

**WORK REPORT**  
of the  
**LAFONTAINE MINERALS PROPERTY**  
in  
**SUMMERS TOWNSHIP**  
**DECEMBER, 1992**



42E128W0045 OM82-108 SUMMERS

PREVIOUS WORK

THE (j) SHOWING

1936 Buffalo Beardmore Gold Mines held a 13 claim group straddling Summers Township and the Beardmore Area western boundary, immediately north of the Black Water River. Surface work consisted of 450 meters of stripping and the excavation of a "deep" test pit. No assay values were reported.

1937 A 24.5 meter shaft was sunk and continued stripping and sampling revealed a series of auriferous quartz veins. The area was designated No.4 Zone, or "Hill" vein and later became known as the Long Beard Showing.

1938 Continued surface exploration and a 3,048 meter diamond drill program was conducted with encouraging results, which were reported in the August 18th issue of The Northern Miner:

<u>DRILL HOLE #</u>	<u>TRUE WIDTH (FEET)</u>	<u>AU OZ/TON</u>
1	2.59	0.13
2	3.61	0.19
3	1.06	1.45
	3.54	0.48
	15.13	0.13
4	2.62	1.95
	3.04	0.00
	1.34	1.76

These assays result in a combined grade of 0.41 ounces of gold per ton over an average true width of 8.23 feet. In September, Buffalo Beardmore Gold Mines reported the following results, drilled on the No.4 Zone, to follow-up their summers work:

<u>DRILL HOLE #</u>	<u>WIDTH (FEET)</u>	<u>AU OZ/TON</u>
7	5.0	0.30
	5.0	0.28
	2.8	0.16
	2.0	0.38
	9.8	0.13
	5.0	0.18
	2.1	0.76

W.W. Beaton, consulting engineer for Buffalo Beardmore, summarizes the season's work in the following passage which appeared in the October 20th, 1938 issue of The Northern Miner:

"Averages of \$6.41 (0.18) over 7.2 feet and \$37.38 (1.07) over 7 feet have been obtained from drilling on the "Hill" vein at a depth of 100 feet", it is stated. "These holes appear to bear out surface showings previously obtained on this vein of an average of \$14.69 (0.42) over 8.69 feet."

Our 1992 exploration program has extended this width of 4.3 meters to an appreciative width of 55 meters.

- 1939 A scheelite discovery propelled continued exploration along four mineralized zones, in particular the No.4 Zone.
- 1940 A limited surface program and diamond drill program. No assay values were reported. Results not available.
- 1942 Surface work continued and a limited diamond drill program. Results not available.
- 1943 Continued scheelite exploration with a limited stripping and diamond drill program. Results not available.
- 1949 Very little exploration was conducted from 1943 onward, and in 1949 the company's Ontario Charter was canceled. In 1949, Broadview Gold Mines Limited acquired 21 contiguous claims in Summers Township, 7 of which covered the No.4

Zone of the former Buffalo Beardmore Gold Mines property. Later that year a magnetometer survey by J.H. Low, consulting geophysicist, outlined 9 separate magnetic high features in the vicinity of the No.4 Zone. A proposed follow-up program of diamond drilling and surface work was never performed due to financing difficulties.

The Long Beard property was relatively dormant during the next 40 years. The property changed ownership several times with little exploration achieved.

1986 An airborne magnetometer and EM survey was conducted by Terraquest Ltd. The airborne survey revealed strong EM conductors associated with magnetic high features in the Long Beard vicinity.

### CURRENT WORK

The bulk of the prospecting was directed mainly at the south-western part of the claim block. During our 1991 prospecting program, we discovered a major 200 feet shear zone carrying high grade gold on mining claims No.1068871 and No.1068879 which was quite impressive! This lead us to follow the structure on line of strike to the south-west. At the time, mining claims No.1194265 to No.1194272 inclusive, were held by another party; therefore, we could only tie onto their west boundary. We started to conduct our prospecting at this point, on what are now mining claims No.1174237, 1174245 to 1174247 inclusive, 1174256, 1174257, and 1174260. The bedrock that is naturally exposed makes up less than 1% of the entire property; thereby, making our work very difficult. We knew, then, that we had to approach the situation from a different angle if we were to achieve our goal of finding this mineralized structure which runs at about 250 degrees from the above mentioned high grade gold showing. This is where the metal detection soil sampling came into play. A stainless steel tube, 5 feet by 1½ inches in diameter, became our tool. This tube is driven to bedrock whenever possible and the soil sample is retrieved, visually assessed for rust contaminants in the soil, and panned for minerals. This method was very informative for identifying potential areas and as a guide for determining the depths of the soil to bedrock. One hundred and thirty-two holes of this type were put in. This procedure was very strenuous, but it paid off, and we were quite successful in identifying our targets. Later on, the above mentioned claims came open for staking and our syndicate made them part of the main group by staking them. The addition of these new claims excited us and we prepared, enthusiastically, to explore this new ground. The presence of numerous strong conductors and the wealth of information dating back to the 1930's, which was left to me by my father, are bonuses that keep our fire of excitement fueled. This

property, as a whole, is our number one priority and we are definitely pressing forward with it.

For your information, the O.M.I.P. program fits in back to back with the O.P.A.P. program.

My recommendation is to continue to explore this property for its probable potential of becoming a mining property of merit. To date, it has positively shown every sign of being just that.

**PROSPECTING SITES**

**AREA No. 8**

**July 21 - 23:**

North-west corner: - Exposed rock. Metavolcanics. No alteration. No mineralization.

South-west corner: - Exposed rock. [(i) Showing] mafic, metavolcanics with 10% arsenopyrite mineralization.

South central portion: - Exposed rock. [Part of (i) Showing] mafic, metavolcanics with disseminated arsenopyrite mineralization.

**AREA No. 9**

**July 24 - 25:**

No exposed rock.

**AREA NO. 10**

**July 26 - 28:**

No exposed rock.

**AREA No. 11**

**July 29 - 31:**

No exposed rock.

**AREA No. 12**

**August 1 - 3:**

South-east corner: - Exposed rock. Metavolcanics. Little alteration. .05% Iron pyrite.

**AREA No. 13**

**August 4 - 6:**

No exposed rock.

**AREA No. 14**

**August 7 - 10:**

No exposed rock.

**AREA No. 15**

**August 11 - 15:**

No exposed rock.

**AREA No. 16**

**August 16 - 18:**

No exposed rock.

**AREA No. 17**

**August 19 - 23:**

South central portion has exposed rock. Metavolcanics.  
Little alteration. Less than .05% iron pyrite.

**AREA No. 18**

**August 24 - 28:**

South central portion has exposed rock. Metavolcanics.  
Some alteration. 1% Iron pyrite and chalcopyrite.

**AREA No. 19**

**August 29 - September 2:**

No exposed rock.

**AREA No. 20**

**September 3 - 9:**

North-west corner has exposed rock. Metavolcanics.  
No alteration. No mineralization.

South-east corner has exposed rock. Metavolcanics.  
No mineralization.

**AREA No. 21**

**September 10 - 17:**

South-east corner has exposed rock. Metavolcanics. Well  
altered. 2% Iron pyrite.

South-west corner has exposed rock. Metavolcanics. Less  
than .05% iron pyrite.

**AREA No. 22**

**September 18 - 23:**

South central portion is metavolcanics. Some alteration.  
1% Iron pyrite.

**AREA No. 23**

**September 24 - 26:**

North-east corner has exposed rock [part of the (h)  
Showing]. Hydrothermally altered metavolcanics. It has  
1% iron pyrite with some arsenopyrite.

North-west corner has exposed rock. Metavolcanics. Well



altered. It has 1% iron pyrite with some arsenopyrite.

**AREA No. 24**

**September 27 - 30:**

Central portion is metavolcanics. It is well altered. It has 6% sulphides consisting of pyrrhotite, iron pyrite and chalcopyrite.

**AREA No. 25**

**October 1 - 2:**

East central portion is metavolcanics. It is well altered. It has 3% iron pyrite.

**AREA No. 26**

**October 3 - 4:**

South-east corner is metavolcanics. There is some alteration. It has 1% iron pyrite.

I took samples from a freshly blasted Transcanada Pipe Line site which crosses my mining claims and had them assayed for gold. Following are the results:

<u>SAMPLE #</u>	<u>CLAIM #</u>	<u>P.P.B.</u>	<u>OZ/TON</u>
A	205991	18	.001
B	205992	69	.002
C	205993	87	.003
D	205994	97	.003
E	205995	8	.001
F	205996	19	.001
G	205997	40	.001
H	205998	32	.001
I	205999	8	.001
J	206000	5	.001
K	220451	9	.001
L	220452	5	.001
M	220453	16	.001
N	220454	13	.001
O	220455	204	.006
P	220456	23	.001

## **MECHANICAL STRIPPING**

The new showings mechanically stripped begin with the (j) Showing to and including the (p) Showing.

