



42A025W0060 2.11728 ARGYLE

010

REPORT ON GEOLOGICAL AND GEOPHYSICAL SURVEYS
BOUNDARY GROUP OF CLAIMS
ARGYLE AND HINCKS TOWNSHIPS
LARDER LAKE MINING DIVISION
PROVINCE OF ONTARIO.

by

F. J. Evelegh

RECEIVED

OCT 20 1988

MINING LANDS SECTION

Manville Canada Inc.
Exploration Department

October 20th, 1988
Matheson, Ontario.



42A02SW0060 2.11728 ARGYLE

010C

T a b l e o f C o n t e n t s

	<u>Page No.</u>
Introduction	1
Property	1 & 2
Location and Accessibility	2
Topography	2 & 3
Previous Work	3
Line Cutting and Chaining	3 & 4
General Geology	4 & 5
Geological Survey	5 to 9
Magnetometer Survey	9 to 11
Electromagnetic Survey	11 to 13
Conclusions and Recommendations	13

- 0 - 0 - 0 -

List of Maps Accompanying this Report:

- Geology and Topographic Plan - Sheets 1 to 4 -
on a scale of 1" = 200'
- Geo-Magnetic Profile Plan - Sheets 1 to 4 -
on a scale of 1" = 200'
- Electromagnetic Profile Plan - Sheets 1 to 4 -
on a scale of 1" = 200'
- Property Location Map - on a scale of 1" = 4 miles
- Legend Sheets - 2

- 0 - 0 - 0 -

REPORT ON GEOLOGICAL AND GEOPHYSICAL SURVEYS
BOUNDARY GROUP OF CLAIMS
ARGYLE AND HINCKS TOWNSHIPS
LARDER LAKE MINING DIVISION
PROVINCE OF ONTARIO.

Introduction:

The following report describes the geological and geophysical surveys which were carried out during the 1988 field season on thirty-three mining claims recorded in the name of Manville Canada Inc. and located in Argyle and Hincks Townships, Larder Lake Mining Division.

Cutting and chaining of the grid lines were carried out by Company personnel. This work was started during the late fall of 1987 and completed in June of 1988.

Geological mapping was conducted by R. Kaltwasser, Senior Fieldman, assisted by J. Andrews, summer student. The writer examined key outcrops, mineralized showings, shear zones and typical rock specimens. R. Kaltwasser assisted the writer in compiling the data for the geological and topographic sections of this report.

Magnetometer surveying was conducted by R. Teigen, Junior Fieldman, using a Fluxgate Model MF-1 unit.

Electromagnetic surveying was carried out by R. Teigen. J. Delaurier and J. Andrews alternated as transmitter operators. A McPhar vertical loop unit was used for this work.

Survey calculations and draughting of the final maps were completed by R. Kaltwasser.

Interpretation of the data and compilation of the report were the responsibility of the writer, Exploration Manager with Manville Canada Inc. based at Matheson, Ontario.

Note that all personnel involved in the work on the Boundary Group are/were Company employees.

Property:

The thirty-three claims surveyed are contiguous, are situated in Argyle and Hincks Townships and have been divided into blocks based upon the recording dates. These are described as follows; -

- Block No. 1 - 12 claims numbered L-1025458 to 69 inclusive and recorded on September 1st, 1987.
- Block No. 2 - 5 claims numbered L-1025470-71-72 and 983102-03, recorded on September 21st, 1987.
- Block No. 3 - 11 claims numbered L-996900 to 05 inclusive and 1014593 to 97 inclusive, recorded on October 6th, 1987.

Block No. 4 - 5 claims numbered L-1047533 to 37 inclusive and recorded on July 21st, 1988.

Acreage totals approximately 1,320.

All claims were staked by Company personnel and have been transferred to Manville Canada Inc.

Location and Accessibility:

The claims are located in the northwestern part of Argyle and northeastern section of Hincks Townships, approximately 18 miles west of Matachewan, and straddle the common boundary over a distance of two and a quarter miles.

Access is provided by the gravelled continuation of Highway No. 566 which traverses the central part of the property in a northwesterly direction. An old logging road, probably in use during the late 1960's, extends to the south through the Boundary claims in Hincks Township. This road was cleared out during the fall of 1987 and is now suitable for travel by four-wheeled drive vehicle.

Topography:

With the exception of the western section the property is characterized by broad, flat areas with low-lying southeasterly trending ridges of boulder till, gravel and sand forming low eskers and boulder trains. Narrow swamps are found between the ridges and are often strewn with boulders. The northwestern part of the claims has more rugged relief with hills rising 100 to 150 feet above the surrounding terrain. Hills are drift-covered with gravel and boulders. Bedrock is exposed along cliff edges. A low, broad, flat drift-covered area of sand and boulder till with few outcroppings has been mapped in the central and southwestern parts of the property.

Swamps are extremely wet due to the damming of small streams by beaver. This made traversing extremely difficult, especially in the central and western parts to the northeast of Ronald Lake. A large, boggy, open muskeg covers the northeastern part of Sheet 1. Drainage, via streams, ponds and small lakes is into McCollum Creek which flows in a southeasterly direction across the claims and empties into the Whitefish River.

Spruce, balsam, jackpine, poplar and birch timber the low hills and ridges. Many sections of the property are covered by balsam which have been killed by the spruce budworm. This has left a tangled mess of windfalls with a thick underbrush of alders and hazel. Swampy areas are covered by spruce, cedar and alders. There is little or no merchant-

able timber in the area.

Numerous outcrops have been mapped on Sheets 1 and 2 and along the eastern part of Sheets 3 and 4. The central and western parts of Sheets 3 and 4 are generally overburden-covered.

Previous Work:

In 1919 the Geological Survey of Canada published Memoir 115 entitled "Geology of Matachewan District, Northern Ontario" compiled by H.C. Cooke. Gold occurrences discovered in the area to the east of Hincks-Argyle Townships are described in this report.

A report on the "Bannockburn Gold Area" which includes the Boundary claims, was compiled by H.C. Rickaby and published in the Forty-First Annual Report of the Ontario Department of Mines in 1932. Map No. 41a, on a scale of one inch equals 3/4's of a mile, accompanies this report. Showings in Hincks Township are described on pages 19 and 20 of this report.

Aeromagnetic Maps on scales of one inch equals 1/2 and one mile have been published jointly by the O.D.M. - G.S.C. These plans have been used as an aid in interpreting the ground magnetometer survey results.

Map No. 2205 - The Timmins-Kirkland Lake Sheet of the Geological Compilation Series, on a scale of one inch equals four miles, also covers the area.

In 1974 the Ontario Department of Mines issued Preliminary Maps Nos. 1017 and 1018 - Airborne Electromagnetic and Total Intensity Magnetic Survey - for Hincks and Argyle Townships. These plans cover the Boundary claims.

Although the claims of the Boundary Group had been staked and at least partially explored as far back as the early 1930's no work is on record at the Resident Geologist's Office in Kirkland Lake.

Line Cutting and Chaining:

Base line No. 1 was started from the No. 4 post of claim L-1025458 and was cut and chained on a bearing of S44°E from line 8W to 120 feet southeast of line 72E - a length of 8,120 feet. Note that the northwest section - 0 to 8W - is on a neighbouring claim.

Base line No. 2 was started from a point 1,800 feet southwest of base line No. 1 on line 72E and was cut and chained, parallel to base line No. 1, to line 96E - a length of 2,400 feet. The last 500 feet is on an adjoining claim.

Base line No. 3 was started from a point 2,380 feet northeast

of base line No. 1 on line 00 and was cut and chained on a bearing of N44°W for a length of 3,400 feet. Note that this base line was offset 200 feet to the northeast at 2,220 feet northwest to avoid a flooded area.

Right-angled offset lines, spaced at 400 foot intervals, were cut to the northeast and southwest of the three base lines to the claim boundaries. Marked pickets were established every 100 feet along these offset lines by chainage.

Total miles of base (2.64) and picket lines (29.53) cut and chained - 32.17.

General Geology:

The Geology of Argyle and Hincks Townships is described in the Forty-First Annual Report of the Ontario Department of Mines compiled by H.C. Rickaby in 1932. Several reports on the Matachewan Area have been issued since that date, however, the majority cover the Townships to the east of Argyle.

The following "Table of Formations" has been taken from page 5 of Geological Report 51 on the Matachewan Area compiled by H.L. Lovell and published by the O.D.M. in 1967.

Table of Formations

Cenozoic:

Recent : Swamp, and stream deposits
Pleistocene: Sand, gravel, clay

Unconformity

PRECAMBRIAN:

Proterozoic:

Mafic Intrusive Rocks (Nipissing):
Diabase

Intrusive Contact

Huronian:

Cobalt Group (Gowganda Formation):
Argillaceous and arkosic quartzite, conglomerate,
argillite, arkose

Unconformity

Archean:

Mafic Intrusive Rocks (Matachewan):
Diabase, undifferentiated

Intrusive Contact

Silicic Intrusive Rocks (Algoman):

Granite; granodiorite and granitic gneiss; syenite porphyry and coarse-grained syenite; syenite; mafic syenite, lamprophyre, quartz diorite and diorite

Intrusive Contact

Ultramafic and Mafic Intrusive Rocks (Haileyburian):
Serpentinite, diorite

Intrusive Contact

Sedimentary Rocks (Timiskaming):

Conglomerate; greywacke and interbedded argillite and quartzite; arkose

Unconformity

Volcanic Rocks (Keewatin):

Basalt and andesite; bleached, silicified, sericitized volcanic agglomerate; rhyolite and dacite; carbonatized and amygdaloidal volcanic rocks; amphibolite.

The property is situated within the Abitibi Subprovince which is Archean in age. The formations are comprised mainly of Mg-rich tholeiitic basalts (there are minor Fe-rich flows) similar to those found in the Matheson - Kirkland Lake area (Kinojevis Group).

Geological Survey:

Detailed geological mapping, prospecting and sampling of mineralized zones were carried out during the summer of 1988. The results of this work are shown on the accompanying Geologic and Topographic Plans (Sheets 1 to 4) on a scale of 1" = 200'.

Bedrock is exposed in numerous outcrops in the north, central and eastern parts of the map area. Open muskeg and swamps cover the northeast, south-central and southwestern sections. Rock types are predominantly mafic metavolcanics with interbedded intermediate and felsic flows. Strikes are generally to the northwest at 20° to 40° with dips from 60° to 80° to the northeast.

The western contact of the large granitic body, centred in the southwestern part of Argyle Township, has been mapped along the eastern side of the Boundary claims. Dikes of syenite, feldspar, quartz-feldspar and syenite porphyry intrude the volcanics. A northerly trending diabase dike occurs along the western boundary of the claims and is shown on Sheets 1 and 2. Glacial striations were noted on a few of the outcrops and have southerly to southeasterly strikes.

Rock types, structures and economic geology are discussed in the following paragraphs.

Interbedded basalts, andesites and rhyolites underlie the greater part of the map area. Spherulitic, fragmental, agglomeratic and banded cherty flows occur in the south-central and eastern parts of the map area. The basalts are massive, brittle, dense, fine grained with occasional minor pyrite mineralization. Colour on a fresh surface is dark grey-green to black. Surface weathering is dark grey to greenish-grey. Cherty flow sections were noted on several outcrops, however, these are narrow and cannot be traced for any distance. No magnetite was noted in the basalts and the results of the magnetometer survey confirm this observation. These massive basalts form the higher hills - in a step pattern with steep cliff edges - in the northern and western parts of the claims. Thickness appears to be in the order of 2,000 to 3,000 feet.

