



LOCATION, ACCESS

The Flavelle Twp. group of claims covered by this report is located in the south half of Lot 12, Concession 5.

The claim group is readily accessible from a good gravel road that runs through the southeast corner of the group. This road branches easterly from Highway No. 65, connecting Matachewan and Elk Lake, at Mileage 21.

Owners: The claim group is held by the Dominion Gulf Company, 203 Bay Street, Toronto, Ontario.

The property covered by this report consists of four claims numbered- MR-18801, MR-18802, MR-18809 and MR-18810.

SURVEY ORGANIZATION, DATES

The survey was made by employees of the Dominion Gulf Company. Work in the field was under the direction of C. G. MacIntosh, Kirkland Lake, Ontario, and H. B. Vos, Larder Lake, Ontario. Mapping was done by H. B. Vos, assisted by P. Veinot. Linecutting was done by Erick Holmblad and Leo Potila, Kirkland Lake, Ontario, between September 21 and October 8, 1951.

Geological mapping on the claims commenced on May 1, 1952 and was finished on May 12, 1952, under the direction of H. B. Vos.

Outcrops were located from section lines, cut at 400 ft. intervals, running in a northerly direction. The section lines were turned off from a baseline with a Starrett Transit, and were located at the ends by tielines. All lines were measured with a 100 ft. steel tape and marked pickets were placed at 100 ft. intervals. The survey is tied to the Cairo-Flavelle Twp. line. Although most of the line has been obliterated by fire and recent forest growth, the Flavelle Twp. survey pin at Concessions 3 and 4, Lot 12 was located by extending the line of No. 1 and No. 2 survey posts, claim MR-9907, to the south. Topographical features are based on aerial photographs, scale 1" = 400' and are tied to the picket lines wherever possible.

TABLE OF FORMATIONS

- |    |            |                  |
|----|------------|------------------|
| 1. | Matachewan | Diabase          |
| 2. | Algoman    | Syenite Porphyry |
| 3. | Keewatin   | Basalt           |

DESCRIPTION OF FORMATIONS

1. Matachewan Diabase

One diabase dyke cuts the syenite porphyry in a northerly direction. The dyke is massive, fairly fresh in appearance with a smooth light brownish weathered surface. The dyke is probably offset by a fault in the northeast corner of the claim group.

## 2. Syenite Porphyry

The syenite porphyry occurring on the claim group is part of a large stock extending for several miles to the southwest. The body is not uniform in composition and appears to have been formed by two or more intrusions.

More basic outcrops with about 50% Hornblende (much of the hornblende altered to chlorite) could be noticed apart from the more acidic type with only 10% hornblende. The rock seems to be massive, only a few weak shears were observed.

## 3. Keewatin, Basalt

A small inclusion of basic lava occurs in the syenite porphyry near the diabase dyke, on claim MR-18810. The basic inclusion is cut in approximately east-west direction by a few narrow quartz veins.

### STRUCTURE

An offset in the diabase dyke indicates a minor east-west fault on claim MR-18809. Weak shears in a northeasterly direction were noticed in the vicinity of the volcanic inclusion on claim MR-18810.

### EXPLORATION

Work by the present owners consists of a magnetometer survey, carried out in 1951 and mapping and stripping in May 1952.

### MINERALIZATION

Quartz stringers in the volcanic inclusion, ( MR-18810 ) are accompanied by sparsely disseminated pyrite.

H. B. Vos

/dc

## CAIRO-FLAVELLE TOWNSHIP CLAIMS

### APPENDIX A

#### Interpretation

The ground magnetometer survey of this group of claims has proved to be quite helpful in delineating the contact between certain rock types. Much of the area however is covered by rocks of sedimentary origin, of different ages. Since these rocks contain little or no ferromagnetic minerals, distinction between such rock types is impossible. Occasionally the Cobalt sediments are underlain by rocks of igneous origin which give ground magnetometer anomalies. In such cases, the presence of the igneous rock has been indicated rather than the overlying sediments.