### **(j) SHOWING:**

The width uncovered is 55 meters and the length is 200 meters minimum as it crosses strippings No. 4 and No. 5. This iron formation is loaded with quartz and carries approximately 7% sulphides.

### **(k), (l), (n), (o) and (p) SHOWINGS:**

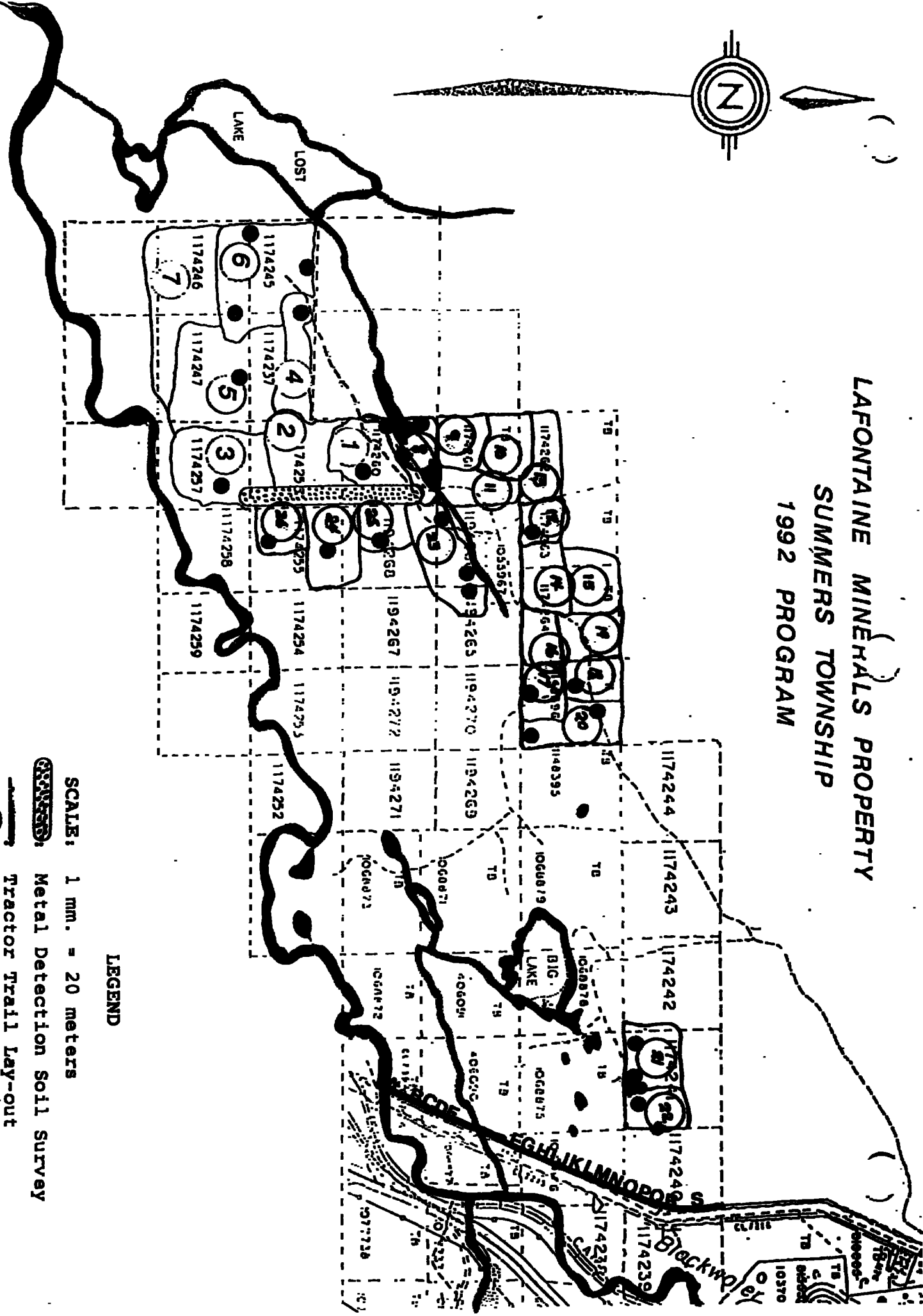
They are probably all interconnected and are approximately 110 meters wide and 440 meters long as they cross strippings No. 1, No. 2 and No. 3. The parallel zones are loaded with quartz and carry heavy sulphides, from disseminated to massive. The minerals in this huge zone are pyrrhotite, iron pyrite and chalcopyrite.

### **(m) SHOWING:**

The width uncovered so far is over 90 meters and the length has not yet been determined. The mineralization is arsenopyrite and iron pyrite disseminated throughout the rock.

These showings will have to be followed up on during our 1993 program. Additional mechanical stripping, drilling with a plugger, and blasting to collect samples for assaying will all have to be carried out. Inco Exploration may play a role here.

LAFONTAINE MINERALS PROPERTY  
 SUMMERS TOWNSHIP  
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LEGEND

SCALE: 1 mm. = 20 meters

Metal Detection Soil Survey

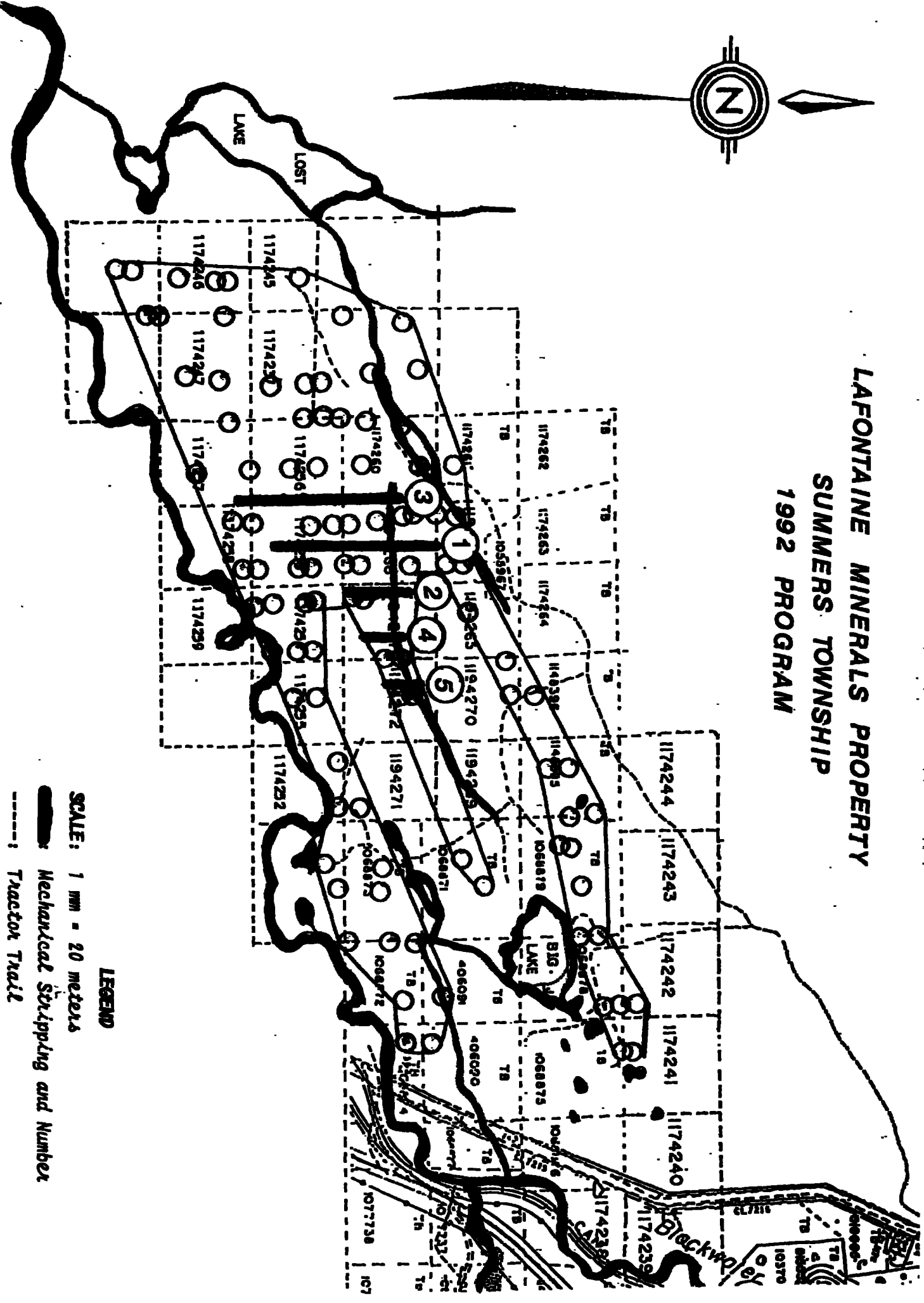
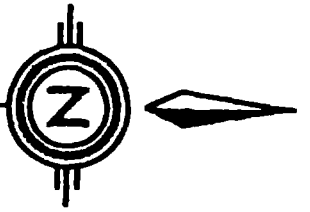
Tractor Trail Lay-out

Area Prospected and NO.