Andesitic volcanics form a horizon extending southeastwards from the northwest corner of Sheet 1 through Sheets 2, 3 and 4. These generally narrow flows are commonly weakly sheared with chlorite and carbonate alteration. The andesites weather dark grey to dark green and are dark green on a fresh surface. Some outcrops show a pronounced brownish weathering due to alteration. Oxidized coatings were noted along fractures. Grain size varies from fine to coarse - a dioritic texture was noted on several outcrops in the north-central part of Sheet 1.

A massive, medium grained spherulitic flow, having a thickness of several hundreds of feet, occurs in the southeastern part of Sheet 2. Weathering on a pock-marked surface is a light grey. Colour on a fresh surface is light grey-green with spheroids of carbonate and feldspar ranging up to one half inch in size. A narrow spherulitic flow was mapped in the southeast corner of Sheet 3.

Fragmental laval occurs in the northeastern section of Sheet 2 and is in contact with feldspar-rich porphyritic granite to the east. Fragments are sharp-edged and range in size from a half to one inch. Weathering is a mottled light grey to buff. In the south-central part of Sheet 2, to the southwest of McCollum Creek, a broad horizon of fragmental lava has been mapped. A few scattered outcrops occur on Sheet 3 along the creek in the southeastern section.

A thin cherty flow was mapped in the south-central part of

Sheet 2 in contact with rhyolite on the east and basalt to the west. Strike is northerly with an 80° dip to the east. Another occurrence outcrops in the southeastern corner of Sheet 3, striking steeply northwesterly and dipping 80° to the southwest. These cherty tuffs weather light to dark grey and are weakly sheared and mineralized with finely disseminated pyrite.

Several scattered, small outcrops of agglomerate occur to the northeast of base line 3 in the south-central part of Sheet 1. Large exposures have also been mapped to the north and west of the small lake in the southeastern part of Sheet 2 where the thickness of the horizon exceeds 1,000 feet. These agglomerates are composed of ovoid-shaped pebbles and boulders of feldspar-rich andesite. The boulder-like appearance is pronounced on the grey to buff-weathered surface. These rocks are massive, hard and brittle with little or no indication of shearing.

Felsic volcanics strike in a southeasterly direction across the Boundary claims extending from line 20W in the northwestern part of Sheet 1 to line 44E in the southeastern section of Sheet 2. The thickness of this rhyolite ranges from a few feet to a maximum of 500 to 600. The rhyolite outcrops along and generally to the northeast of the McCollum Creek fault on Sheets 1 and 2. Narrow rhyolitic horizons are exposed in scattered outcrops along the major northerly striking fault in the southeast part of Sheet 3.

Weathering is white to light grey with colours on a fresh surface varying from light to dark green with shades ranging from grey to pink. The rhyolite is moderately sheared throughout and locally is weakly carbonatized with quartz-filled fractures. These siliceous zones are mineralized with abundant fine pyrite. Shearing strikes 35° to 40° northwest with near vertical dips to the northeast. Old trenching was discovered along the felsic volcanics between lines 8W and 12W. The rhyolite in this area is highly altered by carbonatization and sericitization? to a yellowish-green mottled rock. Sharp, angular felsite float was noted along a low ridge between lines 44E and 52E to the northeast of the tractor road on Sheet 3. Finely disseminated pyrite was observed in this material.

Narrow dikes of syenite and syenite porphyry intrude the basalts and andesites in the map area. In general, these intrusives are closely conformable with the flows. Weathering is pink to brown. The fresh surface may be reddish with pink feldspars or grey with coarse reddish feldspars.

Syenite porphyry is exposed in several, sizeable outcrops in the south-east corner of Sheet 2 and northeastern section of Sheet 3. This intrusive appears to be a phase of the large granitic body centred in the southwestern part of Argyle Township.

Northerly striking dikes of feldspar and quartz-feldspar porphyry have been mapped in the western part of Sheets 1 and 2, in the south-eastern section of Sheet 2 and in the south-central section of Sheet 1. A small plug of feldspar porphyry with possibly an outer rim of quartz-feldspar porphyry outcrops along the boundary of Sheets 1 and 2. Feldspar porphyry also outcrops along the east side of claim L-1014596 on Sheet 2. Again, this is probably the westerly contact of the Hincks Township granitic mass.

Granodiorite? outcrops extensively in the eastern portion of Sheet 3. This rock weathers to a light grey, is coarse grained and composed of plagioclase and orthoclase feldspars, hornblende and minor quartz. Disseminated pyrite mineralization occurs locally. Fracturing strikes N20°E and dips 65° to the southeast. The outcrops are massive and blocky. Contacts dip westerly from 40° to 70°.

The syenite, quartz-feldspar and feldspar porphyries and granodiorite? mapped along the eastern side of the Boundary claims appear to be the western edge of the large granitic body located in the south-eastern section of Hincks Township. The variations in the granitic rocks are due to changes in texture and mineral composition.

A narrow lamprophyre dike occurs in the southwestern part of Sheet 1 in contact with a feldspar porphyry intrusive and an andesitic flow.

The McCollum Creek fault is a major structure which strikes in a southeasterly direction across map Sheets 1 and 2 displacing all of the formations by several hundreds of feet horizontally. Shearing, carbonatization and silicification in felsic volcanics occurs along this zone over a strike length of 2,000 feet. As the diabase dike in the northwestern part of the map area is offset it would appear that there have been repeated movements along this structure.

A strong, northerly-striking fault offsets the formations in the eastern part of the claims on Sheets 3 and 4. Shearing is less pronounced than along the McCollum Creek structure, however, carbonatization is moderate with talcose sections.

Another strong, northerly-trending structure occurs along the

western side of the property on Sheet 2 and forms a deep ravine. This fault terminates at the northeasterly-striking structure through Ezra Lake.

A northwesterly striking fault, marked by a deep ravine, has been mapped in the north-central part of Sheet 1.

East-west faulting, in somewhat of a block pattern, is indicated in the central part of the claims by a study of the aerial photographs. This would possibly explain the abrupt termination of several of the sizeable volcanic flows on Sheet 2. However, due to the lack of ground geologic and topographic information these structures have not been shown on the accompanying plans.

Drag folding was noted in sheared felsitic volcanics to the west of the diabase dike between lines 16W and 20W on Sheet 1. A small, synclinal fold is shown in the volcanics in the southeastern corner of Sheet 3. Sheared, cherty flows occur along the axis where dips are 80° to the southwest. Along the northeast side dips range from 35° to 40° to the southwest while in the spherulitic lava to the southwest dips are 60° to the northeast.

Old trenches, badly slumped-in, were discovered at three locations on the Boundary claims.

- 1) In the eastern part of claim L-1014596 on Sheet 2 over feldspar porphyry mineralized with fine pyrite.
- 2) Between lines 8E and 12E to the northeast of McCollum Creek on Sheet 2 over sheared, silicified and carbonatized felsitic volcanics mineralized with disseminated pyrite. Samples from this area returned assays up to 0.005 ounces of gold.
- 3) At one-half mile south of the base line along line 60E on Sheet 3 over a weakly mineralized syenite porphyry.

Magnetometer Survey:

A magnetometer survey was conducted on the claims by R. Teigen during the summer of 1988. Readings were recorded using a Fluxgate Magnetometer - Model MF-1, Serial No. 409107, having sensitivities of 20, 50, 200, 500 and 2,000 gammas as per division for the corresponding scales.

Prior to the survey the instrument had been checked and adjusted so that a gamma value of 1220 corresponds closely with an absolute value of 57,599 ± 15. Munro-Beatty sill base station No. 2 was used for this purpose.

Base control stations were established on the claims as follows;-

B.C.S. No. 1 - Line 44E at 1,500' NE of B/L No. 1	....	1,000 g
" " 2 - " 24E " 1,000' " " " 1	....	1,145 g
" " 3 - " 8E " 400' " " " 1	....	1,150 g
" " 4 - " 28E on B/L. No. 1	....	1,080 g
" " 5 - " 40E " " " 1	....	950 g
" " 6 - " 56E " " " 1	....	950 g
" " 7 - " 72E " " " 1	....	1,000 g
" " 8 - " 4W " " " 3	....	1,530 g
" " 9 - " 24W " " " 3	....	1,380 g

During the course of the survey the base control station was observed at two to three hour intervals as a check on the working condition of the instrument and to record the daily diurnal variation.

Stations were spaced at 50 foot intervals along the grid lines, and a total of 3,071 was recorded during the course of this work.

The results of the survey are shown on the accompanying Geo-Magnetic Profile Plans - Sheets 1 to 4 - on a scale of one inch equals 200 feet. Profiles have been plotted on a scale of one inch equals 4,000 gammas.

All available geological and geophysical data (listed previously) had been reviewed and air photos studied prior to compiling this report.

Due to the uniformity of the magnetometer readings over the map area it was impossible to differentiate between the mafic, intermediate, felsic volcanics and granitic intrusives on the basis of the magnetic data. Consequently, the interpretation shown on the accompanying plans has been derived from the geological mapping, Government air-magnetic maps and aerial photographs.

Readings on the Boundary Group range in magnetic intensity from a low of 487 to a high of 2,592 gammas. However, the majority fall within a relatively narrow range - 950 to 1,500 gammas. Low readings are sparse, isolated and widely scattered; highs, in general, were recorded over diabase dikes.

On map Sheets 2, 3 and 4 values, on the average, range from 950 to 1,250 gammas. However, readings are slightly higher - 1,200 to 1,400 - along the boundary of claims L-1025458 and 1025459. Over the syenitic intrusive mapped in the southeast corner of Sheet 2 and along the east side of Sheet 3, readings are consistently lower - 925 to 1,075 gammas - than over the basaltic and andesitic flows which underlie

the greater part of the property.

Over the northerly trending diabase dike mapped in the western part of Sheets 1 and 2, values range up to 2,592 gammas in intensity and are clearly above the general background. Higher than normal readings have been recorded in the southwest corner of Sheets 3 and 4. These 1,800 to 2,500 gamma values may be caused by narrow diabase dikes or thin, slightly magnetic basaltic flows.

Readings increase in value along the north part of Sheet 2 and to the east of the diabase dike on Sheet 1 - the average is in the 1,300 to 1,550 gamma range. The isolated high of 2,018 gammas immediately southwest of the lake may be due to an offshoot of the diabase or to buried boulders along the gravel ridge.

The McCollum Creek fault, a major, northwesterly striking zone, is shown on Sheets 1 and 2 and is sharply delineated by the geological mapping and by both ground and aerial topographic data. The strong northerly-trending structure shown along the east side of Sheets 3 and 4 is clearly defined by the geological mapping in the south part of Sheet 3. It also appears as a lineament on the aerial photographs and offsets the magnetite-rich metavolcanics to the south of the Boundary Group as shown on the Government air-magnetic maps. The two northerly striking faults in the western parts of Sheets 2, 3 and 4 and the northeasterly trending zone through Ezra Lake are sharply defined topographically.

Electromagnetic Survey:

Electromagnetic surveying was conducted on the property by R. Teigen. J. Delaurier and J. Andrews alternated as assistants. This work was carried out during the summer of 1988.

A McPhar vertical loop reconnaissance electromagnetic unit operating on a frequency of 1,000 cycles per second was used for the survey. The McPhar unit is suitable for use as both a reconnaissance and relatively detailed instrument. In this survey, the transmitter was held vertically at a distance of 200 feet from the receiver; the receiver was then tilted about the axis joining the two coils until a null was observed. Both transmitter and receiver were moved on the same picket line, 200 feet apart, and readings were recorded at 50 foot intervals. Under these operating conditions a depth penetration of 100 feet was attained. Note that the transmitter was stationed to the north of the receiver throughout the survey.

