V.N. Harbinson

Macassa Creek Property

David Lakes
Mishibishu Lake Area

Sault Ste. Marie Mining Division
Ontario

Uldis Abolins P. Eng.
Toronto, Ontario

TABLE O

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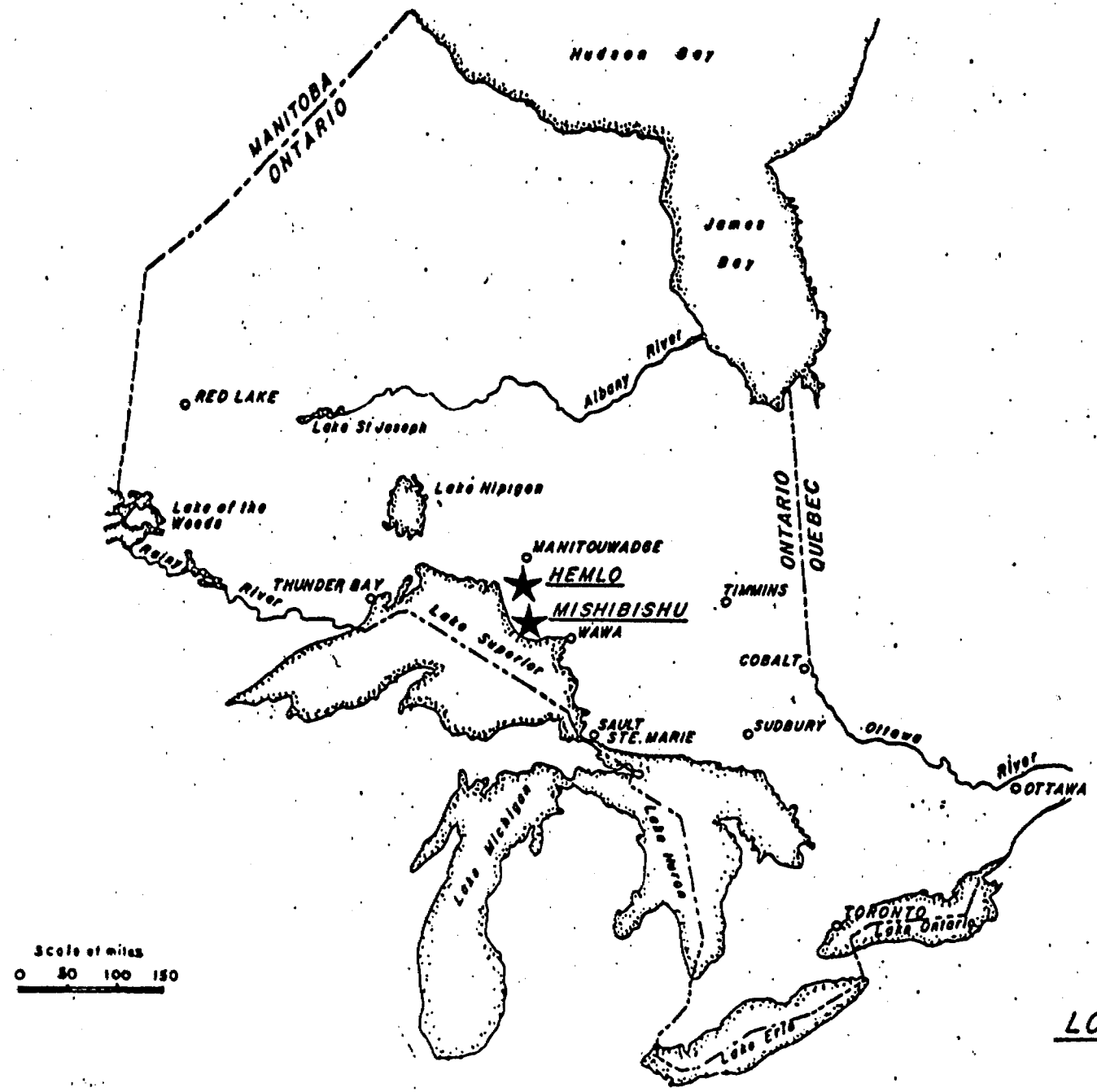
Summary

The 99 claim Macassa Creek property is well located with respect to the Westfield-Windarra-Magnacon gold discoveries some seven miles to the east on the north shore of Mishibish Lake. The gold bearing horizon can be traced onto the northern portion of the Harbinson claims. The interpreted zone is identified by similar geology and conductive zones anomalous in gold on the adjacent Wasabi Resources property. A very similar anomalous zone is present on the south part of the Wasabi property and may represent the south limb of a syncline. Both zones can be traced geophysically and geologically onto the Harbinson property.