Exposed Rock




SAMPLE NO. & ASSAY

**LAFONTAINE MINERALS PROPERTY  
SUMMERS TOWNSHIP  
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SCALE: 1 mm = 20 meters

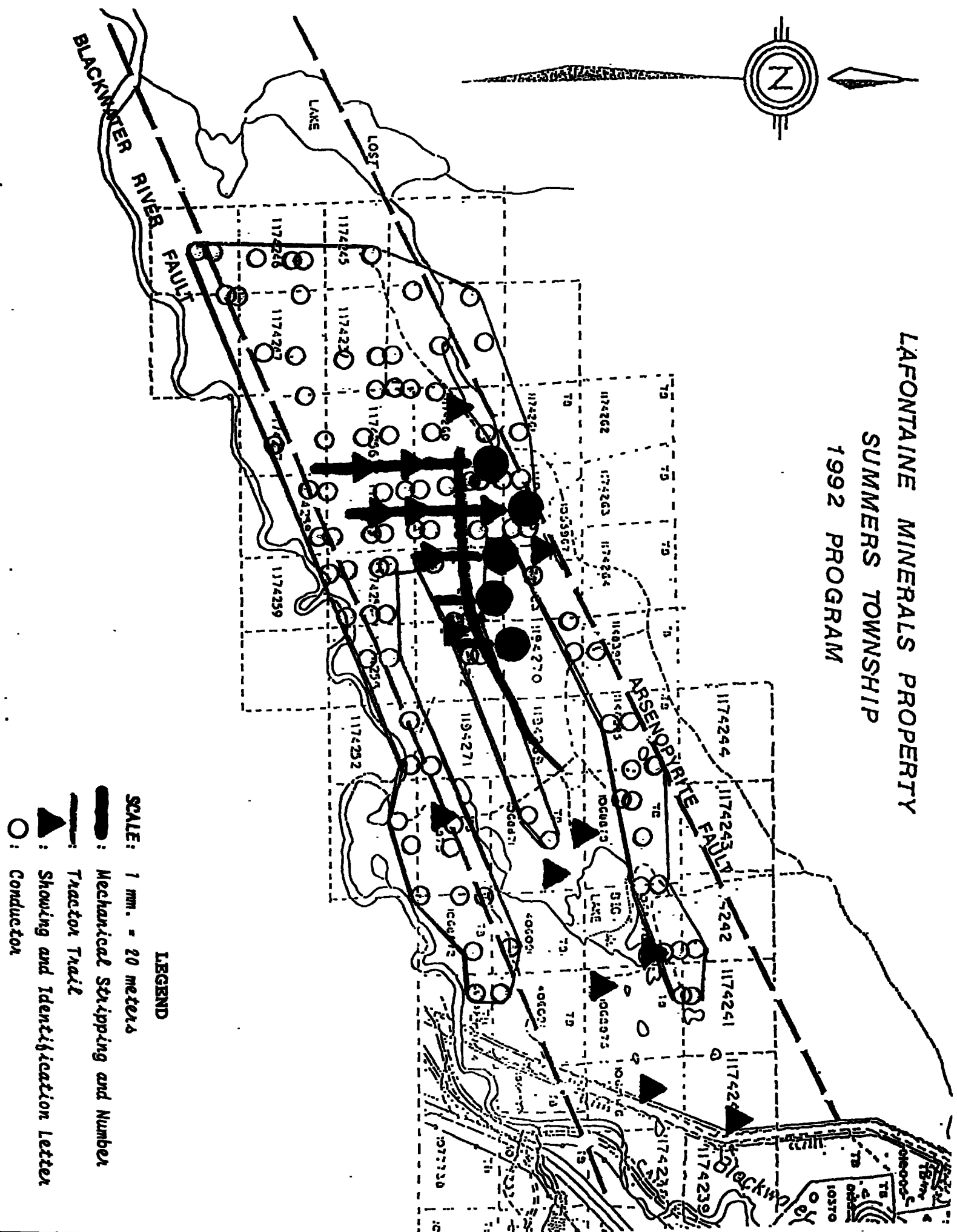
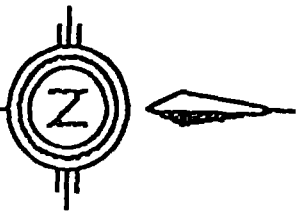
**LEGEND**

-  Mechanical Stripping and Number
-  Tractor Trail
-  Conductor and the Perimeter of the local activities of which the Mining Claims are covering.

LAFONTAINE MINERALS PROPERTY





SUMMERS TOWNSHIP

1992 PROGRAM



LEGEND

SCALE: 1 mm. = 20 meters

-  : Mechanical Stripping and Number
-  : Tractor Trail
-  : Showing and Identification Letter
-  : Conductor

**PIPELINE SAMPLES**

**SAMPLE A:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were pyrrhotite, iron pyrite and chalcopyrite.

**SAMPLE B:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were iron pyrite and chalcopyrite.

**SAMPLE C:**

The rock type is metavolcanic. The rock sample taken for assaying weighed 5 pounds. The minerals identified were iron pyrite and chalcopyrite.

**SAMPLE D:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The mineral identified was iron pyrite.

**SAMPLE E:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The mineral identified was iron pyrite.

**SAMPLE F:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The mineral identified was iron pyrite.

**SAMPLE G:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The mineral identified was iron pyrite.

**SAMPLE H:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The mineral identified was iron pyrite.

**SAMPLE I:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were iron pyrite, magnetite and chalcopyrite.

**SAMPLE J:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were iron pyrite, magnetite and chalcopyrite.

**SAMPLE K:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were chalcopyrite and iron pyrite.

**SAMPLE L:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were iron pyrite and chalcopyrite.

**SAMPLE M:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The mineral identified was iron pyrite.

**SAMPLE N:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were iron pyrite and chalcopyrite.

**SAMPLE O:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were iron pyrite, pyrrhotite and chalcopyrite.

**SAMPLE P:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were chalcopyrite, iron pyrite and pyrrhotite.

**SAMPLE Q:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were iron pyrite, magnetite and chalcopyrite.

**SAMPLE R:**

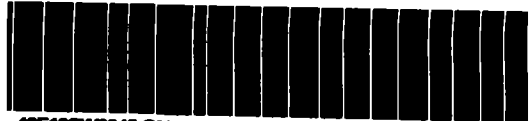
The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The mineral identified was iron pyrite.

**SAMPLE S:**

The rock type is metavolcanic. The weight of the rock sample taken for assaying was 5 pounds. The minerals identified were chalcopyrite, iron pyrite, magnetite and arsenopyrite.



**GEOLOGICAL REPORT**  
of the  
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SUMMARY

The Summers Township Property is located near the town of Beardmore, approximately 120 kilometers northeast of Thunder Bay, Ontario. The property is located near the western terminus of the Lac-Geraldton-Beardmore Greenstone Belt, the host of one of the principal gold mining camps in Ontario. Within a 7 kilometer radius of the property are three former gold producers: the Northern Empire Mine, which produced 149,490 ounces of gold grading 0.35 gold oz/ton; the Leitch Gold Mine, which produced 847,291 ounces of gold grading 0.92 gold oz/ton; and the Sand River Mine, which produced 50,065 ounces of gold grading 0.32 gold oz/ton. Numerous gold showings occur on the Summers Township Property, including the Long Beard Showing which has been subject to sporadic exploration activity since its discovery in the 1930's.

The claim group is underlain by intermediate to mafic Keewatin volcanics and associated metasediments, including greywacke, tuffaceous rock, and banded iron formation. The dominant rock types of the study area are intermediate to mafic metavolcanic rocks bordered to the north and south by metasedimentary varieties. Local and regional stratigraphic and structural trends are generally north 070 degrees east. The metavolcanic and metasedimentary units are intruded by a regional diabase sill that trends northeast and dips northward.