A total of 3,026 stations was recorded during the course of the survey.

The results of this work are shown on the accompanying Electro-Magnetic Profile Plan - Sheets 1 to 4 - on a scale of one inch equals 200 feet. Profiles have been plotted on a scale of one inch equals 40°.

Based upon the results of surveys in both the Matachewan and Matheson areas the following criteria have been used for the interpretation of the electromagnetic survey data. Dip angle changes up to 5° are not considered of any significance. These are presumed to be caused by conductive overburden, incorrect horizontal spacing between the transmitter and receiver due to topography or improper positioning of the units by the operators. Crossovers having dip angle changes between 6° and 9° are classified as weak; between 10° and 14° as medium, and 15° and greater as strong.

Conducting zones are shown by dashed purple lines on the accompanying plans. Due to the grid spacing (400 feet), unless marked geological and geophysical continuity was established, conductors were not extended to the next picket line.

On Sheet 1, crossovers having dip angles of 10° (medium) were recorded to the west of the diabase dike along the north boundary of the claims and on line 4W at 800 feet northeast of base line 3. The latter occurs over an outcrop of andesite adjacent to the contact with a feldspar porphyry dike. Several weak crossovers were recorded in the southeastern and northwestern parts of the sheet.

On Sheet 2, a medium conducting zone, having dip angles up to 14°, has been delineated adjacent to the McCollum Creek fault. This conductor extends in a southeasterly direction from line 00 to line 16E and occurs over sheared volcanics mineralized with disseminated pyrite.

Single crossovers having dip angles of 10° to 11° (medium) were recorded over an outcrop of basalt on line 00 at 400 feet northeast of base line 1; close to the contact of a quartz-feldspar dike on the northeast end of line 4E; scattered over the metavolcanics in the northeastern part of the sheet; to the north of the McCollum Creek fault over sheared volcanics on line 12E, and on lines 20E and 32E in the east-central part in an overburden-covered section. Numerous, scattered, weak crossovers were recorded in all sections with the exception of the southwestern part.

On Sheet 3, a weak to medium conducting zone with dip angles up to 12°, has been delineated striking in a southerly direction from

4,225 feet east on base line 1 to 6,600 feet east in the south-central part of claim L-1025469. This conductor occurs along a low, overburden-covered ridge having angular slabs of felsitic rock mineralized with disseminated pyrite. The overburden in this area appears to be relatively shallow.

A single medium crossover with a dip angle of 10° has been recorded over an outcrop of granite gneiss on claim L-996902. Numerous weak crossovers occur scattered over the central and northeastern parts of the sheet.

On Sheet 4 a weak to extremely weak conducting zone has been outlined in the southeastern part extending from line 88E to 96E. This conductor occurs over an outcrop of andesite having oxidized fractures, is along the strike of a northwesterly trending syenite porphyry dike, and is adjacent to a strong fault zone.

Conclusions and Recommendations:

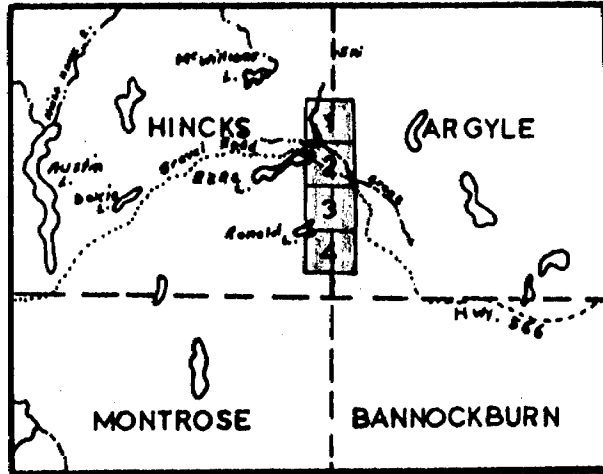
To date, a widely spaced (400 foot) picket line grid has been established and geological, magnetometer and electromagnetic surveys completed. Limited sampling of fractured and silicified zones, mineralized with disseminated pyrite, has been conducted. Assaying showed low gold values - up to 0.005 ozs/ton. The results of these exploration programs on the Boundary Group are definitely encouraging and on this basis further work appears justified at this time.

It is, therefore, proposed that in-between picket lines be cut and chained over the sheared and mineralized felsitic volcanics along the McCollum Creek fault on Sheet 2. This would also cover the medium conductor which has been delineated over a length of 2,000 feet. This should be followed by detailed geological mapping, electromagnetic surveying, rock and soil geochemistry, sampling and assaying. If warranted, plugger work, power stripping and diamond drilling should be considered.

A similar type program should be carried out over the weak to moderate conductor delineated on the low ridge to the north of the access road on Sheet 3. Other medium crossovers may warrant further exploration.

Submitted by:

F.J. Evelegh
Exploration Mgr.



PROPERTY LOCATION MAP
BOUNDARY GROUP OF CLAIMS
ARGYLE & HINCKS TOWNSHIPS

Scale: 1" = 4 miles

GEOLOGICAL LEGEND

6	Quartz Diabase, Diabase
5	Granite 5a; Syenite 5b; Syenite Porphyry 5b-1; Feldspar Porphyry 5c; Quartz-Feldspar Porphyry 5d; Felsite 5e; Lamprophyre 5f; Granodiorite, Granitic Gneiss 5g; Quartz Diorite 5h
4	Diorite 4a; Gabbro 4b; Peridotite & Dunite (Serpentinized) 4c; Pyroxenite 4d
3	Felsic Volcanics (Undifferentiated) 3; Rhyolite 3a; Dacite 3b; Fragmental Lava 3c; Cherty Tuff 3d
2	Intermediate-Basic Volcanics (Undifferentiated) 2; Pillow Lava 2a; Andesite 2a-1; Basalt 2a-2; Diabasic Lava 2b; Spherulitic Lava 2c; Fragmental Lava 2d; Tuff & Chert 2e; Talc-Chlorite Schist 2f; Amphibolite 2g; Agglomerate 2h
1	Greywacke 1a; Arkose 1b; Quartzite 1c; Argillite-Shale 1d; Conglomerate 1e; Iron Formation 1f; Chlorite Schist 1g
Cb	Carbonate Rock
T-C	Talc-Carbonate Rock
Q.V.	Quartz Vein

Abbreviations

Asp	Arsenopyrite	Mag	Magnetite
Asb	Asbestos	Mo	Molybdenite
Brc'd	Brecciated	Ni	Nickel
Carb	Carbonatized	Ox'd	Oxidized
Cpy	Chalcopyrite	Py	Pyrite
Chl	Chloritized	Po	Pyrrhotite
Cu	Copper	Q.C.	Quartz-Carbonate
Phs	Galena	Ser	Sericitized
Au	Gold	Sil	Silicified
Grph	Graphite	Ag	Silver
Hem	Hematite	ZnS	Sphalerite
Hbd	Hornblende	Tour	Tourmaline

Geological Symbols

	Shear Zone
	Fault Zone
	Contact
	Bedding)
	Shearing) Attitudes
	Jointing)
	Dip or Plunge
	Lava Flow Top from Pillows
	Anticline
	Syncline
	Grab Sample
	Chip Sample
	Assay (ozs/ton)

Topographic Symbols

	Outcrop
	Small Outcrop
	Muskeg, Swamp
	Higher Ground
	Scarp
	Creek
	Esker
	Bush Road
	Drill Hole
	Pit, Trench
	Shaft, Adit

Geo-Mag Symbols

	Contour Interval 500 gammas
	Magnetic Base Control Station
	Geological Contact
	G- Geological
	M- Magnetic
	T- Topographic
	Mag. Profile - 1" = 4000g

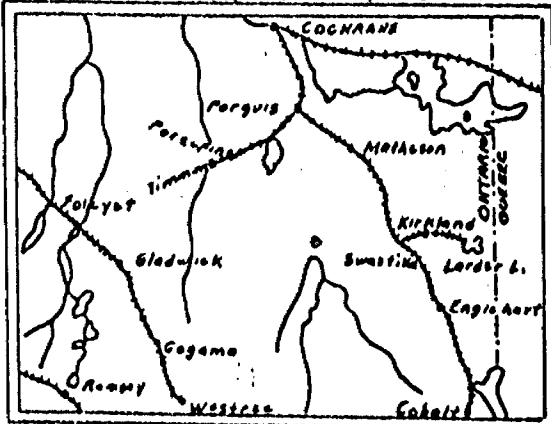
McPhar V.L. Symbols

	Dip Angle Profile
	1" = 40°
	Conducting Zone
	S - Strong
	M - Medium
	W - Weak
(+10,-6)	X over (degrees)
+ive	North & East
-ive	South & West
	Transmitter Site

Radiometric Symbols

Total	U+Th	Th
8.6	2.7	1.5
Readings in C.P.S.		

LOCATION SKETCH - 1" = 50 Miles



Geol. Survey by - R.F. Kaltwasser
 Mag Survey by - R. Teigen
 E.M. Survey by - R. Teigen
 Rad. Survey by -



Ministry of Northern Development and Mines

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

DOCUMENT No.

W8808-431

Instructions: - Please type or print.
- If number of mining claims traversed exceeds space on this form, attach a list.
- Note: - Only days credits calculated in the "Expenditures" section.

Nov. 18

Lands Management

Type of Survey(s) Geological & Geophysical

Claim Holder(s) Manville Canada Inc. 2

Address P.O. Box 610, Matheson, Ontario POK 1N0

Survey Company same as above Date of Survey (from & to) 23 07 88 30 08 88 Total Miles of line Cut 5.35

Name and Address of Author (of Geo-Technical report) F.J. Evelegh, P.O. Box 610, Matheson, Ontario POK 1N0



42A02SW0060 2.11728 ARGYLE

900

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	20
	- Magnetometer	20
	- Radiometric	
	- Other	
For each additional survey: using the same grid: Enter 20 days (for each)	Geological	40
	Geochemical	
Man Days Complete reverse side and enter for each side	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
Airborne Credits	Geological	Days per Claim
	Geochemical	
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
			L	1047533	
				1047534	
				1047535	
				1047536	
				1047537	

ONTARIO GEOLOGICAL SURVEY
ASSESSMENT FILES
OFFICE
NOV 10 1988
RECEIVED

RECEIVED
OCT - 3 1988

MINING LANDS SECTION

Total number of mining claims covered by this report of work. 5

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures \$ + 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date Sept 28/88 Recorded Holder or Agent (Signature) [Signature]

For Office Use Only

Total Days Cr. Recorded 400 Date Recorded Sept 29/88 Mining Recorder [Signature]

Date Approved as Recorded 24 Oct 88 Branch Director [Signature]

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying F.J. Evelegh, P.O. Box 610

Matheson, Ontario POK 1N0 Date Certified Sept 28/88 Certified by (Signature) [Signature]



Ministry of Northern Development and Mines
Ontario

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

DOCUMENT No.

W8808-382

- Instructions: - Please type or print.
- If number of mining claims traversed exceeds space on this form, attach a list.
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
- Do not use shaded areas below.

