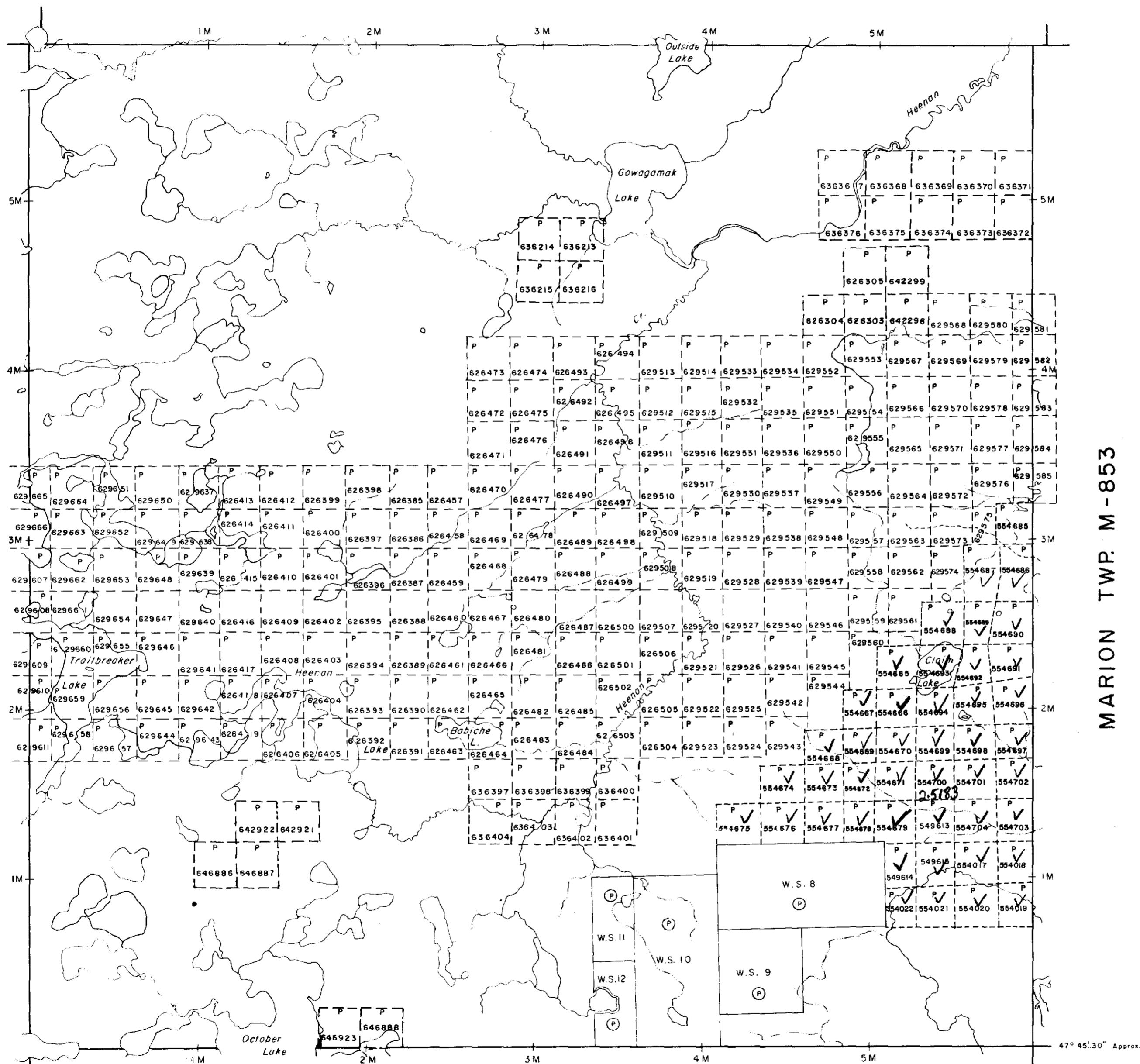
M.833

ONTARIO

MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

NEWTON TWP.