A previously unknown zone of significant gold mineralization, hereafter referred to as the "Arsenopyrite

Fault Zone Showings", was discovered. This mineralized zone is hosted in mafic metavolcanic rocks and is associated with a large regional shear zone (Arsenopyrite Fault) which strikes north 070 degrees east for a determined strike length of at least 1.5 kilometers over widths of up to 50 meters. This zone displays strong carbonate and iron carbonate alteration, a quartz-carbonate veining system, lenses of semi-massive sulphide mineralization (pyrite), and significant disseminated arsenopyrite mineralization. Grab samples of a quartz carbonate vein material from this zone yielded assays of 10,000 ppb gold and >10,000 ppb gold (0.3 gold oz/ton).

Numerous areas of interest were identified within the property for their gold mineralization potential based on the degree of (carbonate) alteration, presence of veining, sulphide mineralization and exploration history. Two of these areas were subsequently exposed by mechanical stripping, the (i) and the (h) Showings.

**INTRODUCTION**

The claim group is located in Summers Township, Thunder Bay Mining District. The town of Beardmore is located approximately 80 kilometers west of Geraldton along Trans Canada Highway No.11, and 120 kilometers northeast of Thunder Bay on Highway No.11. Convenient access is provided by two bush roads which traverse westward across a large portion of the property.

Three former producing gold mines are located within a 7 kilometer distance from the property: the Northern Empire Mine, the Leitch Mine, and the Sand River Mine. Despite the close proximity to the Northern Empire Mine (3 km NE), the property in general has received relatively little prior exploration activity.

**PROPERTY DESCRIPTION, LOCATION AND ACCESS**

The Summers Township Property consists of the following  
49 contiguous claims:

1068871	1077738	1174240	1174254	1174264
1068872	1077739	1174241	1174255	1194265
1068873	1077740	1174242	1174256	1194266
1068874	1077741	1174243	1174257	1194267
1068875	1077742	1174244	1174258	1194268
1068876	1148395	1174245	1174259	1194269
1068877	1148396	1174246	1174260	1194270
1068878	1174237	1174247	1174261	1194271
1068879	1174238	1174252	1174262	1194272
1077737	1174239	1174253	1174263	

The property is located in the SW portion of Summers Township, Thunder Bay Mining District. The eastern most portion of the claim group borders the community of Beardmore, Ontario, which is located on Trans Canada Highway No.11, approximately 80 kilometers west of Geraldton and 120 kilometers northeast of Thunder Bay.

The property is afforded excellent access via two bush roads which traverse its length in a southwesterly direction. These bush roads provide convenient access to all parts of the property , with limited access to the extreme western portion.

## ROCK TYPES

### METAVOLCANIC ROCKS

Mafic metavolcanic rocks are the dominant rock type underlying the property. Generally the volcanic rocks are green, massive to pillowed basalts displaying aphanitic to medium grained texture and glacially scarred, beige weathered surfaces. The pillow varieties display stretched pillows, upwards to 10:1 ratio and occur throughout the property, their long axis coinciding with the regional foliation (N 070° E). Tops are indeterminate, but reference to earlier regional geological mapping suggest that tops are toward the north. The geochemical signature of the mafic volcanic rocks are Fe tholeiitic basalts, as determined by Jensen Cation Plots of the whole rock data. In the northern section of the property (north of the Arsenopyrite Shear Zone) the metavolcanic sequence has a general strike of N 070 degrees E and dips steeply southward (70 degrees to vertical). In the southern portion of the property (south of the A.S.Z.), the volcanic rocks generally strike (N 070 degrees E) and dips steeply northward (70 degrees to vertical). Chlorite replacement is the dominant alteration and is generally present throughout the metavolcanic sequences, increasing significantly in and around zones of shearing. Disseminated cubic to amorphous blotches and stringers of pyrite is the dominant sulphide mineral ranging from trace amounts to 20% in association with shear zones where it may occur as semi-massive lenses.

### METASEDIMENTARY ROCKS

Metasedimentary rocks are the second most common rock type on the property and underlie the area located north of the Arsenopyrite Fault and north of the Empire Fault. The metasedimentary units consist of weakly to strongly foliated greywacke, and greywacke interbedded with mudstone. Remnant bedding is observed in local areas and parallels the regional foliation (N 070 degrees E). Sulphide mineralization is rare

with only trace to 1% disseminated pyrite present in small local areas. The metasedimentary sequences lack any significant alteration and/or quartz carbonate veining except for minor local areas of quartz carbonate stringers, weak carbonate alteration and minor iron staining.

#### BANDED IRON FORMATION

There are banded iron formation outcrops in a number of places on the Summers Township Property. The units are 1 to 2 meters wide and are exposed along strike for several meters. The BIF units are generally parallel with regional foliation and are comprised of alternating bands of quartz-carbonate material and dark bands hosting magnetic and Fe silicate minerals (hornblende). The BIF units are hosted within the metavolcanic rocks and are located at the Long Beard Showing.

Two units of BIF are present within the (h) Showing on the north side of the Arsenopyrite Shear Zone. The BIF units are strongly oxidized and carbonatized. Flat lying quartz-carbonate veins approximately .25 meters wide, hosting pyrite, arsenopyrite and sphalerite along vein margins cross cut the BIF units.

Banded iron formation at the Long Beard Showing has been strongly oxidized and carbonatized. It differs from the (h) Showing BIF by its' recrystallized sugary textured silica content. Associated quartz-carbonate veins host pyrite and chalcopyrite ranging from a few percent to semi-massive lenses of sulphide mineralization (3Py:1Cpy).

## REGIONAL GEOLOGY

The Beardmore-Geraldton belt is underlain by 3 units of westerly trending metavolcanic rocks, which are separated by metasedimentary units (Williams, 1986). The area is considered to be part of the Wabigoon Volcanic-Sedimentary Belt (Ayers, 1969), with the southern most volcanic sequence in fault contact with the Quetico Belt, which consists of a sedimentary sequence of higher metamorphic grade. The westerly trending metavolcanic and metasedimentary assemblages extend for approximately 180 kilometers from Lake Nipigon to east of Little Long Lac. The repetition of major metavolcanic and metasedimentary units within the Wabigoon Subprovince was postulated as being the result of isoclinal folding (Pye, 1952; Horwood and Pye, 1955; Pye et al 1966; Mason and McConnell, 1983). However, this model has been questioned by Mackasey (1975) due to the lack of facing directional reversals, and questioned by Williams (1986) who has proposed a fore arc accretionary prism. The major east-west trending volcanic-sedimentary units are bounded by right hand shear zones. The 3 prominent shear zones of the Wabigoon Belt are: The Blackwater River (Empire), Watson Lake, and Paint Lake fault zones. The Paint Lake Fault forms the Wabigoon-Quetico boundary (Williams, 1986).

The metavolcanics are Keewatin age and the metasediments are considered to be Timiskaming age. This belt of Archean rocks is folded, faulted and intruded by units of gabbro, diorite, granodiorite, and diabase. The metavolcanic units consist of basaltic to andesitic, massive pillowed flows, tuffs, volcanic breccia, and iron formation. The metasediments are composed chiefly of interbedded greywacke, arkose, siltstone, and iron formation units. The iron formation within the southern metasedimentary unit can be correlated across the entire Beardmore-Geraldton Belt.

Nearly all gold production of the Beardmore-Geraldton Belt has been from metasedimentary units; with the exception



of the Northern Empire Mine which is hosted in a metavolcanic sequence. Iron formations host approximately 30% of the ore deposits (MacDonald, 1983) either as auriferous sulphide replacement zones and/or within associated quartz veins. The remaining ore deposits of the Wabigoon Belt are largely quartz vein hosted, and to a lesser extent, shear zones hosted by greywacke and less commonly porphyry bodies.

#### PROPERTY GEOLOGY

The portion of the property within the Empire Fault, which is underlain by metasedimentary units, offers limited exposure. The entire property is generally covered by a relatively thin veneer (2 to 3 meters) of glacial drift, consisting of sandy till or sandy gravel. The areas of sulphide mineralization with possible economic potential are hosted in the metavolcanic rocks.

Recent mechanical stripping uncovered the (i) Showing and the (h) Showing. This area had previously not received any comprehensive detailed systematic exploration and thus is considered to hold excellent gold mineralization potential. These two areas are contained within a formerly unrecognized or unreported shear zone, hereafter referred to as the "Arsenopyrite Fault", which is concordant with the property's other regional structures and with major geological structures of the Geraldton-Beardmore camp. An airborne electromagnetic survey defines the Arsenopyrite Fault by a "break" in the aeromagnetic signature and a coincident lenticular expression of weak to moderate EM anomalies. The fault is evident in the field by a topographic low feature which can be traced for at least 1.5 kilometers over widths of up to 50 meters.