It is strongly recommended that an exploration programme consisting of three phases be performed on the Harbinson Macassa Creek property. Phase I should consist of an airborne VLF-EM-magnetometer survey for assessment work requirements and as a basis for ground follow-up work. The present recommendations should then be reviewed and the exploration programme be updated using the basics of Phases II and III. The cost of Phase I will be abount $13,225.00. The present estimate of costs for all three phases will be about $327,810.00.

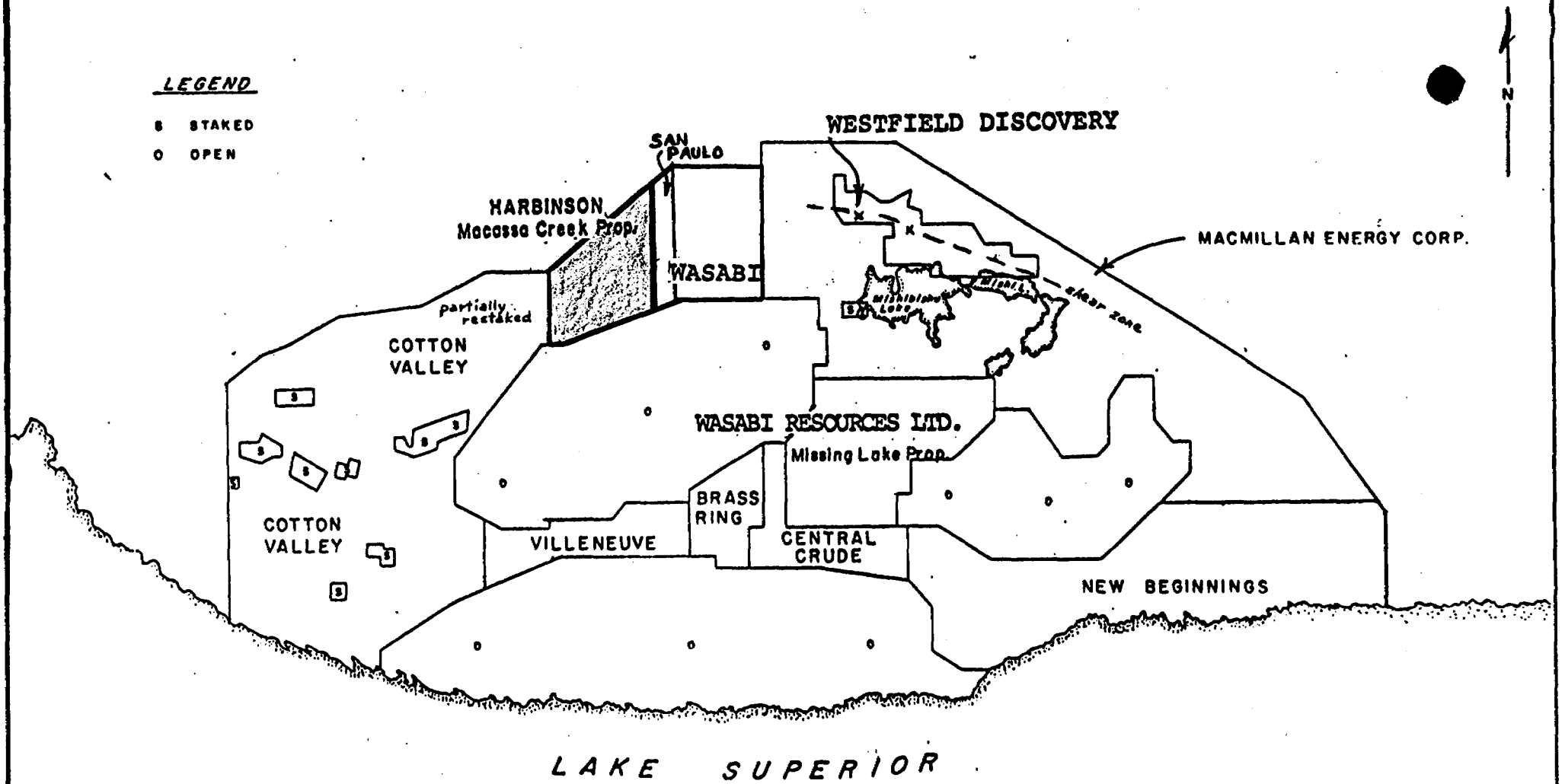
Introduction

The following report on the Mishibishu Lake Area claims of V.N. Harbinson is based on the writer's personal field experience, having spent four months working in the immediate area of the property during the summer of 1972 and on various properties in the region over the next 12 years. In addition, a review was made of pertinent Ontario Geological Survey publications and the Ontario Division of Mines assessment work files for the property and adjacent area.