DORE TWP. M - 763



THE TOWNSHIP
OF
HEENAN

DISTRICT OF
SUDBURY

PORCUPINE
MINING DIVISION

SCALE: 1-INCH 40 CHAINS

LEGEND

(P)	PATENTED LAND
C.S.	CROWN LAND SALE
(L)	LEASES
Loc.	LOCATED LAND
L.O.	LICENSE OF OCCUPATION
M.R.O.	MINING RIGHTS ONLY
S.R.O.	SURFACE RIGHTS ONLY
—	ROADS
—	IMPROVED ROADS
—	KING'S HIGHWAYS
—	RAILWAYS
—	POWER LINES
—	MARSH OR MUSKEG
X	MINES
C	CANCELLED

NOTES

400' Surface rights reservation around the shores of all lakes and rivers.

DATE OF ISSUE
APR 27 1983
Ministry of Natural Resources TORONTO

PLAN NO. M-925

ONTARIO

MINISTRY OF NATURAL RESOURCES

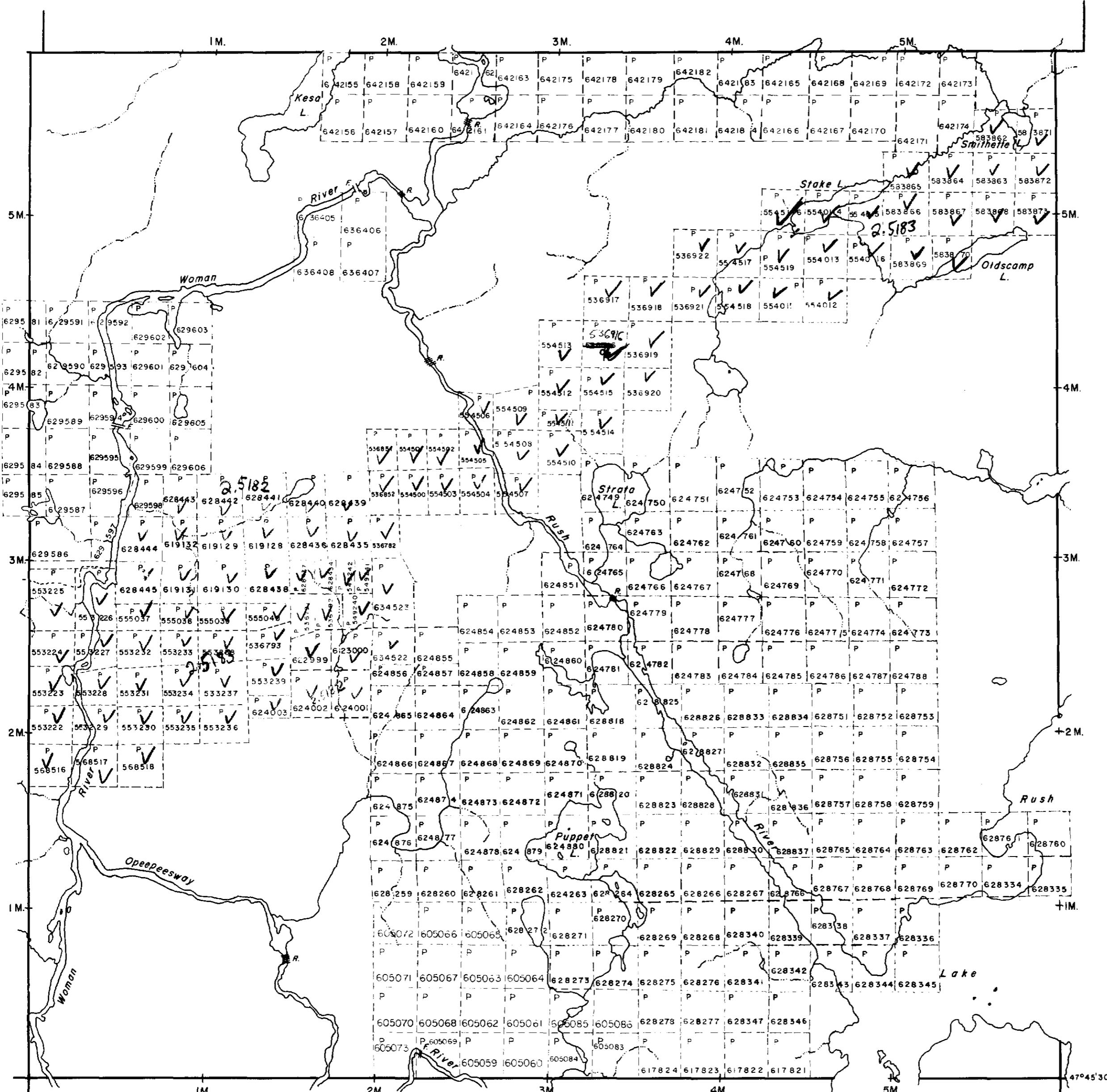
SURVEYS AND MAPPING BRANCH



410165E0019 2.5183 GENCA

HEENAN TWP (M.925)

DALE TWP.



