



1993 WORK REPORT  
of the  
LAFONTAINE MINERALS PROPERTY  
in  
SUMMERS TOWNSHIP

CURRENT WORK:

The bulk of the work was carried out and focused mainly in the areas of where the mechanical strippings numbered 1, 2, 3, 4, 5 and 6 are shown on the enclosed map.

DIMENSIONS OF THE STRIPPINGS:

- NO.1: 120m wide by 140m long by 1½m deep.
- NO.2: 15m wide by 180m long by 1½m deep.
- NO.3: 15m wide by 220m long by 2m deep.
- NO.4: 15m wide by 100m long by 2m deep.
- NO.5: 15m wide by 280m long by 1½m deep.
- NO.6: 15m wide by 200m long by 1½m deep.

DESCRIPTION OF FINDINGS:

(Within the mechanical strippings)

- NO.1: During our 1991 prospecting program, we discovered a major 200 feet wide shear zone carrying high grade gold on mining claims NO.1068871 and NO.1068879. Additional stripping was carried out this year on this zone to expose an additional length of 140 meters and an additional width to the north of 15 meters. Widespread mineralization within this zone consists of gold, magnetite, arsenopyrite, pyrite, pyrrhotite and chalcopyrite which are disseminated throughout the system as a whole. The rock type is altered metavolcanics.
- NO.2: Some alteration and fracturing of the metavolcanics is evident. The mineralization is pyrite.
- NO.3: Here we located a highly altered zone, approximately 10 meters wide, within the metavolcanics. Visual examination of the rock shows mainly pyrite and very little arsenopyrite.
- NO.4: Some alteration and fracturing of the metavolcanics is evident. The mineralization is pyrite which is disseminated throughout the rock.
- NO.5: Toward the north end of this stripping, an iron formation was exposed in a cedar swamp. This iron formation is approximately 2 meters wide. It is heavily mineralized with pyrite and is within the metavolcanics. Halfway down toward the south end of

this stripping is a 5 meters wide sulphide zone which is well exposed. The mineralization consists mainly of pyrite and some magnetite which are all within the metavolcanics. The south end of the mechanical stripping exposes another showing situated on a high ridge. This showing is approximately 10 meters wide and is within the metavolcanics. The mineralization consists of pyrite, pyrrhotite and magnetite.

NO.6: A sulphidized shear, approximately 15 meters wide, has been well exposed by the mechanical stripping. This zone is within the metavolcanics. It is heavily mineralized with pyrite, pyrrhotite and magnetite.

RECOMMENDATIONS:

NO.1: Mechanical stripping should continue to the north of this 200 feet wide shear zone. After closely examining this summer's exposure of the rock, we found that this zone continues to the north and north-west.

NO.5: The 2 meter wide iron formation toward the north end of the mechanical stripping should be blasted and sampled for gold. The other iron formation of this type on this property has shown some values.

The other area that needs to be followed up on is mining claim NO.1174260. The south-west corner contains a showing which is approximately 7 meters wide and is within a metavolcanic setting. The mineralization consists of gold, pyrite and arsenopyrite. The arsenopyrite crystals are well formed and evenly distributed throughout the rock making it kind of unique in appearance.

The other area that should be tested is centered south of the NO.1 post of mining claim NO.1174246. Chalcopyrite and pyrite have been found here in a well fractured metavolcanic. This area needs to be mechanically stripped and checked for gold mineralization.

CONCLUSION:

I firmly stand by the merits of this property and plan to carry on with my exploration program during the coming season.

**LAFONTAINE-SUMMERS OCCURRENCE**

The Lafontaine-Summers property is located just west of Beardmore in the southwestern portion of Summers Township. The property is accessible via the waste disposal road on the north edge of town which travels west for 4.5 km to the main occurrence in the central part of the claim group. Prospector Amede Lafontaine of Beardmore has conducted detailed prospecting and completed extensive stripping, trenching and sampling under a 1993 Ontario Prospector Assistance Program (OPAP) grant. Exploration work in the current year has been concentrated across two main shear and iron formation related gold-bearing zones over a 52-claim property.

The southwestern portion of Summers Township was the focus of extensive exploration activity during the 1930s. From 1935 to 1939, a considerable amount of surface work including a 24.4 m (80 feet) shaft and over 3048 m (10 000 feet) of diamond drilling were completed on the Buffalo-Beardmore Gold Mines Ltd. occurrence in the west central portion of the Lafontaine property (northeast corner of present claim TB 1194267). Gold values up to .42 ounce Au per ton across 2.64 m (8.69 feet) associated with quartz veins in heavily mineralized (pyrite and arsenopyrite) banded chert-magnetite iron formation were reported (Resident Geologist's files, Beardmore-Geraldton District, Thunder Bay). Numerous other vein related gold occurrences were discovered and worked during this early period including the Anglo-Beardmore gold mine property (values up to 0.2 ounce Au per ton were reported) along the southern portion of the Lafontaine claims.

Very little activity occurred in the area until 1981 when Gold Field Resources Canada Limited conducted an extensive ground magnetometer and EM survey over much of the north and northwest portions of the property. In 1984, Thorco Gold Finders Ltd. completed detailed geological mapping, stripping trenching, diamond drilling and ground geophysics over the Anglo-Beardmore occurrences. Following an airborne magnetometer and EM survey conducted by Legion Resources Ltd. beginning in 1986, the property was subsequently optioned by Golden Dragon Resources Ltd. in 1989 as part of a larger package of ground extending westward across two townships into Lake Nipigon. Geological mapping, stripping, trenching and ground EM and IP geophysical surveys were completed. Since this time, prospector Amade Lafontaine has conducted an airborne magnetometer and EM survey and completed extensive ground work over what is now a 52-claim property in southwestern Summers Township.

The Lafontaine-Summers occurrence lies entirely within the thickest western portion of the southern metavolcanic sub-belt which is part of the main Beardmore-Geraldton Belt. It is situated immediately southwest of the former Northern Empire Mine which produced over 149 000 ounces of gold from 1934 to 1941 along the same belt of iron tholeiites. Township mapping by both Mackasey in 1969 (preliminary map No. 602) and more recently by Shanks in 1990 (OFM 141, Geology of Eva and Summers Townships) indicate the presence of two fault or shear zone systems trending east northeasterly across the property. These are identified locally on the property and extensive work by the property owner

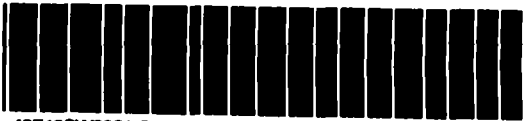
has divided the area into three horizons: the central gold-bearing horizon bounded to the south by the Blackwater River fault (southern horizon) and to the north by what has been named the Arsenopyrite fault (northern horizon).

The main gold occurrence is located within the gold bearing horizon within highly sheared, and in places highly folded, carbonate altered mafic metavolcanic rocks. The zone is exposed in a stripped area 60 m by 50 m wide striking 74° AZ and dipping 85° to the north. According to the property owner, strong shearing can be traced across strike in this area for over 160 m. The sheared metavolcanics contain rounded quartz knots averaging 1 cm in size as a result of a boudinaged fragmented quartz vein network prominent throughout the occurrence. Rusty carbonate alteration and highly altered sugary quartz is associated with fine disseminations and massive seams of pyrite up to 1 cm, coarse euhedral blades of arsenopyrite (up to 5 mm) and lesser amounts of pyrrhotite and chalcopyrite. The total sulphide content ranges from 7 to 10%. Horizons containing 2 to 3% euhedral magnetite phenocrysts were also noted. The mafic metavolcanic host rock is moderately silicified throughout the exposure.

Further exploration 2 km to the southwest of the main occurrence within the southern horizon uncovered a banded, highly folded, sulphide magnetite iron formation. The zone is expressed as a highly weathered, strongly gossaned iron formation outcrop containing bands of recrystallized chert, massive to granular magnetite with disseminations, patches and massive seams of