00019

Mining Act

Type of Survey(s) **Geological & Geophysical** Township or Area **Argyle & Hincks Townships**
 Claim Holder(s) **Manville Canada Inc.** **2.11728** Prospector's Licence No. **T-1330**
 Address **P.O. Box 610, Matheson, Ontario POK 1N0**
 Survey Company **same as above** Date of Survey (from & to) **5 11 87** **26 8 88** Total Miles of line Cut **26.2**
 Name and Address of Author (of Geo-Technical report) **F.J. Evelegh, P.O. Box 610, Matheson, Ontario POK 1N0**

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	20
	- Magnetometer	20
	- Radiometric	
	- Other	
For each additional survey: using the same grid: Enter 20 days (for each)	Geological	40
	Geochemical	
Man Days Complete reverse side and enter (Date) here SEP 6 1988	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Geological	
	Geochemical	
	Electromagnetic Magnetometer Radiometric	Days per Claim

Mining Claims Traversed (List in numerical sequence)

Mining Claim			Mining Claim		
Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
L	983102		L	1025468	
	983103			1025469	
	996900			1025470	
	996901			1025471	
	996902			1025472	
	996903				
	996904				
	996905				
	1014593				
	1014594				
	1014595				
	1014596				
	1014597				
	1025458				
	1025459				
	1025460				
	1025461				
	1025462				
	1025463				
	1025464				
	1025465				
	1025466				
	1025467				

RECEIVED
SEP 30 1988
AM 2:50 PM
718
LAKESHORE
MINING DIV.
RECEIVED
2112347516

Expenditures (excludes power stripping)
 Type of Work Performed
 Performed on Claim(s)
 Calculation of Expenditure Days Credits
 Total Expenditures \$ + 15 = Total Days Credits
 Instructions
 Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work. **28**

For Office Use Only
 Total Days Cr. Recorded **2,240** Date Recorded **Aug 30/88** Mining Recorder **W.A. W...**
 Date Approved as Recorded **24 Oct 88** Branch Director **W. L. ...**

Date **29/8/88** Recorded Holder or Agent (Signature) **F.J. Evelegh**

Certification Verifying Report of Work
 I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
F.J. Evelegh, P.O. Box 610
Matheson, Ontario POK 1N0
 Date Certified **29/8/88** Certified by (Signature) **F.J. Evelegh**



File _____

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

Type of Survey(s) Geological & Geophysical
Township or Area Argyle & Hincks
Claim Holder(s) Manville Canada Inc.

Survey Company same as above
Author of Report F.J. Evelegh
Address of Author Box 610, Matheson, Ont. POK 1N0
Covering Dates of Survey 5/11/87 to 17/10/88
(linecutting to office)
Total Miles of Line Cut 32.17

MINING CLAIMS TRAVERSED
List numerically

L- 983102 •	L-1025467 •
(prefix)	(number)
983103 •	1025468 •
996900 •	1025469 •
996901 •	1025470 •
996902 •	1025471 •
996903 •	1025472 •
996904 •	1047533 •
996905 •	1047534 •
1014593 •	1047535 •
1014594 •	1047536 •
1014595 •	1047537 •
1014596 •	
1014597 •	
1025458 •	
1025459 •	
1025460 •	
1025461 •	
1025462 •	
1025463 •	
1025464 •	
1025465 •	
1025466 •	

If space insufficient, attach list

<u>SPECIAL PROVISIONS</u> <u>CREDITS REQUESTED</u>		DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical	
	-Electromagnetic	20
	-Magnetometer	20
ENTER 20 days for each additional survey using same grid.	-Radiometric	
	-Other	
	Geological	40
	Geochemical	

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

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

DATE: 20/10/88 SIGNATURE: *F.J. Evelegh*
Author of Report or Agent

Res. Geol. _____ Qualifications 63.1067

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 33

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations Mag - 3071; E.M. - 3026 Number of Readings Mag - 3189; E.M. - 3064

Station interval 50' Line spacing 400'

Profile scale Mag - 1" = 4,000g; E.M. - 1" = 40°

Contour interval _____
Average number of readings per claim per survey - 94.7

Instrument Fluxgate Magnetometer Model MF-1, Serial No. 409107

Accuracy - Scale constant see attached photocopy

Diurnal correction method all readings corrected to value of Base Station No. 1

Base Station check-in interval (hours) 2 hours

Base Station location and value attached

MAGNETIC

Instrument McPhar Dual Frequency Electromagnetic Unit - Serial No. 30-6507

Coil configuration vertical

Coil separation 200'

Accuracy _____

Method: Fixed transmitter Shoot back In line Parallel line

Frequency 1,000 c.p.s.
(specify V.L.F. station)

Parameters measured dip angle

ELECTROMAGNETIC

Instrument _____

Scale constant _____

Corrections made _____

Base station value and location _____

Elevation accuracy _____

GRAVITY

Instrument _____

Method Time Domain Frequency Domain

Parameters - On time _____ Frequency _____

- Off time _____ Range _____

- Delay time _____

- Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

INDUCED POLARIZATION
RESISTIVITY

B.C.S.	No.	1	-	Line	44E	at	1,500'	NE	of	B/L	No.	1	-	1,000g
"	"	2	-	"	24E	"	1,000'	"	"	"	"	1	-	1,145g
"	"	3	-	"	8E	"	400'	"	"	"	"	1	-	1,150g
"	"	4	-	"	28E	on	B/L	No.	1				-	1,080g
"	"	5	-	"	40E	"	"	"	1				-	950g
"	"	6	-	"	56E	"	"	"	1				-	950g
"	"	7	-	"	72E	"	"	"	1				-	1,000g
"	"	8	-	"	4W	"	"	"	3				-	1,530g
"	"	9	-	"	24W	"	"	"	3				-	1,380g

**SPECIFICATIONS OF
FLUXGATE MAGNETOMETER
MODEL MF-1**

Ranges:	Plus or minus — 1,000 gammas f. sc. 3,000 " 10,000 " 30,000 " 100,000 "
	Sensitivity 20 gammas/div. 50 " 200 " 500 " 2,000 "
Meter:	Taut-band suspension 1000 gammas scale 1 7/8" long — 50 div. 3000 gammas scale 1 11/16" long — 60 div.
Accuracy:	1000 to 10,000 gamma ranges ± 0.5% of full scale 30,000 and 100,000 gamma ranges ± 1% of full scale
Operating Temperature:	—40°C to +40°C —40°F to +100°F
Temperature Stability:	Less than 2 gammas per °C (1 gamma /°F)
Noise Level:	Total 1 gamma P-P
Long Term Stability:	± 1 gamma for 24 hours at constant temperature
Bucking Adjustments: (Latitude)	10,000 to 75,000 gammas by 9 steps of approximately 8,000 gammas and fine control by 10 turn potentiometer. Convertible for southern hemisphere or ± 30,000 gammas equatorial.
Recording Output:	1.7 ma per oersted for 1000 to 100,000 gamma ranges with maximum termination of 15,000 ohms.
Response:	DC to 5 cps (3db down)
Connector:	Amphenol 91-MC3F1
Batteries:	12 x 1.5V-flashlight batteries "C" cell type) (AC Power supply available)
Consumption:	50 milliamperes
Dimensions:	Instrument — 6 1/2" x 3 1/2" x 12 1/2" 165 x 90 x 320 mm Battery pack — 4" x 2" x 7" 100 x 50 x 180 mm Shipping Container — 10" dia x 16" 254 mm dia. x 410 mm
Weights:	Instrument — 5 lbs. 12 oz. 2.6 kg. Battery Pack — 2 lbs. 4 oz. 1.0 kg. Shipping — 13 lbs. 6.0 kg.



SCINTREX LIMITED

79 Martin Ross Avenue, Downsview, Ontario, Canada

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

Corrections made _____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

Additional information (for understanding results) _____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

Values expressed in: per cent
 p. p. m.
 p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, -(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

Mc Neil Twp.

Robertson Twp.

THE TOWNSHIP OF

ARGYLE

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

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

NOTES

400' Surface rights reservation
rivers.
WITHDRAWALS AND REOPENINGS

- (R1) Surface and Mining Rights Withdrawn from Staking, section 36/80 order No. W. 8/86
- (R2) Surface and Mining Rights Withdrawn from Staking, section 36/80 order No. W. 10/86
- (R3) Surface and Mining Rights Withdrawn from Staking, section 36/80 order No. W. 10/86
- (R3) AND PART (R1) REOPENED FOR STAKING UNDER ORDER O-90,87 NR

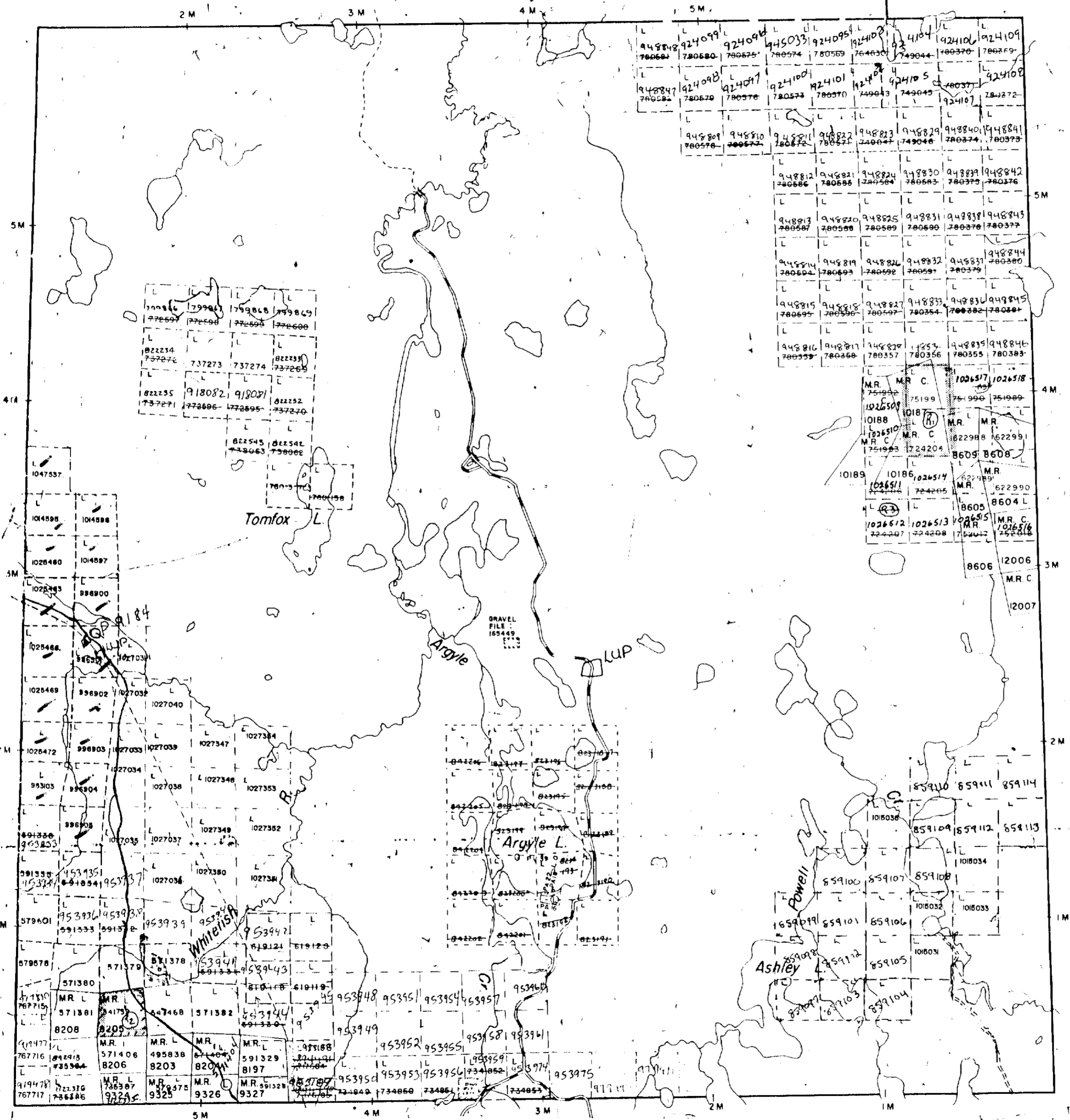
DATE OF ISSUE

JUL 23 1988

LARDER LAKE
MINING RECORDER'S OFFICE

PLAN NO.- M-203 # 5

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH



THE TOWNSHIP
OF

HINCKS

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

SCALE: 1-INCH=40 M

LEGEND

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

NOTE

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

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970).