The mechanical stripping of the (i) area reveals a zone of massive, pillowed, strongly carbonatized, mafic, meta-volcanic (basaltic) rocks. The basalts are strongly carbonatized (ankerite ± dolomite), display upwards to 10% arsenopyrite mineralization, host a series of parallel quartz-carbonate veins (4 cm to 25 cm wide) and have a distinctive

granular, textured, weathered surface. Arsenopyrite is present as fine grained disseminated crystals, coarse grained striated needles and semi-massive irregular shaped masses within the carbonatized basalts and quartz-carbonate veins. The sulphide mineralization, although ubiquitous throughout the host rock, is locally concentrated along quartz-carbonate vein margins. The arsenopyrite needles do not reflect the regional penetrative fabric, N 070 degrees E. The pervasive carbonate (ankerite ± dolomite) alteration is oxidized and deeply weathered to a reddish brown surface rind along the margins of the quartz-carbonate veins. The ankerite alteration is most intense and penetrative at the vein margins and lessens peripherally. The series of quartz-carbonate veins are contemporaneous, as evident by their consistency, which is subparallel to the regional foliation. Four areas have been stripped to expose the (i) zone over a strike length of 205 meters.

The (h) Showing has been exposed by mechanical stripping north and south of the Arsenopyrite Fault. To the north of the fault are two 1.5 meter wide Banded Iron Formations trending parallel to the fault. On the south side of the fault is a 35 meter wide zone of strongly sheared and hydrothermally altered metavolcanic rock.

The BIF's were exposed along strike by a Caterpillar excavator for 125 meters. The units are strongly oxidized with alternating bands of magnetic-rich material and red chert (jasper), and host flay lying, cross cutting quartz-carbonate veins. The quartz-carbonate veins are milky white, fractured, approximately .3m X 4m and generally without visible sulphide mineralization. A 5 meter section of BIF was strongly sulphidized with an associated .3m X 4m quartz-carbonate vein. The quartz-carbonate vein hosts coarse grained arsenopyrite crystals and local areas of semi-massive pyrite. The mafic volcanic rocks are pillowed, moderately carbonatized and display minor discontinuous quartz-carbonate stringers. At

the BIF/metavolcanic contact, the volcanic rocks are strongly sheared and display small scale kink folding. Chlorite replacement is the dominant alteration with local areas of limonite staining.

Immediately south of the Arsenopyrite Fault, seven areas were stripped perpendicular (S 160 degrees E) to the fault and regional foliation, providing 5 meter wide "windows" of the alteration zone to be at least 35 meters wide. The southern boundary of the shear zone is in contact with a massive, mafic metavolcanic rock with moderate pervasive carbonate alteration. The northern boundary of the fault zone is undetermined as it is covered by lacustrine clay within the swamp, which is postulated to be the axis of the Arsenopyrite Fault. The main zone of interest on the southern portion of the Fault is a sheared, pillowed, mafic metavolcanic rock which has undergone intense hydrothermal alteration (carbonitization, silicification and Fe staining). A very strong shear foliation striking N 065 degrees E and dipping 85 degrees N to vertical is persistent throughout the rock exposures and parallels the Arsenopyrite Fault axis. Narrow discontinuous quartz-carbonate veins (5 cm to 10 cm wide) occur throughout the exposure, but generally are restricted to the zones of most intense shearing. The intensely sheared zones have been reduced to rubble as a result of the shearing and strong alteration of predominantly hematite staining and/or Fe carbonate alteration. Pyrite is the dominant sulphide mineral of the (h) Showing, as opposed to arsenopyrite at the (i) Showing area along strike to the SW, and occurs as fine grained cubic pyrite and semi-massive lenses of sulphide mineralization with the metavolcanic rock and quartz-carbonate veins. Within the sheared metavolcanic rock occurs a 1m to 2m wide massive, pillowed metavolcanic rock with strong carbonate alteration, granular textured weathered surface, and upwards to 5% arsenopyrite mineralization, which is persistent over its' 165 meter strike

length exposure. This is the same or similar unit which comprises the (i) Showing.

### PROPERTY OVERVIEW

The aforementioned areas targeted for stripping are associated with the Blackwater River Fault (Empire Fault). The (i) Showing and the (h) Showing are associated with a subparallel structure referred to as the "Arsenopyrite Fault". All areas lie within an easterly trending mafic metavolcanic rock assemblage that displays concordant shearing and foliation. The two subparallel northeasterly trending faults are identified on the O.G.S. Airborne Electromagnetic Survey of the Tashota-Geraldton-Longlac Area by a marked change in the magnetic signature and associated linear EM anomalies. The mafic volcanic assemblage is characterized by a weak to moderate pervasive carbonate alteration (ankerite ± dolomite), chloritization and local areas of silicification. Within sheared portions of the mafic volcanic assemblage are quartz-carbonate veins hosting arsenopyrite and pyrite mineralization predominantly along vein margins, and disseminated to small massive lenses of arsenopyrite and pyrite mineralization within the wall rock material. The alteration and mineralization characteristics of these areas are similar to the former producing Northern Empire Mine, which is located 3 km NE of the property and proximal to the Blackwater River Fault. The Northern Empire Mine concentrated on an auriferous quartz-carbonate vein hosted in mafic metavolcanic rock approximately 800 meters south of the Blackwater River Fault. The host wall rock is a chlorite-carbonate schist which forms part of the easterly striking mafic volcanic assemblage that traverses the Summers Township Property. Most of the gold at the Empire Mine occurred in a .6 meter wide boudinage vein within the composite quartz-carbonate vein and was associated with arsenopyrite, pyrite, minor chalcopyrite and galena.

Within each of the mechanically stripped areas are unique characteristics that differ from each area as well as from the

Northern Empire Mine. The (h) Showing displays a proximal to inherent association with sulphidized oxide iron formation, whereas, such an association is either lacking or unrecognized at the Northern Empire Mine and at the (i) Showing. The (i) Showing is the only recognized location on the property where unsheared, massive volcanic rock hosts an extensive quartz-carbonate veining system with 1% to 15% arsenopyrite mineralization throughout the exposure. The (h) Showing differs from the other areas in that in part it comprises all the significant combined characteristics noted individually at the other showings; i.e. sulphidized Fe formation, quartz-carbonate veining, (strong) hydrothermal alteration and pyrite and arsenopyrite mineralization.

Located within the mafic volcanic assemblage near the centre of the property is a linear NE trending series of Airborne EM anomalies. Due to the limited bedrock exposure in this area, we were unable to accurately delineate the bedrock source of the electromagnetic conductors. However, the linear trend of electromagnetic conductors are associated with a topographical linear low interpreted to represent another fault parallel to the Empire Fault. It is interesting to note that this interpreted fault zone is located approximately 800 meters south of the Blackwater River Fault, a distance similar to the displacement of the Northern Empire Mine from the Blackwater River Fault.

Located near the property's southern boundary is the Buffalo Beardmore Showing ("Long Beard Showing"). This showing consists of a series of recrystallized, oxide BIF hosted in mafic metavolcanic rocks. The BIF and associated cross-cutting quartz veins hosting disseminated, irregular concentrations of pyrite and chalcopyrite mineralization. Similar recrystallized BIF are not recognized anywhere else on the property. Even though the Long Beard Showing has received some exploration work in the past, as recognized in the field by a network of surface trenches and pits as well as a pile of

old drill core found during the mapping program, it should not be discounted for not having readily recognized economic potential due to its similarities with the Craskie-Vega prospect located in Vincent Township, two townships due east of Summers Township. The Craskie-Vega prospect consists of two persistent, easterly striking chert-magnetite-carbonate iron formations within a massive to strongly foliated mafic metavolcanic unit. Gold is associated with arsenopyrite, pyrite, pyrrhotite and chalcopyrite, occurring in discordant quartz veinlets and as replacement minerals in the iron-rich mesobands. The auriferous iron formations are approximately 1.5m to 2.0m wide and up to 130 meters long with grades of approximately 0.19 ounces of gold/ton. John Mason, the regional M.N.D.M. geologist, has confirmed that these iron formations are recrystallized and are similar to those found at the Long Bear Showing. Given that past exploration during the late 1930's discovered auriferous quartz veins associated with this prospect, further work is definitely warranted. Some of this work is scheduled for my 1992 O.M.I.P. program.

There are numerous conductors which are parallel linear trends 250 meters and 150 meters respectively south of the Long Beard Showing. These conductors may represent areas of sheared metavolcanic rocks hosting local areas of sulphide mineralization or possible iron formations with local occurrences of sulphide mineralization within the metavolcanic rocks.

#### CONCLUSIONS

The (i) Showing and the (h) Showing occur within a subparallel NE trending fault within the mafic metavolcanic referred to as the "Arsenopyrite Fault".