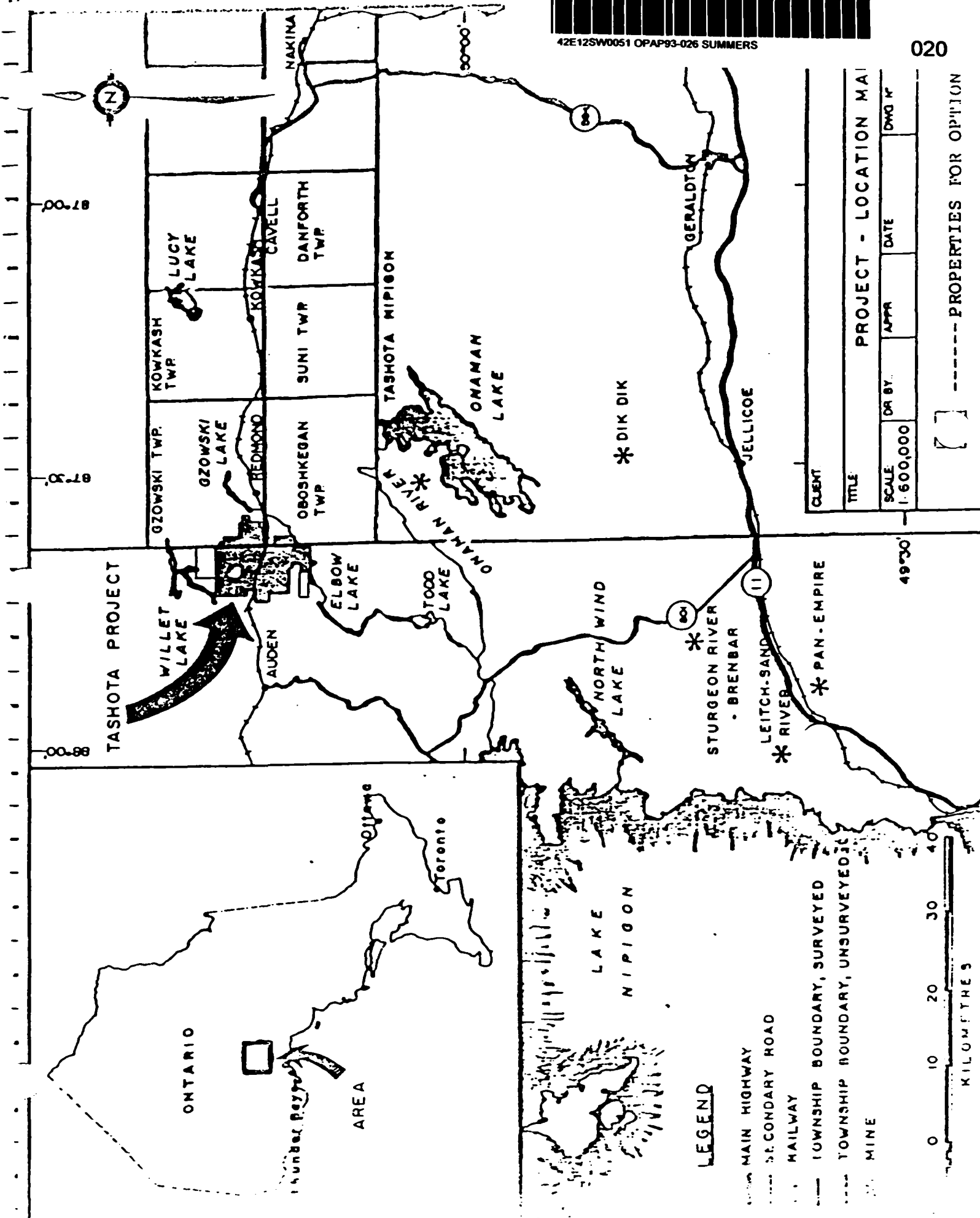
pyrrhotite and pyrite up to 40% in places. Total sulphide content averages 10 to 15%. The host mafic metavolcanic rock is highly sheared and strongly deformed into tight folds near the most heavily mineralized sections. Indications of extensive sulphide mineralization along an 800 m long stripped zone stretching north from this location was observed by the author. Geochemical results for samples collected during a recent trenching program conducted by the property owner along the iron formation zone were not available at the time of writing.

Selected grab samples from the main zone in the central horizon assayed from 0.09 to 0.42 ounce Au per ton with one sample returning a value of 1.03 ounce Au per ton (A. Lafontaine, Prospector, personal communication, 1993).



42E12SW0051 OPAP93-026 SUMMERS

020



TASHOTA PROJECT



WILLET LAKE

AUDEN

ELBOW LAKE

STOOD LAKE

GZOWSKI TWP.

GZOWSKI LAKE

KOWKASH TWP.

LUCY LAKE

SUNI TWP.

DANFORTH TWP.

KOWKASH CAVELL

NAKINA

TASHOTA NIPIGON

ONAMAN LAKE

ONAMAN RIVER

\* DIK DIK

GERALDTON

JELlicoe

NORTH WIND LAKE

STURGEON RIVER - BRENBAR

LEITCH-SAND RIVER

\* PAN-EMPIRE

ONTARIO



Humber River

AREA

Toronto

LAKE NIPIGON

LEGEND

MAIN HIGHWAY

SECONDARY ROAD

RAILWAY

TOWNSHIP BOUNDARY, SURVEYED

TOWNSHIP BOUNDARY, UNSURVEYED

MINE

0 10 20 30 40

KILOMETRES

CLIENT

TITLE

SCALE 1:600,000

DR BY

APPR

DATE

DWG N°

PROJECT - LOCATION MA

----- PROPERTIES FOR OPINION

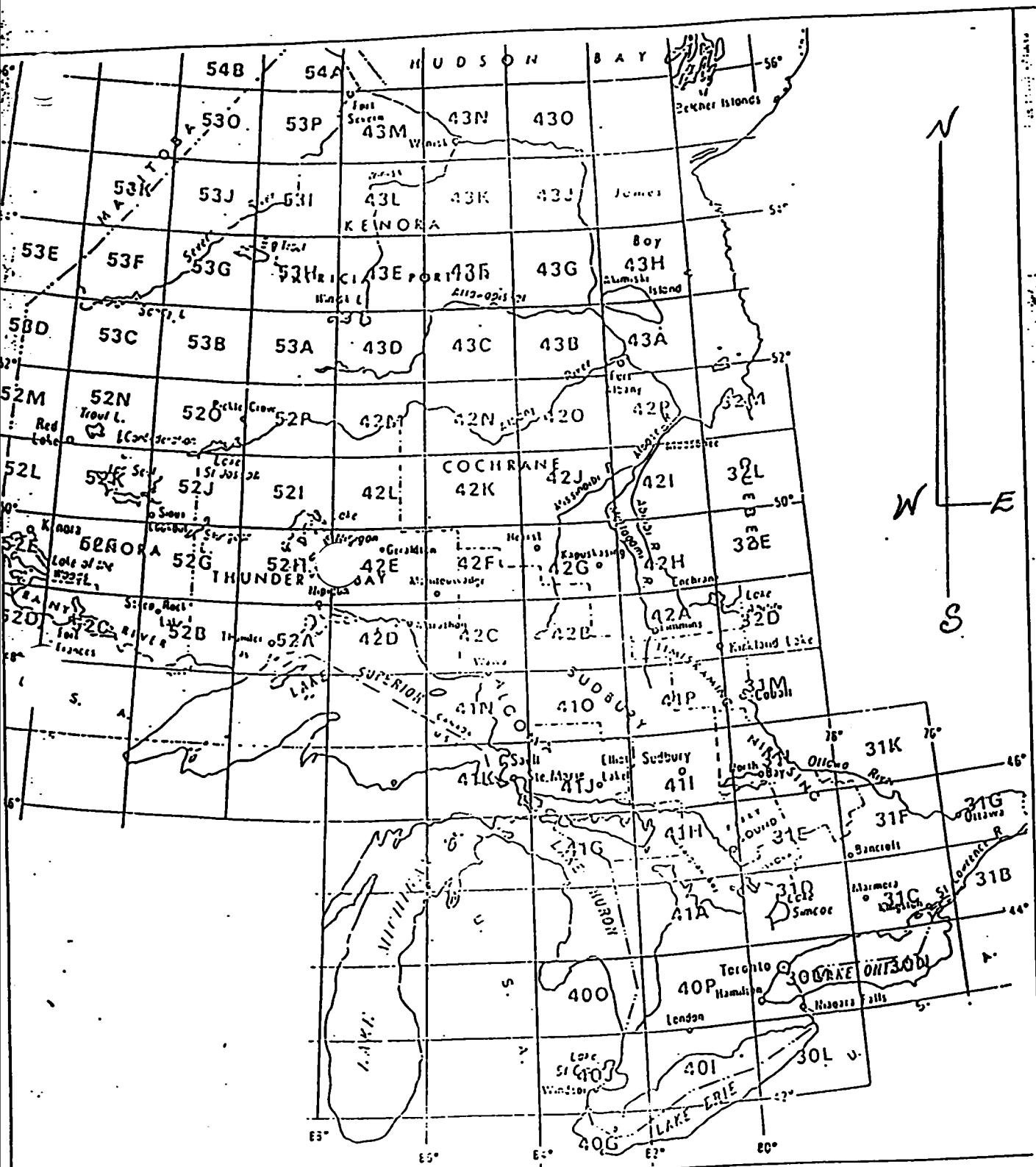
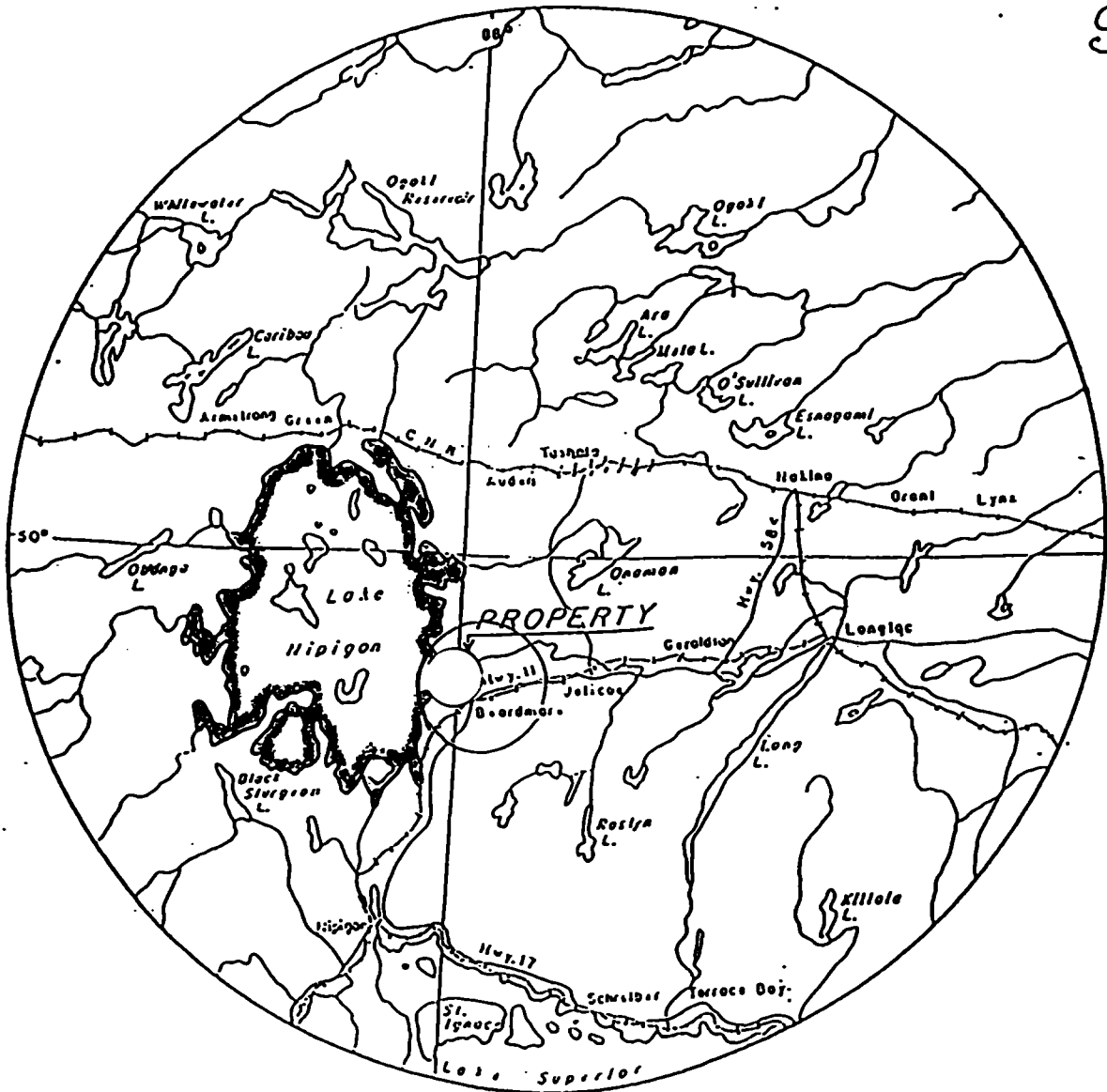
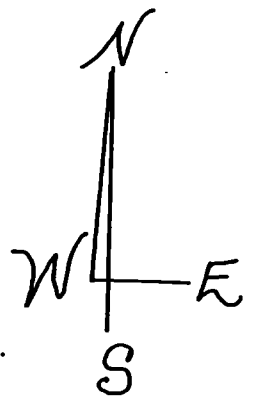