LOCATION MAP

Figure 1



PROPERTY MAP

MISHIBISHU LAKE BELT

Note: This map compiled from informations believed reliable but not certified.

Scale 1" = 4 miles

Figure 2

Property

The property is shown on the Ontario Ministry of Natural Resources, Division of Mines, Plan No. M-12 known as David Lakes Area. The property consists of 99 contiguous undeveloped mining claims. The claims are approximately 1320 feet x 1320 feet square for an area of 40 acres each.

The claim numbers are:

SSM 779314 - 779376 inclusive
SSM 809927 - 809962 inclusive

All 99 claims were recorded on June 11, 1984 and are presently held 100% by V.N. Harbinson of R. R. #1, Kinmount, Ontario.

Location and Access

The property lies in the western part of the Sault Ste. Marie Mining Division, 10.5 miles north of Lake Superior, about 35 miles west of Wawa, and 45 miles south of Hemlo. It is located in the north-central part of the Mishibishu Lake Volcanic Belt, approximately seven miles due west on strike of the recent Westfield Minerals Ltd. gold discoveries. The entire volcanic sedimentary rocks of the belt are presently staked. The property is bordered by Cotton Valley Resources Inc. on the west and Wasabi Resources Ltd. and San Paulo Explorations Inc. on the east.

Access to the claim group is available only be helicopter. There are no lakes of suitable size for fixed-wing aircraft and the East Pukaskwa River is not navigable. A series of logging and hydro line access roads from Highway No. 17 come within seven miles of the north shore of Mishibishu Lake.

Wawa is the nearest community, and has a population in excess of 5,000 people. All services and manpower are available in Wawa. It is on the Trans-Canada Highway No. 17 and is serviced by daily rail, bus, and air

schedules. Helicopter charters are also available in Wawa.

General

The area in the vicinity of the property ranges from flat peneplain to moderately rugged terrain. The north border of the property is drained by the south-westerly flowing East Pukaskwa River through a fault controlled valley with usually steep, 200 foot high walls. The central portion is relatively flat and dry, and showns occasional moderate relief from transecting streams. In the southern part, Macassa Creek flows through moderate rolling terrain with 100-200 foot rises in topography.

The area lies within a mature boreal forest composed primarily of spruce, balsam, birch and poplar with scattered stands of mature red and white pine. Maple, and hazel is abundant as undergrowth on the sides and tops of the ridges whereas alders, tamaracks and cedars dominate the low lying areas and flank the scattered ponds.

Previous Work

There has been no ground exploration work filed for assessment work within the present limits of the property. E.L. Evans in 1940 was the first to map the area between Mishibishu Lake and the East Pukaskwa River for the Ontario Department of Mines. The entire Mishibishu Belt was mapped during the summer of 1968 by G. Bennett and P.C. Thurston of the Ontario Department of Mines and Northern Affairs. A geochemical stream and soil survey of the area was run simultaneously with the geological survey by W.J. Wolfe of the department.

The entire belt was flown in 1972 by a fixed wing airborne electromagnetic survey by Asarco Exploration Company of Canada Ltd. looking for base metals. All conductors were field-checked, some 12 conductors were trenched and four were tested by drilling. The best assay result was 0.08 oz. Au/ton over 2.9 feet and occurred in a diamond drill hole about three miles to the east of the property just south of Macassa Creek (Fig. 4). No field work was done by Asarco within the present limits of the property.

The present property and adjacent San Paulo and Wasabi properties were flown in June 1983 by a combined helicopter-borne magnetic, electromagnetic and VLF-EM Survey and resulted in eight significant conductive zones. The property had been very poorly staked and was consequently re-staked in 1984, and no work was performed on the ground during the summer of 1984.

Present Work

The helicopter survey flown in 1983 was performed by Aerodat Ltd. and consisted of a three frequency electromagnetic system, a VLF-EM system, and a magnetometer.

Eight conductive zones were picked-up by the survey and may be described as follows:

Conductor SS

A weak, two line isolated conductor in sediments in the extreme south-west corner of the property. May be cut-off to the west by a magnetic dike.

Conductor TT

A moderate, multiple conductor on a broad irregular magnetic high. Found on seven lines and open to the west. Occurs in the contact area between basic volcanics and sediments.

Conductor UU

A weak five line conductor, multiple in part within basic volcanics.

Conductor VV

A weak two line conductor, in the vicinity of a fault lineament.

Conductor WW

A weak formational conductor with occasional moderate conductivity. Appears to be associated with felsic volcanics.