Order No	File	Date	Disposition
W 27/76	IRR522	May 31, 1976	S.R.O.

DATE OF ISSUE

JUL 23 1976

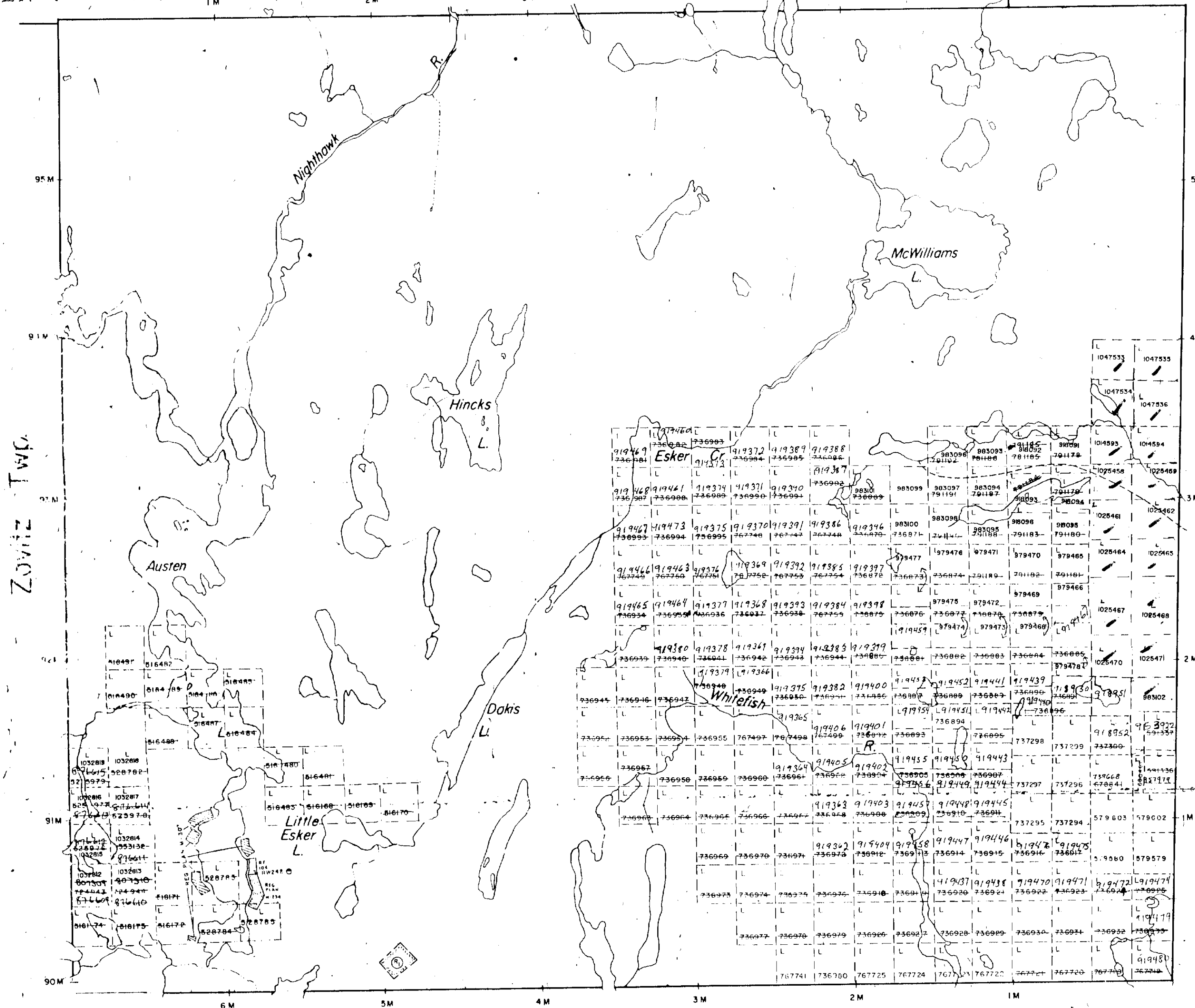
LARDER LAKE
MINING RECORDERS OFFICE

PLAN NO - M.223

ONTARIO #11
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

Cleaver Twp.

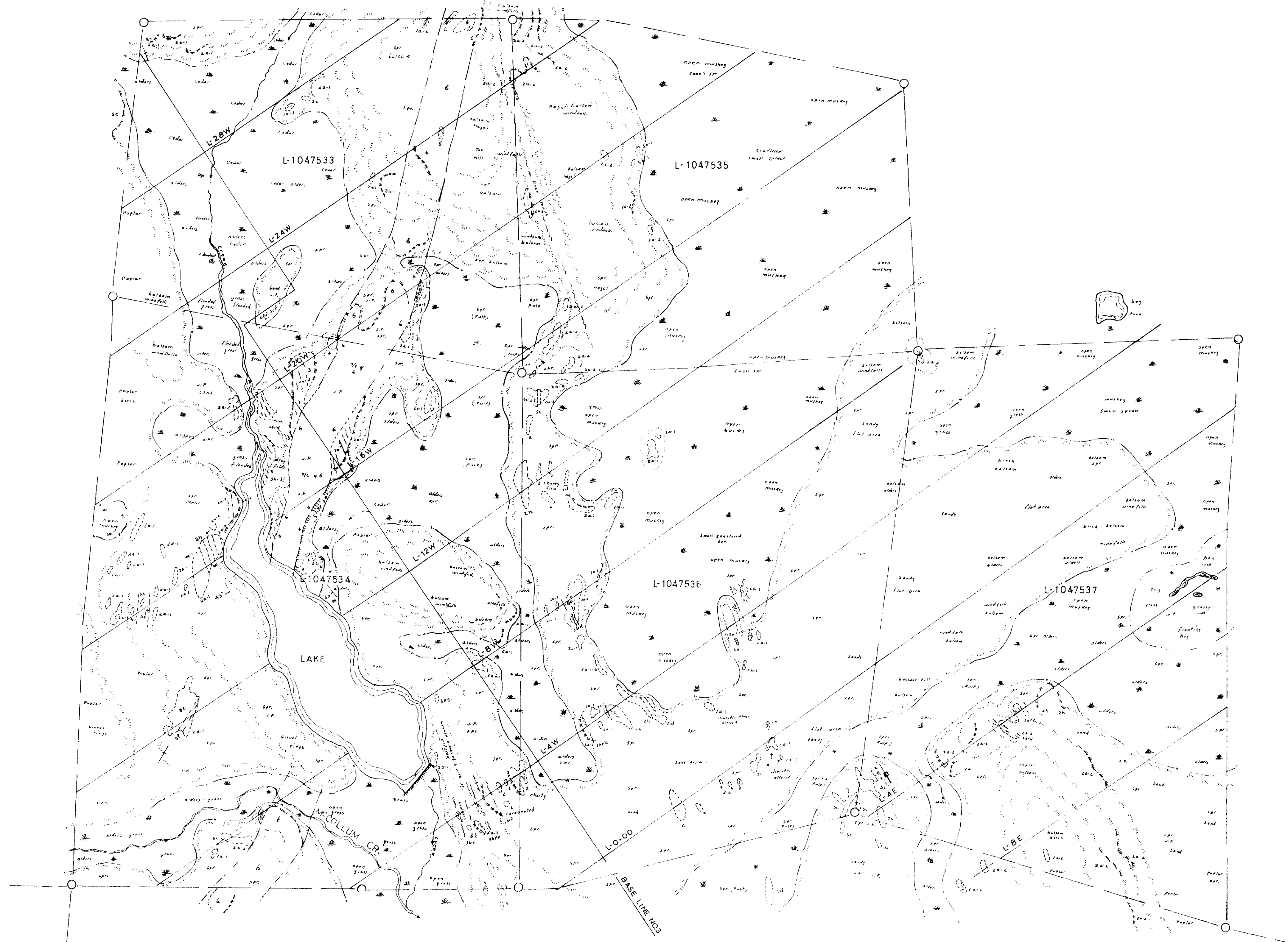
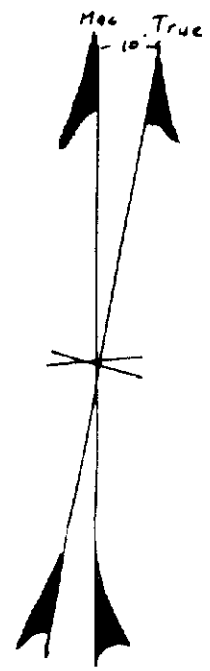
McNeil Twp.



Montrose Twp.



42A025W0060 2.11728 ARGYLE



2.11.33

L 918091



220

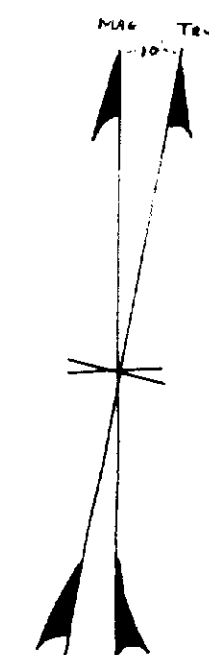
ADJOINS SHEET 2

HINCKS TWP. ARGYLE TWP.

ONT. 1:200' BOUNDARY GR. ARGYLE - HINCKS TWP. OCT 2.0 1983

MANVILLE CANADA INC.