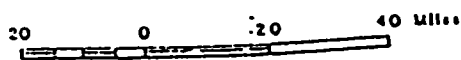
FIGURE 1. Location Map  
 of **LAFONTAINE PROJECT**  
**SUMMERS TOWNSHIP**

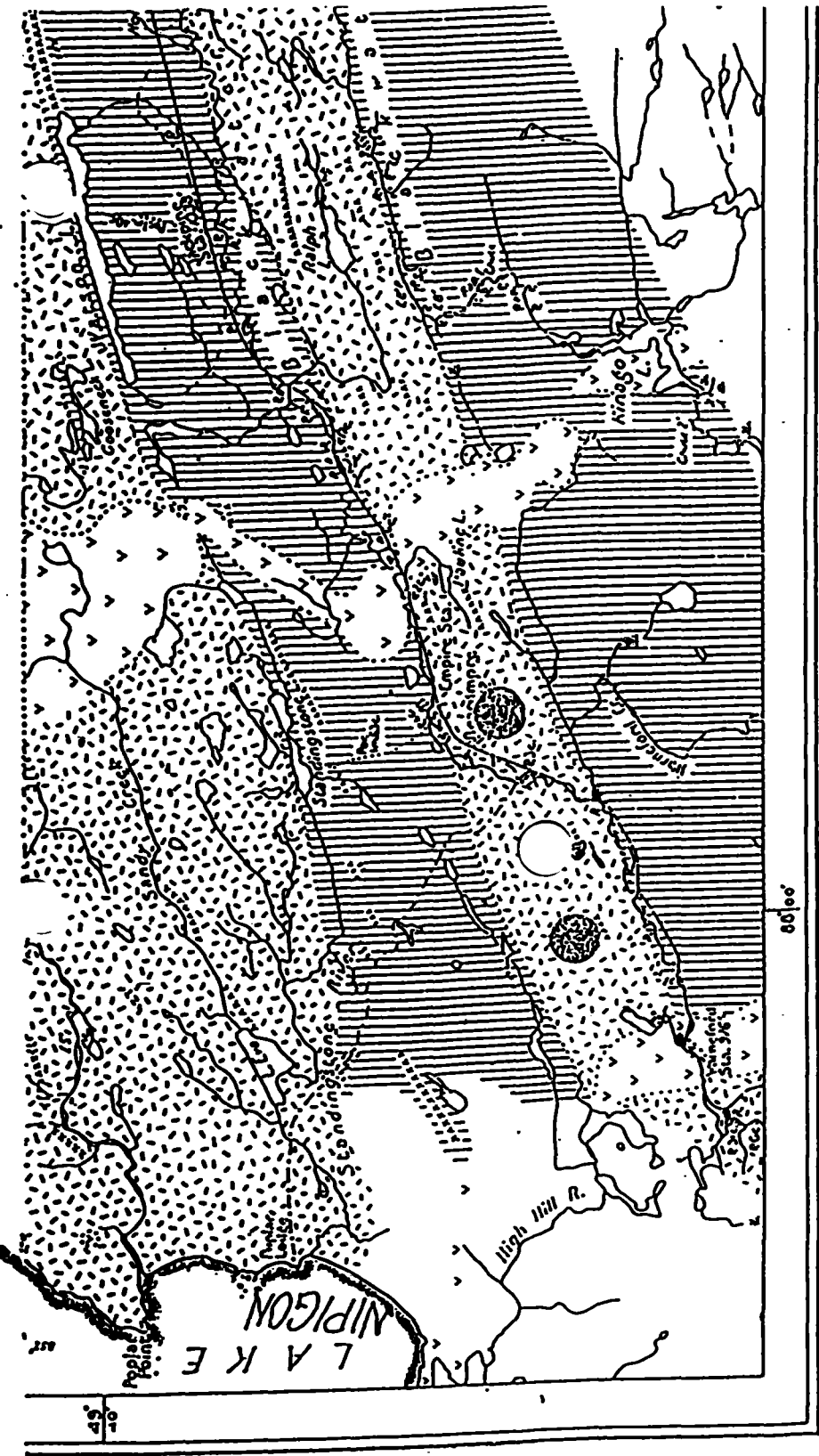
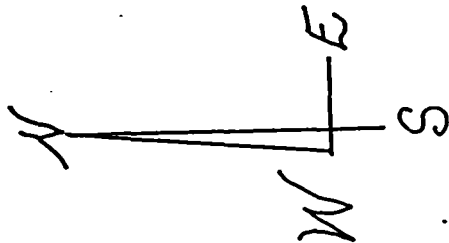