Conductor XX

A moderate to fair formational conductor, multiple in part. Appears to be located at the sediment and basic volcanic contact.

Conductor YY

An isolated three line weak conductor, associated with an isolated magnetic high within a sedimentary band. May be iron formation.

Conductor ZZ

A doubtful three line conductor at the edge of a strong magnetic high and occurs along the edge of the Pukaskwa River fault lineament within basic volcanics.

General Geology

The Mishibishu Lake Volcanic Belt is approximately 10 miles thick and 35 miles long. It is intruded by three major granitic stocks, which effectively separate the belt into north and south limbs. The Harbinson Macassa Creek property is located on the north limb of the belt.

The rocks of the belt are composed of a complex series of interbedded mafic and felsic volcanics and associated sediments. Volcanogenic sediments occur much more frequently along the north limb of the belt. Magnetic and non-magnetic diabase dikes of considerable size and number cut the rocks in various directions.

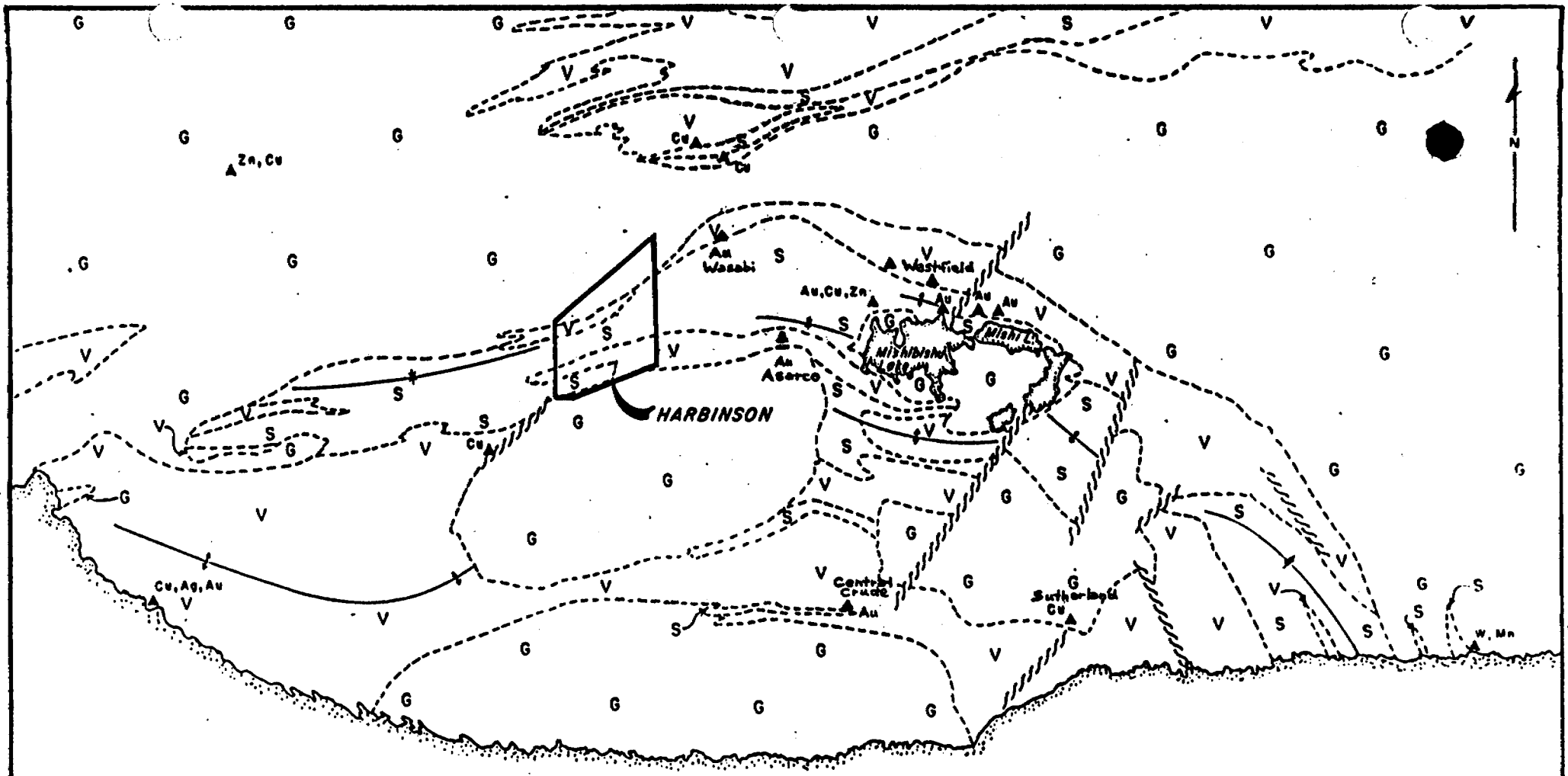
The Mishibishu Belt displays a synclinal structure around the granitic core reflected by the stratigraphy, top determinations and folds. The north and south limbs in turn display synclinal altitudes. Strong northeast trending linears and southwest fault lineaments are present throughout the belt.