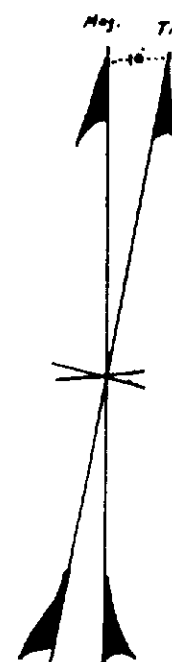
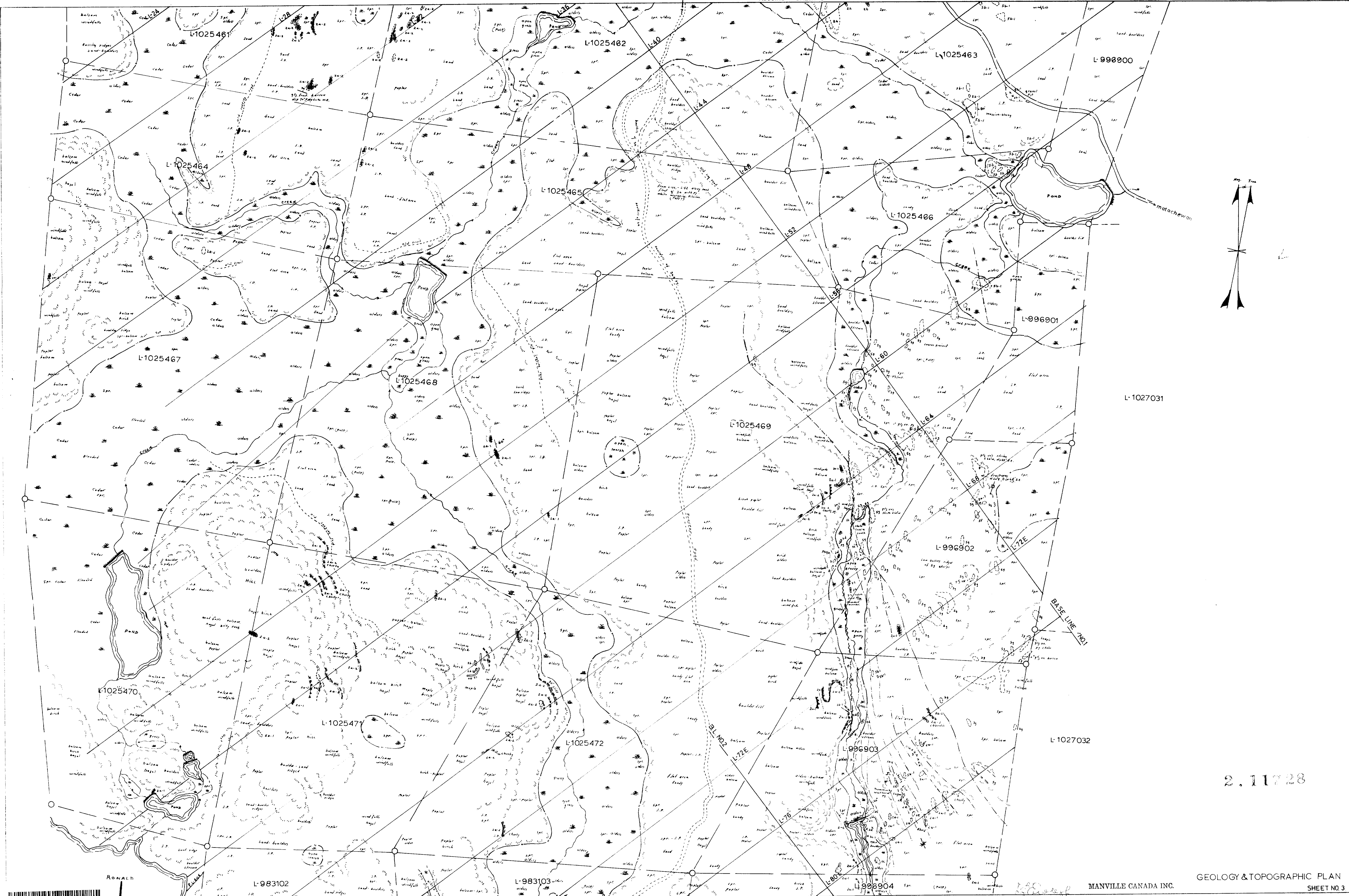
GEOLOGY & TOPOGRAPHIC PLAN SHEET NO.1



2.11728



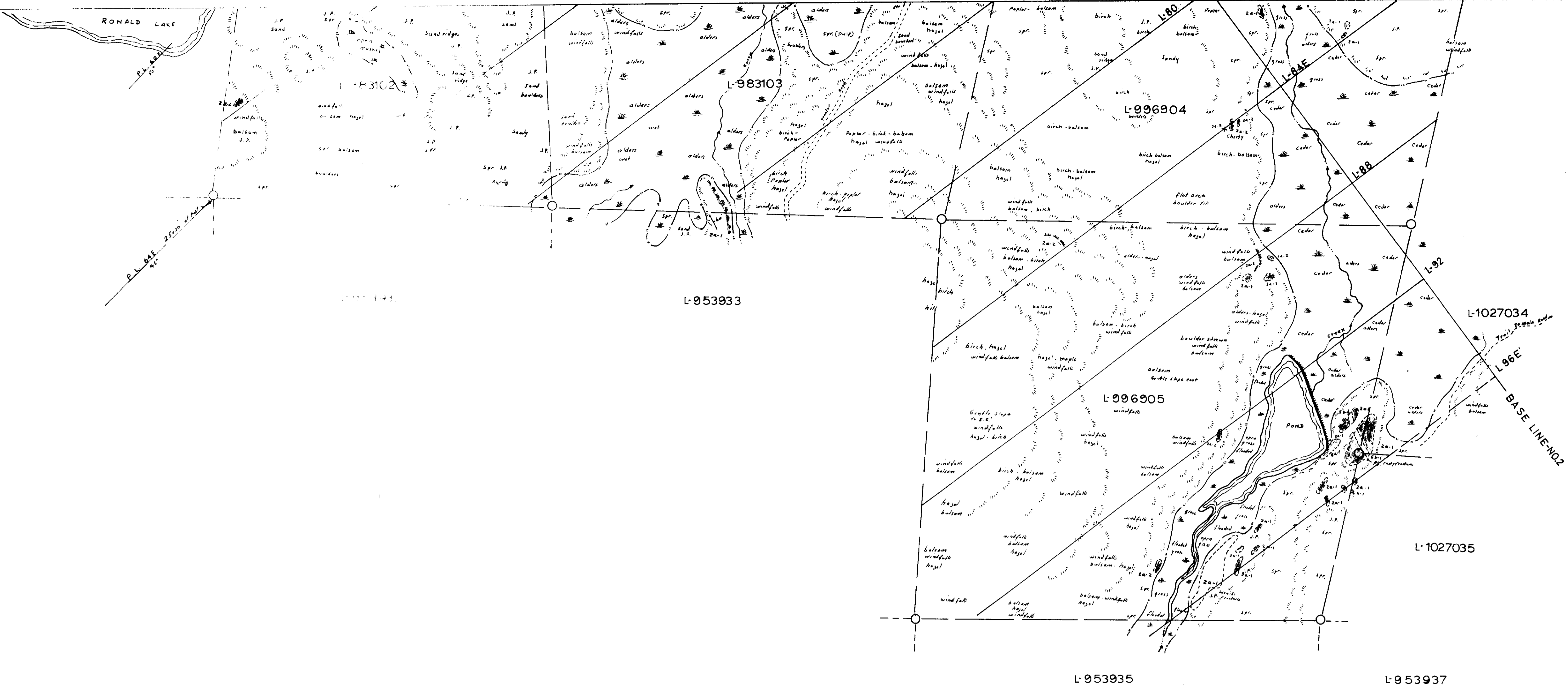
230



2.11728



424255000 2.11728 ARGYLE



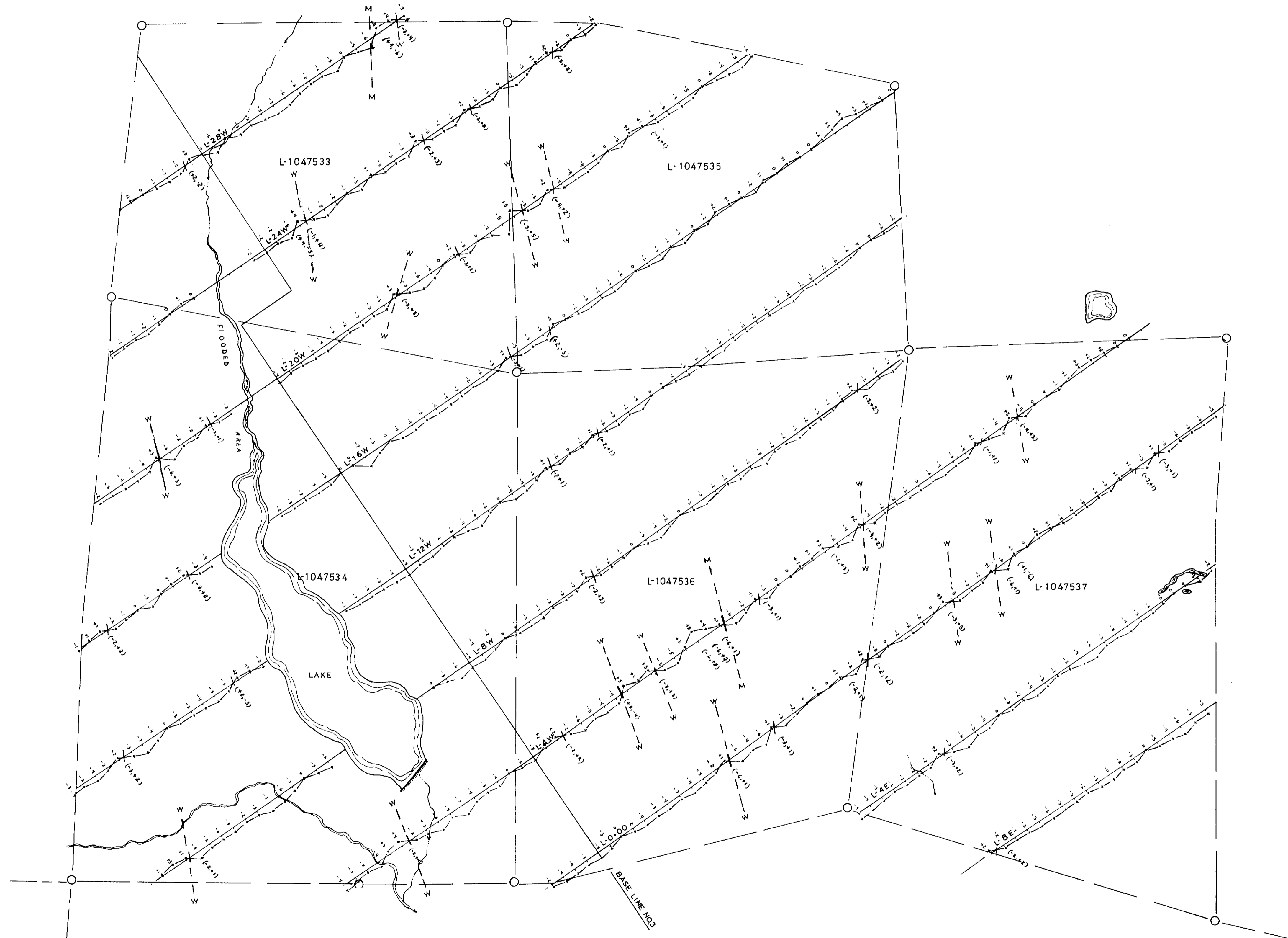
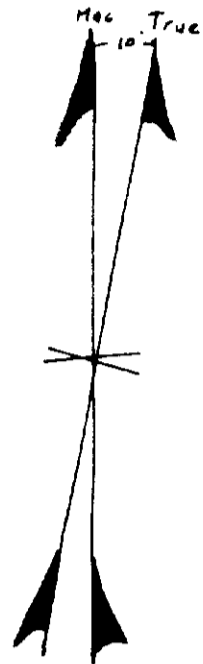
2.11728



250

MANVILLE CANADA INC.