# LOCATION MAP






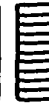






SCALE 1:2,000,000








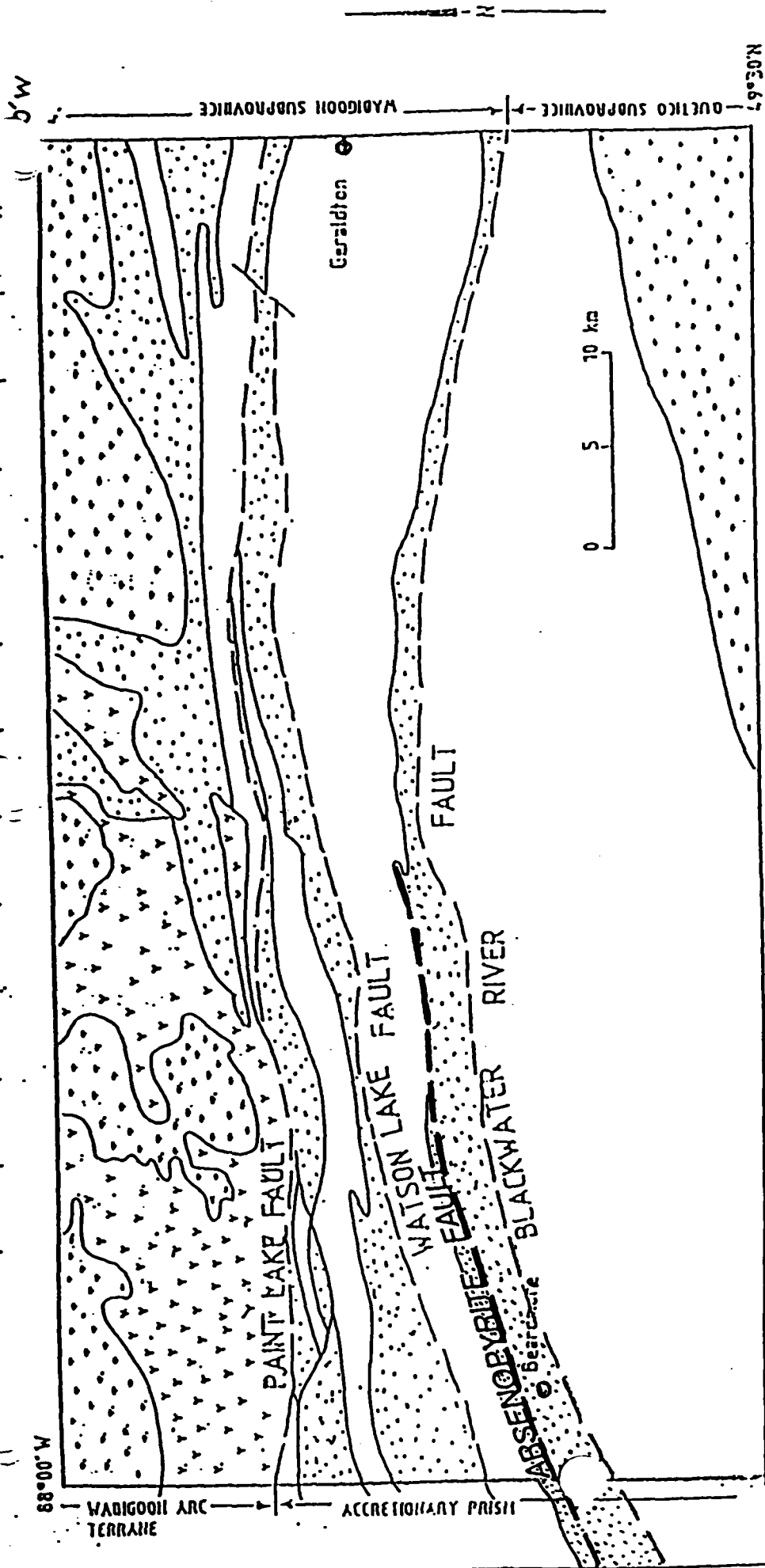
# NAMEWAMI

## LEGEND

-  Keweenaw
-  Acid Intrusives
-  Timiskaming
-  Keewatin
-  *Diabase.*
-  *Gabbro.*
-  *Porphyry.*
-  *Cryochite, silts and conglomeratic.*
-  *Serpentine etc.*
-  *Iron formation (Keweenaw and Timiskaming).*

-  - Prospect (12-S)
-  - Prospect (16-S)
-  - Prospect (17-S)





ARCHEAN

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

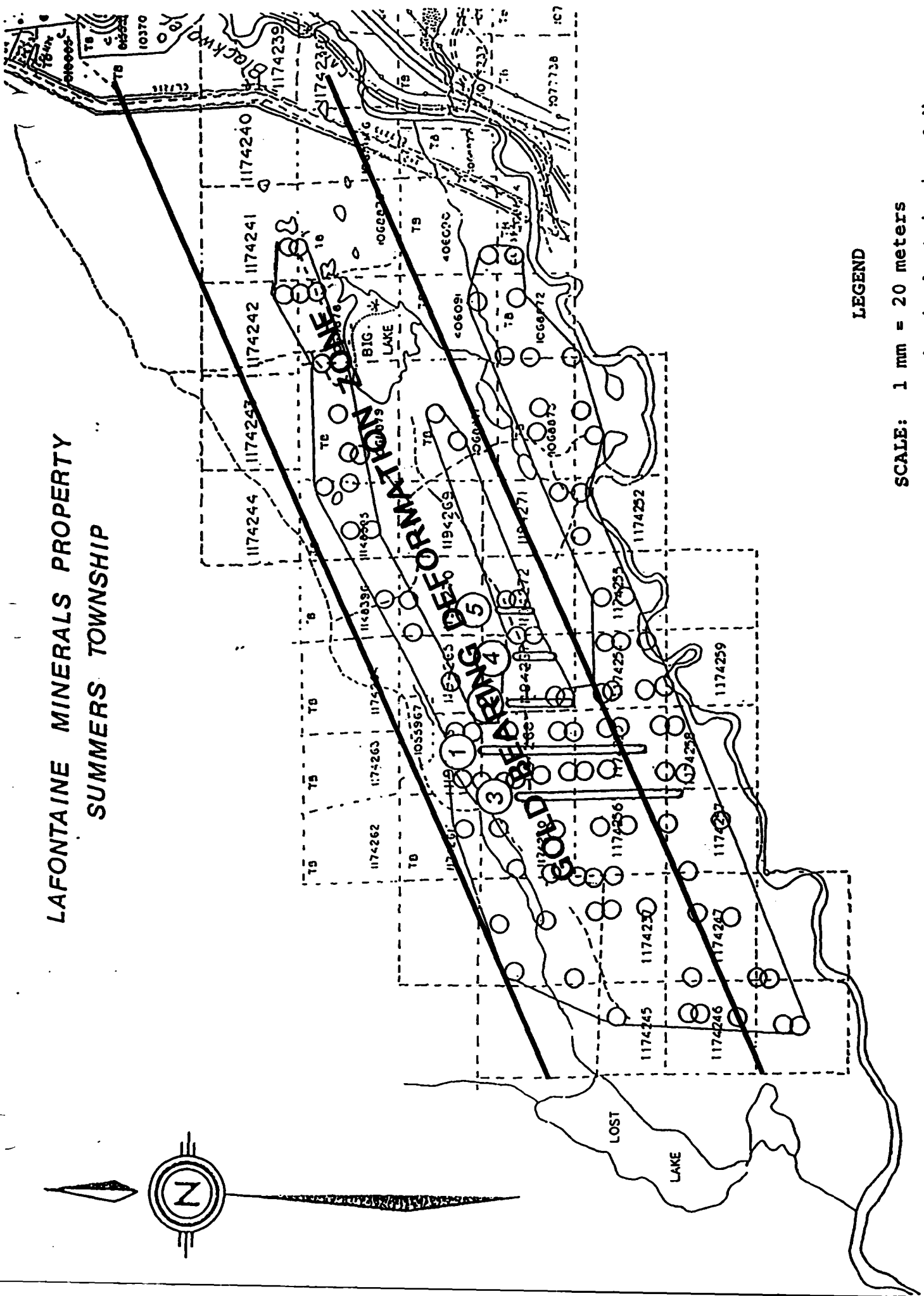
Fault

Geological Boundary

LAFONTAINE MINERALS PROPERTY  
SUMMERS TOWNSHIP

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

LAFONTAINE MINERALS PROPERTY  
SUMMERS TOWNSHIP



LEGEND

- SCALE: 1 mm = 20 meters
- : Mechanical stripping & No.
- : Tractor trail

**GEOLOGICAL REPORT**  
of the  
**LAFONTAINE MINERALS PROPERTY**  
in  
**SUMMERS TOWNSHIP**

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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. Reminent 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.

There are numerous conductors which are parallel linear trends 250 meters and 150 meters respectively south of the Long Bear 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.

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.

WORK REPORT  
of the  
LAFONTAINE MINERALS PROPERTY  
in  
SUMMERS TOWNSHIP

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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.



## Gold

### i) Beardmore-Geraldton Belt:

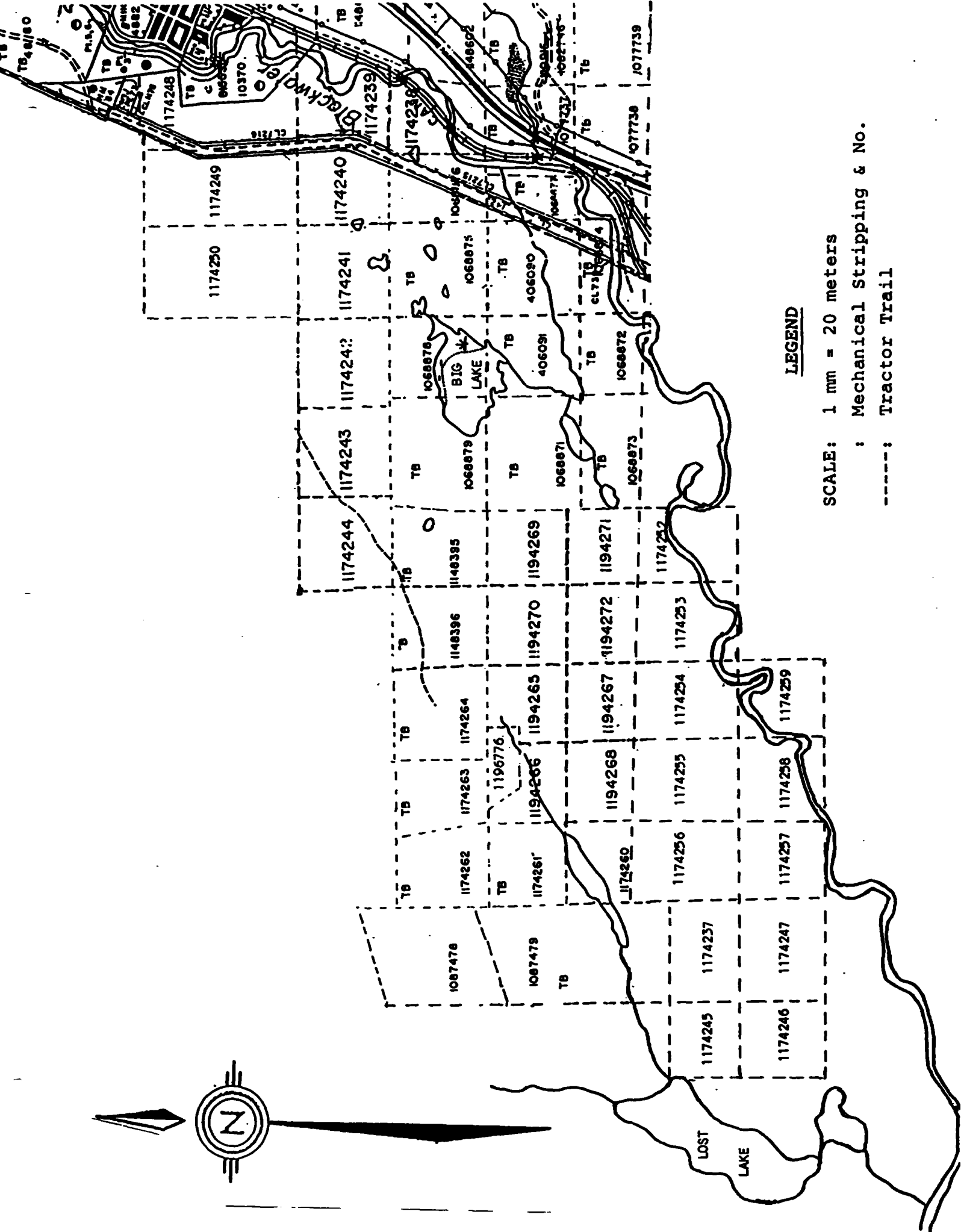
Relative to other gold producing regions in the province, Beardmore-Geraldton is a young camp having commenced production in the mid-1930's. The Beardmore-Geraldton-Longlac-Tashota-Onaman gold area has produced an estimated 4 373 300 ounces of gold from at least 24 operations in the district (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