The (i) Showing revealed a massive mafic metavolcanic sequence with strong, pervasive Fe carbonate alteration and a series of parallel, narrow (approximately 20 cm wide) quartz-carbonate veins. Arsenopyrite occurs as the dominant sulphide

mineral as fine grained crystals and coarse grained striated needles within the carbonatized basalt and quartz-carbonate veins. Two grab samples of quartz-carbonate vein material collected provided economic gold values of  $>10,000$  ppb gold and 10,000 ppb gold (0.30 oz Au/ton). The sampling revealed the existence of gold of economic concentrations within the quartz-carbonate vein as well as anomalous gold values within the host rock material which greatly adds to the potential of the showing.

The (h) Showing consists of a 35 meter wide zone of hydrothermally altered metavolcanic rock, on the south side of the Arsenopyrite Fault, hosting narrow quartz-carbonate veins situated to the immediate south of two oxidized iron formations. There are also semi-massive lenses of pyrite mineralization and strong hydrothermal alteration within the sheared metavolcanic sequence.

#### RECOMMENDATIONS

A number of locations on the property warrant further exploration as a result of the economic and anomalous gold assays, degree of alteration (i.e. carbonatization, silicification, chloritization and sulphidization) and structural controls related to various showings revealed during this program.

Mechanical stripping will be carried out on the 1992 O.M.I.P. program.

Further work such as sampling of the exposed showings will be conducted in 1993 by using a plugger drill and blasting small pits to obtain fresh sample material.

**NOTE**

By the time our mechanical stripping program was completed, the ground was snow covered and frozen; consequently, we will be unable to add any more information to our 1992 geological report. We will include additional information in our anticipated 1993 exploration program as it becomes available.



**FINAL REPORT**  
**of**  
**LAFONTAINE MINERALS'**  
**EXPLORATION PROJECT**  
**in**  
**SUMMERS TOWNSHIP**  
**O.M.I.P.        1992**

**LAFONTAINE MINERALS**

P.O. Box 36  
POT 1G0

Beardmore, Ontario  
(807) 875-2157

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**OUR GOAL:**

To explore for gold and other associated minerals.

**RECOMMENDED WORK AND SCOPE OF PROJECT:**

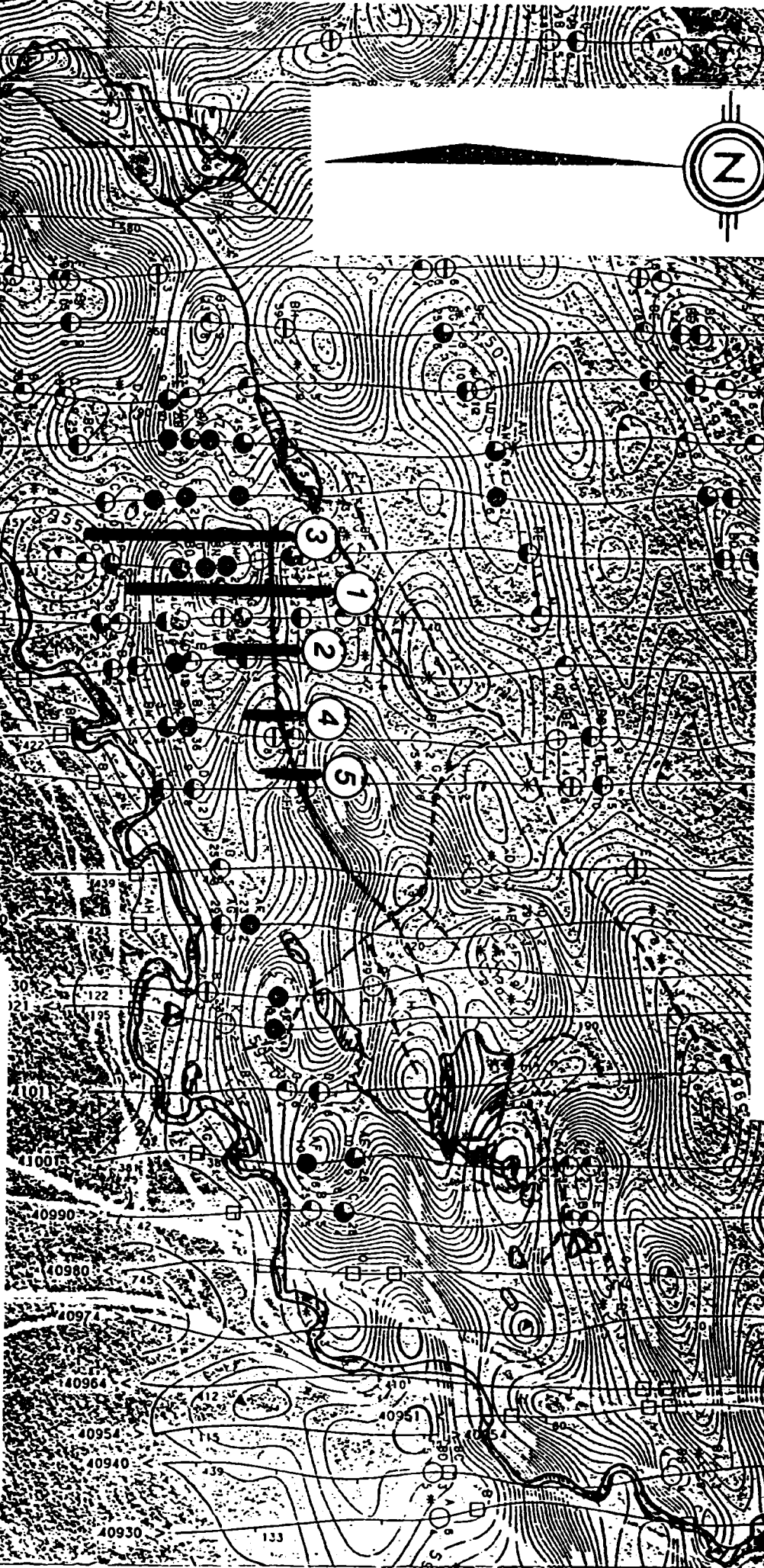
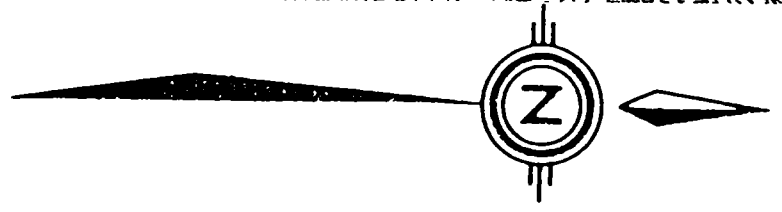
The program involved an expenditure of \$30,361.53. The work consisted of prospecting, identifying favorable areas where the work should be carried out, flagging the areas to be mechanically stripped, flagging a tractor trail to get into the work sites, supervising the mechanical stripping, and preparing the area for our next program of trenching and assaying.

The project began on July 21, 1992 and ended on January 20, 1993.

**WORK COMPLETED:**



The program was carried out at a cost of \$30,361.53. I prospected in the areas indicated on the enclosed map. A daily log was also used. Favorable areas of mineralization were identified and flagged out for mechanical stripping. A tractor trail which was to be used to bring the equipment into the areas designated for mechanical stripping, was also flagged out. These favorable areas were then mechanically stripped down to bedrock which was then manually cleaned in order to better expose it. The mechanically stripped areas were then all measured out and pin-pointed on a map. I used a small lake to the north as a tie point. A hip chain was used to make the measurements. The work maps were then completed along with the reports.

LAFONTAINE MINERALS PROPERTY  
SUMMERS TOWNSHIP  
1992 PROGRAM



ONTARIO GEOLOGICAL SURVEY - MAP 81337  
TASHOTA-GERALDTON-LONGLAC AREA 1989

LEGEND

- SCALE: 1 mm = 20 meters
-  : Mechanical Stripping & No.
-  : Tractor Trail

## DIMENSIONS OF THE MECHANICAL STRIPPINGS

### STRIPPING No. 1:

It is 700 meters long, 15 meters wide and 2 meters deep.

### STRIPPING No. 2:

It is 280 meters long, 15 meters wide and 2 meters deep.

### STRIPPING No. 3:

It is 700 meters long, 15 meters wide and 2 meters deep.