MALLARD TWP (M.849)



220

THE TOWNSHIP
OF

MARION

DISTRICT OF
SUDBURY

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

(P)	CROWN LAND SALE
(L)	LEASES
(Loc.)	LOCATED LAND
(L.O.)	LICENSE OF OCCUPATION
(M.R.O.)	MINING RIGHTS ONLY
(S.R.O.)	SURFACE RIGHTS ONLY
ROADS	ROADS
IMPROVED ROADS	IMPROVED ROADS
KING'S HIGHWAYS	KING'S HIGHWAYS
RAILWAYS	RAILWAYS
POWER LINES	POWER LINES
MARSH OR MUSKEG	MARSH OR MUSKEG
MINES	MINES
CANCELLED	CANCELLED
PATENTED S.R.O.	PATENTED S.R.O.

NOTES

400' surface rights reservation along the shores of all lakes and rivers.



PLAN NO. M. 853

ONTARIO

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

LEGEND

10	Diorite
9	Rift Lake
8	Mafic Diorite
7	Intermediate-Q.F.P.
6	Mafic Dykes
5	Metac. mafic
4	Lethic Breccias
3	Felsic Volcanic Debris
2	Felsic Volcanics
1	Basement Complex

SYMBOLS

Exker	Marking or sharp edge of bedrock surface
Small bedrock outcrop	Transverse line across outcrop
Bedrock surface indicated	Lineament
Folds, dip indicated	Claim boundary assumed
Fold axis (horizontal, inclined, vertical)	Observed
Geological boundary	Old staff
Fault, position interpreted	Climb the fault
Fault, observed, assumed	Drill holes vertical
Jointing (horizontal, inclined, vertical)	Vertical joints
Bedding, top unknown, (inclined, vertical)	Rock geocore sample
From pillow shape	Lava flow top (arrow)
Jointing (horizontal)	From pillows
Brutto	Creens
Bedding, top unknown, (inclined, vertical)	Breccia

MINERALIZATION SYMBOLS

25	0 - 252 eye per sq. ft.
2 W	2 - 252 eye per sq. ft.
2 L	2 - 20
2 B	10 - 20
2 G	few to several
2 M	more than several
2 S	poorly sorted
2 T	well sorted
2 C	coarse
2 F	fine
2 P	pebbles
2 R	rounded
2 O	angular
2 H	hedral
2 V	subangular
2 A	subhedral
2 I	subangular
2 N	subangular
2 E	subangular
2 D	subangular
2 L	subangular
2 S	subangular
2 R	subangular
2 C	subangular
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2 C	subangular</

LEGEND

- 10 Diorite
- 9 Ruth Lake bi. Granite
- 8 Intermediate Felsic Hypocrystalline
- QF: Q: P: d) tephrope
- Q: f) tuff
- Q: m) metased.
- Q: g) metad. granite
- 7 Met. Dikes
- 6 Met. Intrusives and coarse grained
- b) porphyritic - fine grained
- c) porphyritic - fine grained
- d) ch. field schist

6 Met. Volcanics
a) dilated flows
b) fissure eruptions
c) pyroclastics
d) Ma. tephrope

e) pyroclastics
f) tuff volcane

5 Woman River Iron Formation

3 Jasper, Chert, n) sulphide, d) carbonate

b) dolomitic - fine grained

a) dolomitic - fine grained

4 Lenticular Breccias

a) monomictic b) polymict

3 Felsic Volcanic Debris

d) coarse monomictic Precious

b) coarse polymictic sediments

2 Felsic Volcanoes

2 S 0-1 grs. eye per sq. ft.

2 W 1-2 grs. eye per sq. m.

2 L 2-10

2 B 10-20

2 G Redepot ± qtz. phenocrysts

d) massive flows b) flow bordered c) flow breccia or

pyroclastic d) flow breccia e) coarse pyroclastic

f) aggl. tuff g) tuff h) crosscutting breccia

g) quartz-silicate tephra scoria i) ch. scoria

j) lamellae

1 Basement Complex

SYMBOLS

- Esker Missed or swamp
- Small bedrock outcrop Trough
- Area of bedrock outcrop Lineament
- Pebble pile, indicated Channel
- Indicated by vertical line, assumed
- Indicated by vertical line, observed
- Pit, old shaft Clue line
- Position intersected Drill holes, vertical, inclined
- Rock trench, sample Old road
- Land form, top (arrow) Trench
- form follows s. shape Creek
- Jointing (vertical) Breccia
- Jointing (vertical) Bedding, top (horizontal, vertical)
- Bedding, (inclined, vertical)