Gold mineralization within the belt occurs primarily as fracture filling quartz veins and pyritic replacement in iron formation. Gold occurs in quartz (carbonate) veins as coarse free gold or as fine microinclusions associated with arsenopyrite, pyrite, pyrrhotite and scheelite. Sulphides, including arsenopyrite, pyrite, pyrrhotite and chalcopyrite, occur as vein-related replacement minerals within quartz veins or within bedded chert-magnetite iron formation hosted in wacke-siltstone-argillite sequences of the Southern metasedimentary sub-belt.

Structurally, favourable areas in the Beardmore-Geraldton belt are fracture zones, fold noses, contacts between rock type and axial planes.

### ii) Onaman-Tashota Belt:

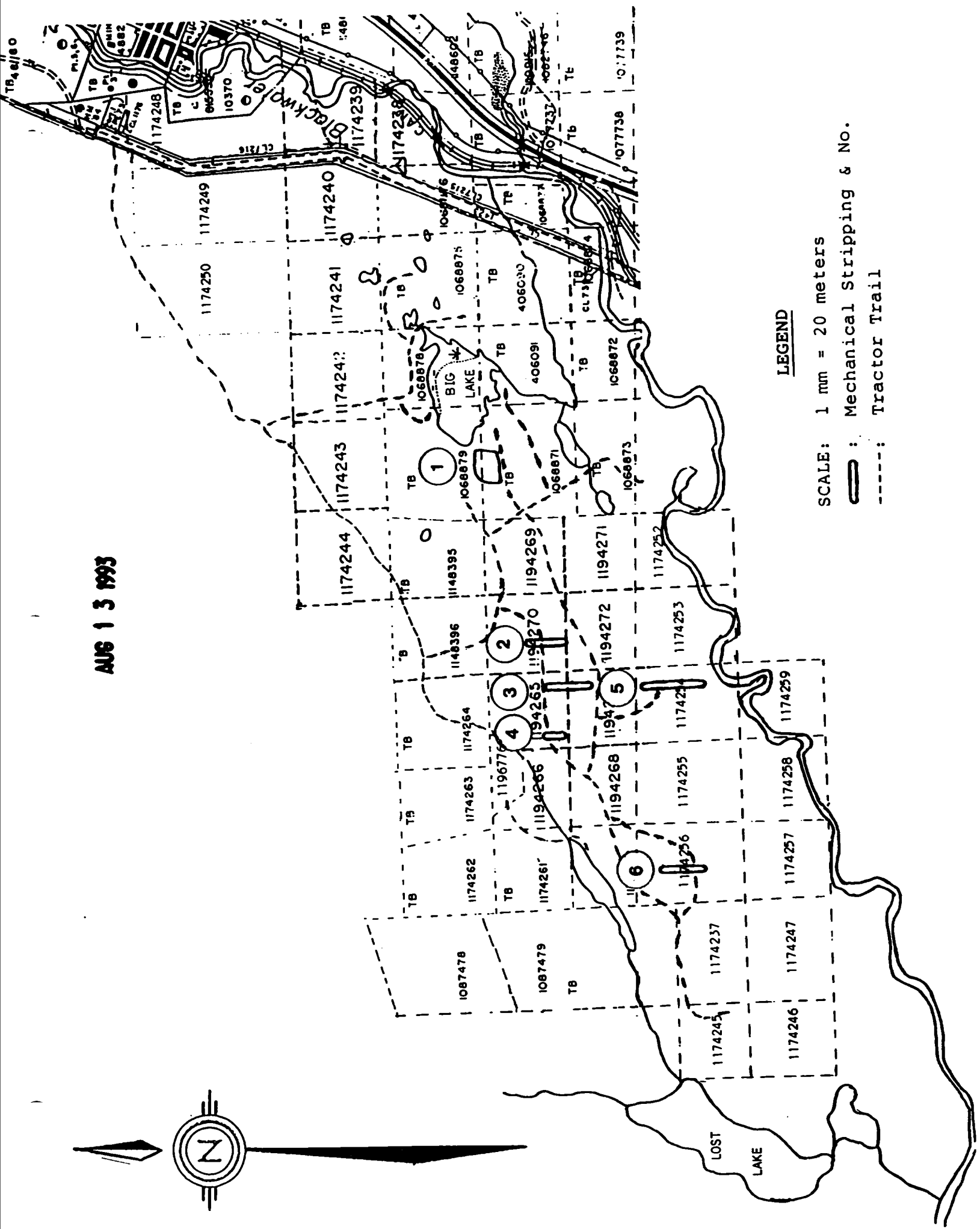
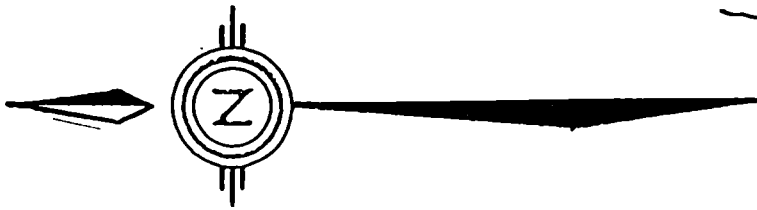
Gold is hosted in three environments (Patterson et al., 1987): (1) vein type deposits; (2) chemical metasedimentary type deposits; and (3) shear disseminated type deposits.



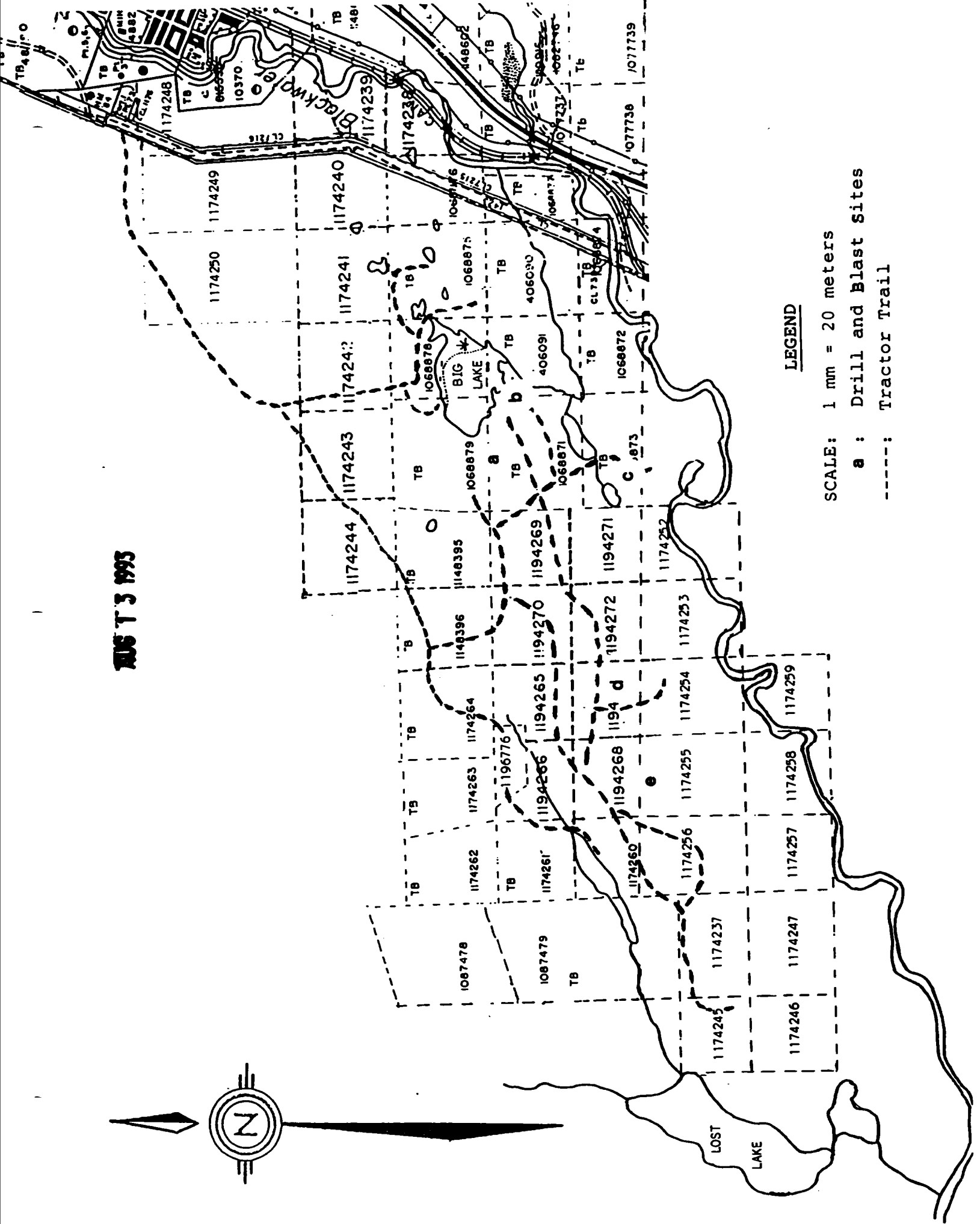
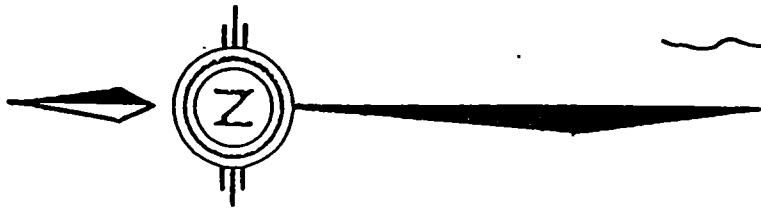
**LEGEND**