The northern section of the claim block is characterized by local magnetic anomalies of intermediate to low intensity. Outcrops indicate this section to be syenitic in composition. The northern contact of the syenite does not appear on the claim group. Within the syenite, in claims MR-18796 and MR-18794, lie two andesite cupolas which are characterized by relatively high magnetic intensity. A separate inlier of Timiskaming sediments coincides with a low, occurring in claim MR-18788.

South of the syenite contact lies a complex of Timiskaming sediments and tuffs. The sedimentary portion of the series is uniformly non-magnetic, while the tuffs are characterized by erratic magnetization. Along the Cairo-Flavelle township line, in claims MR-18780, 18771, 18803, 18800 and 18811, a magnetically high anomaly is obtained over an area of tuff. South of this anomaly, in claim MR-18804, an interesting magnetic anomaly occurs. This anomaly appears to be derived from somewhat greater depth than the other anomalies in the map area. Outcrops of Cobalt and Timiskaming sediments appear on the surface, so that the source of the anomaly must lie beneath these sediments. It is suggested that the southern anomaly is also caused by tuffs, and that the Timiskaming sediments occupy a syncline, plunging to the east, the axis of which is indicated on the map. The nose of the syncline is indicated by the western end of the magnetic anomaly.

Between this anomaly zone and Morrison Lake lies a region of very flat, uniform, low magnetics, and it is presumed that this overburden covered area is underlain by sediments. South-east of Morrison Lake is a zone of andesite, characterized by small, local magnetic anomalies.

Between Morrison Lake and St. Paul Lake, lie several sharp magnetic anomalies which have been variously ascribed to tuff and gabbro as indicated on the map.

West of St. Paul Lake is a very complex magnetic anomaly zone, due to a complex of andesite intruded by a series of small gabbro plugs. West of this area, again, is a large area of flat magnetic relief similar to that east of Morrison Lake. This area again is no doubt sedimentary.

The magnetic picture in this claim block is complicated by the presence of a large number of diabase dykes. In some cases, these dykes appear to contain more magnetite than the enclosing rocks, while in others they contain much

less. Since the magnetic survey was run along north-south picket lines, it is very difficult to trace the individual north-south dykes for any distance. In several cases, where correlation between the magnetic data and the surface geology was possible, the dykes have been extended.

A major fault runs parallel to the syenite-tuff contact west of Morrison Lake. This major fault may be offset by north-south trending faults which have been later filled with diabase, as indicated in claim MR-18774. West of claim MR-18783 the major fault appears to break into two branches, one of which remains in the tuff band while the other cuts down into the andesite-gabbro complex. East of Morrison Lake, lack of magnetic relief prevents the extension of the fault eastward.

It cannot be said that the ground magnetometer survey of this property has been wholly successful, since a number of problems remain unanswered, particularly that of the location of the major fault east of Morrison Lake. It has been successful, however, in delineating certain structural conditions unexplainable by the surface geology.

"J. H. Ratcliffe"

JHR:C

Dec. 21/51



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020

DOMINION GULF COMPANY

CAIRO-FLAVELLE TOWNSHIP CLAIMS

MONTREAL RIVER MINING DIV.

PROVINCE OF ONTARIO

GEOLOGICAL REPORT

Location, Access:

The Cairo-Flavelle Twp. group of claims is located in the east central part of Cairo Twp., and the west central part of Flavelle Twp. The central part of the group is about five miles east of the Townsite of Matachewan.

The claims are readily accessible from a good gravel road that runs through the property in a northeasterly direction. This road branches easterly from Highway No. 65, connecting Matachewan and Elk Lake, at Mileage 21.

Owners; Claim Numbers:

The claim group is held by Dominion Gulf Company, 203 Bay Street, Toronto, Ontario.

The property covered by this report consists of 61 claims numbered MR-18756 to MR-18760 inclusive; MR-18762 to MR-18800 inclusive; MR-18803 to MR-18808 inclusive; MR-18811 to MR-18817 inclusive; MR-18824; MR-18825; MR-19282; and MR-19283.