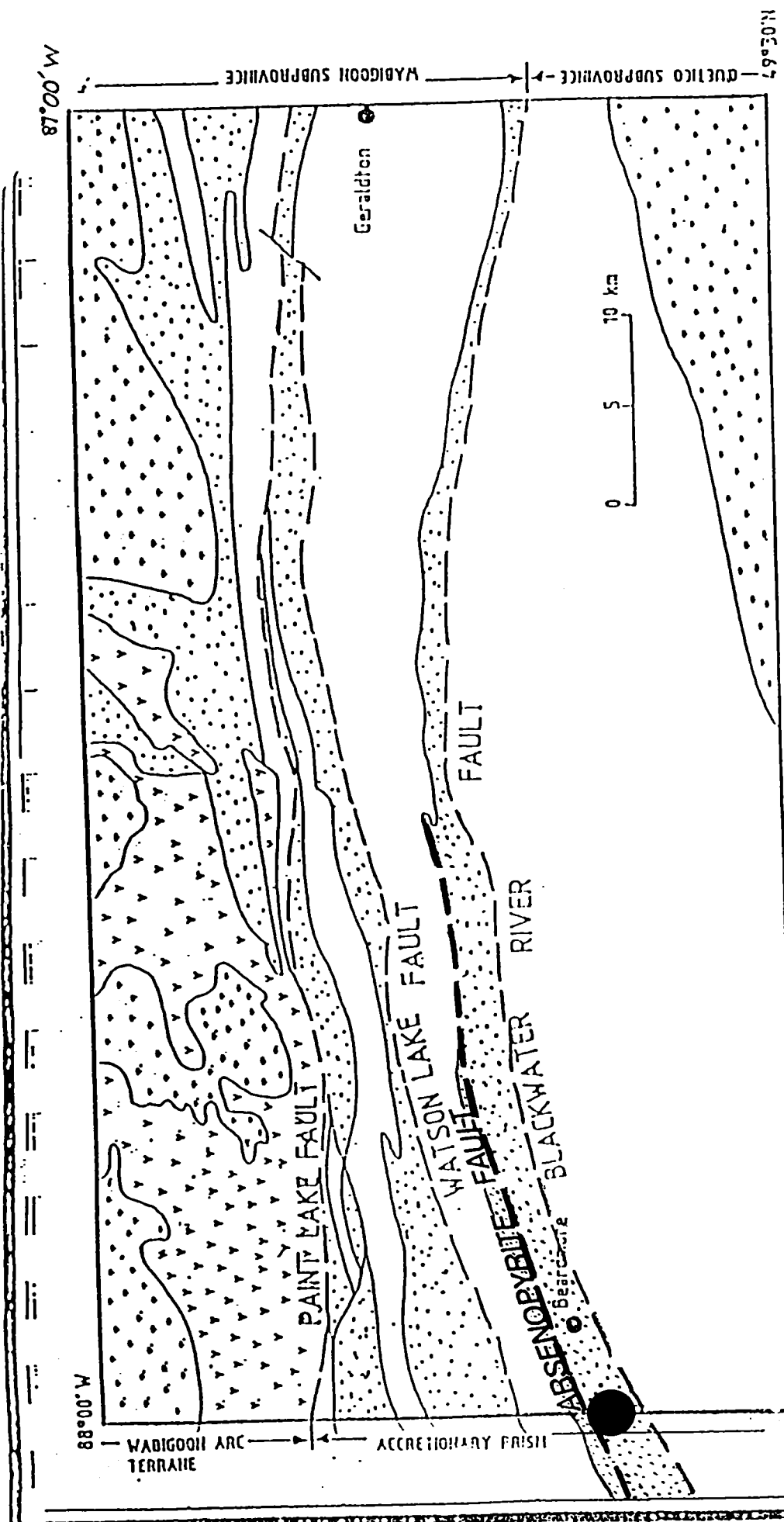
### STRIPPING No. 4:

It is 180 meters long, 15 meters wide and 2 meters deep.

### STRIPPING No. 5:

It is 180 meters long, 20 meters wide and 2 meters deep.

These mechanical strippings have been taken down to bedrock.



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**LAFONTAINE MINERALS PROPERTY**

**SUMMERS TOWNSHIP**

**1992 PROGRAM**

--- Fault

— Geological Boundary

ARCHEAN

- Felsic Intrusive Rocks
- Intermediate-Felsic Metavolcanics
- Mafic Metavolcanics
- Metasediments

Geological map of the Beardmore-Geraldton area (after Williams, 1986). Showing the generally accepted Wabigoon-Quetico boundary, and the suggested revised position with the Beardmore-Geraldton Belt being part of an accretionary prism and included with the Quetico. The batholith dominated Wabigoon forms an arc terrane to the north.



Gold, silver, sulphur, iron, sand and gravel occur within the map-area.

Gold occurs in narrow fracture-filling quartz veins in volcanic and sedimentary rocks.

The Leitch Mine was developed to a depth of 4,525 feet<sup>4</sup> following westward-raking quartz veins occupying fractures in fine-grained sedimentary rocks. The producing veins varied from a few inches to two feet in width<sup>4</sup>. A total of 847,291 oz. Au and 31,775 oz. Ag was produced from 920,745 tons of ore milled<sup>2</sup>. The Sand River Mine produced 50,065 oz. Au and 3,628 oz. Ag from 157,870 tons of ore milled<sup>2</sup>. A clean-up of the Leitch mine site has been under way since 1966. A total of 234 oz. Au and 17 oz. Ag was recovered during the period 1966-67<sup>2</sup>.

16-5 The Northern Empire Mine produced a total of 149,493 oz. Au and 19,803 oz. Ag from 425,866 tons of ore milled<sup>2</sup>. All production came from above the 1900-foot level<sup>6</sup>. Gold was present in quartz veins cutting volcanic rocks which in stoped sections averaged two feet in thickness<sup>6</sup>.

Sulphides: A brecciated pyrite zone in intermediate to mafic volcanic rocks has been traced for over two and one half miles along strike in the northern part of Summers Township. Drilling of this zone on the Freeport Sulphur property indicates a grade of about 15 percent sulphur over an average width of 80 feet<sup>7</sup>. Exploration for sulphides along and below the pyrite zone-d diabase sheet contact by deep diamond drilling may be warranted.

Abundant sulphide zones with pyrite, arsenopyrite, chalcopyrite, and magnetite occur south and southwest of Beardmore. A graphitic zone with pyrite nodules and minor chalcopyrite was found by the field party in the Blackwater River south of Beardmore.

Iron: Iron formation near the Leitch Mine consists of jasper and hematite with minor magnetite. A deposit, 1,200 feet long and 50 feet wide, on AL414, Eva Township, has been reported to contain 3.5 million tons, to a depth of 600 feet, averaging 33.5 percent Fe, 0.118 percent P, 0.01 percent S and 43.5 percent SiO<sub>2</sub><sup>8</sup>. An additional 5 million tons averaging 30 percent Fe was outlined on AL416<sup>8</sup>.

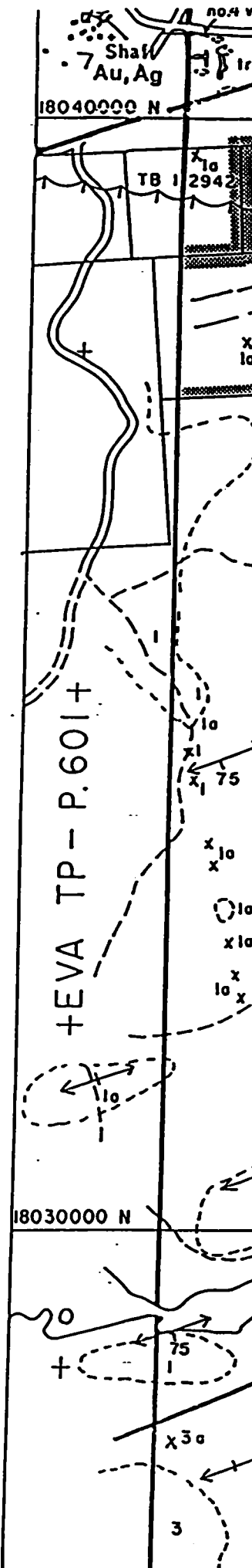
Iron formation extends east-northeast across the central part of the map-area and consists of thin bands of jasper and magnetite. Exposures from a few feet up to 60 feet wide were observed by the field party. Widths of up to 550 feet have been reported and a sample taken over 82 feet averaged 30.06 percent Fe<sup>8</sup>.