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

AUG 13 1993



AUG 13 1993



**LEGEND**

SCALE: 1 mm = 20 meters

**a** : Drill and Blast Sites

-----: Tractor Trail

## DRILL AND BLAST SITES

SITE a: (Consists of 10 locations)

<u>LOCATION No.</u>	<u>DIMENSION OF TRENCH BLASTED IN ROCK</u>
1 .....	3.2 meters X 2.0 meters X .5 meters
2 .....	4.5 meters X 2.0 meters X .5 meters
3 .....	4.5 meters X 2.0 meters X .5 meters
4 .....	2.0 meters X 2.0 meters X .5 meters
5 .....	2.0 meters X 2.0 meters X .5 meters
6 .....	1.0 meters X 2.0 meters X .5 meters
7 .....	1.0 meters X 2.0 meters X .5 meters
8 .....	5.0 meters X 2.0 meters X .5 meters
9 .....	1.0 meters X 2.0 meters X .5 meters
10.....	6.0 meters X 2.0 meters X .5 meters

SITE b: (Consists of 1 location)

<u>LOCATION No.</u>	<u>DIMENSION OF TRENCH BLASTED IN ROCK</u>
1 .....	6.0 meters X 2.0 meters X .5 meters

SITE c: (Consists of 1 location)

<u>LOCATION No.</u>	<u>DIMENSION OF TRENCH BLASTED IN ROCK</u>
1 .....	6.0 meters X 2.0 meters X .5 meters

SITE d: (Consists of 1 location)

<u>LOCATION No.</u>	<u>DIMENSION OF DRILLING IN ROCK</u>
1 .....	22.0 meters X 1.0 meters X .5 meters

SITE e: (Consists of 7 locations)

<u>LOCATION No.</u>	<u>DIMENSION OF TRENCH BLASTED IN ROCK</u>
1 .....	25.0 meters X 2.0 meters X .5 meters

<u>LOCATION No.</u>	<u>DIMENSION OF DRILLING IN ROCK</u>
2 .....	6.0 meters X 1.0 meters X 1.0 meters
3 .....	4.0 meters X 1.0 meters X 1.0 meters
4 .....	2.0 meters X 1.0 meters X 1.0 meters
5 .....	6.0 meters X 1.0 meters X 1.0 meters
6 .....	4.0 meters X 1.0 meters X 1.0 meters
7 .....	2.0 meters X 1.0 meters X 1.0 meters

BITE



#5  
0  
#6  
0  
#7  
0

#4  
0

#1  
0  
#3  
0  
#2  
0

0.130 OUNCES GOLD/TON

#8  
0

0.090 OUNCES GOLD/TON

#9  
0

#10  
0

0.422 OUNCES GOLD/TON

LEGEND

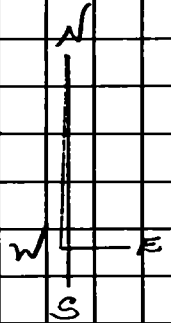
SCALE 3/4 MM = 0.76 METERS

000'S DRILLED + BLASTED

0° DRILLED NOT BLASTED

SITE

b



0.013 OUNCES GOLD/TON #21

0.01 OUNCES GOLD/TON #22

0.01 OUNCES GOLD/TON #23

LEGEND

SCALE 1 MM = 0.06 METERS

⊖ : DRILLED & BLASTED

○ : DRILLED NOT BLASTED

SITE

①

AN  
OR/TON

<0.001 #11

<0.001 #12

0.007 #13

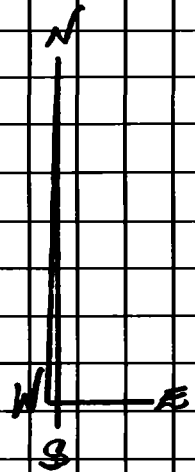
<0.001 #14

0.032 #15

0.006 #16

<0.001 #17

<0.001 #18



LEGEND

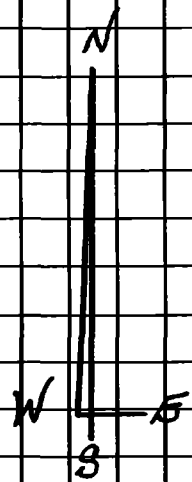
SCALE 1 MM = 0.13 METERS

① & DRILLED & BLASTED

○ & DRILLED NOT BLASTED



SITE



LEGEND

SCALE : 1 MM = 0.16 METERS

 : DRILLED & BLASTED

 : DRILLED NOT BLASTED

SITE



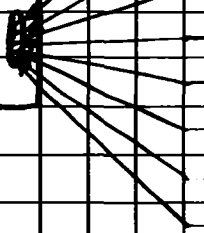
AD  
OZ/TON

0  
0  
0



TRACTOR TAIL

0  
0  
0



- <0.001 # 24
- <0.001 # 25
- <0.001 # 2A
- 0.003 # 27
- 0.005 # 28
- 0.002 # 29
- <0.001 # 30
- 0.002 # 31

LEGEND

- SCALE : 1 MM = 3.57 METERS
- : DRILLED & BLASTED
- : DRILLED NOT BLASTED



# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers  
5175 Timberlea Blvd., Mississauga,  
Ontario, Canada L4W 2B3  
PHONE: 416-624-2806

INCO EXPLORATION & TECHNICAL SERVICES INC.

851 FIELD ST.  
THUNDER BAY, ON  
P7B 6B6

Project: 60301-50001  
Comments: ATTN: R.C. (BOB) BELL

Page N° 97 : 1  
Total r : 1  
Certif. Date: 28-JUN-93  
Invoice No. : 19315806  
P.O. Number :  
Account : GFV

## CERTIFICATE OF ANALYSIS A9315806

SAMPLE	PREP CODE	AN OR/T	AG PPM	AS PPM	BI PPM	CU PPM	IG PPM	MO PPM	Pb PPM	Sb PPM	Zn PPM
2X 212664	205 274	0.013	0.2	8060	< 2	163	< 1	< 1	6	6	50
2X 212665	205 274	0.422	0.6	>10000	< 2	389	< 1	< 1	6	4	110
<p>#31</p> <p>SITE b</p> <p>SITE a #10 = 0.422</p>											

*Handwritten signature*

CERTIFICATION:



Ontario

Ministry of  
Northern Development  
and Mines

Ministère du  
Développement du Nord  
et des Mines

June 29, 1993

Mr. Amede Lafontaine  
P.O. Box 36  
Beardmore, ON P0T 1G0

Dear Amede:

The following are gold assay results for two samples from your Summers Township property that we received from you in early June. The copper/zinc results will follow shortly.