Survey Organization, Dates:

The survey was made by employees of the Dominion Gulf Company. Work in the field was under the direction of C. G. MacIntosh, Kirkland Lake, Ont. Claims in Cairo Twp. were mapped by C. G. MacIntosh, while those in Flavelle, Twp. were mapped by H. B. Vos, Larder Lake, Ont. Picket line surveys were made by H. B. Vos. Line cutting was done by A. Lalonde and R. Lantella, Val d'or, Que.; A. Batise, W. Batise and J. Gagnon, Matachewan, Ont.; James A. McDonald and Joseph A. MacDonald, Flin-Flon, Man.; Leo Potila and Erick Holmblad, Kirkland Lake, Ont.

Work started on the property on July 16, 1951, and was carried on continuously to October 30, 1951.

Outcrops were located from section lines, out at 400 ft. intervals, running in a northerly direction. The section lines were turned off from three base lines with a Starrett Transit, and were located at the

GEOLOGICAL REPORT - CAIRO-FLAVELLE TWP. CLAIMS CONT'D. C.G. MacINTOSH

ends by tie lines. All lines were measured with a 100 ft. steel tape and marked pickets were placed at 100 ft. intervals. The survey is tied to the Cairo-Flavelle Twp. line. Although most of the line has been obliterated by fire and recent forest growth, the Flavelle Twp. survey pin at Concessions 3 and 4, Lot 12 was located by extending the line of No. 1 and No. 2 survey posts, claim MR-9907, to the south. Topographical features are based on aerial photographs, scale 1"=400', and are tied to picket lines wherever possible.

Table of Formations:

Huronian - Cobalt Series.

Quartzite  
Greywacke  
Arkose  
Conglomerate

Matachewan

Diabase

Algoman

Granite  
Syenite Porphyry  
Feldspar Porphyry

Haileyburian

Gabbro

Temiskamian

Conglomerate  
Greywacke  
Tuff

Keewatin

Rhyolite  
Andesite  
Basalt

Description of Formations:

1. Cobalt Sedimentary Series

Cobalt sediments on the claims comprise basal conglomerate, arkose, greywacke and quartzite.

Conglomerate is usually found at the base of the sediments and consists chiefly of reddish syenite boulders and pebbles in a dark green matrix.

The arkose is fine-grained, even grained and has a reddish grey color. Feldspar is the chief constituent.

The greywacke is usually very fine-grained greyish green. Much of it is unstratified and includes occasional small pebbles.

The quartzite, where observed, is light grey in color and highly siliceous.

GEOLOGICAL REPORT - CAIRO-FLAVELLE TWP. CLAIMS CONT'D. C. G. MacINTOSH

In general the order of succession appears to be as listed in paragraph 1, but any member may be found in contact with the Keewatin. These sediments have been gently folded - usually the dip is less than  $30^{\circ}$  - but locally there are tighter folds with dips up to  $60^{\circ}$  or more.

2. Matachewan Diabase:

A number of diabase dikes cross the claims in a northerly direction. They were seen cutting all of the formations except the cobalt. They are massive, fairly fresh in appearance and occur over widths up to 100 feet or more.

3. Algoman:

(a) Granite:

Granite outcrops occur on claim MR-18756 south of St. Paul Lake. Where seen they are massive, medium to fine grained, greyish red. The chief constituent is feldspar with minor amounts of hornblende and quartz.

(b) Syenite porphyry:

The syenite porphyry occurring in the north part of the claim group, east of St. Paul Lake, is part of a large stock extending for several miles to the north and east. The body is not uniform in composition and appears to have been formed by two or more intrusions. A more basic type consisting of about 50% hornblende occurs in the westerly exposures. Much of the hornblende appears to have been altered to chlorite. Most of the outcrops in the northeast claims, Cairo Twp. contain only about 10% hornblende. Where in contact the basic type appears to be the oldest. The rock appears to be massive - only a few weak shears were observed. In the vicinity of Morrison Lake, the syenite invades the tuffs occurring as dikes or sills and replacing the original formations.