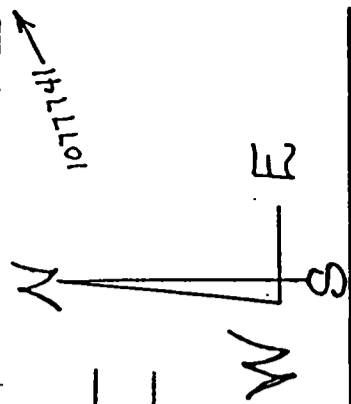
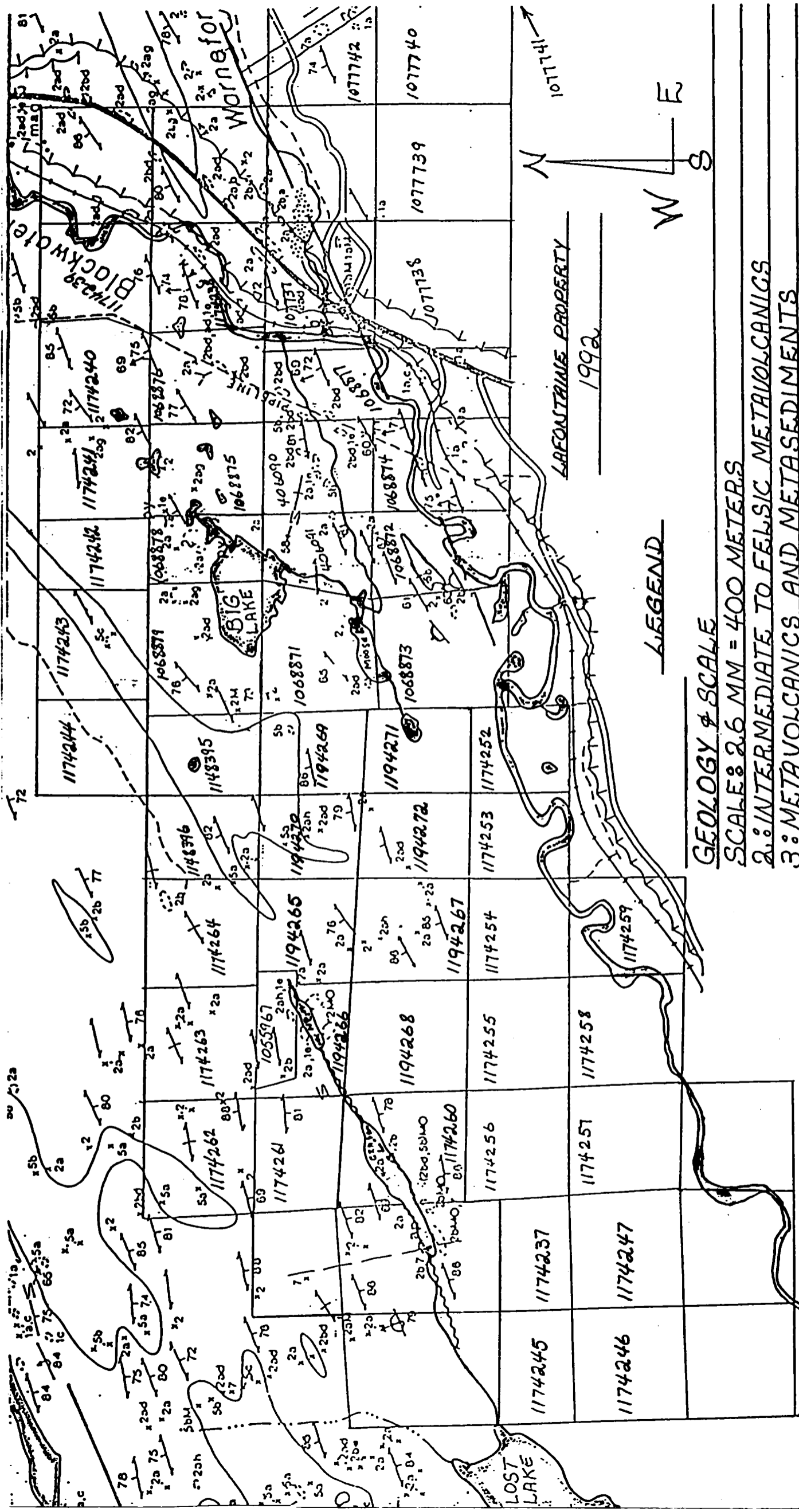
Sand and Gravel: Thick deposits of sand and gravel occur in the central part of the map-area. The Ontario Department of Highways maintains gravel reserves in Summers Township.

#### References:

1. Horwood, H.C. 1948: General structural relationships of ore deposits in the Little Long Lac-Sturgeon River area; in Structural Geology of Canadian Ore Deposits; C.I.M.M., p.377-384.

2. Statistical files, Ontario Dept. Mines.





LAFONTAINE PROPERTY  
1992

LEGEND

GEOLOGY & SCALE

SCALE: 2.6 MM = 400 METERS

- 2: INTERMEDIATE TO FELSIC METAVOLCANICS
- 3: METAVOLCANICS AND METASEDIMENTS
- 5: METAMORPHOSED FELSIC INTRUSIVE AND MIGMATITIC ROCKS
- 7: MAFIC INTRUSIVE ROCKS



1992

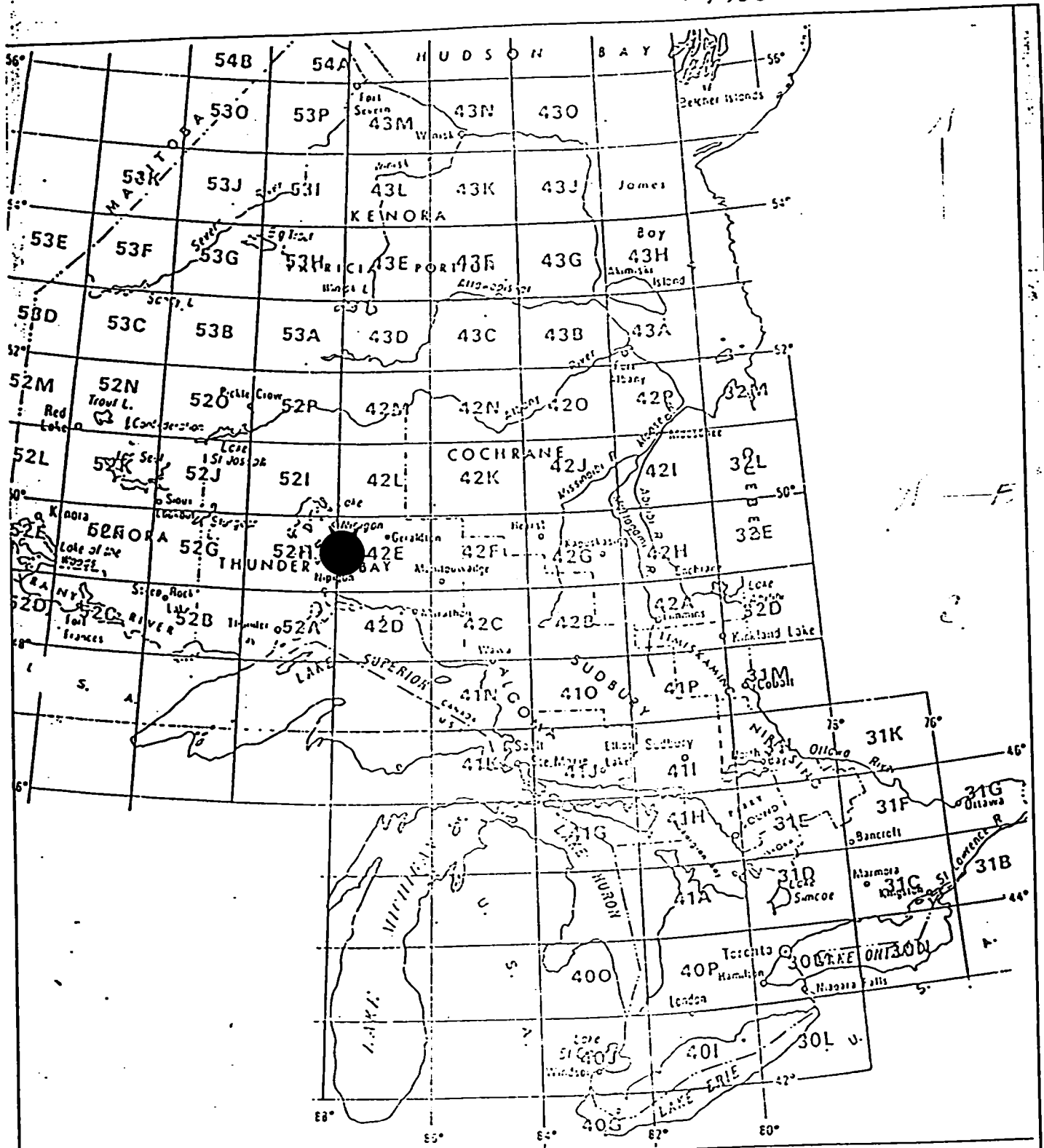


FIGURE 1. Location Map

● LAFONTAINE PROJECT  
SUMMERS TOWNSHIP