Sample No.	Au (oz/ton)	
93-MAL-1 (Sample #1)	<0.01	SITE b # 22
93-MAL-2 (Sample #2)	<0.01	SITE b # 23

Sincerely,

Gerry White  
Staff Geologist  
Beardmore-Geraldton District  
Mines and Minerals Division  
Ministry of Northern Development and Mines  
435 S. James St., Suite B002  
Thunder Bay, ON P7E 6E3  
Tel. (807)475-1331

GW/clk

# KEFIELD RESEARCH

A Division of Falconbridge Limited

P.O. Box 4800, 195 Concession St., Lakeland, Ontario, K0L 2H0

Phone : 705-882-2000

FAX : 705-882-8385

J. Stewart Robertson  
188 Dundas St. E.  
Toronto, Ontario, ---

Fax : (613) 392-3521

*FOR A-LA-CONTAINE*

Lakeland, June 22, 1993

Date Rec. : June 14, 1993

LR. Ref. : JUN9043.C93

Reference : ---

Sample : (18) Routine Pulp

Project : LR9342757

## CERTIFICATE OF ANALYSIS

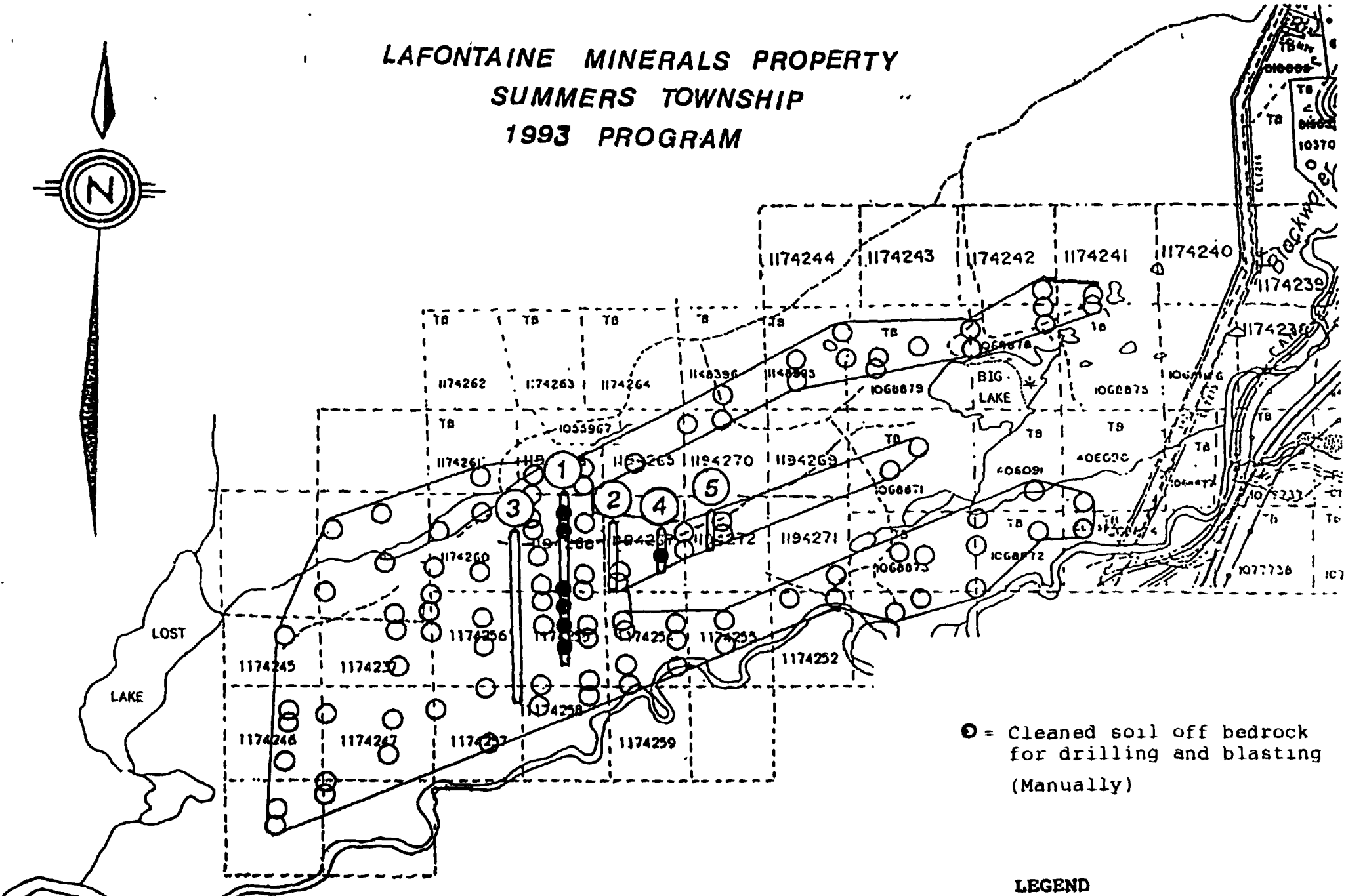
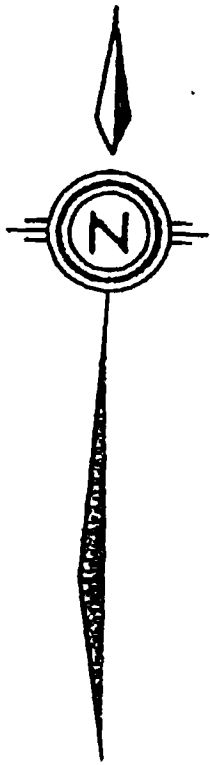
No.	sample ID	As su/t
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2		< 0.001 SITE C # 25
3		< 0.001 SITE C # 26
4		0.150 SITE Q # 2
5		0.003 SITE C # 27
6		0.005 SITE C # 28
7		0.002 SITE C # 29
8		< 0.001 SITE C # 30
9		0.002 SITE C # 31
10		0.090 SITE Q # 8
11		< 0.001 SITE C # 11
12		< 0.001 SITE C # 12
13		0.007 SITE C # 13
14		< 0.001 SITE C # 14
15		0.032 SITE C # 15
16		0.006 SITE C # 16
17		< 0.001 SITE C # 17
18		< 0.001 SITE C # 18
-- duplicates --		
19		0.139
20		0.008



J. R. Johnston

A MEMBER OF IABTL CANADA

LAFONTAINE MINERALS PROPERTY  
 SUMMERS TOWNSHIP  
 1993 PROGRAM



⊙ = Cleaned soil off bedrock  
 for drilling and blasting  
 (Manually)

LEGEND

- SCALE: 1 mm = 20 meters
- : Mechanical stripping & No.
- : Tractor trail



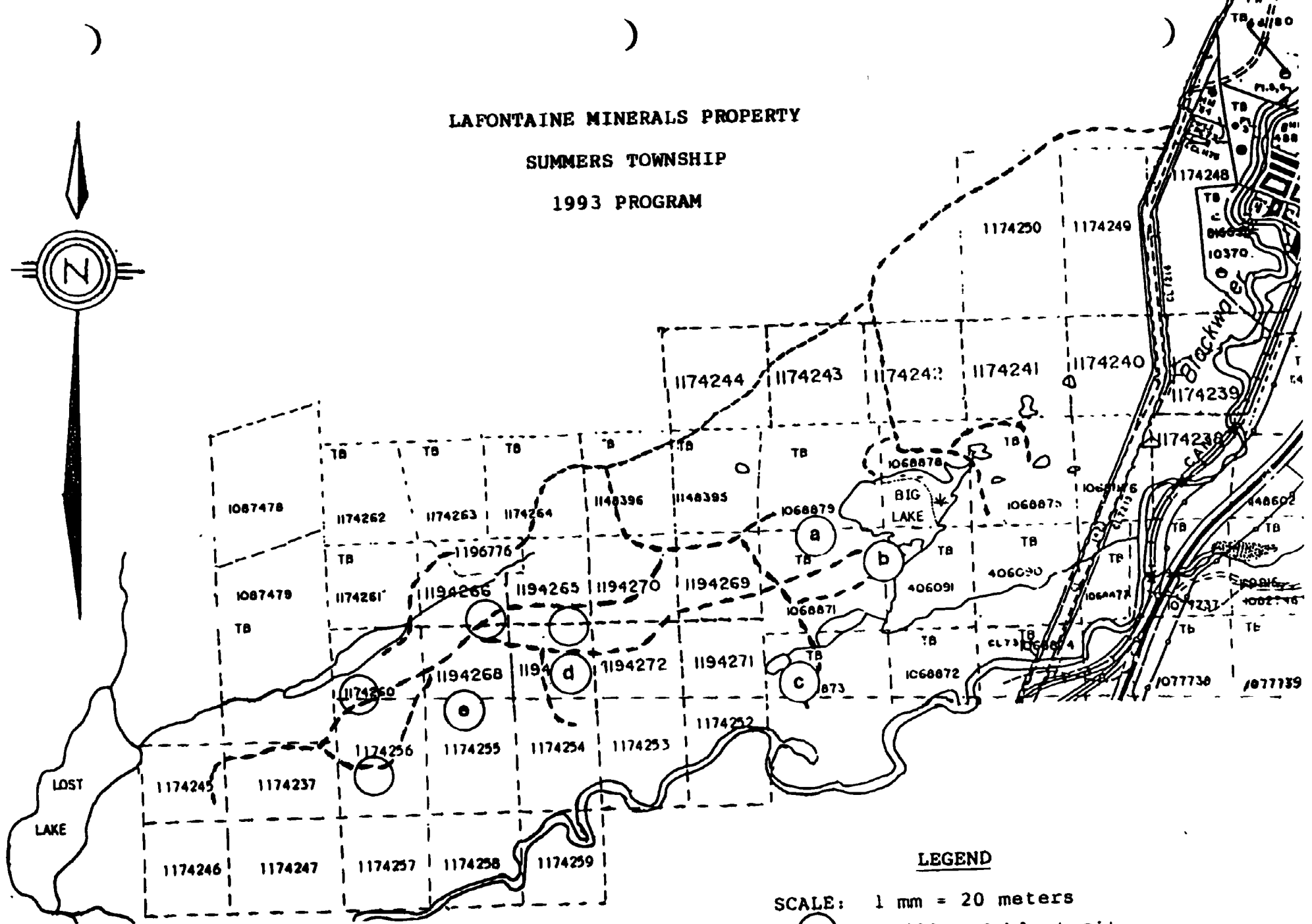
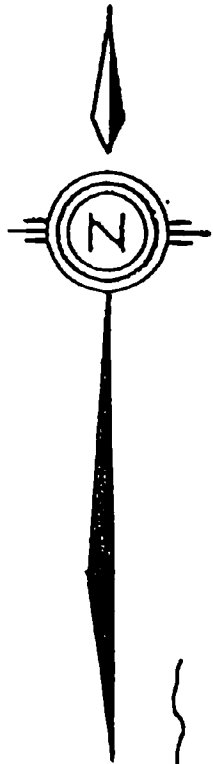
42E128W0051 OPAP03-028 SUMMERS