(c) Feldspar Porphyry

A few small outcrops of feldspar porphyry occur southwest of Morrison Lake. The rock is reddish grey, massive, porphyritic. It is darker, coarser grained than the syenite porphyry intrusions.

4. Haileyburian:

The Keewatin, Temiskaming formations are intruded by a dark green, medium grained altered rock. Its composition appears to be slightly more basic than that of the diabase dikes and it has been altered. On the weathered surface of the coarser grained phases the appearance is similar to that of the diabase dikes. Also it could be confused with coarse grained phases of basic flows. It occurs abundantly in the area southwest of St. Paul Lake.

Temiskamian:

Conglomerate outcrops occur along the gravel road in the vicinity of the Cairo-Flavelle Twp. line. One outcrop is capped by a thin layer of cobalt conglomerate. It is composed of a great variety of boulders and pebbles in a dark green greywacke matrix. The linear arrangement of pebbles indicate that it strikes about  $N 70^{\circ} E$  and dips steeply toward the south.

Remnants of greywacke formations occur south of Morrison Lake and west of St. Paul Lake. This rock is medium-grained, hard and generally massive. Quartz grains are usually present. In some places feldspar occurs in crystalline form and appears to be secondary. Distinct bedding is not apparent.

GEOLOGIC REPORT - CAIRO-FLAVELLE TWP. CLAIMS CONT'D. C. G. MacINTOSH

Tuff:

Tuff is included in the Temiskamian as it was seen interbedded with the graywacke southwest of Morrison Lake. Tuff occurring near the syenite at Morrison Lake and westerly has been partially replaced by the syenite. Several hundred feet south of the contact it is dark green, chloritic. Banding is not apparent in all of this rock but it is seen intermittently. The tuff near the Cairo-Flavelle Twp. line appears to be more siliceous. It has not been replaced by the syenite. It contains a pyrite and magnetite in fine grained disseminated crystals. Tuff occurring on the south part of claim MR-18756 contains a narrow zone of banded chert accompanied by pyrite and magnetite.

Keewatin:

Rhyolite:

A narrow band of very fine grained siliceous rock occurs with the basic lavas in the northeast part of MR-18756. Total width is about 20 feet but this includes several narrow bands of basic rock indicating that it may be a felsitic intrusive.

Andesite, Basalt

Intermediate to basic lavas occur in the claims southwest of St. Paul Lake. Though altered they are massive and pillow outlines are occasionally apparent. The pillow outlines indicate that the flows strike approximately east and face toward the north. The flows are dark green or greyish green in color.

Structure:

Owing to the alteration, schistosity and lack of grain gradation in the sediments the structure cannot be determined with certainty. However, in the vicinity of Morrison Lake the formations dip steeply while to the south the dips are flatter indicating that there may be a deep syncline in the vicinity of the lake. The north limb has been removed by the syenite porphyry intrusion. Pillows southwest of St. Paul Lake face toward the north. The general structure appears to consist of a major syncline with axis striking at about N 70° E through Morrison Lake with minor folds extending to the south.

Exploration:

Considerable surface work has been done on the property by former owners of the claims. This work included stripping, rock trenches and at least one diamond drill hole.

Work by the present owners was initiated on July 16th, 1951, and carried on to the present. This work has included line cutting, geological mapping, trenching and stripping, sampling and a ground magnetic survey.

Mineralization:

The most prominent structured feature on the property is a strong shear zone extending over a width of 100 ft. or more and striking about N 70° E. It passes through Morrison Lake and just north of St. Paul Lake. The rocks along this shear have been syenitized, partially silicified and mineralized with disseminated pyrite. The sedimentary area south of Morrison Lake has been brecciated, injected with quartz and silicified. Narrow quartz veins carrying a little pyrite and chalcopyrite occur in the tuff and lava south of the shear zone. Minor mineralized zones carrying pyrite occur along the margin of the syenite porphyry in the vicinity of the Cairo-Flavelle Twp. line.