GEOLOGY & TOPOGRAPHIC PLAN
SHEET NO.4



2.11723

L 918091



260

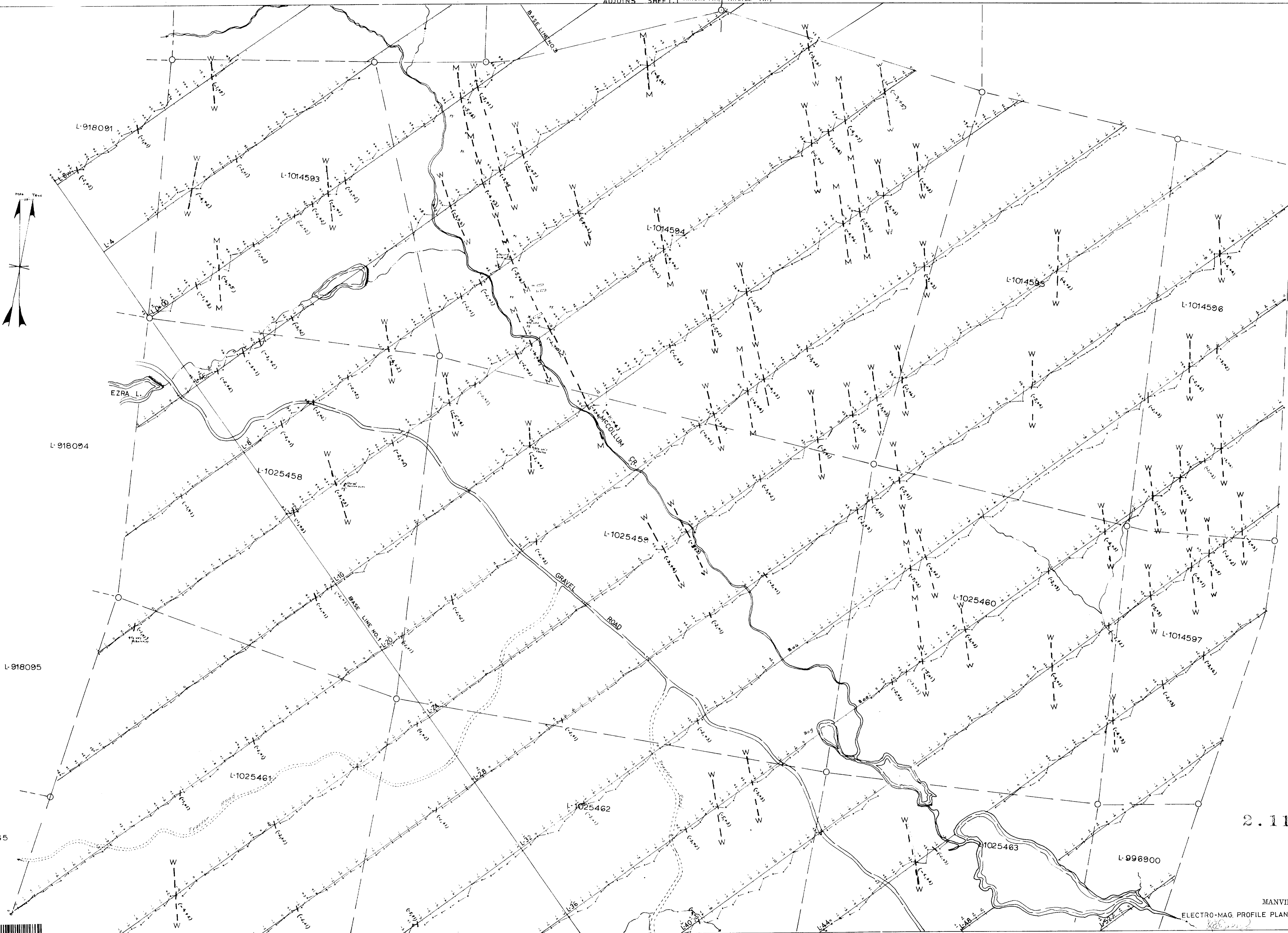
ADJOIN'S SHEET 2

HINCKS TWP. ARGYLE TWP.

ONT. 1:200' BOUNDARY GR. ARGYLE - HINCKS TWP. OCT 20 19

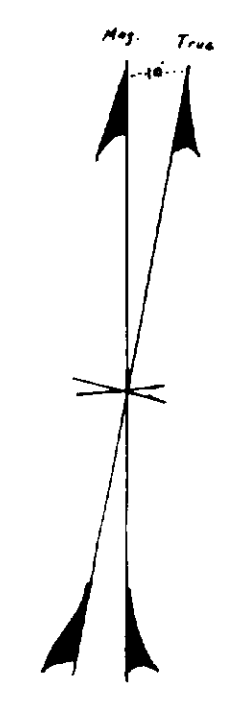
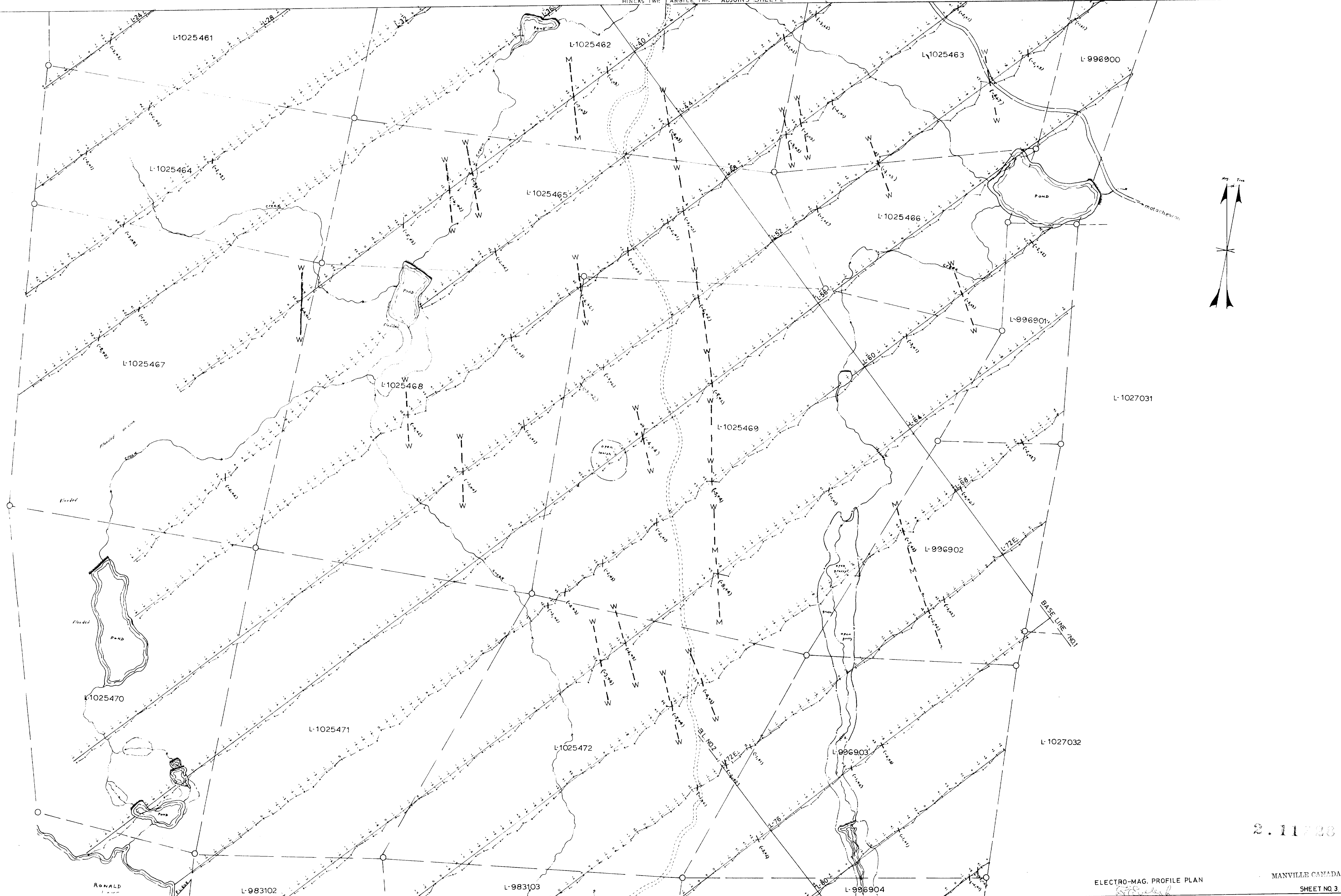
ELECTRO-MAG. PROFILE PLAN SHEET NO. 1

MANVILLE CANADA INC.