The East Pukaskwa River and Macassa Creek are good examples of the southwest trending, parallel to stratigraphy fault lineaments.

Property Geology

The Macassa Creek property is situated on the north limb of the Mishibishu Lake volcanic-sedimentary belt. The claim block is underlain by a thick central portion of east-west trending, north dipping sequence of sedimentary rocks. These sedimentary rocks are flanked to the north and south by felsic to mafic volcanic rocks. These volcanic rocks are in contact with granitic rocks both to the north and south. Late diabase dikes intrude all other lithologies.

The central sedimentary rocks generally range from slates and argillites through greywackes, sandstones to conglomerates. The volcanic rocks to the north of the sediments consist generally of foliated mafic flows with some felsic pyroclastic interbeds. The southern volcanic rocks consist of a sequence of foliated mafic flows with pyro-



LEGEND

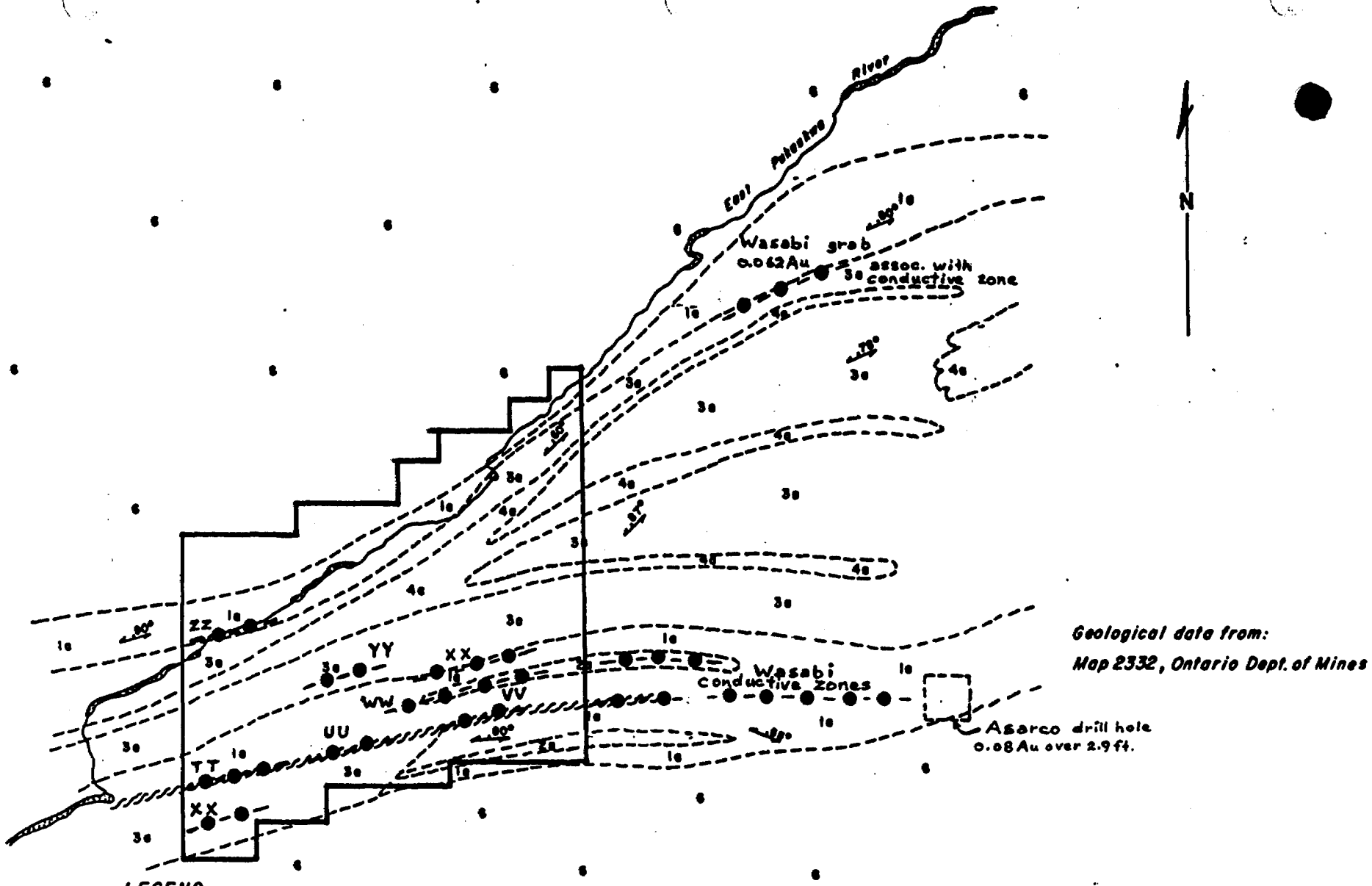
- ▲ Showing
- G Granitic rocks
- V Volcanic rocks
- S Sedimentary rocks