/IT:

C. G. MacIntosh

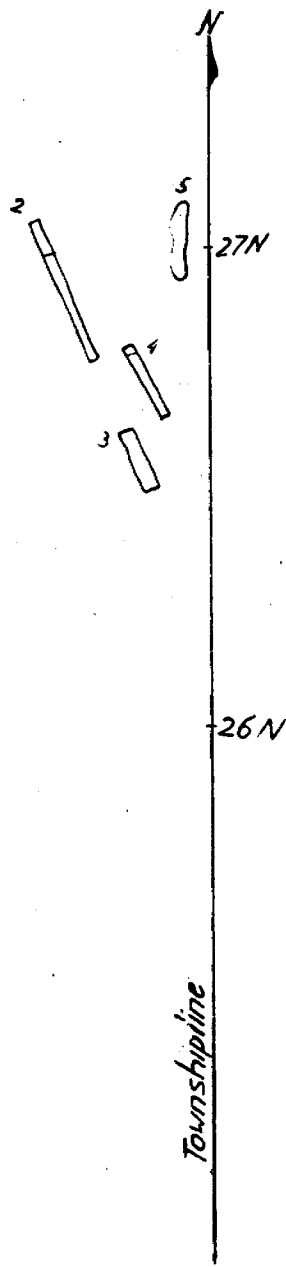
Oct. 30/51.



Oct 25 1951

Claim MR 18771 Cairo Twp.

Trenching			Stripping		
Long	Wide	Deep	Long	Wide	
1.	9'	2'	3'	23'	2'
2.	32'	2'	1'		
3.			13'	3'	
4.			16'	2'	
5.			15'	2.5'	



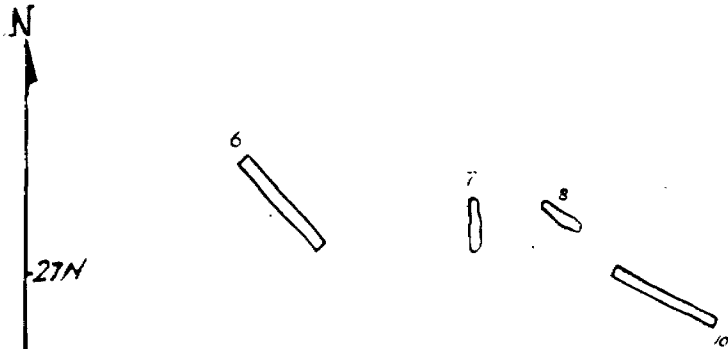
Scale 1" = 40'

H. Vos

Oct. 29, 1951

Claim MR 18803 Flavelle Twp.

	Trenching			Stripping	
	Long	Wide	Deep	Long	Wide
6.	25'	3'	3'		
7.				10'	2'
8.				8'	2'
10.	25'	2.5'	2'		



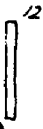
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H. Vos

Oct. 29, 1951

Claim MR 18803 Flavelle Twp.

	Trenching			Stripping	
	Long	Wide	Deep	Long	Wide
12.	20'	2'	1'		
13.	27'	2.5'	3'		
14.				25'	2'



Scale 1" = 40'

H. Vos

Claim MR 18812 Flavelle Twp.

Oct. 29, 1951

Trenching  
Long Wide Deep  
15 | 25' 2' 2'

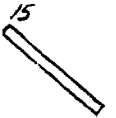
N

315

325

Line

Scale 1" = 40'