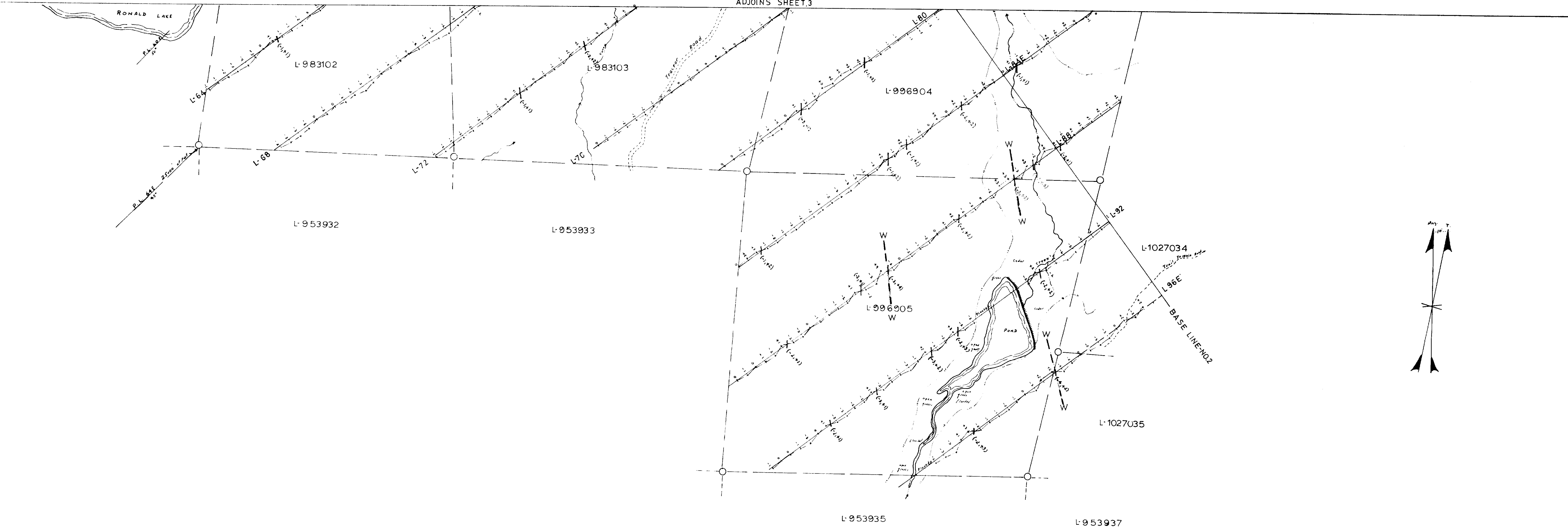
2.11738





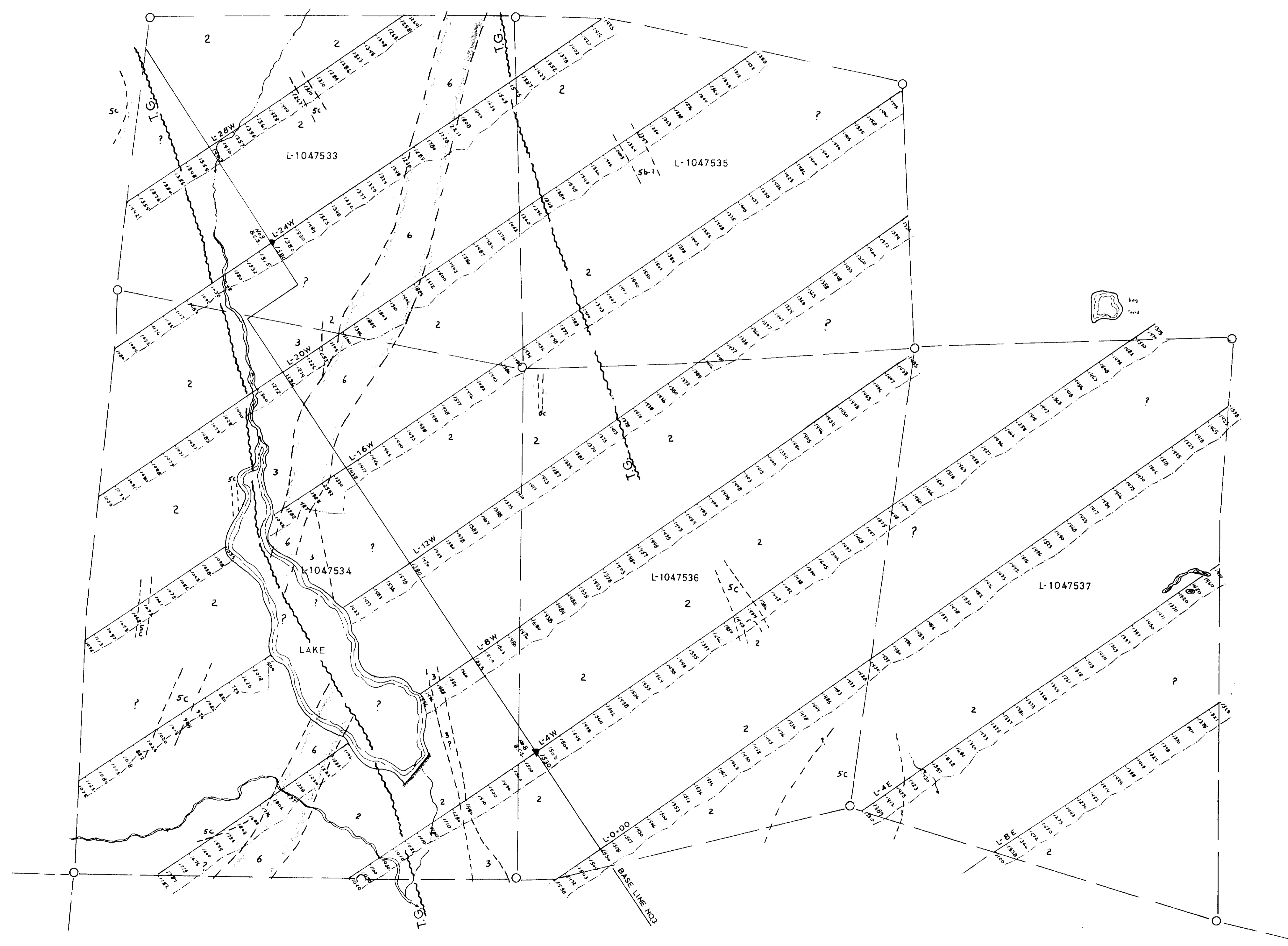
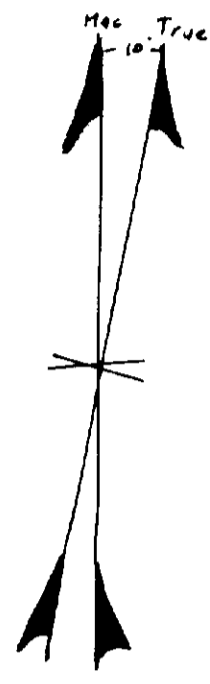
2.11728





2.11728





2.11728

L 918091

L-1014593



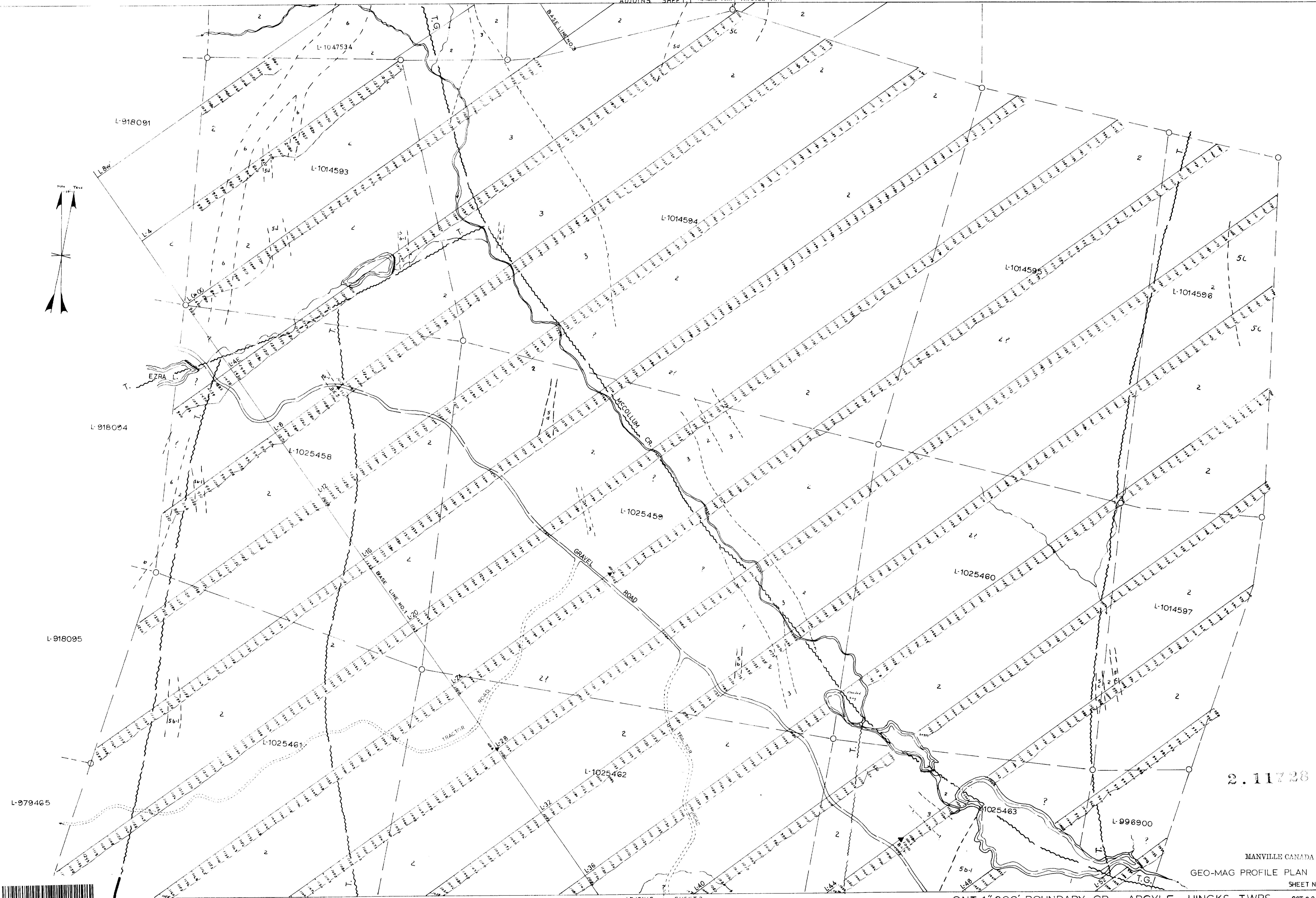
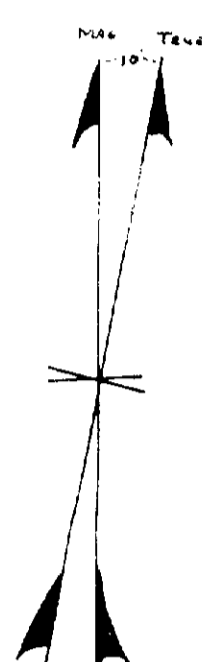
300

ADJOINS SHEET 2

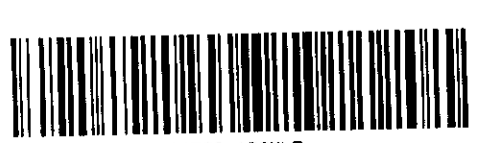
HINCKS TWP ARGYLE TWP

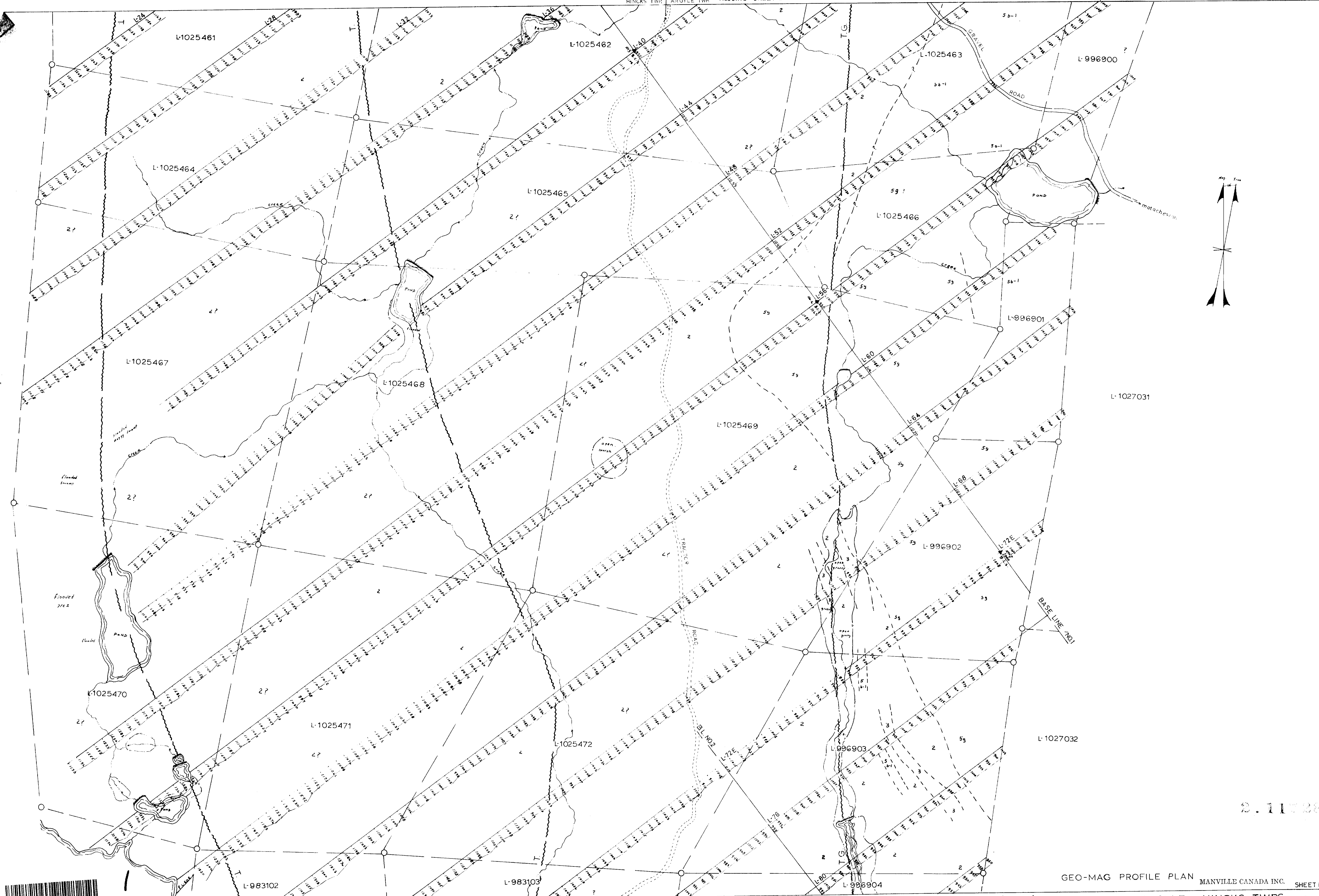
GEO-MAG PROFILE PLAN MANVILLE CANADA INC SHEET NO.1

ONT. 1:200' BOUNDARY GR. ARGYLE - HINCKS TWP. OCT 20 199



2.11728





2.11728



320

RONALD LAKE

L-983102

L-983103

L-996904

L-953932

L-953933

L-996905

L-1027034

L-1027035

L-953935

L-953937

TRACTOR ROAD

BASE LINE-N02