200

# LAFONTAINE MINERALS PROPERTY



SUMMERS TOWNSHIP

1993 PROGRAM



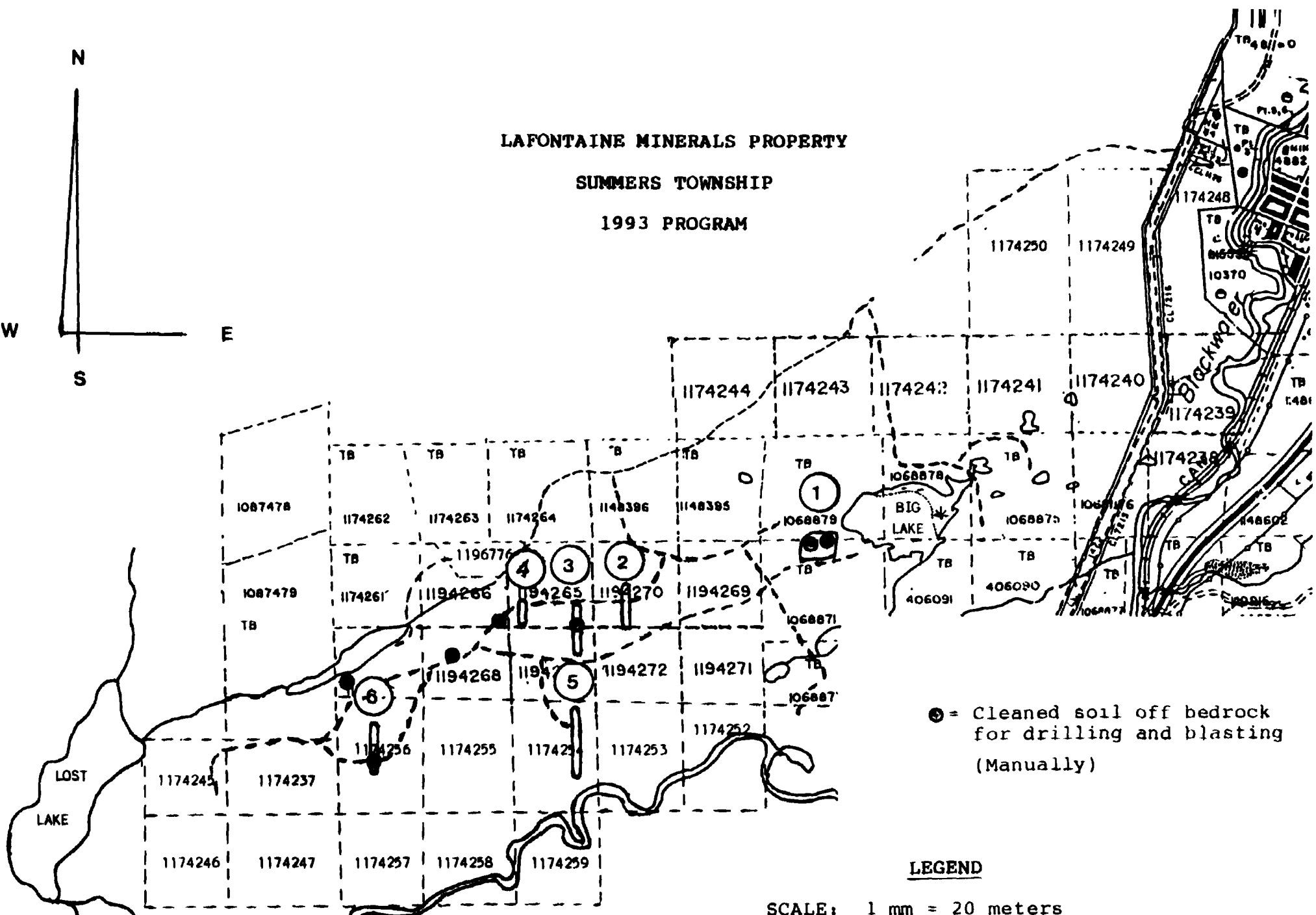
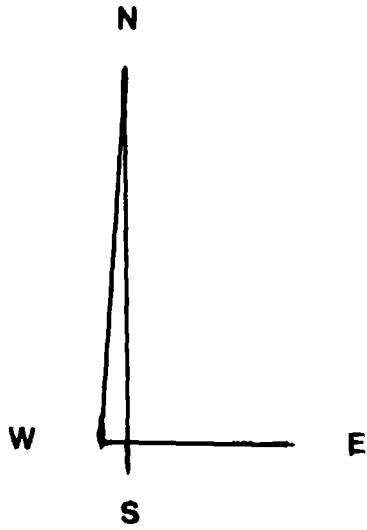
### LEGEND

SCALE: 1 mm = 20 meters

-  : Drill and Blast sites
-  : Tractor Trail



LAFONTAINE MINERALS PROPERTY  
 SUMMERS TOWNSHIP  
 1993 PROGRAM



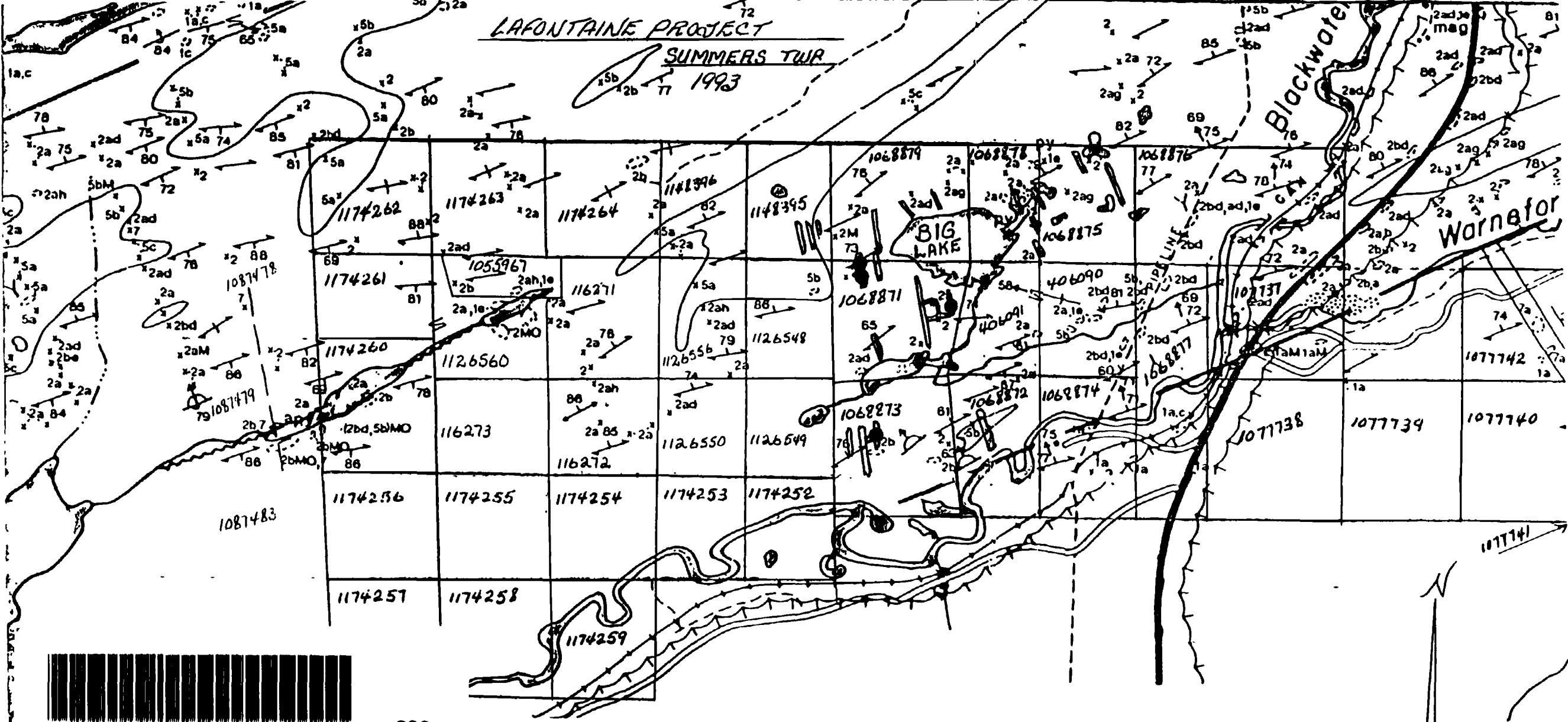
● = Cleaned soil off bedrock  
 for drilling and blasting  
 (Manually)

**LEGEND**

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







LAFONTAINE PROJECT  
 SUMMERS TWP  
 1993



230

- = STRIPPING
- SCALE = 2.6MM = 400 METERS
- 2 = INTERMEDIATE TO FELSIC METAVOLCANICS
- 3 = METAVOLCANICS AND METASEDIMENTS
- 5 = METAMORPHOSED FELSIC INTRUSIVE AND MIGMATITIC ROCKS
- 7 = MAFIC INTRUSIVE ROCKS

● = Cleaned soil off bedrock for drilling and blasting (Manually)