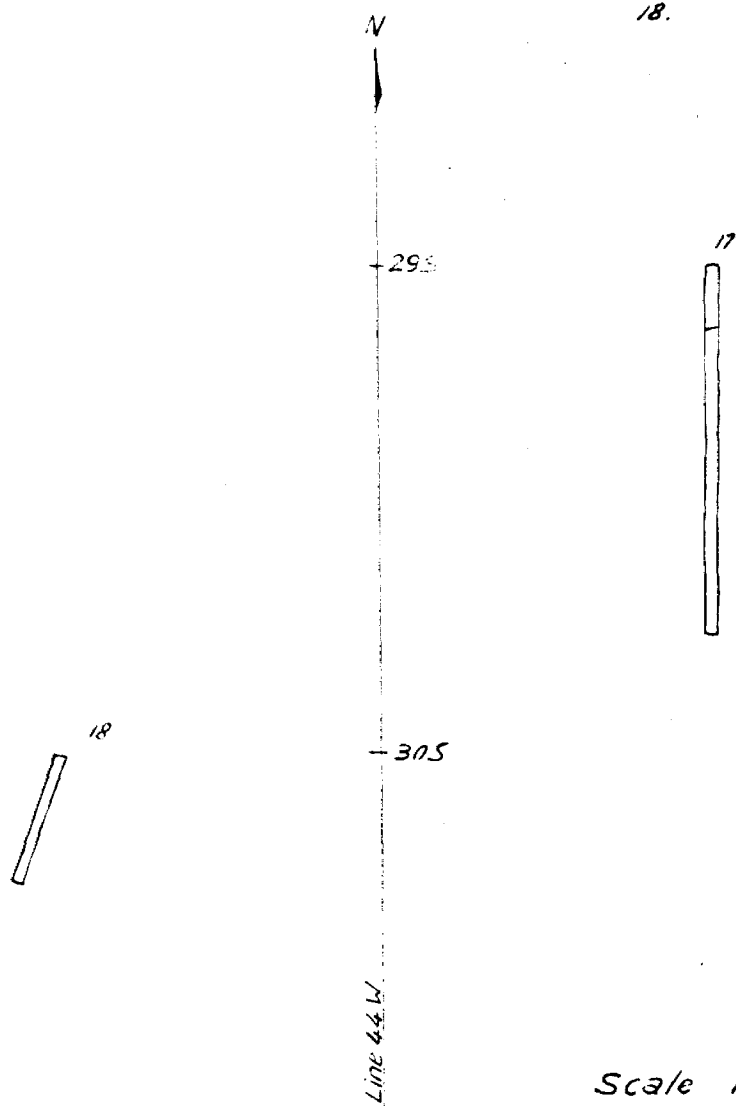


H. Vos

Oct. 29, 1951

Claims MR 18792, 19282 Cairo Twp.

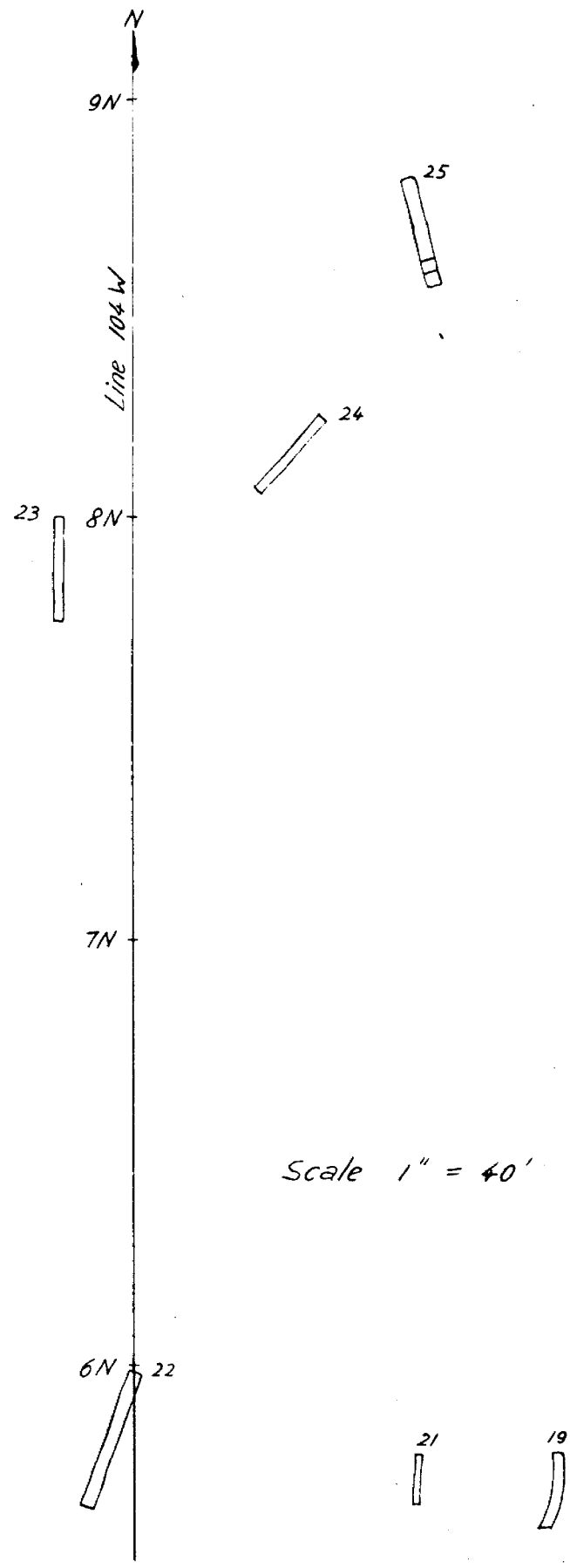
	Trenching			Stripping	
	Long	Wide	Deep	Long	Wide
17.	75'	2.5'	1'		
18.				28'	2'