GENERAL GEOLOGY OF THE MISHIBISHU LAKE BELT

Geological data from:
Map 2220, Ontario Dept. of Mines

Scale: 1" = 4 miles

Figure 3



Geological data from:
Map 2332, Ontario Dept. of Mines

LEGEND

- 1a Massive to foliated andesite to basalt
- 2a Dacite to rhyolite
- 3a Greywacke, sandstone arkose
- 4a Polymictic conglomerate
- 6 Unsubdivided granitic rocks
- 80° Foliation
- Fault
- -●-●-●- Conductive Zone

Scale: 1" = 1 Mile

V.N. HARBINSON

Macassa Creek Property

Geological-Assessment Compilation Map

Figure 4

clastic interbeds and series of felsic flows.

The Westfield gold discoveries apparently occur in the northern volcanic rocks at or near the contact with sedimentary rocks.

Economic Geology

The current interest in the Mishibishu Lake area centres around the recent drilling results of Westfield Minerals Ltd. and its partners Windarra Minerals and Magnacon Mines and Oils. Gold mineralization has been picked-up in five drill holes over a strike length of 22,000 feet. The best intersection reported is 0.34 oz. Au/ton over 18.4 feet (Northern Miner, November 18, 1984). Significant gold values were intersected in two zones ranging in grade from 0.1 - 0.4 oz. Au per ton across widths from 10 - 20 feet. The gold occurs as free gold in quartz veins and with arsenopyrite in veins and with disseminated pyrite within a felsic tuffaceous unit. This gold horizon occurs within an arcuate northwest-southeast striking shear zone within foliated mafic volcanics adjacent to sediments (Fig. 2). The gold occurrences are coincident with soil geochemical anomalies.

Gold was first discovered in the area about 1935. Hollinger Gold Mines Ltd., Macassa Mines Ltd., and Erie Canadian Mines Ltd. are reported to have carried on extensive stripping and trenching in 1937 on their showings located on the north shore of Mishibishu Lake. Sporadic work continued in the immediate area and a total of five gold zones were known when Westfield optioned the ground in 1982.

Other recent work in the belt by Wasabi Resources Ltd. and Central Crude Ltd. has resulted in gold occurrence discoveries. The work by Wasabi on the adjacent property to the east resulted in the discovery of five geochemical gold targets associated with geophysical conductive responses. Their target of greatest interest is located on the northern portion of the claim block where an assay of .062 oz. Au.ton was obtained from a quartz vein carrying arsenopyrite and may represent the westward extension of the Westfield gold horizon. The Central Crude Ltd. work on the south limb of the belt identified four anomalous gold zones. One of these zones has been traced for about 3000 feet and has returned

values as high as 0.77 oz. Au/ton.

Another showing of some merit is known as the Sutherland Occurrence and is found in the extreme south-east corner of the belt. This has been described as a copper occurrence in a migmatite zone between mafic meta-volcanics and a granitic pluton. The mineralization occurs along a steeply dipping, north-striking shear zone some 10 to 30 feet wide, within complex quartz veins and lenses of chlorite schist over a strike length of about 2000 feet. Extensive work consisting of trenching and drilling was done by Sutherland and Assoc. in 1965 and later in 1970-1973 by Falconbridge Nickel. High-grade lenses of Cu, Pb, Zn, Ag, Au were reported to occur within this zone.

Conclusions and Recommendations

The Harbinson Macassa Creek property is well situated on the north limb of the Mishibishu Greenstone Belt. The Westfield gold horizon appears to be in sheared rocks within basic volcanics at the contact of the northern basic volcanics and sediments along a fault lineament. This contact can be traced west to the Wasabi ground, along a Wasabi conductive zone anomalous in gold (0.062 oz. Au/ton) and onto the Harbinson ground. Conductor ZZ is very favourably located in the vicinity of the contact between the northern basic volcanics and the sediments along a fault lineament.