MINERALIZATION SYMBOLS

Au gold oz. per ton

Py pyrite

Ch chalcocite

Cu chalcopyrite

Sp sphalerite

Kf kaolinite

Ag silver

Dy diopside

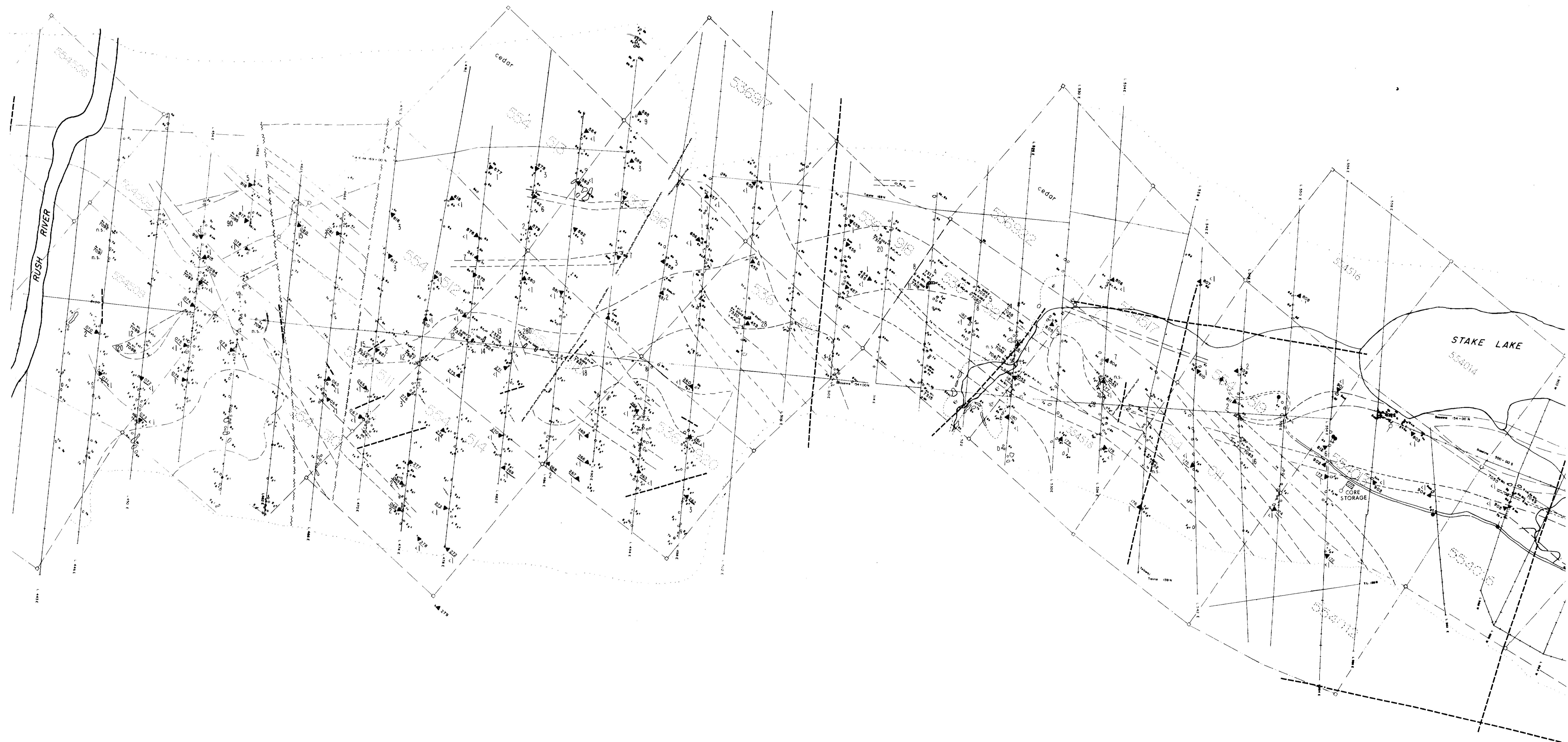
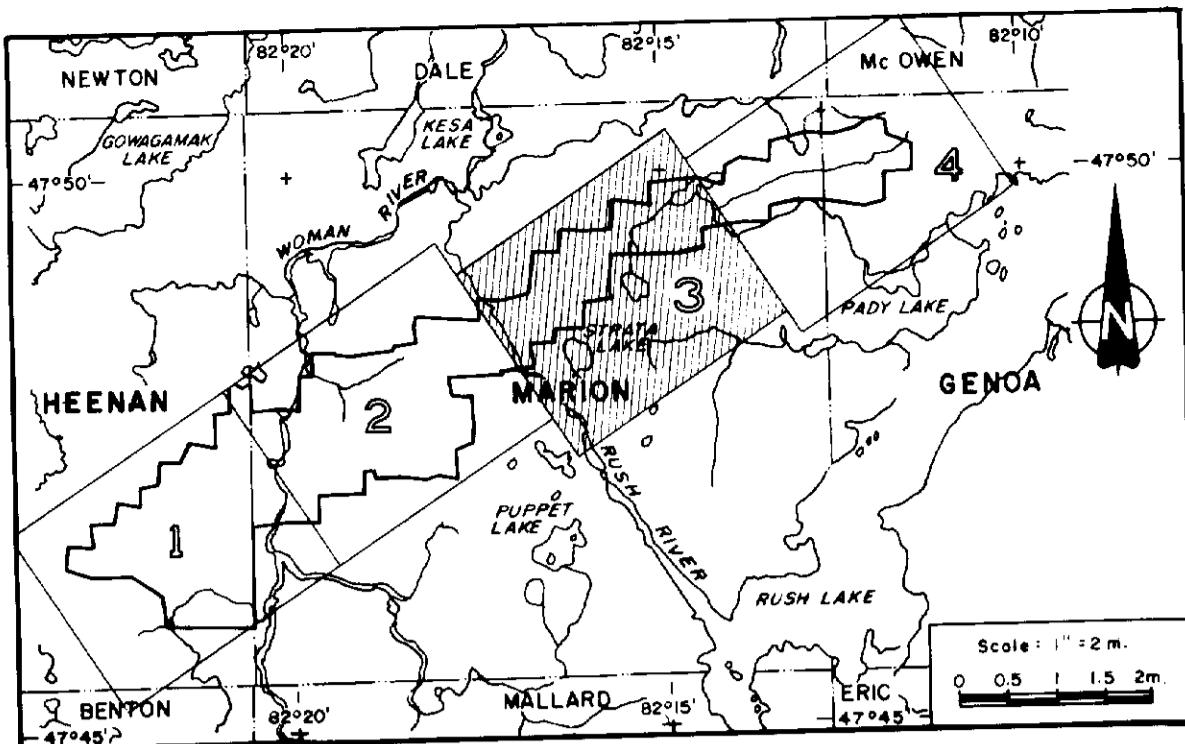
Ca calcite

Gn galena

Py pyrrhotite

Dm diabase

Sp spinel


LEGEND

SYMBOLS	
10	Dome
9	Ridge
8	Ridge
7	Metric Domes
6	Metric Veins
5	Wenonah River Iron Formation
4	Sphalerite Breccia
3	Pyrrhotite Breccia
2	Pyrrhotite + pyrite
1	Pyrrhotite + pyrite + magnetite

ROCK GEOCHEMISTRY

Sample location
0 = No. - Sample number
200 = As in ppm

MINERALIZATION SYMBOLS

Gold or iron
Au
Copper
Cu
Chalcocite
CuS
Pyrite
FeS
Pyrrhotite
FeS
Magnetite
Fe3O4
Sphalerite
ZnS
Galena
PbS
Chalcopyrite
CuFeS2
Pyrite
FeS
Sphalerite
ZnS
Pyrrhotite
FeS
Magnetite
Fe3O4
Silver
Ag

FALCONBRIDGE LIMITED			
HEENAN TWP PROJECT, PN-668			
HEENAN, MARION, GENOA TWPS			
ONTARIO			
SHEET 3			
COMPILE MAP			
Scale 1:25,000			
Traced	Date	Revised	Date
Drawn	Date	NTS 41-0-16	

2-5183