H. Vos

Oct. 29, 1951

Claim MR 18788 Cairo Twp.



	Trenching		Stripping	
	Long	Wide	Deep	Long Wide
19.	18'	2'	2'	
20.	5'	2'	2'	
21.	10'	2.5'	4'	
22.	35'	3.5'	1.5'	
23.	24'	2'	2'	
24.				23' 2'
25.				26' 2'

Scale 1" = 40'

H. Vos

Oct. 29, 1951

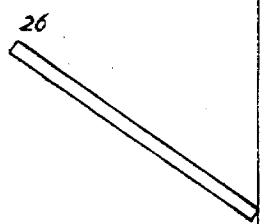
Claim MR 19282 Cairo Twp.

	Trenching			Stripping	
	Long	Wide	Deep	Long	Wide
26	62'	3'	1 1/2'		
27				16'	2'
28	12'	2 1/2'	1 1/2'		

N

34.5

35.5



Line 48 W

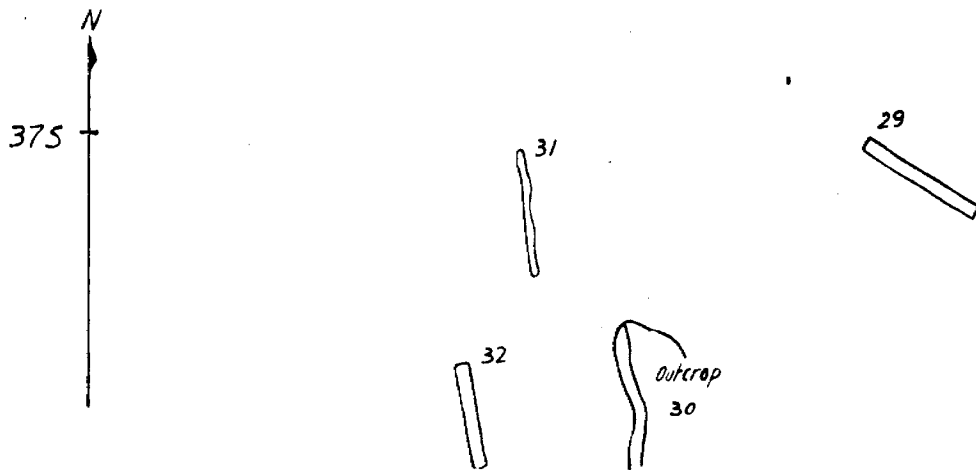
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H. VOS

Oct. 29, 1951

	Trenching			Stripping	
	Long	Wide	Deep	Long	Wide
29.	27'	3'	2'		
30.				30'	2'
31.				26'	2'
32.	21'	3'	2'		

Claim MR 19282 Cairo Twp.



Scale 1" = 40'

H. Vos