The southern part of the property is somewhat of a geological mirror image of the north and may represent a limb of a small syncline hosted by this northern belt of volcanic rocks. The 1972 Asarco drill hole which gave 0.08 oz. Au/ton over a 2.9 foot width and some Wasabi conductors with anomalous gold in soils occur in schistose basic volcanics at the contact with sediments. This horizon lines-up with several Harbinson conductors such as TT, UU, VV and WW.

The possibility of a Sutherland type of mineral occurrence should also be considered. The granitic rocks on both the north and south margins of the property are migmatized in the contact areas and numerous linear structures are visible on the photo mosaic.

An exploration programme consisting of three phases is recommended. Phase I should consist of a more definitive airborne VLF-EM and magnetometer survey to provide the proper basis for ground follow-up work and to keep the property in good standing as 20 days of assessment work credits are required on June 11, 1985. Phase II would be contingent of the results of Phase I, and the recommendations should be reviewed after the completion of Phase I. Conductive zones are expected as shown by the previous work. The work should consist of line cutting with lines at 300 foot spacings, ground geophysics, soil geochemistry and prospecting over selected areas. Phase III would be contingent on results of Phase II and also on the results of work on adjacent ground. The work should consist of some detail geophysics, trenching, mapping additional geochemical sampling and drill testing of anomalous areas.

Budget

Phase I

airborne survey	$ 9,500.00
appraisal of survey results, report, filing survey for assessment	$ 2,000.00
contingencies 15%	$ 1,725.00
Total	$ 13,225.00

An application has been made for an OMEP Grant for Phase I work. 25% of the budgeted costs may be reimbursible by the grant.

Phase II (contingent on Phase I)

linecutting (10 grids x 5 mi. x $350/1 mi.)	$ 17,500.00
VLF EM-16 survey (50 mi. x $135)	$ 6,750.00
magnetometer survey (50 mi. x $145)	$ 7,250.00
soil geochemical survey (50 mi. x $155)	$ 7,750.00
assays (50 x 53 x $12.50)	$ 33,125.00
prospecting (50 x $250)	$ 12,500.00
travel - helicopter	$ 15,000.00
supervision, report	$ 9,000.00
drafting	$ 2,000.00
contingencies 15%	$ 16,625.00
Total	$127,500.00

Phase III (contingent on Phase II)

detail geophysics (12 mi. x $325/ 1. mi)	$ 3,900.00
trenching (10 x $1250)	$12,500.00
mapping (12 x $425)	$ 5,100.00
detail geochemistry (12 x $155)	$ 1,860.00
assays (12 x 53 x $12.50)	$ 7,950.00
drilling (10 x 300 x $30/ft.)	$90,000.00
core logging	$ 5,000.00
assays (10 x 25 x $15.50)	$ 3,875.00
travel - helicopter	$20,000.00
supervision, engineering, report	$12,500.00
contingencies 15%	$24,400.00
Total	$187,085.00
Total all phases	$327,810.00

Respectfully submitted

U. ABOLINS

Uldis Abolins P.Eng.

Appendix I

REFERENCES

Evans E.L.,
1942: Geology of the Mishibishu Lake Area; Ontario Department of Mines, Vol. 49, pt. 9

Wolfe W.J.
1972: Regional Geochemical Exploration in Archean Metavolcanics - Metasedimentary Belts of The Pukaskwa Region, Ontario Ministry of Natural Resources, scale: 1 to 63,360 or 1 inch to 1 mile.

Bennett G., Thurston P.C.
1977: Geology of the Pukaskwa River - University River Area, Ontario Ministry of Natural Resources, scale: 1 to 63,360 or 1 inch to 1 mile.

All Authors
All Years: Ontario Ministry Natural Resources, Division of Mines, Work Assessment Files.

- Northern Miner

Appendix II

CERTIFICATE

I, Uldis Abolins of 340 Burnett Avenue, in the City of North York, in the Municipality of Toronto, in the Province of Ontario,

DO HEREBY CERTIFY:

1. That I am a graduate of the University of Toronto with the degree of B.A.Sc. in Geological Engineering.

2. That I have actively practised my profession in mineral exploration since graduation in 1967.

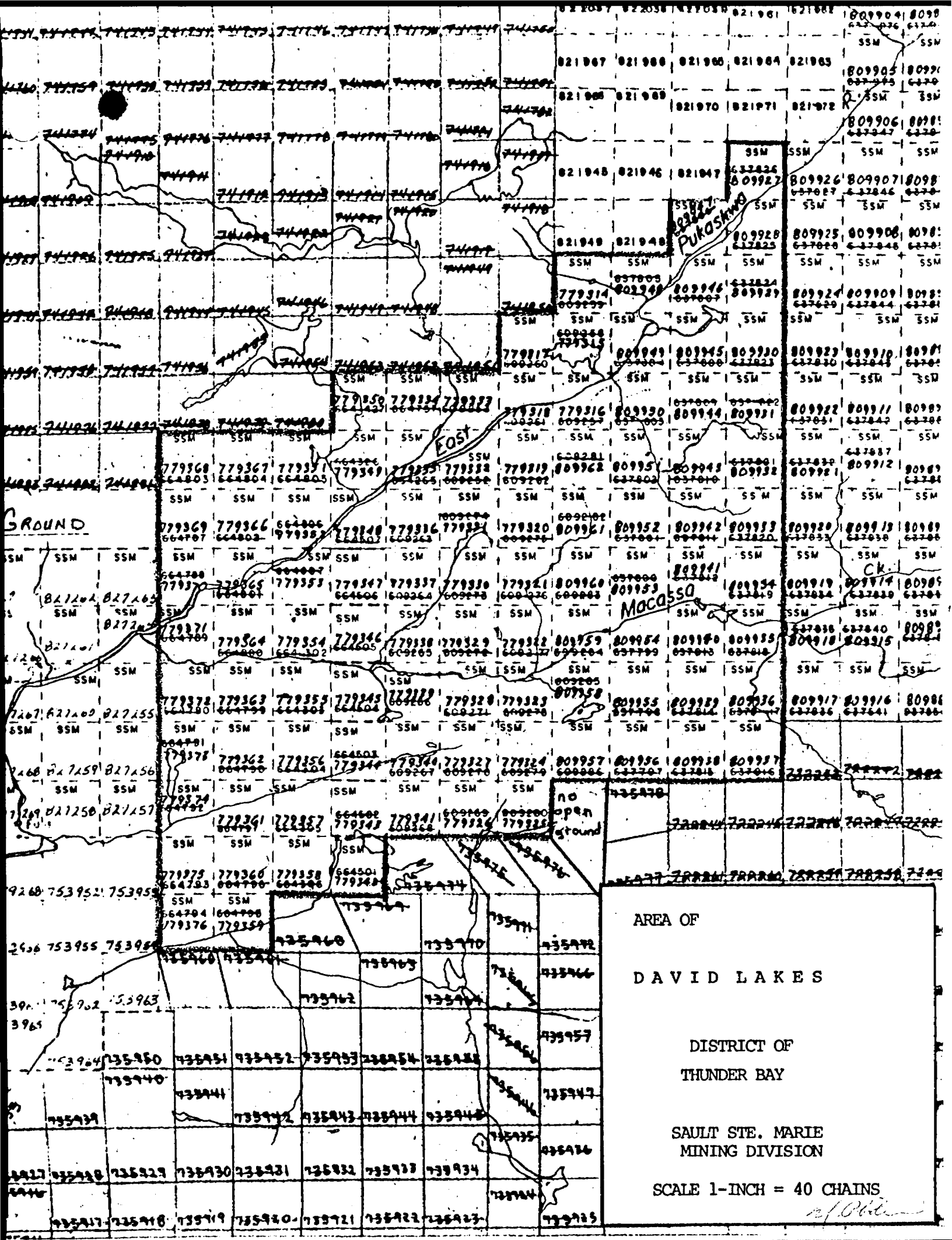
3. That I am a Registered Professional Engineer in the Provinces of Ontario and Quebec.

4. That I have no interest either directly or indirectly in the said property nor do I expect to receive any.

5. That permission is hereby given to V.N. Harbinson to reproduce this report for use with a Statement of Material Facts or Prospectus.

Uldis Abolins, B.A.Sc., P.Eng.

Dated at the Municipality of Toronto
Province of Ontario
This 25th Day of February 1985.


East
Pukaskwa
Macassa
Ck.
GROUND
no open ground
AREA OF
DAVID LAKES
DISTRICT OF
THUNDER BAY
SAULT STE. MARIE
MINING DIVISION
SCALE 1-INCH = 40 CHAINS

63.4575

900

O.M. OM84-7-I-385 22/06/87

THIS SUBMITTAL CONSISTED OF VARIOUS REPORTS, SOME OF WHICH HAVE BEEN CULLED FROM THIS FILE. THE CULLED MATERIAL HAD BEEN PREVIOUSLY SUBMITTED UNDER THE FOLLOWING RECORD SERIES (THE DOCUMENTS CAN BE VIEWED IN THESE SERIES):

Comparable Material : TORONTO FILE :

① Report on Airborne Mag. + VLF-EM Survey, Pukaskwa A. Area,

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AUG. 1985 * 2.8344